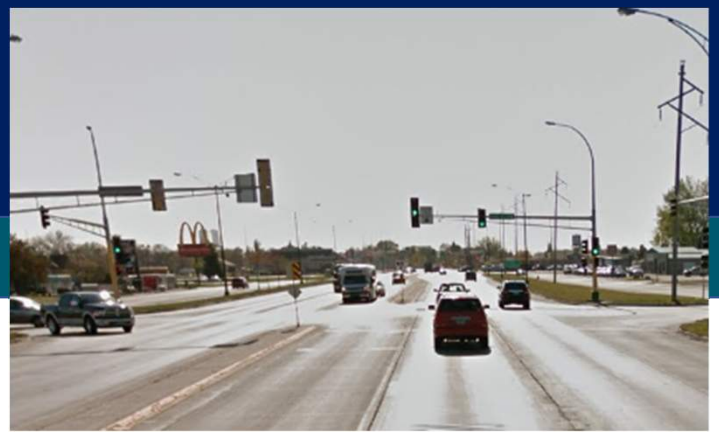
Mn 220 N Corridor Study

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



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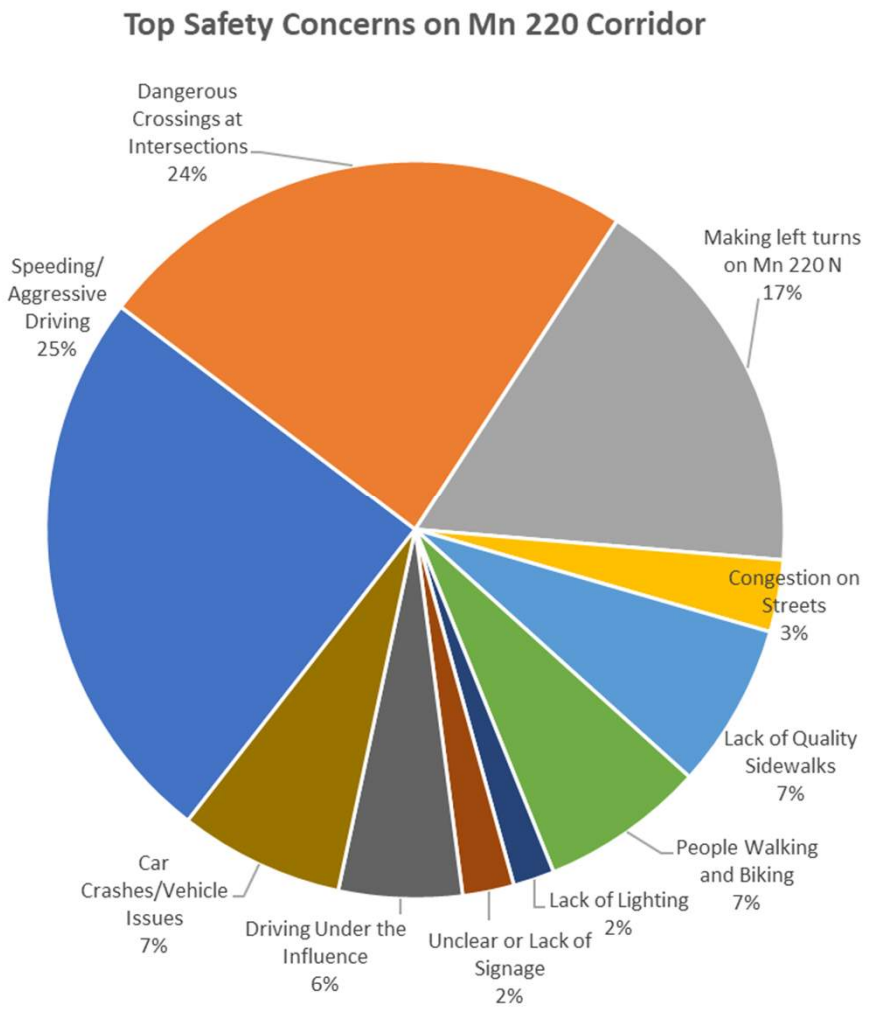
AGENDA

- 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



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Recommendations / Study Goals

Study Goals

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

Study Recommendations / Implementation Plan

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

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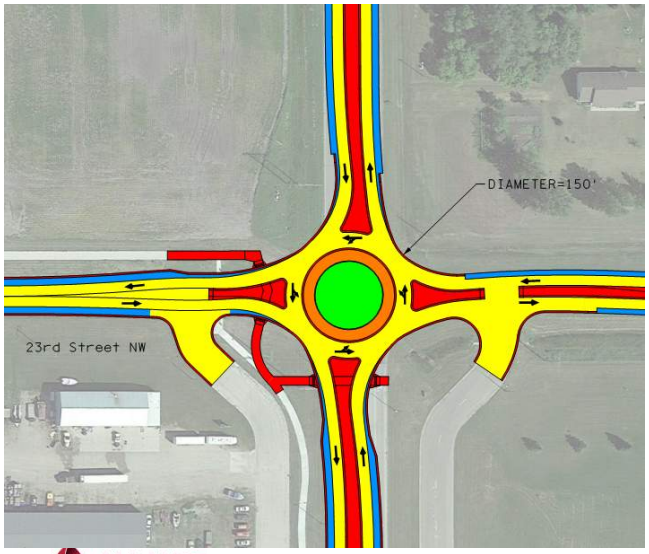
Recommendations

Intersection Control, Mobility, Safety and Pedestrian Crossings

23rd Street NW

- **Highest Ranked: Roundabout**



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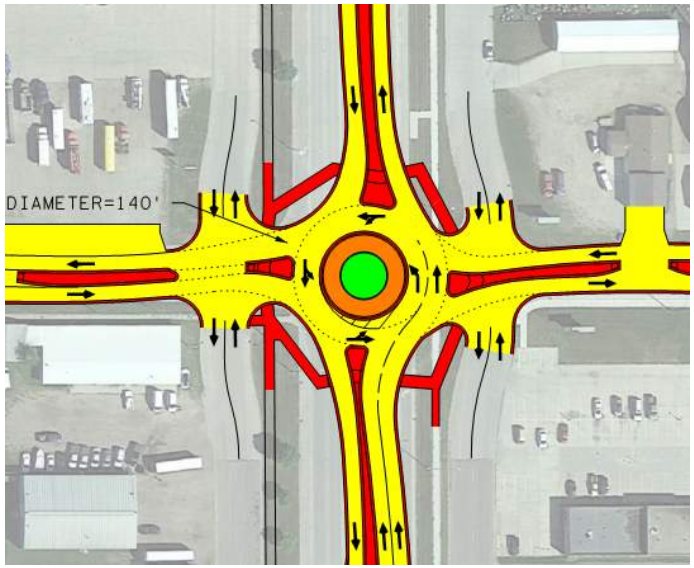
20th Street NW

- **Highest Ranked: Maintain Existing Intersection Access/Control**
- **Feasible Alternative: ¾ 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

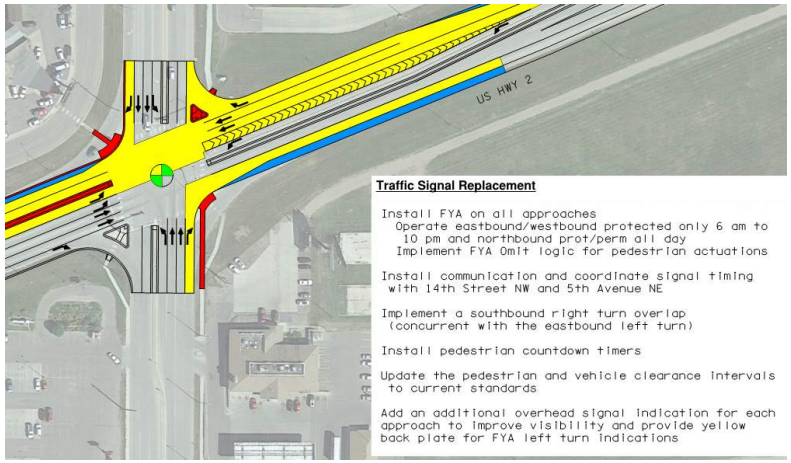
- **Highest Ranked: Maintain Existing Access and Control**

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

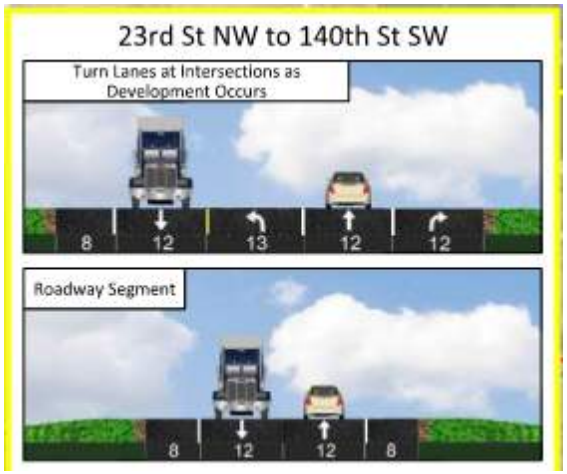
- Maintain Existing Cross-section – Same Traffic Lanes

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

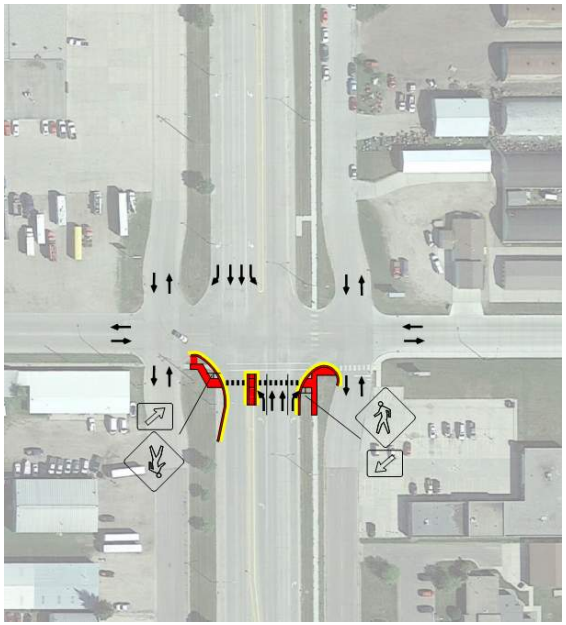


Recommendations

Pedestrian Crossings and Multimodal

17th Street NW

- **Short Term: Pedestrian Crosswalk Improvement**



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Sidewalk Connections

- **6 Sidewalk Connection Gaps Identified**

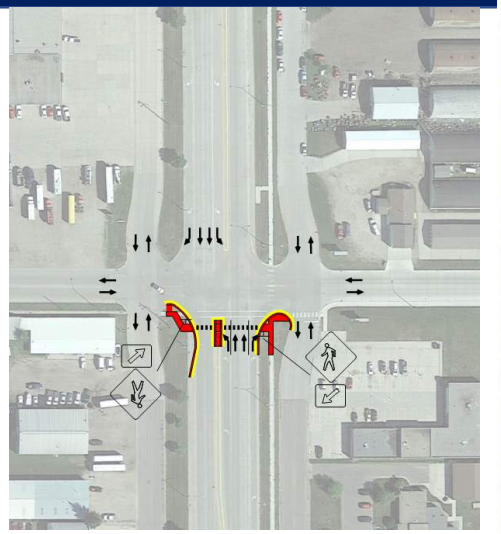
Transit

- **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**

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Implementation Plan Summary

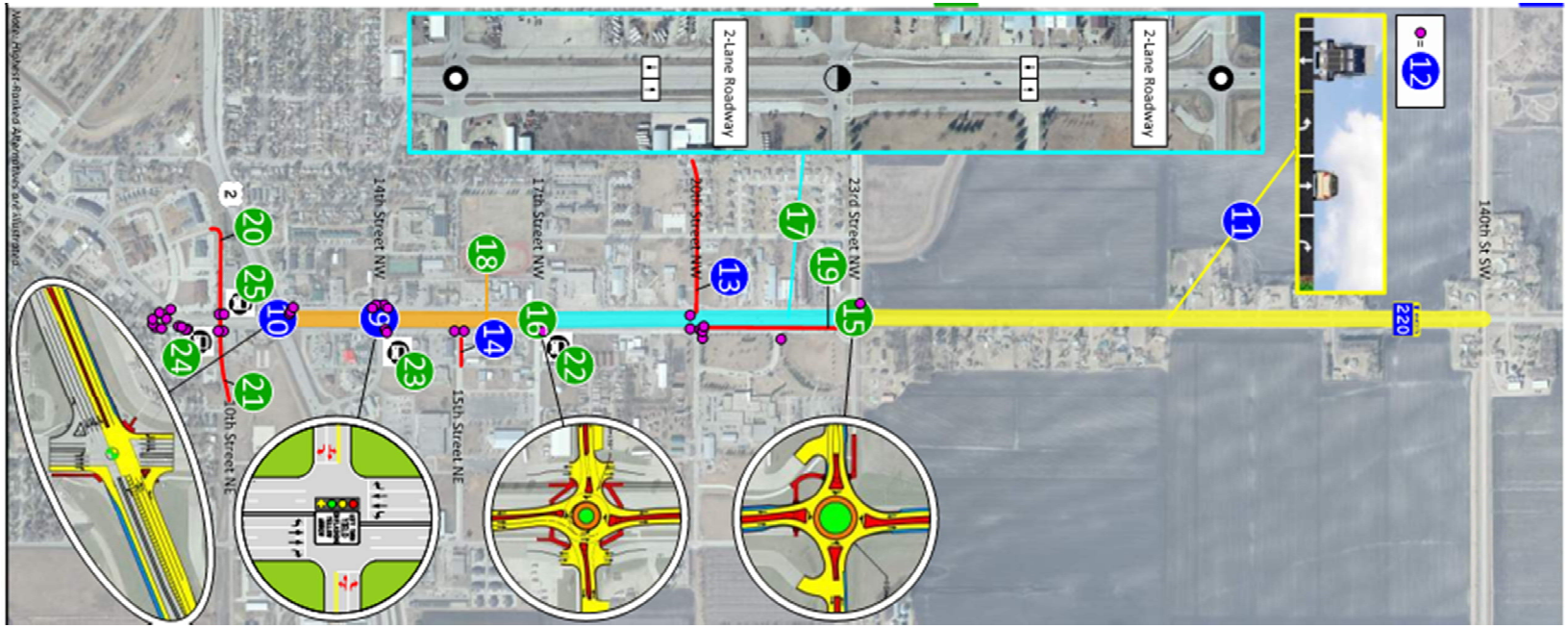
Mid-Term (2025-2035)

- **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)



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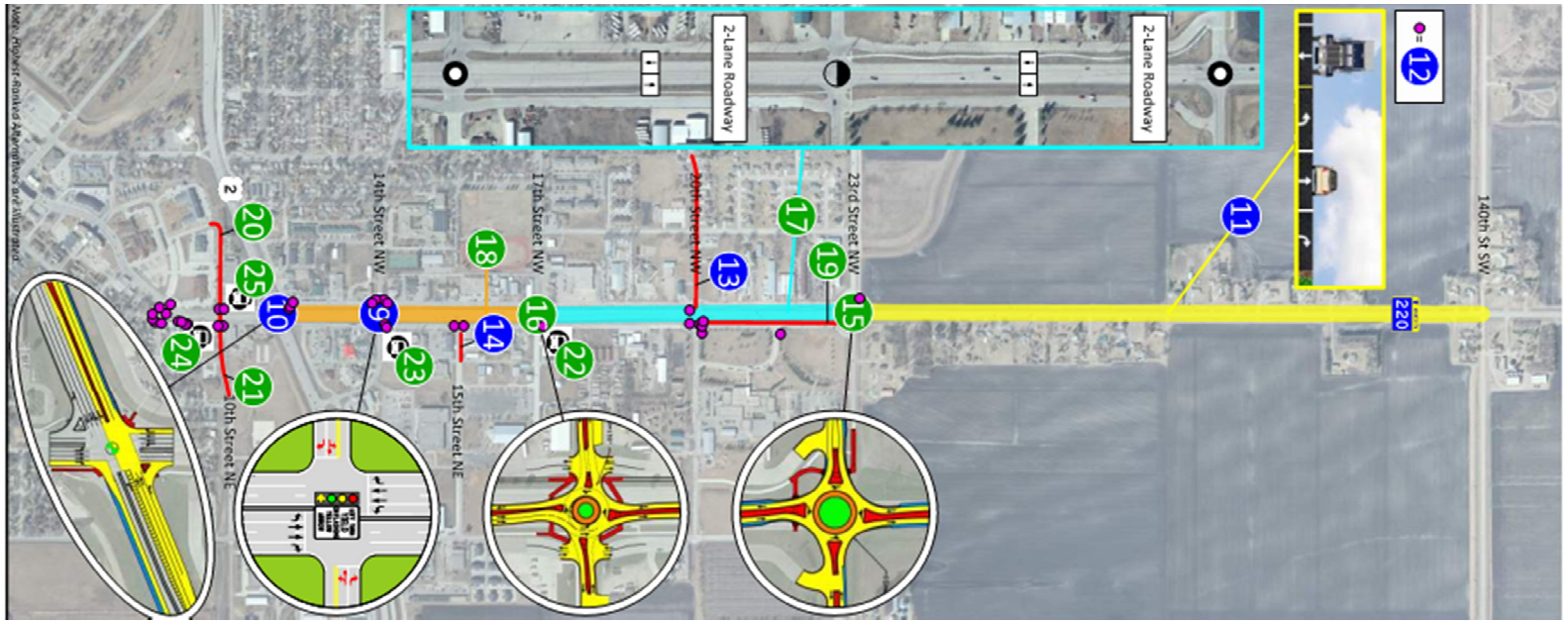
Implementation Plan Summary

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**



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Implementation Plan Summary

Project Programming

- **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

Other 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

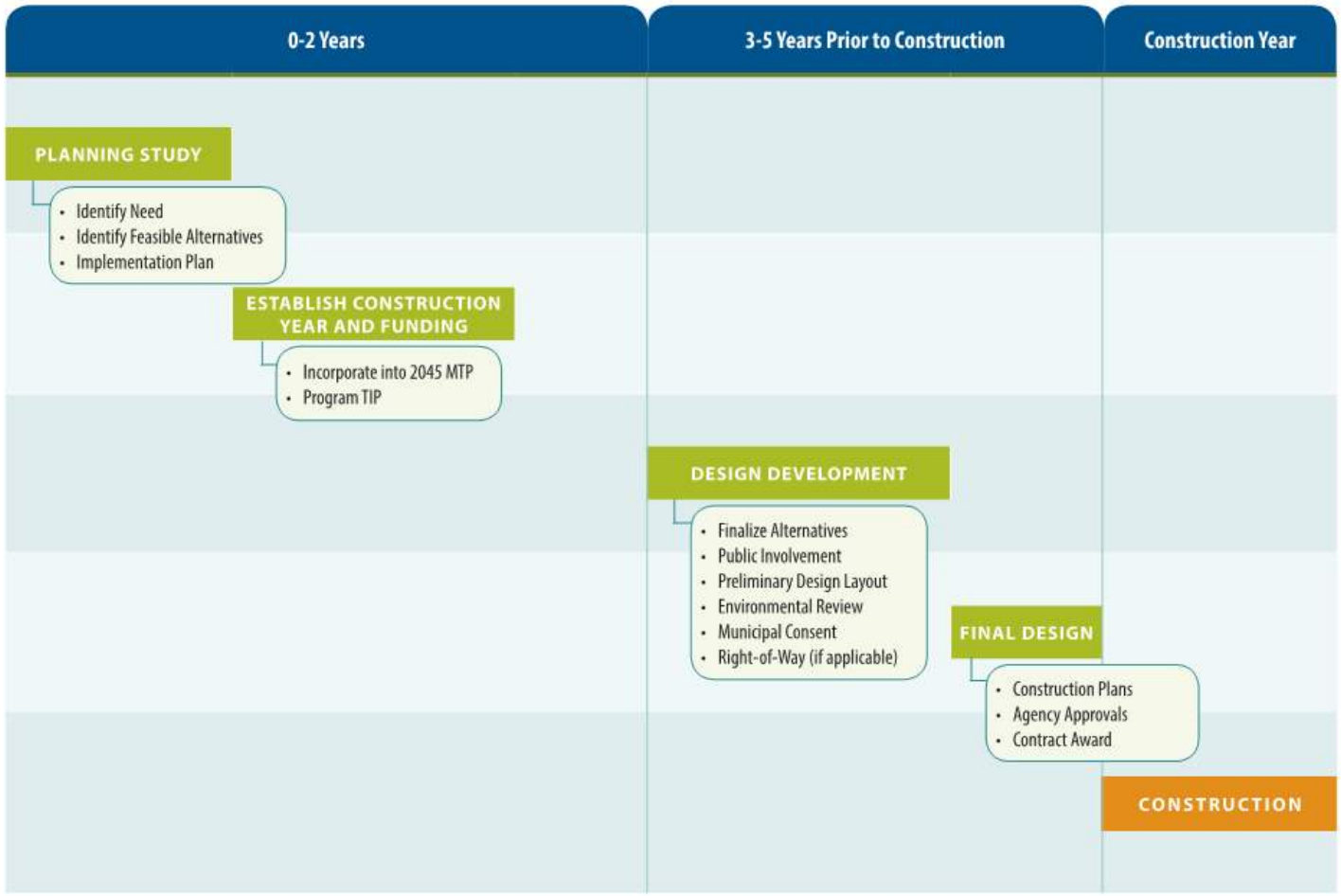
Project Development Process

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



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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

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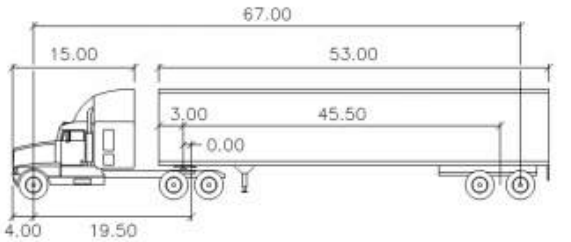
Roundabout Design Discussion

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		

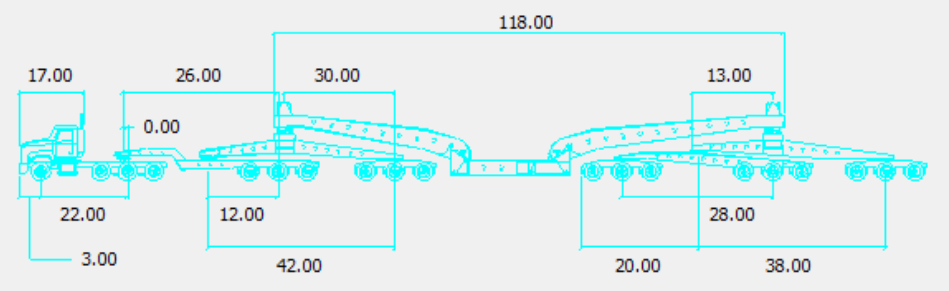
Source: AASHTO

- Video File

Roundabout Design Discussion

Trucks

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



- Video File

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

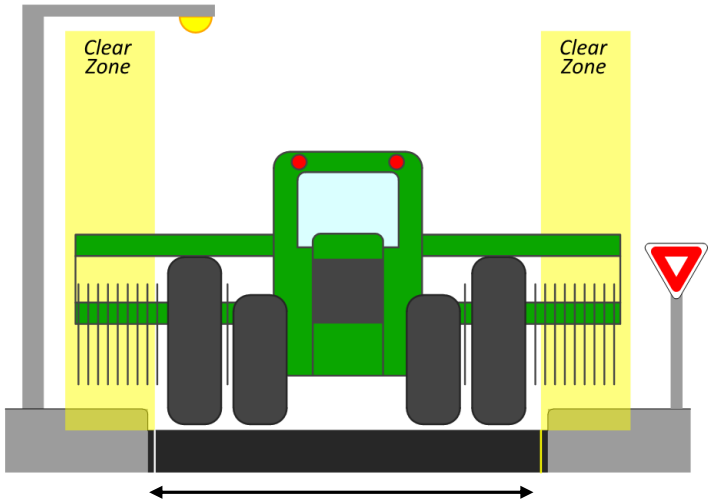
- Video File

Roundabout Design Discussion

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



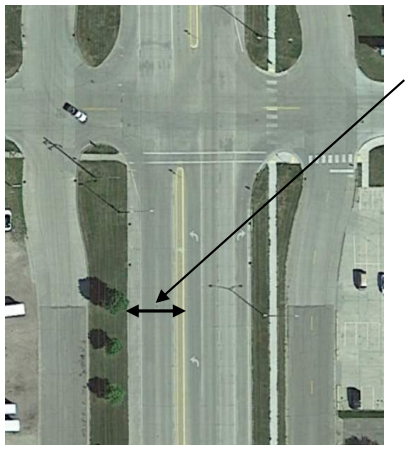
Variable Width Lane

Roundabout Design Discussion

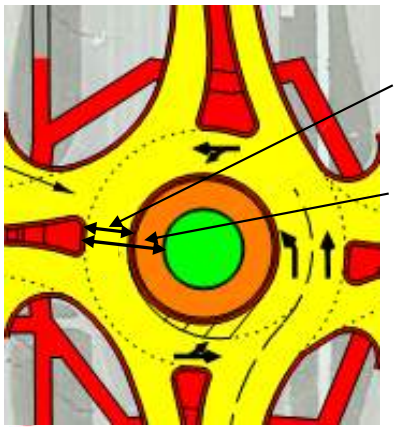
Truck and Ag Vehicle Final Design Refinements – During Design Development

- 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)**

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Design Development – Example Project (MnDOT)

Example Project (MnDOT)

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Other Discussion

- Any Other Discussion?

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