Application

19835 - 2024 Safe Routes to School Infrastructure
20128 - Sunset Drive Improvements
Regional Solicitation - Bicycle and Pedestrian Facilities

Status:	Submitted
Submitted Date:	12/15/2023 11:47 AM

Primary Contact

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What Grant Programs are you most interested in?	Regional Solicitation - Transit and TDM Projects			

Organization Information

Name:	JORDAN, CITY OF		
Jurisdictional Agency (if different):			
Organization Type:	City		
Organization Website:			
Address:	210 E 1ST ST		
*	JORDAN	Minnesota	55352
	City	State/Province	Postal Code/Zip
County:	Scott		
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PeopleSoft Vendor Number	0000004645A1		

Project Information

Project Name	Sunset Drive Improvements
Primary County where the Project is Located	Scott
Cities or Townships where the Project is Located:	Jordan
Jurisdictional Agency (If Different than the Applicant):	

Brief Project Description (Include location, road name/functional class, type of improvement, etc.)	The proposed project would improve multi-modal methods for students attending any of Jordan School District (ISD 717) public schools. Sunset Drive, a major collector, bisects two campuses, with the high school and elementary school on the south side of the road and the middle school on the north side. The project will provide two compact roundabouts with well-defined, enhanced designated pedestrian crossings with rectangular rapid flashing beacons. The project improves safety of these crossings, which have a history of safety issues including a vehicle collision with a 4 year old and 12 year old in front of the elementary school in 2023. ISD 717 is also separately working on improvements including access modifications to Sunset Drive, new sidewalks and pedestrian routing at the elementary school, expanded onsite queuing areas, and better site circulation with dedicated pedestrian facilities to help with safe arrivals and departures from school via all modes.

(Limit 2,800 characters; approximately 400 words)

TRANSPORTATION IMPROVEMENT PROGRAM (TIP) DESCRIPTION - will be used in TIP if the project is selected for funding. See MnDOT's TIP description guidance.	Sunset Dr (MSAS ROUTE 246-110), Jordan, Reconstruct From Timber Ridge Ct to Hillside Dr Including Two Compact Roundabouts

Include both the CSAH/MSAS/TH references and their corresponding street names in the TIP Description (see Resources link on Regional Solicitation webpage for examples).

Project Length (Miles)	0.3

to the nearest one-tenth of a mile

Project Funding

Are you applying for competitive funds from another source(s) to implement this project?	Yes
If yes, please identify the source(s)	Safe Routes to School, MnDOT; Local Road Improvement Program; Highway Safety Improvement Program
Federal Amount	$1,000,000.00
Match Amount	$679,000.00

Minimum of 20% of project total

Project Total	$1,679,000.00

For transit projects, the total cost for the application is total cost minus fare revenues.

Match Percentage	40.44%

Minimum of 20%
Compute the match percentage by dividing the match amount by the project total

Source of Match Funds	City of Jordan, Independent School District 717

A minimum of 20% of the total project cost must come from non-federal sources; additional match funds over the 20% minimum can come from other federal sources

Preferred Program Year

Select one:	2026

Select 2026 or 2027 for TDM and Unique projects only. For all other applications, select 2028 or 2029.

Additional Program Years:	2025

Select all years that are feasible if funding in an earlier year becomes available.

Project Information

If your project has already been assigned a State Aid Project # (SAP or SP)

Please indicate here SAP/SP#.

Location

County, City, or Lead Agency	City of Jordan
Name of Trail/Ped Facility:	Sunset Drive Improvements

(example; CEDAR LAKE TRAIL)

IF TRAIL/PED FACILITY IS ADJACENT TO ROADWAY:

Road System	MSAS

(TH, CSAH, MSAS, CO. RD., TWP. RD., CITY STREET)

Road/Route No.	246-110

(Example: 53 for CSAH 53)

Name of Road	Sunset Drive

(Example: 1st ST., Main Ave.)

TERMINI: Termini listed must be within 0.3 miles of any work

From: **Road System**	City Street

(TH, CSAH, MSAS, CO. RD., TWP. RD., CITY STREET)

Road/Route No.	
(Example: 53 for CSAH 53)	
Name of Road	Hillside Drive
(Example: 1st ST., Main Ave.)	
To:	
Road System	City Street
DO NOT INCLUDE LEGAL DESCRIPTION; INCLUDE NAME OF ROADWAY IF MAJORITY OF FACILITY RUNS ADJACENT TO A SINGLE CORRIDOR	
Road/Route No.	
(Example: 53 for CSAH 53)	
Name of Road	Timber Ridge Court
(Example: 1st ST., Main Ave.)	
In the City/Cities of:	Jordan
(List all cities within project limits)	
IF TRAIL/PED FACILITY IS NOT ADJACENT TO ROADWAY: Termini: Termini listed must be within 0.3 miles of any work	
From:	
To:	
Or	
At:	
In the City/Cities of:	
(List all cities within project limits)	
Primary Types of Work (Check all that apply)	
Multi-Use Trail	
Reconstruct Trail	
Resurface Trail	
Bituminous Pavement	
Concrete Walk	Yes
Pedestrian Bridge	
Signal Revision	
Landscaping	
Other (do not include incidental items)	
BRIDGE/CULVERT PROJECTS (IF APPLICABLE)	
Old Bridge/Culvert No.:	
New Bridge/Culvert No.:	
Structure is Over/Under (Bridge or culvert name):	
Zip Code where Majority of Work is Being Performed	55352
Approximate Begin Construction Date (MO/YR)	06/02/2025
Approximate End Construction Date (MO/YR)	09/05/2025
Miles of Pedestrian Facility/Trail (nearest 0.1 miles):	0.2
Miles of trail on the Regional Bicycle Transportation Network (nearest 0.1 miles):	0
Is this a new trail?	No

Requirements - All Projects

All Projects

1. The project must be consistent with the goals and policies in these adopted regional plans: Thrive MSP 2040 (2014), the 2040 Transportation Policy Plan (2018), the 2040 Regional Parks Policy Plan (2018), and the 2040 Water Resources Policy Plan (2015).

Check the box to indicate that the project meets this requirement.	Yes

2. The project must be consistent with the 2040 Transportation Policy Plan. Reference the 2040 Transportation Plan goals, objectives, and strategies that relate to the project.

Briefly list the goals, objectives, strategies, and associated pages:

Goal: Safety and Security: Objective A. Reduce crashes and improve safety and security for all modes of passenger travel and freight transportation: Regional transportation partners

will use best practices to provide and improve safe walking and bicycling facilities, since pedestrians and cyclists are the most vulnerable users of the transportation system.: Page 60

Goal: Access to Destinations: Objective D. Increase transit ridership and the share of trips taken using transit, bicycling, and walking: Bicycle and pedestrian infrastructure will continue to be improved throughout the region with the aim of increasing access, connectivity, and safety.: Pages 62, 63

Goal: Healthy Environment: Objective C. Increase the availability and attractiveness of transit, bicycling, and walking to encourage healthy communities and active car-free lifestyles: Many residents in the region want the option of walking or bicycling to work, school...: Pages 66,67,68

(Limit 2,800 characters; approximately 400 words)

3. The project or the transportation problem/need that the project addresses must be in a local planning or programming document. Reference the name of the appropriate comprehensive plan, regional/statewide plan, capital improvement program, corridor study document [studies on trunk highway must be approved by the Minnesota Department of Transportation and the Metropolitan Council], or other official plan or program of the applicant agency [includes Safe Routes to School Plans] that the project is included in and/or a transportation problem/need that the project addresses.

List the applicable documents and pages: Unique projects are exempt from this qualifying requirement because of their innovative nature.

Jordan Schools Safe Routes to School Plan, Pages 24,25,38 lists this project as a recommended solution. 2019 Jordan School Area Traffic Study, Page 15 recommends that the roundabout solution be further studied. 2023 Sunset Drive Traffic Report details the proposed concept of the two compact roundabout solution leading to the proposed layout.

(Limit 2,800 characters; approximately 400 words)

4. The project must exclude costs for studies, preliminary engineering, design, or construction engineering. Right-of-way costs are only eligible as part of transit stations/stops, transit terminals, park-and-ride facilities, or pool-and-ride lots. Noise barriers, drainage projects, fences, landscaping, etc., are not eligible for funding as a standalone project, but can be included as part of the larger submitted project, which is otherwise eligible. Unique project costs are limited to those that are federally eligible.

Check the box to indicate that the project meets this requirement. Yes

5. Applicant is a public agency (e.g., county, city, tribal government, transit provider, etc.) or non-profit organization (TDM and Unique Projects applicants only). Applicants that are not State Aid cities or counties in the seven-county metro area with populations over 5,000 must contact the MnDOT Metro State Aid Office prior to submitting their application to determine if a public agency sponsor is required.

Check the box to indicate that the project meets this requirement. Yes

6. Applicants must not submit an application for the same project in more than one funding sub-category.

Check the box to indicate that the project meets this requirement. Yes

7. The requested funding amount must be more than or equal to the minimum award and less than or equal to the maximum award. The cost of preparing a project for funding authorization can be substantial. For that reason, minimum federal amounts apply. Other federal funds may be combined with the requested funds for projects exceeding the maximum award, but the source(s) must be identified in the application. Funding amounts by application category are listed below in Table 1. For unique projects, the minimum award is $500,000 and the maximum award is the total amount available each funding cycle (approximately $4,000,000 for the 2024 funding cycle).

Multiuse Trails and Bicycle Facilities: *$250,000 to $5,500,000*
Pedestrian Facilities (Sidewalks, Streetscaping, and ADA): *$250,000 to $2,000,000*
Safe Routes to School: *$250,000 to $1,000,000*

Check the box to indicate that the project meets this requirement. Yes

8. The project must comply with the Americans with Disabilities Act (ADA).

Check the box to indicate that the project meets this requirement. Yes

9. In order for a selected project to be included in the Transportation Improvement Program (TIP) and approved by USDOT, the public agency sponsor must either have a current Americans with Disabilities Act (ADA) self-evaluation or transition plan that covers the public right of way/transportation, as required under Title II of the ADA. The plan must be completed by the local agency before the Regional Solicitation application deadline. For future Regional Solicitation funding cycles, this requirement may include that the plan has undergone a recent update, e.g., within five years prior to application.

The applicant is a public agency that employs 50 or more people and has a completed ADA transition plan that covers the public right of way/transportation.

Date plan completed:

Link to plan:

The applicant is a public agency that employs fewer than 50 people and has a completed ADA self-evaluation that covers the public right of way/transportation.	Yes
Date self-evaluation completed:	10/27/2023
Link to plan:	https://jordanmn.maps.arcgis.com/apps/instant/sidebar/index.html?appid=9b2ecdef151547b48af0cfa77227ff3f

Upload plan or self-evaluation if there is no link

Upload as PDF

10. The project must be accessible and open to the general public.

Check the box to indicate that the project meets this requirement. Yes

11. The owner/operator of the facility must operate and maintain the project year-round for the useful life of the improvement. This includes assurance of year-round use of bicycle, pedestrian, and transit facilities, per FHWA direction established 8/27/2008 and updated 4/15/2019. *Unique projects are exempt from this qualifying requirement.*

Check the box to indicate that the project meets this requirement. Yes

12. The project must represent a permanent improvement with independent utility. The term ?independent utility? means the project provides benefits described in the application by itself and does not depend on any construction elements of the project being funded from other sources outside the regional solicitation, excluding the required non-federal match.

Projects that include traffic management or transit operating funds as part of a construction project are exempt from this policy.

Check the box to indicate that the project meets this requirement. Yes

13. The project must not be a temporary construction project. A temporary construction project is defined as work that must be replaced within five years and is ineligible for funding. The project must also not be staged construction where the project will be replaced as part of future stages. Staged construction is eligible for funding as long as future stages build on, rather than replace, previous work.

Check the box to indicate that the project meets this requirement. Yes

14. The project applicant must send written notification regarding the proposed project to all affected state and local units of government prior to submitting the application.

Check the box to indicate that the project meets this requirement. Yes

Requirements - Bicycle and Pedestrian Facilities Projects

1. All projects must relate to surface transportation. As an example, for multiuse trail and bicycle facilities, surface transportation is defined as primarily serving a commuting purpose and/or that connect two destination points. A facility may serve both a transportation purpose and a recreational purpose; a facility that connects people to recreational destinations may be considered to have a transportation purpose.

Check the box to indicate that the project meets this requirement. Yes

Multiuse Trails on Active Railroad Right-of-Way:

2. All multiuse trail projects that are located within right-of-way occupied by an active railroad must attach an agreement with the railroad that this right-of-way will be used for trail purposes.

Check the box to indicate that the project meets this requirement.

Upload Agreement PDF

Check the box to indicate that the project is not in active railroad right-of-way. Yes

Multiuse Trails and Bicycle Facilities projects only:

3. All applications must include a letter from the operator of the facility confirming that they will remove snow and ice for year-round bicycle and pedestrian use. The Minnesota Pollution Control Agency has a resource for best practices when using salt. *Upload PDF of Agreement in Other Attachments.*

Check the box to indicate that the project meets this requirement.

Upload PDF of Agreement in Other Attachments.

Safe Routes to School projects only:

4. All projects must be located within a two-mile radius of the associated primary, middle, or high school site.

Check the box to indicate that the project meets this requirement. Yes

5. All schools benefitting from the SRTS program must conduct after-implementation surveys. These include the student travel tally form *and the* parent survey *available on the* National Center for SRTS website. *The school(s) must submit the after-evaluation data to the National Center for SRTS within a year of the project completion date. Additional guidance regarding evaluation can be found at the* MnDOT SRTS website.

Check the box to indicate that the applicant understands this requirement and will submit data to the National Center for SRTS within one year of project completion. Yes

Requirements - Bicycle and Pedestrian Facilities Projects

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	$65,000.00
Removals (approx. 5% of total cost)	$260,000.00
Roadway (grading, borrow, etc.)	$60,000.00
Roadway (aggregates and paving)	$290,000.00
Subgrade Correction (muck)	$0.00
Storm Sewer	$70,000.00
Ponds	$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$305,000.00

Traffic Control	$25,000.00
Striping	$20,000.00
Signing	$10,000.00
Lighting	$75,000.00
Turf - Erosion & Landscaping	$55,000.00
Bridge	$0.00
Retaining Walls	$40,000.00
Noise Wall (not calculated in cost effectiveness measure)	$0.00
Traffic Signals	$0.00
Wetland Mitigation	$0.00
Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$138,000.00
Other Roadway Elements	$35,000.00
Totals	**$1,448,000.00**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	$0.00
Sidewalk Construction	$65,000.00
On-Street Bicycle Facility Construction	$0.00
Right-of-Way	$0.00
Pedestrian Curb Ramps (ADA)	$25,000.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	$120,000.00
Pedestrian-scale Lighting	$0.00
Streetscaping	$0.00
Wayfinding	$0.00
Bicycle and Pedestrian Contingencies	$21,000.00
Other Bicycle and Pedestrian Elements	$0.00
Totals	**$231,000.00**

Specific Transit and TDM Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Fixed Guideway Elements	$0.00
Stations, Stops, and Terminals	$0.00
Support Facilities	$0.00
Transit Systems (e.g. communications, signals, controls, fare collection, etc.)	$0.00
Vehicles	$0.00
Contingencies	$0.00
Right-of-Way	$0.00
Other Transit and TDM Elements	$0.00
Totals	**$0.00**

Transit Operating Costs

Number of Platform hours	0
Cost Per Platform hour (full loaded Cost)	$0.00
Subtotal	$0.00
Other Costs - Administration, Overhead,etc.	$0.00

PROTECT Funds Eligibility

One of the new federal funding sources is Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT). Please describe which specific elements of your project and associated costs out of the Total TAB-Eligible Costs are eligible to receive PROTECT funds. Examples of potential eligible items may include: storm sewer, ponding, erosion control/landscaping, retaining walls, new bridges over floodplains, and road realignments out of floodplains.

INFORMATION: Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Formula Program Implementation Guidance (dot.gov).

Response:

Totals

Total Cost	$1,679,000.00

Construction Cost Total	$1,679,000.00
Transit Operating Cost Total	$0.00

Measure 1A: Relationship Between Safe Routes to School Program Elements

Response:

Evaluation:

■ Jordan Public Schools has worked with Scott County utilizing Safe Routes to School (SRTS) initiatives that encourages and enables children to walk or bike to school safely. This work led to the creation a Safety Patrol Program which has resulting in a crossing program, to help with safe walking and biking to school.

■ The City of Jordan has evaluated the original approved Safe Routes to School plan by completing a traffic analysis report in 2019 and a recent follow-up report where this project's concept and layout was developed.

Education:

■ At the start of each school year the School Resources Officer works with Jordan elementary students during Safety Week to enhance the safety of our students while promoting alternative modes of transportation to reduce traffic congestion around schools.

■ The inclusion of pedestrian safety in the health curriculum teaches students about pedestrian safety, safe routes to school, and bolstering physical activity.

Encouragement:

■ Walk/Bike/Roll to School Day - A foundational focus of Jordan's Walk and Bike to School Day is prompting and celebrating walking and biking to school. This event is promoted to encourage Elementary and Middle School aged students to walk/bike to school and promotes the health benefits of walking/biking. This event is promoted through in the classroom and all normal communication methods.

Equity: Jordan schools have an individual program to assist disadvantaged populations and promote equity throughout the district for all district activities. Additional communication for these families includes a separate flyer distribution, and flyers are posted at the Community Education and Recreation Center on the school campus where many disadvantaged populations utilize before and after school.

Engagement:

■ Jordan Public Schools communicates with all families annually and on an as-needed basis with information regarding Safe Routes to School. This includes reminders for all families about safety around school buildings, pick-up/drop-off procedures at school buildings, and reminders for the community as they travel around the school campus.

■ The Jordan School Resources Officer works in all three buildings and helps ensure laws and safety regulations are followed to protect pedestrians and cyclists, while working with youth.

■ The City completed extensive engagement/outreach for this project as discussed in the Risk Assessment and Equity sections of this application.

Engineering:

■ As described in many sections of this application, the engineering of this project will help reduce speeds, conflicts with pedestrians/vehicles, establishes safer and fully accessible crossings and connected walkways on Sunset Drive which bisects the Jordan School campus.

(Limit 2,800 characters; approximately 400 words)

Measure A: Project Location and Impact to Disadvantaged Populations

Select one:

The project, or the issue/barrier being addressed by the project, is specifically named in an adopted Safe Routes to School plan*	Yes
The project, while not specifically named, is consistent with an adopted Safe Routes to School plan highlighting at least one of the school(s) to which it is meant to provide access	
The project is identified in a locally adopted transportation/mobility plan or study and would make a safety improvement, reduce traffic or improve air quality at or near a school	
The school(s) in question do not have Safe Routes to School plan(s)	

Measure A: Average share of student population that bikes or walks

Average Percent of Student Population	0%
Documentation Attachment	

Please upload attachment in PDF form

Measure B: Student Population

Student population within one mile of the school	502.0

Measure A: Engagement

i. Describe any Black, Indigenous, and People of Color populations, low-income populations, disabled populations, youth, or older adults within a ½ mile of the proposed project. Describe how these populations relate to regional context. Location of affordable housing will be addressed in Measure C.

ii. Describe how Black, Indigenous, and People of Color populations, low-income populations, persons with disabilities, youth, older adults, and residents in affordable housing were engaged, whether through community planning efforts, project needs identification, or during the project development process.

iii. Describe the progression of engagement activities in this project. A full response should answer these questions:

1. *What engagement methods and tools were used?*
2. *How did you engage specific communities and populations likely to be directly impacted by the project?*
3. *What techniques did you use to reach populations traditionally not involved in community engagement related to transportation projects?*
4. *How were the project?s purpose and need identified?*
5. *How was the community engaged as the project was developed and designed?*
6. *How did you provide multiple opportunities for of Black, Indigenous, and People of Color populations, low-income populations, persons with disabilities, youth, older adults, and residents in affordable housing to engage at different points of project development?*
7. *How did engagement influence the project plans or recommendations? How did you share back findings with community and re-engage to assess responsiveness of these changes?*
8. *If applicable, how will NEPA or Title VI regulations will guide engagement activities?*

Response:

The school district is aware of the following BIPOC population and disadvantaged students within 1/2 mile of the school.

● 32 Black

● 6 Indigenous

● 37 People of Color

● 25 Disabled

The City and School worked together on reaching out to these populations. The outreach effort included all of the efforts described in the outreach section of this application which reaches some of these students/families. Beyond those efforts we used the school district's American Indian Parent Advisory Council and equity program's typical and trusted methods of reaching these populations. These efforts include creating a separate flyer and distributing it directly to these populations and posting it at their Community Education and Recreation Center (located on the school campus) where many of these students spend a portion of their day. We held a traditional open house that was advertised directly, and we also provided an online survey that could be filled out anytime. Responses provided from our outreach generally supported the recommended design as users saw it doing two main things making it safer getting to school on Sunset Drive, 1) slowing cars down and 2) providing safer pedestrian crossings. There was not significant opposition, or other options advocated for from BIPOC, disadvantaged, or the general public. Because of this, there were not significant modifications made to the plans.

(Limit 2,800 characters; approximately 400 words):

Measure B: Disadvantaged Communities Benefits and Impacts

Describe the project?s benefits to Black, Indigenous, and People of Color populations, low-income populations, children, people with disabilities, youth, and older adults. Benefits could relate to:

? pedestrian and bicycle safety improvements;
? public health benefits;
? direct access improvements for residents or improved access to destinations such as jobs, school, health care, or other;
? travel time improvements;
? gap closures;
? new transportation services or modal options;
? leveraging of other beneficial projects and investments;
? and/or community connection and cohesion improvements.

This is not an exhaustive list. A full response will support the benefits claimed, identify benefits specific to Disadvantaged communities residing or engaged in activities near the project area, identify benefits addressing a transportation issue affecting Disadvantaged communities specifically identified through engagement, and substantiate benefits with data.

Acknowledge and describe any negative project impacts to Black, Indigenous, and People of Color populations, low-income populations, children, people with disabilities, youth, and older adults. Describe measures to mitigate these impacts. Unidentified or unmitigated negative impacts may result in a reduction in points.

Below is a list of potential negative impacts. This is not an exhaustive list.

? Decreased pedestrian access through sidewalk removal / narrowing, placement of barriers along the walking path, increase in auto-oriented curb cuts, etc.
? Increased speed and/or ?cut-through? traffic.
? Removed or diminished safe bicycle access.
? Inclusion of some other barrier to access to jobs and other destinations.

Response:

As described in Measure A of this section, there a significant number of BIPOC and disadvantaged population students in the vicinity of the school campus. These populations will benefit from the proposed improvements; there are no negative project impacts. Some of the benefits include:

A) Reduced sidewalk and driveway entrance intersections - there are several driveway crossings of the sidewalks on Sunset Drive that will be replaced by the single access at the roundabout

B) Significantly improved Sunset Drive pedestrian crossings by providing the roundabouts with designated, marked, and RRFB enhanced pedestrian crossings. These crossings reduce the conflict points/decision making that pedestrians have to make.

C) There will be medians constructed Sunset Drive between the roundabouts decreasing the available lane width reducing reduce vehicular speeds and providing a refuge mid-way across each ped crossing.

D) These improvements will make walking and biking safer and more feasible for more students to walk and bike to school, providing all of the health benefits (increased cardiovascular health and strength, ability to concentrate in school, ability to provide their own transportation to school without needing a bus, or a drop off, etc.)

E) The City has collaborated with the Jordan School District to improve Sunset Drive, but also for the school to improve their site/parking lots for the benefit of all populations. These improvements will allow for increase in internal queuing which will greatly reduce or eliminate, vehicle queuing on Sunset Drive during school drop off and pick up improving safety and decreasing travel time to and through the section of road. This collaborative effort will really improve all full transportation options for kids attending school no matter how they get to and from school.

As described above, there are no negative impacts because of these improvements, no barriers, increased speeds, no increases in cut through traffic, etc.

(Limit 2,800 characters; approximately 400 words):

Measure C: Affordable Housing Access

Describe any affordable housing developments?existing, under construction, or planned?within ½ mile of the proposed project. The applicant should note the number of existing subsidized units, which will be provided on the Socio-Economic Conditions map. Applicants can also describe other types of affordable housing (e.g., naturally-occurring affordable housing, manufactured housing) and under construction or planned affordable housing that is within a half mile of the project. If applicable, the applicant can provide self-generated PDF maps to support these additions. Applicants are encouraged to provide a self-generated PDF map describing how a project connects affordable housing residents to destinations (e.g., childcare, grocery stores, schools, places of worship).

Describe the project?s benefits to current and future affordable housing residents within ½ mile of the project. Benefits must relate to affordable housing residents. Examples may include:

? specific direct access improvements for residents
? improved access to destinations such as jobs, school, health care or other;
? new transportation services or modal options;
? and/or community connection and cohesion improvements.

This is not an exhaustive list. Since residents of affordable housing are more likely not to own a private vehicle, higher points will be provided to roadway projects that include other multimodal access improvements. A full response will support the benefits claimed, identify benefits specific to residents of affordable housing, identify benefits addressing a transportation issue affecting residents of affordable housing specifically identified through engagement, and substantiate benefits with data.

Response:

As shown on the Socio-Economic Conditions map, there are a total of 175 publicly subsidized rental housing units within 1/2 mile of the proposed project.

This project will primarily benefit affordable housing residents that need to access any of the Jordan School District buildings as a student, parent or guardian, or as an employee. The Jordan Public School District is a significant employer in the City of Jordan. These residents will find it much safer and more feasible to walk to their school building for learning or employment. The project will provide much safer crossings of Sunset Drive for pedestrians by providing the two proposed compact roundabouts. These roundabouts will slow traffic down and will provide the pedestrian crossing facilities including RRFBs to help increase vehicular stopping compliance for pedestrian crossings and a much shorter crossing distance across Sunset Drive. These improvements will make going to and from all of the Jordan School District buildings without a vehicle much safer and more feasible.

(Limit 2,800 characters; approximately 400 words):

Measure D: BONUS POINTS

Project is located in an Area of Concentrated Poverty:

Project?s census tracts are above the regional average for population in poverty or population of color (Regional Environmental Justice Area):

Project located in a census tract that is below the regional average for population in poverty or populations of color (Regional Environmental Justice Area): Yes

Upload the ?Socio-Economic Conditions? map used for this measure. 1701724436716_SocioEconomicMap.pdf

Measure A: Gaps, Barriers, and Continuity/Connections

Response:

The Jordan School District campus is fully located in the project area. Sunset Drive bisects the campus with the Middle School and the Community Education and Recreation Center located north of Sunset Drive and the Elementary School and High School located to the south of Sunset Drive. Currently Sunset Drive acts as a barrier as there are not adequate pedestrian crossing facilities on this road to provide safe crossings. There is currently a marked cross walk at Timber Ridge Court which is in the project limits, but it is not adequate to provide a safe crossing facility as the road is wide, vehicular stopping for pedestrian compliance is low, and vehicle speeds are high. This situation can be unfortunately highlighted by the incident in the past year where a 4 and 12 year old were hit by a car when they were trying to cross Sunset Drive at this crossing.

This project includes the two compact roundabouts with pedestrian facilities including RRFBs at all sidewalk connections north and south of Sunset Drive. These pedestrian crossing improvements are necessary to facilitate the safe pedestrian crossing infrastructure so students can overcome this barrier to walking and biking to school.

(Limit 2,800 characters; approximately 400 words)

Upload Map 1702571761009_TransportatoinFacilitiesMap.pdf

Please upload attachment in PDF form

Measure B: Deficiencies corrected or safety or security addressed

Response:

The intersections of Hillside Drive and Timber Ridge Court along Sunset Drive have experienced two bike-related crashes over a ten-year history, both resulting in minor injury. There was also a recent crash in August, 2023, involving two school age children who were struck and injured by a vehicle while they were attempting to cross Sunset Drive at the marked cross walk at Timber Ridge Court, the only pedestrian crossing facility of Sunset Drive in the school campus area.

Safety studies of these intersections and of the infrastructure surrounding the school campus found several geometric safety issues such as vertical curvature, crosswalk placement, sun glare/visibility, etc. Further, a stopping compliance study has found that over 30% of drivers make rolling stops (Fail to fully stop) and that 85th percentile speed along Sunset Drive is 37 mph, while the posted speed limit is 30 mph. These factors create an unsafe and uncomfortable walking and biking environment for students crossing the intersections during busy school begin and release hours. The proposed roundabouts will improve the above deficiencies by reducing conflict points (32 reduced to 8), calm traffic speeds, (compact urban roundabouts designed to 15 mph circulatory speeds), and create two-way staged crossings to simplify the pedestrian crossing experience. These factors are proven to reduce the opportunity for fatal and injury pedestrian crashes and also eliminate the opportunity for dangerous left turn and right-angle vehicle-vehicle collisions. Further safety benefits will be realized along the corridor as traffic calming may extend up and downstream of the roundabout intersections. Splitter islands and a raised median between the two roundabouts also provide access management, reducing corridor conflict points and further improving area safety. RRFB's will be included at key high-volume crossing locations within the project area to further increase visibility to pedestrians and increase driver yielding compliance. School crossing guards will be trained in RRFB usage and will continue to monitor crossing activity after completion of the project.

The improvements provided by this proposed project will greatly help reduce the risk of future incidents like the August 2023 crash that occurred at the Timber Ridge Court pedestrian crossing. The project will direct Sunset Drive pedestrian crossers to the enhancements provided by the compact roundabouts.

(Limit 2,800 characters; approximately 400 words)

Transit Projects Not Requiring Construction

If the applicant is completing a transit application that is operations only, check the box and do not complete the remainder of the form. These projects will receive full points for the Risk Assessment.

Park-and-Ride and other transit construction projects require completion of the Risk Assessment below.

Check Here if Your Transit Project Does Not Require Construction

Measure A: Risk Assessment - Construction Projects

1. Public Involvement (48 Percent of Points)

Projects that have been through a public process with residents and other interested public entities are more likely than others to be successful. The project applicant must indicate that events and/or targeted outreach (e.g., surveys and other web-based input) were held to help identify the transportation problem, how the potential solution was selected instead of other options, and the public involvement completed to date on the project. The focus of this section is on the opportunity for public input as opposed to the quality of input. NOTE: A written response is required and failure to respond will result in zero points.

Multiple types of targeted outreach efforts (such as meetings or online/mail outreach) specific to this project with the general public and partner agencies have been used to help identify the project need. Yes

100%

At least one meeting specific to this project with the general public has been used to help identify the project need.

50%

At least online/mail outreach effort specific to this project with the general public has been used to help identify the project need.

50%

No meeting or outreach specific to this project was conducted, but the project was identified through meetings and/or outreach related to a larger planning effort.

25%

No outreach has led to the selection of this project.

0%

Describe the type(s) of outreach selected for this project (i.e., online or in-person meetings, surveys, demonstration projects), the method(s) used to announce outreach opportunities, and how many people participated. Include any public website links to outreach opportunities.

Response:

The project has undertaken a robust public outreach effort with multiple methods of trying to reach all audiences. The City held a public open house on November 15, 2023 and a corresponding online survey to gain the public's input on the proposed project improvements. The City mailed a postcard to the entire all addresses in the City of Jordan, placed yard signs around the school campus advertising the open house, and utilized social media posts to advertise the meeting. The school district also advertised the meeting in their typical communication methods, and further utilized their separate program to assist disadvantaged populations and promote equity, to let those families know of the meeting.

The City further offered an online survey with a series of questions to gather input on what is proposed.   This is the link for the project webpage on the City's website that was used to conduct the survey and advertise the open house. https://clients.bolton-menk.com/jordanengineering/sunset-drive-improvements/

The City recorded 30 attendees of the meeting, and received 12 survey responses from the in person meeting and 5 responses for the online survey.

(Limit 2,800 characters; approximately 400 words)

2. Layout (16 Percent of Points)

Layout includes proposed geometrics and existing and proposed right-of-way boundaries. A basic layout should include a base map (north arrow; scale; legend; city and/or county limits; existing ROW, labeled; existing signals;* and bridge numbers*) and design data (proposed alignments; bike and/or roadway lane widths; shoulder width;* proposed signals;* and proposed ROW). An aerial photograph with a line showing the project?s termini does not suffice and will be awarded zero points. *If applicable*

Layout approved by the applicant and all impacted jurisdictions (i.e., cities/counties/MnDOT. If a MnDOT trunk highway is impacted, approval by MnDOT must have occurred to receive full points. A PDF of the layout must be attached along with letters from each jurisdiction to receive points. Yes

100%

A layout does not apply (signal replacement/signal timing, stand-alone streetscaping, minor intersection improvements). Applicants that are not certain whether a layout is required should contact Colleen Brown at MnDOT Metro State Aid ? colleen.brown@state.mn.us.

100%

For projects where MnDOT trunk highways are impacted and a MnDOT Staff Approved layout is required. Layout approved by the applicant and all impacted local jurisdictions (i.e., cities/counties), and layout review and approval by MnDOT is pending. A PDF of the layout must be attached along with letters from each jurisdiction to receive points.

75%

Layout completed but not approved by all jurisdictions. A PDF of the layout must be attached to receive points.

50%

Layout has been started but is not complete. A PDF of the layout must be attached to receive points.

25%

Layout has not been started

0%

Attach Layout 1701208492199_2323-10-20_Sunset Hillside Layouts.pdf

Please upload attachment in PDF form

Additional Attachments

Please upload attachment in PDF form

3. Review of Section 106 Historic Resources (10 Percent of Points)

No known historic properties eligible for or listed in the National Register of Historic Places are located in the project area, and project is not located on an identified historic bridge Yes

100%

There are historical/archeological properties present but determination of ?no historic properties affected? is anticipated.

100%

Historic/archeological property impacted; determination of ?no adverse effect? anticipated

80%

Historic/archeological property impacted; determination of ?adverse effect? anticipated

40%

Unsure if there are any historic/archaeological properties in the project area.

0%

Project is located on an identified historic bridge

4. Right-of-Way (16 Percent of Points)

Right-of-way, permanent or temporary easements, and MnDOT agreement/limited-use permit either not required or all have been acquired	Yes

100%

Right-of-way, permanent or temporary easements, and/or MnDOT agreement/limited-use permit required - plat, legal descriptions, or official map complete

50%

Right-of-way, permanent or temporary easements, and/or MnDOT agreement/limited-use permit required - parcels identified

25%

Right-of-way, permanent or temporary easements, and/or MnDOT agreement/limited-use permit required - parcels not all identified

0%

5. Railroad Involvement (10 Percent of Points)

No railroad involvement on project or railroad Right-of-Way agreement is executed (include signature page, if applicable)	Yes

100%

Signature Page

Please upload attachment in PDF form

Railroad Right-of-Way Agreement required; negotiations have begun

50%

Railroad Right-of-Way Agreement required; negotiations have not begun.

0%

Measure A: Cost Effectiveness

Total Project Cost (entered in Project Cost Form):	$1,679,000.00
Enter Amount of the Noise Walls:	$0.00
Total Project Cost subtract the amount of the noise walls:	$1,679,000.00
Points Awarded in Previous Criteria	
Cost Effectiveness	$0.00

Other Attachments

File Name	Description	File Size
2323-10-20_Sunset Hillside Layouts.pdf	Layout/Concept Map	5.1 MB
Jordan Resolution Signed.pdf	Jordan Resolution	120 KB
LRIP_Mayor Letter of Support City of Jordan.pdf	Letter of Support - City of Jordan Mayor	213 KB
LRIP_MnDOT Letter of Support City of Jordan.pdf	MnDOT Letter of Support	190 KB
One Page Summary Jordan Sunset Drive Improvements.pdf	One-Page Summary Jordan Sunset Drive Improvements	738 KB
Plan Safe Route to School jordan-2015-alta-srts-final.pdf-3546425-v1.pdf	Jordan Safe Routes To School Plan 2015	4.5 MB
School Letter of Support.pdf	Jordan School District Letter of Support	77 KB
Scott County Commissioner Letter of Support.pdf	Scott County Commissioner Letter of Support	368 KB
Site Photograph.jpeg	Site Photograph	6.1 MB
SocioEconomicMap.pdf	Jordan Socio-Economic Conditions Map	2.7 MB
Traffic-Study-2019.pdf	2019 Traffic Study	8.6 MB
Traffic_Report_2023.pdf	2023 Traffic Report	9.5 MB
TransportatoinFacilitiesMap.pdf	RBTN Transportation Facilities Map	1.5 MB

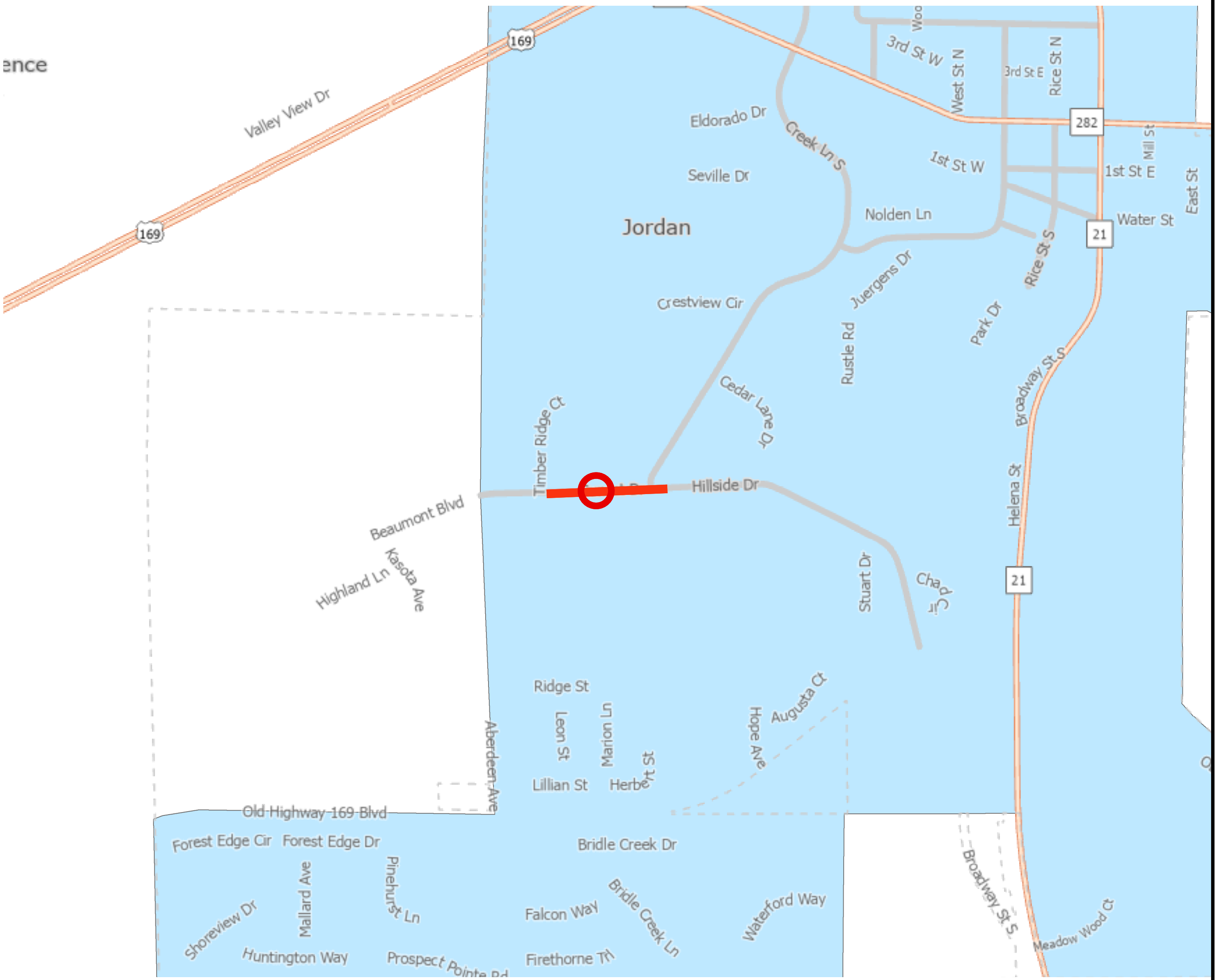
Socio-Economic Conditions

Safe Routes to Schools Project: Sunset Drive Improvements | Map ID: 1698270790377

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 175

Project located in census tract(s) that are ABOVE the regional average for population in poverty or population of color.



Points | Area of Concentrated Poverty

Lines | Regional Environmental Justice Area

0 0.125 0.25 0.5 0.75 1 Miles

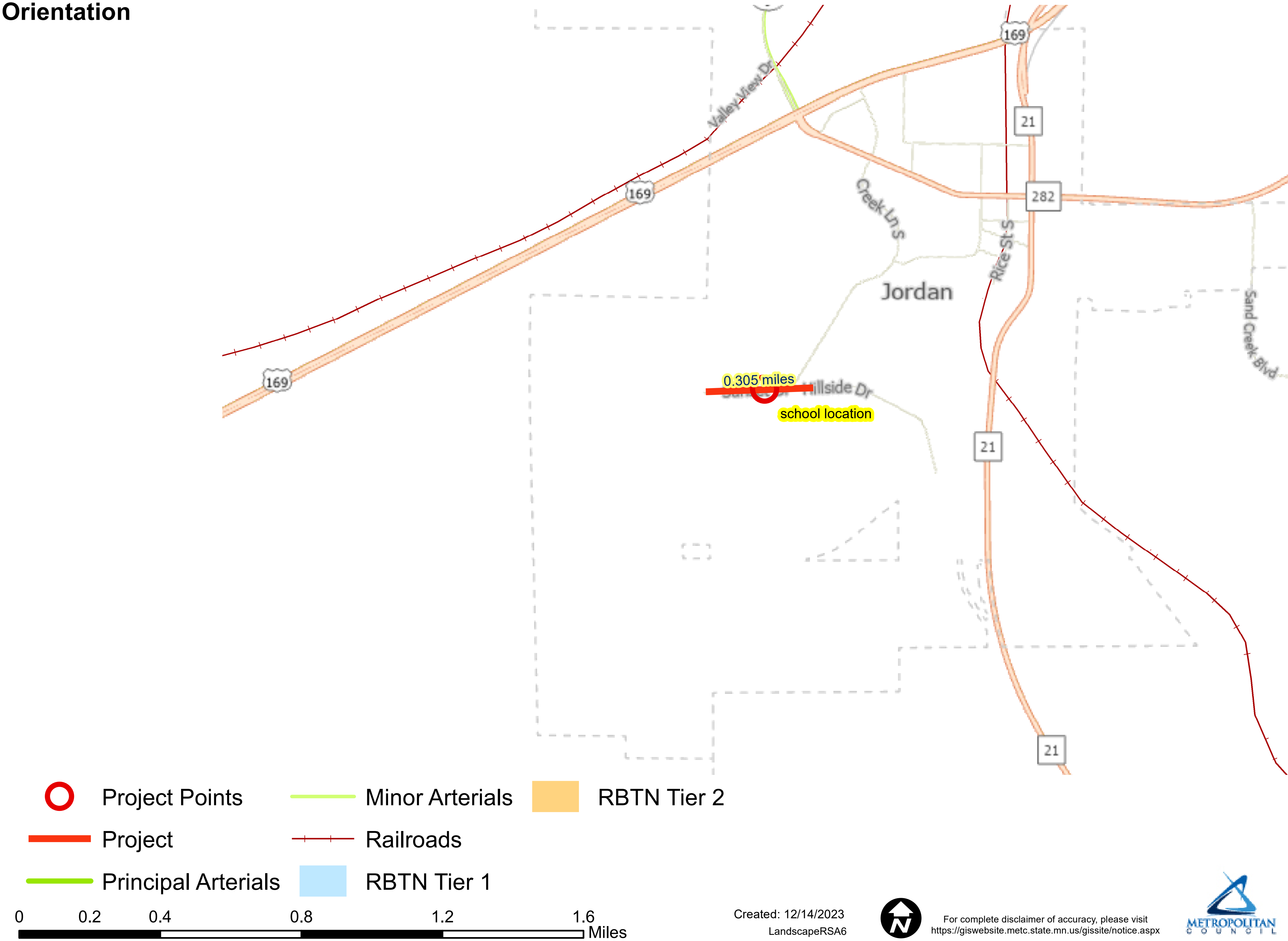
Created: 10/25/2023
LandscapeRSA2

For complete disclaimer of accuracy, please visit http://giswebsite.metc.state.mn.us/gissite/notice.aspx

METROPOLITAN COUNCIL

Project to RBTN Orientation

Safe Routes to Schools Project: Sunset Drive Improvements | Map ID: 1702567847535



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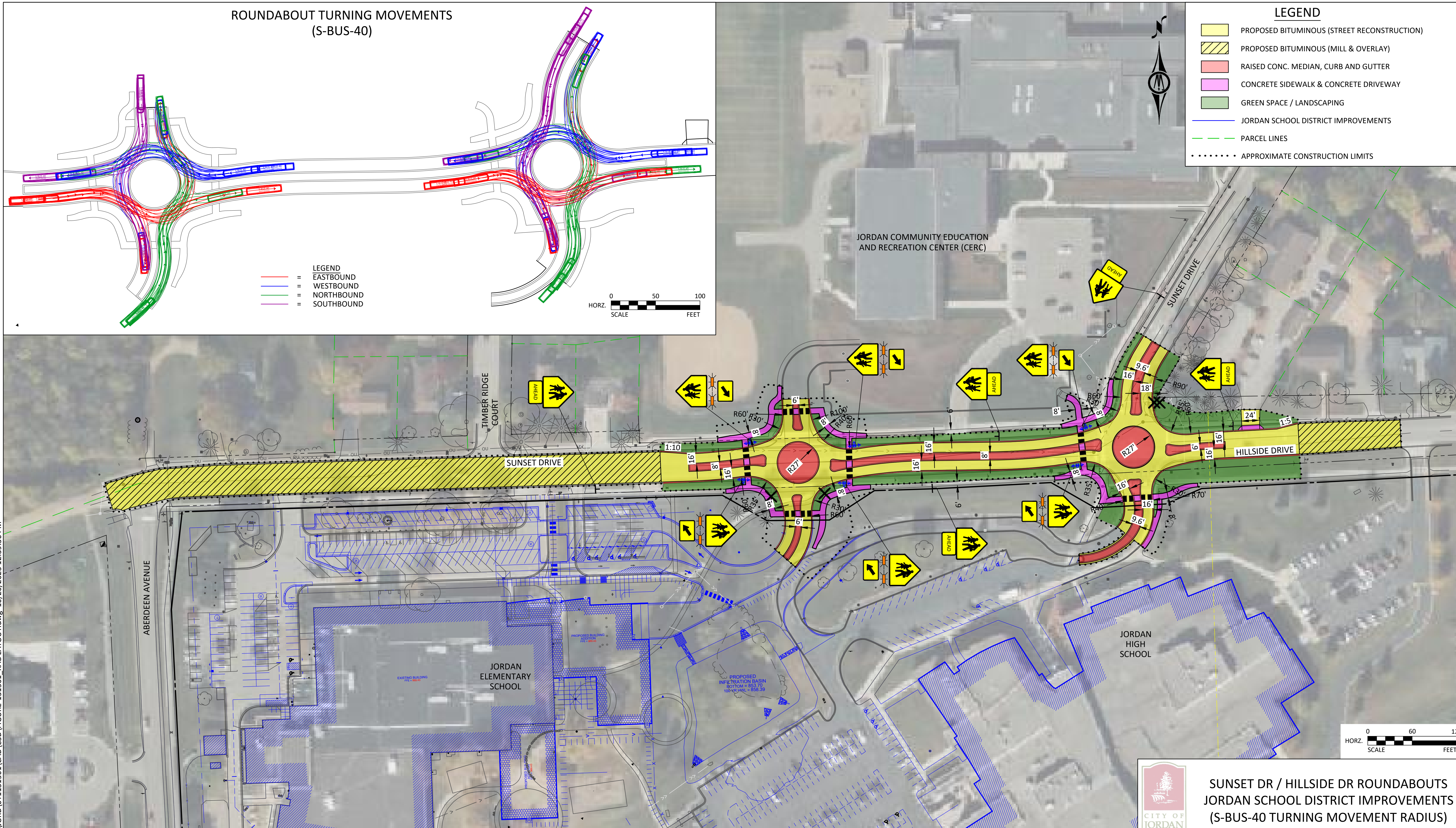
LandscapeRSA6

For complete disclaimer of accuracy, please visit https://giswebsite.metc.state.mn.us/gissite/notice.aspx

METROPOLITAN COUNCIL

BOLTON & MENK



SUNSET DR / HILLSIDE DR ROUNDABOUTS
JORDAN SCHOOL DISTRICT IMPROVEMENTS
(S-BUS-40 TURNING MOVEMENT RADIUS)

CITY OF JORDAN

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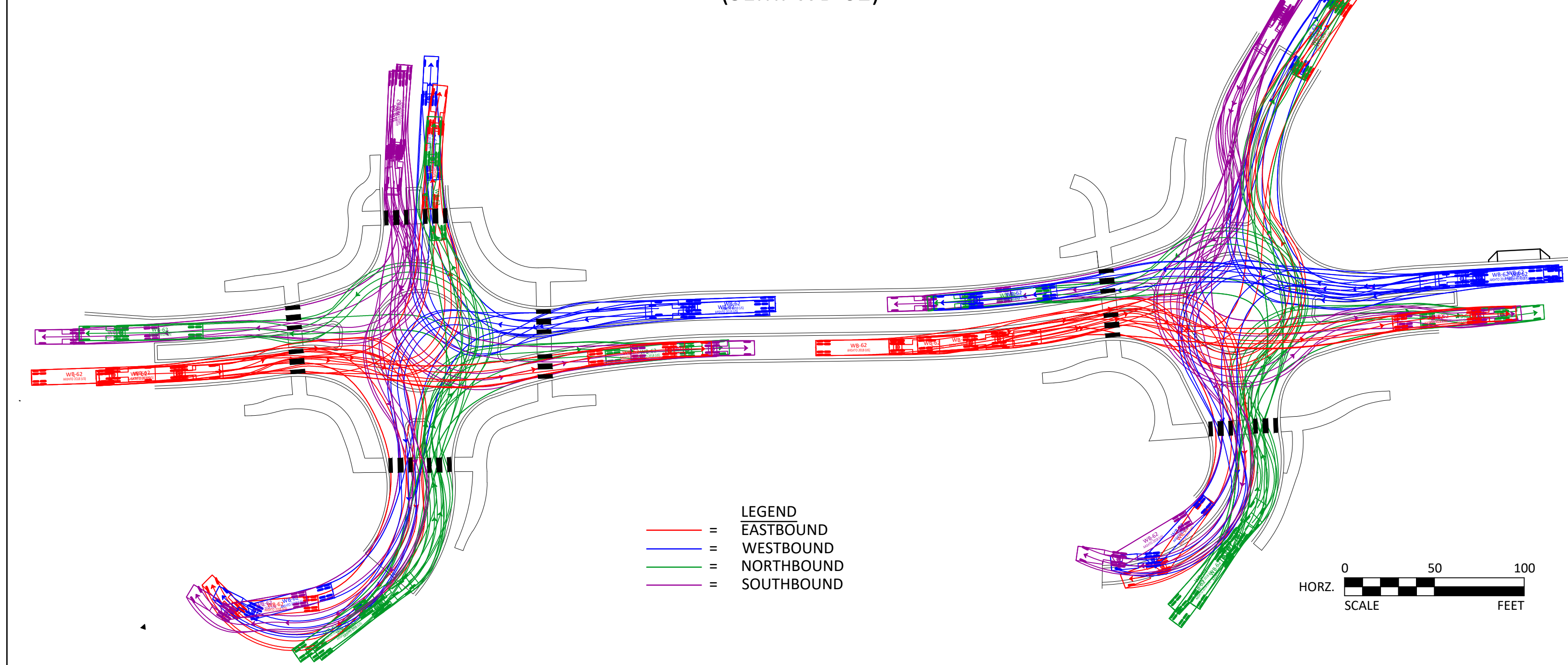
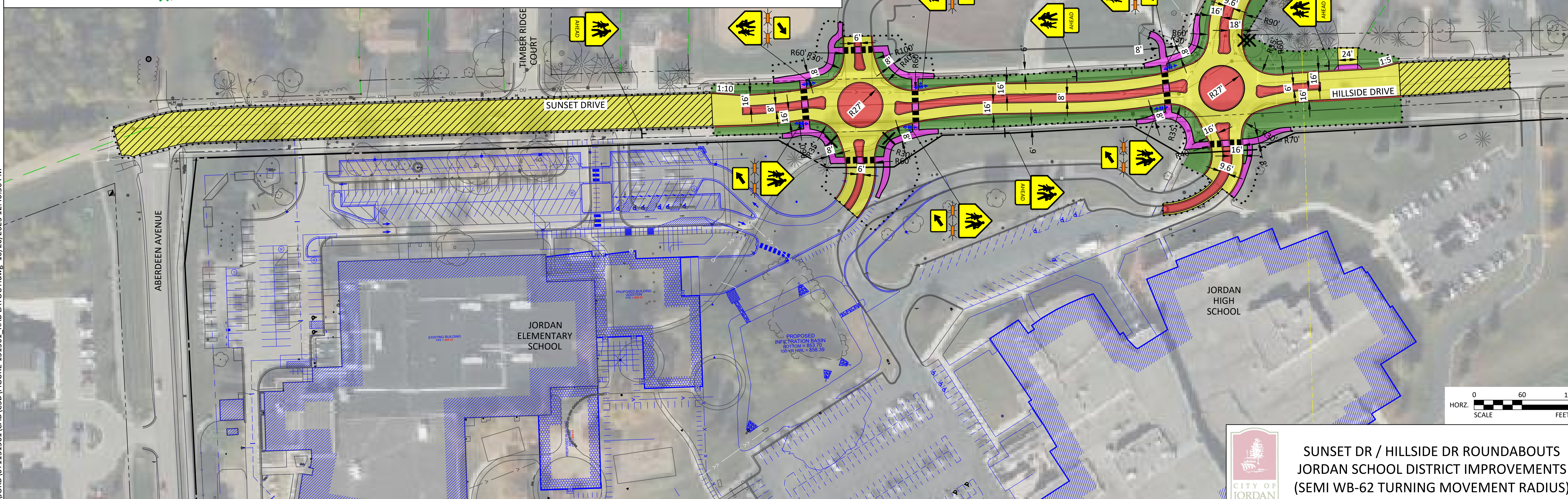
ROUNDABOUT TURNING MOVEMENTS
(SEMI WB-62)





SUNSET DR / HILLSIDE DR ROUNDABOUTS
JORDAN SCHOOL DISTRICT IMPROVEMENTS
(SEMI WB-62 TURNING MOVEMENT RADIUS)

CITY OF JORDAN

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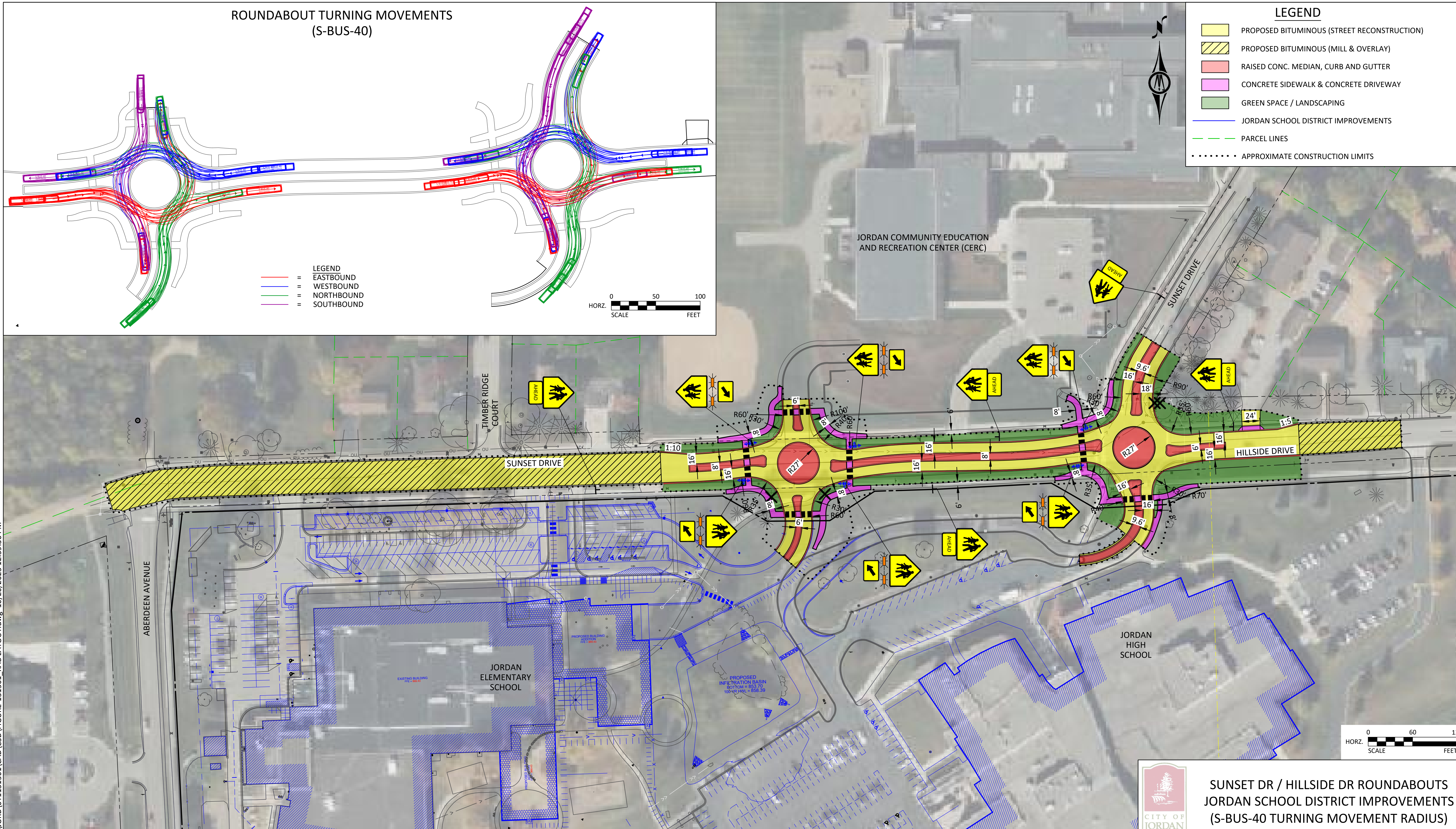

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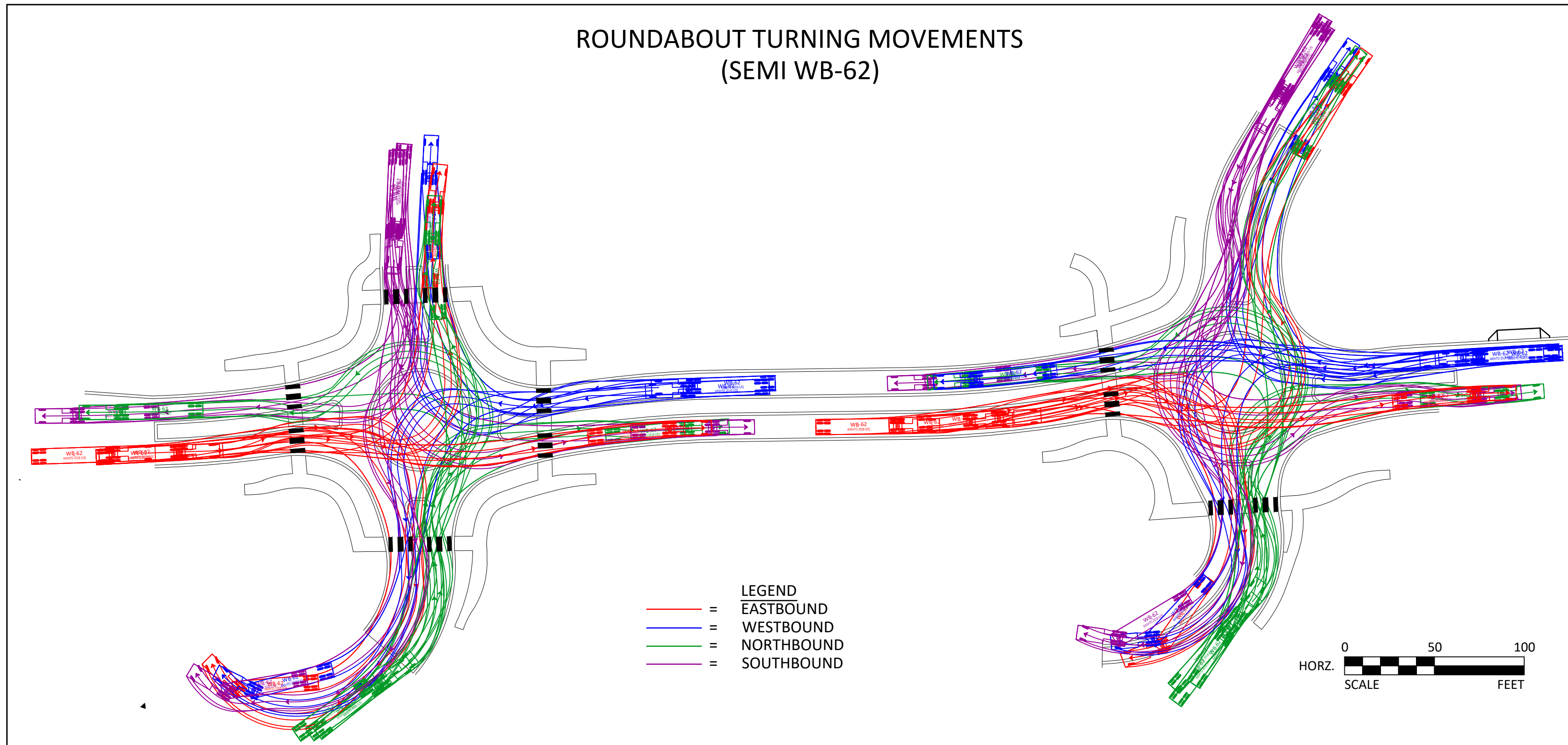
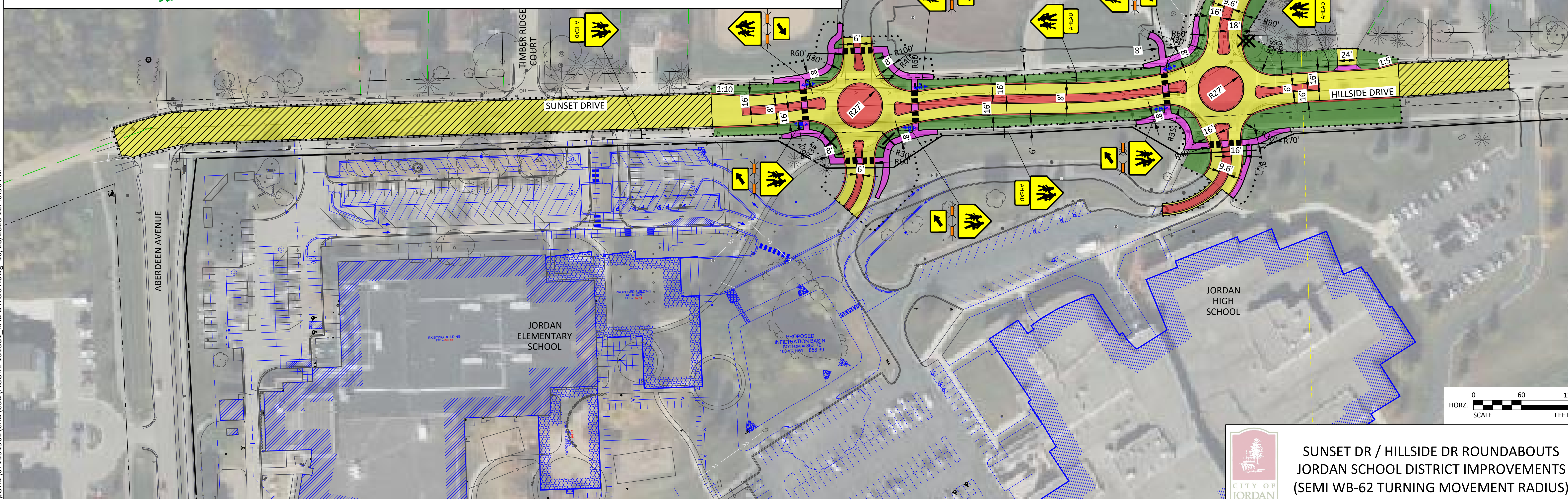




SUNSET DR / HILLSIDE DR ROUNDABOUTS
JORDAN SCHOOL DISTRICT IMPROVEMENTS
(SEMI WB-62 TURNING MOVEMENT RADIUS)

CITY OF JORDAN
RESOLUTION 11-65-2023

RESOLUTION AUTHORIZING THE PURSUIT OF 2024 REGIONAL SOLICITATION FOR TRANSPORTATION PROJECTS FOR THE SUNSET DRIVE IMPROVEMENTS

WHEREAS, the Sunset Drive Improvements project will construct two roundabouts with pedestrian safety facilities along Sunset Drive; and

WHEREAS, the Sunset Drive Improvements project will improve access, increase safety, and promote active transportation for students, parents, and staff of the Jordan Elementary, Middle, and High Schools; and

WHEREAS, the 2024 Regional Solicitation for Transportation Projects Administered by the Metropolitan Council's Transportation Advisory Board (Regional Solicitation) has approximately $180 million to distribute throughout the state to apply towards projects on roads that result in a policy framework of transportation system stewardship, safety, and security, access to destinations, competitive economy, healthy and equitable communities, and transportation investments that guide land use; and

WHEREAS, the proposed year for project construction is 2025.

NOW, THEREFORE, BE IT RESOLVED, that the City Council of Jordan, Scott County, Minnesota, hereby affirms:

1. The City Council hereby supports the Sunset Drive Improvements project, and
2. The City Council hereby supports Jordan's pursuit of Regional Solicitation funding and authorizes staff to prepare and submit such application, and
3. The City Council hereby commits to funding project elements not eligible for LRIP funding, ensuring the project will comply with all Regional Solicitation funding requirements, and following the project schedule as presented in the application.

DATED THIS 13th DAY OF November, 2023.

Mike Franklin, Mayor

ATTEST:

Tom Nikunen, City Administrator

Drafted by:
City of Jordan
210 East 1st Street
Jordan, MN 55352

CITY OF
JORDAN

November 30, 2023

Attn: Rashmi Brewer
Minnesota Department of Transportation
395 John Ireland Boulevard
St. Paul, MN. 55155

Re: City of Jordan School Roundabout Project – MnDOT Local Road Improvement Program

Dear Ms. Brewer,

As the Mayor of the City of Jordan, I am pleased to express my support for the City of Jordan School Roundabout Project Department of Transportation Local Road Improvement Program application.

The proposed School Roundabout Project will improve access, safety, and function of the Sunset Drive, which serves as the main access to the schools in Jordan. Sunset Drive serves as a major road in the area and the congestion that occurs within the area is an issue both for traffic as well as safety to children biking or walking to school. For this reason, good design and safe mobility are vital to students and residents.

High levels of traffic from peak hours over the years have caused issues with traffic moving through the area. The congestion on Sunset Drive has regularly backed on to Sunset Drive, Aberdeen Avenue, and Beaumont Boulevard causing further issues. The upgraded road and pedestrian facilities included in this project will help make access to the schools a more safe and accessible destination for all students and residents.

Thank you for your time and consideration in reviewing the City of Jordan School Roundabout Project application.

Sincerely,

Mike Franklin
Mayor, City of Jordan

DEPARTMENT OF TRANSPORTATION

Metro District
1500 County Road B2 West
Roseville, MN

December 5, 2023

MnDOT State Aid for Local Transportation Office
Attn: Marc Briese, P.E.
395 John Ireland Blvd.
St. Paul, MN 55155

Subject: City of Jordan School Roundabout Project

Marc Briese,

This letter documents Minnesota Department of Transportation Metro District's support for the City of Jordan's funding request to the LRIP for road improvements on Sunset Drive in the City of Jordan.

The proposed project includes closing multiple accesses to Sunset Drive as they will become unnecessary with the construction of the roundabouts. Sunset Drive is a major collector for the City and often relieves traffic from TH 21 when there is maintenance or programmed projects. Future work on TH 21 will benefit from the improvements on this roadway. There are also improvements to safety for non-motorized and multi-modal traffic in the area. The design of the roundabouts and the Rapid Rectangular Flashing Beacons will create a safer crossing for students and residents.

More detailed review and comments related to Trunk Highway impacts may follow in subsequent reviews as needed. MnDOT Area staff does coordinate project development and supports needs and opportunities with local partners for cooperation.

MnDOT Metro District looks forward to continued cooperation with the City of Jordan as this project moves forward and as we work together to improve safety and travel options within the Metro Area.

Respectfully,

Sheila Kauppi

Digitally signed by Sheila Kauppi
Date: 2023.12.05 14:21:30 -06'00'

Sheila Kauppi
Metro District Engineer

CC: Aaron Tag, Metro District Programming
Bryant Ficek, Metro District South Area Manager

Equal Opportunity Employer

Sunset Drive Improvement Project

City of Jordan

Project Name: Sunset Drive Improvements
Applicant: City of Jordan
Primary Contact:
Mike Waltman
City Engineer
210 East 1st Street
Jordan, MN 55352
612-221-6946
Michael.waltman@bolton-menk.com

Location & Route:
Sunset Drive Through Jordan School Campus

Application Category:
Safe Routes to School

Funding Information:
Requested Award Amount: $1,000,000
Local Match: $679,000
Project Total: $1,679,000

Additional Funding Sources:
- City of Jordan
- Independent School District 171 Jordan Schools

Recent Accident:
Two children were hit by a vehicle and sustained injuries while crossing Sunset Drive in 2023.

2024	2024-25	2025
Award	Design	Construction

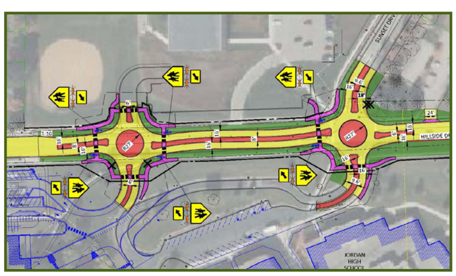
Project Description

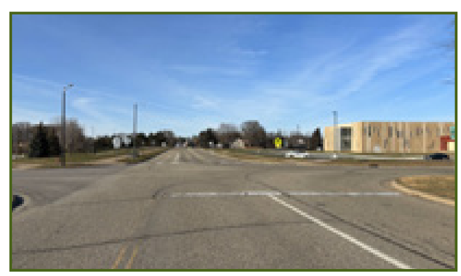
The proposed project will reconstruct Sunset Drive, resulting in in two compact roundabouts in order to provide safer access to Jordan Elementary and High Schools to the south, and Jordan Middle School to the north of Sunset Drive.

Sunset Drive is not currently adequate to handle the multi-modal methods used by students to get to school. The City of Jordan is working collaboratively with Jordan School District, ISD 717 to modify both Sunset Drive and the schools' site plan entrances to improve access and safety. There is currently only one marked crosswalk in the segment. The schools are accessed from Sunset Drive with multiple driveway accesses; these accesses are proposed to be replaced with singular direct access points at the proposed roundabout. These new roundabouts will help with traffic flow/queuing and provide safer and better defined pedestrian crossings with Rapid Rectangular Flashing Beacons (RRFBs). Jordan is forecasting significant growth and congestion and challenges with pedestrian and bicycle crossings will only continue to worsen if the area is not improved.

Project Benefits

The proposed project would improve multi-modal methods for students attending any of Jordan School District public schools. Given that all of the schools are located in such close proximity and there are shared facilities at each school, there are many daily pedestrian crossings on Sunset Drive. The proposed roundabouts with RRFBs at the Sunset Drive pedestrian crossing locations will reduce the number of conflict points by 75%, considerably calm traffic speeds, and create two-way staged crossings to simplify the pedestrian crossing experience. The RRFBs will further increase visibility to pedestrians and increase driver yielding compliance.





Project Development and Status

The City of Jordan and Jordan Public Schools have been working on this project for years. The project is based upon a 2015 Safe Route to School Plan, a follow-up 2019 traffic study, and a final traffic memo that determined the final concept. The City has completed a layout that is approved by the Jordan School District and match funding has been allocated by the City and Jordan School District. The City and School have recently completed more public engagement activities where the layout and concept have been publicaly supported.

Sunset Drive Improvements - City of Jordan
MN Engineering (bolton-menk.com)

Jordan Elementary & Jordan Middle School

Safe Routes to School Plan

Jordan School District | Jordan, Minnesota | December 2015

Upon request, information in this plan is available in alternate formats by contacting the author of the plan.

Funded through a MnDOT federal Safe Routes to School Planning Assistance Grant

Acknowledgements

The following key people/entities participated in the Safe Routes to School (SRTS) plan efforts for this Safe Routes to School Plan. Their creativity, energy, and commitment were critical to the success of this effort.

Andrew Barbes – City Planner

Brett Empey – Jordan Police Chief

Jo Foust – Consulting Planner

Scott Haas – City of Jordan

Laura Holey – City Planner

Tom Nikunen – City of Jordan

Tom Sand – Chair, Planning Commission

Jeff Vizenor – Jordan Public Schools

Mike Waltman – City of Jordan

Plan document prepared by:

alta PLANNING + DESIGN

community design group

Table of Contents

Introduction

What is Safe Routes to School?

Safe Routes to School (SRTS) is a program with a simple goal: helping more children get to school by walking and bicycling. Envision active kids using safe streets, helped by engaged adults (from teachers to parents to police officers), surrounded by responsible drivers.

Safe Routes to School programs use a variety of strategies to make it easy, fun and safe for children to walk and bike to school. These strategies are often called the "Five Es."

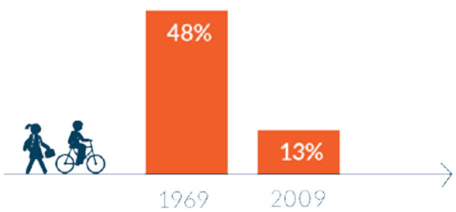
- Education: programs designed to teach children about traffic safety, bicycle and pedestrian skills, and traffic decision-making.
- Encouragement: programs that make it fun for kids to walk and bike. These programs may be challenges, incentive programs, regular events (e.g., "Walk and Bike Wednesdays") or classroom activities.
- Engineering: physical projects that are built to improve walking and bicycling conditions.
- Enforcement: law enforcement strategies to improve driver behavior near schools.
- Evaluation: strategies to help understand program effectiveness, identify improvements, and ensure program sustainability.

The Challenge

Although most students in the United States walked or biked to school pre-1980's, the number of students walking or bicycling to school has sharply declined. This decline is due to a number of factors, including urban growth patterns, school siting requirements, increased traffic, busy student schedules, and parental concerns about safety. The situation is self-perpetuating: as more parents drive their children to school, there is increased traffic at the school site, resulting in more parents becoming concerned about traffic and driving their children to school.

Why Safe Routes to School?

Within the span of one generation, the percentage of children walking or bicycling to school has dropped precipitously.

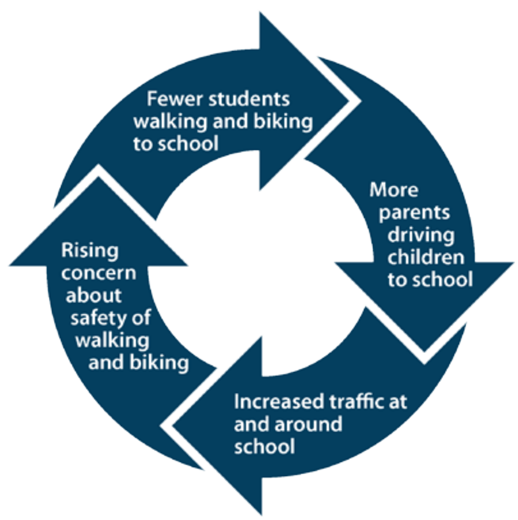


Kids are not getting enough physical activity.

Roads near schools are congested, decreasing safety and air quality for children.

Kids who walk or bike to school:

- Arrive alert and able to focus on school
- Get most of their recommended daily physical activity during the trip to school
- Are more likely to be a healthy body weight
- Demonstrate improved test scores and better school performance
- Are less likely to suffer from depression and anxiety[1]



The downward cycle of traffic and reduced walking and bicycling

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[1] More information, including primary sources, can be found at http://guide.saferoutesinfo.org.

Benefits of Walking and Bicycling to School

Safe Routes to Schools programs directly benefit schoolchildren, parents and teachers by creating a safer travel environment near schools and by reducing motor vehicle congestion at school drop-off and pick-up zones. Students that choose to bike or walk to school are rewarded with the health benefits of a more active lifestyle, with the responsibility and independence that comes from being in charge of the way they travel, and learn at an early age that bicycling and walking can be safe, enjoyable and good for the environment.

Safe Routes to Schools programs offer ancillary benefits to neighborhoods by helping to slow traffic and by providing infrastructure improvements that facilitate bicycling and walking for everyone. Identifying and improving routes for children to safely walk and bicycle to school is also one of the most cost-effective means of reducing weekday morning traffic congestion and can help reduce auto-related pollution.

In addition to safety and traffic improvements, an SRTS program helps integrate physical activity into the everyday routine of school children. Health concerns related to sedentary lifestyles have become the focus of statewide and national efforts to reduce risks associated with being overweight. Children who bike or walk to school have an overall higher activity level than those who are driven to school, even though the journey to school makes only a small contribution to activity levels. Active kids are healthy kids. Walking or bicycling to school is an easy way to make sure that children get daily physical activity.

SRTS benefits children:

- Increased physical fitness and cardiovascular health
- Increased ability to focus on school
- A sense of independence and confidence about their transportation and their neighborhood

SRTS benefits neighborhoods:

- Improved air quality as fewer children are driven to school
- Decreased crashes and congestion as fewer children are driven to school
- More community involvement as parents, teachers and neighbors get involved and put "eyes on the street"

SRTS benefits schools:

- Fewer discipline problems because children arrive "ready to learn"
- Fewer private cars arriving to drop off and pick up children
- Opportunities to integrate walking, bicycling and transportation topics into curriculum (e.g. "Walk & Bike Across America")
- Increased efficiency and safety during drop-off and pick-up times

How to Use this Plan

This SRTS plan provides an overview of Safe Routes to School with specific recommendations for a 5 E's approach to improve the safety and the health and wellness of students. The specific recommendations in this plan are intended to support infrastructure improvements and programs over the next 5 years.

It should be noted that not all of these projects and programs need to be implemented right away to improve the environment for walking and bicycling to school. The recommended projects and programs listed in this plan should be reviewed as part of the overall and ongoing Safe Routes to School strategy. Some projects will require more time, support, and funding than others. It is important to achieve shorter-term successes while laying the groundwork for progress toward some of the larger and more complex projects.

Parents lead students on walking school bus from a park and walk site

This plan includes recommendations for infrastructure projects both long- and short-term as well as programmatic recommendations. At the heart of every successful Safe Routes to School comprehensive program is a coordinated effort by parent volunteers, school staff, local agency staff, law enforcement and community advocates, such as public health. The following paragraphs highlight the unique contributions of key partners in Safe Routes to School.

Parents can use this report to understand the conditions at their children's school and to become familiar with the ways an SRTS program can work to make walking and bicycling safer. Concerned parents or city residents have a very important role in the Safe Routes to School process. Parent groups, both formal and informal, have the ability and the responsibility to help implement many of the educational and encouragement programs suggested in this plan. Parent groups can also be critical to ongoing success by helping to fundraise for smaller projects and programs that are implementable without serious effort on behalf of the district or local agency.

Parents waiting in queue for students at pick up play a significant role in student transportation safety

School district and school administrative staff can use this report to prioritize improvements identified on District property and develop programs that educate and encourage students and parents to seek alternatives to single family commutes to school.

District officials are perhaps the most stable of the stakeholders for a Safe Routes to School program and have the responsibility for keeping the program active over time. District staff can work with multiple schools sharing information and bringing efficiencies to programs at each school working on Safe Routes.

School administrators have an important role in implementing the recommendations contained within this SRTS plan. The impetus for change and improvement must be supported by the leadership of the school. School administrators can help with making policy and procedural changes to projects that are within school grounds and have the responsibility to distribute informational materials to parents within school publications.

Enforcement is a key component of successful SRTS programs. Safety officers can become a key ally of students walking and cycling to school

City and County staff can use this report to identify citywide issues and opportunities related to walking and bicycling and to prioritize infrastructure improvements. City staff can also use this report to support Safe Routes to School funding and support opportunities such as:

MnDOT Safe Routes to School (SRTS) grants

Federal Safe Routes to School (SRTS) grants

Statewide Health Improvement Program (SHIP)

For all infrastructure recommendations, a traffic study and more detailed engineering may be necessary to evaluate project feasibility, and additional public outreach should be conducted before final design and construction. For recommendations within the public right-of-way, the responsible agency will determine how (and if) to incorporate suggestions into local improvement plans and prioritize funding to best meet the needs of each school community.

Police department staff can use this report to understand issues related to walking and bicycling to school and to plan for and prioritize enforcement activities that may make it easier and safer for students to walk and bike to school. The Police Department will be instrumental to the success of the enforcement programs and policies recommended in this plan. The Police Department will also have a key role in working with school administrations in providing officers and assistance to some of the proposed education and encouragement programs.

Public health staff can use this report to identify specific opportunities to collaborate with schools and local governments to support safety improvements and encourage healthy behaviors in school children and their families.

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Vision and Planning Background

"Safe Routes to School initiatives will improve safety and encourage more students and families in Jordan to walk, bike or roll to school. The program will result in less traffic congestion, higher levels of physical activity, and an enhanced quality of life in our neighborhoods.

The program will connect students and their families with year-round opportunities for active transportation through education, encouragement, and use of a safe on-street and trail network. Safe Routes to School will foster a culture of healthy and active families by encouraging non-motorized forms of transportation as a safe, comfortable and normal way of getting to and from school."

The vision of walking and bicycling around Jordan Elementary School and Jordan Middle School will help frame the Safe Routes to School planning process and inform recommended improvements to pedestrian and bicycle infrastructure and programs.

Relevant Planning Background

The 2008 City of Jordan Comprehensive Plan states the importance of promoting active transportation options and says "Bicycle and pedestrian circulation is an important component of the transportation system that needs to continue to be developed." It goes on to explain that developing other modes of transportation will not only provide alternatives to the automobile, but reduce traffic demand. Priority connections include pedestrian and bicycle links to commercial and employment destinations.

The plan also articulates the importance of accommodating pedestrians safely near Jordan schools. "Sidewalks and trails, providing pedestrians a route to future controlled intersections, should be incorporated into road projects and land developments to safely accommodate pedestrian and traffic growth in the City."

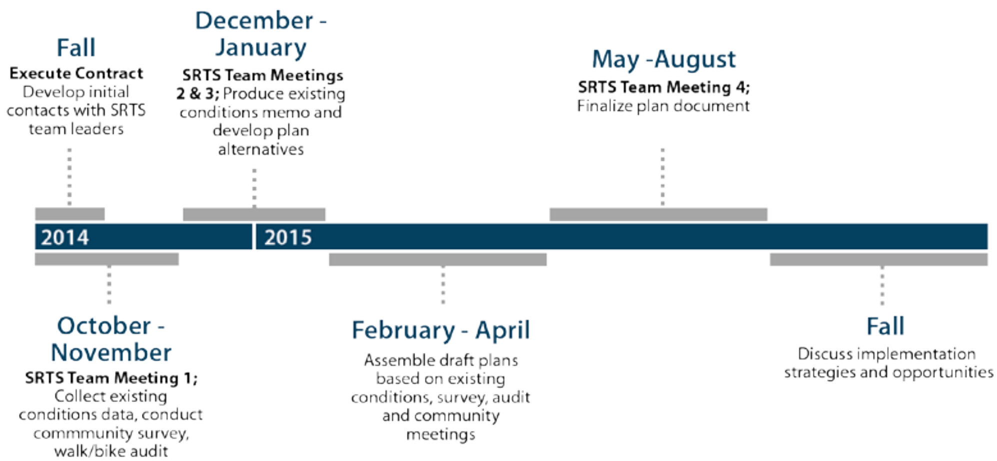
The Jordan School District adopted a Wellness Policy in 2010 that outlines the district-wide goals for physical activity and wellness. In addition to promoting physical activity during school hours, the policy also requires that "schools work with the community to create ways for students to walk, bike, rollerblade or skateboard safely to and from school."

Scott County recently formed a partnership between Public Health, Community Services, City Planners and local residents to form Go Scott Go, an organization whose vision is to create an active place where all residents "have access to opportunities to engage in daily physical activity and healthy lifestyle opportunities". Their website www.GoScottGo.org "connects residents to trails, walking and biking routes, parks and other physical activity events." A Carver Scott Statewide Health Improvement Program Community Active Living Intervention Assessment was completed in 2010, and resulted in a Walkable Communities Assessment in 2011 that included assessment of gaps in connectivity, crossings, and handicap accessibility.

A number of recent and planned projects are helping to improve conditions for pedestrians and bicyclists in Jordan, including a trail construction along County Road 66 in 2012, curb extensions and handicap accessibility improvements to downtown intersections, and planned crossing improvements including Rapid Rectangular Flashing Beacons (RRFBs) at key student crossing locations along Sunset Drive.

Planning Process

The year-long planning process for this SRTS plan included building an SRTS team, gathering data and information about existing conditions, developing recommendations for the 5 E's, and developing a written document that set forth a path for the SRTS program. The graphic below depicts key milestones in the planning process.



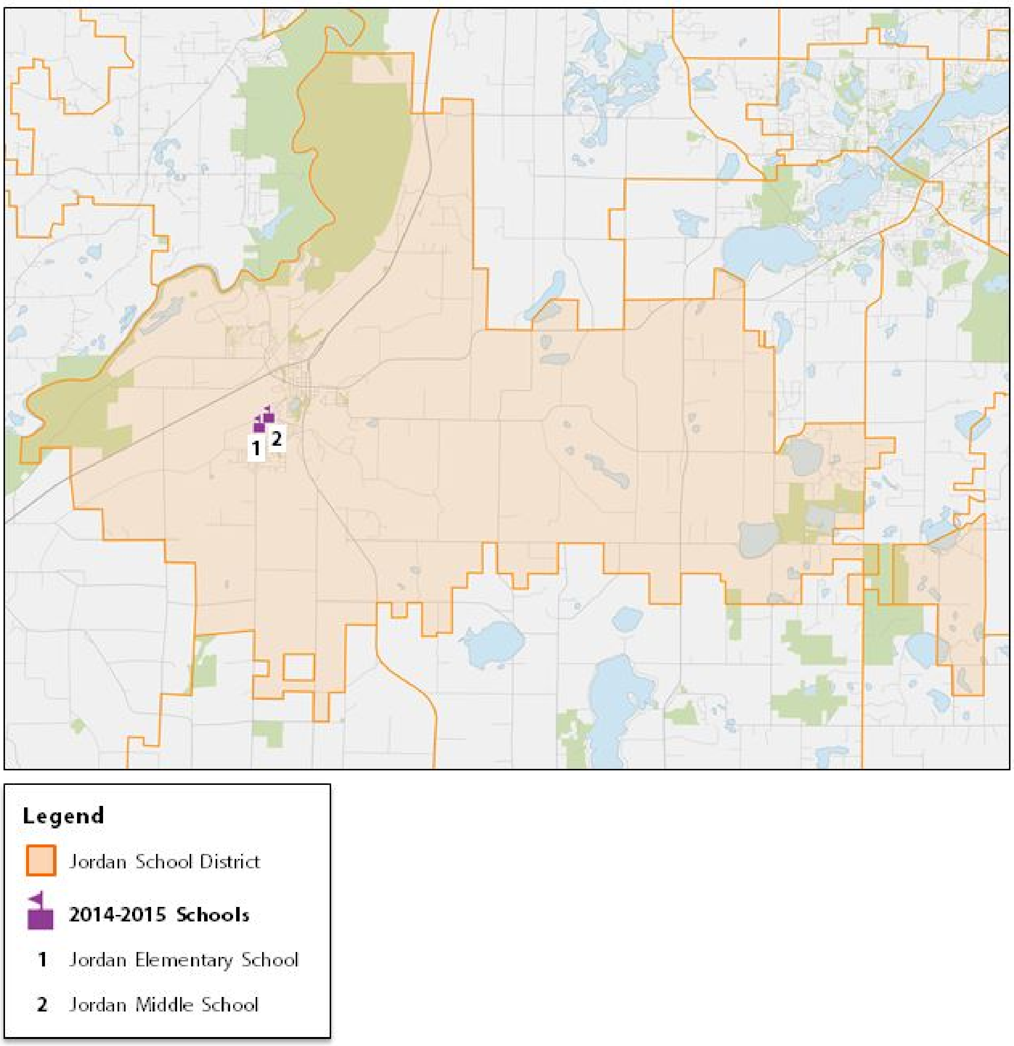
Existing Conditions

School Context

Jordan Elementary School located at the intersection of Sunset Drive (Highway 97) and Aberdeen Avenue. School enrollment for the 2014-15 school year was 701 students. The principal of Jordan Elementary is Melissa Barnett. Arrival time for students is 8:10am, and dismissal time is 2:24pm.

Jordan Middle School located at the intersection of Sunset Drive (Highway 97) and Sunset Drive. School enrollment for the 2014-15 school year was 519 students. The principal of Jordan Middle is Lance Chambers. Arrival time for students is 8:05am, and dismissal time is 3:00pm.

Jordan Elementary and Jordan Middle School Enrollment Boundary



Jordan Elementary School

Surrounding Land Use

Jordan Elementary School is bound by Hillside Drive to the north and Aberdeen Avenue to the west. Jordan High School is located directly east of the school, and Jordan Middle School is located across Hillside Drive to the northeast.

Single-family homes are located south of the school. One development is located within the half-mile buffer, has a direct pedestrian walking path to the school both along Aberdeen Avenue and (more prevalently used among students) through the school campus. A senior living facility is located directly west of the school on Aberdeen Avenue. Majority of the land to the west and northwest of the school is agricultural and open space.

Student Walking and Bicycling Conditions

Pedestrian facilities are available on one or both sides of nearby collector streets including Aberdeen Avenue, Hillside Drive, Hope Avenue, Sunset Drive, and County Road 66. Crossing collector streets is still a concern at some locations, especially at key crossing locations where cross-traffic does not stop. A paved path also connects Jordan Elementary to the high school, athletic fields, and Ridge Street. Pedestrian facilities were clear of ice and snow at the time of the site visit.

A local police officer helps to direct traffic and facilitate crossings at Hillside Drive and Sunset Drive (also the high school parking lot driveway) during arrival and dismissal. In the past, student patrols have also assisted with crossings at this location. Local police officers expressed interest in re-initiating a student patrol program.

School Layout

Jordan Elementary School is located on the northwest corner of a mega-block that includes the high school, a school district building, athletic fields, and a residential subdivision. A short-term parking area is located on the north side of the school building, and longer-term parking is located towards the west side of the building. Small secondary parking lots are located on the northeast and southwest corners of the school. Buses pick up on the north side of the building in the short-term parking area. During arrival and dismissal, parking in the north lot is

Timber Ridge Court, a residential cul-de-sac, is located directly north of Jordan Elementary School.

Students cross Hillside Drive in front of Jordan Elementary. A sidewalk is located on both sides of Hillside Drive at the location, and the crossing is well marked.

The driveway entrance to the parent loop on the south side of the school is marked with high-visibility striping and special signage.

limited to provide bus access. Private vehicles may use the parking lots on the west side of the school, though this is generally discouraged. The primary parent circulation area is located on the south side of the school, in a space that doubles as a blacktop playground during the day. Parents access the loop from a single driveway on Aberdeen Avenue.

Parents who wish to park use the lots on the west and northeast sides of the school when picking up their students.

Jordan Middle School

Surrounding Land Use

Jordan Middle School is bound by Sunset Drive on the east and Hillside Drive on the south. The residential streets to the west and north of the school have direct pedestrian trails to the campus. Jordan Elementary School and Jordan High School are located south of Jordan Middle School, across Hillside Drive.

In addition to the residential developments adjacent to the school, the public library and numerous commercial developments, including a grocery store and restaurants, are located a half-mile north of the school.

Jordan Middle School is bordered by residential uses on the west, north, and east. Additional single- and multi-family housing is located south of Jordan Elementary School and High School.

Student Walking and Bicycling - Existing Conditions

Sidewalks are located on the west side of Sunset Drive, on the south side of Hillside Drive, and on the north side of Hillside Drive for the extent of the middle school property. South of the school, sidewalks are present on the west side of Hope Avenue, on the east side of Aberdeen Avenue, and on the north side of County Road 66. Pedestrian paths connect the middle school to adjacent residential streets. Paved trails are also located between Jordan Elementary School and Jordan High School, with connections to Ridge Street (south of the high school).

Sidewalks are present on the west side of Sunset Drive, connecting to residential development northeast of the school, to the community library, and to commercial uses.

The sidewalks were very well maintained during the time of the audit. The school does the plowing on-site and along the frontage of Sunset Drive. The City maintains the Sunset sidewalks north of Cedar Lane Drive.

School speed zone signage is posted starting a half-mile north of the middle school. Pedestrian improvements, including crossing enhancements, are planned north of the school along Sunset Drive.

Currently, local law enforcement helps to direct traffic and facilitate crossings at Sunset Drive and Hillside Drive during school arrival and dismissal. Law enforcement officers expressed an interest in re-starting the student patrol program.

A local police officer helps to direct traffic and facilitate crossings at Sunset Drive and Hillside Drive.

School Layout

Jordan Middle School will be reconstructed during 2015, with completion expected by the end of the year. Jordan Middle School has three driveways on Sunset Drive. All vehicles enter through the center driveway. Private vehicles exit from the northern driveway, and buses exit from the southern driveway. The school parking lot, which is also used for parent pick-up and drop-off, is located on the north side of the school. There is not a designated private vehicle loop. If parents choose to drop off students along the curb, the passenger side is away from the curb, due to the circulation patterns. Buses circulate on the east side of the building. The remodel will include a new bus loop and separate car circulation area. A new parking lot will be added to the south side of the building for community center access, with a driveway onto Hillside Drive.

Students wait for their parents outside the main entry. Some parents pick up along the curb, others pick up from the parking lot.

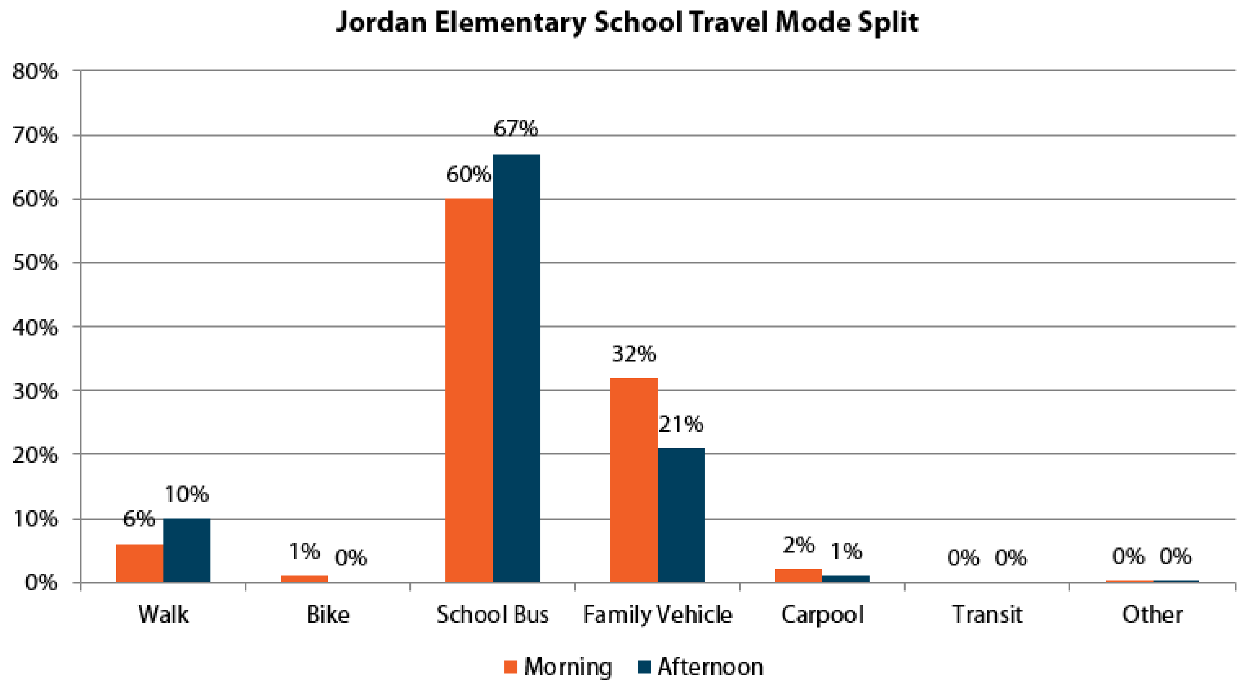
School Travel Patterns

Jordan Elementary School

In-classroom tallies of students' arrival and departure travel modes were conducted at Jordan Elementary School in May 2015. A total of 313 trips were tallied in the morning and 167 trips were tallied during the afternoon.

Overall, 64% of students traveled to and from school by school bus and27% by family vehicle. Eight percent of students walked to and from school, 1% carpooled and 0.5% traveled by bike. As shown in the chart, the mode split was fairly consistent during the morning and afternoon, with slightly more students taking the bus home in the afternoon and fewer being driven home in the family vehicle.

Student Travel Survey Summary

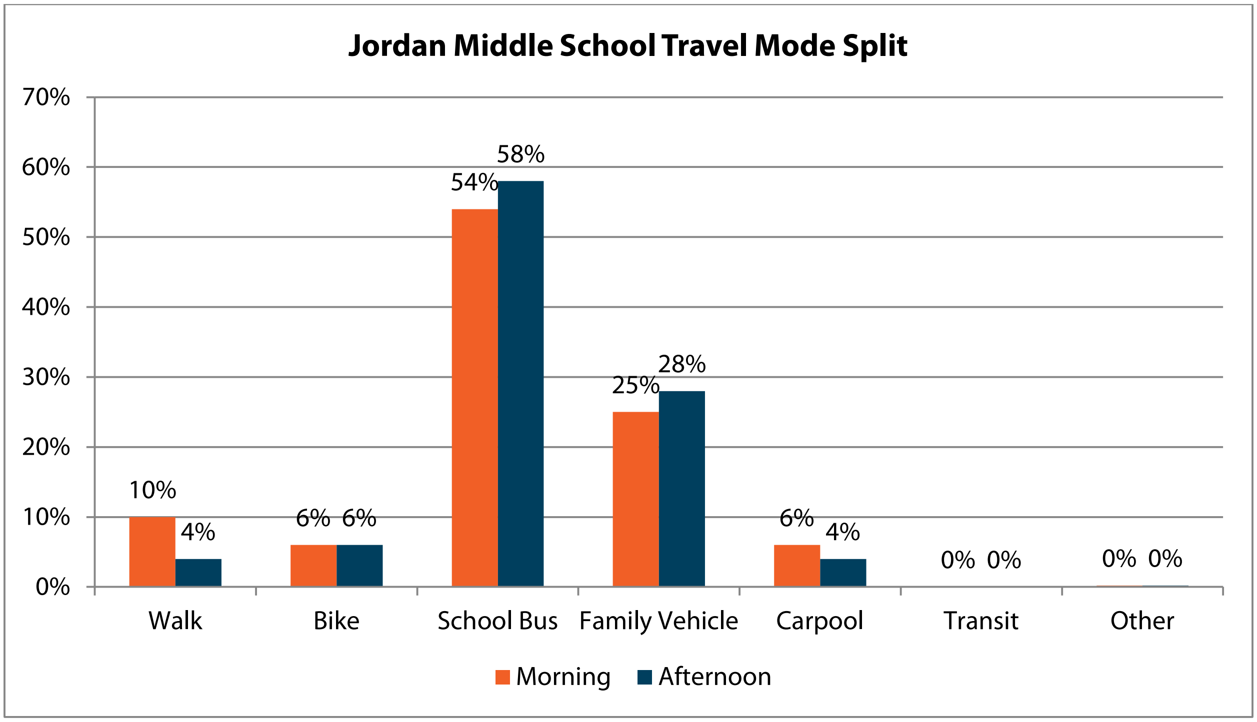


Jordan Middle School

In-classroom tallies of students' arrival and departure travel modes were conducted at Jordan Middle School in May 2015. A total of 124 trips were tallied in the morning and 128 trips were tallied during the afternoon.

Overall, 56% of students traveled to and from school by school bus and 26% by family vehicle. Seven percent of students walked to and from school, 5% carpooled and 6% traveled by bike. As shown in the chart, the mode split was fairly consistent during the morning and afternoon, with slightly more students taking the bus home in the afternoon.

Student Travel Survey Summary



Traffic Conditions and Crash Analysis

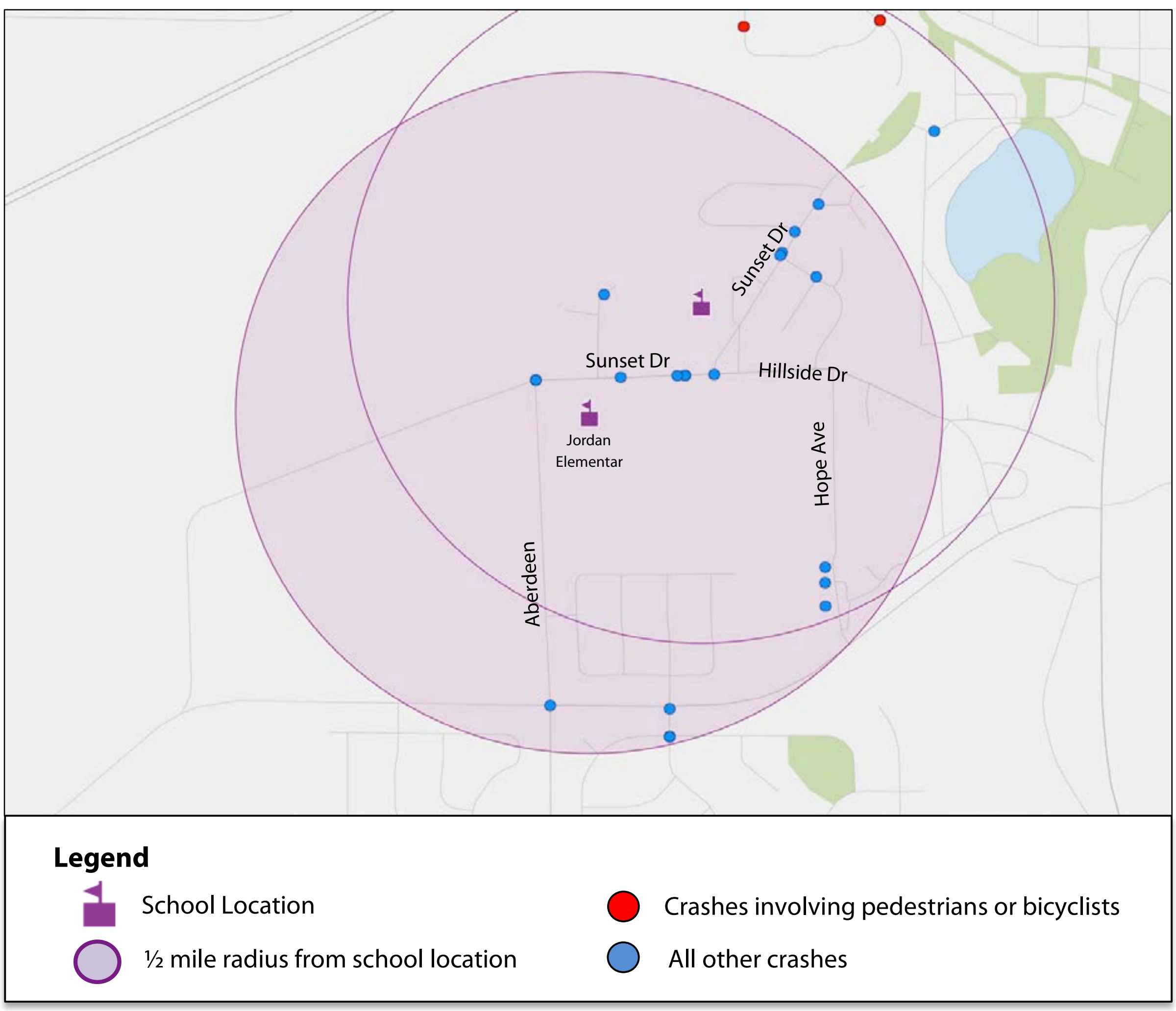
Jordan Elementary School

An assessment of collisions surrounding the campus of Jordan Elementary School was completed using Minnesota Department of Transportation (MnDOT) crash data from 2004 - 2013. A primary objective in analyzing this data is to identify crash patterns and particular locations or corridors that have been unsafe for pedestrians and bicyclists over a period of time.

Data from 2004 - 2013 reported a total of 20 collisions within 1/2 mile of Jordan Elementary School. Of these collisions, none involved pedestrians or bicyclists.

Five of the 20 collisions occurred on Sunset Drive where it borders the school on the north. Another four collisions occurred along Sunset Drive, where it borders the nearby Jordan Middle School campus on the east. An additional three collisions occurred on Hope Avenue near a residential development, further south of the school.

Jordan Elementary School Area Crash Locations 2004 – 2013



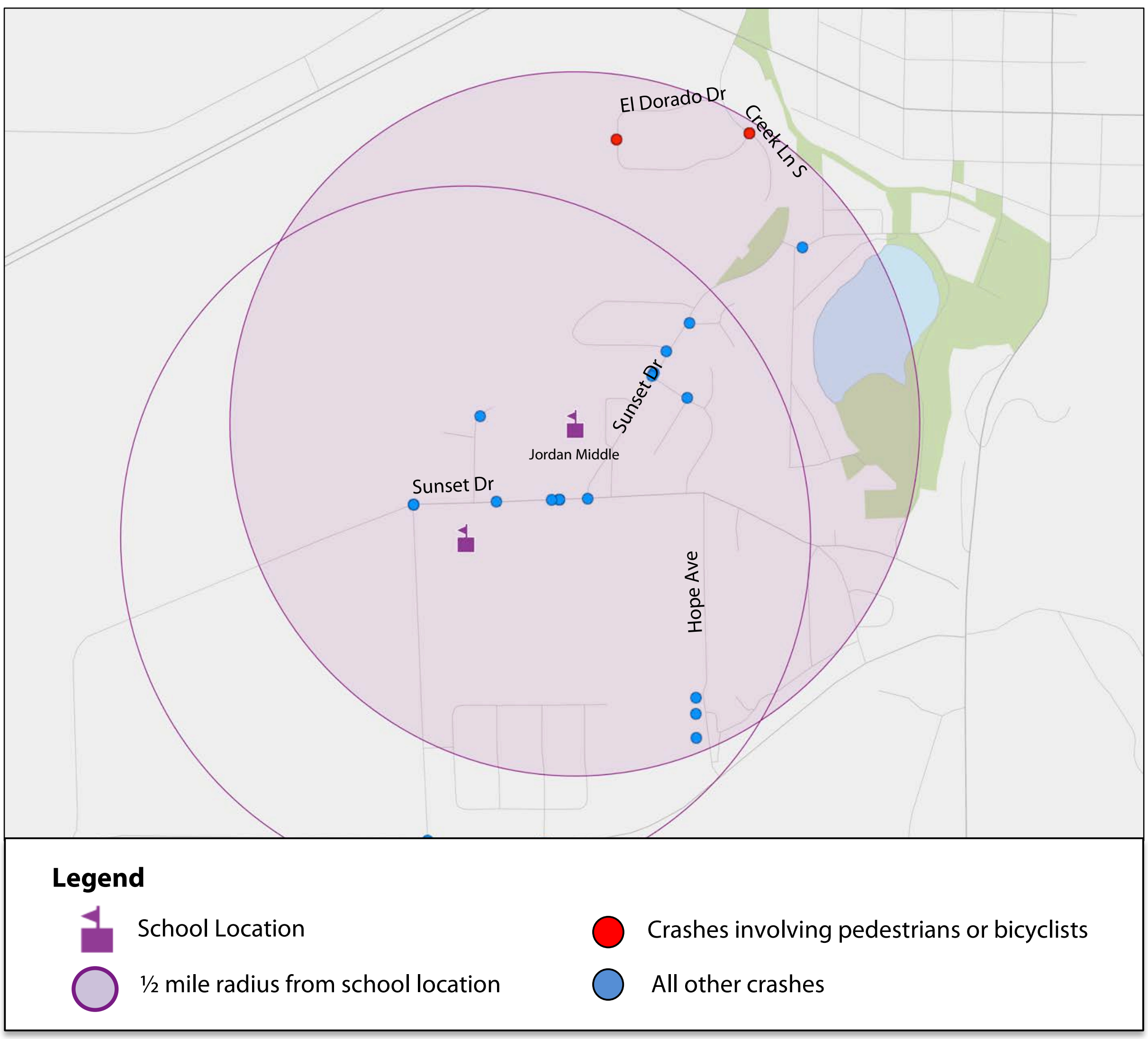
Jordan Middle School

An assessment of collisions surrounding the campus of Jordan Middle School was completed using Minnesota Department of Transportation (MnDOT) crash data from 2004 - 2013. A primary objective in analyzing this data is to identify crash patterns and particular locations or corridors that have been unsafe for pedestrians and bicyclists over a period of time.

Data from 2004 - 2013 reported a total of 20 collisions within 1/2 mile of Jordan Middle School. Two of the collisions involved bicyclists, both of whom were under the age of 18.

The two bicycle collisions occurred north of the school campus in a commercial area, one on Creek Lane South and another near Creek Lane South, on El Dorado Street. Four of the 20 collisions occurred along Sunset Drive, where it borders the school campus on the east. Another four collisions occurred on Sunset Drive where it borders the school on the south. An additional three collisions occurred on Hope Avenue near a residential development, further south of the school.

Jordan Middle School Area Crash Locations 2004 – 2013



Site Audit

The audit took place during school arrival on November 18, 2014. The weather was cold (7°F) and cloudy. Representatives attended from Jordan Elementary School and Jordan Middle School. Two members of the consultant team conducted the dismissal observation. Prior to dismissal, they completed a walking and driving audit of the surrounding area.

Students walk east on Hillside Drive towards the high school. A police officer facilitates crossings at Hillside Drive and Sunset Drive during arrival and dismissal.

Jordan Elementary School

Walking and Bicycling

Walkers are escorted out the main northern doors with their classes. Walkers traveling south wrap around the east side of the school and use the path, or cut across the field, to access residential neighborhoods south of the school. Five students were observed walking home in this direction. Other students walked east along the path connecting the front door to the sidewalk along the south side of Hillside Drive. These students continued east toward the intersection of Hillside Drive and Sunset Drive. Some continued east along Hillside, while others crossed Hillside and traveled north along the west side of Sunset. A few students crossed Hillside directly north of the school at the crosswalk to access Timber Ridge Court.

No bicyclists were observed.

Students use the campus pedestrian trail to walk to Ridge Street, a subdivision south of the school.

Bus

School buses pick up on the north side of the school. They enter and exit on driveways off of Hillside Drive (enter west driveway and exit east driveway). Visitor parking is also located on the north side of the bus loop. There are some safety concerns with parents who continue to drop their students off on the north side of the school, although school policy is that no cars are allowed in front for drop-off.

Car

Students being picked up by parents exit from the southern doors. Parents enter the parent loop off of Aberdeen Avenue. They travel through the parking lot, loop through the basketball court, and then pick up students curbside on the northwest side of the lot. There is a small pick-up zone where students wait grouped by grade for their parents to loop through the lot. Three faculty members on rotating shifts help to facilitate pick-up, and keep kids organized.

School buses pick up students on the north side of the school.

Older students know the routine and line up at various points along the curb when they see their parents' car to wait. When the temperatures drop below 0°F, students wait in the cafeteria and faculty use walkie-talkies to call students out as parents rotate through the line.

Parents who want to park and walk their students in are encouraged to use the parking lot on the west side of the building. Parents use the preschool door on the northwest side or the main entry.

Parents circulate through the southern parking lot and play area to pick up students. A faculty member who manages the process daily quickly matches the students with their parents.

Jordan Middle School

Walking and Bicycling

During observation, about ten walkers were observed traveling north along Sunset Drive. Fifteen students were observed walking south along Sunset Drive to access the school. Six students were observed crossing Sunset Drive from the neighborhood to the east, using the crossing at Cedar Lane Drive. Students were observed crossing Sunset Drive directly from their homes, not utilizing the crosswalk. Some students were observed walking from beyond the Fireman's Park Intersection (where Sunset Drives turns into Creek Lane) from downtown. No bikers were observed; however, the principal mentioned that many students bike in the warmer weather.

A student who lives on the east side of Sunset Drive runs across the street to Jordan Middle School.

Bus

Buses enter the site at the same middle driveway that the cars use. After entering the property, buses turn left and drop off students along the north-south curb directly to the east of the school. Buses exit the property using the southern driveway. Sometimes there were conflicts between cars/pedestrians/buses on site where the bus travel circulation intersects the two other modes just east of the main school entrance.

In the afternoon, high school students walk to Jordan Middle School to catch the bus. Buses park diagonally in the afternoon. Not all buses are waiting outside at the time of dismissal. Students wait outside in groups until their buses arrive.

In the afternoon, both middle school and high school students catch the bus at Jordan Middle School.

Car

Cars pulled in along the left curb and dropped off students very close to the main entrance doors. Sometimes the drop off line was double in width. Cars then looped around the perimeter of the lot (counter-clockwise) or through the parking aisles to exit from the north driveway back to Sunset Drive. Vehicles occasionally backed up to exit onto Sunset Drive, and at the intersection of Hillside Drive and Sunset Drive. Drivers were generally respectful of people crossing the street at the intersections along Sunset Drive.

The principal and several teachers were outside in the afternoon—the principal mentioned that cars sometimes stack up along the curb to try to be as close to the door as possible. Cars are supposed to park in the parking lot if they want to get out of the car to come in to meet their students. Having the cars line up along the curb creates a safety hazard for students who walk into the parking lot to find their ride.

Some parents drop off along the curb on the north side of the school. Because of the campus traffic circulation, the driver's side door is curbside, while passengers are unloaded into the passing lane.

Parents are asked to pick up from the parking lot.

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Infrastructure Issues and Recommendations

The initial field review and subsequent meetings yielded specific recommendations to address the key identified barriers to walking and bicycling at Jordan Elementary School and Jordan Middle School. This plan does not represent a comprehensive list of every project that could improve conditions for walking and cycling in the neighborhood, but rather the key conflict points and highest priority infrastructure improvements to improve walking and cycling access to the school. The recommendations range from simple striping changes and school signing to more significant changes to the streets, intersections and school infrastructure. Short-term projects that should be addressed in the 2015-2016 school year are noted as such in the Implementation Strategy section of this plan. Some of the more significant recommendations for changes to streets and intersections may require policy changes, additional discussion and coordination, engineering, and significant funding sources.

All engineering recommendations are described in Table 1 with locations shown on the Recommended Improvements Maps. It should be noted that funding is limited and all recommendations made are planning-level concepts only. Additional engineering studies will be needed to confirm feasibility and final costs for projects.

Note: In addition to the recommendations in Table 1, additional recommendations were received from parents and school staff. Those recommendations include improving the following intersections:

- 2nd Street W at Hwy 169
- Broadway Street N (County Road 21) at Water Street and 1st Street E
- Sand Creek on westbound 1st Street to Creek Lane
- 2nd Street W at N Varner Street

Maintenance

School routes and crosswalks should be prioritized for maintenance. To ensure high visibility crosswalks maintain their effectiveness, review all crosswalks within one block of the school each year. If there is notable deterioration, crosswalks should be repainted annually. In addition, crosswalks on key school walk routes should be evaluated annually and repainted every other year or more often as needed.

Because walking and cycling diminish during the cold winter months, it is particularly important to prioritize snow removal and maintenance of school routes. Snow removal is a critical component of pedestrian and bicycle safety. The presence of snow or ice on sidewalks, curb ramps, or bikeways will deter pedestrian and cyclist use of those facilities to a much higher degree than cold temperature alone. Families with children will avoid walking in locations where ice or snow accumulation creates slippery conditions that may cause a fall. Curb ramps that are blocked by ice or snow effectively sever access to pedestrian facilities. Additionally, inadequately maintained facilities may force pedestrians and bicyclists into the street. Identified routes to school should be given priority for snow removal and ongoing maintenance.

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Table 1. Jordan Elementary School and Jordan Middle School Issues and Recommendations

Project #	Location	Problem/Issue	Solution/Recommendation	Lead Agency
A	County Road 66 at Marion Lane/Bridle Creek Drive	This important crossing is a safety concern. Students were observed crossing from Marion Lane to Bridle Creek Drive. This is a high speed (50 mph posted) street without markings, signs or enhancements.	Consider removing the right turn only lanes, establishing a center median refuge island, and use Rectangular Rapid Flash Beacons to alert drivers to crossing pedestrians. If speed and stopping sight distance is a concern, consider advance RRFB installs to improve awareness.	Scott County
B	Sunset Drive from Rustle Road to Hillside Ave	Travel lanes are 15 ft. wide, potentially encouraging faster than appropriate travel speeds.	Mark 5 ft. shoulders on each side of the roadway to visually narrow each travel lane.	City of Jordan
C	Jordan Middle School	Car drop-off areas circulate clockwise around the parking lot, requiring children to walk into circulating car traffic to walk around the car.	Flip circulation direction to counter clockwise so that students may exit at the curbside of the school.	School District
D	Hope Ave Marked Pedestrian Crossings	Crossing distance is wider than necessary, cars are traveling quickly.	Install a center median island to slow traffic and simplify pedestrian crossings.	City of Jordan
E	Sunset Drive at Creek Ln S	RRFB is proposed as part of a grant application, but there remains some concern about visibility.	Install advance RRFBs for northbound drivers to improve awareness of pedestrians prior to the curve.	City of Jordan
F	Creek Ln S at Hwy 169	Highway blocks access along Creek Ln S. This may serve as an alternative to the large 2nd St intersection.	Study the feasibility of a grade separated bicycle/pedestrian crossing of Hwy 169 at Creek Ln. (Off Map)	MnDOT / City of Jordan
G	Sunset Dr and Hillside Dr	Stop controlled intersection suffers from congestion and confusion due to high volumes of crossing students and turning drivers.	Study the feasibility of rplacing the stop controlled intersection at Sunset Dr and Hillside Dr with very slow-speed compact roundabout.	City of Jordan

Jordan Elementary School and Jordan Middle School Infrastructure Recommendations

Project #	Solution/Recommendation
A	Consider removing the right turn only lanes, establishing a center median refuge island, and use Rectangular Rapid Flash Beacons to alert drivers to crossing pedestrians. If speed and stopping sight distance is a concern, consider advance RRFB installs to improve awareness.
B	Mark 5 ft. shoulders on each side of the roadway to visually narrow each travel lane.
C	Flip circulation direction to counter clockwise so that students may exit at the curbside of the school.
D	Install a center median island to slow traffic and simplify pedestrian crossings.
E	Install advance RRFBs for northbound drivers to improve awareness of pedestrians prior to the curve.
F	Study the feasibility of a grade separated bicycle/pedestrian crossing of Hwy 169 at Creek Ln. (Off Map)
G	Study the feasibility of rplacing the stop controlled intersection at Sunset Dr and Hillside Dr with very slow-speed compact roundabout.

Existing Conditions

- School Grounds
- Sidewalks/Paths
- Standard Crosswalk
- High Visibility Crosswalk
- Scool/Pedestrian Warning Sign
- Scool/Pedestrian Crossing Sign
- Traffic Signal
- Stop Sign
- Rapid Flash Beacon
- Bike Parking
- Parent / Bus Loading
- Crossing Guards

Recommendations

- Road Reconfiguration
- Sidewalks/Paths
- High Visibility Crosswalk
- Ehnhanced Crosswalk
- School Speed Limit Signs
- Traffic Calming
- Rapid Flash Beacons

Programs Recommendations

The Safe Routes to School movement has been a leader in acknowledging that infrastructure changes are a necessary but insufficient condition for shifting school travel behavior. While engineering improvements like sidewalks, crosswalks, and bikeways are important, equally important are education programs to make sure children and families have basic safety skills, encouragement programs to highlight walking and bicycling to school as fun and normal, enforcement against unsafe and illegal motorist behavior, and evaluation of the impact of investments and non-infrastructure efforts.

Recommended Programs

- Walking school bus and/or bike train
- International Walk to School Day and Bike to School Day
- SRTS walk and bike maps
- School SRTS Communication
- Classroom lessons (Minnesota Walk! Bike! Fun! Curriculum)
- School specific trip tracking/competitions
- Walking/Bicycling to School Mileage Contests

The following programs were identified as priority programs for Jordan Elementary and Jordan Middle School during the SRTS planning process. These programs were selected to meet the interest and needs of the school community in the near term (one to five years). The programs are recommended to serve both schools and can be implemented in tandem, however programs can be tailored and implemented to meet the age group and interests of the school and students.

For each program concept, the recommendation includes the primary intended outcomes, potential lead and partners, a recommended timeframe for implementation, resources and sample programs, and a short description.

School Community Programs

Walking School Bus or Bike Train

Primary Outcomes	Improved walking and bicycling safety behavior; youth empowerment
Potential Lead	Parents or other school volunteers, SHIP staff
Potential Partners	Jordan Elementary and Middle Schools Principals and Staff, Jordan School District; City of Jordan; Jordan Police Department
Recommended Timeframe	Can be first associated with an event and build to weekly and daily depending on interest and volunteer capacity.
Getting Started	• Consider a simple survey to determine interest in promoting as a school-wide or neighborhood program • Identify a coordinator • Coordinate with Walk and Bike to School Maps
Planning Resources	The Walking School Bus Guide: Combining Safety, Fun, and the Walk to School (SafeRoutesInfo.org) http://guide.saferoutesinfo.org/walking_school_bus/index.cfm
Sample Programs	Portland, Oregon http://www.biketrainpdx.org/ http://www.portlandoregon.gov/transportation/article/232532

A walking school bus involves a group of children walking to school with one or more adults. The "bus" follows the same route every time and picks up children from their homes at designated times. Children like the walking school bus because it gives them active social time before the school day begins (or, as one participating child put it, "it's like recess before school!"). Adults like the walking school bus because they feel more comfortable when there are trained, trustworthy adults escorting their children to school. Teachers and principals like the walking school bus because it helps kids arrive ready to concentrate on school.

A bicycle "train" is very similar to a walking school bus; groups of students accompanied by adults bicycle together on a pre-planned route to school. They may operate daily, weekly or monthly. Bike trains also help address parents' concerns about traffic and personal safety while providing students a chance to socialize, be active, and develop riding skills while under adult supervision.

Benefits

- Directly addresses two of the most common parental fears regarding walking or bicycling to school: stranger danger and traffic safety
- Highly convenient for parents and fun for students
- Scalable program that can increase in frequency or coverage as participation grows
- Helps develop bonds among classmates and neighbors, which can extend beyond the school day

International Walk and Bike to School Day

Primary Outcomes	Increased walking and bicycling; youth empowerment
Potential Lead	School Administrators in partnership with SHIP staff
Potential Partners	Jordan Elementary and Middle Schools; Jordan PTO, Jordan Police Department, students; local businesses; local celebrities
Recommended Timeframe	Twice a year - Annually on or around International Walk and Bike to School Day in October and in May around Bike to School Day.
Getting Started	• Form an event planning team • Consider the scale and format of the event and assess volunteer capacity • Set a date early • Determine incentive structure
Planning Resources	International Walk to School: http://www.iwalktoschool.org/ Walk Bike to School: http://www.walkbiketoschool.org/ MnDOT Walk and Bike to School Day Webinar: http://www.dot.state.mn.us/saferoutes/toolkit.html
Sample Program	Oregon Safe Routes to School: http://www.walknbike.org/schools

Walk and Bike to School Day is an international event that attracts millions of participants in over 30 countries in October. The event encourages students and their families to try walking or bicycling to school. Parents and other adults accompany students, and staging areas can be designated along the route to school where groups can gather and walk or bike together. These events can be held for one or more days.

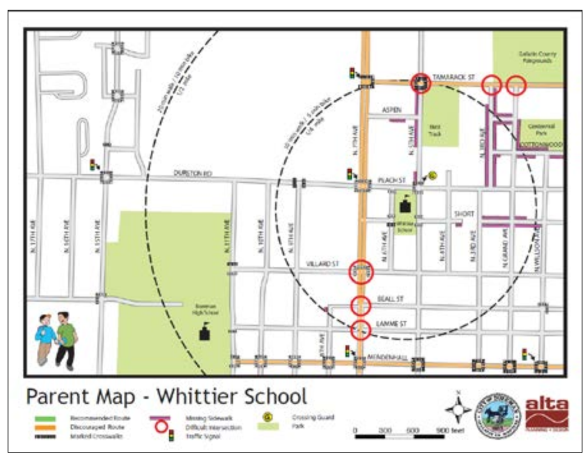
International Walk to School Day draws large numbers of students and families to walk to school

Walk and Bike to School Day events are often promoted through press releases, backpack/folder/electronic mail, newsletter articles, and posters. Students often earn incentives for participating, such as healthy snacks, buttons, or stickers. The event planning team can work with local businesses, such as grocery stores, to provide donations to students participating in the events. There can also be a celebration at school following the morning event, such as an awards ceremony, lunch time party, or a raffle. This can require substantial coordination time, as well as time to develop promotional materials and secure donations. Walk and Bike to school can be combined with other programs such as Park and Walk for those students that live too far from school to walk or bike.

Walk and Bike to School Route Maps

Primary Outcome	Improved walking and bicycling safety, knowledge of supportive infrastructure
Potential Lead	City of Jordan Planning Department; SHIP staff
Potential Partners	School administrators; teachers and crossing guards, parents, students
Recommended Timeframe	Distribute when students and families are adjusting to new habits, e.g., back-to-school, following winter/spring break, as weather gets warmer. Revise and redistribute annually, if possible.
Getting Started	• Determine format of map • Identify resources to produce and distribute map • Collaborate with parents to identify key routes
Planning Resources	National Center for Safe Routes to School's Map-a-Route Tool: http://maps.walkbiketoschool.org/ MnDOT Walk and Bike to School Maps Webinar http://www.dot.state.mn.us/saferoutes/toolkit.html
Sample Maps	Bozeman, MT: http://www.bozeman.k12.mt.us/schools/safe_routes/ Santa Clarita, CA: http://www.santa-clarita.com/index.aspx?page=177 Rochester, NY: http://www.walkinginfo.org/pedsafe/casestudy.cfm?CS_NUM=33

Walk and Bike to School Maps, sometimes called Suggested Route to School maps, help families choose the best route for walking or bicycling to school. Maps show stop signs, signals, crosswalks, sidewalks, bikeways, paths/trails, school entrances, bike parking, and crossing guard locations around a school. Maps may also show transit routes and stops, school enrollment areas, pick-up/drop-off zones, and important destinations, such as community centers and parks. Some less objective elements to consider include recommended routes, good walking/biking routes, and hazardous locations.



Walk and Bike to School Maps show the safest streets and crossings for getting to school.

The team leading the mapping effort should decide in advance whether the maps will be distributed electronically or in paper form, as this can inform how the map is produced. Maps may be produced using mapping or drawing technologies, such as GIS or Adobe Illustrator, but can also be as simple as hand drawn maps or marked up Google maps. Students may also be engaged in the making of maps through classroom or after-school activities. The City of Jordan can take leadership in developing maps that serve all the campus area for both schools. SHIP staff and school administers should collaborate on development of suggested routes and addition of information that supports other education and encouragement programs.

School SRTS Communications

Primary Outcomes	This will depend on the communications; however, outcomes may include increased walking, bicycling, transit, or carpooling; improved walking, bicycling, or driving safety behavior; and health and environmental connections.
Potential Lead	Teachers, administrators, or staff, parents
Potential Partners	Jordan School District; SHIP staff; City of Jordan
Recommended Timeframe	Ongoing throughout the school year
Getting Started	• Identify communication methods and where SRTS information can be added • Gather existing SRTS content from various resources and identify needs for Rushford specific content • Develop preliminary schedule
Planning Resources	National Center for Safe Routes to School http://www.saferoutesinfo.org/
Sample Programs	City of Portland, Safe Routes Newsletters http://www.portlandoregon.gov/transportation/45746

The strongest Safe Routes to School efforts are those that, over time, begin to change the culture of school transportation by normalizing walking and bicycling. One of the ways to help promote walking and bicycling as normal, everyday activities is to disseminate consistent, ongoing communications to the school community. The most effective way to reach parents and other community members is through existing communications, through media they already see, hear, and pay attention to. For this reason, it is recommended that the schools identify the most used communication methods and take advantage of those existing channels for sharing Safe Routes to School facts, tips, education, and encouragement. Communication channels could include parent emails, backpack mail, newsletters, community papers, websites, blogs, or social media. For example, the school may choose to feature a Safe Routes to School corner or page on their existing website if it is well used by parents and updated often.

Classroom Lessons (Minnesota Walk! Bike! Fun! Curriculum)

Primary Outcomes	Improved walking and bicycling safety behavior; youth empowerment
Potential Lead	Teachers/administrators at Jordan Elementary and Middle Schools
Potential Partners	Jordan School District; PTO/parents; City of Jordan; SHIP staff, Bicycle Alliance of Minnesota
Timeframe	Regularly integrated as viable. Safety training and skills elements twice per year.
Getting Started	• Download and review curriculum • Identify interested teachers • Have a key teachers attend a Bike Minnesota training session • Teachers plan for integration of curriculum
Planning Resources	Minnesota Walk! Bike! Fun! Curriculum http://www.dot.state.mn.us/saferoutes/ http://www.bikemn.org/education/srts-education-curriculum
Sample Programs	Oregon Safe Routes to School: http://walknbike.org/pedestrian-safety/ National Highway Traffic Safety Administration: http://www.nhtsa.gov/ChildPedestrianSafetyCurriculum

A variety of existing in-classroom lessons and skills training activities are available to help teach students about walking, bicycling, health, and traffic safety.

Pedestrian safety training teaches basic lessons such as, "look left, right, and left again".

Benefits

- One of the quickest and easiest ways to ensure all children receive important information on the safety basics and benefits of walking and bicycling
- Flexible activities can accommodate a variety of time/ space constraints and grade levels
- Helps institutionalize pedestrian and bicycle safety as a priority life skill (similar to home economics or driver education)

In-class lessons introduce the topic of pedestrian and bicycle safety to children, including what types of situations they may encounter on the road, how to follow street signs, and how to interact with drivers. Rhymes, songs, and videos can be used to help children remember how to walk and cross streets safely.

The new **Minnesota Walk! Bike! Fun! Pedestrian and Bicycle Safety Curriculum** is a two-part curriculum designed specifically for Minnesota's schools and is structured to meet Minnesota education standards. The Minnesota Walk! Bike! Fun! Pedestrian and Bicycle Safety Curriculum was developed by the Bicycle Alliance of Minnesota in collaboration with the Minnesota Department of Transportation and the Center for Prevention at Blue Cross and Blue Shield of Minnesota. The curriculum was designed to help children ages five to thirteen learn traffic rules and regulations, the potential hazards to traveling, and handling skills needed to bike and walk effectively, appropriately and safely through their community. This curriculum is free for anyone to download and use.

Trip/Mileage Tracking Program

Primary Outcomes	Increased walking, bicycling, transit use, or carpooling; youth empowerment
Potential Lead	Jordan Elementary and Middle Schools Administration and teachers; PTO/parents
Potential Partners	Jordan School District; local groups/advocates/volunteers; local businesses
Recommended Timeframe	Annually, possibly in conjunction with International Walk and Bike to School Day or Bike Month
Getting Started	• Identify staff and volunteer resources available • Determine the duration and format of the competition • Consider coordination with other events or learning objectives at the school
Planning Resources	National Center for Safe Routes to School Guide: http://guide.saferoutesinfo.org/encouragement/mileage_clubs_and_contests.cfm Fire Up Your Feet Minnesota: http://mn.fireupyourfeet.org/about/fire-your-feet-minnesota MnDOT Encouragement Programs: Trip Tracking and Competitions webinar http://www.dot.state.mn.us/saferoutes/toolkit.html
Sample Program	Marin County (CA) Pollution Punchcard: http://www.saferoutestoschools.org/SR2Simages/Pollution-Guide-09-2.pdf

A trip or mileage tracking program can be implemented as an opt-in club, a classroom activity, or a collaborative school-wide event. Students track trips or mileage made by walking, bicycling, transit, or carpools with some type of goal or culminating celebration or reward. Students can work towards a certain milestone to earn a prize or raffle entry, or they can track their individual or group progress as miles across their town, the state of Minnesota, or the United States. The program should encourage all students to participate, regardless of where they live; those who live too far to walk can participate in a "park and walk" activity or students can be accommodated in PE class or during recess. Example programs include Pollution Punchcards or Walk Across America.

Classrooms can complete for the 'golden sneaker award' or other that honors their walking and cycling efforts

Simple punch cards can be used to track trips

Evaluation

Why evaluate?

Evaluation is an important component of any Safe Routes to School effort. Not only does evaluation measure a program's reach and impact on a school community, it can also ensure continued funding and provide a path forward for ongoing and future efforts. Evaluation can measure participation and accomplishments, shifts in travel behavior, changes in attitudes toward bicycling and walking, awareness of the Safe Routes to School program, and/or the effectiveness of processes or programs.

Safe Routes to School evaluation is beneficial in the following ways:

- Indicates whether your SRTS efforts are paying off. Evaluation can tell you what's working well, what's not, and how you can improve your program in the future.
- Allows you to share your program's impact with others. Evaluation can demonstrate the value of continuing your program, with school faculty and administration, the district, parents, and elected officials.
- Provides a record of your efforts to serve as institutional memory. The nature of Safe Routes to School teams is that they change over time, as parents and their children move on to other schools and as staff turns over. Recording and evaluating your efforts provides vital information to future teams.
- Tells you if you are reaching your goals. Evaluation can confirm that you are accomplishing or working towards what you set out to do. On the other hand, evaluation efforts can reveal that there is a mismatch in your efforts and your goals or that you need to correct course.
- Encourages continued funding for Safe Routes to School programs. Data collected and shared by local programs can influence decisions at the local, state and national level. In part, today's funding and grant programs exist because of the evaluations of past programs.

Basics of Evaluation

At a minimum, SRTS evaluation should include the standard classroom hand tallies and parent surveys expected in order to be consistent with the national Safe Routes to School program. Evaluating the programs can - and should where possible - delve beyond this, but it need not be burdensome. Evaluating the program can be as simple as recording what you did and when you did it, and counting or estimating the number of students who participated or were reached. Recording planning efforts and taking photos is also helpful for the legacy of the program. In most cases, it is beneficial to measure more, such as school travel mode split and miles walked/biked, from which the school, district or city can estimate environmental, health, and other impacts.

There are two kinds of information that can be collected: quantitative data (numbers, such as counts, logs, and survey results) and qualitative data (words and images, such as observations, interviews, and records). Further, there are several different ways to collect information. This includes the following:

1. Conducting tallies/counts
2. Keeping logs (such as for mileage tracking)
3. Conducting surveys and interviews
4. Conducting observations and audits
5. Keeping planning and process records

Regardless of how elaborate you make your evaluation, it is important to plan ahead for measuring and tracking results. When you are designing your program, consider how you are going to evaluate it from the beginning, so that you can build in mechanisms for collecting the necessary data. For example, if showing changes in travel behavior over time is important to your effort, you will need to start by collecting baseline data so you know how students are getting to school currently in order to be able to demonstrate any change later.

Below is a series of basic steps to take in designing and executing your program evaluation:

1. Establish your goals and plan the specific program.
2. Decide what, how, and when to measure.
3. Collect baseline information, if necessary.
4. Conduct the program and monitor progress.
5. Conduct any post-program data collection, if necessary.
6. Interpret your data.
7. Use and share your results.

More resources for evaluation can be found on the National Center for Safe Routes to School's website here: http://guide.saferoutesinfo.org/evaluation/index.cfm.

Before and After Study of Infrastructure

It's also helpful to understand the impact of the specific infrastructure projects on travel behavior and patterns. When planning to improve the built environment to serve school travel, a simple before and after study can be completed with minimal resources and in some cases little more than volunteer support.

Document baseline conditions before the project and evaluate a few months after completion.

- A complete traffic count is very helpful but may be cost prohibitive. At a minimum, complete a count of pedestrians and bicyclists and note any large vehicles. For information on how to conduct a pedestrian and bicycle count refer to the National Bicycle and Pedestrian Documentation Project, which can be found online at http://bikepeddocumentation.org/
- Document motorist compliance with traffic laws, such as yielding at crosswalks and obeying the speed limit.
- Note pedestrian and bicyclist behavior that may cause safety concerns, such as wrong-way riding or crossing outside of crosswalks.

Annual Evaluation Tasks

At the beginning of each year establish which programs and improvements will be made and what needs to be done to complete basic steps 1-3.

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Implementation Strategy

The following section outlines an estimated implementation timeline for both the infrastructure and programmatic recommendations. This strategy identifies programs that can be started in first year of plan implementation and summarizes the estimated timing of infrastructure improvements.

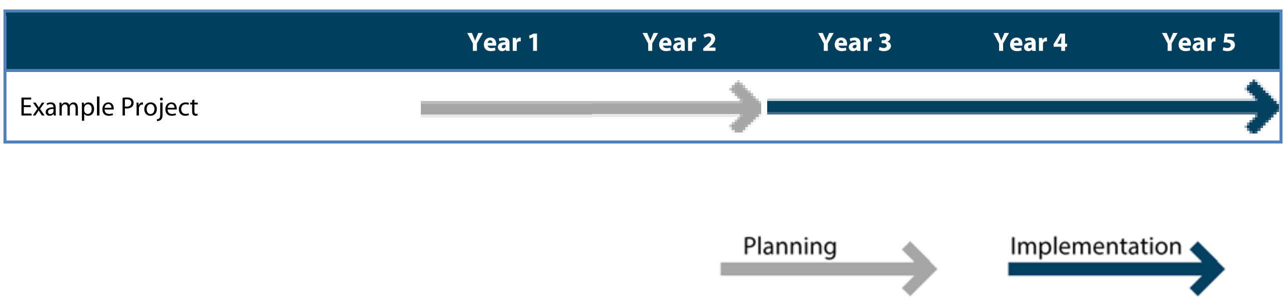
Year One

The programs identified for year one implementation will require the leading organization to take some immediate actions to make progress and follow this timeline. See the **Recommended Programs** chapter for detailed descriptions of each program, including a list of steps to get started on implementation.

Year one programs were selected based on existing capacity and interest identified during the planning process. Most education, encouragement and enforcement programs will be ongoing and once started can be integrated into school programs year after year.

Future Actions

While some recommendations may not be implemented in year one, it is still important to plan and prepare for future programmatic and infrastructure projects. These future actions are displayed in simplified timeline, illustrating a potential approach to phasing in certain activities.



Programs Action Plan

Planning → Implementation →

Table 2. Programs to Implement at Both Schools

Type	Program	Potential Lead	Key Partner	Year 1	Year 2	Year 3	Year 4	Year 5
Encouragement	Walking school bus and/or bike train	Parents	SHIP					
Encouragement	International Walk to School Day and Bike to School Day	SHIP	School Administrators					
Education	SRTS walk and bike maps	City of Jordan	SHIP					
Education	School Communication	City of Jordan	School Administrators					
Education	Classroom Lessons (Minnesota Walk! Bike! Fun! Curriculum)	Jordan School District	Teachers					
Encouragement	School specific trip tracking/competitions	School Administrators	Teachers/SHIP					
Encouragement	Walking/Bicycling to School Mileage Contests	School Administrators	Teachers					

Infrastructure Action Plan

Jordan Elementary & Middle Schools

See the **Infrastructure Issues and Recommendations** chapter for detailed discussion of the infrastructure projects listed here.

Planning → Implementation →

Table 4. Jordan Elementary & Middle Schools Implementation Plan

Project	Description	Key Partner	Priority	Year 1	Year 2	Year 3	Year 4	Year 5
A	Consider removing the right turn only lanes, establish a center median refuge island and use a Rectangular Rapid Flash Beacon to alert drivers to crossing pedestrians.	City of Jordan	High					
B	Mark 5' shoulders on each side of the roadway to visually narrow each travel lane.	City of Jordan	High					
C	Flip circulation direction to counter clockwise so that students may exit at the curbside of the school.	City of Jordan	High					
D	Install a center median island to slow traffic and simplify pedestrian crossings.	City of Jordan	High					
E	Install advance RRFBs for northbound drivers to improve awareness of pedestrians prior to curve.	City of Jordan	High					
F	Study the feasibility of a grade separated bicycle/pedestrian crossing of Hwy 169 at Creek Ln.	City of Jordan	Medium					
G	Study the feasibility of replacing the stop controlled intersection at Sunset Dr. and Hillside Dr. with a very slow-speed, compact roundabout.	City of Jordan	Medium					

Planning → Implementation →

JORDAN PUBLIC SCHOOLS

RANAE CASE EVENSON
Superintendent of Schools
revenson@isd717.org

November 30, 2023

Attn: Elaine Koutsoukos, TAB Coordinator
Transportation Advisory Board
390 North Robert Street
St. Paul, MN. 55101

Re: City of Jordan - Sunset Drive Improvements
Metropolitan Council Regional Solicitation – SRTS Category

Dear Ms. Koutsoukos,

As the Superintendent for the Independent School District 717 (Jordan Public Schools), I am pleased to express my support for the City of Jordan's Sunset Drive Roundabout Project application for Safe Routes to School Funding through the Metropolitan Council's Regional Solicitation.

The Sunset Drive Roundabout Project will improve access, safety, and function of Sunset Drive, which serves as the main access to the schools in Jordan. Sunset Drive serves as a major road in the area and the congestion that occurs within the area is an issue both for traffic as well as safety for children biking or walking to school. For this reason, good design and safe mobility are vital to students and residents.

The proposed roundabouts, rapid flashing beacons for safe crossings, and pedestrian facilities included in this project will help make access to the schools a more safe and accessible destination for all students and residents. Just this past spring, two pedestrians were struck while attempting to cross Sunset Drive. We are excited to see these safety improvements being planned and with funding, hopefully being implemented.

The Jordan Elementary School will also be expanding in 2024. Recognizing the opportunity created by the planned roundabouts project, the School District is also planning Elementary School site improvements to reconfigure accesses and our pickup/drop off operations to cohesively improve traffic conditions. These include reconfiguring parking on site, additional stacking for peak traffic times, and realignment of on-site drives to connect to the proposed roundabouts.

The Jordan School District encourages you to consider City of Jordan's Sunset Drive Roundabout Project application for funding! We are hopeful the City is able to secure Safe Routes to School funding to improve the safety of the area.

Sincerely,

Ranae Case Evenson

Ranae Case Evenson
Superintendent of Schools
Independent School District 717 - Jordan Public Schools

SCOTT COUNTY BOARD OF COMMISSIONERS
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December 6, 2023

Attn: Rashmi Brewer
Minnesota Department of Transportation
395 John Ireland Boulevard
St. Paul, MN 55155

Dear Ms. Brewer,

I am writing on behalf of the Scott County Board of Commissioners to express my support of the City of Jordan's application to MnDOT's Local Road Improvement Program to fund the School Roundabout Project.

The proposed School Roundabout Project will improve access, safety, and function of the Sunset Drive, which serves as the main access to the schools in Jordan. Sunset Drive serves as a major road in the area and the congestion that occurs within the area is an issue both for traffic as well as safety to children biking or walking to school. For this reason, good design and safe mobility are vital to students and residents.

High levels of traffic from peak hours over the years have caused issues with traffic moving through the area. The congestion on Sunset Drive has regularly backed on to Sunset Drive, Aberdeen Avenue, and Beaumont Boulevard causing further issues. The upgraded road and pedestrian facilities included in this project will help make access to the schools a more safe and accessible destination for all students and residents.

Thank you for your time and consideration in reviewing the City of Jordan School Roundabout Project application.

Sincerely,

Barb Weckman Brekke

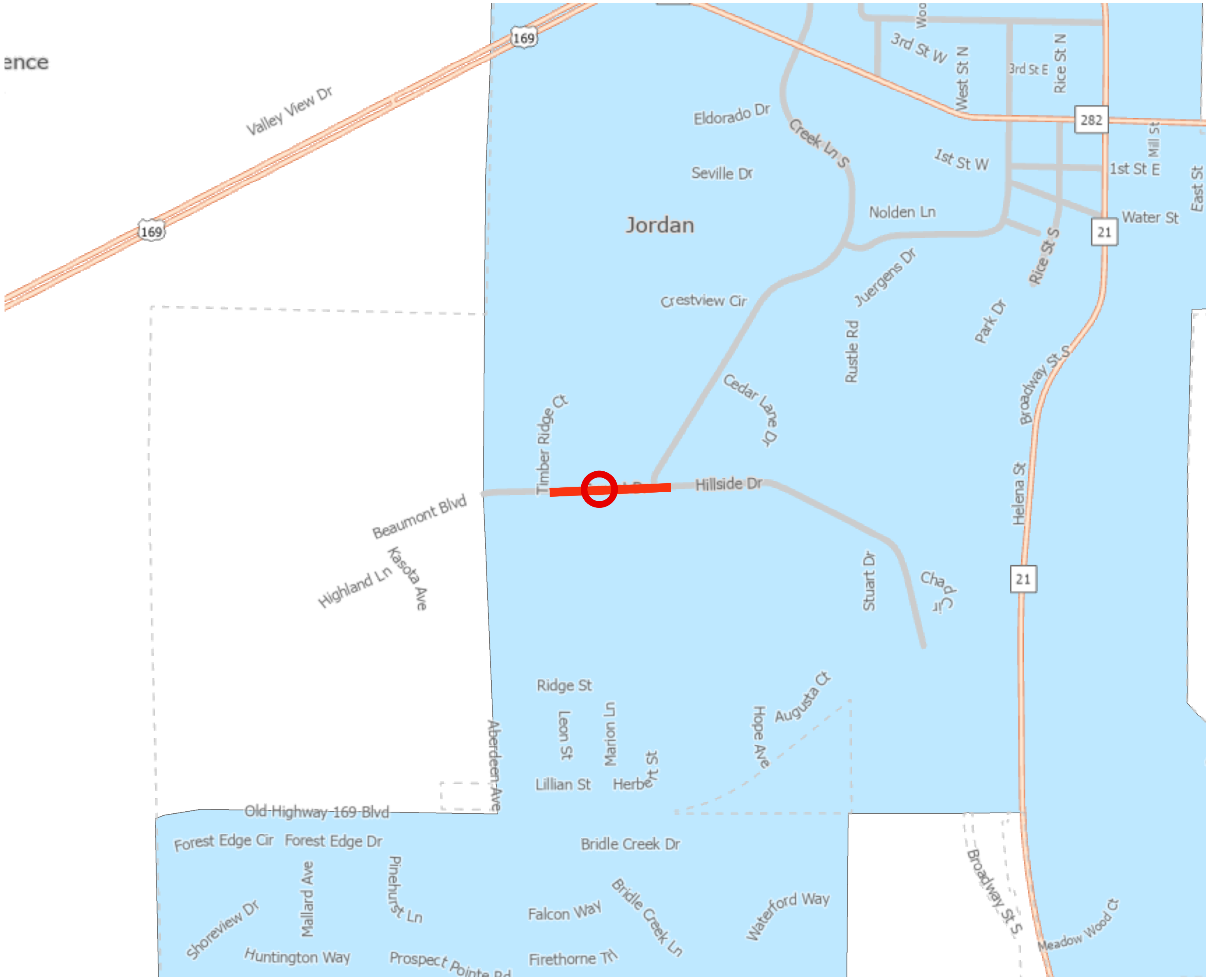
Barb Weckman Brekke
County Commissioner – District 1
Scott County

Socio-Economic Conditions Safe Routes to Schools Project: Sunset Drive Improvements | Map ID: 1698270790377

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 175

Project located in census tract(s) that are ABOVE the regional average for population in poverty or population of color.



Points | Area of Concentrated Poverty

Lines | Regional Environmental Justice Area

0 0.125 0.25 0.5 0.75 1 Miles

Created: 10/25/2023
LandscapeRSA2

For complete disclaimer of accuracy, please visit http://giswebsite.metc.state.mn.us/gissite/notice.aspx

METROPOLITAN COUNCIL

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.

By: ______________________________

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

Date: 8/19/2019

Table of Contents

Figures

Tables

Appendix

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.

Figure 1: Project Location Map

II. Existing Conditions

The study area includes the following three segments:

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

85^{th} percentile vehicle speeds were also collected at three (3) locations, one location on Aberdeen Ave and two locations on Sunset Dr/Hillside Dr. The 85^{th} 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									
Intersections	Total Crashes	F	A	B	C	PDO	Bicycle	Right Angle Crashes	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
B	>10 and ≤ 20	>10 and ≤ 15
C	>20 and ≤ 35	>15 and ≤ 25
D	>35 and ≤ 55	>25 and ≤ 35
E	>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 Delay-LOS (2.)		Limiting Movement (3.)
Hillside Dr and High School Access	AM	1	A	8	A	NBL
	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
	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
	Afternoon	1	A	5	A	NBL
Stop Controlled	PM	0	A	4	A	NBR
Sunset Dr and North Elementary School Access 3	AM	1	A	7	A	NBL
	Afternoon	1	A	1	A	EBT
Stop Controlled	PM	1	A	1	A	EBT
Sunset Dr and North Elementary School Access 2	AM	2	A	4	A	EBT
	Afternoon	2	A	3	A	EBT
Stop Controlled	PM	2	A	4	A	EBT
Sunset Dr and Timber Ridge Ct	AM	2	A	19	C	SBL
	Afternoon	1	A	12	B	SBL
Stop Controlled	PM	1	A	13	B	SBL
Sunset Dr and North Elementary School Access 1	AM	1	A	3	A	WBL
	Afternoon	1	A	6	A	NBL
Stop Controlled	PM	0	A	4	A	NBL
Sunset Dr and Aberdeen Ave	AM	4	A	6	A	EBT
	Afternoon	3	A	5	A	WBT
Stop Controlled	PM	4	A	7	A	EBT
Aberdeen Ave and West Elementary School Access	AM	2	A	5	A	WBL
	Afternoon	1	A	2	A	WBL
Stop Controlled	PM	1	A	5	A	WBL
Aberdeen Ave and Ridge St	AM	2	A	4	A	WBR
	Afternoon	1	A	3	A	WBR
Stop Controlled	PM	2	A	7	A	WBL
CR 66 and Aberdeen Ave	AM	6	A	10	B	EBT
	Afternoon	6	A	10	B	WBT
Stop Controlled	PM	7	A	10	B	WBT
CR 66 and Prospect Pointe Rd	AM	1	A	5	A	NBL
	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:
    - 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

Intersection	Peak Hour	Intersection Delay (1.)		Maximum Delay-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
	Afternoon	1	A	2	A	WBL
Stop Controlled	PM	1	A	1	A	EBT
Sunset Dr and North Elementary School Access 2	AM	2	A	4	A	EBT
	Afternoon	1	A	3	A	EBT
Stop Controlled	PM	2	A	4	A	EBT
Sunset Dr and Timber Ridge Ct	AM	3	A	34	D	SBL
	Afternoon	1	A	10	B	SBL
Stop Controlled	PM	1	A	17	C	SBL
Sunset Dr and North Elementary School Access 1	AM	1	A	3	A	WBL
	Afternoon	1	A	6	A	NBL
Stop Controlled	PM	0	A	10	B	NBL
Sunset Dr and Aberdeen Ave	AM	5	A	6	A	WBL
	Afternoon	3	A	6	A	EBT
Stop Controlled	PM	4	A	6	A	EBT
Aberdeen Ave and West Elementary School Access	AM	26	D	37	E	SBL
	Afternoon	1	A	3	A	WBL
Stop Controlled	PM	1	A	4	A	WBL
Aberdeen Ave and Ridge St	AM	10	B	24	C	EBL
	Afternoon	1	A	5	A	EBL
Stop Controlled	PM	2	A	6	A	WBL
CR 66 and Aberdeen Ave	AM	9	A	13	B	EBT
	Afternoon	8	A	12	B	WBT
Stop Controlled	PM	10	B	14	B	WBT
CR 66 and Prospect Pointe Rd	AM	3	A	6	A	SBL
	Afternoon	1	A	6	A	SBL
Stop Controlled	PM	2	A	8	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 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:
  - 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.

- 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	Intersection Delay (1.)		Maximum Delay-LOS (2.)		Limiting Movement (3.)
2020	Sunset Dr and Hillside Dr *Two-Way Stop Controlled*	AM	3	A	12	B	SBL
		Afternoon	2	A	8	A	SBL
		PM	3	A	8	A	SBL
	Sunset Dr and Middle/High School Access *Two-Way Stop Controlled*	AM	11	B	69	F	NBL
		Afternoon	3	A	5	A	NBL
		PM	2	A	7	A	NBL
2040	Sunset Dr and Hillside Dr *Two-Way Stop Controlled*	AM	4	A	21	C	SBL
		Afternoon	3	A	11	B	SBL
		PM	3	A	11	B	SBL
	Sunset Dr and Middle/High School Access *Two-Way Stop Controlled*	AM	25	D	203	F	NBL
		Afternoon	4	A	10	B	NBL
		PM	2	A	10	B	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.

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 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	Intersection Delay (1.)		Maximum Delay-LOS (2.)		Limiting Movement (3.)
2020	Sunset Dr and Hillside Dr *All Way Stop Controlled*	AM	6	A	6	A	EBL
		Afternoon	4	A	5	A	EBL
		PM	4	A	5	A	EBL
	Sunset Dr and Middle/High School Access *All Way Stop Controlled*	AM	12	B	22	C	WBL
		Afternoon	4	A	7	A	EBT
		PM	5	A	7	A	EBT
2040	Sunset Dr and Hillside Dr *All Way Stop Controlled*	AM	8	A	10	B	SBR
		Afternoon	4	A	5	A	EBL
		PM	4	A	5	A	EBL
	Sunset Dr and Middle/High School Access *All Way Stop Controlled*	AM	13	B	27	D	WBL
		Afternoon	5	A	7	A	EBT
		PM	5	A	7	A	EBT

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.

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.

- 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	Intersection Delay (1.)		Maximum Delay-LOS (2.)		Limiting Movement (3.)
2020	Sunset Dr and Hillside Dr *Two-Way Stop Controlled*	AM	4	A	14	B	SBL
		Afternoon	2	A	9	A	SBL
		PM	3	A	9	A	SBL
	Sunset Dr and Middle/High School Access *All Way Stop Controlled*	AM	12	B	22	C	WBL
		Afternoon	5	A	7	A	EBT
		PM	5	A	7	A	EBT
2040	Sunset Dr and Hillside Dr *Two-Way Stop Controlled*	AM	6	A	18	C	SBL
		Afternoon	2	A	9	A	SBL
		PM	3	A	9	A	SBL
	Sunset Dr and Middle/High School Access *All Way Stop Controlled*	AM	14	B	29	D	WBL
		Afternoon	5	A	7	A	EBT
		PM	5	A	7	A	EBT

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.

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**.

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

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

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.

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

Year	Options	Peak Hour	Delay by Approach (sec)				LOS by Approach				Intersection Delay (sec)	Intersection LOS
			EB	WB	NB	SB	EB	WB	NB	SB		
2020	Sunset Dr and Middle/Elementary School Access *West Mini-Roundabout*	AM	11	7	8	5	B	A	A	A	9	A
		Afternoon	3	4	4	0	A	A	A	A	4	A
		PM	4	4	4	4	A	A	A	A	4	A
2040	Sunset Dr and Middle/Elementary School Access *West Mini-Roundabout*	AM	15	8	10	5	C	A	A	A	12	B
		Afternoon	4	4	4	0	A	A	A	A	4	A
		PM	4	5	4	4	A	A	A	A	5	A

Table 13: West Mini-Roundabout Queues

Year	Options	Peak Hour	Maximum Queues (ft)			
			EB	WB	NB	SB
2020	Sunset Dr and Middle/Elementary School Access *West Mini-Roundabout*	AM	100	50	50	25
		Afternoon	25	25	25	0
		PM	25	25	25	25
2040	Sunset Dr and Middle/Elementary School Access *West Mini-Roundabout*	AM	150	75	50	25
		Afternoon	25	25	25	0
		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	Options	Peak Hour	Delay by Approach (sec)				LOS by Approach				Intersection Delay (sec)	Intersection LOS
			EB	WB	NB	SB	EB	WB	NB	SB		
2020	Sunset Dr and Hillside Dr *East Mini-Roundabout*	AM	9	6	7	8	A	A	A	A	8	A
		Afternoon	4	4	5	4	A	A	A	A	4	A
		PM	5	4	4	5	A	A	A	A	4	A
2040	Sunset Dr and Hillside Dr *East Mini-Roundabout*	AM	13	8	8	9	B	A	A	A	10	A
		Afternoon	4	4	5	5	A	A	A	A	5	A
		PM	5	4	4	5	A	A	A	A	5	A

Table 15: East Mini-Roundabout Queues

Year	Options	Peak Hour	Maximum Queues (ft)			
			EB	WB	NB	SB
2020	Sunset Dr and Hillside Dr *East Mini-Roundabout*	AM	75	25	25	75
		Afternoon	25	25	25	25
		PM	25	25	25	25
2040	Sunset Dr and Hillside Dr *East Mini-Roundabout*	AM	100	25	25	75
		Afternoon	25	25	25	25
		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
  - 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
  - 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.
  - Traffic flows along Sunset Dr work well.
  - 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.
  - 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)
  - All-way stop controlled intersections do not meet volume warrants at either intersection.
  - 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.
  - Traffic flows from the site work well.
  - 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.
  - 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)
    - All-way stop controlled intersections do not meet volume warrants at either intersection.
    - 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.
    - 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.
    - 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.
- All Way Stop Control (Option 3)
    - 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.
    - 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.
    - 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
    - The intersections are anticipated to operate at LOS A for all peak hours in 2020 and 2040.
    - 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.
    - Internal sidewalk networks need to be considered to provide relatively direct access

to the crossing and destination points.

- Constant speed control would be provided along Sunset Dr.
- 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

Jordan/School Area Traffic Study

City of Jordan, MN

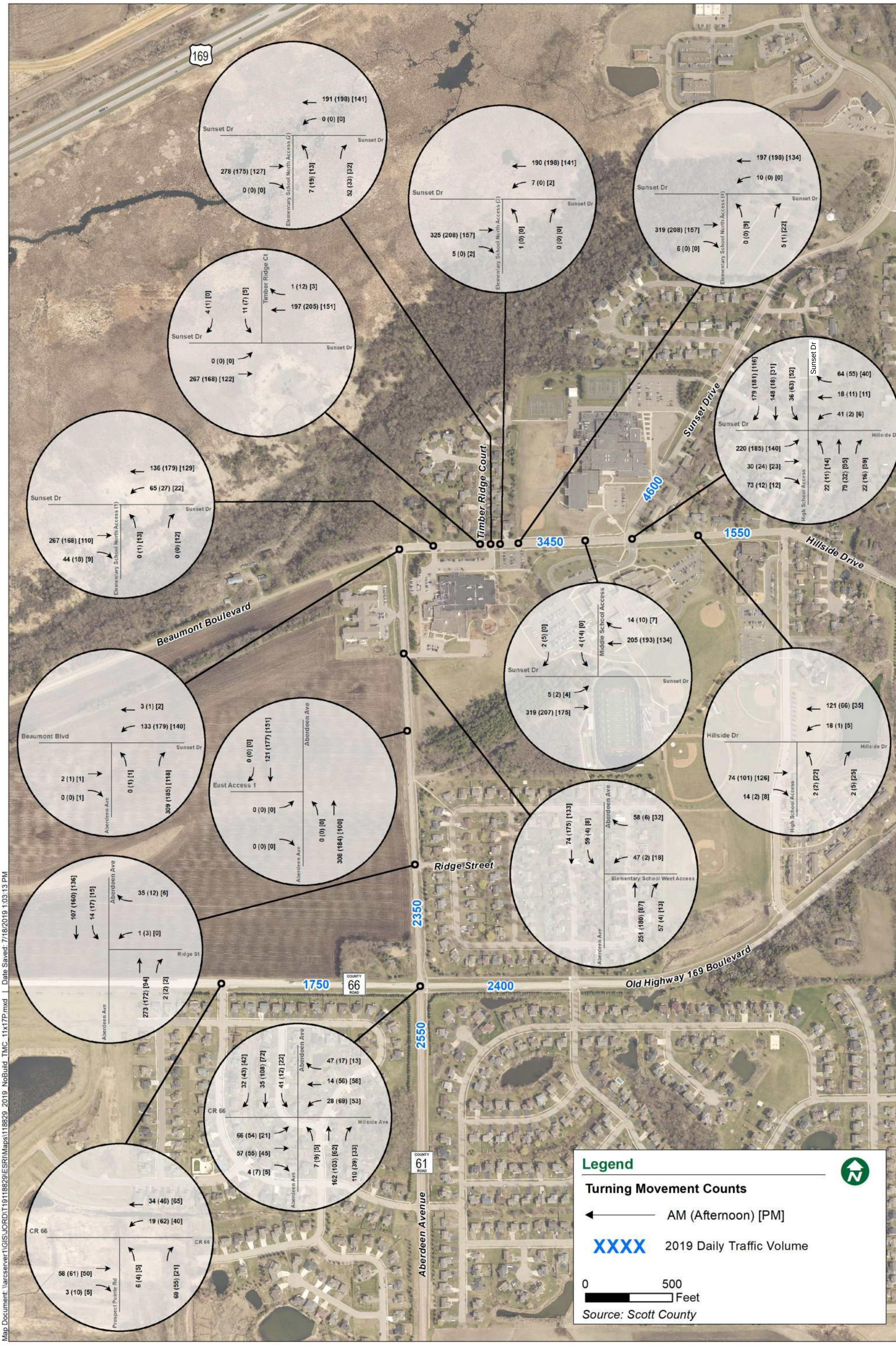
Figure 2

2019 No Build Turning Movements

July 2019

BOLTON & MENK

Real People. Real Solutions.



CITY OF JORDAN

Jordan/School Area Traffic Study

City of Jordan, MN

Figure 3

2020 Build Peak Turning Movements

July 2019

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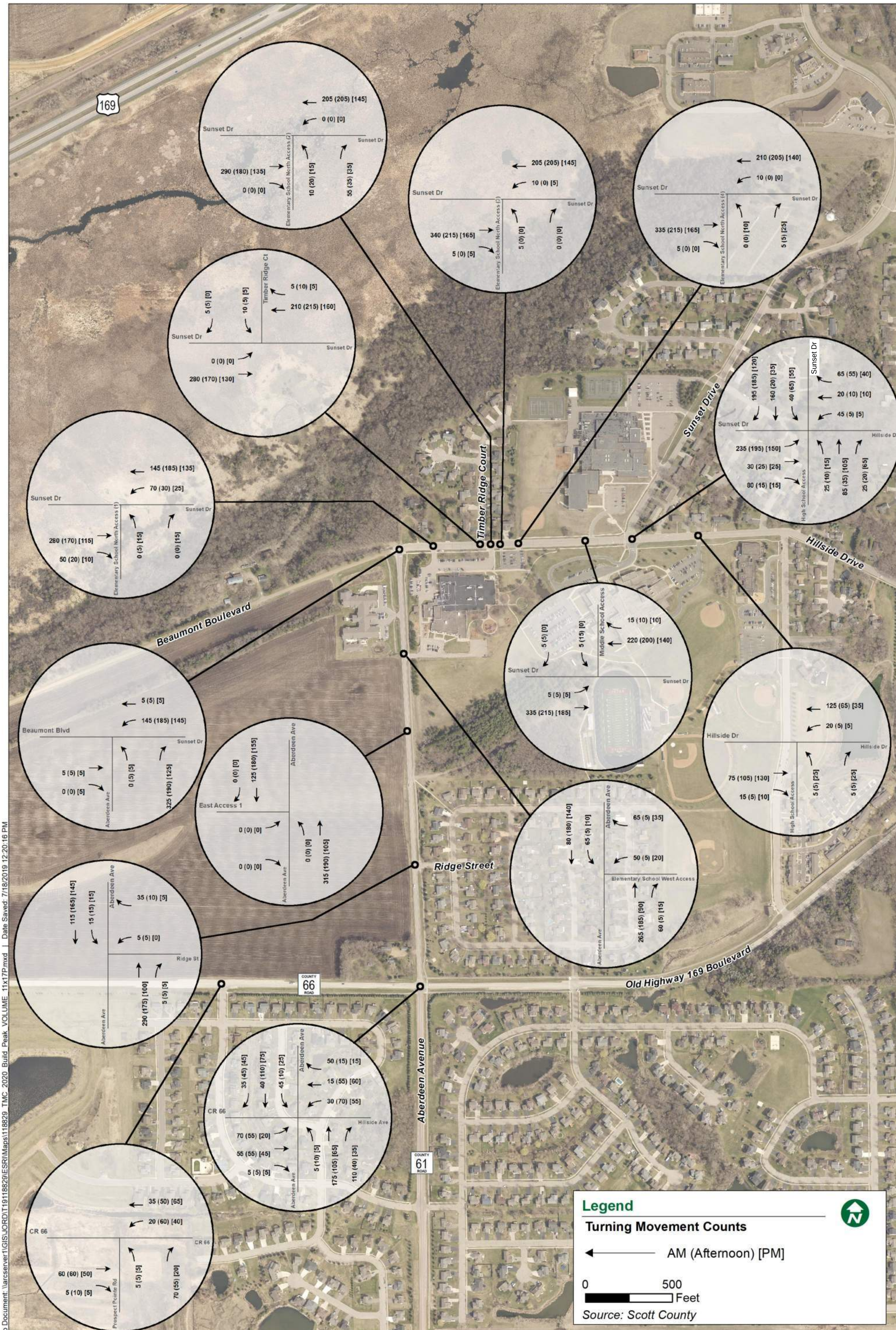

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Jordan/School Area Traffic Study
City of Jordan, MN

Figure 4

2040 Build Turning Movements
July 2019

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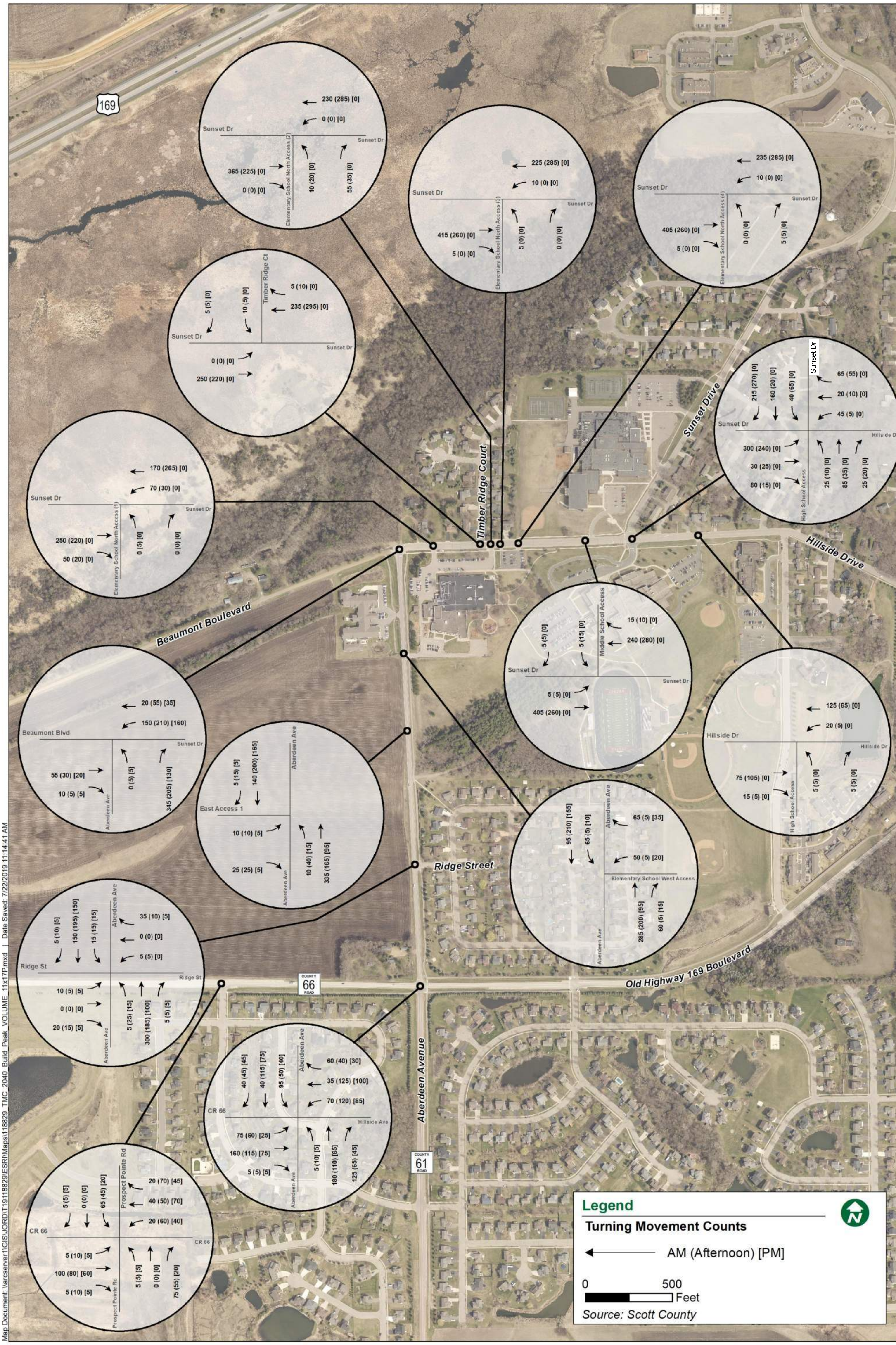

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Jordan/School Area Traffic Study

2040 No Build Peak Turning Movements

City of Jordan, MN

July 2019

Figure 5

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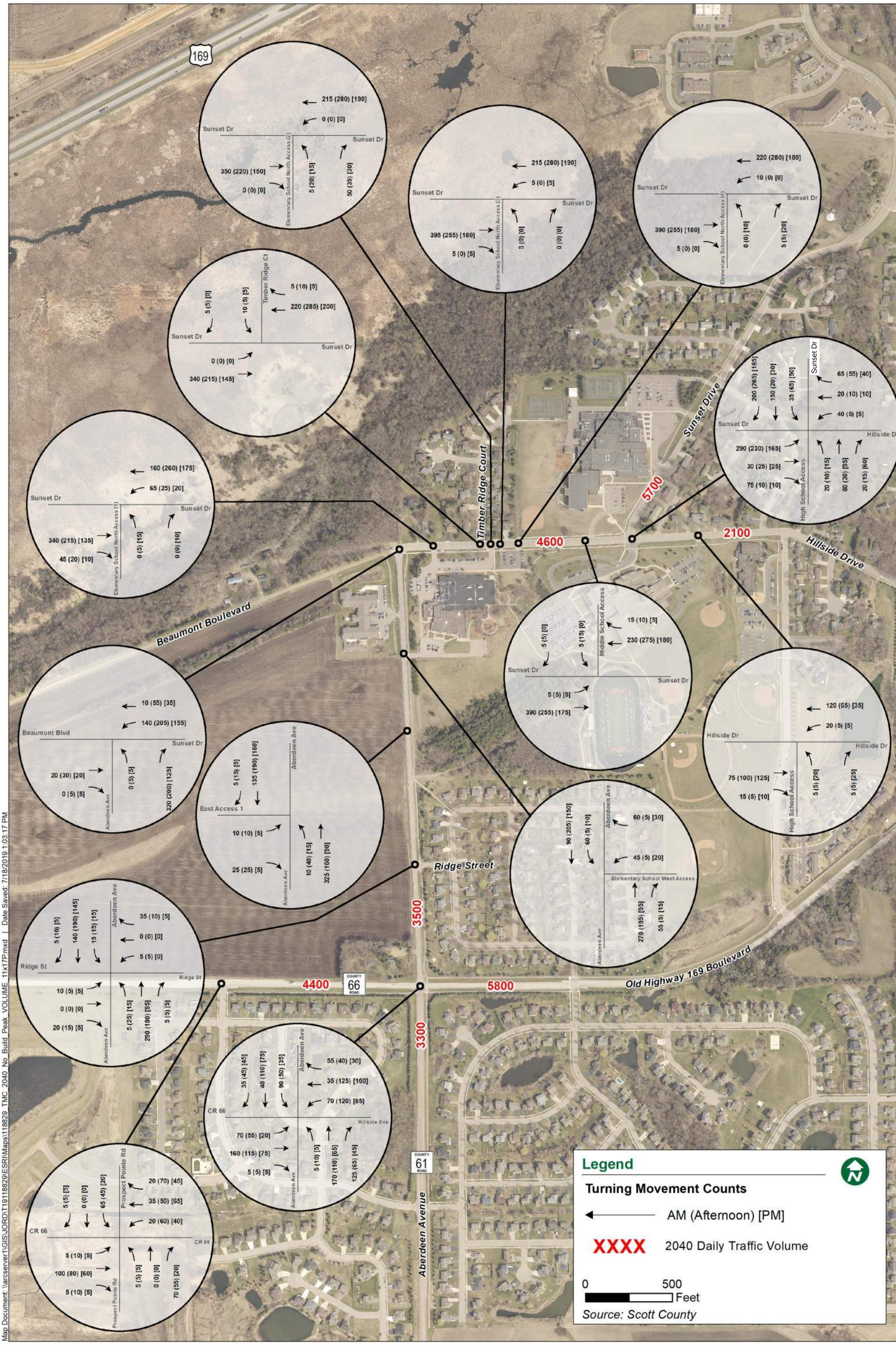

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Appendix B: Crash Analysis

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

Statewide Comparison *All Way Stop*

Total Crash Rate	
Observed	0.38
Statewide Average	0.34
Critical Rate	1.10
Critical Index	**0.35**

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 *All Way Stop*

Total Crash Rate	
Observed	0.40
Statewide Average	0.34
Critical Rate	1.13
Critical Index	**0.35**

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.

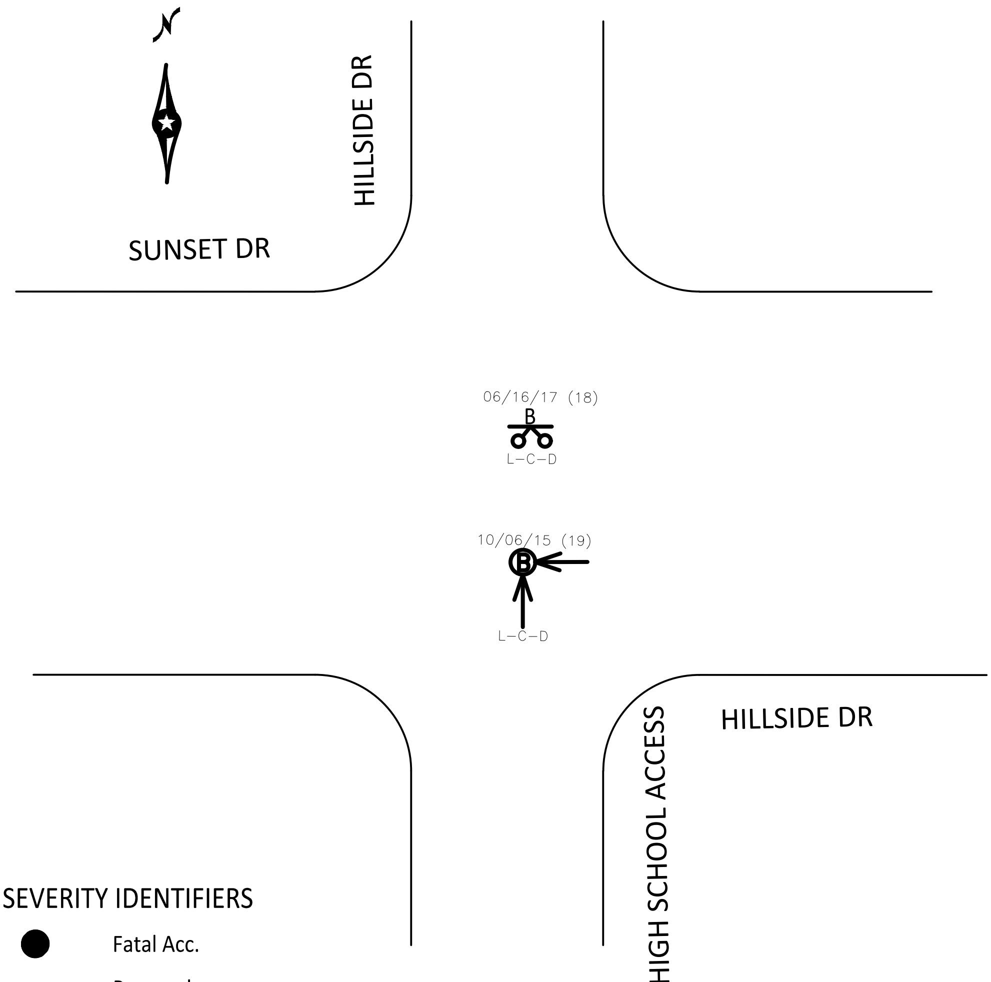
The observed fatal and serious injury crash rate for this period is 0.00 per 100 MEV; this is 100% below the critical rate. The intersection operates within the normal range.

COLLISION DIAGRAM

LOCATION: SUNSET DR AND HILLSIDE DR

TIME PERIOD: 01/01/2015 - 12/31/2017 DATE: 06/20/19

PREPARED BY: CW



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

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

SEVERITY IDENTIFIERS

Fatal Acc.

ABC Personal Injury

Property Damage Acc.

KEY

Motor Vehicle Backing Up

Motor Vehicle Out of Control

SIDESWIPE

Rear End

Right Angle

Pedestrian

B Bicycle/Moped

M Motorcycle

Left Turn

Fixed Object

NOTES

[1]

[2]

[3]

Light:
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)

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)

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JORDAN SCHOOL AREA TRAFFIC STUDY

SUNSET DR AND HILLSIDE DR

COLLISION DIAGRAM

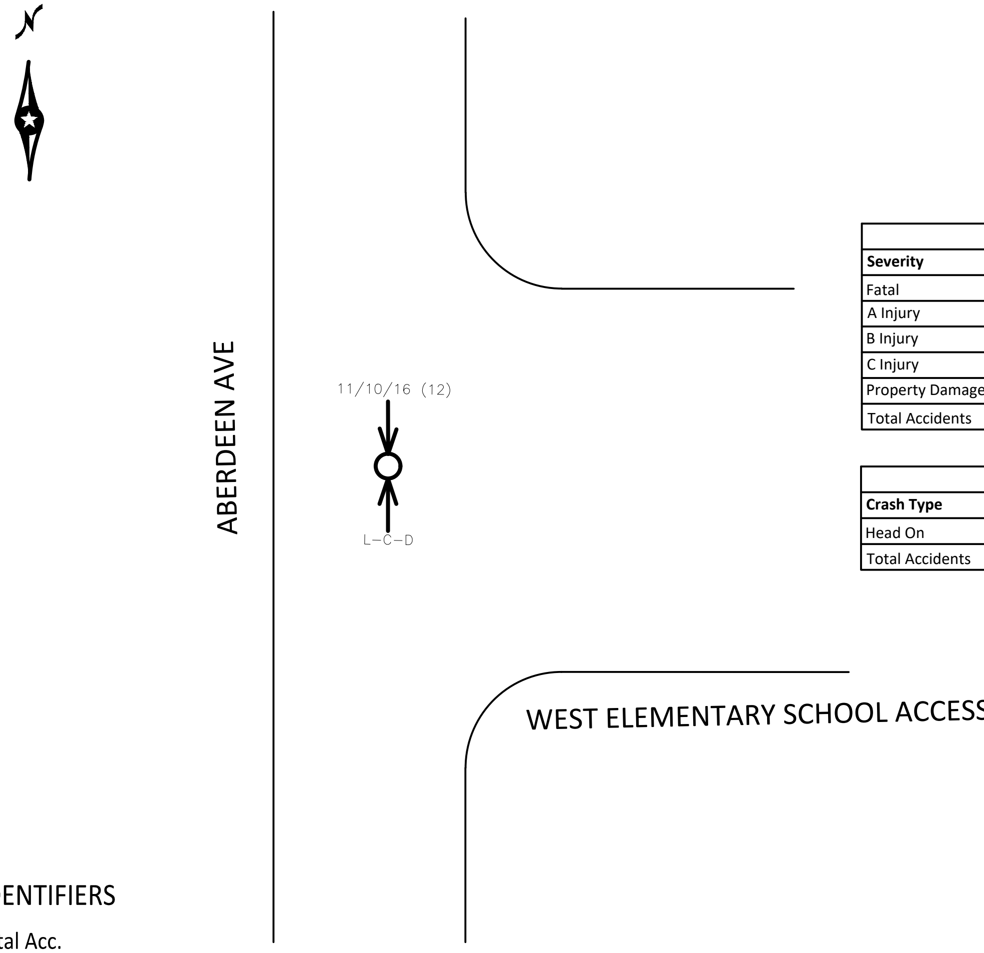
Drawing name: H:\JORD\T19118829\2_Preliminary\A_Calculations\Traffic\Crash Analysis\3 - Crash Diagram\Crash Diagram.dwg --- Printed: Jun 20, 2019 - 3:20pm

COLLISION DIAGRAM

LOCATION: ABERDEEN AVE AND WEST ELEMENTARY SCHOOL ACCESS

TIME PERIOD: 01/01/2015 - 12/31/2017 DATE: 06/20/19

PREPARED BY: CW



	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

SEVERITY IDENTIFIERS

- Fatal Acc.
- ABC Personal Injury
- Property Damage Acc.

KEY

- Motor Vehicle Backing Up
- Motor Vehicle Out of Control
- SIDESWIPE
- Rear End
- Right Angle
- Pedestrian
- B Bicycle/Moped
- M Motorcycle
- Left Turn
- Fixed Object

NOTES

[1]

[2]

[3]

Light:	Weather:	Surface:
L= Daylight (1)	C= Clear or Cloudy (1 or 2)	D= Dry (1)
DN= Dawn (2)	R= Rain (3)	W= Wet (2)
DU= Dusk (3)	S= Snow or Sleet (4 or 5)	S= Snow or Ice (3 or 4)
DI= Dark, Lighted (4)	F= Fog, Smog, Smoke (6)	M= Muddy (5)
Do= Dark, Lights Off (5)	B= Blowing Sand/Dust (7)	DB= Debris (6)
D= Dark, Unlighted (6)	W= Severe Crosswinds (8)	O= Oily (7)
X= Unknown (99)	X= Other or Unknown (99)	X= Other or Unknown (99)

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JORDAN SCHOOL AREA TRAFFIC STUDY

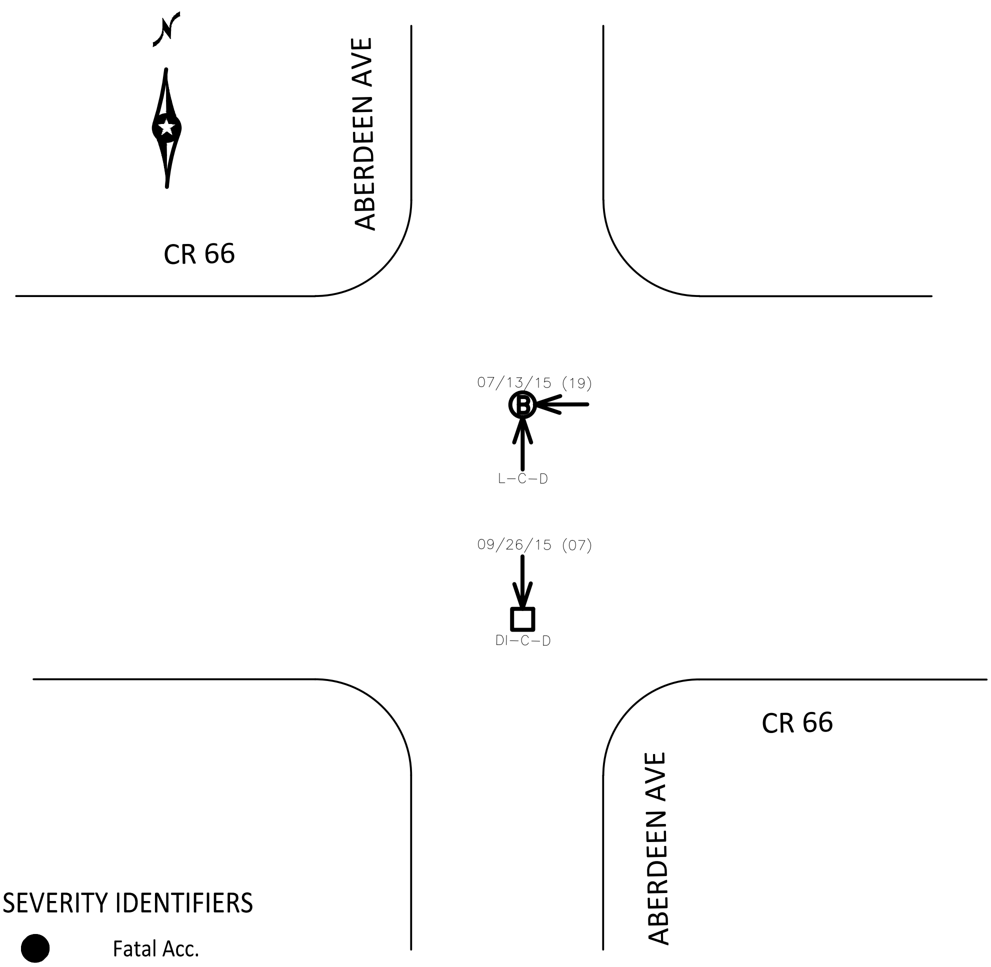
ABERDEEN AVE AND WEST ELEMENTARY SCHOOL ACCESS COLLISION DIAGRAM

COLLISION DIAGRAM

LOCATION: CR 66 AND ABERDEEN AVE

TIME PERIOD: 01/01/2015 - 12/31/2017 DATE: 06/20/19

PREPARED BY: CW



	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	2	0	0
Total Accidents	2	0	0

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

SEVERITY IDENTIFIERS

- Fatal Acc.
- ABC Personal Injury
- Property Damage Acc.

KEY

- Motor Vehicle Backing Up
- Motor Vehicle Out of Control
- SIDESWIPE
- Rear End
- Right Angle
- Pedestrian
- B Bicycle/Moped
- M Motorcycle
- Left Turn
- Fixed Object

NOTES

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W= Severe Crosswinds (8)
X= Other or Unknown (99)

Surface:
D= Dry (1)
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JORDAN SCHOOL AREA TRAFFIC STUDY
CR 66 AND ABERDEEN AVE
COLLISION DIAGRAM

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

Appendix C: No Build Operational Analysis

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		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	-	
Stop Controlled	PM	1	A	4	A	-		2	A	-		-		-		-		1	A	1	A	-		0	A	-	
Sunset Dr and Hillside Dr	AM	5	A	5	A	6	A	3	A	6	A	6	A	3	A	5	A	5	A	3	A	5	A	5	A	4	A
	Afternoon	4	A	4	A	5	A	3	A	4	A	4	A	2	A	4	A	4	A	2	A	4	A	5	A	4	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	-		-		-		-		-		-		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	-		-		-		-		4	A	-		-		0	A	-	
Sunset Dr and Timber Ridge Ct	AM	2	A	-		-		-		19	C	-		4	A	-		3	A	-		-		0	A	0	A
	Afternoon	1	A	-		-		-		12	B	-		-		-		1	A	-		-		0	A	0	A
Stop Controlled	PM	1	A	-		-		-		13	B	-		4	A	-		2	A	-		-		0	A	0	A
Sunset Dr and North Elementary School Access 1	AM	1	A	-		-		-		-		-		-		-		0	A	0	A	3	A	0	A	-	
	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	1	A	-		0	A	0	A	2	A	1	A	-		-		-		-		2	A	-		2	A
Stop Controlled	PM	1	A	-		1	A	0	A	2	A	1	A	-		-		-		-		5	A	-		2	A
Aberdeen Ave and Ridge St	AM	2	A	-		2	A	2	A	4	A	1	A	-		-		-		-		3	A	-		4	A
	Afternoon	1	A	-		2	A	2	A	3	A	1	A	-		-		-		-		-		-		3	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	-	

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.

2019 No Build

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																					
		EBL		EBL/T		EBL/T/R		EBT		EBT/R		WBL		WBL/R		WBL/T		WBL/T/R		WBT		WBT/R		NBL		NBL/R		NBL/T/R		NBT/R		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	50	100	-	-	-	-	-	-	50	75	25	75	-	-	-	-	-	-	-	-	50	75	25	50	-	-	-	-	50	75	-	-	50	125	-	-	25	75
	Afternoon	50	75	-	-	-	-	-	-	25	50	25	50	-	-	-	-	-	-	-	-	50	75	25	25	-	-	-	-	50	100	-	-	25	75	-	-	25	75
Stop Controlled	PM	50	75	-	-	-	-	-	-	25	50	25	50	-	-	-	-	-	-	-	-	50	50	25	25	-	-	-	-	25	50	-	-	25	50	-	-	50	75
Sunset Dr and Middle School Access	AM	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
	Afternoon	-	-	0	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	0	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 4	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 3	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 2	AM	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Timber Ridge Ct	AM	-	-	50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
	Afternoon	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Stop Controlled	PM	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 1	AM	-	-	-	-	-	-	-	-	0	25	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	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	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-

2019 No Build

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		WBL		WBT		WBR	
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	-		3	A	-		-		-		-		1	A	1	A	-		0	A	-	
Sunset Dr and Hillside Dr	AM	5	A	4	A	5	A	4	A	6	A	6	A	3	A	5	A	5	A	3	A	5	A	6	A	4	A
	Afternoon	4	A	4	A	5	A	3	A	5	A	5	A	2	A	4	A	4	A	2	A	5	A	5	A	4	A
Stop Controlled	PM	4	A	4	A	5	A	2	A	4	A	5	A	3	A	4	A	4	A	2	A	3	A	5	A	4	A
Sunset Dr and Middle School Access	AM	1	A	-		-		-		5	A	-		3	A	2	A	0	A	-		-		1	A	0	A
	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	A	1	A	2	A	0	A	-	
Stop Controlled	PM	1	A	-		-		-		-		-		-		-		1	A	-		-		0	A	-	
Sunset Dr and North Elementary School Access 2	AM	2	A	2	A	-		0	A	-		-		-		-		4	A	-		-		0	A	-	
	Afternoon	1	A	1	A	-		0	A	-		-		-		-		3	A	-		-		0	A	-	
Stop Controlled	PM	2	A	2	A	-		0	A	-		-		-		-		4	A	-		-		0	A	-	
Sunset Dr and Timber Ridge Ct	AM	3	A	-		-		-		34	D	-		3	A	-		4	A	-		-		0	A	0	A
	Afternoon	1	A	-		-		-		10	B	-		-		-		1	A	-		-		0	A	0	A
Stop Controlled	PM	1	A	-		-		-		17	C	-		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	B	-		-		-		-		-		-		0	A	0	A	2	A	0	A	-	
Sunset Dr and Aberdeen Ave	AM	5	A	-		-		5	A	-		-		-		-		6	A	-		6	A	4	A	-	
	Afternoon	3	A	3	A	0	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	26	D	-		28	D	30	D	37	E	28	D	-		-		-		-		16	C	-		4	A
	Afternoon	1	A	-		0	A	0	A	3	A	1	A	-		-		-		-		3	A	-		2	A
Stop Controlled	PM	1	A	-		1	A	0	A	2	A	1	A	-		-		-		-		4	A	-		3	A
Aberdeen Ave and Ridge St	AM	10	B	-		12	B	2	A	3	A	3	A	1	A	24	C	-		-		-		-		13	B
	Afternoon	1	A	-		2	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	B	10	B	6	A	6	A	7	A	4	A	9	A	13	B	4	A	7	A	11	B	6	A
	Afternoon	8	A	6	A	7	A	4	A	6	A	7	A	4	A	4	A	10	B	3	A	7	A	12	B	5	A
Stop Controlled	PM	10	B	8	A	8	A	5	A	6	A	8	A	5	A	6	A	11	B	4	A	10	B	14	B	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	-		4	A	2	A	1	A	0	A	1	A	1	A	0	A

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.

2040 No Build

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths															
		EBL		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T	
		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
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	50	100	-	-	-	-	25	75	-	-	25	75	-	-	-	-
	Afternoon	50	75	-	-	-	-	25	50	-	-	25	50	-	-	-	-
Stop Controlled	PM	50	100	-	-	-	-	25	50	-	-	25	25	-	-	-	-
Sunset Dr and Middle School Access	AM	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 4	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 3	AM	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	25
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 2	AM	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-
Sunset Dr and Timber Ridge Ct	AM	-	-	50	150	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 1	AM	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	75
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50
Stop Controlled	PM	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	75
Sunset Dr and Aberdeen Ave	AM	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	100
	Afternoon	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	75
Stop Controlled	PM	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	100
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
Aberdeen Ave and Ridge St	AM	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-
CR 66 and Aberdeen Ave	AM	-	-	-	-	50	150	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-
CR 66 and Prospect Pointe Rd	AM	-	-	25	25	-	-	-	-	-	-	-	-	-	-	25	25
	Afternoon	-	-	25	50	-	-	-	-	0	25	-	-	-	-	25	50
Stop Controlled	PM	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50

Intersection	Peak Hour	WBL/T/R		WBT/R		NBL		NBL/R		NBL/T/R		NBT/R		SBL/R		SBL/T		SBL/T/R		SBR	
		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	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	-	-	50	75	25	25	-	-	-	-	50	75	-	-	50	125	-	-	50	75
	Afternoon	-	-	50	75	25	25	-	-	-	-	50	75	-	-	25	75	-	-	25	75
Stop Controlled	PM	-	-	50	75	25	25	-	-	-	-	25	50	-	-	25	50	-	-	50	75
Sunset Dr and Middle School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 4	AM	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 3	AM	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 2	AM	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Timber Ridge Ct	AM	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
	Afternoon	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Stop Controlled	PM	-	-	25	75	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 1	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Aberdeen Ave	AM	-	-	-	-	-	-	50	125	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	75	250	-	-	50	175	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-
Aberdeen Ave and Ridge St	AM	50	75	-	-	-	-	-	-	25	150	-	-	-	-	-	-	25	50	-	-
	Afternoon	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-
CR 66 and Aberdeen Ave	AM	50	125	-	-	-	-	-	-	75	175	-	-	-	-	-	-	50	75	-	-
	Afternoon	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	75	-	-
Stop Controlled	PM	75	125	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	100	-	-
CR 66 and Prospect Pointe Rd	AM	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-
	Afternoon	-	-	0	25	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-

2040 No Build

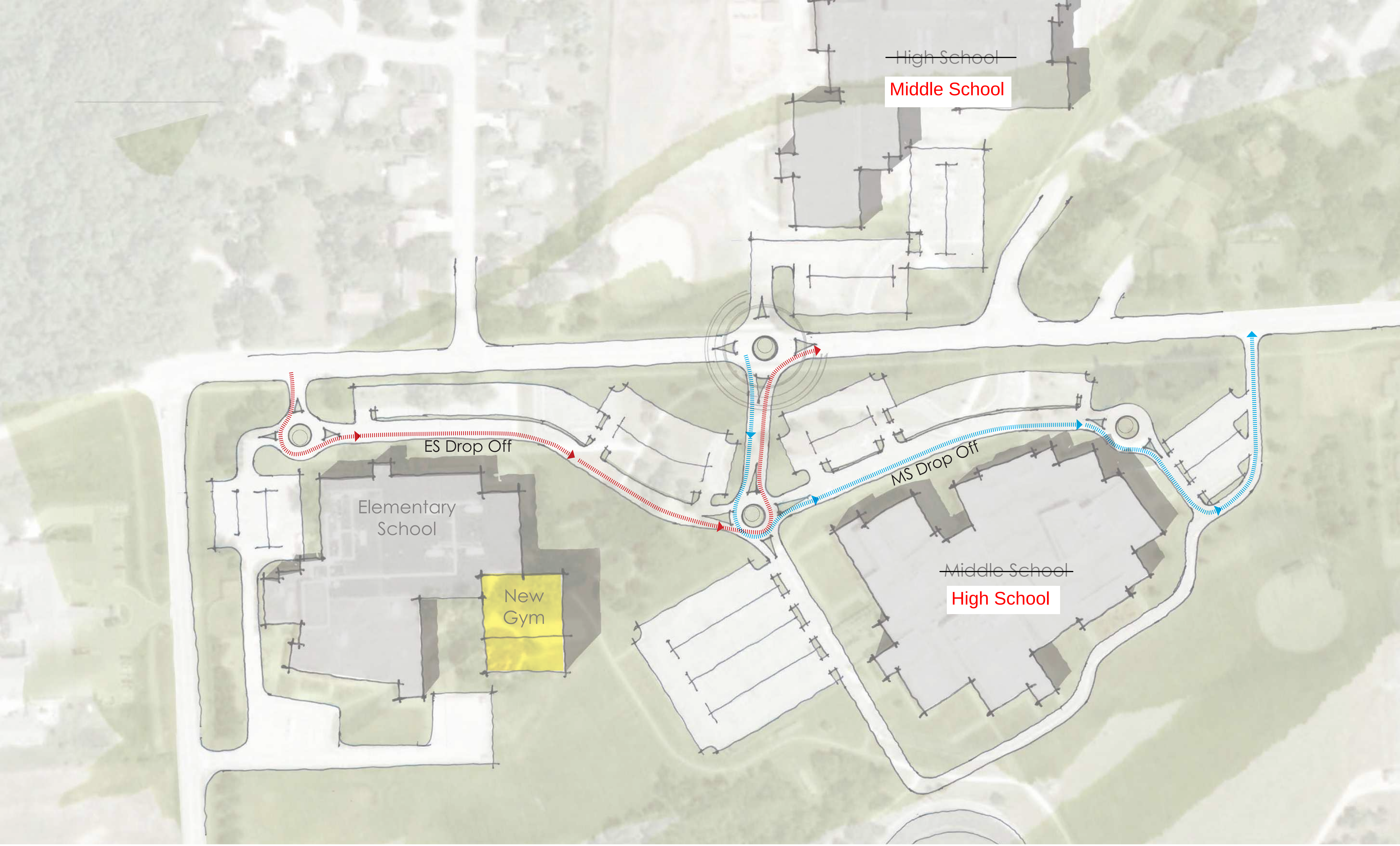
Appendix D: Provided Layouts

Jordan Public Schools - **North Campus PHASE 1** **Option 1a** 04.02.2019

Figure 6

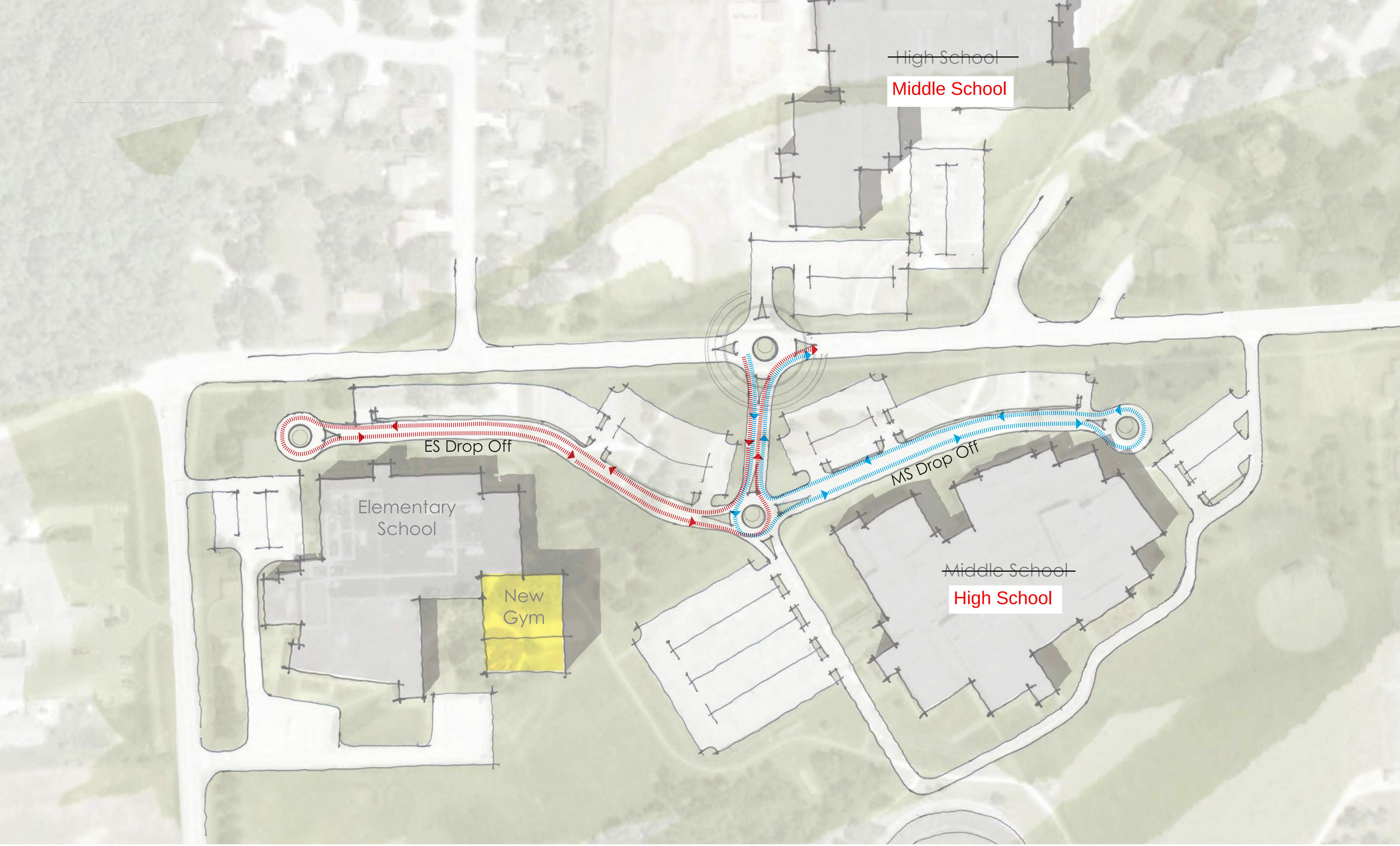
Jordan Public Schools - **North Campus PHASE 1** **Option 1b** 04.02.2019

Figure 7



Jordan Public Schools - **North Campus PHASE 1** **Option 1a** Drop- Off Traffic Pattern 04.02.2019

Figure 8



Jordan Public Schools - **North Campus PHASE 1** **Option 1b** Drop-off Traffic Pattern 04.02.2019

Figure 9

Appendix E: Mitigation Operational Analysis

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	2019	Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak	Peak Hour Factor	0.40
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	6	256	79	0	205	219	16	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 (v_{PCE}), pc/h	0	15	666	203	0	528	564	41	0	237	0	366	0	13	0	8
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		884			1133			603			21	
Entry Volume veh/h		852			1100			568			20	
Circulating Flow (v_c), pc/h	541			252			694			1329		
Exiting Flow (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		89.7			65.4			38.4			11.4	
Lane LOS		F			F			E			B	
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			B		
Intersection Delay, s/veh | LOS	67.1						F					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	2019	Analysis Time Period (hrs)	0.25
Time Analyzed	Afternoon Peak	Peak Hour Factor	0.33
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	16	572	41	0	128	462	25	0	231	0	343	0	0	0	0
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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 (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.3			11.2			22.3			6.2	
Lane LOS		A			B			C			A	
95% Queue, veh		3.1			3.8			7.1			0.0	
Approach Delay, s/veh	9.3			11.2			22.3					
Approach LOS	A			B			C					
Intersection Delay, s/veh | LOS	14.2						B					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	2019	Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak	Peak Hour Factor	0.33
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	3	200	13	0	23	198	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 (v_{PCE}), pc/h	0	9	624	41	0	72	618	34	0	119	0	140	0	50	0	19
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		674			724			259			69	
Entry Volume veh/h		654			703			251			67	
Circulating Flow (v_c), pc/h	122			128			683			809		
Exiting Flow (v_{ex}), pc/h	814			756			43			113		
Capacity (c_{pce}), pc/h		1219			1211			688			605	
Capacity (c), veh/h		1183			1176			668			587	
v/c Ratio (x)		0.55			0.60			0.38			0.11	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.5			10.5			10.5			7.5	
Lane LOS		A			B			B			A	
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	A			B			B			A		
Intersection Delay, s/veh | LOS	10.0						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Internal Site Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	
Date Performed	6/13/2019	N/S Street Name	
Analysis Year	2020	Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak	Peak Hour Factor	0.60
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	302	0	0	0	0	0	216	0	0	0	0	0	263	192	455
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		302			216			0			910	
Entry Volume veh/h		293			210			0			883	
Circulating Flow (v_c), pc/h	455			302			565			0		
Exiting Flow (v_{ex}), pc/h	263			455			518			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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.3			5.7			4.8			11.0	
Lane LOS		A			A			A			B	
95% Queue, veh		1.6			0.8			0.0			5.3	
Approach Delay, s/veh	8.3			5.7						11.0		
Approach LOS	A			A						B		
Intersection Delay, s/veh | LOS	9.6						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Internal Site Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	
Date Performed	6/13/2019	N/S Street Name	
Analysis Year	2020	Analysis Time Period (hrs)	0.25
Time Analyzed	Afternoon 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				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 (v_{PCE}), pc/h	0	164	0	0	0	0	0	36	0	0	112	0	0	36	18	55
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		164			36			112			109	
Entry Volume veh/h		159			35			109			106	
Circulating Flow (v_c), pc/h	54			276			200			0		
Exiting Flow (v_{ex}), pc/h	36			55			312			18		
Capacity (c_{pce}), pc/h		1306			1041			1125			1380	
Capacity (c), veh/h		1268			1011			1093			1340	
v/c Ratio (x)		0.13			0.03			0.10			0.08	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.9			3.9			4.2			3.3	
Lane LOS		A			A			A			A	
95% Queue, veh		0.4			0.1			0.3			0.3	
Approach Delay, s/veh	3.9			3.9			4.2			3.3		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	3.8						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Internal Site Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	
Date Performed	6/13/2019	N/S Street Name	
Analysis Year	2020	Analysis Time Period (hrs)	0.25
Time Analyzed	PM 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	70	0	0	0	0	0	24	0	0	38	0	0	24	12	59
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		70			24			38			95	
Entry Volume veh/h		68			23			37			92	
Circulating Flow (v_c), pc/h	36			108			94			0		
Exiting Flow (v_{ex}), pc/h	24			59			132			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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.2			3.2			3.2			3.2	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	3.2						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Internal Site Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	
Date Performed	6/13/2019	N/S Street Name	
Analysis Year	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak	Peak Hour Factor	0.60
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	186	0	0	0	133	0	126	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 (v_{PCE}), pc/h	0	319	0	0	0	228	0	216	0	0	0	0	0	324	163	474
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		319			444			0			961	
Entry Volume veh/h		310			431			0			933	
Circulating Flow (v_c), pc/h	715			319			643			228		
Exiting Flow (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		13.0			8.9			5.2			26.2	
Lane LOS		B			A			A			D	
95% Queue, veh		2.6			2.3			0.0			12.3	
Approach Delay, s/veh	13.0			8.9						26.2		
Approach LOS	B			A						D		
Intersection Delay, s/veh | LOS	19.3						C					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Internal Site Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	
Date Performed	6/13/2019	N/S Street Name	
Analysis Year	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	Afternoon 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	170	0	0	0	0	0	37	0	0	124	0	0	37	19	65
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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 (v_{ex}), pc/h	37			65			331			19		
Capacity (c_{pce}), pc/h		1303			1022			1117			1380	
Capacity (c), veh/h		1265			993			1085			1340	
v/c Ratio (x)		0.13			0.04			0.11			0.09	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.9			3.9			4.3			3.4	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	3.9						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Internal Site Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	
Date Performed	6/13/2019	N/S Street Name	
Analysis Year	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	PM 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	71	0	0	0	0	0	24	0	0	39	0	0	24	12	60
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	73	0	0	0	0	0	25	0	0	40	0	0	25	12	62
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		73			25			40			99	
Entry Volume veh/h		71			24			39			96	
Circulating Flow (v_c), pc/h	37			113			98			0		
Exiting Flow (v_{ex}), pc/h	25			62			138			12		
Capacity (c_{pce}), pc/h		1329			1230			1249			1380	
Capacity (c), veh/h		1290			1194			1212			1340	
v/c Ratio (x)		0.05			0.02			0.03			0.07	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.2			3.2			3.2			3.3	
Lane LOS		A			A			A			A	
95% Queue, veh		0.2			0.1			0.1			0.2	
Approach Delay, s/veh	3.2			3.2			3.2			3.3		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	3.2						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	0.40
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	15	312	533	0	922	118	41	0	237	0	687	0	13	0	8
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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 (v_{ex}), 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			0.06	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		307.4			51.3			41.4			10.7	
Lane LOS		F			F			E			B	
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			B		
Intersection Delay, s/veh | LOS	126.2						F					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	Afternoon Peak	Peak Hour Factor	0.33
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	5	61	40	0	77	104	8	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 (v_{PCE}), pc/h	0	16	202	125	0	252	343	25	0	187	0	815	0	0	0	0
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		343			620			1002			0	
Entry Volume veh/h		322			572			973			0	
Circulating Flow (v_c), pc/h	252			203			218			782		
Exiting Flow (v_{ex}), pc/h	1017			530			41			377		
Capacity (c_{pce}), pc/h		1067			1122			1105			622	
Capacity (c), veh/h		1001			1036			1073			603	
v/c Ratio (x)		0.32			0.55			0.91			0.00	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		6.9			10.4			29.5			6.0	
Lane LOS		A			B			D			A	
95% Queue, veh		1.4			3.5			13.9			0.0	
Approach Delay, s/veh	6.9			10.4			29.5					
Approach LOS	A			B			D					
Intersection Delay, s/veh | LOS	19.7						C					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	2019	Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak	Peak Hour Factor	0.33
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	3	149	38	0	58	154	11	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 (v_{PCE}), pc/h	0	9	465	119	0	181	481	34	0	112	0	306	0	50	0	19
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		593			696			418			69	
Entry Volume veh/h		576			676			406			67	
Circulating Flow (v_c), pc/h	231			121			524			774		
Exiting Flow (v_{ex}), 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			0.57			0.52			0.11	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		10.1			9.9			12.0			7.2	
Lane LOS		B			A			B			A	
95% Queue, veh		3.4			3.8			3.0			0.4	
Approach Delay, s/veh	10.1			9.9			12.0			7.2		
Approach LOS	B			A			B			A		
Intersection Delay, s/veh | LOS	10.3						B					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	0.40
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	15	382	533	0	922	142	41	0	238	0	690	0	13	0	8
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		930			1105			928			21	
Entry Volume veh/h		887			1073			797			20	
Circulating Flow (v_c), pc/h	935			253			410			1302		
Exiting Flow (v_{ex}), pc/h	1085			388			56			1455		
Capacity (c_{pce}), pc/h		532			1066			908			366	
Capacity (c), veh/h		507			1035			780			355	
v/c Ratio (x)		1.75			1.04			1.02			0.06	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		365.0			57.8			60.8			11.0	
Lane LOS		F			F			F			B	
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			B		
Intersection Delay, s/veh | LOS	156.4						F					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	Afternoon Peak	Peak Hour Factor	0.33
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	5	70	40	0	77	123	8	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 (v_{PCE}), pc/h	0	16	232	125	0	252	406	25	0	187	0	815	0	0	0	0
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		373			683			1002			0	
Entry Volume veh/h		349			630			973			0	
Circulating Flow (v_c), pc/h	252			203			248			845		
Exiting Flow (v_{ex}), pc/h	1047			593			41			377		
Capacity (c_{pce}), pc/h		1067			1122			1072			583	
Capacity (c), veh/h		1000			1035			1040			566	
v/c Ratio (x)		0.35			0.61			0.94			0.00	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		7.3			11.8			34.4			6.4	
Lane LOS		A			B			D			A	
95% Queue, veh		1.6			4.3			15.3			0.0	
Approach Delay, s/veh	7.3			11.8			34.4					
Approach LOS	A			B			D					
Intersection Delay, s/veh | LOS	22.2						C					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak	Peak Hour Factor	0.33
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	3	167	38	0	58	184	11	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 (v_{PCE}), pc/h	0	9	521	119	0	181	574	34	0	112	0	306	0	50	0	19
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		649			789			418			69	
Entry Volume veh/h		630			766			406			67	
Circulating Flow (v_c), pc/h	231			121			580			867		
Exiting Flow (v_{ex}), pc/h	877			705			43			300		
Capacity (c_{pce}), pc/h		1090			1220			764			570	
Capacity (c), veh/h		1059			1184			742			553	
v/c Ratio (x)		0.60			0.65			0.55			0.12	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		11.2			11.7			13.3			8.0	
Lane LOS		B			B			B			A	
95% Queue, veh		4.1			5.0			3.4			0.4	
Approach Delay, s/veh	11.2			11.7			13.3			8.0		
Approach LOS	B			B			B			A		
Intersection Delay, s/veh | LOS	11.7						B					

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		WBL		WBT		WBR	
Hillside Dr and High School Access	AM	1	A	4	A	-		3	A	-		-		-		-		1	A	0	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	3	A	-		-		-		12	B	-		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	B	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	-	
	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
	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
	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	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	B	3	A	5	A	10	B	3	A
CR 66 and Prospect Pointe Rd	AM	1	A	4	A	-		2	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	A	5	A	-		2	A	-		-		-		-		0	A	0	A	1	A	1	A	-	

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.

2020 Two-Way Stop Control

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																					
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	50	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	75	125
	Afternoon	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	75
Two-Way Stop Controlled	PM	25	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
Sunset Dr and Middle/High School Access	AM	25	25	-	-	-	-	25	50	75	225	-	-	-	-	-	-	25	50	-	-	-	-	75	200	-	-	75	225	-	-	-	-	-	-	25	50	-	-
	Afternoon	25	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	50	125	-	-	-	-	-	-	-	-	-	-
Two-Way Stop Controlled	PM	25	25	-	-	-	-	0	25	25	50	-	-	-	-	-	-	-	-	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	-	-	-	-	25	25	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	25	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
CR 66 and Aberdeen Ave	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	75	125	-	-	-	-	-	-	-	-	50	100	-	-
	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	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-

2020 Two-Way Stop Control

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		WBL		WBT		WBR	
Hillside Dr and High School Access	AM	1	A	5	A	-		3	A	-		-		-		-		1	A	1	A	3	A	1	A	-	
	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	B	-		3	A	2	A	1	A	-		-		0	A	0	A
Two-Way Stop Controlled	PM	3	A	-		-		-		11	B	-		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	B	2	A	1	A	1	A	15	C	1	A	0	A
	Afternoon	4	A	10	B	1	A	6	A	-		-		-		2	A	1	A	0	A	3	A	0	A	0	A
Two-Way Stop Controlled	PM	2	A	10	B	0	A	4	A	10	B	-		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	B	6	A	6	A	11	B	5	A
	Afternoon	7	A	4	A	7	A	4	A	6	A	7	A	4	A	4	A	10	B	2	A	6	A	12	B	5	A
Stop Controlled	PM	8	A	8	A	8	A	5	A	7	A	8	A	5	A	6	A	11	B	4	A	8	A	13	B	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
	Afternoon	1	A	6	A	-		2	A	5	A	-		2	A	1	A	0	A	0	A	1	A	1	A	0	A
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

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.

2040 Two-Way Stop Control

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																															
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/T		WBL/T/R		WBT/R		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		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	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	-	-
	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	25	50	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	50	-	-
	Afternoon	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	25	-	-
Stop Controlled	PM	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-
CR 66 and Aberdeen Ave	AM	-	-	50	100	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	75	150	-	-	-	-	-	-	75	125	-	-
	Afternoon	-	-	50	75	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100	-	-
Stop Controlled	PM	-	-	50	100	-	-	-	-	-	-	-	-	75	125	-	-	-	-	-	-	50	125	-	-	-	-	-	-	75	100	-	-
CR 66 and Prospect Pointe Rd	AM	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	50	75	-	-
	Afternoon	25	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	25	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	50	75	-	-

2040 Two-Way Stop Control

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				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
	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	B	8	A	0	A	6	A	6	A	-		3	A	8	A	10	B	8	A	22	C	7	A	4	A
	Afternoon	4	A	4	A	0	A	4	A	-		-		-		4	A	7	A	3	A	5	A	6	A	3	A
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
Sunset Dr and Timber Ridge Ct	AM	1	A	-		-		-		7	A	-		2	A	-		1	A	-		-		2	A	-	
	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
Sunset Dr and Aberdeen Ave	AM	4	A	-		-		4	A	-		-		-		-		8	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	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	7	A	4	A	6	A	7	A	4	A	4	A	10	B	3	A	5	A	10	B	3	A
CR 66 and Prospect Pointe Rd	AM	1	A	5	A	-		2	A	-		-		-		-		0	A	0	A	1	A	0	A	-	
	Afternoon	1	A	5	A	-		2	A	-		-		-		-		0	A	0	A	1	A	1	A	-	
Stop Controlled	PM	1	A	5	A	-		2	A	-		-		-		-		0	A	0	A	1	A	1	A	-	

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.

2020 All Way Stop Control - 1

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																					
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	75	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	-	-	25	100	-	-	-	-	-	-	75	150
	Afternoon	50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	75
All Way Stop Controlled	PM	50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
Sunset Dr and Middle/High School Access	AM	75	125	-	-	-	-	75	150	125	300	-	-	-	-	-	-	50	250	-	-	-	-	50	100	-	-	50	125	-	-	-	-	-	-	25	50	-	-
	Afternoon	50	75	-	-	-	-	50	75	25	50	-	-	-	-	-	-	50	75	25	50	-	-	-	-	-	-	50	125	-	-	-	-	-	-	-	-	-	-
All Way Stop Controlled	PM	50	100	-	-	-	-	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	-	-	-	-	25	25	-	-	-	-	-	-	50	75	-	-	-	-	-	-	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	25	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	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	100	-	-	-	-	-	-	-	-	50	100	-	-
	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	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-

2020 All Way Stop Control - 1

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		WBL		WBT		WBR	
Hillside Dr and High School Access	AM	1	A	5	A	-		3	A	-		-		-		-		1	A	1	A	2	A	0	A	-	
	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	B	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	B	8	A	0	A	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	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	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	-	
	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	A	3	A	1	A	-		-		-		-		5	A	-		3	A
	Afternoon	1	A	-		0	A	0	A	2	A	1	A	-		-		-		-		4	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	4	A	1	A	1	A	7	A	-		3	A	-		-		4	A
	Afternoon	2	A	3	A	2	A	1	A	3	A	1	A	0	A	5	A	-		3	A	-		-		3	A
Stop Controlled	PM	2	A	4	A	2	A	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	7	A	7	A	8	A	5	A	6	A	12	B	4	A	7	A	11	B	5	A
	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	6	A	8	A	5	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	5	A	-		3	A	2	A	0	A	0	A	1	A	0	A	0	A
	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	A	6	A	-		3	A	6	A	-		3	A	2	A	0	A	0	A	1	A	1	A	0	A

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.

2040 All Way Stop Control - 1

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																	
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/T		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	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Aberdeen Ave	AM	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	50	-	-
	Afternoon	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	-	-	50	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	50	-	-
CR 66 and Aberdeen Ave	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	75	125	-	-	-	-	-	-	50	125	-	-
	Afternoon	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	100	-	-
Stop Controlled	PM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	75	125	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	100	-	-
CR 66 and Prospect Pointe Rd	AM	25	25	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	50	75	-	-
	Afternoon	0	25	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	25	25	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-

2040 All Way Stop Control - 1

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		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	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	B	-		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	B	7	A	0	A	5	A	7	A	-		3	A	8	A	10	B	8	A	22	C	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	A	-		3	A	6	A	7	A	3	A	5	A	6	A	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	A	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	A	1	A	-		-		-		-		3	A	-		4	A
	Afternoon	1	A	-		2	A	1	A	3	A	1	A	-		-		-		-		-		-		2	A
Stop Controlled	PM	1	A	-		2	A	2	A	3	A	1	A	-		-		-		-		5	A	-		3	A
CR 66 and Aberdeen Ave	AM	6	A	7	A	8	A	5	A	6	A	7	A	3	A	4	A	10	B	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	B	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	B	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	A	6	A	-		3	A	-		-		-		-		0	A	0	A	1	A	1	A	-	

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.

2020 All Way Stop Control - 2

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																					
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	50	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	75	175
	Afternoon	25	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
Two-Way Stop Controlled	PM	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
Sunset Dr and Middle/High School Access	AM	50	100	-	-	-	-	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	100	-	-	-	-	25	75	50	75	-	-	-	-	-	-	50	75	25	50	-	-	-	-	-	-	25	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	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	-	-	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	25	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	25	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	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	100	-	-
Stop Controlled	PM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	100	-	-
CR 66 and Prospect Pointe Rd	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-

2020 All Way Stop Control - 2

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		WBL		WBT		WBR	
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	B	8	A	0	A	6	A	6	A	-		3	A	8	A	10	B	9	A	29	D	7	A	4	A
	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	5	A	4	A	0	A	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	1	A
	Afternoon	1	A	-		-		-		5	A	-		-		-		0	A	-		-		2	A	2	A
Stop Controlled	PM	2	A	-		-		-		8	A	-		2	A	-		0	A	-		-		2	A	2	A
Sunset Dr and Aberdeen Ave	AM	5	A	-		-		5	A	-		-		-		-		6	A	-		4	A	4	A	-	
	Afternoon	4	A	7	A	-		3	A	-		-		-		-		6	A	4	A	4	A	4	A	-	
Stop Controlled	PM	4	A	3	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	-		-		-		-		5	A	-		3	A
	Afternoon	1	A	-		0	A	0	A	2	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	4	A	1	A	0	A	9	A	-		3	A	7	A	-		4	A
	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
CR 66 and Aberdeen Ave	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
	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
	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

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.

2040 All Way Stop Control - 2

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																			
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max
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	175
	Afternoon	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	75
Two-Way Stop Controlled	PM	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75
Sunset Dr and Middle/High School Access	AM	75	125	-	-	-	-	75	150	125	350	-	-	-	-	-	-	75	350	-	-	50	100	-	-	50	150	-	-	-	-	-	-	25	50	-	-
	Afternoon	50	75	-	-	-	-	25	75	50	50	-	-	-	-	-	-	50	75	-	-	25	75	-	-	50	125	-	-	-	-	-	-	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Sunset Dr and Aberdeen Ave	AM	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	75	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	-
	Afternoon	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	25	50	-	-
CR 66 and Aberdeen Ave	AM	-	-	50	100	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	75	125	-	-	-	-	-	-	-	-	50	100	-	-
	Afternoon	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	100	-	-
Stop Controlled	PM	-	-	50	100	-	-	-	-	-	-	-	-	-	-	75	125	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	100	-	-
CR 66 and Prospect Pointe Rd	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	50	75	-	-
	Afternoon	0	25	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	25	25	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	50	75	-	-

2040 All Way Stop Control - 2

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		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	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	A
	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	B	80	F	0	A	11	B	10	B	-		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	A
Stop Controlled	PM	1	A	-		-		-		7	A	-		3	A	-		0	A	-		-		1	A	0	A
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	A
	Afternoon	1	A	-		0	A	0	A	2	A	1	A	-		-		-		-		2	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	-		-		-		-		6	A	-		3	A
	Afternoon	1	A	-		2	A	1	A	3	A	1	A	-		-		-		-		-		-		2	A
Stop Controlled	PM	1	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	3	A	5	A	9	A	3	A
	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	A
Stop Controlled	PM	6	A	6	A	7	A	4	A	5	A	7	A	4	A	4	A	10	B	3	A	5	A	10	B	3	A
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	A	5	A	-		3	A	-		-		-		-		0	A	0	A	1	A	1	A	-	

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.

2020 All Way Stop Control - 3

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																					
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	75	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	150	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	75	125
	Afternoon	50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
All Way Stop Controlled	PM	75	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
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	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	-	-	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
	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	-	-
	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	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-

2020 All Way Stop Control - 3

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		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	B	74	F	1	A	11	B	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
	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	-	
	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	B	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	B	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	A	1	A	1	A	0	A

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.

2040 All Way Stop Control - 3

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																			
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	75	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	125	-	-	-	-	-	-	75	175
	Afternoon	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	75
All Way Stop Controlled	PM	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
Sunset Dr and Middle/High School Access	AM	25	25	-	-	-	-	25	50	75	225	-	-	-	-	-	-	25	25	-	-	100	200	-	-	75	225	-	-	-	-	-	-	25	50	-	-
	Afternoon	25	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	50	75	-	-	50	150	-	-	-	-	-	-	25	50	-	-
Two-Way Stop Controlled	PM	25	25	-	-	-	-	0	25	25	50	-	-	-	-	-	-	-	-	-	-	25	75	-	-	50	100	-	-	-	-	-	-	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	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	-
	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	-	-
Stop Controlled	PM	25	25	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	50	75	-	-

2040 All Way Stop Control - 3

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	West Mini-Roundabout
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	0.60
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	10	346	215	0	266	122	26	0	123	0	197	0	9	0	5
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		571			414			320			14	
Entry Volume veh/h		527			389			294			13	
Circulating Flow (v_c), pc/h	275			133			365			511		
Exiting Flow (v_{ex}), 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			0.02	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		10.9			6.6			7.9			4.7	
Lane LOS		B			A			A			A	
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	B			A			A			A		
Intersection Delay, s/veh | LOS	8.7						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	West Mini-Roundabout
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				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	5	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 (v_{PCE}), pc/h	0	5	76	28	0	27	123	8	0	44	0	92	0	0	0	0
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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 (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.4			3.8			3.8			3.3	
Lane LOS		A			A			A			A	
95% Queue, veh		0.3			0.4			0.4			0.0	
Approach Delay, s/veh	3.4			3.8			3.8					
Approach LOS	A			A			A					
Intersection Delay, s/veh | LOS	3.7						A					

HCS7 Roundabouts Report

General Information

Analyst	CW	Intersection	West Mini-Roundabout
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				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	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	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	3	167	25	0	34	171	11	0	24	0	44	0	15	0	6
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		195			216			68			21	
Entry Volume veh/h		189			210			66			20	
Circulating Flow (v_c), pc/h	49			27			185			229		
Exiting Flow (v_{ex}), pc/h	226			201			14			59		
Capacity (c_{pce}), pc/h		1313			1343			1143			1093	
Capacity (c), veh/h		1274			1303			1109			1061	
v/c Ratio (x)		0.15			0.16			0.06			0.02	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.1			4.1			3.7			3.6	
Lane LOS		A			A			A			A	
95% Queue, veh		0.5			0.6			0.2			0.1	
Approach Delay, s/veh	4.1			4.1			3.7			3.6		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	4.0						A					

HCS7 Roundabouts Report

General Information / Site Information

General Information		Site Information	
Analyst	CW	Intersection	West Mini-Roundabout
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	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak	Peak Hour Factor	0.60
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	10	482	228	0	273	196	27	0	129	0	208	0	9	0	5
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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 (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		15.4			7.5			10.0			5.2	
Lane LOS		C			A			A			A	
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	C			A			A			A		
Intersection Delay, s/veh | LOS	11.6						B					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	West Mini-Roundabout
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	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	Afternoon 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	5	100	28	0	37	175	8	0	45	0	97	0	0	0	0
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		133			220			142			0	
Entry Volume veh/h		129			214			138			0	
Circulating Flow (v_c), pc/h	37			50			105			257		
Exiting Flow (v_{ex}), pc/h	197			220			13			65		
Capacity (c_{pce}), pc/h		1329			1311			1240			1062	
Capacity (c), veh/h		1290			1273			1204			1031	
v/c Ratio (x)		0.10			0.17			0.11			0.00	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.6			4.2			3.9			3.5	
Lane LOS		A			A			A			A	
95% Queue, veh		0.3			0.6			0.4			0.0	
Approach Delay, s/veh	3.6			4.2			3.9					
Approach LOS	A			A			A					
Intersection Delay, s/veh | LOS	4.0						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	West Mini-Roundabout
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	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	PM 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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	3
Flow Rate (v_{PCE}), pc/h	0	3	215	26	0	36	266	11	0	25	0	46	0	16	0	6
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		244			313			71			22	
Entry Volume veh/h		237			304			69			21	
Circulating Flow (v_c), pc/h	52			28			234			327		
Exiting Flow (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.4			4.8			4.0			3.9	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	4.5						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	East Mini-Roundabout
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	0.74
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	302	43	111	0	61	26	86	0	39	122	31	0	52	211	269
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		456			173			192			532	
Entry Volume veh/h		428			168			170			505	
Circulating Flow (v_c), pc/h	324			463			397			126		
Exiting Flow (v_{ex}), pc/h	126			334			510			383		
Capacity (c_{pce}), pc/h		992			861			920			1214	
Capacity (c), veh/h		930			833			813			1152	
v/c Ratio (x)		0.46			0.20			0.21			0.44	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.4			6.4			6.6			7.7	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	8.0						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	East Mini-Roundabout
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	127	23	13	0	7	11	40	0	15	96	60	0	53	32	111
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	131	24	13	0	7	11	41	0	15	99	62	0	55	33	114
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		168			59			176			202	
Entry Volume veh/h		163			57			171			196	
Circulating Flow (v_c), pc/h	95			245			210			33		
Exiting Flow (v_{ex}), 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	Bypass
Lane Control Delay (d), s/veh		4.1			3.9			4.7			4.0	
Lane LOS		A			A			A			A	
95% Queue, veh		0.5			0.2			0.6			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					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	East Mini-Roundabout
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	188	25	13	0	3	11	57	0	12	34	18	0	66	20	190
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		226			71			64			276	
Entry Volume veh/h		219			69			62			268	
Circulating Flow (v_c), pc/h	89			234			279			26		
Exiting Flow (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.5			4.0			4.1			4.5	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	4.4						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	East Mini-Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	Sunset Dr
Date Performed	6/13/2019	N/S Street Name	Hillside Dr
Analysis Year	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak	Peak Hour Factor	0.74
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	413	43	119	0	65	26	86	0	41	130	32	0	53	227	309
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		575			177			203			589	
Entry Volume veh/h		541			171			179			559	
Circulating Flow (v_c), pc/h	345			584			509			132		
Exiting Flow (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		12.5			7.5			7.8			8.5	
Lane LOS		B			A			A			A	
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	B			A			A			A		
Intersection Delay, s/veh | LOS	9.8						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	East Mini-Roundabout
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	Afternoon 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	160	24	13	0	7	11	41	0	16	106	66	0	55	35	173
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		197			59			188			263	
Entry Volume veh/h		191			57			183			255	
Circulating Flow (v_c), pc/h	97			282			239			34		
Exiting Flow (v_{ex}), pc/h	145			200			307			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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.3			4.1			5.0			4.5	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	4.5						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	East Mini-Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	Sunset Dr
Date Performed	6/13/2019	N/S Street Name	Hillside Dr
Analysis Year	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	PM 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	240	25	13	0	3	11	57	0	12	36	19	0	66	21	276
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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	

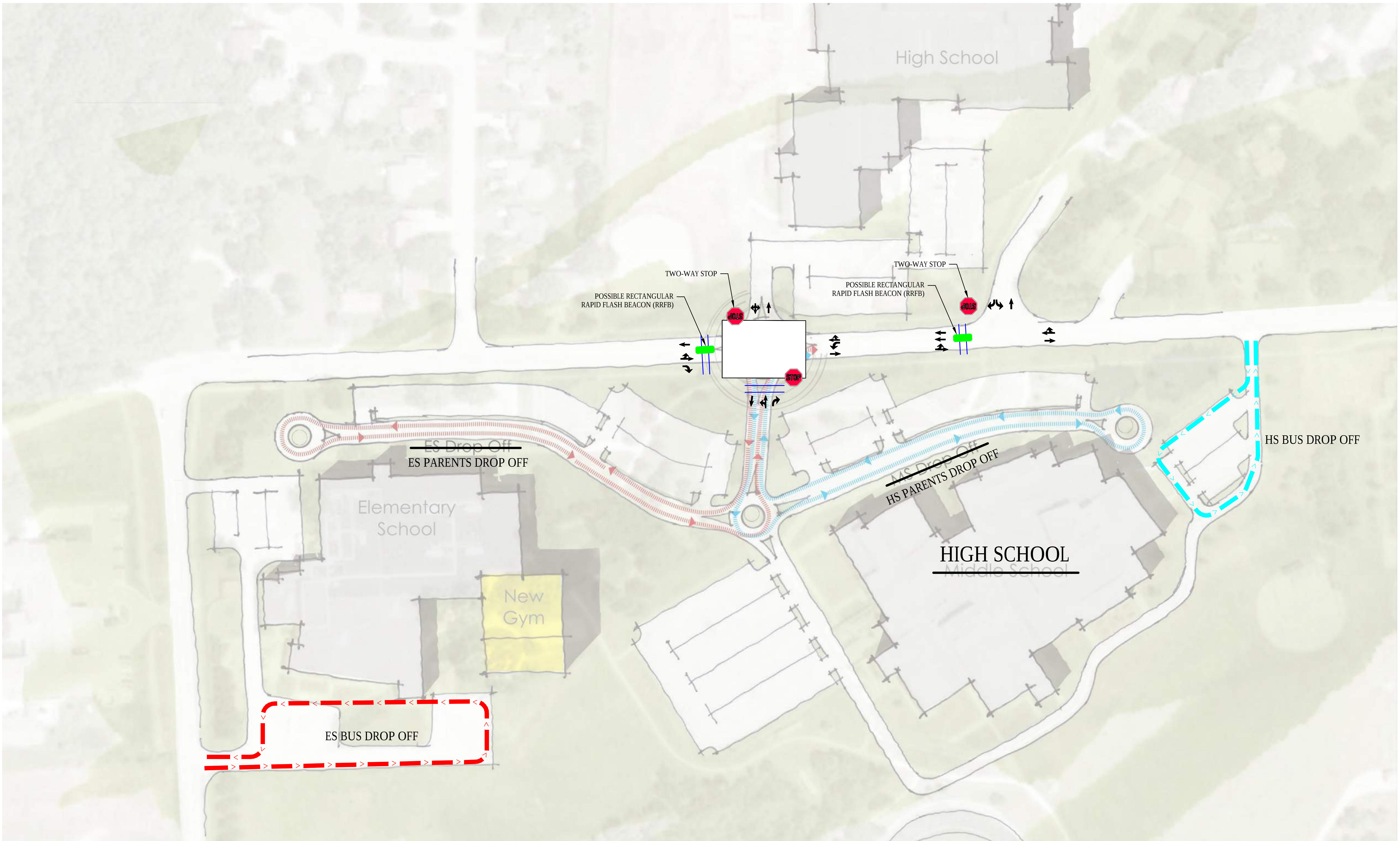
Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		278			71			67			363	
Entry Volume veh/h		270			69			65			352	
Circulating Flow (v_c), pc/h	90			288			331			26		
Exiting Flow (v_{ex}), pc/h	110			299			333			37		
Capacity (c_{pce}), pc/h		1259			1029			985			1344	
Capacity (c), veh/h		1222			999			956			1305	
v/c Ratio (x)		0.22			0.07			0.07			0.27	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.9			4.2			4.4			5.1	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	4.9						A					

Appendix F: Mitigation Layouts



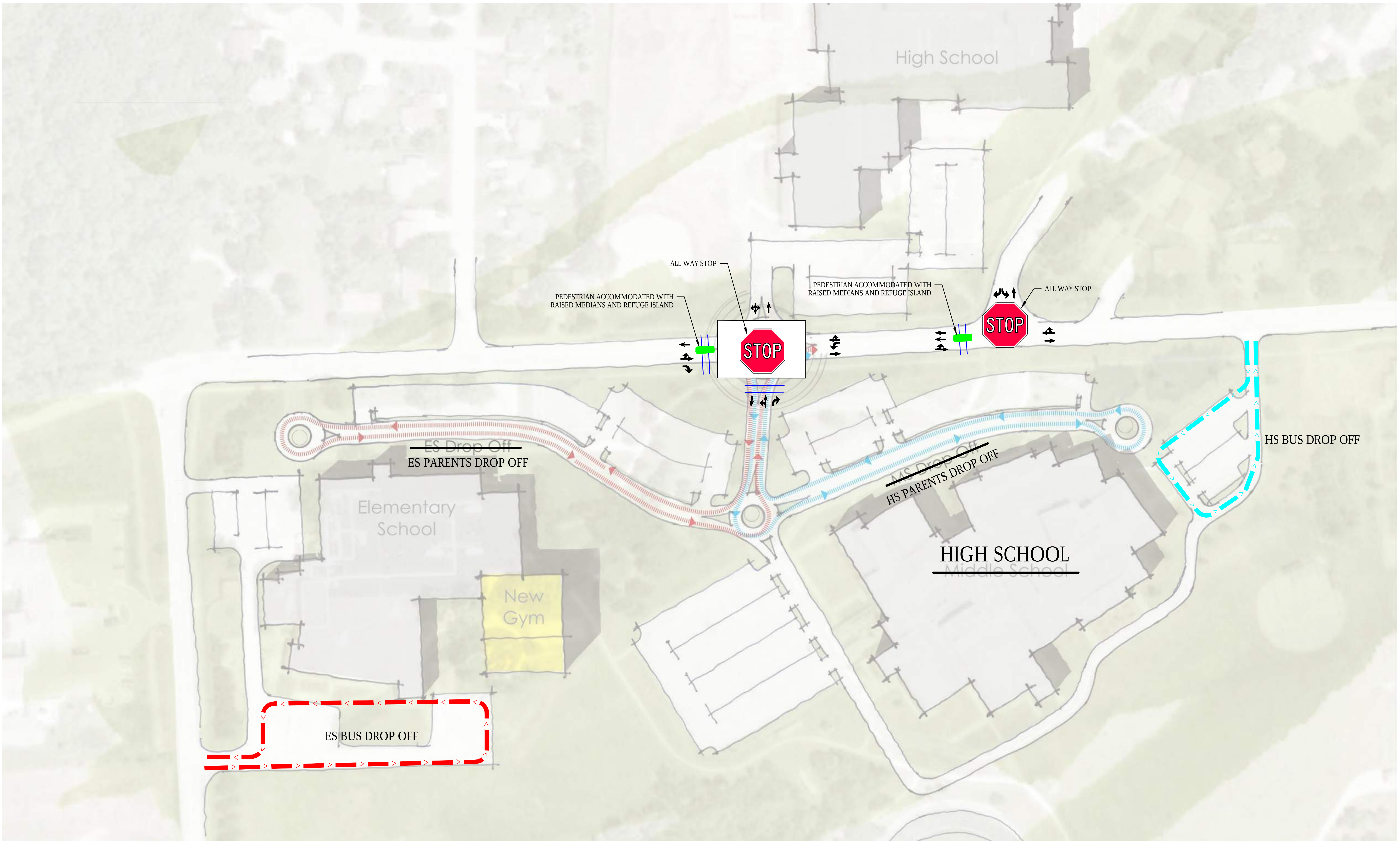
Jordan Public Schools - **North Campus PHASE 1**

~~Option 1b Drop-off Traffic Pattern~~

TWO-WAY STOP CONTROL OPTION

04.02.2019

Figure 10



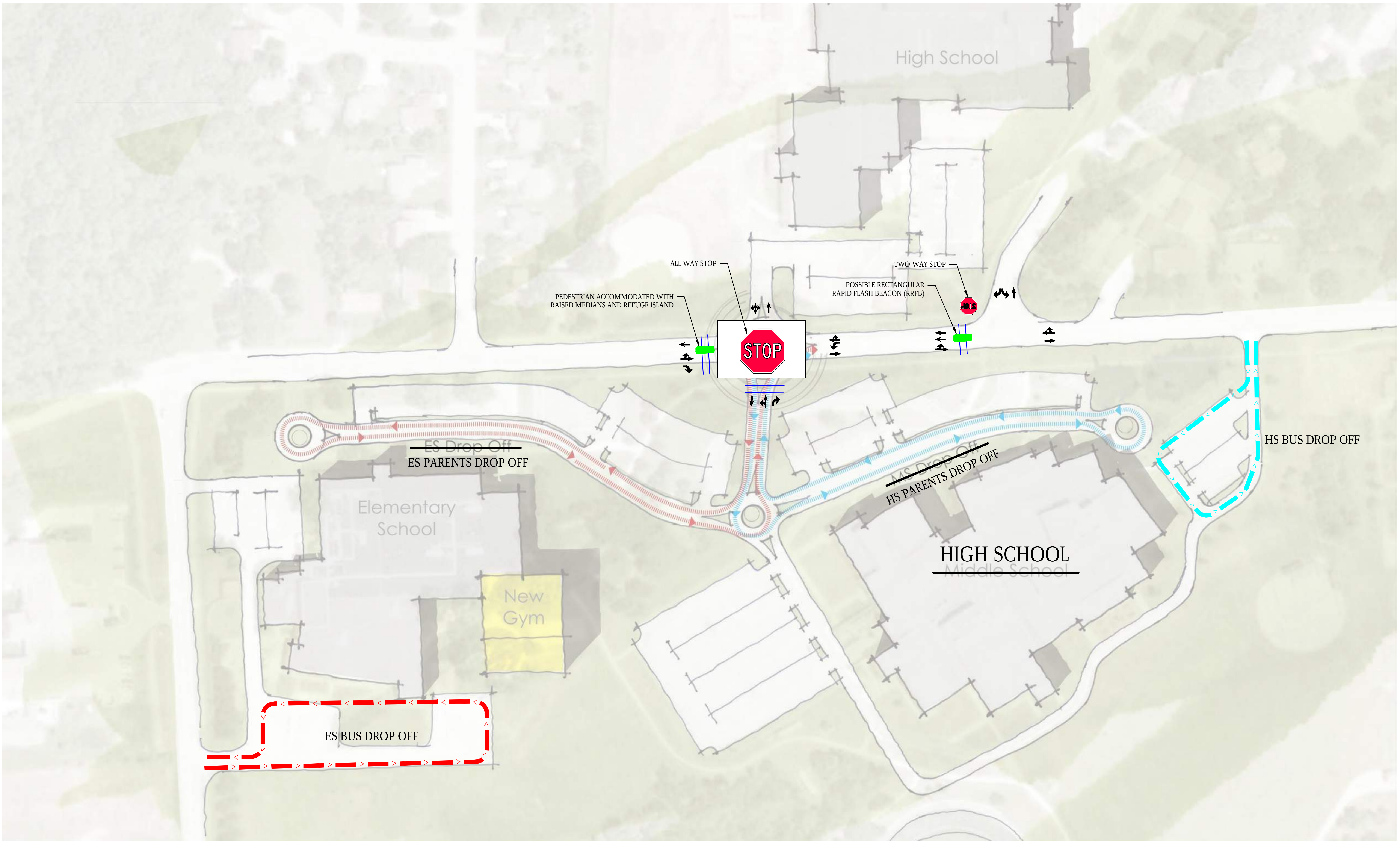
Jordan Public Schools - **North Campus PHASE 1**

~~**Option 1b** Drop-off Traffic Pattern~~

ALL WAY STOP CONTROL OPTION - 1

04.02.2019

Figure 11



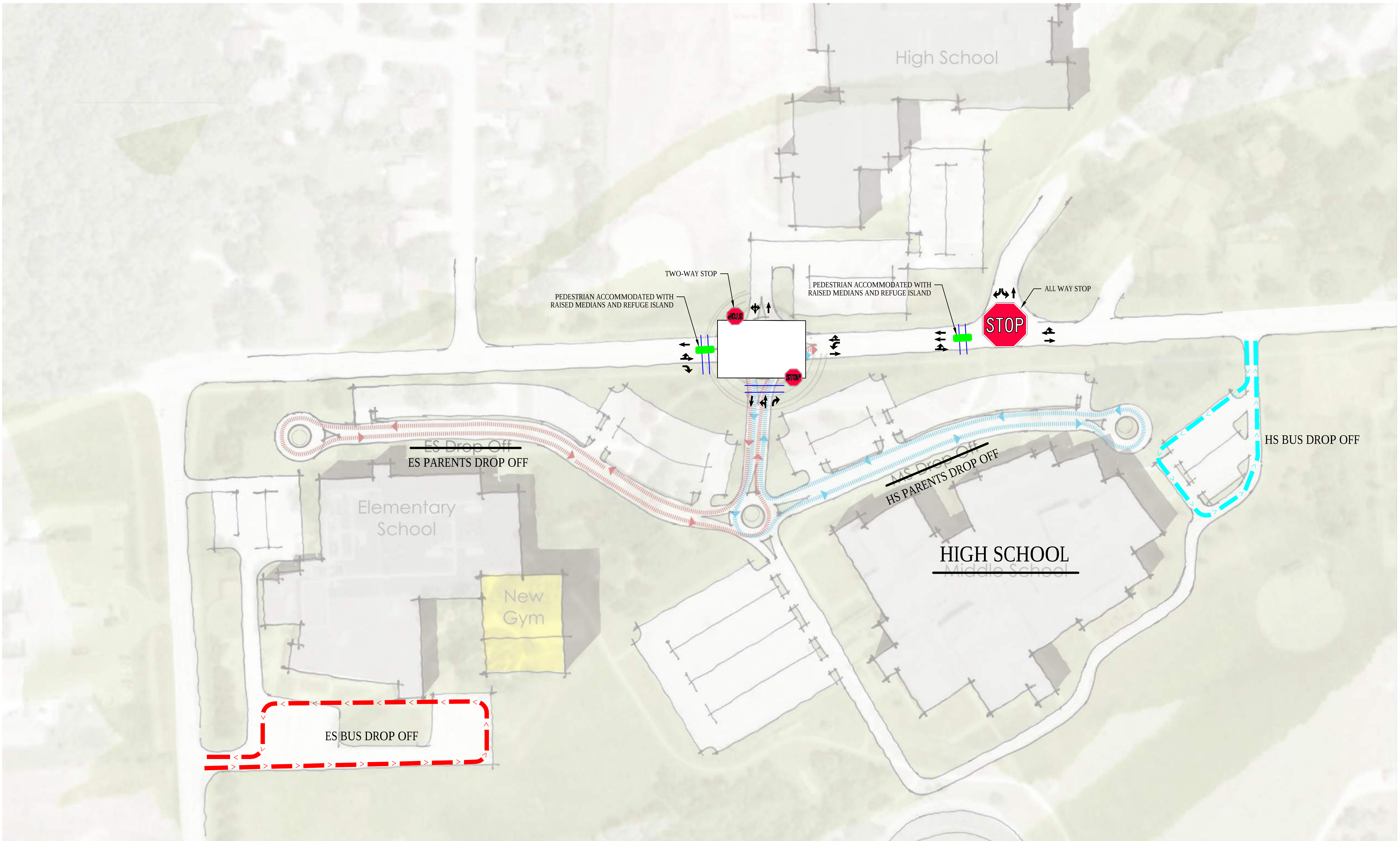
Jordan Public Schools - **North Campus PHASE 1**

~~Option 1b Drop-off Traffic Pattern~~

ALL WAY STOP CONTROL OPTION - 2

04.02.2019

Figure 12



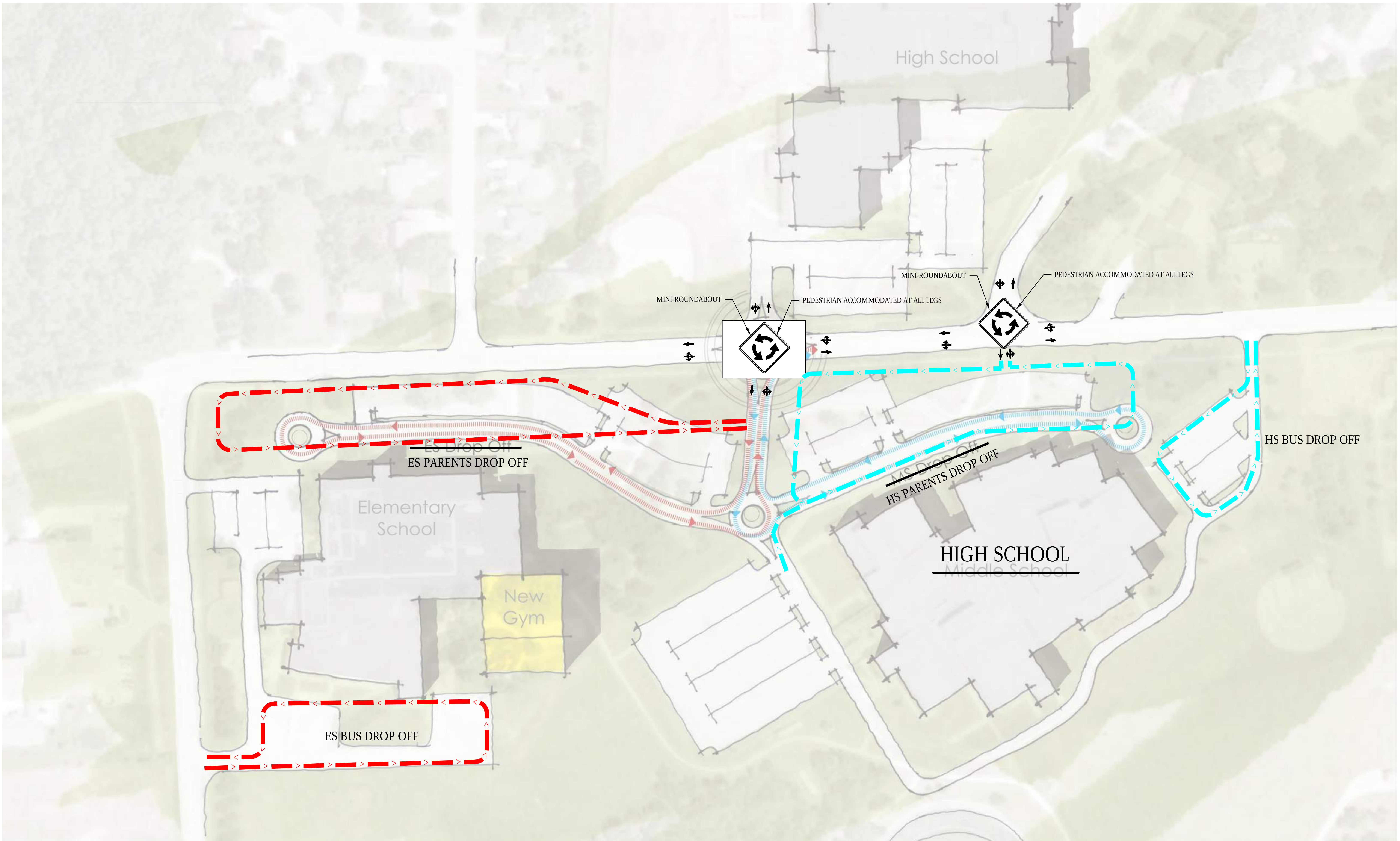
Jordan Public Schools - **North Campus PHASE 1**

~~Option 1b Drop-off Traffic Pattern~~

ALL WAY STOP CONTROL OPTION - 3

04.02.2019

Figure 13



Jordan Public Schools - **North Campus PHASE 1**

~~Option 1b Drop-off Traffic Pattern~~

MINI-ROUNDABOUT OPTION

04.02.2019

Figure 14

Appendix G: Warrant Analysis

Real People. Real Solutions.

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

LOCATION: Jordan
COUNTY: Scott County
REF. POINT:
DATE: 6/26/2019
OPERATOR: CW

Speed	Approach Description		Lanes
30	Major App1:	SUNSET DR (WESTBOUND)	2
30	Major App3:	SUNSET DR (EASTBOUND)	1
30	Minor App2:	HILLSIDE DR (SOUTHBOUND)	1
	Minor App4:	dsf	

0.70 FACTOR USED? No
POPULATION < 10,000? No
N/A Yes

THRESHOLDS 1A/1B: 480/720 120/60

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

		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:		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:	HILLSIDE DR (SOUTHBOUND)	1
			Minor App4:	dsf	

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

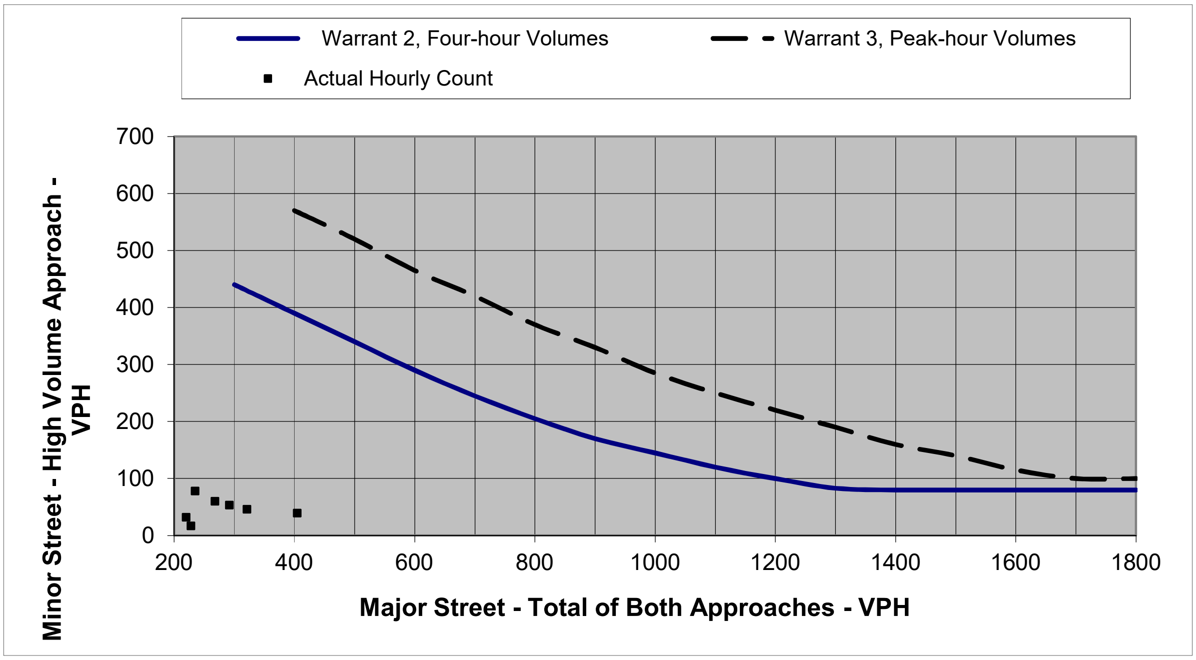


Figure 1. Four Hour and Peak Hour Warrant Analysis

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

	Warrant Criteria		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:
DATE: 6/26/2019

OPERATOR: CW

0.70 FACTOR USED? No

Speed	Approach Description	Lanes
30	Major App1: SUNSET DR (WESTBOUND)	2
30	Major App3: SUNSET DR (EASTBOUND)	1
30	Minor App2: MS ACCESS (SOUTHBOUND)	1
	Minor App4:	

					300	200	
HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR TOTAL Σ (APP. 1 & APP. 3)	MINOR TOTAL APP. 2 + APP. 4	WARRANT 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	/
7:00 - 8:00	99	306	39		405	39	X/
8:00 - 9:00	67	161	17		228	17	/
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:
DATE: 6/26/2019
OPERATOR: CW

Speed	Approach Description		Lanes
30	Major App1:	SUNSET DR (WESTBOUND)	2
30	Major App3:	SUNSET DR (EASTBOUND)	1
30	Minor App2:	HS ACCESS (NORTHBOUND)	1
30	Minor App4:	MS ACCESS (SOUTHBOUND)	1

0.70 FACTOR USED? No
POPULATION < 10,000? No
N/A No

THRESHOLDS 1A/1B:				600/900			150/75	150/75	
HOUR	MAJOR APP. 1	MAJOR APP. 3	TOTAL 1+3	MAJOR 1A/1B	MINOR APP. 2	MINOR 2 1A/1B	MINOR APP. 4	MINOR 4 1A/1B	**MET SAME 1A/1B**
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	81	105	186	/	12	/	0	/	/
7:00 - 8:00	240	252	492	/	58	/	4	/	/
8:00 - 9:00	247	197	444	/	39	/	2	/	/
9:00 - 10:00	37	39	76	/	12	/	0	/	/
10:00 - 11:00	69	60	129	/	8	/	0	/	/
11:00 - 12:00	66	42	108	/	35	/	1	/	/
12:00 - 13:00	90	43	133	/	16	/	0	/	/
13:00 - 14:00	106	57	163	/	20	/	1	/	/
14:00 - 15:00	150	135	285	/	19	/	1	/	/
15:00 - 16:00	272	231	503	/	58	/	3	/	/
16:00 - 17:00	91	169	260	/	36	/	2	/	/
17:00 - 18:00	133	118	251	/	43	/	2	/	/
18:00 - 19:00	110	85	195	/	31	/	1	/	/
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)	
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:
DATE: 6/26/2019

OPERATOR: CW

Speed	Approach Description	Lanes
30	Major App1: SUNSET DR (WESTBOUND)	2
30	Major App3: SUNSET DR (EASTBOUND)	1
30	Minor App2: HS ACCESS (NORTHBOUND)	1
30	Minor App4: MS ACCESS (SOUTHBOUND)	1

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

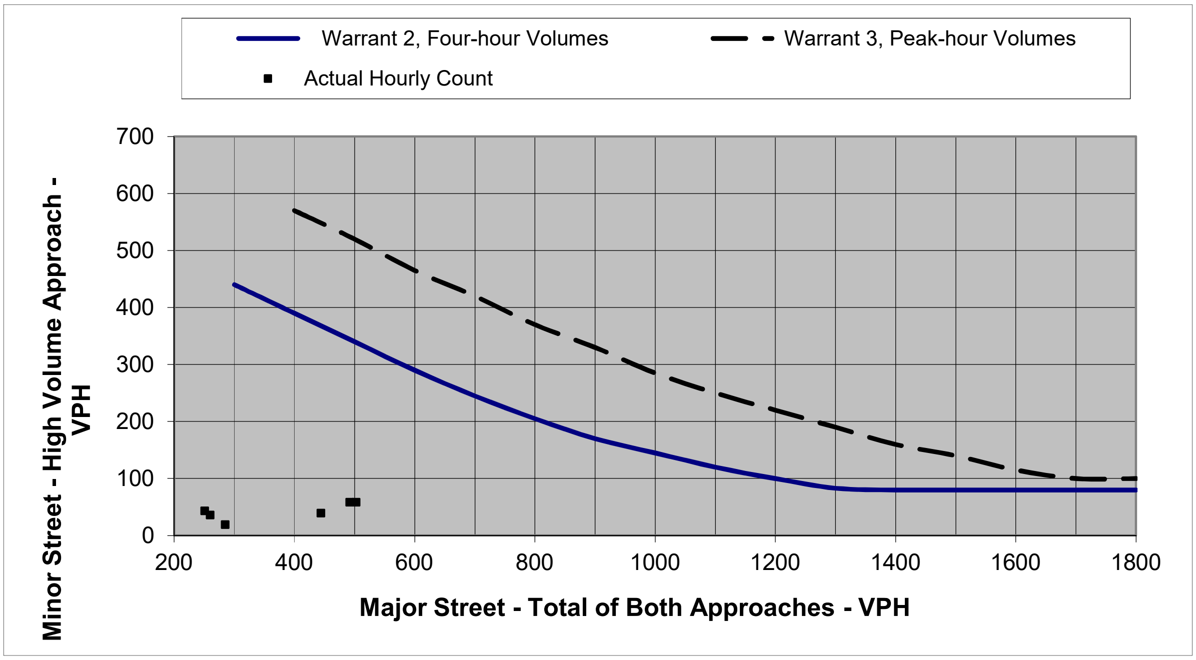


Figure 1. Four Hour and Peak Hour Warrant Analysis
Note: For data points outside the graph range, check the minor street volume against the lower thresholds

	Warrant Criteria		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	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:
DATE: 6/26/2019

OPERATOR: CW

0.70 FACTOR USED? No

Speed	Approach Description		Lanes
30	Major App1:	SUNSET DR (WESTBOUND)	2
30	Major App3:	SUNSET DR (EASTBOUND)	1
30	Minor App2:	HS ACCESS (NORTHBOUND)	1
30	Minor App4:	MS ACCESS (SOUTHBOUND)	1

					300	200	
HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR TOTAL Σ (APP. 1 & APP. 3)	MINOR TOTAL APP. 2 + APP. 4	WARRANT 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: ______________________

MEMORANDUM

Date: November 9th, 2023

To: Mike Waltman, P.E.
Jordan City Engineer

From: Ross Tillman, P.E.
Chloe Weber, EIT

Subject: Sunset Drive Traffic Operations
City of Jordan
Project No.: 0T1131561

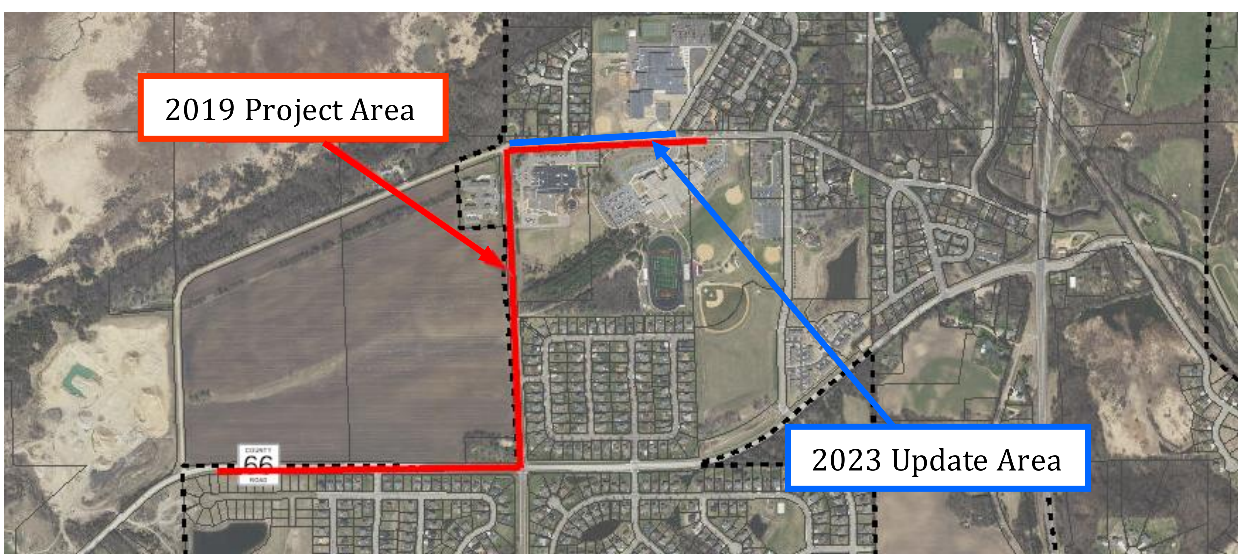
Introduction

In 2019, a traffic study was performed 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. The prior report analyzed the existing conditions, future conditions, and the build options for the area.

Part of the study was to anticipate traffic operations along Sunset Drive given a reconfiguration of the internal school site layout, including changing the structure of the parent drop-off at the elementary school and combining the elementary and high school access points. Since 2019, the anticipated internal site layout has changed, prompting the traffic operations to be analyzed again with updated conditions. Therefore, the area studied and summarized in this memorandum was reduced to the school accesses, Hillside Drive, and Timber Ridge Court.

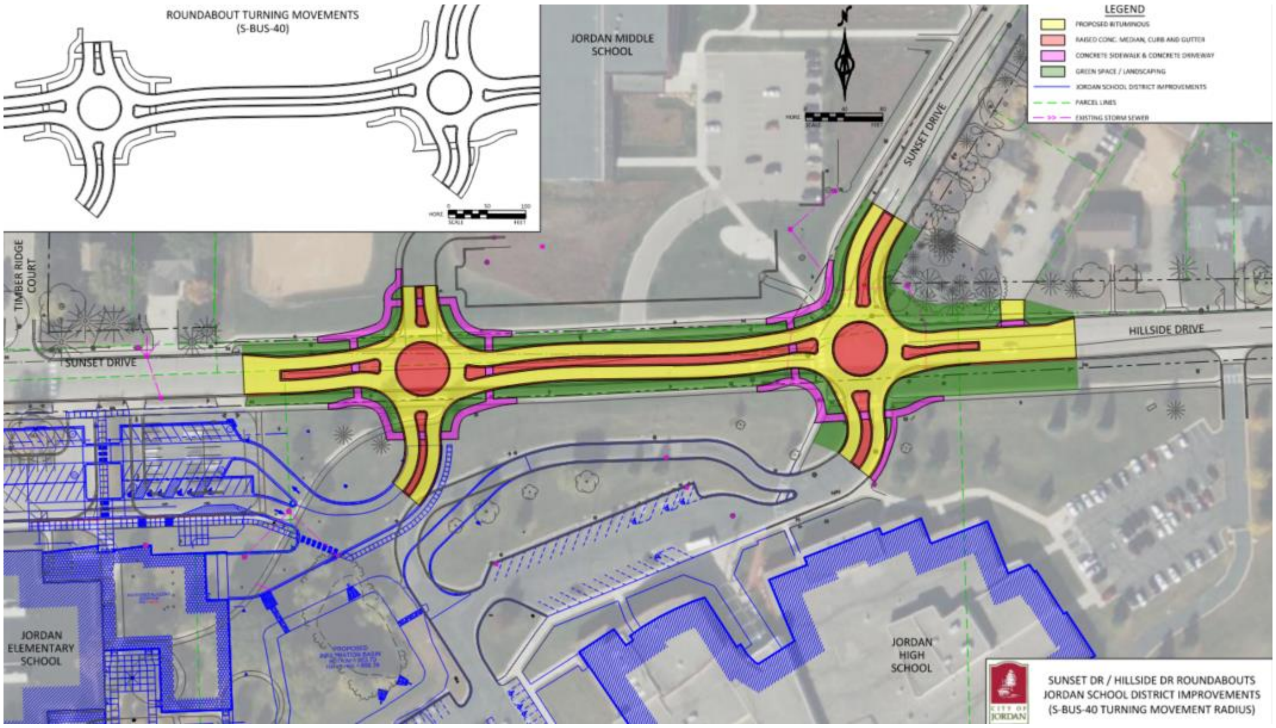
The study area is located in the City of Jordan, MN in Scott County. See Figure 1 for the project location map. The study area is located just south and east of TH 169.

Figure 1: Project Location Map



The updated proposed roadway changes along Sunset Drive include two compact roundabouts at the elementary school access and the intersection of Sunset Drive/Hillside Drive. See **Figure 2**, below.

Figure 2: Proposed Roundabout Layout on Sunset Drive at Hillside Drive and Jordan Middle School/Elementary School Access



Data Collection

Data was collected in May 2019 as part of the previous study. The updated analysis was completed using the same turning movement volumes and 2040 projections. Three peaks were analyzed; AM Peak (7:15 am to 8:15 am), Afternoon Peak (2:45 pm to 3:45 pm), and PM Peak (4:30 pm to 5:30 pm). Turning movement count details can be seen in the previous study report, which is found in the Appendix.

Traffic Forecasting

The traffic forecasting accounts for growth based on the school enrollment estimations - which was anticipated to be a 22% increase from 2019 to 2040, as well as an increase in background traffic growth caused by adjacent and regional development. For further detail, see the 2019 Jordan School Area Traffic Study in the Appendix. Turning movements for this analysis were altered to assume that all school traffic would be entering and exiting from the school entrances on Sunset Dr, whereas previously some had been assumed to use the southern elementary school driveway on Aberdeen Ave.

Safety and Compliance

Crash History

The 2019 Jordan School Area Traffic Study had analyzed a three-year period for safety evaluation (2015-2017). In this period, there were two crashes at the intersection of Sunset Dr and Hillside Dr (one right-angle and one bicycle crash, resulting in a possible injury and minor injury). This intersection was under the statewide average for observed crash rate. For further detail on the safety analysis, see the 2019 Jordan School Area Traffic Study in the Appendix.

The intersection of Sunset Dr and Timber Ridge Ct is known to have safety concerns. A serious pedestrian crash occurred near the intersection in September 2023. The traffic control, crosswalk placement, and sun glare/visibility of this intersection were taken into consideration when considering the design and enhancements along Sunset Dr.

Stop Sign Compliance

Due to the fact that the existing all-way stop control at Sunset Dr and Hillside Dr is unwarranted per vehicular volume requirements, an analysis was done to assess the compliance of drivers at the intersection. In a visual review over the fifteen-minute period leading into the afternoon peak hour, approximately 30% of drivers were seen rolling through the intersection (slowing down, but not fully stopping). This poses a safety risk to all modes of traffic, but specifically pedestrians and bicyclists crossing this intersection.

Warrant Analysis

The 2019 Jordan School Area Traffic Study found that the current all-way stop intersection of Sunset Drive and Hillside Drive does not meet warrants for an all-way stop control due to traffic volumes alone, as prescribed in the Minnesota Manual on Uniform Traffic Control Devices. Installing all-way stop controlled intersections when unwarranted by traffic volume may lead to non-compliance. Intersection specific compliance was discussed in the *Stop Sign Compliance* section of this memorandum. An additional all-way stop alternative was evaluated after the 2019 study and documented in this updated analysis.

Traffic Operations

An operations analysis was completed for the AM, Afternoon, and PM peak hours using the 2040 Build Condition turning movements. The operational analysis results are described as a Level of Service (LOS) 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 6th Edition, which base the level of service 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 into 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. Level of service D is commonly taken as an acceptable design year LOS in the suburban area of the Twin Cities metro region.

The level of service and its associated intersection delay for a signalized and unsignalized intersection is presented below. The delay threshold for unsignalized intersections is lower compared to signalized intersections, which accounts for the fact that people expect a higher level of service when at a stop-controlled intersection. Roundabouts are considered unsignalized intersections.

Table 1 details the control delay thresholds for signalized and unsignalized intersections.

Table 1: Level of Service Criteria

LOS	Signalized	Unsignalized
	Control Delay per Vehicle (sec.)	Control Delay per Vehicle (sec.)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Alternative 1: Compact Roundabout/All-Way Stop Combination

Per the previous study, the all-way stop controlled option at the eastern intersection of Sunset Dr and Hillside Dr was found to be unwarranted when considering traffic volume thresholds and also have poor anticipated traffic operations. However, with the new internal layout of the school's entrances and lot circulation, a hybrid compact roundabout/all-way stop concept was reconsidered. The former school access concept proposed a shared elementary/high school access, whereas the current concept retains the existing high school access at all-way stop, and considers only the westerly proposed roundabout at the new elementary/CERC access. Analysis was completed by looking at the simulated behavior of the eastern intersection of Sunset Dr and Hillside Dr as an all-way stop controlled intersection.

The all-way stop controlled intersection was analyzed in Synchro/SimTraffic version 11. **Table 2** shows the operational results for the eastern intersection.

Table 2: All-Way Stop Controlled Operational Results

Intersection	Approach	AM Peak Hour						Afternoon Peak Hour						PM Peak Hour					
		Approach		Intersection		Queue Length (ft)		Approach		Intersection		Queue Length (ft)		Approach		Intersection		Queue Length (ft)	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Avg	Max	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Avg	Max	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Avg	Max
Sunset Dr and Hillside Dr/High School Access	EB	13	B	11	B	100	250	5	A	29	D	50	100	5	A	5	A	50	100
	WB	11	B			50	125	6	A			50	100	7	A			50	100
	NB	10	B			50	175	65	F			225	500	6	A			25	75
	SB	10	B			75	175	5	A			50	75	6	A			50	125

Table 2 shows that all approaches at Sunset Dr and Hillside Dr operate with overall LOS B, D, and A for the AM, Afternoon, and PM Peak respectively. The afternoon peak shows the highest anticipated delay with overall 29 seconds per vehicle on average.

The northbound approach at the high school shows over a minute of delay per vehicle (LOS F) and a maximum queue that is anticipated to block the parking stalls on the north side of the building. Excessive delay may cause drivers to make riskier maneuvers in order to continue to their destination. In an area with both younger pedestrians and younger drivers, minimizing delay on and around school property is a priority.

Alternative 2: Two Compact Roundabouts

Prior analysis utilized the Highway Capacity Software (HCS) Version 7 to analyze the roundabout operations. HCS uses equation-based theory to calculate operational results of delay and queueing. In this analysis, the roundabouts were analyzed using Junctions 10 ARCADY (Assessment of Roundabout Capacity and Delay) software. ARCADY uses simulation-based modeling to conclude the same operational metrics. When considering two intersections in close proximity, the queueing and delay at one may impact the other. Therefore, simulating the two intersections in the same model together in ARCADY provides more detailed results that reflect the driver behavior and intersection proximity impacts. Details on the approach delay, intersection delay, LOS, and queuing information for the analysis periods are shown in **Table 3**, below.

Table 3: Compact Roundabout Operational Results

Intersection	Approach	AM Peak Hour						Afternoon Peak Hour						PM Peak Hour					
		Approach		Intersection		Queue Length (ft)		Approach		Intersection		Queue Length (ft)		Approach		Intersection		Queue Length (ft)	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Avg	Max	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Avg	Max	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Avg	Max
Sunset Dr and Elementary School/CERC Access	EB	16	C	13	B	100	350	5	A	5	A	25	50	6	A	6	A	25	100
	WB	7	A			25	75	5	A			25	50	6	A			25	75
	NB	14	B			75	200	5	A			25	50	5	A			25	25
	SB	7	A			0	25	0	A			0	25	5	A			0	25
Sunset Dr and Hillside Dr/High School Access	EB	32	D	19	C	200	325	6	A	7	A	25	50	6	A	6	A	25	75
	WB	8	A			25	50	6	A			25	25	5	A			25	25
	NB	10	A			25	75	12	B			50	125	6	A			25	25
	SB	14	B			75	225	6	A			25	50	7	A			25	75

Table 3 shows that the two mini roundabouts would be anticipated to operate acceptably through 2040. The intersections overall operate with LOS A during both the afternoon and PM peaks hours. In the AM peak hour, the roundabouts are anticipated to operate with LOS B and C at the western and eastern intersections, respectively. At the eastern roundabout, the eastbound approach shows LOS D in the AM peak. With an approximate spacing of 350 feet between the roundabout entrances, no queue between the two roundabouts is anticipated to impact the other. Additionally, the spacing in the school parking lots is expected to be sufficient for these queues. None of the queues in the internal lots are anticipated to extend into areas where parking stalls exist.

Other Considerations

Roundabout Safety

A single lane compact roundabout would reduce the number of conflict points at each intersection from at least 32 conflict points to 8 conflict points. Data published by MnDOT's Office of Traffic Engineering "A Study of the Traffic Safety at Roundabouts in Minnesota" indicates that single-lane roundabouts have similar crash rates compared to all-way stop controlled intersections but have around 45 percent fewer fatal and serious injury crashes. The MnDOT report also shows that single lane roundabouts were found to reduce right angle crashes by 68%.

Pedestrian Safety

Additionally, pedestrian safety is improved with the installation of a roundabout (or multiple roundabouts) as median refuges allow pedestrians to cross only one lane of traffic and only one direction of traffic at a time. The provision of splitter islands on the roundabout also reduces the pedestrian crossing distances. This is an improvement from the existing condition where pedestrians cross multiple lanes of traffic at once.

Additionally, due to the nature of roundabout design, speeds within the roundabouts and in the vicinity of the roundabouts are reduced. In an area adjacent to schools, 24/7 speed reduction and subsequent traffic calming will produce a safer street. Unlike stop signs which do not *require* vehicles to slow down but rather rely on compliance, roundabout geometry *causes* constant lower speed enforcement. Compact roundabout designs are often for 15 MPH.

RRFB placement

Due to the high pedestrian activity in the area and between the two schools, pedestrian safety and comfort was a priority in the redesign of the school access points' crossings both along and across Sunset Dr. Roundabouts at these locations are anticipated to increase pedestrian safety due to shorter crossing distances and slower vehicular speeds. However, the addition of rectangular rapid-flashing beacons (RRFBs) on certain crossings at the roundabouts is also expected to increase pedestrian visibility and therefore yield compliance.

Additionally, the "School Travel Safety Assessment" conducted by Dakota County in collaboration with the Minnesota Department of Transportation draft report (January 15, 2021) section on 'School Crossings at Single Lane Roundabouts" included a research study and best practices for school crossings at single lane roundabouts, and specifically the use of RRFBs. The draft report notes that "There is no guidance or best practice to install RRFB for the crosswalks at a single-lane roundabout; however, RRFB at one or more roundabout crosswalks may be beneficial to the visibility of the school crossing or to increase drivers' yielding behavior." The study considerations include:

- The degrees of curvature at the roundabout should be evaluated and increased where feasible to decrease driver speeds at the crosswalks.
- RRFBs may be considered where the school route plan includes crossing a leg of the single-lane roundabout.
    - RRFBs are not recommended for all legs of the roundabout and should be prioritized on the leg of the roundabout where the school crossing is located. Driver speeds tend to be higher and driver yielding tends to be lower at roundabout exits compared with roundabout entrances.
- Adult crossing guards are still needed for middle school and elementary students crossing at a roundabout, even if RRFBs are installed. Crossing guards should be trained to use the RRFB push buttons even if they have a stop paddle or school patrol flag.
- Students should be trained to follow the direction of the adult crossing guard, and to wait for the crossing guard to enter the crosswalk and stop traffic, even if the RRFB is flashing.

The key study recommendations and considerations from the "School Travel Safety Assessment" are applicable to the Sunset Drive school area roundabouts. The conditions at the school crossings on county and state roads evaluated in the "School Travel Safety Assessment" indicate that an RRFB would be appropriate, but the final determination should be made as part of the design of each location.

As such, the locations of the RRFBs to be installed were determined based on the pedestrian volume, conflicting vehicular volume, existing safety concerns, and consolidation of pedestrian crossings. The relocation of the crosswalk at Timber Ridge Ct to the west leg of the westerly roundabout was prompted by the pedestrian safety concerns and crash history of the current intersection crossing. The high pedestrian volume and high conflicting vehicular volume was justification for the installation of the other two RRFBs on the two legs between the roundabouts (the western crossing at the high school entrance, and the eastern crossing at the elementary school entrance.

Site Circulation

The previous study contemplated a proposed shared access between the elementary school and high school. The previous study also considered queuing within the internal site, to confirm that no traffic should have backed up on the main road. The previous study stated that in 2040, it was anticipated that the internal site would need 1,275 feet of storage to accommodate expected enrollment.

With vehicles lining up and dwelling in a parent pick up loop at the elementary school, the circulation and queueing was analyzed again with the updated site layout plan (maintaining two separate access points on Sunset Dr). It was found that with a simulated dwell period of up to five minutes, the queues in the elementary school lot during the peak hour are not expected to back into the roundabout to affect operations. In other words, the space provided within the elementary school site is anticipated to be sufficient for parent pick-up and drop-off queues. The proposed design shows approximately 1,500 feet of storage from entrance to exit of the roundabout within the elementary school site.

Additional Analysis

The intersection at Beaumont Blvd, Aberdeen Ave, and Sunset Dr was analyzed for potential reconfiguration due to the proximity to the proposed changes at the schools. It is currently configured as a T-intersection where all approaches are stop controlled, though the intersection does not meet all-way stop control warrants based on volumes alone. Based on traffic volumes, an alternative considered for this location is to reconstruct the curvature of Sunset Dr / Aberdeen Ave to allow traffic to freely move between, and keep Beaumont Blvd stop controlled (in other words converting the intersection to a side-street stop for Beaumont Blvd only). **Table 4** shows the 2040 operational results for the existing (all way stop control) and potential alternative (side street stop control) at this intersection.

Table 4: Beaumont Ave/Sunset Dr/Aberdeen Ave Intersection Operational Summary

Intersection Control	Approach	AM Peak Hour						Afternoon Peak Hour						PM Peak Hour					
		Approach		Intersection		Queue Length (ft)		Approach		Intersection		Queue Length (ft)		Approach		Intersection		Queue Length (ft)	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Avg	Max	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Avg	Max	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Avg	Max
All Way Stop	EB	6	A	6	A	50	75	6	A	7	A	25	75	6	A	3	A	25	50
	WB	5	A			50	75	6	A			50	125	4	A			75	100
	NB	8	A			75	100	8	A			75	125	5	A			50	75
Side Street Stop (Beaumont Blvd-EB)	EB	8	A	1	A	50	75	8	A	1	A	50	75	8	A	1	A	25	50
	WB	1	A			0	0	1	A			0	0	1	A			0	0
	NB	1	A			0	0	2	A			25	50	2	A			25	50

In 2040, the intersection is anticipated to operate with overall LOS A in all peak periods. This layout would reduce delay and queues along Aberdeen Ave and Sunset Dr, without large impacts to Beaumont Blvd. No queues are anticipated to impact nearby intersections.

However, there may be safety and sightline concerns if the geometry and control were changed. The northbound left movement from Aberdeen Ave to Beaumont Blvd would need to be able to see clearly around the curve for any westbound traffic along Sunset Dr. Additionally, the westbound left traffic turning into the elementary school truck access just west of Timber Ridge Ct would need to be able to see any northbound traffic on Aberdeen Ave to safely make its turn. Therefore, any reconfiguration would need to consider these sight triangles to provide proper clear views from any vertical obstructions to the sightlines of the vehicles. The radius of the proposed curve would impact these sight lines as well as the speeds at which vehicles can navigate the corner. Both need to be considered if the alternative moves forward to achieve a safe design. At concept level review, reconfiguration of the intersection does not appear prudent, as benefits are minimal if any while there would be impacts and associated costs with any change. LOS A is anticipated under the current configuration in 2040.

Conclusion

The traffic operations shown in this memorandum have been updated to reflect proposed geometric layout improvements developed following the initial 2019 Jordan School Area Traffic Study. This analysis also revisited previous concepts with more detailed simulation-based analysis, as simulation considers the interdependence of nearby intersections. The operations results shown in this update compared to the prior study are different, though based on the methodology used are considered a more accurate representation of what will occur in the field.

The previous study recommended side-street stop control pairs at both intersections or two mini roundabout intersections on Sunset Dr, with various degrees of change to the internal site. This analysis (with updated internal layout assumptions) show that dual compact roundabouts have more benefits than a combination of a mini roundabout and an all-way stop controlled intersection, as well as other alternatives evaluated in 2019.

Operations show that during the school release and the PM peak, both roundabouts operate with LOS A overall, and all movements at LOS B or better. During the AM peak, the western intersection of Sunset Dr and the elementary school/CERC access operates with LOS C or better for all movements, and LOS B overall. At the eastern high school access and Hillside Dr intersection, the compact roundabout is anticipated to operate acceptably with LOS D or better for all movements, and LOS C for the intersection overall through 2040. No queues produced by the roundabouts are anticipated to impact internal site parking access or nearby intersections. In comparison, the all-way stop controlled intersection would produce queues that extend through larger portions of the internal site at the High School and cause higher delay (LOS D) at the intersection overall in the school release peak.

More importantly, the unwarranted nature of the all-way stop controlled intersection at Sunset Dr and Hillside Dr has led to non-compliance, which could cause a safety issue with the high volume of pedestrians and bicyclists in the area throughout the day. Analysis shows the intersection will continue to not meet warrants even with growth analyzed in 2040. Roundabouts produce a safer environment for multimodal users as the crossing distance is reduced, and pedestrians and bicyclists would only need to cross one lane and one direction of traffic at a time, where motorists are forced to travel at lower speeds. This is even more true when additional treatments are provided to key roundabout crossings, such as the RRFBs proposed with the project.

With the new internal layout considered, the combination of two mini roundabouts or a mini roundabout on the west and an all-way stop controlled intersection on the east were considered. When considering traffic operations, safety, speed control, and compliance, two compact roundabouts are recommended at the intersections of Sunset Dr at Hillside Dr and Sunset Dr and western school access (middle school and elementary school).

Jordan School Area Traffic Study

City of Jordan
Scott County, MN

August 19, 2019

Submitted by:
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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.

By: ______________________

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

Date: 8/19/2019

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Appendix

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.

Figure 1: Project Location Map

II. Existing Conditions

The study area includes the following three segments:

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

85th 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

85th 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

85th 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									
Intersections	Total Crashes	F	A	B	C	PDO	Bicycle	Right Angle Crashes	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) 6^{th} 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) 6^{th} 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
B	>10 and ≤ 20	>10 and ≤ 15
C	>20 and ≤ 35	>15 and ≤ 25
D	>35 and ≤ 55	>25 and ≤ 35
E	>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 Delay-LOS (2.)		Limiting Movement (3.)
Hillside Dr and High School Access *Stop Controlled*	AM	1	A	8	A	NBL
	Afternoon	1	A	4	A	NBL
	PM	1	A	4	A	NBL
Sunset Dr and Hillside Dr *Stop Controlled*	AM	5	A	6	A	SBT
	Afternoon	4	A	5	A	NBT
	PM	4	A	5	A	WBT
Sunset Dr and Middle School Access *Stop Controlled*	AM	1	A	9	A	SBL
	Afternoon	0	A	3	A	EBL
	PM	1	A	7	A	SBL
Sunset Dr and North Elementary School Access 4 *Stop Controlled*	AM	0	A	3	A	WBL
	Afternoon	1	A	5	A	NBL
	PM	0	A	4	A	NBR
Sunset Dr and North Elementary School Access 3 *Stop Controlled*	AM	1	A	7	A	NBL
	Afternoon	1	A	1	A	EBT
	PM	1	A	1	A	EBT
Sunset Dr and North Elementary School Access 2 *Stop Controlled*	AM	2	A	4	A	EBT
	Afternoon	2	A	3	A	EBT
	PM	2	A	4	A	EBT
Sunset Dr and Timber Ridge Ct *Stop Controlled*	AM	2	A	19	C	SBL
	Afternoon	1	A	12	B	SBL
	PM	1	A	13	B	SBL
Sunset Dr and North Elementary School Access 1 *Stop Controlled*	AM	1	A	3	A	WBL
	Afternoon	1	A	6	A	NBL
	PM	0	A	4	A	NBL
Sunset Dr and Aberdeen Ave *Stop Controlled*	AM	4	A	6	A	EBT
	Afternoon	3	A	5	A	WBT
	PM	4	A	7	A	EBT
Aberdeen Ave and West Elementary School Access *Stop Controlled*	AM	2	A	5	A	WBL
	Afternoon	1	A	2	A	WBL
	PM	1	A	5	A	WBL
Aberdeen Ave and Ridge St *Stop Controlled*	AM	2	A	4	A	WBR
	Afternoon	1	A	3	A	WBR
	PM	2	A	7	A	WBL
CR 66 and Aberdeen Ave *Stop Controlled*	AM	6	A	10	B	EBT
	Afternoon	6	A	10	B	WBT
	PM	7	A	10	B	WBT
CR 66 and Prospect Pointe Rd *Stop Controlled*	AM	1	A	5	A	NBL
	Afternoon	1	A	4	A	NBL
	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:
    - 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

Intersection	Peak Hour	Intersection Delay (1.)		Maximum Delay-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
	Afternoon	1	A	2	A	WBL
Stop Controlled	PM	1	A	1	A	EBT
Sunset Dr and North Elementary School Access 2	AM	2	A	4	A	EBT
	Afternoon	1	A	3	A	EBT
Stop Controlled	PM	2	A	4	A	EBT
Sunset Dr and Timber Ridge Ct	AM	3	A	34	D	SBL
	Afternoon	1	A	10	B	SBL
Stop Controlled	PM	1	A	17	C	SBL
Sunset Dr and North Elementary School Access 1	AM	1	A	3	A	WBL
	Afternoon	1	A	6	A	NBL
Stop Controlled	PM	0	A	10	B	NBL
Sunset Dr and Aberdeen Ave	AM	5	A	6	A	WBL
	Afternoon	3	A	6	A	EBT
Stop Controlled	PM	4	A	6	A	EBT
Aberdeen Ave and West Elementary School Access	AM	26	D	37	E	SBL
	Afternoon	1	A	3	A	WBL
Stop Controlled	PM	1	A	4	A	WBL
Aberdeen Ave and Ridge St	AM	10	B	24	C	EBL
	Afternoon	1	A	5	A	EBL
Stop Controlled	PM	2	A	6	A	WBL
CR 66 and Aberdeen Ave	AM	9	A	13	B	EBT
	Afternoon	8	A	12	B	WBT
Stop Controlled	PM	10	B	14	B	WBT
CR 66 and Prospect Pointe Rd	AM	3	A	6	A	SBL
	Afternoon	1	A	6	A	SBL
Stop Controlled	PM	2	A	8	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 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:
  - 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.

- 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	Intersection Delay (1.)		Maximum Delay-LOS (2.)		Limiting Movement (3.)
2020	Sunset Dr and Hillside Dr *Two-Way Stop Controlled*	AM	3	A	12	B	SBL
		Afternoon	2	A	8	A	SBL
		PM	3	A	8	A	SBL
	Sunset Dr and Middle/High School Access *Two-Way Stop Controlled*	AM	11	B	69	F	NBL
		Afternoon	3	A	5	A	NBL
		PM	2	A	7	A	NBL
2040	Sunset Dr and Hillside Dr *Two-Way Stop Controlled*	AM	4	A	21	C	SBL
		Afternoon	3	A	11	B	SBL
		PM	3	A	11	B	SBL
	Sunset Dr and Middle/High School Access *Two-Way Stop Controlled*	AM	25	D	203	F	NBL
		Afternoon	4	A	10	B	NBL
		PM	2	A	10	B	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.

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 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	Intersection Delay (1.)		Maximum Delay-LOS (2.)		Limiting Movement (3.)
2020	Sunset Dr and Hillside Dr *All Way Stop Controlled*	AM	6	A	6	A	EBL
		Afternoon	4	A	5	A	EBL
		PM	4	A	5	A	EBL
	Sunset Dr and Middle/High School Access *All Way Stop Controlled*	AM	12	B	22	C	WBL
		Afternoon	4	A	7	A	EBT
		PM	5	A	7	A	EBT
2040	Sunset Dr and Hillside Dr *All Way Stop Controlled*	AM	8	A	10	B	SBR
		Afternoon	4	A	5	A	EBL
		PM	4	A	5	A	EBL
	Sunset Dr and Middle/High School Access *All Way Stop Controlled*	AM	13	B	27	D	WBL
		Afternoon	5	A	7	A	EBT
		PM	5	A	7	A	EBT

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.

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.

- 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	Intersection Delay (1.)		Maximum Delay-LOS (2.)		Limiting Movement (3.)
2020	Sunset Dr and Hillside Dr *Two-Way Stop Controlled*	AM	4	A	14	B	SBL
		Afternoon	2	A	9	A	SBL
		PM	3	A	9	A	SBL
	Sunset Dr and Middle/High School Access *All Way Stop Controlled*	AM	12	B	22	C	WBL
		Afternoon	5	A	7	A	EBT
		PM	5	A	7	A	EBT
2040	Sunset Dr and Hillside Dr *Two-Way Stop Controlled*	AM	6	A	18	C	SBL
		Afternoon	2	A	9	A	SBL
		PM	3	A	9	A	SBL
	Sunset Dr and Middle/High School Access *All Way Stop Controlled*	AM	14	B	29	D	WBL
		Afternoon	5	A	7	A	EBT
		PM	5	A	7	A	EBT

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.

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**.

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

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

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.

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

Year	Options	Peak Hour	Delay by Approach (sec)				LOS by Approach				Intersection Delay (sec)	Intersection LOS
			EB	WB	NB	SB	EB	WB	NB	SB		
2020	Sunset Dr and Middle/Elementary School Access *West Mini-Roundabout*	AM	11	7	8	5	B	A	A	A	9	A
		Afternoon	3	4	4	0	A	A	A	A	4	A
		PM	4	4	4	4	A	A	A	A	4	A
2040	Sunset Dr and Middle/Elementary School Access *West Mini-Roundabout*	AM	15	8	10	5	C	A	A	A	12	B
		Afternoon	4	4	4	0	A	A	A	A	4	A
		PM	4	5	4	4	A	A	A	A	5	A

Table 13: West Mini-Roundabout Queues

Year	Options	Peak Hour	Maximum Queues (ft)			
			EB	WB	NB	SB
2020	Sunset Dr and Middle/Elementary School Access *West Mini-Roundabout*	AM	100	50	50	25
		Afternoon	25	25	25	0
		PM	25	25	25	25
2040	Sunset Dr and Middle/Elementary School Access *West Mini-Roundabout*	AM	150	75	50	25
		Afternoon	25	25	25	0
		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	Options	Peak Hour	Delay by Approach (sec)				LOS by Approach				Intersection Delay (sec)	Intersection LOS
			EB	WB	NB	SB	EB	WB	NB	SB		
2020	Sunset Dr and Hillside Dr *East Mini-Roundabout*	AM	9	6	7	8	A	A	A	A	8	A
		Afternoon	4	4	5	4	A	A	A	A	4	A
		PM	5	4	4	5	A	A	A	A	4	A
2040	Sunset Dr and Hillside Dr *East Mini-Roundabout*	AM	13	8	8	9	B	A	A	A	10	A
		Afternoon	4	4	5	5	A	A	A	A	5	A
		PM	5	4	4	5	A	A	A	A	5	A

Table 15: East Mini-Roundabout Queues

Year	Options	Peak Hour	Maximum Queues (ft)			
			EB	WB	NB	SB
2020	Sunset Dr and Hillside Dr *East Mini-Roundabout*	AM	75	25	25	75
		Afternoon	25	25	25	25
		PM	25	25	25	25
2040	Sunset Dr and Hillside Dr *East Mini-Roundabout*	AM	100	25	25	75
		Afternoon	25	25	25	25
		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
    - 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
    - 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.
    - Traffic flows along Sunset Dr work well.
    - 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.
    - 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)
    - All-way stop controlled intersections do not meet volume warrants at either intersection.
    - 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.
    - Traffic flows from the site work well.
    - 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.
    - 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)
    - All-way stop controlled intersections do not meet volume warrants at either intersection.
    - 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.
    - 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.
    - 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.
- All Way Stop Control (Option 3)
    - 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.
    - 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.
    - 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
    - The intersections are anticipated to operate at LOS A for all peak hours in 2020 and 2040.
    - 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.
    - Internal sidewalk networks need to be considered to provide relatively direct access

to the crossing and destination points.

- Constant speed control would be provided along Sunset Dr.
- 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.

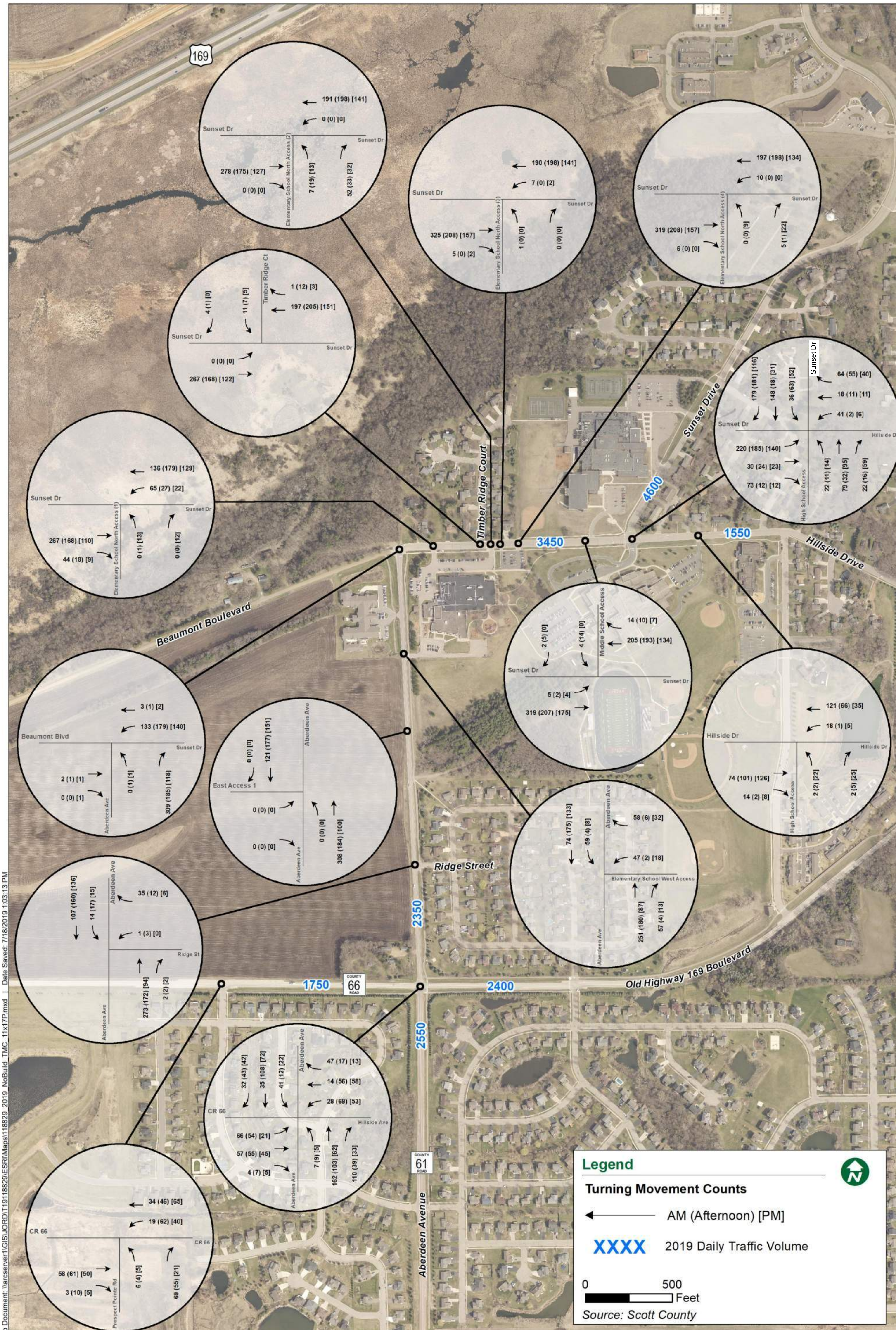
VII. Recommendations

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

Figure 2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Sunset Dr
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Elementary School North Access (2)
7 (19) [13]
52 (33) [32]
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7 (0) [2]
325 (208) [157]
5 (0) [2]
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0 (0) [0]
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10 (0) [0]
319 (208) [157]
6 (0) [0]
Elementary School North Access (4)
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5 (1) [22]
Timber Ridge Ct
4 (1) [0]
11 (7) [5]
1 (12) [3]
197 (205) [151]
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267 (168) [122]
Sunset Dr
179 (181) [116]
148 (18) [31]
36 (63) [52]
64 (55) [40]
18 (11) [11]
41 (2) [6]
220 (185) [140]
30 (24) [23]
73 (12) [12]
High School Access
22 (11) [14]
79 (32) [95]
22 (16) [59]
Hillside Dr
Sunset Drive
136 (179) [129]
65 (27) [22]
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44 (18) [9]
Elementary School North Access (1)
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0 (0) [12]
Timber Ridge Court
3450
4600
1550
Hillside Drive
Beaumont Boulevard
Middle School Access
2 (5) [0]
4 (14) [0]
14 (10) [7]
205 (193) [134]
5 (2) [4]
319 (207) [175]
121 (66) [35]
18 (1) [5]
74 (101) [126]
14 (2) [8]
2 (2) [22]
2 (5) [25]
Beaumont Blvd
3 (1) [2]
133 (179) [140]
2 (1) [1]
0 (0) [1]
Aberdeen Ave
0 (1) [1]
309 (185) [118]
East Access 1
0 (0) [0]
121 (177) [151]
0 (0) [0]
0 (0) [0]
0 (0) [0]
308 (184) [100]
74 (175) [133]
59 (4) [8]
58 (6) [32]
47 (2) [18]
Elementary School West Access
251 (180) [87]
57 (4) [13]
Ridge Street
Ridge St
107 (160) [136]
14 (17) [15]
35 (12) [6]
1 (3) [0]
273 (172) [94]
2 (2) [2]
2350
1750
COUNTY 66 ROAD
2400
Old Highway 169 Boulevard
2550
CR 66
32 (43) [42]
35 (108) [72]
41 (12) [22]
47 (17) [13]
14 (56) [58]
28 (69) [53]
Hillside Ave
66 (54) [21]
57 (55) [45]
4 (7) [5]
7 (9) [5]
162 (103) [62]
110 (39) [33]
COUNTY 61 ROAD
Aberdeen Avenue
34 (46) [65]
19 (62) [40]
58 (61) [50]
3 (10) [5]
Prospect Pointe Rd
6 (4) [5]
69 (55) [21]
Legend
Turning Movement Counts
AM (Afternoon) [PM]
XXXX 2019 Daily Traffic Volume
0
500
Feet
Source: Scott County

CITY OF JORDAN

Jordan/School Area Traffic Study

City of Jordan, MN

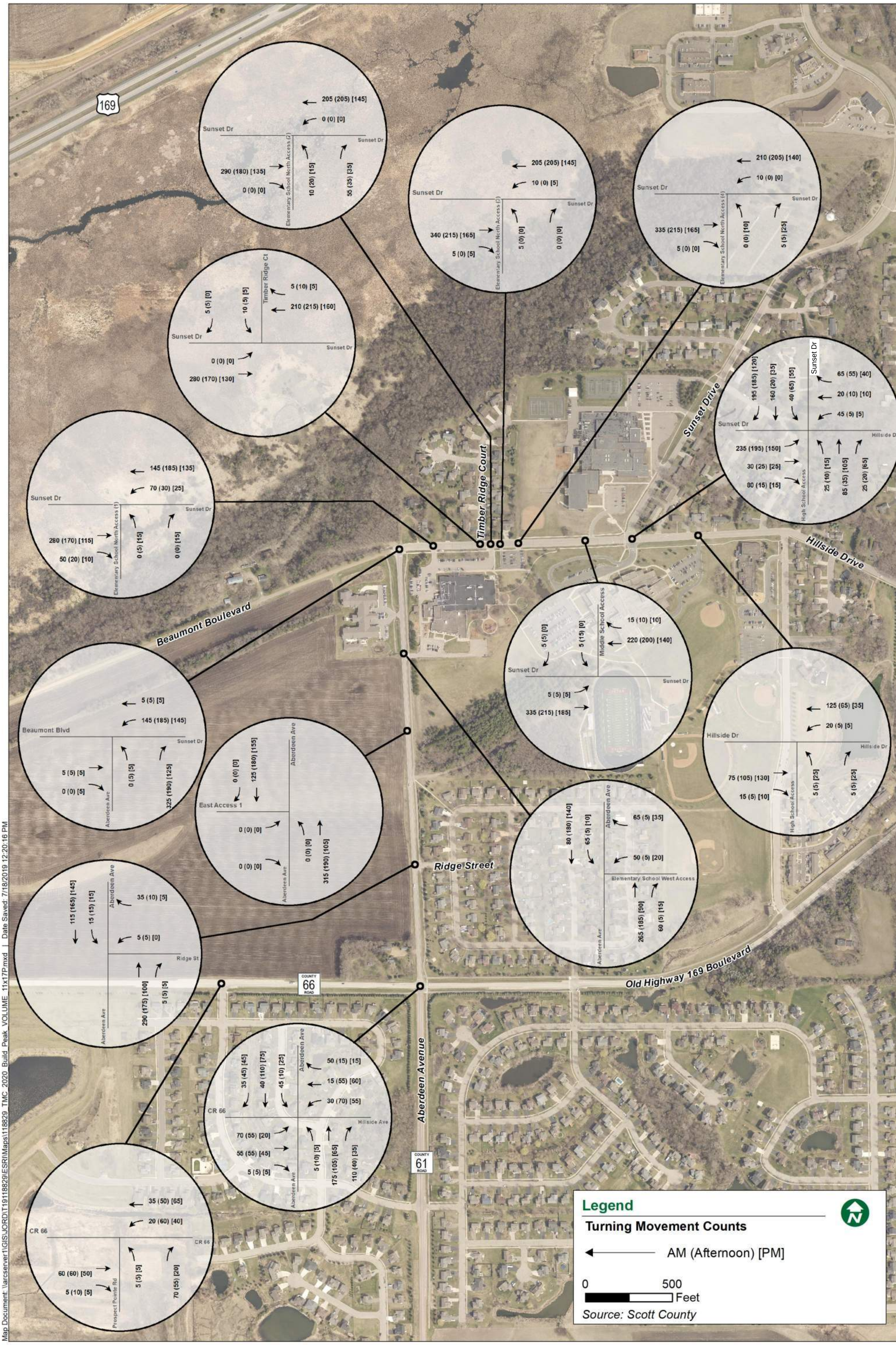
Figure 3

2020 Build Peak Turning Movements

July 2019

BOLTON & MENK

Real People. Real Solutions.



Jordan/School Area Traffic Study

City of Jordan, MN

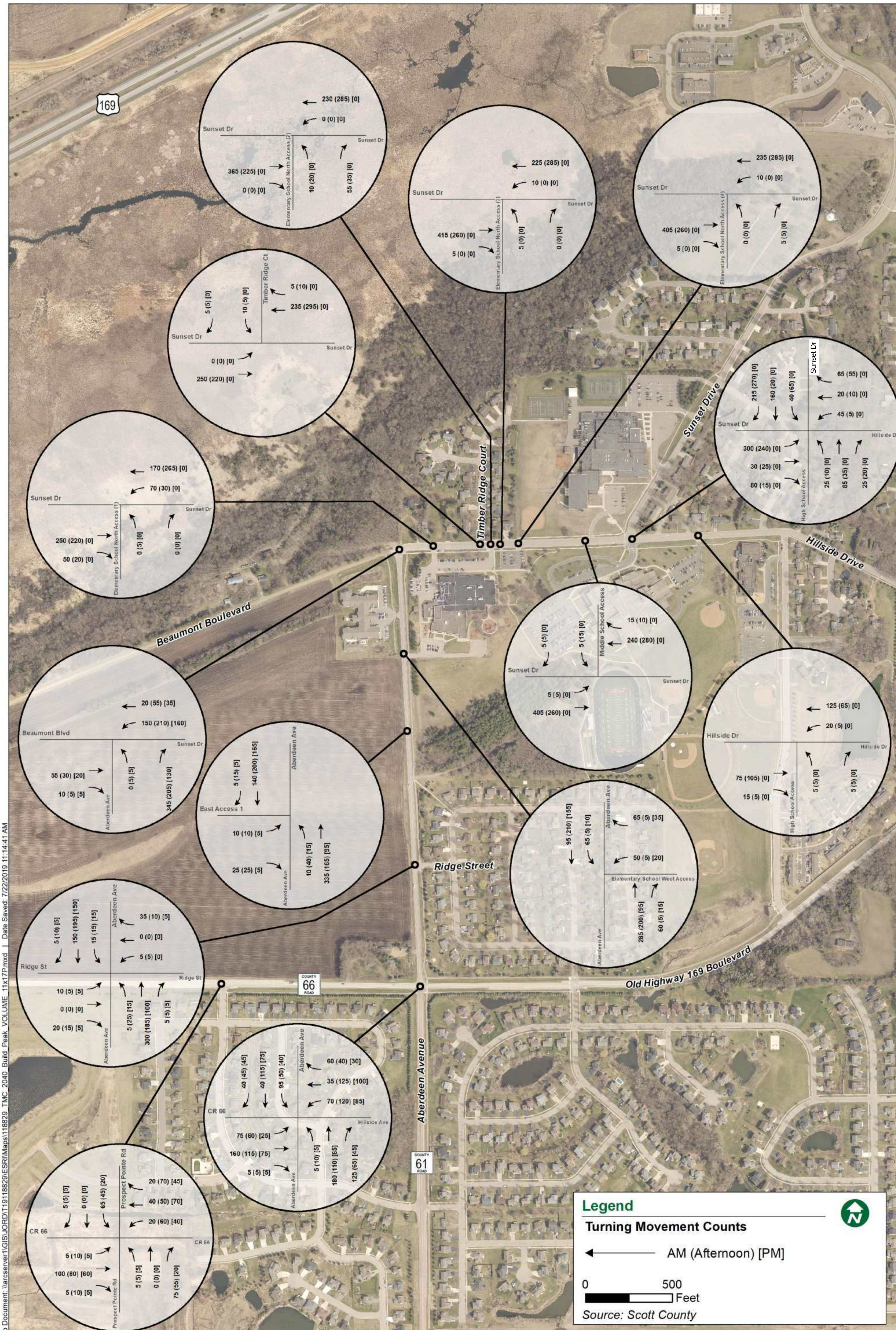
Figure 4

2040 Build Turning Movements

July 2019

BOLTON & MENK

Real People. Real Solutions.



Map Document: \\arcserver1\GIS\JORD\T19118829\ESRI\Maps\118829_TMC_2040_Build_Peak_VOLUME_11x17P.mxd | Date Saved: 7/22/2019 11:14:41 AM

Jordan/School Area Traffic Study

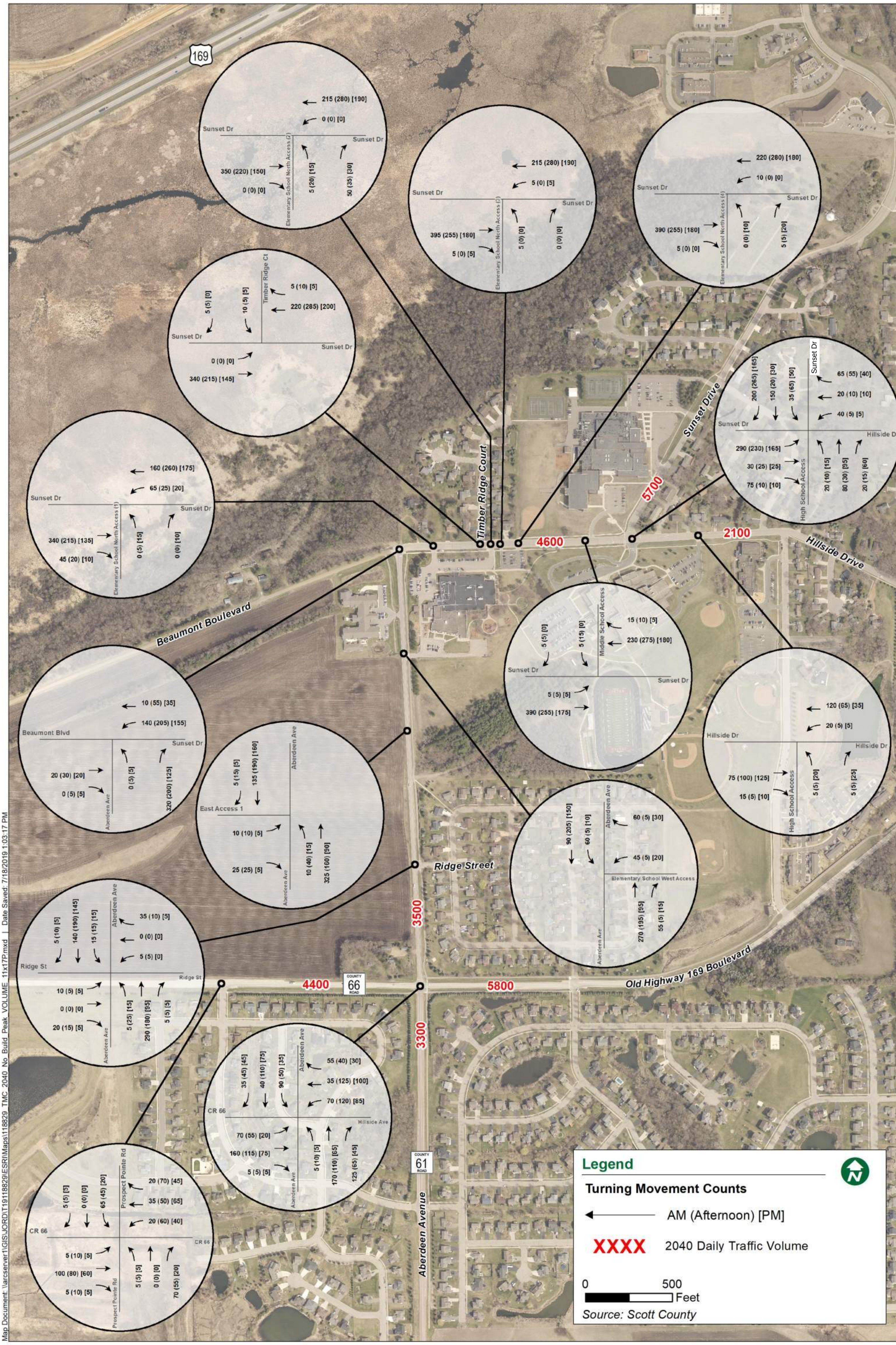
City of Jordan, MN

Figure 5

2040 No Build Peak Turning Movements

July 2019

Real People. Real Solutions.



Map Document: \\arcserver1\GIS\JORD\T19118829\ESRI\Maps\118829_TMC_2040_No_Build_Peak_VOLUME_11x17P.mxd | Date Saved: 7/18/2019 1:03:17 PM

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

Statewide Comparison *All Way Stop*

Total Crash Rate	
Observed	0.38
Statewide Average	0.34
Critical Rate	1.10
Critical Index	**0.35**

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 *All Way Stop*

Total Crash Rate	
Observed	0.40
Statewide Average	0.34
Critical Rate	1.13
Critical Index	**0.35**

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.

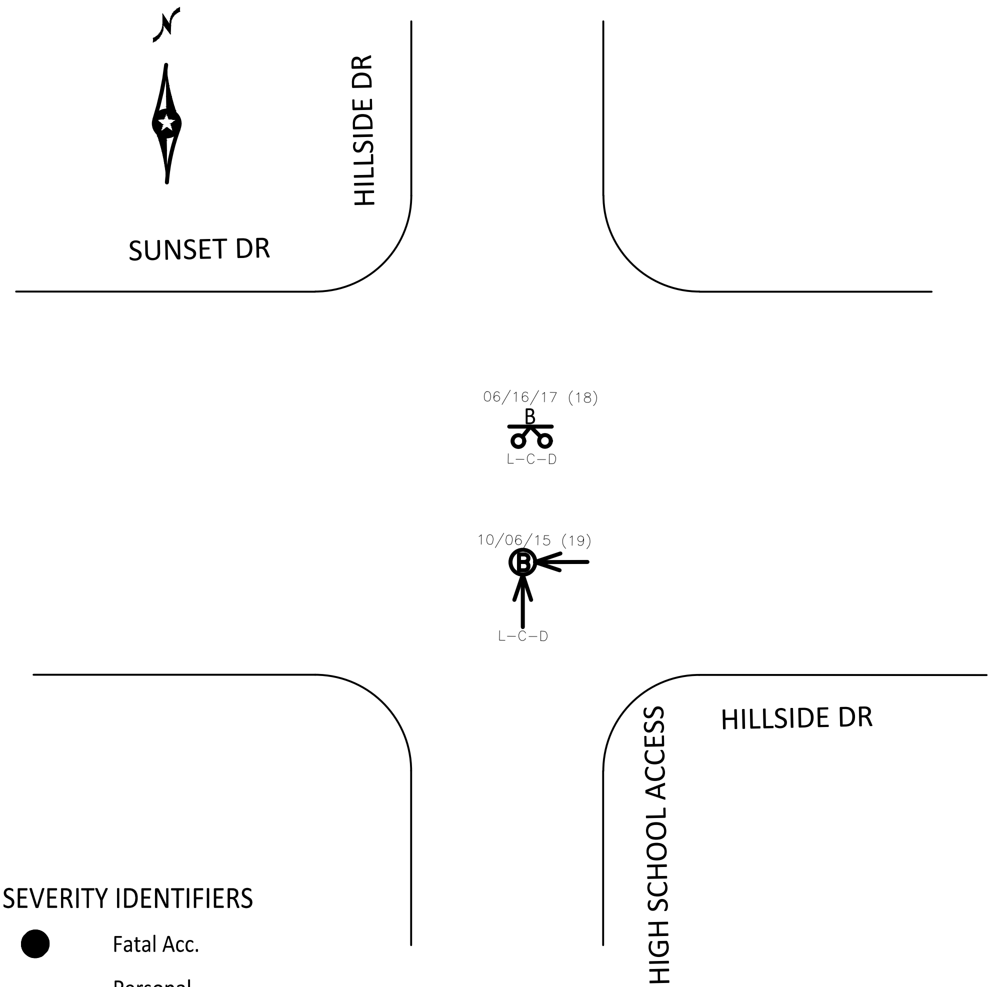
The observed fatal and serious injury crash rate for this period is 0.00 per 100 MEV; this is 100% below the critical rate. The intersection operates within the normal range.

COLLISION DIAGRAM

LOCATION: SUNSET DR AND HILLSIDE DR

TIME PERIOD: 01/01/2015 - 12/31/2017 DATE: 06/20/19

PREPARED BY: CW



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

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

SEVERITY IDENTIFIERS

- Fatal Acc.
- A B C Personal Injury
- Property Damage Acc.

KEY

- Motor Vehicle Backing Up
- Motor Vehicle Out of Control
- SIDESWIPE
- Rear End
- Right Angle
- Pedestrian
- B Bicycle/Moped
- M Motorcycle
- Left Turn
- Fixed Object

NOTES

[1]

[2]

[3]

Light:
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)

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)

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JORDAN SCHOOL AREA TRAFFIC STUDY

SUNSET DR AND HILLSIDE DR

COLLISION DIAGRAM

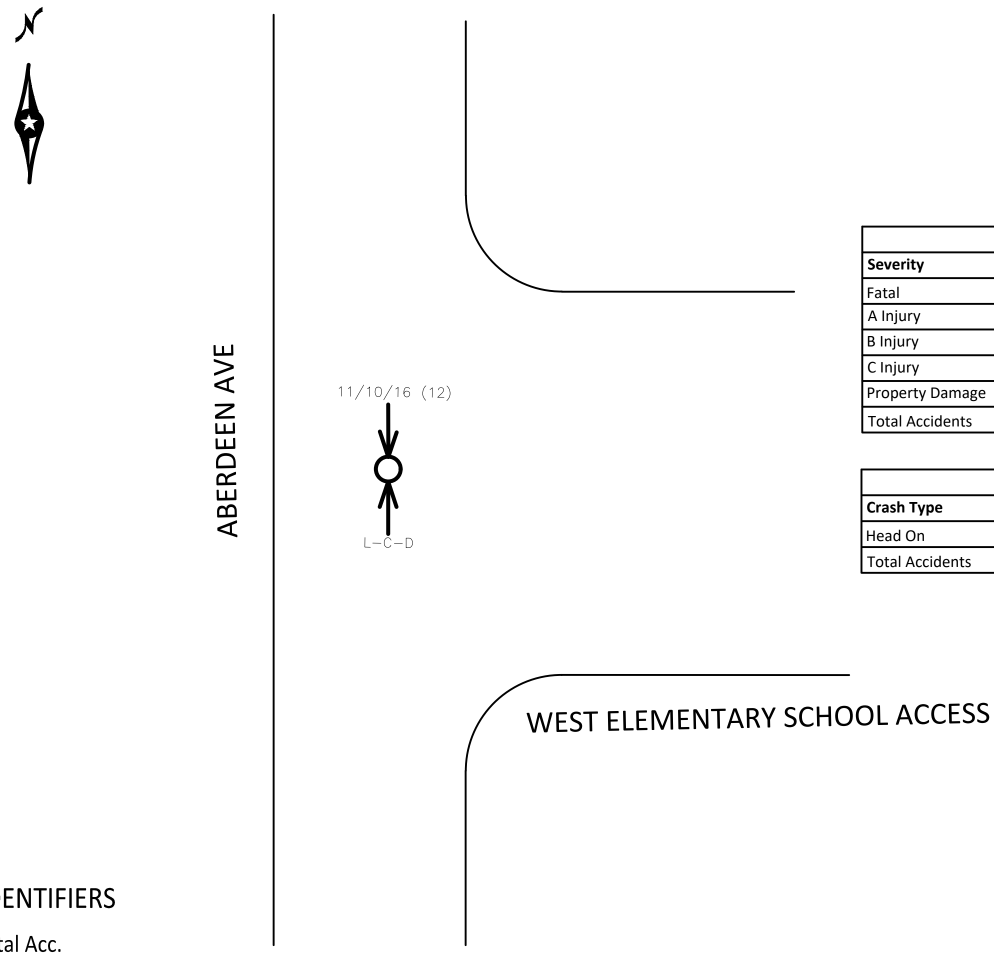
Drawing name: H:\JORD\T19118829\2_Preliminary\A_Calculations\Traffic\Crash Analysis\3 - Crash Diagram\Crash Diagram.dwg --- Printed: Jun 20, 2019 - 3:20pm

COLLISION DIAGRAM

LOCATION: ABERDEEN AVE AND WEST ELEMENTARY SCHOOL ACCESS

TIME PERIOD: 01/01/2015 - 12/31/2017 DATE: 06/20/19

PREPARED BY: CW



	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

SEVERITY IDENTIFIERS

- Fatal Acc.
- Ⓐ Ⓑ Ⓒ Personal Injury
- Property Damage Acc.

KEY

- Motor Vehicle Backing Up
- Motor Vehicle Out of Control
- SIDESWIPE
- Rear End
- Right Angle
- Pedestrian
- B Bicycle/Moped
- M Motorcycle
- Left Turn
- Fixed Object

NOTES

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[2]

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Weather:
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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)
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JORDAN SCHOOL AREA TRAFFIC STUDY

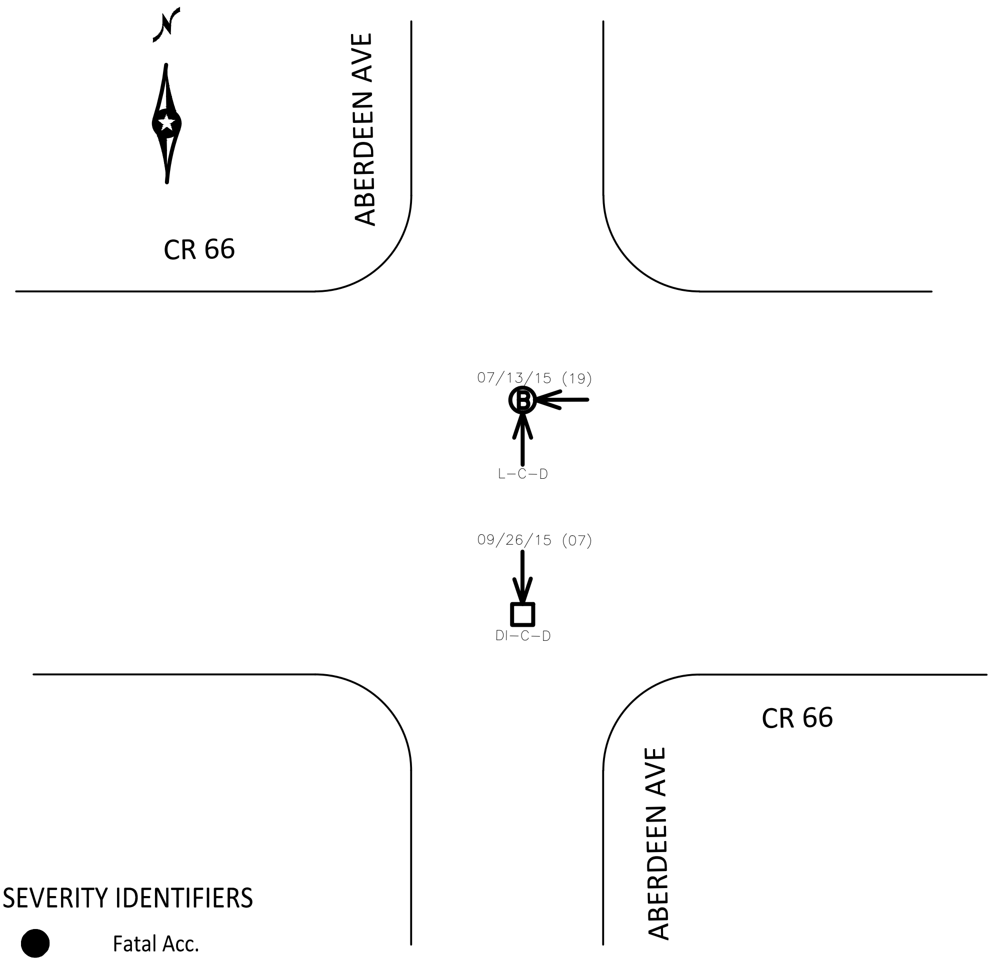
ABERDEEN AVE AND WEST ELEMENTARY SCHOOL ACCESS COLLISION DIAGRAM

COLLISION DIAGRAM

LOCATION: CR 66 AND ABERDEEN AVE

TIME PERIOD: 01/01/2015 - 12/31/2017 DATE: 06/20/19

PREPARED BY: CW



	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	2	0	0
Total Accidents	2	0	0

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

SEVERITY IDENTIFIERS

- Fatal Acc.
- ABC Personal Injury
- Property Damage Acc.

KEY

- Motor Vehicle Backing Up
- Motor Vehicle Out of Control
- SIDESWIPE
- Rear End
- Right Angle
- Pedestrian
- B Bicycle/Moped
- M Motorcycle
- Left Turn
- Fixed Object

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B= Blowing Sand/Dust (7)
W= Severe Crosswinds (8)
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Surface:
D= Dry (1)
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JORDAN SCHOOL AREA TRAFFIC STUDY
CR 66 AND ABERDEEN AVE
COLLISION DIAGRAM

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

Appendix C: No Build Operational Analysis

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

Intersection	Peak Hour	Intersection Delay (1.)	Movement Delay (sec/veh) NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	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	-
Stop Controlled	PM	1 A	4 A	-	2 A	-	-	-	-	1 A	1 A	-	0 A	-
Sunset Dr and Hillside Dr	AM	5 A	5 A	6 A	3 A	6 A	6 A	3 A	5 A	5 A	3 A	5 A	5 A	4 A
	Afternoon	4 A	4 A	5 A	3 A	4 A	4 A	2 A	4 A	4 A	2 A	4 A	5 A	4 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	-	-	-	-	-	-	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	-	-	-	-	4 A	-	-	0 A	-
Sunset Dr and Timber Ridge Ct	AM	2 A	-	-	-	19 C	-	4 A	-	3 A	-	-	0 A	0 A
	Afternoon	1 A	-	-	-	12 B	-	-	-	1 A	-	-	0 A	0 A
Stop Controlled	PM	1 A	-	-	-	13 B	-	4 A	-	2 A	-	-	0 A	0 A
Sunset Dr and North Elementary School Access 1	AM	1 A	-	-	-	-	-	-	-	0 A	0 A	3 A	0 A	-
	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	1 A	-	0 A	0 A	2 A	1 A	-	-	-	-	2 A	-	2 A
Stop Controlled	PM	1 A	-	1 A	0 A	2 A	1 A	-	-	-	-	5 A	-	2 A
Aberdeen Ave and Ridge St	AM	2 A	-	2 A	2 A	4 A	1 A	-	-	-	-	3 A	-	4 A
	Afternoon	1 A	-	2 A	2 A	3 A	1 A	-	-	-	-	-	-	3 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	-

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.

2019 No Build

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																					
		EBL		EBL/T		EBL/T/R		EBT		EBT/R		WBL		WBL/R		WBL/T		WBL/T/R		WBT		WBT/R		NBL		NBL/R		NBL/T/R		NBT/R		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	50	100	-	-	-	-	-	-	50	75	25	75	-	-	-	-	-	-	-	-	50	75	25	50	-	-	-	-	50	75	-	-	50	125	-	-	25	75
	Afternoon	50	75	-	-	-	-	-	-	25	50	25	50	-	-	-	-	-	-	-	-	50	75	25	25	-	-	-	-	50	100	-	-	25	75	-	-	25	75
Stop Controlled	PM	50	75	-	-	-	-	-	-	25	50	25	50	-	-	-	-	-	-	-	-	50	50	25	25	-	-	-	-	25	50	-	-	25	50	-	-	50	75
Sunset Dr and Middle School Access	AM	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
	Afternoon	-	-	0	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	0	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 4	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 3	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 2	AM	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Timber Ridge Ct	AM	-	-	50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
	Afternoon	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Stop Controlled	PM	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 1	AM	-	-	-	-	-	-	-	-	0	25	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	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	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-

2019 No Build

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		WBL		WBT		WBR	
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	-		3	A	-		-		-		-		1	A	1	A	-		0	A	-	
Sunset Dr and Hillside Dr	AM	5	A	4	A	5	A	4	A	6	A	6	A	3	A	5	A	5	A	3	A	5	A	6	A	4	A
	Afternoon	4	A	4	A	5	A	3	A	5	A	5	A	2	A	4	A	4	A	2	A	5	A	5	A	4	A
Stop Controlled	PM	4	A	4	A	5	A	2	A	4	A	5	A	3	A	4	A	4	A	2	A	3	A	5	A	4	A
Sunset Dr and Middle School Access	AM	1	A	-		-		-		5	A	-		3	A	2	A	0	A	-		-		1	A	0	A
	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	A	1	A	2	A	0	A	-	
Stop Controlled	PM	1	A	-		-		-		-		-		-		-		1	A	-		-		0	A	-	
Sunset Dr and North Elementary School Access 2	AM	2	A	2	A	-		0	A	-		-		-		-		4	A	-		-		0	A	-	
	Afternoon	1	A	1	A	-		0	A	-		-		-		-		3	A	-		-		0	A	-	
Stop Controlled	PM	2	A	2	A	-		0	A	-		-		-		-		4	A	-		-		0	A	-	
Sunset Dr and Timber Ridge Ct	AM	3	A	-		-		-		34	D	-		3	A	-		4	A	-		-		0	A	0	A
	Afternoon	1	A	-		-		-		10	B	-		-		-		1	A	-		-		0	A	0	A
Stop Controlled	PM	1	A	-		-		-		17	C	-		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	B	-		-		-		-		-		-		0	A	0	A	2	A	0	A	-	
Sunset Dr and Aberdeen Ave	AM	5	A	-		-		5	A	-		-		-		-		6	A	-		6	A	4	A	-	
	Afternoon	3	A	3	A	0	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	26	D	-		28	D	30	D	37	E	28	D	-		-		-		-		16	C	-		4	A
	Afternoon	1	A	-		0	A	0	A	3	A	1	A	-		-		-		-		3	A	-		2	A
Stop Controlled	PM	1	A	-		1	A	0	A	2	A	1	A	-		-		-		-		4	A	-		3	A
Aberdeen Ave and Ridge St	AM	10	B	-		12	B	2	A	3	A	3	A	1	A	24	C	-		-		-		-		13	B
	Afternoon	1	A	-		2	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	B	10	B	6	A	6	A	7	A	4	A	9	A	13	B	4	A	7	A	11	B	6	A
	Afternoon	8	A	6	A	7	A	4	A	6	A	7	A	4	A	4	A	10	B	3	A	7	A	12	B	5	A
Stop Controlled	PM	10	B	8	A	8	A	5	A	6	A	8	A	5	A	6	A	11	B	4	A	10	B	14	B	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	-		4	A	2	A	1	A	0	A	1	A	1	A	0	A

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.

2040 No Build

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																			
		EBL		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL		NBL/R		NBL/T/R		NBT/R		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	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
	Afternoon	50	75	-	-	-	-	25	50	-	-	25	50	-	-	-	-	-	-	50	75	25	25	-	-	-	-	50	75	-	-	25	75	-	-	25	75
Stop Controlled	PM	50	100	-	-	-	-	25	50	-	-	25	25	-	-	-	-	-	-	50	75	25	25	-	-	-	-	25	50	-	-	25	50	-	-	50	75
Sunset Dr and Middle School Access	AM	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 3	AM	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-
	Afternoon	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Stop Controlled	PM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Sunset Dr and North Elementary School Access 1	AM	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Aberdeen Ave	AM	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	125	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	75	250	-	-	50	175	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	25	150	-	-	-	-	-	-	25	50	-	-
	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	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	75	125	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	100	-	-
CR 66 and Prospect Pointe Rd	AM	-	-	25	25	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-
	Afternoon	-	-	25	50	-	-	-	-	0	25	-	-	-	-	25	50	-	-	0	25	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-
Stop Controlled	PM	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-

2040 No Build

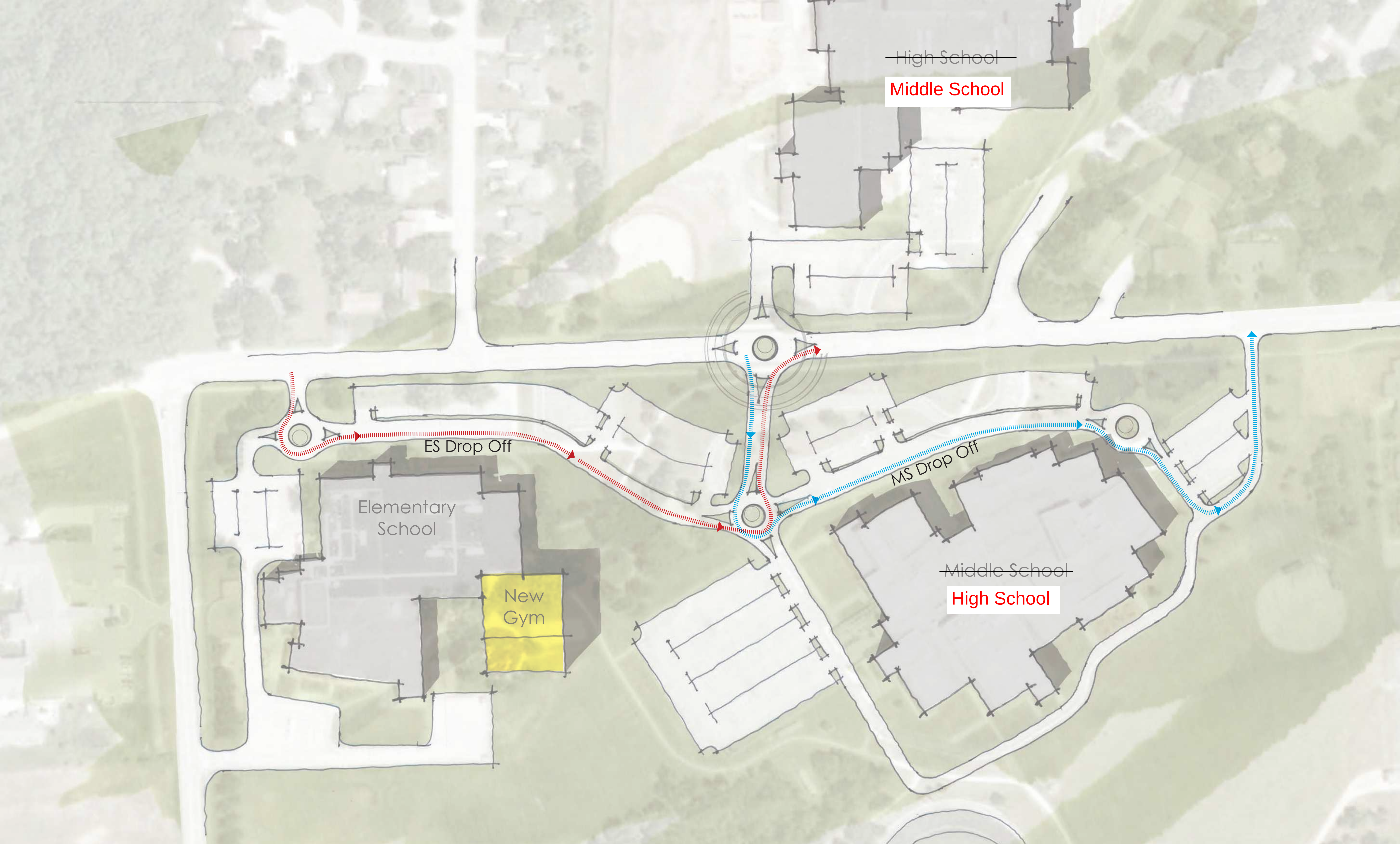
Appendix D: Provided Layouts

Jordan Public Schools - **North Campus PHASE 1** **Option 1a** 04.02.2019

Figure 6

Jordan Public Schools - **North Campus PHASE 1** **Option 1b** 04.02.2019

Figure 7

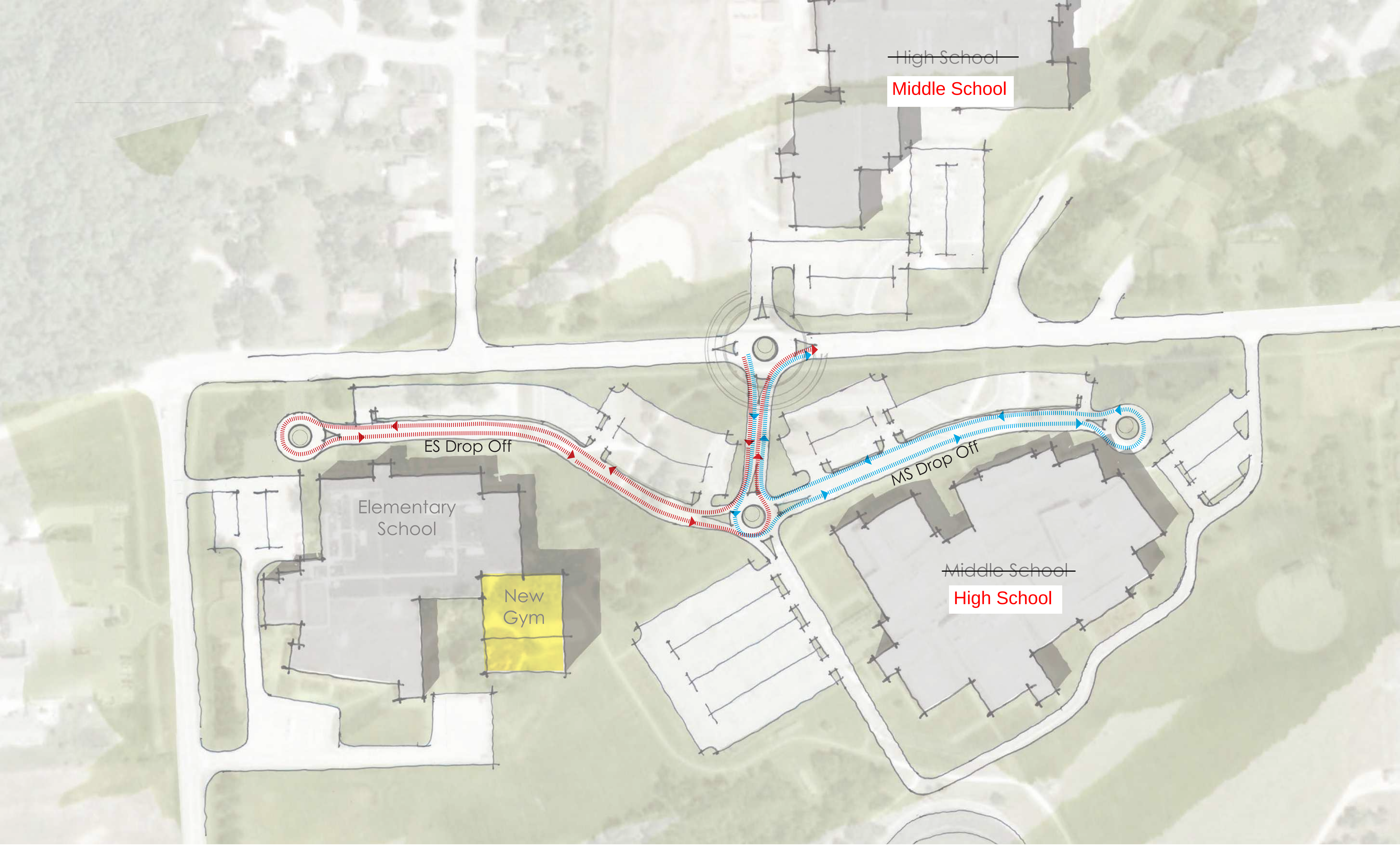


Jordan Public Schools - **North Campus PHASE 1**

Option 1a Drop- Off Traffic Pattern

04.02.2019

Figure 8



Jordan Public Schools - **North Campus PHASE 1** **Option 1b** Drop-off Traffic Pattern 04.02.2019

Figure 9

Appendix E: Mitigation Operational Analysis

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	2019	Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak	Peak Hour Factor	0.40
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	6	256	79	0	205	219	16	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 (v_{PCE}), pc/h	0	15	666	203	0	528	564	41	0	237	0	366	0	13	0	8
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		884			1133			603			21	
Entry Volume veh/h		852			1100			568			20	
Circulating Flow (v_c), pc/h	541			252			694			1329		
Exiting Flow (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		89.7			65.4			38.4			11.4	
Lane LOS		F			F			E			B	
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			B		
Intersection Delay, s/veh | LOS	67.1						F					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	2019	Analysis Time Period (hrs)	0.25
Time Analyzed	Afternoon Peak	Peak Hour Factor	0.33
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	16	572	41	0	128	462	25	0	231	0	343	0	0	0	0
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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 (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.3			11.2			22.3			6.2	
Lane LOS		A			B			C			A	
95% Queue, veh		3.1			3.8			7.1			0.0	
Approach Delay, s/veh	9.3			11.2			22.3					
Approach LOS	A			B			C					
Intersection Delay, s/veh | LOS	14.2						B					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	2019	Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak	Peak Hour Factor	0.33
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	3	200	13	0	23	198	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 (v_{PCE}), pc/h	0	9	624	41	0	72	618	34	0	119	0	140	0	50	0	19
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		674			724			259			69	
Entry Volume veh/h		654			703			251			67	
Circulating Flow (v_c), pc/h	122			128			683			809		
Exiting Flow (v_{ex}), pc/h	814			756			43			113		
Capacity (c_{pce}), pc/h		1219			1211			688			605	
Capacity (c), veh/h		1183			1176			668			587	
v/c Ratio (x)		0.55			0.60			0.38			0.11	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.5			10.5			10.5			7.5	
Lane LOS		A			B			B			A	
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	A			B			B			A		
Intersection Delay, s/veh | LOS	10.0						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Internal Site Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	
Date Performed	6/13/2019	N/S Street Name	
Analysis Year	2020	Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak	Peak Hour Factor	0.60
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	302	0	0	0	0	0	216	0	0	0	0	0	263	192	455
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		302			216			0			910	
Entry Volume veh/h		293			210			0			883	
Circulating Flow (v_c), pc/h		455			302			565			0	
Exiting Flow (v_{ex}), pc/h		263			455			518			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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.3			5.7			4.8			11.0	
Lane LOS		A			A			A			B	
95% Queue, veh		1.6			0.8			0.0			5.3	
Approach Delay, s/veh		8.3			5.7						11.0	
Approach LOS		A			A						B	
Intersection Delay, s/veh | LOS	9.6						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Internal Site Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	
Date Performed	6/13/2019	N/S Street Name	
Analysis Year	2020	Analysis Time Period (hrs)	0.25
Time Analyzed	Afternoon 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				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 (v_{PCE}), pc/h	0	164	0	0	0	0	0	36	0	0	112	0	0	36	18	55
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		164			36			112			109	
Entry Volume veh/h		159			35			109			106	
Circulating Flow (v_c), pc/h	54			276			200			0		
Exiting Flow (v_{ex}), pc/h	36			55			312			18		
Capacity (c_{pce}), pc/h		1306			1041			1125			1380	
Capacity (c), veh/h		1268			1011			1093			1340	
v/c Ratio (x)		0.13			0.03			0.10			0.08	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.9			3.9			4.2			3.3	
Lane LOS		A			A			A			A	
95% Queue, veh		0.4			0.1			0.3			0.3	
Approach Delay, s/veh	3.9			3.9			4.2			3.3		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	3.8						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Internal Site Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	
Date Performed	6/13/2019	N/S Street Name	
Analysis Year	2020	Analysis Time Period (hrs)	0.25
Time Analyzed	PM 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	70	0	0	0	0	0	24	0	0	38	0	0	24	12	59
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		70			24			38			95	
Entry Volume veh/h		68			23			37			92	
Circulating Flow (v_c), pc/h	36			108			94			0		
Exiting Flow (v_{ex}), pc/h	24			59			132			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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.2			3.2			3.2			3.2	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	3.2						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Internal Site Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	
Date Performed	6/13/2019	N/S Street Name	
Analysis Year	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak	Peak Hour Factor	0.60
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	186	0	0	0	133	0	126	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 (v_{PCE}), pc/h	0	319	0	0	0	228	0	216	0	0	0	0	0	324	163	474
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		319			444			0			961	
Entry Volume veh/h		310			431			0			933	
Circulating Flow (v_c), pc/h	715			319			643			228		
Exiting Flow (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		13.0			8.9			5.2			26.2	
Lane LOS		B			A			A			D	
95% Queue, veh		2.6			2.3			0.0			12.3	
Approach Delay, s/veh	13.0			8.9						26.2		
Approach LOS	B			A						D		
Intersection Delay, s/veh | LOS	19.3						C					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Internal Site Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	
Date Performed	6/13/2019	N/S Street Name	
Analysis Year	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	Afternoon 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	170	0	0	0	0	0	37	0	0	124	0	0	37	19	65
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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 (v_{ex}), pc/h	37			65			331			19		
Capacity (c_{pce}), pc/h		1303			1022			1117			1380	
Capacity (c), veh/h		1265			993			1085			1340	
v/c Ratio (x)		0.13			0.04			0.11			0.09	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.9			3.9			4.3			3.4	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	3.9						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Internal Site Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	
Date Performed	6/13/2019	N/S Street Name	
Analysis Year	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	PM 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	71	0	0	0	0	0	24	0	0	39	0	0	24	12	60
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	73	0	0	0	0	0	25	0	0	40	0	0	25	12	62
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		73			25			40			99	
Entry Volume veh/h		71			24			39			96	
Circulating Flow (v_c), pc/h	37			113			98			0		
Exiting Flow (v_{ex}), pc/h	25			62			138			12		
Capacity (c_{pce}), pc/h		1329			1230			1249			1380	
Capacity (c), veh/h		1290			1194			1212			1340	
v/c Ratio (x)		0.05			0.02			0.03			0.07	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.2			3.2			3.2			3.3	
Lane LOS		A			A			A			A	
95% Queue, veh		0.2			0.1			0.1			0.2	
Approach Delay, s/veh	3.2			3.2			3.2			3.3		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	3.2						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	0.40
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	15	312	533	0	922	118	41	0	237	0	687	0	13	0	8
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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 (v_{ex}), 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			0.06	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		307.4			51.3			41.4			10.7	
Lane LOS		F			F			E			B	
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			B		
Intersection Delay, s/veh | LOS	126.2						F					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	Afternoon Peak	Peak Hour Factor	0.33
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	5	61	40	0	77	104	8	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 (v_{PCE}), pc/h	0	16	202	125	0	252	343	25	0	187	0	815	0	0	0	0
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		343			620			1002			0	
Entry Volume veh/h		322			572			973			0	
Circulating Flow (v_c), pc/h	252			203			218			782		
Exiting Flow (v_{ex}), pc/h	1017			530			41			377		
Capacity (c_{pce}), pc/h		1067			1122			1105			622	
Capacity (c), veh/h		1001			1036			1073			603	
v/c Ratio (x)		0.32			0.55			0.91			0.00	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		6.9			10.4			29.5			6.0	
Lane LOS		A			B			D			A	
95% Queue, veh		1.4			3.5			13.9			0.0	
Approach Delay, s/veh	6.9			10.4			29.5					
Approach LOS	A			B			D					
Intersection Delay, s/veh | LOS	19.7						C					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	2019	Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak	Peak Hour Factor	0.33
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	3	149	38	0	58	154	11	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 (v_{PCE}), pc/h	0	9	465	119	0	181	481	34	0	112	0	306	0	50	0	19
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		593			696			418			69	
Entry Volume veh/h		576			676			406			67	
Circulating Flow (v_c), pc/h	231			121			524			774		
Exiting Flow (v_{ex}), 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			0.57			0.52			0.11	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		10.1			9.9			12.0			7.2	
Lane LOS		B			A			B			A	
95% Queue, veh		3.4			3.8			3.0			0.4	
Approach Delay, s/veh	10.1			9.9			12.0			7.2		
Approach LOS	B			A			B			A		
Intersection Delay, s/veh | LOS	10.3						B					

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HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	0.40
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	15	382	533	0	922	142	41	0	238	0	690	0	13	0	8
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		930			1105			928			21	
Entry Volume veh/h		887			1073			797			20	
Circulating Flow (v_c), pc/h	935			253			410			1302		
Exiting Flow (v_{ex}), pc/h	1085			388			56			1455		
Capacity (c_{pce}), pc/h		532			1066			908			366	
Capacity (c), veh/h		507			1035			780			355	
v/c Ratio (x)		1.75			1.04			1.02			0.06	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		365.0			57.8			60.8			11.0	
Lane LOS		F			F			F			B	
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			B		
Intersection Delay, s/veh | LOS	156.4						F					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	Afternoon Peak	Peak Hour Factor	0.33
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	5	70	40	0	77	123	8	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 (v_{PCE}), pc/h	0	16	232	125	0	252	406	25	0	187	0	815	0	0	0	0
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		373			683			1002			0	
Entry Volume veh/h		349			630			973			0	
Circulating Flow (v_c), pc/h	252			203			248			845		
Exiting Flow (v_{ex}), pc/h	1047			593			41			377		
Capacity (c_{pce}), pc/h		1067			1122			1072			583	
Capacity (c), veh/h		1000			1035			1040			566	
v/c Ratio (x)		0.35			0.61			0.94			0.00	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		7.3			11.8			34.4			6.4	
Lane LOS		A			B			D			A	
95% Queue, veh		1.6			4.3			15.3			0.0	
Approach Delay, s/veh	7.3			11.8			34.4					
Approach LOS	A			B			D					
Intersection Delay, s/veh | LOS	22.2						C					

HCS7 Roundabouts Report

General Information / Site Information

Analyst	CW	Intersection	Proposed Sunset Dr & High/Middle School Access Roundabout
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	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak	Peak Hour Factor	0.33
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	3	167	38	0	58	184	11	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 (v_{PCE}), pc/h	0	9	521	119	0	181	574	34	0	112	0	306	0	50	0	19
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		649			789			418			69	
Entry Volume veh/h		630			766			406			67	
Circulating Flow (v_c), pc/h	231			121			580			867		
Exiting Flow (v_{ex}), pc/h	877			705			43			300		
Capacity (c_{pce}), pc/h		1090			1220			764			570	
Capacity (c), veh/h		1059			1184			742			553	
v/c Ratio (x)		0.60			0.65			0.55			0.12	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		11.2			11.7			13.3			8.0	
Lane LOS		B			B			B			A	
95% Queue, veh		4.1			5.0			3.4			0.4	
Approach Delay, s/veh	11.2			11.7			13.3			8.0		
Approach LOS	B			B			B			A		
Intersection Delay, s/veh | LOS	11.7						B					

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		WBL		WBT		WBR	
Hillside Dr and High School Access	AM	1	A	4	A	-		3	A	-		-		-		-		1	A	0	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	3	A	-		-		-		12	B	-		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	B	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	-	
	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
	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
	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	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	B	3	A	5	A	10	B	3	A
CR 66 and Prospect Pointe Rd	AM	1	A	4	A	-		2	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	A	5	A	-		2	A	-		-		-		-		0	A	0	A	1	A	1	A	-	

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.

2020 Two-Way Stop Control

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																					
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	50	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	75	125
	Afternoon	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	75
Two-Way Stop Controlled	PM	25	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
Sunset Dr and Middle/High School Access	AM	25	25	-	-	-	-	25	50	75	225	-	-	-	-	-	-	25	50	-	-	-	-	75	200	-	-	75	225	-	-	-	-	-	-	25	50	-	-
	Afternoon	25	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	50	125	-	-	-	-	-	-	-	-	-	-
Two-Way Stop Controlled	PM	25	25	-	-	-	-	0	25	25	50	-	-	-	-	-	-	-	-	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	-	-	-	-	25	25	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	25	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
CR 66 and Aberdeen Ave	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	75	125	-	-	-	-	-	-	-	-	50	100	-	-
	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	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-

2020 Two-Way Stop Control

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		WBL		WBT		WBR	
Hillside Dr and High School Access	AM	1	A	5	A	-		3	A	-		-		-		-		1	A	1	A	3	A	1	A	-	
	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	B	-		3	A	2	A	1	A	-		-		0	A	0	A
Two-Way Stop Controlled	PM	3	A	-		-		-		11	B	-		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	B	2	A	1	A	1	A	15	C	1	A	0	A
	Afternoon	4	A	10	B	1	A	6	A	-		-		-		2	A	1	A	0	A	3	A	0	A	0	A
Two-Way Stop Controlled	PM	2	A	10	B	0	A	4	A	10	B	-		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	B	6	A	6	A	11	B	5	A
	Afternoon	7	A	4	A	7	A	4	A	6	A	7	A	4	A	4	A	10	B	2	A	6	A	12	B	5	A
Stop Controlled	PM	8	A	8	A	8	A	5	A	7	A	8	A	5	A	6	A	11	B	4	A	8	A	13	B	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
	Afternoon	1	A	6	A	-		2	A	5	A	-		2	A	1	A	0	A	0	A	1	A	1	A	0	A
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

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.

2040 Two-Way Stop Control

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																															
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/T		WBL/T/R		WBT/R		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		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	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	-	-
	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	25	50	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	50	-	-
	Afternoon	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	25	-	-
Stop Controlled	PM	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-
CR 66 and Aberdeen Ave	AM	-	-	50	100	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	75	150	-	-	-	-	-	-	75	125	-	-
	Afternoon	-	-	50	75	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100	-	-
Stop Controlled	PM	-	-	50	100	-	-	-	-	-	-	-	-	75	125	-	-	-	-	-	-	50	125	-	-	-	-	-	-	75	100	-	-
CR 66 and Prospect Pointe Rd	AM	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	50	75	-	-
	Afternoon	25	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	25	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	50	75	-	-

2040 Two-Way Stop Control

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				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
	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	B	8	A	0	A	6	A	6	A	-		3	A	8	A	10	B	8	A	22	C	7	A	4	A
	Afternoon	4	A	4	A	0	A	4	A	-		-		-		4	A	7	A	3	A	5	A	6	A	3	A
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
Sunset Dr and Timber Ridge Ct	AM	1	A	-		-		-		7	A	-		2	A	-		1	A	-		-		2	A	-	
	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
Sunset Dr and Aberdeen Ave	AM	4	A	-		-		4	A	-		-		-		-		8	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	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	7	A	4	A	6	A	7	A	4	A	4	A	10	B	3	A	5	A	10	B	3	A
CR 66 and Prospect Pointe Rd	AM	1	A	5	A	-		2	A	-		-		-		-		0	A	0	A	1	A	0	A	-	
	Afternoon	1	A	5	A	-		2	A	-		-		-		-		0	A	0	A	1	A	1	A	-	
Stop Controlled	PM	1	A	5	A	-		2	A	-		-		-		-		0	A	0	A	1	A	1	A	-	

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.

2020 All Way Stop Control - 1

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths															
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R	
		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	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	75	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Way Stop Controlled	PM	50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Middle/High School Access	AM	75	125	-	-	-	-	75	150	125	300	-	-	-	-	-	-
	Afternoon	50	75	-	-	-	-	50	75	25	50	-	-	-	-	-	-
All Way Stop Controlled	PM	50	100	-	-	-	-	25	50	25	75	-	-	-	-	-	-
Sunset Dr and Timber Ridge Ct	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Aberdeen Ave	AM	-	-	-	-	25	25	-	-	-	-	-	-	50	75	-	-
	Afternoon	-	-	-	-	25	25	-	-	-	-	-	-	50	75	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	75
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50
CR 66 and Aberdeen Ave	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75
	Afternoon	-	-	50	50	-	-	-	-	-	-	-	-	-	-	50	75
Stop Controlled	PM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75
CR 66 and Prospect Pointe Rd	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-

Intersection	Peak Hour	WBT/R		NBL		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		SBL/T		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
Hillside Dr and High School Access	AM	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	50	100	-	-	-	-	-	-	-	-	-	-	25	100	-	-	-	-	-	-	75	150
	Afternoon	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	75
All Way Stop Controlled	PM	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
Sunset Dr and Middle/High School Access	AM	50	250	-	-	-	-	50	100	-	-	50	125	-	-	-	-	-	-	25	50	-	-
	Afternoon	50	75	25	50	-	-	-	-	-	-	50	125	-	-	-	-	-	-	-	-	-	-
All Way Stop Controlled	PM	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	-	-	-	-	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
CR 66 and Aberdeen Ave	AM	-	-	-	-	-	-	-	-	75	100	-	-	-	-	-	-	-	-	50	100	-	-
	Afternoon	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	100	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	100	-	-
CR 66 and Prospect Pointe Rd	AM	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-

2020 All Way Stop Control - 1

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		WBL		WBT		WBR	
Hillside Dr and High School Access	AM	1	A	5	A	-		3	A	-		-		-		-		1	A	1	A	2	A	0	A	-	
	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	B	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	B	8	A	0	A	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	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	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	-	
	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	A	3	A	1	A	-		-		-		-		5	A	-		3	A
	Afternoon	1	A	-		0	A	0	A	2	A	1	A	-		-		-		-		4	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	4	A	1	A	1	A	7	A	-		3	A	-		-		4	A
	Afternoon	2	A	3	A	2	A	1	A	3	A	1	A	0	A	5	A	-		3	A	-		-		3	A
Stop Controlled	PM	2	A	4	A	2	A	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	7	A	7	A	8	A	5	A	6	A	12	B	4	A	7	A	11	B	5	A
	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	6	A	8	A	5	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	5	A	-		3	A	2	A	0	A	0	A	1	A	0	A	0	A
	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	A	6	A	-		3	A	6	A	-		3	A	2	A	0	A	0	A	1	A	1	A	0	A

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.

2040 All Way Stop Control - 1

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																	
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/T		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	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Aberdeen Ave	AM	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	50	-	-
	Afternoon	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	-	-	50	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	50	-	-
CR 66 and Aberdeen Ave	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	75	125	-	-	-	-	-	-	50	125	-	-
	Afternoon	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	100	-	-
Stop Controlled	PM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	75	125	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	100	-	-
CR 66 and Prospect Pointe Rd	AM	25	25	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	50	75	-	-
	Afternoon	0	25	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	25	25	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-

2040 All Way Stop Control - 1

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		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	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	B	-		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	B	7	A	0	A	5	A	7	A	-		3	A	8	A	10	B	8	A	22	C	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	A	-		3	A	6	A	7	A	3	A	5	A	6	A	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	A	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	A	1	A	-		-		-		-		3	A	-		4	A
	Afternoon	1	A	-		2	A	1	A	3	A	1	A	-		-		-		-		-		-		2	A
Stop Controlled	PM	1	A	-		2	A	2	A	3	A	1	A	-		-		-		-		5	A	-		3	A
CR 66 and Aberdeen Ave	AM	6	A	7	A	8	A	5	A	6	A	7	A	3	A	4	A	10	B	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	B	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	B	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	A	6	A	-		3	A	-		-		-		-		0	A	0	A	1	A	1	A	-	

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.

2020 All Way Stop Control - 2

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																					
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	50	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	75	175
	Afternoon	25	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
Two-Way Stop Controlled	PM	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
Sunset Dr and Middle/High School Access	AM	50	100	-	-	-	-	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	100	-	-	-	-	25	75	50	75	-	-	-	-	-	-	50	75	25	50	-	-	-	-	-	-	25	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	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	-	-	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	25	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	25	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	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	100	-	-
Stop Controlled	PM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	100	-	-
CR 66 and Prospect Pointe Rd	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-

2020 All Way Stop Control - 2

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		WBL		WBT		WBR	
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	B	8	A	0	A	6	A	6	A	-		3	A	8	A	10	B	9	A	29	D	7	A	4	A
	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	5	A	4	A	0	A	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	1	A
	Afternoon	1	A	-		-		-		5	A	-		-		-		0	A	-		-		2	A	2	A
Stop Controlled	PM	2	A	-		-		-		8	A	-		2	A	-		0	A	-		-		2	A	2	A
Sunset Dr and Aberdeen Ave	AM	5	A	-		-		5	A	-		-		-		-		6	A	-		4	A	4	A	-	
	Afternoon	4	A	7	A	-		3	A	-		-		-		-		6	A	4	A	4	A	4	A	-	
Stop Controlled	PM	4	A	3	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	-		-		-		-		5	A	-		3	A
	Afternoon	1	A	-		0	A	0	A	2	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	4	A	1	A	0	A	9	A	-		3	A	7	A	-		4	A
	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
CR 66 and Aberdeen Ave	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
	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
	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

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.

2040 All Way Stop Control - 2

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																			
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max
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	175
	Afternoon	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	75
Two-Way Stop Controlled	PM	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75
Sunset Dr and Middle/High School Access	AM	75	125	-	-	-	-	75	150	125	350	-	-	-	-	-	-	75	350	-	-	50	100	-	-	50	150	-	-	-	-	-	-	25	50	-	-
	Afternoon	50	75	-	-	-	-	25	75	50	50	-	-	-	-	-	-	50	75	-	-	25	75	-	-	50	125	-	-	-	-	-	-	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-
Sunset Dr and Aberdeen Ave	AM	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	75	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	-
	Afternoon	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	25	50	-	-
CR 66 and Aberdeen Ave	AM	-	-	50	100	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	75	125	-	-	-	-	-	-	-	-	50	100	-	-
	Afternoon	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	100	-	-
Stop Controlled	PM	-	-	50	100	-	-	-	-	-	-	-	-	-	-	75	125	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	100	-	-
CR 66 and Prospect Pointe Rd	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	50	75	-	-
	Afternoon	0	25	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	-
Stop Controlled	PM	25	25	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	50	75	-	-

2040 All Way Stop Control - 2

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		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	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	A
	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	B	80	F	0	A	11	B	10	B	-		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	A
Stop Controlled	PM	1	A	-		-		-		7	A	-		3	A	-		0	A	-		-		1	A	0	A
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	A
	Afternoon	1	A	-		0	A	0	A	2	A	1	A	-		-		-		-		2	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	-		-		-		-		6	A	-		3	A
	Afternoon	1	A	-		2	A	1	A	3	A	1	A	-		-		-		-		-		-		2	A
Stop Controlled	PM	1	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	3	A	5	A	9	A	3	A
	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	A
Stop Controlled	PM	6	A	6	A	7	A	4	A	5	A	7	A	4	A	4	A	10	B	3	A	5	A	10	B	3	A
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	A	5	A	-		3	A	-		-		-		-		0	A	0	A	1	A	1	A	-	

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.

2020 All Way Stop Control - 3

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																			
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-	25	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	75	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	150	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	75	125
	Afternoon	50	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
All Way Stop Controlled	PM	75	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
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	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	-	-	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-
	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	-	-
	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	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-

2020 All Way Stop Control - 3

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

Intersection	Peak Hour	Intersection Delay (1.)		Movement Delay (sec/veh)																							
				NBL		NBT		NBR		SBL		SBT		SBR		EBL		EBT		EBR		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	B	74	F	1	A	11	B	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
	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	-	
	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	B	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	B	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	A	1	A	1	A	0	A

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.

2040 All Way Stop Control - 3

Table 2: Peak Hour Queues By Movement - Scenario Geometry

Intersection	Peak Hour	Queue Lengths																																			
		EBL/T		EBL/T/R		EBT/R		EBR		WBL		WBL/R		WBL/T		WBL/T/R		WBT/R		NBL/R		NBL/T		NBL/T/R		NBR		SBL		SBL/R		SBL/T		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	Max	Avg	Max	Avg	Max	Avg	Max
Hillside Dr and High School Access	AM	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunset Dr and Hillside Dr	AM	75	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	125	-	-	-	-	-	-	75	175
	Afternoon	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	75
All Way Stop Controlled	PM	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	100	-	-	-	-	-	-	-	-	50	75	-	-	-	-	-	-	50	100
Sunset Dr and Middle/High School Access	AM	25	25	-	-	-	-	25	50	75	225	-	-	-	-	-	-	25	25	-	-	100	200	-	-	75	225	-	-	-	-	-	-	25	50	-	-
	Afternoon	25	25	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	50	75	-	-	50	150	-	-	-	-	-	-	25	50	-	-
Two-Way Stop Controlled	PM	25	25	-	-	-	-	0	25	25	50	-	-	-	-	-	-	-	-	-	-	25	75	-	-	50	100	-	-	-	-	-	-	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	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Afternoon	-	-	-	-	25	50	-	-	-	-	-	-	50	75	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stop Controlled	PM	-	-	-	-	25	50	-	-	-	-	-	-	50	100	-	-	-	-	50	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and West Elementary School Access	AM	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-
	Afternoon	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	-	-	-	-
Stop Controlled	PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aberdeen Ave and Ridge St	AM	-	-	50	75	-	-	-	-	-	-	-	-	-	-	25	75	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	25	50	-	-
	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	-	-
Stop Controlled	PM	25	25	-	-	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	25	50	-	-	-	-	-	-	-	-	50	75	-	-

2040 All Way Stop Control - 3

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	West Mini-Roundabout
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	0.60
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	10	346	215	0	266	122	26	0	123	0	197	0	9	0	5
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		571			414			320			14	
Entry Volume veh/h		527			389			294			13	
Circulating Flow (v_c), pc/h	275			133			365			511		
Exiting Flow (v_{ex}), 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			0.02	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		10.9			6.6			7.9			4.7	
Lane LOS		B			A			A			A	
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	B			A			A			A		
Intersection Delay, s/veh | LOS	8.7						A					

HCS7 Roundabouts Report

General Information

Analyst	CW	Intersection	West Mini-Roundabout
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				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	5	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 (v_{PCE}), pc/h	0	5	76	28	0	27	123	8	0	44	0	92	0	0	0	0
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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 (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.4			3.8			3.8			3.3	
Lane LOS		A			A			A			A	
95% Queue, veh		0.3			0.4			0.4			0.0	
Approach Delay, s/veh	3.4			3.8			3.8					
Approach LOS	A			A			A					
Intersection Delay, s/veh | LOS	3.7						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	West Mini-Roundabout
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				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	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	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	3	167	25	0	34	171	11	0	24	0	44	0	15	0	6
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		195			216			68			21	
Entry Volume veh/h		189			210			66			20	
Circulating Flow (v_c), pc/h	49			27			185			229		
Exiting Flow (v_{ex}), pc/h	226			201			14			59		
Capacity (c_{pce}), pc/h		1313			1343			1143			1093	
Capacity (c), veh/h		1274			1303			1109			1061	
v/c Ratio (x)		0.15			0.16			0.06			0.02	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.1			4.1			3.7			3.6	
Lane LOS		A			A			A			A	
95% Queue, veh		0.5			0.6			0.2			0.1	
Approach Delay, s/veh	4.1			4.1			3.7			3.6		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	4.0						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	West Mini-Roundabout
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	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak	Peak Hour Factor	0.60
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	10	482	228	0	273	196	27	0	129	0	208	0	9	0	5
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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 (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		15.4			7.5			10.0			5.2	
Lane LOS		C			A			A			A	
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	C			A			A			A		
Intersection Delay, s/veh | LOS	11.6						B					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	West Mini-Roundabout
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	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	Afternoon 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	5	100	28	0	37	175	8	0	45	0	97	0	0	0	0
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		133			220			142			0	
Entry Volume veh/h		129			214			138			0	
Circulating Flow (v_c), pc/h	37			50			105			257		
Exiting Flow (v_{ex}), pc/h	197			220			13			65		
Capacity (c_{pce}), pc/h		1329			1311			1240			1062	
Capacity (c), veh/h		1290			1273			1204			1031	
v/c Ratio (x)		0.10			0.17			0.11			0.00	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.6			4.2			3.9			3.5	
Lane LOS		A			A			A			A	
95% Queue, veh		0.3			0.6			0.4			0.0	
Approach Delay, s/veh	3.6			4.2			3.9					
Approach LOS	A			A			A					
Intersection Delay, s/veh | LOS	4.0						A					

HCS7 Roundabouts Report

General Information / Site Information

Analyst	CW	Intersection	West Mini-Roundabout
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	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	PM 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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	3
Flow Rate (v_{PCE}), pc/h	0	3	215	26	0	36	266	11	0	25	0	46	0	16	0	6
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		244			313			71			22	
Entry Volume veh/h		237			304			69			21	
Circulating Flow (v_c), pc/h	52			28			234			327		
Exiting Flow (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.4			4.8			4.0			3.9	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	4.5						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	East Mini-Roundabout
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	0.74
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	302	43	111	0	61	26	86	0	39	122	31	0	52	211	269
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		456			173			192			532	
Entry Volume veh/h		428			168			170			505	
Circulating Flow (v_c), pc/h	324			463			397			126		
Exiting Flow (v_{ex}), pc/h	126			334			510			383		
Capacity (c_{pce}), pc/h		992			861			920			1214	
Capacity (c), veh/h		930			833			813			1152	
v/c Ratio (x)		0.46			0.20			0.21			0.44	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.4			6.4			6.6			7.7	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	8.0						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	East Mini-Roundabout
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	127	23	13	0	7	11	40	0	15	96	60	0	53	32	111
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	131	24	13	0	7	11	41	0	15	99	62	0	55	33	114
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		168			59			176			202	
Entry Volume veh/h		163			57			171			196	
Circulating Flow (v_c), pc/h	95			245			210			33		
Exiting Flow (v_{ex}), 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	Bypass
Lane Control Delay (d), s/veh		4.1			3.9			4.7			4.0	
Lane LOS		A			A			A			A	
95% Queue, veh		0.5			0.2			0.6			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					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	East Mini-Roundabout
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	188	25	13	0	3	11	57	0	12	34	18	0	66	20	190
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		226			71			64			276	
Entry Volume veh/h		219			69			62			268	
Circulating Flow (v_c), pc/h	89			234			279			26		
Exiting Flow (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.5			4.0			4.1			4.5	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	4.4						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	East Mini-Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	Sunset Dr
Date Performed	6/13/2019	N/S Street Name	Hillside Dr
Analysis Year	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak	Peak Hour Factor	0.74
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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	413	43	119	0	65	26	86	0	41	130	32	0	53	227	309
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		575			177			203			589	
Entry Volume veh/h		541			171			179			559	
Circulating Flow (v_c), pc/h	345			584			509			132		
Exiting Flow (v_{ex}), 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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		12.5			7.5			7.8			8.5	
Lane LOS		B			A			A			A	
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	B			A			A			A		
Intersection Delay, s/veh | LOS	9.8						A					

HCS7 Roundabouts Report

General Information		Site Information	
Analyst	CW	Intersection	East Mini-Roundabout
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	Afternoon 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	160	24	13	0	7	11	41	0	16	106	66	0	55	35	173
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		197			59			188			263	
Entry Volume veh/h		191			57			183			255	
Circulating Flow (v_c), pc/h	97			282			239			34		
Exiting Flow (v_{ex}), pc/h	145			200			307			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 Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.3			4.1			5.0			4.5	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	4.5						A					

HCS7 Roundabouts Report

General Information / Site Information

Analyst	CW	Intersection	East Mini-Roundabout
Agency or Co.	Bolton & Menk	E/W Street Name	Sunset Dr
Date Performed	6/13/2019	N/S Street Name	Hillside Dr
Analysis Year	2040	Analysis Time Period (hrs)	0.25
Time Analyzed	PM 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
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				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 (v_{PCE}), pc/h	0	240	25	13	0	3	11	57	0	12	36	19	0	66	21	276
Right-Turn Bypass	None				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			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	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	

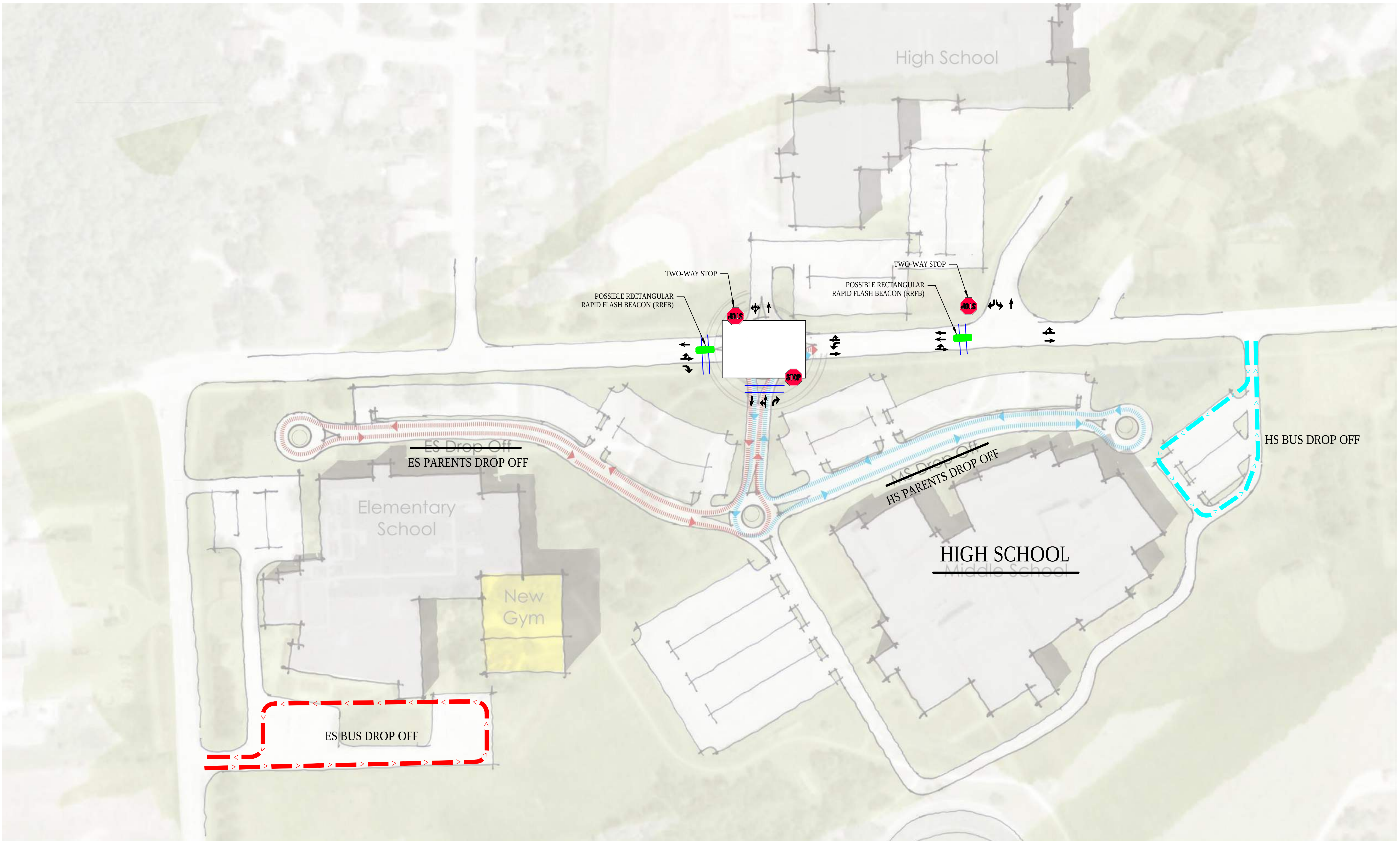
Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		278			71			67			363	
Entry Volume veh/h		270			69			65			352	
Circulating Flow (v_c), pc/h	90			288			331			26		
Exiting Flow (v_{ex}), pc/h	110			299			333			37		
Capacity (c_{pce}), pc/h		1259			1029			985			1344	
Capacity (c), veh/h		1222			999			956			1305	
v/c Ratio (x)		0.22			0.07			0.07			0.27	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.9			4.2			4.4			5.1	
Lane LOS		A			A			A			A	
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	A			A			A			A		
Intersection Delay, s/veh | LOS	4.9						A					

Appendix F: Mitigation Layouts



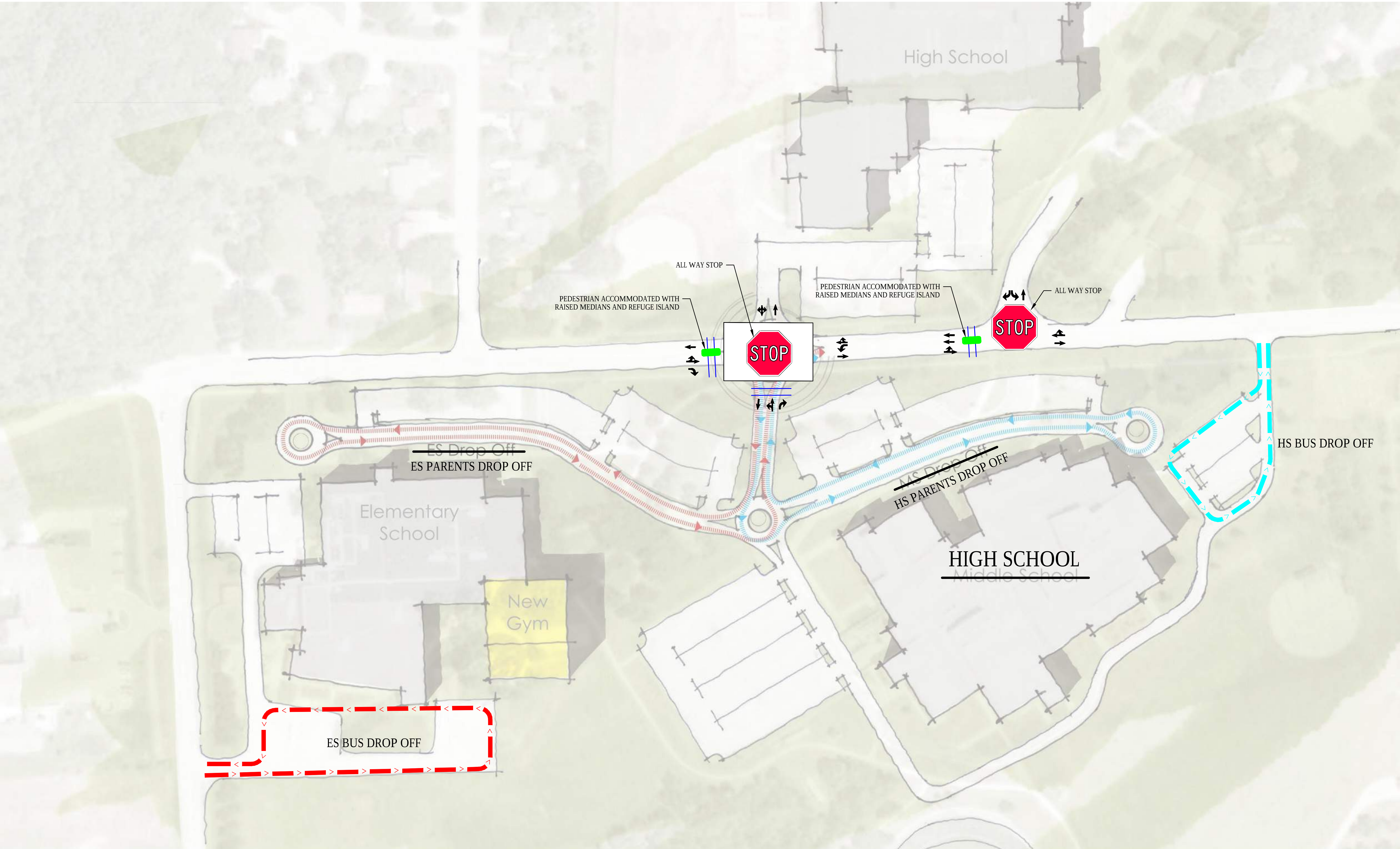
Jordan Public Schools - **North Campus PHASE 1**

~~**Option 1b** Drop-off Traffic Pattern~~

TWO-WAY STOP CONTROL OPTION

04.02.2019

Figure 10



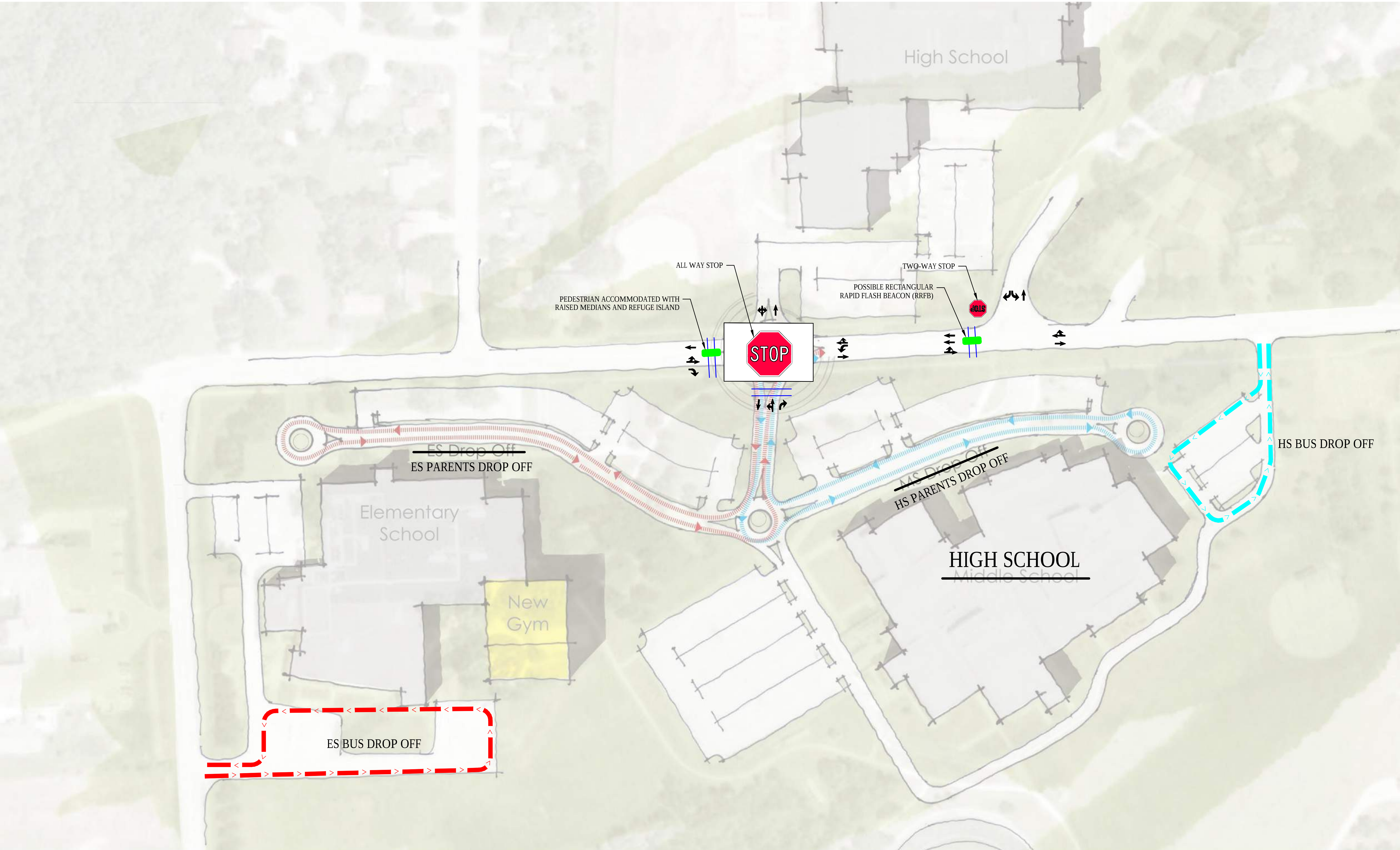
Jordan Public Schools - **North Campus PHASE 1**

~~Option 1b Drop-off Traffic Pattern~~

ALL WAY STOP CONTROL OPTION - 1

04.02.2019

Figure 11



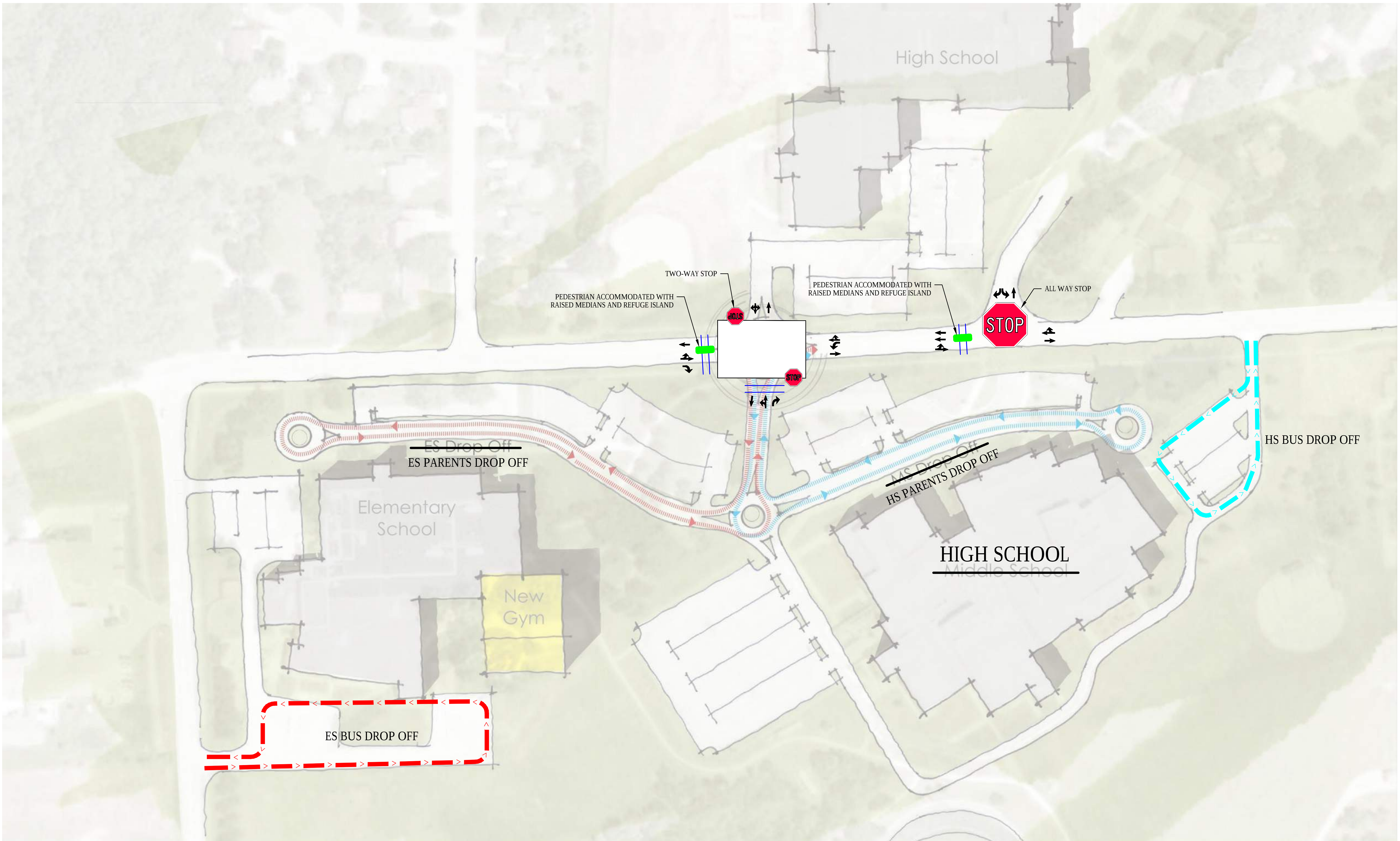
Jordan Public Schools - **North Campus PHASE 1**

~~Option 1b Drop-off Traffic Pattern~~

ALL WAY STOP CONTROL OPTION - 2

04.02.2019

Figure 12



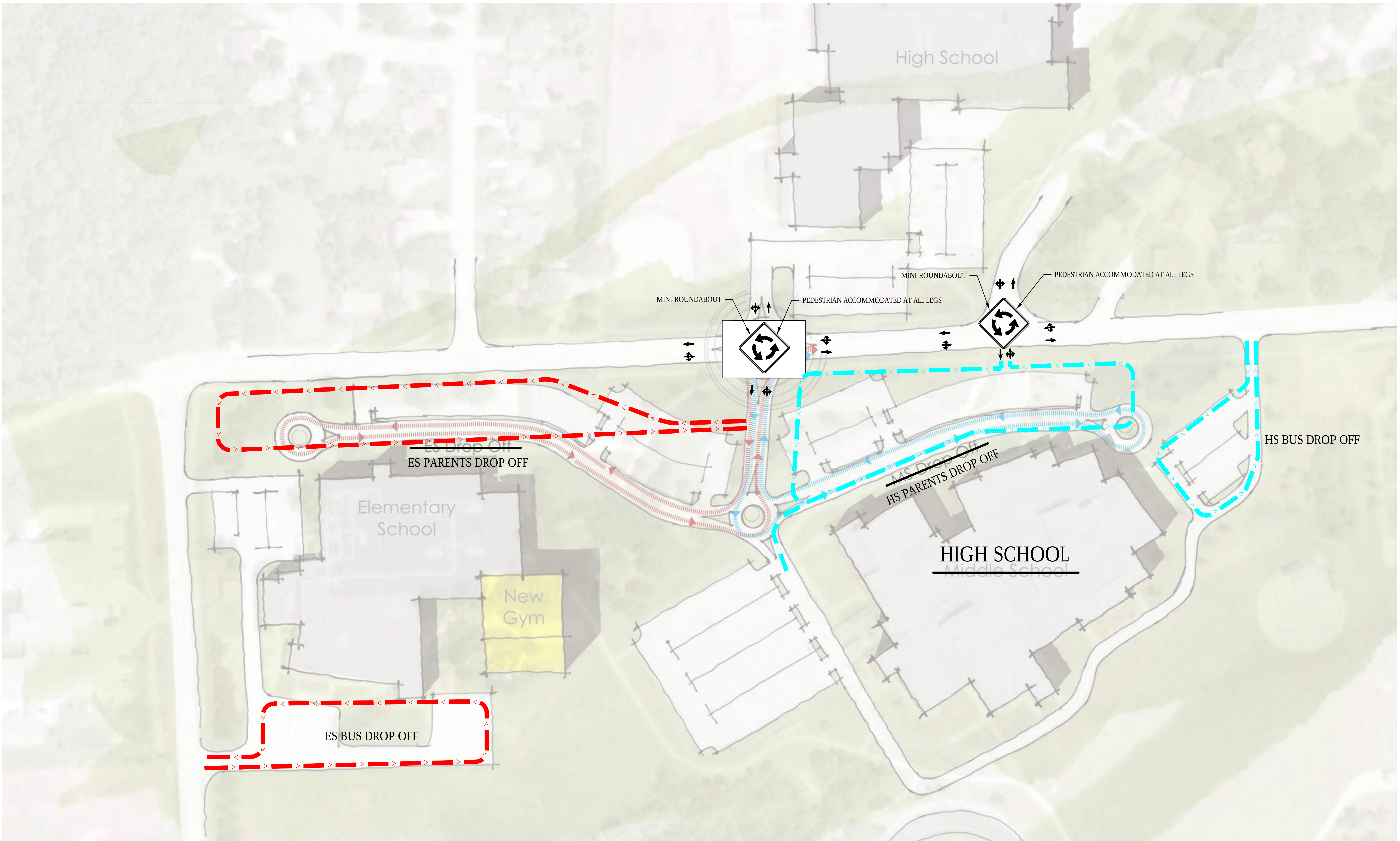
Jordan Public Schools - **North Campus PHASE 1**

~~Option 1b Drop-off Traffic Pattern~~

ALL WAY STOP CONTROL OPTION - 3

04.02.2019

Figure 13



Jordan Public Schools - **North Campus PHASE 1**

~~**Option 1b** Drop-off Traffic Pattern~~
MINI-ROUNDABOUT OPTION

04.02.2019
Figure 14

Appendix G: Warrant Analysis

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		Lanes
DATE:	6/26/2019	30	Major App1:	SUNSET DR (WESTBOUND)	2
		30	Major App3:	SUNSET DR (EASTBOUND)	1
OPERATOR:	CW	30	Minor App2:	HILLSIDE DR (SOUTHBOUND)	1
			Minor App4:	dsf	

0.70 FACTOR USED? No

POPULATION < 10,000? No

N/A Yes

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

		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:
DATE: 6/26/2019

OPERATOR: CW

Speed	Approach Description		Lanes
30	Major App1:	SUNSET DR (WESTBOUND)	2
30	Major App3:	SUNSET DR (EASTBOUND)	1
30	Minor App2:	HILLSIDE DR (SOUTHBOUND)	1
	Minor App4:	dsf	

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

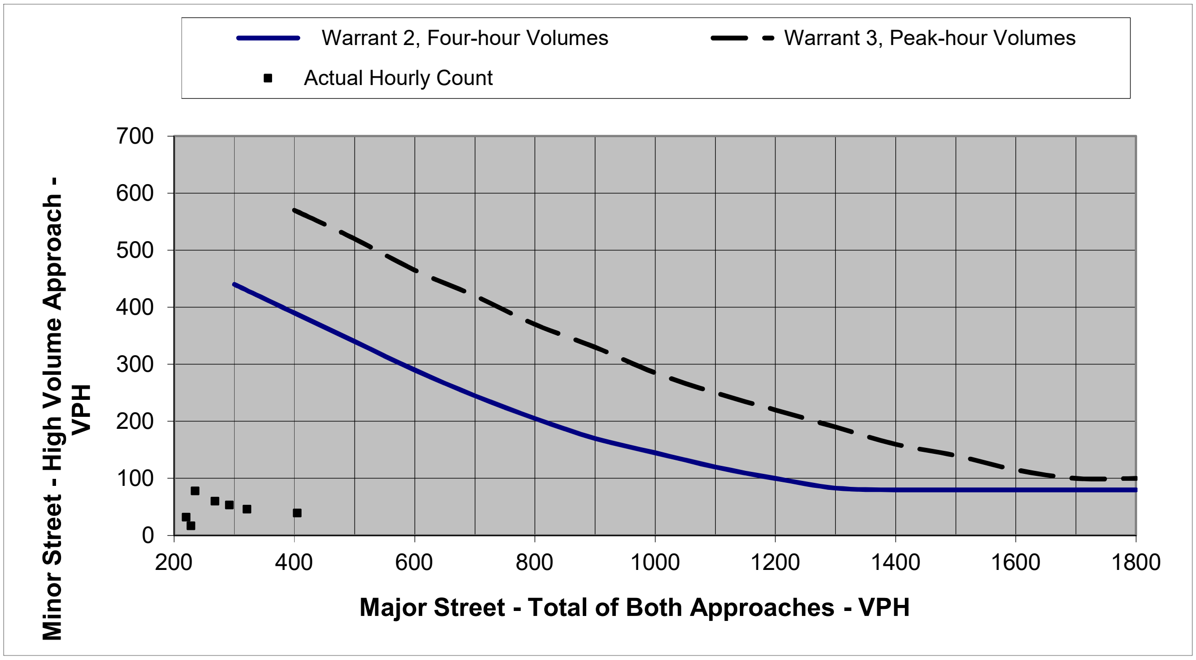


Figure 1. Four Hour and Peak Hour Warrant Analysis
Note: For data points outside the graph range, check the minor street volume against the lower thresholds

	Warrant Criteria		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:
DATE: 6/26/2019

OPERATOR: CW

0.70 FACTOR USED? No

Speed	Approach Description		Lanes
30	Major App1:	SUNSET DR (WESTBOUND)	2
30	Major App3:	SUNSET DR (EASTBOUND)	1
30	Minor App2:	MS ACCESS (SOUTHBOUND)	1
	Minor App4:		

					300	200	
HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR TOTAL Σ (APP. 1 & APP. 3)	MINOR TOTAL APP. 2 + APP. 4	WARRANT 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	/
7:00 - 8:00	99	306	39		405	39	X/
8:00 - 9:00	67	161	17		228	17	/
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:
DATE: 6/26/2019

OPERATOR: CW

Speed	Approach Description		Lanes
30	Major App1:	SUNSET DR (WESTBOUND)	2
30	Major App3:	SUNSET DR (EASTBOUND)	1
30	Minor App2:	HS ACCESS (NORTHBOUND)	1
30	Minor App4:	MS ACCESS (SOUTHBOUND)	1

0.70 FACTOR USED? No
POPULATION < 10,000? No
N/A No

THRESHOLDS 1A/1B: 600/900 (MAJOR 1A/1B); 150/75 (MINOR APP. 4); 150/75 (MINOR 4 1A/1B)

HOUR	MAJOR APP. 1	MAJOR APP. 3	TOTAL 1+3	MAJOR 1A/1B	MINOR APP. 2	MINOR 2 1A/1B	MINOR APP. 4	MINOR 4 1A/1B	**MET SAME 1A/1B**
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	81	105	186	/	12	/	0	/	/
7:00 - 8:00	240	252	492	/	58	/	4	/	/
8:00 - 9:00	247	197	444	/	39	/	2	/	/
9:00 - 10:00	37	39	76	/	12	/	0	/	/
10:00 - 11:00	69	60	129	/	8	/	0	/	/
11:00 - 12:00	66	42	108	/	35	/	1	/	/
12:00 - 13:00	90	43	133	/	16	/	0	/	/
13:00 - 14:00	106	57	163	/	20	/	1	/	/
14:00 - 15:00	150	135	285	/	19	/	1	/	/
15:00 - 16:00	272	231	503	/	58	/	3	/	/
16:00 - 17:00	91	169	260	/	36	/	2	/	/
17:00 - 18:00	133	118	251	/	43	/	2	/	/
18:00 - 19:00	110	85	195	/	31	/	1	/	/
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)	
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:		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
POPULATION < 10,000?	No
EXISTING SIGNAL ?	No

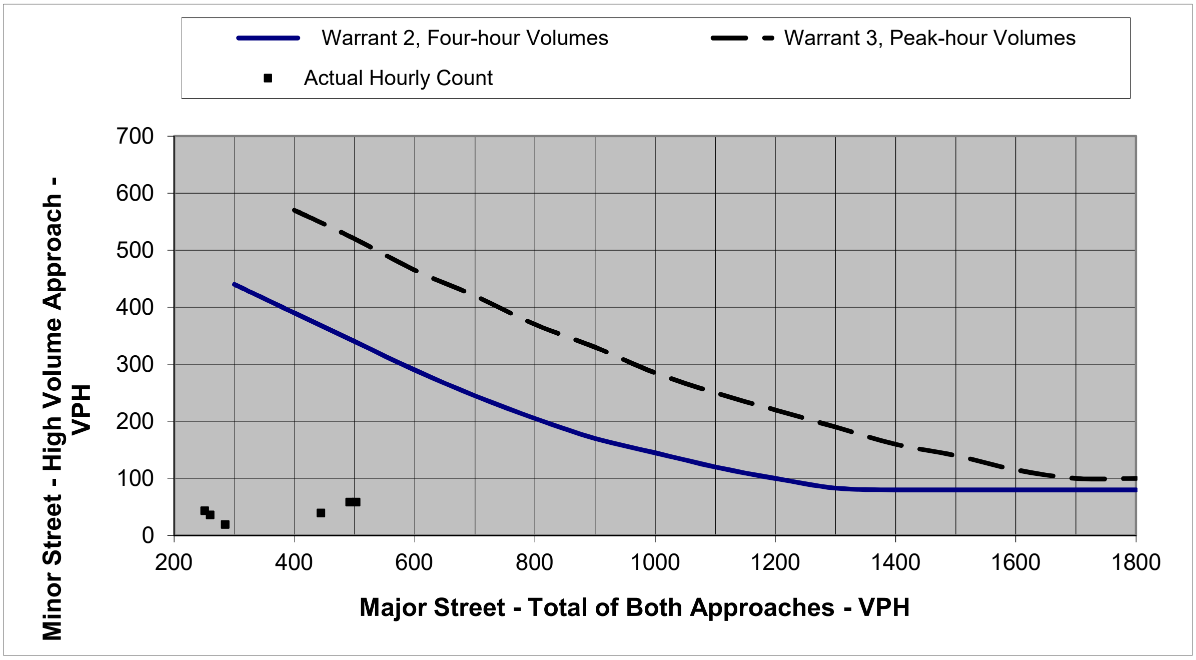


Figure 1. Four Hour and Peak Hour Warrant Analysis

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

	Warrant Criteria		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	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:
DATE: 6/26/2019

OPERATOR: CW

0.70 FACTOR USED? No

Speed	Approach Description	Lanes
30	Major App1: SUNSET DR (WESTBOUND)	2
30	Major App3: SUNSET DR (EASTBOUND)	1
30	Minor App2: HS ACCESS (NORTHBOUND)	1
30	Minor App4: MS ACCESS (SOUTHBOUND)	1

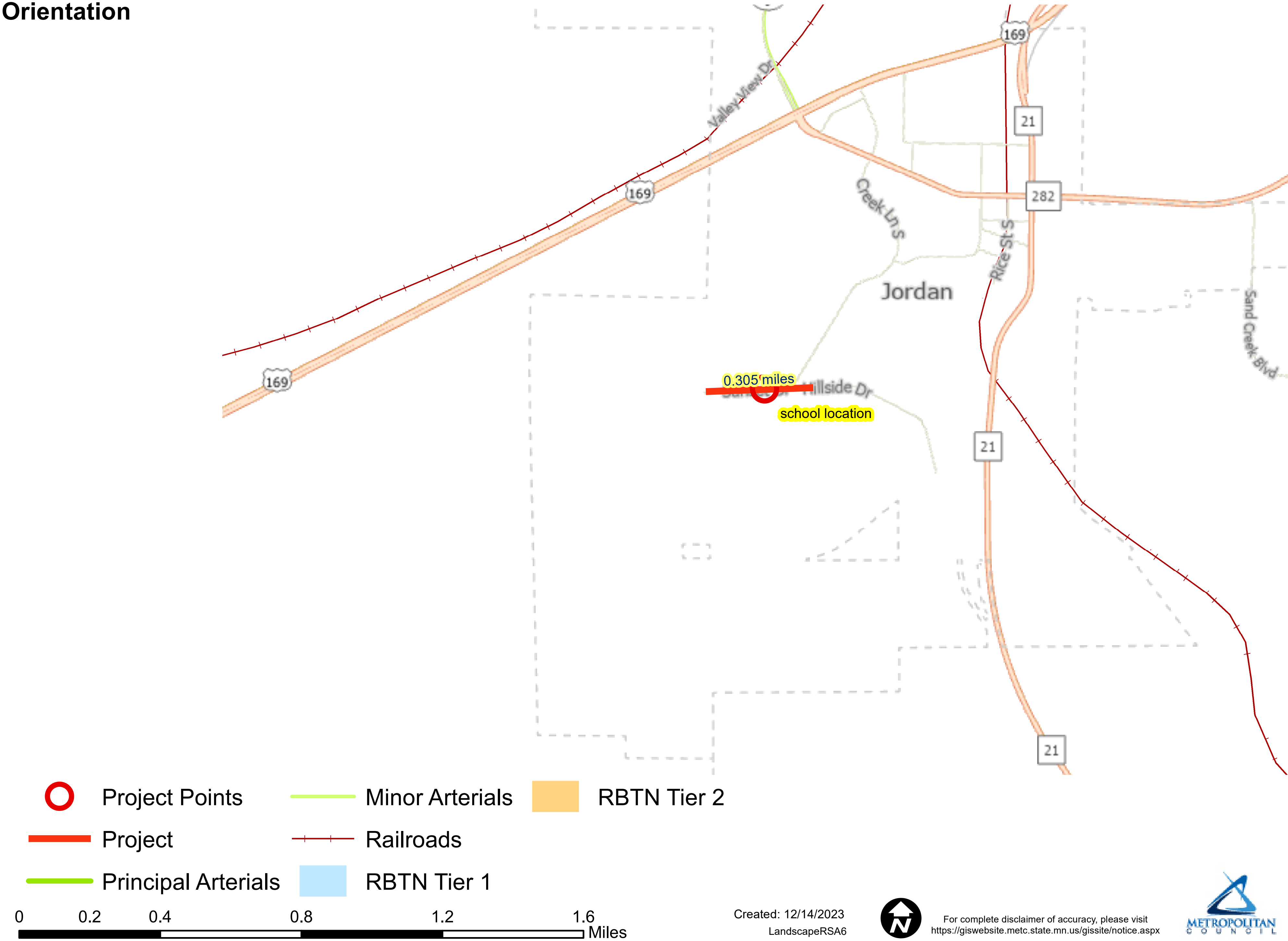
					300	200	
HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR TOTAL Σ (APP. 1 & APP. 3)	MINOR TOTAL APP. 2 + APP. 4	WARRANT MET
0:00 - 1:00	0	0	0	0	0	0	/
1:00 - 2:00	0	0	0	0	0	0	/
2:00 - 3:00	0	0	0	0	0	0	/
3:00 - 4:00	0	0	0	0	0	0	/
4:00 - 5:00	0	0	0	0	0	0	/
5:00 - 6:00	0	0	0	0	0	0	/
6:00 - 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:

Project to RBTN Orientation

Safe Routes to Schools Project: Sunset Drive Improvements | Map ID: 1702567847535



Created: 12/14/2023
LandscapeRSA6

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METROPOLITAN COUNCIL