

VILLAGE OF DOWNERS GROVE
Report for the Village
2/11/2020

SUBJECT:	SUBMITTED BY:
Downers Grove High Schools Pedestrian Safety Study	David Fieldman Village Manager

SYNOPSIS

A motion accepting the Downers Grove High Schools Pedestrian Safety Study has been prepared.

STRATEGIC PLAN ALIGNMENT

The Long Range Plan for 2019-2021 identifies Pedestrian Safety Enhancement Plan near High Schools as a Priority Action Item.

FISCAL IMPACT

The acceptance of the study will not have a fiscal impact. Implementation of the recommended actions in the study will have fiscal impacts which will be quantified when specific actions are implemented.

RECOMMENDATION

Acceptance of the Downers Grove High Schools Pedestrian Safety Study on the February 18, 2020 Consent Agenda.

Upon acceptance of the study, staff will present the study to the Transportation and Parking Commission to prepare recommendations for implementation.

BACKGROUND

On July 7, 2019, the Village Council authorized an Intergovernmental Agreement with Community High School District 99 for the preparation of a study to improve and enhance pedestrian safety at and around North and South High Schools. The Village and District 99 engaged Sam Schwartz Consulting to prepare the study.

The goal of the study is to improve pedestrian safety in the areas surrounding the North and South High Schools campuses. The Village, District 99 and Sam Schwartz engaged with students, parents, residents and stakeholders to understand pedestrian and safety issues.

Prior to start of the 2019-20 school year several pedestrian safety improvements were made near both high schools including:

- Installed temporary message boards encouraging safe driving behaviors in front of both schools
- Installed temporary speed feedback signs on Main Street and 63rd Street
- Produced a pedestrian safety education and awareness campaign at both schools
- Established a 20 mph school speed zone on Main Street in front of North High School
- Reduced the speed limit on Main Street from Ogden to Lincoln from 30 mph to 25 mph

- Approved the installation of a traffic signal with pedestrian crosswalks at 63rd Street and Springside Avenue

The study includes the several recommendations summarized below.

South High School Recommendations

- Reduce the speed limit and install speed feedback signs on Main Street south of 63rd Street and on 63rd Street from Dunham to Springside
- Install a traffic signal with pedestrian crosswalks at the intersection of Main Street and Oxford Street
- Modify the geometry and traffic signal phasing at the intersection of 63rd Street and Dunham
- Install fencing and streetscape enhancements along the 63rd Street frontage of the school property
- Construct a vehicle access driveway on the north side of the school
- Install a sidewalk on Dunham north of 63rd Street to improve the pedestrian connection to the church parking lot used by students
- Construct a drop-off drive on the east side of the school
- Consolidate existing multiple driveways along the east and south sides of the school
- Construct curb extensions and reduce the number of vehicle lanes at the intersection of Dunham and Norfolk

North High School Recommendations

- Convert Main Street from four travel lanes (two lanes in each direction) to three lanes (one lane in each direction and a center turn lane from Sherman Street to Franklin Street
- Construct pedestrian refuge islands and crosswalks on Main Street from Sherman Street to Lincoln Street
- Enhance street lighting on Main Street
- Install a southbound left turn lane on Main Street at Grant Street
- Construct curb extensions at the intersection of Main and Grant
- Paint the intersection/pedestrian crosswalk at Main and Grant
- Install covered bike parking and bus shelters near the intersection of Main and Grant
- Modify the traffic signal equipment and timing at the intersection of Main and Prairie
- Construct traffic calming elements on Highland Avenue from Grant to Lincoln
- Complete the sidewalk network on Saratoga from Ogden to Grant
- Construct a raised intersection at Sherman and Prince
- Mark high visibility crosswalks on Saratoga
- Modify the pedestrian signal phasing at the Saratoga and Ogden
- Construct sidewalks on the south side of Ogden Avenue
- Implement a No Turn on Red restriction at Main and Ogden

Implementation of any of the recommendations is likely to be reflected beginning with the FY21 budget. This schedule provides the time required to identify and prioritize the recommendations to be implemented and to design improvements. The Traffic and Parking Commission will participate in the implementation process.

ATTACHMENTS

Downers Grove High Schools Pedestrian Safety Study

Sam Schwartz
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Chicago, IL 60606
773-305-0800

**Sam
Schwartz**

Memorandum

To: Village of Downers Grove, Community High School District 99
From: Sam Schwartz Consulting
Date: February 10th, 2020
Re: High School Pedestrian Safety Study

EXECUTIVE SUMMARY

Sam Schwartz Consulting, LLC was retained by the Village of Downers Grove (Village) and Community High School District 99 (District) to conduct a safety study at Downers Grove North and Downers Grove South High Schools aimed at identifying and evaluating various alternatives and combinations of improvements to pedestrian and traffic safety. Initial enhancements were identified immediately and installed to coincide with the start of school in August 2019, including speed limit modifications, speed feedback signage, digital message boards, and a safety information campaign.

Goals and objectives were established to steer the direction of the project overall and the criteria by which potential recommendations were evaluated. The project was fueled by community input and steered by a Task Force made up of Village and District staff. The District hosted the first of two safety forums in September 2019 which was open to Downers Grove students, families, staff, and community members. An interactive online map was also available during that time and allowed respondents to comment on existing safety concerns surrounding the high schools. Comments from the event and the map were recorded, reviewed and grouped geographically with a key takeaway identified for each location. Best practice multimodal street design and traffic engineering analysis were used in the development of alternatives and recommendations, which were presented to the community for feedback at the second safety forum held in November 2019, as well as online. Input and refinement of the alternatives was followed by selection of preferred recommendations by the Task Force, as presented in the table.

GOALS

1. Improve pedestrian safety in the areas surrounding DGN and DGS campuses,
2. Engage with students, parents, residents and concerned stakeholders to understand specific pedestrian and traffic safety issues, and
3. Provide a platform for exchanging information about infrastructure between the Village, District 99, and the community.

DGN RECOMMENDATIONS

Main Street: Sherman Street to Lincoln Street

- Convert Main Street to three travel lanes
- Construct pedestrian refuge islands on Main Street and mark crosswalks
- School zone speed limit with speed feedback
- Enhance street lighting

Main Street: At Grant Street

- Construct curb extensions
- Stripe southbound left-turn lane
- Paint intersection/crosswalks
- Install covered bike parking and bus shelters

Main Street: Prairie Street to Downtown

- Stripe center turn lanes
- Modify traffic signal equipment and timings

Highland Avenue: Grant Street to Lincoln Street

- Install traffic calming elements

Saratoga Avenue: Ogden Avenue to Grant Street

- Complete sidewalk network
- Construct raised intersection at Sherman Street/Prince Street intersection
- Mark high visibility crosswalks

Ogden Avenue: Main Street to Saratoga Avenue (IDOT)

- Work with IDOT to:
 - Modify pedestrian signal phasing (LPI) at Saratoga Avenue intersection
 - Construct sidewalk on Ogden Avenue
 - Implement No Turn On Red restriction at Main Street intersection

DGS RECOMMENDATIONS

Main Street: Norfolk Street to Oxford Street (DuPage County)

- Work with DuPage County to:
 - Reduce posted speed limit and install speed feedback
 - Study and install a traffic signal at Main Street/Oxford Street
 - Relocate crosswalk to signalized intersection at Oxford Street

63rd Street: Dunham Road to Springside Avenue (DuPage County)

- Work with DuPage County to:
 - Reduce posted speed limit and install speed feedback
 - Install traffic signal at Springside Avenue intersection
 - Modify geometry and signal phasing (LPI) at Dunham Road intersection
- Install fencing and streetscape enhancements
- Construct new school access driveway
- Construct sidewalk at gap on Dunham Road

Dunham Road: 63rd Street to Norfolk Street

- Construct new school drop-off driveway
- Consolidate other redundant school driveways
- Construct curb extensions/reduce lanes Dunham Road/Norfolk Street

COMPLETED/IN-PROGRESS SAFETY ENHANCEMENTS

- Safety Education Campaign at both schools
- Main Street speed limit reduced to 25 mph from Ogden Avenue to south of DGN
- School Zone 20 mph established in front of DGN on Main Street
- Temporary Digital Message Boards
- Speed Feedback Signs
- Traffic signal and crosswalk at 63rd Street and Springside Avenue approved for installation

BACKGROUND

Sam Schwartz Consulting LLC, (Sam Schwartz) was retained by the Village of Downers Grove (Village) and Community High School District 99 (District) to conduct a pedestrian and traffic safety study at Downers Grove North (DGN) and Downers Grove South (DGS) High Schools, including identifying and evaluating various alternatives and combinations of improvements.

The purpose of this memorandum is to present the recommendations, as well as a summary of the process and methodology that led to final recommendations. The recommendations were shaped by an alternatives analysis which considered traffic and pedestrian patterns, community input, and the study's goal and objectives. Supplemental information, including presentations and other memoranda, are included in the Appendix. The memorandum is organized as followed:

- Goals & Objectives
- Task Force & Community Engagement
- Best Practices
- Initial Installation
- Alternatives Analysis
- Recommendations

GOALS & OBJECTIVES

Primary goals were established to steer the direction of the project and the criteria by which potential recommendations were evaluated:

1. Improve pedestrian safety in the areas surrounding DGN and DGS campuses.
2. Engage with students, parents, residents and concerned stakeholders to understand specific pedestrian and traffic safety issues.
3. Provide a platform for exchanging information about infrastructure between the Village, District 99, and the community.

Several objectives were also developed to provide safe pedestrian crossing locations for students, slow vehicular traffic speeds, and maximize the predictability and orderliness of traffic and pedestrian movements.

TASK FORCE & COMMUNITY ENGAGEMENT

SCHOOL BOARD & VILLAGE TASK FORCE

The project Task Force was made up of Village and District staff. The Task Force provided oversight and direction for key milestones throughout the project and formed consensus on critical decisions to advance the project to the next stage. Additionally, the Task Force organized, publicized, and staffed community Safety Forums.

DUPAGE COUNTY COLLABORATION

DuPage County has jurisdiction over some of the roadway segments of interest in this study including 63rd Street, Main Street in the vicinity of Norfolk and Oxford Streets, and Main Street north of Ogden Avenue. The Village, the District, and Sam Schwartz met with officials from the DuPage County Division of Transportation to discuss issues, opportunities, and community input along these roadways and at intersections, and the Village will continue to coordinate with the County for approvals as improvements are designed.

SAFETY FORUMS

Sam Schwartz, along with the District and Village, conducted two safety forums open to Downers Grove students, families, staff, and community members. The first forum was held on September 5th, 2019, and was held at two locations: DGN and DGS. The forums covered an overview of the initial steps taken to improve safety, potential opportunities at each school, and collected feedback through a series of activities. The District created a video about the initial traffic safety changes surrounding the high schools and next steps. Following the presentation, attendees participated in a series of activities. Following the safety forum, all activities were replicated with the DGS and DGN students during school hours.

The second safety forum was held November 14th, 2019 at DGN. Community feedback from the interactive map along with corridor recommendations were presented. The forum provided activities for attendees to add comments on corridor recommendations. The presentation was posted online and available for feedback.

See the Appendix for forum presentations and activities.

FIGURE 1. SAFETY FORUM 09/05/19 - COMMUNITY IN ACTION



Images provided by Village of Downers Grove

ONLINE INTERACTIVE MAP

Sam Schwartz developed an interactive map using Wikimapping which was available through the District and Village websites. The interactive map allowed respondents to comment on an opportunity or existing barrier surrounding the high schools. Respondents were able to agree/disagree with other comments. A total of 463 comments were entered, with many congregating around specific locations.

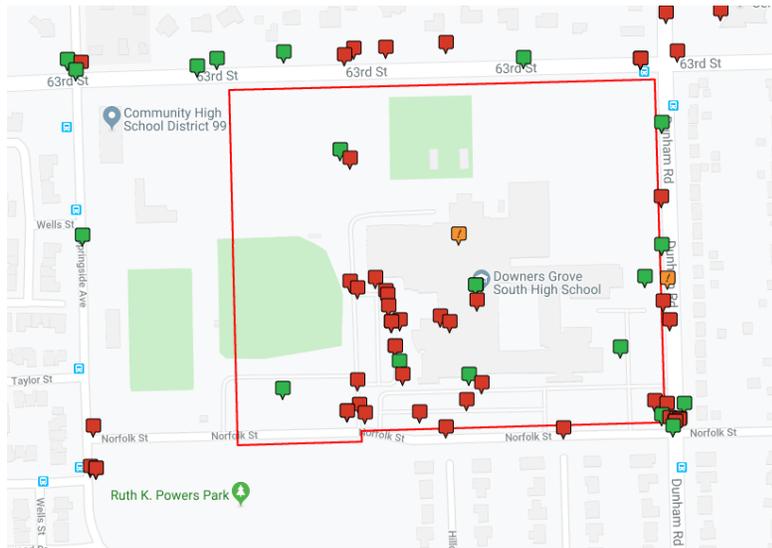


FIGURE 2. DGN COMMENTS

295 comments in the vicinity of DGN were entered. Many comments centered around the intersection of Main Street and Grant Street and the DGN parking lot east of the main entrance.

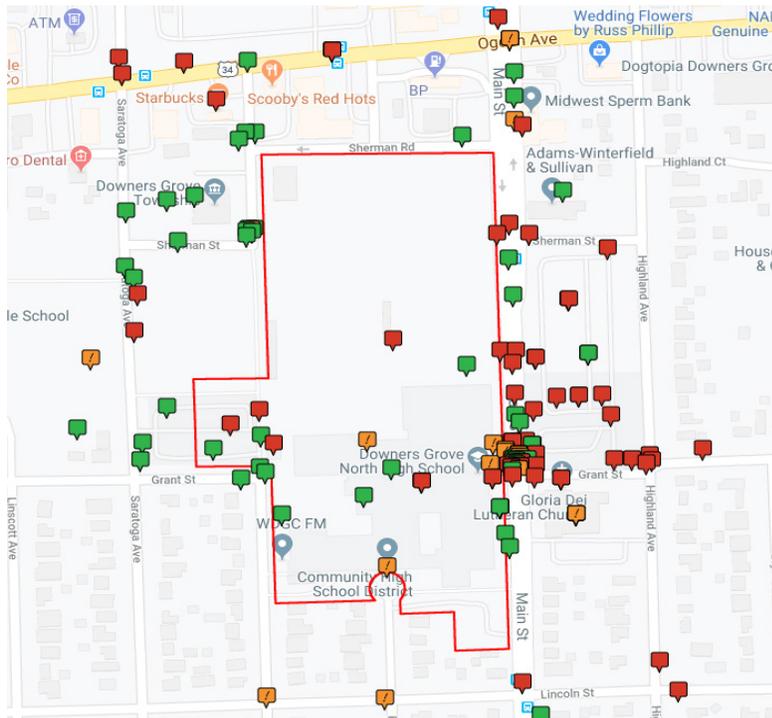


FIGURE 3. DGS COMMENTS

168 comments were entered in the vicinity of DGS. Several of the comments pertained to the DGS parking lot, Main Street and Norfolk Street, and 63rd Street and Springside Avenue.

Screenshots of Downers Grove HS Safety Study interactive map on Wikimapping

INITIAL SAFETY IMPROVEMENTS

Upon beginning the study, Sam Schwartz led the Task Force through a discussion of enhancements that could be implemented immediately, before the start of the school year. Several strategies were identified at each school, in addition to a traffic signal which had previously been identified to improve crossings at 63rd Street and Springside Avenue at DGS.

IMMEDIATE DGN CHANGES:

- Main Street speed limit reduced to 25 mph from Ogden Avenue to south of DGN
- School Zone 20 mph established in front of DGN on Main Street
- Safety Education Campaign
- Digital Message Boards
- Speed Feedback Signs

IMMEDIATE DGS CHANGES:

- Traffic signal and crosswalk at 63rd Street and Springside Avenue approved for installation
- Safety Education Campaign
- Digital Message Boards
- Speed Feedback Signs

FIGURES 4 & 5. DIGITAL MESSAGE BOARD AND SPEED FEEDBACK



Images provided by Village of Downers Grove

BEST PRACTICES

Streets play an omnipresent role in our daily lives. Not only do students use streets to get to school, we all use them to commute to work, to access healthcare and other critical destinations, and as spaces to interact with our neighbors and community. At their most basic level, streets need to be passable for everyone — people walking, biking, driving, and accessing transit. The following Best Practices provides descriptions on the many street design tools that were used in the development of final alternatives and recommendations.

THREE LANE CONVERSION

A four-to-three lane conversion reduces space allocated to motor vehicles on a street by eliminating a travel lane. Benefits include: a reduction in crashes, fewer lanes for people walking to cross, simplifies left turns, fewer conflicts due to lane switching, and provides space for bus stops, curb extensions, or other uses.

FIGURE 6.



CURB EXTENSION

A curb extension, or bump-out, is an area of sidewalk that is widened into the street right-of-way to reduce crossing distances, slow turning vehicles, and improve pedestrian visibility.

FIGURE 7.



PAINTED INTERSECTION

A painted intersection brings attention to the intersection while encouraging slow traffic and community identity. It also offers an opportunity for community place-making.

FIGURE 8.



RAISED INTERSECTION

Raised intersections create a safe, slow-speed crossing. They reinforce slow speeds and encourage motorists to yield to pedestrians at the crosswalk.

FIGURE 9.



Images sources: Three Lane Conversion [Car Free America], Curb Extension [Wikimedia Commons], Painted Intersection [City of Fort Lauderdale], Raised Intersection [NJ Bicycle and Pedestrian Resource Center]

PAINTED MEDIAN/TURN LANE

A painted median separates opposing travel lanes. Painted medians can be intermixed with left-turn lanes. During a three lane conversion, painted medians or turn lanes can be used when reducing the number of lanes.

FIGURE 10.



PEDESTRIAN REFUGE ISLAND

A refuge island is a segment of roadway median that is used as a refuge for pedestrians to cross the road in two phases.

FIGURE 11.



MID-BLOCK CROSSWALK

Mid-block crossings are often installed in areas with heavy pedestrian traffic to provide more frequent crossing opportunities.

FIGURE 12.



CROSSWALK

Crosswalks are used to clearly identify where pedestrians should cross the road. Crosswalks are differentiated from other areas of the roadway by a change in the surface to designate the pedestrian right-of-way.

FIGURE 13.



SIDEWALK

Sidewalks should be installed to provide a complete pedestrian network. Sidewalks provide safe and accessible pedestrian circulation throughout the town. Proper sidewalk widths vary depending on the roadway type, usage, location, and land use, among other factors.

FIGURE 14.



Images sources: Painted Median [Arguello Anza/ SFMTA], Pedestrian Refuge Island [Bike Walk Lincoln Park], Mid-Block Crosswalk [Bike Walk Lincoln Park], Crosswalk [Sam Schwartz Consulting], Sidewalk [Sam Schwartz Consulting]

CHICANE

Chicanes are modifications made to the curb line and lanes intended to slow vehicular traffic. They are useful tools for deterring speeding and cut-through traffic, particularly on local residential streets.

FIGURE 15.



SCHOOL ZONE & SPEED LIMIT

School speed limit signs alert people driving that they are entering a school zone and they need to slow down for school children. In Illinois, the school zone speed limit is 20 mph on school days when children are present.

FIGURE 16.



SIGNAL TIMING

Signal timing such as leading pedestrian intervals (LPI) and protected turning phases are used to give pedestrians priority at intersections and temporarily separate pedestrian and vehicles at crossings. Pedestrian crossing speeds should also be considered when retiming traffic signals. Leading pedestrian intervals give pedestrians a 3 to 7 second head start to enter the intersection before vehicles.

FIGURE 17.



NO TURN ON RED RESTRICTIONS

No Turn on Red restrictions reduce the opportunity for conflict between people walking and driving. Restrictions may be illuminated when pedestrians are present.

FIGURE 18.



SIGNALIZED INTERSECTION

A signalized intersection will indicate motor vehicles to stop and allow pedestrians to cross Main Street. This will need to be based on an engineering study.

FIGURE 19.



Images sources: Chicane [LA DOT Bike Blog], School Zone [Michael Tercha/ Chicago Tribune], Signal Timing [NY Post], NTO Restrictions [Honolulu Civil Beat], Signalized Intersection [Federal Highway Administration]

SPEED FEEDBACK

Speed Feedback Signs (SFS) can be an effective method for reducing speeds at a specific location. However, SFS have limited effectiveness at reducing speeds downstream from the sign.

FIGURE 20.



STREETSCAPE

Streetscape elements may include planters, bicycle racks, landscaping, street lighting, paving, or decorative fencing. Decorative fencing along a sidewalk may help guide pedestrians and give a sense of place.

FIGURE 21.



IMPROVED STREET LIGHTING

Lighting is a key element of the visual environment that allows pedestrians to move about safely and feel more secure. Well-lit sidewalks and roadways allow drivers to see pedestrians entering the roadway and allow pedestrians to avoid tripping hazards or other sidewalk elements.

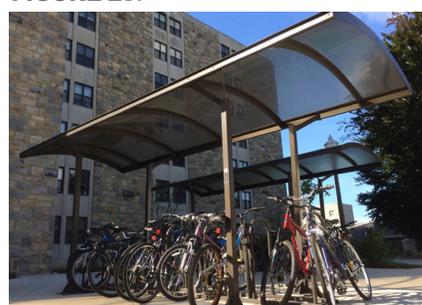
FIGURE 22.



HIGH CAPACITY BIKE PARKING

High capacity bike parking provides a large number of spaces for people to park bicycles. A covered area provides some protection from the weather.

FIGURE 23.



BUS SHELTER

Transit shelters are located in the streets' furniture zone and provide a protected place for people to sit and wait for the bus.

FIGURE 24.



Images sources: Speed Feedback [Stinson Owl Lite]; Streetscape [USF Oracle], Street Lights [Joe Angeles/ WUSTL Photos], High Capacity Bike Parking [Virginia Tech Daily], Bus Shelter [San Diego Mass Transit System]

ALTERNATIVES ANALYSIS

COMMUNITY FEEDBACK

Prior to the study, the District and Village collected comments and suggestions from the school community about traffic safety conditions and improvements surrounding DGN and DGS. The compiled comments were categorized and presented in the first two safety forums. Attendees indicated their preferred safety enhancements. ‘Painted Intersection’ was the top voted idea. The below table ranks the ideas (with 1 as the most popular) based on attendee and student feedback.

The interactive map was available over two months and allowed people to anonymously comment on locations at and surrounding Downers Grove High Schools. After the interactive map was closed for public comment, responses were categorized by topics and general locations, later to be organized into corridors. Main Street and Grant Street was the most commented location (see Table 3). The most frequent comments related to dangerous crosswalks and speeding.

TABLE 2. COMMUNITY AND TASK-FORCE PROPOSED STREET DESIGN TOOLS

1. Painted Intersection	7. Raised Intersection	13. Curb Bumpouts
2. Speed Hump	8. Painted Crosswalks	14. Right Turn on Red Restrictions
3. Crossing Guards and/or Police Enforcement	9. Bike Parking Canopy	15. Banners
4. Leading Pedestrian Interval	10. In-Street Pedestrian Sign	16. Red Light/ Speed Camera
5. Concrete Planters	11. Rapid Flashing Beacon	17. Flexible Delineators
6. Street Lighting	12. Road Diet	

FIGURE 25. DGN SAFETY FORUM COMPLETED IDEA BOARD

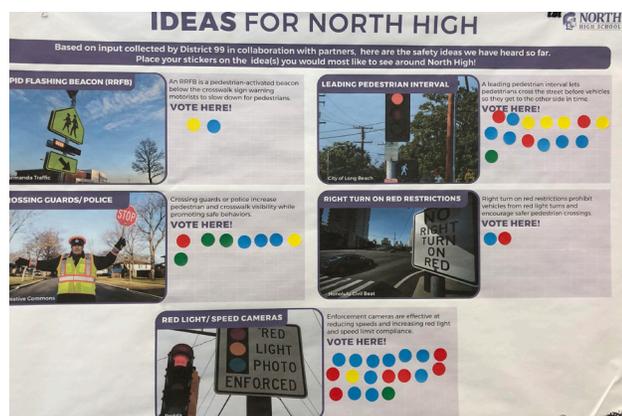


Image provided by Sam Schwartz Consulting

TABLE 3. INTERACTIVE MAP LOCATION FINDINGS

DGN INTERACTIVE MAP COMMENTS	
Top Comments	Takeaway
<p>Main Street Corridor</p> <ol style="list-style-type: none"> 1. Dangerous pedestrian crossing 2. Turning at Main Street and Sherman Street 3. Speeding on Main Street 	<p>Calm traffic and emphasize pedestrian crossing location</p>
<p>Highland Avenue Corridor</p> <ol style="list-style-type: none"> 1. Suggested stop signs 2. Dangerous crosswalks 3. Speeding 	<p>Discourage dangerous driving and walking behaviors</p>
<p>Saratoga Avenue Corridor</p> <ol style="list-style-type: none"> 1. Crosswalk visibility 2. Missing sidewalk 3. Relocate parking 	<p>Better define and maintain pedestrian space</p>
<p>Ogden Avenue Corridor</p> <ol style="list-style-type: none"> 1. Dangerous pedestrian crossing 2. Missing sidewalk 3. Crosswalk visibility 	<p>Improve signalized crossings and reduce vehicle turning conflicts</p>
DGS INTERACTIVE MAP COMMENTS	
Top Comments	Takeaway
<p>63rd Street Corridor</p> <ol style="list-style-type: none"> 1. Speeding 2. Springside traffic signal 3. School zone and speed limit 	<p>Calm traffic and direct pedestrians to signalized crossings</p>
<p>63rd Street at Dunham Road</p> <ol style="list-style-type: none"> 1. Jaywalking 2. Distracted students 3. Turning (left onto Dunham) 	<p>Channelize pedestrians to signalized crossing and reduce turning conflicts</p>
<p>Norfolk Street & DGS Circulation</p> <ol style="list-style-type: none"> 1. Pick-up/drop-off 2. Jaywalking 3. Suggested traffic signal (Norfolk) 	<p>Disperse vehicular circulation, increase pick-up storage, and give pedestrians priority</p>
<p>Main Street & Norfolk Street</p> <ol style="list-style-type: none"> 1. Suggested traffic signal 2. Dangerous pedestrian crossing 3. Speeding 	<p>Speed and crossing distance on Main require that pedestrians should cross at signalized location</p>

ALTERNATIVES OPTIONS

For many of the study area locations, improvements could be determined following industry guidance on Complete Street design. However, Main Street—both in front of DGN and further south at Norfolk Street—required an analysis of alternative improvement options. A summary is provided below; a detailed technical analysis is included in the appendix.

MAIN STREET CORRIDOR.

Main Street from Ogden Avenue to Franklin Street connects DGN and the Village's downtown. The street is under Village jurisdiction in this segment. In order to improve the pedestrian safety of the Main Street corridor, several traffic calming strategies were considered including but not limited to:

- 4 to 3 Lane Conversion
- Grade Separated Crossing at Grant Street
- Raised and/or Painted Intersection at Grant Street

4 to 3 Lane Conversion. A capacity analysis was performed to analyze the corridor's intersections for the weekday peak hours using Synchro 10 capacity analysis software. In comparing the results of the analysis, it was determined a conversion of Main Street (which carries just under 15,000 vehicles per day) to three travel lanes, including one lane in each direction plus a left-turn lane, will not be detrimental to traffic flow on Main Street and may even improve intersection operations where the provision of a new left-turn lane eliminates the interruption of turning traffic in the through lanes. Moreover, 3-lane conversions have significant safety benefits to vehicles and pedestrians. The other alternatives were evaluated and determined to be less beneficial than the conversion or a second layer to further enhance it.

Grade Separated Crossing. A grade-separated pedestrian crossing is only effective at providing a safe crossing for those who use it. A pedestrian bridge in this constrained location would require a ramp up at least 400 feet away from the direct intersection crossing only to ramp down another 400 feet, making the path highly inconvenient and compliance less likely. A separated crossing also does not adequately address the safety at any other crossing location along the corridor where students and community members are crossing.

Raised and/or Painted Intersection. Raised intersections calm traffic by creating a vertical element to the roadway which reinforces slow speeds and encourage motorists to yield to pedestrians in the crosswalk. A painted intersection brings attention to the intersection but without the vertical. The intersection of Main Street with Grant Street is an appropriate location for both of these types of treatments, which are not mutually exclusive.

MAIN STREET AT NORFOLK STREET.

This section of Main Street falls under DuPage County jurisdiction. The road has a 40 MPH speed limit and currently has an uncontrolled crosswalk at Norfolk Street that many community members highlighted as a precarious pedestrian crossing. Many students cross Main Street at this location to travel to/from DGS and Kingsley Elementary School. Several strategies to improve pedestrian safety were considered including:

- Pedestrian Hybrid Beacon
- 4 to 3-Lane Conversion
- Traffic Signal at Oxford Street

Pedestrian Hybrid Beacon. Main Street carries approximately 13,400 vehicles per day based on counts available from the Illinois Department of Transportation. The uncontrolled pedestrian crosswalk on Main Street at Norfolk is approximately 50 feet long. According to the Manual of Uniform Traffic Control Devices, or MUTCD, if at least 20 pedestrians per hour cross under these conditions, a Pedestrian Hybrid Beacon may be appropriate. However, traffic counts provided by DuPage County show well under 20 pedestrians cross there currently. The signal would also need to be located at least 100 feet from an intersection which would place it immediately adjacent to residential driveways which does not make it a preferred intervention.

4 to 3 Lane Conversion. With an Average Daily Traffic (ADT) under 15,000 vehicles, Main Street may be a strong candidate for a conversion from four travel lanes to three with little impact to intersection capacity, similar to the proposed configuration of Main Street from Sherman Street to Franklin Street. This option was not deemed preferable at this time since the extent of improvements need to be corridor-wide and those impacts were not studied. A conversion should be considered in the future in coordination with the County and in combination with a roadway resurfacing project.

Traffic Signal at Oxford Street. Per DuPage County standard, the installation of a traditional traffic signal requires the satisfaction of one or more warrants from the MUTCD which generally sets traffic and pedestrian volume thresholds as criteria for signalization. Traffic and pedestrian volumes on Norfolk Street do not meet traffic signal warrants at Main Street. Volumes on Oxford Street at Main Street were not readily available so a warrant analysis was not conducted. However, observations indicate that traffic volumes at Oxford Street are higher and would, thus, be more likely to meet volume warrants than traffic on Norfolk Street. Signalization of Main Street at Oxford is preferred from the County's perspective for that reason, as well as the higher benefit it would afford the overall street network.

RECOMMENDATIONS

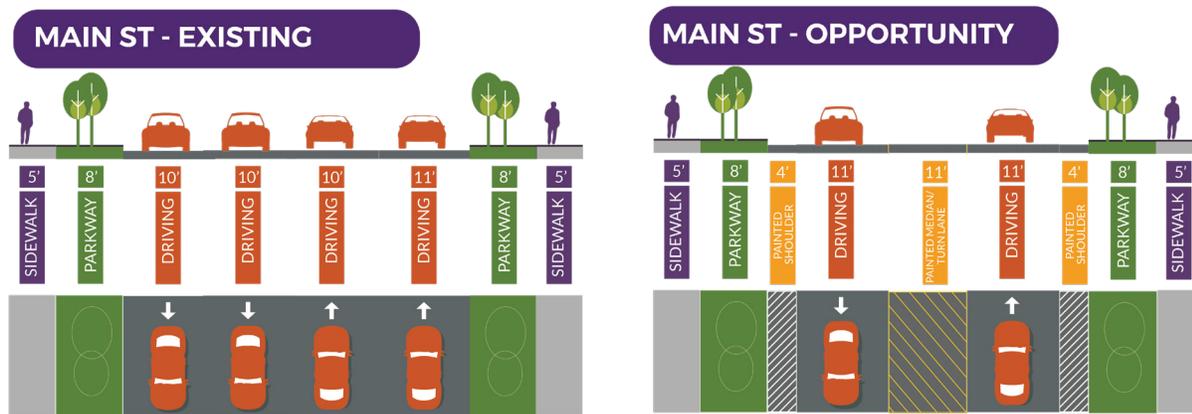
After careful evaluation and discussion, the following recommendations were made for the corridors surrounding DGN and DGS. The recommendations apply the Best Practices street design tools and are tailored to each corridor. For each school, the corridors are organized in order of priority.

NORTH HIGH

MAIN STREET: SHERMAN STREET TO FRANKLIN STREET.

Main Street has four travel lanes until Franklin Street where it becomes two travel lanes with parallel parking on either side. The conversion will include one travel lane in each direction with a left-turn lane between the travel lanes. In fact, the turn lane improves intersection operations in some cases as it eliminates the interruption of turning traffic in the through lane. Intersections will continue to operate at the same Levels of Service or better under the proposed configuration. A conversion should happen in conjunction with road resurfacing. The technical analysis results suggest a conversion of Main Street to three travel lanes from Sherman Street to Franklin Street will not be detrimental to traffic flow.

FIGURE 26. 4 TO 3 LANE CONVERSION



RECOMMENDATIONS

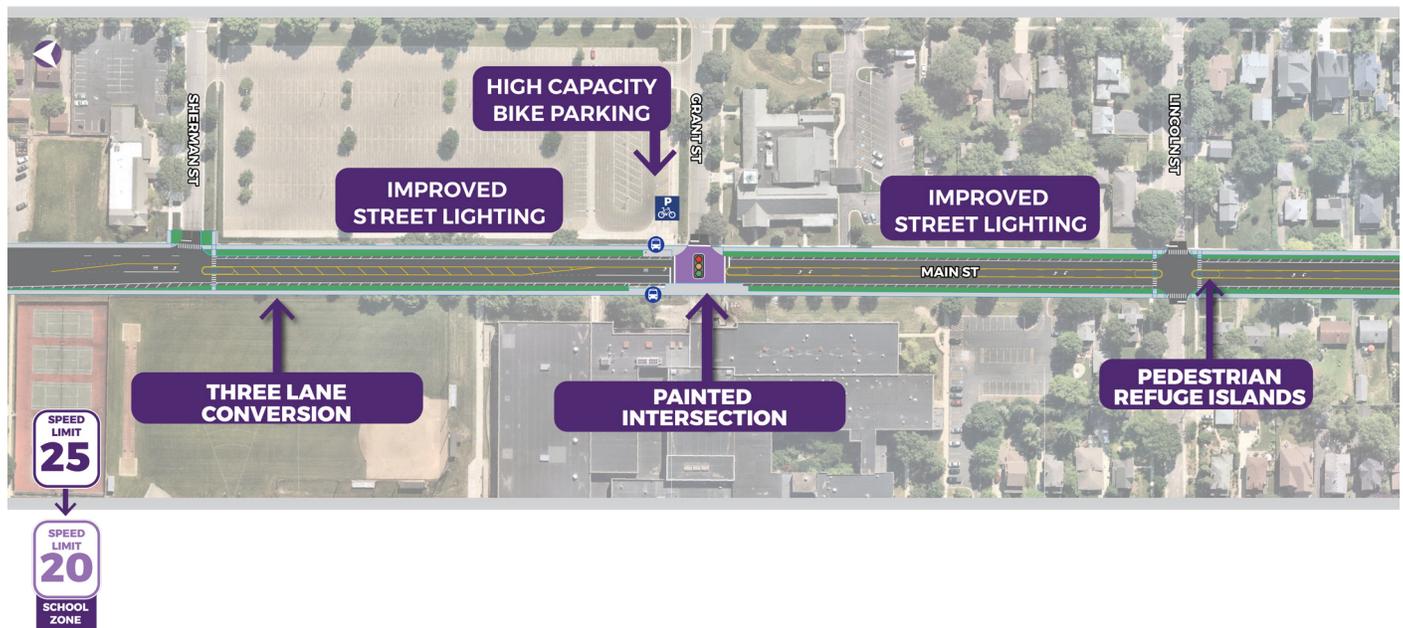
- Three-lane conversion with a single travel lane in each direction and a center turn lane

Main Street is an important thoroughfare connecting DGN to the Downtown. In order to capture the various needs of Main Street, the following recommendations are organized into the following categories from north to south:

- Main Street - Sherman Street to Lincoln Street
- Main Street - At Grant Street
- Main Street - Prairie Avenue to Downtown

MAIN STREET: SHERMAN STREET TO LINCOLN STREET. Main Street between Sherman Street and Lincoln Street is currently four lanes with a recent 25 mph school zone speed limit and signal modification. The four to three lane conversion will help calm traffic and foster a more pedestrian-friendly street.

FIGURE 27. MAIN STREET RECOMMENDATIONS: SHERMAN STREET TO LINCOLN STREET

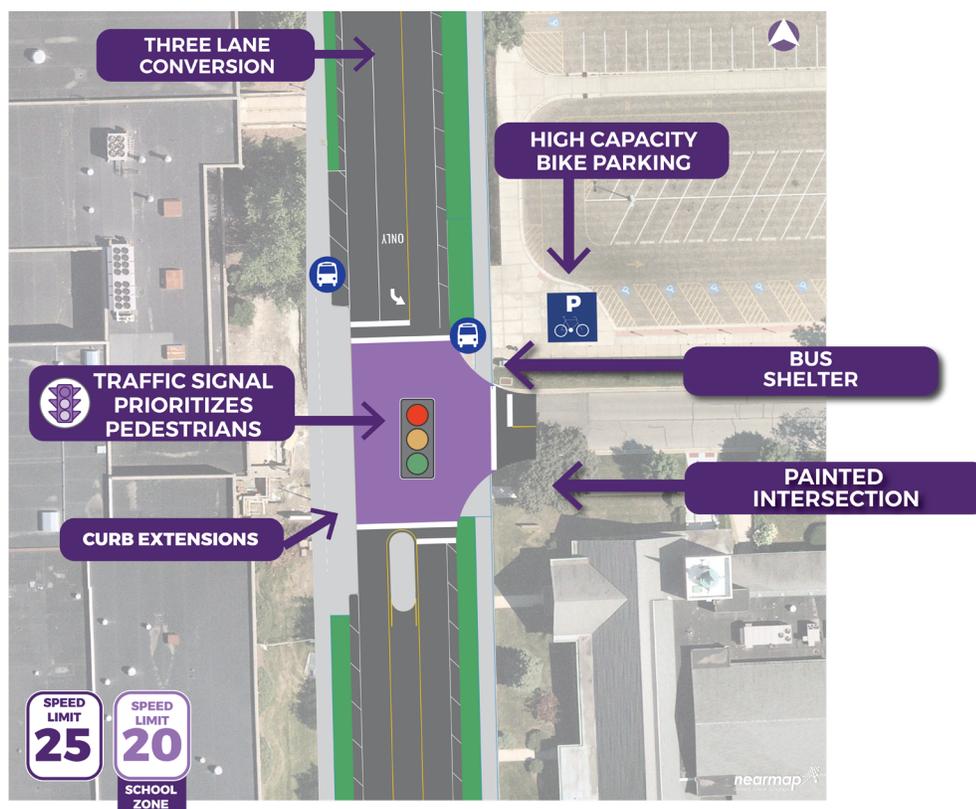


RECOMMENDATIONS

- Three-lane conversion with a single travel lane in each direction and a center turn lane
- Improved street lighting including at the pedestrian scale
- Pedestrian refuge island at Sherman Street, Grant Street and Lincoln Street crosswalks
- School zone speed limit with speed feedback signage

MAIN STREET: AT GRANT STREET. Pedestrian movements at the signalized intersection of Main Street with Grant Street will benefit from slower speeds along Main Street, a shorter crossing distance, and a strong sense of place where pedestrians are prioritized.

FIGURE 28. MAIN STREET AT GRANT STREET RECOMMENDATIONS

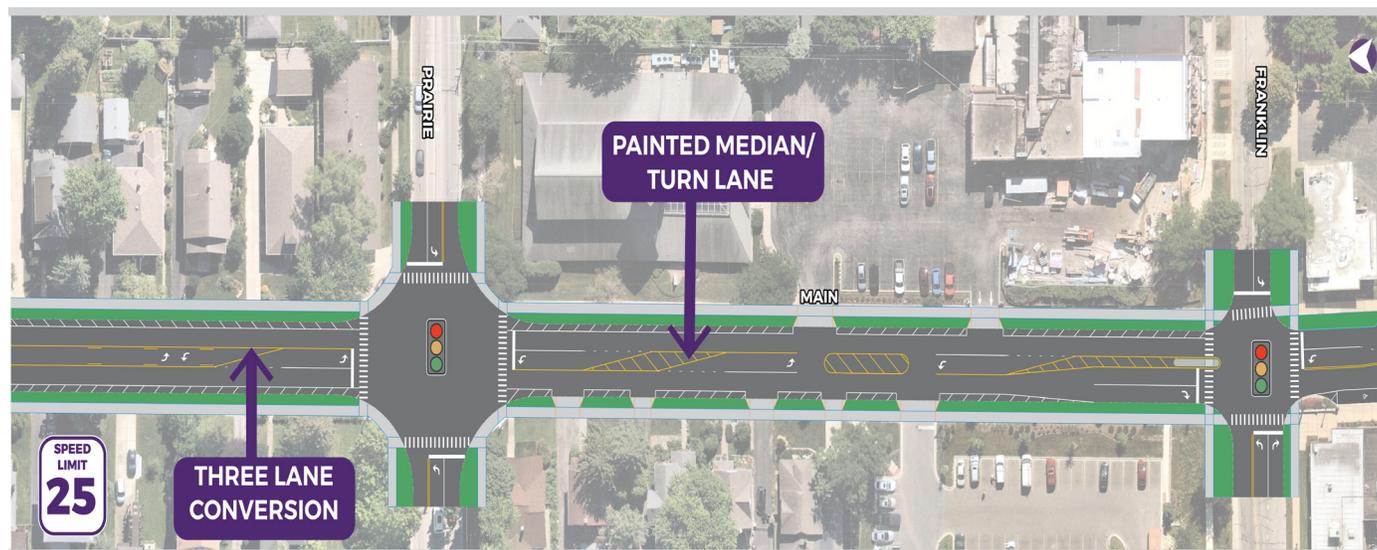


RECOMMENDATIONS

- Three-lane conversion allows for a left-turn lane at Grant Street
- Curb extension on west side of intersection
- High capacity covered bike parking
- Bus shelters
- Painted intersection

MAIN STREET: PRAIRIE STREET TO DOWNTOWN. The four-to-three conversion on Main Street will continue from Sherman Street south to the downtown. This exhibit shows how the conversion will connect to the existing three-lane portion of Main Street in the downtown.

FIGURE 29. MAIN STREET FROM PRAIRIE STREET TO DOWNTOWN RECOMMENDATIONS

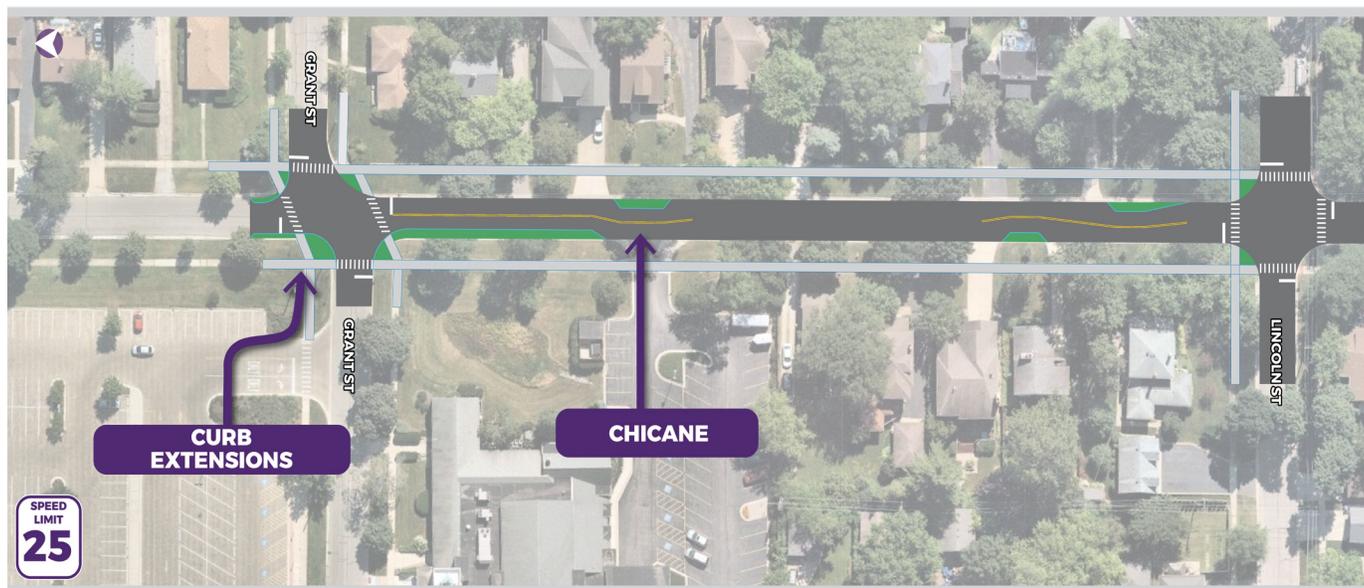


RECOMMENDATIONS

- Three-lane conversion allows for a left-turn lane at Prairie Street and Franklin Street signalized intersections, and at access drives
- Signal phasing and equipment modifications

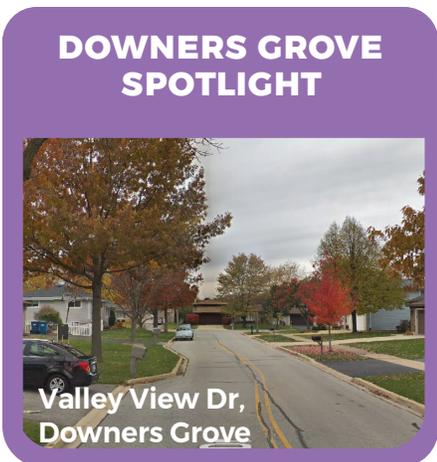
HIGHLAND AVENUE. Highland Avenue sits one block east of Main Street and is used by people traveling from DGN’s parking lot. Traffic calming features are recommended to prevent speeding along the corridor and discourage cut-through traffic from Main Street.

FIGURE 30. HIGHLAND AVENUE RECOMMENDATIONS



- RECOMMENDATIONS**
- Chicane/curb line modifications
 - Curb extensions

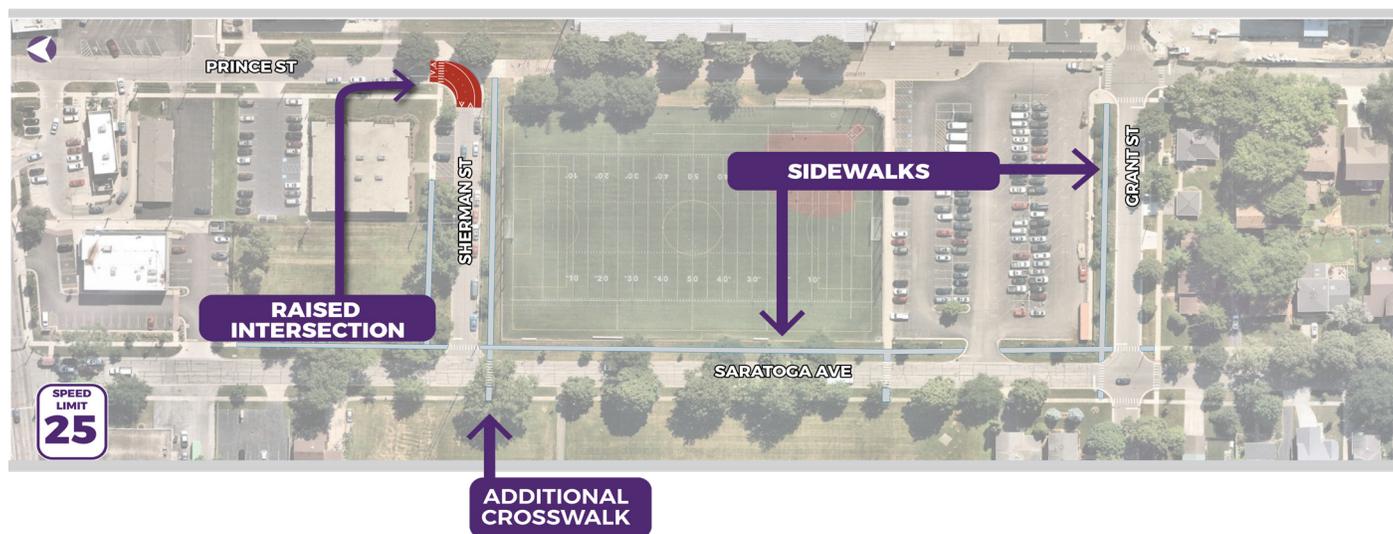
FIGURE 31. VALLEY VIEW DR



Traffic calming improvements, including narrowed lanes and curb extensions have been applied in Downers Grove!

SARATOGA AVENUE. Saratoga Avenue, just west of DGN, is used to access the school's west parking lots and for a lot of pick-up and drop-off activity. To create a more pedestrian friendly environment, it is recommended to add sidewalks along Saratoga Avenue and Grant Street. In addition, it is recommended to create a raised intersection at Prince Street and Sherman Street to help bring attention to the crosswalk. The east side of Saratoga Avenue and the north side of Grant Street do not currently have sidewalks. Sidewalks should be installed to provide a complete pedestrian network.

FIGURE 32. SARATOGA AVENUE RECOMMENDATIONS



RECOMMENDATIONS

- Raised intersection at Prince Street bend
- Sidewalk connections along Saratoga Avenue, Sherman Street and Grant Street
- Additional crosswalk markings and signage

OGDEN AVENUE. Ogden Avenue is a State road north of DGN. Recommendations look to improve signalized crossings and reduce vehicle turning conflicts. Recommendations will require communication and collaboration with the Illinois Department of Transportation as well as property owners.

FIGURE 33. OGDEN AVENUE RECOMMENDATIONS



RECOMMENDATIONS

- Leading Pedestrian Interval (LPI): Work with IDOT to study LPI for pedestrians crossing Ogden Avenue
- Sidewalk connection
- No Turn On Red (NTOR) restrictions

SOUTH HIGH

MAIN STREET: NORFOLK STREET TO OXFORD STREET. The existing crosswalk on Main Street at Norfolk Street is not a safe uncontrolled crossing. To improve safety, it is recommended to relocate the crossing to Oxford Street, where a full traffic signal is also recommended. A traffic signal installation will need to be based on an engineering study.

FIGURE 34. MAIN STREET FROM NORFOLK STREET TO OXFORD STREET RECOMMENDATIONS

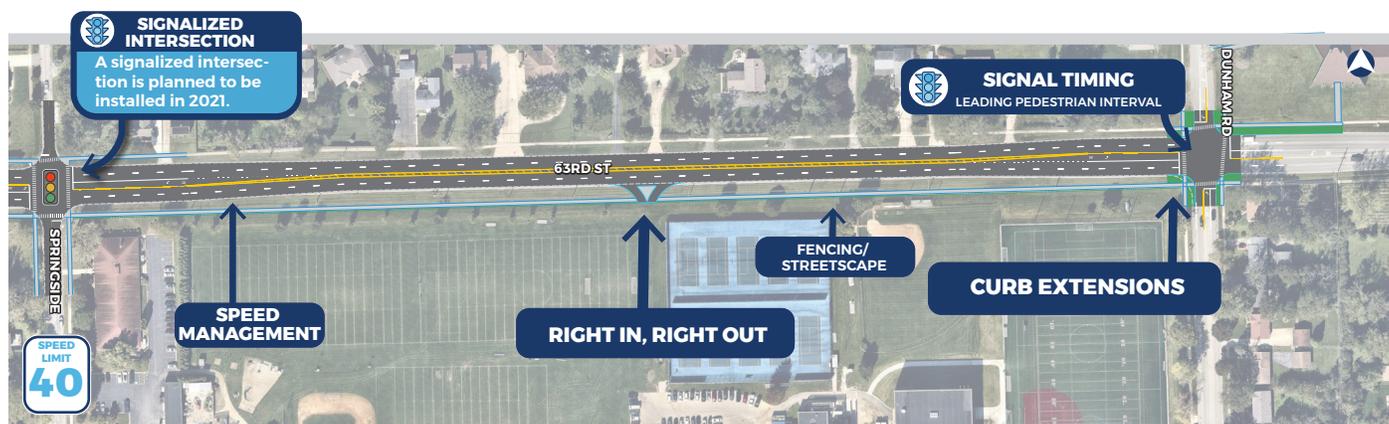


RECOMMENDATIONS

- Work with DuPage County to reduce posted speed and install speed feedback signs
- Crosswalk markings at Oxford Street
- Remove uncontrolled crosswalk markings at Norfolk Street
- Work with DuPage County to study and install a traffic signal at the intersection of Main Street with Oxford Street

63RD STREET. Bordering the high school to the north, 63rd Street is a County arterial with high travel speeds. Students park in the church lot at 63rd Street and Dunham Road. Traffic should be slowed with streetscape elements and speed feedback signage. Pedestrians should be encouraged to cross at signalized locations.

FIGURE 35. 63RD STREET RECOMMENDATIONS

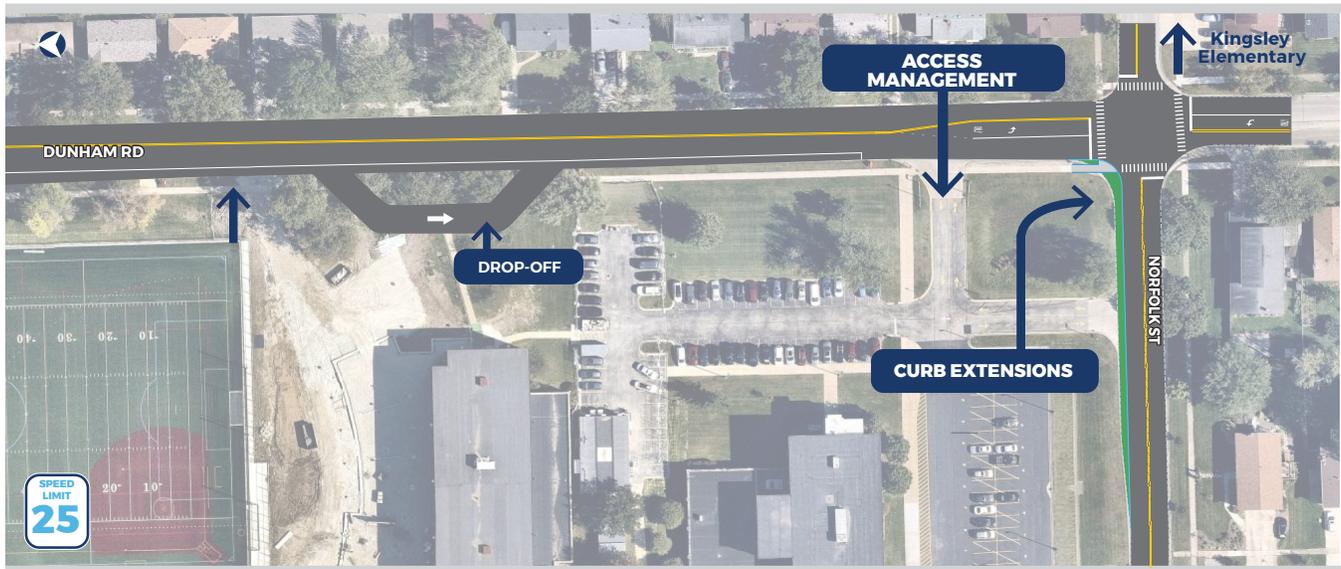


RECOMMENDATIONS

- A traffic signal will be installed at Springside by 2021
- Work with DuPage County to reduce posted speed and install speed feedback signs
- A new driveway on 63rd Street is intended to relieve traffic on Dunham Road and Norfolk Street
- Fencing and streetscape along the south side of 63rd Street
- Curb extensions on Dunham Road
- Leading Pedestrian Interval (LPI): Work with DuPage County to study LPI for pedestrians crossing 63rd Street
- Sidewalk connection to Christian Worship Center Church
- District should consider relocating the existing off-site student parking at the church as campus planning allows

DUNHAM ROAD. Dunham Road extends along the east side of DGS. Drop-off/pick-up activity is disorganized and in conflict with pedestrian crossings. New access locations are proposed to relieve traffic congestion on Dunham Road and Norfolk Street.

FIGURE 36. DUNHAM ROAD RECOMMENDATIONS



RECOMMENDATIONS

- Study a reduction of lanes/curb extensions at the Dunham Road/Norfolk Street intersection as traffic circulation changes
- A new drop-off location is proposed by the District
- Eliminate redundant driveway

The following tables outline a planning-level cost estimate and construction timeline for each corridor. The estimated construction cost and timeline for each corridor are provided using the following categories. A detailed estimate can be found in the Appendix.

TABLE 4. ESTIMATED COST CATEGORIES

\$	Under \$50,000
\$\$	\$50,000 - \$150,000
\$\$\$	\$150,000 - \$500,00
\$\$\$\$	Over \$500,000

TABLE 5. ESTIMATED TIMELINE CATEGORIES

	Less than 1 Year
	1 - 2 Years
	Over 2 Years

TABLE 6. ESTIMATED CONSTRUCTION TIMELINE & COSTS

Corridor	Cost	Timeline	Description
Main St - Ogden to Franklin	\$\$\$\$		Resurfacing, Refuge Islands, Street Lighting, Painted Intersection, Signal Timing, Bump Out, Bike Parking, & Bus Stop Improvements
Highland	\$		Curb Extensions & Pavement Markings
Saratoga	\$\$		Raised Intersections, Crosswalks, & Sidewalks
Ogden	\$		Signal Timing, Signage, Crosswalks, & Sidewalks
Main St - Norfolk to Oxford	\$\$\$		Signalized Intersection, Resurfacing, Restriping, ADA Curb Ramps
63rd	\$\$\$\$		Signal Timing, Curb Extensions, Fencing, & Streetscape
Dunham	\$\$		Drop-Off Lane & Curb Extensions

Appendix A:

Technical Analysis

Appendix B:

Construction Cost & Timeline Estimate

Appendix C:
Safety Forum #1, DGN
September 5th, 2019

Appendix D:
Safety Forum #1, DGS
September 5th, 2019

Appendix E:
Safety Forum #2, DGS
November 14th, 2019