

### LEGEND

**CAPACITY**

- ← Movement Expected to Reach Unacceptable LOS by 2045

**TRANSPORTATION DEMAND**

- ⊗ Potential Future Signal
- Illustrative Reconstruction Project (2045 MTP)

**SOCIAL OR ECONOMIC DEMAND**

- Key Land Use
- Significant Growth Area (Expected to Impact Corridor)

**MODAL INTERRELATIONSHIPS**

- Gaps in Sidewalk Connectivity
- ⊗ Ped Ramp Doesn't Meet Current Standards
- ⋯ Future Bike Route (Crossing Mn 220)
- Future Multiuse Trail (Along Mn 220)
- ★ Preferred Crossing Point for Area Schools (currently uncomfortable crossing for bikes and peds)

**ROADWAY DEFICIENCIES**

- ⊗ Signal System Expected to Reach End of Useful Life by 2030

**SAFETY**

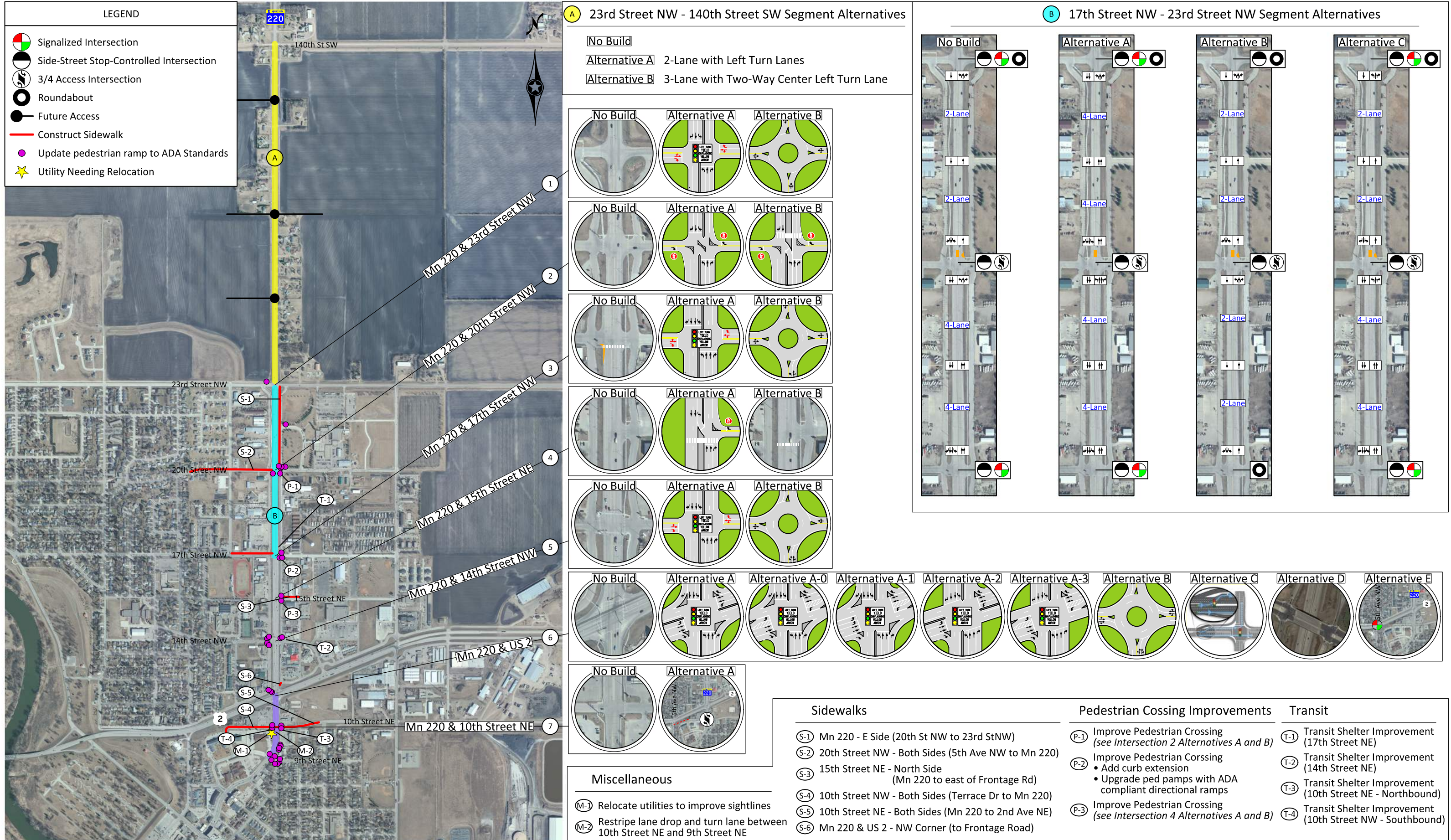
- Crash Issue (Exceeds Statewide Average)
- ⊗ Crash Issue (Exceeds Critical Rate)

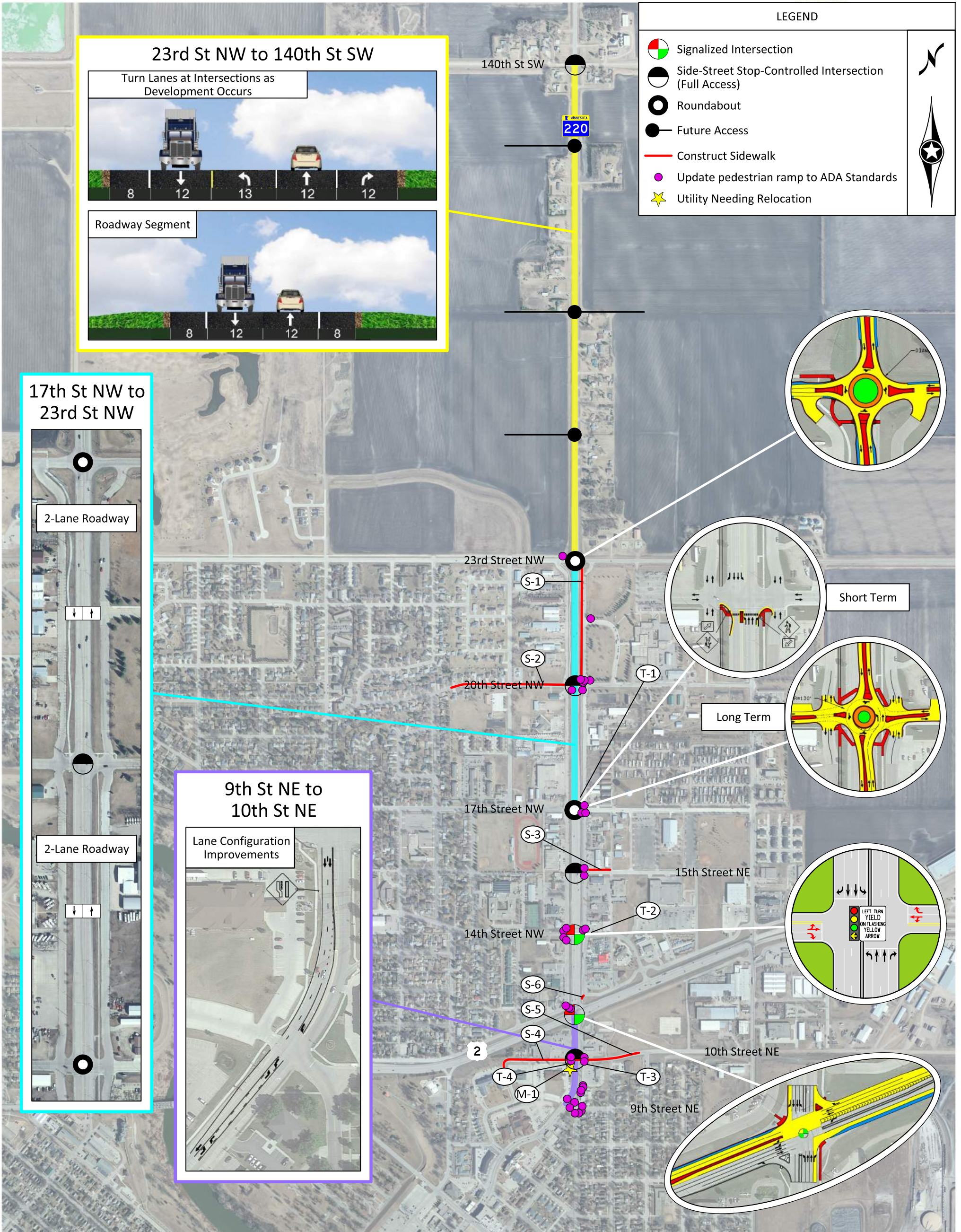
**Notes:**

- 1 Previously identified project to provide right turn/merge modifications and signal timing improvements (2045 MTP).
- 2 Illustrative project to extend 4-lane to 2-lane transition to 23rd Street NW (2045 MTP)
- 3 Illustrative project to reconstruct DeMers Avenue (2045 MTP). DeMers Avenue is on National Highway System. Greater Minnesota mobility has identified potential mobility concerns.
- 4 Pedestrians must cross roadway to continue north/south connectivity
- 5 Gap in sidewalk network and accessibility.
- 6 Current spacing of intersections between 9th Street NE and 23rd Street NW do not meet MnDOT access spacing guidelines of 1/4 Mile.
- 7 MnDOT project assessment indicates that the segment from US 2 to 140th Street SW will require concrete pavement rehabilitation in 2033 and reconstruction in 2058.
- 8 Increased traffic demand north of 23rd Street NW likely to warrant turn lanes at key locations between 23rd Street NW and 140th Street SW. Additionally, future redevelopment of adjacent agricultural land will require access management guidance.

# Mn 220 North Corridor Study

## Intersection and Segment Alternatives Overview





### Sidewalks

- (S-1) Mn 220 - E Side (20th St NW to 23rd St NW)
- (S-2) 20th Street NW - Both Sides (5th Ave NW to Mn 220)
- (S-3) 15th Street NE - North Side (Mn 220 to east of Frontage Rd)
- (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

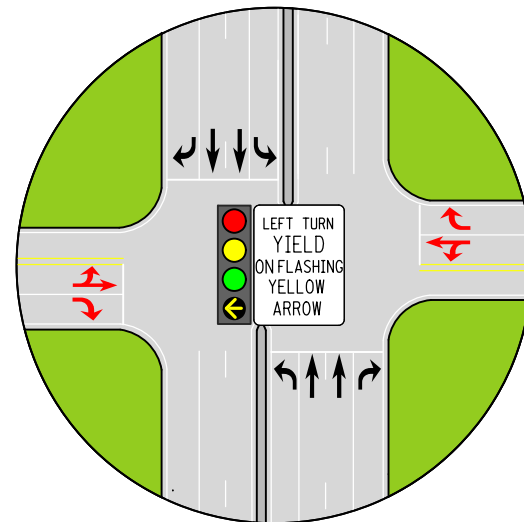
- (T-1) Transit Shelter Improvement (17th Street NE)
- (T-2) Transit Shelter Improvement (14th Street NE)
- (T-3) Transit Shelter Improvement (10th Street NE - Northbound)
- (T-4) Transit Shelter Improvement (10th Street NW - Southbound)

### Miscellaneous

- (M-1) Relocate utilities to improve sightlines

**Alternative A**

**Install Traffic Signal System**



**Considerations:**

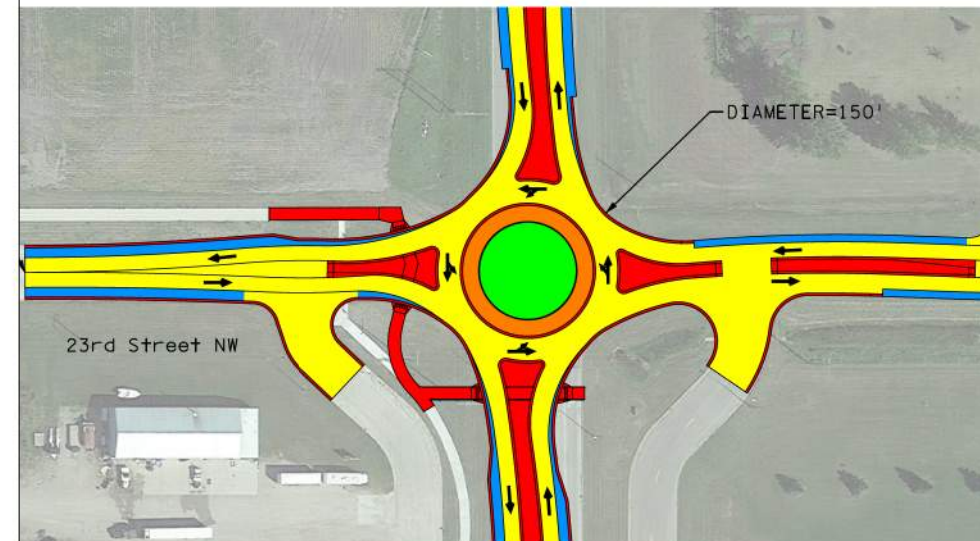
- Warrants not met until 2045
- Expected to increase overall intersection delay
- Expected to increase overall intersection crash rate and potentially severity

**Analysis:**

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

**Alternative B**

**Install Single Lane Roundabout**



**Considerations:**

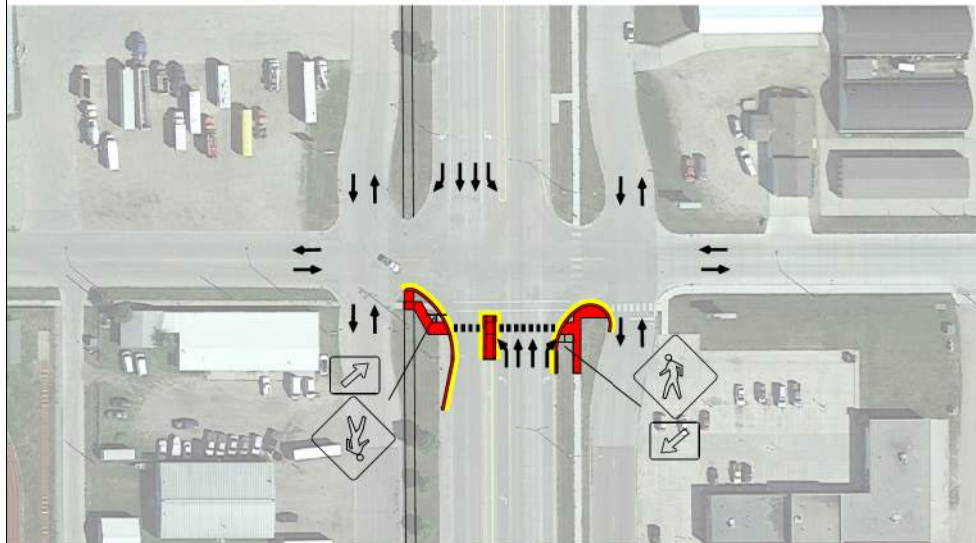
- Frontage road spacing
- Existing ditches, drainage design and storm sewer system needs
- Design for large trucks and agriculture vehicles

**Analysis:**

- **Cost:** \$2.9 Million
- **Mobility:** LOS A (2045)
- **Safety:** 40% reduction in crash rate and 47% reduction in crash severity rate
- **R/W:** None
- **20-Year Traffic Operation Benefit:** \$1,026,765
- **20-Year Safety Benefit:** \$990,747
- **Benefit/Cost:** 1

### Existing Stop Control

#### Improve Pedestrian Crossing (Curb Extension, Refuge Median, ADA Ramps)



#### Considerations:

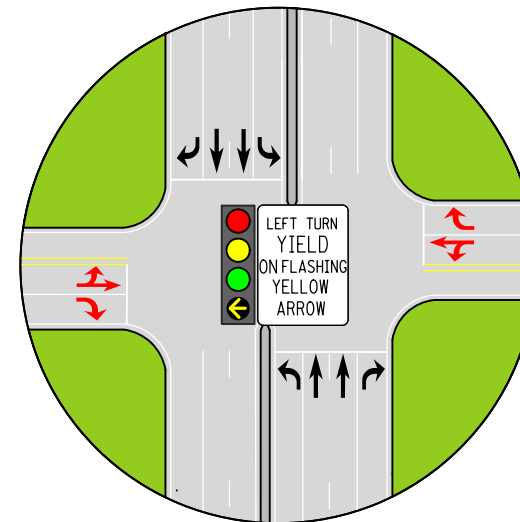
- Short-term intersection solution
- Does not address these concerns:
  - Long-term intersection mobility
  - Existing intersection details

#### Analysis:

- **Cost:** \$61,000
- **Mobility:** No Change
- **Safety:** No Change
- **R/W:** None
- **20-Year Traffic Operation Benefit:** No Change
- **20-Year Safety Benefit:** No Change
- **Benefit/Cost:** NA

### Alternative A

#### Install Traffic Signal System



#### Considerations:

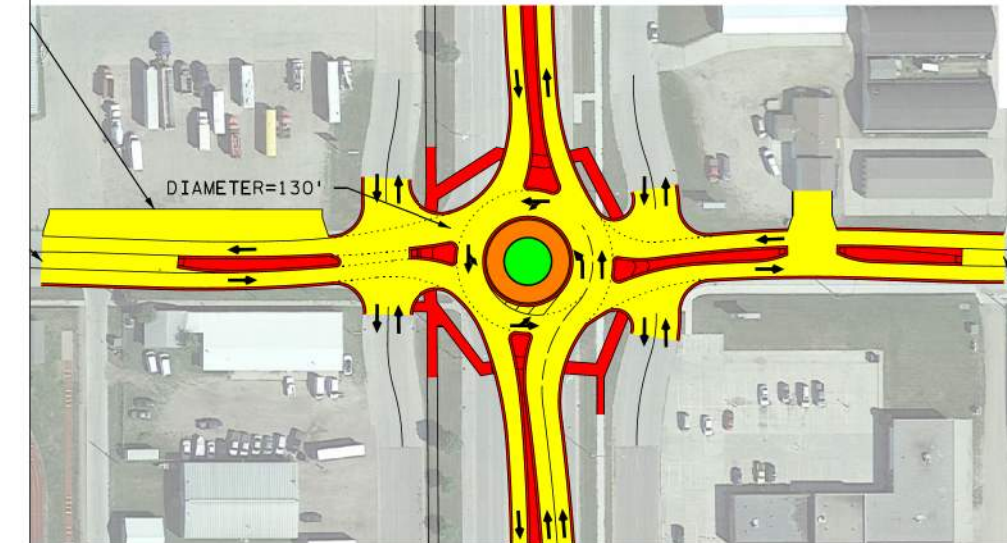
- Warrants not met until 2038 and requires restricted access at 20th Street (no east/west through or left turn movements)
- Expected to increase overall delay under existing conditions
- Expected to slightly improve delays by 2045

#### Analysis:

- **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

### Alternative B

#### Install Roundabout



#### Considerations:

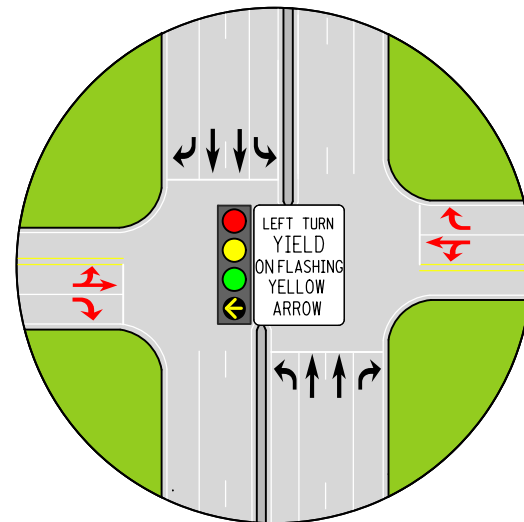
- Frontage road spacing requires median closure (east side) at frontage road to create space for pedestrian crossing
- Feasible design for large trucks (WB-67 or larger) and agriculture equipment
- Southbound frontage road (west side) to southbound Mn 220 may not be feasible for large trucks (required to use 14th Street or alternative access)

#### Analysis:

- **Cost:** \$2.7 Million
- **Mobility:** LOS A (2045)
- **Safety:** 55% reduction in crash rate and severity rate
- **R/W:** None
- **20-Year Traffic Operation Benefit:** \$2,314,202
- **20-Year Safety Benefit:** \$647,421
- **Benefit/Cost:** 1.6

**Alternative A**

**Rebuild Traffic Signal System**



**Considerations:**

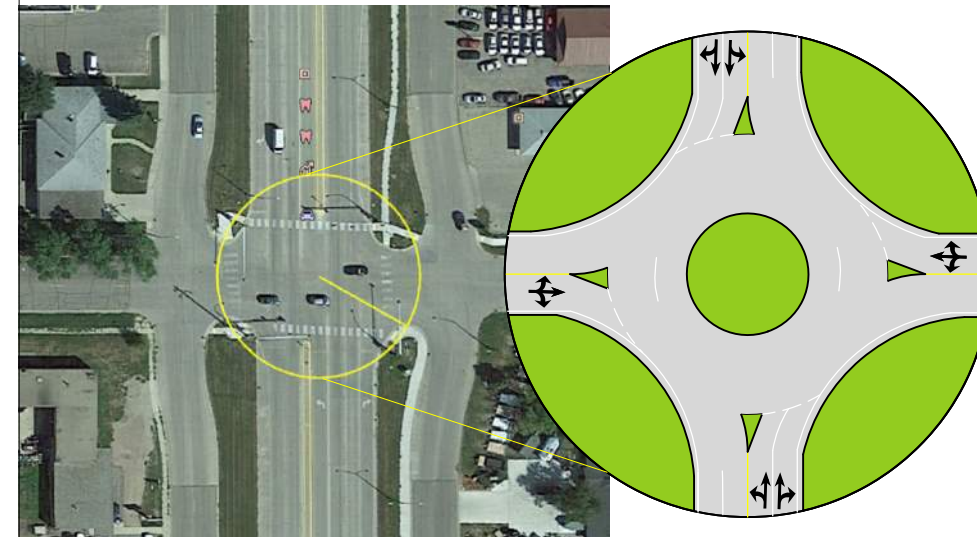
- Minor/no impact to street width and curbs
- Most efficient operation over a full day
- Flashing Yellow Arrow
- Westbound Left Turn Arrow
- Traffic Signal Coordination

**Analysis:**

- **Cost:** \$300,000
- **Mobility:** LOS B (2045)
- **Safety:** 28% 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:** 9.5

**Alternative B**

**Install Multilane (2x1) Roundabout**



**Considerations:**

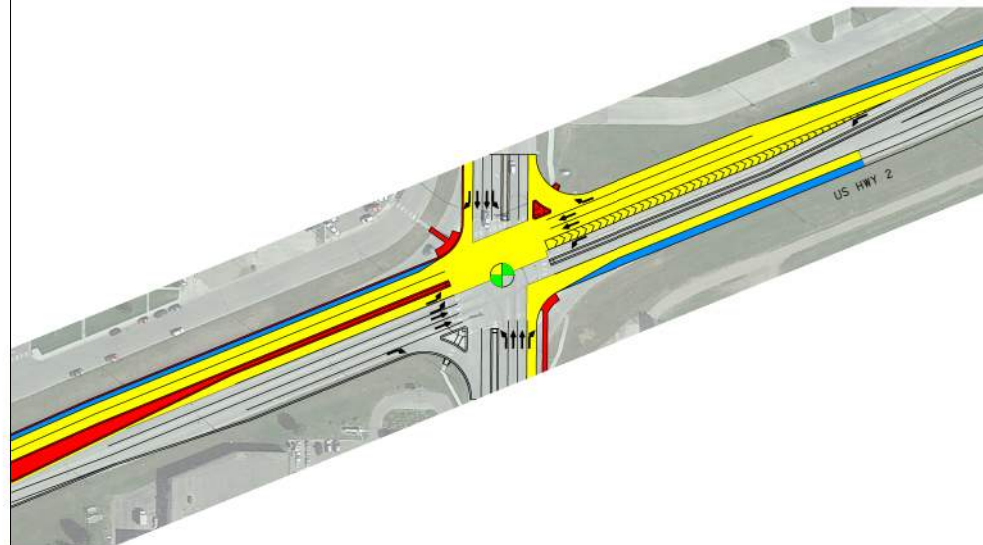
- Frontage road spacing likely problematic (may not be feasible)
  - Destination access
  - Motorists needing to make U-turns onto frontage roads
- Most efficient operation during peak periods

**Analysis:**

- **Cost:** Approximately \$3,000,000
- **Mobility:** LOS A (2045)
- **Safety:** 9% reduction in crash rate and 1% reduction in crash severity rate
- **R/W:** None
- **20-Year Traffic Operation Benefit:** \$8,805,855
- **20-Year Safety Benefit:** \$1,803,378
- **Benefit/Cost:** 5.2

**Alternative A**

Rebuild Signal System, Dual EB Left Turn Lanes, and Right Turn Channelization Improvements



**Considerations:**

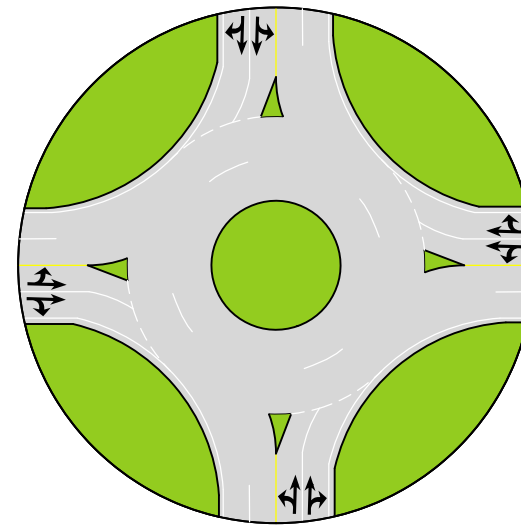
- Flashing yellow arrow provides operational flexibility
- Expected to improve intersection operation
- Expected to improve motorist safety
- Minimizes need for 5th Ave NW full access

**Analysis:**

- **Cost:** \$3,000,000
- **Mobility:** 2045 LOS C
- **Safety:** 28% reduction in crash rate and 25% reduction in crash severity rate
- **R/W:** None
- **Benefit/Cost:** 3.4

**Alternative B**

Install Roundabout



**Considerations:**

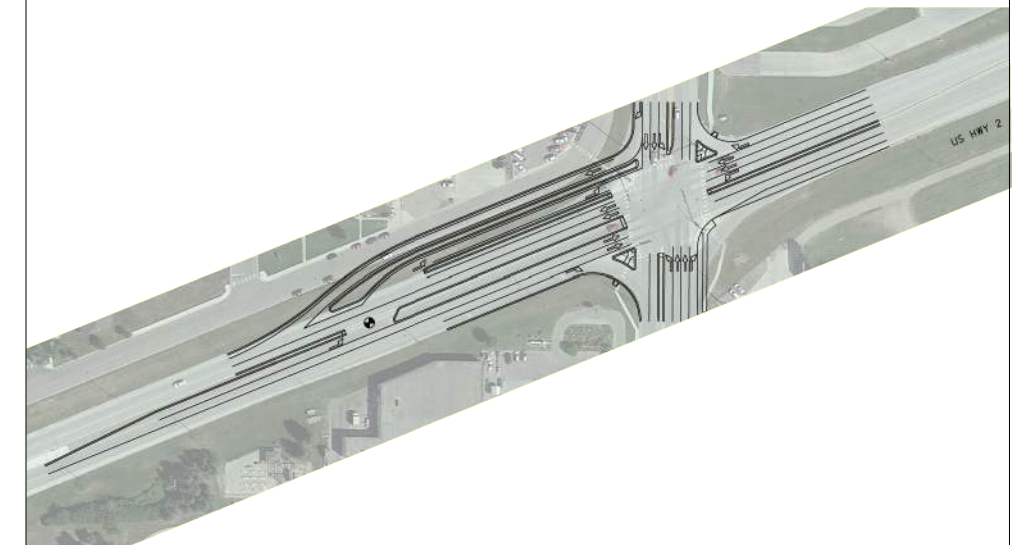
- Fits within existing intersection footprint
- Expected to increase crashes but significantly reduce severity of injury crashes
- Not ideal control device if 14th remains signal
- Familiarity of multilane roundabout is a concern

**Analysis:**

- **Cost:** Approximately \$3,600,000
- **Mobility:** LOS A (2045) or LOS C if no connection at 5th Ave
- **Safety:** 71% increase in crash rate and 35% increase in crash severity rate (but 20% decrease in Type A and B severe crashes)
- **R/W:** None
- **20-Year Traffic Operation Benefit:** \$38,510,513
- **20-Year Safety Benefit:** \$4,255,888
- **Benefit/Cost:** 17.34

**Alternative C**

Displaced Eastbound Left Turn



**Considerations:**

- Improves intersection capacity by removing high volume conflicting movement
- Adds additional traffic signal
- Requires substantial R/W and frontage road impacts

**Analysis:**

- **Cost:** Approximately \$2,900,000
- **Mobility:** LOS C (2045)
- **Safety:** 25% reduction in crash rate and 23% reduction in crash 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