



US 2/US 81 SKEWED INTERSECTION STUDY

Steering Committee Meeting #3

Overcoming Barriers Strengthening Connections

M.P.O.
M.P.O.
M.P.O.

Grand Forks - East Grand Forks
Metropolitan Planning Organization

Ensuring Opportunities Planning One Community



ENGINEERING, REIMAGINED

Project Process

Identify Key
Issues and
Opportunities

Develop and
Assess
Alternatives

Formulate
Implementation
Strategy



Key Issues Refresher

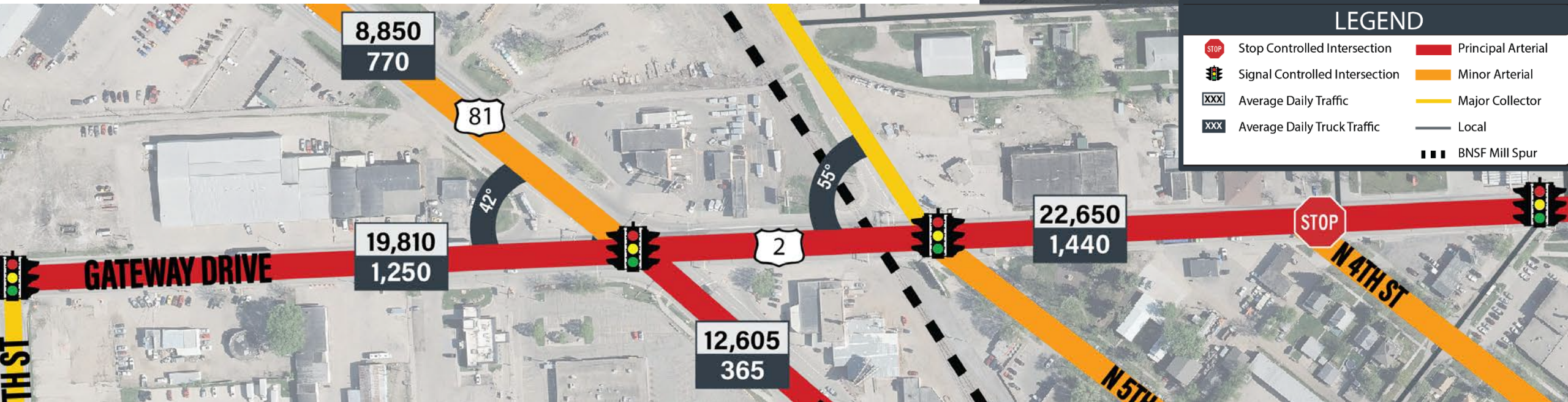
N WASHINGTON ST

2

N 20TH ST

Traffic Flow and Operations

- Skewed Turning Movements Challenging for Trucks
- Closely Spaced Intersections Create Storage and Capacity Challenges
- Frequent Rear-Ends on Gateway



2045 PM Queuing Issues

2045 PM Peak



- ◇ +7,500 – 10,000 More Traffic by 2045 on Gateway/US 2
- ◇ Unacceptable Delays at Washington Street by 2045

Train Delays

- 4 to 5 blockages per day
 - 10 MPH or Less
 - 2.5 Minutes/Train
- Delay from One Blockage
 - 4 hours in 2019
 - 7 hours by 2045
- Travel Reliability
 - 2-5x Longer Delays with Train
 - Impacts to Emergency Services



Unit Trains

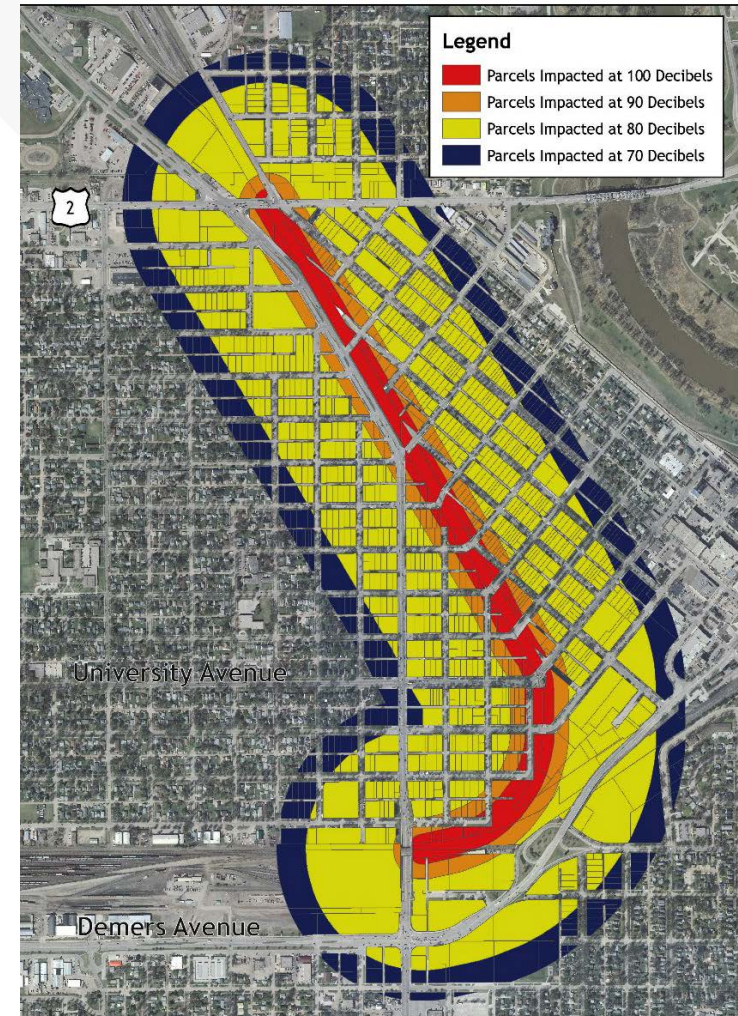
➤ All crossings will be blocked at the same time.

4x Longer than Current Trains

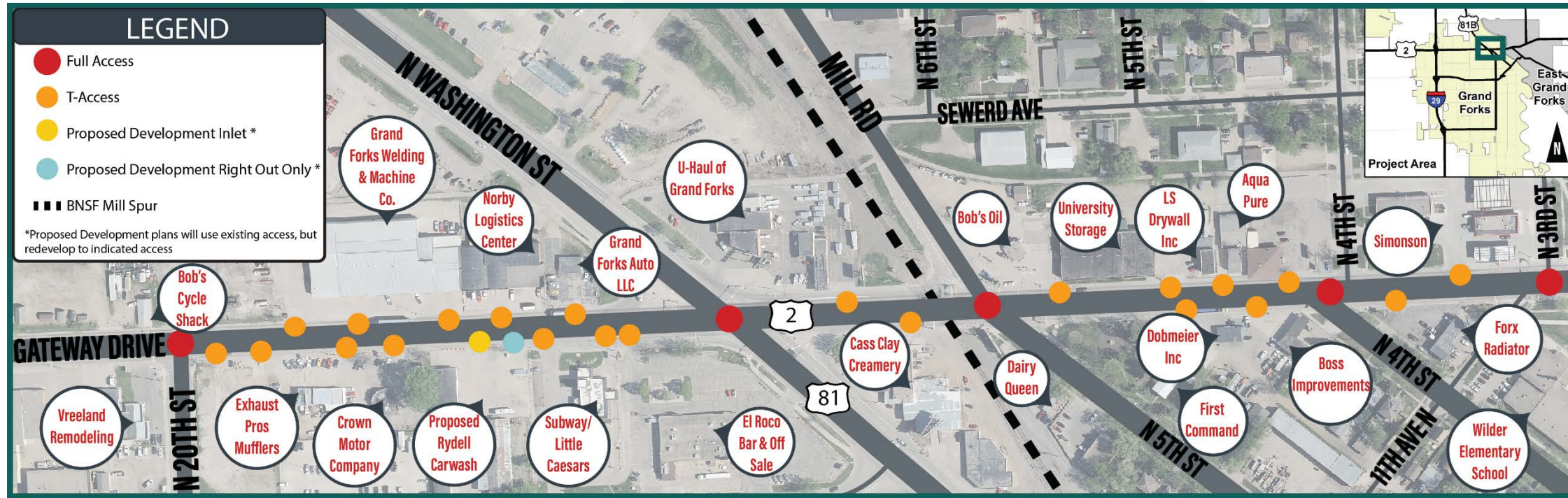
10-17 Minutes of Delay at Each Mill Spur Crossings

0-4 Blockages per Month

Potential to Occur at Night



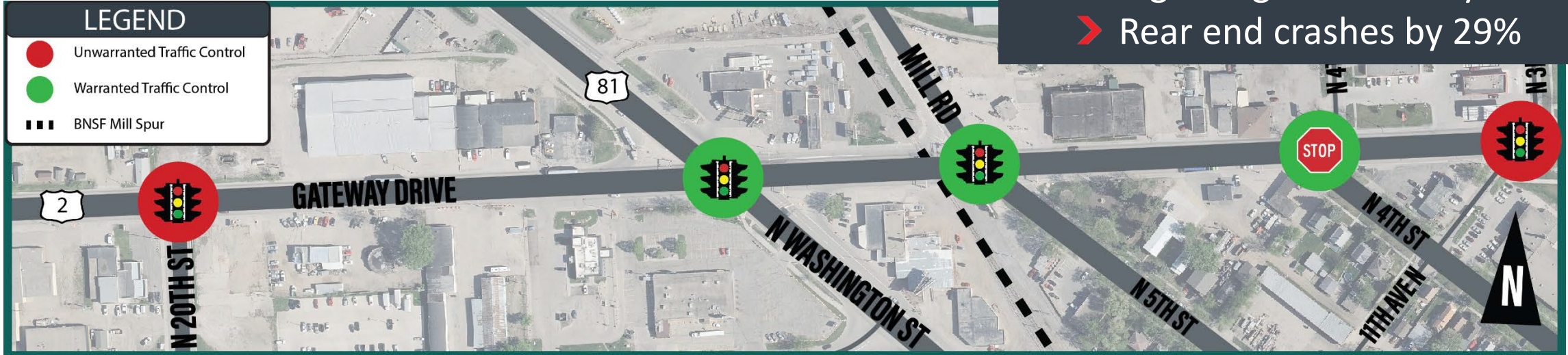
Access Management



- Unsignalized driveways
 - Increase crash rate by 2%
 - Reduces corridor travel speed by 0.25 MPH
- High Priority Corridor in Local Road Safety Plan
- Existing Access Spacing
 - 33 accesses
 - 66 access/mile (8x Standard)

Existing Traffic Control Analysis

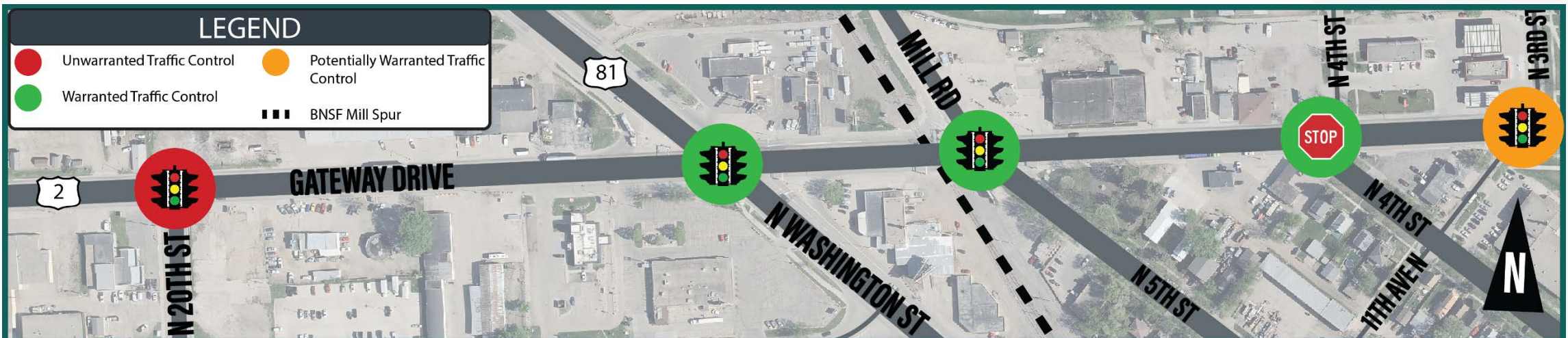
Existing



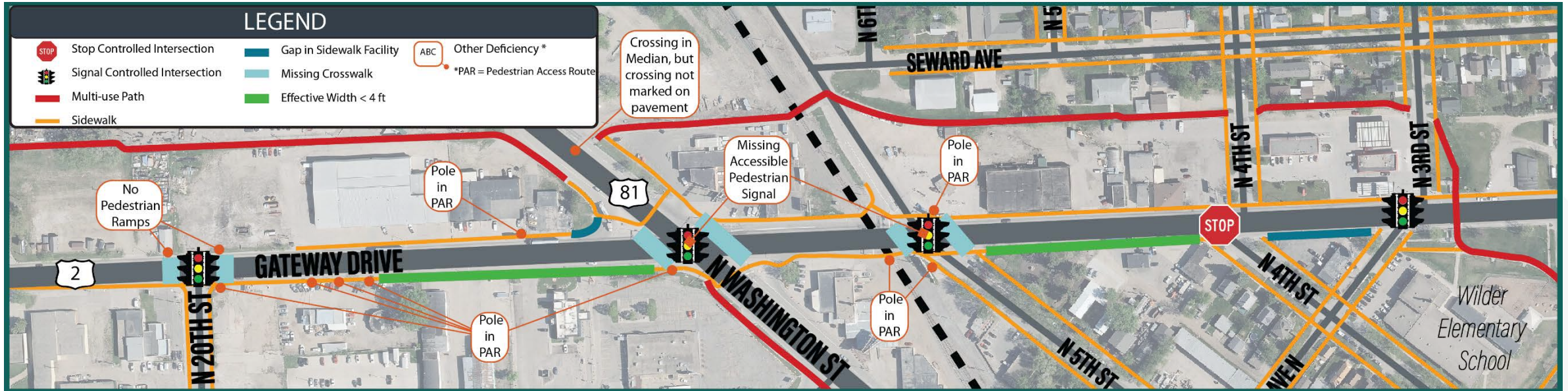
> Removal of unwarranted signals reduces

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

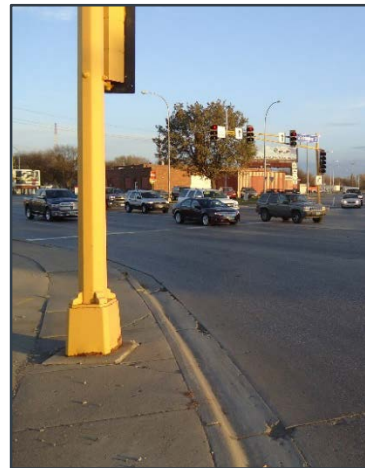
2030 and 2045



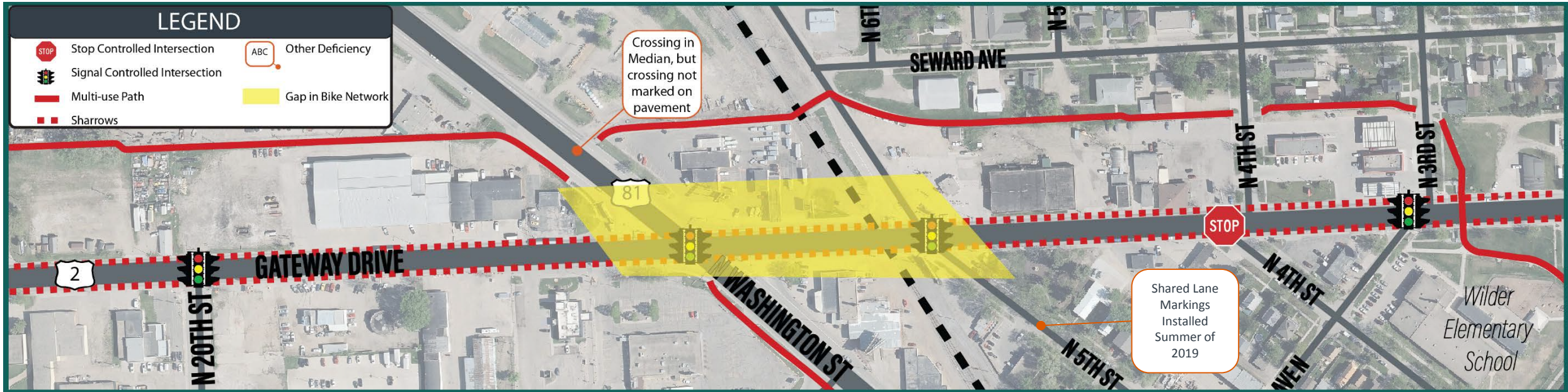
Pedestrian Network



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



Bicycle Network



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





Implementation Plan

N WASHINGTON ST



N 20TH ST

Alternative Feedback

➤ Steering Committee Formal Feedback from:

- NDDOT Grand Forks District
- ND State Mill
- Business Representatives
- Near North Neighborhood Representative

US 2/US 81 SKEWED INTERSECTION STUDY

Name _____

Please rank the following alternatives based on long-term desirability, assuming funding for each alternative would eventually be viable. Do NOT rank any alternatives you believe are not feasible.

- ____ Alt EF: Existing Footprint
- ____ Alt NRC: New Roadway Connection
- ____ Alt SM: Skewed Movement
- ____ Alt EF+R: Existing Footprint with Realignment
- ____ Alt SM+R: Skewed Movement with Realignment
- ____ Alt R+R: Washington Street and Mill Road Roundabouts
- ____ Alt ST+R: Separated T-Intersections at Washington Street
- ____ Alt GS-1: Grade Separation of Washington Street and Mill Spur
- ____ Alt GS-2: Grade Separation of Washington Street, Mill Spur, and Mill Road
- ____ Do Nothing

Please rank the following alternatives based on short-term desirability factoring in short-term funding limitations. Do NOT rank any alternatives you believe are not feasible.

- ____ Alt EF: Existing Footprint
- ____ Alt NRC: New Roadway Connection
- ____ Alt SM: Skewed Movement
- ____ Alt EF+R: Existing Footprint with Realignment
- ____ Alt SM+R: Skewed Movement with Realignment
- ____ Alt R+R: Washington Street and Mill Road Roundabouts
- ____ Alt ST+R: Separated T-Intersections at Washington Street
- ____ Alt GS-1: Grade Separation of Washington Street and Mill Spur
- ____ Alt GS-2: Grade Separation of Washington Street, Mill Spur, and Mill Road
- ____ Do Nothing

Are there any alternatives that are infeasible or should be discarded from further consideration?

- ____ Alt EF: Existing Footprint
- ____ Alt NRC: New Roadway Connection
- ____ Alt SM: Skewed Movement
- ____ Alt EF+R: Existing Footprint with Realignment
- ____ Alt SM+R: Skewed Movement with Realignment
- ____ Alt R+R: Washington Street and Mill Road Roundabouts
- ____ Alt ST+R: Separated T-Intersections at Washington Street
- ____ Alt GS-1: Grade Separation of Washington Street and Mill Spur
- ____ Alt GS-2: Grade Separation of Washington Street, Mill Spur, and Mill Road
- ____ Do Nothing

Alternative Feedback

- Two Formal Worksheets Received from the Public
 - Postcards Sent Before/After PIM
 - Several Social Media Posts
 - Grand Forks Herald Box Ad and Story
 - 181 Visits to the Project Website
- Several Informal Discussions at the Meeting

US 2/US 81 SKEWED INTERSECTION STUDY YOUR INPUT IS NEEDED!

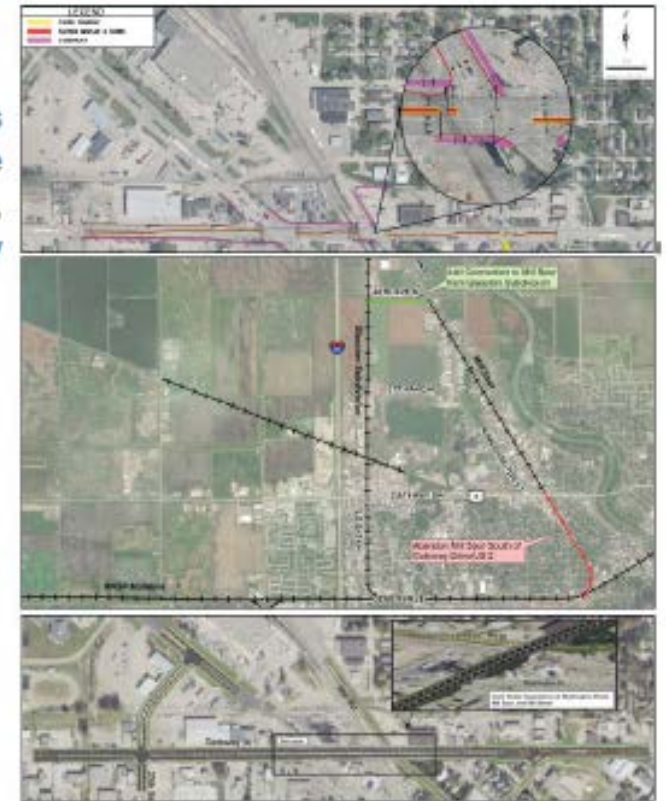
MAJOR CHANGES ARE BEING STUDIED

Nine alternatives have been developed for this intersection vicinity. Improvement options include access management, new roadway connections, railroad relocation, grade separation, technology solutions, and others.

HOW TO PROVIDE COMMENTS

Please fill out the Alternative Scorecard on the Forks MPO Website:
<https://theforksmpo.com/the-forks-mpo/u-s-2-u-s-81-skewed-intersection-study/>

The scorecard will help guide what alternatives will be carried forward, refined and discarded.



Alternative Feedback

➤ **71%** of feedback supported a railroad realignment option as the preferred long-term improvement strategy

➤ **88%** of feedback supported a railroad realignment option as a top three long-term improvement strategy

➤ **43%** of feedback ranked the Existing Footprint + Railroad Realignment as the preferred realignment alternative.



Alternative Feedback

➤ **57%** of feedback indicated that a grade separation was not a feasible alternative

➤ **57%** of feedback indicated that the ITS Routing Solution would be beneficial

➤ **29%** of the feedback indicated that access management should be incorporated as part of the improvements



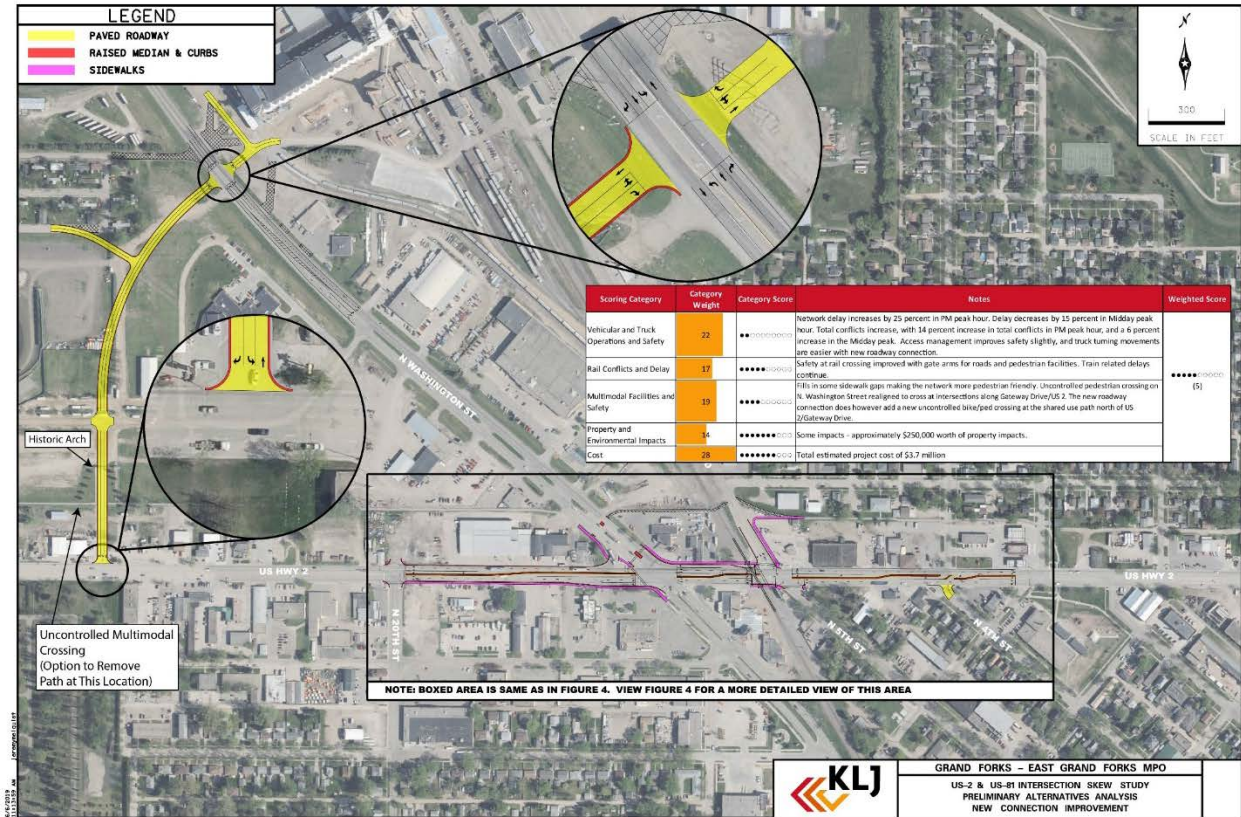
Alternative Feedback

- Unofficial Feedback:
 - Realigning Mill Spur was the Best Improvement Option
 - Several Additional Benefits of Realigning Mill Spur Beyond What was Included in This Study
 - Increased Benefits Once Unit Train Increases Delays and Noise
 - Alternative EF+R Existing Footprint with Railroad Realignment Preferred

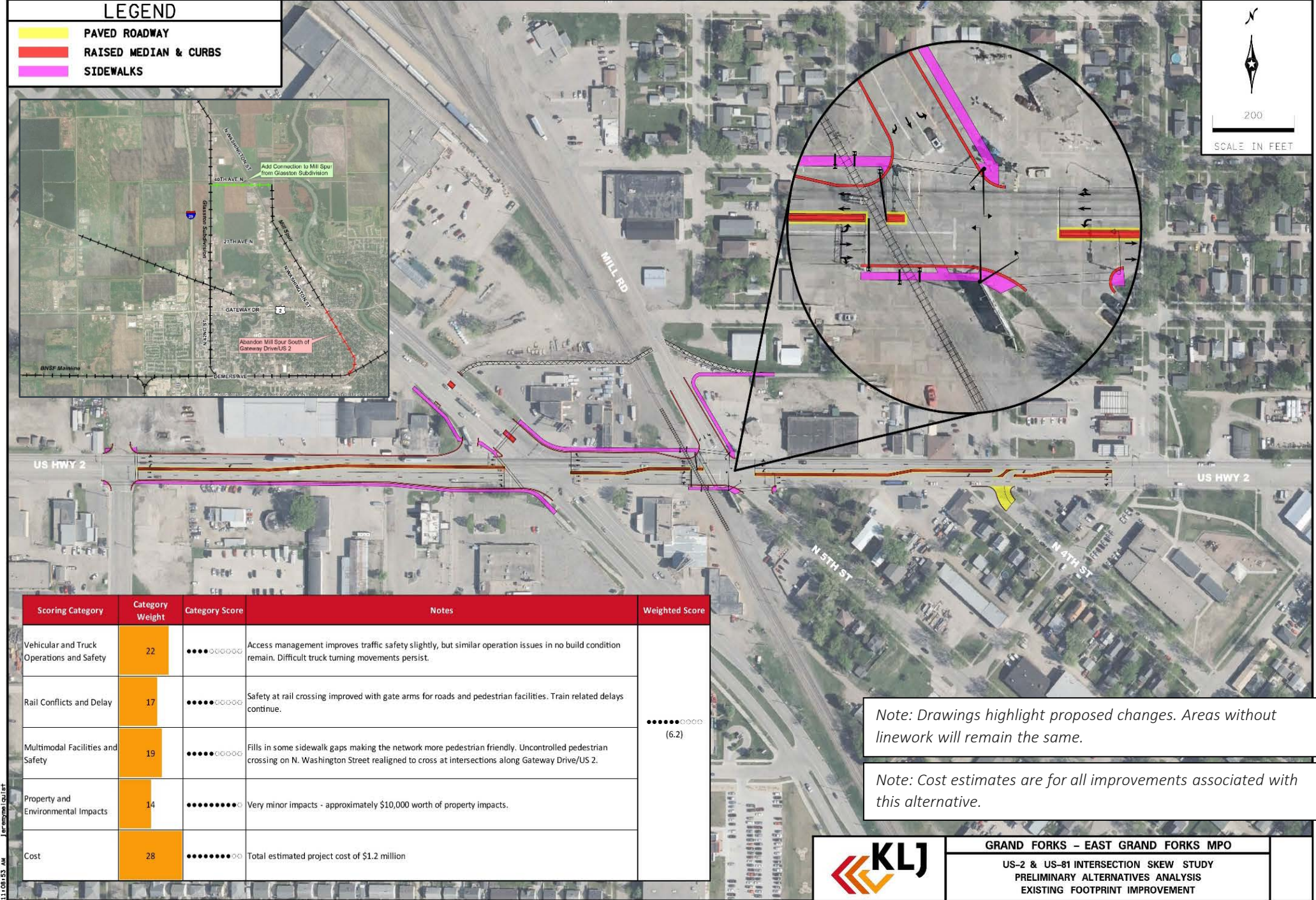


Key Takeaways

- Eliminating skewed turning movements comes at a heavy cost either financially, environmentally or to operations
- It's more expensive and impactful to grade separate then realign the railroad
- Traffic forecasts on Gateway Drive are high and make solutions without added capacity challenging. Forecasts should be monitored.
- Consolidating Washington with 5th/Mill Spur is not likely accomplished with acceptable operations.



Alt EF+R: Existing Footprint With Realignment



Scoring Category	Category Weight	Category Score	Notes	Weighted Score
Vehicular and Truck Operations and Safety	22	●●●●○○○○	Access management improves traffic safety slightly, but similar operation issues in no build condition remain. Difficult truck turning movements persist.	●●●●○○○○ (6.2)
Rail Conflicts and Delay	17	●●●●○○○○	Safety at rail crossing improved with gate arms for roads and pedestrian facilities. Train related delays continue.	
Multimodal Facilities and Safety	19	●●●●○○○○	Fills in some sidewalk gaps making the network more pedestrian friendly. Uncontrolled pedestrian crossing on N. Washington Street realigned to cross at intersections along Gateway Drive/US 2.	
Property and Environmental Impacts	14	●●●●●●○○	Very minor impacts - approximately \$10,000 worth of property impacts.	
Cost	28	●●●●●●○○	Total estimated project cost of \$1.2 million	

Note: Drawings highlight proposed changes. Areas without linework will remain the same.

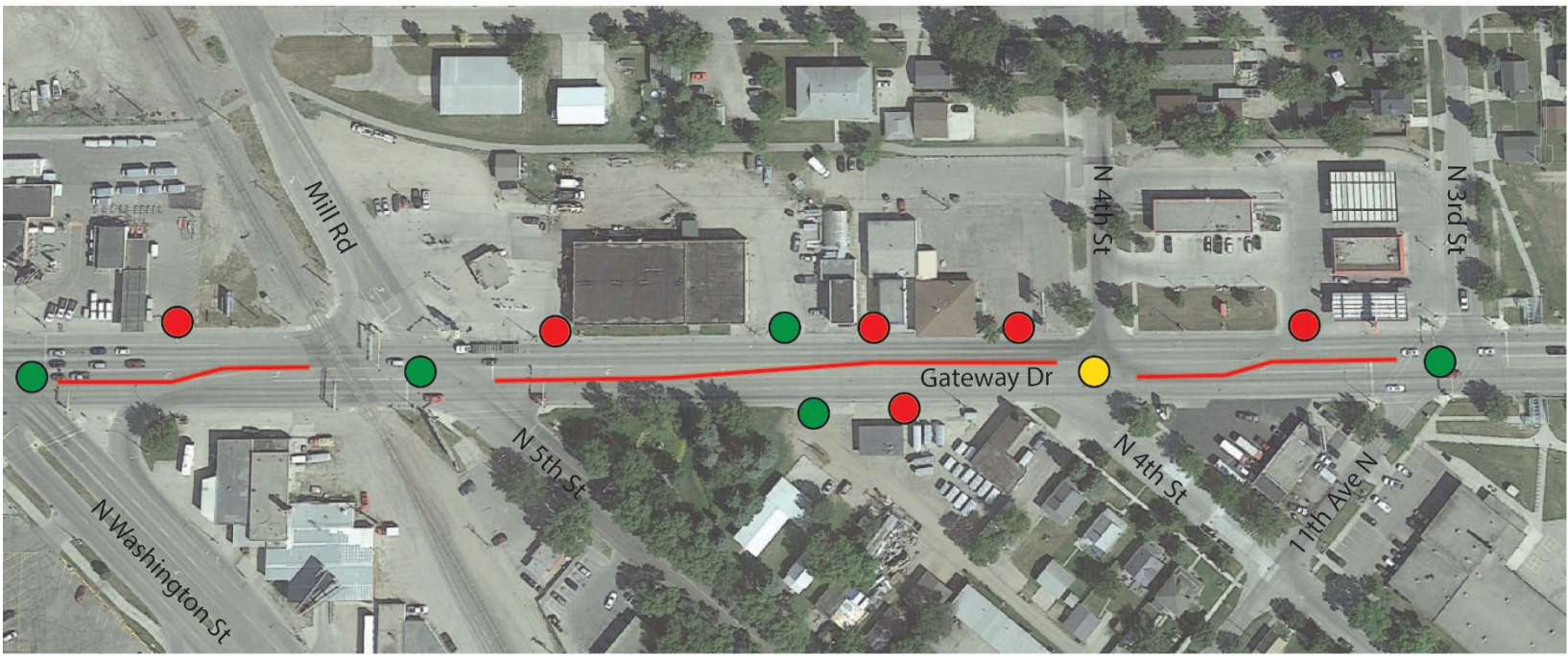
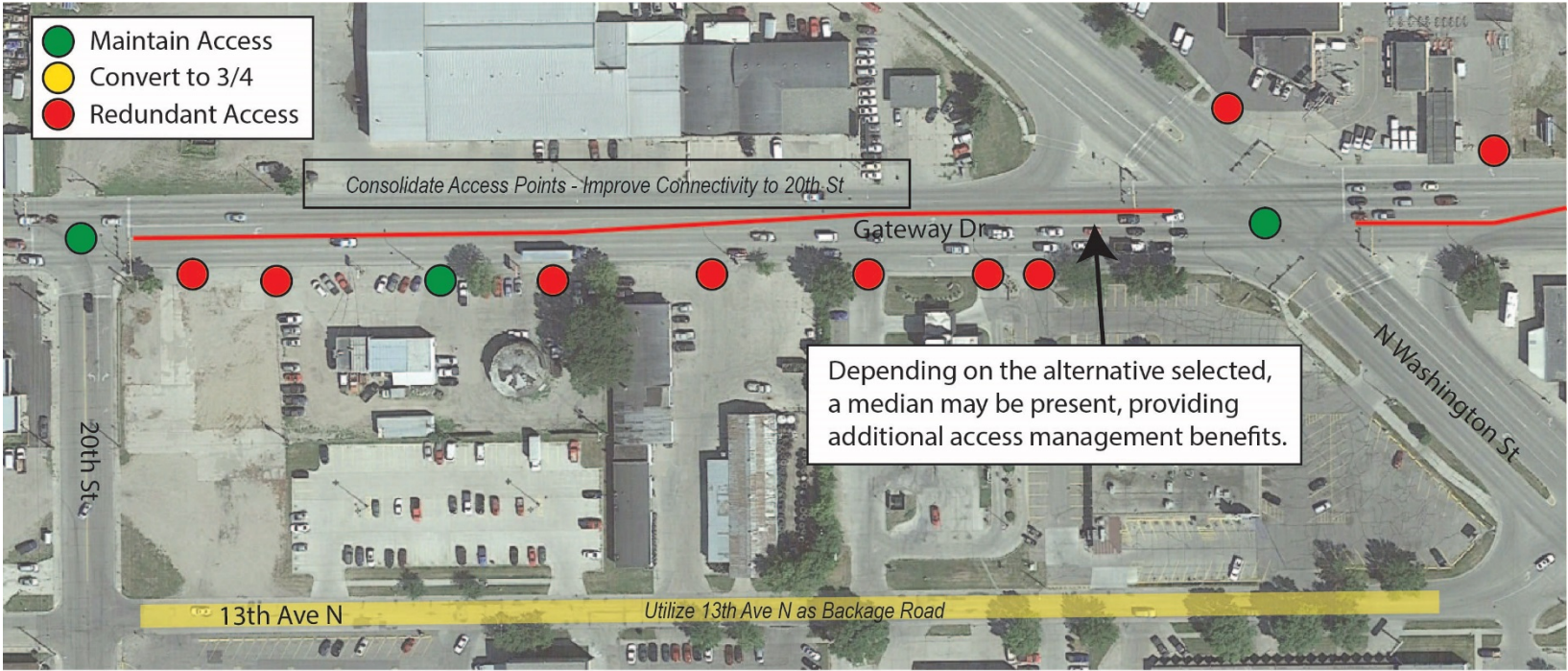
Note: Cost estimates are for all improvements associated with this alternative.

6/6/2018 11:08:13 AM | Internal Use Only



GRAND FORKS - EAST GRAND FORKS MPO
 US-2 & US-81 INTERSECTION SKEW STUDY
 PRELIMINARY ALTERNATIVES ANALYSIS
 EXISTING FOOTPRINT IMPROVEMENT

Optional Access Management



➤ Access Management has the Potential to Route Traffic To Signals and Meet Warrants

➤ Investigate Further Once Project is Identified


Alt EF+R: Existing Footprint with Realignment

> Rankings

Alternative	Category	Category Rank	Overall Rank
EF+R: Railroad Realignment with Existing Footprint Improvement Plan	Vehicular and Truck Operations and Safety	3	1
	Rail Conflicts and Delay	1	
	Multimodal Facilities and Safety	3	
	Property and Environmental Impacts	1	
	Cost	3	

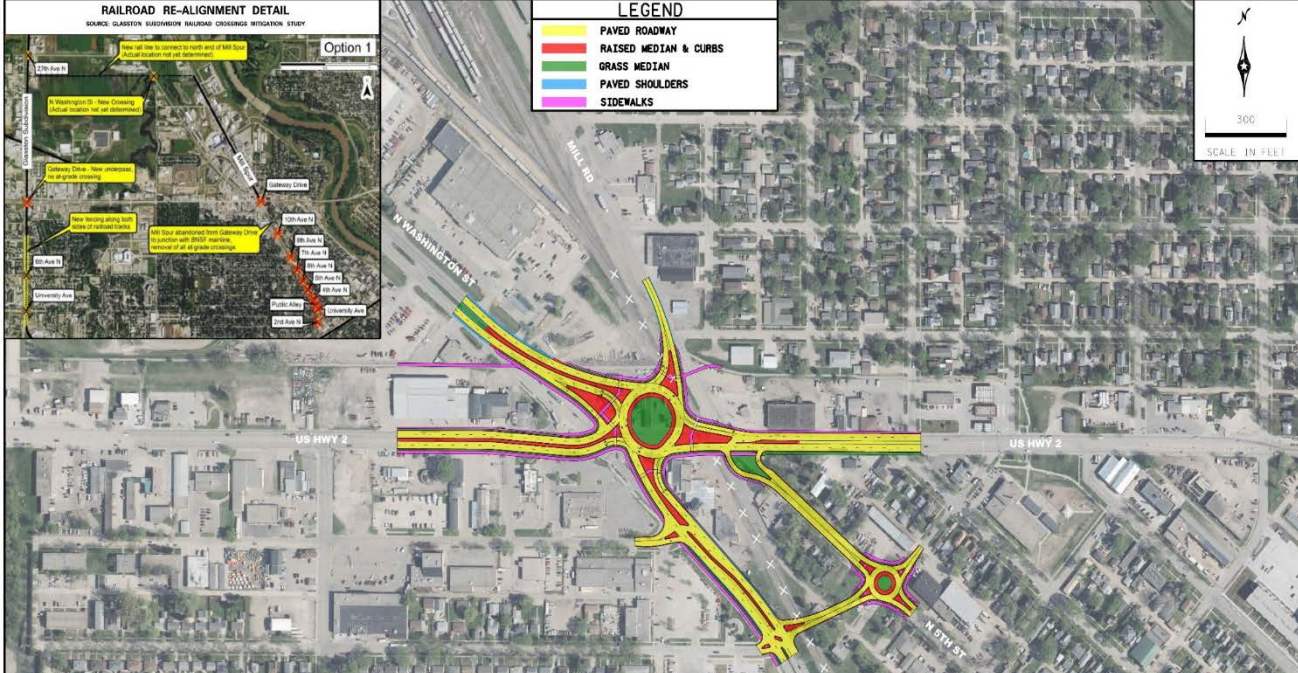
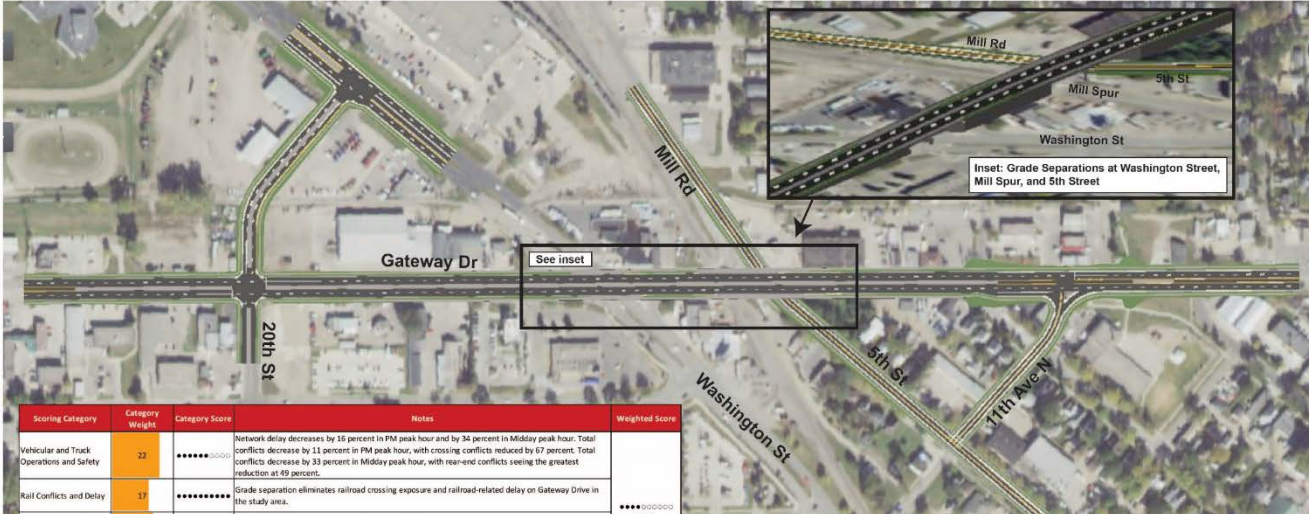
Cost Estimate

- \$5.6M of \$6.8M for Railroad Realignment
- Cost Refinements Based on Last Steering Committee Meeting:
 - Refined Alignment
 - Increased Cost

 U.S. 2 & U.S. 81 INTERSECTION ALTERNATIVES PRELIMINARY COST ESTIMATE				
ITEM DESCRIPTION	UNITS	UNIT BID PRICE	ESTIMATED QUANTITY	ESTIMATED PRICE
ALTERNATIVE			A. EXISTING FOOTPRINT IMPROVEMENT + RAIL REALIGNMENT	
ROADWAY ITEMS				
REMOVE CURB & GUTTER	LIN FT	\$5.00	3,400	\$17,000.00
REMOVE PAVEMENT	SQ YD	\$7.50	3,358	\$25,185.00
GRANULAR EMBANKMENT	CU YD	\$14.50	3,259	\$47,255.50
AGGREGATE BASE	CU YD	\$26.00	1,402	\$36,452.00
NON-WEARING COURSE	TON	\$72.00	196	\$14,112.00
WEARING COURSE	TON	\$68.00	261	\$17,748.00
CONCRETE WALK	SQ FT	\$6.00	16,801	\$100,806.00
CONCRETE CURB & GUTTER	LIN FT	\$25.00	7,468	\$186,700.00
CONCRETE MEDIAN	SQ YD	\$9.00	709	\$6,381.00
			SUBTOTAL	\$451,639.50
LUMP SUM ITEMS				
TRAFFIC CONTROL	LUMP SUM	5%	1	\$22,600.00
SIGNING & STRIPING	LUMP SUM	2%	1	\$9,100.00
LIGHTING	LUMP SUM	10%	1	\$45,200.00
EARTHWORK	LUMP SUM	15%	1	\$67,800.00
TURF AND EROSION CONTROL	LUMP SUM	1%	1	\$4,600.00
DRAINAGE	LUMP SUM	20%	0.5	\$45,200.00
REVISE SIGNAL SYSTEM	SYSTEM	\$150,000.00	2	\$300,000.00
			SUBTOTAL	\$494,500.00
PROJECT ITEMS				
			SUBTOTAL	\$946,200.00
Contingency	LS	20%		\$189,300.00
			TOTAL	\$1,135,500.00
Railroad Realignment	LS	\$6,000,000.00	RR Realignment	\$6,000,000.00
Mobilization	LS	7%		\$79,500.00
Real Estate	DOL			\$10,000.00
GRAND TOTAL			\$7,225,000.00	

Eliminated Alternatives

- Grade Separation
- Intersection Consolidation



Project Phasing

Short-Term

At-Grade Improvements (Access Management, Ped/Bike Improvements)



Short to Long-Term

Railroad Realignment – Depending on Funding Availability



Optional Short-Term

ITS Routing System – Depending on Timing of Railroad Realignment



Next Steps

- Establish Connection to other Mill Spur Users
- Expand Benefit/Cost Analysis to the Entire Mill Spur
- Identify Funding Mechanisms
- Additional Refinement of Access Management Plan
- Refine and Assess Environmental Impacts



Potential Funding Mechanisms

- Consider Incorporating At-Grade Improvements with Planned Short-Term Pavement Preservation Project on Gateway Drive/US 2
- Planned Signal Improvements in 2023/2024 at Potentially Unwarranted Traffic Signals
- Highway Safety Improvement Program Funds (HSIP)
 - Noted As High Priority Corridor in Local Road Safety Program
- Local Funds Such as Future Local Sales Tax or Special Assessments
- Prairie Dog Funds
- Federal Grants (I.e. BUILD)