



# US 2/US 81 SKEWED INTERSECTION STUDY

Public Input Meeting #1

Grand Forks, ND  
April 2019

<b>Overcoming Barriers</b>		<b>Strengthening Connections</b>	
M.P.O.	M.P.O.	M.P.O.	M.P.O.
Grand Forks - East Grand Forks Metropolitan Planning Organization			
<b>Ensuring Opportunities</b>		<b>Planning One Community</b>	



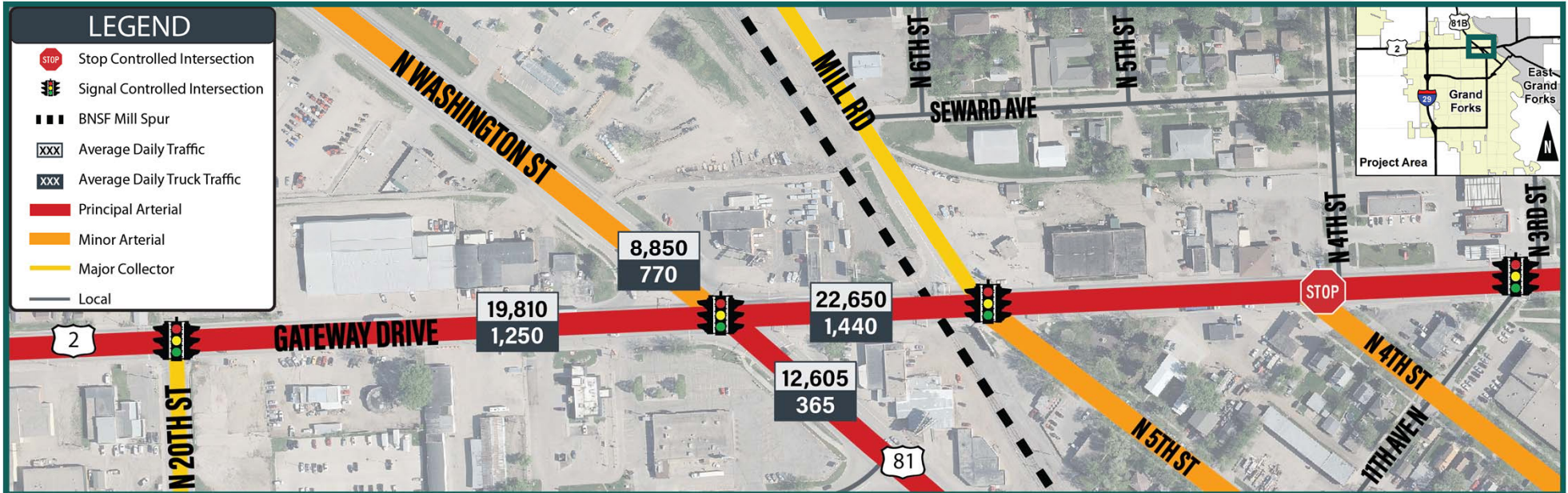
ENGINEERING, REIMAGINED



## AGENDA

- Study Area
- Train Crossings and Blockages
- Vehicular Traffic and Reliability
- Safety
- Pedestrian, Bicycle and Transit
- Environmental Conditions
- Alternatives Brainstorming
- Next Steps

# Study Area



- Known Issues and Conflicts;
  - Mill spur railroad crossing creates traffic blockages and queuing issues.
  - Intersection skew makes turning movements for trucks difficult.
  - Opportunities for improved pedestrian, bicycle and transit conditions.





# Train Crossings and Blockages



N 20TH ST

N WASHINGTON ST

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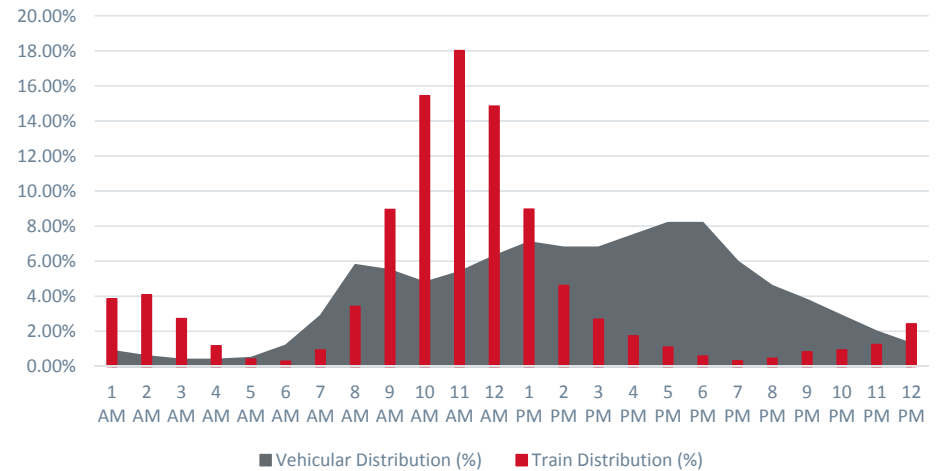
# Mill Spur Crossing

- Safety
  - 12 crashes between 1975-1994
  - No crashes since 1994
- Crash Prediction
  - 0.028 crashes per year (FRA)
  - 5<sup>th</sup> highest rate in City
  - 7<sup>th</sup> highest rate in County

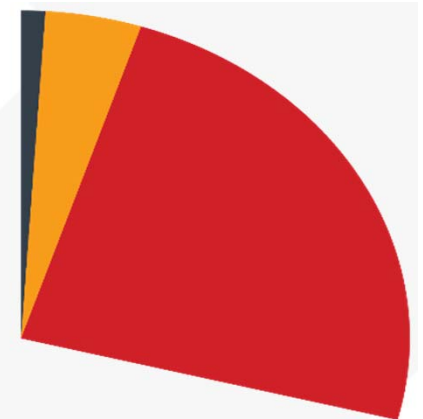


# Train Blockages

- 4 to 5 blockages per day
- 10 MPH or Less
- Rail Delay Estimates
  - 89 Hours/Day
  - 2,670 Hours/Month
  - 32,396 Hours/Year



- *Minimum Delay*  
- 0:21 minutes
- *Average Delay*  
- 2:31 minutes
- *Maximum Delay*  
- 14:14 minutes





# Unit Trains

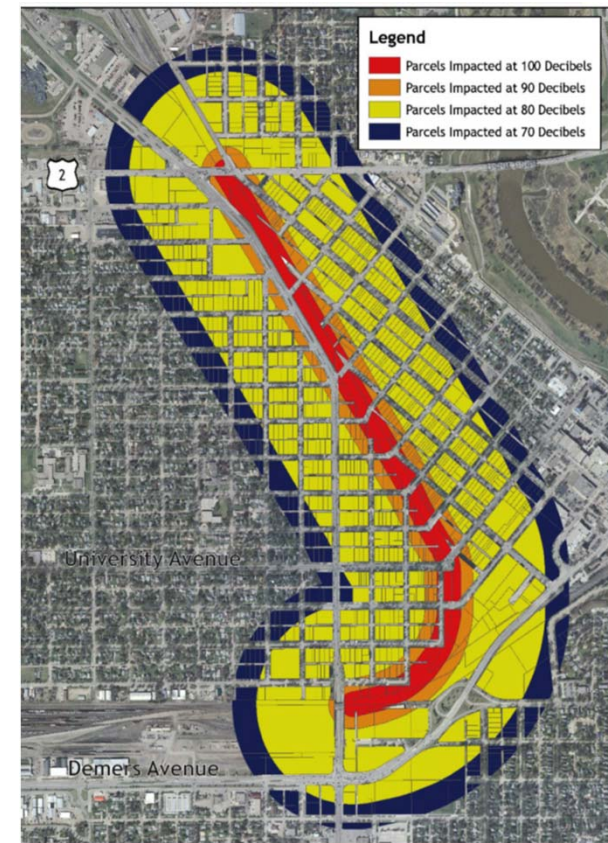
- ND Mill Working to Accommodate Unit Trains
- All crossings will be blocked at the same time.

**4x** Longer than Current Trains

**10-17** Minutes of Delay at Mill Spur Crossings

**4-6** Blockages per Month

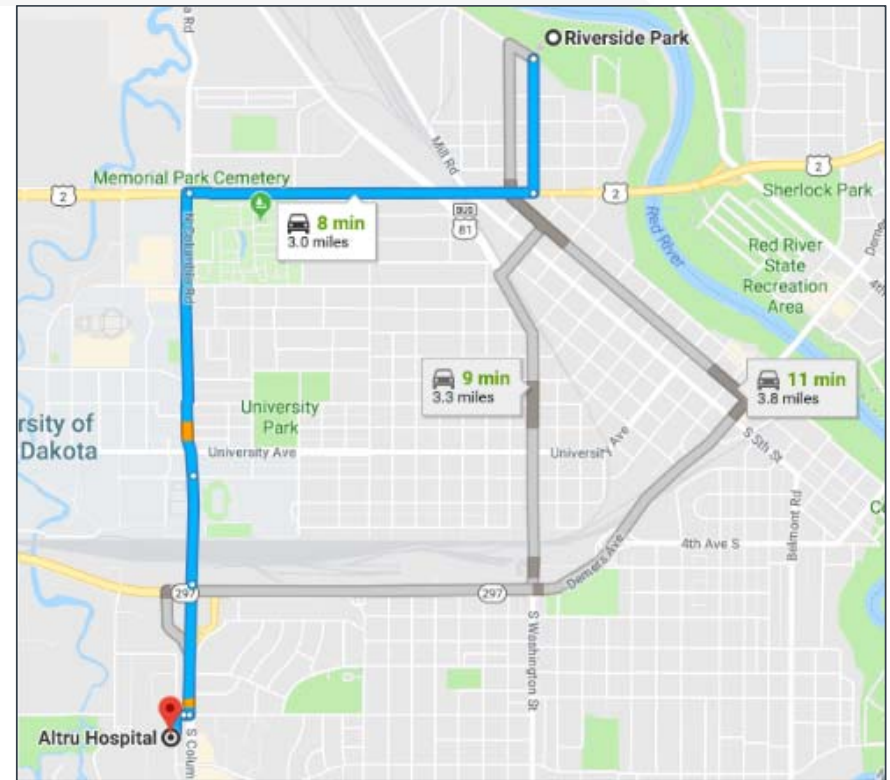
## Potential to Occur at Night



# Emergency Responders

Pg. 8

- Average train blockage is 2:31
  - Brain damage in four to six minutes when heart stops
  - Altru Hospital provides emergency service to East Grand Forks and surrounding area
- Train blockage duration will increase with Unit Trains





# Emergency Responders

- Average train blockage is 2:31
  - Fires can double every 60 seconds
  - Goal to reach every address within four minutes
- Train blockage duration will increase with Unit Trains



An aerial photograph of an industrial or commercial district. The image is dominated by a semi-transparent dark grey rectangular overlay in the center. Overlaid on this rectangle is the title text in white. The background shows various industrial buildings, parking lots filled with cars and trucks, and several streets. A road on the left is labeled 'N 20TH ST' vertically. A road on the right is labeled 'N WASHINGTON ST' diagonally. A shield-shaped road sign with the number '2' is visible in the lower-left quadrant of the overlay. In the top right corner of the overall image, there is a small black circle with a white arrow pointing upwards and the letter 'N', indicating North is towards the top of the frame.

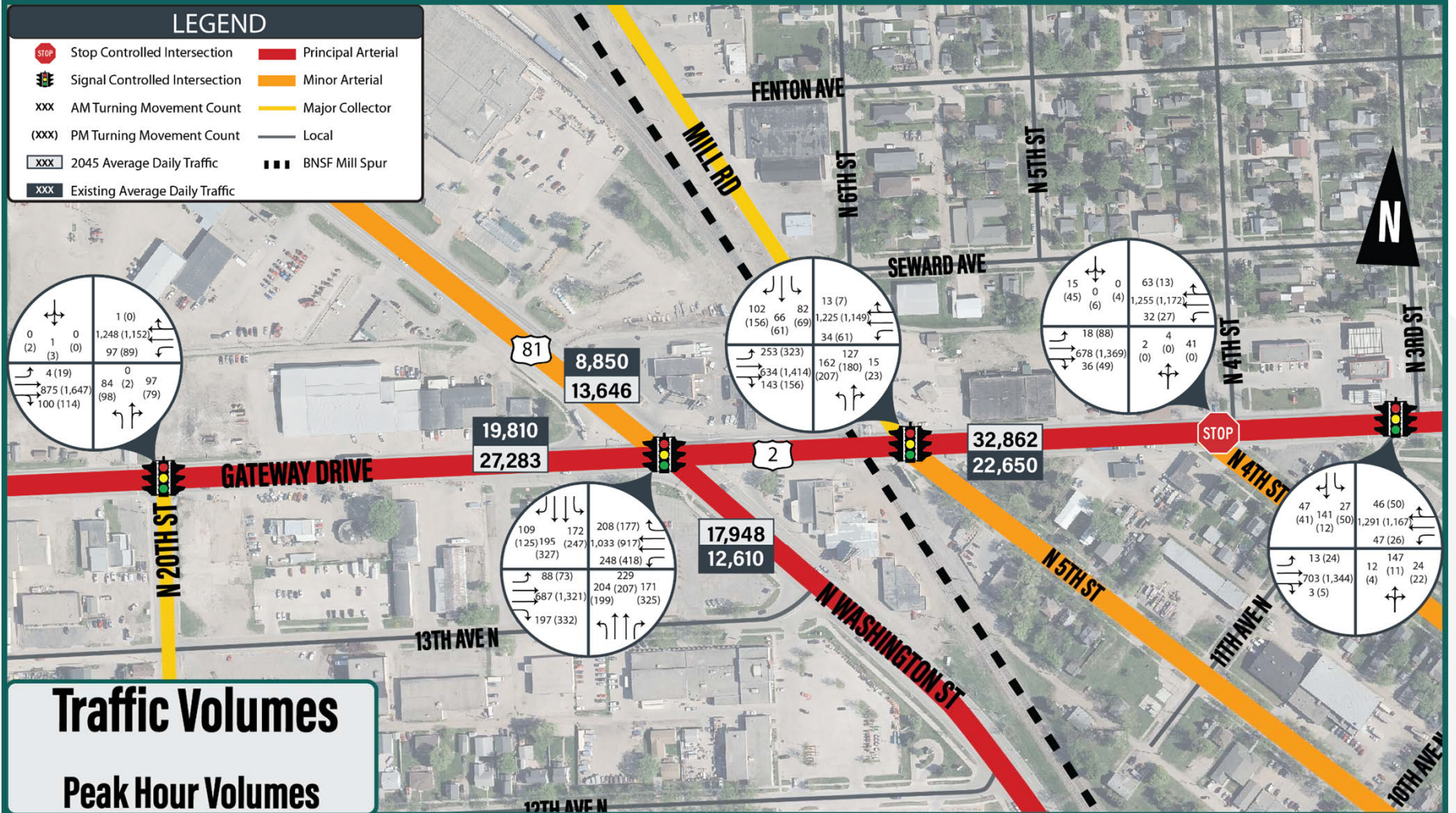
# Vehicular Traffic and Reliability



# Existing and Future Traffic Volumes

**LEGEND**

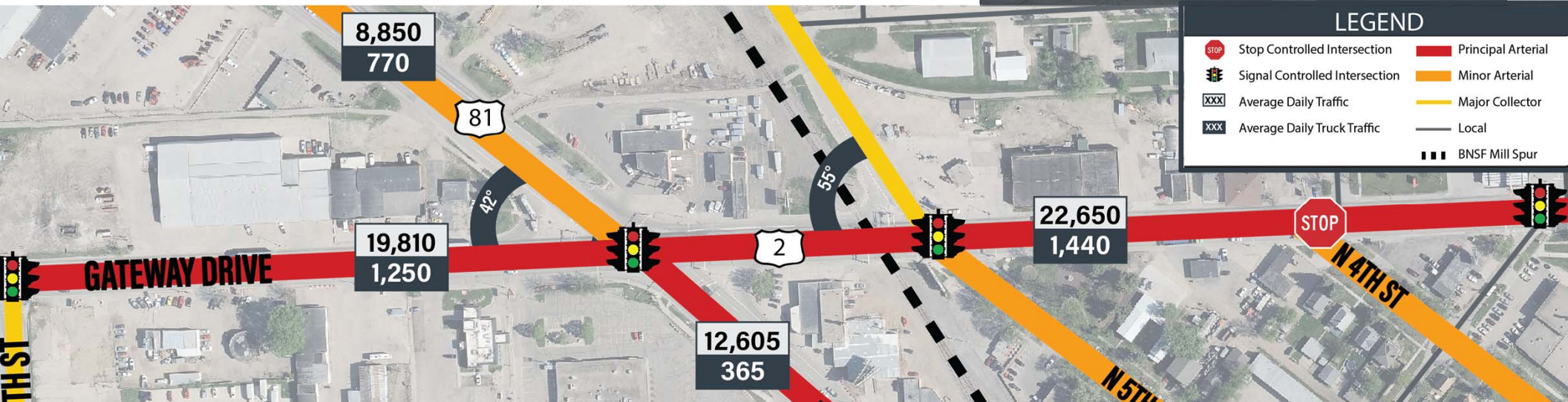
- Stop Controlled Intersection
- Signal Controlled Intersection
- xxx AM Turning Movement Count
- (xxx) PM Turning Movement Count
- xxx 2045 Average Daily Traffic
- xxx Existing Average Daily Traffic
- Principal Arterial
- Minor Arterial
- Major Collector
- Local
- BNSF Mill Spur







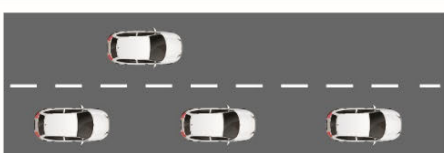



# Truck Traffic

- > Level One Freight System with international connections
- > 1,200-1,500 trucks per day
- > Trucks per day > 1,500 during sugar beet harvest season
- > In 2016, NDSM increased capacity 33%, looking to expand another 22% in 5 years

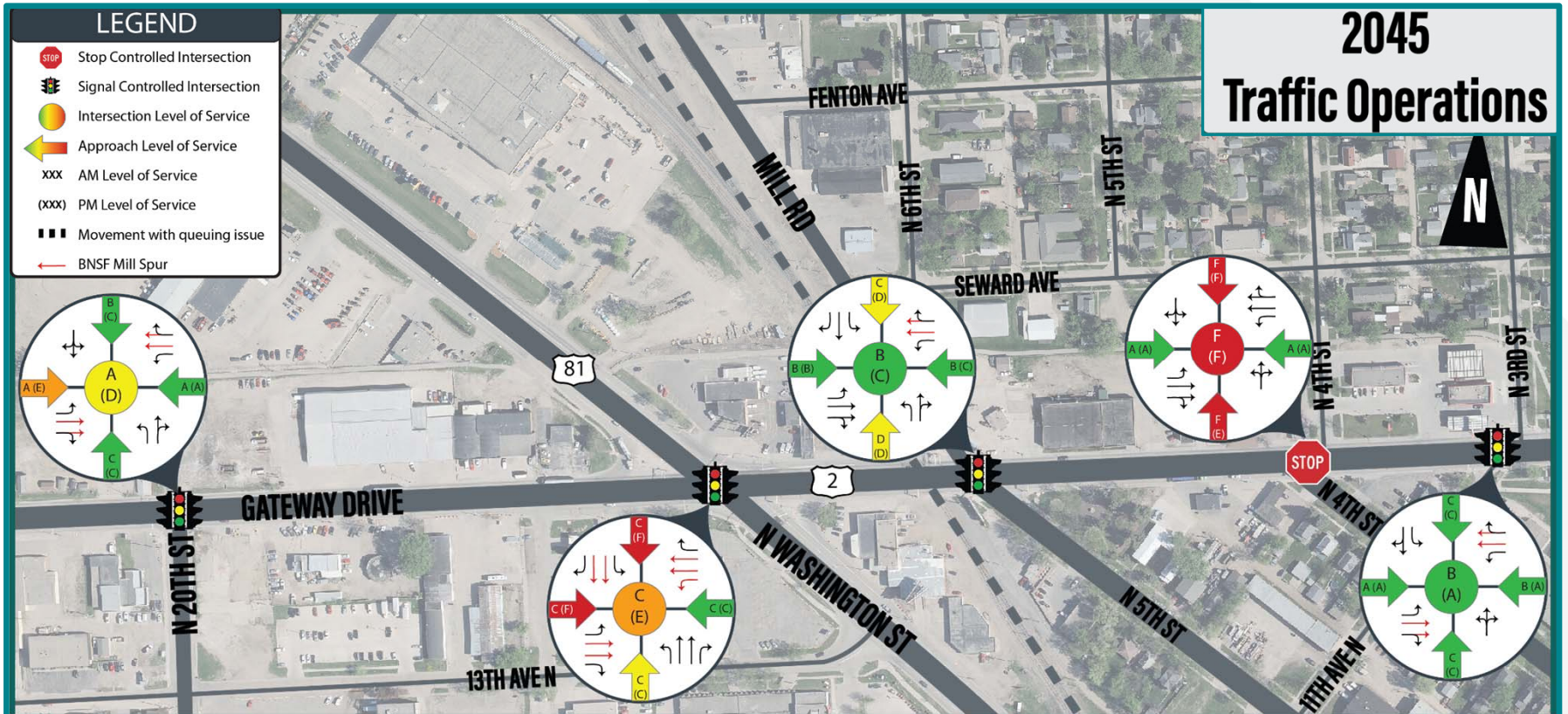




# Traffic Operations

CAPACITY	TRAFFIC FLOW	DESCRIPTION
Under	 <p>Diagram showing two cars on a two-lane road with a dashed center line, moving in the same direction. There is a large gap between them, indicating free flow.</p>	<b>LOS A - FREE FLOW</b> Low volumes and no delays.
	 <p>Diagram showing three cars on a two-lane road with a dashed center line, moving in the same direction. The cars are spaced out, indicating stable flow.</p>	<b>LOS B - STABLE FLOW</b> Low volumes and speeds dictated by travel conditions.
	 <p>Diagram showing four cars on a two-lane road with a dashed center line, moving in the same direction. The cars are more closely spaced than in LOS B, indicating stable flow at higher volumes.</p>	<b>LOS C - STABLE FLOW</b> Speeds and maneuverability closely controlled due to higher volumes.
Approaching	 <p>Diagram showing six cars on a two-lane road with a dashed center line, moving in the same direction. The cars are very close together, indicating restricted flow.</p>	<b>LOS D - RESTRICTED FLOW</b> Higher density traffic restricts maneuverability and volumes approaching capacity.
At	 <p>Diagram showing eight cars on a two-lane road with a dashed center line, moving in the same direction. The cars are packed closely together, indicating unstable flow.</p>	<b>LOS E - UNSTABLE FLOW</b> Low speeds, considerable delays, and volumes at or slightly over capacity.
Over	 <p>Diagram showing ten cars on a two-lane road with a dashed center line, moving in the same direction. The cars are packed very closely together, indicating forced flow.</p>	<b>LOS F - FORCED FLOW</b> Very low speeds, volumes exceed capacity, and long delays with stop-and-go traffic.

# Intersection Traffic Operations



- ◇ LOS acceptable at all intersections today, except N 4<sup>th</sup> Street.
- ◇ Congestion Builds at Washington Street, causing unacceptable LOS in the future
- ◇ Queuing an Issues in All Scenarios
- ◇ Travel Time a Concern with Trains and Multiple Signals



# 2045 Queuing Issues

## PM Peak



## Train Event (non-unit train)





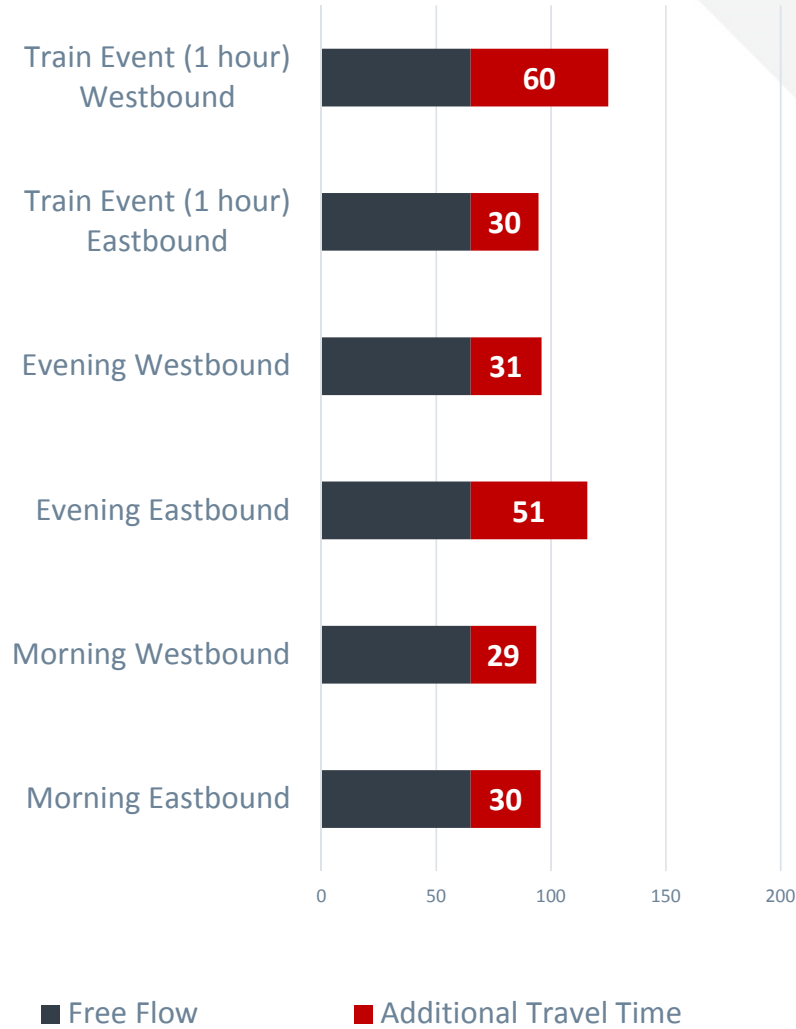
## 2045 Train Event Operations



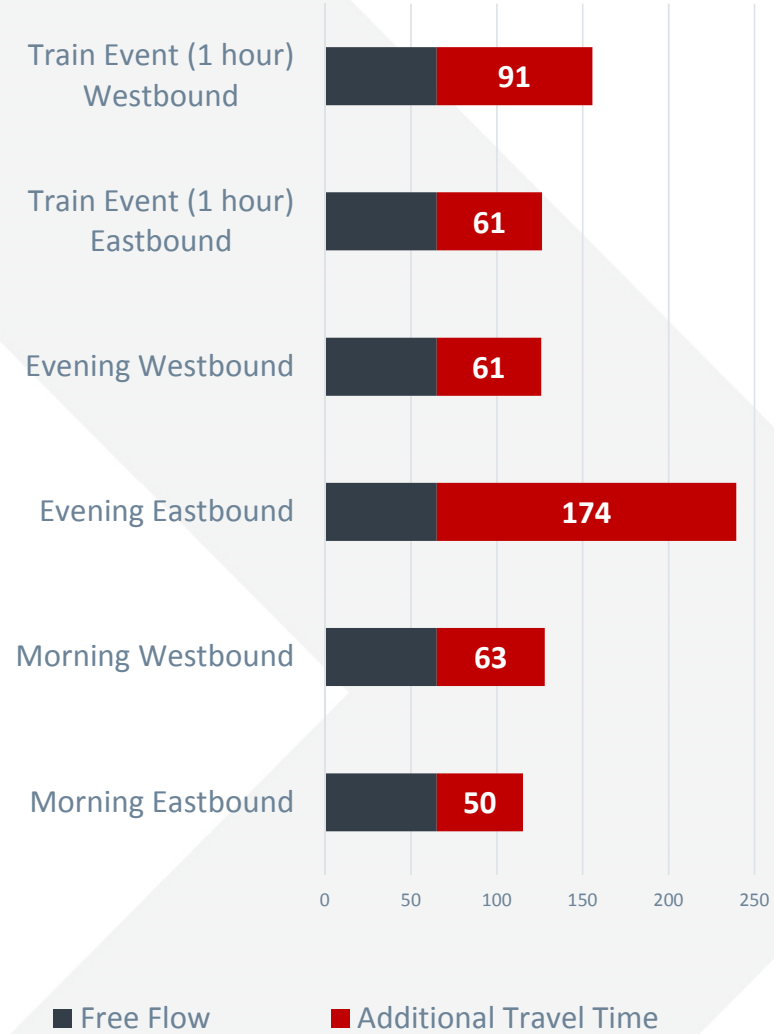
- > One train event:
  - > 4 hours of vehicle delay today
  - > 7 hours by 2045
- > Future unit trains

Travel Time

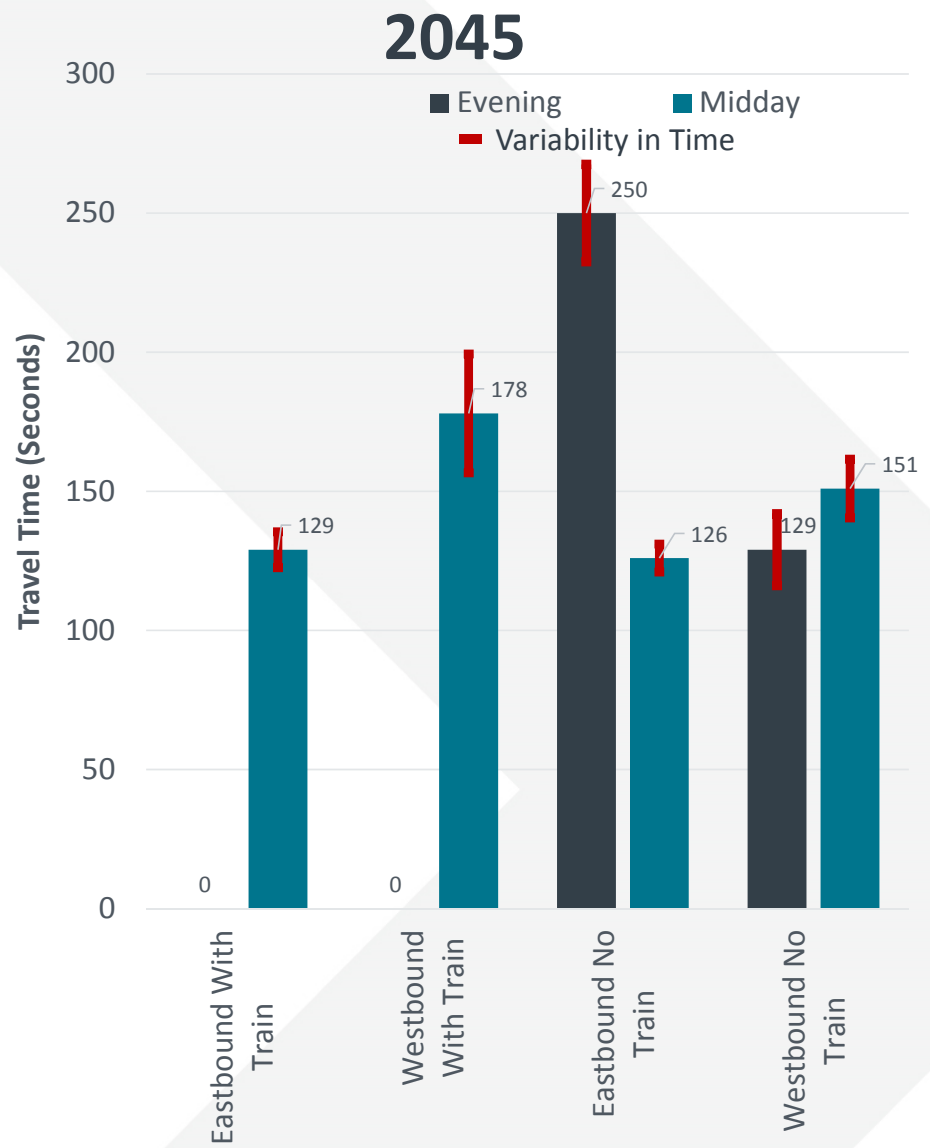
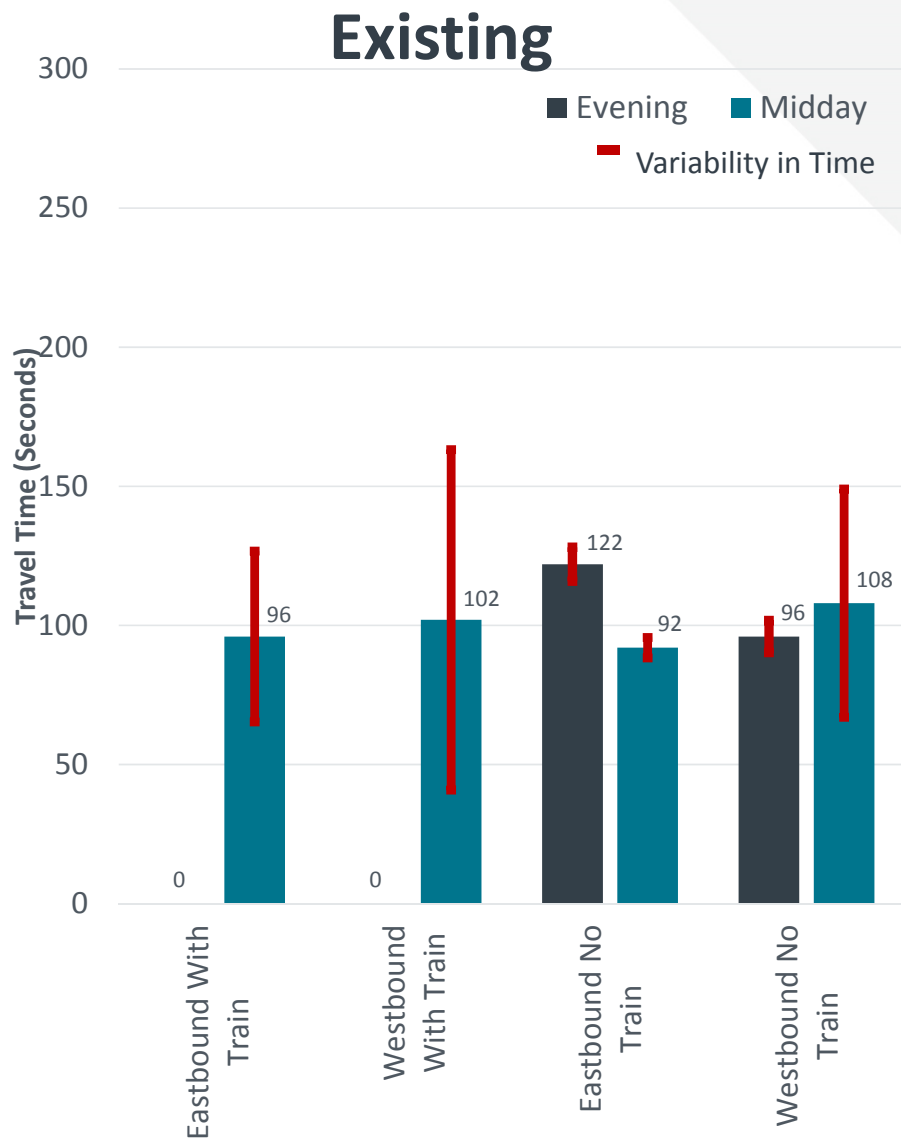
### Existing



### 2045



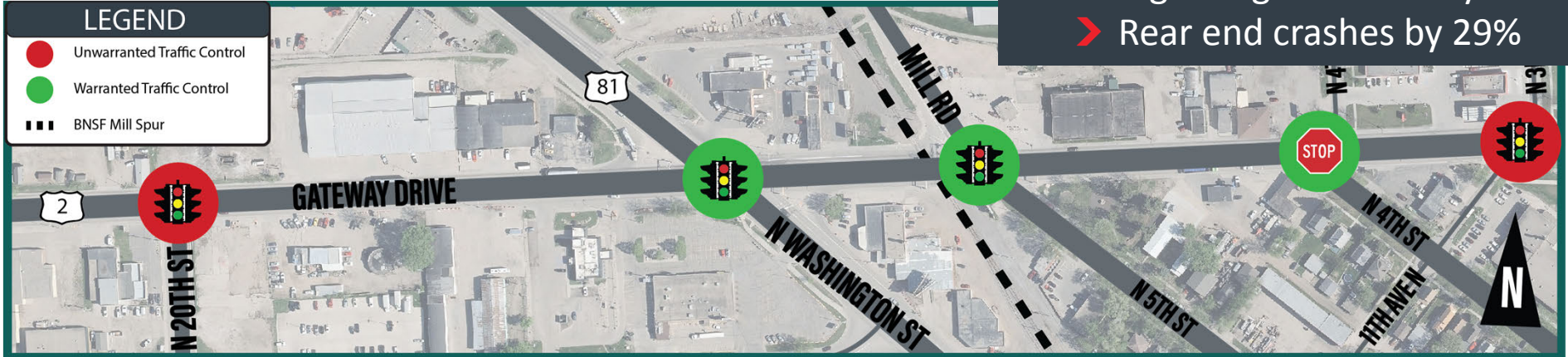
# Reliability





# Existing Traffic Control Analysis

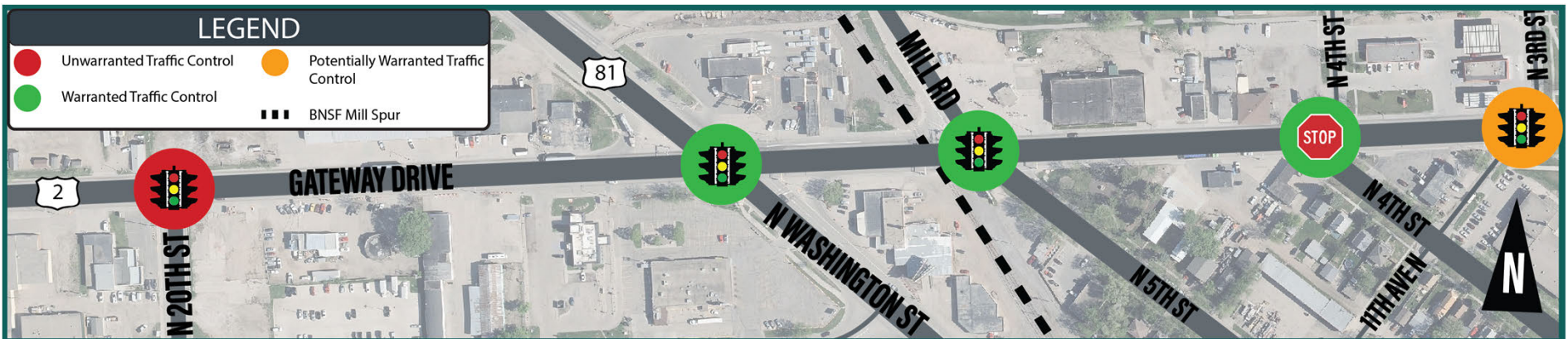
## Existing

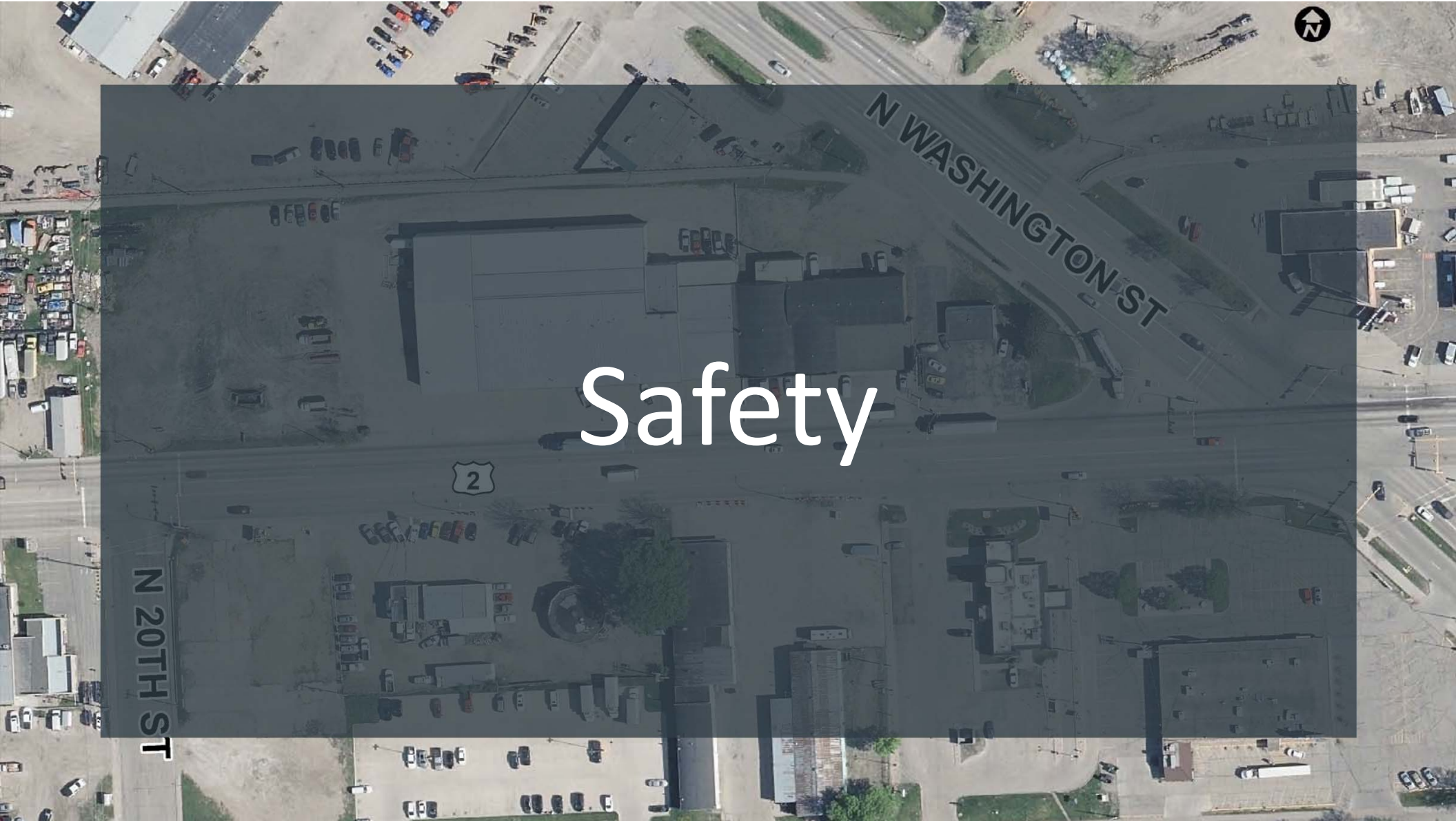


➤ Removal of unwarranted signals reduces

- All crashes by 24%
- Injury crashes by 54%
- Right angle crashes by 24%
- Rear end crashes by 29%

## 2030 and 2045





# Safety

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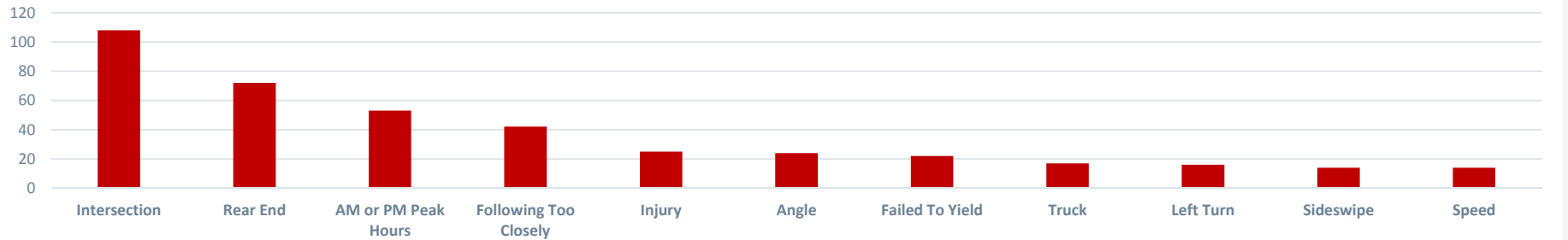
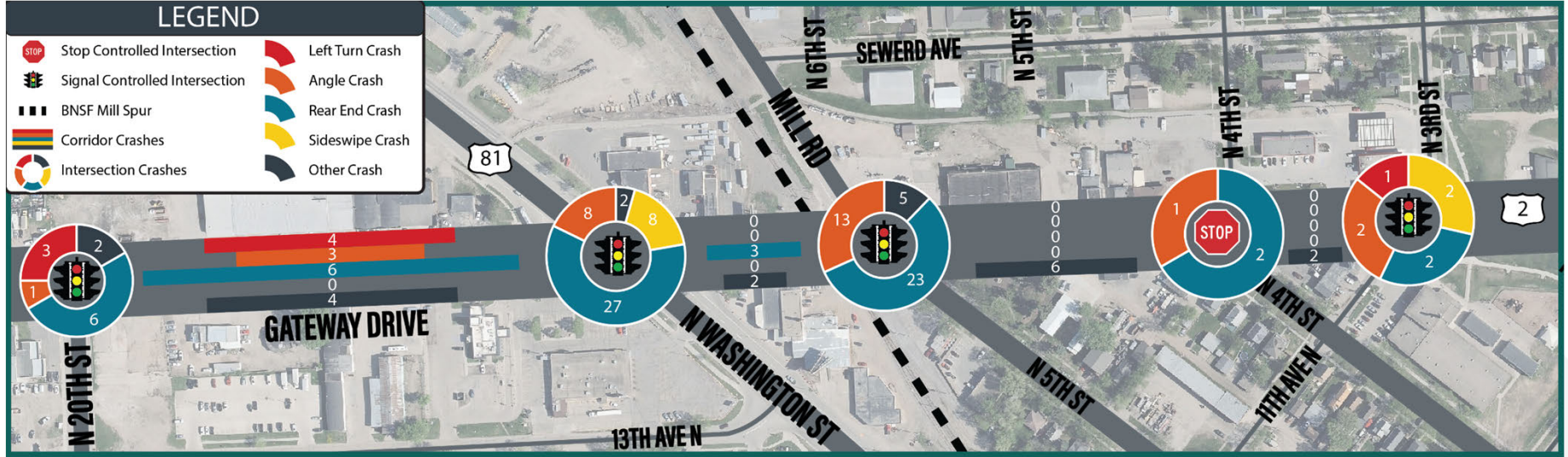
N 20TH ST

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Crash History

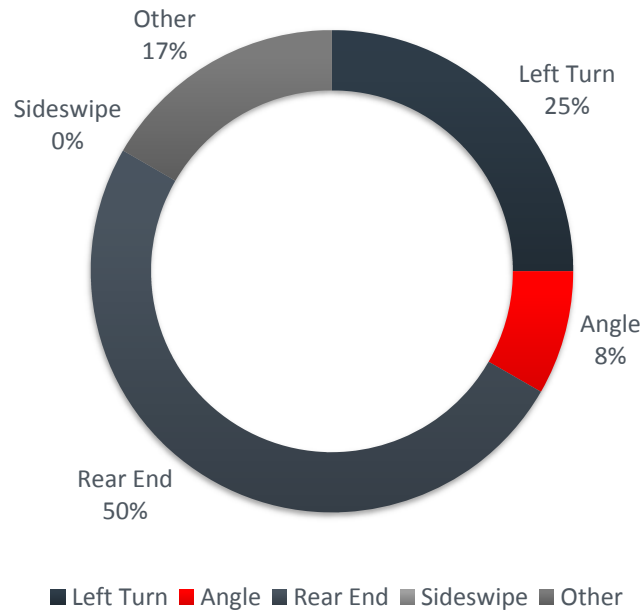


➤ 28 Crashes/Year  
➤ 78% Intersection Crashes

➤ 52% Rear-End Crashes  
➤ 38% Peak Hour Crashes



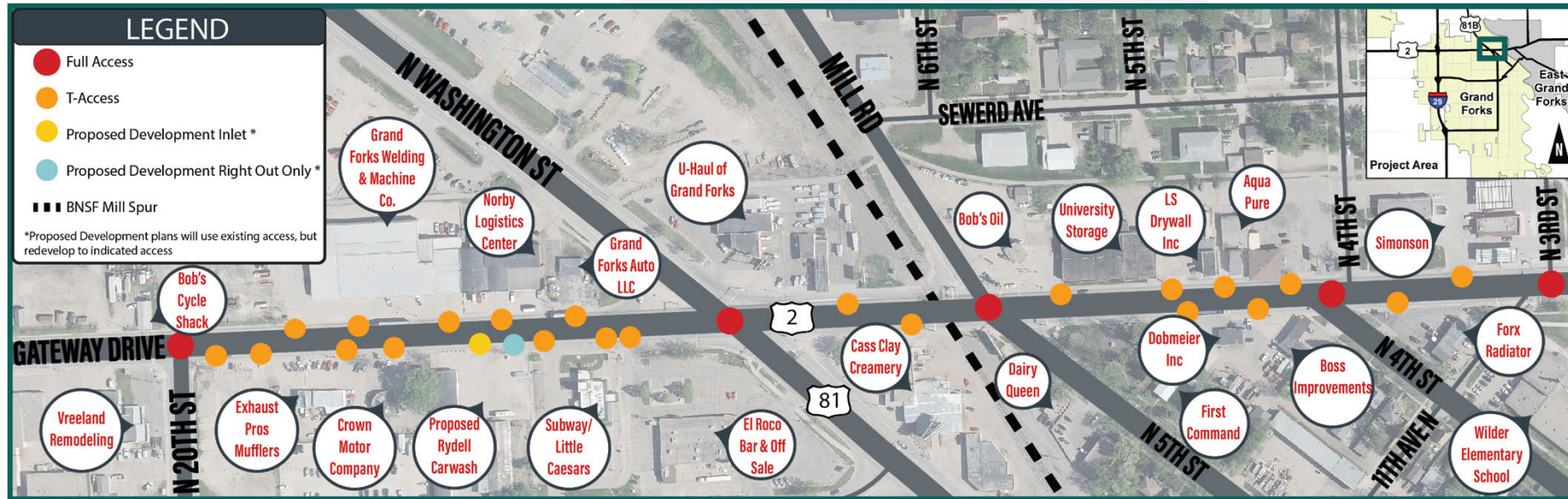
# 20<sup>th</sup> Street Intersection



- 12 crashes in last five years
- 33% rear end crashes on east approach
- 25% westbound left-turn crashes (Protected/Permitted)

- Unwarranted signal control increases
  - All crashes by 24%
  - Injury crashes by 53%
  - Right angle crashes by 24%
  - Rear end crashes by 29%

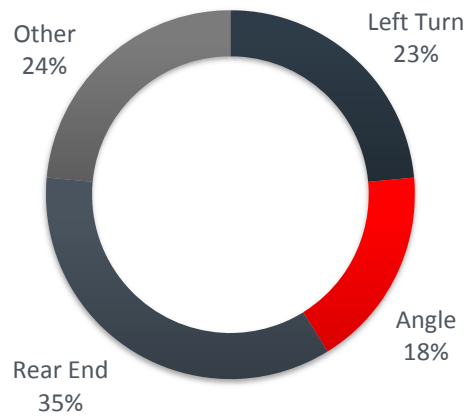
# Access Management



- Unsignalized driveways
  - Increase crash rate by 2%
  - Reduces corridor travel speed by 0.25 MPH

- Desired Access Spacing
  - 660 feet
  - 8 access/mile
- Existing Access Spacing
  - 33 accesses
  - 66 access/mile (8x Standard)

# 20<sup>th</sup> Street to Washington Street



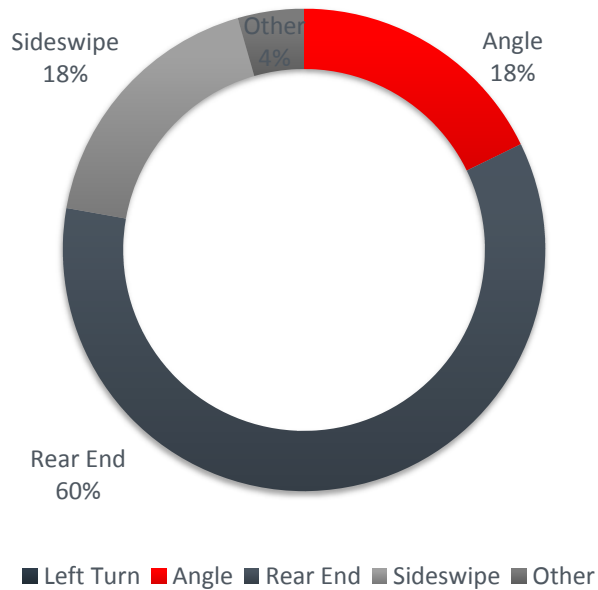
■ Left Turn ■ Angle ■ Rear End  
■ Sideswipe ■ Other

- > 17 crashes in last five years
- > Above critical crash rate
- > 41% during AM/PM peak hours
- > Long queues and dense access spacings
- > Queues block sight lines





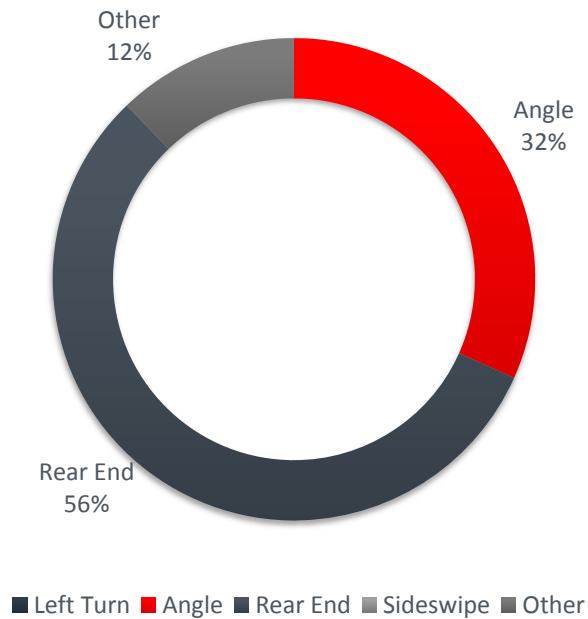
# US 81/Washington Street Intersection



- 45 crashes in last five years
- 60% rear end crashes
  - 30% during AM or PM peak hour
  - 30% between 11 AM to 1 PM

- 8 crashes involving trucks
- 0 Crashes involving Pedestrians or Bikes
- Long queues and dense access spacings
- 30% rear end crashes during peak hours

# Mill Road/5<sup>th</sup> Street Intersection



- > 41 crashes in last five years
- > Above critical crash rate

- > 50% rear end crashes
  - > 65% During AM or PM peak hours
  - > 52% occurred on east approach



# Pedestrian, Bicycle and Transit

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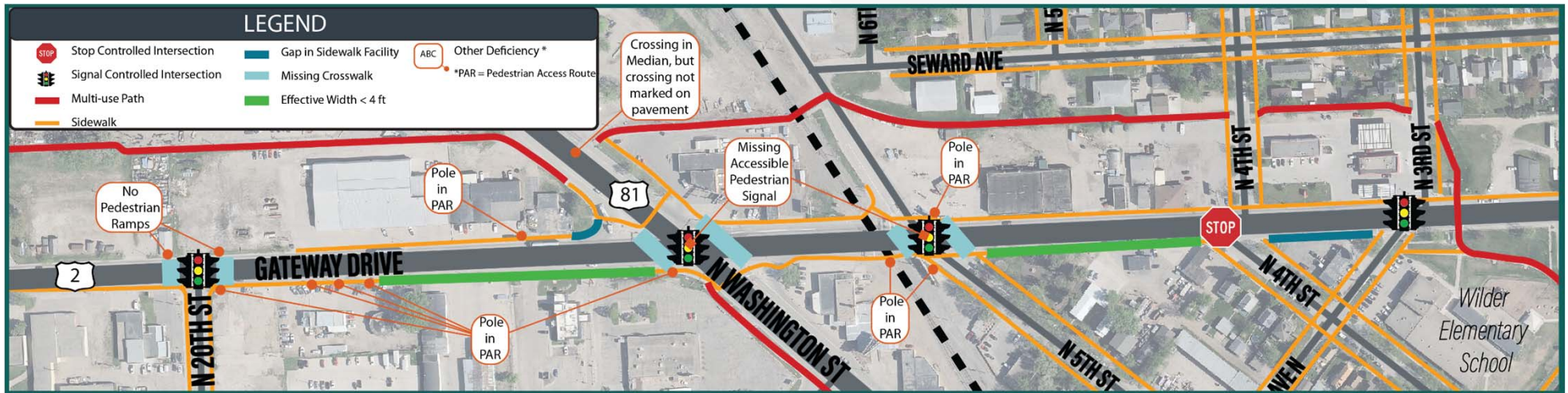
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# Pedestrian Network

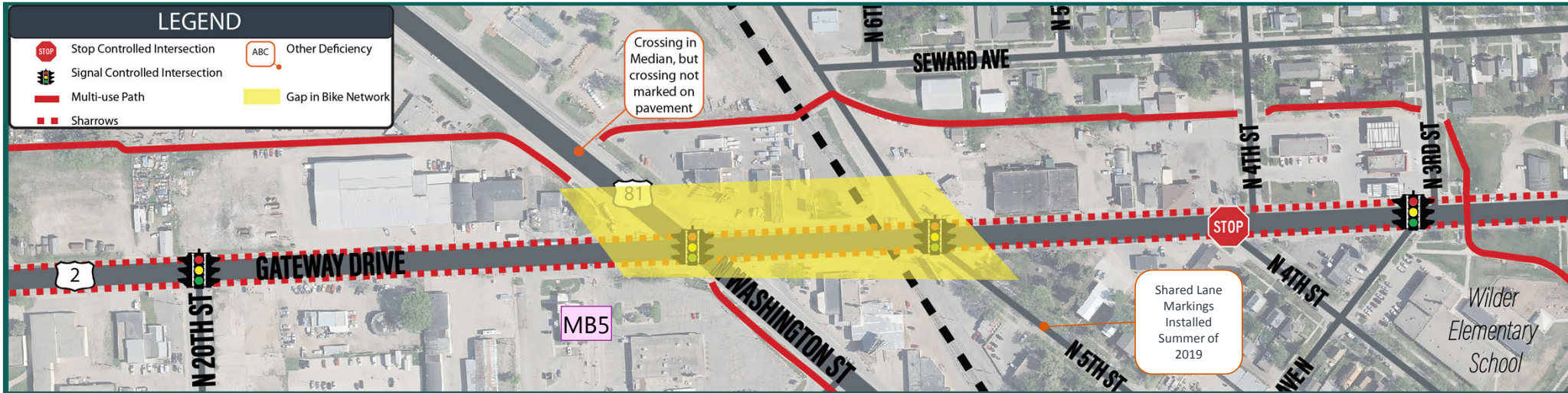
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- Only controlled crossing at 3<sup>rd</sup> Street underpass
- ADA conflicts at crosswalks, utilities and driveways
- Minimal to no buffer



# Bicycle Network



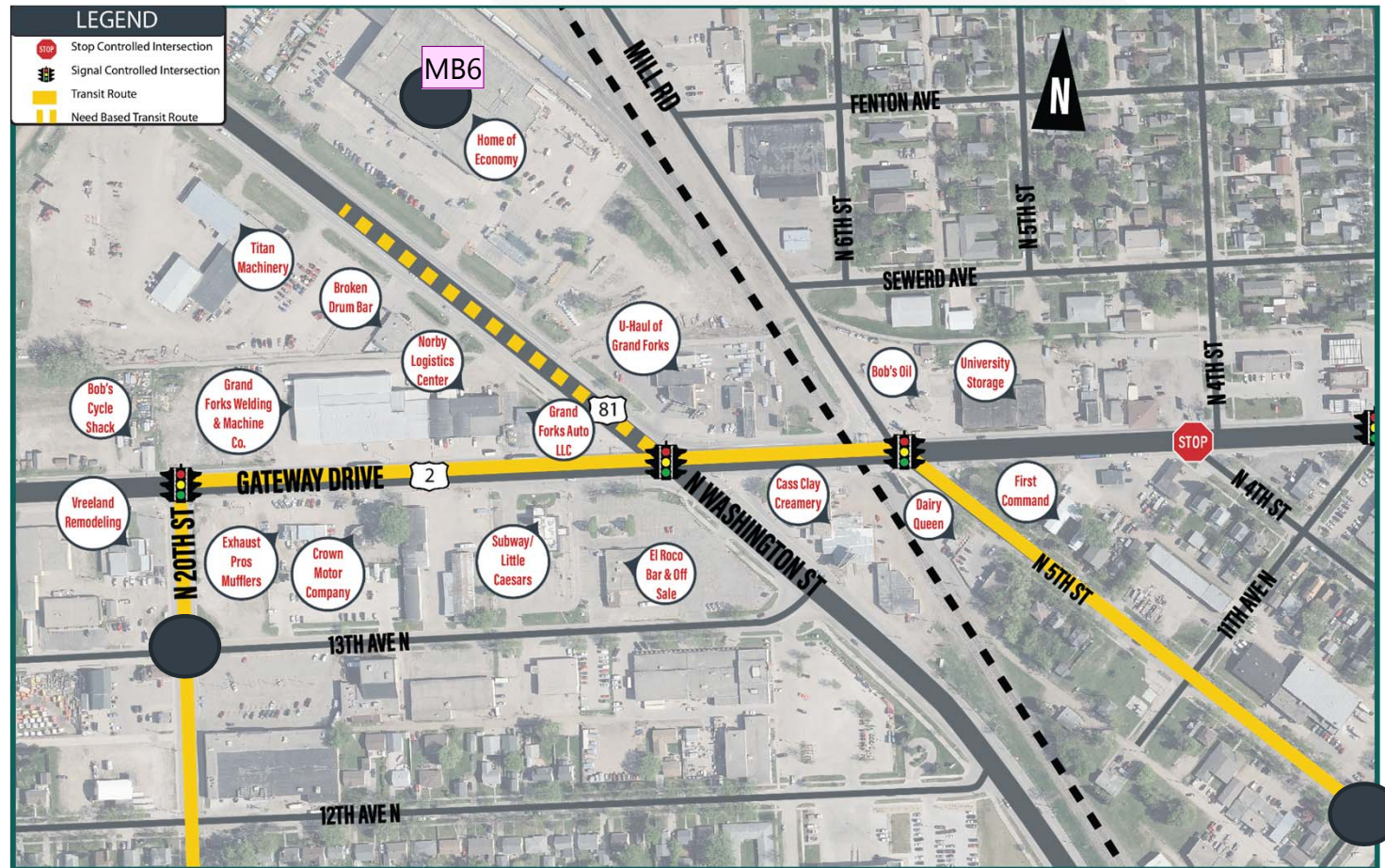
- Connections
  - 3<sup>rd</sup> Street and Red River Greenway to the east
  - Columbia Road to the west
- No traffic control to cross US 2/Washington Street
- Underpass at 3<sup>rd</sup> Street
- Bikes allowed on all streets



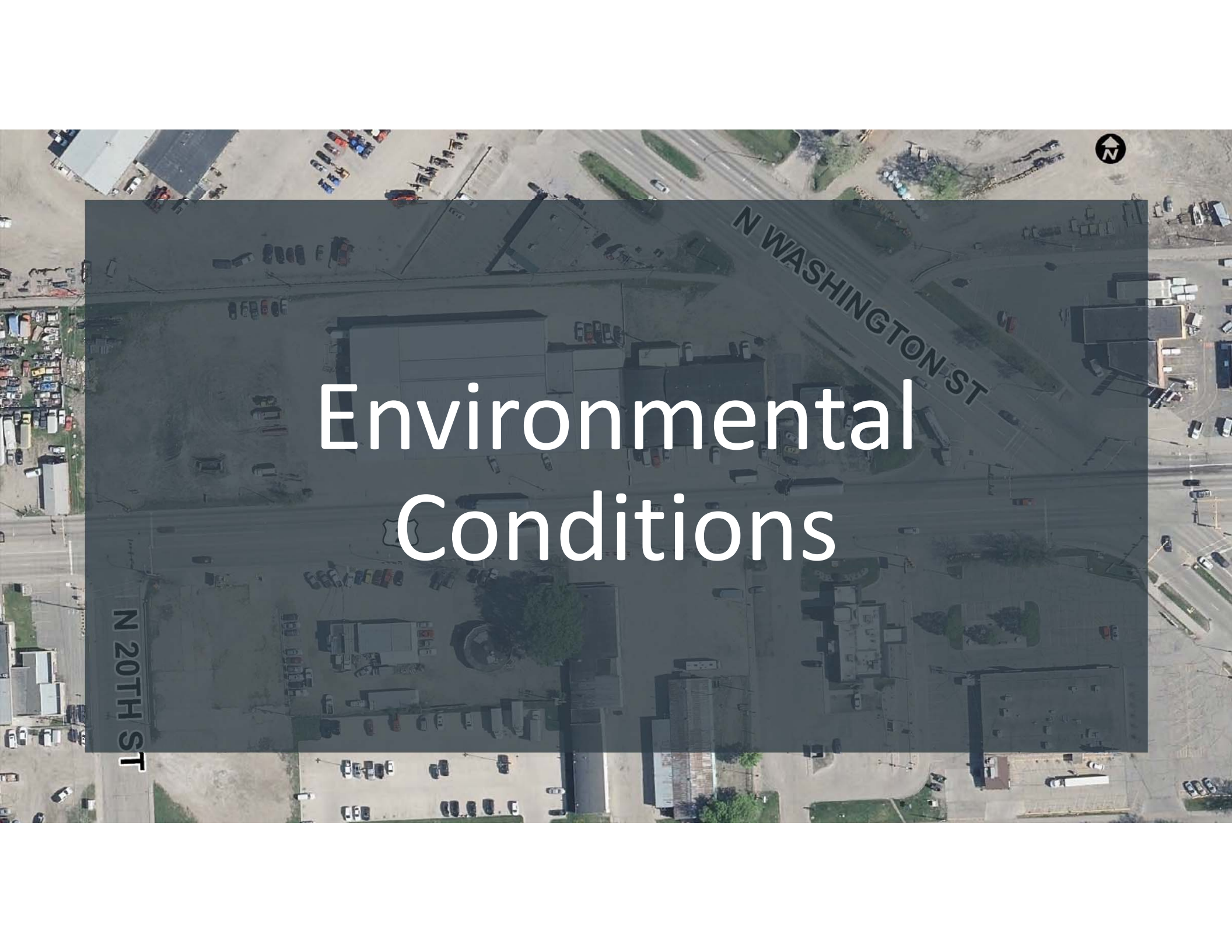


# Transit Network

- CAT Route 2
  - Hourly service
- CAT Route 13
  - Night Route
- Stops
  - 5<sup>th</sup> Street/10<sup>th</sup> Ave
  - Hugo's on 20<sup>th</sup> St
  - Home of Economy when scheduled in advance







# Environmental Conditions

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N 20TH ST



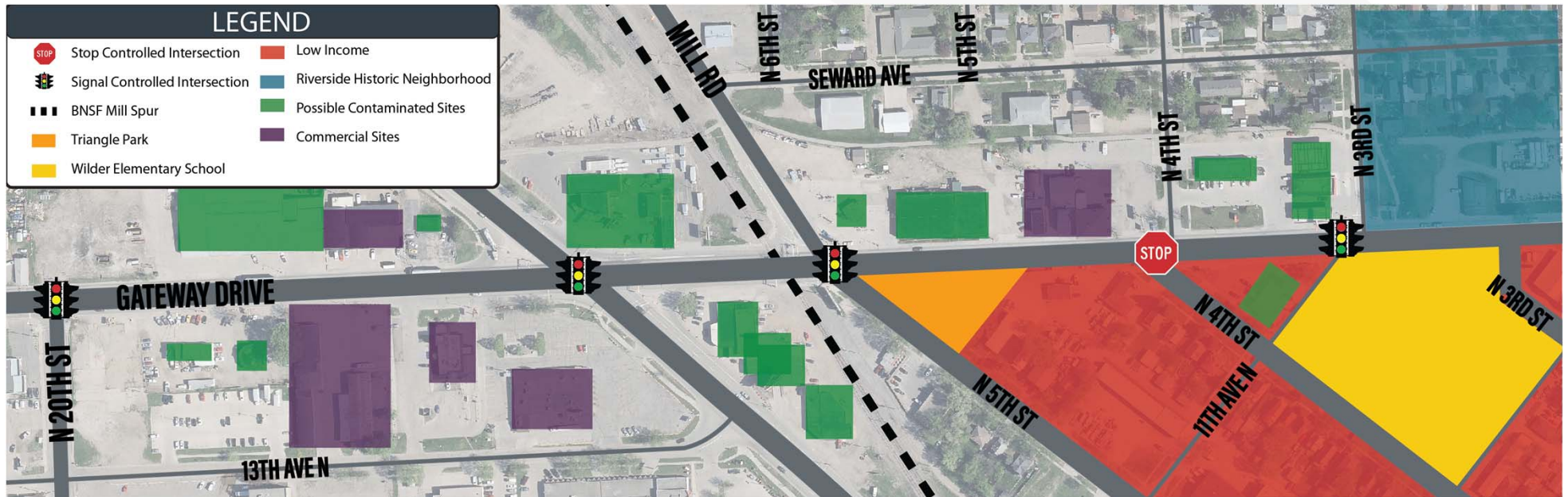
## Right-Of-Way



- US2/Gateway Drive : 70 feet
- US 81/Washington Street : 20 feet on east side, 60 feet of west side



# Affected Environment



## ➤ Potential Impacts

- Hazardous Waste Sites
- Social and Economic Impacts
- Noise

- Pedestrians and Bicyclists
- Environmental Justice
- Historic and Archaeological Preservation

- Section 4f





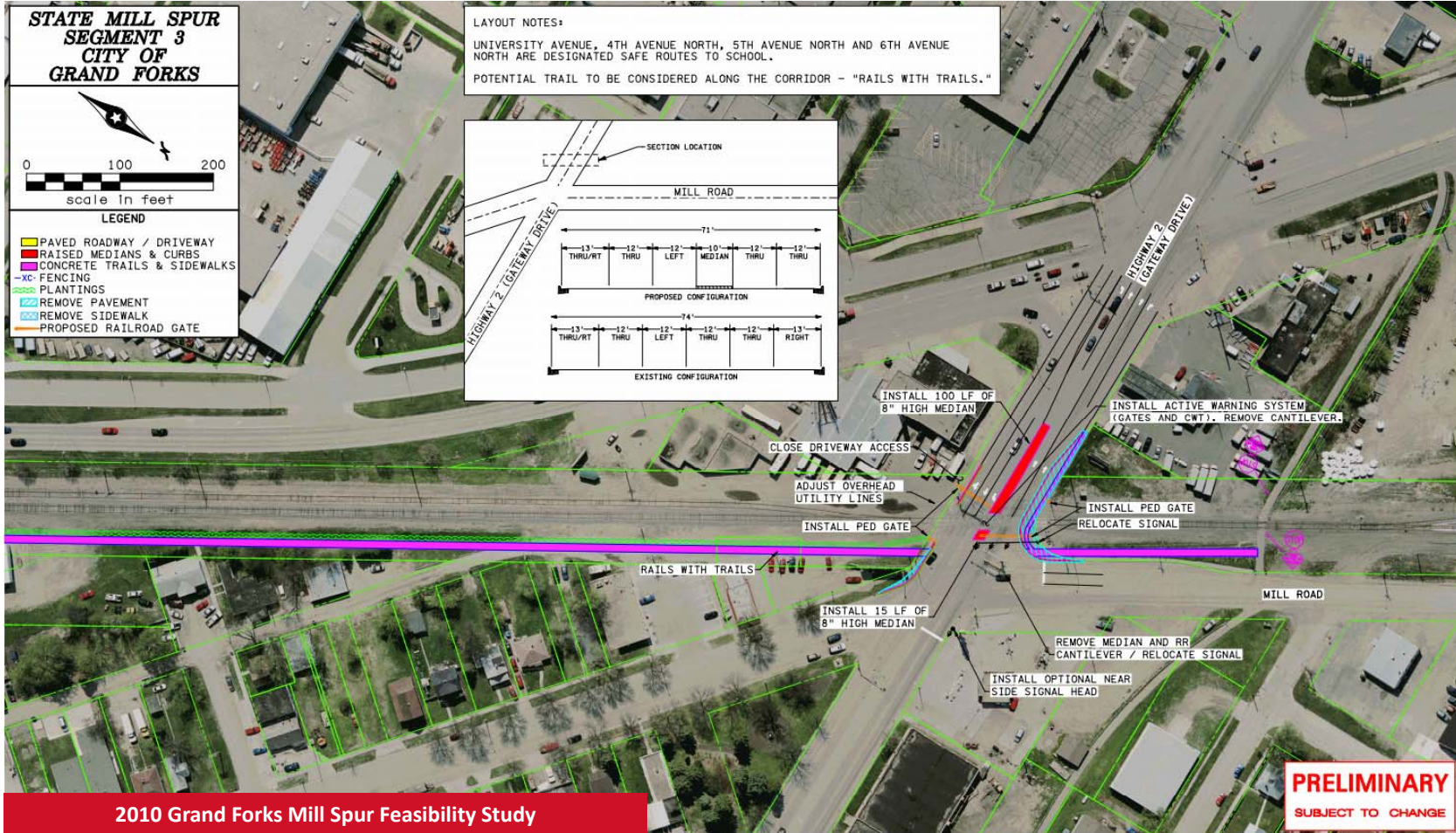
# Alternative Brainstorming



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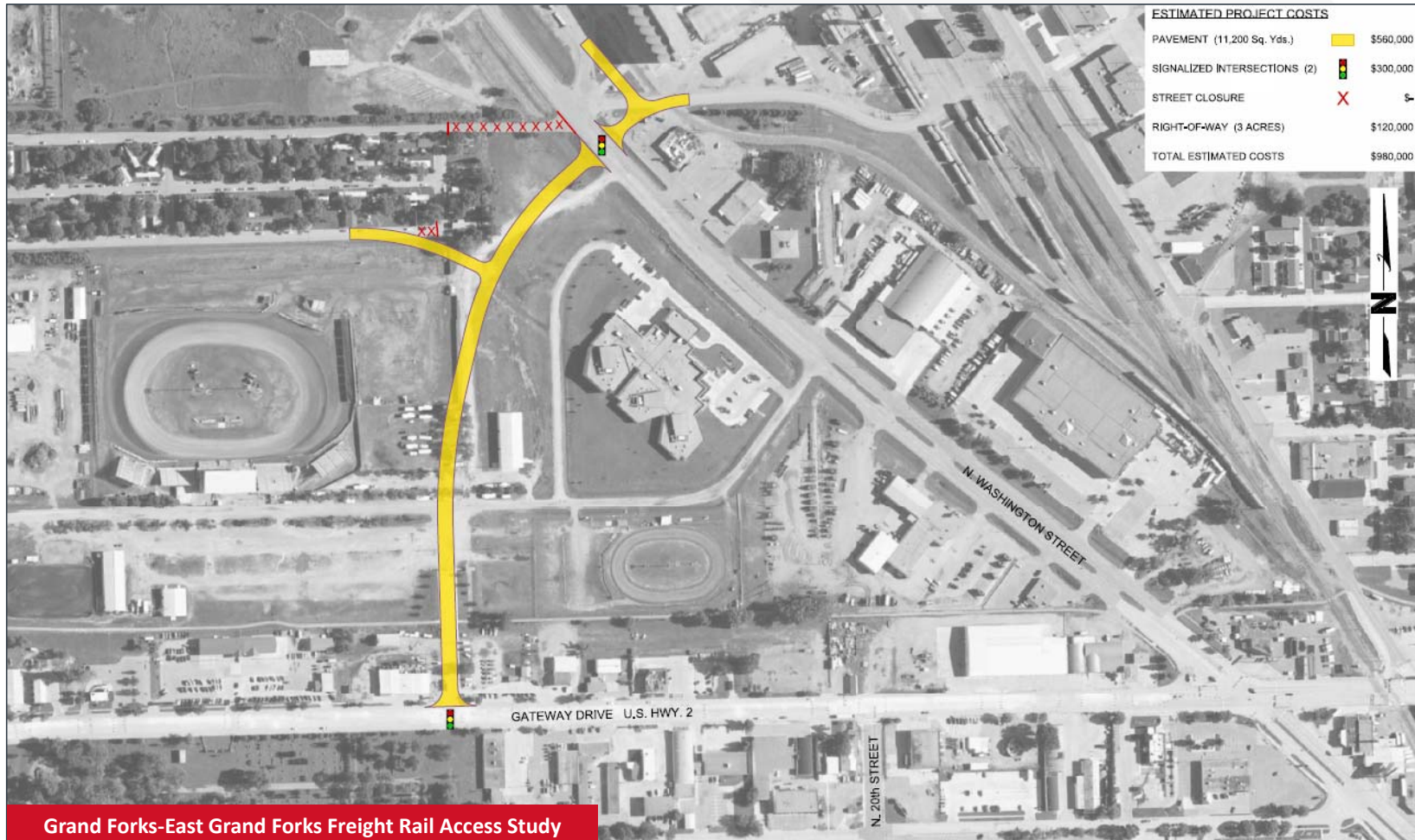
N WASHINGTON ST

# At-Grade Improvements





# Rerouting Skewed Movements

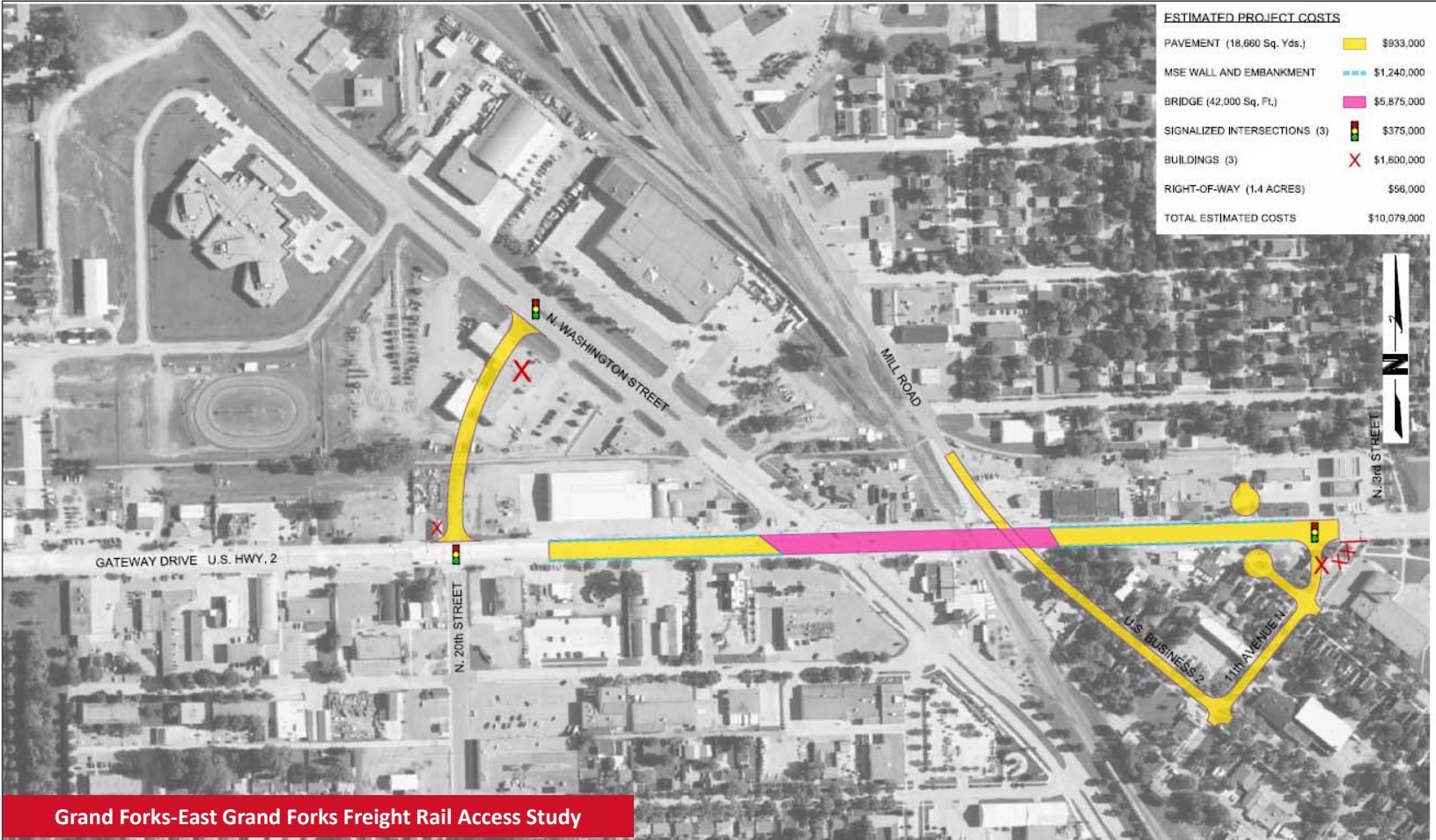




# Reroute the Mill Spur



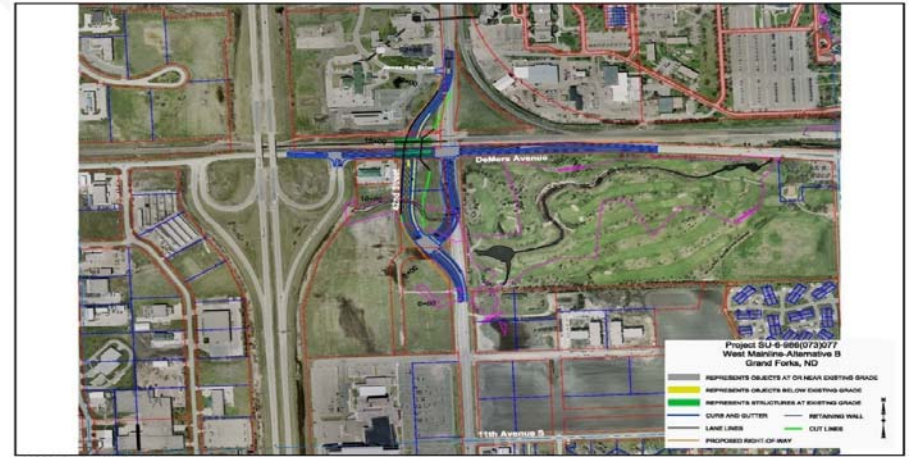
# Grade Separated Crossing



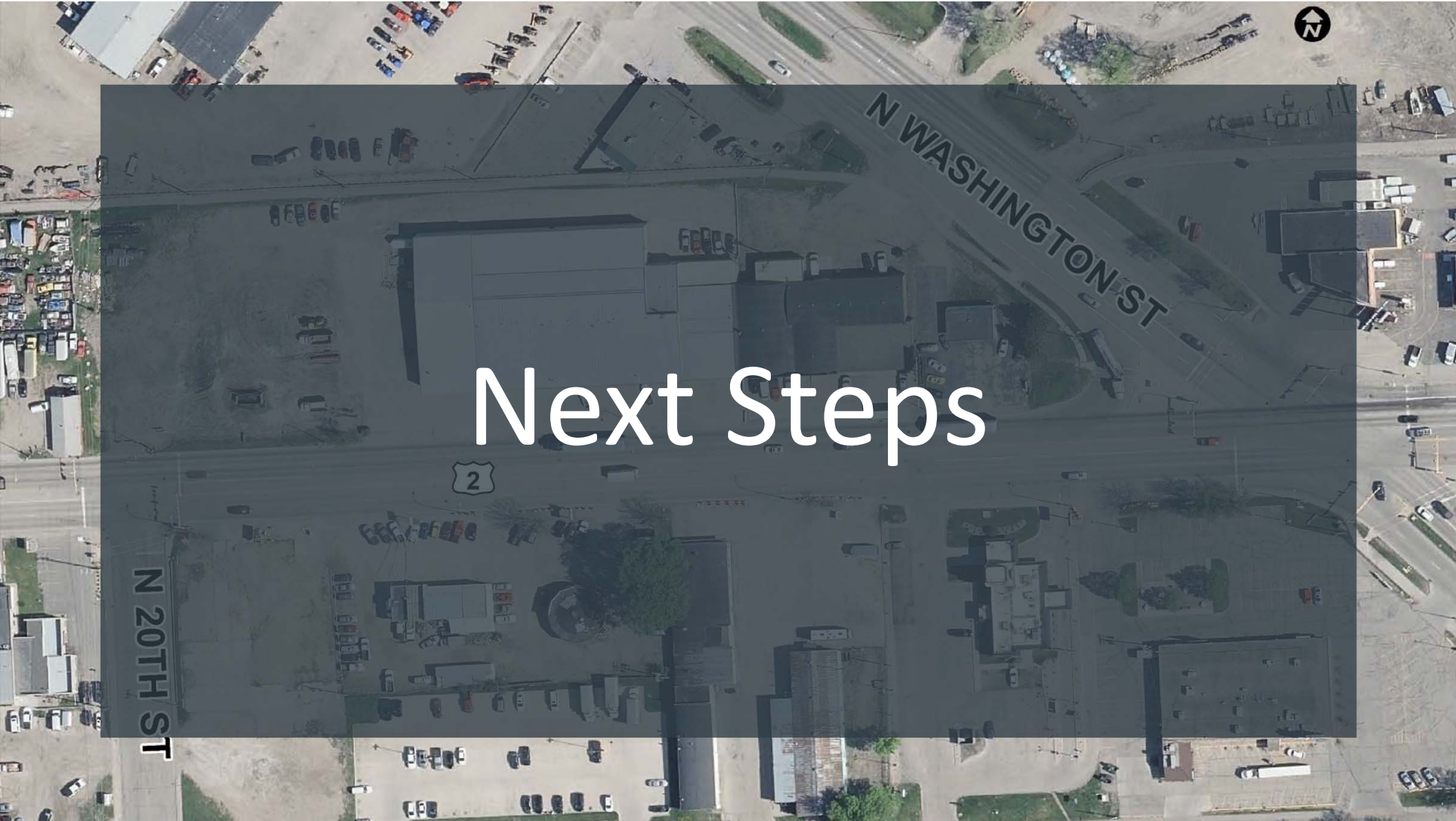


# Funding Availability

- >\$150,000,000 in Unfunded Grand Forks Projects
- 42<sup>nd</sup> Street and DeMers Avenue (~\$25-30M)
- Gateway Drive/US 2 and Glasston (~\$28M)
- Part of the NHS and Freight System







# Next Steps

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N 20TH ST

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# Next Steps

Review Public  
Comments and  
Ideas



Develop and  
Analyze  
Alternatives



Review  
Alternatives with  
Steering  
Committee



Present and  
Review  
Alternatives to the  
Public



## How to Get Involved

- Share Your Ideas at the Meeting!
- Fill Out Brainstorming Worksheet
- E-mail: [mike.bittner@kljeng.com](mailto:mike.bittner@kljeng.com)
- Fill Out Comment Card
- Visit website: <https://theforksmpo.com/the-forks-mpo/>