

JUNE 26, 2019 | FINAL
TECHNICAL MEMO #7
(PUBLIC PARTICIPATION)

Mn 220 N Corridor Study

Prepared for:



ALLIANT

1. Stakeholder and Public Involvement

A key part to the completion of the study is the stakeholder and public involvement process, which included the following:

- Steering Review Committee (SRC)
- Public Meetings
- Public Survey
- Project Website
- East Grand Forks City Council

1.1 Steering Review Committee

The SRC consisted of the Grand Forks-East Grand Forks MPO, North Dakota DOT, City of East Grand Forks, Polk County, MnDOT, Northland College, Safe Kids Grand Forks, Valley Truck, Northland College, Triangle Coach Service, and dedicated farmers in proximity to the corridor. Other local area businesses supported the advancement of the Corridor Study by contributing to the distribution of literature and information about the study. The SRC was at the center of the public involvement process and provided review and guiding direction for the study. They were given the opportunity to provide feedback on technical analysis, make recommendations on improvement alternatives, and guide the development of the study recommendations.

The SRC met five times over the course of the study and was an integral part in determining recommendations for the study area. The SRC served as forum to discuss access and mobility challenges experienced by frontage business and agricultural operations. Minutes and presentation materials are provided in **Appendix A**.

- **SRC Meeting 1:** Alliant presented an overview of existing and future conditions along the corridor. The SRC discussed the project goals, challenges, and set a framework for key assumptions in the development of the future improvement alternatives.
- **SRC Meeting 2:** Presented key issues and concerns identified in the traffic operations and analysis and the study purpose and need. The SRC brainstormed potential alternatives to investigate.
- **SRC Meeting 3:** Presented a wide range of improvement alternatives to address the key mobility concerns, bicycle and pedestrian improvements, and traffic control devices that address the key issues. Feedback and direction on key alternatives and alternative ideas was obtained.
- **SRC Meeting 4:** Summarized the alternatives analysis process and presented the highest-ranked alternatives. Discussed implementation plan – how to prioritize improvement projects and the potential funding sources.
- **SRC Meeting 5:** Discussed implementation plan, draft report, and project development process.

1.2 Public Meetings

Two public open houses were held to encourage citizen participation in the study. The goal of the public open houses was to provide a forum that allowed interested citizens the opportunity to:

- Be actively engaged in the planning process;
- Provide comment and express ideas;
- Distribute and present information; and
- Serve as listening sessions for the project team

Comments and feedback received throughout the public meeting process have been incorporated as appropriate throughout the study recommendations. The public open houses were advertised through a press release, neighborhood association meetings, the MPO website, and other venues. The following provides details of each meeting:

- **Public Open House 1:** The existing conditions and deficiencies of the study area were presented, and meeting participants were given the opportunity to provide areas of concerns, outline key issues, and to discuss important priorities for the corridor.
- **Public Open House 2:** Proposed highest ranked and feasible alternatives for intersections, corridor segments, multimodal, identified issues and study objectives were presented and discussed. The pros and cons of each alternative and traffic control device, including the range of construction costs were discussed.

Meeting Minutes from the Public Open House can be found in **Appendix B**.



December 18, 2019 Public Open House

1.3 Public Opinion Survey

Throughout the entire Mn 220 Corridor Study, community outreach was prioritized in an effort to maximize involvement and input from the community and stakeholders. Survey Monkey, an online survey software, was used to develop, collect, and analyze a simple survey questionnaire of 21 questions. The survey was promoted through advertisements, emails, the project website and other venues.

At the conclusion of the survey, 52 responses were obtained. The 52 respondents who completed the survey provided important feedback relating to the current issues, important priorities, and improvements needed along the project corridor. Figure 1 shows how the respondents rated important corridor priorities. The chart displays a weighted average of the respondents' top 3 priorities. The full survey response summary is included in **Appendix C**.

Key conclusions include:

- The top three safety concerns were the following:
 1. Speeding/aggressive driving
 2. Dangerous crossings at intersections
 3. Making left turns on Mn 220
- The top three intersections perceived to be the most unsafe are Mn 220 at 23rd Street, 17th Street and US 2.
- There is a high level of concern in the community around pedestrian crossings. Improving crossings was indicated as the top priority.
- The second highest improvement priority is the installation of improved traffic control devices (public suggests traffic signals).
- A common concern heard through the survey and during the public engagement is the consideration of agricultural and large truck traffic in the corridor alternatives.

Alternatives identified and evaluated within this study will consider input and concerns raised through the public engagement process.

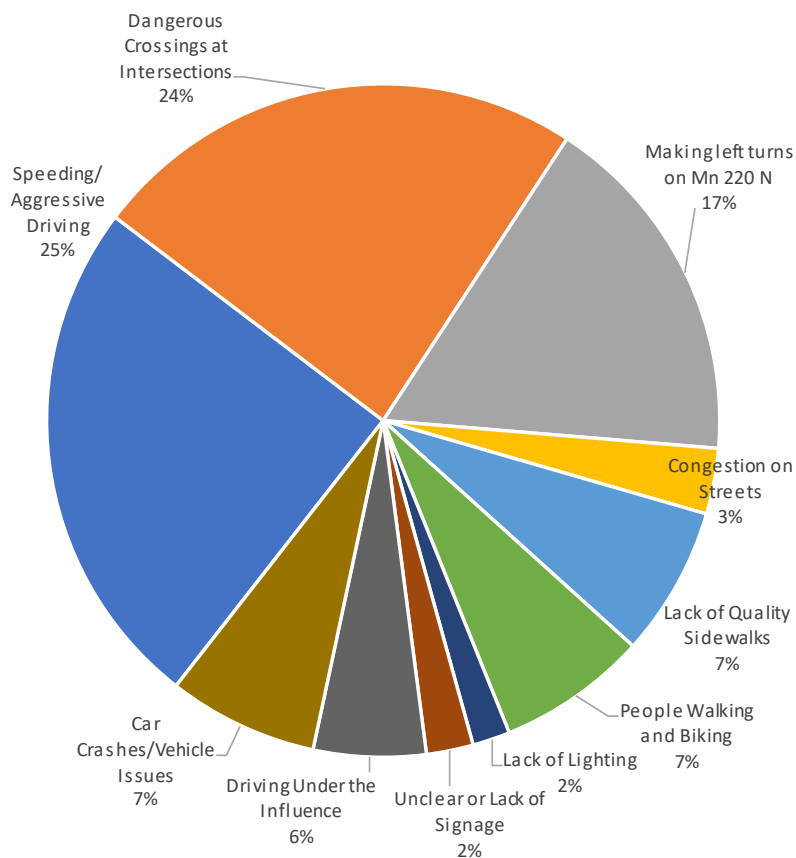


Figure 1. Survey Response Summary – Top Concerns on Mn 220 Corridor

1.4 Project Website

A website was established at the beginning of the project. The URL for the site is <http://www.alliant-inc.com/grandforks/>. The purpose of the website was to provide another way for the general public to be informed about the project status and to disseminate information. All documents prepared for the project and public meetings have been posted to the website.

1.5 East Grand Forks City Council

Two presentations were made to the East Grand Forks City Council at their scheduled work sessions to provide study update. The presentation slides are provided in **Appendix D**.

- **Council Meeting 1:** March 25, 2019 to present the key corridor deficiencies and recommended alternatives.
- **Council Meeting 2:** June 25, 2019 to present the study conclusions and recommended implementation plan.

Technical Memorandum #7

Public Participation Summary

Appendix A:

SRC Meeting Minutes



ALLIANT PROJ. NO. 118-0184.0

SRC MEETING MINUTES

DATE/TIME: Thursday, November 15, 2018; 4:30 p.m.

LOCATION: East Grand Forks City Hall

PROJECT: Mn 220 N Corridor Study

PURPOSE: **Study Review Committee Meeting 1** – Review Existing and Forecast Analysis Conditions

MINUTES BY: Mike Anderson, Alliant Project Manager; (612-767-9340)

1) **Introductions**

See attached sign in sheet for list of meeting attendees

2) **SRC Meetings and Role**

Jairo gave an overview of the SRC role. SRC participants will help guide the study and provide valuable insight and input from their respective agencies.

3) **Study Background and Objectives**

Mike gave an overview of the project study area and study objectives. Meeting presentation slides are attached for reference.

4) **Project Schedule / Study Approach**

Mike gave an overview of the project schedule and study approach. Three phases – issues and need, alternatives and final transportation plan. There will be 5 SRC meeting scheduled at key project milestones. See attached presentation slides for reference.

5) **Website**

Access website at <http://www.theforksmpto.org> or <http://www.alliant-inc.com/grandforks/index.html>

Technical memorandums and other relevant study documents will be posted to the website.

6) **Existing and Future Conditions Analysis**

Mike discussed the existing and future conditions analysis and gave an overview of the key highlights from the technical memorandum 1. The presentation slides containing much of the information discussed and presented is attached for reference. Other key items discussed include:

- The MPO and City of EGF indicated there are no specific land uses within the immediate future identified for the future development growth areas within the study limits. However, the EGF Land Use Plan (Figure 6.2 does identify future land use areas and Figure 7.1 indicates sense of timing or when future land uses changes within the study area may take place.
- EGF indicated there are a few new apartment complexes under construction east of Mn 220 (17th Street NE to 20th Street NE).
- EGF indicated there are likely to be new ballpark along 23rd Street. Figure 6.2 of the EGF Land Use Plan identifies the future park location, along 8th Ave NW, approximately half mile to the west of the corridor.
- Some discussion on EGF schools occurred. It was noted that the existing elementary schools west of 220 are not expected to change. Some time in the future there may be a need for a second area high school. This school would be located on the north eastern portion of EGF.
- It was noted that the shaded area along the west side of Mn 220 (20th Street to 23rd Street NW) may not be accurate, as this area is entirely commercial and the shading was indicated a few new households in this area. **ACTION: Alliant will investigate and revise as appropriate. It should be noted, the 2045 EGF Land Use Plan identifies some parcels as under-developed/under-utilized/ and/or vacant. The Land Use Plan encourages multi-use development/redevelopment in this area. Added housing in this area is being encouraged.**
- **ACTION: MnDOT will provide Alliant with ROW mapping for the segment of 220 north of 23rd Street.**
- MnDOT indicated that the 14th Street signal system is beginning to have infrastructure issues with the underground conduit system It may that this signal is in need of replacement prior to year 2030.
- EGF questioned whether a right in/out access to McDonalds from 220 would be beneficial. Discussion on access spacing and crash rate relative to access density was had.
- It was noted that the forecast ADT for the Mn 220 corridor is well within the capacity limits of the existing roadway characteristics. Excess capacity along the corridor is expected; however, the intersections may have capacity concerns. A change in traffic control device may be warranted in the future.
- The MPO denoted that DeMers may be designated a state highway from US 2 to the River. Discussions between the City and MnDOT are ongoing. A key reason why the 9th Street and 10th Street intersections are included within the study.
- The MPO indicated that an ADA compliance plan was recently completed. **ACTION: MPO to provide Alliant with the ADA compliance results for Mn 220.**

7) SRC Perception on Issues / Objectives

Upon conclusion of the presentation, the SRC had a discussion on key issues and study objectives. Key items noted, include:

- Mn 220/17th Street was noted as one of the most problematic intersections.
 - Many crashes have occurred here
 - There are 2 schools and the bus barn located to the west. From 3:00 p.m. to 3:30 p.m. the eastbound approach to the stop sign can be backed up for several blocks. This is the most difficult time for the intersection.

- There was a SRTS plan developed for the area schools. 14th Street is indicated as the preferred crossing location for school kids. This is due to the traffic signal. However, it was noted that many of the kids would prefer to cross at 17th Street since it is more direct. Improved pedestrian crossing at 17th Street should be a key objective. Can be see here:
https://theforksmmpo.files.wordpress.com/2017/09/newheightsw_text.pdf
- SRC members indicated that a traffic signal at this location should be investigated as a potential alternative.
- Mn 220/23rd Street. The group noted that there are drainage issues at this intersection. Rural street design east of 220 and urban street design to the west. The intersection is very flat and prone to water ponding.
- The MPO requested the ADT volumes be added for the 20th to 23rd Street segment. This is the transition segment and a key objective is to determine the best location for the 4 lane to 3 (or 2) lane transition occur. Currently, the 20th and 23rd Street intersection facilitate high right turning volumes into Northland Technical College. May be best to keep these motorists in the right lane instead of merging them into single lane, then separating them into a turn lane.
- Frontage road accesses were noted as difficult to access or turn off from due to their proximity to Mn 220. Previous studies suggested narrowing them to create more boulevard separation; however, it was noted by the SRC that this would cause difficulty with the truck movements that need to access businesses along the frontage roads.
- Mn 220 does not meet MnDOT access spacing guidelines. MnDOT indicated that the guidelines may not need to be met if there are not safety issues that would be corrected by improving the spacing or restricting the access. Private driveways to Mn 220 may be viewed as acceptable given the characteristics of the corridor and given alternative access or frontage roads north of 23rd Street are likely impractical. MnDOT indicated that any new access to the Mn 220 corridor will need to adhere to the access spacing guidelines.
- DeMers Avenue/9th Street-10th Street NE. It was noted that the spacing of the 9th Street and 10th Street intersections can be problematic at times. The high southbound left turn to 9th Street can cause some friction as it overlaps with 10th Street. In addition, the 2 to 1 lane drop occurs in this block causing some concerns.

8) Next Steps

- a. **Traffic / Safety / Purpose and Need – SRC Meeting 2 (Mid December)**
- b. **Public Meeting 1 (Mid December)**

9) Other Discussion

None

Date:

Project#:

Project Name:

By:

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Mn 220 N Corridor Study

SRC Meeting 1 – Existing Conditions | November 15, 2018

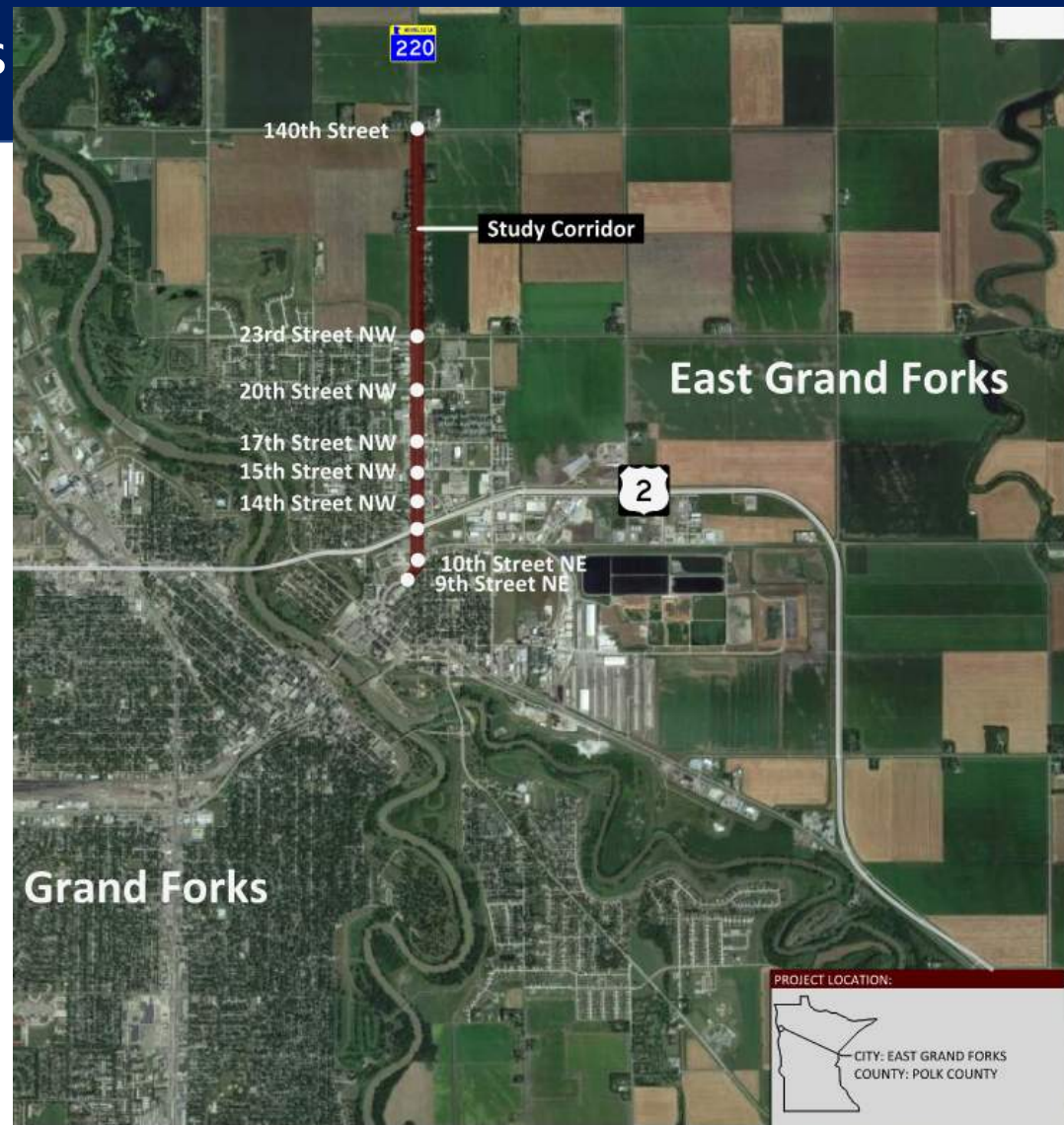


AGENDA

- Introductions
- SRC Meetings and Role
- Study Background and Objectives
- Project Approach / Schedule
- Website
- Existing and Future Conditions Assessment
- SRC Perception on Issues / Objectives
- Next Steps
- Other Discussion

Study Background and Objectives

- Mn 220 - 9th St NE to 140th St SW
- 9 Key Study Intersections



Study Background and Objectives

Project Objectives:

- **Objective 1: Transportation and Land Use** - Improve mobility, access, and safety. Evaluate the current locations of lane drops (at 20th Street and north of 17th Street) and evaluate current plans to extend the four-lane to 23rd Street and to expand to a three-lane segment north of 23rd Street to 140th Street.
- **Objective 2: Access** - Review past study recommendations and develop potential improvements

to access management strategies.

- **Objective 3: Multimodal** - Improve pedestrian crossing opportunities and safety at key locations along the corridor.

Outcome:

- Transportation plan showing recommended infrastructure improvements, capital improvement programming costs, and an implementation plan

PROJECT APPROACH AND SCHEDULE

Three Study Phases

- 1 - Issues and Needs
- 2 - Improvement Alternatives
- 3 - Final Plan

Key Dates

- Phase 1 – Oct – December
- Phase 2 – January to April
- Phase 3 – May to June
- Draft Report: May 22, 2019
- Final Report: June 30, 2019

SRC Meetings

- 1 – Existing Conditions: Nov 15, 2018
- 2 – Issues/Purpose & Need: Dec 10-14, 2018
- 3 – Alternatives: Feb 11-15, 2018
- 4 – Preferred Alternatives: April 1-4, 2018
- 5 – Implementation Plan: May 1-3, 2018

October - December

January - April

May - June



PROJECT WEBSITE

[MN 220 N Corridor Study](#)

<http://www.alliant-inc.com/grandforks/index.html>

EXISTING AND FUTURE CONDITIONS ASSESSMENT

ISSUES AND NEEDS

Review Existing Information

Existing and Future Conditions

- Land Use
- Roadway Characteristics
- Infrastructure Assessment
- Roadway Access
- Multi-modal Assessment
- Environmental Assessment
- Existing and Forecasted Traffic Demand

Traffic and Safety Analysis (No Build)

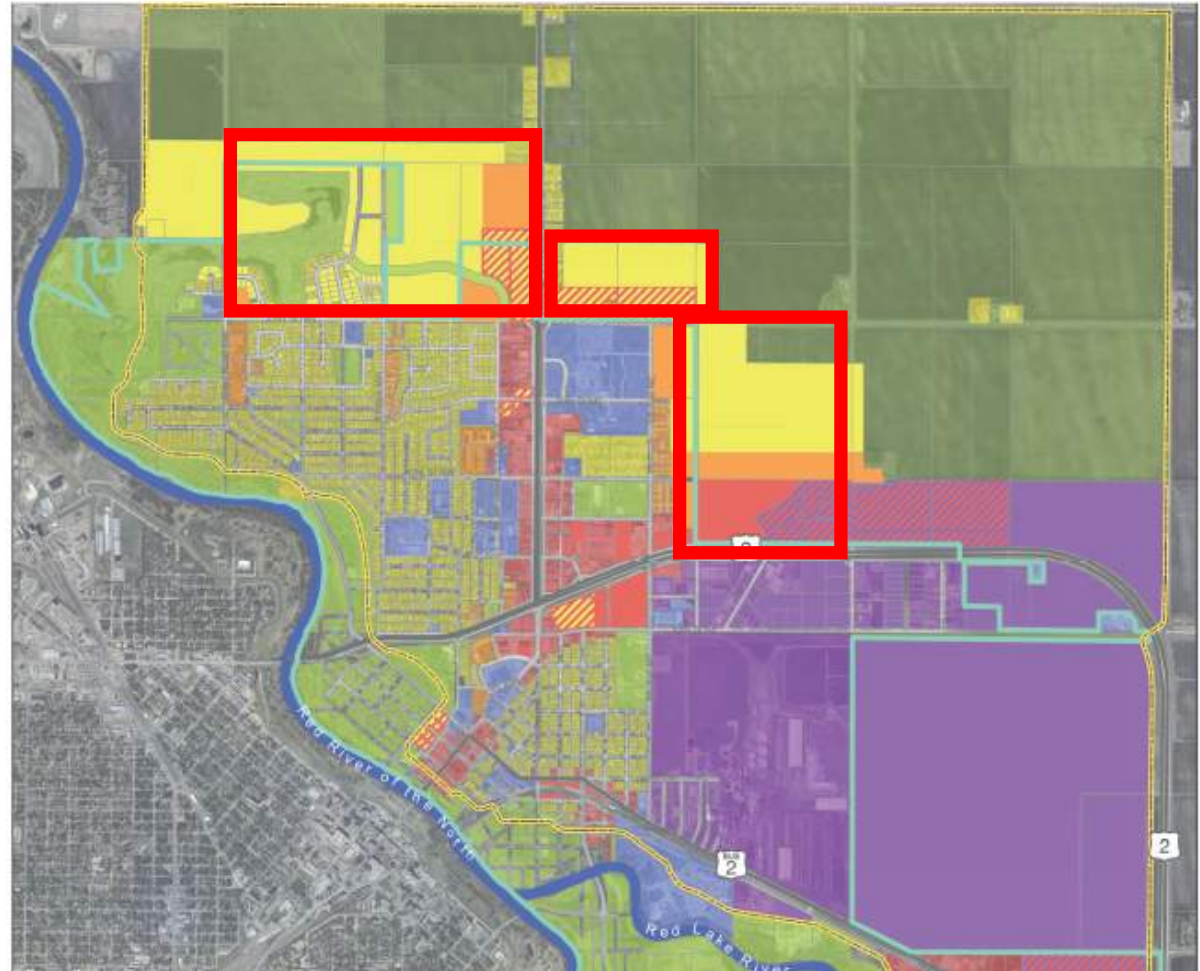
- Safety Analysis
- Traffic Operation Analysis

Purpose and Need

EXISTING AND FUTURE CONDITIONS ASSESSMENT

LAND USE

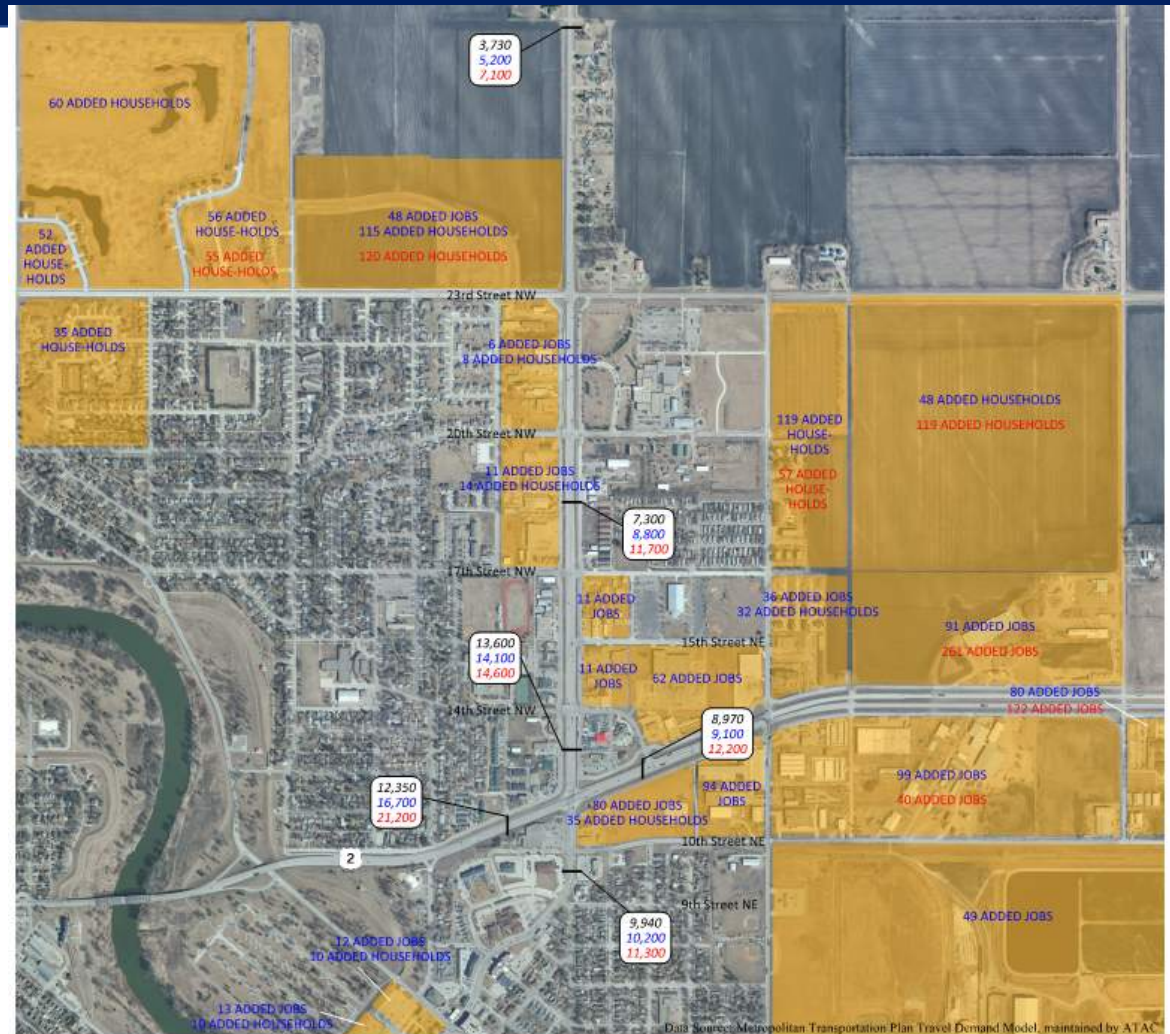
- 2045 EGF Land Use Map
- Residential and Commercial Growth Areas



EXISTING AND FUTURE CONDITIONS ASSESSMENT

LAND USE

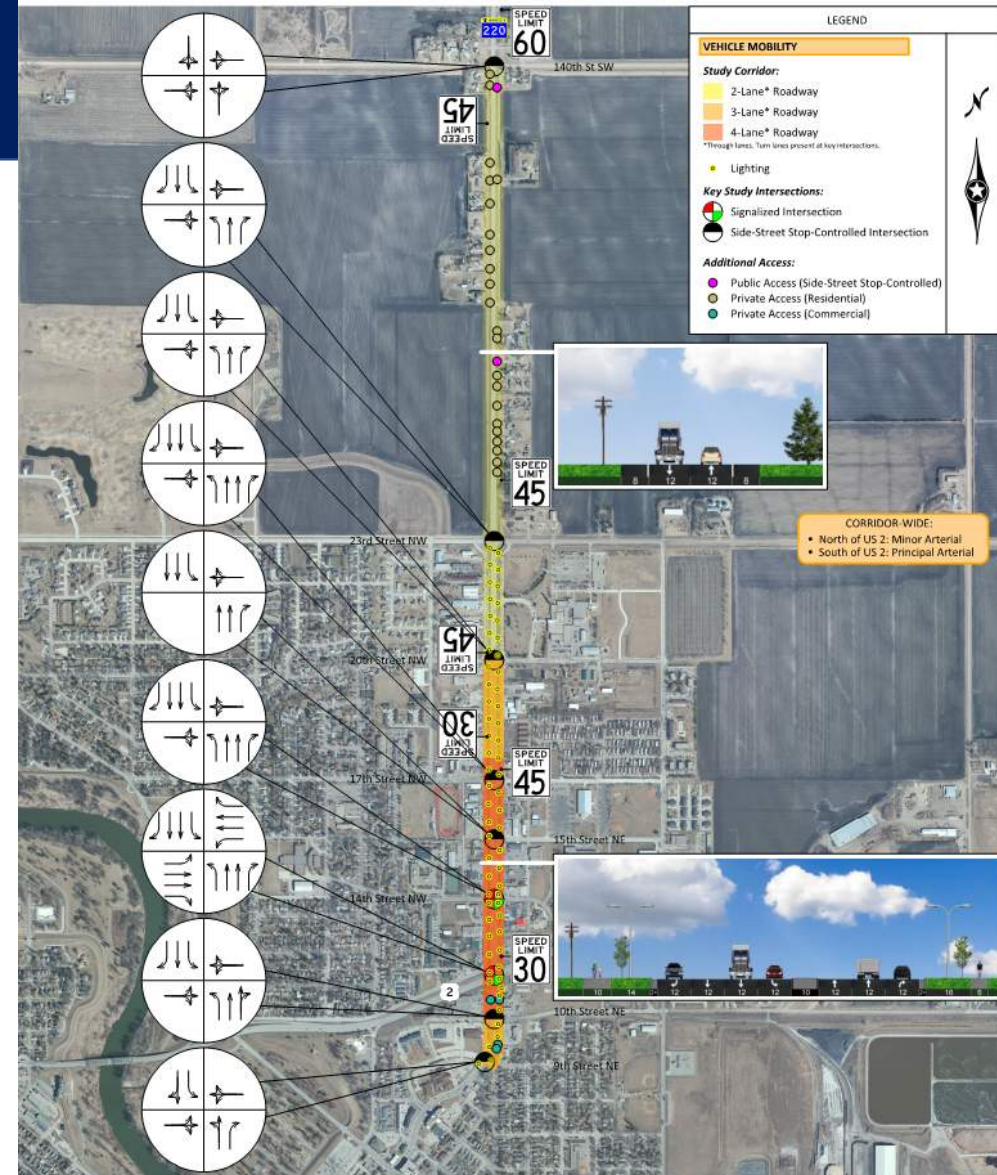
- Travel Demand Model
 - Housing
 - Jobs
 - Destinations
- Any Specific Site Development to Include?



EXISTING AND FUTURE CONDITIONS ASSESSMENT

ROADWAY CHARACTERISTICS

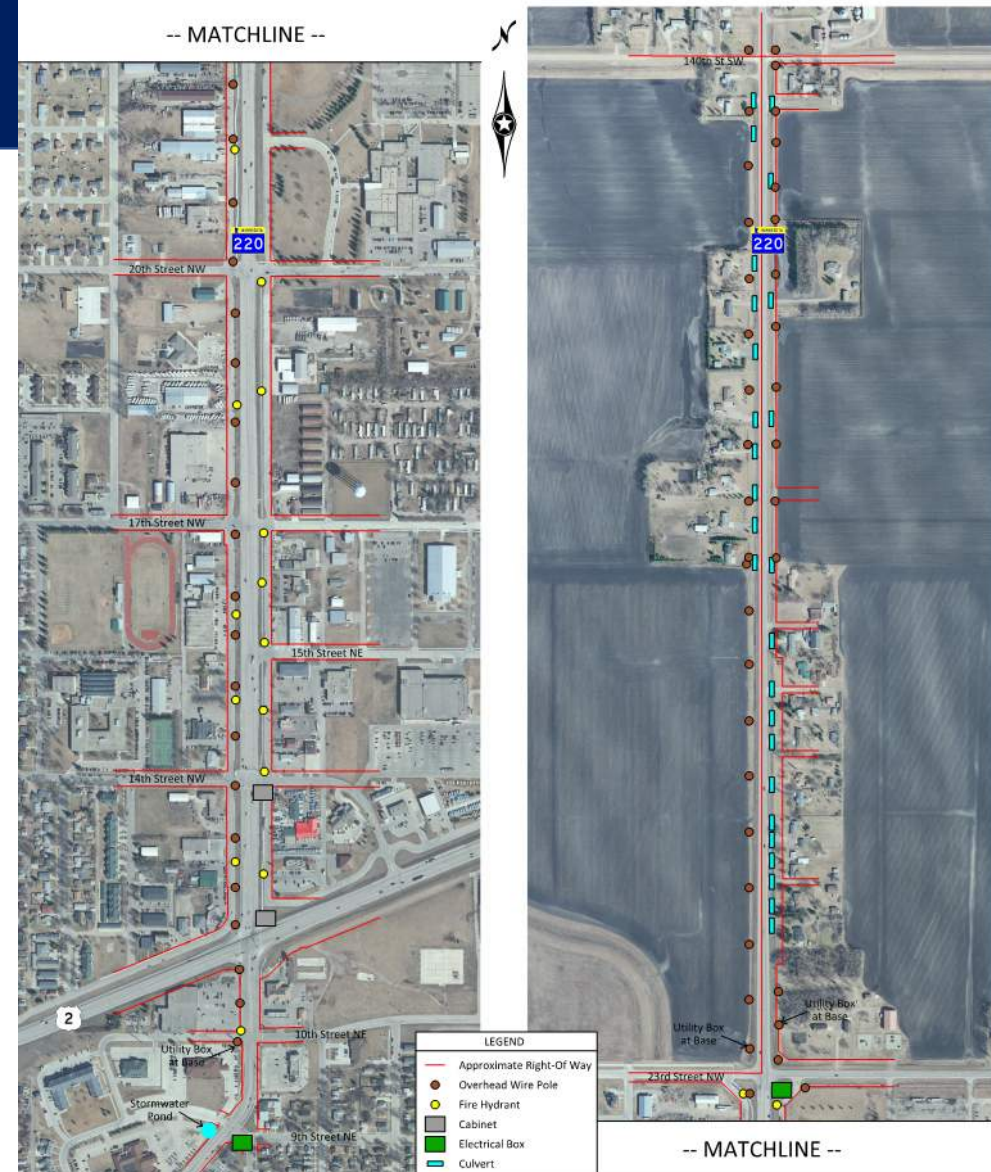
- Minor Arterial – North of US 2
- Principal Arterial – South of US 2
- Street Lighting – 9th St NE to 23rd St NW
- Traffic Control – Through/Stop and Signals



EXISTING AND FUTURE CONDITIONS ASSESSMENT

ROADWAY CHARACTERISTICS

- Right of Way
 - 100' – South of US 2
 - 230' – US 2 to 23rd St NW
 - 110' – North of 23rd St NW
- Above Ground Utilities
 - Transmission Line
 - Drainage Structures
 - Culverts



EXISTING AND FUTURE CONDITIONS ASSESSMENT

INFRASTRUCTURE ASSESSMENT

- Pavement Conditions
- Traffic Signal Systems
- Concrete Rehab needed in 2033
- Concrete Reconstruction in 2058

Pavement Condition

Location	Length	Width	Pavement	Last Reconstruction	Last Rehab	Ride Quality Index (RQI)	Ride Quality Index Rating
	(miles)	(feet)	Type	Year	Year		
US 2 to 23rd Street	0.91	34/32	Concrete	1991	2013	2.8	Fair
23rd Street to Northern Limits	4.97	28	Bituminous over Concrete	1951	2010	2.8	Fair

Source: MnDOT

Traffic Signal Systems

Intersection Location	Original Traffic Signal Installation	Last Rebuild	Typical Service Life Cycle
		Year	
US 2 at Mn 220	1953	2003	25 years
Mn 220 at 14th Street	1992	2003	25 years

Source: MnDOT

EXISTING AND FUTURE CONDITIONS ASSESSMENT

PLANNED IMPROVEMENTS

- 2019-2022 TIP
 - No Projects
- 2045 MTP
 - Mill/Overlay – 10th St NE, US2 and 14th St NW
 - US 2/Mn 220 – Geometrics
 - US 2/5th Ave NW – Signal
 - Mn 220 – Trail, Signal at 23rd, 4-lane to 23rd St
 - Reconstruction – 17th St NE, 10th St NE and DeMers (South of US 2)
- Other Previous Recommendations – Not Funded
 - US 2/Mn 220 – Confirmation Lights/Ped Countdown Timers
 - ICE Studies – 14th, 15th, 17th, 20th and 23rd
 - Pedestrian Scale Lighting
 - Pedestrian Crosswalk Improvements – 14th, 17th, 23rd
 - Multiuse Trail – North of 23rd to 140th St SW



2019 - 2022 Transportation Improvement Program (TIP)		
Improvement Number	Future Improvements	Status
--	No Programmed Projects	--

2045 Metropolitan Transportation Plan		
Improvement Number	Future Improvements	Program Details
1	10th Street NE (Mill and Overlay - Central Avenue to 5th Avenue NE)	REP-195 Illustrative
2	DeMers Avenue (Reconstruction - 4th St to Gateway Dr)	REP-204 Illustrative
3	US 2 at Mn 220 (Right turn/merge geometric modifications and signal timing)	PSO-014 & DIS-001 Short Range
4	US 2 at 5th Avenue NW (Construct full access intersection with traffic signal installation)	PSO-015 Short Range
5	Mn 220 (Multi-use trail, sidewalks, traffic signal installation at 23rd Street and 4-lane to 2-lane transition north of 23rd Street)	DIS-015 Illustrative Project Plan
6	US 2 Resurfacing - 0.5 miles west of Mn 220 to 0.3 miles east of CSAH 15	SCP-210 State of Good Repair
7	10th Street NE (Reconstruction - Central Avenue to 5th Avenue)	REP-202 Mid Range
8	17th Street NE (Reconstruction - Mn 220 to 12th Avenue)	REP-198 Illustrative
9	14th St NW (Mill and Overlay - 6th Ave NW to Mn 220)	REP-199 State of Good Repair

Other Corridor Study Area Recommendations			
Improvement Number	Future Improvements	Program Year	Notes
10	Options: 1. Reduce frontage roads by 14-16 feet on the sides closest to the businesses 2. Backage Road	Partially Implemented	A sidewalk has been placed on the median.
11	Mn 220 Corridor (Multiuse trail north of 23rd Street (west side), Sidewalk north of 23rd Street (east side))	Not Funded	
12	Mn 220 at 14th, 15th, 17th, 20th and 23rd. (Intersection control evaluation and potential traffic control changes)	Not Funded	ICE studies are needed to evaluate appropriate improvements and access control for each of the key intersections that have congestion or safety issues.
13	Mn 220 at 14th, 17th and 23rd Street (Install transit shelter)	Not Funded	
14	Mn 220 at 14th, 17th and 23rd Street (Improve pedestrian crosswalks)	Not Funded	
15	US 2 at Mn 220 (Confirmation lights and countdown timers per D2 Safety Plan)	Not Funded	Improvements identified to address right angle and pedestrian crossing concerns
16	Mn 220 at 15th, 17, 20th, 23rd St (Improve intersection lighting)	Not Funded	
17	Mn 220 Corridor (Add pedestrian-scale lighting)	Not Funded	Along multiuse trail



EXISTING AND FUTURE CONDITIONS ASSESSMENT

ROADWAY ACCESS

- Category 5B Access Classification
- Does Not Spacing Guidelines
- Direct Residential Access North of 23rd St NW
- Future Frontage Road Alignment Identified in 2007 Study – Applicable?



EXISTING AND FUTURE CONDITIONS ASSESSMENT

MULTIMODAL CHARACTERISTICS

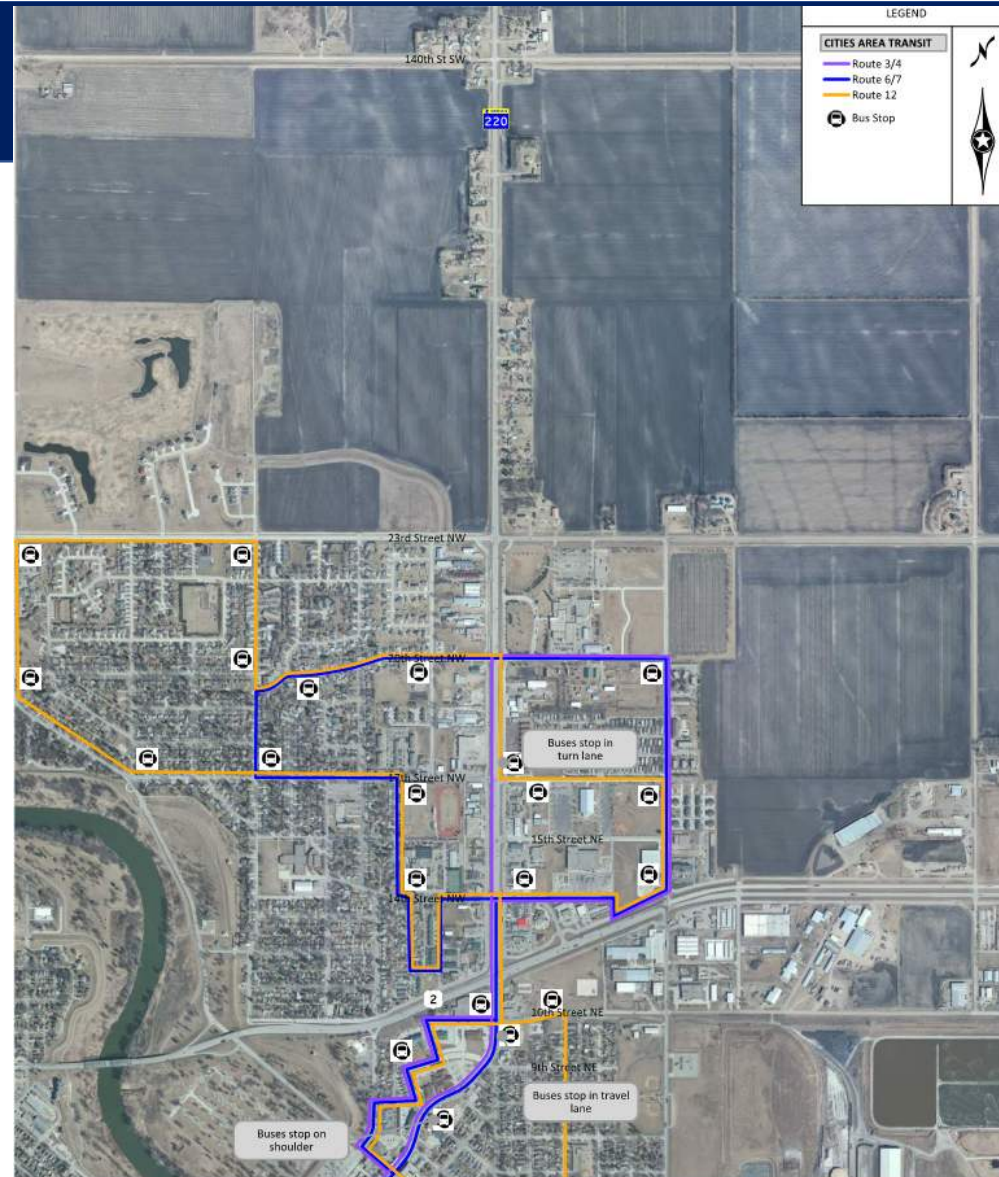
- Planned Multimodal Trail for ½ Mile North of 23rd St NW
- Planned Multimodal Trail along US 2
- Planned Bikeway Along 23rd St, 17th St, and 14th St
- Sidewalk Connection to Mn 220 Gaps on 20th St NW, 17th St, 15th St NE, and 10th St
- ADA Accessibility – Appears Compliant



EXISTING AND FUTURE CONDITIONS ASSESSMENT

MULTIMODAL CHARACTERISTICS

- Routes 3/4, 6/7 and 12 Serve the Area
- Dedicated Stops on Mn 220. Concrete Pad at 17th St NE



EXISTING AND FUTURE CONDITIONS ASSESSMENT

ENVIRONMENTAL ASSESSMENT

Data sources evaluated include:

- National Wetland Inventory
- Public Waters Inventory
- National Hydrography Dataset
- Calcareous Fens
- Polk County Soil Survey
- Wellhead Protection Areas
- FEMA Floodplain Mapping
- DNR Native Plant Communities
- Minnesota County Biological Survey
- National Heritage Information System
- Information for Planning and Consultation (IPaC) - USFWS
- DNR Management Units
- Minnesota Pollution Control Agency (MPCA) Agency Interests
- Environmental Justice Program Manual (GF-EFG MPO)
- Aerial Imagery:
 - MnGeo WMS Service
 - Google Earth (aerial imagery and street view)

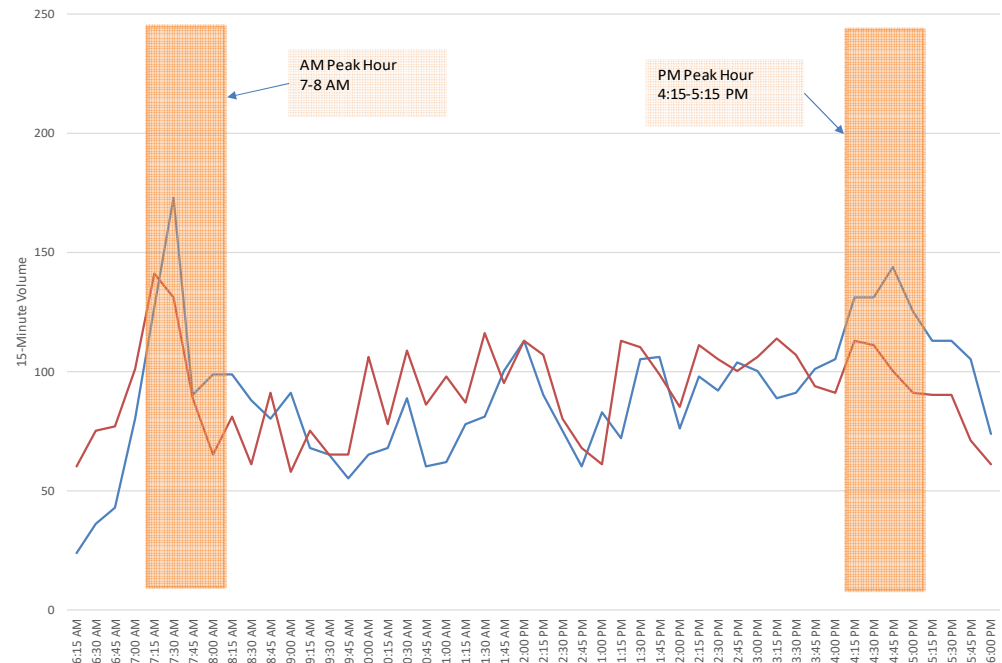
Key Takeaways:

- No “Fatal Flaws” identified
- Floodplain – Outside 100 year floodplain
- T/E Species – None present
- Trees – Boulevard trees planted below overhead transmission line
- Wetlands – Roadside ditches north of 23rd St, Stormwater pond at 9th St NE
- Contaminated Sites – 13 sites within MN 220 R/W. May Need Phase 1 Environmental Site Assessment in Future
- Environmental Justice – 50% and greater low income SW corner of US 2/Mn 220

EXISTING AND FUTURE CONDITIONS ASSESSMENT

EXISTING TRAFFIC VOLUMES

- MPO Collected Data – October 2018
- EGF High School and Northland Community & Technical College Accounted for
- Beat Harvest Season – Average 5% Trucks During Peaks. 8% Peak Observation During Noon Hour
- 12-Hour Pedestrian Volumes – Range 0 to 25. Highest at Signals. 17th St NW and 10th St NE Each Had 12 Pedestrian Crossings.
- Turning Movement Counts Provided in Memo #1

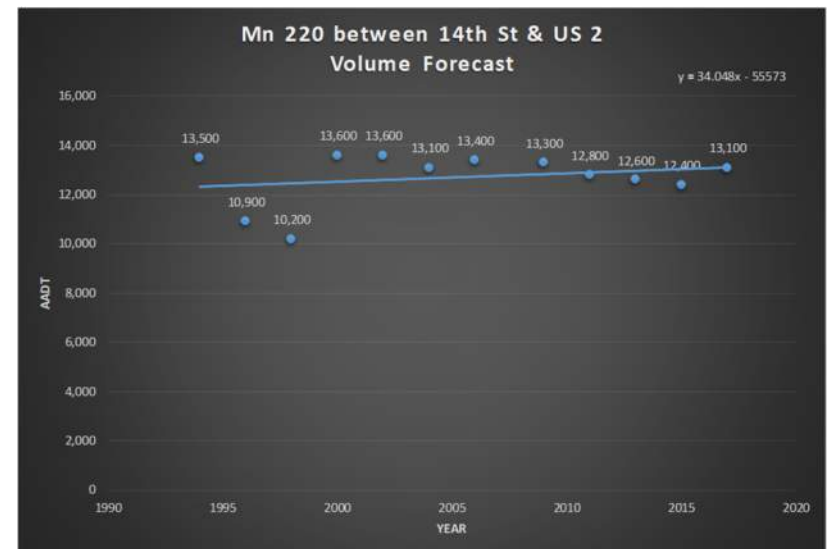


Segment	Corridor	ADT (2018)
9th Street NE to 10th Street NE	Mn 220	9,940
US 2 to 14th Street NW	Mn 220	13,600
17th Street NW to 20th Street NW	Mn 220	7,300
23rd Street NW to 140th Street SW	Mn 220	3,730
West of Mn 220	US 2	12,350
East of Mn 220	US 2	8,970

EXISTING AND FUTURE CONDITIONS ASSESSMENT

Historical AADT

- 20 Year Historical AADT
 - 9th St to US 2 - 0.55% / Year Growth Rate
 - US 2 to 14th St – 0.25% / Year Growth Rate
 - 17th St to 20th St – 0.97% / Year Growth Rate



EXISTING AND FUTURE CONDITIONS ASSESSMENT

FORECAST TRAFFIC VOLUMES

- 2030 and 2045 Travel Demand Model
 - 2045 EGF Land Use Plan
 - 2045 MTP
- Forecast Turning Movement Volumes Provided in Tech Memo 1

Segment	Corridor	ADT (2018)	AADT (2030)	AADT (2045)	Growth Rate (2018-2030)	Growth Rate (2018-2045)
9th Street NE to 10th Street NE	Mn 220	9,940	10,200	11,300	0.22%	0.48%
US 2 to 14th Street NW	Mn 220	13,600	14,100	14,600	0.25%	0.25%
17th Street NW to 20th Street NW	Mn 220	7,300	8,800	11,700	1.47%	1.75%
23rd Street NW to 140th Street SW	Mn 220	3,730	5,200	7,100	2.81%	2.41%
West of Mn 220	US 2	12,350	16,700	21,200	2.55%	2.02%
East of Mn 220	US 2	8,970	9,100	12,200	0.12%	1.15%

DISCUSSION

SRC PERCEPTION ON ISSUES / OBJECTIVES

- Key Objectives and Study Goals?
- Key Issues, Safety Concerns, Operational Issues
- Access Issues / Spacing / Frontage Roads?
- Pedestrian Crossing Issues / Objectives / Thoughts?
- Thoughts on Purpose and Need

NEXT STEPS / OTHER DISCUSSION

- Survey – Distribute in December?
- SRC Meeting 2 – Mid December (TBD)
 - Traffic Operation and Safety
 - Purpose and Need
- Public Meeting 1 – Transportation System Needs
 - Mid December (TBD)
- Any Other Discussion?



ALLIANT PROJ. NO. 118-0184.0

SRC MEETING MINUTES

DATE/TIME: Tuesday, December 18, 2018; 1:00 p.m.
LOCATION: East Grand Forks City Hall
PROJECT: Mn 220 N Corridor Study
PURPOSE: **Study Review Committee Meeting 2** – Issues and Needs
MINUTES BY: Mike Anderson, Alliant Project Manager; (612-767-9340)

1) **Introductions**

See attached sign in sheet for list of meeting attendees

2) **Existing and Forecast Conditions Assessment**

Mike gave an overview of the key existing and forecast condition elements discussed at SRC 1. Key highlights included: land use, existing characteristics, infrastructure assessment, planned projects, roadway access, environmental assessment and forecast traffic demand.

3) **Intersection Safety and Mobility**

Mike discussed the safety and mobility analysis and gave an overview of the key highlights from the technical memorandum 2. The presentation slides containing much of the information discussed and presented is attached for reference. Other key items discussed include:

- Variable vehicle speeds may be a factor in crashes at 17th Street (change in speed zone at intersection though motorists are speeding up prior).
- Motorists tend to travel in the shoulder north of 17th Street where the lane drop occurs.
- SRC members indicated that the extension of the four-lane segment north of 17th Street would help address the lane traveling behavior. It was also noted that widening the roadway is likely to contribute to faster travel speeds.
- Discussion on speed zoning took place. The location of speed zones may not be best situated though changing the signs may also not be most effective. Traffic control, roadway design and overall environment has more effect on motorist travel speeds.
- Southbound lane reduction at 9th Street is a concern.

4) **Purpose and Need**

Mike discussed the purpose and need and gave an overview of the key highlights from the technical memorandum 3. The presentation slides containing much of the information discussed and presented is attached for reference. Other key items discussed include:

- The SRC concurred with the purpose and need statement and decision factors
- MnDOT indicated that the top priorities should be traffic safety and mobility.

- MnDOT also noted the replacement of the 14th Street traffic signal cannot wait until 2030 and should be prioritized earlier.
- The SRC indicated the issues identified through the analysis process reflect the key deficiencies along the corridor. No other items (other than speed zones) were noted by the SRC.

5) Alternatives Brainstorming

Mike gave an overview of ideas and potential alternatives to consider addressing the key issues and needs along the corridor. The attached presentation slides denote potential ideas. Highlights of the discussion include:

Corridor Wide

- The SRC indicated the desire to see the four lane segment extended to 23rd Street.
- It was noted that if a roundabout alternative was selected at 17th Street and 23rd Street, single lane operation would be preferred, therefore, the four lane segment would not need to be extended.
- The City noted that agricultural equipment needs to be considered. Very large vehicles that cannot be physically obstructed from traveling the corridor.
- Advanced Warning flashers or dynamic speed display signs were identified by the SRC as potential options consider for speed transition zone or in advance of signalized intersection at US 2.
- Access management was discussed and the initial idea of prioritizing access at 14th Street, 17th Street, and 23rd Street, with reduced access (3/4) at 15th Street and 20th Street was received favorably by the SRC.
- Restrictions at 10th Street (3/4 access) may be challenging or dependent upon improved access to US 2 at 2nd Avenue NE. Facilitating the eastbound to northbound left turn does not have good alternative access.

Pedestrian

- The new trail made all the north/south ramps along 220 compliant.
- Discussed that ramps may be grade compliant, but may not be most ideal for pedestrian direction and accessibility for crossing 220. Considerations should look at how to improve crossing of 220
- Discussed ped crossings of medians and design
- Curb extensions were identified as potential option to reduce crossing width and increase visibility.

US 2/Mn 220

- Discussed signal operation and visibility improvements, including flashing yellow arrow (FYA), signal timing, coordination, signal head placement.
- Discussed geometric improvements including offset left turn lanes, right turn lane improvements.
- Discussed system changes such as grade separation, displaced lefts or the presence of full access at 5th Avenue NW or 2nd Avenue NE to reduce traffic volumes at US 2/Mn 220 intersection. Earl indicated that ATAC could run some scenarios to test the volume reduction of such alternative access.
- Roundabout intersection control may be an option. It is anticipated this will need to be multilane. The SRC denoted concern with a multilane design may be confusing.

6) Next Steps

- a. Public Meeting 1 (December 18, 2018) East Grand Forks City Hall**
- b. SRC Meeting 3 (Mid February)**

7) Other Discussion

None



ALLIANT
ENGINEERING

Mn 220 North Corridor Study Steering Review Committee



SIGN-IN SHEET

Name	Organization	E-mail Address	Phone	Present
Mike Anderson	Alliant Engineering	manderson@alliant-inc.com	763-210-8573	X
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Earl Haugen	GF/EGF MPO	earl.haugen@theforksmpo.org	701-746-2657	X
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Mn 220 N Corridor Study

SRC Meeting 2 – Issues and Purpose and Need | December 18, 2018



AGENDA

- Introductions
- Intersection and Corridor Safety
- Traffic Operation
- Purpose and Need
- Alternatives Brainstorming
- Next Steps
- Other Discussion

Existing and Future Assessment Overview

ISSUES AND NEEDS

Review Existing Information

Existing and Future Conditions

- Land Use
- Roadway Characteristics
- Infrastructure Assessment
- Roadway Access
- Multi-modal Assessment
- Environmental Assessment
- Existing and Forecasted Traffic Demand

Traffic and Safety Analysis (No Build)

- Safety Analysis
- Traffic Operation Analysis

Purpose and Need

- Corridor Issues and Transportation System Needs

Intersection and Corridor Safety

Safety Analysis (2011-2015 Data)

- Crash Rate
- Severity Rate
- Critical Rate
- Crash Type
- Crash Hot Spots



Intersection and Corridor Safety

Two Intersections Exceed Critical Crash Rate

- US 2
- 17th Street

Three Intersections Exceed Critical Severity Rate

- US 2
- 17th Street
- 23rd Street

Corridor Performance Measurements

- Zero Fatalities
- 2 Type A (0.4 per year)
- 3 Non-motorized Crashes (None were Serious)

Intersection	Traffic Control	Total Crashes ¹	Total Entering Volume ²	Crash Rate per MEV	State Average Crash Rate ³	Crash Critical Rate ^{4, 5}	Crash Severity Rate ⁶	State Average Severity Rate ³	Crash Severity Critical Rate ^{4, 5}	K/A Crashes	K/A Rate	State Average K/A Rate	K/A Critical Rate ^{4, 5}
Mn 220 at 9th Street	Urban Through-Stop	2	16,005,250	0.12	0.18	0.48	0.19	0.26	0.45	0	0.00	0.33	5.29
Mn 220 at 10th Street	Urban Through-Stop	7	20,412,625	0.34	0.18	0.45	0.34	0.26	0.43	0	0.00	0.33	4.41
Mn 220 at US 2	Low Volume, Low Speed	49	38,446,667	1.27	0.52	0.83	1.90	0.71	0.90	1	2.60	0.42	3.06
Mn 220 at 14th Street	Low Volume, Low Speed	18	25,565,208	0.70	0.52	0.91	0.94	0.71	0.94	1	3.91	0.42	4.02
Mn 220 at 15th Street	Urban Through-Stop	2	18,645,417	0.11	0.18	0.46	0.11	0.26	0.44	0	0.00	0.33	4.72
Mn 220 at 17th Street	Urban Through-Stop	13	18,417,292	0.71	0.18	0.46	0.81	0.26	0.44	0	0.00	0.33	4.76
Mn 220 at 20th Street	Urban Through-Stop	2	13,206,917	0.15	0.18	0.52	0.15	0.26	0.48	0	0.00	0.33	6.14
Mn 220 at 23rd Street	Urban Through-Stop	6	11,193,333	0.54	0.18	0.55	0.80	0.26	0.50	0	0.00	0.33	7.00
Mn 220 at 140th Street	Rural Through-Stop	0	6,588,250	0.00	0.25	0.83	0.00	0.41	0.81	0	0.00	1.05	13.76

¹ Crash Data obtained from MnCMAT and detailed police crash reports.

² AADT obtained from MnDOT Traffic Data Map

³ MnDOT's 2015 Green Sheets were used to determine the State average crash rate.

⁴ The critical rate is a statistically adjusted crash rate to account for random nature of crashes

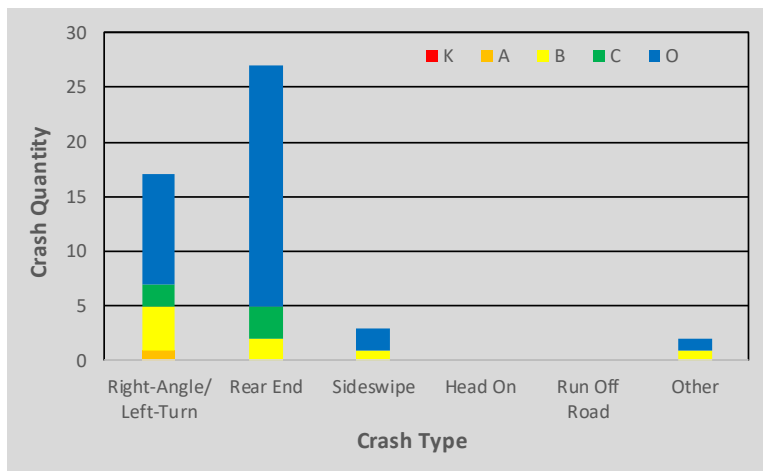
⁵ A 99.5% confidence level was assumed for critical crash rate and an 80% confidence level was assumed for critical severity and K/A rate.

⁶ Severity rate factors: 5 for Fatal Crashes, 4 for A type, 3 for B type, 2 for C type, and 1 for Property Damage Crashes

Intersection and Corridor Safety

US 2 at Mn 220 – Hot Spot Analysis

- 49 Crashes
- 35% Right Angle / Left Turn
- 53% Rear Ends

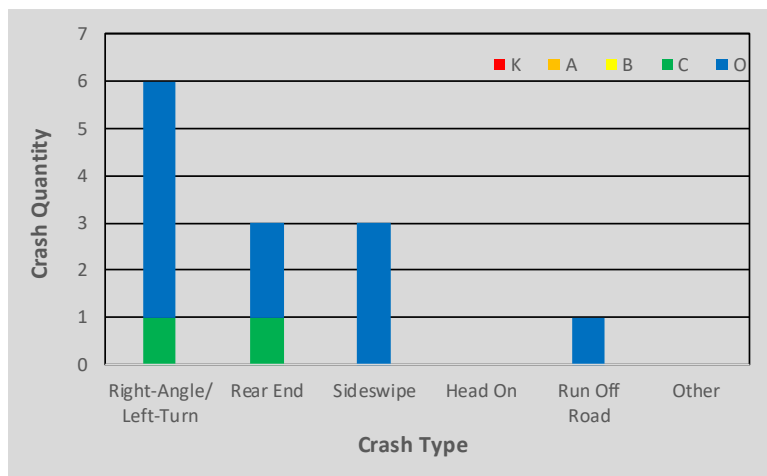


Metric	Description
Crash Rate	1.27 exceeds critical rate of 0.83
Severity Rate	1.90 exceeds critical rate of 0.90
Summary	49 crashes during the 2011-2015 time period. Of these, 17 (35%) were right-angle or involved left-turns. 26 of the 49 crashes (53%) were rear-end crashes. Although the 26 crashes appear to be significant, this number is similar to the expected crash percentage of total crashes experienced statewide at signalized intersections.
Crash Type Observations	<ul style="list-style-type: none"> • 9 of the 17 right-angle/left-turn crashes involved a motorist making a left turn movement. • 8 of the 9 left-turn crashes involved a left-turning motorist on the east or west leg failing to yield on a permissive green ball. 50% (4) of these involved an eastbound left turn motorist failing to yield the right of way. Two involved a westbound motorist failing to yield the right of way. One involved an eastbound motorist running the red light, presumably striking a westbound motorist turning on the green arrow. The last crash had unknown details. • 1 of the 9 left turn crashes involved a southbound motorist striking a westbound through vehicle. Details are unknown. • 8 right angle crashes occurred. Four of the 8 involved a southbound motorist failing to yield (running the red light). The other four occurred on each of the remaining three approaches. • 4 of the 26 rear end crashes were denoted as occurring on the right turn channelized islands. The crash records indicate that an additional 16 of the 26 may also be related to right turn movements; however, the information isn't clear enough to make this determination. Actual police reports have been requested, and further evaluation of the 26 rear end crash occurrences will be completed later.
At Fault Motorist Age	37% younger than age of 25 8% older than age 60
Other Factors	<ul style="list-style-type: none"> • Intersection skew • Cross product of left turning motorists versus opposing through vehicles • lateral left turn lane alignment • high speed channelized right turn movements resulting in poor visibility • Signal timing and signal head placement

Intersection and Corridor Safety

Mn 220 at 17th Street – Hot Spot Analysis

- 13 Crashes
- 46% Right Angle / Left Turn

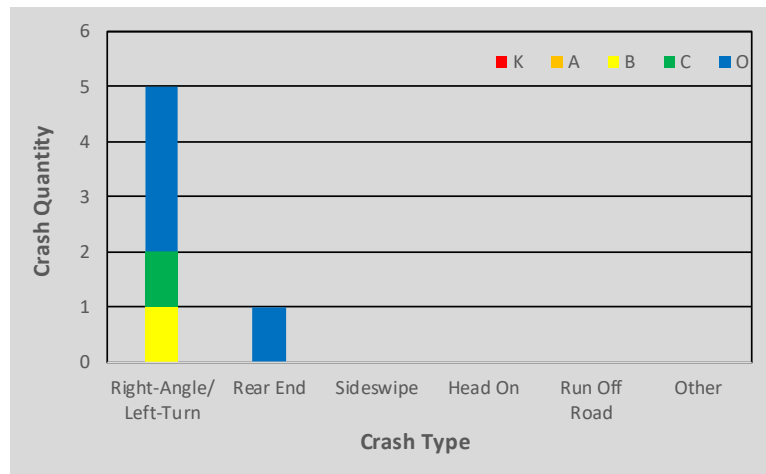


Metric	Description
Crash Rate	0.71 exceeds critical rate of 0.46
Severity Rate	0.81 exceeds critical rate of 0.44
Summary	13 crashes during the 2011-2015 time period. Of these, 6 (46%) were right-angle or involved left-turns
Crash Type Observations	<ul style="list-style-type: none"> • 4 of the 6 right-angle/left-turn involved an eastbound motorist failing to yield. Two of these involved southbound motorists and two involved northbound motorists. • 1 of the 6 involved a westbound motorist being struck by a northbound vehicle. • 1 of the 6 involved a northbound left turn motorist failing to yield right of way to a southbound vehicle. • 3 sideswipe crashes were reported. One of these involved a chemically impaired motorist. The other two involved two eastbound motorists attempting to make right turns onto Mn 220 and colliding. • Nearly all crashes were reported on weekdays between 9 a.m. and 5 p.m., with 38% of them occurring between 9-10 a.m.
At Fault Motorist Age	23% younger than age of 25 8% older than age 60
Other Factors	None Noted

Intersection and Corridor Safety

Mn 220 at 23rd Street – Hot Spot Analysis

- 6 Crashes
- 83% Right Angle / Left Turn

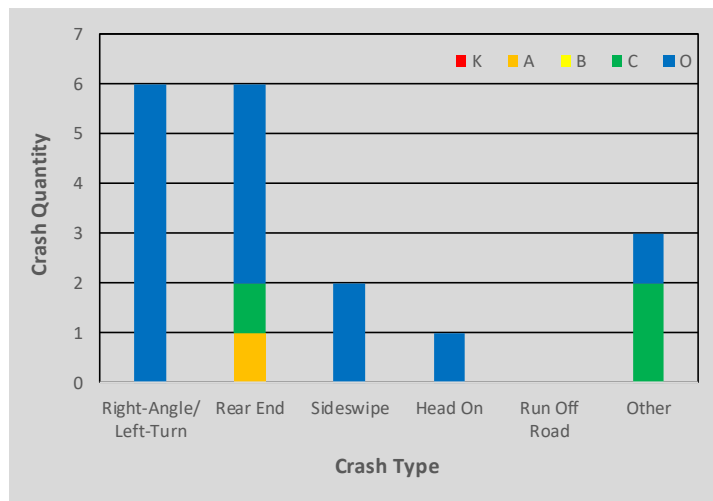


Metric	Description
Crash Rate	0.54 exceeds statewide average rate of 0.18
Severity Rate	0.80 exceeds critical rate of 0.50
Summary	6 crashes during the 2011-2015 time period. Of these, 5 (83%) were right-angle or involved left-turns
Crash Type Observations	<ul style="list-style-type: none"> • 3 of the 5 right angle/left turn crashes involved a westbound motorist failing to yield the right of way and turning into a southbound motorist. • 2 of the 5 right angle/left turn crashes involved a southbound left turn motorist failing to yield the right of way to a northbound through vehicle. • 5 of the 6 crashes occurred between 730 a.m. and 1100 a.m.
At Fault Motorist Age	33% younger than age of 25 16% older than age 60
Other Factors	None Noted

Intersection and Corridor Safety

Mn 220 at 14th Street – Hot Spot Analysis

- 18 Crashes
- 33% Right Angle / Left Turn
- 33% Rear End

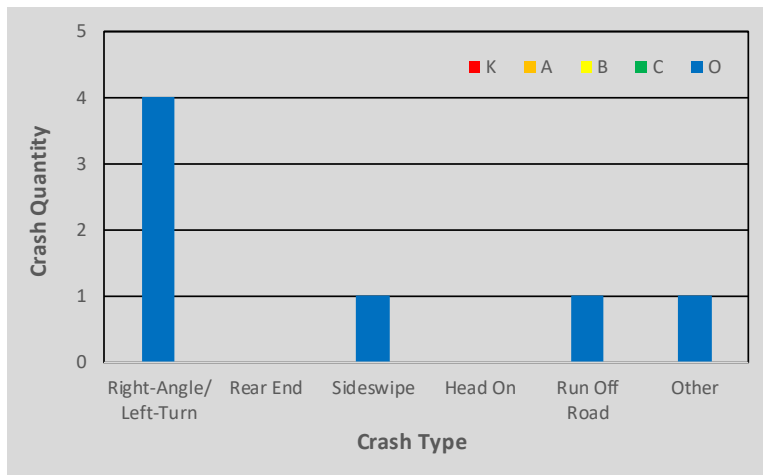


Metric	Description
Crash Rate	0.70 exceeds statewide average rate of 0.52
Severity Rate	0.94 exceeds statewide average rate of 0.71
Summary	18 crashes during the five year study period. Of these, the predominate crash types included 6 (33%) right-angle/left-turns and 6 rear end (33%)
Crash Type Observations	<ul style="list-style-type: none"> • 3 of the 6 rear end crashes involved southbound motorists, 2 were northbound (during AM school arrival) and 1 westbound. The factors largely involved vehicles stopped in traffic, following too closely, in the case of the westbound motorist, sun in the eyes. • 3 of the 6 right angle crashes found eastbound motorists failing to yield and being struck by southbound or northbound vehicles. Two involved northbound motorists failing to yield and 1 crash involved a westbound left turn motorists colliding with an eastbound through vehicle. • No particular trend in time of day was noted; however, 50% of the crashes occurred on wet, snow or ice packed roadway surface.
At Fault Motorist Age	33% younger than age of 25 22% older than age 60
Other Factors	None Noted

Intersection and Corridor Safety

Mn 220 at 10th Street NE – Hot Spot Analysis

- 7 Crashes
- 57% Right Angle / Left Turn

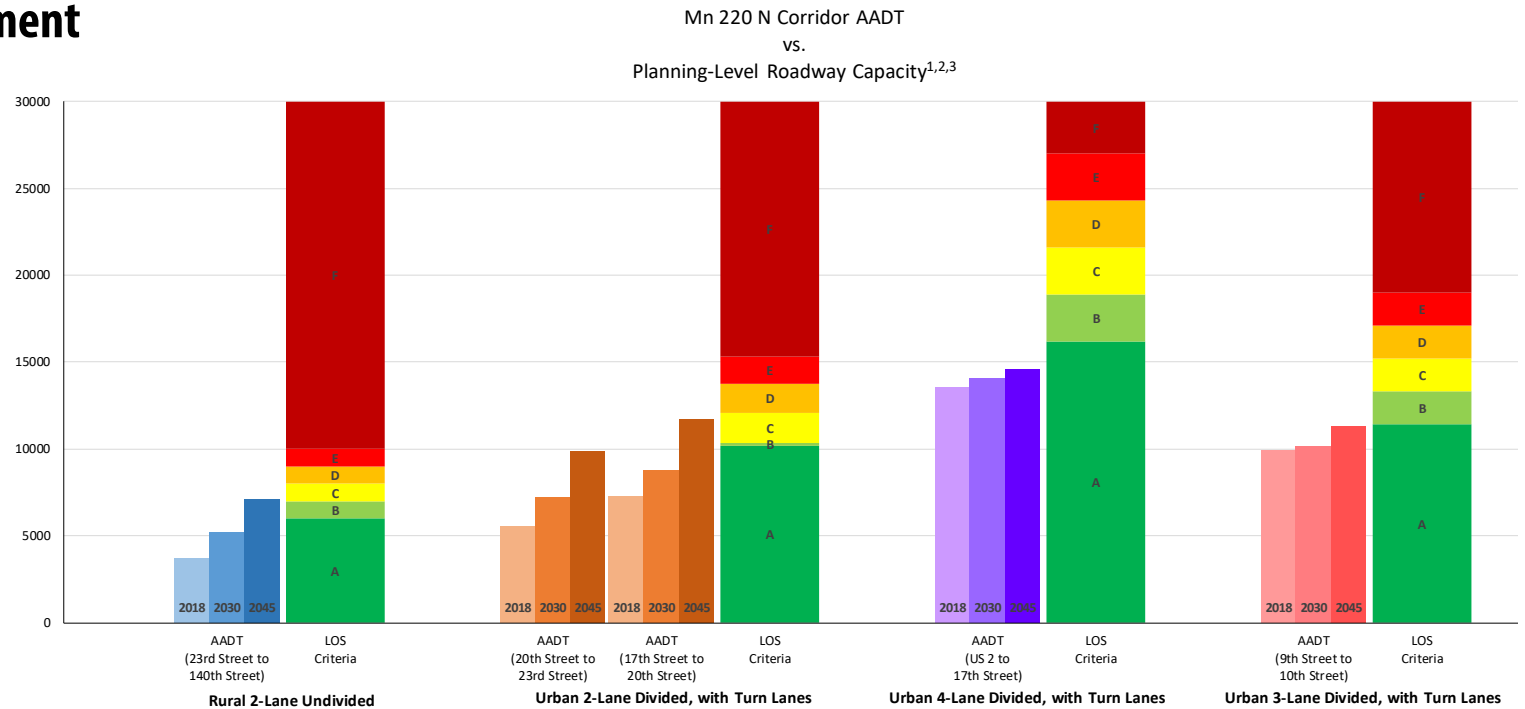


Metric	Description
Crash Rate	0.34 exceeds statewide average 0.18
Severity Rate	0.34 exceeds statewide average 0.26
Summary	7 crashes during the 2011-2015 time period. Four of these crashes were right angle or left turn related (57%). One of the recorded right-angle crashes was actually a bicycle making a right turn into traffic and being struck.
Crash Type Observations	<ul style="list-style-type: none"> • 3 of the 4 right angles involved eastbound motorists failing to yield right of way. Two of those 3 crashes the eastbound motorist collided with a westbound 10th Street motorist. Only 1 crash involved a right angle with a motorist on DeMers Avenue. • 1 side swipe crash was recorded for the southbound direction, likely attributed to the lane merge located in the intersection vicinity.
At Fault Motorist Age	29% younger than age of 25 14% older than age 60
Other Factors	2 to 1 lane transition at intersection

Traffic Operations / Mobility

Corridor Capacity Assessment

- 2045 LOS B or Better
- 2045 LOC C north of 17th Street
- Existing Roadway Lanes Sufficient



Traffic Operations / Mobility

Intersection Capacity

- WB at 17th Street LOS F by 2045
- WB at 10th Street LOS F by 2045
- US 2 at Mn 220 LOS D by 2045 (SB and EBLT)

Intersection Name	Control	MOE	2018 Existing	2030 Forecast	2045 Forecast
Mn 220 at 140th Street SW	Side-Street Stop	Delay/Veh	1.3 / 5.7	2.0 / 7.6	2.6 / 14.0
		LOS	A A	A A	A B
Mn 220 at 23rd Street NW	Side-Street Stop	Delay/Veh	2.6 / 10.0	3.6 / 12.3	5.7 / 19.4
		LOS	A A	A B	A C
Mn 220 at 20th Street NW	Side-Street Stop	Delay/Veh	1.3 / 9.5	1.7 / 14.7	2.2 / 18.8
		LOS	A A	A B	A C
Mn 220 at 17th Street NW	Side-Street Stop	Delay/Veh	2.6 / 18.1	2.8 / 19.6	4.3 / 54.2
		LOS	A C	A C	A F
Mn 220 at 15th Street NW	Side-Street Stop	Delay/Veh	1.6 / 11.6	1.9 / 13.6	1.9 / 17.1
		LOS	A B	A B	A C
Mn 220 at 14th Street NW	Signalized	Delay/Veh	10.3	10.4	9.7
		LOS	B	B	A
US 2 at Mn 220	Signalized	Delay/Veh	19.3	24.0	42.0
		LOS	B	C	D
Mn 220 at 10th Street NE	Side-Street Stop	Delay/Veh	2.9 / 20.5	3.4 / 29.9	4.7 / 39.6
		LOS	A C	A D	A E
Mn 220 at 9th Street NE	Side-Street Stop	Delay/Veh	2.8 / 11.8	3.2 / 19.2	4.7 / 23.8
		LOS	A B	A C	A C

Intersection Name	Control	MOE	2018 Existing	2030 No Build	2045 No Build
Mn 220 at 140th Street SW	Side-Street Stop	Delay/Veh	2.3 / 6.1	3.0 / 7.0	4.0 / 9.0
		LOS	A A	A A	A A
Mn 220 at 23rd Street NW	Side-Street Stop	Delay/Veh	2.6 / 8.7	3.7 / 12.2	6.8 / 22.4
		LOS	A A	A B	A C
Mn 220 at 20th Street NW	Side-Street Stop	Delay/Veh	2.0 / 11.4	2.6 / 13.3	4.0 / 24.9
		LOS	A B	A B	A C
Mn 220 at 17th Street NW	Side-Street Stop	Delay/Veh	2.8 / 22.5	3.6 / 28.2	12.1 / 146.9
		LOS	A C	A D	B F
Mn 220 at 15th Street NW	Side-Street Stop	Delay/Veh	1.9 / 13.8	2.3 / 17.2	2.5 / 20.7
		LOS	A B	A C	A C
Mn 220 at 14th Street NW	Signalized	Delay/Veh	11.3	11.4	11.6
		LOS	B	B	B
US 2 at Mn 220	Signalized	Delay/Veh	20.2	25.5	51.2
		LOS	C	C	D
Mn 220 at 10th Street NE	Side-Street Stop	Delay/Veh	4.5 / 25.1	5.3 / 36.7	8.1 / 58.6
		LOS	A D	A E	A F
Mn 220 at 9th Street NE	Side-Street Stop	Delay/Veh	1.4 / 20.8	1.5 / 20.1	1.8 / 21.4
		LOS	A C	A C	A C

Traffic Operations / Mobility

Multi-Modal Mobility

- Transit
 - Transit Development Plan
 - Comparable Delay as Motor Vehicles
 - Transit Vehicles 82% On-time, 30-60 Minute Headways
 - Transit Travel Time to Major Destinations in Region Approx. 3 Times Longer Than Motor Vehicle
- Bicycle/Pedestrian Comfort
 - Level of Traffic Stress
 - LTS 4 at 17th Street

Segment or Intersection Crossing	Width of Crossing	Control Type	Level of Traffic Stress ⁽¹⁾	Notes
Segment				
Mn 220 - US 2 to 23rd Street			LTS 1	Multi use Trail separated from traffic
Intersection Crossing				
Mn 220 at 9th Street NE	3-Lane	Unsignalized	LTS 1	
Mn 220 at 10th Street NE	4-Lane	Unsignalized	LTS 2	
US 2 at Mn 220	NA	Traffic Signal	LTS 1	Pedestrian crossing indications
Mn 220 at 14th Street	NA	Traffic Signal	LTS 1	Pedestrian crossing indications
Mn 220 at 15th Street	5-Lane	Unsignalized	LTS 2	Tee configuration
Mn 220 at 17th Street	5-Lane	Unsignalized	LTS 4	Speed Limit change to 45 mph
Mn 220 at 20th Street	3-Lane	Unsignalized	LTS 3	High Speed
Mn 220 at 23rd Street	3-Lane	Unsignalized	LTS 3	High Speed
Mn 220 at 140th Street	2-Lane	Unsignalized	LTS 3	High Speed

Source: Level of Traffic Stress Criteria, Northeastern University, Peter G. Furth, Table 1 and Table 6

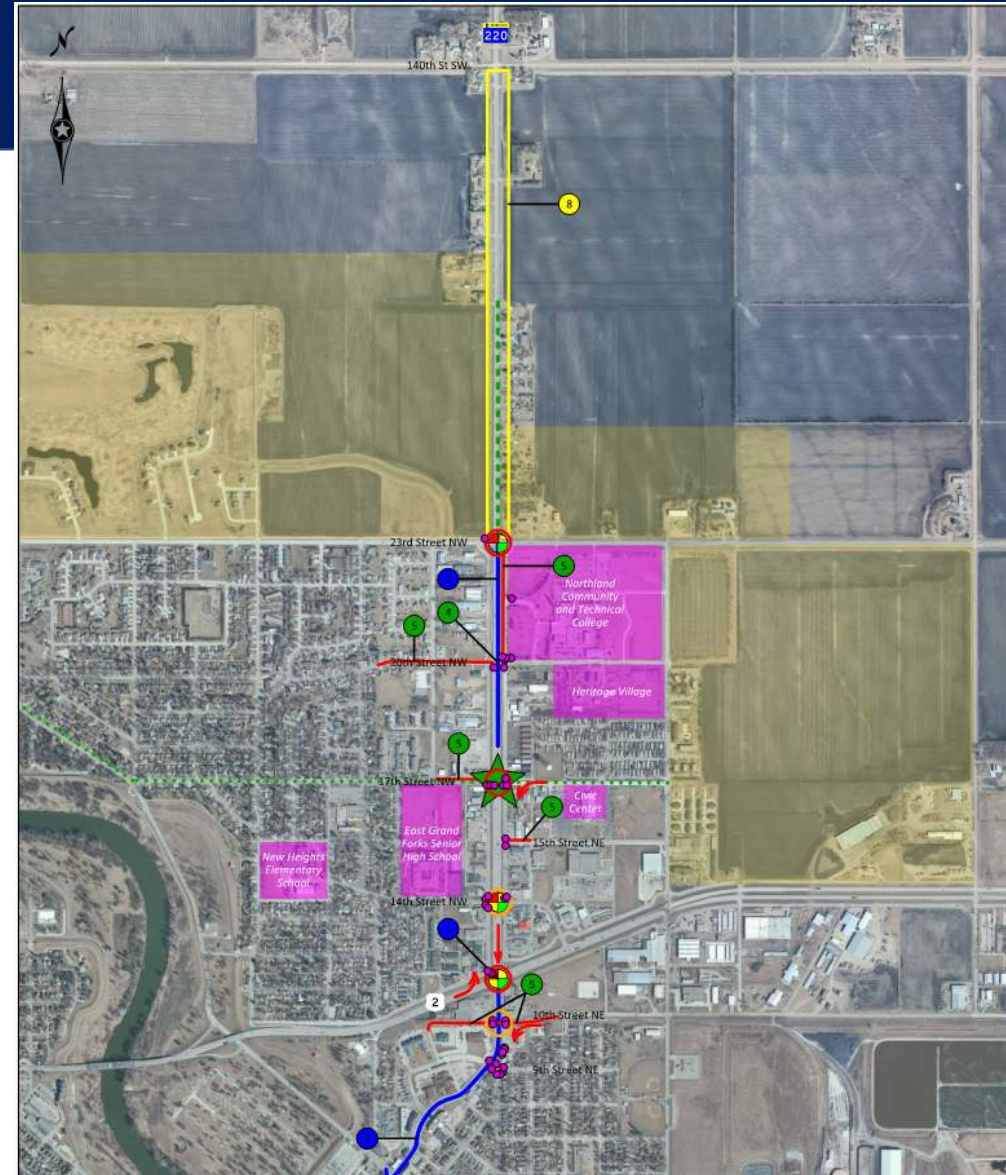
Purpose and Need

- **Project Purpose**

- Identify Existing and Future Transportation Issues within the Study Corridor and Develop Alternatives to Address Them.

- **Project Need**

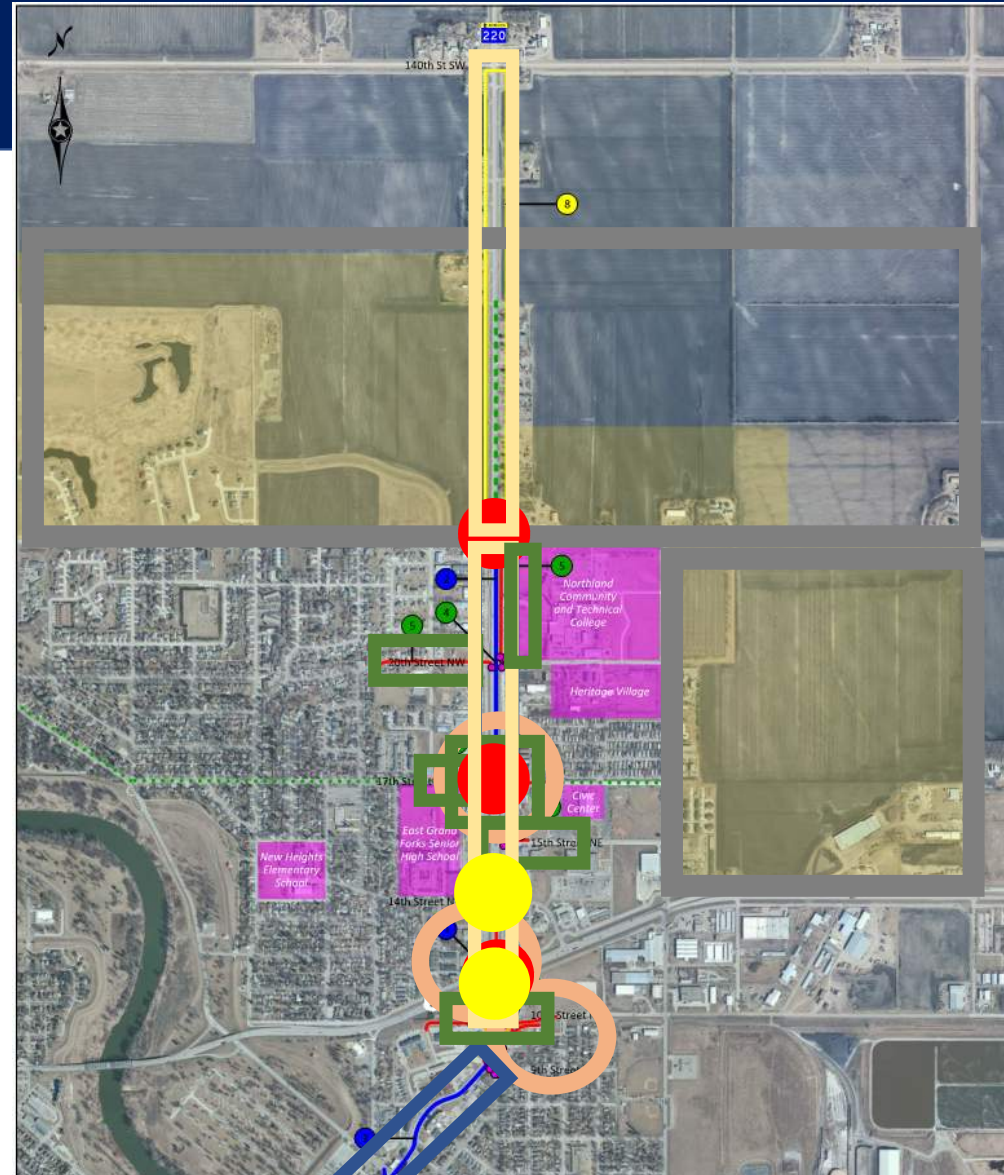
- Capacity Deficiencies
- Current or Future Transportation Demands
- Social/Economic Demands
- Modal Interrelationships
- Safety and Roadway Deficiencies



Purpose and Need

• Transportation System Needs

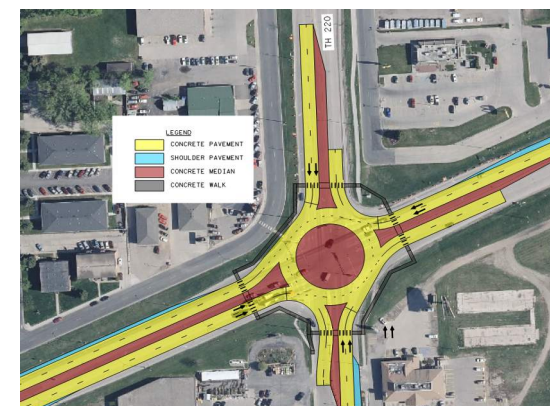
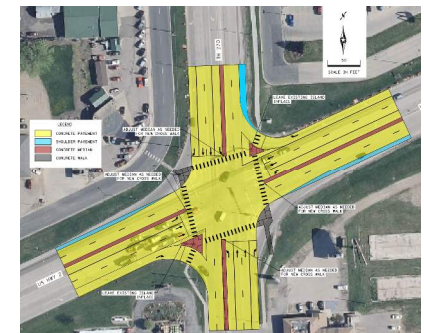
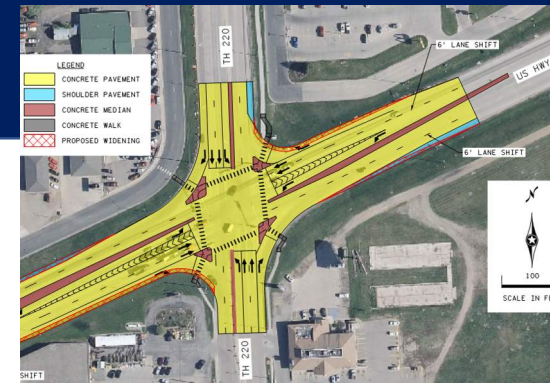
- Capacity –
 - Increased Delay by 2045 – Key Locations
- Transportation Demand – Planned Projects
- Social/Economic – Future Land Use Changes
- Modal Interrelationships
 - ADA Pedestrian Ramps (36)
 - Sidewalk Gaps
 - Intersection Crossings (17th Street)
- Safety – Critical Crash Rates
- Roadway Deficiencies
 - Traffic Signal Rebuilds
 - Roadway Rehab/Reconstruct (2033/2058)
 - Access Management
 - Turn Lanes



Alternatives Brainstorming

US 2/Mn 220

- Signal Operations
 - FYA
 - Signal Head Placement
 - Clearance Intervals
 - Interconnect/Coordination
 - Operation/Safety Improvements
 - Confirmation Lights
 - Yellow Backplate
 - Pedestrian Countdown Timers
 - Pedestrian FYA Omit
- Geometrics
 - Offset Left Turn Lanes
 - Right turn Geometrics
 - Alternative Control
- System
 - Remove Conflicting Movements (e.g., displaced lefts, grade separation)
 - Provide Alternative Routes (e.g., signal at US 2/5th Avenue NW)



Alternatives Brainstorming

Mn 220/17th Street and 23rd Street

- Traffic Control Device Improvements
 - Traffic Signal
 - Roundabout
- Pedestrian Improvements

17th Street to 23rd Street

- Extend 4-lane to 23rd Street; or
- Maintain Existing Lane Drop Location

23rd Street to 140th Street SW

- 3-Lane Roadway; or
- 2-Lane Roadway with Left Turn Pockets



Alternatives Brainstorming

Pedestrian Crossing Improvements

- Curb Extensions
- Refuge Medians
- High Visibility Crosswalks / Signing
- ADA Pedestrian Ramps
- Traffic Control
 - RRFB
 - Hawk
 - Signal



Existing Median Treatment



Improved Refuge Median



Existing Pedestrian Ramps



Improve ADA Ramp Design and Compliance

Alternatives Brainstorming

Access Management

- 15th Street – $\frac{3}{4}$ Access?
- 20th Street – $\frac{3}{4}$ Access?
- $\frac{1}{4}$ Mile Access north of 23rd Street



NEXT STEPS / OTHER DISCUSSION

- Any Other Discussion?
- SRC Meeting 3 – Mid February (TBD)
 - Alternatives Analysis



ALLIANT PROJ. NO. 118-0184.0

SRC MEETING MINUTES

DATE/TIME: Tuesday, February 19; 2:00 p.m.
LOCATION: East Grand Forks City Hall
PROJECT: Mn 220 N Corridor Study
PURPOSE: **Study Review Committee Meeting 3** – Alternatives Analysis
MINUTES BY: Mike Anderson, Alliant Project Manager; (612-767-9340)

1) Introductions

See attached sign in sheet for list of meeting attendees

2) Overview of Key System Needs

Mike gave an overview of the key issues identified and discussed at SRC 2. Key highlights are included in the meeting powerpoint. (Attached).

3) Overview of Alternatives

Mike provided an overview of the alternatives. The alternatives were identified to address the system needs through improvements to access control, mobility, safety and pedestrian crossings of Mn 220. The alternatives were identified to at intersections, two key segments (23rd Street-140th Street and 17th Street to 23rd Street) and other treatments such as pedestrian sidewalk connections. (Exhibit 5-1 is attached).

4) Intersection Alternatives Evaluation

Mike discussed the technical metrics and terms used to evaluate the alternatives. Included in the attached powerpoint. In addition, a discussion on the nine categorical metrics that align with project purpose and need, study objectives and the 2045 MTP performance measures, visions and goals. A brief discussion on the priority of the categories occurred. The SRC concurred with the priority that was assigned. MnDOT noted that modal interrelationship at the Mn 220/17th Street intersection might be considered more important.

5) Intersection Alternatives

Mike and the SRC walked through each alternative developed for the study intersections. Highlights of the discussion include:

17th Street

- Concern was raised relative to the need to facilitate the motor coach circulation off of Mn 220 onto the west frontage road.
- The SRC did not like the trade off of routed pedestrians to outside of the frontage roads in the case of the splitter islands being too small. This led to the idea that the RAB could potentially be shifted to the east such that a larger island could be developed facilitating the ped crossing while maintaining access to the west frontage road. In this alternative the media on the east side would extend through the east frontage road
- The SRC found reasonable that a median could extend through the east frontage road and business access be relatively unimpacted due to the supporting access, streets and frontage road. It is acknowledged that certain routes (traveling north/south through along the frontage road) might be affected, but at relatively small inconvenience.
- Truck traffic through the roundabout is of primary concern. MnDOT noted the Mn220 design vehicle is a WB-67. The SRC noted that larger trucks (67') may need to gain access to Valley Trucking and other businesses.
- Agricultural vehicles require extra width. It was noted that the width is not relative to the wheelbase, but the width of the vehicle. Careful design and setback of light poles, signs, structures, etc is required for this consideration and can be accommodated within either alternative.
- **Action: Alliant will further evaluate the RAB with respect to key truck movements and truck trailer sizes and provide follow up with the SRC to ultimately determine if the RAB is feasible from this perspective.**
- It was noted that a traffic signal operation may not be warranted until 2045 and this is with a ¾ access restriction at 20th Street (¾ Access at 20th results in through and left turn traffic using 17th Street to help justify traffic control change.
- **Action: Alliant will verify the estimate year the traffic signal will be warranted and follow up with the SRC as this may influence the intersection alternative selection.**

14th Street:

- It was noted that the roundabout alternative requires a multi-lane (2x1) footprint. It is anticipated this footprint will impact frontage road operations and is not a feasible control.
- Rebuilding the traffic signal system with key safety and operational improvements were determined to be the preferred approach.

US 2/Mn 220

- Discussed signal operation and visibility improvements, including flashing yellow arrow (FYA), signal timing, coordination, signal head placement relative to the signal rebuild options.
- Concluded that the preferred alternative relative to rebuilding the signal system control is the construction of eastbound dual left turn lane and the right turn geometric improvements
- The RAB was discussed and although is expected to have very good operational and safety benefit it was dismissed by the SRC due to multilane design, concern about driver familiarity, increased crashes (though less severe), and is not a consistent traffic control choice given 14th Street will remain a signal and a signal is in operation at 5th Avenue NE.
- The eastbound displaced left turn was dismissed due to its expected frontage road impacts, familiarity concern, and marginal difference when compared to the dual left turn operation.

- High level intersection configurations were discussed. It was noted that traditional interchange design would have significant property impacts and were dismissed. Non-traditional ideas were discussed. The SRC concluded that the large investment required for grade separation is not worth the return, given the operational/safety can be improved with other options, the mobility concern is not that significant in 2045 to warrant such an investment, and the corridor visual/environmental change that would result. Interchange concepts will not be carried further.
- The Alternative A-1 (dual left turn) plus improved right turn lane design was identified as the preferred intersection design
- It was noted that signal improvements could be made in the interim to achieve safety benefit (e.g., FYA and signal head arrangement not requiring full replacement).

23rd Street:

- The roundabout was determined to be preferred long term design and intersection control

20th Street:

- Concern was raised relative to the small pork chop islands (west side frontage road) relative to truck turns.
- Discussion was made relative to importance of needing a $\frac{3}{4}$ access. It was noted that the $\frac{3}{4}$ access helps justify traffic control change at 17th Street, and reduces pedestrian crosswalk conflicts.
- The City noted that most pedestrians typically prefer to cross at 17th Street and 23rd Street. Addition of sidewalk on the east side from 20th to 23rd would help encourage crossing at those intersections and potentially the crosswalk could be removed.
- MnDOT noted that an RRFB could be a potential improvement at this location if the crosswalk remains.
- Decision on the 20th Street design and pedestrian treatments needs further discussion following the selection of the preferred design at 17th Street.

15th Street:

- The pedestrian crosswalk alternatives at 15th Street were identified to encourage pedestrian crossings at an intersection instead of mid-block.
- After discussion, it was determined that establishing a crossing at this intersection is likely to not be used and is not the worth the investment.
- No build alternative is preferred.

10th Street:

- Did not discuss

6) Segment Alternatives

Mike and the SRC walked through each alternative developed for the key corridor segments. Highlights of the discussion include:

9th to 10th Street

- Discussed the pavement marking alternative to address the lane merge/left turn lane conflict at 9th Street. No comments were made.

23rd Street to 140th Street SW

- Discussed cross-section alternatives.
- It was noted that the future access locations denoted on Figure 5-1 are consistent with planned locations.
- The SRC concurred that the alternative of adding left turn and right turn pockets (as opposed to continues 3-lane section) made the most sense in terms of implementing improvements as access and developments occur.

17th to 23rd Street

- MnDOT denoted their preference that 17th Street to 23rd Street be minimized to the extent feasible. In support of the 2-lane cross-section alternative.
- Cross-section design is dependent upon traffic control selection at 17th Street. It is also dependent upon the intersection design for 20th Street. Further follow up on the preferred segment design needs to occur.

7) Next Steps

- a. Public Meeting 2 (Early to Mid April)**
- b. SRC Meeting 3 (Early to Mid April)**

8) Other Discussion

None



ALLIANT
ENGINEERING

Mn 220 North Corridor Study Steering Review Committee



SIGN-IN SHEET

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Mn 220 N Corridor Study

SRC Meeting 3 – Alternatives Analysis | February 19, 2019



AGENDA

- Introductions
- Overview of Key System Needs
- Overview of Alternatives / Meeting Outcome
- Intersection Alternatives
- Intersection Alternatives Evaluation
- Segment Alternatives
- Pedestrian Connections
- Next Steps
- Other Discussion

Overview of Key System Needs

- **Key Transportation System Needs (SRC Meeting 2)**
 - Capacity
 - Increased Delay by 2045 – 17th Street, US 2
 - Safety
 - Critical Crash Rates at US 2, 17th Street and 23rd Street
 - Transportation Demand – Previous Planned Project 17th to 23rd Street, 220/US 2 Intersection
 - Social/Economic – Future Land Use Changes
 - Modal Interrelationships
 - ADA Pedestrian Ramps (33)
 - Sidewalk Gaps
 - Intersection Crossings (17th Street, 20th Street)
 - Roadway Deficiencies
 - Traffic Signal Rebuild needed by 2030 (14th Street and US 2)
 - Roadway Rehab/Reconstruct (2033/2058)
 - Access Management
 - Turn Lanes (North of 23rd Street)

Overview of Alternatives

Overview

- Intersections
- Segments
- Pedestrian Connections
- Other

Address Key Objectives

- Access Control
- Mobility
- Safety
- Pedestrian Crossing

Desired Outcome

- Understand the Trade Offs
- Informed Opinion on Preferred Alternative



Intersection Alternatives

Key Technical Comparison Metrics

- Key Considerations / Fatal Flaws / Trade Offs
- Construction Cost
- Mobility – Intersection Level of Service
- Safety – Estimated Change in Crash and Severity Rate
- Right of Way
- 20-year Traffic Operation Benefit
 - Monetizes Change in Motorist Delay
- 20-year Safety Benefit
 - Monetizes Change in Crashes
 - Injury (Fatal, Type A, Type B, Type C), Property Damage Only
- Economic Analysis - Benefit / Cost Ratio
 - $(20\text{-yr traffic op benefit} + 20\text{-yr safety benefit}) / \text{construction cost } (20\text{-year present worth} + \text{OM} - \text{remaining capital value})$

Intersection Alternatives

Evaluation Scoring Metrics

Purpose and Need

- Compatible with project purpose and needs

Intersection Capacity

- Intersection level of service
- Worst approach level of service
- Delay Benefit

Transportation Demand/System Linkage

- Side-street accessibility
- Connectivity within the study area
- Connectivity to the greater region

- Dependence on 5th Ave NW or 2nd St NE connections

- Ability to accommodate future corridor volumes

Social or Economic Demand

- Compatibility with future land development
- Existing business impact
- Ability to accommodate harvest season heavy commercial traffic volumes and movements
- Ability to accommodate year-round heavy commercial traffic movements
- Farmland impact
- Corridor visual quality impact
- Environmental impacts

Modal Interrelationships

- Pedestrian network compatibility
- Ease of pedestrian crossing
- Bicycle network compatibility
- Transit service impacts

Safety

- Crash rate
- Injury Crash Percentage
- Crash Reduction or Impact

Roadway Deficiencies

- Infrastructure lifetime

- Public street and driveway spacing

Roadway Design and Complexity

- Addresses known roadway deficiencies
- Easiness to navigate / driver familiarity
- Coordination with planned project
- Favorable construction timeline
- Right-of-way impact area
- Number of potential property acquisitions

Cost

- Estimated design & construction cost
- Cost/benefit ratio

Priority List:

- Purpose and Need
- Safety
- Intersection Capacity
- Cost / Economical
- Social or Economic Demand
- Roadway Design and Complexity
- Modal Interrelationships
- Transportation Demand/System Linkage
- Roadway Deficiencies (Access Spacing)

Intersection Alternatives

17th Street

- No build: Pedestrian Crosswalk Improvement
- Alternative A: Install Traffic Signal System
- Alternative B: Install Single Lane Roundabout

Intersection Alternatives – 17th Street

No Build: Improve Pedestrian Crossing

Curb Ext, Refuge Median, ADA Ramps



Considerations:

- Short-term intersection solution
- Does not address these concerns:
 - Long term intersection mobility
 - Existing intersection safety

Cost: Approximately \$50,000

Mobility: LOS F (2045)

Safety: No Change

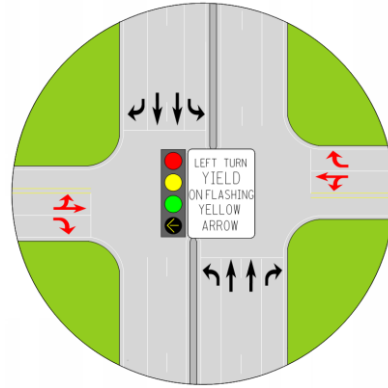
R/W: None

20-year Traffic Operation Benefit: No Change

20-year Safety Benefit: No Change

Benefit/Cost: 0

Install Traffic Signal System



Considerations:

- Warrants not met until 2045
- Expected to increase overall delay under existing conditions
- Expected to slightly improve delays by 2045

Cost: Approximately \$500,000 with ADA Improvements and Signal Communication

Mobility: LOS B (2045)

Safety: 18% reduction in crash rate and severity rate

R/W: None

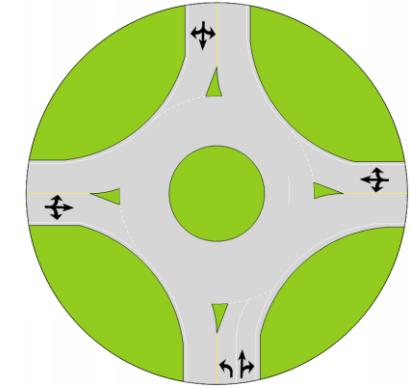
20-year Traffic Operation Benefit: (-\$1,777,272)

20-year Safety Benefit: \$219,027

Benefit/Cost:

<0

Install Single Lane Roundabout



Considerations:

- North/South ped accommodations difficult
 - May require median closure of frontage roads
 - Or routing peds on the far east and far west

Cost: Approximately \$2,600,000

Mobility: LOS A (2045)

Safety: 55% reduction in crash rate and severity rate.

R/W: None

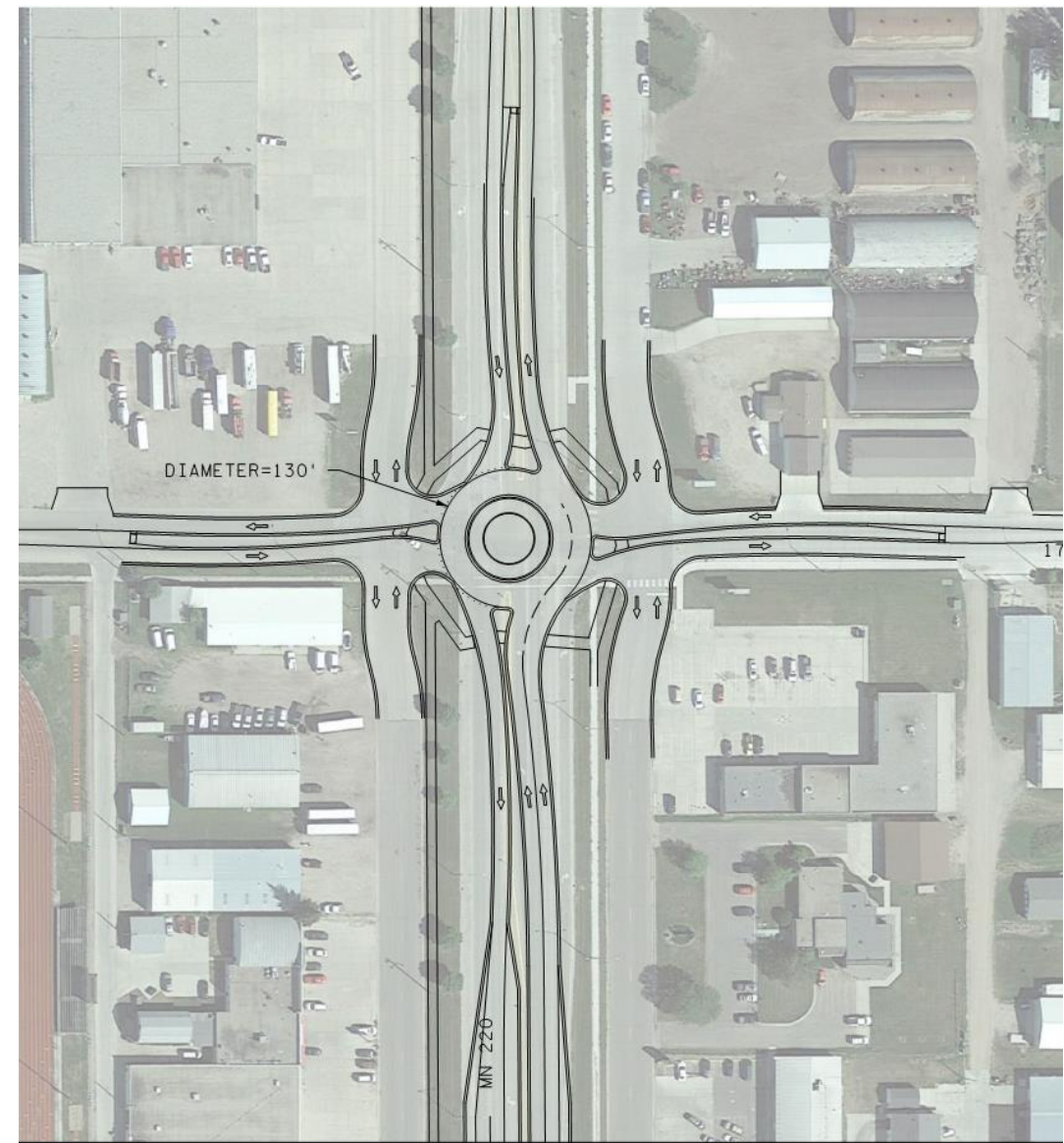
20-year Traffic Operation Benefit: \$1,487,692

20-year Safety Benefit: \$647,421

Benefit/Cost:

1.18

Intersection Alternatives – 17th Street



Intersection Alternatives – 17th Street



Intersection Alternatives – 17th Street

Evaluation Scoring Comparison

MN-220 Preliminary Alternatives Evaluation Matrix	
Purpose and Need	
1	Compatible with project purpose and needs
Intersection Capacity	
1	Intersection level of service (2045 AM/PM)
2	Worst approach level of service (2045 AM/PM)
3	Delay Benefit (Million \$; 20 Years Present Value)
Transportation Demand/System Linkage	
1	Side-street accessibility
2	Connectivity within the study area
3	Connectivity to the greater region
4	Dependence on 5th Ave NW or 2nd St NE connections
5	Ability to accommodate future corridor volumes
Social or Economic Demand	
1	Compatibility with future land development
2	Existing business impact
3	Ability to accommodate harvest season heavy commercial traffic volumes and movements
4	Ability to accommodate year-round heavy commercial traffic movements
5	Farmland impact
6	Corridor visual quality impact
7	Environmental impacts
Modal Interrelationships	
1	Pedestrian network compatibility
2	Ease of pedestrian crossing
3	Bicycle network compatibility
4	Transit service impacts
Safety	
1	Crash rate (crashes / million entering vehicles)
2	Injury Crash Percentage
3	Crash benefit (Million \$; 20 Years Present Value)
Roadway Deficiencies	
1	Infrastructure lifetime
2	Public street and driveway spacing
Roadway Design and Complexity	
1	Addresses known roadway deficiencies
2	Easiness to navigate / driver familiarity
3	Coordination with planned project
4	Favorable construction timeline
5	Right-of-way impact area
6	Number of potential property acquisitions
Cost	
1	Estimated construction cost (Million \$)
2	Benefit/cost ratio
TOTAL (Sum of Individual Scores)	

Mn 220 at 17th					
No Build		Alternative A Signal Installation (Intersection-level analysis)		Alternative B Single-lane Roundabout	
Analysis	Score	Analysis	Score	Analysis	Score
	2.0		4.0		4.0
--	2	--	4	--	4
	3.0		3.0		4.7
A/B	5	A/B	5	A/A	5
D/F	1	D/D	2	A/A	5
\$ -	3	#REF!	2	\$ 1.49	4
	3.0		3.6		3.2
--	3	--	4	--	2
OK	3	OK	3	OK	3
OK	3	OK	3	OK	3
NA	3	NA	3	NA	3
--	3	--	5	--	5
	3.0		3.0		3.4
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	5
--	3	--	3	--	4
	2.0		3.5		2.8
--	1	--	4	--	3
--	1	--	4	--	3
--	3	--	3	--	2
--	3	--	3	--	3
	3.0		3.3		4.0
0.71	3	0.58	4	0.32	5
15%	3	15%	3	15%	3
\$ -	3	\$ 0.22	3	\$ 0.65	4
	2.5		3.0		4.0
--	2	--	3	--	5
--	3	--	3	--	3
	4.0		4.3		3.8
None	1	me paveme	4	nal/Paveme	5
Comfort	5	Comfort	5	Unfamiliar	2
--	3	--	4	--	4
--	5	--	3	--	2
0	5	0	5	0	5
0	5	0	5	0	5
	3.5		2.5		2.5
\$ 0.05	4	\$ 0.50	4	\$ 2.60	2
NA	3	<0	1	1.18	3
	100.0		113.0		117.0

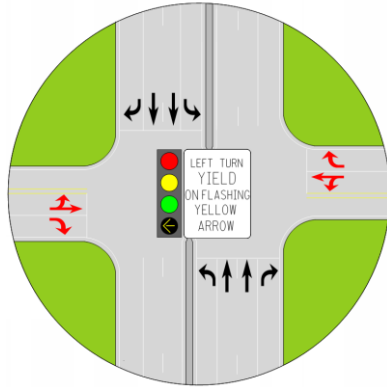
Intersection Alternatives

14th Street

- Alternative A: Rebuild Signal System
- Alternative B: Install Multilane (2x1) Roundabout

Intersection Alternatives – 14th Street

Rebuild Signal System

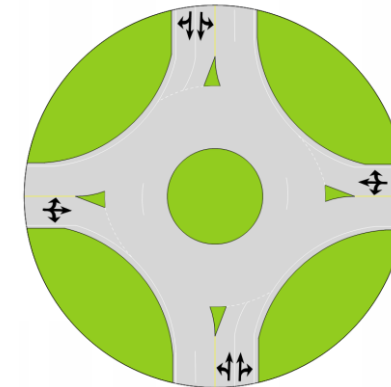


Considerations:

- Minor/no impact to street width and curbs
- Most efficient operation over a full day

Cost: Approximately \$300,000 with Traffic Signal Interconnection to US 2
Mobility: LOS B (2045)
Safety: 29% reduction in crash rate and 33% reduction in crash severity rate.
R/W: None
20-year Traffic Operation Benefit: \$371,482
20-year Safety Benefit: \$1,955,479
Benefit/Cost: 9.50

Install Multilane (2x1) Roundabout



Considerations:

- Frontage road spacing likely problematic (may not be feasible)
 - Destination Access
 - Motorists needing to make U-turns onto frontage roads
- Most efficient operation during peak periods

Cost: Approximately \$3,000,000
Mobility: LOS A (2045)
Safety: 9% increase in crash rate. 1% reduction in crash severity rate (large reduction in Type A, Type B)
R/W: None
20-year Traffic Operation Benefit: \$8,805,855
20-year Safety Benefit: \$1,803,378
Benefit/Cost: 5.20

Intersection Alternatives – 14th Street

Evaluation Scoring Comparison

MN-220 Preliminary Alternatives Evaluation Matrix	
Purpose and Need	
1	Compatible with project purpose and needs
Intersection Capacity	
1	Intersection level of service (2045 AM/PM)
2	Worst approach level of service (2045 AM/PM)
3	Delay Benefit (Million \$; 20 Years Present Value)
Transportation Demand/System Linkage	
1	Side-street accessibility
2	Connectivity within the study area
3	Connectivity to the greater region
4	Dependence on 5th Ave NW or 2nd St NE connections
5	Ability to accommodate future corridor volumes
Social or Economic Demand	
1	Compatibility with future land development
2	Existing business impact
3	Ability to accommodate harvest season heavy commercial traffic volumes and movements
4	Ability to accommodate year-round heavy commercial traffic movements
5	Farmland impact
6	Corridor visual quality impact
7	Environmental impacts
Modal Interrelationships	
1	Pedestrian network compatibility
2	Ease of pedestrian crossing
3	Bicycle network compatibility
4	Transit service impacts
Safety	
1	Crash rate (crashes / million entering vehicles)
2	Injury Crash Percentage
3	Crash benefit (Million \$; 20 Years Present Value)
Roadway Deficiencies	
1	Infrastructure lifetime
2	Public street and driveway spacing
Roadway Design and Complexity	
1	Addresses known roadway deficiencies
2	Easiness to navigate / driver familiarity
3	Coordination with planned project
4	Favorable construction timeline
5	Right-of-way impact area
6	Number of potential property acquisitions
Cost	
1	Estimated construction cost (Million \$)
2	Benefit/cost ratio
TOTAL (Sum of Individual Scores)	

Mn 220 at 14th					
No Build		Alternative A Signal Improvements (Intersection-level analysis)		Alternative B 2x1 Roundabout	
Analysis	Score	Analysis	Score	Analysis	Score
	2.0		4.0		4.0
--	2	--	4	--	4
	4.0		3.7		4.7
A/B	5	A/B	5	A/A	5
B/B	4	C/C	3	A/A	5
\$ -	3	#REF!	3	\$ 8.81	4
	3.4		3.6		3.2
--	3	--	4	--	2
OK	3	OK	3	OK	3
OK	3	OK	3	OK	3
NA	3	NA	3	NA	3
--	5	--	5	--	5
	3.0		3.0		3.4
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	5
--	3	--	3	--	4
	2.8		2.8		2.5
--	2	--	2	--	2
--	3	--	3	--	3
--	3	--	3	--	2
--	3	--	3	--	3
	3.0		4.0		3.3
0.70	3	0.50	4	0.76	2
22%	3	20%	4	19%	4
\$ -	3	\$ 1.96	4	\$ 1.80	4
	2.0		3.0		3.5
--	1	--	3	--	5
--	3	--	3	--	2
	3.8		4.2		3.7
None	1	Signal	3	Signal/Pavement	5
Comfort	5	Comfort	5	Unfamiliar	2
--	2	--	3	--	3
--	5	--	4	--	2
0	5	0	5	0	5
0	5	0	5	0	5
	4.0		4.0		3.0
\$ -	5	\$ 0.30	4	\$ 3.00	2
NA	3	#REF!	4	5.20	4
	107.0		116.0		113.0

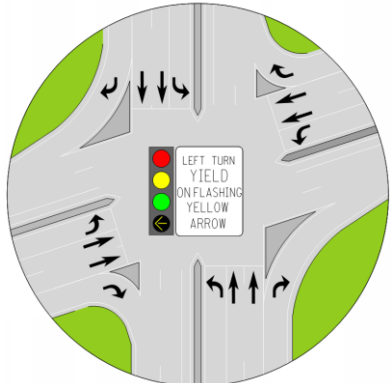
Intersection Alternatives

US 2

- Alternative A: Rebuild Signal System
 - Alternative A-0: Offset EB/WB Left Turn Lanes + Alternative A
 - Alternative A-1: Dual EB Left Turn Lanes + Alternative A
 - Alternative A-2: Right Turn Channelization Improvements + Alternative A
 - Alternative A-3: Offset EB/WB Left Turn Lanes + Right Turn Channelization Improvements + Alternative A
- Alternative B: Install Roundabout
- Alternative C: Displaced EB Left Turn
- Alternative D: Grade Separated Interchange
- Alternative E: System Improvements – 5th Avenue NW Access

Intersection Alternatives – US 2

A: Rebuild Signal System



Considerations:

- FYA provides operational flexibility
- Expected to improve intersection operation (minimal)
- Expected to improve motorist safety
 - However, does not address right turn related crashes or pedestrian comfort

Cost: Approximately \$350,000 including communication to US 2/5th Avenue NE

Mobility: LOS D (2045)

Safety: 25% decrease in crash rate. 23% decrease in severity rate.

R/W: None

20-year Traffic Operation Benefit: (-\$1,922,257)

20-year Safety Benefit: \$2,111,426

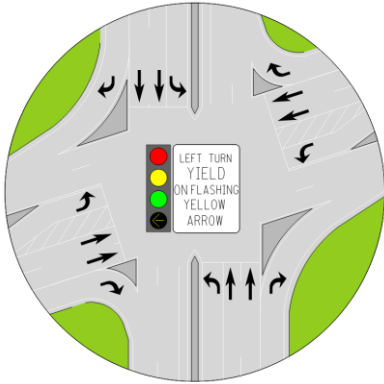
Benefit/Cost: 0.66

Traffic Signal System Improvements (All Rebuild Options)

- Install FYA on all approaches
 - Operate eastbound/westbound protected only 11 am to 6 pm and northbound protected/permissive all day
 - Implement FYA Omit logic for pedestrian actuations
- Install communication and coordinate signal timing with 14th Street NW and 5th Avenue NE
- Implement a southbound right turn overlap (concurrent with the eastbound left turn)
- Install pedestrian countdown timers
- Update the pedestrian and vehicle clearance intervals to current standards
- Add an additional overhead signal indication for each approach to improve visibility and provide yellow backplate for FYA left turn indications

Intersection Alternatives – US 2

A-0: Offset EB/WB Left Turn Lanes



Considerations:

- FYA provides operational flexibility
- Expected to improve intersection operation (minimal)
- Expected to improve motorist safety
 - However, does not address right turn related crashes or pedestrian comfort

Cost: Approximately \$2,350,000

Mobility: LOS D (2045)

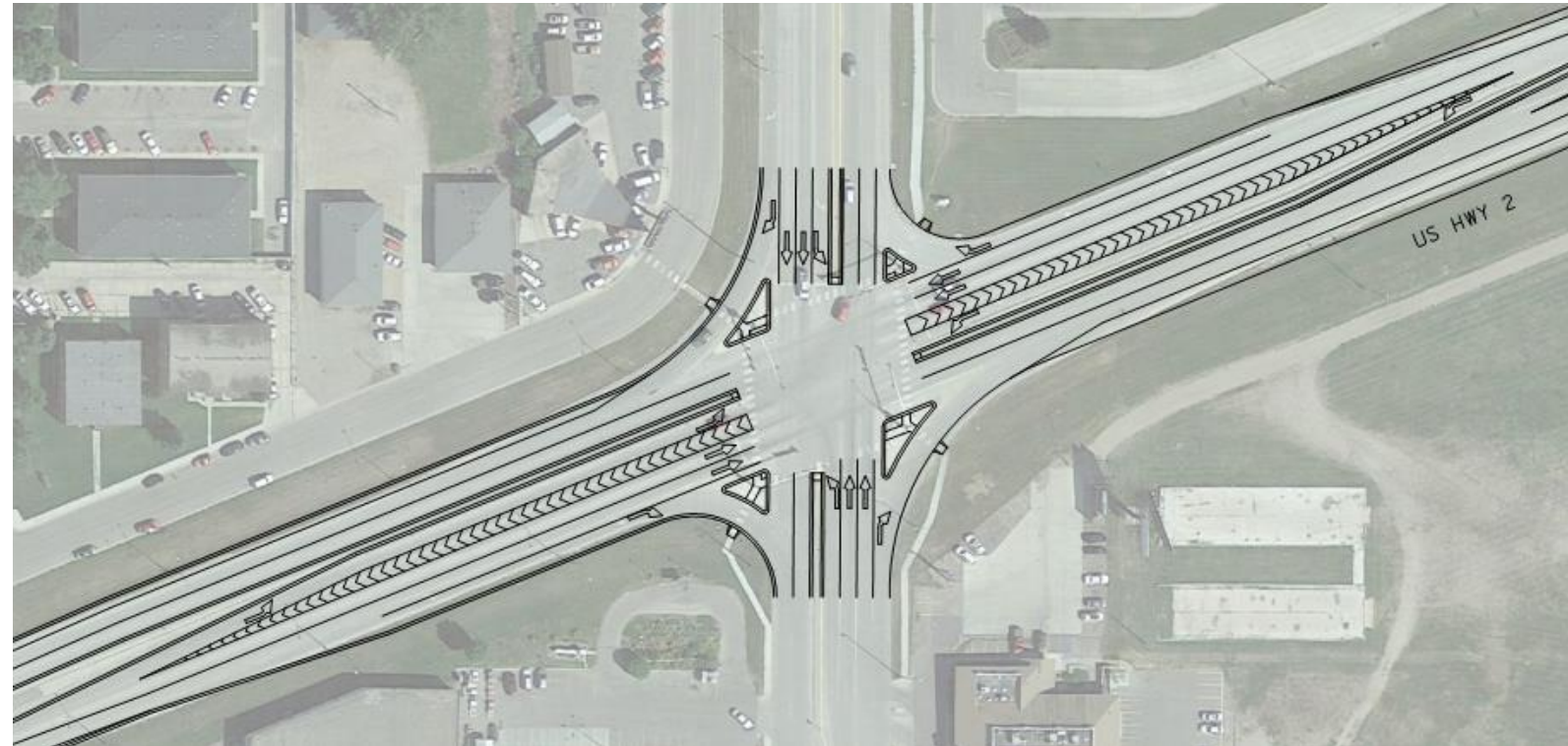
Safety: 31% decrease in crash rate. 28% decrease in severity rate.

R/W: None

20-year Traffic Operation Benefit: (-\$1,922,257)

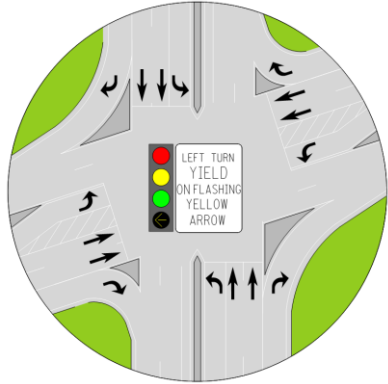
20-year Safety Benefit: \$2,721,822

Benefit/Cost: 0.48



Intersection Alternatives – US 2

A-1: Dual EB Left Turn Lanes



Considerations:

- FYA provides operational flexibility
- LOS C in 2045
- Minimizes need for 5th Ave NW full access
- Does not address right turn related crashes or pedestrian comfort

Cost: Approximately \$2,350,000

Mobility: LOS C (2045) or LOS D if No Connection at 5th Ave

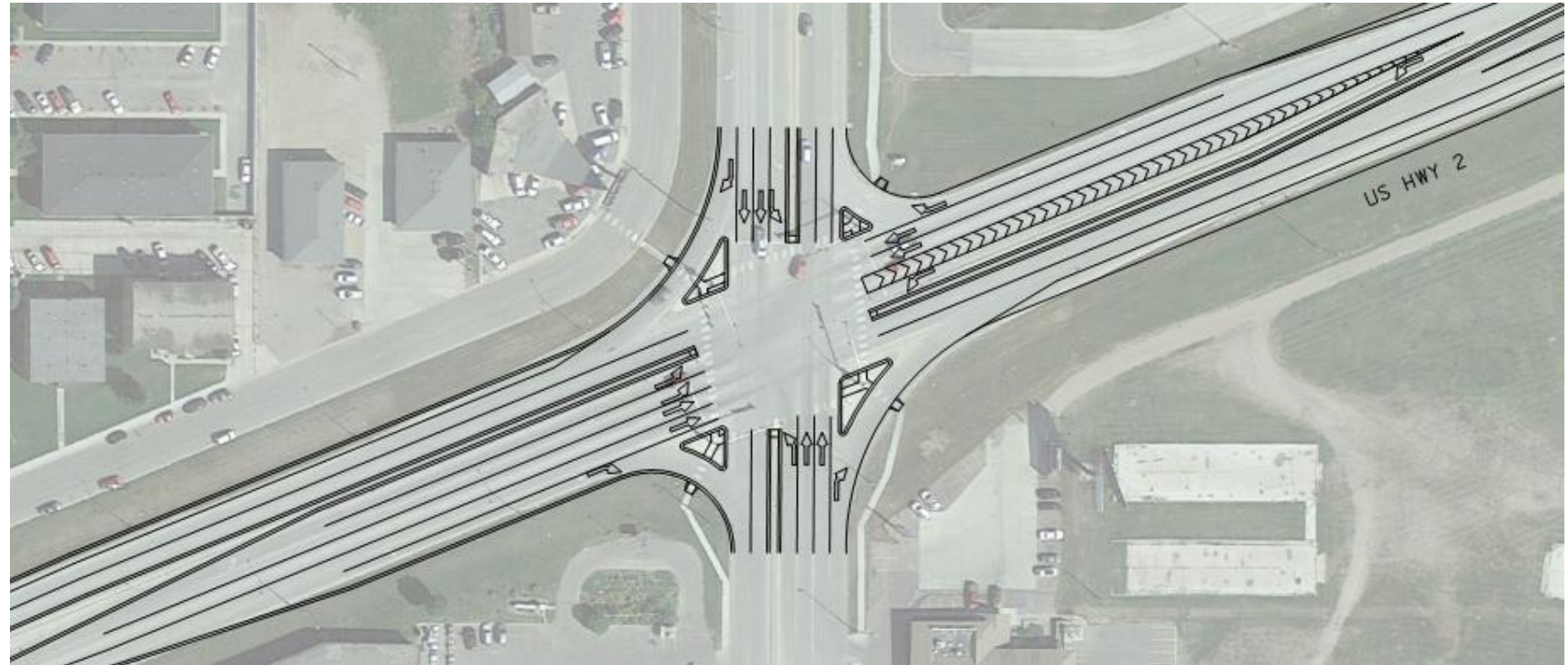
Safety: 27% decrease in crash rate. 25% decrease in severity rate.

R/W: None

20-year Traffic Operation Benefit: \$5,095,230

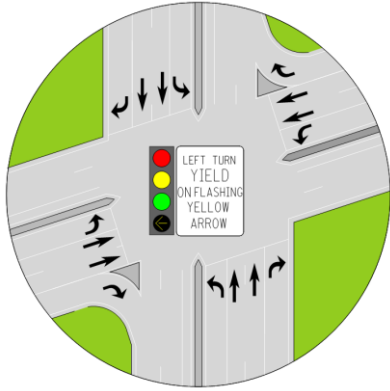
20-year Safety Benefit: \$2,363,174

Benefit/Cost: 4.47



Intersection Alternatives – US 2

A-2: Right Turn Channelization



Considerations:

- Operational improvement is minimal by itself. Best if coupled with other geometric improvements
- LOS D expected in 2045

Cost: Approximately \$875,000

Mobility: LOS D (2045)

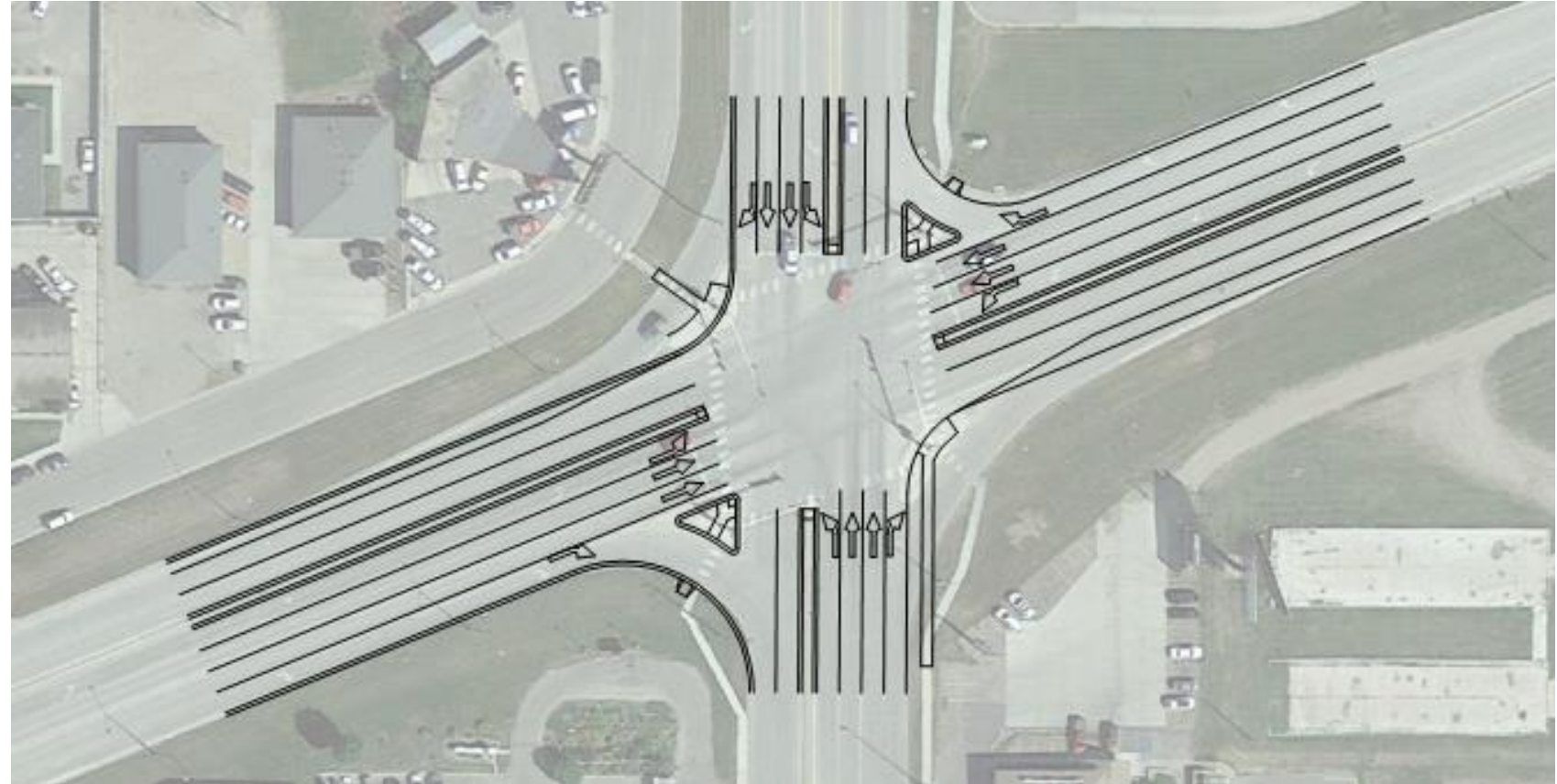
Safety: 26% decrease in crash rate. 23% reduction in severity rate.

R/W: None

20-year Traffic Operation Benefit: (-\$2,038,918)

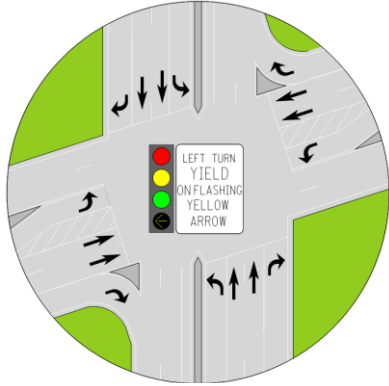
20-year Safety Benefit: \$2,085,539

Benefit/Cost: 0.07



Intersection Alternatives – US 2

A-3: RT Channelization + Offset LT Lanes



Considerations:

- Additional Operational improvement is minimal
- LOS C/D expected in 2045

Cost: Approximately \$2,650,000

Mobility: LOS D (2045) or LOS E if No Connection at 5th Ave

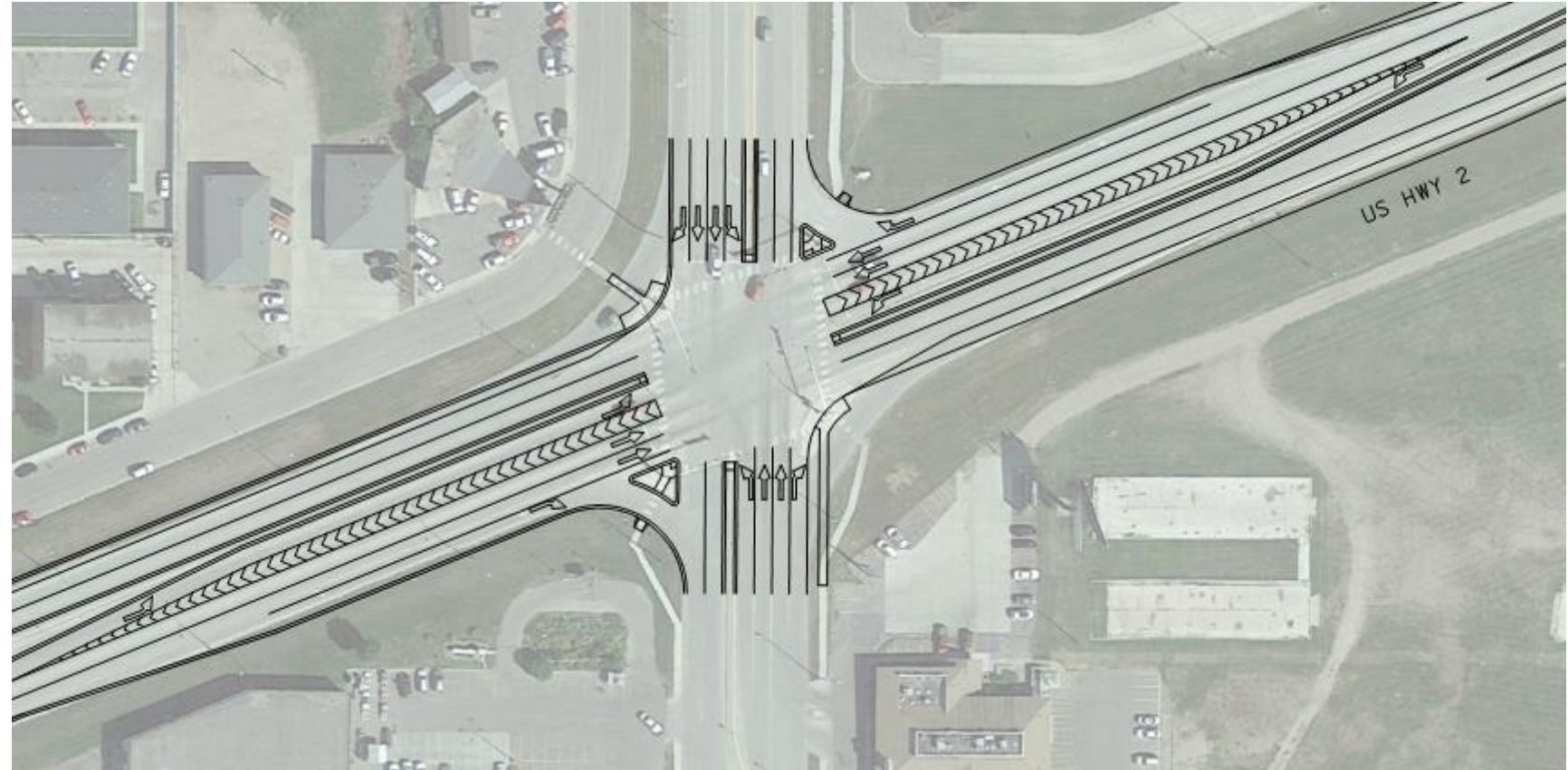
Safety: 32% decrease in crash rate. 29% reduction in severity rate.

R/W: None

20-year Traffic Operation Benefit: (-\$2,038,918)

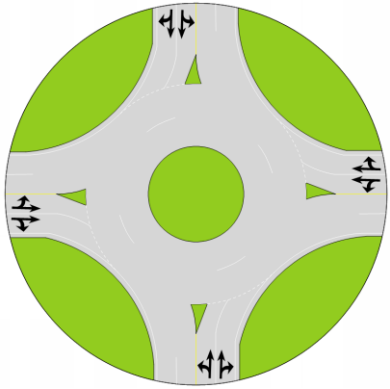
20-year Safety Benefit: \$2,746,728

Benefit/Cost: 0.38



Intersection Alternatives – US 2

B: Install Roundabout



Considerations:

- Fits within existing intersection footprint
- Expected to increase crashes but significantly reduce severity of injury crashes
- Not ideal control device if 14th remains signal

Cost: Approximately \$3,600,000

Mobility: LOS A (2045) or LOS C if No Connection at 5th Ave

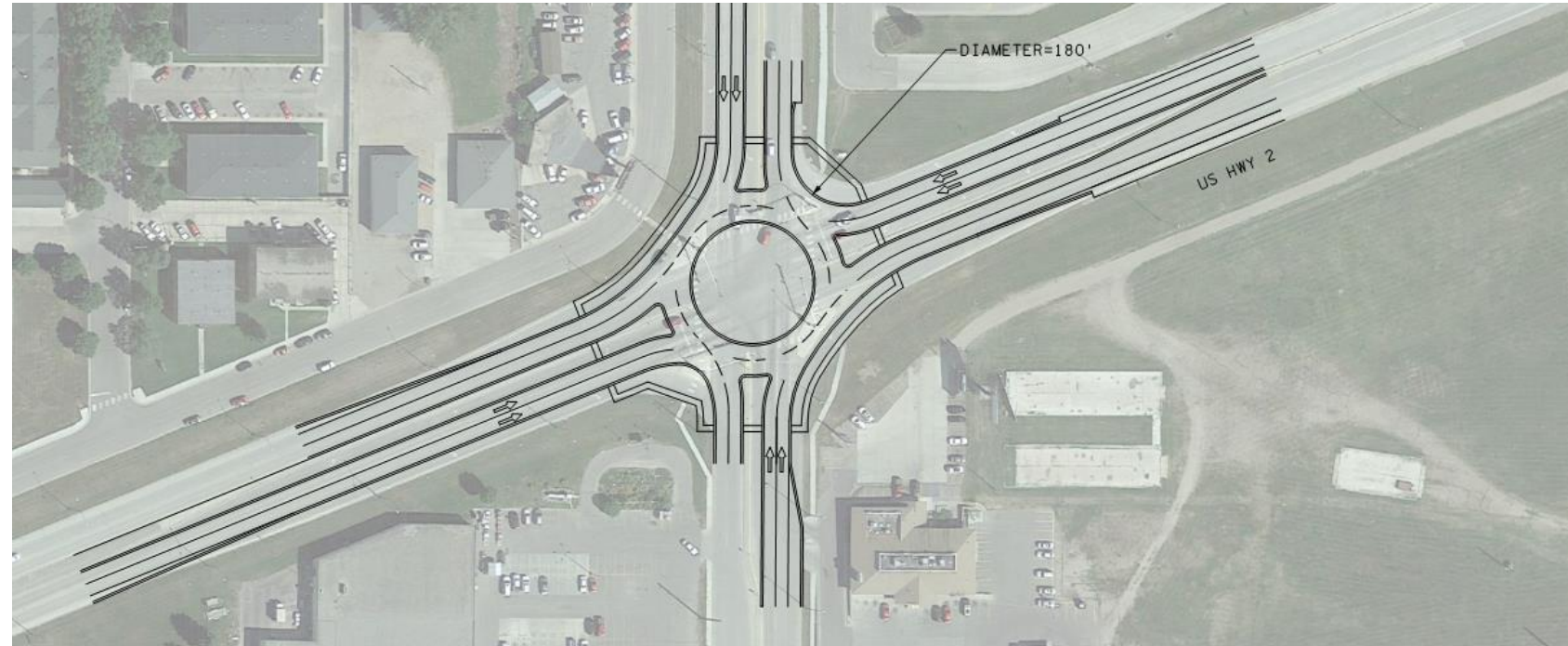
Safety: 71% increase in crash rate. 35% increase in severity rate.

R/W: None

20-year Traffic Operation Benefit: \$38,510,513

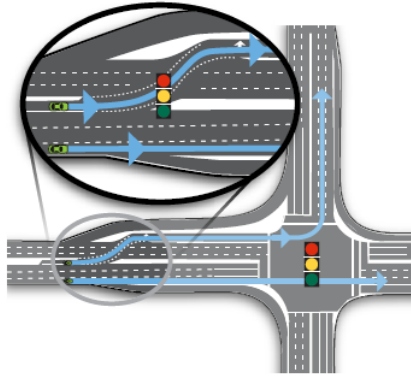
20-year Safety Benefit: \$4,255,888

Benefit/Cost: 17.34



Intersection Alternatives – US 2

Displaced EB Left Turn



Considerations:

- Improves intersection capacity by removing high volume conflicting movement
- Adds additional traffic signal
- Requires substantial roadway space (expected to have R/W and frontage road impacts)

Cost: Approximately \$2,900,000

Mobility: LOS C (2045)

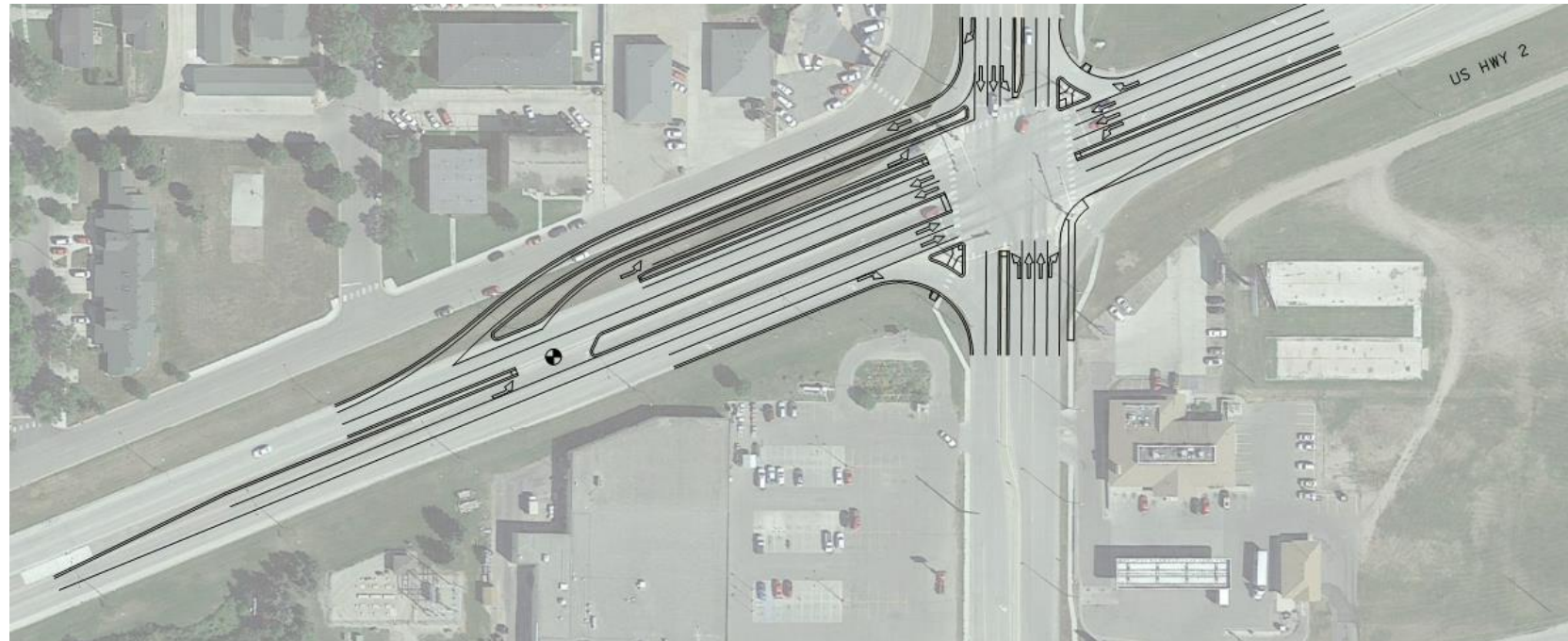
Safety: 25% decrease in crash rate. 23% reduction in severity rate.

R/W: Frontage Road Impact

20-year Traffic Operation Benefit: \$9,010,428

20-year Safety Benefit: \$2,111,426

Benefit/Cost: 5.41



Intersection Alternatives – US 2

Grade Separated Interchange (Tight Diamond)



Considerations:

- May impact businesses and local resident properties
- Significant cost for comparable benefit to other alternatives
- Overpass could significantly impact visibility and presence of remaining businesses
- Other non-traditional interchange options could be explored to minimize property or R/W acquisition – Seem Feasible
- Frontage Road Operation/Property Access
- Peak Hour in 2045 LOS D (or LOS C w/5th Ave) – Worth it?

Cost: High. > \$15,000,000 to 20M excluding R/W and property acquisition costs

Mobility: NA

Safety: NA

R/W: Significant Impact

20-year Traffic Operation Benefit: NA

20-year Safety Benefit: NA

Benefit/Cost: NA



⊗ Signal
⊙ Thru-Stop

Grade Separated Interchange (US 2 WB Over Partial)



Intersection Alternatives – US 2

System Improvements (5th Ave NW)



Considerations:

- Volumes on Mn 220
 - Maintaining existing 5th Ave NW configuration results in approx. 1,900 ADT on Mn 220
 - Streetlight O-D found existing EB left turn at Mn 220 & US 2 would decrease by 33% during AM and 18% during PM
 - North of 14th Street, marginal change in overall ADT of Mn 220
- ¾ access or full access signalize intersection overall provides a positive benefit to the transportation system (viable long term alternative)
- Without 5th Ave NW access, single EB left turn lane at MN 220/US may not be feasible (i.e., LOS D operation at US 2/Mn 220)



Intersection Alternatives – US 2

Evaluation Scoring Comparison

MN-220 Preliminary Alternatives Evaluation Matrix		Mn 220 at US 2																					
		No Build		Alternative A Signal Improvements (Intersection-level analysis)		Alternative A-0 Alternative A + Offset EB/WB LT Lanes		Alternative A-1 Alternative A + Dual EB LT Lanes		Alternative A-2 Alternative A + RT Channelization Improvements		Alternative A-3 Alternative A + Offset EB/WB LT Lanes + RT Channelization		Alternative B 2-lane Roundabout		Alternative C Displaced EB LT		Alternative D Grade Separation (Tight Diamond)		Alternative D-2 Grade Separation (Partial Ramps)		Alternative D-3 Grade Separation (WB Overpass)	
		Analysis	Score	Analysis	Score	Analysis	Score	Analysis	Score	Analysis	Score	Analysis	Score	Analysis	Score	Analysis	Score	Analysis	Score	Analysis	Score	Analysis	Score
Purpose and Need		--	1	--	4	--	4	--	4	--	4	--	4	--	4	--	4	--	4	--	4	--	4
1 Compatible with project purpose and needs		--	1	--	4	--	4	--	4	--	4	--	4	--	4	--	4	--	4	--	4	--	4
Intersection Capacity		2.3	2.0	2.0	2.0	3.0	2.0	2.0	2.0	4.7	3.3	4.7	3.3	4.7	3.3	4.7	3.3	4.7	3.3	4.7	3.3	4.7	
1 Intersection level of service (2045 AM/PM)		D/D	D/D	D/D	D/D	C/C	3	D/D	2	D/D	2	A/A	5	C/C	3	NA	5	NA	5	NA	5	NA	5
2 Worst approach level of service (2045 AM/PM)		D/E	D/E	D/E	D/E	D/D	2	D/D	2	D/D	2	B/C	4	C/C	3	NA	4	NA	4	NA	4	NA	4
3 Delay Benefit (Million \$; 20 Years Present Value)		\$ -	3	\$ (1.92)	2	\$ (1.92)	2	\$ 5.10	4	\$ (2.04)	2	\$ (2.04)	2	\$ 38.51	5	\$ 9.01	4	Large	5	Large	5	Large	5
Transportation Demand/System Linkage		2.4	2.6	2.6	2.6	3.2	2.6	2.6	2.6	3.6	3.6	3.2	3.6	3.2	3.6	3.2	3.6	3.2	3.6	3.2	3.6	3.2	3.6
1 Side-street accessibility		OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3
2 Connectivity within the study area		OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3
3 Connectivity to the greater region		OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3	OK	3
4 Dependence on 5th Ave NW or 2nd St NE connections		NA	1	NA	1	NA	1	C/D	3	NA	1	D/E	1	B/C	4	A-1	3	NA	4	NA	4	NA	4
5 Ability to accommodate future corridor volumes		--	2	--	3	--	3	--	4	--	3	--	3	--	5	--	4	--	5	--	5	--	5
Social or Economic Demand		3.0	3.0	3.0	3.0	2.9	3.1	2.9	3.1	3.4	3.4	2.7	3.4	2.7	3.4	2.7	3.4	2.7	3.4	2.7	3.4	2.7	3.4
1 Compatibility with future land development		--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	2	--	3
2 Existing business impact		--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	2	--	1	--	2	--	3
3 Ability to accommodate harvest season heavy commercial traffic volumes and movements		--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3
4 Ability to accommodate year-round heavy commercial traffic movements		--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3
5 Farmland impact		--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3
6 Corridor visual quality impact		--	3	--	3	--	3	--	3	--	3	--	5	--	3	--	1	--	1	--	1	--	1
7 Environmental impacts		--	3	--	3	--	2	--	4	--	2	--	4	--	2	--	1	--	1	--	1	--	1
Modal Interrelationships		2.8	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.5	2.8	1.8	3.3	1.8	3.3	1.8	3.3	1.8	3.3	1.8	3.3	1.8	3.3
1 Pedestrian network compatibility		--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	1	--	3	--	3	--	3
2 Ease of pedestrian crossing		--	2	--	4	--	4	--	4	--	4	--	2	--	2	--	2	--	4	--	4	--	4
3 Bicycle network compatibility		--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	1	--	3	--	3	--	3
4 Transit service impacts		--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3	--	3
Safety		3.0	3.7	4.0	3.7	3.7	3.7	3.7	3.7	4.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
1 Crash rate (crashes / million entering vehicles)		1.27	3	0.95	4	0.88	5	0.93	4	0.94	4	0.87	5	2.18	1	0.95	4	NA	4	NA	4	NA	4
2 Injury Crash Percentage		29%	3	30%	3	30%	3	30%	3	31%	3	30%	3	14%	5	30%	3	NA	3	NA	3	NA	3
3 Crash benefit (Million \$; 20 Years Present Value)		\$ -	3	\$ 2.11	4	\$ 2.72	4	\$ 2.36	4	\$ 2.09	4	\$ 2.75	4	\$ 4.26	5	\$ 2.11	4	NA	4	NA	4	NA	4
Roadway Deficiencies		2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	2.5	3.0	2.5	3.0	2.5	3.0	2.5	3.0	2.5	3.0	2.5	3.0	
1 Infrastructure lifetime		--	1	--	3	--	3	--	3	--	3	--	5	--	3	--	4	--	4	--	4	--	4
2 Public street and driveway spacing		--	3	--	3	--	3	--	3	--	3	--	3	--	2	--	2	--	2	--	2	--	2
Roadway Design and Complexity		3.8	4.3	4.2	4.2	4.2	4.2	4.2	4.2	3.7	2.2	2.5	2.2	2.5	2.2	2.5	2.2	2.5	2.2	2.5	2.2	2.5	
1 Addresses known roadway deficiencies		None	1	Signal	4	Signal	4	Signal	4	Signal	4	Signal/Pavement	5	Signal	4	Signal/Pavement	5	Signal/Pavement	5	Signal/Pavement	5	Signal/Pavement	5
2 Ease to navigate / driver familiarity		Comfort	5	Familiar	4	Familiar	4	Familiar	4	Familiar	4	Unfamiliar	2	Very Unfamiliar	1	Comfort	5	Comfort	5	Comfort	5	Comfort	4
3 Coordination with planned project		--	2	--	5	--	4	--	4	--	5	--	3	--	2	--	2	--	2	--	2	--	2
4 Favorable construction timeline		--	5	--	3	--	3	--	3	--	3	--	2	--	2	--	1	--	1	--	1	--	1
5 Right-of-way impact area		0	5	0	5	0	5	0	5	0	5	0	5	0	5	Some	2	Large	1	Large	1	Large	3
6 Number of potential property acquisitions		0	5	0	5	0	5	0	5	0	5	0	5	0	5	Some	2	Large	1	Large	1	Large	3
Cost		4.0	3.0	2.0	3.0	3.0	3.0	3.0	3.0	2.0	3.5	3.0	3.5	3.0	3.0	1.0	3.5	3.0	1.0	3.5	3.0	2.0	
1 Estimated construction cost (Million \$)		\$ -	5	\$ 0.35	4	\$ 2.35	2	\$ 2.35	2	\$ 0.88	4	\$ 2.65	2	\$ 3.60	2	\$ 2.90	2	>\$15m	1	>\$15m	1	>\$5m	2
2 Benefit/cost ratio		NA	3	0.66	2	0.48	2	4.47	4	0.07	2	0.38	2	17.34	5	5.41	4	NA	1	NA	2	NA	2
TOTAL (Sum of Individual Scores)		96.0	106.0	104.0	110.0	107.0	103.0	118.0	95.0	92.0	99.0	105.0											

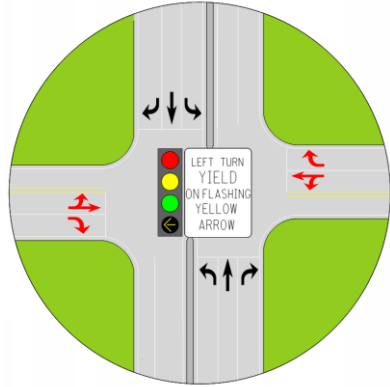
Intersection Alternatives

23rd Street

- Alternative A: Install Traffic Signal System
- Alternative B: Install Single Lane Roundabout

Intersection Alternatives – 23rd Street

Install Traffic Signal System

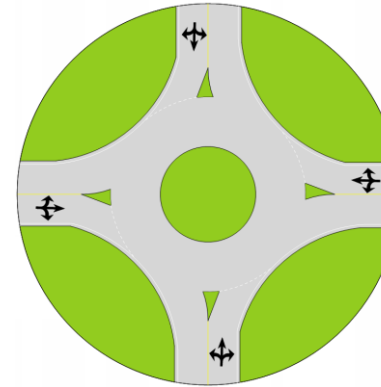


Considerations:

- Warrants not met until 2045
- Expected to increase overall delay
- Expected to increase overall crash rate and potentially severity

Cost: Approximately \$500,000 with ADA Improvements
Mobility: LOS B (2045)
Safety: 10% Increase in crash and severity rate
R/W: None
20-year Traffic Operation Benefit: (-\$3,050,616)
20-year Safety Benefit: (-\$171,503)
Benefit/Cost: <0

Install Single Lane Roundabout

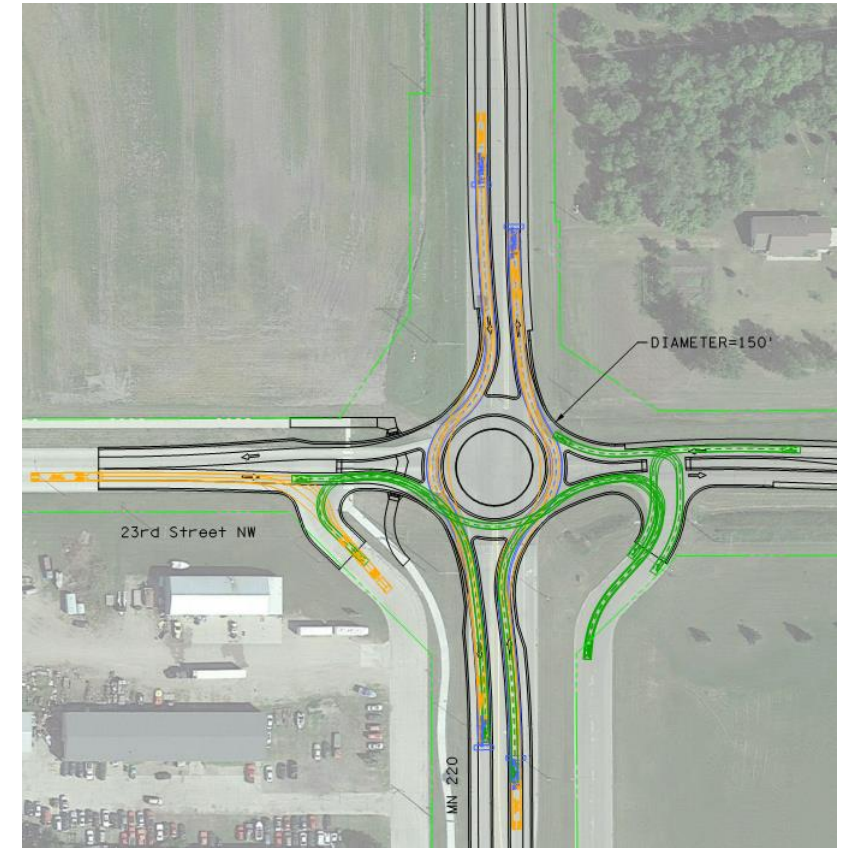
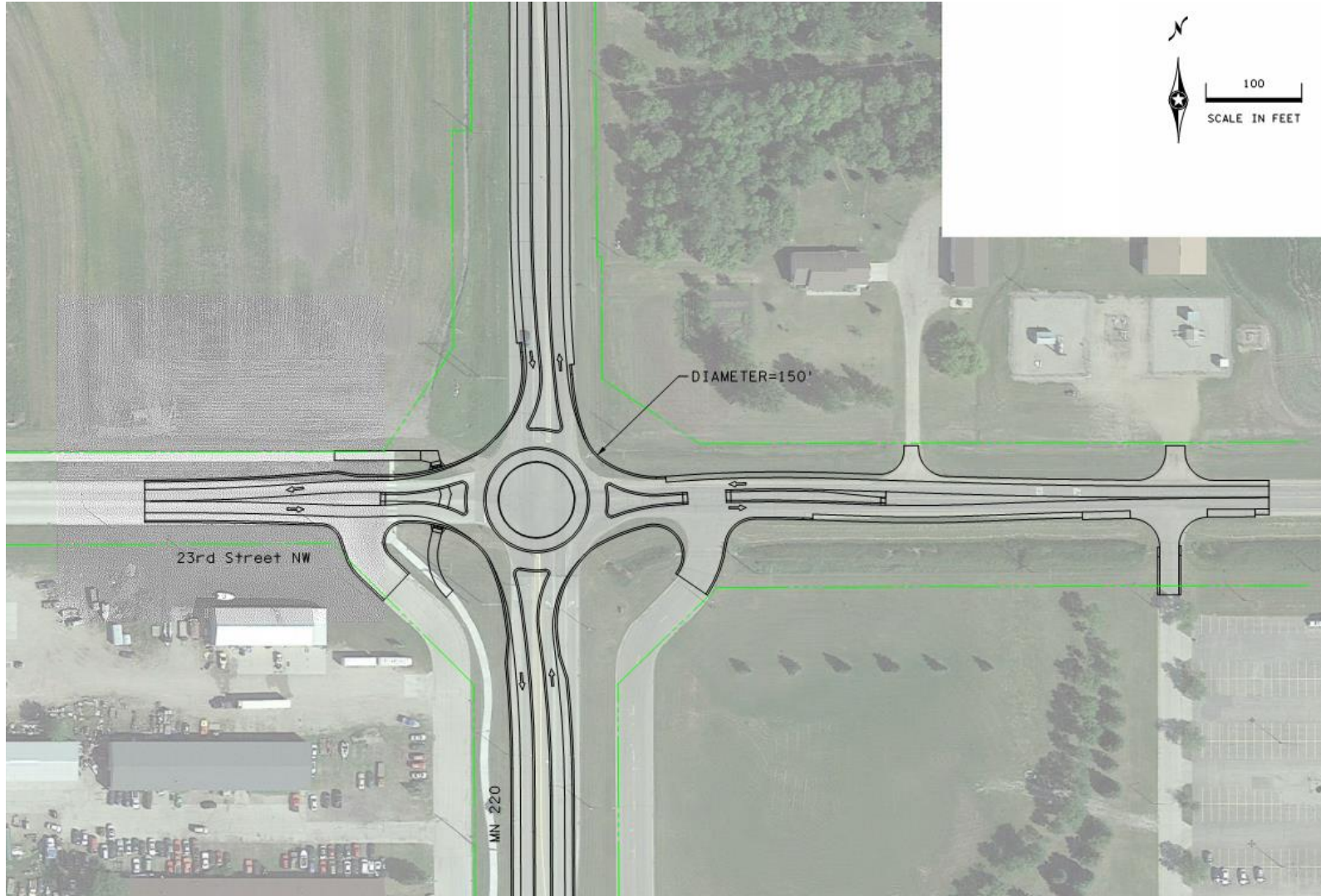


Considerations:

- Frontage road spacing may present design and/or operation challenges
- Existing ditches, drainage design and storm sewer system needs

Cost: Approximately \$2,950,000
Mobility: LOS A (2045)
Safety: 41% reduction in crash rate. 48% reduction in severity rate
R/W: None
20-year Traffic Operation Benefit: \$1,026,765
20-year Safety Benefit: \$990,747
Benefit/Cost: 0.98

Intersection Alternatives – 23rd Street



Intersection Alternatives – 23rd Street

Evaluation Scoring Comparison

MN-220 Preliminary Alternatives Evaluation Matrix	
Purpose and Need	
1	Compatible with project purpose and needs
Intersection Capacity	
1	Intersection level of service (2045 AM/PM)
2	Worst approach level of service (2045 AM/PM)
3	Delay Benefit (Million \$; 20 Years Present Value)
Transportation Demand/System Linkage	
1	Side-street accessibility
2	Connectivity within the study area
3	Connectivity to the greater region
4	Dependence on 5th Ave NW or 2nd St NE connections
5	Ability to accommodate future corridor volumes
Social or Economic Demand	
1	Compatibility with future land development
2	Existing business impact
3	Ability to accommodate harvest season heavy commercial traffic volumes and movements
4	Ability to accommodate year-round heavy commercial traffic movements
5	Farmland impact
6	Corridor visual quality impact
7	Environmental impacts
Modal Interrelationships	
1	Pedestrian network compatibility
2	Ease of pedestrian crossing
3	Bicycle network compatibility
4	Transit service impacts
Safety	
1	Crash rate (crashes / million entering vehicles)
2	Injury Crash Percentage
3	Crash benefit (Million \$; 20 Years Present Value)
Roadway Deficiencies	
1	Infrastructure lifetime
2	Public street and driveway spacing
Roadway Design and Complexity	
1	Addresses known roadway deficiencies
2	Easiness to navigate / driver familiarity
3	Coordination with planned project
4	Favorable construction timeline
5	Right-of-way impact area
6	Number of potential property acquisitions
Cost	
1	Estimated construction cost (Million \$)
2	Benefit/cost ratio
TOTAL (Sum of Individual Scores)	

Mn 220 at 23rd					
No Build		Alternative A Signal Installation (Intersection-level analysis)		Alternative B Single-lane Roundabout	
Analysis	Score	Analysis	Score	Analysis	Score
	2.0		4.0		4.0
--	2	--	4	--	4
	3.7		3.0		4.7
A/A	5	B/B	4	A/A	5
C/C	3	B/B	4	A/A	5
\$ -	3	#REF!	1	\$ 1.03	4
	3.2		3.6		3.8
--	3	--	4	--	5
OK	3	OK	3	OK	3
OK	3	OK	3	OK	3
NA	3	NA	3	NA	3
--	4	--	5	--	5
	3.0		3.1		3.6
--	3	--	4	--	4
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	5
--	3	--	3	--	4
	3.0		3.3		3.0
--	3	--	3	--	3
--	3	--	4	--	4
--	3	--	3	--	2
--	3	--	3	--	3
	3.0		2.3		4.0
0.54	3	0.59	3	0.32	4
33%	3	38%	2	25%	4
\$ -	3	\$ (0.17)	2	\$ 0.99	4
	2.5		3.0		4.0
--	2	--	3	--	5
--	3	--	3	--	3
	3.8		4.5		3.5
None	1	me paveme	4	nal/Paveme	5
Comfort	5	Comfort	5	Unfamiliar	2
--	2	--	5	--	2
--	5	--	3	--	2
0	5	0	5	0	5
0	5	0	5	0	5
	4.0		2.5		2.0
\$ -	5	\$ 0.50	4	\$ 2.95	2
NA	3	<0	1	0.98	2
	107.0		111.0		119.0

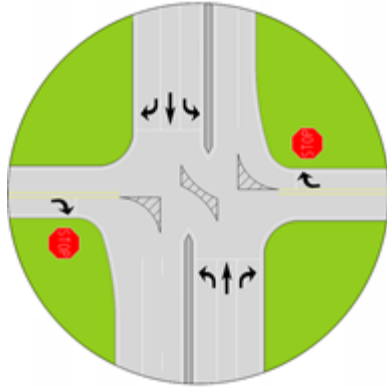
Intersection Alternatives

20th Street – (Existing Crosswalk)

- Alternative A: Convert to $\frac{3}{4}$ Access
- Alternative B: Convert to $\frac{3}{4}$ Access and also Prohibit Southbound Left Turns

Intersection Alternatives – 20th Street

Convert to ¾ Access



Considerations:

- Option: improve crosswalk on north leg (or remove crosswalk with construction of sidewalk on east side of Mn 220)
 - Consider curb extensions on north leg
- Minimal inconvenience due to frontage road connectedness
- Public/business perception of reduced access
- May need full access if frontage road at 17th is disconnected with RAB

Cost: Approximately \$350,000

Mobility: LOS A

Safety: Reduced Crash Rate (Reduces Right Angle Crashes)

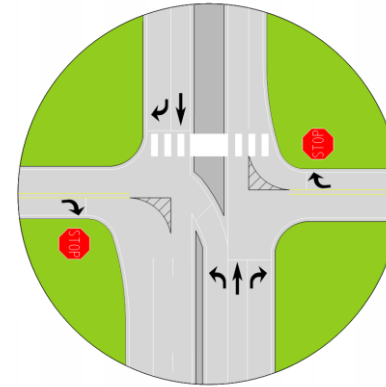
R/W: None

20-year Traffic Operation Benefit: NA

20-year Safety Benefit: NA

Benefit/Cost: NA

Convert to ¾ Access and Prohibit Southbound Left Turns



Considerations:

- Improve crosswalk on north side
 - Consider curb extensions on north leg
 - Removal of SB left turn allows for wide refuge median
- Minimal inconvenience due to frontage road connectedness
- Public/business perception of reduced access
- May need full access if frontage road at 17th is disconnected with RAB

Cost: Approximately \$600,000

Mobility: LOS A

Safety: Reduced Crash Rate (Reduces Right Angle Crashes)

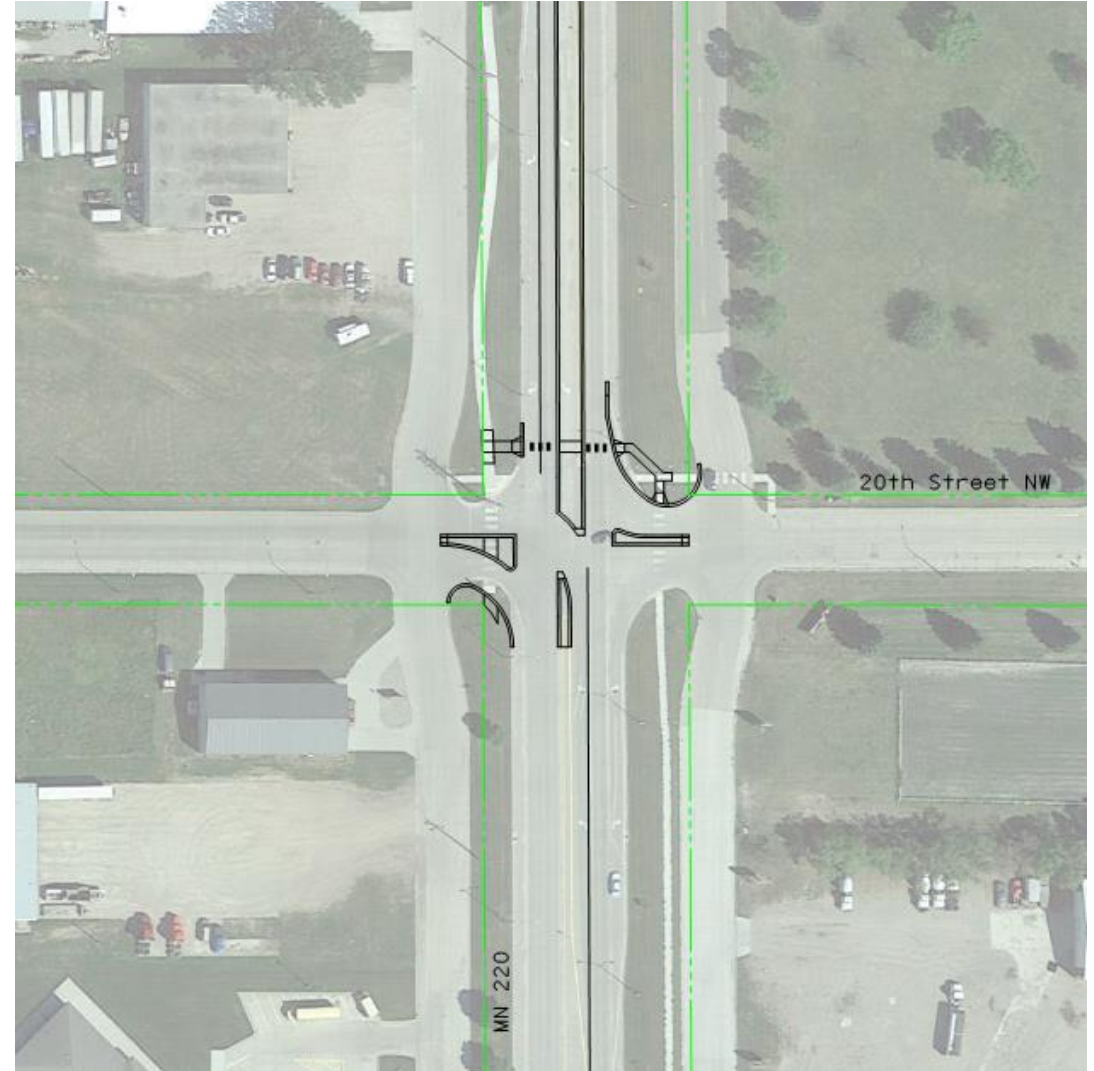
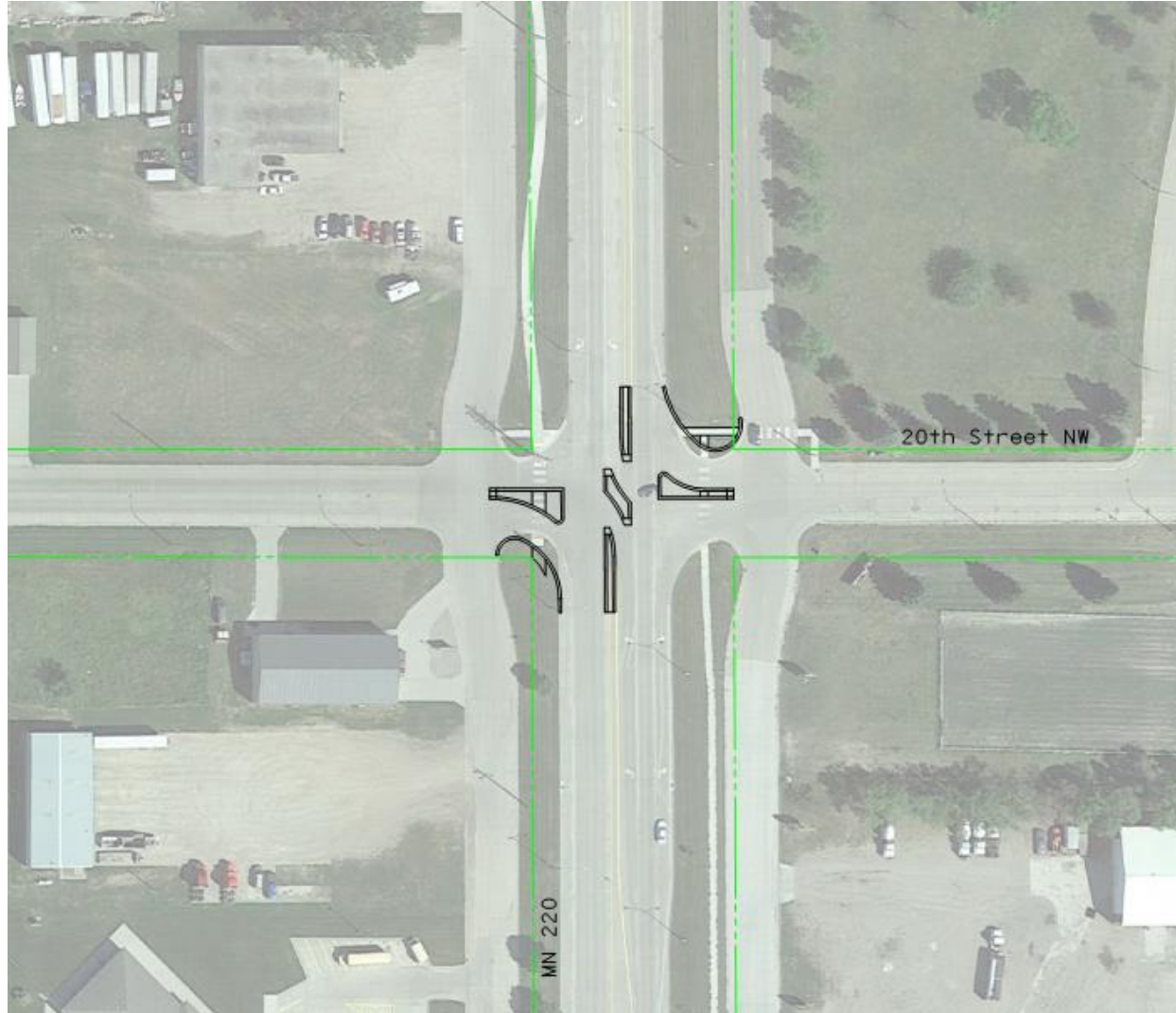
R/W: None

20-year Traffic Operation Benefit: NA

20-year Safety Benefit: NA

Benefit/Cost: NA

Intersection Alternatives – 20th Street



Intersection Alternatives – 20th Street

Evaluation Scoring Comparison

MN-220 Preliminary Alternatives Evaluation Matrix	
Purpose and Need	
1	Compatible with project purpose and needs
Intersection Capacity	
1	Intersection level of service (2045 AM/PM)
2	Worst approach level of service (2045 AM/PM)
3	Delay Benefit (Million \$; 20 Years Present Value)
Transportation Demand/System Linkage	
1	Side-street accessibility
2	Connectivity within the study area
3	Connectivity to the greater region
4	Dependence on 5th Ave NW or 2nd St NE connections
5	Ability to accommodate future corridor volumes
Social or Economic Demand	
1	Compatibility with future land development
2	Existing business impact
3	Ability to accommodate harvest season heavy commercial traffic volumes and movements
4	Ability to accommodate year-round heavy commercial traffic movements
5	Farmland impact
6	Corridor visual quality impact
7	Environmental impacts
Modal Interrelationships	
1	Pedestrian network compatibility
2	Ease of pedestrian crossing
3	Bicycle network compatibility
4	Transit service impacts
Safety	
1	Crash rate (crashes / million entering vehicles)
2	Injury Crash Percentage
3	Crash benefit (Million \$; 20 Years Present Value)
Roadway Deficiencies	
1	Infrastructure lifetime
2	Public street and driveway spacing
Roadway Design and Complexity	
1	Addresses known roadway deficiencies
2	Easiness to navigate / driver familiarity
3	Coordination with planned project
4	Favorable construction timeline
5	Right-of-way impact area
6	Number of potential property acquisitions
Cost	
1	Estimated construction cost (Million \$)
2	Benefit/cost ratio
TOTAL (Sum of Individual Scores)	

Mn 220 at 20th					
No Build		Alternative A 3/4 Access		Alternative B 3/4 Access + no SB LT	
Analysis	Score	Analysis	Score	Analysis	Score
	1.0		3.0		3.0
--	1	--	3	--	3
	4.0		4.3		4.3
A/A	5	NA	5	NA	5
B/C	4	NA	5	NA	5
\$ -	3	\$ -	3	\$ -	3
	3.4		3.2		3.2
--	3	--	2	--	2
OK	3	OK	3	OK	3
OK	3	OK	3	OK	3
NA	3	NA	3	NA	3
--	5	--	5	--	5
	3.0		2.9		2.9
--	3	--	3	--	3
--	3	--	2	--	2
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
	2.3		2.5		3.8
--	2	--	3	--	5
--	2	--	3	--	5
--	2	--	2	--	3
--	3	--	2	--	2
	3.0		3.7		3.7
0.15	3	reduced	4	reduced	4
0%	3	reduced	4	reduced	4
\$ -	3	\$ -	3	\$ -	3
	3.0		3.0		3.0
--	3	--	3	--	3
--	3	--	3	--	3
	4.2		4.2		4.2
none	3	me paveme	3	me paveme	3
Comfort	5	Familiar	4	Familiar	4
--	2	--	5	--	5
--	5	--	3	--	3
0	5	0	5	0	5
0	5	0	5	0	5
	4.0		3.5		3.5
\$ -	5	\$ 0.35	4	\$ 0.60	4
NA	3	NA	3	NA	3
	108.0		111.0		116.0

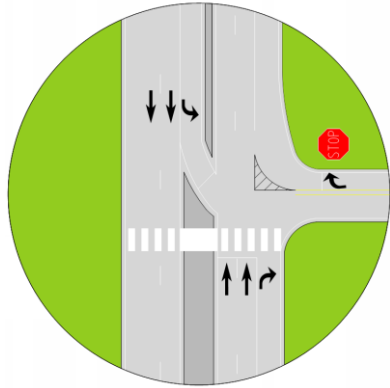
Intersection Alternatives

15th Street

- Alternative A: Convert to $\frac{3}{4}$ Access
- Alternative B: Establish Crosswalk with Pedestrian Refuge

Intersection Alternatives – 15th Street

Convert to ¾ Access



Considerations:

- Public/business perception of reduced access
- Crosswalk on south leg
 - Consider west side curb extension
 - Widen median for ped refuge

Cost: Approximately \$490,000

Mobility: LOS A (2045)

Safety: Reduced Right Angle Crashes

R/W: None

20-year Traffic Operation Benefit: NA

20-year Safety Benefit: NA

Benefit/Cost: NA

Establish Crosswalk with Pedestrian Refuge



Considerations:

- Maintain full access if frontage road median closure necessary at 17th (roundabout)
- Widen median for ped refuge
- Does not meet ¼ mile full access spacing guidelines

Cost: Approximately \$350,000

Mobility: LOS C (2045)

Safety: No Change

R/W: None

20-year Traffic Operation Benefit: NA

20-year Safety Benefit: NA

Benefit/Cost: NA

Intersection Alternatives – 15th Street



Intersection Alternatives – 15th Street

Evaluation Scoring Comparison

MN-220 Preliminary Alternatives Evaluation Matrix	
Purpose and Need	
1	Compatible with project purpose and needs
Intersection Capacity	
1	Intersection level of service (2045 AM/PM)
2	Worst approach level of service (2045 AM/PM)
3	Delay Benefit (Million \$; 20 Years Present Value)
Transportation Demand/System Linkage	
1	Side-street accessibility
2	Connectivity within the study area
3	Connectivity to the greater region
4	Dependence on 5th Ave NW or 2nd St NE connections
5	Ability to accommodate future corridor volumes
Social or Economic Demand	
1	Compatibility with future land development
2	Existing business impact
3	Ability to accommodate harvest season heavy commercial traffic volumes and movements
4	Ability to accommodate year-round heavy commercial traffic movements
5	Farmland impact
6	Corridor visual quality impact
7	Environmental impacts
Modal Interrelationships	
1	Pedestrian network compatibility
2	Ease of pedestrian crossing
3	Bicycle network compatibility
4	Transit service impacts
Safety	
1	Crash rate (crashes / million entering vehicles)
2	Injury Crash Percentage
3	Crash benefit (Million \$; 20 Years Present Value)
Roadway Deficiencies	
1	Infrastructure lifetime
2	Public street and driveway spacing
Roadway Design and Complexity	
1	Addresses known roadway deficiencies
2	Easiness to navigate / driver familiarity
3	Coordination with planned project
4	Favorable construction timeline
5	Right-of-way impact area
6	Number of potential property acquisitions
Cost	
1	Estimated construction cost (Million \$)
2	Benefit/cost ratio
TOTAL (Sum of Individual Scores)	

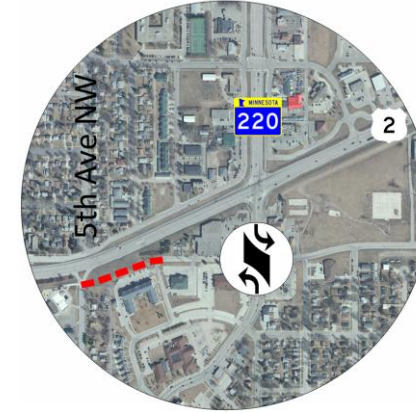
Mn 220 at 15th					
No Build		Alternative A 3/4 Access		Alternative B Establish Crosswalk with Pedestrian Refuge	
Analysis	Score	Analysis	Score	Analysis	Score
	1.0		3.0		3.0
--	1	--	3	--	3
	4.3		4.3		4.3
A/A	5	NA	5	NA	5
A/A	5	NA	5	NA	5
\$ -	3	\$ -	3	\$ -	3
	3.4		3.2		3.4
--	3	--	2	--	3
OK	3	OK	3	OK	3
OK	3	OK	3	OK	3
NA	3	NA	3	NA	3
--	5	--	5	--	5
	3.0		2.9		3.0
--	3	--	3	--	3
--	3	--	2	--	3
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
--	3	--	3	--	3
	2.3		3.5		3.5
--	1	--	4	--	4
--	2	--	4	--	4
--	3	--	3	--	3
--	3	--	3	--	3
	3.0		3.7		3.7
0.11	3	reduced	4	reduced	4
0%	3	reduced	4	reduced	4
\$ -	3	\$ -	3	\$ -	3
	3.0		3.0		3.0
--	3	--	3	--	3
--	3	--	3	--	3
	4.2		4.2		4.2
none	3	ccess spac	4	none	3
Comfort	4	Familiar	4	familiar	4
--	3	--	3	--	3
--	5	--	4	--	5
0	5	0	5	0	5
0	5	0	5	0	5
	4.0		3.5		3.5
\$ -	5	\$ 0.49	4	\$ 0.35	4
NA	3	NA	3	NA	3
	109.0		115.0		117.0

Intersection Alternatives

10th Street

- Alternative A: Convert to $\frac{3}{4}$ Access

Convert to $\frac{3}{4}$ Access



Considerations:

- Business access potentially impacted significantly
- Would likely require 10th St NW extension

Cost: NA

Mobility: LOS A

Safety: Reduced Right Angle Crashes

R/W: None

20-year Traffic Operation Benefit: NA

20-year Safety Benefit: NA

Benefit/Cost: NA

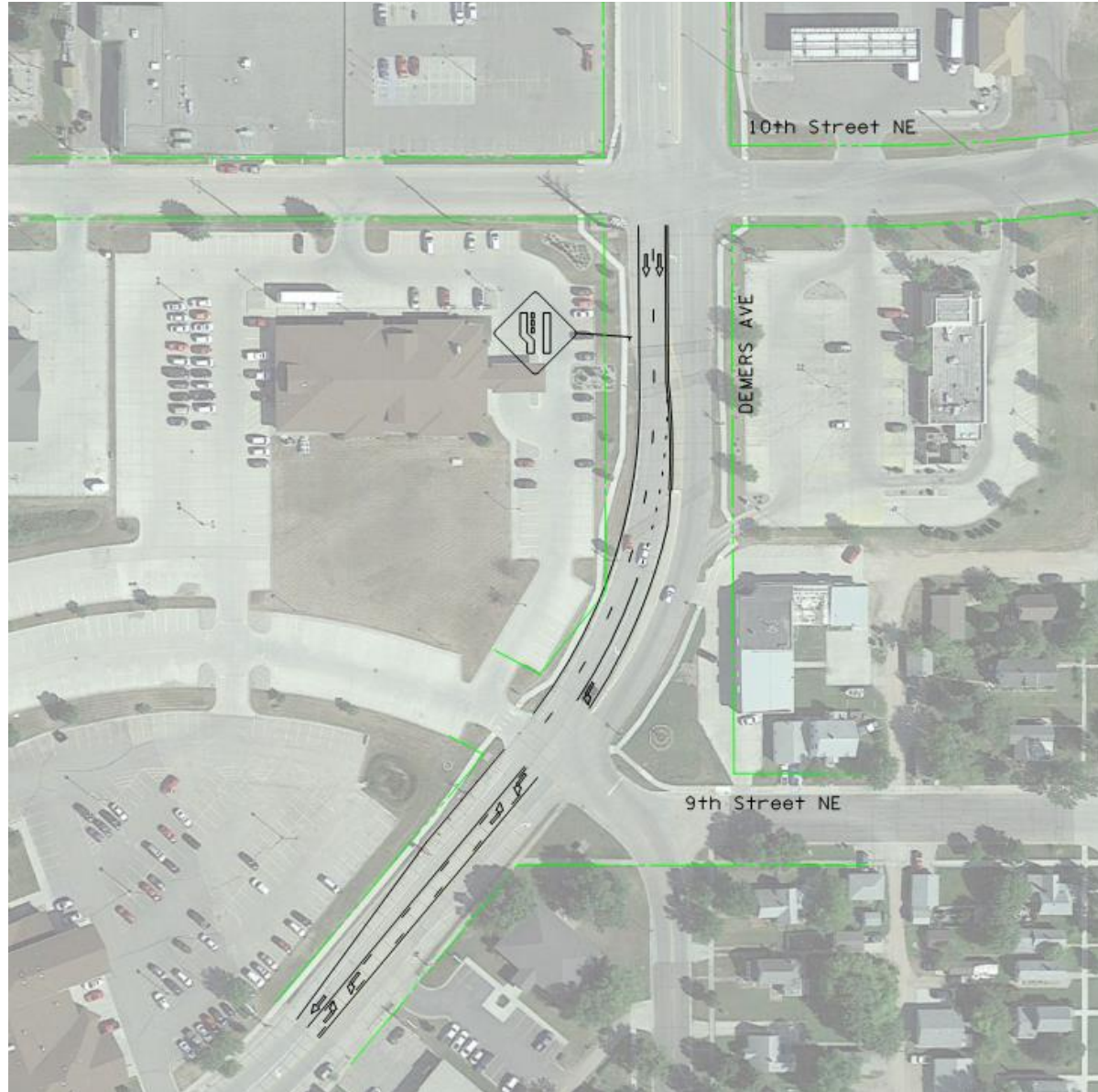
Intersection Alternatives – 10th Street

Evaluation Scoring Comparison

MN-220 Preliminary Alternatives Evaluation Matrix	
Purpose and Need	
1	Compatible with project purpose and needs
Intersection Capacity	
1	Intersection level of service (2045 AM/PM)
2	Worst approach level of service (2045 AM/PM)
3	Delay Benefit (Million \$; 20 Years Present Value)
Transportation Demand/System Linkage	
1	Side-street accessibility
2	Connectivity within the study area
3	Connectivity to the greater region
4	Dependence on 5th Ave NW or 2nd St NE connections
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Safety	
1	Crash rate (crashes / million entering vehicles)
2	Injury Crash Percentage
3	Crash benefit (Million \$; 20 Years Present Value)
Roadway Deficiencies	
1	Infrastructure lifetime
2	Public street and driveway spacing
Roadway Design and Complexity	
1	Addresses known roadway deficiencies
2	Easiness to navigate / driver familiarity
3	Coordination with planned project
4	Favorable construction timeline
5	Right-of-way impact area
6	Number of potential property acquisitions
Cost	
1	Estimated construction cost (Million \$)
2	Benefit/cost ratio
TOTAL (Sum of Individual Scores)	

Mn 220 at 10th			
No Build		Alternative A 3/4 Access	
Analysis	Score	Analysis	Score
	2.0		4.0
--	2	--	4
	3.7		4.3
A/A	5	NA	5
C/D	3	NA	5
\$ -	3	\$ -	3
	3.2		2.6
--	3	--	2
OK	3	OK	3
OK	3	OK	3
OK	3	needed	1
--	4	--	4
	3.3		2.7
--	3	--	3
--	5	--	1
--	3	--	3
--	3	--	3
--	3	--	3
--	3	--	3
--	3	--	3
	2.3		2.3
--	2	--	2
--	2	--	2
--	2	--	2
--	3	--	3
	3.0		4.0
0.34	3	Reduced	4
0%	3	Reduced	4
\$ -	3	\$ -	4
	2.5		3.5
--	3	--	3
--	2	--	4
	4.0		3.7
none	1	me paveme	3
Comfort	5	Familiar	4
--	3	--	2
--	5	--	3
0	5	0	5
0	5	0	5
	4.0		2.5
\$ -	5	NA	2
NA	3	NA	3
	107.0		104.0

Intersection Alternatives – 9th to 10th Street



Segment Alternatives

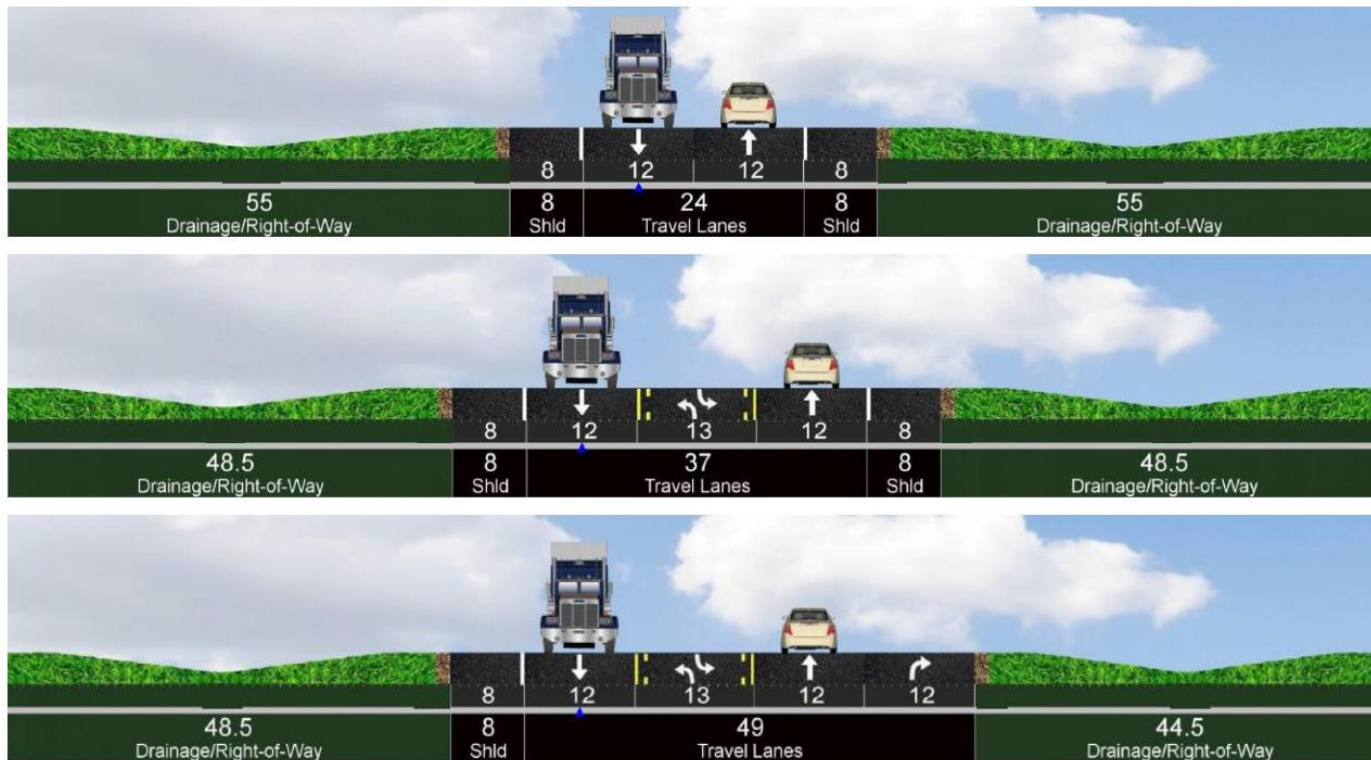
Key Segments

- Segment A: 23rd Street NW to 140th Street SW
- Segment B: 17th Street NW to 23rd Street NW

Segment Alternatives – Segment A

23rd Street NW to 140th Street SW

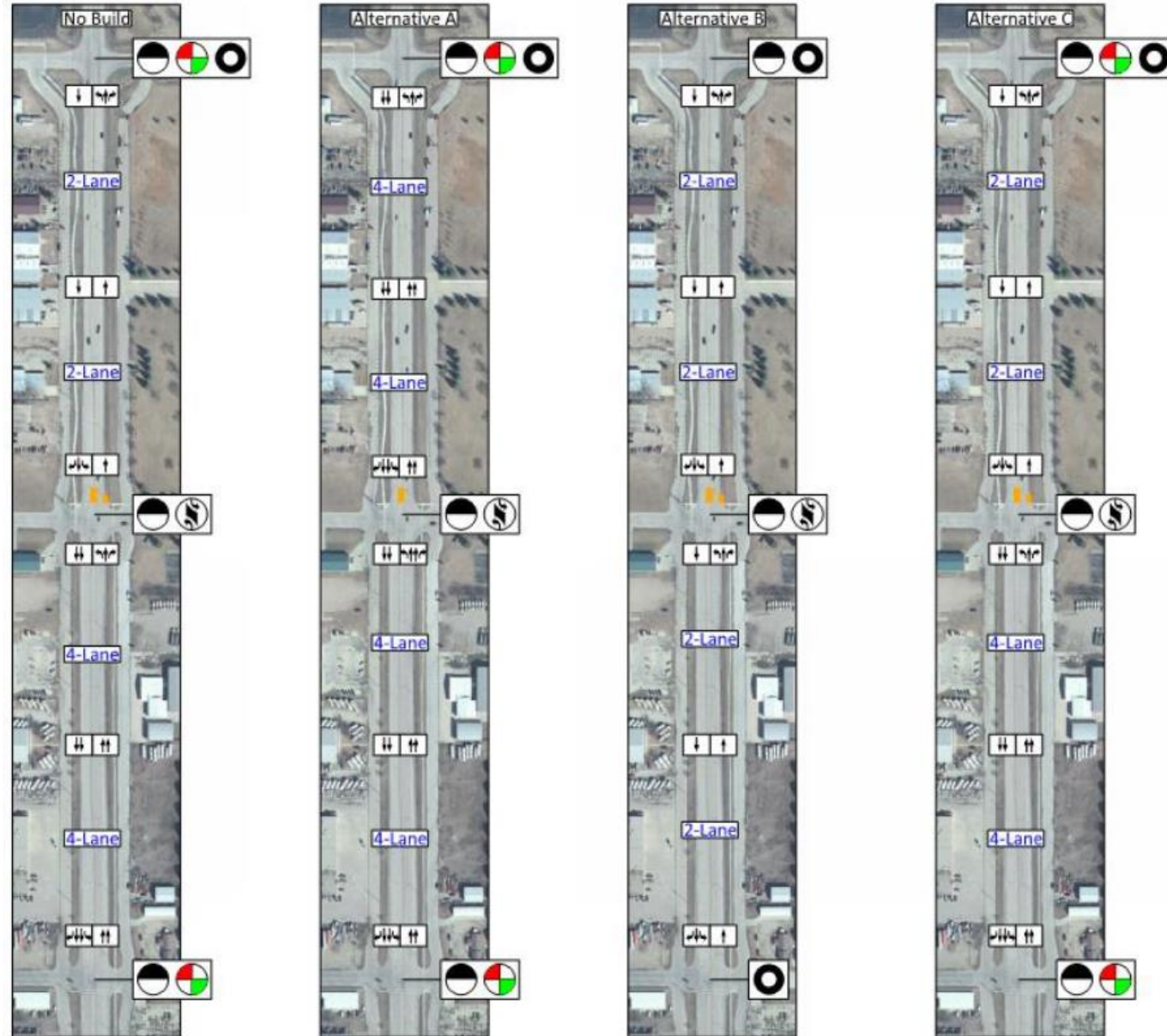
- No Build
 - No impact to property
 - Maintains LOS C or better through 2045
- Alternative A: 2-Lane Roadway w/ Left Turn Lanes
 - Requires reconstruction of 50% of roadway, estimated to fit within existing R/W
 - Expected to improve safety and operations
 - Can be incrementally implemented as development occurs
 - Right Turn lanes only add 4 more feet
- Alternative B: 3-Lane Roadway (Two-Way Center Left Turn Lane)
 - Requires reconstruction of full length of roadway, estimated to fit within existing R/W
 - Expected to improve safety and provide most efficient accommodation of private driveways



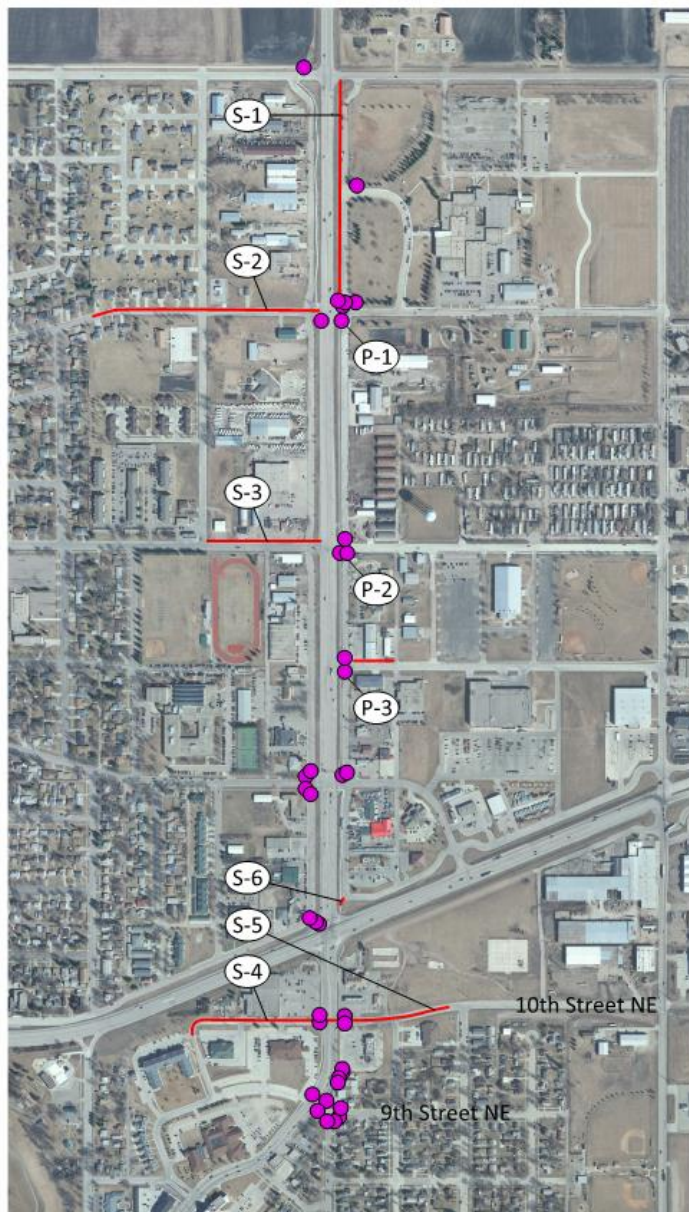
Segment Alternatives – Segment B

17th Street NW to 23rd Street NW

- No Build
 - Expected to operate at LOS C or better
- Alternative A: Extend 4-Lane Segment to 23rd St NW
 - Currently illustrative project in 2045 MTP
 - Requires roadway widening, adds capacity that is not needed
- Alternative B: Convert entire segment to 2-Lane
 - Best compatibility with roundabouts, possibly also compatible with signals
 - Improves safety
 - Low to moderate cost
- Alternative C: Extend 4-Lane Segment to 20th St NW
 - Currently illustrative project in 2045 MTP
 - Compatibility with a wide variety of alternatives
 - Low reconstruction cost



Pedestrian Accessibility



Sidewalks

- (S-1) Mn 220 - E Side (20th St to 23rd St)
- (S-2) 20th Street NW - Both Sides (5th Ave NW to Mn 220)
- (S-3) 17th Street NW - North Side (3rd Ave NW to Mn 220)
- (S-4) 10th Street NW - Both Sides (Terrace Dr to Mn 220)
- (S-5) 10th Street NE - Both Sides (Mn 220 to 2nd Ave NE)
- (S-6) Mn 220 & US 2 - NW Corner (to Frontage Road)

Pedestrian Crossing Improvements

- (P-1) Improve Pedestrian Crossing
(see Intersection 2 Alternatives A and B)
- (P-2) Improve Pedestrian Crossing
 - Add curb extension
 - Upgrade ped pamps with ADA compliant directional ramps
- (P-3) Improve Pedestrian Crossing
(see Intersection 4 Alternatives A and B)

NEXT STEPS / OTHER DISCUSSION

- Any Other Discussion?
- SRC Meeting 4 – Early April (TBD)
 - Preferred Alternatives / Prioritization



ALLIANT PROJ. NO. 118-0184.0

SRC MEETING MINUTES

DATE/TIME: Tuesday, April 16, 2019; 3:00 p.m.

LOCATION: East Grand Forks City Hall

PROJECT: Mn 220 N Corridor Study

PURPOSE: **Study Review Committee Meeting 4** – Recommended Improvements

MINUTES BY: Mike Anderson, Alliant Project Manager; (612-767-9340)

1) **Introductions**

See attached sign in sheet for list of meeting attendees

2) **Overview of Alternatives**

Mike provided an overview of the alternatives. The alternatives were identified to address the system needs through improvements to access control, mobility, safety and pedestrian crossings of Mn 220. The alternatives were identified to at intersections, two key segments (23rd Street-140th Street and 17th Street to 23rd Street) and other treatments such as pedestrian sidewalk connections.

3) **Intersection Alternatives Evaluation**

Mike provided an overview of the technical metrics used to evaluate the alternatives.

4) **Intersection Improvement Alternatives**

Mike and the SRC walked through each alternative developed for the study intersections. Highlights of the discussion include:

23rd Street:

The roundabout was identified as the highest ranked alternative and determined to be a feasible long-term design and intersection control. Several concerns and comments were discussed

- Agricultural and large heavy trucks were raised as a concern for the design. It was noted that the concept evaluation finds the roundabout a feasible solution. Future preliminary engineering will be completed to finalize roundabout size, curb locations, clearance zones and detailed design considerations to ensure all design vehicles are accommodated in the design.
- It was noted that a roundabout at this intersection best addresses the existing safety and crashes that are occurring.
- Based on follow up discussion with SRC members it was noted that the large vehicle wheel base is approximately 16 feet and the large farm equipment has overhang width up

to 26 feet. These vehicles typically travel in the shoulder of 220. It was noted that the final design would set curb locations (lane widths) to ensure the wheel base is accommodated and clearance zones free of vertical obstructions would be provided to facilitate the overall vehicle width.

17th Street

The roundabout was identified as the highest ranked alternative and determined to be a feasible long-term design and intersection control. Other items of discussion included:

- It was noted that the right turn entrance to southbound 220 was received favorably by the SRC as a potential option to address this specific movement.
- It was noted that the two northbound travel lanes on 220 would be maintained into the roundabout with the left lane being a left turn only lane. South of 17th Street, 220 would widen from the one exiting lane to two southbound travel lanes.
- The short-term crosswalk improvement provides a curb extension on the southwest corner to narrow the crossing. A comment was made regarding the need to ensure the design will facilitate a motor coach right turn movement.

14th Street:

Replacing the traffic signal system was identified as the highest ranked alternative and determined to be a feasible long-term design and intersection control. Other items of discussion included:

- It was noted that the roundabout alternative requires a multi-lane (2x1) footprint. It is anticipated this footprint will impact frontage road operations and is not a feasible control.
- Traffic signal replacement will maintain the existing lane configurations.

US 2/Mn 220

Several alternatives were identified and evaluated for the US 2 intersection. The highest ranked alternative that was determined to be most feasible is rebuilding the signal system control is the construction of eastbound dual left turn lane and the right turn geometric improvements. Other items of discussion included:

- Discussed signal operation and visibility improvements, including flashing yellow arrow (FYA), signal timing, coordination, signal head placement relative to the signal rebuild options.
- The traffic signal system is in need of replacement and this will likely advance the implementation of the intersection improvements.
- MnDOT indicated that a short term FYA retrofit alternative would likely not be considered given the signal system is generally in need of replacement, and would prefer to advance the overall intersection improvements concurrently.

Segments

9th to 10th Street

- Discussed the pavement marking alternative to address the lane merge/left turn lane conflict at 9th Street. No comments

- The need for improvements at 10th Street NE were questioned. It was noted that follow up discussions about improvement alternatives at this location with area businesses (Public Meeting 1) and City of East Grand Forks/MnDOT suggested that maintaining the existing intersection design and control (no build alternative) was recommended.

23rd Street to 140th Street SW

- Based on previous SRC discussion the alternative of adding left turn and right turn pockets at proposed access points, as the accesses are needed for land redevelopment is recommended.

17th to 23rd Street

- The recommended alternative is two-lane roadway with existing lane geometrics/traffic control at 20th Street. This cross-section assumes the long-term improvements at 17th Street and 23rd Street to be roundabouts. If 17th Street were a signalized intersection, the right lane should extend and terminate as a right turn lane to 20th Street. No further comments from the SRC was received.

Pedestrian and Transit:

- No comments received on the recommended sidewalk connections
- City of East Grand Forks noted that the city and CAT does not prefer transit shelters at stops. The routes and transit stops are frequently changing to accommodate demand and service. The city supported adding signing and potentially bus benches at designated stop locations.

Other Items:

- General concern relative to truck traffic on 220 was raised and how trucks would be accommodated was raised by local residents/farmers in attendance of the SRC meeting. It was also noted that Transystems should participate in the discussion as changes to 220 could affect their operations. Items of note discussed include:
 - Addressing the needs of the corridor must consider all users of the system, which include pedestrians, bicyclists, motorists on 220 and motorists crossing 220, and truck and agricultural equipment. There is a balance that will occur.
 - It was noted that traffic data was collected in the fall of 2018 and includes the harvest trucks and school activities in the data.
 - Alternatives identified were selected to address specific safety issues, mobility needs of the intersection.
 - Currently intersections north of 220 are two-way stop control. This is most ideal traffic flow for users that travel through corridor. Any solutions that will look to address safety, pedestrian crossing and cross-street mobility needs will change the intersection control. It was noted that whether this is a traffic signal or a roundabout a delay will incur to through motorists on 220. It was further noted that this delay is expected to be greater with signalized control versus roundabout control

5) Implementation Plan

Mike and the SRC walked through a draft list of the improvement projects and discussed how each may be prioritized and the potential funding sources. Key notes include:

- US 2/Mn 220 – short term FYA retrofit will be removed from the project list

- A few comments were provided on the project phasing denoted in the draft implementation plan.
 - EGF noted that the city has local transit funds that could be allocated to making transit stop improvements. The transit stop improvements will consist of signing and potentially a bench. These improvements could likely occur in the next five years.
 - EGF noted that city has spent their local match funds on pedestrian and bikeway related improvements. The implementation of new sidewalks are most likely to be prioritized in the 5 to 10 year horizon. It was noted that the short piece of sidewalk connection on the NE corner of US 2/220 could be prioritized sooner given it is fairly inexpensive.
 - **Alliant will update the implementation plan and submit for SRC review.**
- The MnDOT CHIP is programmed through year 2029. Long term improvements could be candidates for future additions to the CHIP.
- Most improvements along Mn 220 may be candidates for the Local Partnership Program (LPP), which has a solicitation process and local agency match.
- It was also noted that the pedestrian crosswalk improvements or sidewalks could also be potential candidates for the HSIP or SRTS programs. Further evaluation of the projects qualification or ability to receive funds through these programs would occur at a later time when the city is looking to make such improvements.

6) Next Steps

- a. **SRC Meeting 5 (May 2019).** The SRC felt having a final meeting to present the implementation plan would be valuable. It was also requested that MnDOT provide discussion and background on the design and project delivery process that occurs between an improvement identified in a transportation plan and that improvement being implemented.
- b. **Tech Memo 6: Late April**
- c. **Draft Report: May 2019**

7) Other Discussion

None



Mn 220 North Corridor Study Steering Review Committee



SIGN-IN SHEET

Name	Organization	E-mail Address	Phone	Present
Mike Anderson	Alliant Engineering	manderson@alliant-inc.com	763-210-8573	X
Jairo Viafara	GF/EGF MPO	jairo.viafara@theforksmpo.org	701-746-2656	X
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Jeff Erickson	MnDOT	Jeffrey.erickson@state.mn.us	218-755-6572	
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Paul Gorte	City of East Grand Forks	pgorte@egf.mn	218-773-8939	
Steven Gander	City of East Grand Forks – Mayor	mayor@egf.mn	701-741-2912	
Warren Strandell	Polk County Commissioner	strandell@gra.midco.net	218-773-0051	X
Bob Gooden	Northland College	Bob.gooden@northlandcollege.edu	218-779-3691	
Steve Corcoran	Valley Truck	stevec@valley-truck.com	701-739-0118	X
Dale Helms	Triangle Coach Service	contact@trianglecoachservice.com	701-741-8084	X
Jason Stordahl	City of East Grand Forks	jstordahl@egf.mn	218-773-1313	
Steve Emery	City of East Grand Forks/WSN	Steve.emery@wsn.us.com	218-773-1185	X
Cindy Dittberner	MnDOT	Cindy.dittberner@state.mn.us	218-766-0433	
Nancy Ellis	City of East Grand Forks	nellis@ci.east-grand-forks.mn.us	218-773-0124	X
Michelle Rognerud	MnDOT	Michelle.rognerud@state.mn.us	218-755-6574	X
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Josh Benolken	MnDOT	Joshua.benolken@state.mn.us	218-416-0722	X
JT Anderson	MnDOT	j.t.anderson@state.mn.us	218-686-3877	X



Mn 220 North Corridor Study Steering Review Committee



Name	Organization	E-mail Address	Phone	Present
David Thompson	Farmer	dhthompson61@gmail.com	218-779-3877	X
Mark Holy		markholy@gra.midco.net		X
Thomas Barrett		johndeere83@hotmail.com		X
Chad Grassel	City of East Grand Forks - Council Member	cgrassel@egf.mn		X

Mn 220 N Corridor Study

SRC Meeting 4 – Recommendations / Implementation | April 16, 2019



AGENDA

- Introductions
- Overview of Alternatives Evaluation
- Recommended Improvements
- Implementation Plan
- Next Steps
- Other Discussion

Overview of Alternatives Evaluation

Overview (SRC 3)

- Intersections
- Segments
- Pedestrian Connections
- Other

Address Key Objectives

- Access Control
- Mobility
- Safety
- Pedestrian Crossing



Overview of Alternatives Evaluation

Alternatives Analysis Overview

- Key Considerations / Fatal Flaws / Trade Offs
 - Feasibility / Design Considerations
- Mobility – Intersection Level of Service
- Safety – Estimated Change in Crash and Severity Rate
- Economic Analysis - Benefit / Cost Ratio
- Other Evaluation Performance Metrics
 - Purpose and Need
 - Social or Economic Demand
 - Roadway Design and Complexity
 - Modal Interrelationships
 - Transportation Demand/System Linkage
 - Roadway Deficiencies (Access Spacing)
- Input

Recommended Improvements

23rd Street NW

Intersection Safety

- 6 Crashes
- 83% Right Angle / Left Turn

Metric	Description
Crash Rate	0.54 exceeds statewide average rate of 0.18
Severity Rate	0.80 exceeds critical rate of 0.50
Summary	6 crashes during the 2011-2015 time period. Of these, 5 (83%) were right-angle or involved left-turns

Other

- Future Redevelopment
- Pedestrian / Bicycle Accessibility

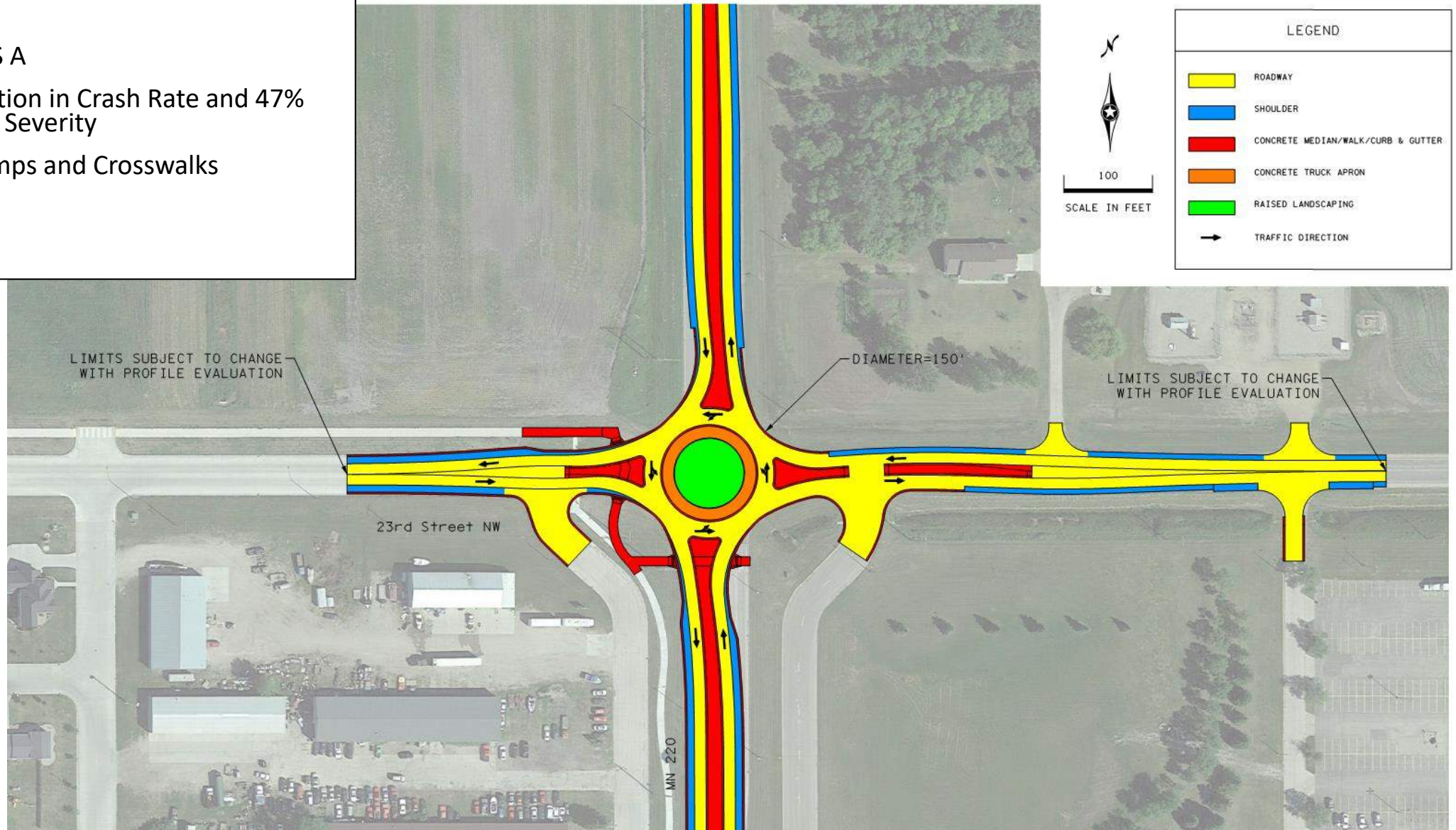
Infrastructure

- Road rehab by 2033

Recommended Improvements

Performance

- **Mobility:** 2045 LOS A
- **Safety:** 40% Reduction in Crash Rate and 47% Reduction in Crash Severity
- **Ped/Bike:** ADA Ramps and Crosswalks
- **Cost:** \$2.9 Million
- **Benefit/Cost:** 1.0



Recommended Improvements

17th Street NW

Intersection Safety

- 13 Crashes
- 46% Right Angle / Left Turn

Metric	Description
Crash Rate	0.71 exceeds critical rate of 0.46
Severity Rate	0.81 exceeds critical rate of 0.44

Intersection Mobility

- WB at 17th Street LOS F by 2045

Pedestrians and Bicycles

- 17th Street – Planned Bike Route
- Non-compliant ADA Pedestrian Ramps
- Uncomfortable Pedestrian Crossing, but Desired Crossing Location

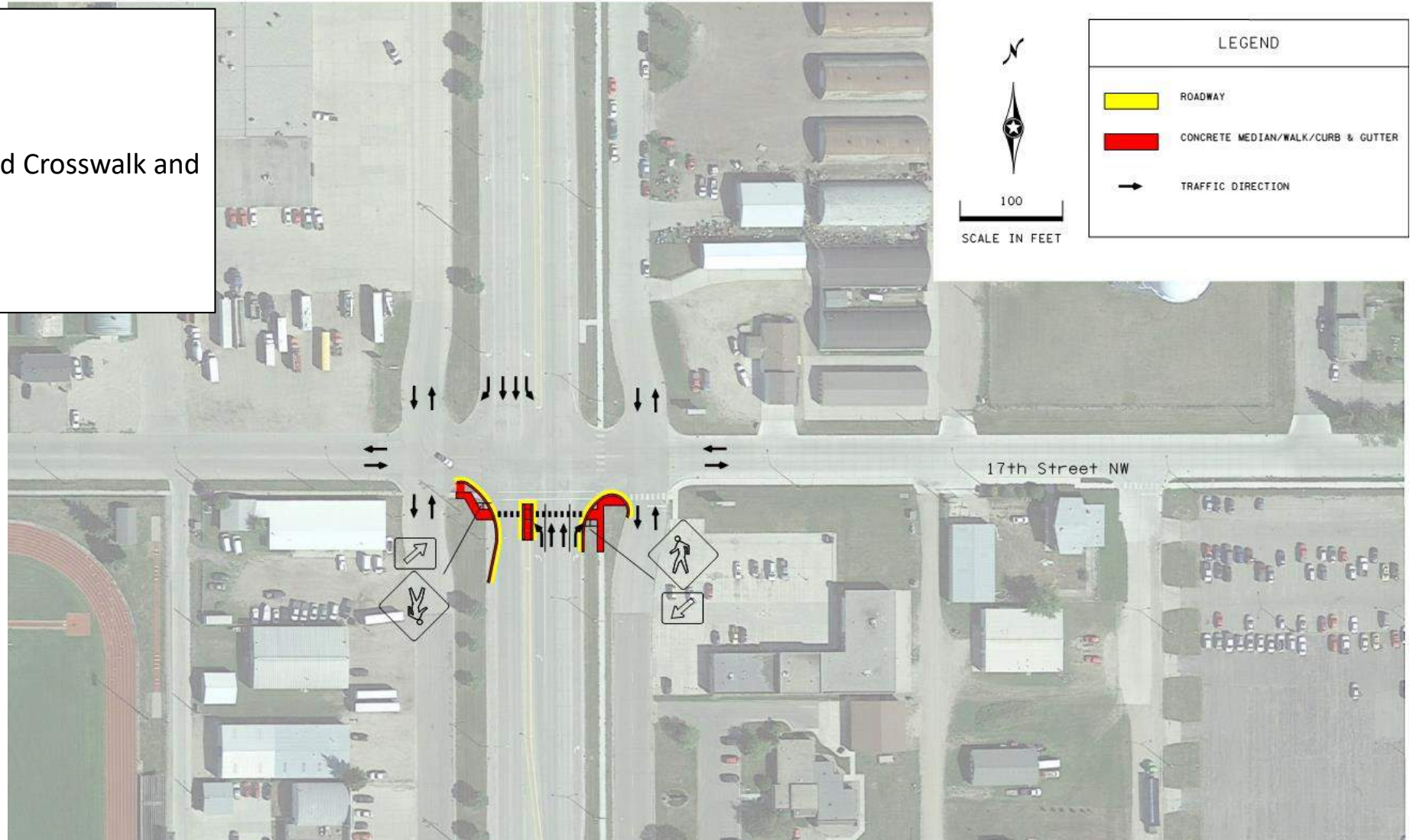
Infrastructure

- Road rehab by 2033

Recommended Improvements

Performance

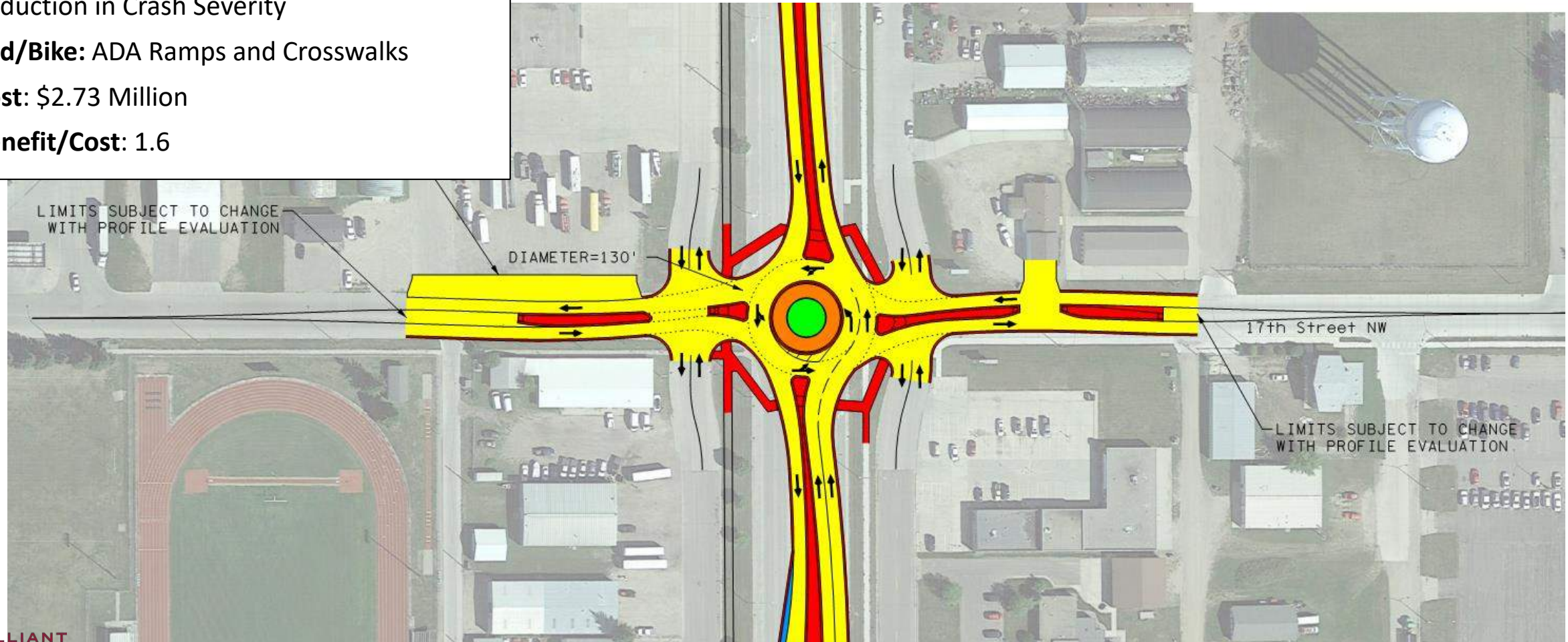
- **Mobility:** No Change
- **Safety:** No Change
- **Ped/Bike:** ADA Ramps, Shortened Crosswalk and High Visibility
- **Cost:** \$61,000
- **Benefit/Cost:** NA



Recommended Improvements

Performance

- **Mobility:** 2045 LOS A
- **Safety:** 55% Reduction in Crash Rate and 55% Reduction in Crash Severity
- **Ped/Bike:** ADA Ramps and Crosswalks
- **Cost:** \$2.73 Million
- **Benefit/Cost:** 1.6



Recommended Improvements

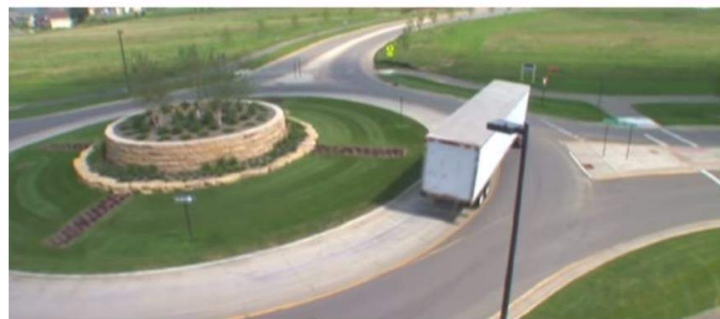
Feasible Design

Next Steps:

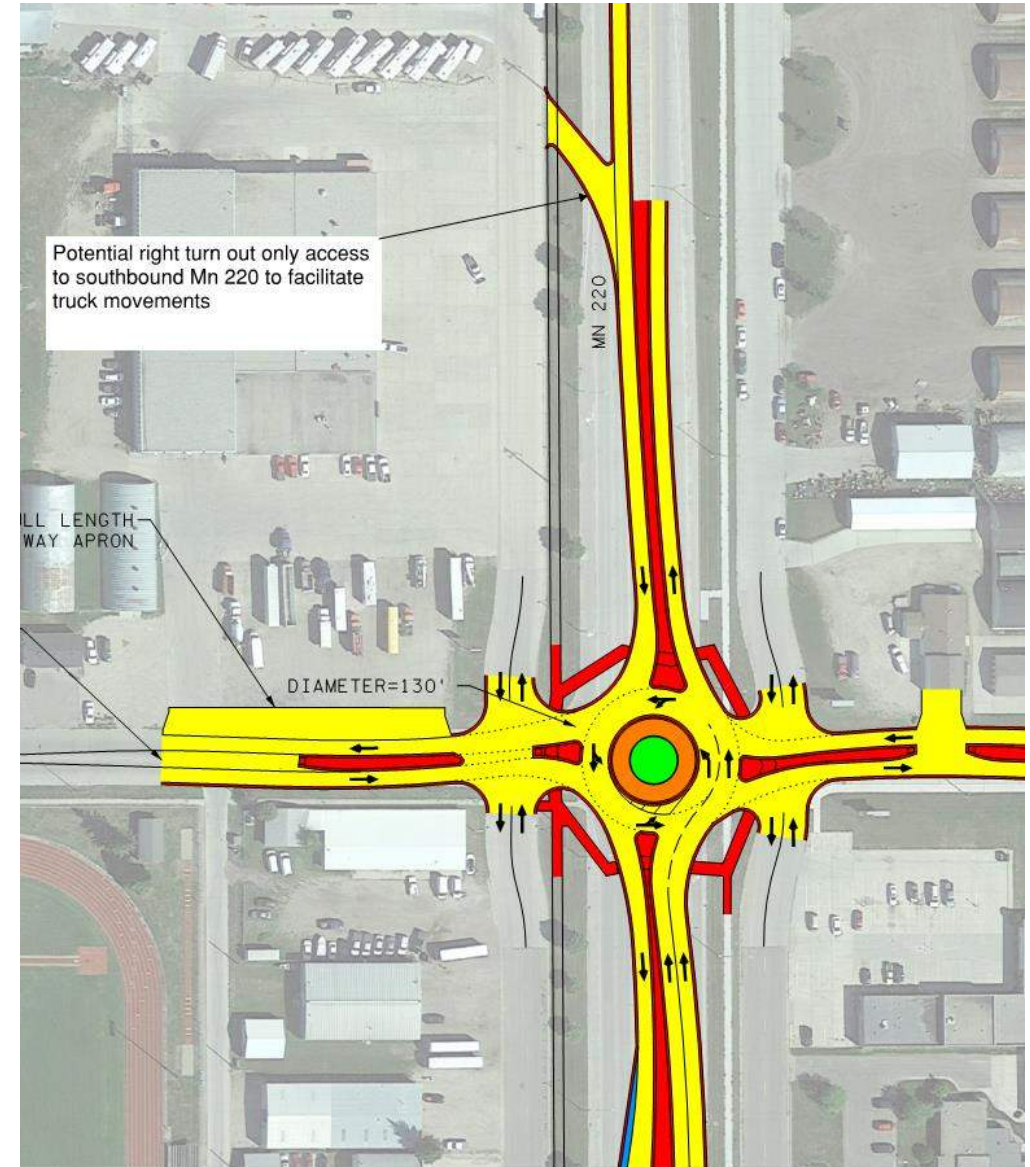
- Continued Engagement and Evaluation
- Preliminary Engineering and Design Refinement to Address Needs, Users and Concerns



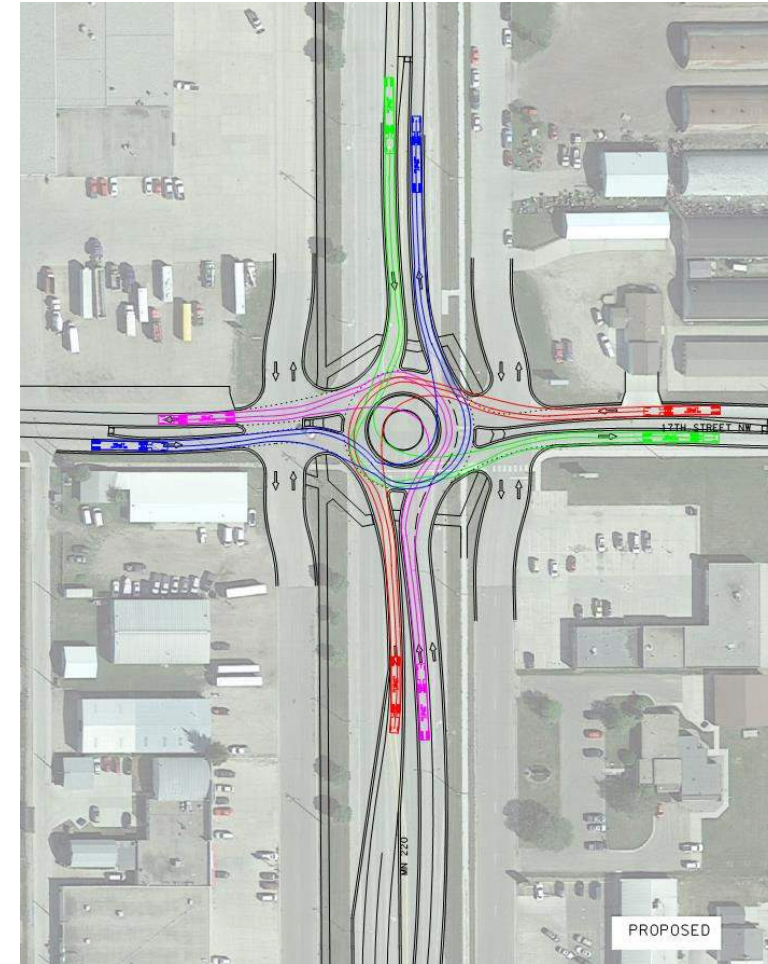
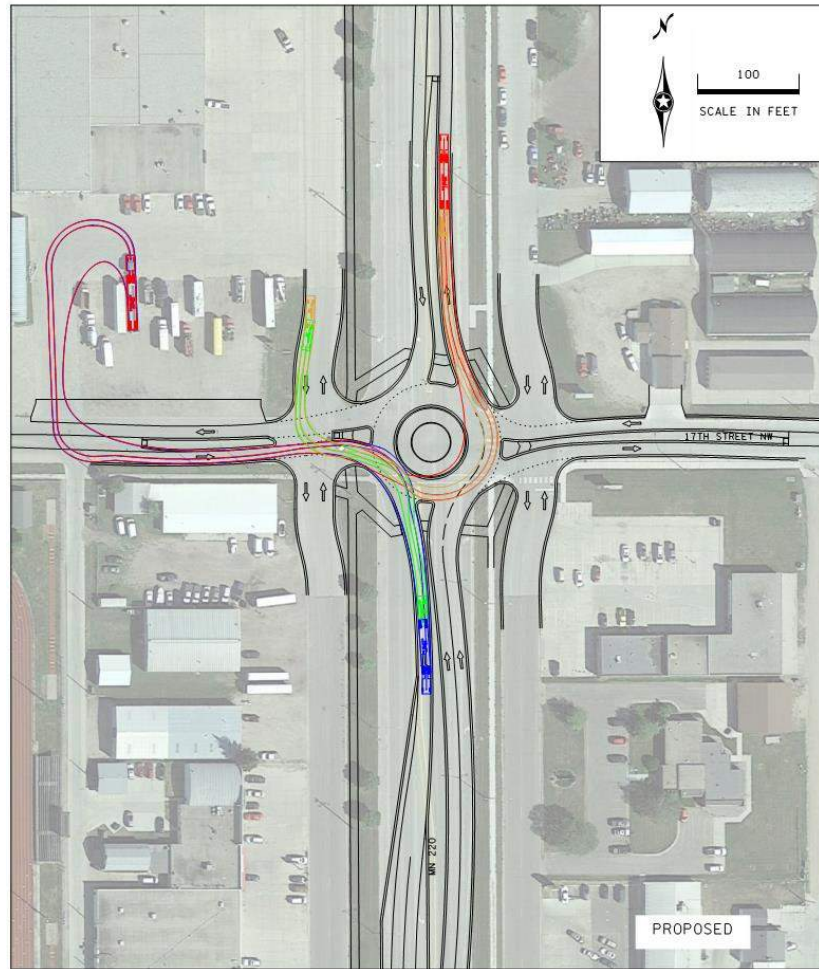
Modern Roundabouts | A Safer Choice



Modern Roundabouts | A Safer Choice



Recommended Improvements



Recommended Improvements

14th Street NW

Intersection Safety

- 18 Crashes
- 33% Right Angle / Left Turn, 33% Rear End

Metric	Description
Crash Rate	0.70 exceeds statewide average rate of 0.52
Severity Rate	0.94 exceeds statewide average rate of 0.71

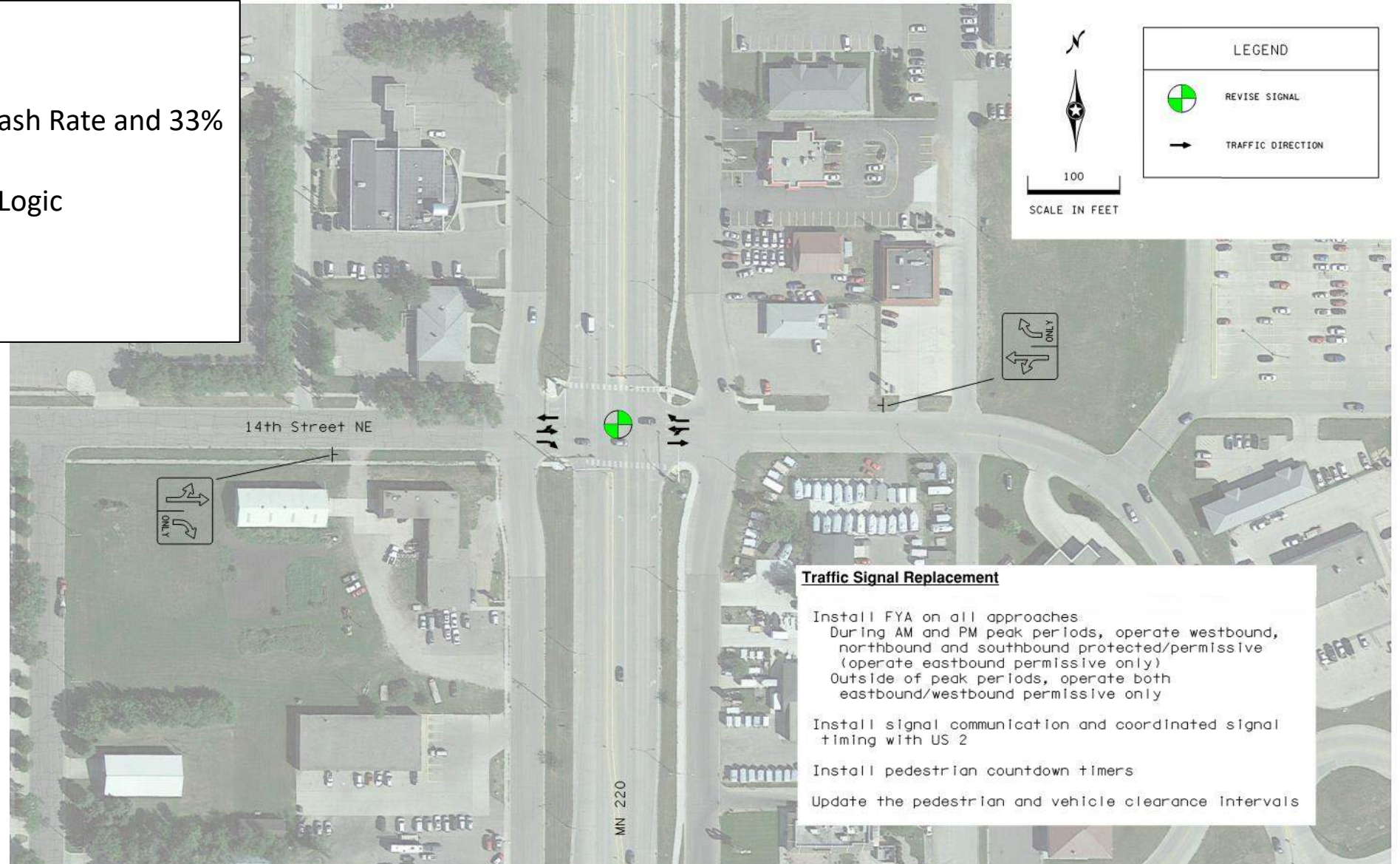
Infrastructure

- Signal System in Need of Replacement Before 2030
- Road Rehab by 2033

Recommended Improvements

Performance

- **Mobility:** 2045 LOS B
- **Safety:** 28% Reduction in Crash Rate and 33% Reduction in Crash Severity
- **Ped/Bike:** APS, Ped Protect Logic
- **Cost:** \$375,000
- **Benefit/Cost:** 9.5



Recommended Improvements

US 2

Intersection Safety

- 49 Crashes
- 35% Right Angle / Left Turn, 53% Rear End

Metric	Description
Crash Rate	1.27 exceeds critical rate of 0.83
Severity Rate	1.90 exceeds critical rate of 0.90

Mobility

- 2045 LOS D (SB and EBLT)

Pedestrians/

- Non-compliant ADA Pedestrian Ramps
- Uncomfortable Pedestrian Crossing

Infrastructure

- Signal System in Need of Replacement Before 2030
- Previously identified project in 2045 MTP

Recommended Improvements

Short Term – FYA Retrofit

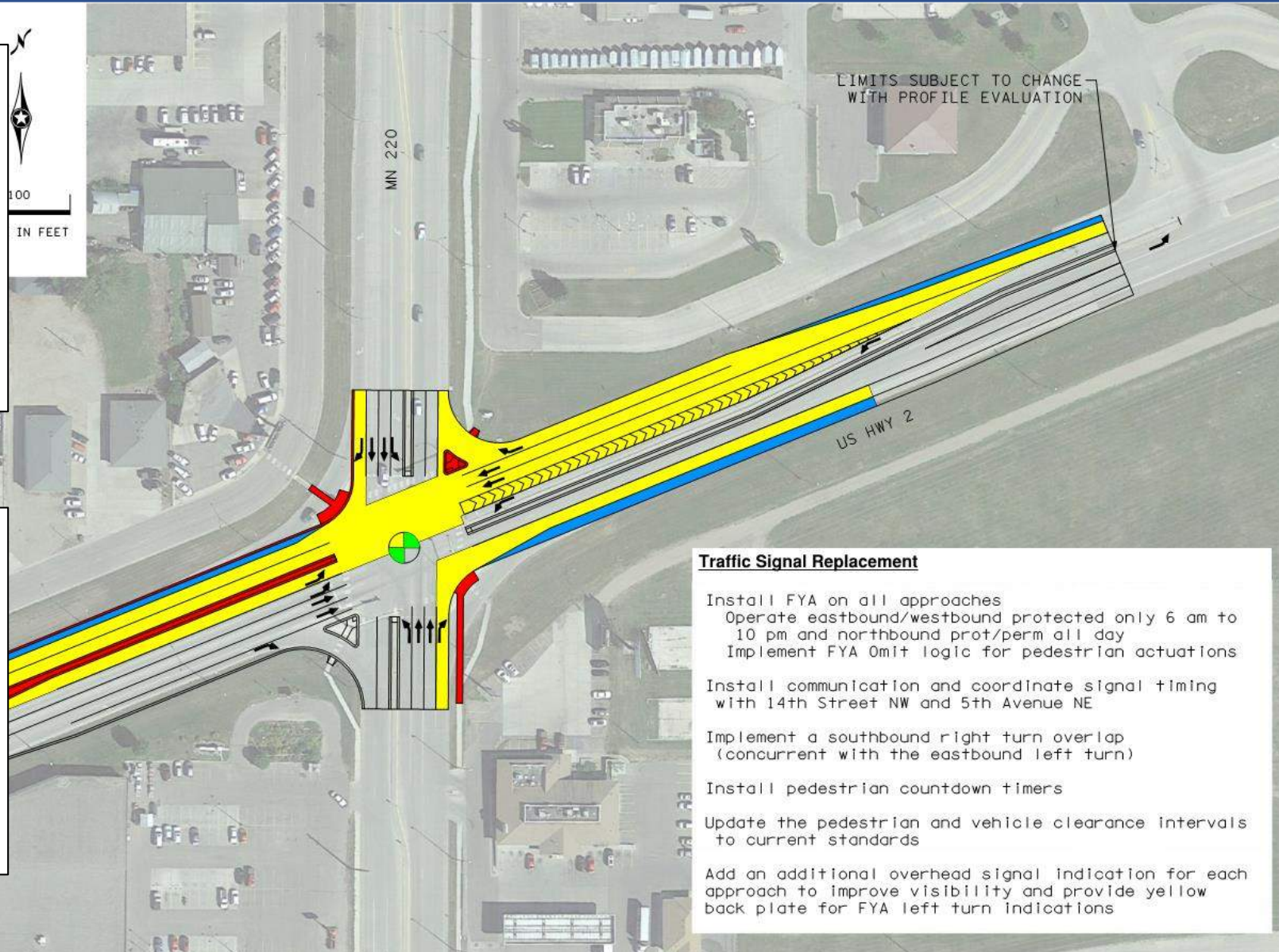
Performance

- **Mobility:** 2045 LOS D
- **Safety:** 25% Reduction in Crash Rate and 23% Reduction in Crash Severity
- **Ped/Bike:** Ped Protect Logic
- **Cost:** \$1,005,000
- **Benefit/Cost:** 2.3

Long Term – Signal Replacement/Geometrics

Performance

- **Mobility:** 2045 LOS C
- **Safety:** 28% Reduction in Crash Rate and 25% Reduction in Crash Severity
- **Ped/Bike:** APS, ADA, Ped Protect Logic
- **Cost:** \$3.0 million
- **Benefit/Cost:** 3.4



Traffic Signal Replacement

Install FYA on all approaches
Operate eastbound/westbound protected only 6 am to 10 pm and northbound prot/perm all day
Implement FYA Omit logic for pedestrian actuations

Install communication and coordinate signal timing with 14th Street NW and 5th Avenue NE

Implement a southbound right turn overlap (concurrent with the eastbound left turn)

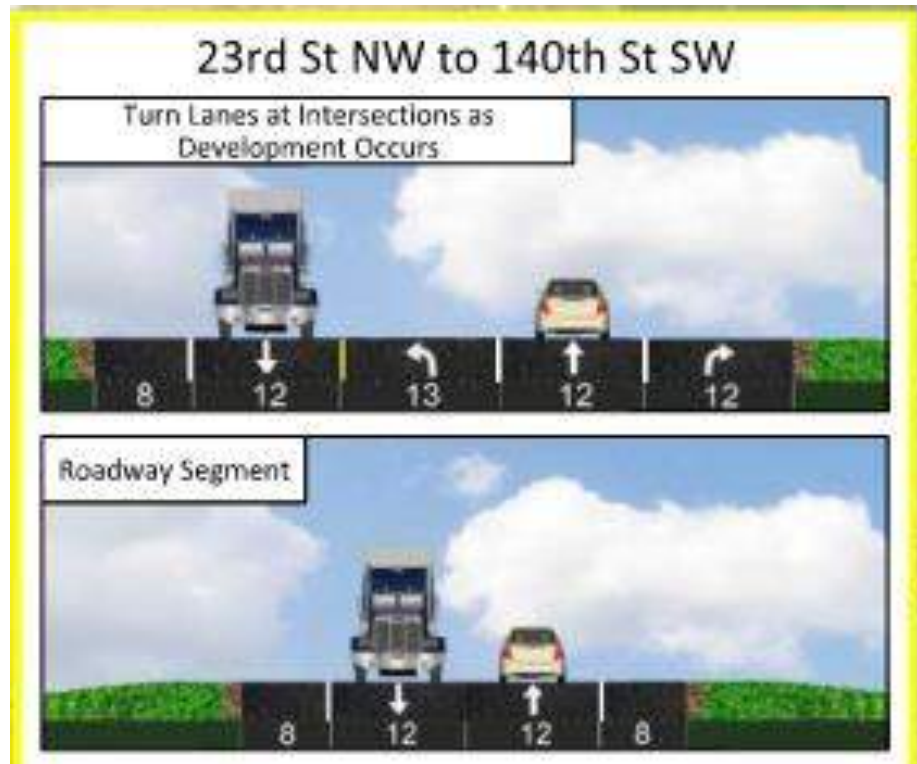
Install pedestrian countdown timers

Update the pedestrian and vehicle clearance intervals to current standards

Add an additional overhead signal indication for each approach to improve visibility and provide yellow back plate for FYA left turn indications

Recommended Improvements

23rd Street to 140th Street SW



Sidewalks

- S-1 Mn 220 - E Side (20th St to 23rd St)
- S-2 20th Street NW - Both Sides (5th Ave NW to Mn 220)
- S-4 10th Street NW - Both Sides (Terrace Dr to Mn 220)
- S-5 10th Street NE - Both Sides (Mn 220 to 2nd Ave NE)
- S-6 Mn 220 & US 2 - NW Corner (to Frontage Road)

Transit

- T-1 Transit Shelter Improvement (17th Street)
- T-2 Transit Shelter Improvement (14th Street)
- T-3 Transit Shelter Improvement (10th Street - Northbound)
- T-4 Transit Shelter Improvement (10th Street - Southbound)

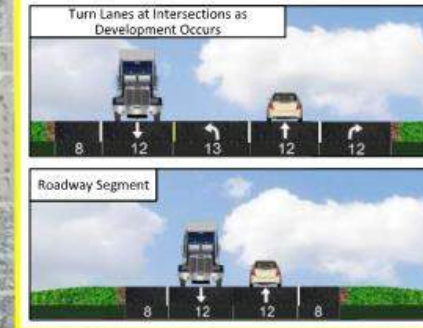
Miscellaneous

- M-1 Relocate utilities to improve sightlines

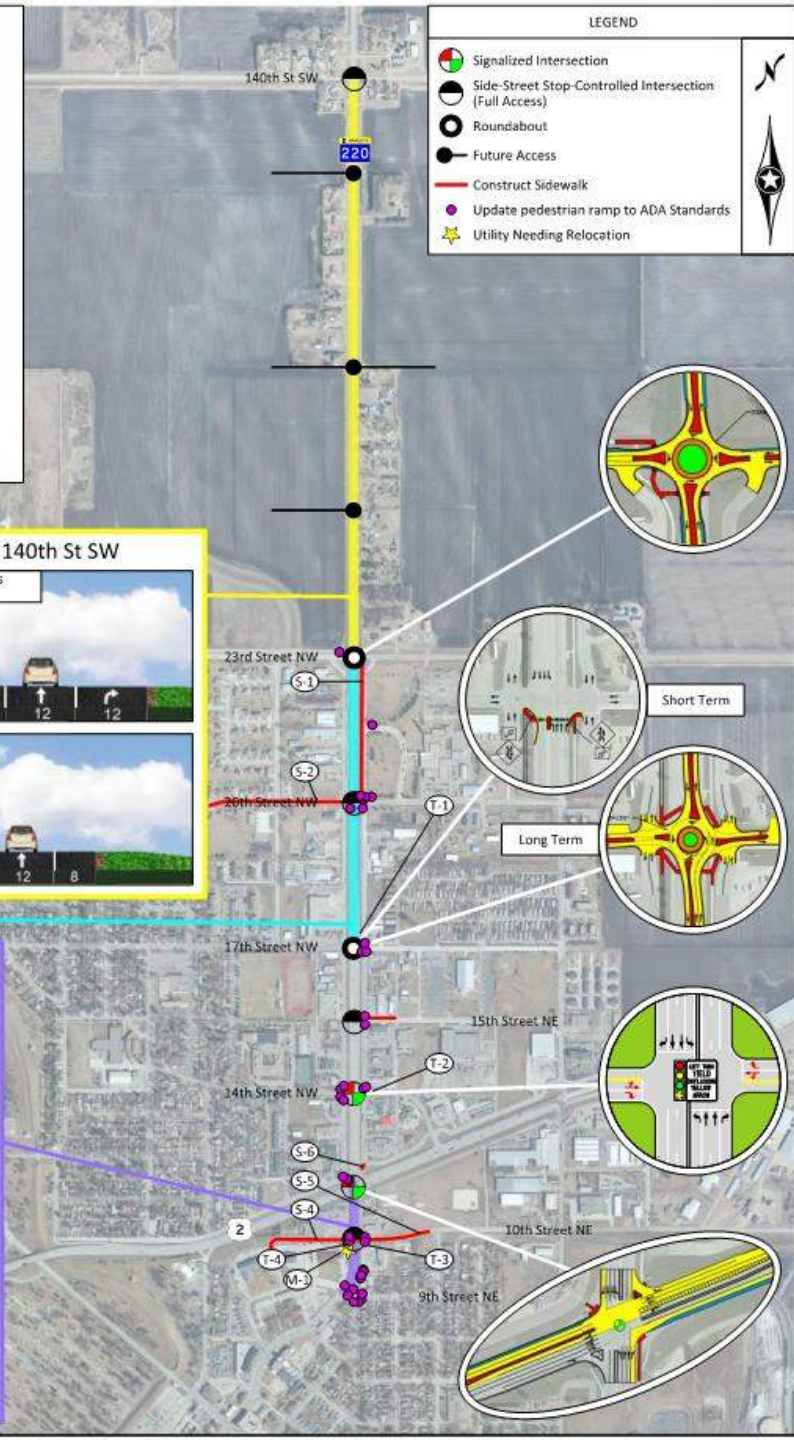
17th St NW to 23rd St NW



23rd St NW to 140th St SW



9th St NW to 10th St NW



Recommended Improvements

17th Street to 23rd Street

Maintain Existing Intersection Control



- Sidewalks**
- S-1 Mn 220 - E Side (20th St to 23rd St)
 - S-2 20th Street NW - Both Sides (5th Ave NW to Mn 220)
 - S-4 10th Street NW - Both Sides (Terrace Dr to Mn 220)
 - S-5 10th Street NE - Both Sides (Mn 220 to 2nd Ave NE)
 - S-6 Mn 220 & US 2 - NW Corner (to Frontage Road)
- Transit**
- T-1 Transit Shelter Improvement (17th Street)
 - T-2 Transit Shelter Improvement (14th Street)
 - T-3 Transit Shelter Improvement (10th Street - Northbound)
 - T-4 Transit Shelter Improvement (10th Street - Southbound)
- Miscellaneous**
- M-1 Relocate utilities to improve sightlines

17th St NW to 23rd St NW



23rd St NW to 140th St SW

Turn Lanes at Intersections as Development Occurs

Roadway Segment

9th St NW to 10th St NW

Lane Configuration Improvements



Recommended Improvements

9th Street to 10th Street

Intersection Safety

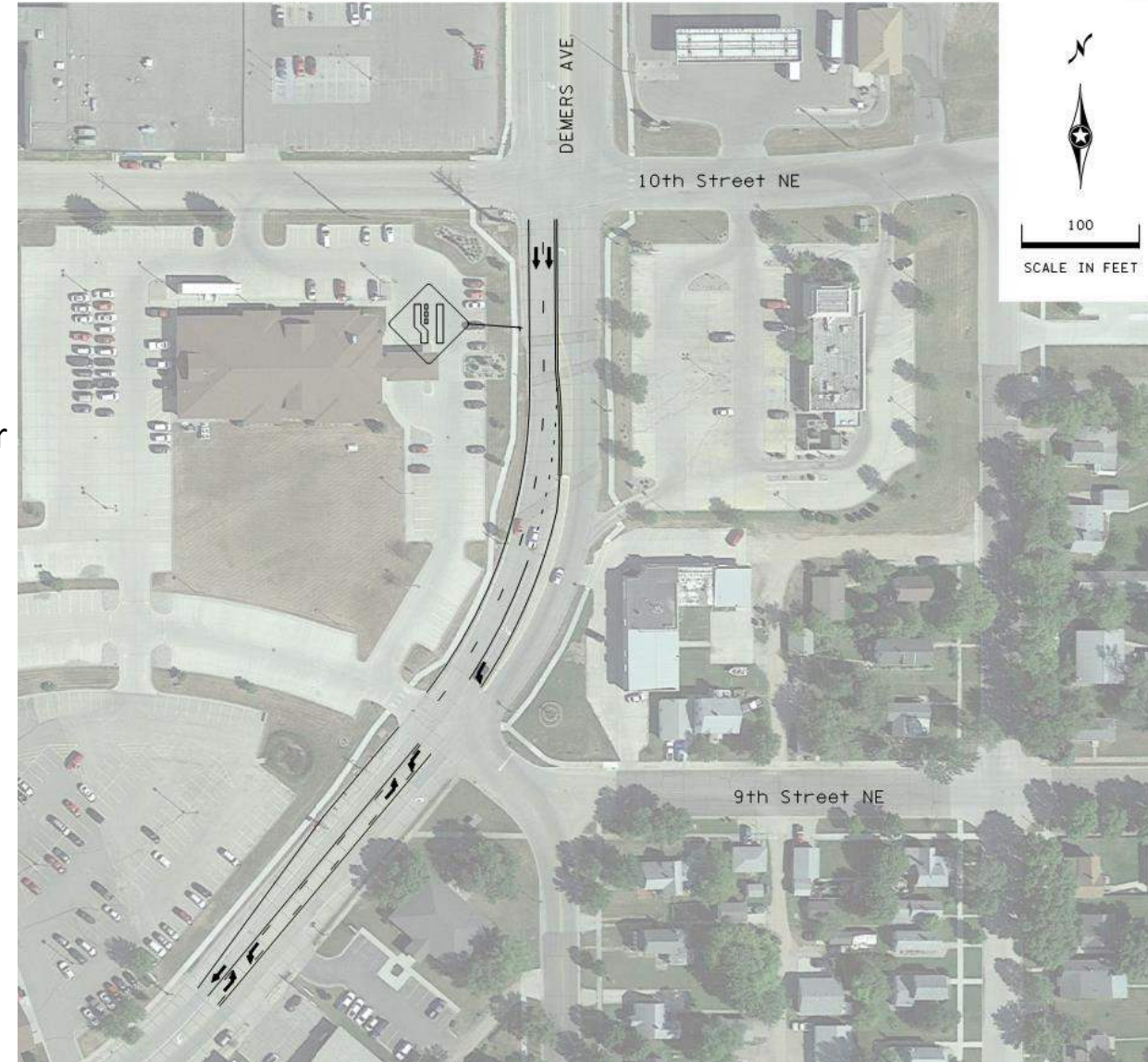
- 1 Sideswipe Crash
- Unclear lane alignment

Infrastructure

- Illustrative project to reconstruct DeMers (2045 MTP). Greater Minnesota mobility has identified potential mobility concerns for DeMers

Performance

- **Mobility:** 2045 LOS C or Better
- **Safety:** Neutral
- **Ped/Bike:** No Change
- **Cost:** \$18,500
- **Benefit/Cost:** NA



Recommended Improvements

Pedestrian Accessibility and Connections

Sidewalks

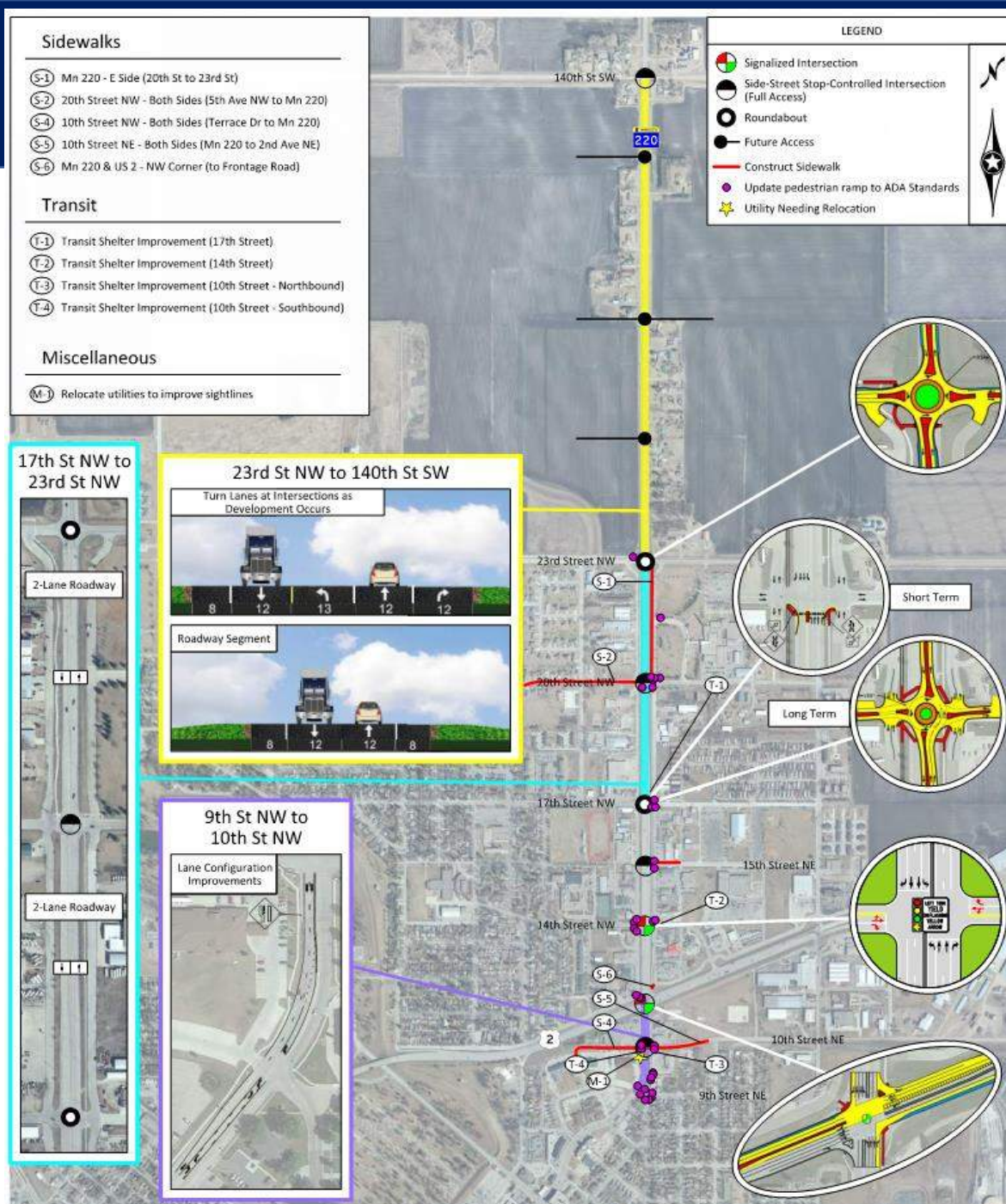
- (S-1) Mn 220 - E Side (20th St to 23rd St)
- (S-2) 20th Street NW - Both Sides (5th Ave NW to Mn 220)
- (S-4) 10th Street NW - Both Sides (Terrace Dr to Mn 220)
- (S-5) 10th Street NE - Both Sides (Mn 220 to 2nd Ave NE)
- (S-6) Mn 220 & US 2 - NW Corner (to Frontage Road)

Transit

- (T-1) Transit Shelter Improvement (17th Street)
- (T-2) Transit Shelter Improvement (14th Street)
- (T-3) Transit Shelter Improvement (10th Street - Northbound)
- (T-4) Transit Shelter Improvement (10th Street - Southbound)

Miscellaneous

- (M-1) Relocate utilities to improve sightlines



Implementation Plan

Phasing

- **Short Term – 0 to 5 years (2019-2024)**
- **Mid Term – 5 to 15 years (2025-2035)**
- **Long Term – More than 15 years (2036-2045)**

Project Prioritization

- **Matrix**

Programming / Funding

- **NWATP City Sub-target Federal Funds (every 4 years)**
- **City Maintenance and Operation Funds**
- **Transportation Alternatives Program**
- **Trunk Highway Funds**
- **Minnesota and Federal Safe Route (SRTS) Funds**
- **Highway Safety Improvement Program (HSIP)**
- **Other Minnesota and Federal Competitive Grant Programs**

Next Steps / Other Discussion

- Any Other Discussion?
- MPO Online Survey - <https://www.surveymonkey.com/r/Mn220NCorridor>
- Public Meeting 2 – Today 5:30 to 7:30 City Hall Atrium
- Tech Memo 6: Implementation Plan 4/26/19
- Draft Report: May 22, 2019
- SRC Meeting 5 – TBD



ALLIANT PROJ. NO. 118-0184.0

SRC MEETING MINUTES

DATE/TIME: Tuesday, June 25, 2019; 2:00 p.m.

LOCATION: East Grand Forks City Hall

PROJECT: Mn 220 N Corridor Study

PURPOSE: **Study Review Committee Meeting 5** – Study Conclusions and Implementation Plan

MINUTES BY: Mike Anderson, Alliant Project Manager; (612-767-9340)

1) Introductions

See attached sign in sheet for list of meeting attendees

2) Opinion Survey Results

Mike provided an overview of opinion survey results. See attached.

3) Recommendations

Mike provided an overview the highest ranked alternatives and feasible alternative recommendations that will be included in the implementation plan and considered in the future design development process. See attached. The backage road concept north of 23rd Street was brought up. It was noted this alternative was not explored with this study, but considers the backage road a long term consideration. The 220 Corridor Study identifies the roadway improvement strategy of access and turn lane improvements to accommodate future development in advance of those backage roads.

4) Implementation Plan Summary

Mike and the SRC walked through the implementation plan, which includes three phases (short, mid-term and long-term improvements). See attached.

5) Project Development Process Overview

Mike and the SRC walked through the project development process upon completion of the planning study. The next key step is incorporating the study recommendations into the 2045 MTP, then identifying them in the GF/EGF TIP. Once a construction year is identified, then a design development process will occur 3 to 5 years prior for the major improvement project items (US 2/Mn 220, 17th Street and 23rd Street improvements).

6) Roundabout Design Discussion.

Mike provided background and further design discussion relative to consideration of roundabouts on Mn 220. This included: benefit, detailed design considerations, truck, agricultural and heavy truck movements, clear zones, and truck travel time considerations. See attached.

7) MnDOT Project Example

MnDOT provided discussion on a comparable design process example of three roundabouts in Thief River Falls:

- Three roundabouts along US 59 and MnDOT TH 1. Consideration of heavy trucks, agricultural vehicles and mobile home moving route
- Similar roundabout footprints
- Frontage road access along both sides of US 59. Similar to Mn 220, except a bit more separation and rural shoulder design.
- Discussed the 30% engineering layout that was prepared as part of the design development process.

8) Next Steps

- a. **SRC Meeting 5 (May2019).** East Grand Forks City Council Work Session – June 25, 2019 (5 p.m)
- b. **Final Report: June 30, 2019**

9) Other Discussion

None



Mn 220 North Corridor Study Steering Review Committee



SIGN-IN SHEET

Name	Organization	E-mail Address	Phone	Present
Mike Anderson	Alliant Engineering	manderson@alliant-inc.com	763-210-8573	X
Jairo Viafara	GF/EGF MPO	jairo.viafara@theforksmpo.org	701-746-2656	X
Earl Haugen	GF/EGF MPO	earl.haugen@theforksmpo.org	701-746-2657	
Darren Laesch	MnDOT	Darren.laesch@state.mn.us	218-755-6554	
Jeff Erickson	MnDOT	Jeffrey.erickson@state.mn.us	218-755-6572	
Patty Olsen	Safe Kids Grand Forks	polson@altru.org	701-780-1856	
Paul Gorte	City of East Grand Forks	pgorte@egf.mn	218-773-8939	
Steven Gander	City of East Grand Forks – Mayor	mayor@egf.mn	701-741-2912	
Warren Strandell	Polk County Commissioner	strandell@gra.midco.net	218-773-0051	X
Bob Gooden	Northland College	Bob.gooden@northlandcollege.edu	218-779-3691	
Steve Corcoran	Valley Truck	stevec@valley-truck.com	701-739-0118	X
Dale Helms	Triangle Coach Service	contact@trianglecoachservice.com	701-741-8084	
Jason Stordahl	City of East Grand Forks	jstordahl@egf.mn	218-773-1313	X
Steve Emery	City of East Grand Forks/WSN	Steve.emery@wsn.us.com	218-773-1185	X
Cindy Dittberner	MnDOT	Cindy.dittberner@state.mn.us	218-766-0433	
Nancy Ellis	City of East Grand Forks	nellis@ci.east-grand-forks.mn.us	218-773-0124	
Michelle Rognerud	MnDOT	Michelle.rognerud@state.mn.us	218-755-6574	X
Don Diedrich	Polk County Commissioner	dondiedrich@me.com	218-745-5121	
Josh Benolken	MnDOT	Joshua.benolken@state.mn.us	218-416-0722	
JT Anderson	MnDOT	j.t.anderson@state.mn.us	218-686-3877	



ALLIANT
ENGINEERING

Mn 220 North Corridor Study Steering Review Committee



Name	Organization	E-mail Address	Phone	Present
David Thompson	Farmer	dhthompson61@gmail.com	218-779-3877	X
Mark Holy		markholy@gra.midco.net		
Thomas Barrett		johndeere83@hotmail.com		
Chad Grassel	City of East Grand Forks - Council Member	cgrassel@egf.mn		

Mn 220 N Corridor Study

SRC Meeting 5 –Implementation Plan and Study Conclusions | June 25, 2019



AGENDA

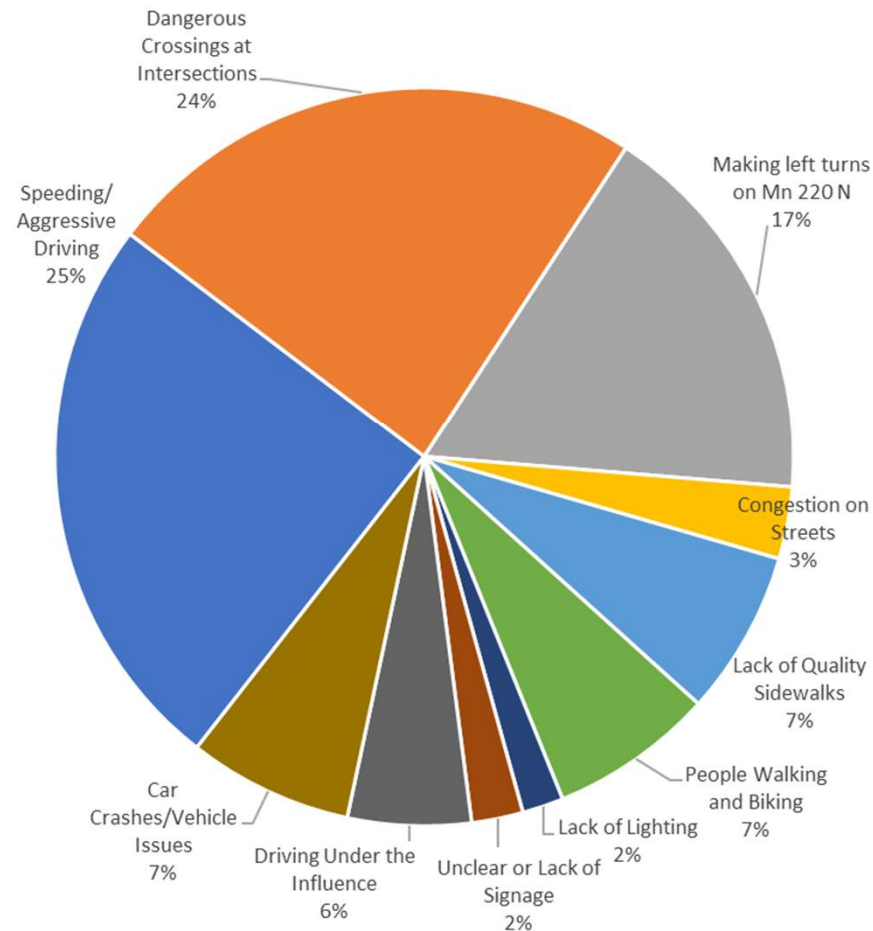
- Introductions
- Opinion Survey Results
- Recommendations
- Implementation Plan
- Project Development Process Overview
- Roundabouts (More Design Discussion)
- Example Project (MnDOT)
- Other Discussion

Opinion Survey Results

Overview

- 52 Respondents
- 35% Residents along Corridor
- Most Respondents were Motorists / Daily Users / Middle Aged
- **Top 3 Most Concerning Intersections:** US 2, 17th, 23rd, Followed by No Concerns (4th ranked)
- **Top 3 Safety Concerns:** Speed/Aggressive Driving, Perception of Dangerous Crossing at Intersection, Making Left Turns
- **Top 4 Improvement Elements:** Improve crosswalks, traffic signal, roundabout, pedestrian/bicycles facilities
- Consistent Noted Concern – Trucks and Ag Vehicles

Top Safety Concerns on Mn 220 Corridor



Recommendations / Study Goals

Study Goals

- Opinion Survey Consistent with Goals of this Study
- Objective of Alternatives Analysis Focus
 - Improve Access Control
 - Improve Mobility
 - Improve Safety
 - Improve Pedestrian Crossings

Study Recommendations / Implementation Plan

- Specifically Address Issues Raised, Safety, Mobility and Multimodal Deficiencies
- Evaluation Metrics - Balance Needs for All Users
- Carry Forward Highest Ranked and Feasible Alternatives
- Implementation Plan



Examine traffic operations at key intersections and develop potential options to improve mobility, access, and safety



Improve pedestrian crossing opportunities and safety at key locations along the corridor



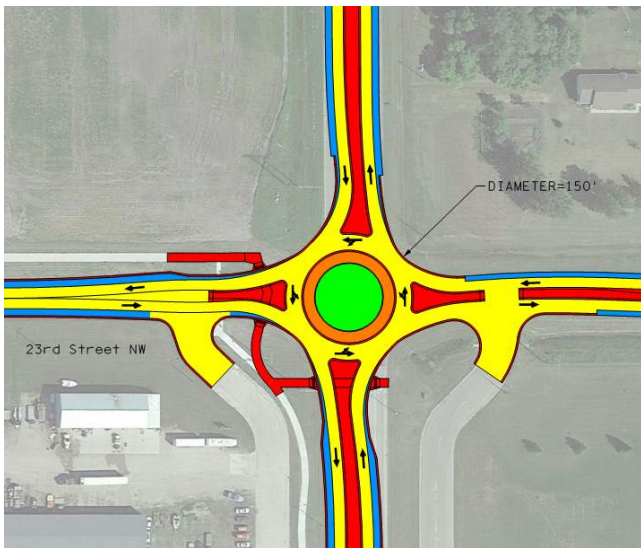
Develop a document that provides recommendations for future transportation facility needs along Mn220 N and its crossroads

Recommendations

Intersection Control, Mobility, Safety and Pedestrian Crossings

23rd Street NW

- Highest Ranked: Roundabout



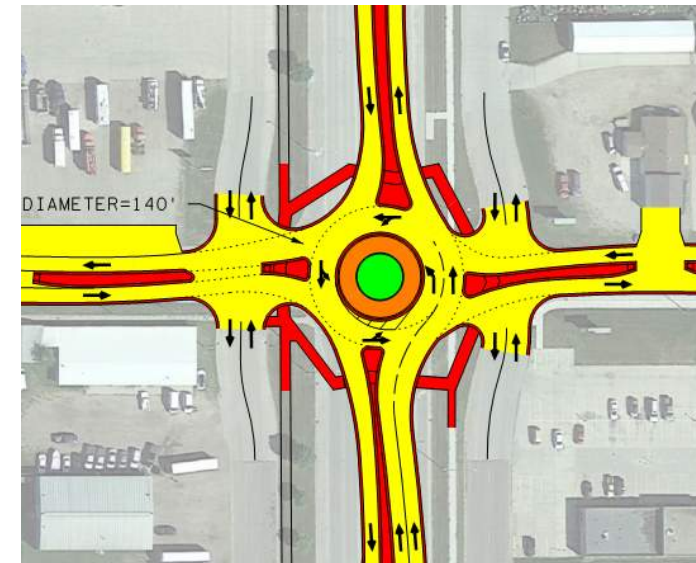
20th Street NW

- Highest Ranked: Maintain Existing Intersection Access/Control
- Feasible Alternative: $\frac{3}{4}$ Configuration (If Traffic Signal at 17th Street)



17th Street NW

- Highest Ranked: Roundabout
- Feasible Alternative: Traffic Signal



Recommendations

Intersection Control, Mobility, Safety and Pedestrian Crossings

15th Street NW

- **Highest Ranked: Maintain Existing Access and Control**



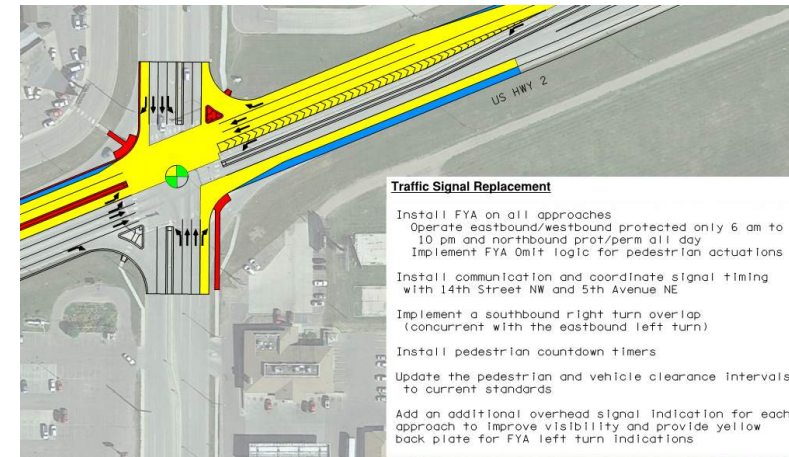
14th Street NW

- **Highest Ranked: Replace Traffic Signal – Operation Improvements**



US 2

- **Highest Ranked: Replace Traffic Signal System, Operation and Geometric Improvements**
- **Feasible Alternatives: Roundabout and Eastbound Displaced Left Turn**



Recommendations

Intersection Control, Mobility, Safety and Pedestrian Crossings

10th Street NW

- **Highest Ranked: Maintain Existing Access and Control. Monitor Crashes, Conduct Future Study as Appropriate**
- **Relocate Utilities on Southwest Corner**



9th Street NW

- **Highest Ranked: Maintain Existing Access and Control – Provide Lane Configuration Improvement**



Recommendations

Intersection Control, Mobility, Safety and Pedestrian Crossings

9th Street to 17th Street

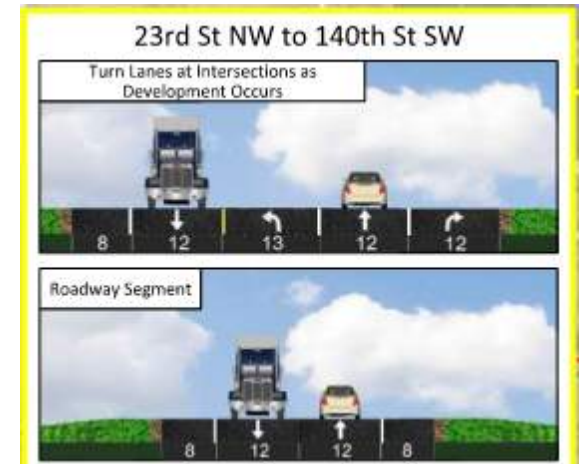
- Maintain Existing Cross-section – Same Traffic Lanes

17th Street to 23rd Street- Depends on Final Intersection Control

- Highest Ranked: 2-Lane Divided (W/Roundabouts at 17th and 23rd, Existing Lanes at 20th Street
- Alternative: Extend 4-lane Segment to 20th Street NE (w/ signal at 17th Street), Maintain Existing Lanes Between 20th Street and 23rd Street

23rd Street to 140th Street SW

- Highest Ranked: Maintain 2-Lane Rural Road, Construct Left and Right Turn Lanes as Access and Development Occurs

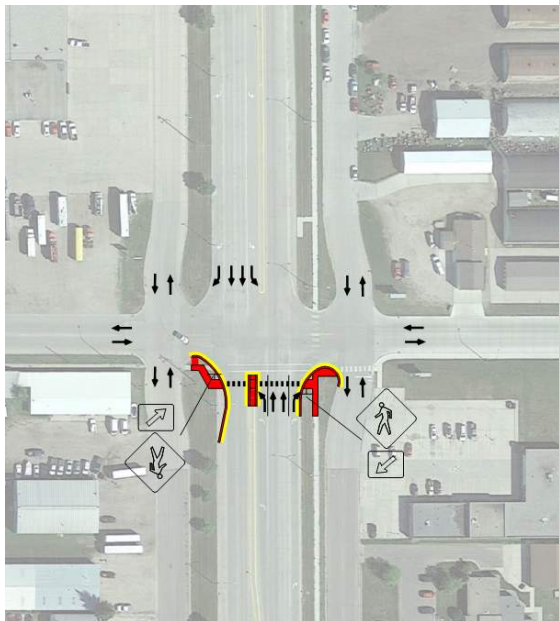


Recommendations

Pedestrian Crossings and Multimodal

17th Street NW

- **Short Term: Pedestrian Crosswalk Improvement**



Sidewalk Connections

- **6 Sidewalk Connection Gaps Identified**

Transit

- **Improve Signing, Concrete Pad or Bench (as applicable) at 4 Existing Stops**
- **Future Transit Route Evaluation (CAT) with Future Development**

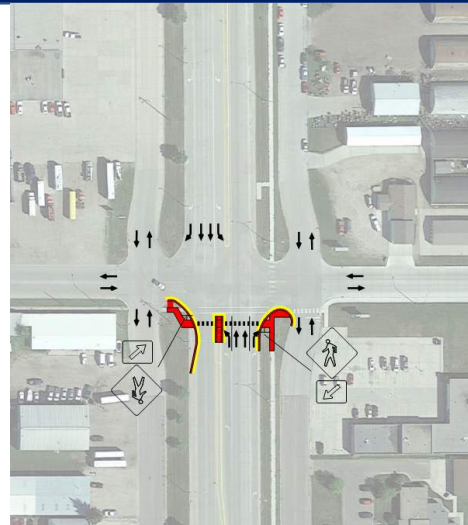
Implementation Plan Summary

Phasing

- Short Term – 0 to 5 years (2019-2024)
- Mid Term – 5 to 15 years (2025-2035)
- Long Term – More than 15 years (2036-2045)

Short Term (2019-2024)

- **Improve Pedestrian Crosswalk at 17th Street NW**
- 9th Street Lane Configuration Improvement
- US 2/Mn220 NE Corner – Establish Sidewalk Connection and Accessibility to Frontage Road
- Bus Stop Signing Improvements – 4 Locations (City)
- Relocate Utility Boxes – 10th Street NW
- **Total Cost: \$108,000**



Implementation Plan Summary

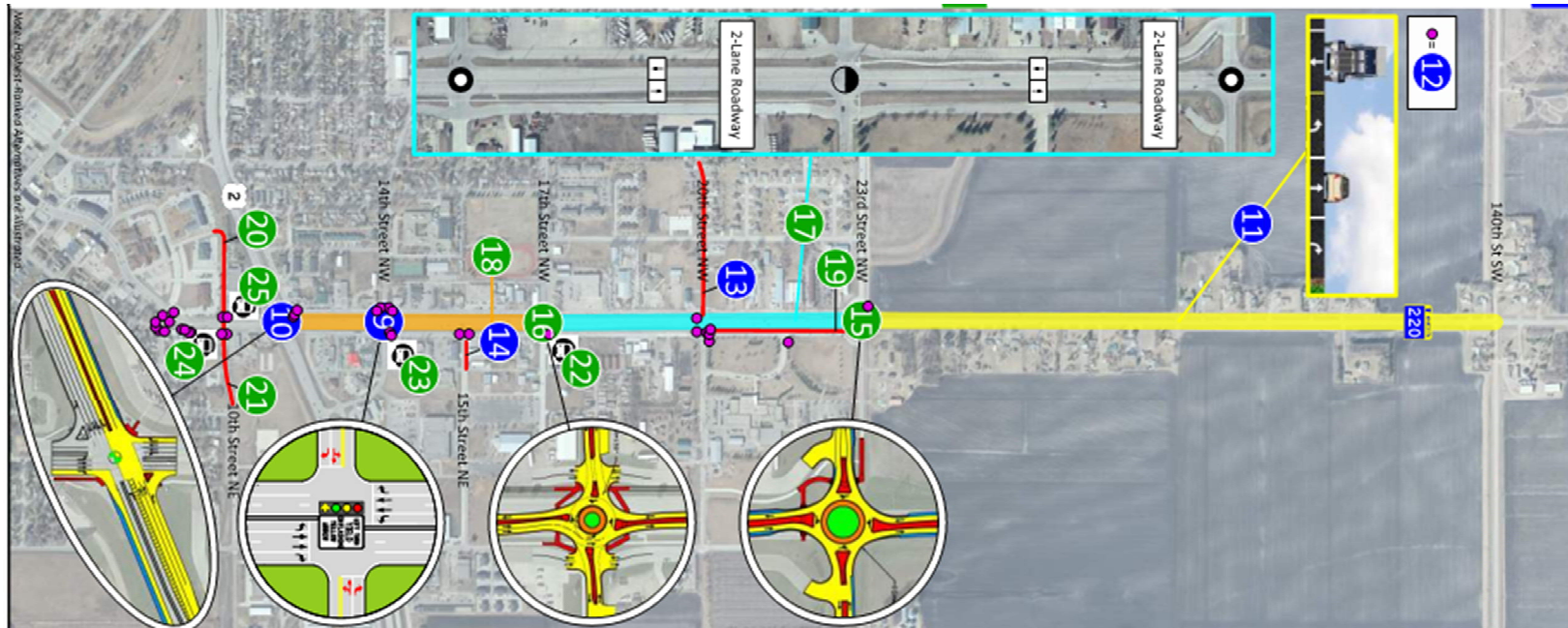
Mid-Term (2025-2035)

- **Mn 220 at 14th Street NW – Traffic Signal Replacement and Improvements**
- **Mn 220 at US 2 – Traffic Signal Replacement and Geometric Improvements**
- 20th Street – Establish Sidewalk Connections
- 15th Street NE – Establish Sidewalk Connection

• **Total Cost: \$6.7 Million**

Other Improvements

- Non-Compliant Ramps (EGF ADA Transition Plan)
- 23rd Street to 140th Street Turn Lanes (As Development and Access Improvements Occur)

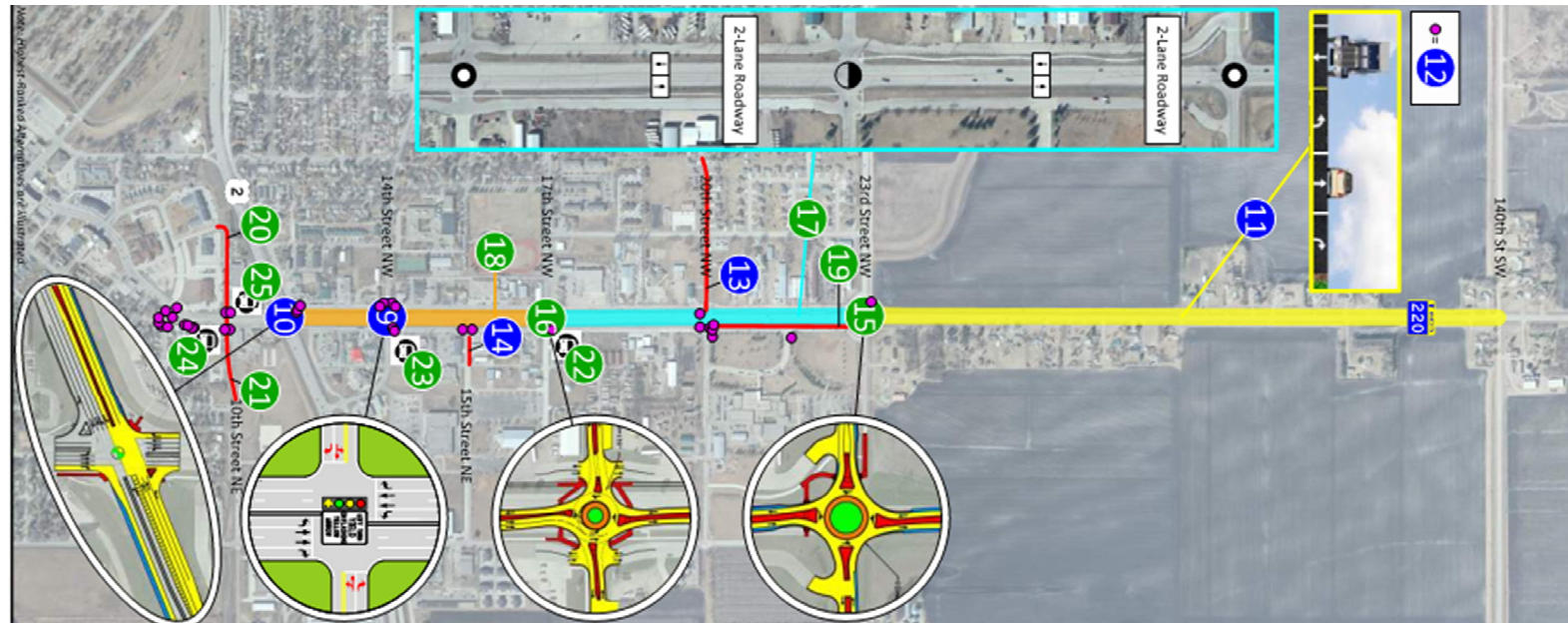


Implementation Plan Summary

Long Term (2036-2045+)

- **Mn 220 at 23rd Street NW – Intersection Control Improvements**
- **Mn 220 at 17th Street NW – Intersection Control Improvements**
- US 2 to 23rd Street NW Pavement Rehabilitation (MnDOT)
- 20th Street to 23rd Street – Establish Sidewalk (East Side)
- 10th Street NW/NE – Establish Sidewalks
- Bus Stops (4 Locations) – Provide Bus Bench, Establish Concrete Pad at 10th Street (Both Directions)

- **Total Cost: \$13.5 Million**



Implementation Plan Summary

Transportation Programs

- **2045 Metropolitan Transportation Plan (MTP)** – Adopt or Amend Previously Identified Improvements into MTP
- **GF-EGF MPO Transportation Improvement Program (TIP) (Projects in the TIP are also included in MnDOT STIP). (Programmed to 2024).** Mid and Long Term Improvements Candidates for Future Inclusion
- **10-Year Capital Highway Investment Plan (CHIP) – (Programmed to 2029)** Mid and Long Term Improvements are Potential Candidates for Future Inclusion

Key Funding Sources

- Local Partnership Program (LPP).
- NW Area Transportation Partnership (NWATP)
- City, Local Operation and Maintenance Funds
- Transportation Alternatives Program (TAP)
- Highway Safety Improvement Program (HSIP)
- Safe Route to Schools Funds (SRTS)
- Other Grant Programs

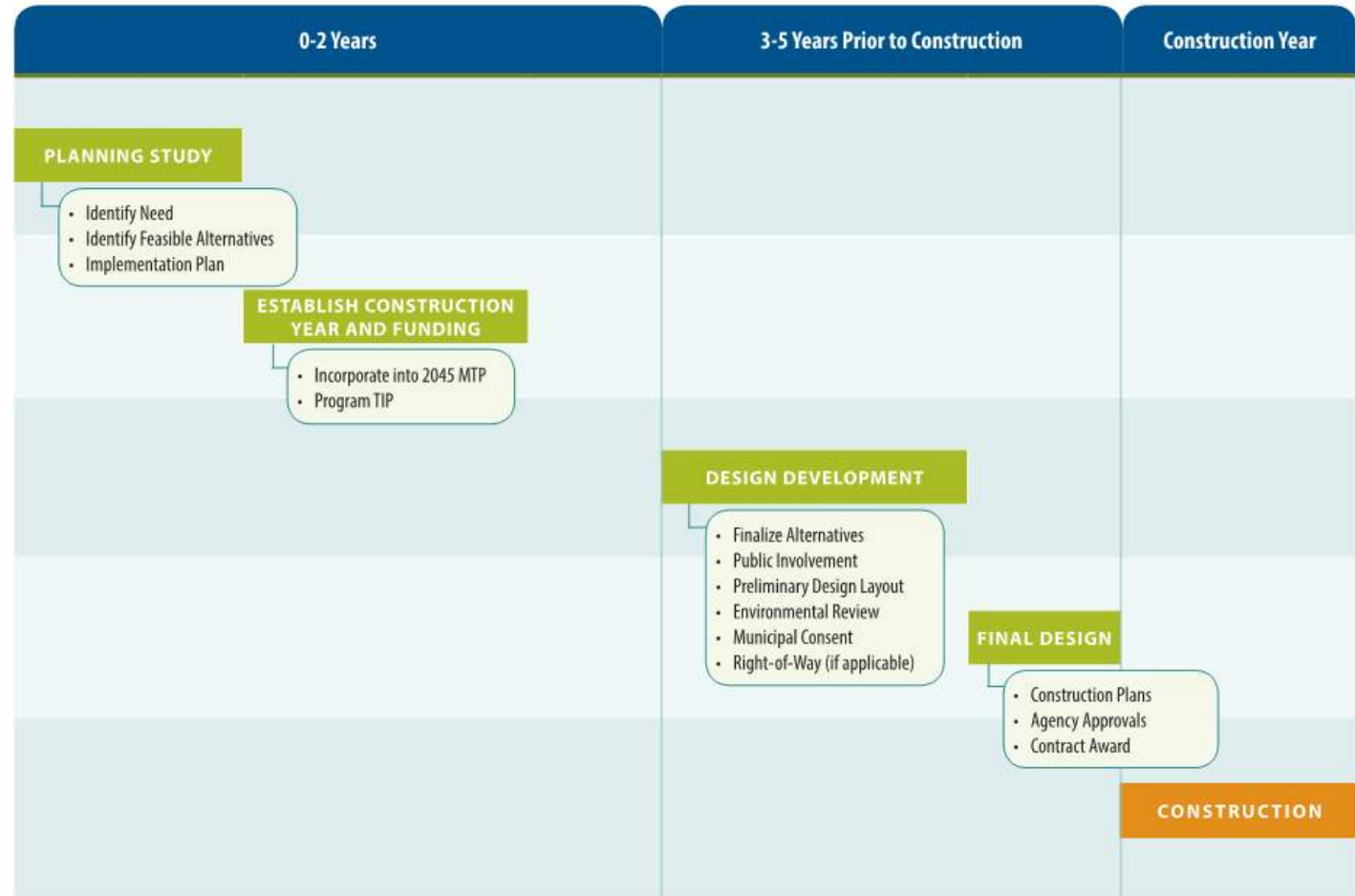
Project Development Process

3 Primary Future Projects

- US 2 at Mn 220 – Traffic Signal Replacement/Geometric Improvements
- Mn 220 at 17th Street – Intersection Control Improvement
- Mn 220 at 23rd Street – Intersection Control Improvement

Project Development Process (High Level)

- Planning Study
- Establish Construction Year and Funding
- Design Development
- Final Design
- Construction



Roundabout Design Discussion

Roundabouts on Mn 220

- Balances Needs of All Users
- Highest Ranked Alternatives at 17th Street and 23rd Street – Why?
 - Specifically Reduces Right Angle and Crash Severity (47% at 23rd and 55% at 17th Street) – Addresses Key Concern
 - Improves Left Turn Access (Lower Delay and Safer) – Addresses Key Concern
 - Provides Vehicle Speed Control without Compromising Mobility Capacity – Addresses Key Concern
 - Especially Efficient During Off Peak Hours (22 Other Hours of Day)
 - Allows for Reduced Pavement Area (Increased Frontage Road Space and Boulevard)
 - Pedestrian Crossing Improvement (Reduced Exposure, Shorter Distance, One Direction at a Time) – Addresses Key Concern

Key Issue and Concern

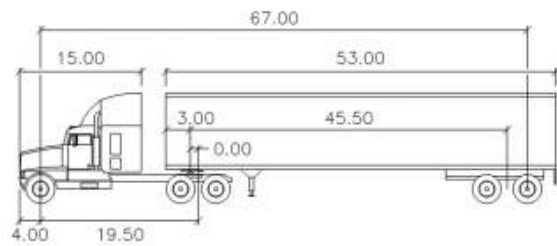
- Trucks
- Agricultural Vehicles
- Access/Circulation
- Truck Travel Time



Roundabout Design Discussion

Trucks

- 8-10% of the Traffic (All Trucks During Peak Harvest Season)
- Beet Trucks – Size Does Not Control Geometric Design
- Design Vehicle – WB67 (Standard Trunk Highway Design) – All Movements



WB-67		feet	
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

Source: AASHTO

- Video File

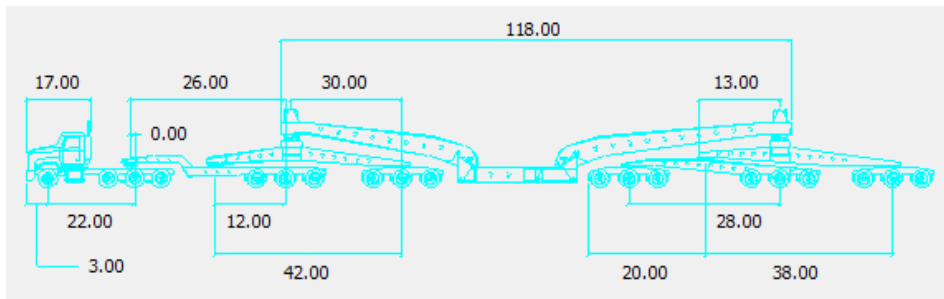
Roundabout Design Discussion



Roundabout Design Discussion

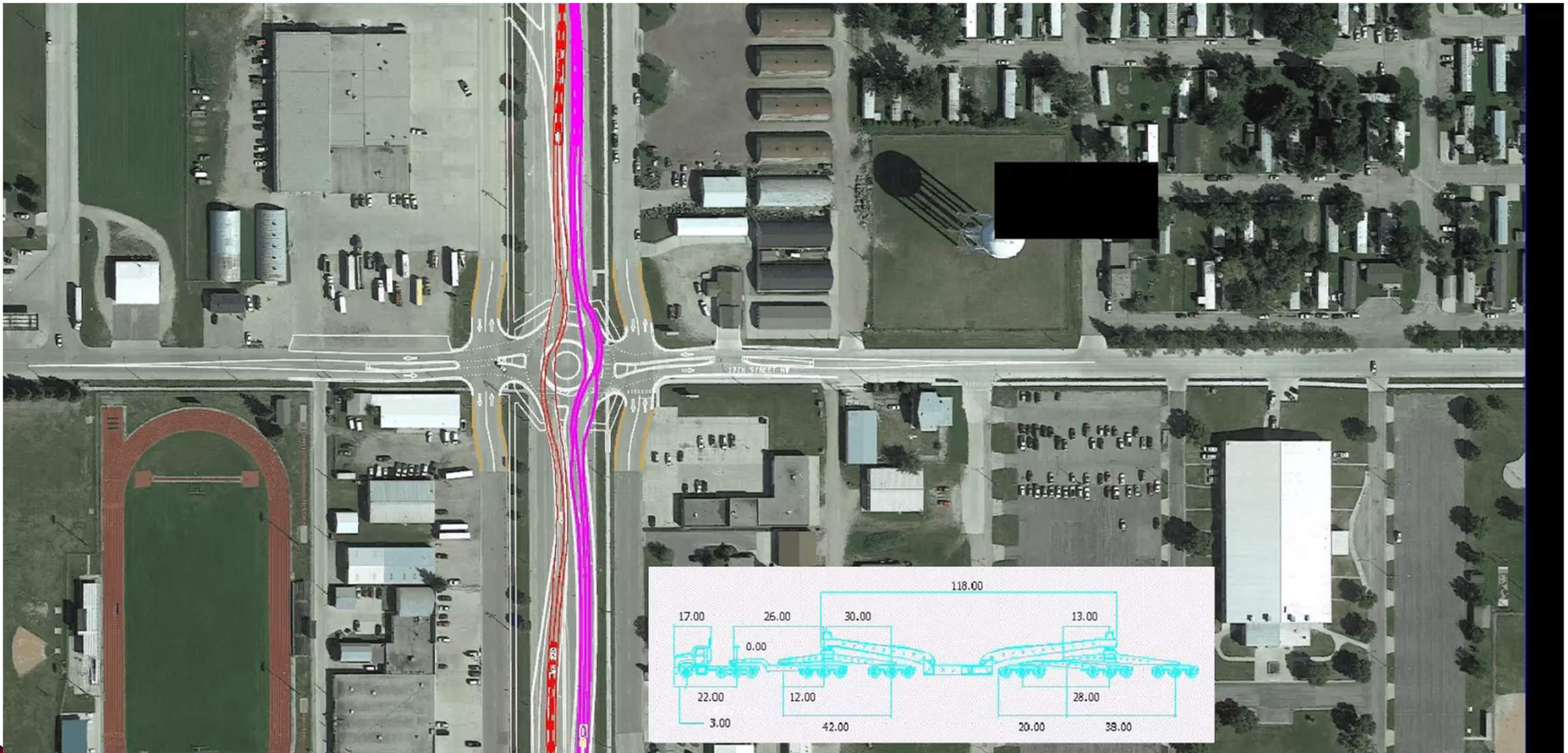
Trucks

Unique Super Load Vehicle – 19 Axle (200') – Through Movements



- Video File

Roundabout Design Discussion



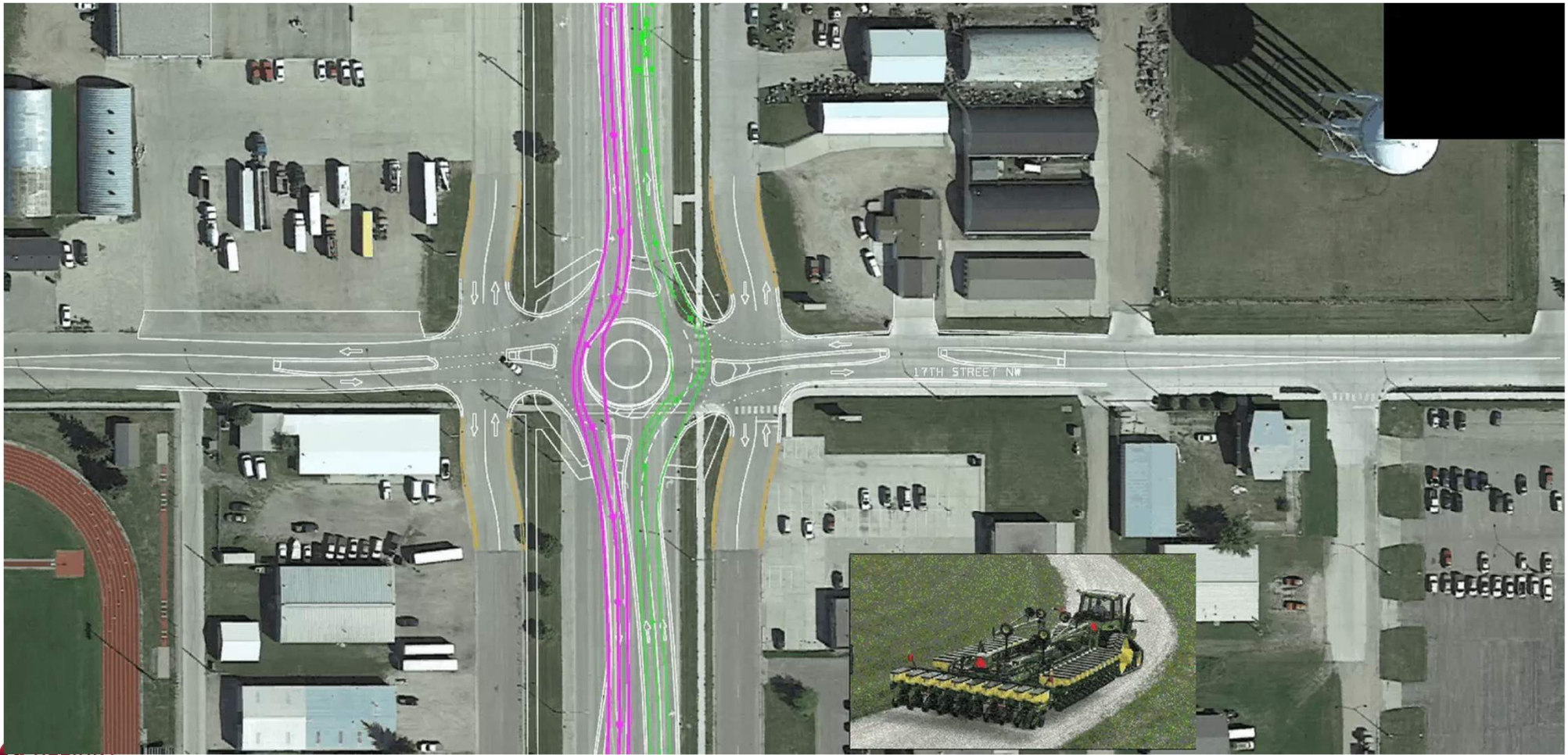
Roundabout Design Discussion

Agricultural Equipment

- Variable Equipment Expected – Final Design Consideration
 - Not Uncommon Design Issue
 - 200 Roundabouts on Trunk Highway System
 - Approximately 5-10% are Rural
 - Urbanizing Examples – Thief River Falls, Hutchinson, Mankato
 - Combine
 - 120' Planter Implement – Largest Available (Folds to 15-18' Wide and 62' Long in Transport) – Likely Controls Design
-
- Video File



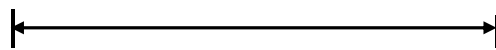
Roundabout Design Discussion



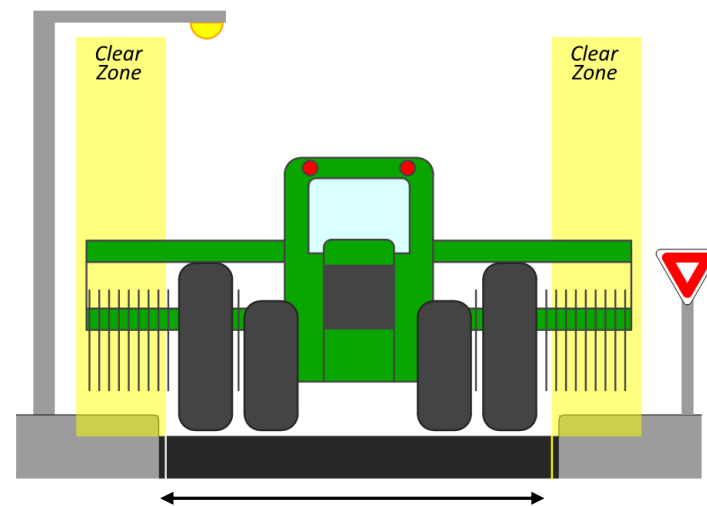
Roundabout Design Discussion

Truck and Ag Vehicle Final Design Refinements – During Design Development

- Curb to Curb Widths
- Vertical Clear Zones



Current Mn 220:
8' SHLD + 12'
Lane = 20' Travel



Variable Width Lane

Roundabout Design Discussion

Truck and Ag Vehicle Final Design Refinements – During Design Development

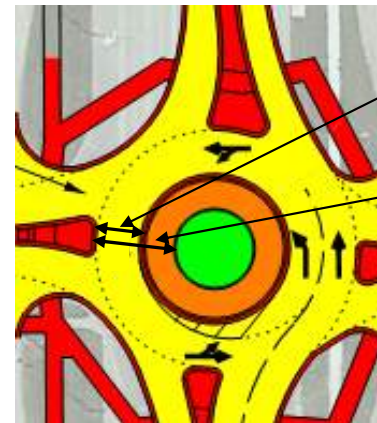
- Raised Central Island Diameter
- Truck Apron Diameter
- Entry Angles
- Curb Radii
- Final Footprint – Diameter/Location
- Surmountable Aprons on Corners (if necessary)



Variable Width Apron



Current Mn 220:
10' SHLD + 12'
Lane + 14' Lane
= 36' Total Travel



25' Circulating
Lane
40' Lane +
Apron

Design Development – Example Project (MnDOT)

Truck Travel Time Estimate – PM Peak Northbound

- Existing Control Device (17th and 23rd) – No Stops
 - **2 min**
- Traffic Signals (17th and 23rd)
 - **Range 2 min to 3 min 30 sec (0 to -1.5 min)**
 - **Average 2 min 30 sec (-30 sec)**
- Roundabouts (17th and 23rd)
 - **Range - Minimal**
 - **Average 2 min 45 sec (-45 sec)**



Design Development – Example Project (MnDOT)

Example Project (MnDOT)

Other Discussion

- Any Other Discussion?
- **Thank You for Participation!!**
- East Grand Forks Council Workshop Today 5:00
- Final Report: June 30, 2019

Technical Memorandum #7

Public Participation Summary

Appendix B:

Public Meeting Minutes



ALLIANT PROJ. NO. 118-0184.0

PUBLIC MEETING MINUTES

DATE/TIME: Tuesday, December 18, 2018; 5:00 p.m.
LOCATION: East Grand Forks City Hall Atrium
PROJECT: Mn 220 N Corridor Study
PURPOSE: **Public Meeting 1** – Issues and Needs
MINUTES BY: Mike Anderson, Alliant Project Manager; (612-767-9340)

1) Attendees

There were 3 attendees. See attached sign in sheet for list of meeting attendees

2) Comments and Feedback

Discussion with the meeting attendees revealed the following key issues and suggestions:

- The utility boxes at the DeMers Avenue/10th Street NE intersection obstruct the view of eastbound stopped motorists. Felt to be a safety issue. Request this be relocated.
- Variable vehicle speeds may be a factor in crashes at 17th Street (change in speed zone at intersection though motorists are speeding up prior). The speed zone changes may have been appropriate many years ago but have not kept up with the change in the corridor. Suggest extending a slower speed zone to 23rd Street
- There is a worn path in the boulevard grass between US 2/Mn 220 and the frontage road by McDonalds. Suggest developing an actual sidewalk with accessible ramps at this location.
- Indicated that many high school students cross Mn 220 at 15th Street to access Dairy Queen. Suggest improved crossing
- A roundabout at 23rd Street makes some sense as a measure to reduce motorist speeds coming into the corridor. Also, the frontage roads are set back further. The drainage ditch was denoted as a potential concern.
- Attendees noted that the study should clearly indicate the simple improvements that address issues be prioritized first and implemented, and then larger improvements be planned for.
- The eastbound/westbound left turn movement is difficult because the visibility is often blocked by larger vehicles. Concurred with the safety findings at this intersection. Suggested a red arrow.



ALLIANT
ENGINEERING

Mn 220 North Corridor Study Open House



SIGN-IN SHEET

Name	Address	E-mail Address	Phone
Tom Stearnes	2031 Central Ave NW EDF	jedf.stearnes@midcomnetwork.com 218-779-5280	
CRAIG Buckelew	1017 CENTRAL AVE NW	hardwatare@hotmail.com	218 791.5004
BRANDON "	"		218.773.7933



ALLIANT PROJ. NO. 118-0184.0

PUBLIC MEETING MINUTES

DATE/TIME: Tuesday, April 16, 2019; 5:30 p.m.
LOCATION: East Grand Forks City Hall Atrium
PROJECT: Mn 220 N Corridor Study
PURPOSE: **Public Meeting 2** – Alternatives Evaluation
MINUTES BY: Mike Anderson, Alliant Project Manager; (612-767-9340)

1) Attendees

There were 6 attendees. See attached sign in sheet for list of meeting attendees

2) Comments and Feedback

No written comments were received. Discussion with the meeting attendees revealed the following key issues and concerns:

- The primary concern voiced by attendees was related to the perception that roundabouts at 23rd Street and 17th Street will not accommodate trucks or agricultural equipment. It was noted by attendees that the existing signal structures at 14th Street and US 2 can obstruct larger vehicles (vertical clearance).
- Several attendees noted that roundabouts seem like good solutions but wonder if they are applicable to 220 due to the truck traffic. It was noted that roundabout design and truck traffic is not a unique design consideration and the characteristics of 220 are not unique compared to other areas throughout Minnesota that have roundabout intersections deployed.
- Discussion of the design process to ensure trucks and agriculture equipment are accounted for was had. It was noted that conceptual designs developed for the study will be evaluated and further engineered at a later date. Large truck and ag equipment turning templates were reviewed to evaluate the feasibility of the potential intersection options. The concepts indicate the traffic control device is a feasible solution. More input in the final design would occur at that time and refined lane geometrics, lane widths, clearance zones, etc. will be developed to accommodate the design vehicles during the detailed design process.
- Vehicle speeds on Mn 220 was brought up as a concern. It was acknowledged that the roadway environment influences the design speed. Future changes in traffic control devices along 220 may warrant opportunity to conduct speed rezoning.



ALLIANT
ENGINEERING

Mn 220 North Corridor Study Open House



SIGN-IN SHEET

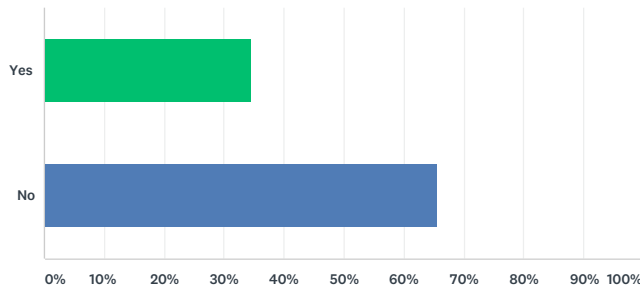
Name	Address	E-mail Address	Phone
Ruth Ann Schleif	806 22nd St NW, EGF. MN 56721	raschleif7@gmail.com	218 230 6508
Susan Neegard	1626 Valley Golf Way, EGF Mn 56721	neegard@midco.net	218-242-2776
Jan Prue	14203 State Hwy 220 S.W. M. 56721		218-779-8574
Jocelyn	2102 State Ave NW	jocelyn@midco.net	
Wade Beck	13092 440th Ave SW EGF	Wadebeck@hotmail.com	218-779-2778
NICK HAGEN	13962 STATE HWY 220 SW EGF	NICHOLAS.HAGS@GMAIL.COM	917-273-1875

Appendix C:

Opinion Survey Results

Q1 (Indicate the condition which applies to the location of the following activities within the MN 220 N Corridor Study Area. Please check all that apply). Do you live (resident) on the MN 220 N Corridor?

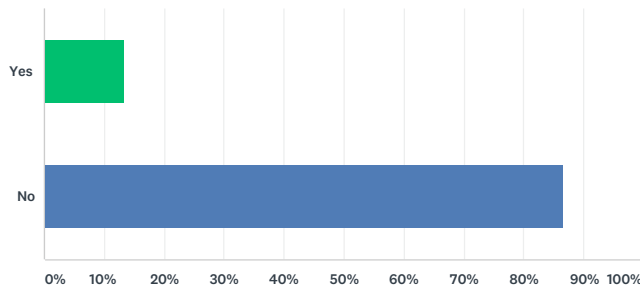
Answered: 52 Skipped: 0



ANSWER CHOICES	RESPONSES
Yes	34.62% 18
No	65.38% 34
Total Respondents: 52	

Q2 Do you work on the MN 220 N Corridor?

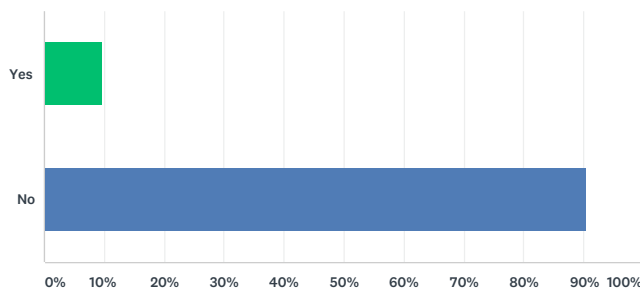
Answered: 52 Skipped: 0



ANSWER CHOICES	RESPONSES
Yes	13.46% 7
No	86.54% 45
Total Respondents: 52	

Q3 Do you attend school on the MN 220 N Corridor?

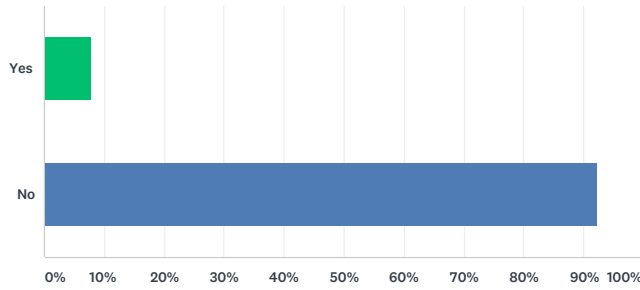
Answered: 52 Skipped: 0



ANSWER CHOICES	RESPONSES
Yes	9.62% 5
No	90.38% 47
Total Respondents: 52	

Q4 Do you own/operate a business on the MN 220 N Corridor?

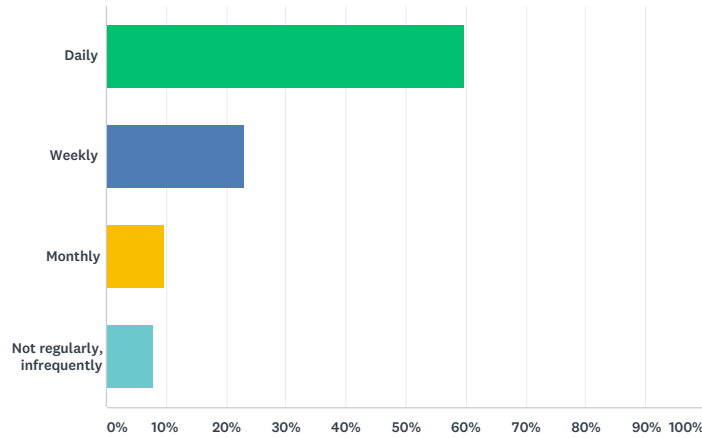
Answered: 51 Skipped: 1



ANSWER CHOICES	RESPONSES
Yes	7.84% 4
No	92.16% 47
Total Respondents: 51	

Q5 How often do you travel on the MN 220 N Corridor?

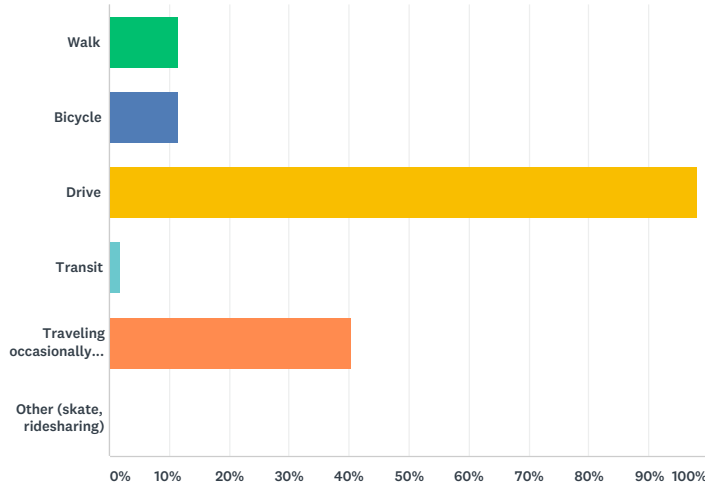
Answered: 52 Skipped: 0



ANSWER CHOICES	RESPONSES
Daily	59.62% 31
Weekly	23.08% 12
Monthly	9.62% 5
Not regularly, infrequently	7.69% 4
TOTAL	52

Q6 How do you travel on the MN 220 N Corridor? (Pick your top 2. Mark only 2 options)

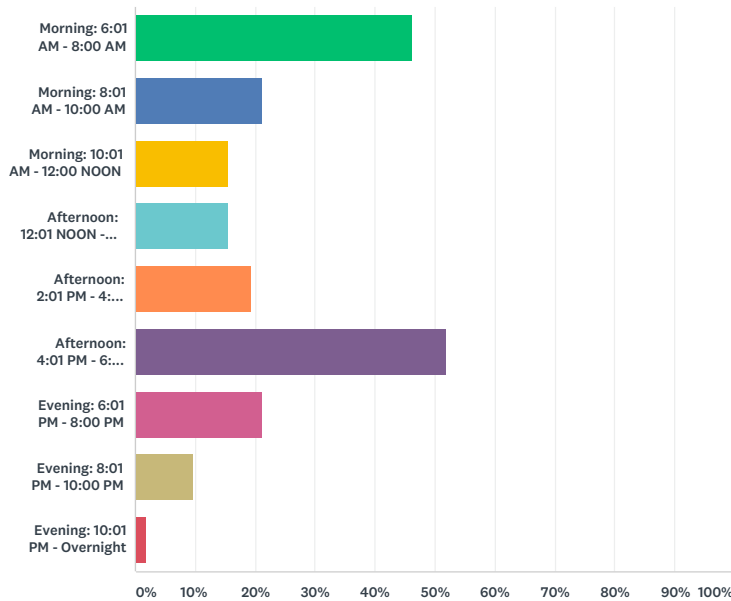
Answered: 52 Skipped: 0



ANSWER CHOICES	RESPONSES
Walk	11.54% 6
Bicycle	11.54% 6
Drive	98.08% 51
Transit	1.92% 1
Traveling occasionally as a passenger/riding companion	40.38% 21
Other (skate, ridesharing)	0.00% 0
Total Respondents: 52	

Q7 What time of day do you typically travel this route? (Pick 2 time periods. Mark only 2 options)

Answered: 52 Skipped: 0

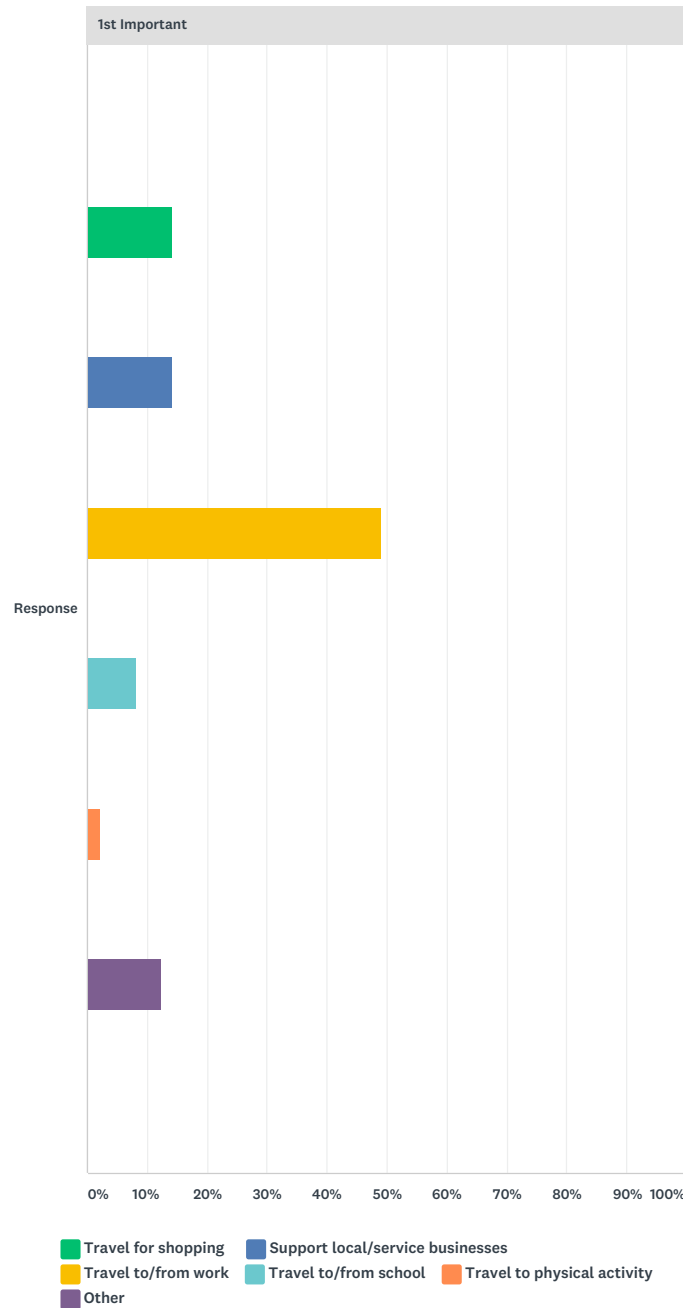


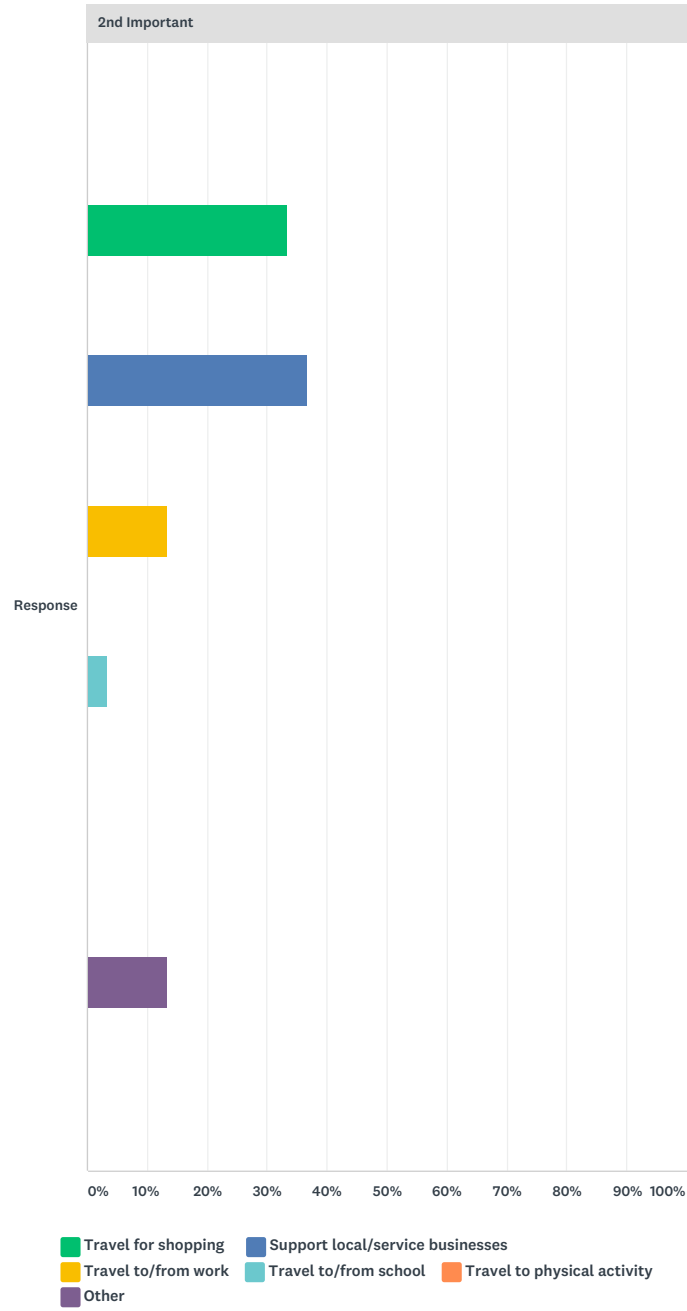
ANSWER CHOICES	RESPONSES
Morning: 6:01 AM - 8:00 AM	46.15% 24
Morning: 8:01 AM - 10:00 AM	21.15% 11
Morning: 10:01 AM - 12:00 NOON	15.38% 8
Afternoon: 12:01 NOON - 2:00 PM	15.38% 8
Afternoon: 2:01 PM - 4:00 PM	19.23% 10
Afternoon: 4:01 PM - 6:00 PM	51.92% 27

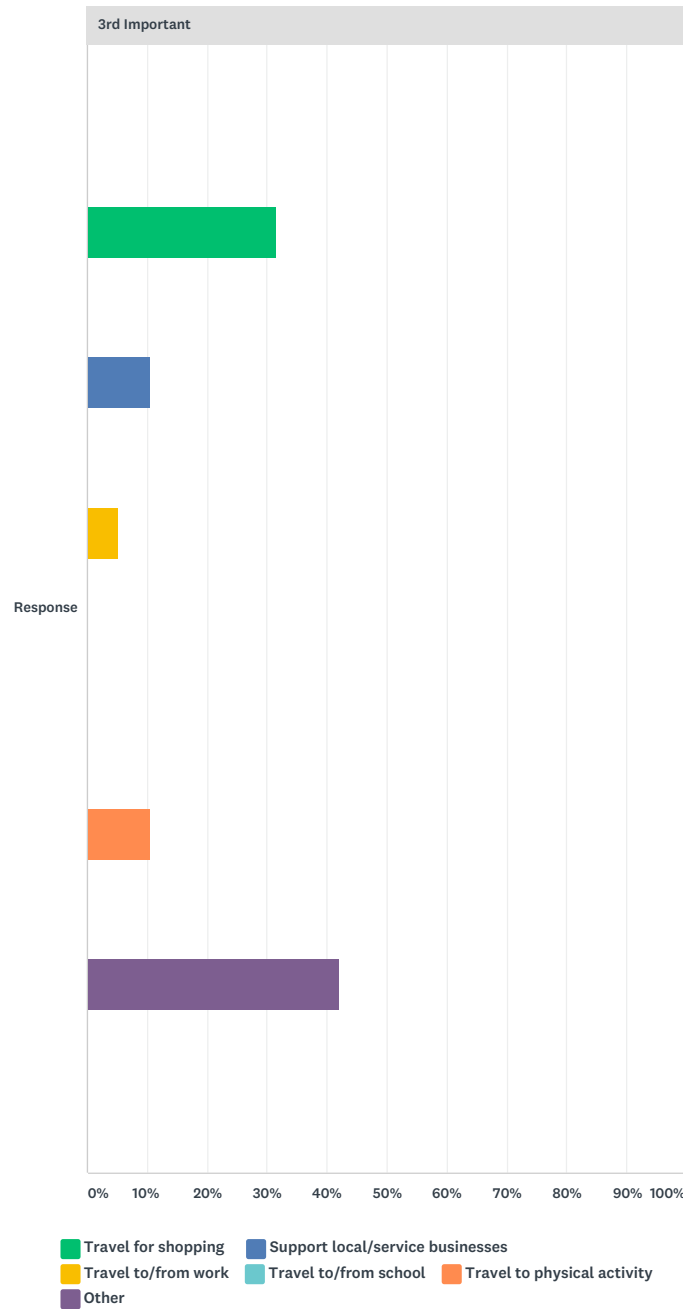
Evening: 6:01 PM - 8:00 PM	21.15%	11
Evening: 8:01 PM - 10:00 PM	9.62%	5
Evening: 10:01 PM - Overnight	1.92%	1
Total Respondents: 52		

Q8 Why do you travel on the Mn220 Corridor? (Pick your top 3 in order of importance, 1 being the most important).

Answered: 49 Skipped: 3







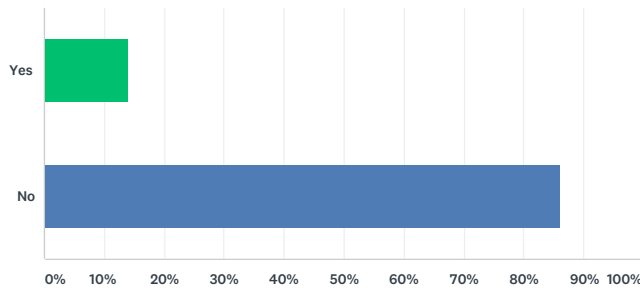
1st Important							
	TRAVEL FOR SHOPPING	SUPPORT LOCAL/SERVICE BUSINESSES	TRAVEL TO/FROM WORK	TRAVEL TO/FROM SCHOOL	TRAVEL TO PHYSICAL ACTIVITY	OTHER	TOTAL
Response	14.29% 7	14.29% 7	48.98% 24	8.16% 4	2.04% 1	12.24% 6	49

2nd Important							
	TRAVEL FOR SHOPPING	SUPPORT LOCAL/SERVICE BUSINESSES	TRAVEL TO/FROM WORK	TRAVEL TO/FROM SCHOOL	TRAVEL TO PHYSICAL ACTIVITY	OTHER	TOTAL
Response	33.33% 10	36.67% 11	13.33% 4	3.33% 1	0.00% 0	13.33% 4	30

3rd Important							
	TRAVEL FOR SHOPPING	SUPPORT LOCAL/SERVICE BUSINESSES	TRAVEL TO/FROM WORK	TRAVEL TO/FROM SCHOOL	TRAVEL TO PHYSICAL ACTIVITY	OTHER	TOTAL
Response	31.58% 6	10.53% 2	5.26% 1	0.00% 0	10.53% 2	42.11% 8	19

Q9 Do you, a friend, or a relative have a disability which could affect your/their safety in crossing any of the streets on the MN 220 Corridor?

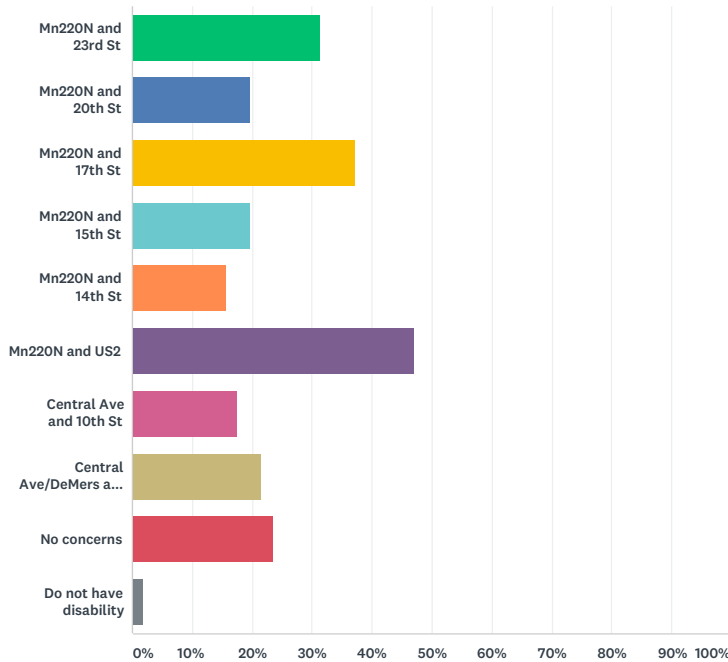
Answered: 50 Skipped: 2



ANSWER CHOICES	RESPONSES
Yes	14.00% 7
No	86.00% 43
TOTAL	50

Q10 Please indicate the crossing intersection(s) which could affect your/their safety in crossing any of the streets on the MN 220 N Corridor (Central Avenue)? (Please check all that apply)

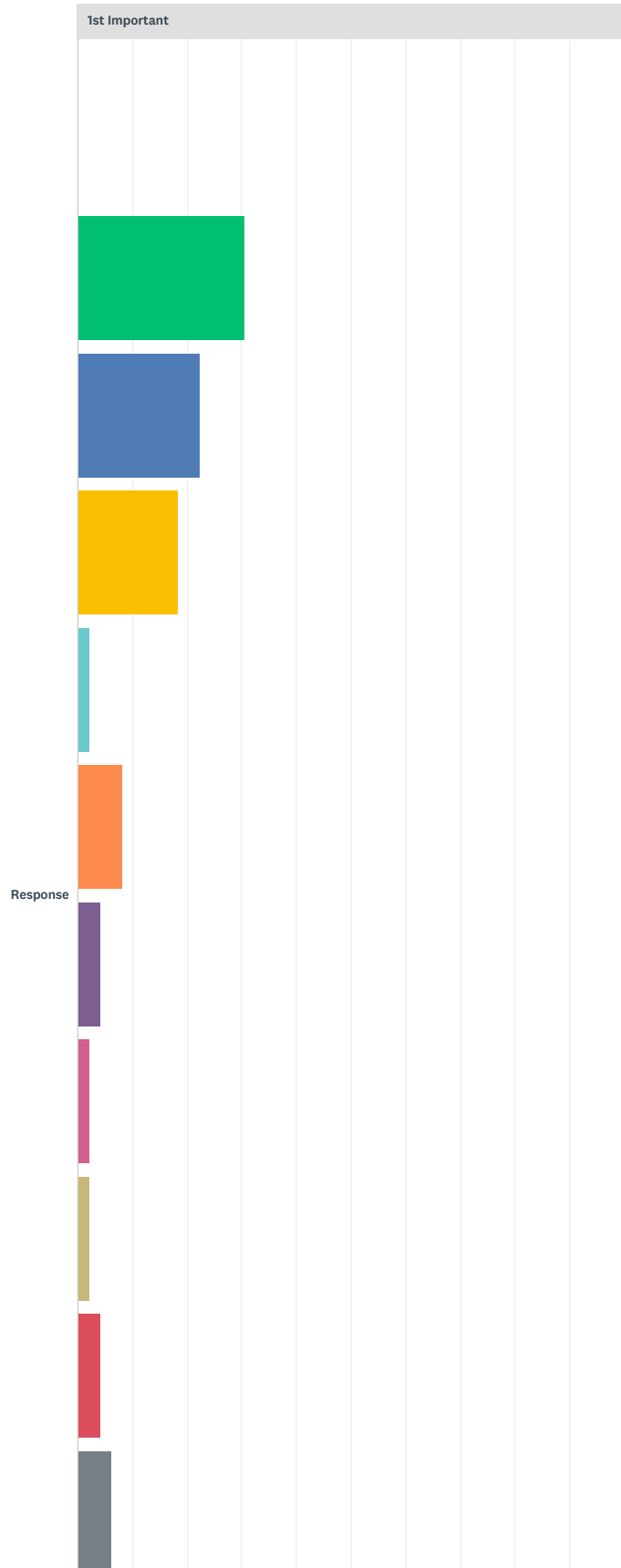
Answered: 51 Skipped: 1

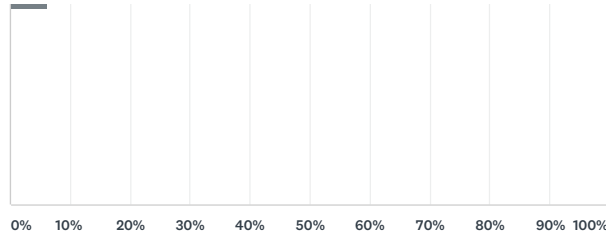


ANSWER CHOICES	RESPONSES
Mn220N and 23rd St	31.37% 16
Mn220N and 20th St	19.61% 10
Mn220N and 17th St	37.25% 19
Mn220N and 15th St	19.61% 10
Mn220N and 14th St	15.69% 8
Mn220N and US2	47.06% 24
Central Ave and 10th St	17.65% 9
Central Ave/DeMers and 9th St	21.57% 11
No concerns	23.53% 12
Do not have disability	1.96% 1
Total Respondents: 51	

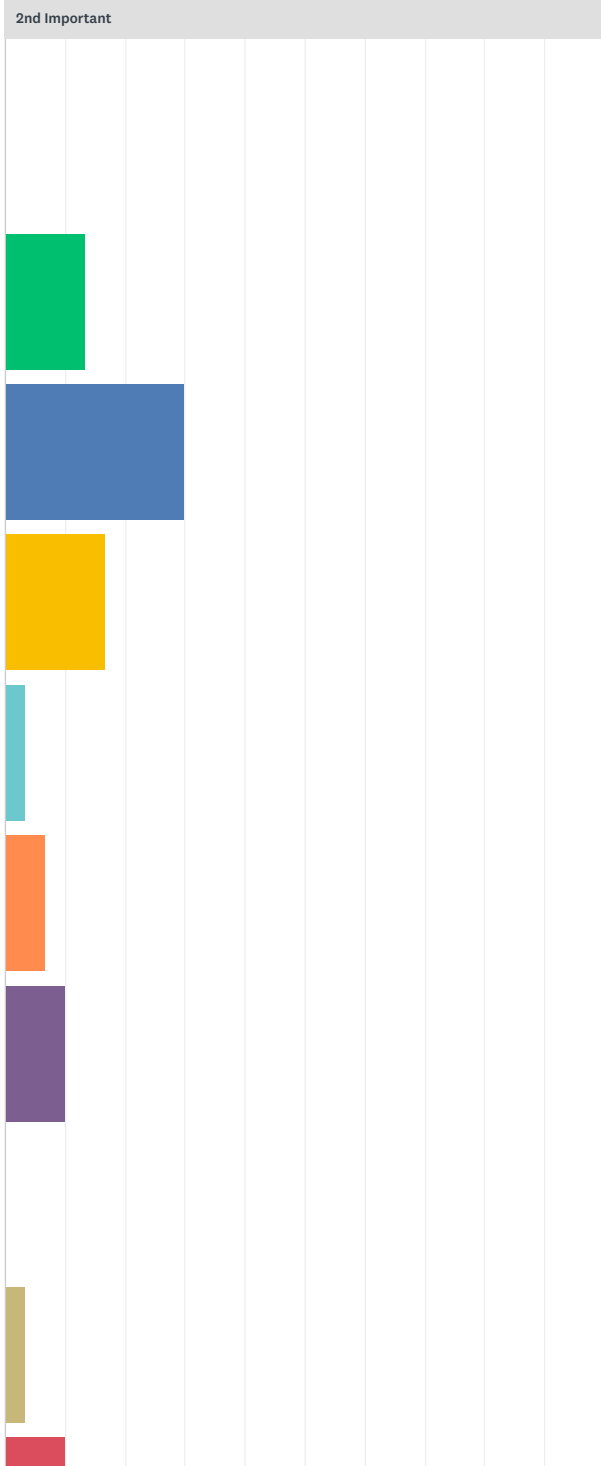
Q11 In your opinion, what are the biggest safety problem on the Mn220 Corridor (Central Ave)? (Pick three in order of importance).

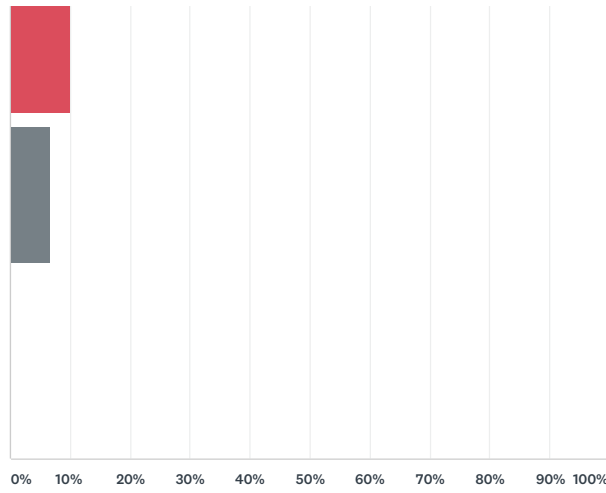
Answered: 49 Skipped: 3



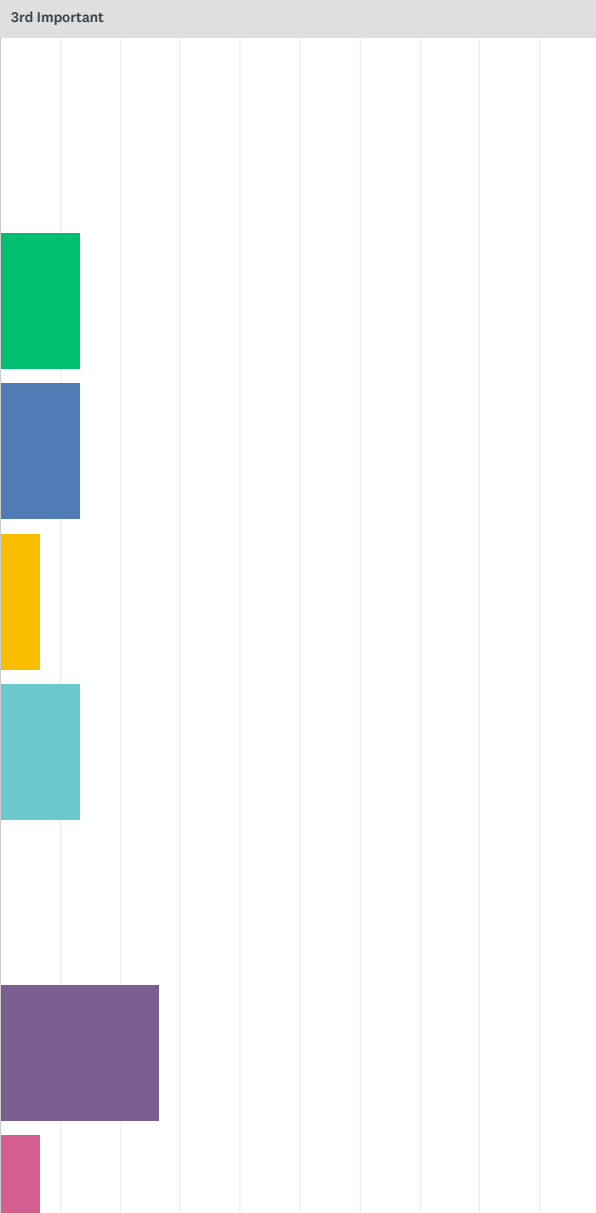


- Speeding/aggressive driving
- Making left turns on Mn 220 N
- Lack of quality sidewalks
- Unclear or lack of signage
- Car crashes/vehicle issues
- Dangerous crossings at intersections
- Congestion on streets
- People walking and biking
- Lack of lighting
- Driving under the influence





- Speeding/aggressive driving
- Making left turns on Mn 220 N
- Lack of quality sidewalks
- Unclear or lack of signage
- Car crashes/vehicle issues
- Dangerous crossings at intersections
- Congestion on streets
- People walking and biking
- Lack of lighting
- Driving under the influence



Response

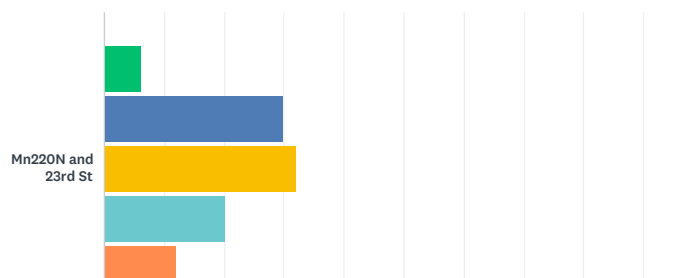


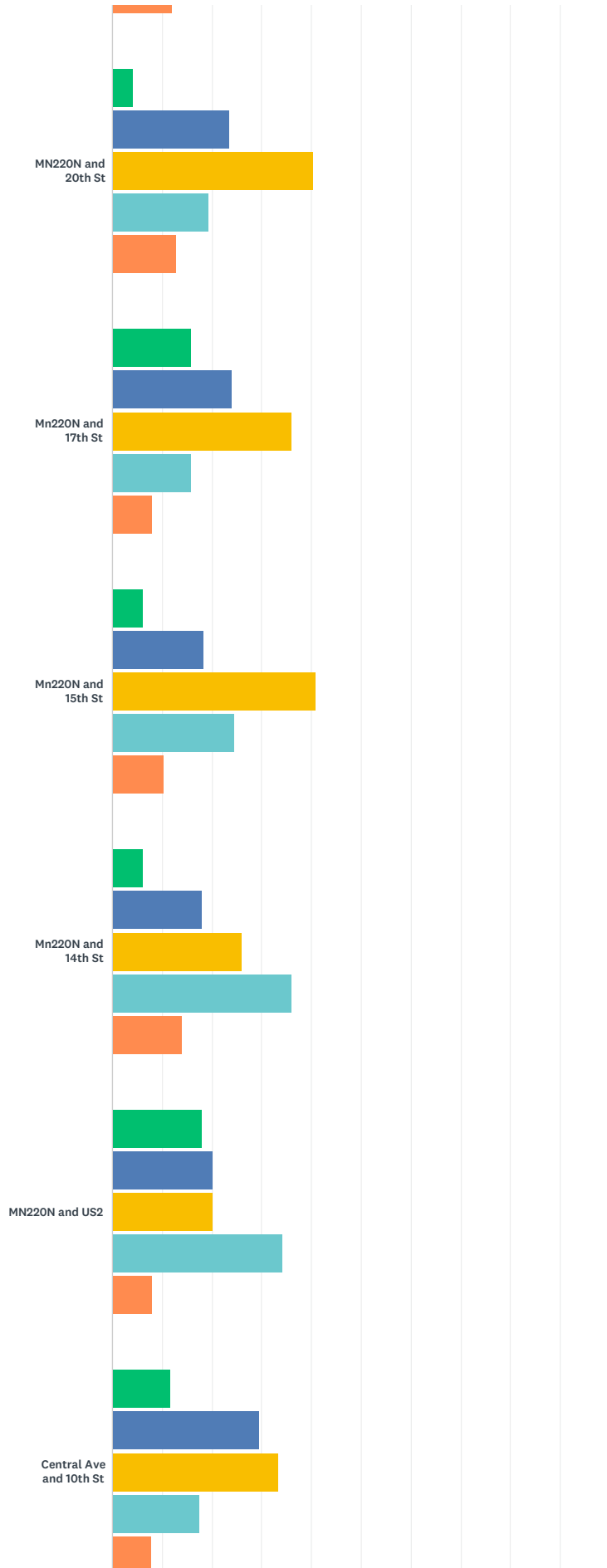
- Speeding/aggressive driving
- Making left turns on Mn 220 N
- Lack of quality sidewalks
- Unclear or lack of signage
- Car crashes/vehicle issues
- Dangerous crossings at intersections
- Congestion on streets
- People walking and biking
- Driving under the influence
- Lack of lighting

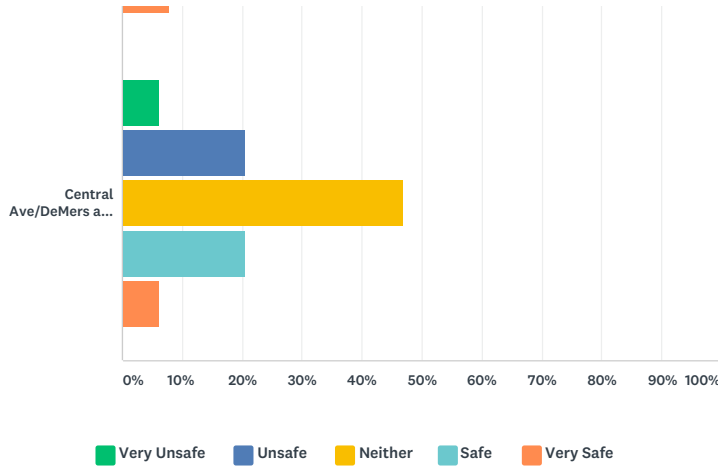
1st Important										
	SPEEDING/AGGRESSIVE DRIVING	DANGEROUS CROSSINGS AT INTERSECTIONS	MAKING LEFT TURNS ON MN 220 N	CONGESTION ON STREETS	LACK OF QUALITY SIDEWALKS	PEOPLE WALKING AND BIKING	LACK OF LIGHTING	UNCLEAR OR LACK OF SIGNAGE	DRIVING UNDER THE INFLUENCE	C. C. IS
Response	30.61% 15	22.45% 11	18.37% 9	2.04% 1	8.16% 4	4.08% 2	2.04% 1	2.04% 1	4.08% 2	
2nd Important										
	SPEEDING/AGGRESSIVE DRIVING	DANGEROUS CROSSINGS AT INTERSECTIONS	MAKING LEFT TURNS ON MN 220 N	CONGESTION ON STREETS	LACK OF QUALITY SIDEWALKS	PEOPLE WALKING AND BIKING	LACK OF LIGHTING	UNCLEAR OR LACK OF SIGNAGE	DRIVING UNDER THE INFLUENCE	C. C. IS
Response	13.33% 4	30.00% 9	16.67% 5	3.33% 1	6.67% 2	10.00% 3	0.00% 0	3.33% 1	10.00% 3	
3rd Important										
	SPEEDING/AGGRESSIVE DRIVING	DANGEROUS CROSSINGS AT INTERSECTIONS	MAKING LEFT TURNS ON MN 220 N	CONGESTION ON STREETS	LACK OF QUALITY SIDEWALKS	PEOPLE WALKING AND BIKING	LACK OF LIGHTING	UNCLEAR OR LACK OF SIGNAGE	DRIVING UNDER THE INFLUENCE	C. C. IS
Response	13.33% 2	13.33% 2	6.67% 1	13.33% 2	0.00% 0	26.67% 4	6.67% 1	0.00% 0	0.00% 0	

Q12 How do you perceive SAFETY at any of the following intersections?

Answered: 51 Skipped: 1



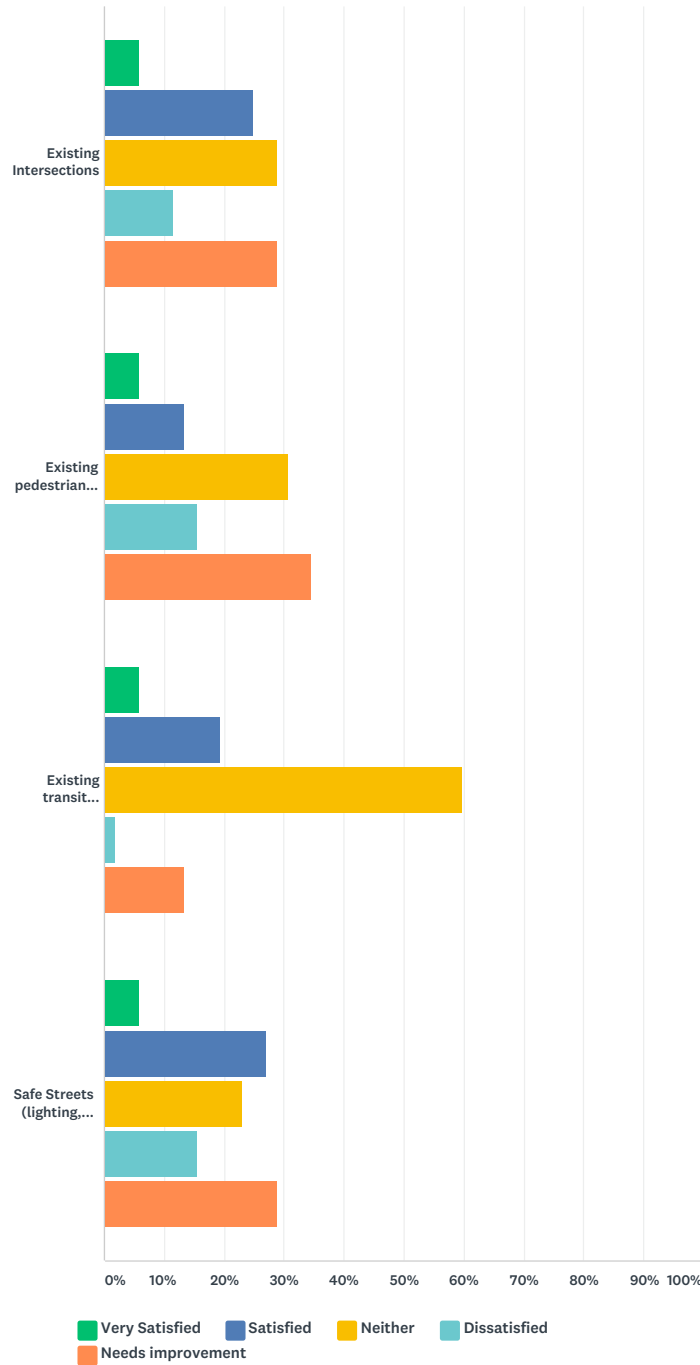




	VERY UNSAFE	UNSAFE	NEITHER	SAFE	VERY SAFE	TOTAL
Mn220N and 23rd St	6.00% 3	30.00% 15	32.00% 16	20.00% 10	12.00% 6	50
MN220N and 20th St	4.26% 2	23.40% 11	40.43% 19	19.15% 9	12.77% 6	47
Mn220N and 17th St	16.00% 8	24.00% 12	36.00% 18	16.00% 8	8.00% 4	50
Mn220N and 15th St	6.12% 3	18.37% 9	40.82% 20	24.49% 12	10.20% 5	49
Mn220N and 14th St	6.00% 3	18.00% 9	26.00% 13	36.00% 18	14.00% 7	50
MN220N and US2	18.00% 9	20.00% 10	20.00% 10	34.00% 17	8.00% 4	50
Central Ave and 10th St	11.76% 6	29.41% 15	33.33% 17	17.65% 9	7.84% 4	51
Central Ave/DeMers and 9th St	6.12% 3	20.41% 10	46.94% 23	20.41% 10	6.12% 3	49

Q13 What conditions existing on the MN 220 N Corridor (Central Avenue) would you like to improve?

Answered: 52 Skipped: 0



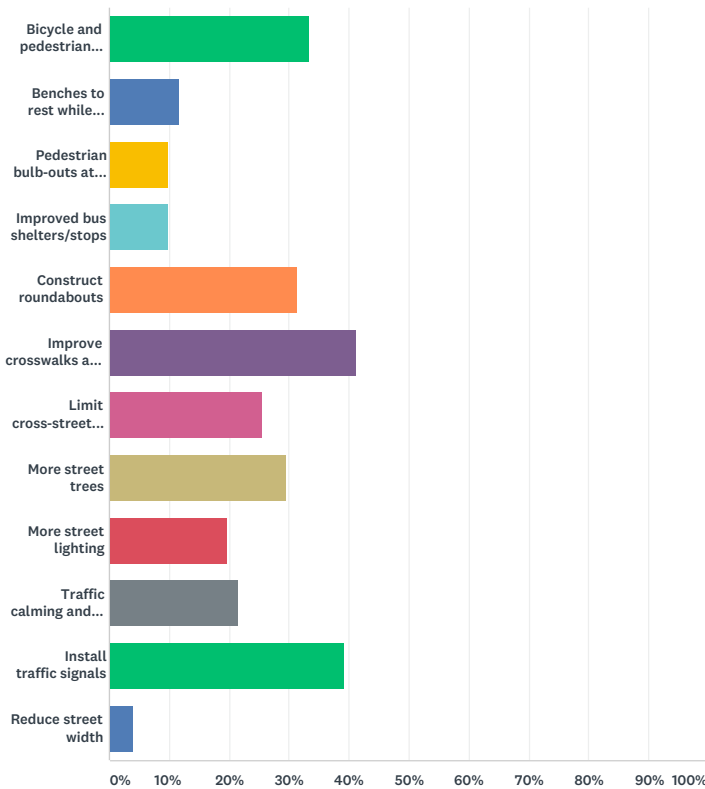
	VERY SATISFIED	SATISFIED	NEITHER	DISSATISFIED	NEEDS IMPROVEMENT	TOTAL	WEIGHTED AVERAGE
Existing Intersections	5.77% 3	25.00% 13	28.85% 15	11.54% 6	28.85% 15	52	3.33
Existing pedestrian crossings	5.77% 3	13.46% 7	30.77% 16	15.38% 8	34.62% 18	52	3.60
Existing transit facilities	5.77% 3	19.23% 10	59.62% 31	1.92% 1	13.46% 7	52	2.98
Safe Streets (lighting, crosswalks)	5.77% 3	26.92% 14	23.08% 12	15.38% 8	28.85% 15	52	3.35

Q14 If you describe the MN 220N Corridor - as it exists today - to someone from out of town, what would you say about the MN 220 N Corridor? Comments:

Answered: 32 Skipped: 20

Q15 What creative ideas or elements could be integrated into the long term vision of the MN 220 N Corridor? (Pick your top 3. Mark only 3 options)

Answered: 51 Skipped: 1



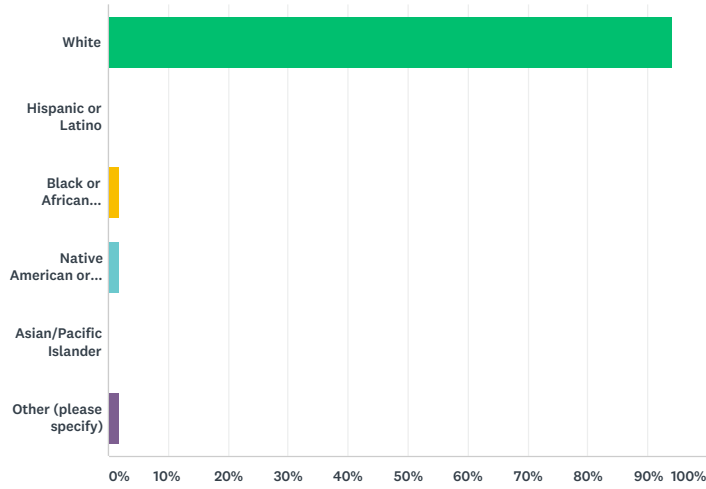
ANSWER CHOICES	RESPONSES	
Bicycle and pedestrian paths	33.33%	17
Benches to rest while walking	11.76%	6
Pedestrian bulb-outs at street crossings	9.80%	5
Improved bus shelters/stops	9.80%	5
Construct roundabouts	31.37%	16
Improve crosswalks at intersections with markings and signs	41.18%	21
Limit cross-street movements	25.49%	13
More street trees	29.41%	15
More street lighting	19.61%	10
Traffic calming and road diet strategies	21.57%	11
Install traffic signals	39.22%	20
Reduce street width	3.92%	2
Total Respondents: 51		

Q16 Other issues and observations:

Answered: 21 Skipped: 31

Q17 We want to be sure that we have spoken to a broad mix of people in your area. What race/ethnicity best describes you?

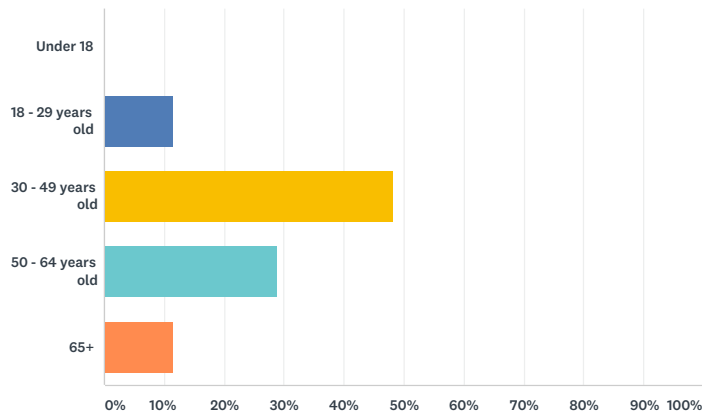
Answered: 51 Skipped: 1



ANSWER CHOICES	RESPONSES	
White	94.12%	48
Hispanic or Latino	0.00%	0
Black or African American	1.96%	1
Native American or American Indian	1.96%	1
Asian/Pacific Islander	0.00%	0
Other (please specify)	1.96%	1
TOTAL		51

Q18 Which category below includes you age?

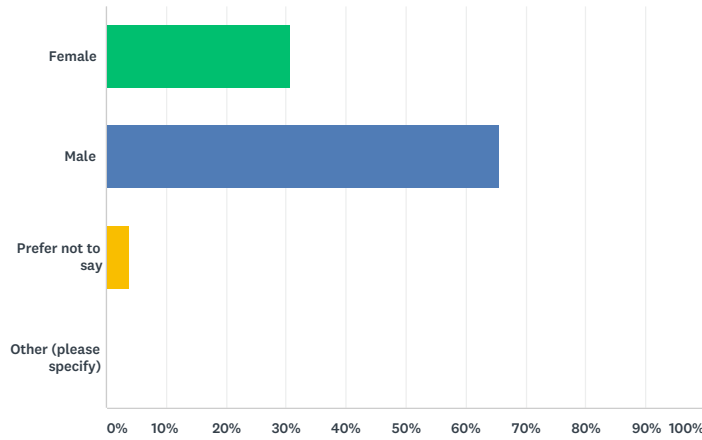
Answered: 52 Skipped: 0



ANSWER CHOICES	RESPONSES	
Under 18	0.00%	0
18 - 29 years old	11.54%	6
30 - 49 years old	48.08%	25
50 - 64 years old	28.85%	15
65+	11.54%	6
TOTAL		52

Q19 Which gender do you identify most with?

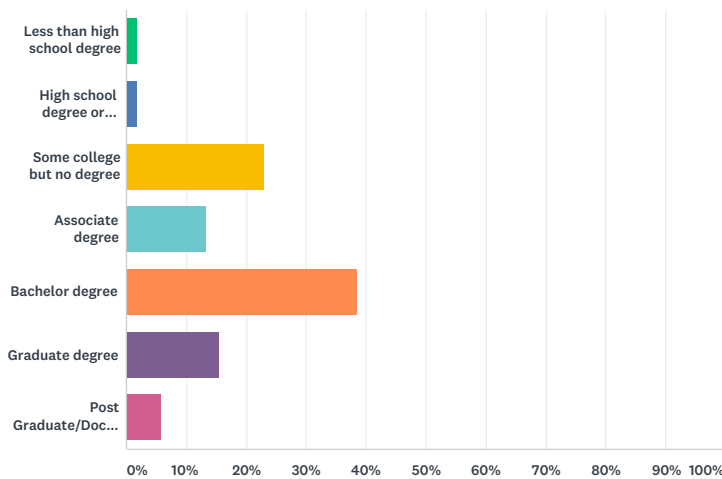
Answered: 52 Skipped: 0



ANSWER CHOICES	RESPONSES	
Female	30.77%	16
Male	65.38%	34
Prefer not to say	3.85%	2
Other (please specify)	0.00%	0
TOTAL		52

Q20 What is the highest level of school you have completed or the highest degree you have received?

Answered: 52 Skipped: 0



ANSWER CHOICES	RESPONSES	
Less than high school degree	1.92%	1
High school degree or equivalent (e.g., GED)	1.92%	1
Some college but no degree	23.08%	12
Associate degree	13.46%	7
Bachelor degree	38.46%	20
Graduate degree	15.38%	8
Post Graduate/Doctorate	5.77%	3
TOTAL		52

Q21 Provide your general comments, issues, and/or ideas which should be considered for the corridor. Thank you for your cooperation!

Answered: 18 Skipped: 34

Appendix D:

East Grand Forks City Council Presentations

Mn 220 N Corridor Study

Recommended Improvements | March 25, 2019



Intersection and Corridor Safety

Two Intersections Exceed Critical Crash Rate

- US 2
- 17th Street

Three Intersections Exceed Critical Severity Rate

- US 2
- 17th Street
- 23rd Street

Corridor Performance Measurements

- Zero Fatalities
- 2 Type A (0.4 per year)
- 3 Non-motorized Crashes (None were Serious)

Intersection	Traffic Control	Total Crashes ¹	Total Entering Volume ²	Crash Rate per MEV	State Average Crash Rate ³	Crash Critical Rate ^{4,5}	Crash Severity Rate ⁶	State Average Severity Rate ³	Crash Severity Critical Rate ^{4,5}	K/A Crashes	K/A Rate	State Average K/A Rate	K/A Critical Rate ^{4,5}
Mn 220 at 9th Street	Urban Through-Stop	2	16,005,250	0.12	0.18	0.48	0.19	0.26	0.45	0	0.00	0.33	5.29
Mn 220 at 10th Street	Urban Through-Stop	7	20,412,625	0.34	0.18	0.45	0.34	0.26	0.43	0	0.00	0.33	4.41
Mn 220 at US 2	Low Volume, Low Speed	49	38,446,667	1.27	0.52	0.83	1.90	0.71	0.90	1	2.60	0.42	3.06
Mn 220 at 14th Street	Low Volume, Low Speed	18	25,565,208	0.70	0.52	0.91	0.94	0.71	0.94	1	3.91	0.42	4.02
Mn 220 at 15th Street	Urban Through-Stop	2	18,645,417	0.11	0.18	0.46	0.11	0.26	0.44	0	0.00	0.33	4.72
Mn 220 at 17th Street	Urban Through-Stop	13	18,417,292	0.71	0.18	0.46	0.81	0.26	0.44	0	0.00	0.33	4.76
Mn 220 at 20th Street	Urban Through-Stop	2	13,206,917	0.15	0.18	0.52	0.15	0.26	0.48	0	0.00	0.33	6.14
Mn 220 at 23rd Street	Urban Through-Stop	6	11,193,333	0.54	0.18	0.55	0.80	0.26	0.50	0	0.00	0.33	7.00
Mn 220 at 140th Street	Rural Through-Stop	0	6,588,250	0.00	0.25	0.83	0.00	0.41	0.81	0	0.00	1.05	13.76

¹ Crash Data obtained from MnCMAT and detailed police crash reports.

² AADT obtained from MnDOT Traffic Data Map

³ MnDOT's 2015 Green Sheets were used to determine the State average crash rate.

⁴ The critical rate is a statistically adjusted crash rate to account for random nature of crashes

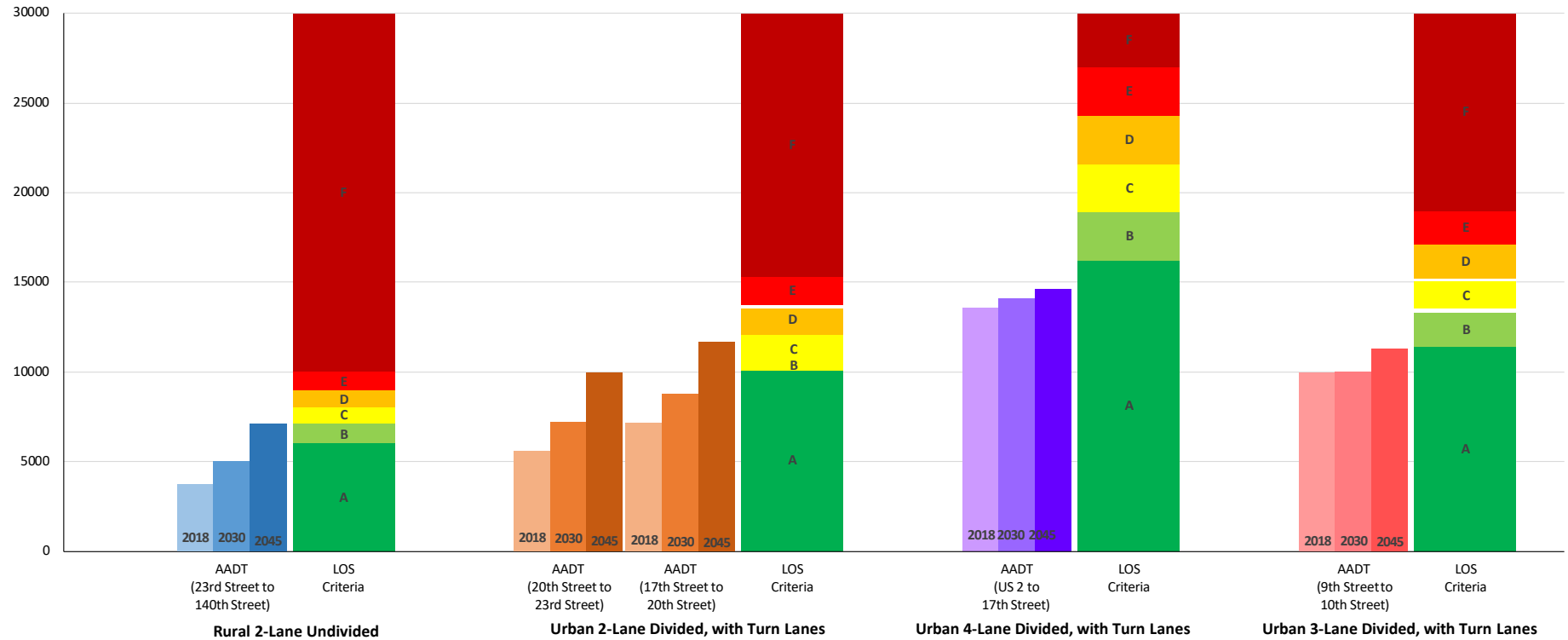
⁵ A 99.5% confidence level was assumed for critical crash rate and an 80% confidence level was assumed for critical severity and K/A rate.

⁶ Severity rate factors: 5 for Fatal Crashes, 4 for A type, 3 for B type, 2 for C type, and 1 for Property Damage Crashes

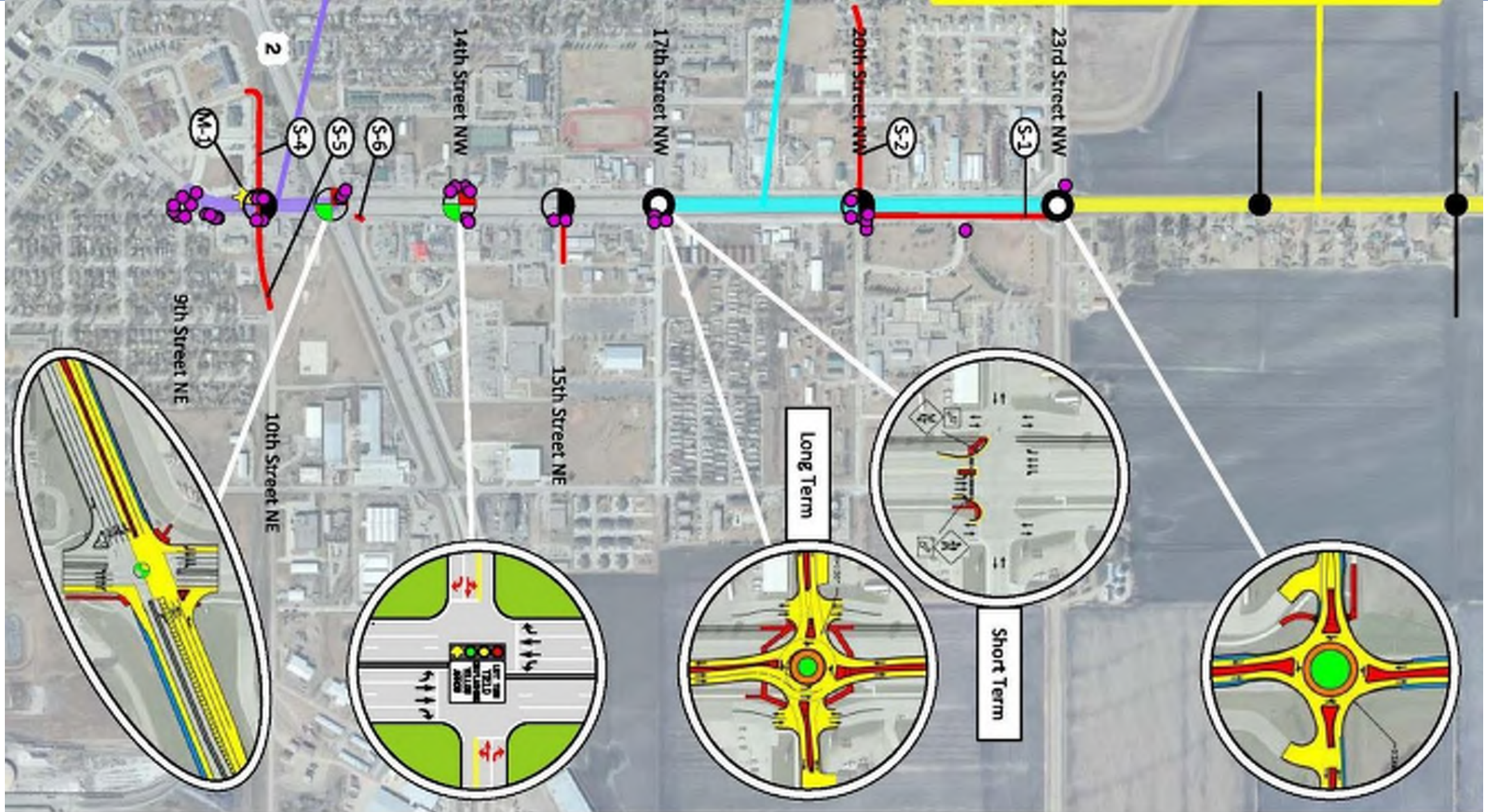
Corridor Capacity Assessment

- 2045 LOS B or Better
- 2045 LOC C north of 17th Street
- Existing Roadway Lanes Sufficient
- Intersection Concerns – 17th Street and US 2

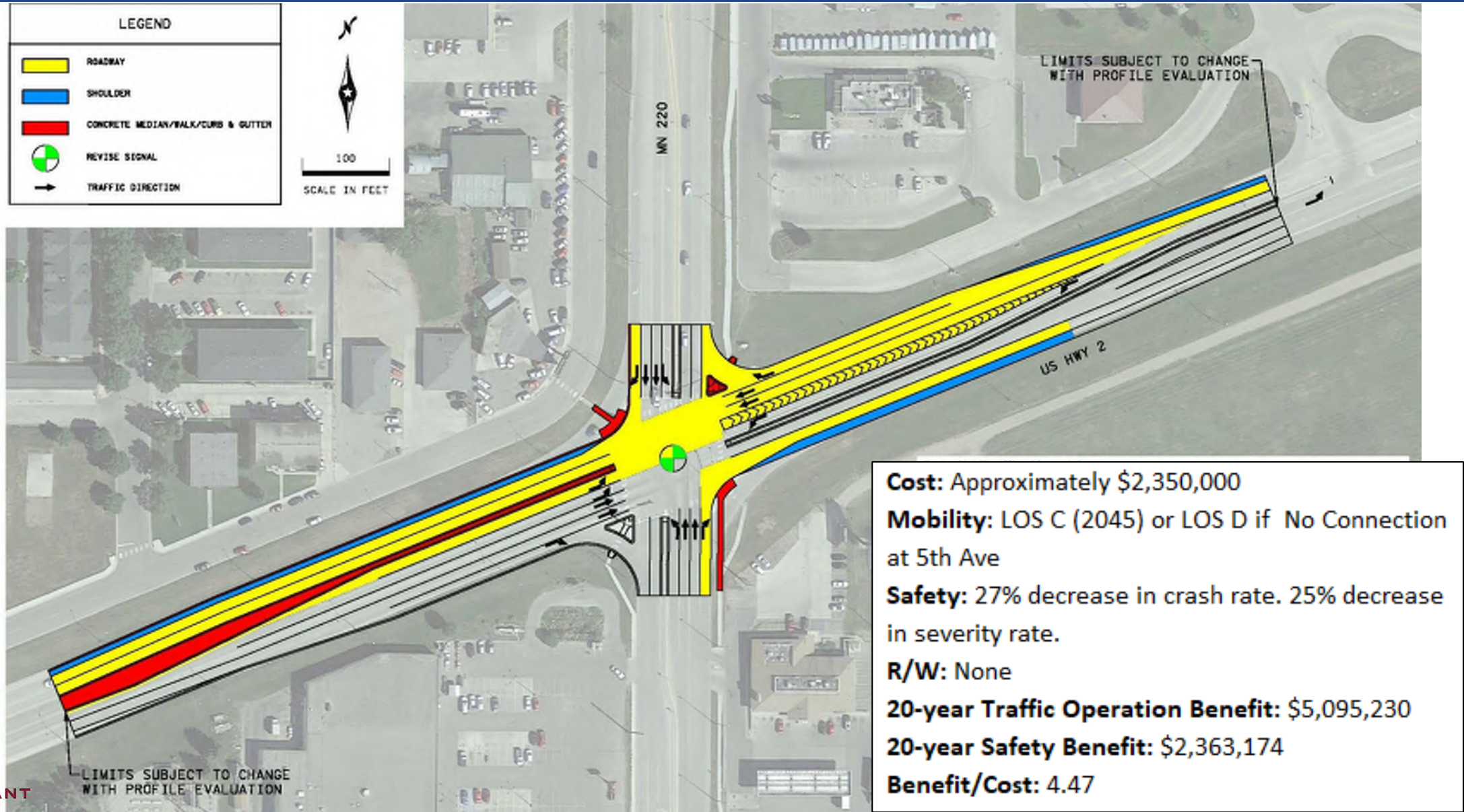
Mn 220 N Corridor AADT
vs.
Planning-Level Roadway Capacity^{1,2,3}



Overview of Alternatives



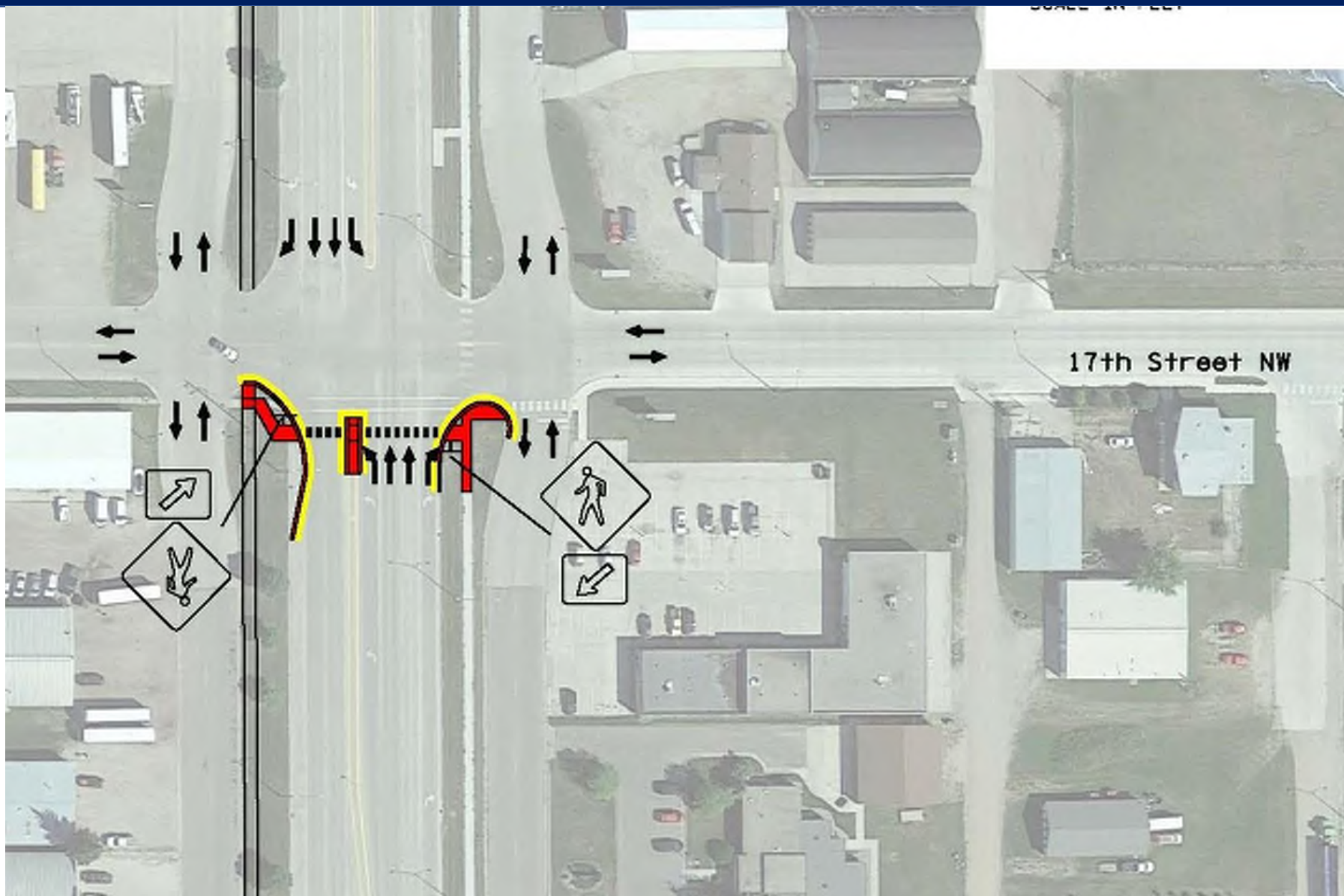
Intersection Alternatives – US 2 – Dual Offset Left Turn Lane



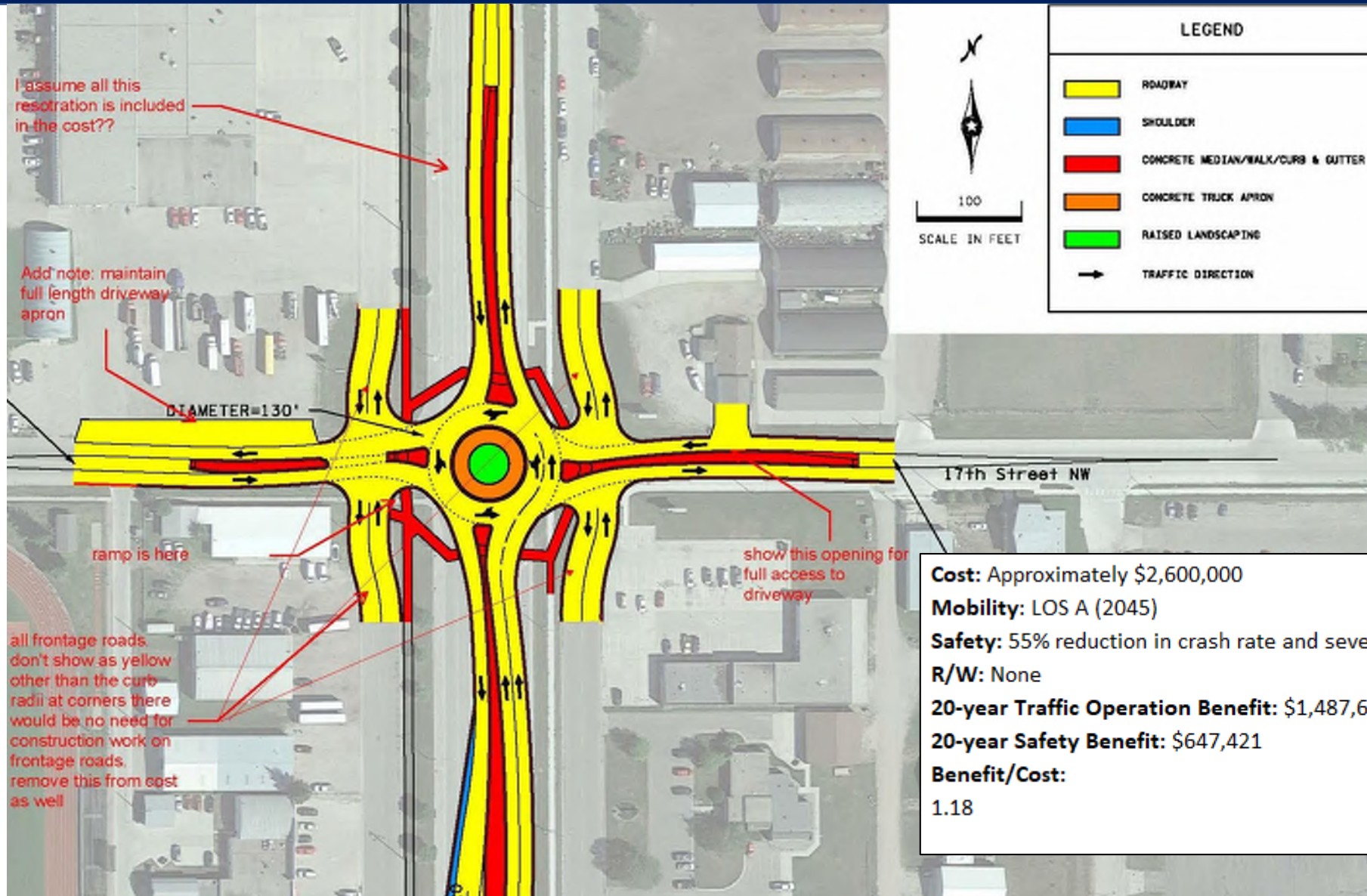
Intersection Alternatives – 14th Street – Signal Revision



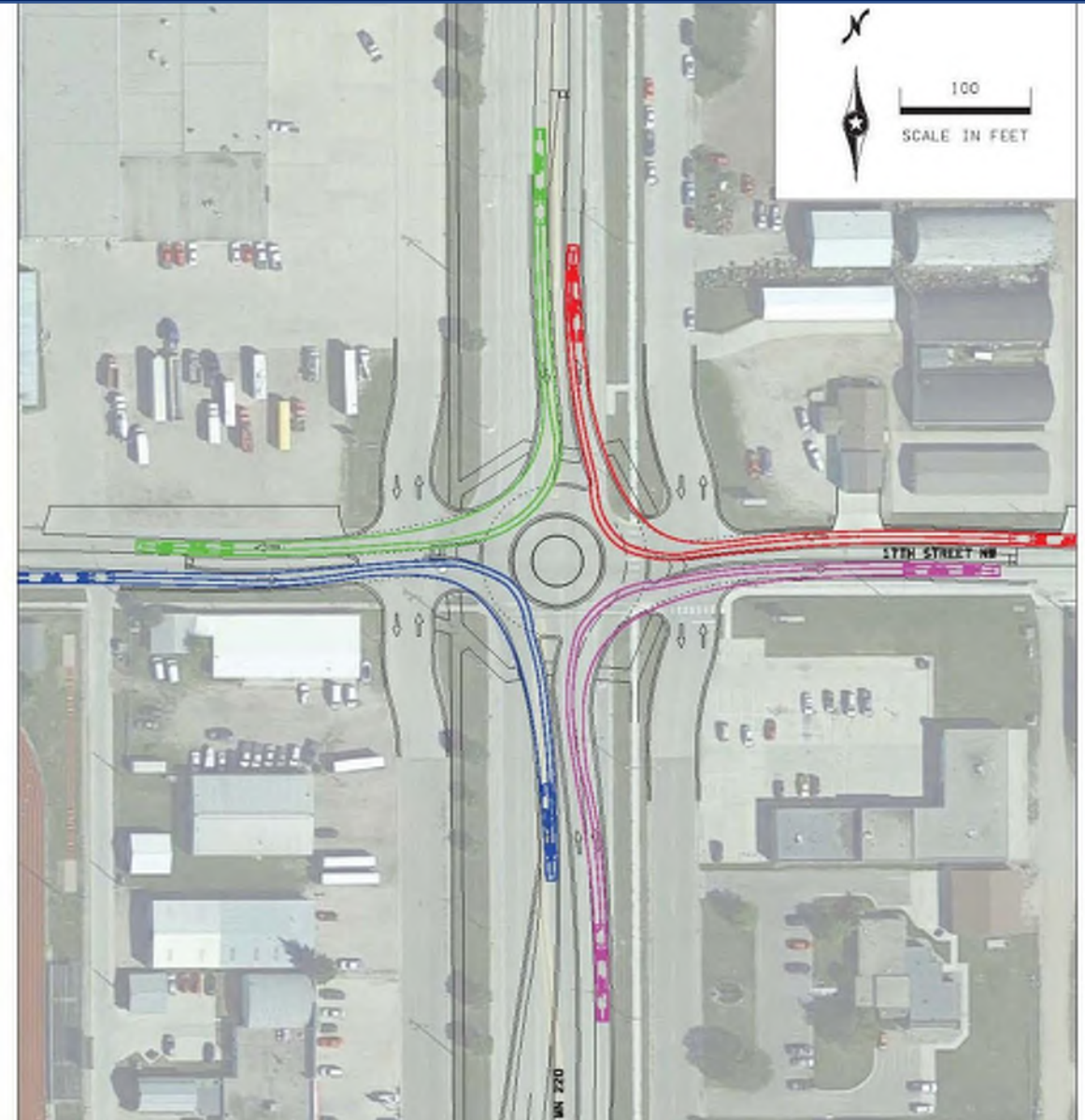
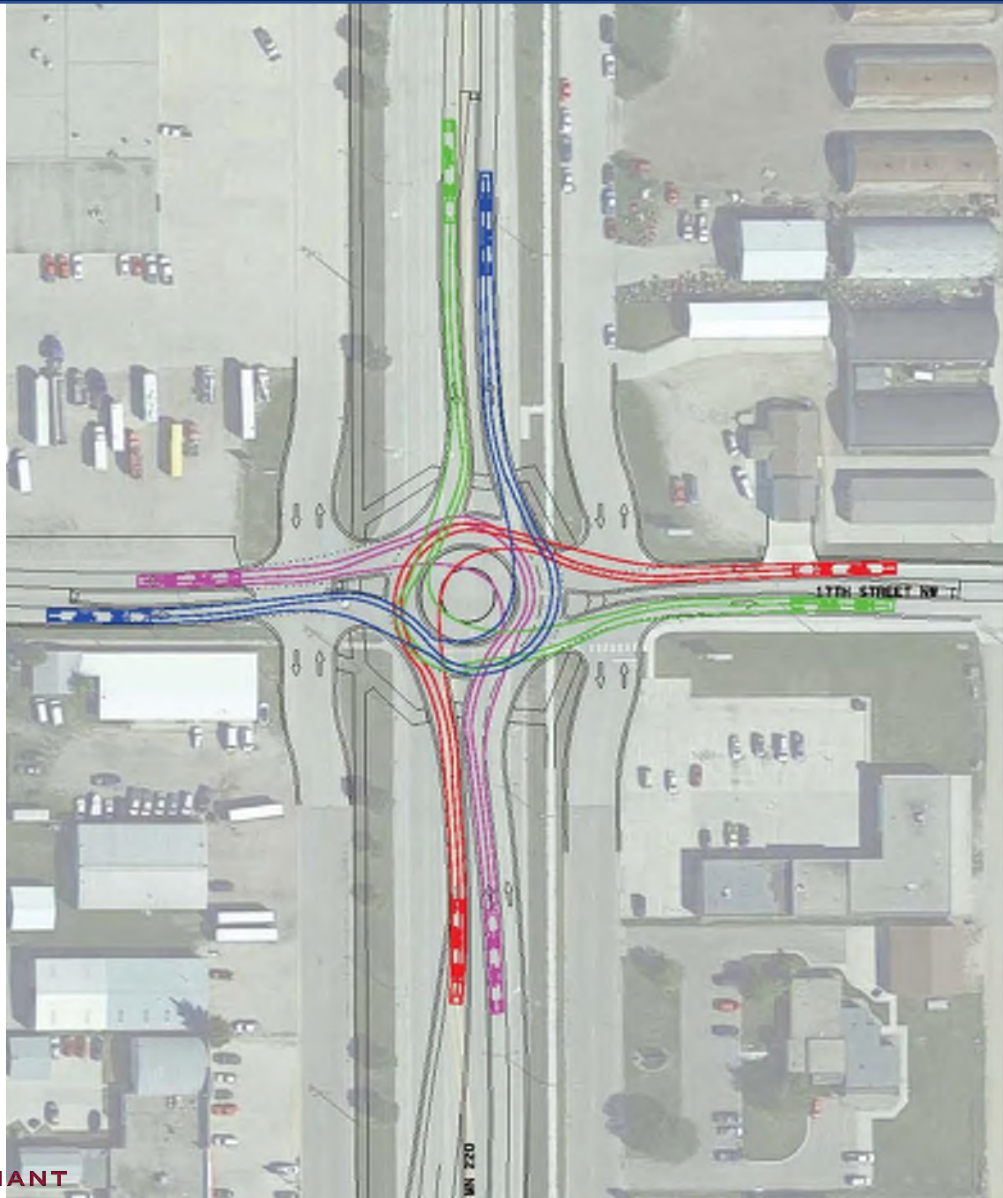
Intersection Alternatives – 17th Street – Short Term Pedestrian Crossing Improvement



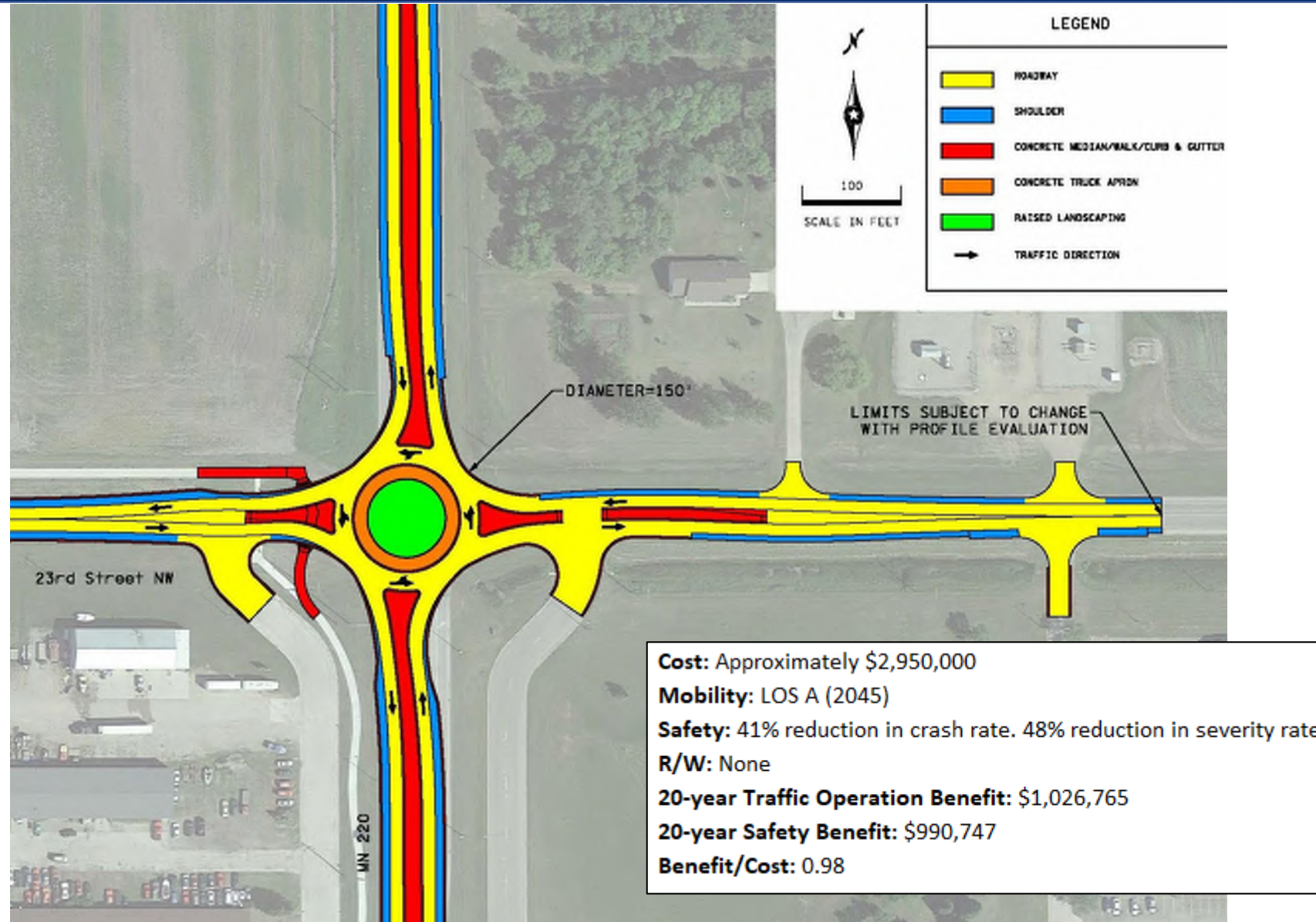
Intersection Alternatives – 17th Street – Roundabout



Intersection Alternatives – 17th Street – Roundabout – Truck Turning Movements



Intersection Alternatives – 23rd Street - Roundabout



Existing Aerial – Traffic Flow Changes



Mn 220 N Corridor Study

East Grand Forks City Council Work Session – Implementation Plan and Study Conclusions | June 25, 2019

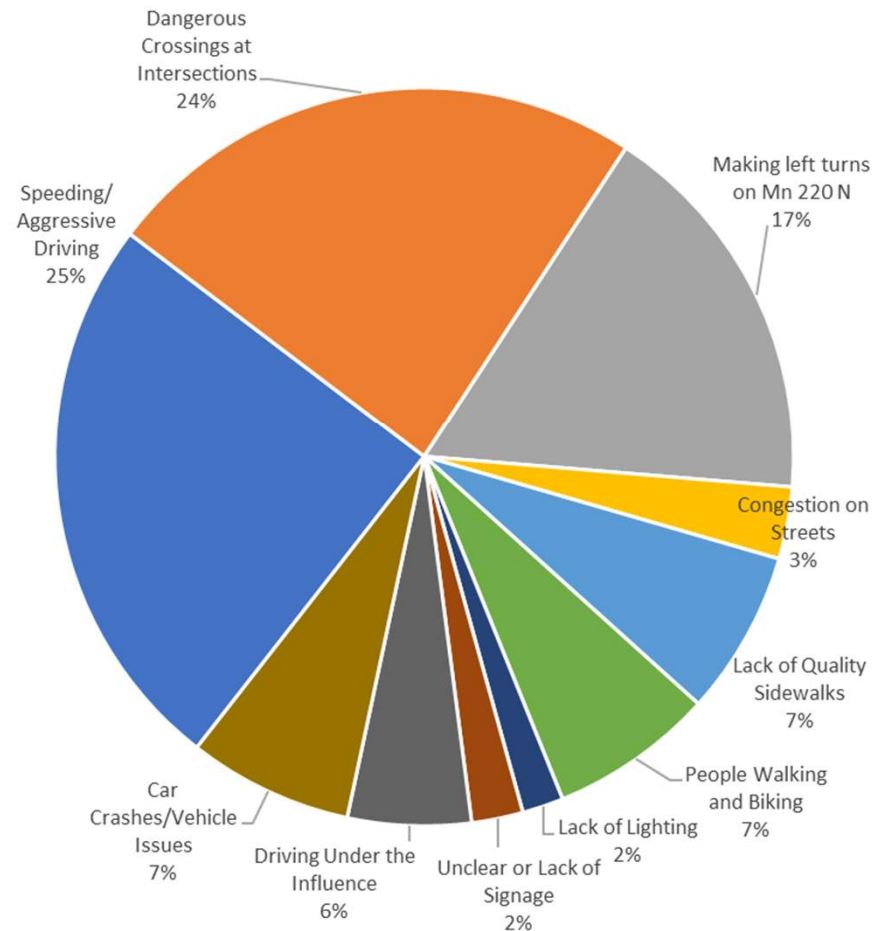


Opinion Survey Results

Overview

- 52 Respondents
- 35% Residents along Corridor
- Most Respondents were Motorists / Daily Users / Middle Aged
- **Top 3 Most Concerning Intersections:** US 2, 17th, 23rd, Followed by No Concerns (4th ranked)
- **Top 3 Safety Concerns:** Speed/Aggressive Driving, Perception of Dangerous Crossing at Intersection, Making Left Turns
- **Top 4 Improvement Elements:** Improve crosswalks, traffic signal, roundabout, pedestrian/bicycles facilities
- Consistent Noted Concern – Trucks and Ag Vehicles

Top Safety Concerns on Mn 220 Corridor



Recommendations / Study Goals

Study Goals

- Opinion Survey Consistent with Goals of this Study
- Objective of Alternatives Analysis Focus
 - Improve Access Control
 - Improve Mobility
 - Improve Safety
 - Improve Pedestrian Crossings

Study Recommendations / Implementation Plan

- Specifically Address Issues Raised, Safety, Mobility and Multimodal Deficiencies
- Evaluation Metrics - Balance Needs for All Users
- Carry Forward Highest Ranked and Feasible Alternatives
- Implementation Plan



Implementation Plan Summary

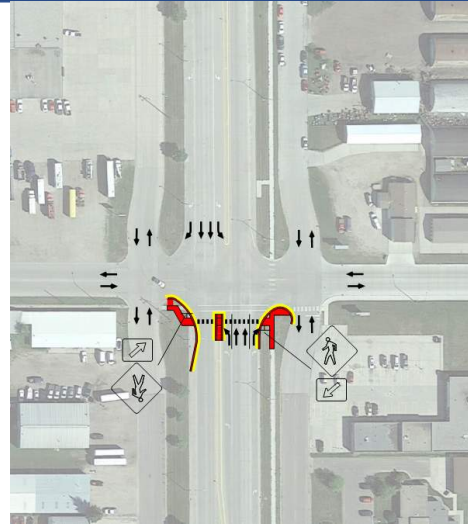
Phasing

- Short Term – 0 to 5 years (2019-2024)
- Mid Term – 5 to 15 years (2025-2035)
- Long Term – More than 15 years (2036-2045)

Short Term (2019-2024)

- **Improve Pedestrian Crosswalk at 17th Street NW**
(anticipate 100% MnDOT Cost)
- 9th Street Lane Configuration Improvement
- US 2/Mn220 NE Corner – Establish Sidewalk Connection and Accessibility to Frontage Road
- Bus Stop Signing Improvements – 4 Locations (City)
- Relocate Utility Boxes – 10th Street NW

- **Total Cost: \$108,000**



Implementation Plan Summary

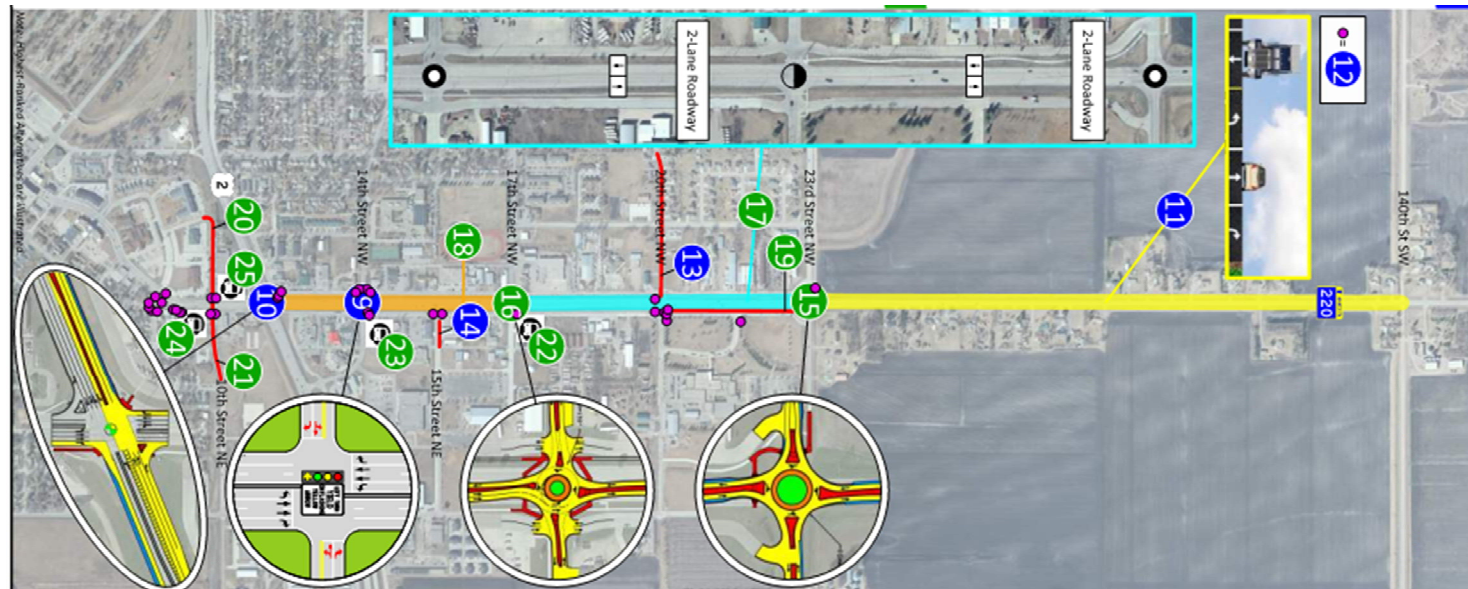
Mid-Term (2025-2035)

- Mn 220 at 14th Street NW – Traffic Signal Replacement and Improvements (*Anticipate 50% MnDOT / 50% Local*)
- Mn 220 at US 2 – Traffic Signal Replacement, Operation and Geometric Improvements (*Anticipate 90% MnDOT / 10% Local – City Responsible for 25% of Signal and Street Improvements on DeMers*)
- 20th Street – Establish Sidewalk Connections
- 15th Street NE – Establish Sidewalk Connection

Other Improvements

- Non-Compliant Ramps (EGF ADA Transition Plan)
- 23rd Street to 140th Street Turn Lanes (As Development and Access Improvements Occur)

- **Total Cost: \$6.7 Million**

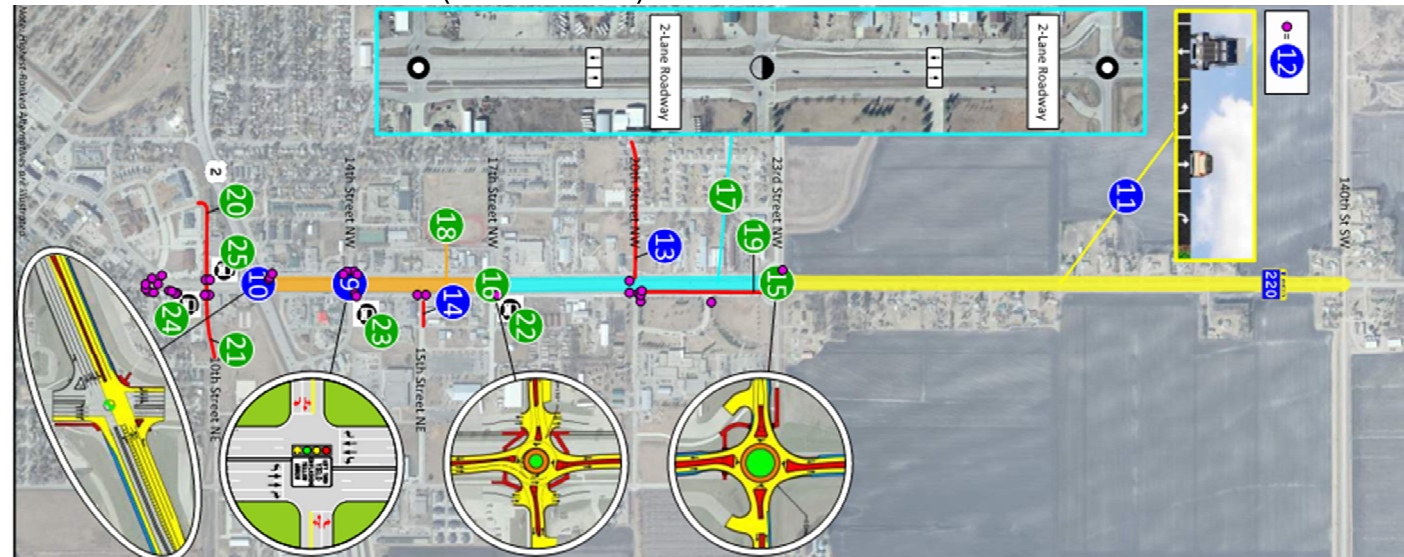


Implementation Plan Summary

Long Term (2036-2045+)

- **Mn 220 at 23rd Street NW – Intersection Control Improvements (80% MnDOT / 20% Local – City/County Responsible for Improvements on Legs Approaching 220)**
- **Mn 220 at 17th Street NW – Intersection Control Improvements (80% MnDOT / 20% Local – City Responsible for Improvements on Legs Approaching 220)**
- US 2 to 23rd Street NW Pavement Rehabilitation (MnDOT)
- 20th Street to 23rd Street – Establish Sidewalk (East Side)
- 10th Street NW/NE – Establish Sidewalks
- Bus Stops (4 Locations) – Provide Bus Bench, Establish Concrete Pad at 10th Street (Both Directions)

- **Total Cost: \$13.5 Million**



Implementation Plan Summary

Transportation Programs

- **2045 Metropolitan Transportation Plan (MTP)** – Adopt or Amend Previously Identified Improvements into MTP
- **GF-EGF MPO Transportation Improvement Program (TIP) (Projects in the TIP are also included in MnDOT STIP). (Programmed to 2024).** Mid and Long Term Improvements Candidates for Future Inclusion
- **10-Year Capital Highway Investment Plan (CHIP) – (Programmed to 2029)** Mid and Long Term Improvements are Potential Candidates for Future Inclusion

Key Funding Sources

- Local Partnership Program (LPP).
- NW Area Transportation Partnership (NWATP)
- City, Local Operation and Maintenance Funds
- Transportation Alternatives Program (TAP)
- Highway Safety Improvement Program (HSIP)
- Safe Route to Schools Funds (SRTS)
- Other Grant Programs

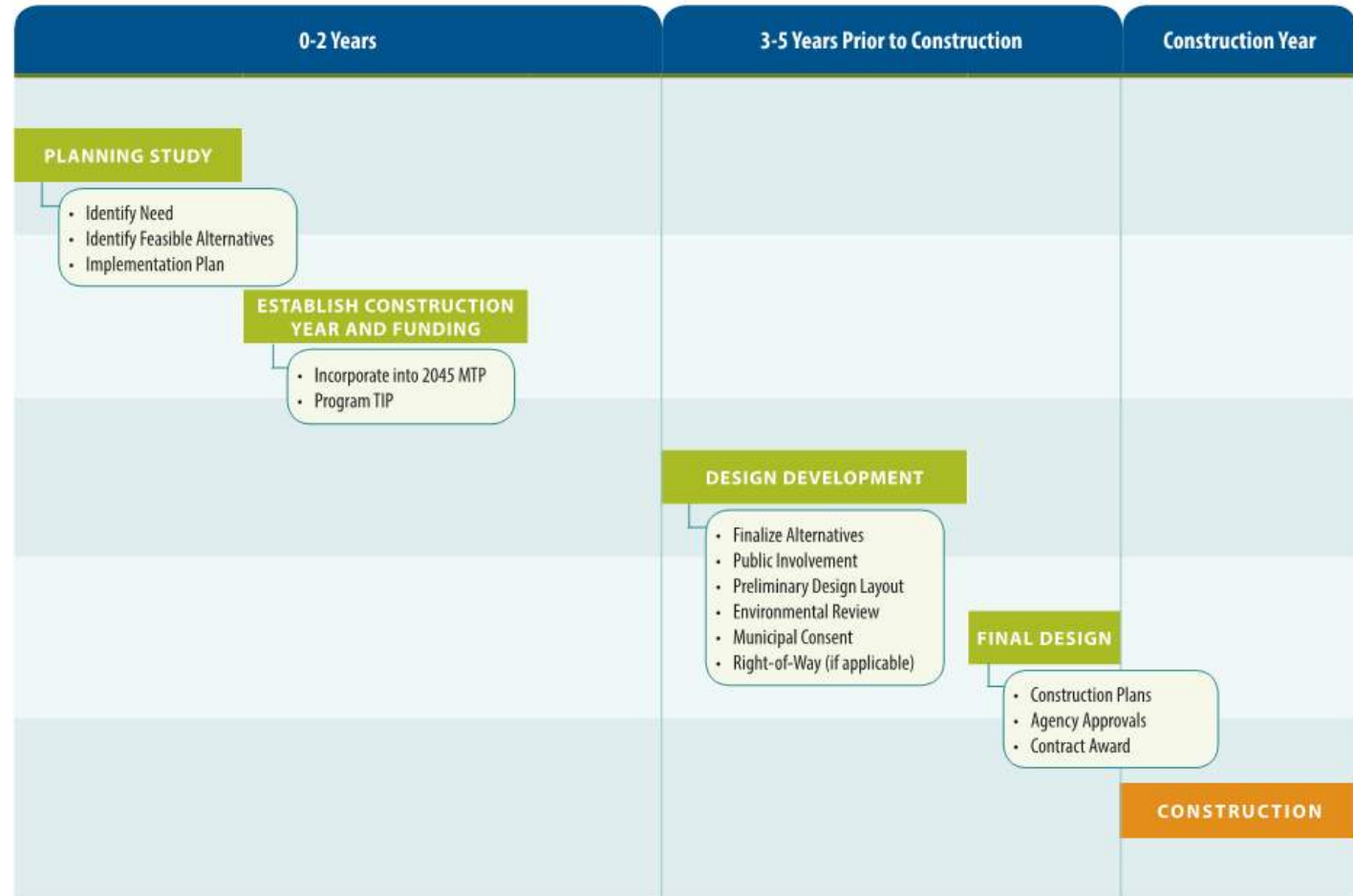
Project Development Process

3 Primary Future Projects

- US 2 at Mn 220 – Traffic Signal Replacement/Geometric Improvements
- Mn 220 at 17th Street – Intersection Control Improvement
- Mn 220 at 23rd Street – Intersection Control Improvement

Project Development Process (High Level)

- Planning Study
- Establish Construction Year and Funding
- Design Development
- Final Design
- Construction



Questions / Discussion

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