



**TECHNICAL ADVISORY COMMITTEE MEETING**  
**WEDNESDAY, MARCH 8, 2023 – 1:30 P.M.**  
**VIRTUAL ONLY – VIA ZOOM!!!**

**PLEASE NOTE:** Due to ongoing public health concerns related to COVID-19 the Grand Forks/East Grand Forks Metropolitan Planning Organization (GF/EGF MPO) is encouraging citizens to provide their comments for public hearing items via e-mail at. To ensure your comments are received prior to the meeting, please submit them by 5:00 p.m. one (1) business day prior to the meeting and reference the agenda item(s) your comments address. If you would like to appear via video or audio link for comments or questions, please also provide your e-mail address and contact information to the above e-mail. The comments will be sent to the Technical Advisory Committee members prior to the meeting and will be included in the minutes of the meeting.

**MEMBERS**

Palo/Peterson \_\_\_\_\_  
 Ellis \_\_\_\_\_  
 Bail/Emery \_\_\_\_\_  
 Brooks \_\_\_\_\_  
 Riesinger \_\_\_\_\_

Mason/Schroeder \_\_\_\_\_  
 Zacher/Johnson \_\_\_\_\_  
 Kuharenko/Danielson \_\_\_\_\_  
 Bergman \_\_\_\_\_

West \_\_\_\_\_  
 Magnuson/Ford \_\_\_\_\_  
 Sanders \_\_\_\_\_  
 Christianson \_\_\_\_\_

1. CALL TO ORDER
2. CALL OF ROLL
3. DETERMINATION OF A QUORUM
4. MATTER OF APPROVAL OF THE FEBRUARY 8, 2023, MINUTES OF THE TECHNICAL ADVISORY COMMITTEE
5. MATTER OF BICYCLE/PEDESTRIAN PLAN CONTRACT AMENDMENT..... HALFORD
6. MATTER OF NDDOT SOLICITATION FOR URBAN ROADS AND URBAN REGIONAL SYSTEM PROJECTS FOR FY2027 ..... HALFORD

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- 7. MATTER OF CARBON REDUCTION PROGRAM FUNDING APPLICATIONS FOR FY2023 AND FY2024..... HALFORD
- 8. MATTER OF UPDATE ON AERIAL IMAGERY ..... KOUBA
- 9. MATTER OF SDK PRESENTATION ..... KOUBA
- 10. OTHER BUSINESS
  - a. 2022/2023 Unified Work Program Project Update..... HALFORD
    - Street/Highway Element Update
    - Bicycle/Pedestrian Element Update
  - b. MPO Updates:
    - Bridge Update ..... HALFORD
    - April TAC Agenda Items ..... HALFORD
    - SS4A Grant ..... HALFORD
  - c. Agency Updates
- 11 ADJOURNMENT

INDIVIDUALS REQUIRING SPECIAL ACCOMMODATIONS TO ALLOW ACCESS OR PARTICIPATION AT THIS MEETING ARE ASKED TO NOTIFY STEPHANIE HALFORD, TITLE VI COORDINATOR, AT (701) 746-2660 OF HIS/HER NEEDS FIVE (5) DAYS PRIOR TO THE MEETING. IN ADDITION, MATERIALS FOR THIS MEETING CAN BE PROVIDED IN ALTERNATIVE FORMATS: LARGE PRINT, BRAILLE, CASSETTE TAPE, OR ON COMPUTER DISK FOR PEOPLE WITH DISABILITIES OR WITH LIMITED ENGLISH PROFICIENCY (LEP) BY CONTACTING THE TITLE VI COORDINATOR AT (701) 746-2660



**PROCEEDINGS OF THE  
TECHNICAL ADVISORY COMMITTEE  
Wednesday, February 8<sup>th</sup>, 2023**

**CALL TO ORDER**

Stephanie Halford, Chairman, called the February 8<sup>th</sup>, 2023, meeting of the MPO Technical Advisory Committee to order at 1:34 p.m.

**CALL OF ROLL**

On a Call of Roll the following member(s) were present: Christian Danielson, Grand Forks Engineering; Wayne Zacher, NDDOT-Local Planning; Ryan Brooks, Grand Forks Planning; George Palo, NDDOT-Grand Forks District; and Steve Emery, East Grand Forks Engineering; Nancy Ellis, East Grand Forks Planning; Rich Sanders, Polk County Engineer; Troy Schroeder, MnDOT-District 2; and Dale Bergman, Cities Area Transit.

Absent: Brad Bail, Jon Mason, Michael Johnson, Lane Magnuson, Tom Ford, Nels Christianson, Nick West, David Kuharenko, and Jason Peterson.

Guest(s) present: Kristen Sperry, FHWA-ND; Daba Gedafa, UND; Mulugeta Amare, UND; and Joe Klein, MnDOT.

Staff: Stephanie Halford, GF/EGF MPO Executive Director; Teri Kouba, GF/EGF MPO Senior Planner; and Peggy McNelis, GF/EGF MPO Office Manager.

**DETERMINATION OF A QUORUM**

Halford declared a quorum was present.

**MATTER OF APPROVAL OF THE JANUARY 11, 2022, MINUTES OF THE TECHNICAL ADVISORY COMMITTEE**

***MOVED BY ELLIS, SECONDED BY BROOKS, TO APPROVE THE JANUARY 11<sup>TH</sup>, 2022, MINUTES OF THE TECHNICAL ADVISORY COMMITTEE, AS PRESENTED.***

***MOTION CARRIED UNANIMOUSLY.***

**MATTER OF UND INTERNSHIP UPDATE**

Halford said that she asked Daba and his team to give an update on where they are, how things have been going so far with this study, so there is no action required for this item, it is informational only.

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Gedafa thanked everyone for approving this project and commented that Mulugeta started working on the project even before the contract was signed.

Gedafa reported that so far, they have done a literature review on traffic speed and the safety implications on pedestrians and bicyclists and the effects of traffic calming techniques on traffic speed pedestrian and bicyclist safety, and also have looked at the effects of yield and stop signs on pedestrian safety and traffic speed as well.

Gedafa stated that the plan is to finish the literature review through spring and work on Task 2, crash analysis. He explained that they received crash data from NDDOT for the last six years, and began analyzing that data, then they also got speeding ticket data from the City of Grand Forks Police Department so they will analyze the crash and speeding data as well. He said that the idea is to finalize the locations for data collection starting in maybe June or July, so that is where they are at at this time.

Gedafa said that he hopes you received the progress report, if you have any questions for him or for Mulugeta, feel free to ask.

Danielson stated that he has a couple of comments from the Engineering Department. He said that they went through the draft progress report, and the one thing, generally on the entire report, is they typically like to call out crashes, not necessarily accidents, so there are a couple of places throughout the report that it mentions accidents, and they typically like to call them crashes, just a nomenclature thing.

Danielson said that the next thing they noticed was that a couple of the statistics seem a little bit dated; back in 2009 to 2005, just kind of an over-arching comment for the whole thing to see if we can maybe get a little closer to today's date, maybe the last five years for some of the statistics. He stated that they kind of use the general thumb that anything in the last five years is pretty relevant for traffic data, but just a couple of spots they noticed that they were ten plus years, so if they could get them a little more current that would be preferred.

Danielson stated that they were comparing the objectives from the approved project report or proposal that we approved in October and it appears that the objectives of the study have changed since then, the proposal that was approved in October seemed to have more of a focus on Grand Forks, and the objectives we have in the proposal today seem to pull out a bit and look at more of a national level, and they would like to try to keep this more focused on the Grand Forks area because that was what was approved back in October, so he would be interested to hear if there was a reason that it was pulled to more of a national level for the objectives or if there is still the intention for it to be focused on the Grand Forks area.

Gedafa responded that they will use crash data and crashes consistently going forward. He said that regarding the data, as he mentioned, they will do more literature review and focus more on studies from 2017, 2018 or so going forward. He stated that for the objectives, tdata, is nothing that they changed, the literature review includes national data but the focus is still on Grand Forks so they just try to learn globally but apply what is applicable to our local conditions, so the

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objectives in the proposal have not changed, so if there is any language difference between the proposal and the update, the proposal is governing so they are sticking to the proposal but the literature review includes national data but they are focusing more on areas that could be more relevant for Grand Forks.

Danielson thanked him for the clarification. He said that a couple other things they caught, you have a table for traffic calming techniques in the report they say, one thing they want to point out is that it doesn't necessarily state where that data is collected, if it is right at the calming measure, if it is 100-feet before or 100-feet after, in their experience taking some traffic collection they have found that it does affect your results, where you collect the data, they are assuming that this table was collected directly at the speed hump but they found that the data does differ if you collect it 200-feet before or 200-feet after because most vehicles are going to be slowing down when they hit these calming devices but what they do before or after those devices is also a factor to consider. Gedafa responded that they can include the location, maybe as in a different column in the table.

Danielson stated that the only other thing they had was just, in the summary section of the report they got, there is a little block of text at the bottom that calls out yield and stop signs; and they want to make sure we are careful of how we represent yield and stop signs because as a department, at least for the City of Grand Forks Engineering side, they have to follow the MUTCD for guidance and that one explicitly calls out yield and stop signs to not be used for speed control so they just want to make sure we are being very careful about how we make recommendations in the report and that we aren't going against the standards that they have to follow as a City. Gedafa responded that they are following the current MUTCD for all of the signing and naming of all those kinds of things. Ellis said that she agrees that maybe there should be some kind of comment that states that where yield and stop signs are warranted, rather than just in general, because that is one of the biggest things they get requests on is if somebody is speeding everybody wants a stop sign on their corner, which would create stop signs and yield signs on every corner on every local street so we want to make sure that it states that it is warranted first.

Danielson said that that was all that he had, and he apologizes, he doesn't mean to be nitpicky or critical, but they just want to make sure that we are following some of the guidance that they have to follow as a city and it all meshes well with the report you are preparing, so thank you for listening to the feedback. Gedafa thanked him for the feedback, adding that this is the first update, and they want to be consistent going forward so this was the right time for the feedback.

Information only.

**MATTER OF TIP ADMINISTRATIVE MODIFICATIONS**

Kouba reported that North Dakota Department of Transportation (NDDOT) brought forward a couple of changes that are needed to our FY2023-2026 TIP going forward, and as you will see they are very minor changes.

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Kouba stated that the first change is moving a project from FY2025 to FY2023, and there is no change to the cost of the project. She said that changing the timeframe of the project isn't significant enough for us to have to do a full amendment, thus we are doing an administrative modification.

Kouba said that we also noticed, when going through the modification process, was a slight cost increase to the Washington project. She pointed out that in our TIP we showed a cost of \$11,150,000 but the updated costs coming in are \$12,175,526. She stated that this cost change is below the 25% increase we are able to make without having to do a full amendment, thus we are doing an administrative modification for this project as well.

***MOVED BY BROOKS, SECONDED BY ELLIS, TO APPROVE FORWARDING A RECOMMENDATION TO THE MPO EXECUTIVE POLICY BOARD THAT THEY APPROVE FY2023-2026 T.I.P. ADMINISTRATIVE MODIFICATIONS, AS PRESENTED.***

***Voting Aye: Brooks, Schroeder, Palo, Zacher, Danielson, Ellis, Bergman, and Emery.***

***Voting Nay: None.***

***Abstaining: None.***

***Absent: Bail, Peterson, Riesinger, Ford, Kuharenko, Johnson, Christianson, Mason, West, and Magnuson.***

**MATTER OF SOLICITATION OF THE NORTH DAKOTA DEPARTMENT OF  
TRANSPORTATION URBAN GRANT PROGRAM FY2025-2026**

Halford reported that this was just an announcement that solicitation for the Urban Grant Program has opened for applications. She said that we have all seen this before, we've applied for this grant in the past, it is a program that focuses on what we currently have invested in our city and not to expand the system. She stated that even though we are just opening up for solicitation, officially today at the Technical Advisory Committee meeting, we have been approached by the City of Grand Forks, they have submitted an application. She said that they knew it was going to be a quick turnaround so in November they were already setting the stage of what they wanted to submit and be ready to hand it in as soon as it opened, so we have gotten that from them and at this point, if we do get another application, the plan is to bring this back in March, but if this is the only application we get, even though this is just a solicitation, she would look for a recommendation from the Technical Advisory Committee to just move forward with this application as the recommended application, subject to it being the only application we get so we don't need to bring it back if it doesn't need to be.

Danielson commented that this is a reconstruction project on North 4<sup>th</sup> Street from 1<sup>st</sup> Avenue to 2<sup>nd</sup> Avenue. He said that if you are familiar with the project that just finished up this past summer on 4<sup>th</sup> Street under the skywalk, it will be an exact replica of that project just a block down and will mimic all of the downtown reconstruction project work that they have been doing the past three years including decorative pavers, the streetscaping elements and full reconstruction of the pavement so it will match all that and they will just keep working their way down 4<sup>th</sup> Street if they are given the money to do so, so it will be pretty familiar to you if you

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have been following the project they have been doing downtown but they took a break here on the last solicitation to go after Belmont and 5<sup>th</sup> Intersection improvements so now they are just going back to their downtown reconstruction projects.

Kouba state that she just wanted to point out that in the application that they originally received from Grand Forks there was a missing transit stop at North 4<sup>th</sup> Street and 2<sup>nd</sup> Avenue North and they are putting that into the application as well, and then will resubmit the amended application to include that.

***MOVED BY ELLIS, SECONDED BY BROOKS, TO APPROVE FORWARDING A RECOMMENDATION TO THE MPO EXECUTIVE POLICY BOARD THAT THEY APPROVE THE CITY OF GRAND FORKS' APPLICATION FOR THE FY2025-2026 URBAN GRANT PROGRAM, SUBJECT TO NO ADDITIONAL APPLICATIONS BEING SUBMITTED.***

***Voting Aye: Brooks, Schroeder, Palo, Zacher, Danielson, Ellis, Bergman, and Emery.***

***Voting Nay: None.***

***Abstaining: None.***

***Absent: Bail, Peterson, Riesinger, Ford, Kuharenko, Johnson, Christianson, Mason, West, and Magnuson.***

**OTHER BUSINESS**

A. 2022/2023 Annual Work Program Project Update

- 1) Bicycle/Pedestrian Element Update: Halford stated that we are so close to completion of this project, but there are a few things that we are still kind of reviewing in that final document, so we are working through that. She said, however, that it might be delayed another month, but we will see where it goes in the next couple of weeks.
- 2) Street/Highway Element Update: Halford said that they had a good conversation talking about East Grand Forks' Industrial Park, which has been a focus in the past and we are shining some light on that area and coming up with a good plan.
- 3) Aerial Imagery: Halford stated that the RFQ has been sent out for this project. Sperry said that she has one thing on the aerial imagery, and maybe you won't have the same companies that Bismarck received for their aerial image, but they received a request from one of their vendors ask if they could have off-shore labor participate in their product and they wanted to know if that would violate Buy America, and it took a long time but she finally received information from FTA that said they were okay with it but they also had some legal clauses they said they should have in the contract so that if they didn't get the product they wanted they could sue them in the United States, and then

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she also found out that it does not violate Buy America if you end up with the same vendor and you get a similar question. Kouba said that she did get that question and she had no answer other than “so far not yet” but if you could send that language to her that would be great.

- 4) Safe Street For All (SS4A): Halford stated that, if you haven’t heard yet, last week we were notified that we did receive the grant that we applied for for Safe Street For All. She commented that in the State of North Dakota Williston received \$320,000; FM/COG received \$200,000; we were awarded \$400,000; and NDSU received \$1 million, so we are looking at close to \$2 million for the State of North Dakota, which is pretty exciting. She said to stay tuned, we will be starting to put language together and starting that whole process of putting a plan together and hiring a consultant and all that so that will be a whole new thing that we’ve never done before, but we are all very excited.
- 5) Bike Map: Kouba said that we are working on getting this out and getting some feedback on it. She stated that she did receive some and has incorporated it into the copy that is currently out, that she distributed here today, as well as distributed it to others as well. She said that they are looking to receive feedback and comments by February 24<sup>th</sup>, and that is also going to include some of our Bike Advisory Committee comments that we get as well.

B. MPO Updates

- 1) Bridge Update - Halford reported that she would open this up to the East Grand Forks side on this, she wasn’t able to check with David Murphy before this meeting but has this gone to the counties to get their approval yet, whether they are going to be playing ball or not with the share cost. Ellis responded that there is a chance that Polk County will look at it this month, but David heard from Grand Forks County that it was not on their agenda and they didn’t know when it would be, so we are still waiting.
- 2) March TAC Agenda Items – Halford stated that so far, we will be looking at what we get submitted for the Carbon Reduction Program applications that were talked about at our previous meeting, they will be due and we will bring them forward for your approval at you March Technical Advisory Committee meeting. She added that there will be a small amount of work program amendments for approval as well.

B. Agency Updates

None.

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**ADJOURNMENT**

***MOVED BY BROOKS, SECONDED BY ELLIS, TO ADJOURN THE FEBRUARY 8<sup>TH</sup>, 2023  
MEETING OF THE TECHNICAL ADVISORY COMMITTEE AT 2:02 P.M.***

***MOTION CARRIED UNANIMOUSLY.***

Respectfully submitted by,

Peggy McNelis, Office Manager



**MPO Staff Report**  
**Technical Advisory Committee:**  
**March 8, 2023**  
**MPO Executive Board:**  
**March 15, 2023**

**RECOMMENDED ACTION: Approval of the Extension of the Contract with Bolton & Menk for the GF/EGF Bicycle and Pedestrian Plan**

**TAC RECOMMENDED ACTION:**

Matter of approval of the Extension of the Contract with Bolton & Menk for the GF/EGF Bicycle and Pedestrian Plan

**Background:**

Bicycling and walking are increasingly important parts of urban transportation. They're simple, affordable, and healthy ways to get around cities, but they need planning and investment for people to make an easy choice to bike or walk. Throughout 2022 into 2023 we have been conducting an update to the Bicycle and Pedestrian Plan.

The original contract is set to expire on March 31, 2023. The timeline needs to be extended so there is time to get input from necessary stakeholders and the public on some proposed corridor designs. The meetings will be held virtually:

**Grand Forks**

University Avenue – March 28, 5-6:30PM

13<sup>th</sup> Avenue – March 30, 5-5:45PM

17<sup>th</sup> Avenue – March 30, 6-6:45PM

**East Grand Forks**

River Road – March 29, 5-5:45PM

Rhinehart Drive – March 29, 6-6:45PM

More information at <https://clients.bolton-menk.com/gfegf-bikeped/>

**Findings and Analysis**

- The timeline needs to be extended to incorporate the necessary stakeholder meetings.

**Support Materials:**

- Memorandum from Bolton & Menk





Real People. Real Solutions.

3168 41st Street South  
Suite 2  
Fargo, ND 58104

Ph: (701) 566-5339  
Fax: (701) 566-5348  
Bolton-Menk.com

## MEMORANDUM

**Date:** February 27, 2023  
**To:** Stephanie Halford, GF/EGF Metropolitan Planning Organization  
**From:** John Cock  
**Subject:** GF/EGF Bicycle and Pedestrian Master Plan – Amendment Request  
BMI Project No. 0T4.127008

Bolton & Menk was contracted in March 2022 to complete planning services for the Grand Forks/East Grand Forks Bicycle and Pedestrian Master Plan. As the project reached completion of the draft master plan, the project schedule needed to be extended to incorporate local partner input received regarding alternatives and engineering feasibility for priority projects. We wanted to ensure we properly addressed comments before moving into targeted stakeholder engagement on the priority corridors.

Our original contract is set to expire on March 31, 2023. We are writing to request a contract extension on the subject project until August 31, 2023, to conduct public input on priority corridor projects identified in the planning process and complete the plan adoption process. Our anticipated schedule is as follows:

- March 2023: Targeted Stakeholder Engagement
- April 2023: Finalize draft plan
- May 2023: Present draft plan to Grand Forks City Council, Grand Forks Planning & Zoning Commission, East Grand Forks City Council, East Grand Forks Planning & Zoning Commission, MPO TAC, and MPO Executive Board
- July 2023: Complete final plan document and present to City & MPO Boards and Commissions

Thank you for the opportunity to serve the MPO and its partner communities.

Please contact me at (704) 376-1555 with any questions or if you need additional information.

Sincerely,

**Bolton & Menk, Inc.**

**John Cock, AICP**  
Senior Project Manager



# **MPO Staff Report**

**Technical Advisory Committee:**  
**March 8, 2023**

**MPO Executive Board:**  
**March 15, 2023**

**RECOMMENDED ACTION:** Receive the announcement of the NDDOT solicitation for Urban Roads and Urban Regional system projects for FY2027; and the approval of the applications from the city of Grand Forks, ND.

**TAC RECOMMENDED ACTION:**

Matter of North Dakota Department of Transportation solicitation for Urban Roads and Urban Regional projects for FY2027; and the approval of the applications from the city of Grand Forks, ND

### **Background:**

This solicitation is part of the planning cycle for 2024-2027. The Urban Regional program consists of the Interstate and State Highways that are located inside the urban area. Local Government, LPA's (Local Public Agencies) and NDDOT Districts work together to prioritize projects on the regional system.

The Urban roads are considered LPA owned roadways on the federal aid system. Local Government and the LPA's work together to program improvements based on the available funding that is allocated to the LPA's. LPA's are responsible for prioritizing the improvements of their system.

Further details at <https://www.dot.nd.gov/divisions/localgov/#programareas>

### **Findings and Analysis**

- Staff have received applications from the City of Grand Forks. The MPO staff believe the city has met the program requirements.

### **Support Materials:**

- Solicitation Letter
- North Dakota Department of Transportation 2023-2026 Urban Program Spreadsheet
- Grand Forks Regional Roads Packet
- Grand Forks Urban Roads Packet

February 8, 2023

BMMPO  
GF-EGF MPO  
City Engineers in Urban Areas

**RE: FISCAL YEAR 2027 URBAN PROGRAM SOLICITATION**

The North Dakota Department of Transportation (NDDOT) is soliciting for Urban Roads and Urban Regional system projects for federal fiscal year **2027**. This solicitation is part of the planning cycle for the 2024-2027 STIP. The amount of federal funding that will be available for future projects is difficult to predict. Like you, we will be awaiting passage of a new infrastructure bill beginning with fiscal year 2027.

The enclosed Urban Roads program spreadsheet shows projected funding levels and should be used while developing your project requests. All requested projects will be reviewed closely to justify the use of federal aid. There is a possibility that not all projects will be funded or will receive the requested amount of federal aid. To accommodate unknown funding levels, the urban program needs to have enough projects planned, while remaining flexible in the event funding levels are different than projected.

**Please review the enclosed Urban Program Submittal Checklist and submit all required documents to the Local Government Division by close of business on March 31, 2023.** It is preferred that requests be submitted via email to [smhanson@nd.gov](mailto:smhanson@nd.gov) or via MFT site.

If you have questions, please feel free to give me a call at 701-328-4469.

With gratitude,



Stacey M. Hanson, P.E.  
Assistant Local Government Engineer

38/smh  
Enclosures  
c: District Engineers

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION  
2023-2026 URBAN PROGRAM  
GRAND FORKS/EAST GRAND FORKS MPO - OCTOBER 2022**

Fiscal Year	Program	Location	Type of Work	Total Cost	Federal Share	State Share	Local Share
2023	Regional	N Washington St (5th Av S-1st Ave N)*	Roadway Reconstruction & Structure Rehabilitation	\$11,150,000	\$4,511,848 Reg; \$4,511,848 State Fed	\$1,011,304	\$1,115,000
2023	Urban Roads	Urban Roads System Signals	Traffic Signal Rehabilitation	\$3,335,000	\$2,360,000	\$0	\$975,000
2023	Regional	US 2 & US 81 and US 2 & 42nd St	Turn Lanes	\$550,000	\$445,115	\$49,885	\$55,000
2024	Urban Roads	Columbia Rd Overpass	Structure Rehab	\$8,930,000	\$6,744,000	\$0	\$2,186,000
2024	Regional	Regional System Signals	Traffic Signal Rehabilitation	\$6,668,000	\$5,334,400	\$1,058,700	\$274,900
2024	UGP	Belmont Rd & S 5th St	Roundabout, Lighting, Storm Sewer	\$1,640,600	\$1,312,480	\$0	\$328,120
2025	Regional	32nd Ave S (I-29 to Washington St)	CPR, Grinding, Microseal	\$3,356,000	\$2,684,800	\$335,600	\$335,600
2025	Urban Roads	Columbia Rd (University to 8th Ave N)	Reconstruction	\$7,302,000	\$5,167,000	\$0	\$2,135,000
2026	Regional	US 2 (Red River to I-29)	CPR, Grinding	\$4,447,000	\$3,557,600	\$889,400	\$0
2026	Regional	N Washington St (1st Av N - 8th Av N)	Reconstruction	\$5,147,000	\$4,117,600	\$514,700	\$514,700
2026	Urban Roads	Point Bridge (Half cost shown - other half is EGF)	Spall Repair, Structure Painting, Lighting, Guardrail	\$1,150,000	\$920,000	\$0	\$230,000
Illustrative	N/A	42nd St & DeMers Ave	Construction of RR Grade Separation	\$45,000,000	\$0	\$0	\$45,000,000

\*Note: It is anticipated to dual fund this project. Approximately 1/2 of the federal funds for the structure will be funded outside of the Urban Program. Cost split is an estimate at this time.

255 N. 4th St.  
PO Box 5200  
Grand Forks, ND 58206-5200



ENGINEERING DEPARTMENT

(701) 746-2640  
Fax#(701) 787-3744

March, 2, 2023

Mrs. Stephanie Halford  
Grand Forks/East Grand Forks MPO  
600 Demers Ave  
East Grand Forks, MN 56721

RE: Regional Roads Program Applications

Dear Mrs. Halford:

Attached, please find the City of Grand Forks' Regional Roads Program project applications. Please forward this additional application to the NDDOT. If you have any questions or comments, please contact David Kuharenko at 701-746-2649.

1. 2023 – 42<sup>nd</sup> St/Demers Ave Railroad Grade Separation Preliminary Engineering (50%)
2. 2025 – 42<sup>nd</sup> St/Demers Ave Railroad Grade Separation
3. 2026 – I-29/47<sup>th</sup> Ave S Interchange
4. 2027 – SH 297/Demers Ave (Fire Station to N 6<sup>th</sup> St Excluding the Bridge) CPR & Grind
5. 2027 – US 2/Gateway Dr (I-29 to N 55<sup>th</sup> St) CPR & Grind
6. 2028 – Bus US 81/S Washington St (Hammerling Ave to SH 297/Demers Ave) Reconstruction

Sincerely,

David Kuharenko, P.E.  
Assistant City Engineer

DJK

Cc: Al Grasser  
Ed Liberman  
Ed Pavlish  
Jesse Kadrmas  
Christian Danielson

## PROJECT SUBMITTAL LIST

Entity: Grand Forks

Contact Person: Ed Pavlish

Revision: November 2019

Date: February 28, 2023

Phone Number: 701-787-6500

If you have questions with filling out the list, please contact Stacey Hanson at 701-328-4469

FISCAL YEAR	FUNDING CATEGORY <sup>(1)</sup>	FUNCTIONAL CLASSIFICATION <sup>(2)</sup>	INVESTMENT STRATEGY <sup>(3)</sup>	TYPE OF WORK <sup>(4)</sup>	PROJECT LOCATION	PROJECT COST				
						TOTAL	FEDERAL	STATE	LOCAL	BNSF RAILWAY
2023	SecR	Minor Arterial	N/R	Reconstruction RR Bridge and Roadway	Bus US 81/N Washington St (5th Ave S to 1st Ave S)	\$ 11,150,000	\$ 9,023,696	\$ 1,011,304	\$ 1,115,000	
2023	SecR	Principal Arterial/Minor Arterial	PE	Preliminary Engineering	42nd St/Demers Ave Railroad Grade Separation Preliminary Engineering (50%)	\$ 3,200,000	\$ 2,560,000	\$ 320,000	\$ 320,000	
2023	INT	Interstate	INT	Slide Repair	I-29 (Junction of US 2)	\$ 9,550,000	\$ 8,595,000	\$ 955,000	\$ -	
2024	PiR/SecR	Principal Arterial/Minor Arterial	MiR	Turn Lane Improvements	US 2/Gateway Dr & N 42nd St US 2/Gateway Dr & US 81/N Washington US 81/N Washington & 27th Ave N	\$ 550,000	\$ 445,115	\$ 49,885	\$ 55,000	
2024	INT	Interstate	PM	CPR and Grinding	I-29 (South of ND 15 to Near 32nd Ave S)	\$ 1,906,385	\$ 1,715,747	\$ 190,638	\$ -	
2024	SecR	Principal Arterial	PM	Signal Maintenance	Traffic Signal Rehabilitation on the Regional Roads System	\$ 6,668,000	\$ 5,334,400	\$ 1,058,700	\$ 274,900	
2025	INT	Interstate	PM	CPR and Grinding	I-29 (32nd Ave S to North of North Washington Interchange)	\$ 2,799,370	\$ 2,519,433	\$ 279,937	\$ -	
2025	SecR	Principal Arterial	PM	Expansion Joint Modification	Sorlie Bridge	\$ 27,040	\$ 21,883	\$ 5,157	\$ -	
2025*	SecR	Principal Arterial/Minor Arterial	N/R	Reconstruction	42nd St/Demers Ave Railroad Grade Separation	\$ 53,600,000	\$ 30,000,000	\$ 11,700,000	\$ 10,400,000	\$ 1,500,000
2025	SecR	Principal Arterial	PM	CPR and Asphalt Mill & Overlay	Bus US 81/32nd Ave S (I-29 to S Washington St (Bus US 81))	\$ 3,356,000	\$ 2,684,800	\$ 335,600	\$ 335,600	
2026	PriR	Principal Arterial	PM	CPR & Grinding	US2/Gateway Dr (Red River to I-29)	\$ 4,447,000	\$ 3,557,600	\$ 889,400	\$ -	
2026	SecR	Principal Arterial	N/R	Reconstruction	Bus US 81/N Washington St (1st Ave N to 8th Ave N)	\$ 5,147,000	\$ 4,117,600	\$ 514,700	\$ 514,700	
2026	INT	Interstate/Minor Arterial	N/R	Interchange	I-29/47th Ave S Interchange	\$ 57,000,000	\$ 45,600,000	\$ 5,700,000	\$ 5,700,000	
2027	SecR	Principal Arterial	N/R	CPR & Grinding	SH 297/Demers Ave Central Fire Station to N 6th St Excluding Overpass	\$ 727,000	\$ 581,600	\$ 72,700	\$ 72,700	
2027	PriR	Principal Arterial	N/R	CPR & Grinding	US 2/Gateway Dr I-29 to N 55th St	\$ 1,172,000	\$ 937,600	\$ 234,400	\$ -	
2028	SecR	Principal Arterial	N/R	Reconstruction	Bus US 81/S Washington St (Hammerling Ave to Demers Ave)	\$ 7,226,000	\$ 5,780,800	\$ 722,600	\$ 722,600	

\* If Funding is awarded through CRISI, Railroad Crossing Elimination, or Reconnecting Communities programs

Notes Description

(1) PriR = Primary Regional, SecR = Secondary Regional, URP = Urban Roads Program, INT = Interstate, BRI = Bridge

(2) Interstate, Principal Arterial, Minor Arterial, Collector

(3) PM = Preventive Maintenance, MiR = Minor Rehabilitation, SI = Structural Improvement, MaR = Major Rehabilitation, N/R = New/Reconstruction

(4) Brief description of the project (Ex: Thin Lift Overlay, Mill and Overlay, Concrete Pavement Repair, etc.)

**URBAN REGIONAL & URBAN ROADS  
PROJECT SCOPING WORKSHEET**

DATE: 2/28/2023

PRIORITY# 1 - 2023

Regional: (Y)/N

Urban Roads: Y/(N)

City: Grand Forks

Street: 42<sup>nd</sup> St Grade Separation (Regional)

County: Grand Forks

Length: Intersection Improvement

Proposed Improvement: Preliminary Engineering for the 42<sup>nd</sup> St Grade Separation Project.  
(\$3.2 million funded through the Urban Road Program for 42<sup>nd</sup> St and \$3.2 million funded  
through the Regional Roads Program for SH297/Demers Ave. for a total of \$6.4 million).

Cost Estimates Breakdown (in \$1,000)							
PE	CE	R/W	Utility	Constr.	Bridges	Non-Participating	Total
3,200							3,200

Present Road: Surface Width? 42<sup>nd</sup> St 90'  
SH297/Demers Ave 80'

Surface Type? Concrete

On Street Parking Allowed? \_\_\_\_\_ Present: (No) One Side Both Sides Angle Parallel  
 Proposed: (No) One Side Both Sides Angle Parallel

Proposed Improvements	
ADT Present: <u>42<sup>nd</sup> St 13,775-14,700 Yr: 2018</u>	Travel Way Width : <u>~72'</u>
<u>SH 297/Demers Ave 14,150-15,440</u>	
ADT Design: <u>~20,000-23,700 Design year 2045</u>	No. of Lanes: <u>6 (RTL, LTL, 2 through in either direction)</u>
Design Speed: <u>40mph</u>	Roadway Width: _____
Maximum Curve: <u>TBD</u>	Min. R/W Width: _____
Maximum Grade: <u>TBD</u>	

Right of Way
Will Additional ROW or easement be acquired? <u>Yes</u> ROW acquisition by: City (DOT)
Has any ROW easements been acquired since 7-1-72: <u>UNK</u> ROW Condemnation by: City (DOT)
Est. No. of occupied family dwelling to be displaced? <u>0</u>
Est. No. business to be displaced? <u>1 possibly</u>

### Impacts

**Will there be any additional Impacts (Cultural and Environmental Resources):** A class III Cultural Resource Inventory was performed in July of 2021. The report recommended a finding of No Historic Properties Affected for the project. An Aquatic Resource Delineation Report and Traffic Noise Analysis were completed as part of the ongoing Cat-Ex. It is anticipated that depending on the alternative selected there will need to be wetland mitigation.

**Will there be any impacts to 4(f) or 6(f) properties:** A 4(f) Determination memo has been submitted to the NDDOT regarding the Ray Richard’s Golf Course owned and operated by the University of North Dakota.

**Airports:** None anticipated

**Public Hearings:** TBD

**Environmental Classification (Cat-Ex, EA, EIS):** Cat-Ex is currently being prepared for the project with an anticipated completion date of spring/summer of 2023

**Transportation Enhancements:** There is an existing shared use path along the western side of 42<sup>nd</sup> St on either side of the intersection. Along SH297/Demers Ave there is a shared use path along the north side east of 42<sup>nd</sup> St and along the south side to the west of 42<sup>nd</sup> St. As part of the project it is proposed to maintain these shared use path connections

**Intermodal:** There are no current transit stops near this intersection.

**Pedestrian Needs:** There is an existing shared use path along the western side of 42<sup>nd</sup> St on either side of the intersection. Along SH297/Demers Ave there is a shared use path along the north side east of 42<sup>nd</sup> St and along the south side to the west of 42<sup>nd</sup> St. As part of the project it is proposed to maintain these shared use path connections.

Railroads Crossings						
RR Name	No. Xings	No. Tracks and Type of Crossing	Daily Train Movements	Train Speed	Present Protection	Proposed Protection
BNSF 081329H	1	2	10	1-35	Gates/ Flashers/ Medians	Grade Separation

**Purpose and Need Statement:**

The existing at grade rail crossing at 42<sup>nd</sup> St near SH297/Demers Ave creates safety hazards, traffic delays, and operational inefficiencies for the residents of Grand Forks, students, faculty, and visitors of the University of North Dakota, and the flow of freight traffic along the BNSF Railway. This intersection currently experiences 130.9 vehicle-hours of delay per day from train operations. The intersection’s current level of service is currently D or E for peak conditions on all approaches. Under a no-build scenario the Traffic Operations report predicted that the LOS would worsen to between E and F by 2045.

The NDDOT, BNSF Railway, and the City of Grand Forks have submitted applications for funding to construct a grade separated crossing at the intersection of SH297/Demers Ave and 42<sup>nd</sup> St. These federal programs include Consolidated Rail Infrastructure and Safety Improvements (CRISI), Railroad Crossing Elimination, and Reconnecting Communities. The timing of when the funding would be received to when the project needs to be completed complicates the project. In an effort to mitigate this complication, we are requesting funding to move forward on the Preliminary Engineering phase of the project.



It is estimated that the total cost for preliminary engineering will be approximately \$6.4 million. It is proposed that the funding be split 50/50 between the Urban Roads and the Regional Roads programs. This would result in a cost split of \$3.2 million for the Urban Roads and \$3.2 million for the Regional Roads.

Project Funding by Source from the Federal Funding applications

Funding Source	Funding Type	Description	Amount	Percentage of Total Project Cost
Federal Railroad Administration	Federal	Grant Funds Administrator	\$30,000,000	50.0%
North Dakota Department of Transportation	Non-Federal	Project Applicant	\$4,200,000	7.0%
North Dakota Department of Transportation	Federal	NDDOT Federal Formula Funds	\$7,500,000	12.5%
BNSF Railway	Non-Federal	Private Funding Partner	\$1,500,000	2.5%
City of Grand Forks	Non-Federal	Public Funding Partner	\$16,800,000	28.0%
<b>TOTAL PROJECT COST</b>	-	-	<b>\$60,000,000</b>	<b>100.0%</b>

Project Budget by Project Component from Federal Funding applications

Project Component/Task	Cost	Percentage of Total Cost
Construction and Construction Engineering	\$34,400,000	57.3%
Land Purchases, Relocations, and Environmental Mitigation	\$19,200,000	32.0%
Design and Engineering	\$6,400,000	10.7%
<b>TOTAL PROJECT COST</b>	<b>\$60,000,000</b>	<b>100.0%</b>

Existing Conditions:

1. When was the current street section built? Has there been any additional maintenance to the street section?

SH 297/Demers Ave was originally constructed in 1992 under NDDOT projects SU-6-986(030)033 and CMU-6-297(004)000 City Project P-4006

SH297/Demers Ave was rehabilitated in 2016 under NDDOT project NHU-6-297(008)008 City Project P-7164

42<sup>nd</sup> St was originally constructed in 2001 under NDDOT projects U-CMU-6-986(057)060, U-CMU-6-986(058)061, SER-6-986(051)054, and CPU-6-986(002)062 City Project P-5048

42<sup>nd</sup> St was rehabilitated in 2019 under City Project P-8026

2. How many driving lanes and turning lanes does the street section currently have and what is the widths of the driving and turning lanes?

Each leg of the intersection consists of 1 left turn lane, 2 through lanes, and 1 right turn lane. Lanes are approximately 12' wide.

3. What is the condition of the pavement section?

Pavement Condition Index and International Roughness Index data was obtained in 2021 from GoodPointe Technology.

The north leg of 42<sup>nd</sup> St has a PCI of 97 and IRI of 189

The south leg of 42<sup>nd</sup> St has a PCI of 100 and IRI of 156

The westbound west leg of SH297/Demers Ave has a PCI of 89 and IRI of 100

The eastbound west leg of SH297/Demers Ave has a PCI of 86 and IRI of 98

The westbound east leg of SH297/Demers Ave has a PCI of 87 and IRI of 75

The eastbound east leg of SH297/Demers Ave has a PCI of 96 and IRI of 79

4. Any existing geometric concerns?

If a left turn lane is provided to the gas station from Demers Ave it is likely that the turn lane may not meet design standards and may need a design exemption.

5. Are there any access points to adjoining properties that present a special concern?

The access to the Dusterhoft Cenex gas station and service center located to the west of the intersection of SH297/Demers Ave and 42<sup>nd</sup> St.

6. Are there any existing sidewalks or shared use path in place?

Yes, on the north and south legs of the intersection there is a shared use path along the west side of 42<sup>nd</sup> St, on the east leg of the intersection there is a shared use path on the north side of SH297/Demers Ave, and on the west leg of the intersection there is a shared use path along the south side of SH297/Demers Ave. There are no sidewalks.

7. What is the condition of the existing storm sewer? Will any additional storm sewer work need to be done along with this project?

Condition of the existing storm sewer is unknown. However because of the work associated with a grade separation project, storm sewer will likely need to be relocated, and a storm sewer lift station required to pump out water from the water collecting in the underpass.

8. What is the condition of the city's water and sewer line? Will any work have to be done to the city's water and sewer lines along with this project?

The city has a 20" AC watermain pipe, two 30" Ductile Iron Pipes Raw Water Lines, and a 14" PVC Raw Water Line running through the project area. It is likely that these lines will need to be rerouted with the grade separation project.

There is no city sanitary sewer within the project limits. There is a private sanitary sewer on the east side of the Dusterhoft Cenex gas station and service center property.

9. Describe the existing lighting system currently in place? What type of standards and luminaires are currently being used?

East of the intersection along SH297/Demers Ave there are 250W HPS Fixtures mounted on 40' standards with truss style arms.

West of the intersection along SH297/Demers Ave there are 165W LED Autobahn Fixtures mounted on 40' standards with truss style arms.

North of the intersection along 42<sup>nd</sup> St there are 276W LED Autobahn fixtures mounted on 40' standards with truss style mast arms

South of the intersection along 42<sup>nd</sup> St there are 273W LED Autobahn fixtures mounted on 40' standards with truss style mast arms.

10. What intersections currently have traffic signals? Are there any locations that have a high accident rate? Are additional turning lanes needed?

The intersection of SH297/Demers Ave and 42<sup>nd</sup> St is currently signalized. At the time this scoping report was written the traffic signals are roughly 20 years old. Due to the realignment at the intersection it is anticipated that the signals will be replaced as part of the project.

The NDDOT State Action Plan for Highway-Rail Crossing Safety includes the 42<sup>nd</sup> St crossing in the list of crossings that have experienced crashes from 2018-2020

This intersection was not included on the 2019-2021 Urban High Crash Location List.

No additional turn lanes are anticipated with this project.

Remarks:

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City Engineer: Allen R. [Signature]

Date: 2/28/23

District Engineer: Edward Parish [Signature]

Date: 2/28/23

**Note:** Please attach a map showing location and extent of the project, detailed cost estimate, and any additional supporting documents.



# 42nd St Grade Separation - 2023



## Legend

- Boundary City Limit
- Boundary Gray Area
- Address Labels
- Road Labels
- RoadCenterlines\_4K
- <all other values>
- I
- S
- U
- FacilitySites\_Parks\_4K
- Railroad
- Waterbodies
- MunicipalBoundaries

## Notes

1in= 333 ft



666.7 0 333.33 666.7 Feet

NAD\_1983\_StatePlane\_North\_Dakota\_North\_FIPS\_3301\_Feet  
City of Grand Forks GIS

All dimensions, descriptions, measurements, boundaries and data contained in this nonstandard document are included for general information only. No warranties or covenants are made or given by the City of Grand Forks. Any user must confirm the accuracy of the same with official records, and/or by survey.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

# U. S. DOT CROSSING INVENTORY FORM

**DEPARTMENT OF TRANSPORTATION**  
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk \* denotes an optional field.

<b>A. Revision Date</b> (MM/DD/YYYY) 08 / 04 / 2022	<b>B. Reporting Agency</b> <input checked="" type="checkbox"/> Railroad <input type="checkbox"/> Transit <input type="checkbox"/> State <input type="checkbox"/> Other	<b>C. Reason for Update (Select only one)</b> <input checked="" type="checkbox"/> Change in Data <input type="checkbox"/> Re-Open <input type="checkbox"/> New Crossing <input type="checkbox"/> Date Change Only <input type="checkbox"/> Closed <input type="checkbox"/> Change in Primary Operating RR <input type="checkbox"/> No Train Traffic <input type="checkbox"/> Quiet Zone Update <input type="checkbox"/> Admin. Correction	<b>D. DOT Crossing Inventory Number</b> 081329H
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## Part I: Location and Classification Information

<b>1. Primary Operating Railroad</b> BNSF Railway Company [BNSF]		<b>2. State</b> NORTH DAKOTA		<b>3. County</b> GRAND FORKS	
<b>4. City / Municipality</b> <input checked="" type="checkbox"/> In <input type="checkbox"/> Near GRAND FORKS		<b>5. Street/Road Name &amp; Block Number</b> 42ND ST (Street/Road Name)   * (Block Number)		<b>6. Highway Type &amp; No.</b> Not Yet Reported by State	
<b>7. Do Other Railroads Operate a Separate Track at Crossing?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Specify RR			<b>8. Do Other Railroads Operate Over Your Track at Crossing?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Specify RR		
<b>9. Railroad Division or Region</b> <input type="checkbox"/> None TWIN CITIES		<b>10. Railroad Subdivision or District</b> <input type="checkbox"/> None GRAND FORKS		<b>11. Branch or Line Name</b> <input type="checkbox"/> None CASS LK-DL SW	
<b>12. RR Milepost</b> 0110.069 (prefix)   (nnnn.nnn)   (suffix)		<b>13. Line Segment</b> * 32		<b>14. Nearest RR Timetable Station</b> * UNIVERSITY	
<b>15. Parent RR (if applicable)</b> <input checked="" type="checkbox"/> N/A		<b>16. Crossing Owner (if applicable)</b> <input type="checkbox"/> N/A BNSF		<b>17. Crossing Type</b> <input checked="" type="checkbox"/> Public <input type="checkbox"/> Private	
<b>18. Crossing Purpose</b> <input checked="" type="checkbox"/> Highway <input type="checkbox"/> Pathway, Ped. <input type="checkbox"/> Station, Ped.		<b>19. Crossing Position</b> <input checked="" type="checkbox"/> At Grade <input type="checkbox"/> RR Under <input type="checkbox"/> RR Over		<b>20. Public Access (if Private Crossing)</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>21. Type of Train</b> <input checked="" type="checkbox"/> Freight <input type="checkbox"/> Intercity Passenger <input type="checkbox"/> Commuter		<input type="checkbox"/> Transit <input type="checkbox"/> Shared Use Transit <input type="checkbox"/> Tourist/Other		<b>22. Average Passenger Train Count Per Day</b> <input type="checkbox"/> Less Than One Per Day <input type="checkbox"/> Number Per Day 0	
<b>23. Type of Land Use</b> <input checked="" type="checkbox"/> Open Space <input type="checkbox"/> Farm <input type="checkbox"/> Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Institutional <input type="checkbox"/> Recreational <input type="checkbox"/> RR Yard					
<b>24. Is there an Adjacent Crossing with a Separate Number?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Provide Crossing Number			<b>25. Quiet Zone (FRA provided)</b> <input type="checkbox"/> No <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> Partial <input type="checkbox"/> Chicago Excused Date Established		
<b>26. HSR Corridor ID</b> <input checked="" type="checkbox"/> N/A		<b>27. Latitude in decimal degrees</b> (WGS84 std: nn.nnnnnnn) 47.9185735		<b>28. Longitude in decimal degrees</b> (WGS84 std: -nnn.nnnnnnn) -97.0883505	
<b>29. Lat/Long Source</b> <input checked="" type="checkbox"/> Actual <input type="checkbox"/> Estimated					
<b>30.A. Railroad Use *</b>			<b>31.A. State Use *</b>		
<b>30.B. Railroad Use *</b>			<b>31.B. State Use *</b>		
<b>30.C. Railroad Use *</b>			<b>31.C. State Use *</b>		
<b>30.D. Railroad Use *</b>			<b>31.D. State Use *</b>		
<b>32.A. Narrative (Railroad Use) *</b> (1.27 1.28 1.29) Value Provided by Railroad, Not Yet			<b>32.B. Narrative (State Use) *</b>		
<b>33. Emergency Notification Telephone No. (posted)</b> 800-832-5452		<b>34. Railroad Contact (Telephone No.)</b> 817-352-1549		<b>35. State Contact (Telephone No.)</b> 701-328-4409	

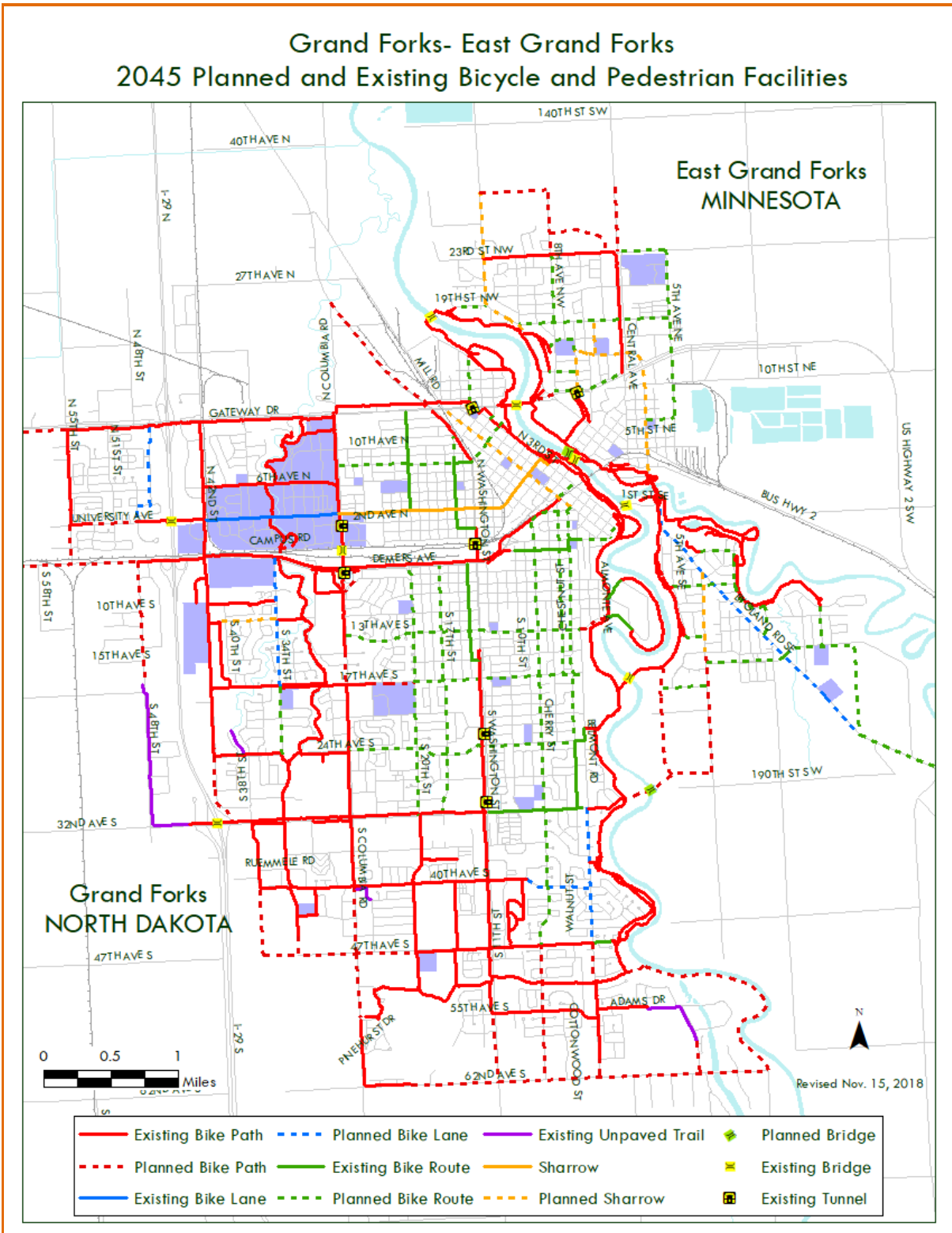
## Part II: Railroad Information

<b>1. Estimated Number of Daily Train Movements</b>				
<b>1.A. Total Day Thru Trains (6 AM to 6 PM)</b> 5	<b>1.B. Total Night Thru Trains (6 PM to 6 AM)</b> 5	<b>1.C. Total Switching Trains</b> 0	<b>1.D. Total Transit Trains</b> 0	<b>1.E. Check if Less Than One Movement Per Day</b> <input type="checkbox"/> How many trains per week? _____
<b>2. Year of Train Count Data (YYYY)</b> 2019		<b>3. Speed of Train at Crossing</b> 3.A. Maximum Timetable Speed (mph) 35 3.B. Typical Speed Range Over Crossing (mph) From 1 to 35		
<b>4. Type and Count of Tracks</b> Main 2 Siding 0 Yard 0 Transit 0 Industry 0				
<b>5. Train Detection (Main Track only)</b> <input checked="" type="checkbox"/> Constant Warning Time <input type="checkbox"/> Motion Detection <input type="checkbox"/> AFO <input type="checkbox"/> PTC <input type="checkbox"/> DC <input type="checkbox"/> Other <input type="checkbox"/> None				
<b>6. Is Track Signaled?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>7.A. Event Recorder</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>7.B. Remote Health Monitoring</b> <input type="checkbox"/> Yes <input type="checkbox"/> No

# U. S. DOT CROSSING INVENTORY FORM

A. Revision Date (MM/DD/YYYY) 08/04/2022		PAGE 2		D. Crossing Inventory Number (7 char.) 081329H	
<b>Part III: Highway or Pathway Traffic Control Device Information</b>					
1. Are there Signs or Signals? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		2. Types of Passive Traffic Control Devices associated with the Crossing			
2.A. Crossbuck Assemblies (count) 0		2.B. STOP Signs (R1-1) (count) 0	2.C. YIELD Signs (R1-2) (count)	2.D. Advance Warning Signs (Check all that apply; include count) <input type="checkbox"/> None <input checked="" type="checkbox"/> W10-1 4 <input type="checkbox"/> W10-3 _____ <input type="checkbox"/> W10-11 _____ <input checked="" type="checkbox"/> W10-2 3 <input checked="" type="checkbox"/> W10-4 4 <input type="checkbox"/> W10-12 _____	
2.E. Low Ground Clearance Sign (W10-5) <input type="checkbox"/> Yes (count _____) <input checked="" type="checkbox"/> No		2.F. Pavement Markings <input checked="" type="checkbox"/> Stop Lines <input type="checkbox"/> Dynamic Envelope <input type="checkbox"/> RR Xing Symbols <input type="checkbox"/> None		2.G. Channelization Devices/Medians <input checked="" type="checkbox"/> All Approaches <input type="checkbox"/> Median <input type="checkbox"/> One Approach <input type="checkbox"/> None	2.H. EXEMPT Sign (R15-3) <input type="checkbox"/> Yes <input type="checkbox"/> No
2.I. ENS Sign (I-13) Displayed <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		2.J. Other MUTCD Signs <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Specify Type W10-9 Count 6 Specify Type R15-8 Count 4 Specify Type R8-8 Count 2		2.K. Private Crossing Signs (if private) <input type="checkbox"/> Yes <input type="checkbox"/> No	2.L. LED Enhanced Signs (List types)
3. Types of Train Activated Warning Devices at the Grade Crossing (specify count of each device for all that apply)					
3.A. Gate Arms (count) Roadway 3 Pedestrian _____	3.B. Gate Configuration <input type="checkbox"/> 2 Quad <input type="checkbox"/> Full (Barrier) Resistance <input type="checkbox"/> 3 Quad <input type="checkbox"/> Median Gates <input type="checkbox"/> 4 Quad	3.C. Cantilevered (or Bridged) Flashing Light Structures (count) Over Traffic Lane 1 <input type="checkbox"/> Incandescent Not Over Traffic Lane 0 <input type="checkbox"/> LED		3.D. Mast Mounted Flashing Lights (count of masts) 3 <input type="checkbox"/> Incandescent <input type="checkbox"/> LED <input type="checkbox"/> Back Lights Included <input type="checkbox"/> Side Lights Included	3.E. Total Count of Flashing Light Pairs 9
3.F. Installation Date of Current Active Warning Devices: (MM/YYYY) ____/____/____ <input type="checkbox"/> Not Required		3.G. Wayside Horn <input type="checkbox"/> Yes Installed on (MM/YYYY) ____/____/____ <input type="checkbox"/> No		3.H. Highway Traffic Signals Controlling Crossing <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.I. Bells (count) 2
3.J. Non-Train Active Warning <input type="checkbox"/> Flagging/Flagman <input type="checkbox"/> Manually Operated Signals <input type="checkbox"/> Watchman <input type="checkbox"/> Floodlighting <input type="checkbox"/> None				3.K. Other Flashing Lights or Warning Devices Count 0 Specify type _____	
4.A. Does nearby Hwy Intersection have Traffic Signals? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.B. Hwy Traffic Signal Interconnection <input type="checkbox"/> Not Interconnected <input checked="" type="checkbox"/> For Traffic Signals <input type="checkbox"/> For Warning Signs	4.C. Hwy Traffic Signal Preemption <input checked="" type="checkbox"/> Simultaneous <input type="checkbox"/> Advance	5. Highway Traffic Pre-Signals <input type="checkbox"/> Yes <input type="checkbox"/> No Storage Distance * _____ Stop Line Distance * _____	6. Highway Monitoring Devices (Check all that apply) <input type="checkbox"/> Yes - Photo/Video Recording <input type="checkbox"/> Yes - Vehicle Presence Detection <input type="checkbox"/> None	
<b>Part IV: Physical Characteristics</b>					
1. Traffic Lanes Crossing Railroad Number of Lanes 2 <input type="checkbox"/> One-way Traffic <input checked="" type="checkbox"/> Two-way Traffic <input type="checkbox"/> Divided Traffic		2. Is Roadway/Pathway Paved? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3. Does Track Run Down a Street? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4. Is Crossing Illuminated? (Street lights within approx. 50 feet from nearest rail) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Crossing Surface (on Main Track, multiple types allowed) Installation Date * (MM/YYYY) ____/____/____ Width * _____ Length * _____ <input type="checkbox"/> 1 Timber <input type="checkbox"/> 2 Asphalt <input type="checkbox"/> 3 Asphalt and Timber <input type="checkbox"/> 4 Concrete <input checked="" type="checkbox"/> 5 Concrete and Rubber <input type="checkbox"/> 6 Rubber <input type="checkbox"/> 7 Metal <input type="checkbox"/> 8 Unconsolidated <input type="checkbox"/> 9 Composite <input type="checkbox"/> 10 Other (specify) _____					
6. Intersecting Roadway within 500 feet? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Approximate Distance (feet) 75			7. Smallest Crossing Angle <input type="checkbox"/> 0° - 29° <input type="checkbox"/> 30° - 59° <input checked="" type="checkbox"/> 60° - 90°		8. Is Commercial Power Available? * <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Part V: Public Highway Information</b>					
1. Highway System <input type="checkbox"/> (01) Interstate Highway System <input type="checkbox"/> (02) Other Nat Hwy System (NHS) <input checked="" type="checkbox"/> (03) Federal AID, Not NHS <input type="checkbox"/> (08) Non-Federal Aid		2. Functional Classification of Road at Crossing <input type="checkbox"/> (0) Rural <input checked="" type="checkbox"/> (1) Urban <input type="checkbox"/> (1) Interstate <input type="checkbox"/> (5) Major Collector <input type="checkbox"/> (2) Other Freeways and Expressways <input type="checkbox"/> (3) Other Principal Arterial <input type="checkbox"/> (6) Minor Collector <input checked="" type="checkbox"/> (4) Minor Arterial <input type="checkbox"/> (7) Local		3. Is Crossing on State Highway System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4. Highway Speed Limit 35 _____ MPH <input checked="" type="checkbox"/> Posted <input type="checkbox"/> Statutory
5. Linear Referencing System (LRS Route ID) *					
6. LRS Milepost *					
7. Annual Average Daily Traffic (AADT) Year 2015 AADT 17215		8. Estimated Percent Trucks 1 _____ %	9. Regularly Used by School Buses? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Average Number per Day _____		10. Emergency Services Route <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Submission Information - This information is used for administrative purposes and is not available on the public website.</b>					
Submitted by _____ Organization _____ Phone _____ Date _____					
Public reporting burden for this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. According to the Paperwork Reduction Act of 1995, a federal agency may not conduct or sponsor, and a person is not required to, nor shall a person be subject to a penalty for failure to comply with, a collection of information unless it displays a currently valid OMB control number. The valid OMB control number for information collection is 2130-0017. Send comments regarding this burden estimate or any other aspect of this collection, including for reducing this burden to: Information Collection Officer, Federal Railroad Administration, 1200 New Jersey Ave. SE, MS-25 Washington, DC 20590.					

## 2. Existing Bicycle and Pedestrian Facilities Map





**One-Way Cash Fare\***

Adult	\$1.50
K-12 Student	\$0.75
Reduced Fare**	\$0.60

**10-Ride Cards**

Adult	\$13.00
K-12 Student	\$6.50
Reduced Fare**	\$5.25

\*Exact fare required

\*\*Seniors age 62+, Medicare card holders, and persons with disabilities

**Fixed Period Passes**

1-Day Pass	\$5.00
14-Day Pass	\$18.00
31-Day Pass	\$35.00

**Transfers** are free for use on the next connecting bus. Ask for a transfer upon boarding. Not valid on the same bus. Valid at transfer locations only. One time use.

**Children** age 5 and under ride free

**UND Students** ride free with student ID

**Northland College** students ride free with student ID and bus pass issued by Northland

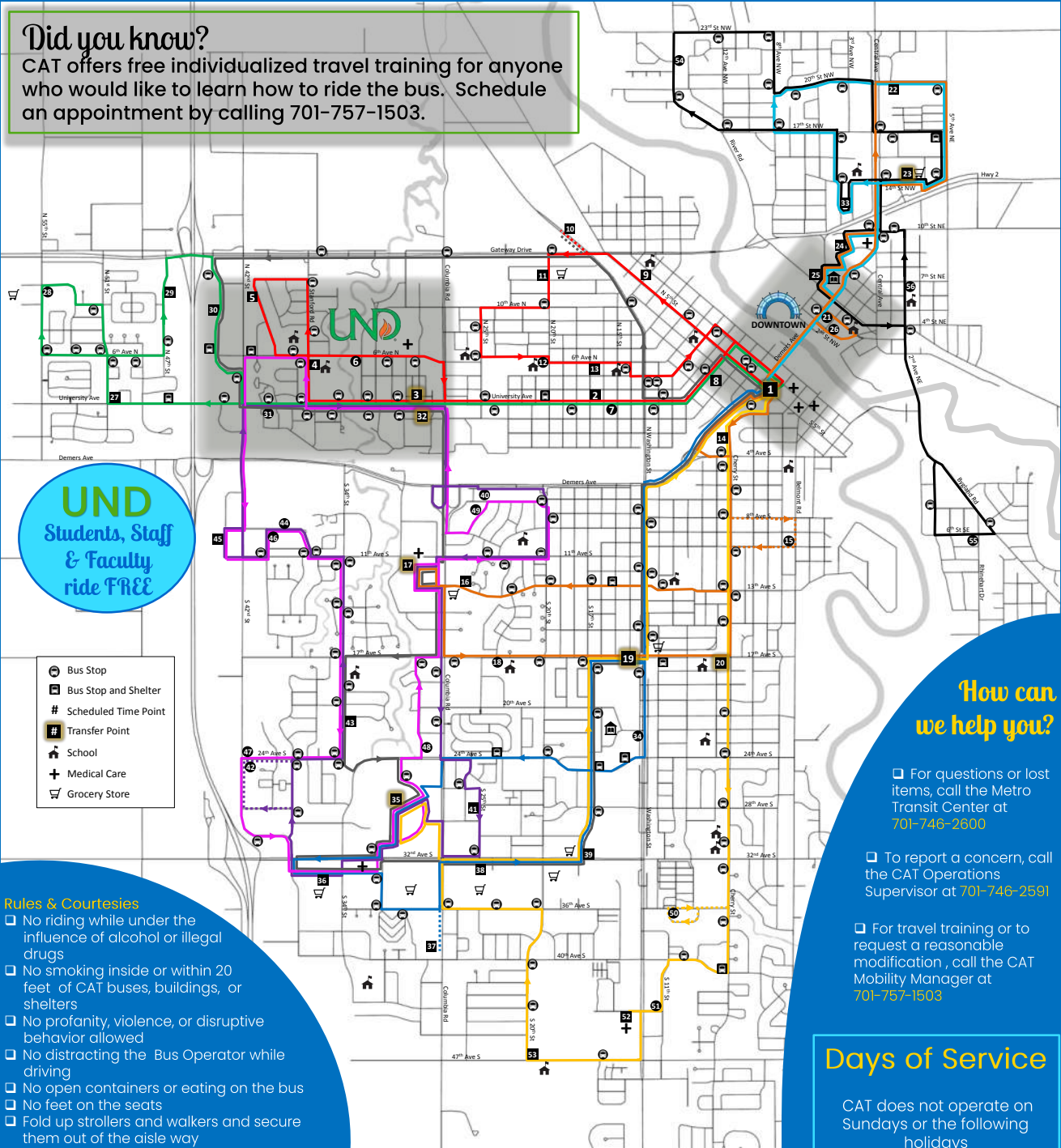
**NOTE:** Fare cards are non-refundable. Do not scratch or bend. Rechargeable fare media available for purchase at the Metro Transit Center.

**For Your Safety**

- Call 911 in case of emergency
- Be aware of your surroundings
- Remain seated while the bus is moving
- Do not walk in front of the bus
- Stay back from the painted yellow line
- Dress appropriately for adverse weather conditions
- If you see something suspicious, report it to the proper authority

**Did you know?**

CAT offers free individualized travel training for anyone who would like to learn how to ride the bus. Schedule an appointment by calling 701-757-1503.



**UND**  
Students, Staff  
& Faculty  
ride FREE

- Bus Stop
- Bus Stop and Shelter
- Scheduled Time Point
- Transfer Point
- School
- Medical Care
- Grocery Store

**Rules & Courtesies**

- No riding while under the influence of alcohol or illegal drugs
- No smoking inside or within 20 feet of CAT buses, buildings, or shelters
- No profanity, violence, or disruptive behavior allowed
- No distracting the Bus Operator while driving
- No open containers or eating on the bus
- No feet on the seats
- Fold up strollers and walkers and secure them out of the aisle way
- Shirt and shoes or other footwear required
- Passengers must maintain appropriate, reasonable personal hygiene
- Limit carry-on items to one armload or the equivalent of two grocery bags
- Have your bus fare ready before boarding
- Use earphones to listen to music
- Small animals may be transported in a carrier
- Service animals are welcome on board

*We are committed to providing you with clean, safe, and reliable transportation.*

**How can we help you?**

- For questions or lost items, call the Metro Transit Center at 701-746-2600
- To report a concern, call the CAT Operations Supervisor at 701-746-2591
- For travel training or to request a reasonable modification, call the CAT Mobility Manager at 701-757-1503

**Days of Service**

CAT does not operate on Sundays or the following holidays

- New Year's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Day



Track buses and plan trips with the CAT Prowler app

[www.rideCAT.org](http://www.rideCAT.org)



Metro Transit Center  
450 Kittson Ave  
Grand Forks, ND 58201  
701-746-2600



# 2045 Plan: Illustrative Projects

Project Number	Roadway	Location	Project Type	Project Description	Lead Agency	Prioritization Score	Current Cost
DIS-035	Columbia Rd	14th Ave S to 24th Ave S	Discretionary	Reconstruct to variable 5-lane to 6-lane roadway with 11 ft lanes, replacement of signing, signals, lights, construction of shared use path and replacement of sidewalks	City of Grand Forks	62.5	\$12,750,000
DIS-047	42nd Street	North of DeMers Avenue	Discretionary	Railroad Grade Separation	City of Grand Forks	50	\$40,000,000
REP-040	32nd Avenue South	South Washington Street to South 10th Street	State of Good Repair	Reconstruct	City of Grand Forks	47.5	\$989,880
DIS-011	42nd Street/32nd Avenue South	East of I - 29	Discretionary	Ramp Realignment	City of Grand Forks	47.5	\$16,000,000
DIS-031	South Columbia Road/South Washington Street	47th Avenue South to 62nd Avenue South/SED to 62nd Avenue South	Discretionary	Reconstruct	City of Grand Forks	47.5	\$12,000,000
DIS-032	32nd Ave	48th St to 52nd St	Discretionary	Urban to Rural transition improvement: Expand to 4 lanes	City of Grand Forks	47.5	\$1,391,851
REP-158	Minnesota Avenue	4th Avenue South to Bridge	State of Good Repair	Reconstruct	City of Grand Forks	45	\$1,079,869
REP-074	N 36th Street	18th Avenue North to RR Tracks	State of Good Repair	Reconstruct	City of Grand Forks	40	\$480,000
REP-075	N 36th Street	Gateway Drive (US 2) to RR Tracks	State of Good Repair	Reconstruct	City of Grand Forks	40	\$960,000
DIS-037	47th Avenue South & I - 29 Interchange	West of Columbia Road	Discretionary	New 2 Lane Road Extension and New Interchange with I - 29	City of Grand Forks	40	\$46,000,000
DIS-016	Mill Spur Railway	Gateway Dr to University Ave	Discretionary	Implement warning devices, gates and flashers, crossing Closures and median improvements and landscape and trail improvements	City of Grand Forks	35	\$3,229,000
REP-039	32nd Avenue South	South 48th Street to I-29	State of Good Repair	Concrete Pavement Rehabilitation (CPR) and Grind	City of Grand Forks	32.5	\$1,799,782

**URBAN REGIONAL & URBAN ROADS  
PROJECT SCOPING WORKSHEET**

DATE: 2/28/2023

PRIORITY# 1 - 2025

Regional: (Y)/N

Urban Roads: Y/(N)

City: Grand Forks

Street: 42<sup>nd</sup> St Grade Separation

County: Grand Forks

Length: Intersection Improvement

Proposed Improvement: Construction of the 42<sup>nd</sup> St Grade Separation Project. Applications have been previous

Cost Estimates Breakdown (in \$1,000)							
PE	CE	R/W	Utility	Constr.	Bridges	Non-Participating	Total
	6,400	8,450	200	23,550	15,000		53,600

Present Road: Surface Width? 42<sup>nd</sup> St 90'  
SH297/Demers Ave 80'

Surface Type? Concrete

On Street Parking Allowed? \_\_\_\_\_ Present: (No) One Side Both Sides Angle Parallel  
Proposed: (No) One Side Both Sides Angle Parallel

Proposed Improvements	
ADT Present: <u>42<sup>nd</sup> St 13,775-14,700 Yr: 2018</u> <u>SH 297/Demers Ave 14,150-15,440</u>	Travel Way Width : <u>~72'</u>
ADT Design: <u>~20,000-23,700 Design year 2045</u>	No. of Lanes: <u>6 (RTL, LTL, 2 through in either direction)</u>
Design Speed: <u>40mph</u>	Roadway Width: _____
Maximum Curve: <u>TBD</u>	Min. R/W Width: _____
Maximum Grade: <u>TBD</u>	

Right of Way
Will Additional ROW or easement be acquired? <u>Yes</u> ROW acquisition by: City (DOT)
Has any ROW easements been acquired since 7-1-72: <u>UNK</u> ROW Condemnation by: City (DOT)
Est. No. of occupied family dwelling to be displaced? <u>0</u>
Est. No. business to be displaced? <u>1 possibly</u>

**Impacts**

**Will there be any additional Impacts (Cultural and Environmental Resources):** A class III Cultural Resource Inventory was performed in July of 2021. The report recommended a finding of No Historic Properties Affected for the project. An Aquatic Resource Delineation Report and Traffic Noise Analysis were completed as part of the ongoing Cat-Ex. It is anticipated that depending on the alternative selected there will need to be wetland mitigation.

**Will there be any impacts to 4(f) or 6(f) properties:** A 4(f) Determination memo has been submitted to the NDDOT regarding the Ray Richard’s Golf Course owned and operated by the University of North Dakota.

**Airports:** None anticipated

**Public Hearings:** TBD

**Environmental Classification (Cat-Ex, EA, EIS):** Cat-Ex is currently being prepared for the project with an anticipated completion date of spring/summer of 2023

**Transportation Enhancements:** There is an existing shared use path along the western side of 42<sup>nd</sup> St on either side of the intersection. Along SH297/Demers Ave there is a shared use path along the north side east of 42<sup>nd</sup> St and along the south side to the west of 42<sup>nd</sup> St. As part of the project it is proposed to maintain these shared use path connections

**Intermodal:** There are no current transit stops near this intersection.

**Pedestrian Needs:** There is an existing shared use path along the western side of 42<sup>nd</sup> St on either side of the intersection. Along SH297/Demers Ave there is a shared use path along the north side east of 42<sup>nd</sup> St and along the south side to the west of 42<sup>nd</sup> St. As part of the project it is proposed to maintain these shared use path connections.

<b>Railroads Crossings</b>						
RR Name	No. Xings	No. Tracks and Type of Crossing	Daily Train Movements	Train Speed	Present Protection	Proposed Protection
BNSF 081329H	1	2	10	1-35	Gates/ Flashers/ Medians	Grade Separation

**Purpose and Need Statement:**

The existing at grade rail crossing at 42<sup>nd</sup> St near SH297/Demers Ave creates safety hazards, traffic delays, and operational inefficiencies for the residents of Grand Forks, students, faculty, and visitors of the University of North Dakota, and the flow of freight traffic along the BNSF Railway. This intersection currently experiences 130.9 vehicle-hours of delay per day from train operations. The intersection’s current level of service is currently D or E for peak conditions on all approaches. Under a no-build scenario the Traffic Operations report predicted that the LOS would worsen to between E and F by 2045.

Project Funding by Source from the Federal Funding applications

Funding Source	Funding Type	Description	Amount	Percentage of Total Project Cost
Federal Railroad Administration	Federal	Grant Funds Administrator	\$30,000,000	50.0%
North Dakota Department of Transportation	Non-Federal	Project Applicant	\$4,200,000	7.0%
North Dakota Department of Transportation	Federal	NDDOT Federal Formula Funds	\$7,500,000	12.5%
BNSF Railway	Non-Federal	Private Funding Partner	\$1,500,000	2.5%
City of Grand Forks	Non-Federal	Public Funding Partner	\$16,800,000	28.0%
<b>TOTAL PROJECT COST</b>	-	-	<b>\$60,000,000</b>	<b>100.0%</b>

Project Budget by Project Component from Federal Funding applications

Project Component/Task	Cost	Percentage of Total Cost
Construction and Construction Engineering	\$34,400,000	57.3%
Land Purchases, Relocations, and Environmental Mitigation	\$19,200,000	32.0%
Design and Engineering	\$6,400,000	10.7%
<b>TOTAL PROJECT COST</b>	<b>\$60,000,000</b>	<b>100.0%</b>

Existing Conditions:

1. When was the current street section built? Has there been any additional maintenance to the street section?

SH 297/Demers Ave was originally constructed in 1992 under NDDOT projects SU-6-986(030)033 and CMU-6-297(004)000 City Project P-4006

SH297/Demers Ave was rehabilitated in 2016 under NDDOT project NHU-6-297(008)008 City Project P-7164

42<sup>nd</sup> St was originally constructed in 2001 under NDDOT projects U-CMU-6-986(057)060, U-CMU-6-986(058)061, SER-6-986(051)054, and CPU-6-986(002)062 City Project P-5048

2. How many driving lanes and turning lanes does the street section currently have and what is the widths of the driving and turning lanes?

Each leg of the intersection consists of 1 left turn lane, 2 through lanes, and 1

right turn lane. Lanes are approximately 12' wide.

3. What is the condition of the pavement section?

Pavement Condition Index and International Roughness Index data was obtained in 2021 from GoodPointe Technology.

The north leg of 42<sup>nd</sup> St has a PCI of 97 and IRI of 189

The south leg of 42<sup>nd</sup> St has a PCI of 100 and IRI of 156

The westbound west leg of SH297/Demers Ave has a PCI of 89 and IRI of 100

The eastbound west leg of SH297/Demers Ave has a PCI of 86 and IRI of 98

The westbound east leg of SH297/Demers Ave has a PCI of 87 and IRI of 75

The eastbound east leg of SH297/Demers Ave has a PCI of 96 and IRI of 79

4. Any existing geometric concerns?

If a left turn lane is provided to the gas station from Demers Ave it is likely that the turn lane may not meet design standards and may need a design exemption.

5. Are there any access points to adjoining properties that present a special concern?

The access to the Dusterhoft Cenex gas station and service center located to the west of the intersection of SH297/Demers Ave and 42<sup>nd</sup> St.

6. Are there any existing sidewalks or shared use path in place?

Yes, on the north and south legs of the intersection there is a shared use path along the west side of 42<sup>nd</sup> St, on the east leg of the intersection there is a shared use path on the north side of SH297/Demers Ave, and on the west leg of the intersection there is a shared use path along the south side of SH297/Demers Ave. There are no sidewalks.

7. What is the condition of the existing storm sewer? Will any additional storm sewer work need to be done along with this project?

Condition of the existing storm sewer is unknown. However because of the work associated with a grade separation project, storm sewer will likely need to be relocated, and a storm sewer lift station required to pump out water from the water collecting in the underpass.

8. What is the condition of the city's water and sewer line? Will any work have to be done to the city's water and sewer lines along with this project?

The city has a 20" AC watermain pipe, two 30" Ductile Iron Pipes Raw Water Lines, and a 14" PVC Raw Water Line running through the project area. It is likely that these lines will need to be rerouted with the grade separation project.

There is no city sanitary sewer within the project limits. There is a private sanitary sewer on the east side of the Dusterhoft Cenex gas station and service center property.

9. Describe the existing lighting system currently in place? What type of standards and luminaires are currently being used?

East of the intersection along SH297/Demers Ave there are 250W HPS Fixtures mounted on 40' standards with truss style arms.

West of the intersection along SH297/Demers Ave there are 165W LED Autobahn Fixtures mounted on 40' standards with truss style arms.

North of the intersection along 42<sup>nd</sup> St there are 276W LED Autobahn fixtures mounted on 40' standards with truss style mast arms

South of the intersection along 42<sup>nd</sup> St there are 273W LED Autobahn fixtures mounted on 40' standards with truss style mast arms.

10. What intersections currently have traffic signals? Are there any locations that have a high accident rate? Are additional turning lanes needed?

The intersection of SH297/Demers Ave and 42<sup>nd</sup> St is currently signalized. At the time this scoping report was written the traffic signals are roughly 20 years old. Due to the realignment at the intersection it is anticipated that the signals will be replaced as part of the project.

The NDDOT State Action Plan for Highway-Rail Crossing Safety includes the 42<sup>nd</sup> St crossing in the list of crossings that have experienced crashes from 2018-2020

This intersection was not included on the 2019-2021 Urban High Crash Location List.

No additional turn lanes are anticipated with this project.

Remarks:

*This is a high priority project for the City. I support the project if funds are available.*

City Engineer: *Allan R. E.*

Date: *2/28/23*

District Engineer: *Edward Tarkenton*

Date: *2/28/23*

**Note:** Please attach a map showing location and extent of the project, detailed cost estimate, and any additional supporting documents.





## 42<sup>nd</sup> Street Grade Separation Project to Improve Efficiency, Connectivity, Equity, and Safety (PIECES)

North Dakota Department of Transportation

FY 2022 CRISI Application

*Grand Forks, North Dakota*

*December 1, 2022*





## 1.0 Cover Page

Project Title	42 <sup>nd</sup> Street Grade Separation Project to Improve Efficiency, Connectivity, Equity, and Safety (PIECES)
Applicant:	North Dakota Department of Transportation (NDDOT)
Federal Funding Requested Under this NOFO	\$30,000,000
Proposed Non-Federal Match	\$22,500,000      In Kind: \$0
Does some or all of the proposed Non-Federal Match for the total project cost consist of preliminary engineering costs associated with a Highway-rail Grade Crossing Improvement Project or a trespassing prevention project incurred before project selection?	No
Other Sources of Federal funding, if applicable	Source: NDDOT Federal Formula Funds through FHWA \$7,500,000
Total Project Cost	\$60,000,000
Was a Federal Grant Application Previously Submitted for this Project?	Yes City of Grand Forks: TIGER VII program in 2015 for 42 <sup>nd</sup> Street & DeMers Avenue Railroad Grade Separation. NDDOT: Railroad Crossing Elimination Program and Reconnecting Communities Pilot both in October 2022 for 42 <sup>nd</sup> Street Grade Separation Project to Improve Efficiency, Connectivity, Equity, and Safety (PIECES).
City(-ies), State(s) where the project is located:	Grand Forks, North Dakota
Congressional District(s) Where the Project is Located.	North Dakota At-Large
Is this a project eligible under 49 U.S.C. 22907(c)(2) that supports the development of new intercity passenger rail service routes including alignments for existing routes?	No

<p>Is this a Rural Project? What percentage of the project cost is based in a Rural Area?</p>	<p>No          Percentage of total project cost: 0%</p>
<p>Is this a project eligible under 49 U.S.C. 22907(c)(11) that supports the development and implementation of measures to prevent trespassing and reduce associated injuries and fatalities?</p>	<p>No</p>
<p>If YES to the previous question, is this project located in a county with the most pedestrian trespasser casualties as identified in the Federal Railroad Administration’s National Strategy to Prevent Trespassing on Railroad Property?</p>	
<p>Is the application seeking consideration for funding under the Maglev Grants Program?</p>	<p>No</p>
<p>Is the project currently programmed in: State Rail Plan, State Freight Plan, TIP, STIP, MPO Long Range Transportation Plan, State Long-Range Transportation Plan?</p>	<p>Yes          The combined <a href="#">North Dakota State Freight &amp; Rail Plan</a> is currently in development by NDDOT. The draft plan includes the 42<sup>nd</sup> St Grand Forks Grade Separation on page D-3 of Appendix D: Rail Projects          The <a href="#">NDDOT State Action Plan for Highway-Rail Crossing Safety</a> includes the 42<sup>nd</sup> Street crossing in the list of crossings that have experienced crashes in the previous three years on page 8.          The 42<sup>nd</sup> Street Grade Separation Project is included in the <a href="#">North Dakota 2022-2025 State Transportation Improvement Plan</a> as Project 15857 6312 NA          2018 Grand Forks-East Grand Forks MPO Transportation Plan (2045) as an Illustrative Project of Significance due to lack of funding on Page 7-17 (<a href="#">DisplayFile.aspx (theforksmo.org)</a>)</p>

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## Attachments

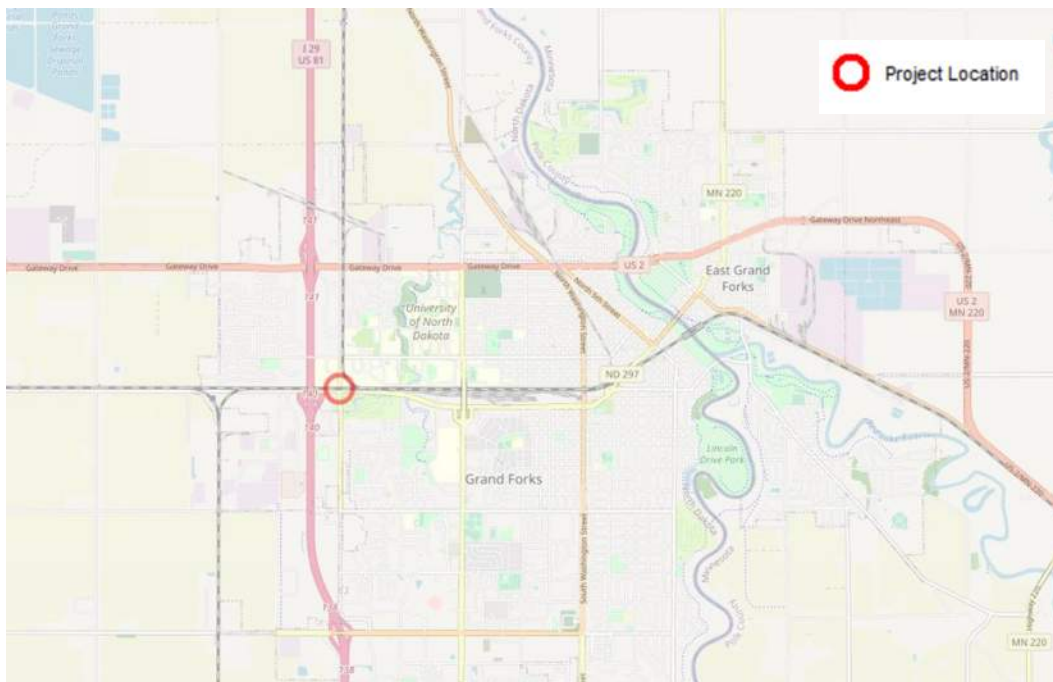
- Attachment 1: Standard Terms and Condition
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- Attachment 7: Preliminary Layouts and Cost Estimates
- Attachment 8: Benefit-Cost Analysis

## 2.0 Project Summary

North Dakota Department of Transportation (NDDOT), in partnership with the City of Grand Forks (the City) and BNSF Railway (BNSF), is requesting \$30,000,000 in FY 2022 Consolidated Rail Infrastructure and Safety Improvements (CRISI) funding for the \$60 million 42<sup>nd</sup> Street Grade Separation Project to Improve Efficiency, Connectivity, Equity, and Safety, or PIECES (the Project).

The existing highway-rail grade crossing at 42<sup>nd</sup> Street (Crossing Inventory ID 081329H) near DeMers Avenue (ND Highway 297) in Grand Forks, North Dakota (**Figure 1** below) creates safety hazards, traffic delays, and operational inefficiencies for the residents of Grand Forks; the students, staff, and visitors at the University of North Dakota (UND); and the flow of interstate commerce along the BNSF network. The proposed grade separation project will lower the 42<sup>nd</sup> Street roadway and allay these transportation safety and reliability concerns. Several challenges must be addressed, including identifying which proposed alternatives will improve vehicle traffic patterns, determining how much of the existing roadway and pedestrian facility will be lowered, ensuring public access to existing properties will be maintained, and minimizing impacts to the recreational value of the neighboring public golf course. Successful implementation of this grade separation project will result in fewer automobiles idling in highway traffic, greater pedestrian and bicycle mobility and comfort along the roadway, a safer connection between UND and nearby student housing, improved railroad operations, greatly reduced risk of interaction between the public and railroad facilities, and a reduction of barriers to equity and opportunity in the community.

**Figure 1: Project Location Map**



### 3.0 Project Funding

As the applicant, NDDOT will contribute \$4.2 million in non-Federal funding and an additional \$7.5 million in Federal Formula Funding for a combined total of \$11.7 million (19.5 percent of the total project costs). Additional funding contributions are proposed by the City of Grand Forks and BNSF Railway. **Table 1** below summarizes the total funding contribution from each project funding source. Letters of Funding Commitment from each funding partner are included in **Attachment 6**.

**Table 1: Project Funding Sources\***

Funding Source	Funding Type	Description	Amount	Percentage of Total Project Cost
CRISI Grant – Federal Railroad Administration	Federal	Grant Funds Administrator	\$30,000,000	50.0%
North Dakota Department of Transportation	Non-Federal	Project Applicant	\$4,200,000	7.0%
North Dakota Department of Transportation	Federal	NDDOT Federal Formula Funds	\$7,500,000	12.5%
BNSF Railway	Non-Federal	Private Funding Partner	\$1,500,000	2.5%
City of Grand Forks	Non-Federal	Public Funding Partner	\$16,800,000	28.0%
<b>TOTAL PROJECT COST</b>	-	-	<b>\$60,000,000</b>	<b>100.0%</b>

\*As costs continue to rise, if awarded, the State of North Dakota needs flexibility to address any project overruns with a combination of Federal Formula, City and State funding.

The project budget by major construction activity is summarized in **Table 2** below. Each project component includes sufficient amounts for contingency to cover unanticipated cost increases.

**Table 2: Project Budget by Project Component**

Project Component/Task	Cost	Percentage of Total Cost
Construction and Construction Engineering	\$34,400,000	57.3%
Land Purchases, Relocations, and Environmental Mitigation	\$19,200,000	32.0%
Design and Engineering	\$6,400,000	10.7%
<b>TOTAL PROJECT COST</b>	<b>\$60,000,000</b>	<b>100.0%</b>

Funding for this Project was previously sought by the City in a 2015 TIGER VII Grant Application. This new application includes updated information regarding project costs and benefits, including more up-to-date traffic impacts based on a 2022 Traffic Impact Study for this crossing. Additionally, this application includes substantially more local match funding compared to the previous grant application. Information similar to this application was used for the Railroad

Crossing Elimination Program and Reconnecting Communities Pilot both submitted in October 2022.

## 4.0 Applicant Eligibility

The applicant for this CRISI grant is the State of North Dakota, via the North Dakota Department of Transportation. The State is partnering with BNSF Railway and the City of Grand Forks, while receiving non-monetary support from other stakeholders including the UND.

## 5.0 Project Eligibility

The Project will construct a long-anticipated highway-rail grade separation underpass below the BNSF Grand Forks Subdivision in Grand Forks, North Dakota. This Project targets long-standing transportation safety and equity concerns and will help to remove barriers to opportunity within the Grand Forks, North Dakota community. The specific scope of this Project includes:

- 42<sup>nd</sup> Street Grade Separation Underpass Construction
- 42<sup>nd</sup> Street/DeMers Avenue (ND Highway 297) Intersection Reconstruction

The Project will follow Track 3 for Final Design/Construction.

## 6.0 Detailed Project Description

The 42<sup>nd</sup> Street Grade Separation Project to Improve Efficiency, Connectivity, Equity, and Safety (PIECES) will alleviate conflicts between the approximately 15,000 vehicles and 10 trains daily near the intersection of 42<sup>nd</sup> Street, DeMers Avenue, and BNSF in Grand Forks. The proposed Project would construct a grade separated crossing of 42<sup>nd</sup> Street and the BNSF main line railroad paralleling DeMers Avenue. A principal local thoroughfare – 42<sup>nd</sup> Street is one of only four north-south arterials in Grand Forks. **The highway-rail crossing at 42<sup>nd</sup> Street currently experiences 130.9 vehicle-hours of delay per day from train operations.** The proposed grade separation would remove significant barriers to vehicular traffic and would accommodate pedestrian and bicycle traffic generated by the UND, multi-family housing facilities, Alerus Event Center, and other major facilities located adjacent to this intersection.

### 6.1 A Project 30 Years in the Making

Grade separation at the 42<sup>nd</sup> Street crossing has been considered since 1991, when a feasibility study was first completed, and City of Grand Forks incorporated the Project into the City's 20-year transportation plan. The City and the NDDOT purchased parcels surrounding the project area in 1993 and 1994. Floods in 1997 caused significant City and State resources to be redirected toward natural disaster recovery and resiliency efforts over the next decade. The City prepared environmental documentation regarding the Project in 2004, but the reports never received final approval, likely because of a perceived unavailability of funding. The Grand Forks-East Grand Forks MPO in 2009 incorporated the grade separation project into its Long-Range Transportation Plan. Development of several vacant properties in the vicinity of the crossing was proposed in 2010, resulting in several grade separation design alternatives that impacted the

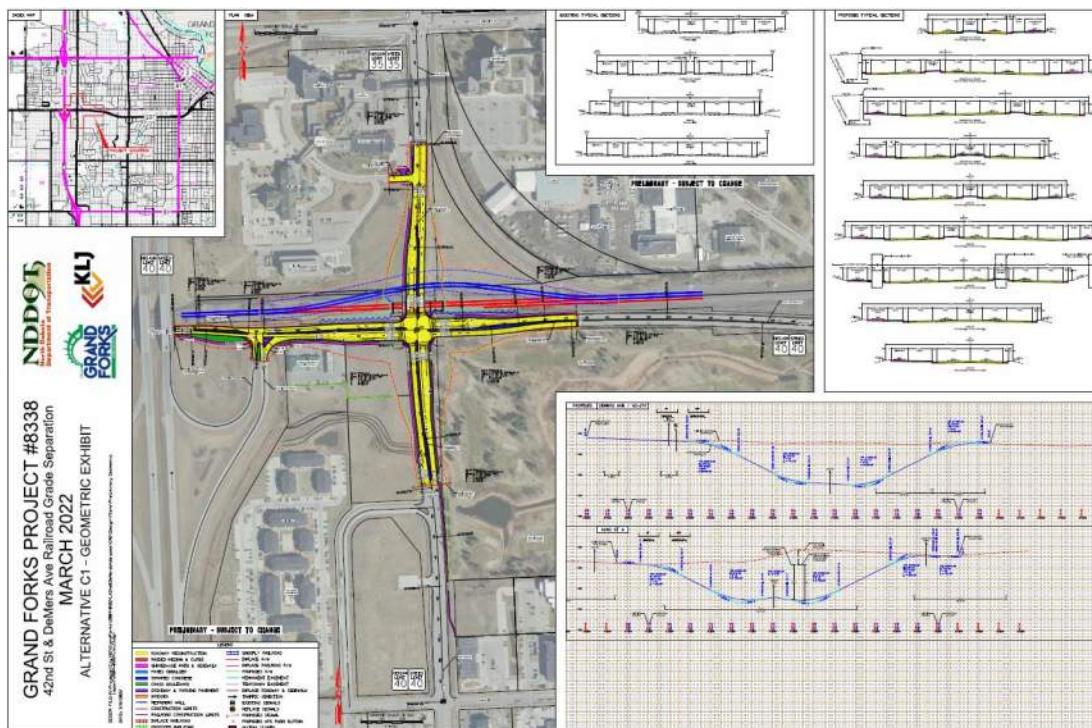


golf course at the southeast corner of the 42<sup>nd</sup> Street/DeMers Avenue intersection. Recent changes to FHWA 4(f) regulations opened the possibility of golf course impacts. In 2014 the MPO identified numerous issues with the crossing in its Rail Access Study, including traffic delays resulting from trains occupying the crossing, pedestrians making unsafe crossings of the BNSF Grand Forks Yard, and potential interruption of emergency vehicle access. The City applied to the USDOT for Transportation Investment Generating Economic Recovery (TIGER) VII funding in 2015 to complete the Project but was not selected for award. Most recently, the Project was identified in the 2022-2025 State Transportation Improvement Program (STIP).

## 6.2 Multiple Intersection Layouts Under Consideration

In anticipation of this Project, NDDOT and the City have developed multiple geometric layout alternatives to measure the potential costs and benefits of each. **Figure 2** below shows the proposed layout for Alternative C1. There are currently five alternatives under consideration ranging in estimated costs of between \$49.9 million and \$59.9 million. The selection of the final design alternative will be based on consideration of multiple factors including cost, construction impacts, community connectivity, and the long-term impacts to adjacent properties. See **Attachment 7** for drawings of all project design alternatives.

**Figure 2: Geometric Layout – Alternative C1**





### 6.3 Growing Traffic Impacts

The 42<sup>nd</sup> Street/DeMers Avenue intersection has experienced growing vehicle traffic volumes over the last two decades, with predictions for more vehicle traffic in the future. A joint City and NDDOT Traffic Operations Study published in 2022 predicted that the 42<sup>nd</sup> Street/DeMers Avenue intersection will see a traffic growth rate of between 0.2 percent and 1.5 percent per year. The intersection's existing vehicle traffic level of service (LOS) is currently a D or E for peak conditions on all approaches.

Under a no-build scenario, the Traffic Operations report predicted that the LOS would worsen to between E and F by 2045. Other intersections in the vicinity were forecast to retain LOS between A and C. Since August 2017, there have been 69 crashes at the intersection, with 12 resulting in non-incapacitating injury. Six crashes involved damage to the railroad crossing facility; one involved a vehicle-train collision.

UND has expressed concern about pedestrian safety around the 42<sup>nd</sup> Street crossing and the nearby BNSF Grand Forks Yard to the east. The yard is a principal regional facility for BNSF, and it is where several through trains are staged and switched and where local trains that serve shippers in the Grand Forks area originate daily. Many of these trains occupy the 42<sup>nd</sup> Street crossing while entering, departing, or working the yard. A UND student was killed while crossing the BNSF yard in 2012. The University has considered constructing a pedestrian overpass over the yard to protect students entering or leaving campus to the south.

### 6.4 Reducing Crossing Conflicts

In response to growing reports across the U.S. regarding blocked highway-rail grade crossings, the FRA developed the Blocked Crossing Incident Reporter, an online tool that allows law enforcement and the general public to report instances of trains occupying crossings for excessive periods of time. While this tool relies on publicly reported information and is therefore not a purely objective measure of crossing delay, it does provide a unique source of information to measure the relative perceived impacts of the traveling public. The 42<sup>nd</sup> Street highway-rail grade crossing has received 25 reports through this tool since March 2020, more blocked crossing complaints than any other crossing in North Dakota. At 25 records, this crossing accounts for 18 percent of all blocked crossing complaints on record in the state. No other crossing in North Dakota has received more than 10 blocked crossing complaints since the FRA released the tool.

The City of Grand Forks collects data for the interconnected preemption between the 42<sup>nd</sup> Street rail crossing and the traffic signals at the adjacent intersection of 42<sup>nd</sup> Street and DeMers Avenue. Over the course of a two-week period in September 2022, the crossing experienced a total of 307 preemption events (an average of 22 per day). The crossing was occupied by trains for an average of 2 hours and 26 minutes every day over this period. During this two-week period, there were a total of 55 preemption events greater than 10 minutes, and 17 events greater than 30 minutes. This means that on average, the traveling public can anticipate

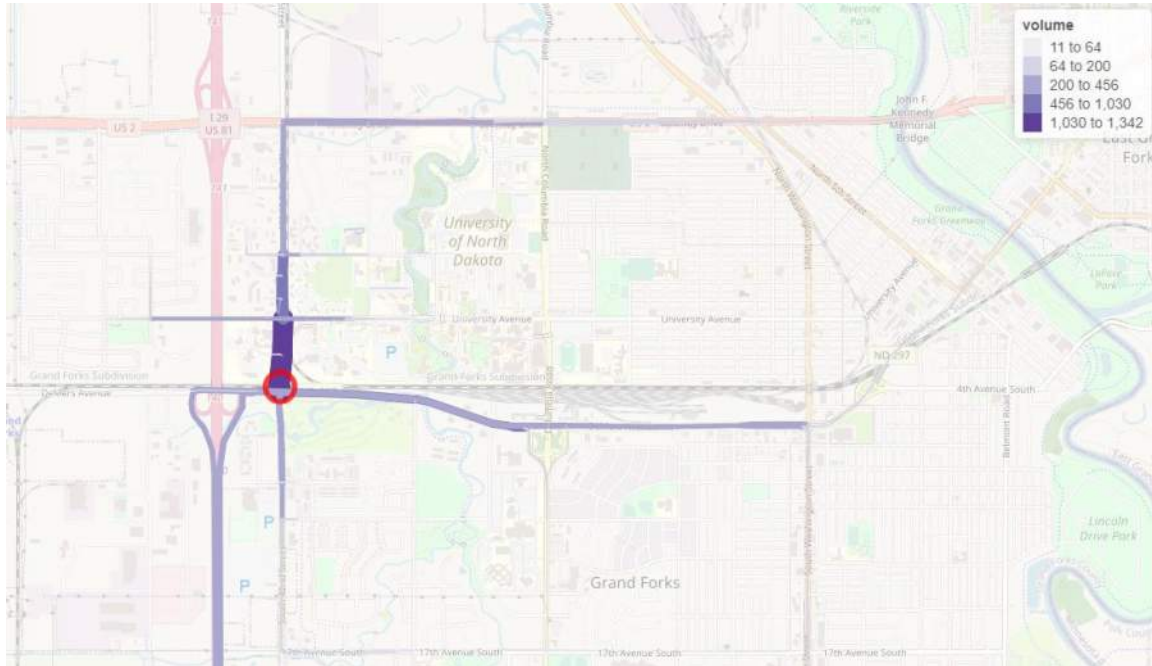
encountering nearly four preemption events greater than 10 minutes and one preemption event greater than 30 minutes every day.

### 6.5 Improving Community Connectivity

The 42<sup>nd</sup> Street highway-rail grade crossing is a highly utilized component of the Grand Forks transportation network. **Figure 3** below highlights the key travel paths used by vehicles before and after traversing the crossing. Other key roadway segments that are part of these travel paths include University Avenue, 6<sup>th</sup> Avenue North, Gateway Drive (US Highway 2), DeMers Avenue (ND Highway 297), and Interstate 29 / US Highway 81. In addition to vehicular traffic, the crossing also represents a heavily used pedestrian pathway.

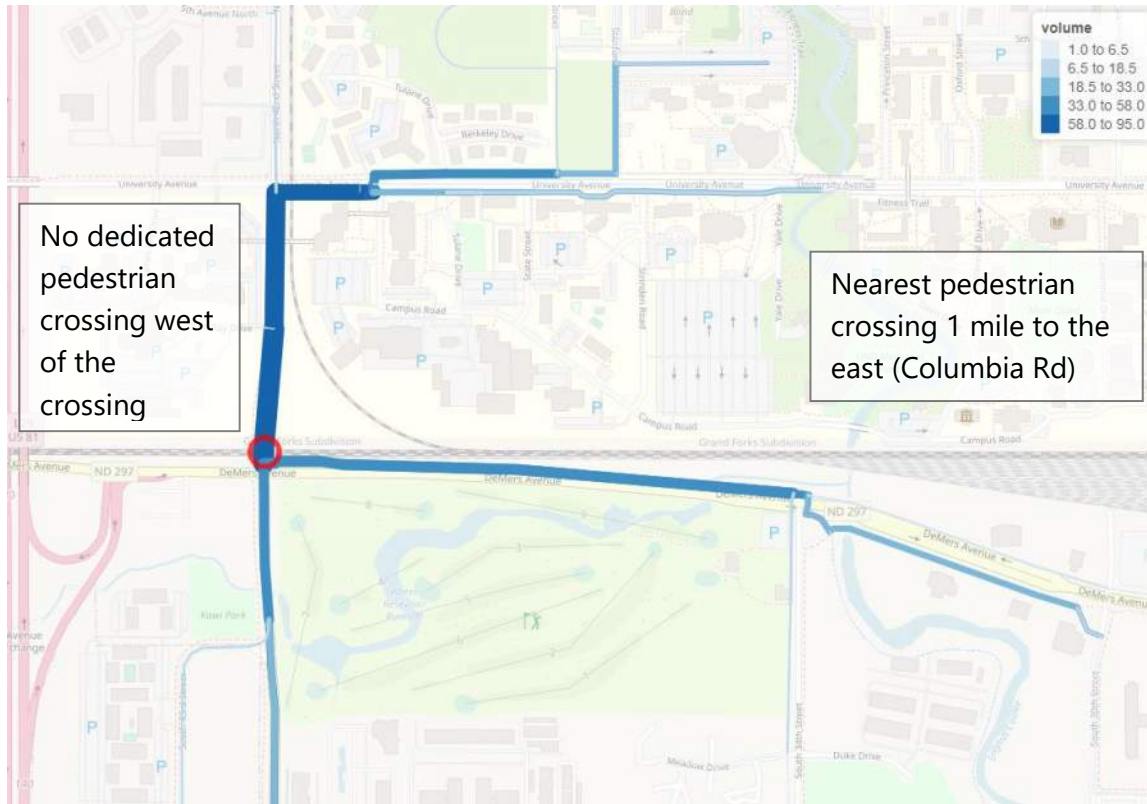
**Figure 4** below highlights the key travel paths used by pedestrians before and after traversing the crossing; it is part of a critical link for pedestrians travelling between housing to the south and the UND campus to the north. This Project will greatly improve the experience of both pedestrians and motorists by improving safety and reducing delay for all users.

**Figure 3: Estimated Vehicular Travel Paths**



Source: Replica

**Figure 4: Estimated Pedestrian Travel Paths**



Source: Replica

## 6.6 Proposed Performance Indicators

Proposed performance measures for evaluating the effectiveness of the Project include:

- Total crashes in the project area
- Number of Blocked Crossing Reports
- Total non-motorized crashes

## 6.7 Grade Crossing Information

**Table 3** below summarizes the FRA highway-rail grade crossing inventory information related to the 42<sup>nd</sup> Street highway-rail grade crossing.

**Table 3: Highway-Rail Grade Crossing Summary**

<b>Crossing Inventory ID</b>	081329H
<b>Roadway</b>	42 <sup>nd</sup> Street
<b>Railroad Information</b>	
<b>Railroad</b>	BNSF
<b>Subdivision</b>	Grand Forks
<b>Rail Milepost</b>	110.07
<b>Highway Information</b>	
<b>Average Trains Per Day</b>	10
<b>Highway Classification</b>	Minor Arterial
<b>Number of Roadway Lanes</b>	4
<b>Highway Speed Limit (mph)</b>	35
<b>Annualized Average Daily Traffic (AADT)</b>	17,215
<b>Truck Percentage</b>	1%
<b>Miscellaneous Information</b>	
<b>Current Warning Device</b>	Gates and Flashing Lights
<b>Train Detection Type</b>	Constant Warning Time (CWT)
<b>Channelization</b>	All Approaches
<b>Crossing Surface</b>	Concrete and Rubber
<b>Quiet Zone</b>	24 hours

The [NDDOT State Action Plan for Highway-Rail Crossing Safety](#) includes the 42<sup>nd</sup> Street crossing in the list of crossings that have experienced crashes in the previous three years on page 8. The Project will result in the elimination of the grade crossing through grade separation.

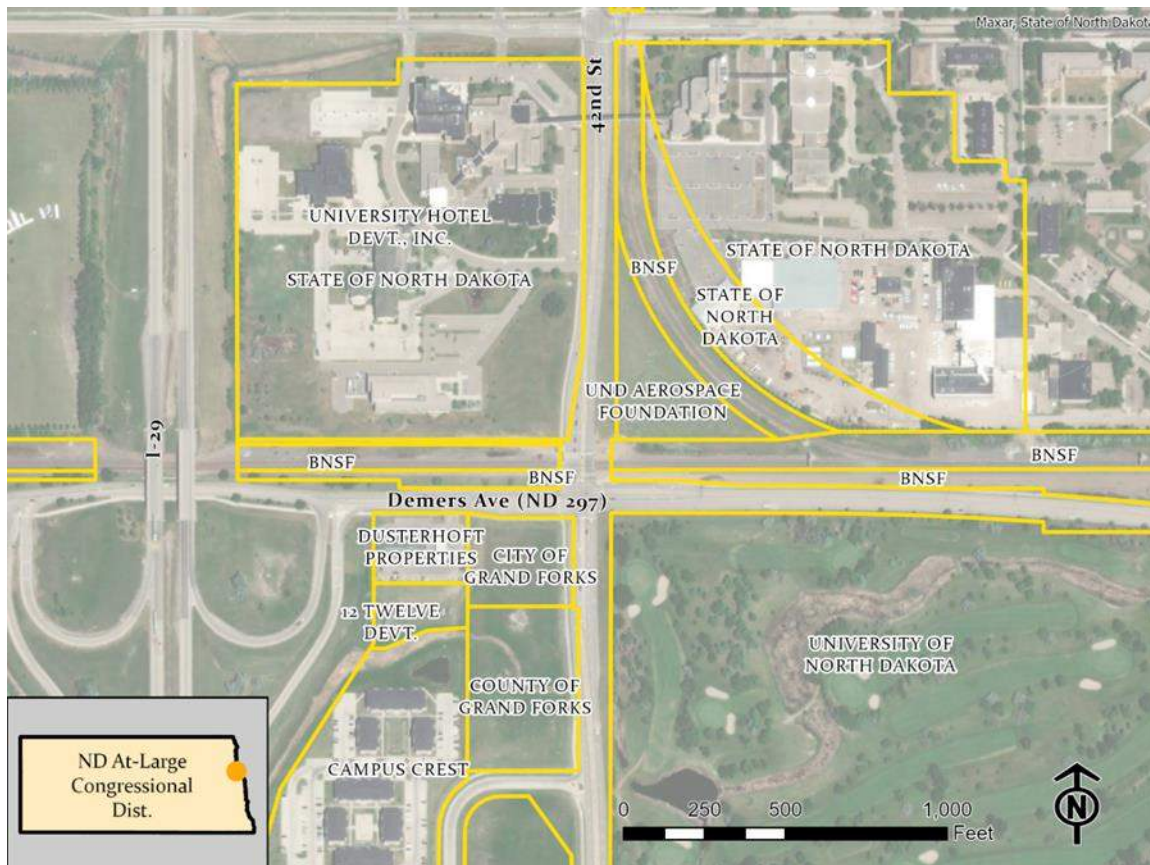
## 6.8 Uses Contracting Incentives to Employ Local Labor

The Project will use contracting incentives to employ local labor to the extent permissible under Federal law and per NDDOT's usual bidding practices.

## 7.0 Project Location

The Project is located at the intersection of 42<sup>nd</sup> Street with the BNSF Grand Forks Subdivision in Grand Forks, North Dakota, at a latitude and longitude of 47.91856°N, 97.08837°W (see **Figure 5** below). The crossing is identified by the FRA as crossing ID 081329H, at milepost 0110.069 on the Grand Forks Subdivision. Just to the south of the crossing, DeMers Avenue (ND Highway 297) intersects 42<sup>nd</sup> Street. UND owns or manages most of the parcels within a quarter-mile of the rail crossing, including research and administration buildings and a hotel to the northwest, a bus maintenance facility to the northeast, and the golf course to the southeast. The northeast quadrant also includes property owned by the UND Aerospace Foundation. The southwest corner of the intersection is occupied by several apartment developments, a gas station, and two parcels owned by the City of Grand Forks. The apartment complexes are overwhelmingly occupied by UND students. The project site is located in North Dakota's at-large Congressional District.

**Figure 5: Property Ownership Map and Location in North Dakota**



Source: State of North Dakota GIS Hub



## 8.0 Evaluation and Selection Criteria

This section details the ways in which the 42<sup>nd</sup> Street Grade Separation Project to Improve Efficiency, Connectivity, Equity, and Safety (PIECES) addresses evaluation and selection criteria of the CRISI grant program.

### 8.1 Evaluation Criteria

#### Project Benefits

##### *Effects on system and service performance*

##### Improves the Mobility of People and Goods

The 42<sup>nd</sup> Street highway-rail grade crossing has been identified by both the public and freight stakeholders as a key area of concern and freight bottleneck location during recent state and local planning efforts. The recent 42<sup>nd</sup> Street Traffic Impact Study estimated that 7 percent of all railroad switching delays at the crossing lasted for more than 10 minutes.

The 2022 Traffic Impact Study found that the proposed Project components will substantially improve the Level of Service at all intersections in the study corridor (see **Figure 6** below).

**Figure 6: Estimated Level of Service Under Alternatives**

	2045 No-Build	RI/RO Gas Station Access on DeMers Ave			No Gas Station Access on DeMers Ave		
		Alt B-1	Alt B-2	Alt C-2	Alt B-1 & B-3	Alt B-2	Alt C-1 & C-2
DeMers Ave at 42nd St/Jug Handle	E	B	B	B	B	B	B
42nd St at Jug Handle		B	B		B	B	
DeMers Ave at Gas Station	F	C	C	A			
DeMers Ave at I-29 NB Ramp Signal	D	A	A	A	A	A	A
42nd St at South 43rd St	A		A	A		A	A
42nd St at Garden View Drive	C	C	D	C	A	D	C

#### Improves Access to Emergency Services

The often-unpredictable nature of the timing of railroad operations makes it difficult for emergency vehicles to rely on crossings like 42<sup>nd</sup> Street for access to emergency calls. UND has raised concerns over emergency services access to the west side of campus if the 42<sup>nd</sup> Street crossing and Gateway Avenue crossings are occupied simultaneously. Additionally, to access the city's only hospital ambulances responding to the west side of campus must either cross the 42<sup>nd</sup> Street rail crossing or travel through the heart of campus, with its large pedestrian traffic, to utilize the grade-separated crossing at Columbia Road on the east side of campus. This Project will make 42<sup>nd</sup> Street a permanently accessible option for all emergency services in the area.

#### Improves Access to Communities

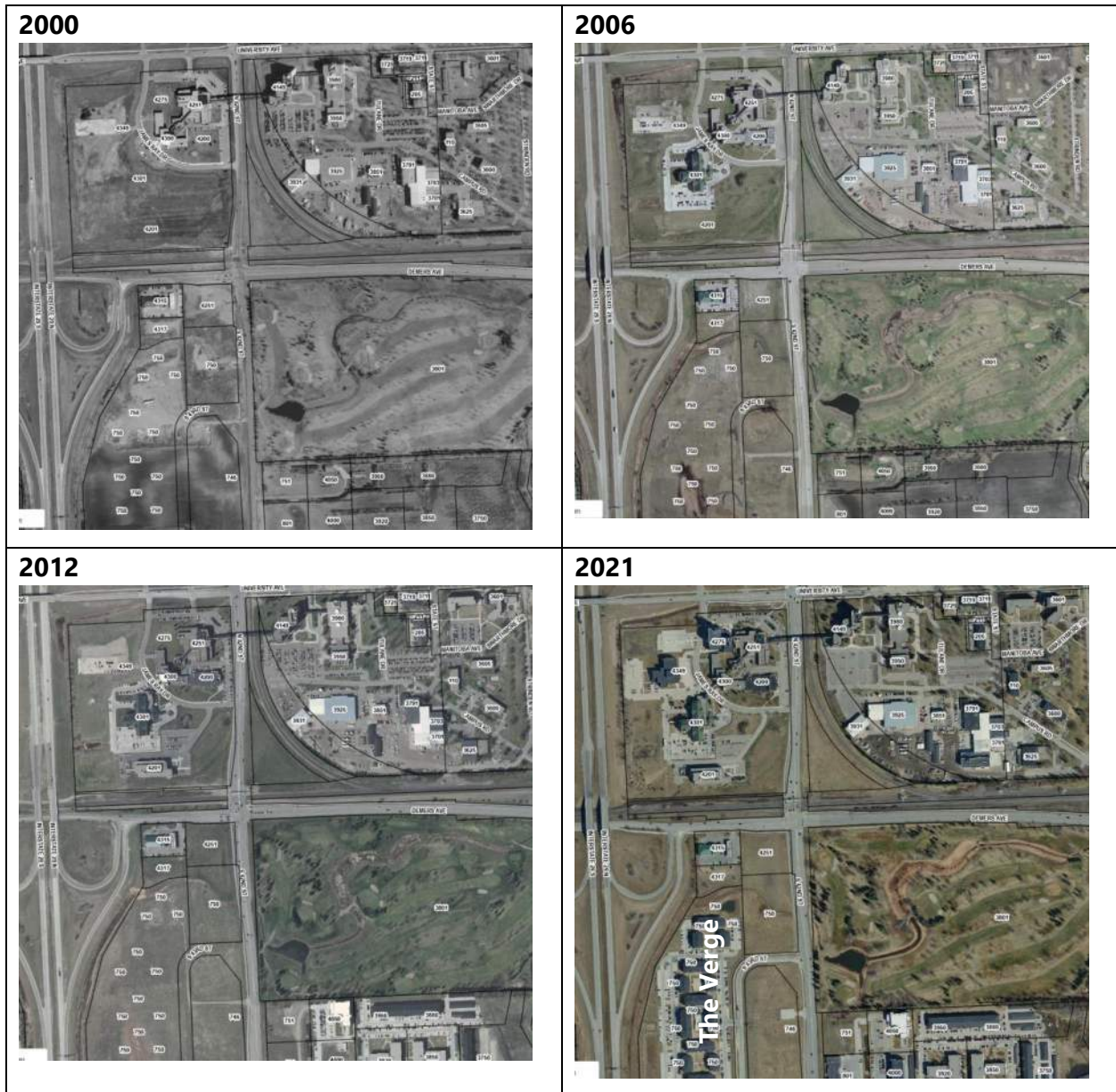
Residential buildings continue to be built in the project vicinity, primarily serving UND students. The best example of the extent of this development can be seen in the construction of [The Verge](#), an apartment complex focused explicitly on providing student housing for UND students (see **Figures 7 and 8** below). The Project will provide a safer and more comfortable connection between the UND campus and these residential areas. Cities Area Transit (CAT) operates bus routes 8 and 9 along 42<sup>nd</sup> Street, connecting the UND campus to the commercial area around the Columbia Mall; and to Altru Hospital, a major medical facility in the metro area.

**Figure 7: New Residential Developments South of the Grade Crossing (The Verge)**





**Figure 8: Changes in Development (2000 – 2021)**



Source: City of Grand Forks

*Effects on safety, competitiveness, reliability, trip or transit time, and resilience*

Improves Safety at Highway-Rail or Pathway-Rail Grade Crossings

Under the newly implemented FRA Accident Prediction Model, the 42<sup>nd</sup> Street crossing is estimated to experience 0.11 crashes every year, or approximately 1 crash every 9 years. This score ranks the crossing as the fifth most high-risk crossing in the State of North Dakota and ranks in the 99<sup>th</sup> percentile for all crossings across the U.S. Implementation of this Project will fully eliminate the risk of highway-rail collisions at this crossing. The nearest rail crossings in this corridor are 1 mile to the east (Columbia Road Grade Separation) and west (55<sup>th</sup> Street N at-

grade crossing). No dedicated pedestrian crossing over the railroad tracks is available west of the project area.

One crash is noted in the FRA Accident/Incident records at this crossing in the past five years; however, there have been 69 vehicle crashes at the 42<sup>nd</sup> Street/DeMers Avenue intersection in the last five years. The proposed intersection and geometric improvements of the Project will improve safety at both the crossing and the remainder of the project area.

At least one pedestrian has died while crossing the BNSF Grand Forks Yard, and UND has expressed concerns that pedestrians take unsafe shortcuts through the yard because of the lack of pedestrian infrastructure at the south end of campus. A grade separation structure that comfortably accommodates non-motorized traffic and connects to the existing network of sidewalks and bike paths throughout the UND campus should reduce pedestrian trespassing in the BNSF yard. The grade separation will include a 10-foot-wide shared use path.

#### Safety Benefit

Under the newly implemented FRA Accident Prediction Model, the 42<sup>nd</sup> Street crossing is estimated to experience 0.11 crashes every year, or approximately 1 crash every 9 years. This score ranks the crossing as the fifth most high-risk crossing in the State of North Dakota and ranks in the 99th percentile for all crossings across the U.S. For the four North Dakota rail crossings that score with a higher risk value, all have experience two crashes in the previous five years compared to the one crash that has occurred at the 42<sup>nd</sup> Street crossing. **If another crash occurs at this crossing, the predicted number of crashes per year would jump to 0.22, making this the highest risk crossing in the state.** As proposed, the Project will fully eliminate the risk of highway-rail collisions at this crossing.

At least one pedestrian has died while crossing the BNSF Grand Forks Yard and UND has expressed concerns that pedestrians take unsafe shortcuts through the yard because of the lack of pedestrian infrastructure at the south end of campus. Alternative pedestrian and vehicle routes that eliminate rail-roadway conflicts should eliminate many of these crashes and trespass incidents.

The Project should eliminate the potential for crashes between trains and motorized and non-motorized highway users at the crossing. Comfortable and accessible pedestrian accommodation on a grade-separated crossing will reduce pedestrian trespassing in the BNSF Grand Forks Yard. Freight being shipped either via train or truck will be subject to fewer traffic delays.

NDDOT has recorded 69 vehicle crashes at the 42<sup>nd</sup> Street/DeMers Avenue intersection. Six of these were directly related to the presence of railroad infrastructure at the intersection. All six crashes involved property damage, and one involved personal injury.

### Proposes to Grade Separate, Eliminate, or Close One or More Highway-Rail or Pathway-Rail Grade Crossings

The 42<sup>nd</sup> Street highway-rail grade crossing would be eliminated and replaced by a grade separated crossing. The railroad will remain at-grade while the roadway and shared use path pass below-grade.

### Reduces Emissions, Protects the Environment, and Provides Community Benefit

Replacing the existing 42<sup>nd</sup> Street at-grade crossing with a grade separation will reduce vehicle emissions in the project area. The 2022 Traffic Impact Study estimated the following levels of daily vehicle emissions by year 2040 related to the crossing:

- 62 gallons of fuel
- 4,330 grams of carbon monoxide (CO)
- 840 grams of nitrogen oxide (NO<sub>x</sub>) emissions
- 1,000 grams of volatile organic compound (VOC) emissions

The Project will also support noise reduction at the 42<sup>nd</sup> Street grade crossing, contributing community benefits to residents and students.

### *Efficiencies from improved integration with other modes*

#### Provides Economic Benefit

The Project will expedite movement of trucking freight, which supports all elements of regional economic strength. Eliminating the rail conflict on 42<sup>nd</sup> Street connects residents to nearby university and businesses. The Project represents an investment that improves the safety and connectedness of the UND campus, serving all students, employees, and visitors. UND is a major employer in the Grand Forks region. Attracting students with a safe and connected campus creates improvements that benefit the entire community. Improving the flow of all traffic modes (vehicle, transit, bike, and pedestrian) at the 42<sup>nd</sup> Street/DeMers Avenue intersection creates better access to housing, jobs, higher education, commercial areas, medical facilities, and the Alerus Center, a major convention and event venue.

The 42<sup>nd</sup> Street crossing is heavily used by commercial vehicles. Columbia Drive, the next adjacent crossing to the east is subject to a 10-ton weight restriction, severely limiting the size of truck able to utilize this grade separated crossing. The design of the Project will also accommodate the potential addition of a third mainline track in the future and reduces the potential for BNSF service interruptions at this location.

### *Ability to meet existing or anticipated demand*

#### Anticipated Demand

The project alternatives as designed will account for the potential future addition of a third rail track along this corridor to the west of the BNSF Grand Forks Yard. Such an addition, combined with the elimination of train and vehicle conflicts at the grade-separated crossing, will create operational and safety improvements for BNSF.

Technical Merit

FRA Evaluation Criteria	Project Attributes Meeting this Goal
The tasks and subtasks outlined in the Statement of Work (SOW) are appropriate to achieve the expected outcomes of the proposed project	As presented in <b>Attachment 2</b> , the SOW has identified the supporting tasks and work products required to advance the proposed implementation of a grade separation at the 42 <sup>nd</sup> Street highway-rail grade crossing and the associated intersection and roadway approach work.
The application demonstrates strong project readiness and ability to meet CRISI Program requirements	The 42 <sup>nd</sup> Street crossing has been the subject of three decades of planning and preliminary engineering, federal grant applications, and several rounds of environmental planning. Design alternatives have been developed. Landowners, including the State, City, University, and BNSF, are in agreement on project benefit. NDDOT and its project partners are ready to build upon previous work completed to study the crossing and adjacent intersections and implement a successful project.
The technical qualifications and experience of key personnel the applicant proposes to lead and perform the technical efforts, including the qualifications of the primary and supporting organizations, demonstrates the ability to fully and successfully execute the proposed project within the proposed time frame and budget	<p>NDDOT is experienced in project management in general and specifically has completed successful federal discretionary projects on budget and on schedule. NDDOT has extensive history completing dozens of FHWA-funded projects each year. This project management experience reduces the risks of delay and construction problems on awarded projects. Examples of successful NDDOT-led grant awards include:</p> <ul style="list-style-type: none"> <li>- USDOT TIGER III; Devil’s Lake Rail Grade Raise (2011)</li> <li>- FRA STEP Grant: North Dakota’s Energy Corridor Rail Project (2016)</li> <li>- Active CRISI projects being administered               <ul style="list-style-type: none"> <li>o Minot Intermodal Terminal</li> <li>o Red River Valley and Western Railroad</li> </ul> </li> </ul>
The project will use innovative technologies, innovative design and construction techniques, or construction materials that reduce greenhouse gas emissions	NDDOT allows the use of fly ash in concrete pavement at a rate of up to 35% replacement of the Portland cement. In the Grand Forks 42 <sup>nd</sup> Street Grade Separation PIECES Project, fly ash will be required to be used at a rate of 20% to 35% for the pavement. The production of Portland cement creates a large amount of greenhouse gas. Fly ash is a waste byproduct of coal-fired power plants, so replacement of cement with fly ash can significantly reduce the CO2 emissions attributable to the Project.
The project will use financial support from private sector	BNSF, the owner and operator of the rail line impacted by this Project, will provide \$1.5 million to advance the proposed grade separation. This has been identified as one of BNSF’s highest priority projects in North Dakota.
Provides economic benefit	The Project will provide economic benefit through a reduction of costly highway-rail grade crossing crashes and through the reduction of delays along the 42 <sup>nd</sup> Street corridor.

<p>The project will improve the mobility of multiple modes of transportation, including ingress and egress from freight facilities, or users of nonvehicular modes of transportation such as pedestrians, bicycles, and public transportation</p>	<p>The Project will improve mobility of all modes. Specifically, the bicycle and pedestrian facilities along 42<sup>nd</sup> Street will improve the comfort and safety of bicyclists and pedestrians through the construction of a 10-foot shared use path. CAT bus routes 8 and 9 will not be subject to occupied-crossing delays at 42<sup>nd</sup> Street. This Project will improve the reliability and overall delivery time for trucks traveling through the area.</p>
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## 8.2 Selection Criteria

### Preferred Selection Criteria

FRA Evaluation Criteria	Project Attributes Meeting this Goal
<p>A proposed project for which the proposed Federal share of total project costs does not exceed 50 percent.</p>	<p>The NDDOT is requesting \$30 million in FY 2022 CRISI funding for the \$60 million 42<sup>nd</sup> Street Grade Separation Project to Improve Efficiency, Connectivity, Equity, and Safety, or PIECES.</p>
<p>Benefit-Cost Analysis (BCA)</p>	<p>The Project results in a benefit-cost ratio (BCR) of 0.5 using a 7 percent discount rate. Note that many of the benefits to this Project are challenging to quantify using strict federal BCA guidelines and methodologies. Specifically, aspects such as emergency services access response time can be difficult to quantify with a specific value, but the impacts would be felt immediately by the local fire and police departments, who currently view this crossing as an unreliable access route with it's potential to be occupied for long periods of time.</p>
<p>Comprehensive Approach to Trespass Prevention</p>	<p>NDDOT partners with Operation Lifesaver of the Dakotas which is coordinated by the ND Safety Council. NDDOT has sponsored training and outreach in the area of the UND.</p>
<p>Safety</p>	<p>Grade separation of the railroad and 42<sup>nd</sup> Street will fully eliminate the possibility of vehicle-train collisions. Accessible and comfortable pedestrian and bicycle facilities will reduce conflicts between motorized and non-motorized traffic and can reduce incidence of unsafe trespassing on railroad property. Redesign of the intersection at 42<sup>nd</sup> Street and DeMers Avenue and the associated roadway improvements will greatly improve safety in the study area.</p>
<p>Equitable Economic Strength and Improving Core Assets</p>	<p>Operational improvements experienced by BNSF and other transportation companies as a result of the grade separation will ensure continued economic growth in the Grand Forks region.</p> <p>The Project represents an investment that improves the safety and connectedness of the UND campus, serving all students, employees, and visitors. UND is a major employer in the Grand Forks region. Attracting students with a safe and connected campus creates improvements that benefit the entire community.</p>
<p>Equity and Barriers to Opportunity</p>	<p>Grade separation of 42<sup>nd</sup> Street will help reduce barriers to opportunity and access within Grand Forks by eliminating a safety risk and removing the potential for blockages affecting community transportation. Reductions in traffic delays reduce vehicle emissions, improving air quality in the immediate surrounding area. While the crossing is currently part of a Quiet Zone, grade</p>



	<p>separation of the railroad and highway eliminates the occasional need for warning bells and train horns, reducing noise pollution of the railroad.</p> <p>More than half of the households in block groups adjacent to the project area earn an income below the federal poverty threshold. The block group immediately to the north of the crossing has more than three quarters of its households below the poverty threshold. Per the Transportation Disadvantaged Census Tracts information, all three census tracts in the vicinity of the Project are identified under one or more historically disadvantaged community categories:</p> <table border="1"> <thead> <tr> <th>Tract</th> <th>104</th> <th>108.01</th> <th>103</th> </tr> </thead> <tbody> <tr> <td>Historically Disadvantaged Community</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Transportation Disadvantage Indicator</td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>Health Disadvantage Indicator</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Economy Disadvantage Indicator</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>Equity Disadvantage Indicator</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Resilience Disadvantage Indicator</td> <td></td> <td>X</td> <td>X</td> </tr> <tr> <td>Environmental Disadvantage Indicator</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Currently, environmental and health impacts generated by the highway-grade crossing may not be distributed equitably throughout the community. The Project has potential to improve some of the environmental externalities that are experienced by nearby residents.</p>	Tract	104	108.01	103	Historically Disadvantaged Community				Transportation Disadvantage Indicator			X	Health Disadvantage Indicator				Economy Disadvantage Indicator	X	X	X	Equity Disadvantage Indicator				Resilience Disadvantage Indicator		X	X	Environmental Disadvantage Indicator			
Tract	104	108.01	103																														
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Economy Disadvantage Indicator	X	X	X																														
Equity Disadvantage Indicator																																	
Resilience Disadvantage Indicator		X	X																														
Environmental Disadvantage Indicator																																	
Climate Change and Sustainability	<p>Improvements to traffic flow reduce vehicle emissions. A robust pedestrian and bicycle accommodation can convert car trips to non-motorized transportation trips. Conversion of trips from motorized to non-motorized and transit modes is especially relevant in this area, which is poised to see population densification as more student housing is built near the UND campus. NDDOT's adoption of fly ash substitute in concrete mix reduces the greenhouse gas emissions of the construction of new physical infrastructure.</p>																																
Transformation of Our Nation's Transportation Infrastructure	<p>The project alternatives as designed will account for the potential future addition of a third rail track along this corridor to the west of the BNSF Grand Forks Yard. Such an addition, combined with the elimination of train and vehicle conflicts at the grade-separated crossing, will create safety and operational improvements for BNSF.</p>																																
Eliminating Crossings and Making Corridor-Wide Improvements	<p>The Project will fully eliminate one existing public highway-rail grade crossing. Other improvements to the adjacent intersections and roadway approaches will improve both rail and vehicle operations throughout the study area.</p>																																

## 9.0 Project Implementation and Management

### 9.1 Applicant Experience

NDDOT is experienced in project management in general and specifically has completed successful federal discretionary projects on budget and on schedule. NDDOT has extensive history completing dozens of FHWA-funded projects each year. This project management

experience reduces the risks of delay and construction problems on awarded projects. Examples of successful NDDOT-led grant awards include:

- USDOT TIGER III; Devils Lake Rail Grade Raise (2011)
- FRA STEP Grant: North Dakota’s Energy Corridor Rail Project (2016)
- Active CRISI projects being administered
  - Minot Intermodal Terminal
  - Red River Valley and Western Railroad

## 9.2 Project Implementation Contracting and Management

NDDOT as the grantee will be responsible for facilitating coordination with all project partners and stakeholders necessary for project implementation. NDDOT will perform project administration for the Project, including, but not limited to:

- Completion of necessary work tasks to hire qualified consultants/contractors to perform engineering design, environmental review work, and project management;
- Facilitating coordination meetings with project partners and FRA to provide project progress updates;
- Providing oversight and direction of work completed;
- Providing approvals as necessary;
- Facilitating coordination and review required for as-needed approvals from FRA and project partners;
- Reviewing and approving invoices, as appropriate, for work completed as part of the Project;
- Periodically submitting required project documents, including receipts and invoices to FRA, and complying with all FRA reporting requirements; and
- Performing all required project close-out activities

## 9.3 Project Schedule

**Table 4** below reflects the anticipated Project Milestone Dates for the future pre-construction and construction activities identified under this proposal. The schedule demonstrates that CRISI funds will be obligated in a timely manner. NDDOT will not incur CRISI future eligible project costs prior to award announcement and can obligate the CRISI funds shortly after the award.

**Table 4: Future Project Milestone Dates\***

Project Milestones	Date
Final NEPA Decision Approved*	September 2023
Anticipated Right of Way Acquisition	February 2025
Anticipated Utility Relocations	Ongoing through Construction
Anticipated Final Design and Bid Ready Package (Including Permits)	February 2025



Anticipated Construction Obligation Date	March 2025
Anticipated Bid Opening Date	April 2025
Anticipated Start Construction	June 2025
Anticipated Complete Construction	November 2027
Anticipated Project End Date (last day to incur costs)	November 2029

\* All dates assume the grant agreement is in place prior to the Project’s NEPA Decision Approval date.

**Table 5** below shows the anticipated project schedule showing duration by major activity.

**Table 5: Project Schedule**

Major Project Activity	Timeframe by Fiscal Years		
	FY23	FY24	FY25
Funding Secured	X		
Design and Engineering	X	X	
Environmental Review	X	X	
Property Acquisition and Lease	X	X	X
Construction			X

## 9.4 Risk Management

The City of Grand Forks, in conjunction with a consulting engineering firm, have analyzed the Project to assess project risk. Currently there are no foreseen risks due to the level of engineering and environmental analysis already completed for the Project.

NDDOT extensive project management experience as discussed in Section 9.1 reduces the risks of delay and construction problems on awarded projects.

## 9.5 Project Reporting

Upon award of the Project, NDDOT will monitor and evaluate the project’s progress through regular meetings scheduled throughout the Project Performance Period. NDDOT will:

- Participate in a project kickoff meeting with FRA
- Hold regularly scheduled project meetings with FRA
- Perform project close-out audit to ensure contractual compliance and issue close-out report
- Submit to FRA all required project deliverables and documentation on-time and according to schedule, including periodic receipts and invoices
- Comply with all FRA project reporting requirements, including, but not limited to:
  - Status of Project by task breakdown and percent complete
  - Changes and reason for changes in and updated versions of Detailed Project Work Plan, Budget, and Schedule
  - Description of unanticipated problems and any resolution since the immediately preceding progress report
  - Summary of work scheduled for the next progress period

## 10.0 Planning Readiness for Tracks 2 and 3 (PE/NEPA and FD/Construction Projects)

### 10.1 Aligns with State Plans and Objectives

The 42<sup>nd</sup> Street Grade Separation Project is included in the [North Dakota 2022-2025 State Transportation Improvement Plan](#) as Project 15857 6312 NA.

The combined [North Dakota State Freight & Rail Plan](#) is currently in development by NDDOT. The draft plan includes the 42<sup>nd</sup> St Grand Forks Grade Separation on page D-3 of Appendix D: Rail Projects.

The [NDDOT State Action Plan for Highway-Rail Crossing Safety](#) includes the 42<sup>nd</sup> Street crossing in the list of crossings on page 8 that have experienced crashes in the previous three years.

2018 Grand Forks-East Grand Forks MPO Transportation Plan (2045) as an Illustrative Project of Significance due to lack of funding on page 7-17 ([DisplayFile.aspx \(theforksmmpo.org\)](#)).

### 10.2 Project Support

This Project has been developed with full support from NDDOT and multiple project partners, including the City of Grand Forks, the Grand Forks-East Grand Forks MPO, BNSF, and UND. It is also supported by numerous public agencies such as Grand Forks Cities Area Transit, Grand Forks Police and Fire Departments, Grand Forks Regional Economic Development, Grand Forks Convention and Visitors Bureau, the Alerus Center, Safe Kids Grand Forks, and Grand Forks Public Schools, and Grand Forks Legislators. Letters of support and signed funding commitment letters are included in **Attachment 2**. Multiple studies have been completed to evaluate potential options for improvements at this crossing and the surrounding area. Since 1993, more than \$1 million in local, state, and federal funding has been secured to advance this Project from inception to reality. An award from the CRISI Program will leverage momentum from previous study, environmental review, design, and investment to further advance the region's need for safe transportation, improved mobility, and enhanced community connectivity for all transportation users, especially the low-income residents concentrated near this busy rail crossing and roadway intersection.

## 11.0 Design Readiness Track 3 (FD/Construction) Projects

In anticipation of this Project, NDDOT and the City have developed multiple geometric layout alternatives to measure the potential costs and benefits of each. There are currently five alternatives under consideration ranging in estimated costs of between \$49.9 million and \$59.9 million. The selection of the final design alternative will be based on consideration of multiple factors including cost, construction impacts, community connectivity, and the long-term impacts to adjacent properties. See **Attachment 7** for drawings of all project design alternatives. Environmental evaluation is underway; see section 12.0 Environmental Readiness.

## 11.1 Benefit Cost Analysis

Using federal Benefit-Cost Analysis (BCA) guidelines, the proposed project results in a benefit-cost ratio (BCR) of 0.5 using a 7 percent discount rate. The primary sources of quantitative project benefits include travel time savings resulting from the grade separation and overall network travel time improvements. **Attachments 4 and 5** provide calculations and a more detailed summary of the Benefit Cost Analysis process. **Figure 9** below summarizes the BCA results.

Note that many of the benefits to this Project are challenging to quantify using strict federal BCA guidelines and methodologies. Specifically, aspects such as emergency services access response time can be difficult to quantify with a specific value, but the impacts would be felt immediately by the local fire and police departments, who currently view this crossing as an unreliable access route with it's potential to be occupied for long periods of time.

**Figure 9: Summary of Benefit Cost Analysis**

### Results of the Benefit-Cost Analysis

*Summary of Results Over the Study Period. All Values in Millions of 2020\$*

Impact Categories	NPV Over 30 Years of Operations		
	Undiscounted	7%*	3%
<b>Benefits</b>			
Vehicle Travel Time Savings	\$72.4 M	\$16.0 M	\$35.9 M
Avoided Vehicle Op. Cost from Idling Vehicles	\$2.1 M	\$0.4 M	\$1.0 M
Avoided GHG Emissions from Idling Vehicles	\$0.7 M	\$0.3 M	\$0.3 M
Avoided CAC Emissions from Idling Vehicles	\$0.1 M	\$0.0 M	\$0.0 M
Avoided Accident Costs	\$6.7 M	\$1.8 M	\$3.7 M
Avoided Pedestrian Delay	\$0.2 M	\$0.0 M	\$0.1 M
Residual Value of Assets	\$3.6 M	\$0.3 M	\$1.2 M
<b>PV of Benefits</b>	<b>\$85.7 M</b>	<b>\$19.0 M</b>	<b>\$42.3 M</b>
<b>Costs</b>			
Project Capital Costs	\$54.9 M	\$40.6 M	\$48.1 M
<b>PV of Costs</b>	<b>\$54.9 M</b>	<b>\$40.6 M</b>	<b>\$48.1 M</b>
<b>Net Present Value (NPV)</b>	<b>\$30.8 M</b>	<b>(\$21.6 M)</b>	<b>(\$5.8 M)</b>

\*GHG impacts are discounted at a 3% discount rate per US DOT BCA Requirements.

*Summary of Key Financial Metrics. All Values in Millions of 2020\$*

Key Financial Metrics	Undiscounted	7%*	3%
Total Benefits	\$85.7 M	\$19.0 M	\$42.3 M
Total Costs	\$54.9 M	\$40.6 M	\$48.1 M
Net Present Value (NPV)	\$30.8 M	(\$21.6 M)	(\$5.8 M)
Return on Investment (ROI)	56%	-53%	-12%
Benefit-Cost Ratio (BCR)	1.6	0.5	0.9
Payback Period (years)	23.5 yrs	>30 yrs	>30 yrs
Internal Rate of Return (IRR)		2.3%	

\*GHG impacts are discounted at a 3% discount rate per US DOT BCA Requirements.

Key Quantified Impacts	Total Over Study Period	
	Unit	Value
Avoided GHG Emission	metric tons	8,476
Avoided CAC Emission	metric tons	1.96
Change in Vehicle-Travel Time	vehicle-hours	2,432,400
Change in Person-Travel Time	person-hours	4,045,811
Avoided Pedestrian Delay	hours	5,945
Avoided Fatal Accidents	fatal accidents	0.48
Avoided Injury Accidents	injury accidents	1.02
Avoided PDO Accidents	PDO accidents	1.98

## 12.0 Environmental Readiness

The National Environmental Policy Act (NEPA) process was initiated for the 42<sup>nd</sup> Street Grade Separation Project in 2004. A No-Build and two Build alternatives were considered. Solicitation of Views packages were distributed on October 13, 2004, and August 4, 2011, each time followed by the 30-day comment period pursuant to Section 102(2). In total, 28 comments were received from interested parties during these combined comment periods. Public meetings to collect public comments were held October 26, 2004; January 19, 2006; and June 29, 2011. Comments expressed a need for safety improvements at the existing at-grade crossing.

After collecting field data, reviewing engineering, and soliciting comments from interested parties and the public, the Federal Highway Administration (FHWA) and NDDOT determined that a Categorical Exclusion (CE) would be completed. In 2015 the City prepared and approved a categorical exclusion. However, the document was not approved by the FHWA or NDDOT. An updated CE document is in progress as of this application's submission date. A final CE document, pending CATEX approval, will be completed prior to the grant agreement. Note that to date, the CE document has been developed following FHWA CE guidance. Per 23 USC Part 771, Environmental Impact and Related Procedures, "Any action qualifying as a CE under § 771.117 or § 771.118 may be approved by FRA when the applicable requirements of those sections have been met. FRA may consult with FHWA or FTA to ensure the CE is applicable to the proposed action." (23 CFR 771.116(d))

## 13.0 Strategic Goals

### 13.1 Climate Change and Sustainability Impacts

Replacing the existing 42<sup>nd</sup> Street at-grade crossing with a grade separation will reduce vehicle emissions in the project area. The 2022 Traffic Impact Study estimated the following levels of daily vehicle emissions by year 2040 related to the crossing:

- 62 gallons of fuel
- 4,330 grams of carbon monoxide (CO)
- 840 grams of nitrogen oxide (NO<sub>x</sub>) emissions
- 1,000 grams of volatile organic compound (VOC) emissions

The Project will also support noise reduction at the 42<sup>nd</sup> Street grade crossing, contributing community benefits to residents and students.

A robust pedestrian and bicycle accommodation can convert car trips to non-motorized transportation trips. Conversion of trips from motorized to non-motorized and transit modes is especially relevant in this area, which is poised to see population densification as more student housing is built near the UND campus.

NDDOT allows the use of fly ash in concrete pavement at a rate of up to 35% replacement of the Portland cement. In the Grand Forks 42<sup>nd</sup> Street Grade Separation PIECES Project, fly ash will be

required to be used at a rate of 20% to 35% for the pavement. The production of Portland cement creates a large amount of greenhouse gas. Fly ash is a waste byproduct of coal-fired power plants, so replacement of cement with fly ash can significantly reduce the CO2 emissions attributable to the Project.

### 13.2 Equity and Barriers to Opportunity

Grade separation of 42<sup>nd</sup> Street will help reduce barriers to opportunity and access within Grand Forks by eliminating a safety risk and removing the potential for blockages affecting community transportation. Reductions in traffic delays reduce vehicle emissions, improving air quality in the immediate surrounding area. While the crossing is currently part of a Quiet Zone, grade separation of the railroad and highway eliminates the occasional need for warning bells and train horns, reducing noise pollution along the railroad.

More than half of the households in block groups adjacent to the project area earn an income below the federal poverty threshold. The block group immediately to the north of the crossing has more than three quarters of its households below the poverty threshold. Per the Transportation Disadvantaged Census Tracts information, all three census tracts in the vicinity of the Project are identified under one or more disadvantaged community categories (**Table 6** below).

**Table 6: Transportation Disadvantaged Census Tracts in Project Area**

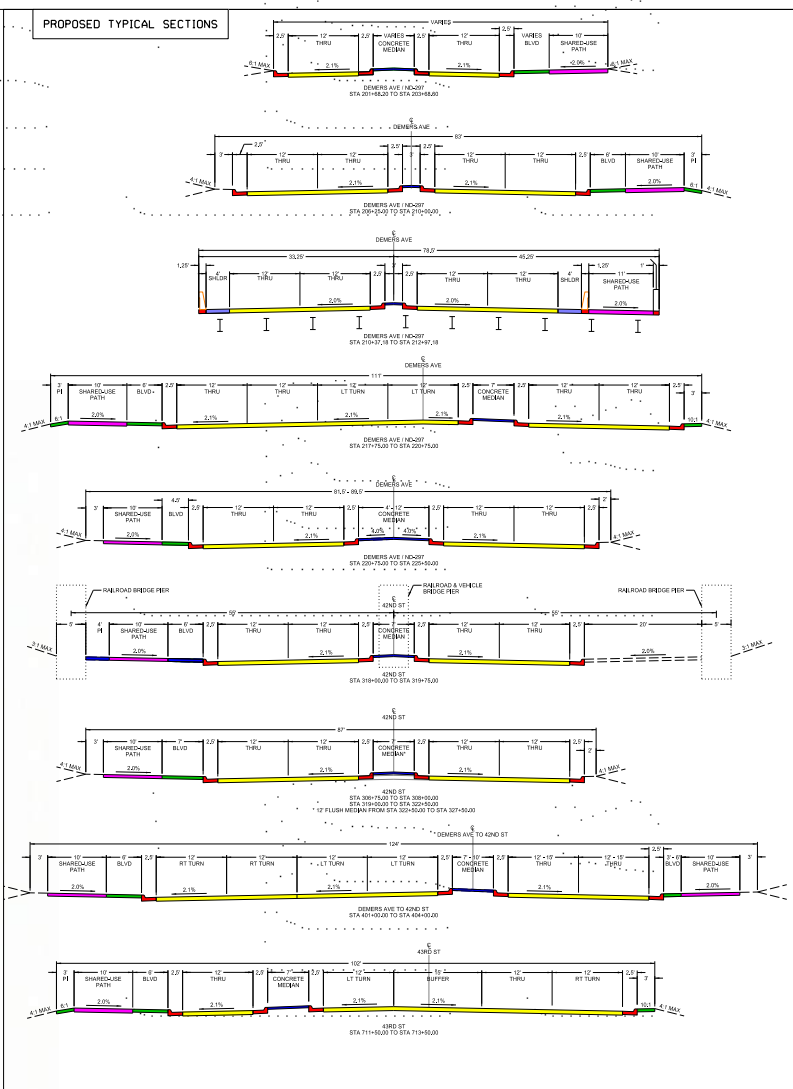
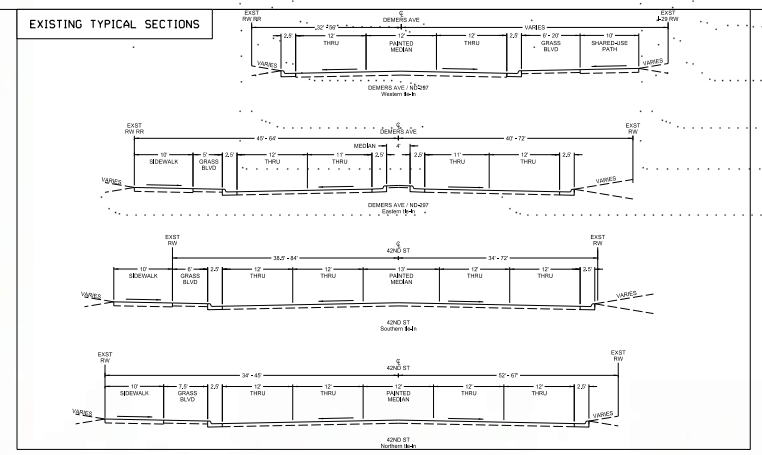
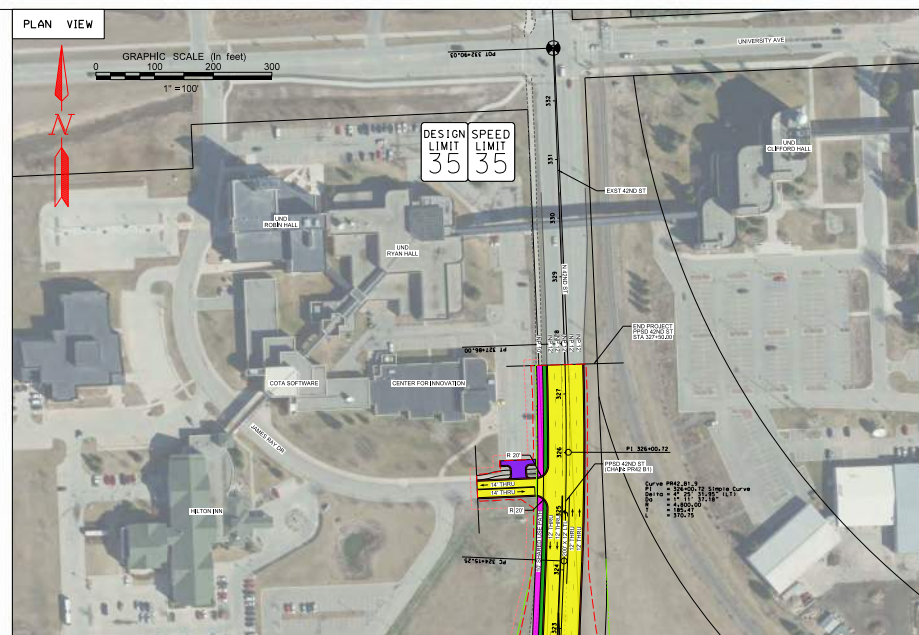
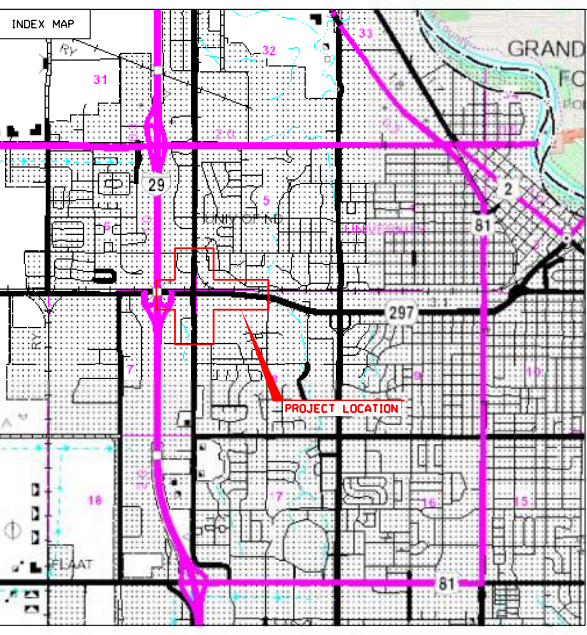
Tract	104	108.01	103
Historically Disadvantaged Community			
Transportation Disadvantage Indicator			X
Health Disadvantage Indicator			
Economy Disadvantage Indicator	X	X	X
Equity Disadvantage Indicator			
Resilience Disadvantage Indicator		X	X
Environmental Disadvantage Indicator			

Currently, environmental and health impacts generated by the highway-grade crossing may not be distributed equitably throughout the community. The Project has potential to improve some of the environmental externalities that are experienced by nearby residents.

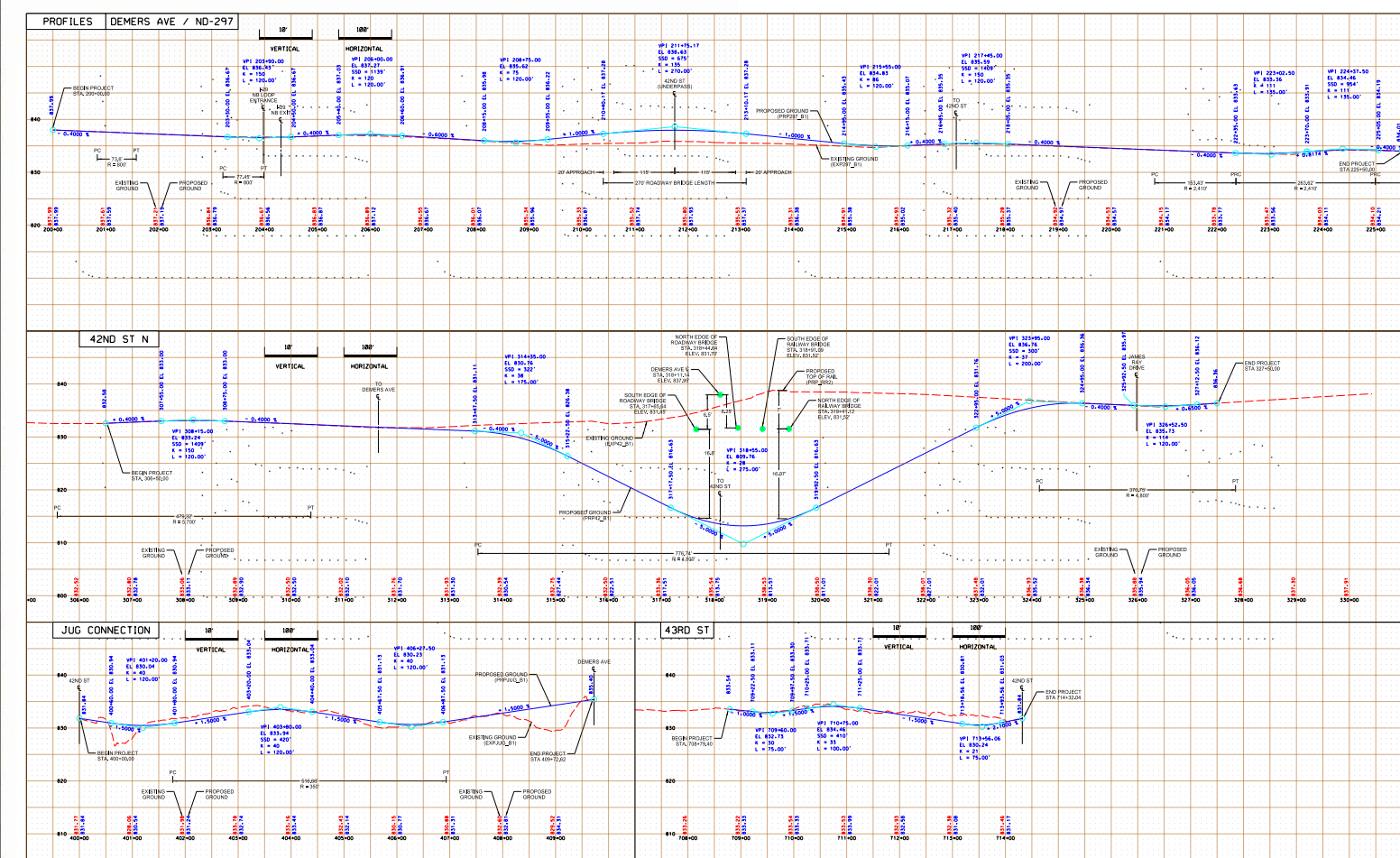
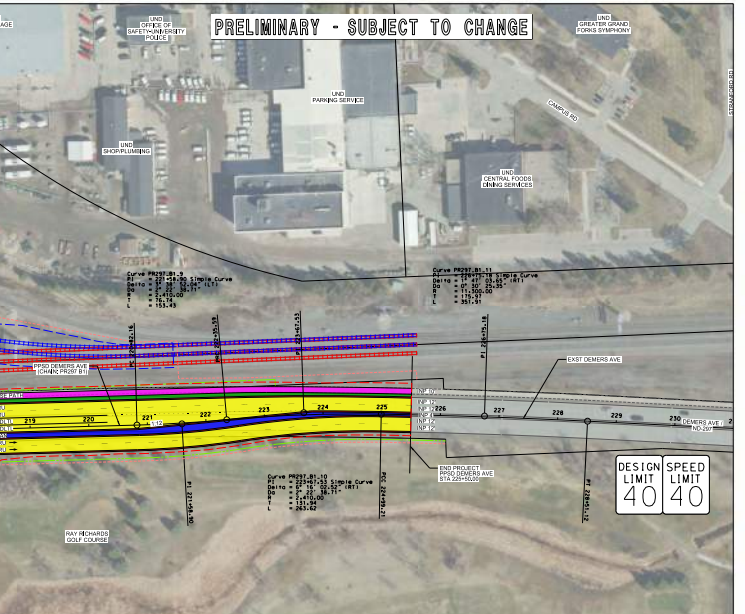
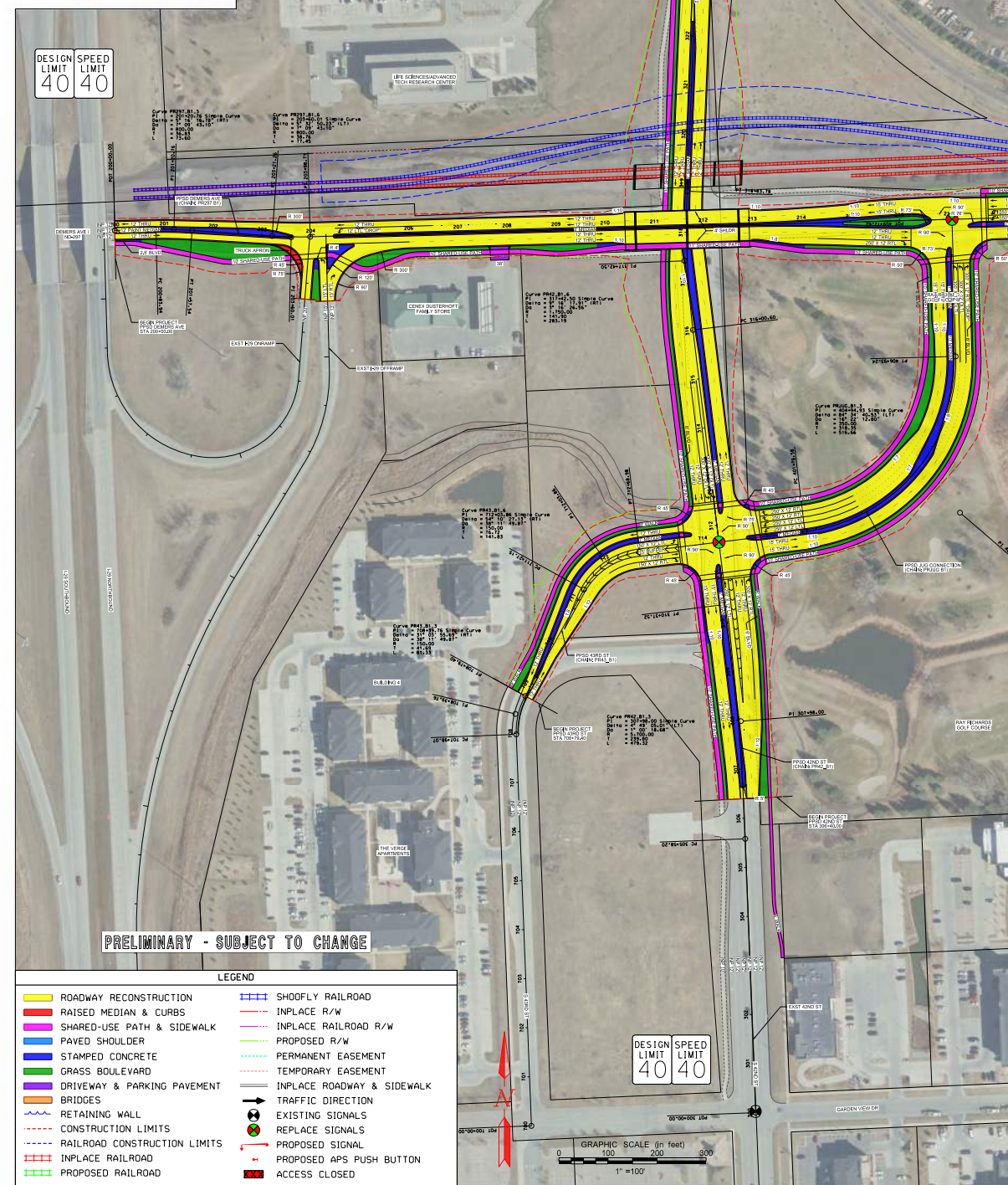
### 13.3 Workforce

The Project will use contracting incentives to employ local labor to the extent permissible under Federal law and per NDDOT's typical bidding practices.





**GRAND FORKS PROJECT #8338**  
**42nd St & DeMers Ave Railroad Grade Separation**  
**MARCH 2022**  
**ALTERNATIVE B1 - GEOMETRIC EXHIBIT**

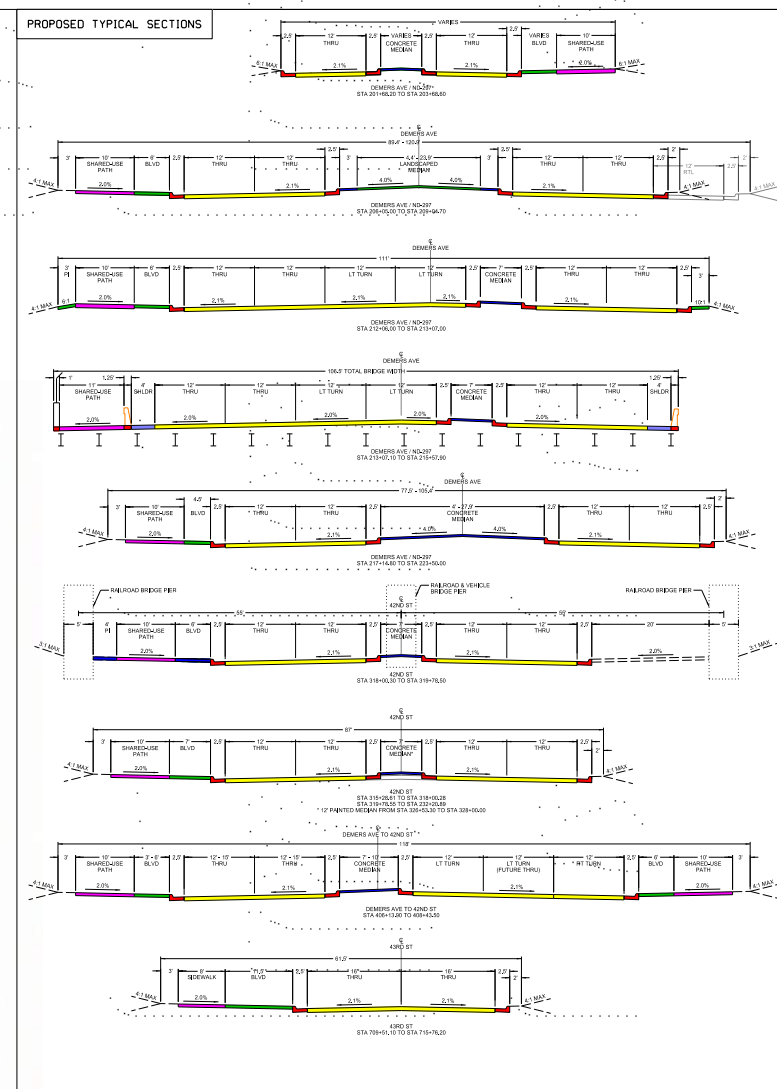
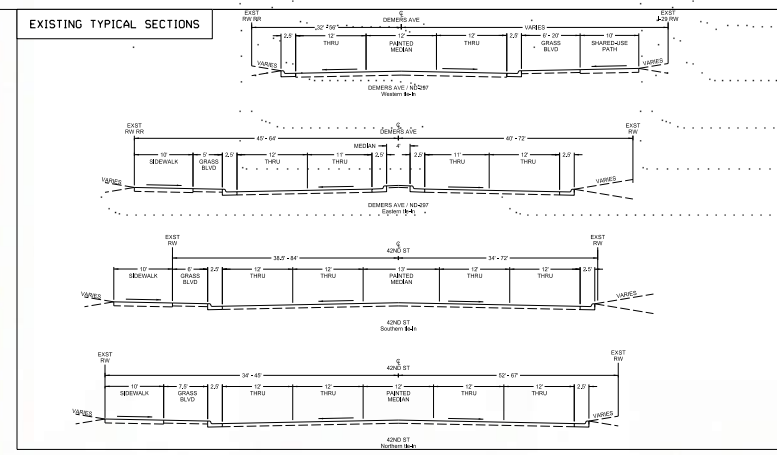
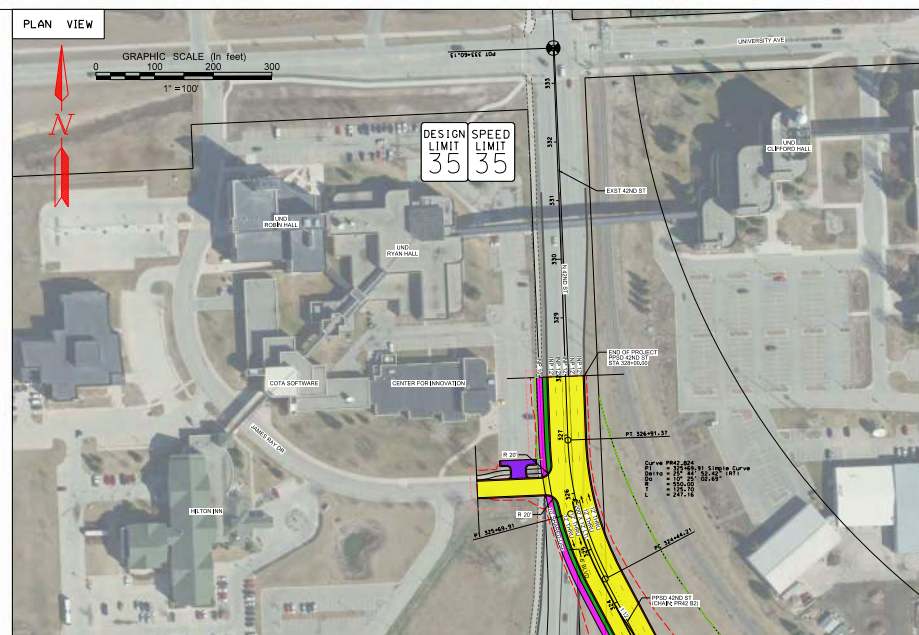
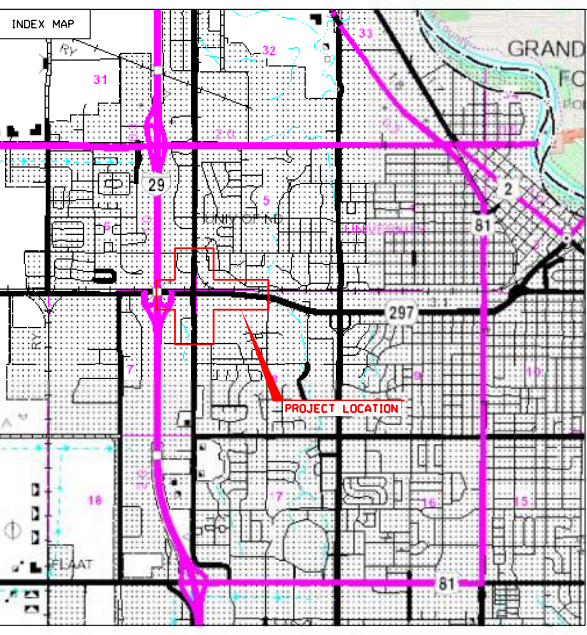


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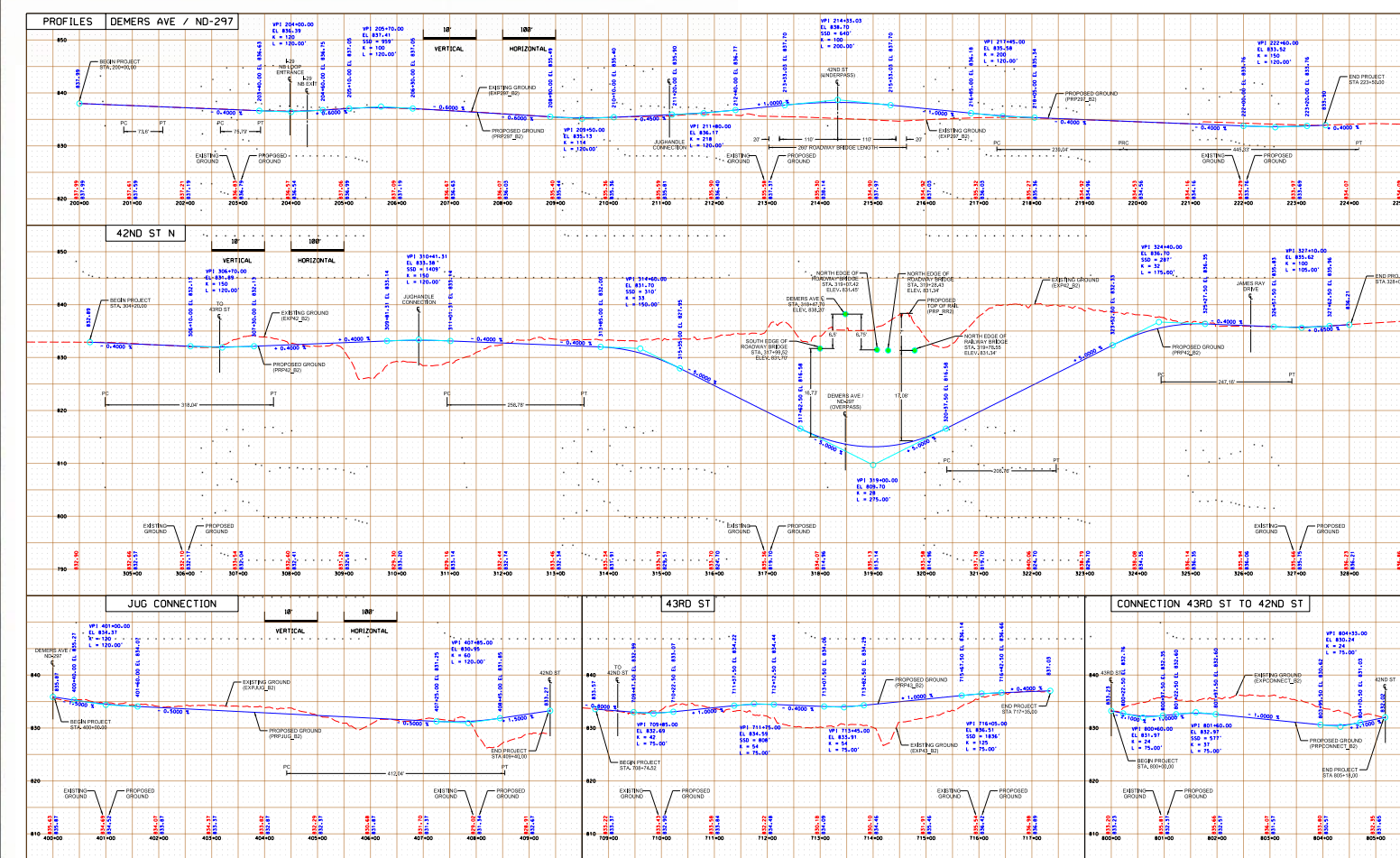
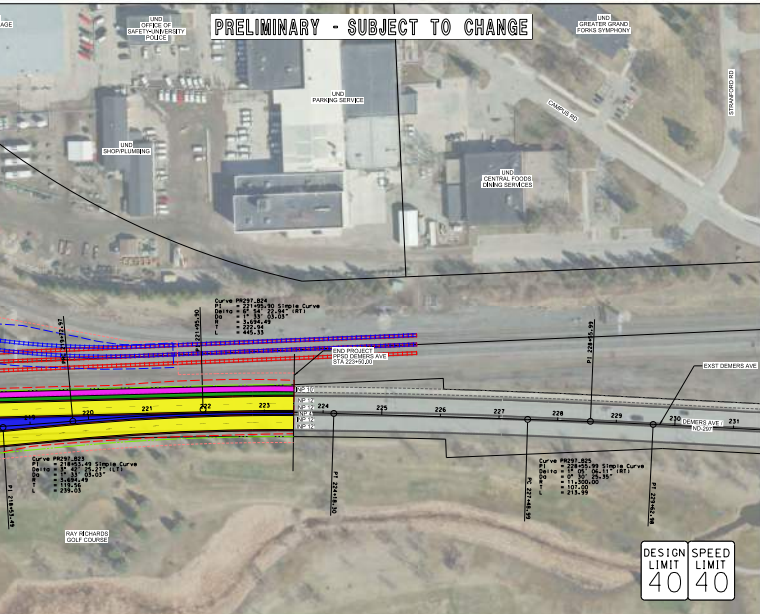
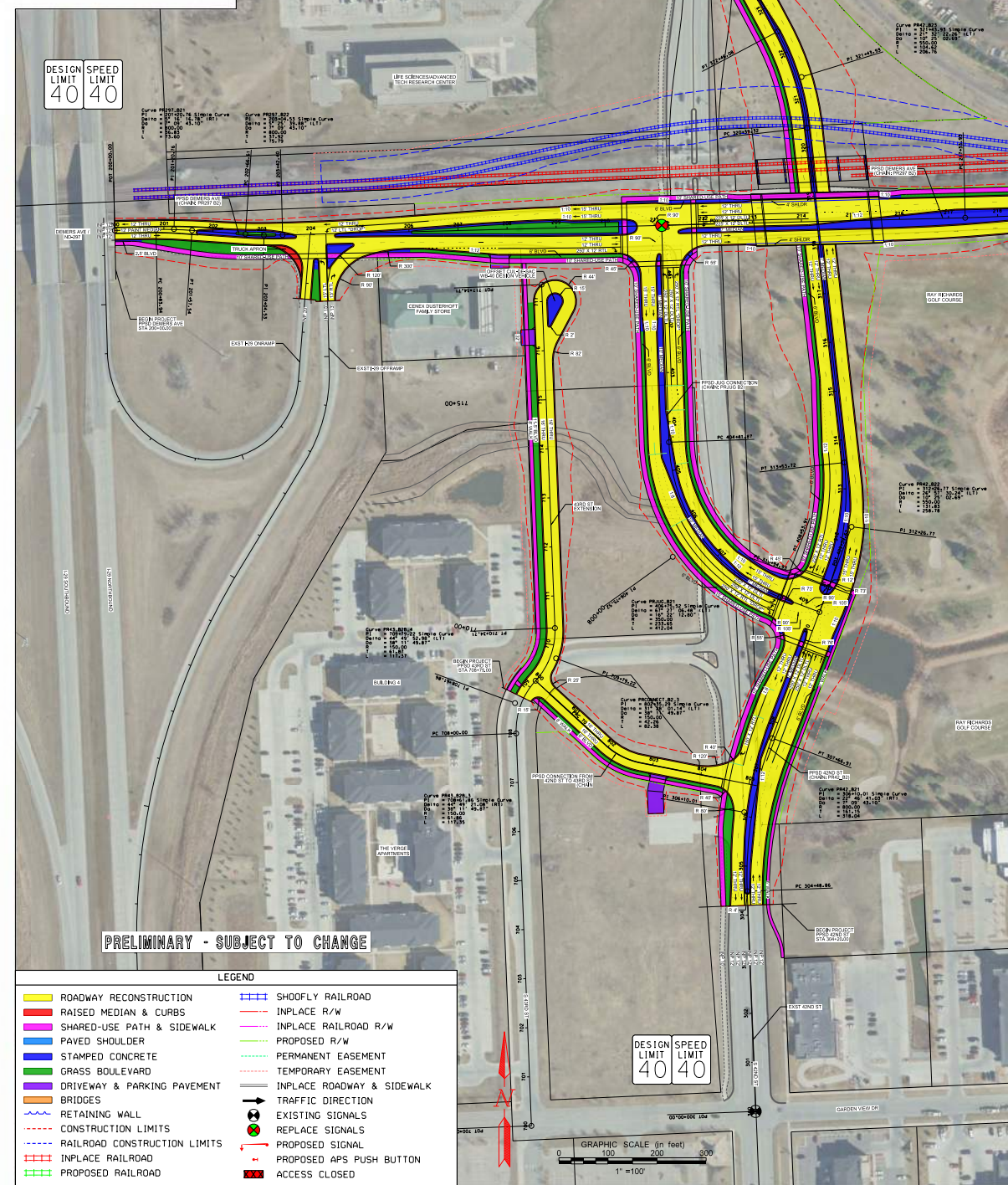
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SHARED-USE PATH & SIDEWALK	INPLACE RAILROAD R/W
PAVED SHOULDER	PROPOSED R/W
STAMPED CONCRETE	PERMANENT EASEMENT
GRASS BOULEVARD	TEMPORARY EASEMENT
DRIVEWAY & PARKING PAVEMENT	INPLACE ROADWAY & SIDEWALK
BRIDGES	TRAFFIC DIRECTION
RETAINING WALL	REPLACE SIGNALS
CONSTRUCTION LIMITS	PROPOSED SIGNAL
RAILROAD CONSTRUCTION LIMITS	PROPOSED APS PUSH BUTTON
INPLACE RAILROAD	ACCESS CLOSED
PROPOSED RAILROAD	

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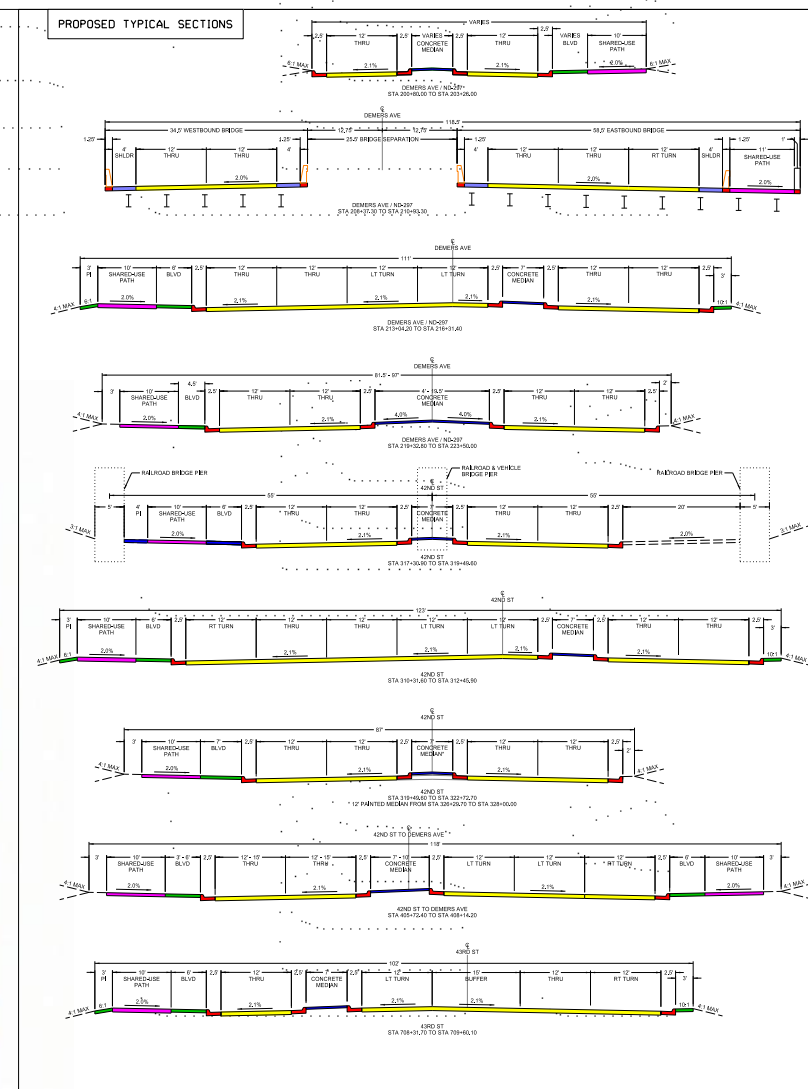
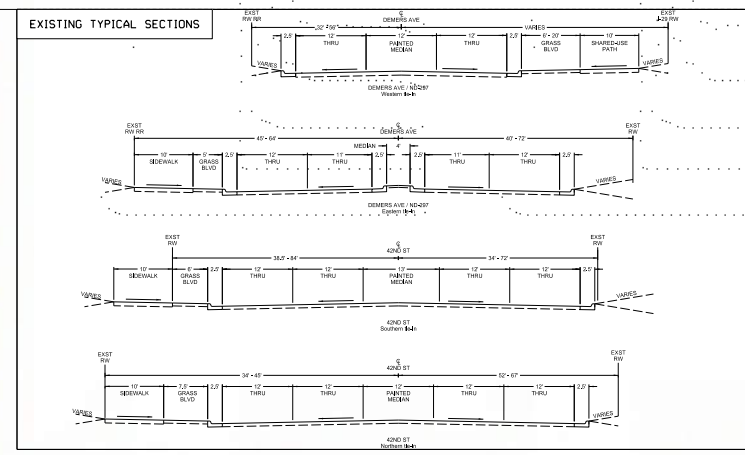
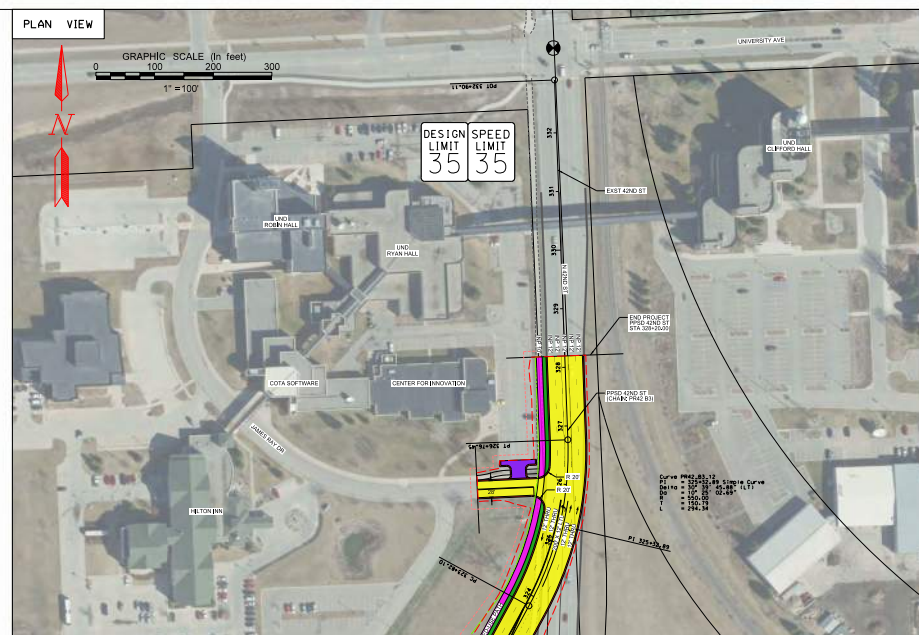
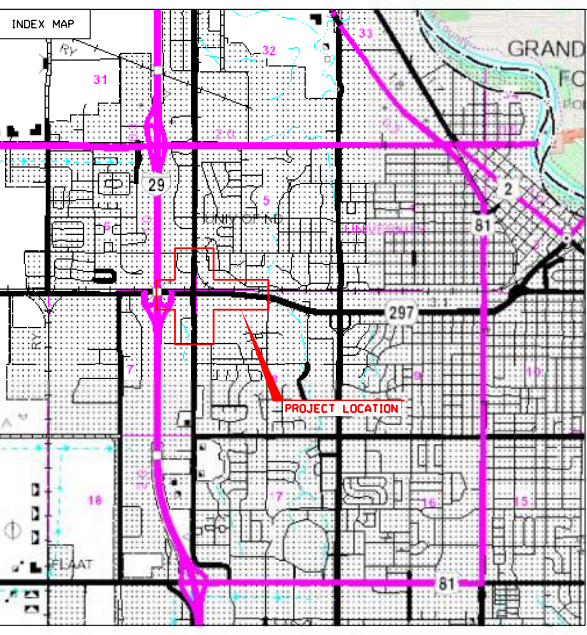


**GRAND FORKS PROJECT #8338**  
**42nd St & DeMers Ave Railroad Grade Separation**  
**MARCH 2022**  
**ALTERNATIVE B2 - GEOMETRIC EXHIBIT**

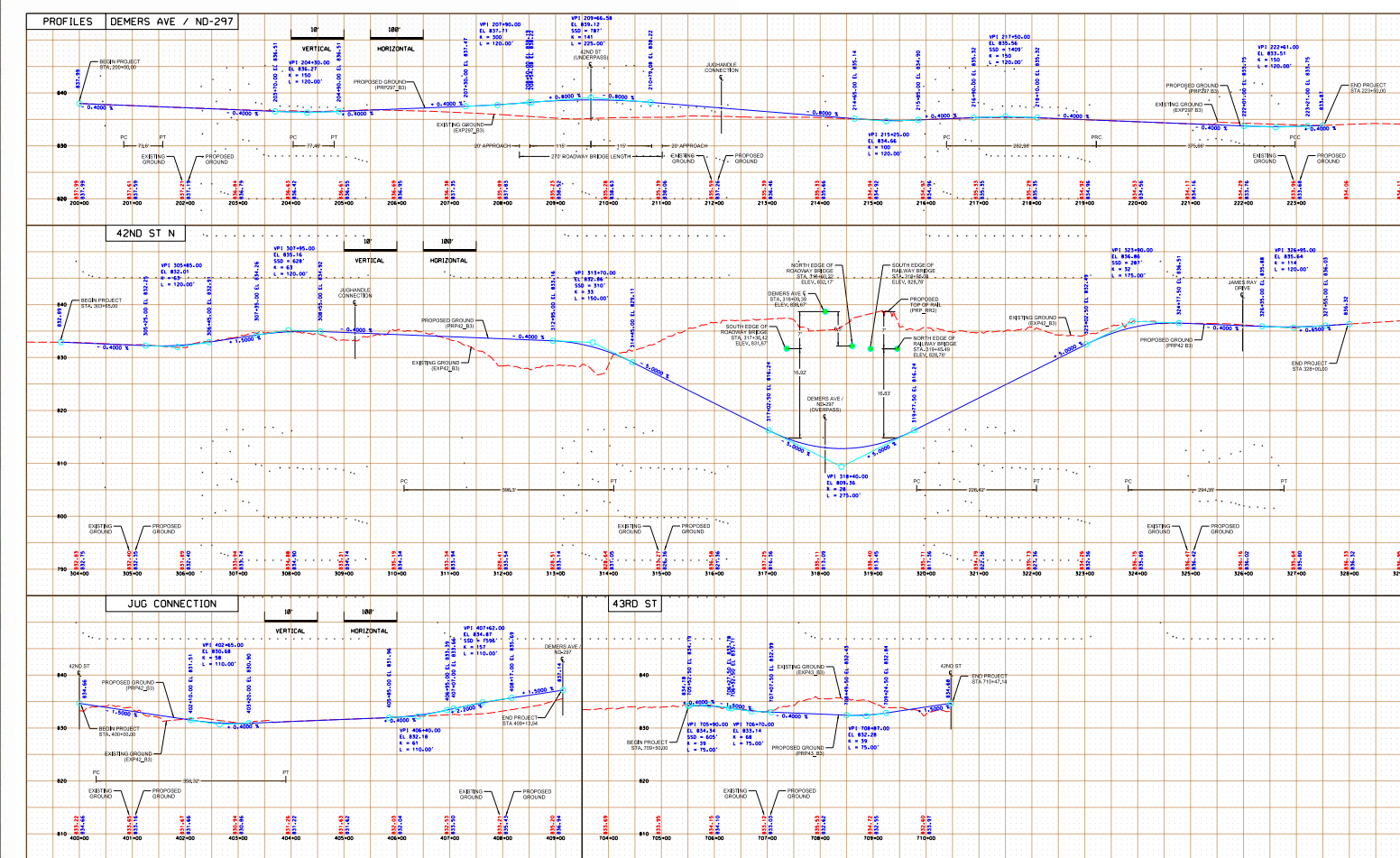
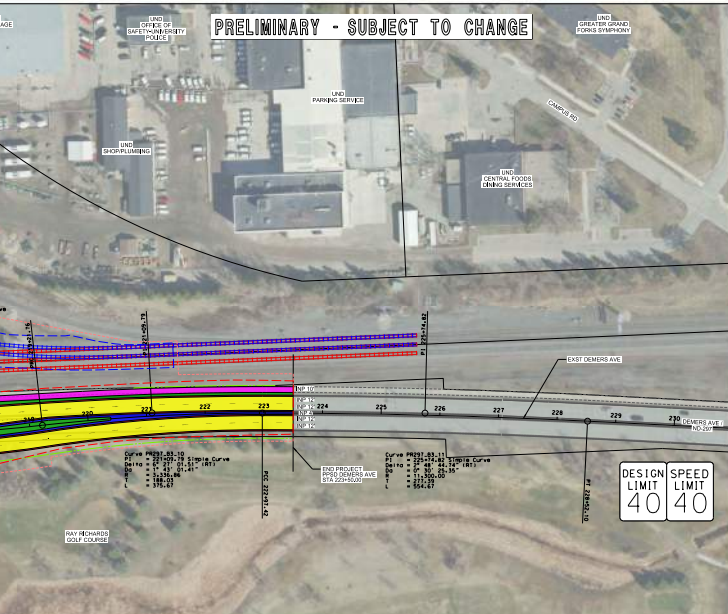
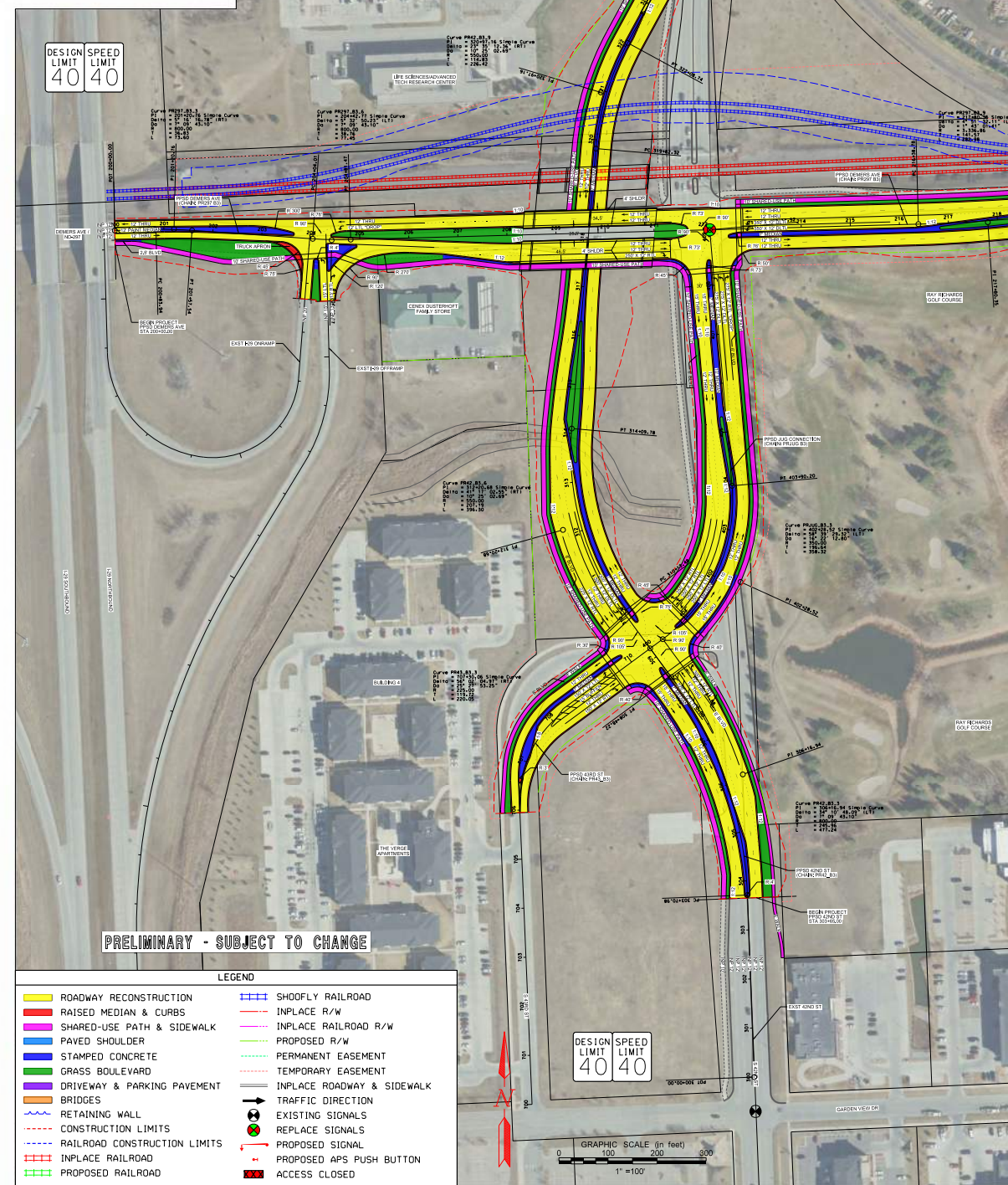


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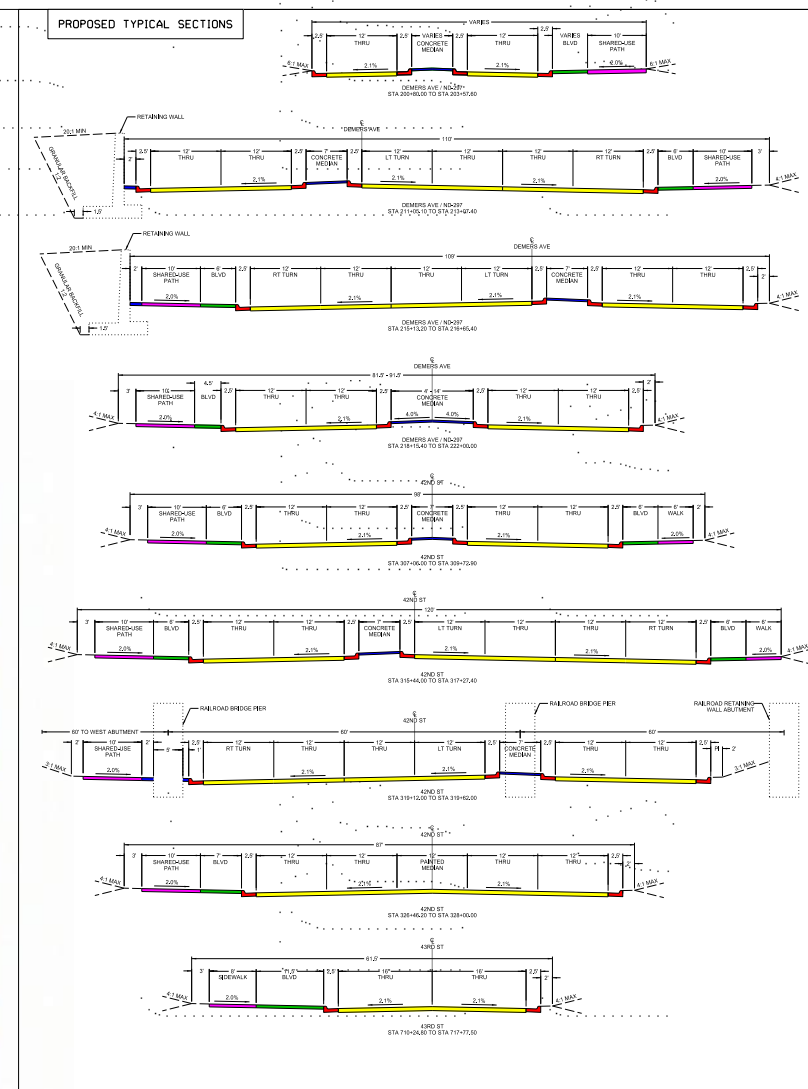
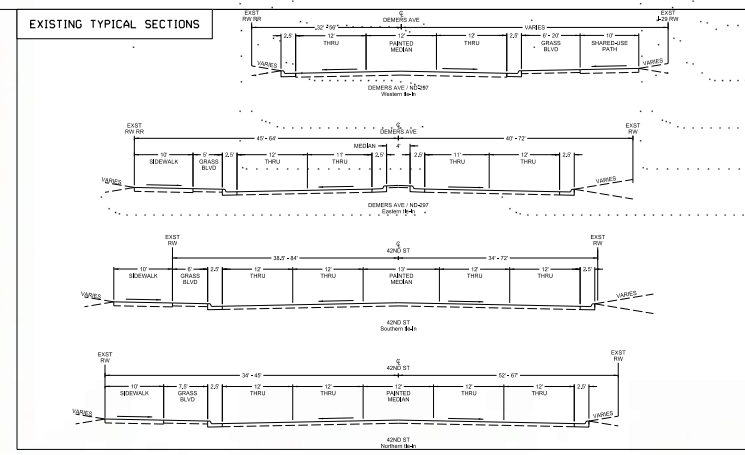
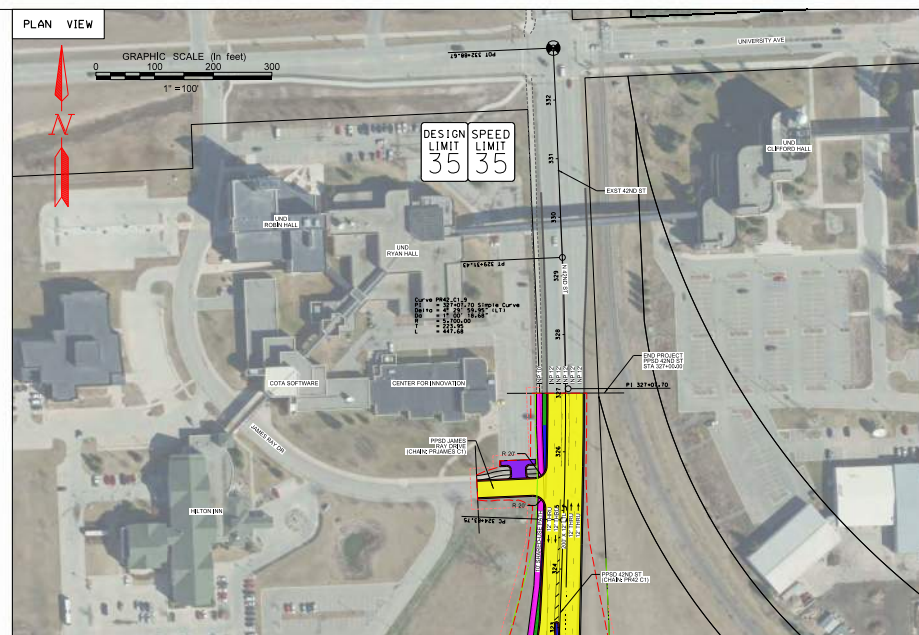
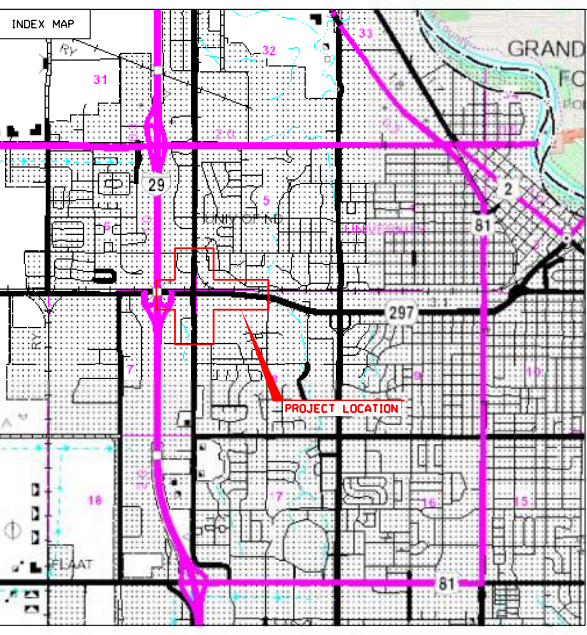
**GRAND FORKS PROJECT #8338**  
**42nd St & DeMers Ave Railroad Grade Separation**  
**MARCH 2022**  
**ALTERNATIVE B3 - GEOMETRIC EXHIBIT**



- LEGEND**
- █ ROADWAY RECONSTRUCTION
  - █ RAISED MEDIAN & CURBS
  - █ SHARED-USE PATH & SIDEWALK
  - █ PAVED SHOULDER
  - █ STAMPED CONCRETE
  - █ GRASS BOULEVARD
  - █ DRIVEWAY & PARKING PAVEMENT
  - █ BRIDGES
  - █ RETAINING WALL
  - █ CONSTRUCTION LIMITS
  - █ RAILROAD CONSTRUCTION LIMITS
  - █ INPLACE RAILROAD
  - █ PROPOSED RAILROAD
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  - █ INPLACE R/W
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  - █ PROPOSED R/W
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  - █ TRAFFIC DIRECTION
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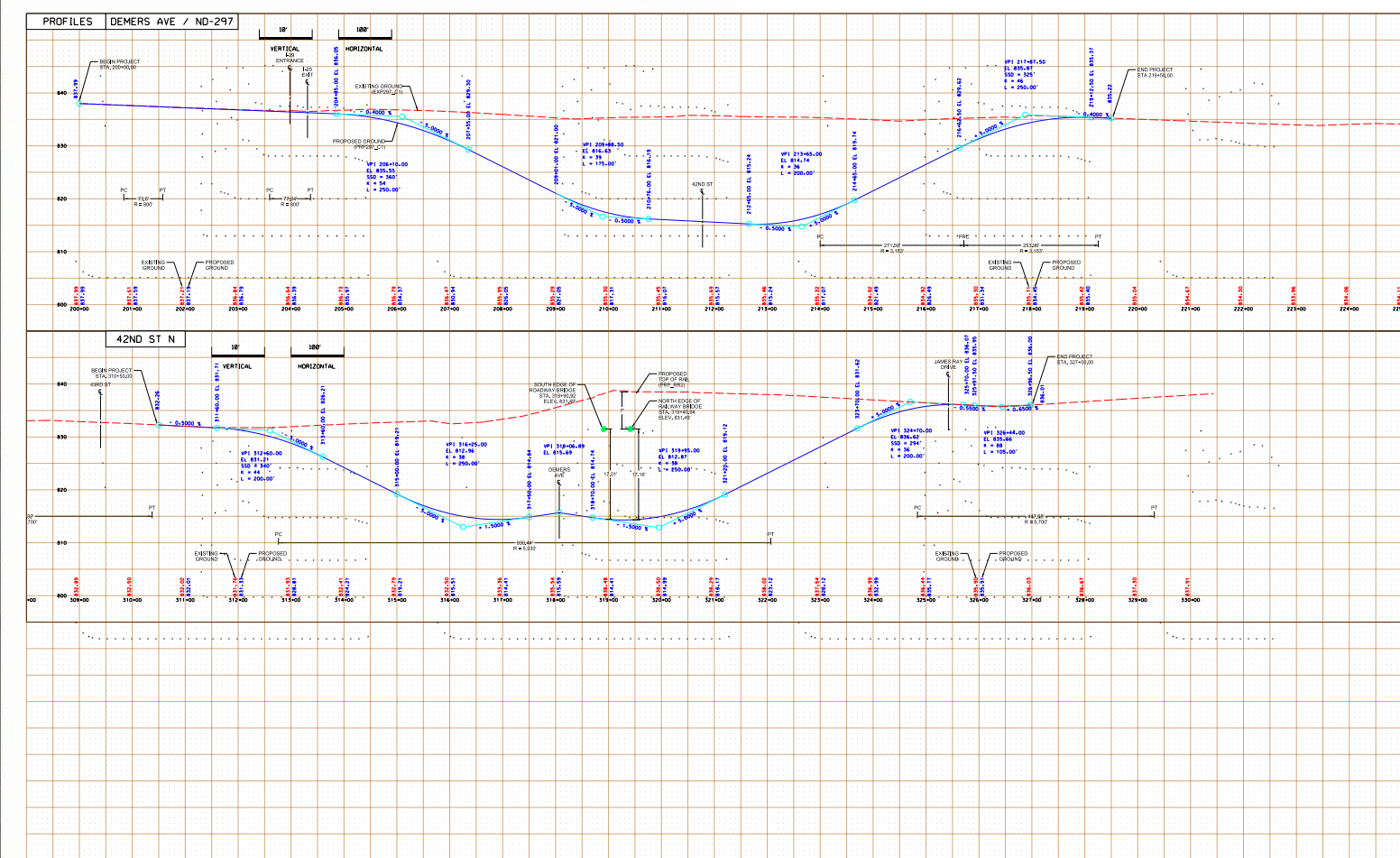
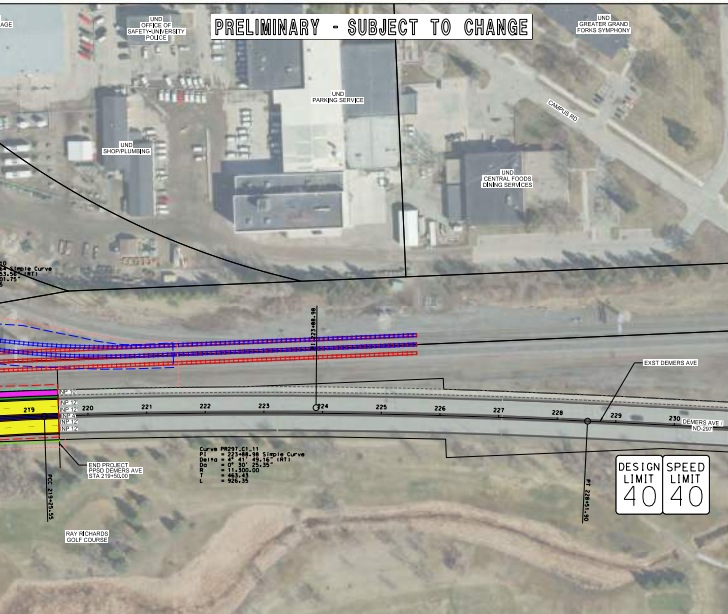
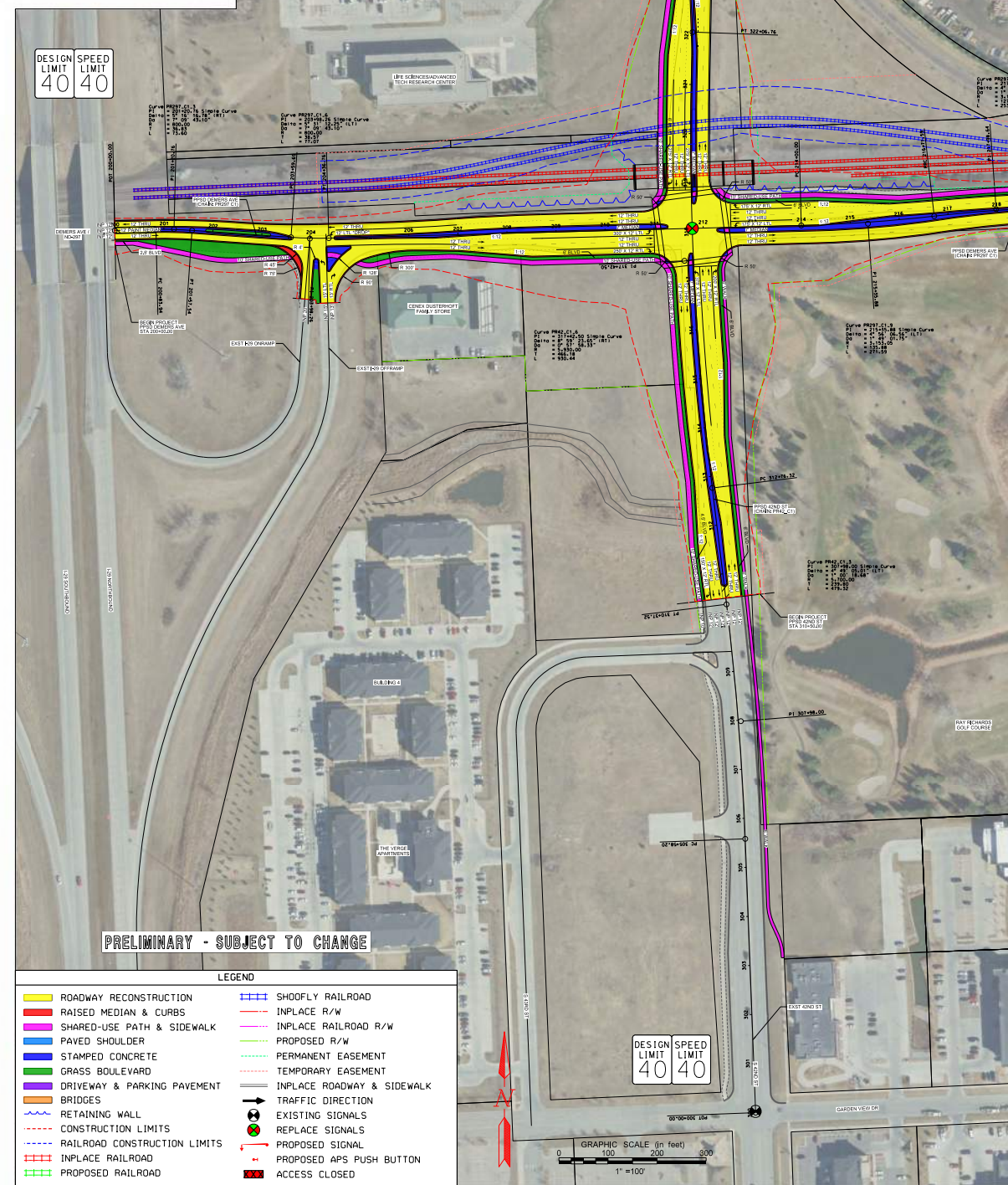


# GRAND FORKS PROJECT #8338

## 42nd St & DeMers Ave Railroad Grade Separation

### MARCH 2022

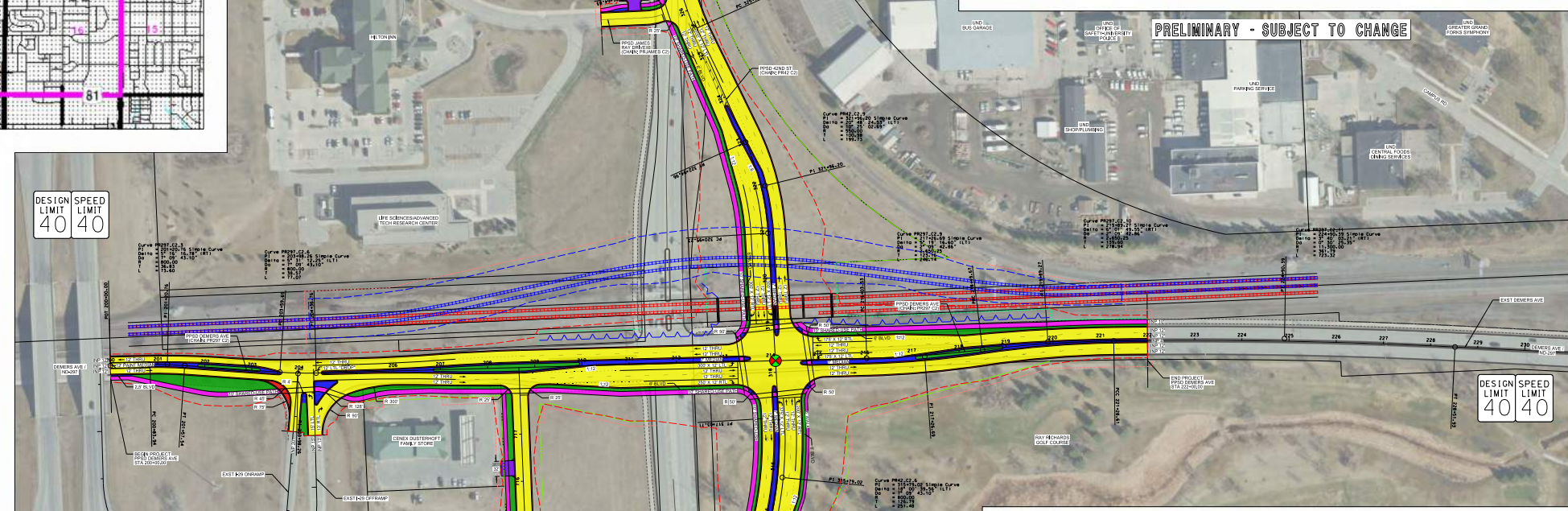
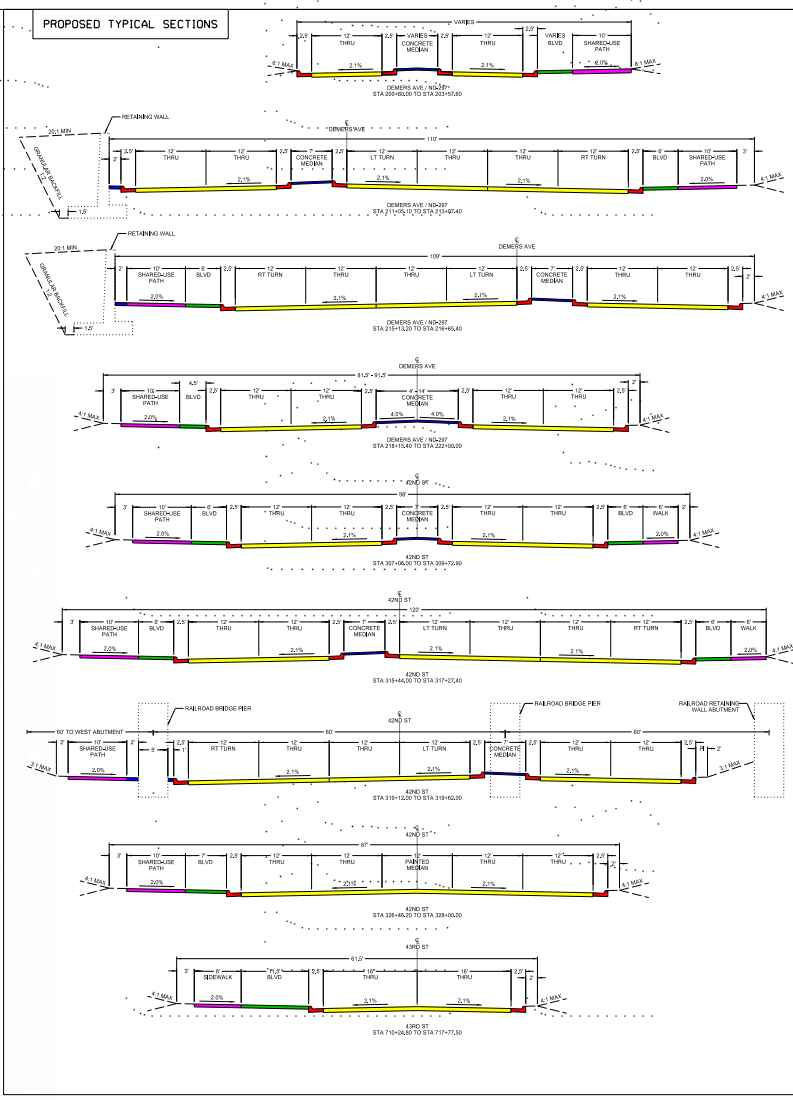
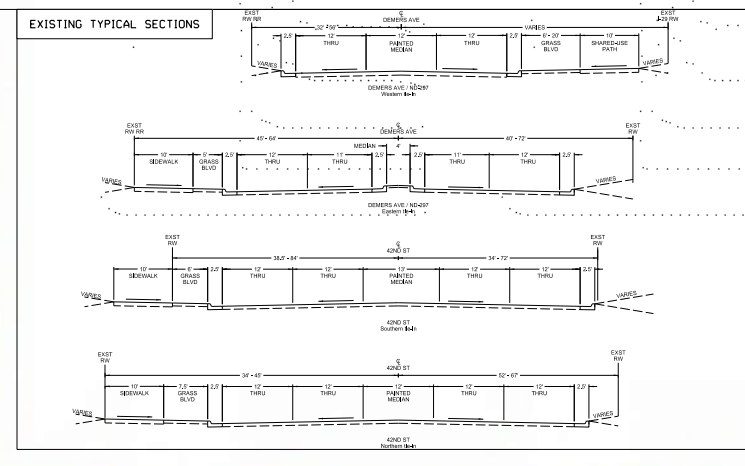
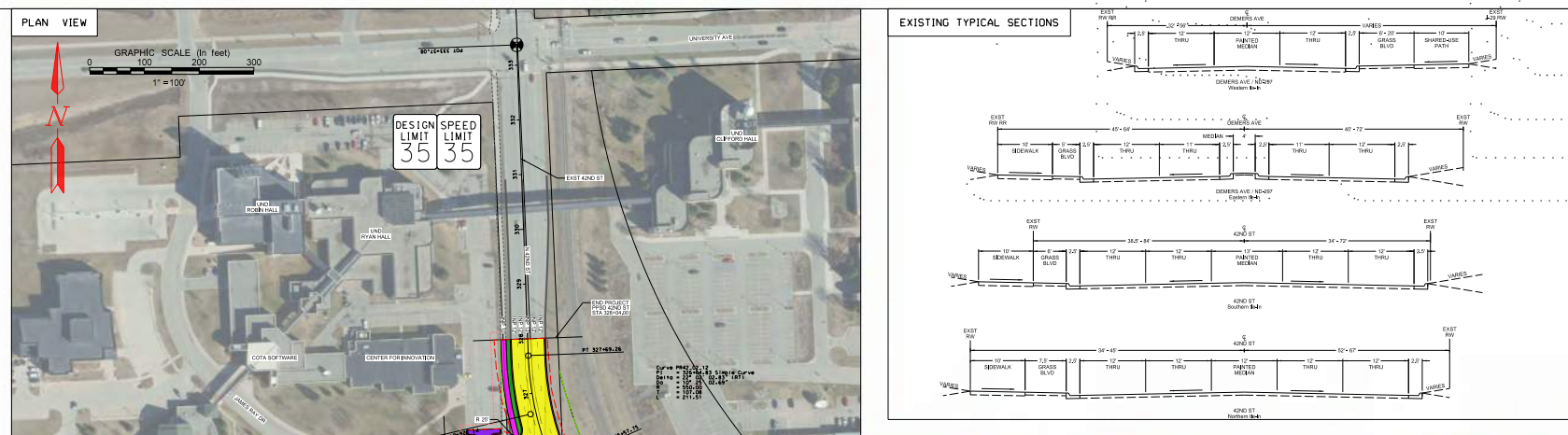
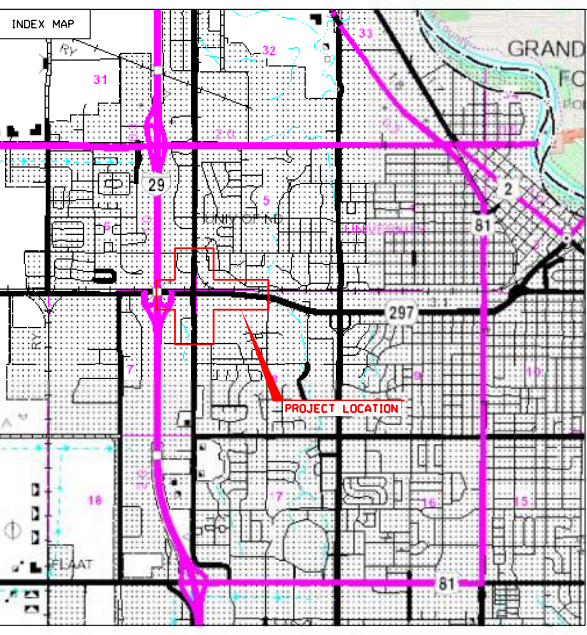
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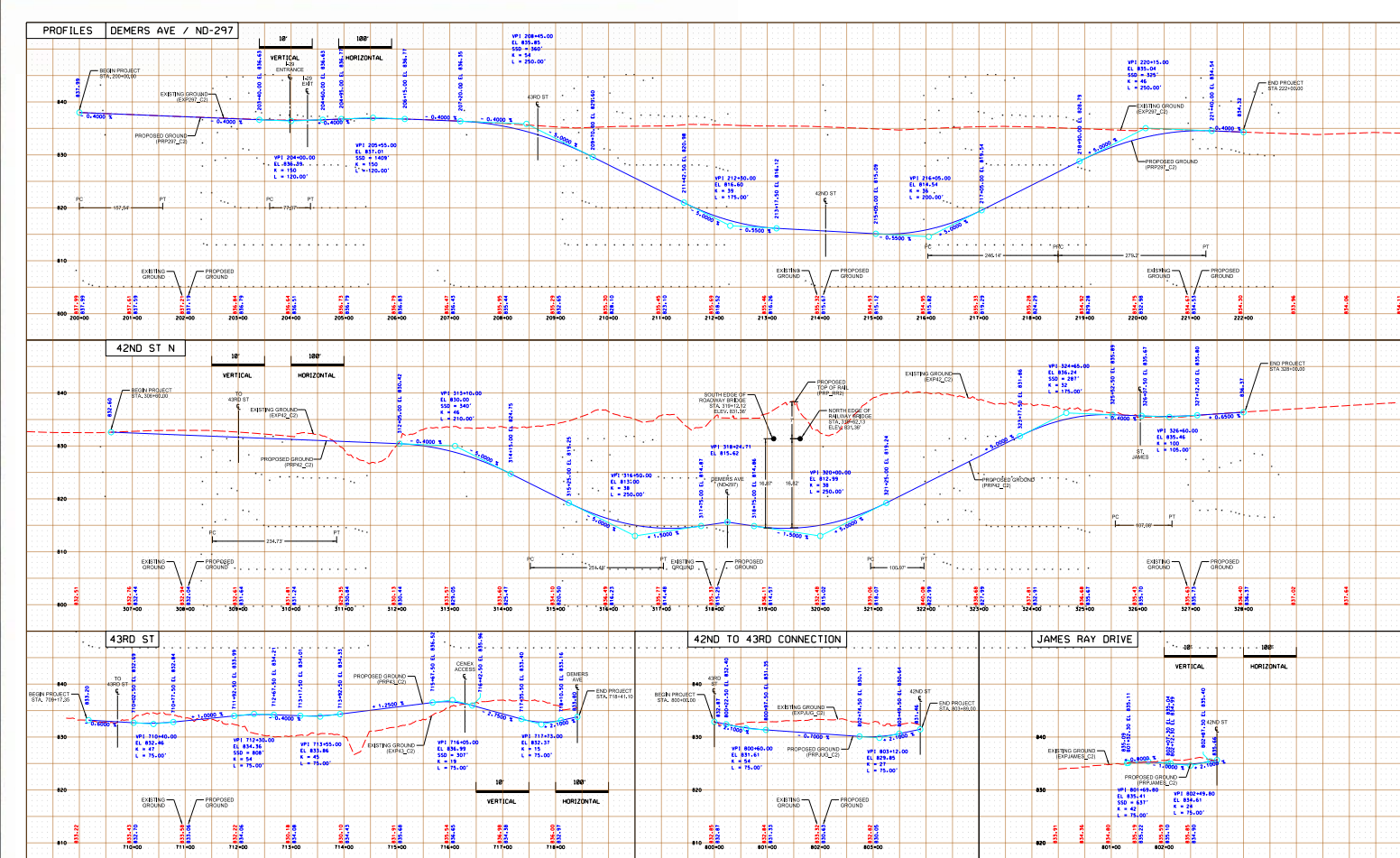
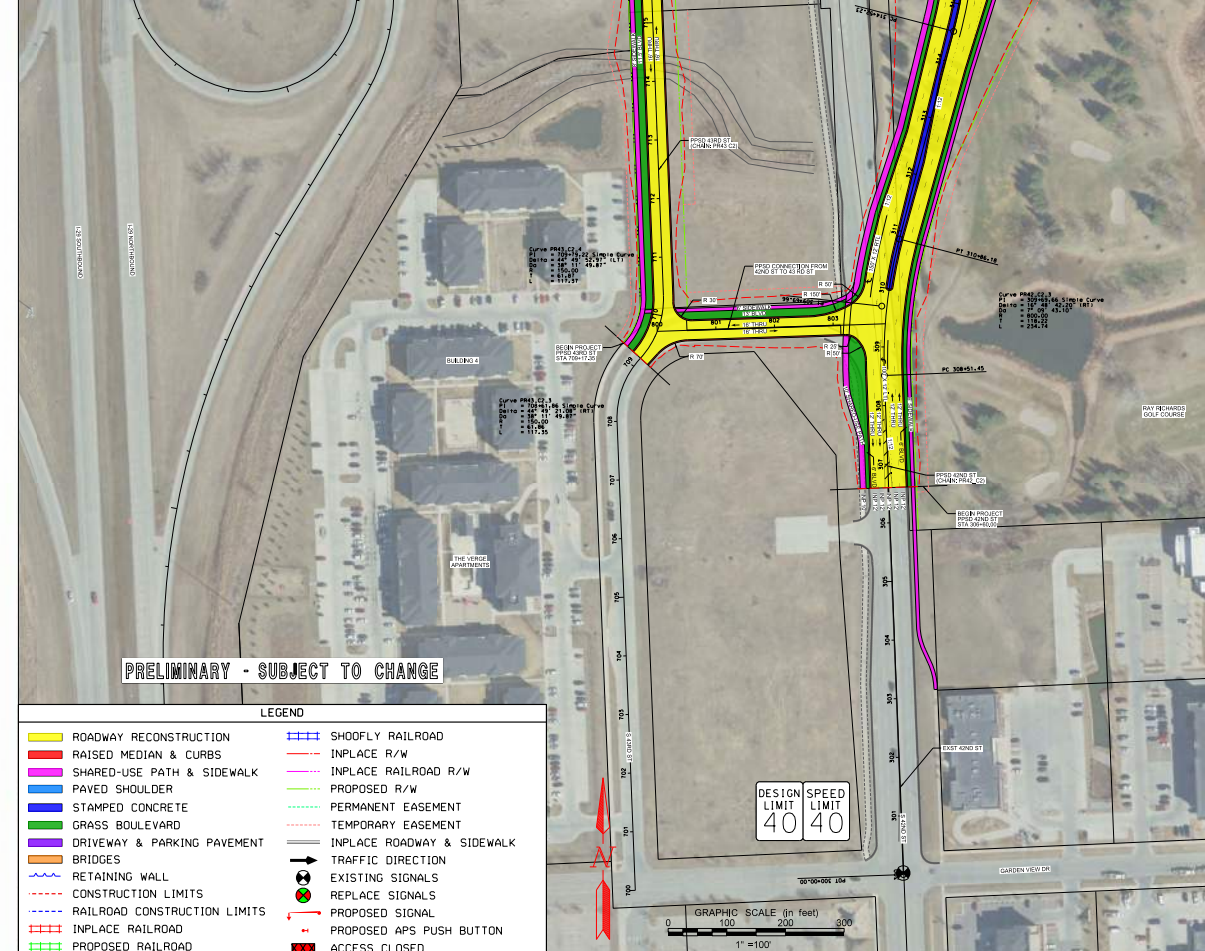
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  - ACCESS CLOSED

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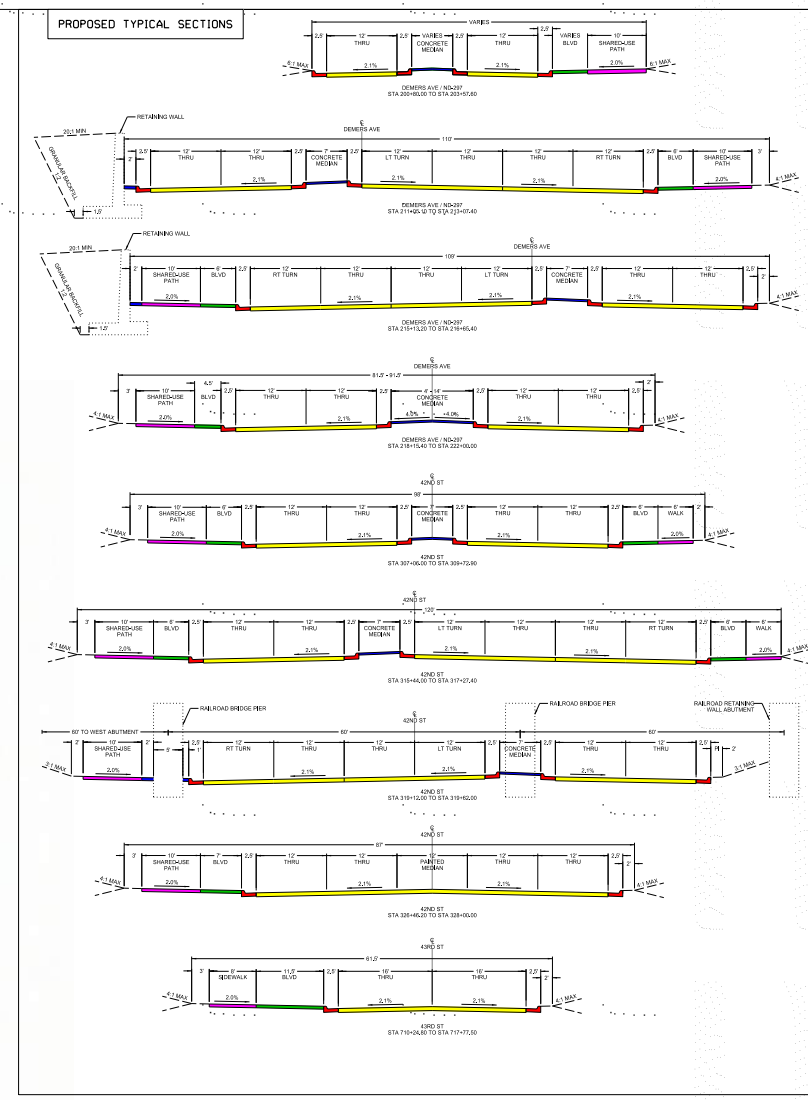
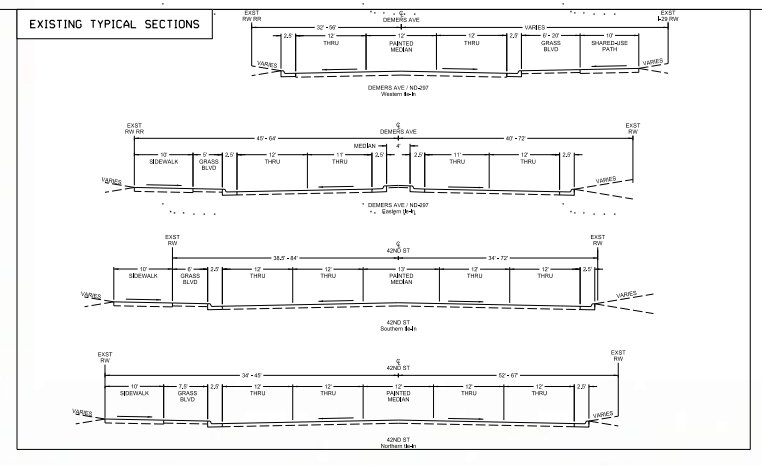
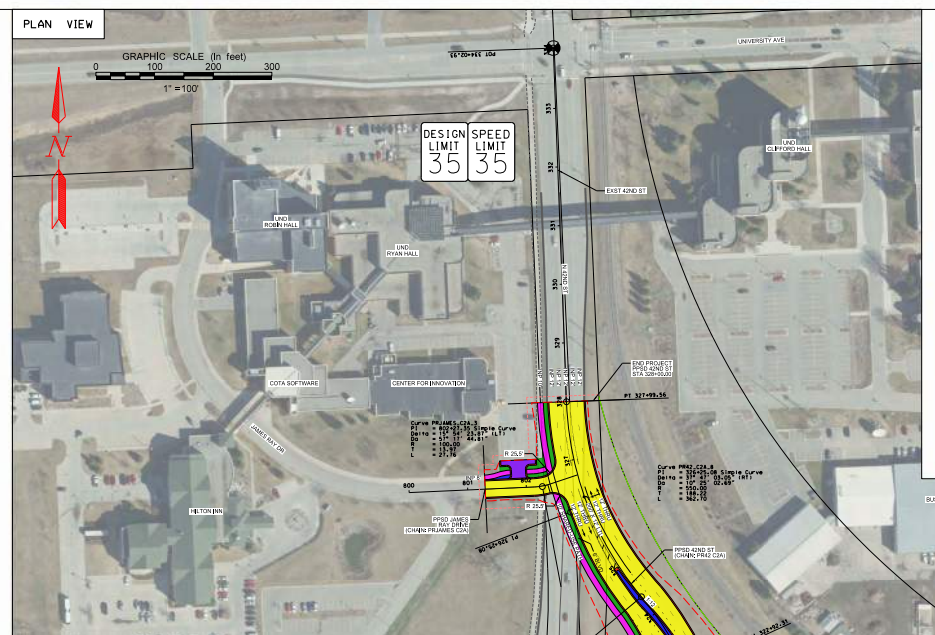
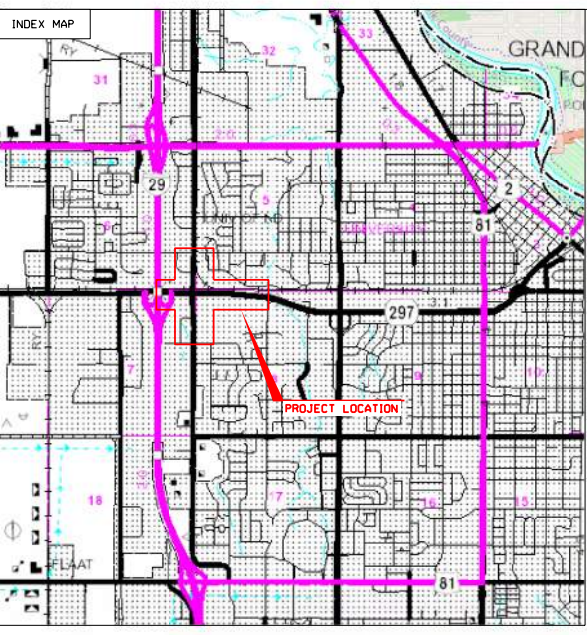
**GRAND FORKS PROJECT #8338**  
42nd St & DeMers Ave Railroad Grade Separation  
MARCH 2022  
ALTERNATIVE C2 - GEOMETRIC EXHIBIT



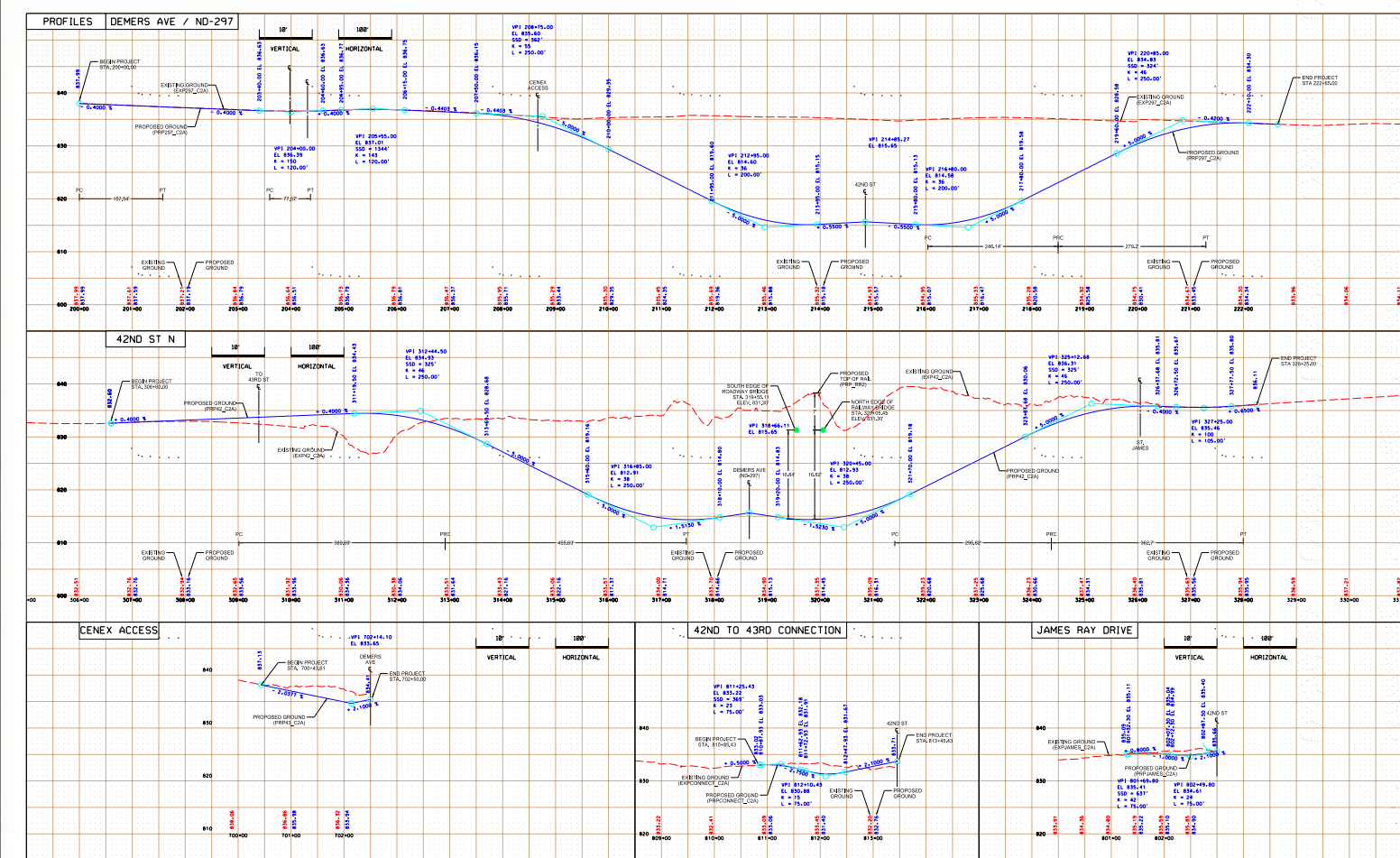
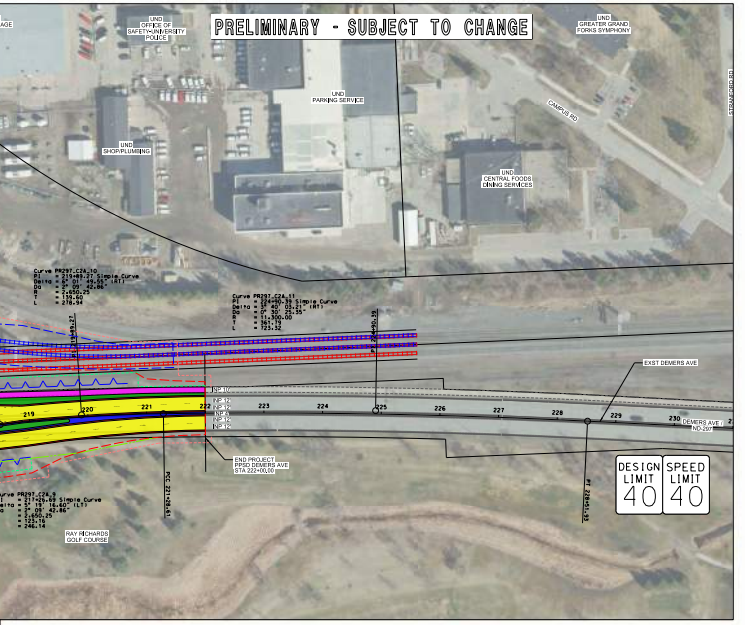
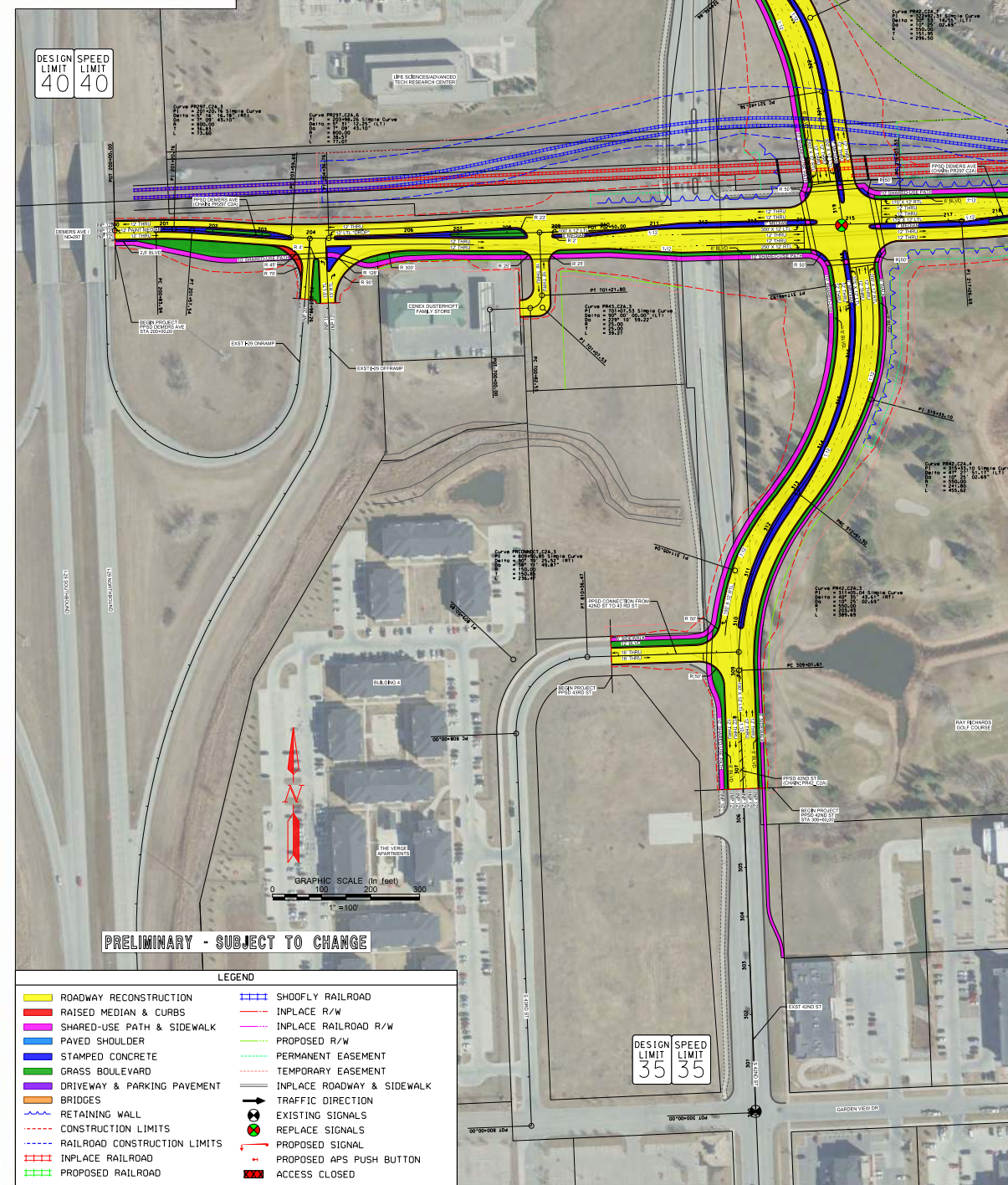
- LEGEND**
- |  |                              |  |                            |
|--|------------------------------|--|----------------------------|
|  | ROADWAY RECONSTRUCTION       |  | SHOOFLY RAILROAD           |
|  | RAISED MEDIAN & CURBS        |  | INPLACE R/W                |
|  | SHARED-USE PATH & SIDEWALK   |  | INPLACE RAILROAD R/W       |
|  | PAVED SHOULDER               |  | PROPOSED R/W               |
|  | STAMPED CONCRETE             |  | PERMANENT EASEMENT         |
|  | GRASS BOULEVARD              |  | TEMPORARY EASEMENT         |
|  | DRIVEWAY & PARKING PAVEMENT  |  | INPLACE ROADWAY & SIDEWALK |
|  | BRIDGES                      |  | TRAFFIC DIRECTION          |
|  | RETAINING WALL               |  | REPLACE SIGNALS            |
|  | CONSTRUCTION LIMITS          |  | PROPOSED SIGNAL            |
|  | RAILROAD CONSTRUCTION LIMITS |  | PROPOSED APS PUSH BUTTON   |
|  | INPLACE RAILROAD             |  | ACCESS CLOSED              |
|  | PROPOSED RAILROAD            |  |                            |

DESIGN FILE: K:\Projects\2022\CD\Design\Plans\Preliminary\_Geometric\2022\_03\_14\022\_42ndDeMersUnderpass\CAD\Design\Plans\Preliminary\_Geometric\_DATE: 3/24/2022





**GRAND FORKS PROJECT #8338**  
 42nd St & DeMers Ave Railroad Grade Separation  
 MAY 2022  
 ALTERNATIVE C2A - GEOMETRIC EXHIBIT



- LEGEND**
- █ ROADWAY RECONSTRUCTION
  - █ RAISED MEDIAN & CURBS
  - █ SHARED-USE PATH & SIDEWALK
  - █ PAVED SHOULDER
  - █ STAMPED CONCRETE
  - █ GRASS BOULEVARD
  - █ DRIVEWAY & PARKING PAVEMENT
  - █ BRIDGES
  - █ RETAINING WALL
  - CONSTRUCTION LIMITS
  - RAILROAD CONSTRUCTION LIMITS
  - INPLACE RAILROAD
  - PROPOSED RAILROAD
  - █ SHOOFLY RAILROAD
  - █ INPLACE R/W
  - █ INPLACE RAILROAD R/W
  - █ PROPOSED R/W
  - █ PERMANENT EASEMENT
  - █ TEMPORARY EASEMENT
  - █ INPLACE ROADWAY & SIDEWALK
  - █ TRAFFIC DIRECTION
  - █ EXISTING SIGNALS
  - █ REPLACE SIGNALS
  - █ PROPOSED SIGNAL
  - █ PROPOSED APS PUSH BUTTON
  - █ ACCESS CLOSED

DESIGN FILE: K:\Projects\8338\8338\_C2A\8338\_C2A\8338\_C2A\Design\Plans\Preliminary\_Geometric  
 DATE: 5/24/2022





42ND ST & DEMERS AVE GRADE SEPARATION

CPU-6-986(073)077

Alternative Cost Estimates & Comparison

SPEC	CODE	BID ITEM	UNIT	UNIT PRICE ①	EAST FLIP		EAST MAINLINE		WEST MAINLINE		FULL INTERSECTION		EAST FULL INTERSECTION	
					ALTERNATIVE B1		ALTERNATIVE B2		ALTERNATIVE B3		ALTERNATIVE C1		ALTERNATIVE C2	
					ESTIMATED QUANTITY	ESTIMATED PRICE	ESTIMATED QUANTITY	ESTIMATED PRICE	ESTIMATED QUANTITY	ESTIMATED PRICE	ESTIMATED QUANTITY	ESTIMATED PRICE	ESTIMATED QUANTITY	ESTIMATED PRICE
<b>REMOVALS</b>														
202	0113	REMOVAL OF CONCRETE	CY	\$ 470.00	653	\$ 307,000.00	637	\$ 299,000.00	666	\$ 313,000.00	461	\$ 217,000.00	588	\$ 276,000.00
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	\$ 14.00	32656	\$ 457,000.00	33991	\$ 476,000.00	39096	\$ 547,000.00	29164	\$ 408,000.00	30815	\$ 431,000.00
202	0130	REMOVAL OF CURB & GUTTER	LF	\$ 9.00	13625	\$ 123,000.00	12098	\$ 109,000.00	14475	\$ 130,000.00	10174	\$ 92,000.00	12184	\$ 110,000.00
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	\$ 8.00	673	\$ 5,000.00	673	\$ 5,000.00	673	\$ 5,000.00	673	\$ 5,000.00	673	\$ 5,000.00
202	0119	SAW CONCRETE	LF	\$ 7.00	512	\$ 4,000.00	517	\$ 4,000.00	522	\$ 4,000.00	437	\$ 3,000.00	537	\$ 4,000.00
202	0210	REMOVAL OF MANHOLES	EA	\$ 1,300.00	17	\$ 22,000.00	20	\$ 26,000.00	22	\$ 29,000.00	12	\$ 16,000.00	14	\$ 18,000.00
202	0235	REMOVAL OF CATCH BASIN	EA	\$ 775.00	32	\$ 25,000.00	36	\$ 28,000.00	41	\$ 32,000.00	27	\$ 21,000.00	30	\$ 23,000.00
202	0284	REMOVAL OF BUILDING	EA	\$ 1,000,000.00	0	\$ -	0	\$ -	1	\$ 1,000,000.00	1	\$ 1,000,000.00	0	\$ -
202	0320	REMOVE RAILROAD SIGNALS	L SUM	\$ 30,000.00	1	\$ 30,000.00	1	\$ 30,000.00	1	\$ 30,000.00	1	\$ 30,000.00	1	\$ 30,000.00
202	0329	REMOVAL OF RAILROAD RAIL	LF	\$ 25.00	3450	\$ 86,000.00	3450	\$ 86,000.00	3930	\$ 98,000.00	3650	\$ 91,000.00	3950	\$ 99,000.00
203	0101	COMMON EXCAVATION-TYPE A	CY	\$ 11.00	81056	\$ 892,000.00	79266	\$ 872,000.00	79715	\$ 877,000.00	198563	\$ 2,184,000.00	202289	\$ 2,225,000.00
203	0109	TOPSOIL	CY	\$ 4.00	4107	\$ 16,000.00	4871	\$ 19,000.00	4865	\$ 19,000.00	4720	\$ 19,000.00	5759	\$ 23,000.00
724	0430	REMOVE HYDRANT	EA	\$ 1,000.00	6	\$ 6,000.00	9	\$ 9,000.00	9	\$ 9,000.00	6	\$ 6,000.00	6	\$ 6,000.00
<b>SUBTOTAL</b>					<b>\$</b>	<b>1,973,000.00</b>	<b>\$</b>	<b>1,963,000.00</b>	<b>\$</b>	<b>3,093,000.00</b>	<b>\$</b>	<b>4,092,000.00</b>	<b>\$</b>	<b>3,250,000.00</b>
<b>SURFACING</b>														
302	0100	SALVAGED BASE COURSE	TON	\$ 20.00	32807	\$ 656,000.00	35524	\$ 710,000.00	33946	\$ 679,000.00	20197	\$ 404,000.00	27353	\$ 547,000.00
550	0300	8IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	\$ 100.00	39676	\$ 3,968,000.00	40160	\$ 4,016,000.00	40099	\$ 4,010,000.00	24531	\$ 2,453,000.00	33532	\$ 3,353,000.00
709	0701	GEOTEXTILE FABRIC-TYPE R1	SY	\$ 4.00	48299	\$ 193,000.00	51954	\$ 208,000.00	50278	\$ 201,000.00	29744	\$ 119,000.00	40582	\$ 162,000.00
748	0190	CURB & GUTTER-TYPE I 30IN	LF	\$ 30.00	22123	\$ 664,000.00	22598	\$ 678,000.00	21363	\$ 641,000.00	13069	\$ 392,000.00	18262	\$ 548,000.00
750	0120	SIDEWALK CONCRETE 5IN REINF	SY	\$ 65.00	7521	\$ 489,000.00	8354	\$ 543,000.00	7427	\$ 483,000.00	4729	\$ 307,000.00	6409	\$ 417,000.00
750	0250	CONCRETE MEDIAN PAVING COLORED W/BRICK PATTERN	SY	\$ 110.00	4862	\$ 535,000.00	5853	\$ 644,000.00	4559	\$ 501,000.00	2868	\$ 315,000.00	2919	\$ 321,000.00
750	1020	DRIVEWAY CONCRETE 8IN	SY	\$ 95.00	197	\$ 19,000.00	445	\$ 42,000.00	118	\$ 11,000.00	118	\$ 11,000.00	220	\$ 21,000.00
750	2115	DETECTABLE WARNING PANELS	SF	\$ 60.00	677	\$ 41,000.00	752	\$ 45,000.00	668	\$ 40,000.00	426	\$ 26,000.00	577	\$ 35,000.00
<b>SUBTOTAL</b>					<b>\$</b>	<b>6,565,000.00</b>	<b>\$</b>	<b>6,886,000.00</b>	<b>\$</b>	<b>6,566,000.00</b>	<b>\$</b>	<b>4,027,000.00</b>	<b>\$</b>	<b>5,404,000.00</b>
<b>STRUCTURES &amp; RAILROAD</b>														
600	0100	VEHICULAR BRIDGE	SF	\$ 225.00	17004	\$ 3,826,000.00	23217	\$ 5,224,000.00	21774	\$ 4,899,000.00	0	\$ -	0	\$ -
600	0101	RAILROAD BRIDGE	SF	\$ 550.00	11000	\$ 6,050,000.00	11000	\$ 6,050,000.00	11000	\$ 6,050,000.00	12000	\$ 6,600,000.00	12000	\$ 6,600,000.00
600	0102	RETAINING WALL	LF	\$ 6,400.00	0	\$ -	0	\$ -	0	\$ -	868	\$ 5,555,000.00	924	\$ 5,914,000.00
600	0103	SHOO-FLY ②	LF	\$ 700.00	1740	\$ 1,218,000.00	1740	\$ 1,218,000.00	1990	\$ 1,393,000.00	1740	\$ 1,218,000.00	1740	\$ 1,218,000.00
600	0104	TEMPORARY SHORING LESS THAN 12FT IN HEIGHT	SF	\$ 200.00	530	\$ 106,000.00	740	\$ 148,000.00	1270	\$ 254,000.00	320	\$ 64,000.00	470	\$ 94,000.00
107	0150	RAILROAD FLAGGING REIMBURSEMENT	L SUM	\$ 200,000.00	1	\$ 200,000.00	1	\$ 200,000.00	1	\$ 200,000.00	1	\$ 200,000.00	1	\$ 200,000.00
980	0501	TEMPORARY AT-GRADE CROSSING & SIGNAL	L SUM	\$ 500,000.00	0	\$ -	1	\$ 500,000.00	1	\$ 500,000.00	0	\$ -	1	\$ 500,000.00
980	0502	RAILROAD SWITCH RELOCATION ⑥	L SUM	\$ 500,000.00	0	\$ -	0	\$ -	1	\$ 500,000.00	0	\$ -	0	\$ -
980	0503	RAILROAD MODIFY/REPLACE SIGNALS	EA	\$ 75,000.00	1	\$ 75,000.00	1	\$ 75,000.00	2	\$ 150,000.00	1	\$ 75,000.00	1	\$ 75,000.00
980	0560	RAILROAD TRACK ②	LF	\$ 650.00	1730	\$ 1,125,000.00	1730	\$ 1,125,000.00	1965	\$ 1,277,000.00	1830	\$ 1,190,000.00	1980	\$ 1,287,000.00
<b>SUBTOTAL</b>					<b>\$</b>	<b>12,600,000.00</b>	<b>\$</b>	<b>14,540,000.00</b>	<b>\$</b>	<b>15,223,000.00</b>	<b>\$</b>	<b>14,902,000.00</b>	<b>\$</b>	<b>15,888,000.00</b>



42ND ST & DEMERS AVE GRADE SEPARATION

CPU-6-986(073)077

Alternative Cost Estimates & Comparison

SPEC	CODE	BID ITEM	UNIT	UNIT PRICE ①	EAST FLIP		EAST MAINLINE		WEST MAINLINE		FULL INTERSECTION		EAST FULL INTERSECTION	
					ALTERNATIVE B1		ALTERNATIVE B2		ALTERNATIVE B3		ALTERNATIVE C1		ALTERNATIVE C2	
					ESTIMATED QUANTITY	ESTIMATED PRICE	ESTIMATED QUANTITY	ESTIMATED PRICE	ESTIMATED QUANTITY	ESTIMATED PRICE	ESTIMATED QUANTITY	ESTIMATED PRICE	ESTIMATED QUANTITY	ESTIMATED PRICE
<b>MISCELLANEOUS</b>														
710	0100	TEMPORARY BYPASS	LF	\$ 400.00	1650	\$ 660,000.00	1650	\$ 660,000.00	1500	\$ 600,000.00	0	\$ -	1600	\$ 640,000.00
772	2810	TEMPORARY TRAFFIC SIGNALS	EA	\$ 30,000.00	0	\$ -	1	\$ 30,000.00	1	\$ 30,000.00	0	\$ -	1	\$ 30,000.00
706	0400	FIELD OFFICE	EA	\$ 20,000.00	1	\$ 20,000.00	1	\$ 20,000.00	1	\$ 20,000.00	1	\$ 20,000.00	1	\$ 20,000.00
706	0500	AGGREGATE LABORATORY	EA	\$ 20,000.00	1	\$ 20,000.00	1	\$ 20,000.00	1	\$ 20,000.00	1	\$ 20,000.00	1	\$ 20,000.00
772	0001	TRAFFIC SIGNALS SYSTEM	EA	\$ 350,000.00	3	\$ 1,050,000.00	3	\$ 1,050,000.00	3	\$ 1,050,000.00	2	\$ 700,000.00	2	\$ 700,000.00
0	0000	STORMWATER ④	L SUM	VARIES	1	\$ 2,899,000.00	1	\$ 2,763,000.00	1	\$ 2,012,000.00	1	\$ 4,756,000.00	1	\$ 4,588,000.00
103	0100	CONTRACT BOND	L SUM	0.75%	1	\$ 194,000.00	1	\$ 210,000.00	1	\$ 215,000.00	1	\$ 214,000.00	1	\$ 230,000.00
702	0100	MOBILIZATION	L SUM	7.5%	1	\$ 1,940,000.00	1	\$ 2,100,000.00	1	\$ 2,150,000.00	1	\$ 2,140,000.00	1	\$ 2,300,000.00
770	9400	LIGHTING SYSTEM (ROADWAY)	L SUM	2.5%	1	\$ 645,000.00	1	\$ 699,000.00	1	\$ 716,000.00	1	\$ 713,000.00	1	\$ 764,000.00
0	0000	EROSION CONTROL	L SUM	3.0%	1	\$ 774,000.00	1	\$ 838,000.00	1	\$ 859,000.00	1	\$ 856,000.00	1	\$ 917,000.00
0	0000	SIGNING & STRIPING	L SUM	3.0%	1	\$ 774,000.00	1	\$ 838,000.00	1	\$ 859,000.00	1	\$ 856,000.00	1	\$ 917,000.00
0	0000	TRAFFIC CONTROL	L SUM	3.0%	1	\$ 774,000.00	1	\$ 838,000.00	1	\$ 859,000.00	1	\$ 856,000.00	1	\$ 917,000.00
<b>SUBTOTAL</b>						\$ 9,750,000.00	\$ 10,066,000.00	\$ 9,390,000.00	\$ 11,131,000.00	\$ 12,043,000.00				
<b>CONSTRUCTION SUBTOTAL</b>						\$ 30,888,000.00	\$ 33,455,000.00	\$ 34,272,000.00	\$ 34,152,000.00	\$ 36,585,000.00				
<b>OTHER</b>														
		GOLF COURSE IMPACT MITIGATION ③⑦	L SUM	VARIES	1	\$ 1,625,000.00	1	\$ 1,648,000.00	1	\$ 787,000.00	1	\$ 1,056,000.00	1	\$ 1,036,000.00
		CONTINGENCY ⑧	L SUM	30%	1	\$ 9,760,000.00	1	\$ 10,540,000.00	1	\$ 10,520,000.00	1	\$ 10,570,000.00	1	\$ 11,290,000.00
		PROPOSED RIGHT OF WAY ⑤	SF	\$ 5.00	345519	\$ 1,728,000.00	421018	\$ 2,105,000.00	128259	\$ 641,000.00	89837	\$ 449,000.00	298304	\$ 1,492,000.00
		PERMANENT EASEMENT ⑤	SF	\$ 5.00	15275	\$ 76,000.00	42486	\$ 212,000.00	34363	\$ 172,000.00	38696	\$ 193,000.00	51660	\$ 258,000.00
		TEMPORARY EASEMENT ⑤⑦	SF	\$ 1.00	316790	\$ 317,000.00	266933	\$ 267,000.00	352453	\$ 352,000.00	247655	\$ 248,000.00	228394	\$ 228,000.00
		PRIVATE UTILITY RELOCATIONS	L SUM	\$ 200,000.00	1	\$ 200,000.00	1	\$ 200,000.00	1	\$ 200,000.00	1	\$ 200,000.00	1	\$ 200,000.00
		GAS STATION RELOCATION	L SUM	\$ 6,500,000.00	0	\$ -	0	\$ -	1	\$ 6,500,000.00	1	\$ 6,500,000.00	0	\$ -
<b>SUBTOTAL</b>						\$ 13,706,000.00	\$ 14,972,000.00	\$ 19,172,000.00	\$ 19,216,000.00	\$ 14,504,000.00				
		Design & Construction Engineering (12%)				\$ 5,351,000.00	\$ 5,811,000.00	\$ 6,413,000.00	\$ 6,404,000.00	\$ 6,131,000.00				
<b>TOTAL</b>						\$ 49,943,000.00	\$ 54,239,000.00	\$ 59,859,000.00	\$ 59,773,000.00	\$ 57,220,000.00				

Notes:

- ① Bid prices reflect 2021 estimated construction cost
- ② Accounting for double track configuration
- ③ Separate estimate received from Norby on 2/17/22 "K:\Projects\City\ND\GrandForks\2004-01824\_42nd&DeMersUnderpass\Project Info\From Norby\220217\RR) Road Golf Concepts 220215-23 ISSUED.pdf"
- ④ Separate estimate received from AE2S on 2/15/22 "K:\Projects\City\ND\GrandForks\2004-01824\_42nd&DeMersUnderpass\Project Info\From AE2S\2022.02.15\Cost Estimates\_Demers\_Ave\_Draft.xlsx"
- ⑤ Separate estimate "K:\Projects\City\ND\GrandForks\2004-01824\_42nd&DeMersUnderpass\CAD\ROW\2004-01824\_ROW Costs.xlsx"
- ⑥ Assuming permanent relocation of switch to the west of I-29
- ⑦ Temporary easement excludes areas within golf course impact mitigation
- ⑧ Contingency is 30% of the sum of Construction Subtotal and Golf Course Impact Mitigation

# U. S. DOT CROSSING INVENTORY FORM

**DEPARTMENT OF TRANSPORTATION**  
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk \* denotes an optional field.

<b>A. Revision Date</b> (MM/DD/YYYY) 08 / 04 / 2022	<b>B. Reporting Agency</b> <input checked="" type="checkbox"/> Railroad <input type="checkbox"/> Transit <input type="checkbox"/> State <input type="checkbox"/> Other	<b>C. Reason for Update (Select only one)</b> <input checked="" type="checkbox"/> Change in Data <input type="checkbox"/> Re-Open <input type="checkbox"/> New Crossing <input type="checkbox"/> Date Change Only <input type="checkbox"/> Closed <input type="checkbox"/> Change in Primary Operating RR <input type="checkbox"/> No Train Traffic <input type="checkbox"/> Quiet Zone Update <input type="checkbox"/> Admin. Correction	<b>D. DOT Crossing Inventory Number</b> 081329H
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## Part I: Location and Classification Information

<b>1. Primary Operating Railroad</b> BNSF Railway Company [BNSF]		<b>2. State</b> NORTH DAKOTA		<b>3. County</b> GRAND FORKS	
<b>4. City / Municipality</b> <input checked="" type="checkbox"/> In <input type="checkbox"/> Near GRAND FORKS		<b>5. Street/Road Name &amp; Block Number</b> 42ND ST (Street/Road Name)   * (Block Number)		<b>6. Highway Type &amp; No.</b> Not Yet Reported by State	
<b>7. Do Other Railroads Operate a Separate Track at Crossing?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Specify RR			<b>8. Do Other Railroads Operate Over Your Track at Crossing?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Specify RR		
<b>9. Railroad Division or Region</b> <input type="checkbox"/> None TWIN CITIES		<b>10. Railroad Subdivision or District</b> <input type="checkbox"/> None GRAND FORKS		<b>11. Branch or Line Name</b> <input type="checkbox"/> None CASS LK-DL SW	
<b>12. RR Milepost</b> 0110.069 (prefix)   (nnnn.nnn)   (suffix)		<b>13. Line Segment</b> * 32		<b>14. Nearest RR Timetable Station</b> * UNIVERSITY	
<b>15. Parent RR (if applicable)</b> <input checked="" type="checkbox"/> N/A		<b>16. Crossing Owner (if applicable)</b> <input type="checkbox"/> N/A BNSF		<b>17. Crossing Type</b> <input checked="" type="checkbox"/> Public <input type="checkbox"/> Private	
<b>18. Crossing Purpose</b> <input checked="" type="checkbox"/> Highway <input type="checkbox"/> Pathway, Ped. <input type="checkbox"/> Station, Ped.		<b>19. Crossing Position</b> <input checked="" type="checkbox"/> At Grade <input type="checkbox"/> RR Under <input type="checkbox"/> RR Over		<b>20. Public Access (if Private Crossing)</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>21. Type of Train</b> <input checked="" type="checkbox"/> Freight <input type="checkbox"/> Intercity Passenger <input type="checkbox"/> Commuter		<input type="checkbox"/> Transit <input type="checkbox"/> Shared Use Transit <input type="checkbox"/> Tourist/Other		<b>22. Average Passenger Train Count Per Day</b> <input type="checkbox"/> Less Than One Per Day <input type="checkbox"/> Number Per Day 0	
<b>23. Type of Land Use</b> <input checked="" type="checkbox"/> Open Space <input type="checkbox"/> Farm <input type="checkbox"/> Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Institutional <input type="checkbox"/> Recreational <input type="checkbox"/> RR Yard					
<b>24. Is there an Adjacent Crossing with a Separate Number?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Provide Crossing Number			<b>25. Quiet Zone (FRA provided)</b> <input type="checkbox"/> No <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> Partial <input type="checkbox"/> Chicago Excused Date Established		
<b>26. HSR Corridor ID</b> <input checked="" type="checkbox"/> N/A		<b>27. Latitude in decimal degrees</b> (WGS84 std: nn.nnnnnnn) 47.9185735		<b>28. Longitude in decimal degrees</b> (WGS84 std: -nnn.nnnnnnn) -97.0883505	
<b>29. Lat/Long Source</b> <input checked="" type="checkbox"/> Actual <input type="checkbox"/> Estimated					
<b>30.A. Railroad Use *</b>			<b>31.A. State Use *</b>		
<b>30.B. Railroad Use *</b>			<b>31.B. State Use *</b>		
<b>30.C. Railroad Use *</b>			<b>31.C. State Use *</b>		
<b>30.D. Railroad Use *</b>			<b>31.D. State Use *</b>		
<b>32.A. Narrative (Railroad Use) *</b> (1.27 1.28 1.29) Value Provided by Railroad, Not Yet			<b>32.B. Narrative (State Use) *</b>		
<b>33. Emergency Notification Telephone No. (posted)</b> 800-832-5452		<b>34. Railroad Contact (Telephone No.)</b> 817-352-1549		<b>35. State Contact (Telephone No.)</b> 701-328-4409	

## Part II: Railroad Information

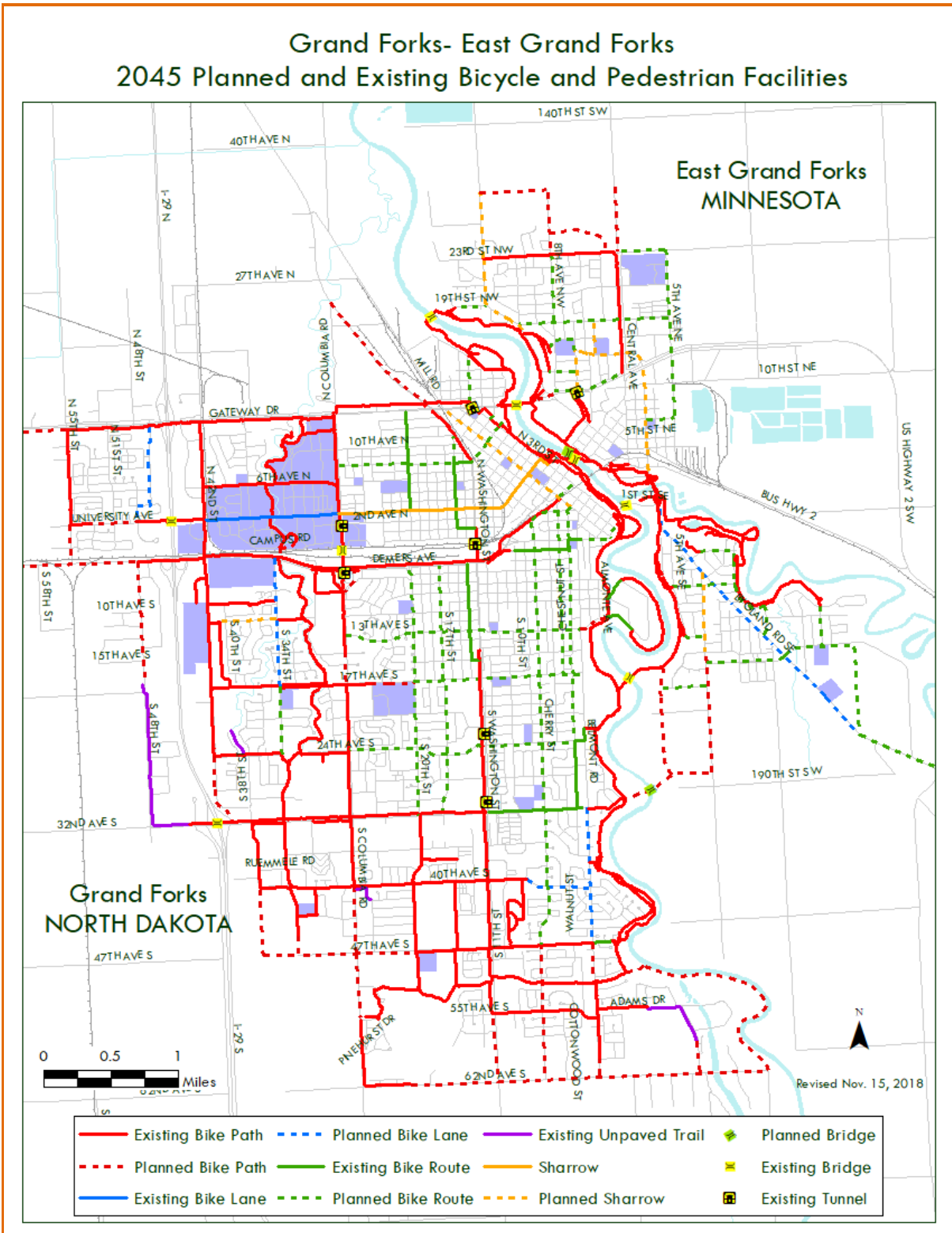
<b>1. Estimated Number of Daily Train Movements</b>				
<b>1.A. Total Day Thru Trains (6 AM to 6 PM)</b> 5	<b>1.B. Total Night Thru Trains (6 PM to 6 AM)</b> 5	<b>1.C. Total Switching Trains</b> 0	<b>1.D. Total Transit Trains</b> 0	<b>1.E. Check if Less Than One Movement Per Day</b> <input type="checkbox"/> How many trains per week? _____
<b>2. Year of Train Count Data (YYYY)</b> 2019		<b>3. Speed of Train at Crossing</b> 3.A. Maximum Timetable Speed (mph) 35 3.B. Typical Speed Range Over Crossing (mph) From 1 to 35		
<b>4. Type and Count of Tracks</b> Main 2 Siding 0 Yard 0 Transit 0 Industry 0				
<b>5. Train Detection (Main Track only)</b> <input checked="" type="checkbox"/> Constant Warning Time <input type="checkbox"/> Motion Detection <input type="checkbox"/> AFO <input type="checkbox"/> PTC <input type="checkbox"/> DC <input type="checkbox"/> Other <input type="checkbox"/> None				
<b>6. Is Track Signaled?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>7.A. Event Recorder</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>7.B. Remote Health Monitoring</b> <input type="checkbox"/> Yes <input type="checkbox"/> No



# U. S. DOT CROSSING INVENTORY FORM

A. Revision Date (MM/DD/YYYY) 08/04/2022		PAGE 2		D. Crossing Inventory Number (7 char.) 081329H	
<b>Part III: Highway or Pathway Traffic Control Device Information</b>					
1. Are there Signs or Signals? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		2. Types of Passive Traffic Control Devices associated with the Crossing			
2.A. Crossbuck Assemblies (count) 0		2.B. STOP Signs (R1-1) (count) 0	2.C. YIELD Signs (R1-2) (count)	2.D. Advance Warning Signs (Check all that apply; include count) <input type="checkbox"/> None <input checked="" type="checkbox"/> W10-1 4 <input type="checkbox"/> W10-3 _____ <input type="checkbox"/> W10-11 _____ <input checked="" type="checkbox"/> W10-2 3 <input checked="" type="checkbox"/> W10-4 4 <input type="checkbox"/> W10-12 _____	
2.E. Low Ground Clearance Sign (W10-5) <input type="checkbox"/> Yes (count _____) <input checked="" type="checkbox"/> No		2.F. Pavement Markings <input checked="" type="checkbox"/> Stop Lines <input type="checkbox"/> Dynamic Envelope <input type="checkbox"/> RR Xing Symbols <input type="checkbox"/> None		2.G. Channelization Devices/Medians <input checked="" type="checkbox"/> All Approaches <input type="checkbox"/> Median <input type="checkbox"/> One Approach <input type="checkbox"/> None	2.H. EXEMPT Sign (R15-3) <input type="checkbox"/> Yes <input type="checkbox"/> No
2.I. ENS Sign (I-13) Displayed <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		2.J. Other MUTCD Signs <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Specify Type W10-9 Count 6 Specify Type R15-8 Count 4 Specify Type R8-8 Count 2		2.K. Private Crossing Signs (if private) <input type="checkbox"/> Yes <input type="checkbox"/> No	2.L. LED Enhanced Signs (List types)
3. Types of Train Activated Warning Devices at the Grade Crossing (specify count of each device for all that apply)					
3.A. Gate Arms (count) Roadway 3 Pedestrian _____	3.B. Gate Configuration <input type="checkbox"/> 2 Quad <input type="checkbox"/> Full (Barrier) Resistance <input type="checkbox"/> 3 Quad <input type="checkbox"/> Median Gates	3.C. Cantilevered (or Bridged) Flashing Light Structures (count) Over Traffic Lane 1 <input type="checkbox"/> Incandescent Not Over Traffic Lane 0 <input type="checkbox"/> LED		3.D. Mast Mounted Flashing Lights (count of masts) 3 <input type="checkbox"/> Incandescent <input type="checkbox"/> LED <input type="checkbox"/> Back Lights Included <input type="checkbox"/> Side Lights Included	3.E. Total Count of Flashing Light Pairs 9
3.F. Installation Date of Current Active Warning Devices: (MM/YYYY) _____/_____/_____ <input type="checkbox"/> Not Required		3.G. Wayside Horn <input type="checkbox"/> Yes Installed on (MM/YYYY) ____/____/_____ <input type="checkbox"/> No		3.H. Highway Traffic Signals Controlling Crossing <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.I. Bells (count) 2
3.J. Non-Train Active Warning <input type="checkbox"/> Flagging/Flagman <input type="checkbox"/> Manually Operated Signals <input type="checkbox"/> Watchman <input type="checkbox"/> Floodlighting <input type="checkbox"/> None				3.K. Other Flashing Lights or Warning Devices Count 0 Specify type _____	
4.A. Does nearby Hwy Intersection have Traffic Signals? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.B. Hwy Traffic Signal Interconnection <input type="checkbox"/> Not Interconnected <input checked="" type="checkbox"/> For Traffic Signals <input type="checkbox"/> For Warning Signs	4.C. Hwy Traffic Signal Preemption <input checked="" type="checkbox"/> Simultaneous <input type="checkbox"/> Advance	5. Highway Traffic Pre-Signals <input type="checkbox"/> Yes <input type="checkbox"/> No Storage Distance * _____ Stop Line Distance * _____	6. Highway Monitoring Devices (Check all that apply) <input type="checkbox"/> Yes - Photo/Video Recording <input type="checkbox"/> Yes - Vehicle Presence Detection <input type="checkbox"/> None	
<b>Part IV: Physical Characteristics</b>					
1. Traffic Lanes Crossing Railroad Number of Lanes 2 <input type="checkbox"/> One-way Traffic <input checked="" type="checkbox"/> Two-way Traffic <input type="checkbox"/> Divided Traffic		2. Is Roadway/Pathway Paved? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3. Does Track Run Down a Street? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4. Is Crossing Illuminated? (Street lights within approx. 50 feet from nearest rail) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Crossing Surface (on Main Track, multiple types allowed) Installation Date * (MM/YYYY) ____/____/_____ <input type="checkbox"/> 1 Timber <input type="checkbox"/> 2 Asphalt <input type="checkbox"/> 3 Asphalt and Timber <input type="checkbox"/> 4 Concrete <input checked="" type="checkbox"/> 5 Concrete and Rubber <input type="checkbox"/> 6 Rubber <input type="checkbox"/> 7 Metal <input type="checkbox"/> 8 Unconsolidated <input type="checkbox"/> 9 Composite <input type="checkbox"/> 10 Other (specify) _____					
6. Intersecting Roadway within 500 feet? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Approximate Distance (feet) 75		7. Smallest Crossing Angle <input type="checkbox"/> 0° - 29° <input type="checkbox"/> 30° - 59° <input checked="" type="checkbox"/> 60° - 90°		8. Is Commercial Power Available? * <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Part V: Public Highway Information</b>					
1. Highway System <input type="checkbox"/> (01) Interstate Highway System <input type="checkbox"/> (02) Other Nat Hwy System (NHS) <input checked="" type="checkbox"/> (03) Federal AID, Not NHS <input type="checkbox"/> (08) Non-Federal Aid		2. Functional Classification of Road at Crossing <input type="checkbox"/> (0) Rural <input checked="" type="checkbox"/> (1) Urban <input type="checkbox"/> (1) Interstate <input type="checkbox"/> (5) Major Collector <input type="checkbox"/> (2) Other Freeways and Expressways <input type="checkbox"/> (3) Other Principal Arterial <input type="checkbox"/> (6) Minor Collector <input checked="" type="checkbox"/> (4) Minor Arterial <input type="checkbox"/> (7) Local		3. Is Crossing on State Highway System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4. Highway Speed Limit 35 _____ MPH <input checked="" type="checkbox"/> Posted <input type="checkbox"/> Statutory
5. Linear Referencing System (LRS Route ID) *					
6. LRS Milepost *					
7. Annual Average Daily Traffic (AADT) Year 2015 AADT 17215		8. Estimated Percent Trucks 1 _____ %	9. Regularly Used by School Buses? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Average Number per Day _____		10. Emergency Services Route <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Submission Information - This information is used for administrative purposes and is not available on the public website.</b>					
Submitted by _____ Organization _____ Phone _____ Date _____					
Public reporting burden for this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. According to the Paperwork Reduction Act of 1995, a federal agency may not conduct or sponsor, and a person is not required to, nor shall a person be subject to a penalty for failure to comply with, a collection of information unless it displays a currently valid OMB control number. The valid OMB control number for information collection is 2130-0017. Send comments regarding this burden estimate or any other aspect of this collection, including for reducing this burden to: Information Collection Officer, Federal Railroad Administration, 1200 New Jersey Ave. SE, MS-25 Washington, DC 20590.					

## 2. Existing Bicycle and Pedestrian Facilities Map



**One-Way Cash Fare\***

Adult	\$1.50
K-12 Student	\$0.75
Reduced Fare**	\$0.60

**10-Ride Cards**

Adult	\$13.00
K-12 Student	\$6.50
Reduced Fare**	\$5.25

\*Exact fare required

\*\*Seniors age 62+, Medicare card holders, and persons with disabilities

**Fixed Period Passes**

1-Day Pass	\$5.00
14-Day Pass	\$18.00
31-Day Pass	\$35.00

**Transfers** are free for use on the next connecting bus. Ask for a transfer upon boarding. Not valid on the same bus. Valid at transfer locations only. One time use.

**Children** age 5 and under ride free

**UND Students** ride free with student ID

**Northland College** students ride free with student ID and bus pass issued by Northland

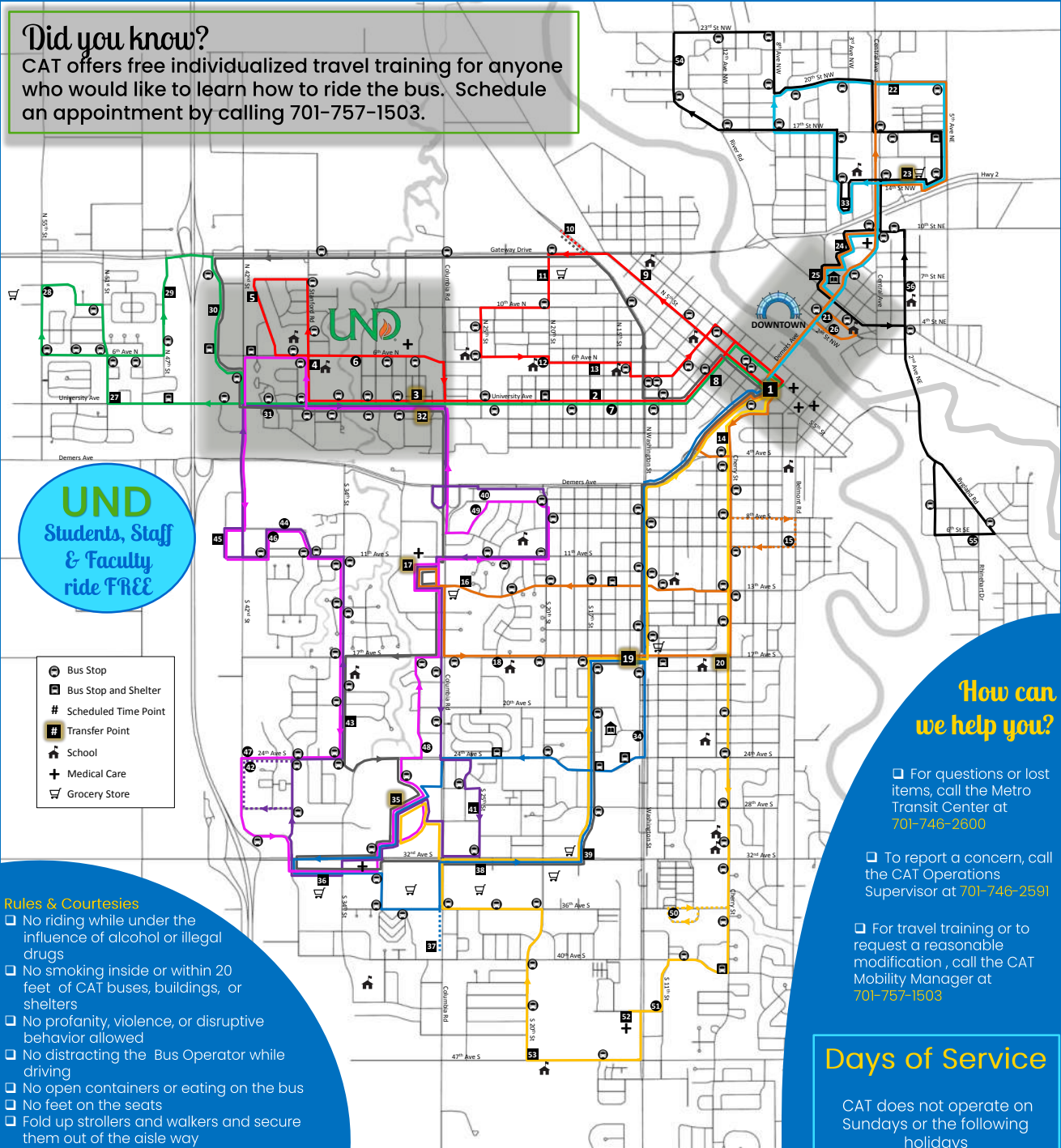
**NOTE:** Fare cards are non-refundable. Do not scratch or bend. Rechargeable fare media available for purchase at the Metro Transit Center.

**For Your Safety**

- Call 911 in case of emergency
- Be aware of your surroundings
- Remain seated while the bus is moving
- Do not walk in front of the bus
- Stay back from the painted yellow line
- Dress appropriately for adverse weather conditions
- If you see something suspicious, report it to the proper authority

**Did you know?**

CAT offers free individualized travel training for anyone who would like to learn how to ride the bus. Schedule an appointment by calling 701-757-1503.



**UND**  
Students, Staff  
& Faculty  
ride FREE

- Bus Stop
- Bus Stop and Shelter
- Scheduled Time Point
- Transfer Point
- School
- Medical Care
- Grocery Store

**Rules & Courtesies**

- No riding while under the influence of alcohol or illegal drugs
- No smoking inside or within 20 feet of CAT buses, buildings, or shelters
- No profanity, violence, or disruptive behavior allowed
- No distracting the Bus Operator while driving
- No open containers or eating on the bus
- No feet on the seats
- Fold up strollers and walkers and secure them out of the aisle way
- Shirt and shoes or other footwear required
- Passengers must maintain appropriate, reasonable personal hygiene
- Limit carry-on items to one armload or the equivalent of two grocery bags
- Have your bus fare ready before boarding
- Use earphones to listen to music
- Small animals may be transported in a carrier
- Service animals are welcome on board

**How can we help you?**

- For questions or lost items, call the Metro Transit Center at 701-746-2600
- To report a concern, call the CAT Operations Supervisor at 701-746-2591
- For travel training or to request a reasonable modification, call the CAT Mobility Manager at 701-757-1503

**Days of Service**

CAT does not operate on Sundays or the following holidays

- New Year's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Day

*We are committed to providing you with clean, safe, and reliable transportation.*



Track buses and plan trips with the CAT Prowler app

[www.rideCAT.org](http://www.rideCAT.org)



Metro Transit Center  
450 Kittson Ave  
Grand Forks, ND 58201  
701-746-2600

# 2045 Plan: Illustrative Projects

Project Number	Roadway	Location	Project Type	Project Description	Lead Agency	Prioritization Score	Current Cost
DIS-035	Columbia Rd	14th Ave S to 24th Ave S	Discretionary	Reconstruct to variable 5-lane to 6-lane roadway with 11 ft lanes, replacement of signing, signals, lights, construction of shared use path and replacement of sidewalks	City of Grand Forks	62.5	\$12,750,000
DIS-047	42nd Street	North of DeMers Avenue	Discretionary	Railroad Grade Separation	City of Grand Forks	50	\$40,000,000
REP-040	32nd Avenue South	South Washington Street to South 10th Street	State of Good Repair	Reconstruct	City of Grand Forks	47.5	\$989,880
DIS-011	42nd Street/32nd Avenue South	East of I - 29	Discretionary	Ramp Realignment	City of Grand Forks	47.5	\$16,000,000
DIS-031	South Columbia Road/South Washington Street	47th Avenue South to 62nd Avenue South/SED to 62nd Avenue South	Discretionary	Reconstruct	City of Grand Forks	47.5	\$12,000,000
DIS-032	32nd Ave	48th St to 52nd St	Discretionary	Urban to Rural transition improvement: Expand to 4 lanes	City of Grand Forks	47.5	\$1,391,851
REP-158	Minnesota Avenue	4th Avenue South to Bridge	State of Good Repair	Reconstruct	City of Grand Forks	45	\$1,079,869
REP-074	N 36th Street	18th Avenue North to RR Tracks	State of Good Repair	Reconstruct	City of Grand Forks	40	\$480,000
REP-075	N 36th Street	Gateway Drive (US 2) to RR Tracks	State of Good Repair	Reconstruct	City of Grand Forks	40	\$960,000
DIS-037	47th Avenue South & I - 29 Interchange	West of Columbia Road	Discretionary	New 2 Lane Road Extension and New Interchange with I - 29	City of Grand Forks	40	\$46,000,000
DIS-016	Mill Spur Railway	Gateway Dr to University Ave	Discretionary	Implement warning devices, gates and flashers, crossing Closures and median improvements and landscape and trail improvements	City of Grand Forks	35	\$3,229,000
REP-039	32nd Avenue South	South 48th Street to I-29	State of Good Repair	Concrete Pavement Rehabilitation (CPR) and Grind	City of Grand Forks	32.5	\$1,799,782

**URBAN REGIONAL & URBAN ROADS  
PROJECT SCOPING WORKSHEET**

DATE: 2/28/2023

PRIORITY# 1 - 2026

Regional: (Y)/N

Urban Roads: Y/(N)

City: Grand Forks Street: I-29 near 47<sup>th</sup> Ave S

County: Grand Forks Length: ~1 mile

Proposed Improvement: Address congestion and level of service issues on Bus US 81/32<sup>nd</sup> Ave S construction project.

Cost Estimates Breakdown (in \$1,000)							
PE	CE	R/W	Utility	Constr.	Bridges	Non-Participating	Total
3,500	3,500	2,500		41,800	5,700		57,000

Present Road: Surface Width? 4 lane divided      Surface Type? concrete

On Street Parking Allowed? \_\_\_\_\_ Present: (No) One Side Both Sides Angle Parallel  
Proposed: (No) One Side Both Sides Angle Parallel

Proposed Improvements	
ADT Present: I-29 15,515 – 47 <sup>th</sup> Ave S 2,830 – 32 <sup>nd</sup> Ave S 15,325 Yr: 2015	
ADT Design: I-29 23,735 – 47 <sup>th</sup> Ave S 17,975 – 32 <sup>nd</sup> Ave S 25,890 Yr 2040	
Travel Way Width : _____	No. of Lanes: 4 lanes
Design Speed: I-29 70 MPH 47 <sup>th</sup> Ave S 40MPH	Roadway Width: _____
Maximum Curve: _____	Min. R/W Width: _____
Maximum Grade: _____	

Right of Way
Will Additional ROW or easement be acquired? Yes ROW acquisition by: City (DOT)
Has any ROW easements been acquired since 7-1-72:UNK ROW Condemnation by: City (DOT)
Est. No. of occupied family dwelling to be displaced? None Anticipated
Est. No. business to be displaced? Unknown

### Impacts

Will there be any additional Impacts (Cultural and Environmental Resources):

To be determined during the NEPA phase

Will there be any impacts to 4(f) or 6(f) properties: To be determined during the NEPA phase

Airports: no Public Hearings: maybe

Environmental Classification (Cat-Ex, EA, EIS): Cat-Ex

Transportation Enhancements: Decrease traffic volume and congestion and improve level of service for intersections on Bus US 81/32<sup>nd</sup> Ave S. This is also anticipated to significantly reduce the number of vehicle miles traveled and vehicle hours traveled compared to a no build scenario

Intermodal: To be determined during the NEPA phase

Pedestrian Needs: To be determined during the NEPA phase

### Railroads Crossings

RR Name	No. Xings	No. Tracks and Type of Crossing	Daily Train Movements	Train Speed	Present Protection	Proposed Protection
None						

### Purpose and Need Statement:

The proposed project is a followup to the environmental document which is currently underway to address congestion and level of service issues on Bus US 81/32<sup>nd</sup> Ave S. For the sake of budgeting purposes the cost estimate is based on a new interchange at 47<sup>th</sup> Ave S. Costs are based on the 2015 estimate inflated at 4% to 2026 year of expenditure.

I-29 was originally constructed around 1968, at the time of its construction four interchanges were constructed in or around the city of Grand Forks. These interchanges included: N Washington St, Gateway Dr/US 2, Demers Ave (ND SH 297), and 32<sup>nd</sup> Ave S/Bus US 81. These interchanges have been in place for nearly 50 years, with no additional interchanges being built within the city limits. There are also two overpasses located at University Ave and at Merrifield Rd/County Rd 6. Over that time the City of Grand Forks has grown from a population of approximately 39,000 to approximately 57,000. Though the city of Grand Forks has grown, the city's growth has been dense with a population density of 2,801 people/sq mi. Grand Forks' population density exceeds other similar cities within North Dakota: Fargo – 2,490 people/sq mi, Bismarck – 2,210 people/sq mi, West Fargo – 2,278 people/sq mi, and Minot – 1,795 people/sq mi.

With the increased population of Grand Forks, comes increased transportation needs, and associated traffic congestion on the existing infrastructure. In the summer of 2017 an I-29 Traffic Operations Report was completed looking at the I-29 corridor around the city. This report noted numerous times that the projected traffic volumes at the most southern existing interchange located at US Bus 81/32<sup>nd</sup> Ave S would have extreme levels of congestion, traffic cuing onto the interstate, and nearby intersections operating at a level of service F by 2025. This study looked at multiple aspects to prevent these issues from occurring in the future. This included, looking at non interstate improvements to

encourage local traffic to use existing arterial roadways, improvements to the existing interchanges, and construction of new interchanges. The Highway Safety Improvement Project on 32<sup>nd</sup> Ave S/Bus US 81 constructed in 2021, included installing a video camera and traffic signal programming to flush off ramp traffic if there is substantial backup on the ramp, to prevent traffic from backing up onto the interstate in the short term.

The study first looked at non-interstate improvements to encourage local traffic to use the existing arterial roadway system and reduce the traffic using the interstate. This included widening existing north-south arterial roadways such as 42<sup>nd</sup> St and Columbia Rd, improving some intersections including a continuous flow intersection, as well as adding dual left turn lanes, and realigning roadways to have better accessibility. The results of this scenario showed that these projects did not reduce demand onto I-29, and in some cases actually increased the volume of traffic onto I-29.

Another aspect which was explored was improvements to the interchange at 32<sup>nd</sup> Ave S/Bus US 81. Some of these alternatives included widening 32<sup>nd</sup> Ave S/Bus US 81, consolidating the east ramp, adding a northwest loop ramp, adding a southwest loop ramp, reconstructing the interchange to a diverging diamond interchange, and a diverging diamond with a partial cloverleaf. Of the available alternatives, only in two scenarios could 95% of the PM peak volumes in 2040 could be processed. In the summary of these alternatives the study states **“None of the alternatives studied under the Existing Interstate Access Scenario, without a 47<sup>th</sup> Avenue interchange, meet the established [Purpose and Needs] because they cannot improve operations to an acceptable level.”**

This report also evaluated the 32<sup>nd</sup> Ave S/Bus US 81 interchange with a new interchange constructed near 47<sup>th</sup> Ave S. By constructing a new interchange near 47<sup>th</sup> Ave S, traffic volumes on 32<sup>nd</sup> Ave S/Bus US 81 are forecasted to be reduced by approximately 40%. Evaluating available alternatives under this scenario 32<sup>nd</sup> Ave S/Bus US 81 could utilize the least expensive option of “Spot Improvements” and would be able to support anticipated traffic volumes and intersections are forecasted to operate at LOS D or better.

The report identified a number of alternatives for consideration for this interchange. Though the proposed project will develop a selected alternative from the NEPA process proposed in 2020, the cost estimate included in this scoping report is based on the alternative with the highest score in the valuing planning analysis. This alternative identified in the report was for the 47<sup>th</sup> Ave Shifted Diamond with No Business Impacts.

A Traffic Operations Study was also completed for project HEU-6-081(094)940 in August of 2018 which included a capacity analysis using Synchro/Simtraffic which projected Level of Service (LOS) of E or F at the intersections of 32<sup>nd</sup> Ave S and S 38<sup>th</sup> St, S 34<sup>th</sup> St, and S Columbia Rd, there was also an indication that the northbound leg of the north bound I-29 intersection would operate at a LOS of F. This Traffic Operations Report “recommended to monitor traffic volumes to see if they increase as projected.”



## Existing Conditions:

1. When was the current street section built? Has there been any additional maintenance to the street section?

Bus US 81/32<sup>nd</sup> Ave S from S 38<sup>th</sup> St to Bus US 81/S Washington St was constructed in 1977 as an 8" concrete pavement on 12" lime treated base. Bus US 81/32<sup>nd</sup> Ave S from the I-29 western on/off ramps to the bridge was reconstructed and widened in 1994 as a 11" concrete pavement on 4" permeable stabilized base, on 8" blended base. Bus US 81/32<sup>nd</sup> Ave S from the bridge to the S 38<sup>th</sup> St was reconstructed and widened in 1994 as a 10" concrete pavement on 4" permeable stabilized base, on 8" blended base. Bus US 81/32<sup>nd</sup> Ave S from approximately S 31<sup>st</sup> St to approximately S 24<sup>th</sup> St was reconstructed in 2003 as a 9" concrete pavement, on 12" class 5 base, on 18" class 3 base, on geotextile fabric. Bus US 81/32<sup>nd</sup> Ave S from the western I-29 ramp to Bus US 81/S Washington St was rehabilitated in 2013. This rehabilitation consisted of concrete panel replacement, dowel bar retrofit, stitching, grinding. This work also included milling, a 2" asphalt overlay and microsurfacing from approximately S 38<sup>th</sup> St to S 34<sup>th</sup> St, S 34<sup>th</sup> St to S 31<sup>st</sup> St, S 23<sup>rd</sup> St to S 20<sup>th</sup> St, and from S 20<sup>th</sup> St to approximately the midpoint between S 17<sup>th</sup> St and S Washington St.

In 2021 the HSIP project realigned the left turn lanes on US BUS 81/32<sup>nd</sup> Ave S, this work also included replacement of some traffic signal poles to accommodate the new left turn lane locations. Dual left turn lanes were also installed at the intersection of S Columbia Rd. Flashing Yellow Arrows were installed corridor wide along with other safety improvements during this project.

A rehabilitation project for Bus US 81/32<sup>nd</sup> Ave S from I-29 to S Washington St is currently programmed in the 2023-2026 STIP for construction in 2025.

2. How many driving lanes and turning lanes does the street section currently have and what is the widths of the driving and turning lanes?

The widths of the through lanes and turn lanes vary on Bus US 81/32<sup>nd</sup> Ave S, however they are typically 12'.

3. What is the condition of the pavement section?
  - A. If the pavement section is asphalt, is there any alligator cracking, longitudinal cracking, transverse cracking, raveling, bituminous patching or rutting?
  - B. If the pavement section is concrete, are there any broken slabs, faulting, bituminous patching, joint spalling, transverse cracking, or longitudinal cracking.

Pavement Condition Index and International Roughness Index data was obtained in 2021 from GoodPointe Technology.

Bus US 81/32<sup>nd</sup> Ave S from I-29 to S Washington S

Minimum PCI value 25      Minimum IRI value of

Median PCI value of 63.5      Median IRI value of 136

Maximum PCI value of 97      Maximum IRI Value of 201

The asphalt portion of Bus US 81/32<sup>nd</sup> Ave S is having significant potholing near the seams in the asphalt. There is significant amount of patch material both cold mix and hot mix that has been used to patch these areas. This is likely to continue to get worse especially during freeze thaw cycles that occur during the spring.

4. Any existing geometric concerns?

None
5. Are there any access points to adjoining properties that present a special concern?

None

6. Are there any existing sidewalks or shared use path in place?

There are sidewalks or shared use paths on both sides of the Bus US 81/32<sup>nd</sup> Ave S with the exceptions being on the south side between I-29 and S 38<sup>th</sup> St and between S 20<sup>th</sup> St and S Washington St. The condition of these facilities is unknown and will need to be determined during the project development phase.

7. What is the condition of the existing storm sewer? Will any additional storm sewer work need to be done along with this project?

The Condition of the existing storm sewer is unknown and will need to be determined during the project development phase.

8. What is the condition of the city's water and sewer line? Will any work have to be done to the city's water and sewer lines along with this project?

The condition of the existing city sanitary sewer and watermain are unknown. The existing city water lines consist of a 16" AC watermain located primarily on the north side in the berm.

The City Sanitary Sewer varies in size and is primarily located on the south side of the street in the berm. It is unlikely that there will be any work on these systems associated with this project apart from manhole and gate valve adjustments.

9. Describe the existing lighting system currently in place? What type of standards and luminaires are currently being used?

Existing street lighting on 32<sup>nd</sup> Ave S consists of 400W HPS fixtures mounted on 40' davit arm style street lights with a staggered placement on both sides of the road. In recent years there has been a number of connection issues associated with the age of the underground conductors.

10. What intersections currently have traffic signals? Are there any locations that have a high accident rate? Are additional turning lanes needed?

The following intersections on 32<sup>nd</sup> Ave S/Bus US 81 have traffic signals: I-29 southbound on/off ramp, I-29 northbound on/off ramp, S 38<sup>th</sup> St, S 34<sup>th</sup> St, S 31<sup>st</sup> St, S Columbia Rd, S 24<sup>th</sup> St, S 20<sup>th</sup> St, and S Washington St.

A number of these intersections were identified in the 2019-2021 Urban High Crash Locations report issued in 2022. These intersections include S 31<sup>st</sup> St Ranked #3, S 34<sup>th</sup> St Ranked #15, and S Columbia Rd Ranked #23. It is anticipated that the HSIP project completed in 2021 to realign the left turn lanes among other safety improvements along the corridor is anticipated to decrease the number of crashes along the corridor.

Need for turn lanes will be determined during the project development phase.

Remarks:

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City Engineer: Allen N. [Signature]

Date: 2/28/23

District Engineer: Edward Paulik [Signature]

Date: 2/28/23

**Note:** Please attach a map showing location and extent of the project, detailed cost estimate, and any additional supporting documents.

# PROJECT LOCATION MAP GRAND FORKS, NORTH DAKOTA

Project Addressing Congestion on  
32nd Ave S/Bus US 81

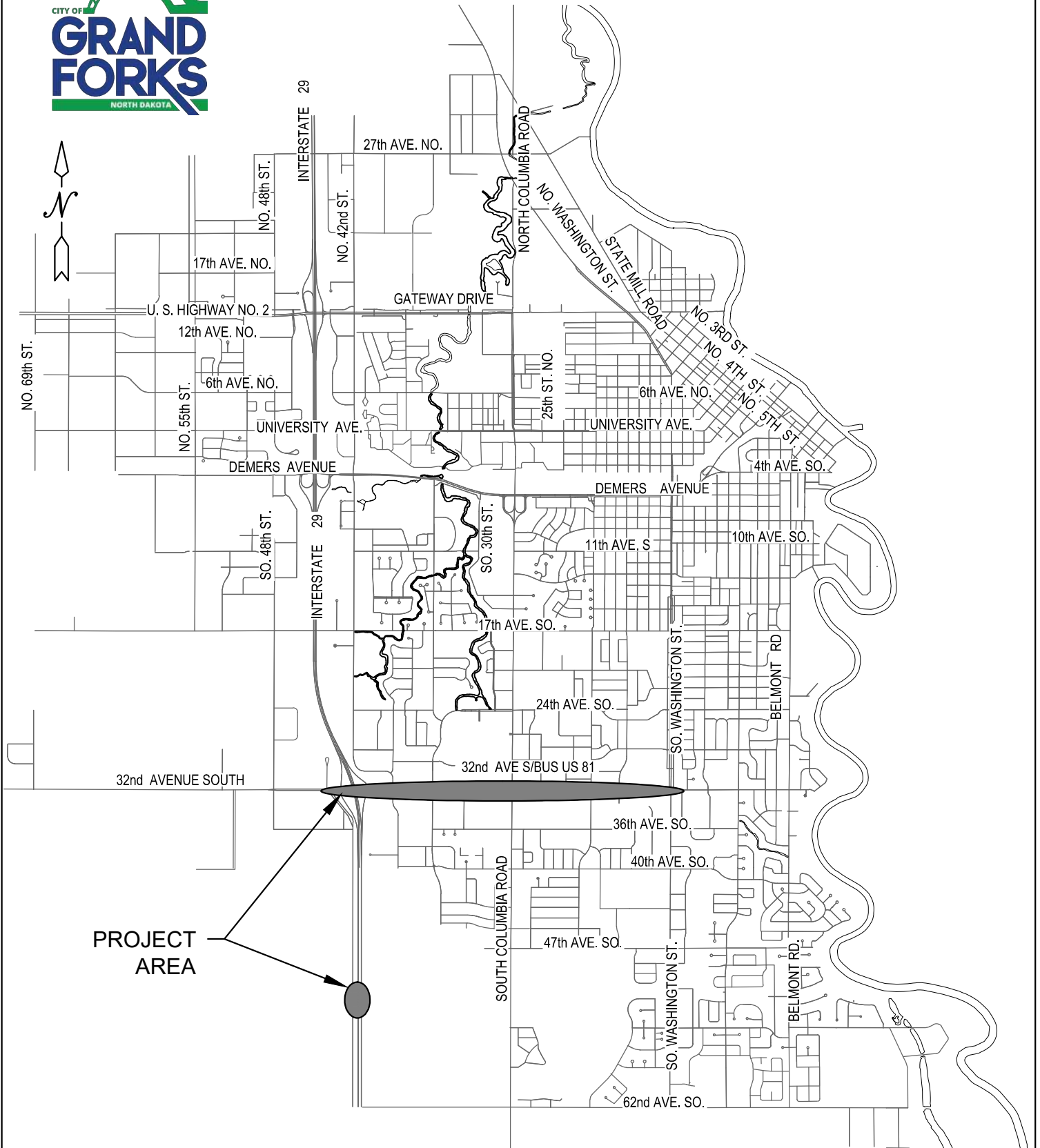


Table 7-3: Environmental Impacts Scoring

Rating	Label	Description
0-1	Unacceptable	The environmental impacts are severe and the project does not comply with state and/or federal environmental laws
2-3	Poor	The project introduces environmental impacts that are both significant in number and require extensive mitigation
4-5	Fair	The project introduces new environmental impacts that will require extensive mitigation
6-7	Good	The project introduces new environmental impacts that can be addressed through standard and accepted mitigation approaches
8-9	Very Good	The project introduces no new environmental impacts
10	Excellent	The project improves upon the existing environmental conditions while introducing no new environment impacts

## SAFETY

FHWA has developed the Supplementary Safety Assessment Model (SSAM) which uses outputs from Vissim analysis models to analyze vehicle-to-vehicle interactions to identify potential conflict events based on acceleration, deceleration, speed and lane changes. The outputs estimate rear-end, sideswipe and crossing conflict crashes that could occur. These outputs were used at face value to represent overall crash potential. They were not weighted based on existing crash data as future conditions and configurations are expected to change dramatically, which would not be accurately reflected in existing trend data. For example, a diverging diamond will have different crash trends than a single point urban interchange and future expectations of queueing onto the interstate is not captured accurately in existing crash data. Additionally, the crash potential was not weighted for crash severity based on speed or angle, as it would require post-processing that would allow additional subjectivity into the analysis. This methodology permitted the most objective analysis of crash potential for an alternative. Qualitative descriptions for this scoring criteria can be found in Table 7-4.

Table 7-4: Safety Scoring

Rating	Label	Description
0	Very Poor	Alternative with highest crash potential
1 – 9	Poor – Very Good	Score is relative to alternative's crash potential versus the alternative with the highest and lowest crash potential
10	Excellent	Alternative with lowest crash potential

## COST

This scoring criteria quantifies cost, construction impacts and schedule. These three items are directly correlated, so cost was used as a proxy for construction impacts and schedule. All costs are reported in 2015 dollars and only include construction and ROW costs. ROW costs were based on KLJ's experience with similar regional projects and were estimated based on project location. Qualitative descriptions for this scoring criteria can be found in Table 7-5.

Table 7-5: Cost Scoring

Rating	Label	Description
0	Very Poor	Alternative with highest combination of cost, construction impacts and construction duration
1 – 9	Poor – Very Good	Score is relative to alternative's performance versus the alternative with the highest and lowest cost, construction impact and duration
10	Excellent	Alternative with lowest combination of cost, construction impacts and construction duration

## 32<sup>ND</sup> AVENUE/US 81B

32<sup>nd</sup> Avenue/US 81B serves a large majority of commercial activity in Grand Forks. Daily traffic volumes from 2015 along this corridor range from approximately 11,300 vehicles per day west of I-29 to 16,300 vehicles per day east of I-29. The areas surrounding I-29 at 32<sup>nd</sup> Avenue/US 81B and heading south to 47<sup>th</sup> Avenue are forecasted to be the largest population and employment growth centers in the city. Specifically, 58 percent of new employment opportunities are expected to occur within one-mile of either the 32<sup>nd</sup> Avenue/US 81B interchange or the 47<sup>th</sup> Avenue corridor. By 2040, this amount of growth is expected to result in traffic volumes around 43,000 vehicles per day east of I-29 and 23,000 vehicles per day west of I-29. This results in oversaturated interchange operations, producing long delays and queues by 2040.

Analysis completed for the Macro Level Alternatives Analysis found that the construction of a 47<sup>th</sup> Avenue interchange would have significant tangible benefits to the 32<sup>nd</sup> Avenue/US 81B interchange, potentially mitigating the need for costly widening at I-29 east to Columbia Road. The 32<sup>nd</sup> Avenue/US 81B intersection would experience more than 40 percent traffic reduction under this scenario, where other interchanges experienced far less. This necessitated a need to evaluate different interchange scenarios with and without the 47<sup>th</sup> Avenue interchange. Alternatives were analyzed under the Existing Interstate Access Scenario (no 47<sup>th</sup> Avenue interchange), which assumes a six-lane section on 32<sup>nd</sup> Avenue/US 81B, and the 47<sup>th</sup> Avenue Interchange Scenario, which assumes a four-lane section on 32<sup>nd</sup> Avenue/US 81B.

The Merrifield Road/CR 6 Interchange Infrastructure will also be considered later in this chapter but had minimal impacts to the overall operations of 32<sup>nd</sup> Avenue/US 81B. The combination of the 47<sup>th</sup> Avenue Interchange and the Merrifield Road/CR 6 Interchange provided similar benefits to 32<sup>nd</sup> Avenue/US 81B as the 47<sup>th</sup> Avenue interchange in isolation.

## ANALYSIS METHODOLOGY

Analysis for this interchange location used the Value Planning approach detailed previously in this report.

## INTERCHANGE ALTERNATIVES

### EXISTING INTERSTATE ACCESS SCENARIO

As described above, this scenario does not include any additional interchange infrastructure. This means the future development expected in the southwest metro will be funneled to the 32<sup>nd</sup> Avenue/US 81B corridor for access onto and across the interstate.

### Widen Only Alternative

The Widen Only Alternative (WO) would add one through lane in each direction on 32<sup>nd</sup> Avenue/US 81B from the 42<sup>nd</sup> Street west frontage road to east of 38<sup>th</sup> Street, as well as traffic control at the 42<sup>nd</sup> Street west frontage road and turn lanes at all four study intersections which would require bridge widening. The WO alternative is treated as the baseline for comparisons against other alternative designs; the true do nothing alternative model broke down and could not accurately replicate queues and delay.

Even with the additional capacity, this alternative was unable to be properly calibrated during the 2040 P.M. peak, with 15.2 percent latent demand. This means more than 1,500 vehicles did not enter the model so their delay has not been incorporated into the overall network delay and is not acceptable for analysis.

Based on the traffic the model could process, long queues, in excess of 1,000 feet are expected at all four study intersections. Levels of service are deficient at all study intersections, excluding the East Ramp intersection. It is important to note that the queues extending onto I-29 are likely not being incorporated into the East Ramp delay.

The estimated cost for this alternative was \$7.7 million which only included widening the bridge and the difference between reconstructing 32<sup>nd</sup> Avenue/US 81B as a four-lane section and reconstructing and widening as a six-lane section. This planning level cost should be further refined but was used as a baseline cost. Value planning scores for this alternative can be seen in Table 7-17.

*Table 7-17: 32<sup>nd</sup> Avenue/US 81B Widen Only Interchange Alternative (Existing Interstate Access Scenario)*

	Results (2040 Conditions)	Score
Local Operations	<ul style="list-style-type: none"> <li>▪ A.M. Peak Average: 57.1, LOS "E"</li> <li>▪ P.M. Peak Average: 92.2, LOS "F"</li> </ul>	0*
Mainline Operations	<ul style="list-style-type: none"> <li>▪ Average A.M. Peak: 12.8, LOS "B"</li> <li>▪ Average P.M. Peak: 94.4 LOS "F"</li> </ul>	0*
Environmental Impacts	<ul style="list-style-type: none"> <li>▪ No additional environmental impacts expected.</li> </ul>	8
Safety	<ul style="list-style-type: none"> <li>▪ Baseline crash potential distribution for alternative comparison:                             <ul style="list-style-type: none"> <li>» 6.5% Crossing Crash Potential</li> <li>» 62.5% Rear End Crash Potential</li> <li>» 31.0% Sideswipe Crash Potential</li> </ul> </li> </ul>	9
Cost	<ul style="list-style-type: none"> <li>▪ \$7.7 Million**</li> </ul>	10
<b>Total</b>		<b>27</b>

\*Score of zero assigned because model could not be calibrated. Not all delay considered.

\*\*Includes planning level costs on a per mile basis.

### Consolidated East Ramp

The Consolidated East Ramp (CER) Alternative would add a through lane in each direction as well as realign 42<sup>nd</sup> Street east of I-29 with the East Ramp. This helps split southbound traffic at 38<sup>th</sup> Street, a major bottleneck along the corridor. This alternative also incorporates double left turn lanes at 38<sup>th</sup> Street, a northbound right turn lane, westbound left and a traffic control signal at the 42<sup>nd</sup> Street west frontage road. It requires bridge widening. This alternative also incorporates two loops in the southeast and southwest quadrants, which helps eliminate crossing conflicts and improves operational efficiency by allowing a two-phase signal controller.

This alternative had 4.7 percent latent demand during the 2040 P.M. peak, which is acceptable for calibration according to FHWA standards. During the 2040 P.M. peak, operations at 42<sup>nd</sup> Street frontage road and 38<sup>th</sup> Street are deficient at LOS "E", while the two ramp intersections operate at LOS "D"; delays at the ramp intersections produce long queues onto the interstate. There are no operational concerns during the 2040 A.M. peak hour.

This alternative reduces crossing crash potential by 24.1 percent and rear-end potential by 49.0 percent when compared against the WO alternative. Sideswipe crash potential is increased by 188.6 percent when compared against the Widen Only alternative.

Value planning scores for this alternative can be seen in Table 7-18 with planning level design layout in Figure 7-26.

*Table 7-18: 32<sup>nd</sup> Avenue/US 81B Consolidated East Ramp Interchange Alternative (Existing Interstate Access Scenario)*

	Results (2040 Conditions)	Score
Local Operations	<ul style="list-style-type: none"> <li>» A.M. Peak Average: 18.1, LOS "A"</li> <li>» P.M. Peak Average: 62.0, LOS "E "</li> </ul>	5
Mainline Operations	<ul style="list-style-type: none"> <li>» Average A.M. Peak: 11.92, LOS "B"</li> <li>» Average P.M. Peak: 55.1 LOS "F"</li> </ul>	4
Environmental Impacts	<ul style="list-style-type: none"> <li>» No significant new environmental impacts. 3.5 acres of ROW required.</li> </ul>	6
Safety	<ul style="list-style-type: none"> <li>26.2% increase in crash potential when compared against Widen Only Alternative                             <ul style="list-style-type: none"> <li>» 24.1% Reduction in Crossing Crash Potential</li> <li>» 49.0% Reduction in Rear End Crash Potential</li> <li>» 188.6% Increase in Sideswipe Crash Potential</li> </ul> </li> </ul>	0
Cost	<ul style="list-style-type: none"> <li>» \$30.9 Million</li> </ul>	0
<b>Total</b>		<b>15</b>



## Northwest Loop Ramp

The Northwest Loop Ramp (NWL) Alternative incorporates a northwest loop on-ramp for westbound to southbound movements, turn lanes at adjacent intersections and traffic control at the 42<sup>nd</sup> Street west frontage road. This alternative requires widening the 32<sup>nd</sup> Avenue/US 82B bridge to accommodate additional through lanes. Due to the posted speeds and the ROW constraints, only a small radius could be constructed. This requires parallel merge lanes to ensure safe and efficient merging.

This alternative had 10.0 percent latent demand during the 2040 P.M. peak, which is not acceptable for calibration according to FHWA standards. Nearly 1,000 vehicles were unable to enter the network during the 2040 P.M. peak. However, based on the vehicles processed, the 42<sup>nd</sup> Street west frontage roads and 38<sup>th</sup> Street intersections were deficient at LOS “F” with the ramp intersections operating at LOS “E”. Queues at the ramp intersection extend onto the interstate, completely blocking all through lanes.

During the 2040 A.M. peak, only the 38<sup>th</sup> Street intersection is deficient at LOS “E”. There are no queueing concerns.

Value planning scores for this alternative can be seen in Table 7-19 with planning level design layout in Figure 7-27.

*Table 7-19: 32<sup>nd</sup> Avenue/US 81B Northwest Loop Ramp Interchange Alternative (Existing Interstate Access Scenario)*

	Results (2040 Conditions)	Score
Local Operations	» A.M. Peak Average: 39.1, LOS “D” » P.M. Peak Average: 99.4, LOS “F”	0*
Mainline Operations	» Average A.M. Peak: 13.3, LOS “B” » Average P.M. Peak: 54.4, LOS “F”	0*
Environmental Impacts	» No significant environmental impacts. Two acres of ROW required and some access revisions.	6
Safety	14.8% increase in crash potential when compared against Widen Only Alternative » 128.2% Increase in Crossing Crash Potential » 16.4% Reduction in Rear End Crash Potential » 53.6% Increase in Sideswipe Crash Potential	4
Cost	» \$27.8 Million	1
<b>Total</b>		<b>11</b>

\*Score of zero assigned because model not calibrated. Not all delay considered.

## Southwest Loop Ramp

The Southwest Loop Ramp (SWL) Alternative incorporates a southwest loop off-ramp for southbound to eastbound movements, turn lanes at adjacent intersections and traffic control at 44<sup>th</sup> Street. This alternative requires widening the 32<sup>nd</sup> Avenue/US 81B bridge to accommodate additional through lanes and access revisions to the 42<sup>nd</sup> Street west frontage road which allowed for a RIRO access on the northside of 32<sup>nd</sup> Avenue/US 81B but closed the access on the southside.

This alternative had 3.1 percent latent demand during the 2040 P.M. peak, which is acceptable for calibration according to FHWA standards. During the 2040 P.M. peak, operations at the East Ramp are deficient at LOS “E” with queues that extend onto the interstate. The 38<sup>th</sup> Street and 44<sup>th</sup> Street intersections are deficient at LOS “F” and LOS “E” respectively. The 44<sup>th</sup> Street intersection would be improved with a double left-turn lane. However, that would require two receiving lanes which would have building impacts. At this time, a single left-turn lane was analyzed.

During the 2040 A.M. peak, all intersections operate at LOS “C” or better except the 38<sup>th</sup> Street intersection which operates at LOS “E”. There are no queueing concerns at the ramp intersections.

The SWL Alternative reduces crossing crash potential by 42.1 percent and rear-end crash potential by 40.2 percent. Sideswipe crash potential is increased 88.3 percent.

Value planning scores for this alternative can be seen in Table 7-20 with planning level design layout in Figure 7-28.

# MICRO LEVEL ALTERNATIVES ANALYSIS

Table 7-20: 32<sup>nd</sup> Avenue/US 81B Southwest Loop Interchange Alternative (Existing Interstate Access Scenario)

	Results (2040 Conditions)	Score
Local Operations	» A.M. Peak Average: 27.9, LOS "C" » P.M. Peak Average: 57.6, LOS "E"	5
Mainline Operations	» Average A.M. Peak: 13.2, LOS "B" » Average P.M. Peak: 23.9, LOS "D"	7
Environmental Impacts	» No significant environmental impacts. Two acres of ROW required and some access revisions.	6
Safety	0.5% decrease in crash potential when compared against Widen Only Alternative » 42.1% Reduction in Crossing Crash Potential » 40.2% Reduction in Rear End Crash Potential » 88.3% Increase in Sideswipe Crash Potential	10
Cost	» \$23.5 Million	5
<b>Total</b>		<b>33</b>

## Diverging Diamond Interchange

The Diverging Diamond Interchange (DDI) Alternative requires the two directions of traffic on 32<sup>nd</sup> Avenue/US 81B to cross to the opposite side of the road under the I-29 bridge. This allows left-turning and right-turning traffic to perform a free flow movement onto the interstate on-ramp. The free-flowing movements reduce the signal phases to two at each intersection, significantly reducing delays. The right-turn slip ramp on the southbound I-29 on-ramp requires access management at the 42<sup>nd</sup> Street west frontage road. This alternative requires widening the 32<sup>nd</sup> Avenue/US 81B bridge to accommodate additional through lanes. A backage road was configured with a signal incorporated at 44<sup>th</sup> Street.

This alternative had 6.0 percent latent demand during the 2040 P.M. peak, which is not acceptable for calibration according to FHWA standards. More than 600 vehicles were unable to enter the network during the 2040 P.M. peak. However, based on the vehicles processed, the West Ramp intersection and 38<sup>th</sup> Street intersection were deficient with LOS "E" during the 2040 P.M. peak. Queues at the West Ramp and East Ramp extend back onto the interstate. During the 2040 A.M. peak all intersections operate at LOS "D" or better with no queuing concerns. The DDI alternative increases crossing crash potential by 23.7 percent and sideswipe crash potential by 18.0 percent but decreases rear end crash potential by 9.4 percent.

Value planning scores for this alternative can be seen in Table 7-21: 32<sup>nd</sup> Avenue/US 81B Diverging Diamond Interchange Alternative (Existing Interstate Access Scenario) with planning level design layout in Figure 7-29.

Table 7-21: 32<sup>nd</sup> Avenue/US 81B Diverging Diamond Interchange Alternative (Existing Interstate Access Scenario)

	Results (2040 Conditions)	Score
Local Operations	» A.M. Peak Average: 23.2, LOS "C" » P.M. Peak Average: 50.8, LOS "D"	0*
Mainline Operations	» Average A.M. Peak: 13.3, LOS "B" » Average P.M. Peak: 77.0, LOS "F"	0*
Environmental Impacts	» No significant environmental impacts. Two acres of ROW required and some access revisions.	6
Safety	1.3% increase in crash potential when compared against Widen Only Alternative » 23.7% Increase in Crossing Crash Potential » 9.4% Reduction in Rear End Crash Potential » 18.0% Increase in Sideswipe Crash Potential	9
Cost	» \$22.1 Million	6
<b>Total</b>		<b>21</b>

\*Score of zero assigned because model not calibrated. Not all delay considered.

## Diverging Diamond Partial Cloverleaf

Additional analysis was completed for the 2040 P.M. peak hour using a diverging diamond partial cloverleaf design, shown in Figure 7-23. This uses a diverging diamond interchange concept with bypass lanes to a northwest loop ramp and southeast loop ramp. It would require access control at the 42<sup>nd</sup> Street west frontage road, double left-turn lanes on all approaches at 38<sup>th</sup> Street and would require significant bridge widening. This design has similar free flow movements and signal phase efficiency as the DDI alternative.

This alternative was only analyzed under the 2040 P.M. peak hour to determine if further analysis should be completed. With 4.7 percent latent demand it was technically calibrated. However, the 44<sup>th</sup> Street and 38<sup>th</sup> Street intersections were still deficient and queuing onto I-29 still occurred. Since this alternative did not have acceptable operations, no further analysis was completed.

*Figure 7-23: Diverging Diamond Partial Cloverleaf Alternative (Existing Interstate Access Scenario)*



## Summary of Alternatives Under Existing Interstate Access Scenario

The growth areas planned for the southwest metro result in more than 160 percent growth on 32<sup>nd</sup> Avenue/US 81B as this corridor is the only access across and onto I-29. This growth results in extreme congestion, to an extent where three of the five alternatives (WO, NWL, DDI) analyzed cannot process at least 95 percent or more of projected 2040 P.M. peak hour traffic, resulting in the inability to properly calibrate the alternatives. The remaining two alternatives that meet calibration standards do not meet local or mainline operations standards, with deficient intersection operations and queues onto the interstate. **None of the alternatives studied under the Existing Interstate Access Scenario, without a 47<sup>th</sup> Avenue interchange, meet the established PNS because they cannot improve operations to an acceptable level.**

The SWL Alternative scored highest based on the value planning criteria. It was able to accept 97 percent of the forecasted volumes for 2040 P.M. peak but provides deficient local operations. It improves crash potential but does require access management at the 42<sup>nd</sup> Street west frontage road. The summary of value planning scores is shown in Table 7-22.

*Table 7-22: Summary of 32<sup>nd</sup> Avenue/US 81B Interchange Alternatives Under Existing Interstate Access Scenario*

Alternative	Local Operations	Mainline Operations	Environmental Impacts	Safety	Cost	Technical Total	Technical Rank
WO	0	0	8	9	10	27	2
CER	5	4	6	0	0	15	4
NWL	0	0	6	4	2	12	5
SWL	5	7	6	10	5	33	1
DDI	0	0	6	9	6	21	3

## 47<sup>TH</sup> AVENUE INTERCHANGE SCENARIO

The 47<sup>th</sup> Avenue interchange would likely have significant impacts on 32<sup>nd</sup> Avenue/US 81B, expected to reduce traffic on 32<sup>nd</sup> Avenue/US 81B by more than 40 percent. The Spot Improvement Alternative was analyzed specifically for the 47<sup>th</sup> Avenue Interchange Scenario. This alternative includes

- At 38<sup>th</sup> Street, extend the eastbound right-turn lane (435 feet, full width) and install double left-turn lanes on the eastbound, westbound and southbound approaches.
- At the East Ramp, a double right-turn lane on the northbound off-ramp.
- Traffic control signal and access modification at the 42<sup>nd</sup> Street west frontage road intersection.
- Queue flushing on the off-ramps
- Pedestrian crossing enhancements at the ramp intersections that includes pedestrian actuation and prohibits right-turns.
- Reconstruct or major rehabilitation of pavement from the East Ramp to Columbia Road.

Under this alternative, all study intersection are LOS “D” or better; the ramp intersections operate at LOS “C” or better during both peak hours through 2040. This alternative would minimize queueing onto the interstate and improve traffic flow, which should mitigate some of the most prevalent crash trends. The signal at the 42<sup>nd</sup> Street west frontage road and improvements to the existing signal timing should improve pedestrian crossing safety. This analysis suggests constructing a 47<sup>th</sup> Avenue interchange would mitigate almost all improvements necessary on 32<sup>nd</sup> Avenue/US 81B.

Value planning scores for this alternative can be seen in Table 7-23 with planning level design layout in Figure 7-30.

*Table 7-23: 32<sup>nd</sup> Avenue/US 81B Spot Improvement Interchange Alternative Under 47<sup>th</sup> Avenue Interchange Scenario*

	Results (2040 Conditions)	Score
Local Operations	<ul style="list-style-type: none"> <li>▪ A.M. Peak Average: 16.7, LOS “B”</li> <li>▪ P.M. Peak Average: 31.9, LOS “C”</li> </ul>	7
Mainline Operations	<ul style="list-style-type: none"> <li>▪ Average A.M. Peak: 9.6, LOS “A”</li> <li>▪ Average P.M. Peak: 18.6, LOS “C”</li> </ul>	8
Environmental Impacts	<ul style="list-style-type: none"> <li>▪ No additional environmental impacts expected.</li> </ul>	8
Safety	<ul style="list-style-type: none"> <li>▪ No change in crash potential expected.                             <ul style="list-style-type: none"> <li>» 15.0% Crossing Crash Potential</li> <li>» 33.2% Rear End Crash Potential</li> <li>» 51.8% Sideswipe Crash Potential</li> </ul> </li> </ul>	6
Cost	<ul style="list-style-type: none"> <li>▪ \$700,000 plus the cost of interchange at 47<sup>th</sup> Avenue (discussed in next chapter)</li> </ul>	10
<b>Total</b>		<b>39</b>

### Other Alternatives

Other interchange alternatives were studied under the 47<sup>th</sup> Avenue Interchange Scenario, which reduces traffic on 32<sup>nd</sup> Avenue/US 81B by more than 40 percent. These alternatives do provide some benefits to local and mainline operations and safety. Brief descriptions are provided below with a summary table and layouts at the end of this chapter.

### Consolidated East Ramp

The Consolidated East Ramp Alternative (CER) was identified in the 2040 LRTP but could not be cost constrained. It would realign 42<sup>nd</sup> Street east of I-29 with the East Ramp. This helps split southbound traffic at 38<sup>th</sup> Street, which is a major bottleneck along the corridor. A signal was included for 42<sup>nd</sup> Street west frontage road. During the 2040 P.M. peak the 38<sup>th</sup> Street intersection operates deficiently at LOS “E” with long queues on the minor approaches. No queueing or delay concerns during the 2040 A.M. peak.

This alternative comes at a cost of \$15.7 million, plus the cost of the interchange at 47<sup>th</sup> Avenue, estimated between \$23.2 and \$28.5 million, discussed in the next section.

Value planning scores for this alternative can be seen in Table 7-24 with planning level design layout in Figure 7-31.

## Northwest Loop Ramp

The Northwest Loop Ramp Alternative (NWL) adds a loop ramp for the westbound to southbound movements onto I-29 in the northwest quadrant. Due to the posted speeds and the ROW constraints, only a small radius could be constructed. This requires parallel merge lanes to ensure safe and efficient merging, which would likely be incompatible with a 47<sup>th</sup> Avenue interchange. The addition of the northwest loop helps eliminate crossing conflicts by converting a left-turn to a free right. The right-turn slip ramp on the southbound I-29 on-ramp requires access management at the 42<sup>nd</sup> Street west frontage road. A backage road was configured with a signal incorporated at 44<sup>th</sup> Street. During the 2040 P.M. peak all intersections operate efficiently, including 38<sup>th</sup> Street. However, there are long queues anticipated on the minor approaches at 38<sup>th</sup> Street. No queuing or delay concerns during the 2040 A.M. peak.

This alternative comes at a cost of \$14.2 million, plus the cost of the interchange at 47<sup>th</sup> Avenue, estimated between \$23.2 and \$28.5 million, discussed in the next section.

Value planning scores for this alternative can be seen in Table 7-24 with planning level design layout in Figure 7-32.

## Southwest Loop Ramp

The Southwest Loop Ramp Alternative (SWL) adds a loop ramp for the southbound to eastbound movements off of I-29 in the southwest quadrant. This configuration supports more than 400 vehicles during the 2040 P.M. peak hour, eliminating one signal phase and permitting right-turn-on-reds to improve through-put. No queueing is expected on the interstate ramps, but large queues build up at 38<sup>th</sup> Street and the 42<sup>nd</sup> Street west frontage road. A signal was included for 42<sup>nd</sup> Street west frontage road. There are some queueing concerns on the minor approaches at 38<sup>th</sup> Street. All other intersections operate effectively at LOS "D" or better. No queueing or delay concerns during the 2040 A.M. peak.

This alternative comes at a cost of \$11.0 million, plus the cost of the interchange at 47<sup>th</sup> Avenue, estimated between \$23.2 and \$28.5 million, discussed in the next section.

Value planning scores for this alternative can be seen in Table 7-24 with planning level design layout in Figure 7-33.

## Diverging Diamond Interchange

The Diverging Diamond Interchange Alternative (DDI) requires the two directions of traffic on 32<sup>nd</sup> Avenue/US 81B to cross to the opposite side of the road over I-29. This allows left-turning and right-turning traffic to perform a free flow movement onto the interstate on-ramp. The free-flowing movements reduce the signal phases to two at each intersection, significantly reducing delays. The right-turn slip ramp on the southbound I-29 on-ramp requires access management at the 42<sup>nd</sup> Street west frontage road. A backage road was configured with a signal incorporated at 44<sup>th</sup> Street. All intersections operate efficiently during the 2040 A.M. and P.M. peak. There are some queuing issues on the minor approaches at 38<sup>th</sup> Street during the 2040 P.M. peak.

This alternative comes at a cost of \$8.5 million, plus the cost of the interchange at 47<sup>th</sup> Avenue, estimated between \$23.2 and \$28.5 million, discussed in the next section.

Value planning scores for this alternative can be seen in Table 7-24 with planning level design layout in Figure 7-34.



# MICRO LEVEL ALTERNATIVES ANALYSIS

Table 7-24: 32<sup>nd</sup> Avenue/US 81B Alternatives Under 47<sup>th</sup> Avenue Interchange Scenario

	SI		CER		NWL		SWL		DDI	
	Results	Score	Results	Score	Results	Score	Results	Score	Results	Score
Local Operations	» A.M. Peak: 16.7, LOS "B" » P.M. Peak Average: 31.9, LOS "C"	7	» A.M. Peak: 18.2, LOS "B" » P.M. Peak Average: 37.0, LOS "D"	7	» A.M. Peak: 16.1, LOS "B" » P.M. Peak Average: 24.1, LOS "C"	7	» A.M. Peak: 16.1, LOS "B" » P.M. Peak Average: 33.4, LOS "C"	7	» A.M. Peak: 13.9, LOS "B" » P.M. Peak Average: 23.5, LOS "C"	8
Mainline Operations*	» A.M. Peak: 9.6, LOS "A" » P.M. Peak: 18.6, LOS "C"	8	» A.M. Peak: 14.5, LOS "B" » P.M. Peak: 19.2, LOS "C"	8	» A.M. Peak: 13.3, LOS "B" » P.M. Peak: 18.4, LOS "C"	8	» A.M. Peak: 13.5, LOS "B" » P.M. Peak: 18.0, LOS "C"	8	» A.M. Peak: 13.0, LOS "B" » P.M. Peak: 18.1, LOS "C"	8
Environmental Impacts	» No additional environmental impacts expected.	8	» 3.5 Acres of ROW required. No access changes.	6	» 2 Acres of ROW required. Access management at 42nd Street west frontage road.	6	» 2 Acres of ROW required. No access changes.	6	» 2 Acres of ROW required. Access management at 42 <sup>nd</sup> Street west frontage road.	6
Safety	Baseline Crash Potential Distribution for Comparison » 15.0% Crossing » 33.2% Rear End » 51.8% Sideswipe	6	43.2% Increase in Crash Potential Compared to SI » 140.9% Increase in Crossing Crash Potential » 40.5% Decrease in Rear End Crash Potential » 82.2% Increase in Sideswipe Crash Potential	0	4.1% Decrease in Crash Potential Compared to SI » 0.9% Decrease in Crossing Crash Potential » 10.5% Decrease in Rear End Crash Potential » 0.3% Decrease in Sideswipe Crash Potential	9	5.0% Decrease in Crash Potential Compared to SI » 42.2% Increase in Crossing Crash Potential » 32.0% Decrease in Rear End Crash Potential » 4.9% Increase in Sideswipe Crash Potential	10	20.0% Increase in Crash Potential Compared to SI » 130.9% Increase in Crossing Crash Potential » 7.6% Increase in Rear End Crash Potential » 9.5% Increase in Sideswipe Crash Potential	5
Cost	» \$700,000	10	» \$15.7 Million	0	» \$14.2 Million	1	» \$11.0 Million	3	» \$8.5 Million	5
<b>Total</b>	<b>39</b>		<b>21</b>		<b>31</b>		<b>34</b>		<b>32</b>	
<b>Rank</b>	<b>1</b>		<b>5</b>		<b>4</b>		<b>2</b>		<b>3</b>	

\*Mainline operations does not incorporate friction between 32<sup>nd</sup> Avenue and 47<sup>th</sup> Avenue. This is discussed in greater detail in the next section.



## 47<sup>TH</sup> AVENUE

During the Macro Level Analysis completed for this study, the 47<sup>th</sup> Avenue interchange was studied to address future long-term development in southern Grand Forks. This analysis found an interchange at this location would reduce vehicle hours traveled by 4.4 million hours from 2025 to 2040 and vehicle miles traveled by 53.3 million miles from 2025 to 2040. This interchange is also estimated to reduce traffic on 32<sup>nd</sup> Avenue/US 81B by 40.3 percent, which is likely significant enough to prevent widening on 32<sup>nd</sup> Avenue/US 81B. However, the analysis also estimated a 21 percent increase in traffic on I-29. This increase in traffic on mainline I-29 may present merging, weaving and diverging challenges. Unlike analysis completed for other interchanges in this report, impacts between 32<sup>nd</sup> Avenue/US 81B and the 47<sup>th</sup> Avenue interchange alternatives were analyzed using the existing 32<sup>nd</sup> Avenue/US 81B on- and off-ramp configurations. Four alternatives were feasible based on the criteria established in this report.

- Traditional Diamond Interchange: A standard diamond interchange on the 47<sup>th</sup> Avenue alignment was considered the base alternative.
- Diamond with South Loops Interchange: A standard diamond interchange with a southeast loop ramp and southwest loop ramp on the 47<sup>th</sup> Avenue alignment. This alternative split the diverging movements to minimize the congestion between the 32<sup>nd</sup> Avenue/US 81B on-ramp and the 47<sup>th</sup> Avenue off-ramp. This provided improved operations at the ramp intersections by reducing the number of signal phases.
- Shifted Diamond with South Loops Interchange: A standard diamond interchange with a southeast loop on-ramp and southwest loop off-ramp shifted 0.25 miles south. This alternative also splits the diverging movements to minimize congestion but increases the spacing to allow more time for drivers to make the lane changes necessary.
- Shifted Diamond with No Business Impacts Interchange: This alternative is shifted 0.25 miles south and includes a southwest loop ramp for the on- and off-ramps and southeast loop on-ramp. This alternative avoids impacting the campground south of 47<sup>th</sup> Avenue and increases spacing between the 32<sup>nd</sup> Avenue/US 81B on-ramp and the 47<sup>th</sup> Avenue off-ramp.

## ANALYSIS METHODOLOGY

These four alternatives were analyzed and presented below using the Value Planning approach detailed at the beginning of this report. The 47<sup>th</sup> Avenue interchange analysis is slightly different than the baseline methodology because it is a new interchange, with no existing conditions to compare.

### MAINLINE OPERATIONS

Because of concerns regarding the I-29 mainline due to spacing and higher volumes, an alternative mainline analysis approach was used. Mainline operations for the 47<sup>th</sup> Avenue interchange analysis refers to the operations of I-29 between the merge and diverge points of 32<sup>nd</sup> Avenue/US 81B and 47<sup>th</sup> Avenue, including the 500-foot sections upstream and downstream of the 32<sup>nd</sup> Avenue/US 81B and 47<sup>th</sup> Avenue intersections. This change was made for two reasons: first, none of the alternatives analyzed on 47<sup>th</sup> Avenue found unique or deficient lane densities on the 500-foot section upstream of off-ramp and downstream of on-ramps; second, the nearly 14,000 ADT increase on I-29 associated with the 47<sup>th</sup> Avenue interchange could have capacity impacts outside of the interchange influence areas. Similar to the baseline methodology for mainline operations, the northbound and southbound densities were averaged to provide one score.

### COST

Typically, the interchange alternatives would be scored using a distribution between highest cost alternative and lowest cost alternative. The Southwest Loop Alternative (SWL) for the 32<sup>nd</sup> Avenue/US 81B alternative under the Existing Interstate Access Scenario was the prioritized alternative based on technical criteria. The SWL was included in the range of costs to provide valuable context related to the true impacts of a 47<sup>th</sup> Avenue interchange; it has a cost of \$23.5 million. The range of costs was scored using the Cost scoring criteria table established in the methodology section above.

## INTERCHANGE ALTERNATIVES

Analysis presented below was completed using ADT forecasts from the 47<sup>th</sup> Avenue Interchange Scenario.

## TRADITIONAL DIAMOND ALTERNATIVE

The Traditional Diamond Alternative (TD) is a standard diamond interchange with signals at the East Ramp, West Ramp and 38<sup>th</sup> Street intersections. It operates at LOS “D” or better for both 2040 A.M. and P.M. peak hours. There are no queueing concerns that would impact I-29. This alternative provides spacing challenges between the 32<sup>nd</sup> Avenue/US 81B southbound on-ramp and the 47<sup>th</sup> Avenue off-ramp, which results in some lane densities that fall to LOS “D” during the 2040 P.M. peak. This alternative will require relocation to the campground in the southwest quadrant but the least amount of right-of-way at 61 acres. Value planning scores for this alternative can be seen in Table 7-25 with planning level design layout in Figure 7-36.

Table 7-25: 47<sup>th</sup> Avenue Traditional Diamond Alternative

	Results (2040 Conditions – 47 <sup>th</sup> Avenue Interchange Scenario)	Score
Local Operations	<ul style="list-style-type: none"> <li>▪ A.M. Peak Average: 14.9, LOS “B”</li> <li>▪ P.M. Peak Average: 32.6, LOS “C”</li> </ul>	7
Mainline Operations	<ul style="list-style-type: none"> <li>▪ A.M. Peak Average: 14.4, LOS “B”</li> <li>▪ P.M. Peak Average: 29.3, LOS “D”</li> </ul>	7
Environmental Impacts	<ul style="list-style-type: none"> <li>▪ Limited ecological impacts with mitigation possible. Business impacts and relocation necessary. 63 acres of ROW needed.</li> </ul>	6
Safety	<ul style="list-style-type: none"> <li>▪ Baseline crash potential distribution for alternative comparison:                             <ul style="list-style-type: none"> <li>» Crossing: 9.4% of total estimated crash potential</li> <li>» Rear End: 81.2% of total estimated crash potential</li> <li>» Lane Change: 9.4% of total estimated crash potential</li> </ul> </li> </ul>	0
Cost	<ul style="list-style-type: none"> <li>▪ \$24.6 Million</li> </ul>	5
<b>Total</b>		<b>25</b>

## DIAMOND WITH SOUTH LOOPS ALTERNATIVE

The Diamond with South Loops Alternative (DL) is a diamond interchange with a southeast loop ramp for eastbound to northbound on-ramp movements and a southwest loop ramp for southbound to eastbound off-ramp movements. By removing left-turns, some crossing conflicts are eliminated, as well as enabling the traffic control signal to operate with reduced phases, improving efficiency. This alternative operates effectively during both 2040 A.M. and P.M. peak hours and does not have queueing concerns. This alternative has the lowest estimated crash potential, as well as providing acceptable levels of service for local operations, but does require business impacts and 87 acres of ROW needed, the most of all four build alternatives. As for mainline operations, this alternative does result in some lane densities between 32<sup>nd</sup> Avenue/US 81B and 47<sup>th</sup> Avenue falling to LOS “D” during the 2040 P.M. peak. Value planning scores for this alternative can be seen in Table 7-26 with planning level design layout in Figure 7-37.

Table 7-26: 47<sup>th</sup> Avenue Diamond with South Loops Alternative

	Results (2040 Conditions – 47 <sup>th</sup> Avenue Interchange Scenario)	Score
Local Operations	<ul style="list-style-type: none"> <li>▪ A.M. Peak Average: 12.0, LOS “B”</li> <li>▪ P.M. Peak Average: 15.3, LOS “B”</li> </ul>	9
Mainline Operations	<ul style="list-style-type: none"> <li>▪ A.M. Peak Average: 14.8, LOS “B”</li> <li>▪ P.M. Peak Average: 29.3, LOS “D”</li> </ul>	6
Environmental Impacts	<ul style="list-style-type: none"> <li>▪ Limited ecological impacts with mitigation possible. Business impacts and relocation necessary. 63 acres of ROW needed.</li> </ul>	6
Safety	<ul style="list-style-type: none"> <li>▪ 59.4% Reduction in Crash Potential when Compared Against Diamond                             <ul style="list-style-type: none"> <li>» 29.1% reduction in crossing crash potential</li> <li>» 68.1% reduction in rear end crash potential</li> <li>» 15.0% reduction in sideswipe crash potential</li> </ul> </li> </ul>	10
Cost	<ul style="list-style-type: none"> <li>▪ \$27.2 Million</li> </ul>	1
<b>Total</b>		<b>32</b>

In this report there is only a detailed 2015 cost estimate for the Diamond with South Loops Alternative. As the Diamond with South Loops and Mixing Lane Alternative is the most expensive option, the difference between these two estimates (\$1.3 million) was added to the detailed cost estimate for the Diamond with South Loops Alternatives.

## DIAMOND WITH SOUTH LOOPS AND MIXING LANES ALTERNATIVE

The Diamond with South Loops and Mixing Lanes Alternative (DLM) is the same interchange configuration as above but includes mixing lanes (also referred to as auxiliary lanes, speed-change lane or acceleration lane) between 32<sup>nd</sup> Avenue/US 81B and 47<sup>th</sup> Avenue to improve lane density during the peak hours. This requires about 1,000 feet of extra lane length for each direction of traffic on I-29. These mixing lanes would keep lane densities at LOS “A” during the 2040 A.M. peak and LOS “C” during the 2040 P.M. peak. Local operations, environmental impacts and safety remain unchanged. Value planning scores for this alternative can be seen in Table 7-27. Planning level designs at the interchange are similar to Figure 7-37.

*Table 7-27: 47<sup>th</sup> Avenue Diamond with South Loops and Mixing Lanes Alternative*

	Results (2040 Conditions – 47 <sup>th</sup> Avenue Interchange Scenario)	Score
Local Operations	<ul style="list-style-type: none"> <li>▪ A.M. Peak Average: 12.0, LOS “B”</li> <li>▪ P.M. Peak Average: 15.3, LOS “B”</li> </ul>	9
Mainline Operations	<ul style="list-style-type: none"> <li>▪ A.M. Peak Average: 10.9, LOS “A”</li> <li>▪ P.M. Peak Average: 18.8, LOS “C”</li> </ul>	8
Environmental Impacts	<ul style="list-style-type: none"> <li>▪ Limited ecological impacts with mitigation possible. Business impacts and relocation necessary. 63 acres of ROW needed.</li> </ul>	6
Safety	<ul style="list-style-type: none"> <li>▪ 59.4% Reduction in Crash Potential when Compared Against Diamond                             <ul style="list-style-type: none"> <li>» 29.1% reduction in crossing crash potential</li> <li>» 68.1% reduction in rear end crash potential</li> <li>» 15.0% reduction in sideswipe crash potential</li> </ul> </li> </ul>	10
Cost	<ul style="list-style-type: none"> <li>▪ \$28.5 Million</li> </ul>	0
<b>Total</b>		<b>33</b>

## SHIFTED DIAMOND WITH SOUTH LOOPS ALTERNATIVE

The Shifted Diamond with South Loops Alternative (SDL) is the same geometric design as the South Loops Interchange Alternative, just shifted 0.25 miles south. This improves spacing between the 32<sup>nd</sup> Avenue/US 81B interchange. This alternative operates effectively both on local and mainline operations. However, during the 2040 P.M. peak, some lane densities fall to LOS “D”. This alternative improves estimated crash potential, when compared against the Diamond Interchange. It also impacts the campground and will require a buyout and 78 acres of ROW needed. Value planning scores for this alternative can be seen in Table 7-28 with planning level design layout in Figure 7-38.

*Table 7-28: 47<sup>th</sup> Avenue Shifted Diamond with South Loops Alternative*

	Results (2040 Conditions – 47 <sup>th</sup> Avenue Interchange Scenario)	Score
Local Operations	<ul style="list-style-type: none"> <li>▪ A.M. Peak Average: 11.7, LOS “B”</li> <li>▪ P.M. Peak Average: 14.5, LOS “B”</li> </ul>	9
Mainline Operations	<ul style="list-style-type: none"> <li>▪ A.M. Peak Average: 14.2, LOS “B”</li> <li>▪ P.M. Peak Average: 26.8, LOS “D”</li> </ul>	7
Environmental Impacts	<ul style="list-style-type: none"> <li>▪ Limited ecological impacts with mitigation possible. Business impacts and relocation necessary. 78 acres of ROW needed.</li> </ul>	5
Safety	<ul style="list-style-type: none"> <li>▪ 57.5% Reduction in Crash Potential when Compared Against Diamond                             <ul style="list-style-type: none"> <li>» 34.8% reduction in crossing crash potential</li> <li>» 66.7% reduction in rear end crash potential</li> <li>» 1.4% reduction in sideswipe crash potential</li> </ul> </li> </ul>	» 9
Cost	<ul style="list-style-type: none"> <li>▪ \$27.6 Million</li> </ul>	1
<b>Total</b>		<b>31</b>

## SHIFTED DIAMOND WITH NO BUSINESS IMPACTS

The Shifted Diamond with No Business Impacts Alternative (SNI) shifts the interchange alignment 0.25 miles south and folds the southbound off-ramp to eliminate the business impacts. This alternative operates effectively during both 2040

A.M. and P.M. peak hours with no queueing concerns that would impact I-29. It improves crash potential when compared against the Diamond Interchange alternative with effective local and mainline operations. Eliminating the business impacts and low ROW needed helps this alternative score high in the Environmental Impacts category and Cost. Value planning scores for this alternative can be seen in Table 7-29 with planning level design layout in Figure 7-39.

*Table 7-29: 47<sup>th</sup> Avenue Shifted Diamond with No Business Impacts Alternative*

	Results (2040 Conditions – 47 <sup>th</sup> Avenue Interchange Scenario)	Score
Local Operations	<ul style="list-style-type: none"> <li>▪ A.M. Peak Average: 11.4, LOS “B”</li> <li>▪ P.M. Peak Average: 16.9, LOS “B”</li> </ul>	9
Mainline Operations	<ul style="list-style-type: none"> <li>▪ A.M. Peak Average: 14.3, LOS “B”</li> <li>▪ P.M. Peak Average: 26.7, LOS “D”</li> </ul>	7
Environmental Impacts	<ul style="list-style-type: none"> <li>▪ Limited ecological impacts with mitigation possible. No business impacts. 59 acres of ROW needed.</li> </ul>	6
Safety	<ul style="list-style-type: none"> <li>▪ 56.9% Reduction in Crash Potential when Compared Against Diamond                             <ul style="list-style-type: none"> <li>» 12.7% increase in crossing crash potential</li> <li>» 70.2% reduction in rear end crash potential</li> <li>» 11.4% reduction in sideswipe crash potential</li> </ul> </li> </ul>	9
Cost	<ul style="list-style-type: none"> <li>▪ \$23.2 Million</li> </ul>	10
<b>Total</b>		<b>41</b>

## SUMMARY OF ALTERNATIVES

The Shifted Folded Southbound Off-Ramp Interchange Alternative scored highest on the Value Planning analysis with strong scores in local and mainline operations, safety and low cost. It does not require impacts which improves its environmental impact score relative to other alternatives for 47<sup>th</sup> Avenue.

The value planning scores summary for 47<sup>th</sup> Avenue interchange alternatives is shown in Table 7-30.

*Table 7-30: Summary of 47<sup>th</sup> Avenue Interchange Alternatives*

Alternative	Local Operations	Mainline Operations	Environmental Impacts	Safety	Cost	Technical Total	Technical Rank
TD	7	7	6	0	5	25	5
DL	9	6	6	10	1	32	3
DLM	9	8	6	10	0	33	2
SDL	9	7	5	9	1	31	4
SNI	9	7	6	9	10	41	1

## STEERING COMMITTEE RANKING

As part of the Value Planning workshop, the Steering Committee was asked to rank the alternatives; the Diamond with South Loops and Mixing Lanes and the Shifted Diamond with No Business Impacts were tied with 33.3 percent of the Steering Committee ranking each as their first choice.

those improvements included in the I-29 Corridor Study, none are currently cost constrained in the GF-EGF MPO Long Range Transportation Plan (LRTP).

## NEEDS COMPARISON

Comparing needs for different improvements can be a very complicated process. For example, how do you compare a railroad grade separation improvement to a new interchange to a new loop? A railroad grade separation generates major delays but only occurs a few times per day, mostly during off-peak periods. A new interchange may provide massive relief for several hours of the day but may not be needed for several years.

The current Transportation Improvement Program (TIP) process utilizes a project scoring and ranking process. A more technically based project specific evaluation process was needed to support the I-29 Corridor Study Implementation Plan. To assess needs, a five point needs index was developed to show relative need. This starts with the technical information compiled in this study and other studies as necessary to compare quantified benefits. Quantified benefits incorporate vehicle hours of delay, vehicle miles travelled and crash reduction factors. For example, the 2040 yearly quantified benefits for an interchange at 47<sup>th</sup> Avenue is \$3.2 million and for a railroad grade separation at 42<sup>nd</sup> Street and DeMers Avenue is \$0.6 million. Where quantified benefits were not readily available, level of service and railroad crossing exposure were compared.

This information was used to provide an educated estimate of need for every improvement over \$1 million for existing, 2025 and 2040 time periods. This information will be refined by the Steering Committee. The results are illustrated in Table 8-2.

Table 8-2: Needs by Year

Location	Improvement	Need			Notes
		Existing	2025	2040	
North Washington Street/CR 11/US 81	Interchange and Access Improvements	0	0.5	1	The Washington Street improvements are preventive in nature and not based on quantified deficiencies.
Gateway Drive/US 2	Interchange Improvements	1	2	5	The Gateway Drive interchange operates at LOS "F" by 2040.
	Railroad Grade Separation	2	2.5	3	Queuing onto the interstate when train events and peak hours coincide. The railroad grade separation has a crossing exposure of 245,000 by 2040.*
DeMers Avenue/ND 297	Interchange Improvements	2	4	5	The DeMers Avenue interchange operates at LOS "E" by 2025 and LOS "F" by 2040.
	42nd Street Railroad Grade Separation	3	3.5	4	The grade separation has a yearly quantified benefit of \$0.6 million dollars by 2040 and crossing exposure of 749,700 by 2040.*
32nd Avenue/US 81B	New Interchange at 47th Avenue	2	5	5	32nd Avenue Operates at LOS "F" by 2025, has a yearly quantified benefit of \$3.2 M by 2040.
Merrifield Road/CR 6	New Interchange	2.5	3	3.5	The Merrifield Interchange has a yearly quantified benefit of 2.4 million dollars by 2040.

0 = No need, 5 = Greatest Need

\* Based on previous study, may require updating

**LONG RANGE: 2031-2040+**

This stage represents year 11 and beyond the current TIP and extends to the life of the current 2040 Long Range Transportation Plan (LRTP). Figure 8-6 demonstrates the long-range phase of project development efforts required to implement the I-29 Corridor Study.

Costs shown demonstrate a year of expenditure estimate to the mid-range of the phase for which construction is anticipated per the I-29 Corridor Study. Projects in the mid-range are adjusted to YOE of 2036. Table 8-3 demonstrates a more descriptive dialogue of the implementation efforts needed at each phase of implementation for the most significant projects. Table 8-3 should be treated as a tentative set of actions needed to address needs identified by the I-29 Corridor Study. As additional planning and programming efforts unfold beyond the completion of the I-29 Corridor Study, these assumptions may change.

**STAGES OF PROJECT DEVELOPMENT & DELIVERY**

The I-29 Implementation Plan assists with stratifying the stage of planning and project development required to deliver each of the above mentioned projects. This is specifically important for more of the complex projects and for those projects which will require additional scoping to move out of the planning phase and deeper into advanced project development. The Implementation Plan has been developed around the following generalized Stages of Project Delivery:

- **Planning & Environmental (Preliminary Engineering/Scoping):** Reflects additional planning or project level scoping to continue to define and delineate alternatives and project feasibility. This phase also includes the transition into the development of relevant environmental documentation. In many cases, the alternatives developed as part of the I-29 Corridor Study are assumed to be ready to move further into project development (i.e. environmental/NEPA). In the case of interchanges at 47<sup>th</sup> Avenue and Merrifield Road/CR 6, this phase includes completion of an IJR. However, some of these actions may not result in a signed environmental document until such time as Federal funds are programmed, or FHWA fiscal constraint requirements can be met.
- **Right-of-Way, Design and Construction (Advanced Project Development):** Reflects efforts following completion of a signed environmental document. These are stages of advanced project development involving actual final design and right of way. Included in this phase would also be efforts to secure final programming (or project selection). Advanced project development includes the construction phase.

The implementation plan will assign one of these two general categories to identified improvements listed in the I-29 Corridor Study. Smaller less significant projects which will likely fit more easily into the GF-EGF TIP or move quickly in the first phase or two are not noted. For more complex projects, the transition through these stages is more gradual, and more thoughtfulness is needed on how these projects continue to transition out of planning and further into project development.

**32<sup>ND</sup> AVENUE/US 81B NEEDS**

Due to the major investment needed at 32<sup>nd</sup> Avenue/US 81B, and the coordinated needs between 32<sup>nd</sup> Avenue/US 81B and 47<sup>th</sup> Avenue, additional analysis was completed to determine the approximate thresholds where 32<sup>nd</sup> Avenue/US 81B begins to breakdown. This analysis increased the modeled traffic volumes based on linear growth between the existing and approved 2025 ADT projections and then between the approved 2025 ADT and 2040 ADT projections.

- According to the 2025 P.M. peak hour analysis, deficiencies along the corridor emerged. However, there are key issues that emerge before 2025.
  - » At around 40 percent (2019) of the growth between 2015 and 2025, deficient operations are expected at 38<sup>th</sup> Street.
  - » By 70 percent (2022) of the growth between 2015 and 2025, the northbound off-ramp begins to queue onto the interstate.
  - » By 2025, deficient operations are expected at the West Ramp, East Ramp and 38<sup>th</sup> Street intersections during the P.M. peak hour.



- With the Spot Improvements on 32<sup>nd</sup> Avenue/US 81B, 2025 operations are improved to LOS “D” across the corridor. However, as growth continues capacity constraints on the overpass bridge begin to emerge around 2030, or 30 percent of growth expected between 2025 and 2040. The capacity constraints result in deficient operations at the West Ramp intersection and queues onto the interstate.

Figure 8-2: 2015 to 2025 Growth Thresholds with Existing Configuration on 32<sup>nd</sup> Avenue/US 81B

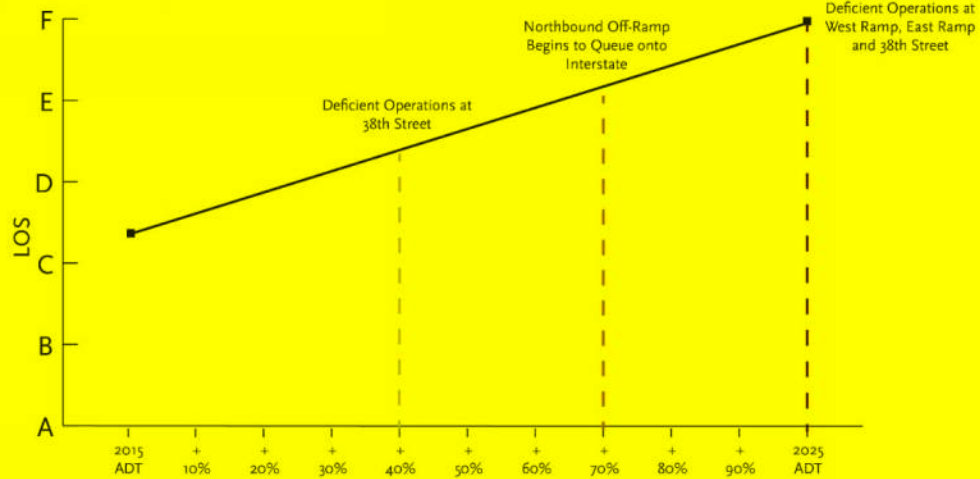
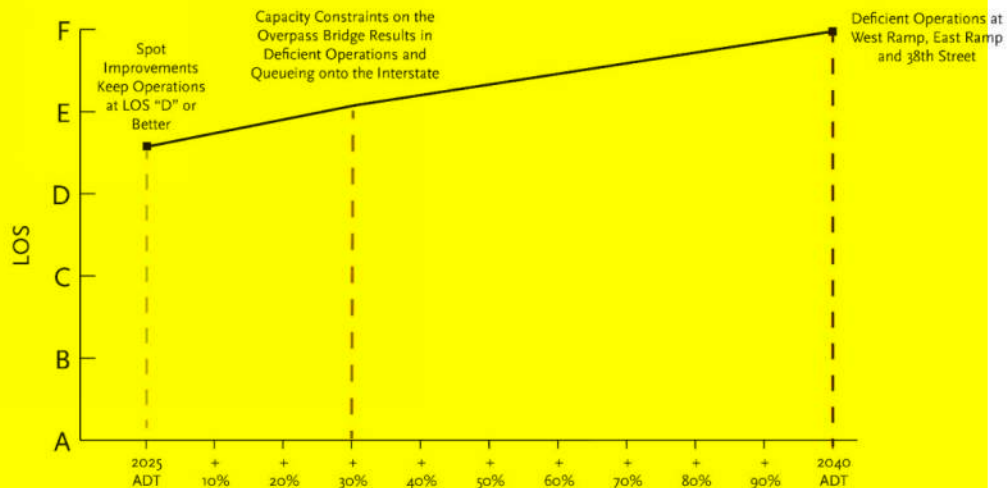


Figure 8-3: 2025 to 2040 Growth Thresholds with Spot Improvements on 32<sup>nd</sup> Avenue/US 81B



## ANCILLARY INVESTMENTS TO SUPPORT 47<sup>TH</sup> AVENUE INTERCHANGE

As noted, the Implementation Plan for the I-29 Corridor Study is not cost constrained. Further, it is a demonstration of needed improvements more narrowly focused on the I-29 Corridor and adjacent systems. To that end, development of a future interchange at 47<sup>th</sup> Avenue will require substantial additional investment in local roadways. In current year dollars, total needs to provide local roadway system to support 47<sup>th</sup> Avenue is estimated at nearly \$17.0 million. This system of roadways is shown as part of Figure 8-1 and Figure 8-4, and includes extension and/or completion of 34<sup>th</sup> Street, 38<sup>th</sup> Street,

ENGINEER'S CONCEPTUAL OPINION OF PROBABLE COST					
I-29 Grand Forks Preliminary Interchange Layouts					
47th Avenue Diamond with South Loops Design					
				Date Prepared: April 18, 2017	
ESTIMATE OF QUANTITIES					
Item #	Description	Unit	Quantity	Unit Price	Total
<b>GROUP A CONSTRUCTION - 47th AVENUE FROM FUTURE 55TH STREET TO FUTURE 44TH STREET</b>					
1.	Mobilization (~10%)	LS	1	\$200,000.00	\$200,000
2.	Bonding and Insurance (~1%)	LS	1	\$20,000.00	\$20,000
3.	ROW Purchase	ACRE	8	\$50,000.00	\$400,000
4.	Borrow - Excavation	CY	15,890	\$10.00	\$158,900
5.	Common Excavation - Type A	CY	11,430	\$6.00	\$68,578
6.	Subgrade Preparation - Type A	SY	81,330	\$2.00	\$162,660
7.	Erosion Control and SWPPP items	LS	1	\$200,000.00	\$200,000
8.	Aggregate Base Course CL 5	CY	6,345	\$40.00	\$253,814
9.	Superpave FAA 45	TON	5,394	\$45.00	\$242,710
10.	PG 58-28 Asphalt Cement	TON	324	\$600.00	\$194,400
11.	Drainage	LS	1	\$150,000.00	\$150,000
12.	Traffic Control	LS	1	\$50,000.00	\$50,000
13.	Permanent Striping	LS	1	\$50,000.00	\$10,000
14.	Lighting	LS	1	\$150,000.00	\$150,000
15.	Signing	LS	1	\$50,000.00	\$50,000
16.	Utility Impacts	LS	1	\$100,000.00	\$100,000
				Construction Subtotal Group A	\$2,412,000
				Contingency 30%	\$724,000
				<b>Total Opinion of Construction Cost - Group A</b>	<b>\$3,136,000</b>
<b>GROUP B CONSTRUCTION - 47th AVENUE FROM FUTURE 38TH STREET TO S COLUMBIA RD</b>					
17.	Mobilization (~10%)	LS	1	\$340,000.00	\$340,000
18.	Bonding and Insurance (~1%)	LS	1	\$34,000.00	\$34,000
19.	ROW Purchase	ACRE	7	\$50,000.00	\$350,000
20.	Borrow - Excavation	CY	8,798	\$10.00	\$87,985
21.	Common Excavation - Type A	CY	16,765	\$6.00	\$100,590
22.	Subgrade Preparation - Type A	SY	34,481	\$2.00	\$68,962
23.	Erosion Control and SWPPP items	LS	1	\$100,000.00	\$100,000
24.	Aggregate Base Course CL 5*	CY	1,692	\$40.00	\$67,677
25.	8.5In Non-Rein Concrete Pvmnt CL AE-Doweled*	SY	10,152	\$70.00	\$710,614
26.	Sidewalk Concrete	SY	4,116	\$70.00	\$288,149
27.	Curb & Gutter - Type I	LF	7,339	\$24.00	\$176,136
28.	Drainage	LS	1	\$730,000.00	\$730,000
29.	Traffic Control	LS	1	\$50,000.00	\$50,000
30.	Permanent Striping	LS	1	\$20,000.00	\$20,000
31.	Lighting	LS	1	\$187,500.00	\$187,500
32.	Traffic Signal Lighting System (Intersection)	EA	1	\$300,000.00	\$300,000
33.	Signing	LS	1	\$50,000.00	\$50,000
34.	Utility Impacts	LS	1	\$100,000.00	\$100,000
				Construction Subtotal Group B	\$3,762,000
				Contingency 30%	\$1,129,000
				<b>Total Opinion of Construction Cost - Group B</b>	<b>\$4,891,000</b>
<b>GROUP C CONSTRUCTION - INTERCHANGE (ALL WORK BETWEEN 44TH ST AND 38TH ST)</b>					
35.	Mobilization (~10%)	LS	1	\$1,900,000.00	\$1,900,000
36.	Bonding and Insurance (~1%)	LS	1	\$190,000.00	\$190,000
37.	ROW Purchase	ACRE	48	\$50,000.00	\$2,400,000
38.	Business Relocation	LS	1	\$1,000,000.00	\$1,000,000
39.	Bridge	SF	22,400	\$150.00	\$3,360,000
40.	Common Excavation - Type A	CY	8,730	\$6.00	\$52,380
41.	Borrow-Excavation	CY	450,000	\$10.00	\$4,500,000
42.	Subgrade Preparation - Type A	SY	52,380	\$2.00	\$104,760
43.	Erosion Control and SWPPP items	LS	1	\$100,000.00	\$100,000
44.	Aggregate Base Course CL 5	CY	8,730	\$40.00	\$349,200
45.	8.5In Non-Rein Concrete Pvmnt CL AE-Doweled	SY	52,380	\$70.00	\$3,666,600
46.	Sidewalk Concrete	SY	3,029	\$70.00	\$212,066
47.	Curb & Gutter - Type I	LF	8,194	\$24.00	\$196,654
48.	Drainage	LS	1	\$500,000.00	\$500,000
49.	Traffic Control	LS	1	\$250,000.00	\$250,000
50.	Median Crossovers	EA	2	\$500,000.00	\$1,000,000
51.	Guardrail	LS	1	\$50,000.00	\$50,000
52.	Permanent Striping	LS	1	\$40,000.00	\$40,000
53.	Lighting	LS	1	\$125,000.00	\$125,000
54.	Traffic Signal Lighting System (Intersection)	EA	2	\$300,000.00	\$600,000
55.	Signing	LS	1	\$200,000.00	\$200,000
56.	Utility Impacts	LS	1	\$100,000.00	\$100,000
				Construction Subtotal Group C	\$20,897,000
				Contingency 30%	\$6,270,000
				<b>Total Opinion of Construction Cost - Group C</b>	<b>\$27,167,000</b>
				Construction Subtotal - All Groups	\$27,071,000
				Contingency	\$8,123,000
				<b>Total Opinion of Construction Cost - All Groups</b>	<b>\$35,194,000</b>
				<b>Total Opinion of Project Cost</b>	<b>\$35,194,000</b>

Construction Cost Group C+\$1.3 Million for Mixing Lanes

2015 Construction Cost Estimate \$28,467,000  
 10% Preliminary/Design Eng \$2,847,000  
 10% Construction Eng \$2,847,000

2015 Total Project \$34,161,000  
 Inflate by 4% to 2026 (-1.54 multiplier)

2026 Total Project Cost \$52,590,000

Figure 7-36: Traditional Diamond Interchange Alternative for 47th Avenue

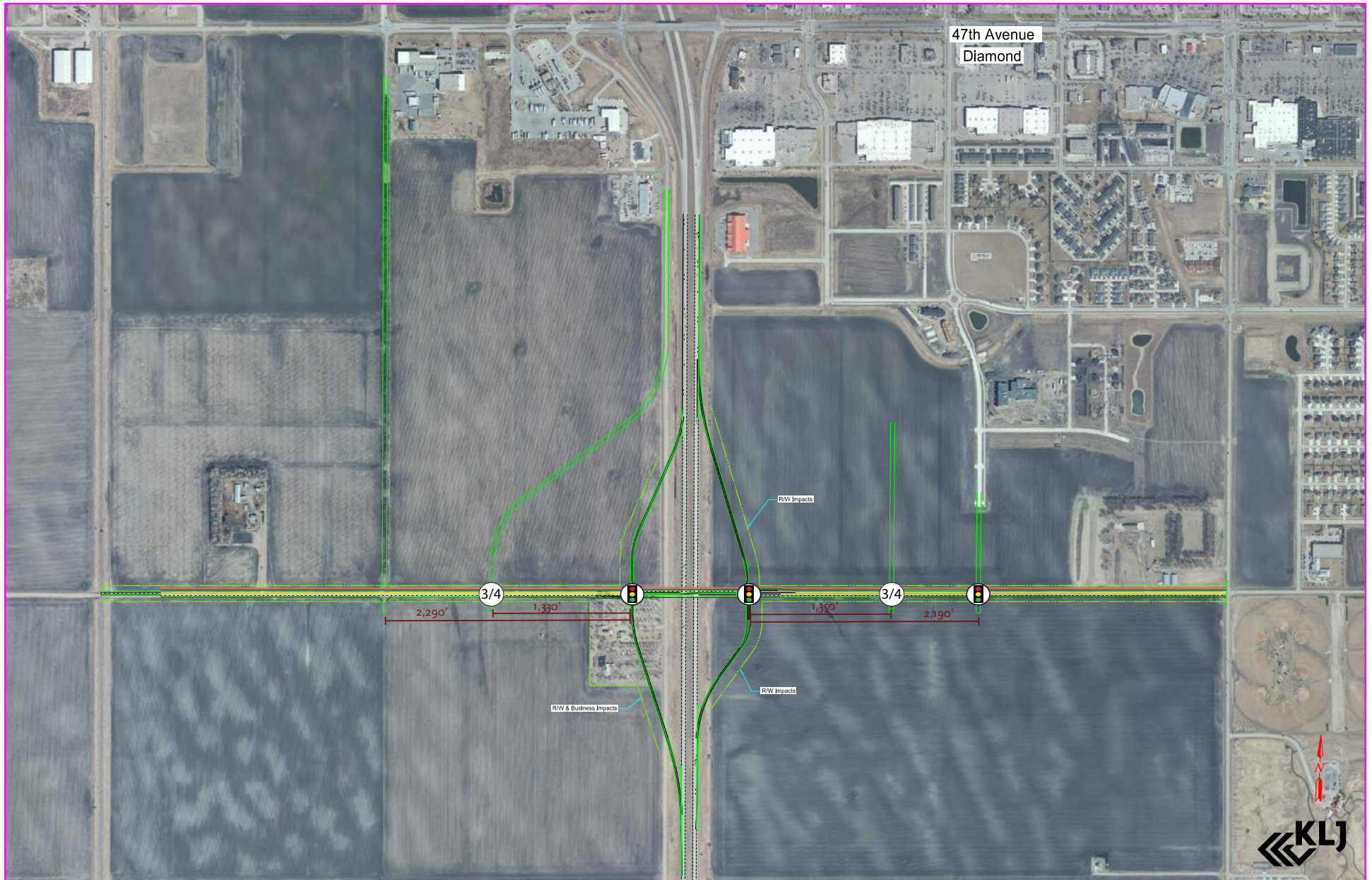




Figure 7-37: Diamond with South Loops Interchange Alternative for 47th Avenue

Concept Only

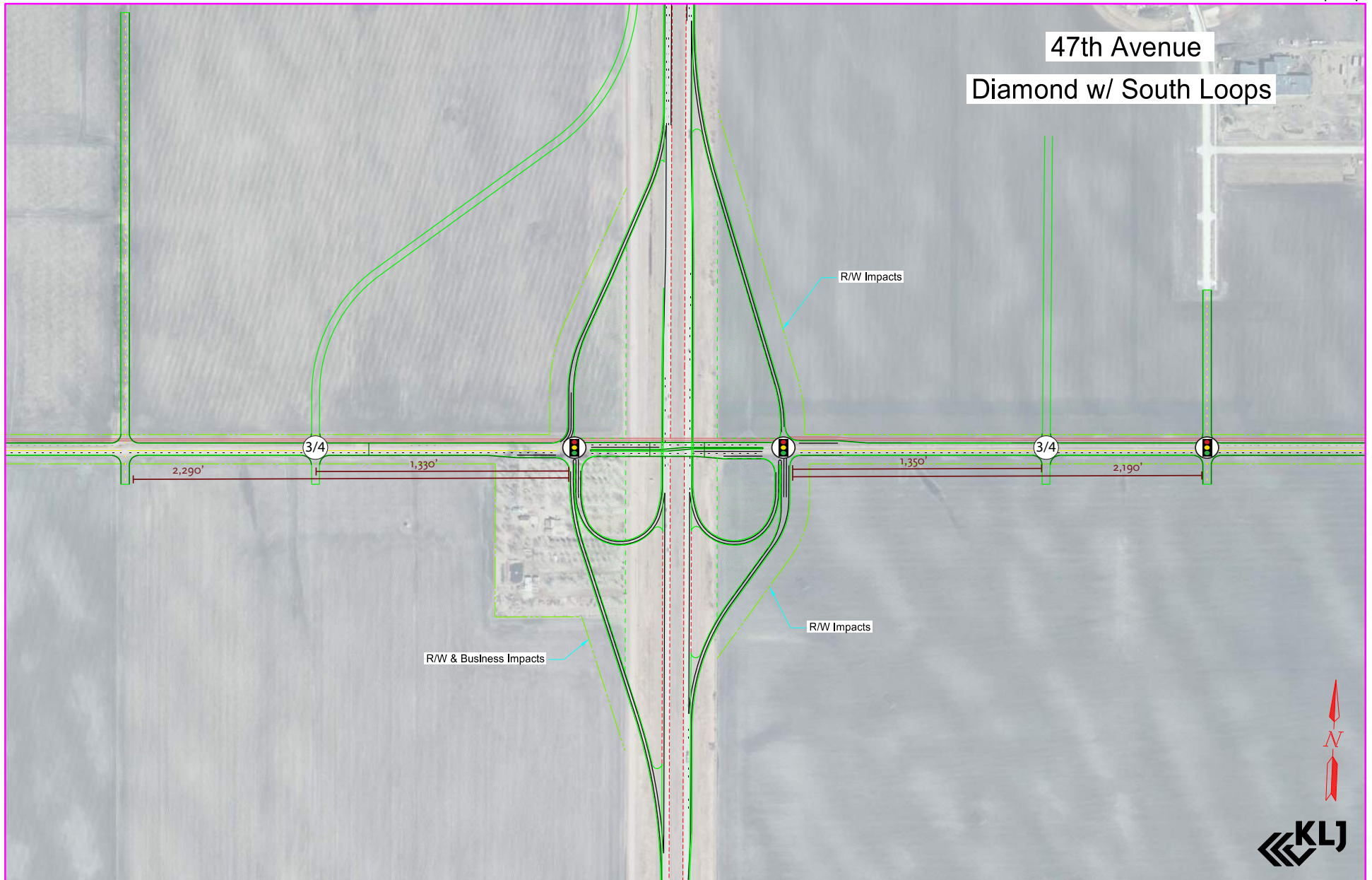
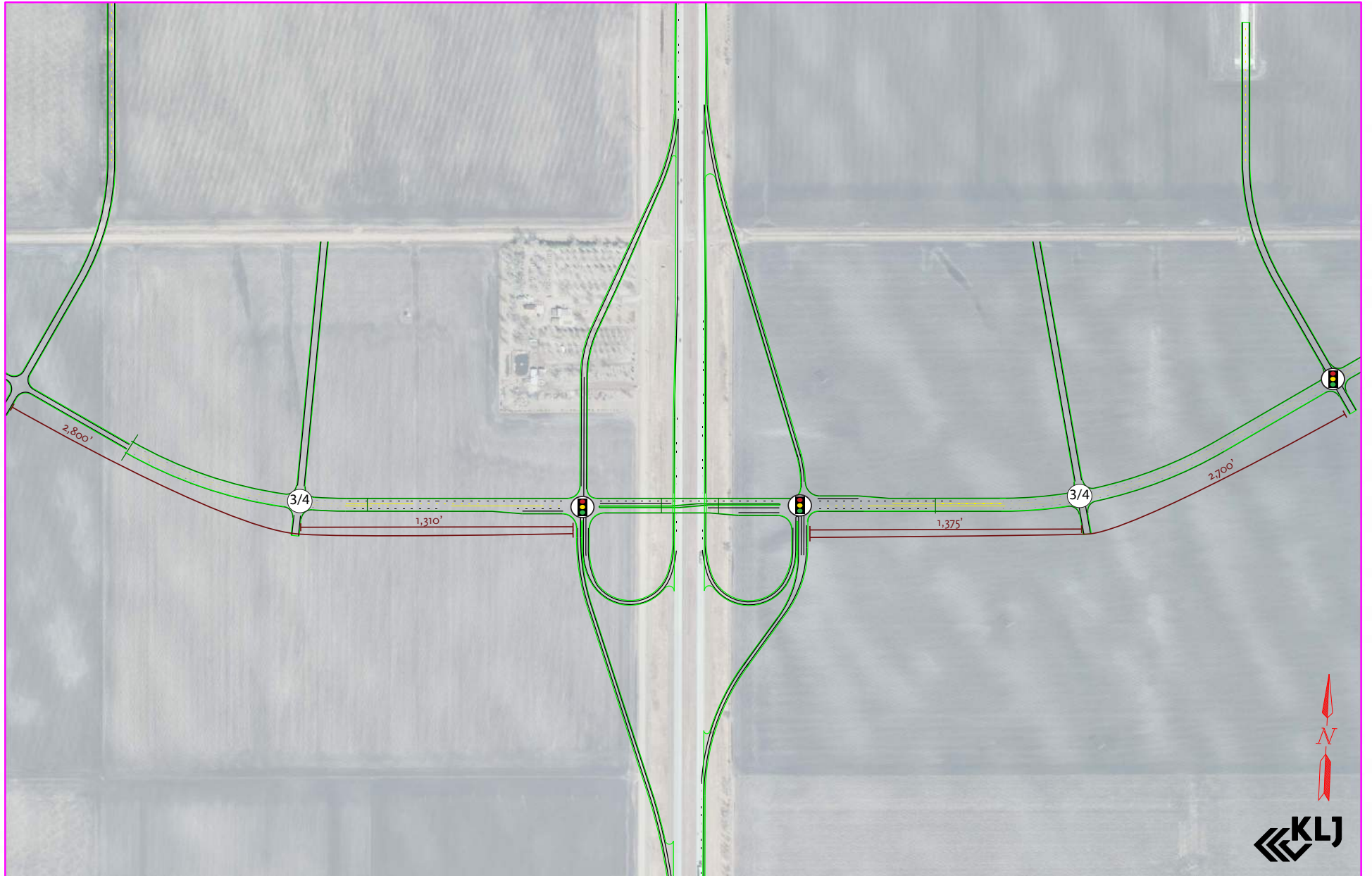
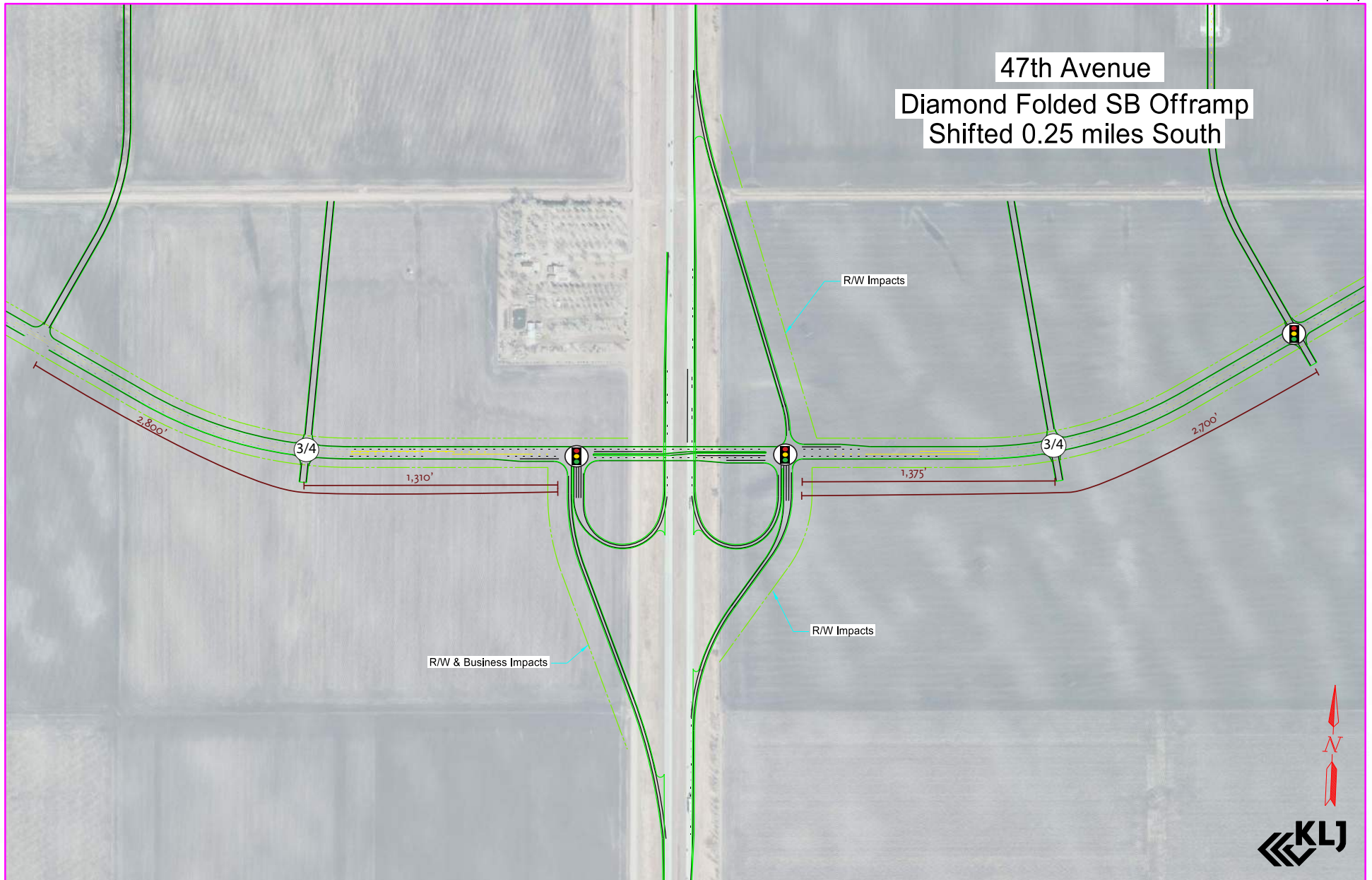


Figure 7-38: Shifted Diamond with South Loops Interchange Alternative for 47<sup>th</sup> Avenue

Concept Only

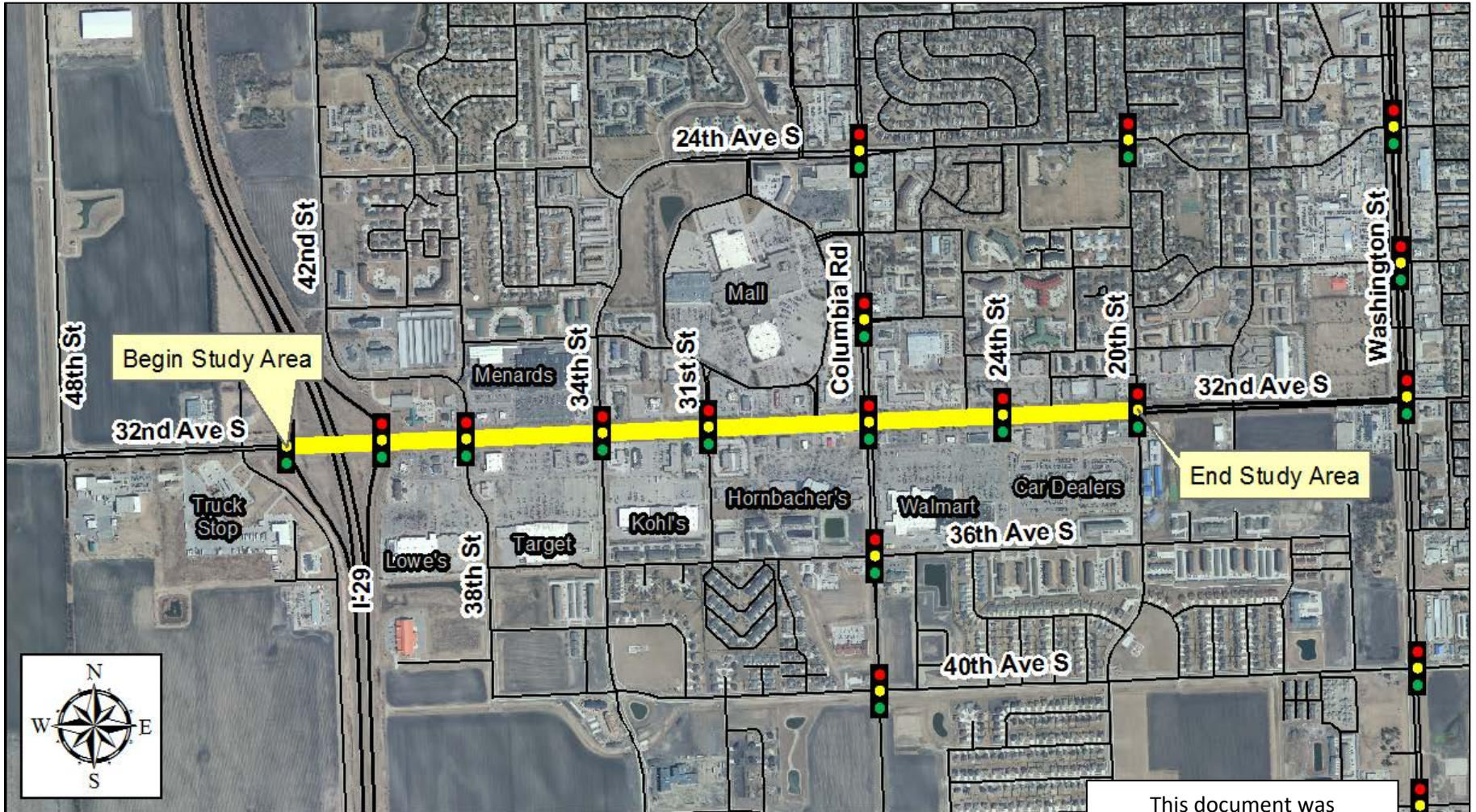






# TRAFFIC OPERATIONS STUDY

PCN 21884, HEU-6-081(094)940, Grand Forks 32<sup>nd</sup> Ave S between I-29 and 20<sup>th</sup> St



Prepared By:  
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION  
PROGRAMMING DIVISION  
TRAFFIC OPERATIONS SECTION

Principal Author:  
Christopher L. Holzer, P.E.  
August 2018

This document was originally issued and sealed by Christopher L. Holzer, PE #6528, on 8/23/2018 and the original document is stored at the North Dakota Department of Transportation.

## CAPACITY ANALYSIS

A capacity analysis was performed using Synchro/SimTraffic software (version 9.2). **Table 3** lists the level of service (LOS) thresholds, **Table 4** on the next page shows the capacity results, and **Appendix F** has the software print-out sheets.

Table 3 - LOS Thresholds	
LOS	Signalized Delay (sec/veh)
A	≤ 10
B	> 10-20
C	>20-35
D	>35-55
E	>55-80
F	>80
-LOS = Level of Service -Values from 2016 HCM Exhibit 19-8. -If $v/c > 1.0$ then LOS = F.	

### *AM Peak*

With the proposed improvements and either 2018 or 2038 traffic volumes, all intersections are shown to operate with intersection LOS C or better. The capacity results do not shown any extremely long queue lengths.

### *PM Peak with 2018 Traffic Volumes*

With the proposed improvements all intersections are shown to operate with acceptable intersection LOS D or better. The below three intersections are shown to have a long queue length:

#### 32<sup>nd</sup> Ave S & 38<sup>th</sup> St

SB queue lengths are shown to be 850ft. In the simulation program SB to EB left-turners back-up out of the left turn bay and then cause left, through, and right turners to all stack in one long line rather than 3 separate lines. This may not actually happen in real life, because the SB to EB left turn lane is striped, rather than delineated with raised curb, so vehicles can likely sneak past each other to get into their desired lanes, rather than queue in one long line.

#### 32<sup>nd</sup> Ave S & 34<sup>th</sup> St

The NB queue length is shown to be 575ft. This is due to high volumes in general at this intersection and needing to pick a certain movement(s) to receive less green time.

#### 32<sup>nd</sup> Ave S & 20<sup>th</sup> St

The SB queue length is shown to be 575ft. This intersection had a queueing issue similar to 38<sup>th</sup> St, with vehicles stacking in one long line rather than 3 separate lines.

### *PM Peak with 2038 Traffic Volumes*

Except for the 38<sup>th</sup> St, 34<sup>th</sup> St, and Columbia Rd intersections, all intersections are shown to operate with acceptable intersection LOS D or better. The 38<sup>th</sup> St, 34<sup>th</sup> St, and Columbia Rd intersections are shown to operate with intersection LOS E or F and long queue lengths. Two possible future improvements that have been discussed in previous documents are to widen 32<sup>nd</sup> Ave S to three EB/WB through lanes or to install an interchange on I-29 farther south of 32<sup>nd</sup> Ave S. **It is recommended** to monitor traffic volumes to see if they increase as projected.



Table 4 - Grand Forks 32nd Ave S Capacity Results

Year	Conditions	I-29 SB				I-29 NB				38th St					34th St					31st St					Columbia					24th St				20th St					Corridor
		EB	WB	SB	Inter	EB	WB	NB	Inter	EB	WB	NB	SB	Inter	EB	WB	NB	SB	Inter	EB	WB	NB	SB	Inter	EB	WB	NB	SB	Inter	EB	WB	NB	Inter	EB	WB	NB	SB	Inter	Delay / EB TT / WB TT
2018	AM Peak Ex Cond	A	A	C	B	A	A	B	A	B	B	C	C	B	C	B	C	C	B	A	A	C	C	A	B	C	C	C	C	A	A	B	A	A	B	C	C	B	39.6 sec 254sec (4.2 minutes) 248sec (4.1 minutes)
	AM Peak Rev Cond	A	A	C	B	A	A	B	A	B	B	C	C	B	B	B	C	B	B	A	A	B	C	A	B	B	C	C	C	A	A	C	A	A	B	C	C	B	38.9 sec 247sec (4.1 minutes) 251sec (4.1 minutes)
	PM Peak Ex Cond	B	B	C	B	A	A	C	A	C	C	D	F	D	C	C	D	E	C	A	B	D	D	B	D	C	D	D	D	A	A	D	B	A	B	D	D	C	68.5 sec 298sec (5.0 minutes) 297sec (5.0 minutes)
	PM Peak Rev Cond	B	B	B	B	A	A	C	A	C	C	D	E	D	C	C	E	D	C	B	B	C	D	B	C	C	E	D	D	B	A	C	B	B	C	D	D	C	65.9 sec 290sec (4.8 minutes) 293sec (4.9 minutes)
2038	AM Peak Ex Cond	A	A	C	B	A	A	B	A	B	B	D	C	C	C	B	C	C	C	A	A	C	C	A	C	C	D	C	C	A	A	B	A	B	C	C	C	C	51.0 sec 273sec (4.5 minutes) 294sec (4.9 minutes)
	AM Peak Rev Cond	B	A	C	B	A	A	B	A	B	D	C	D	C	C	C	C	B	C	A	A	B	C	A	C	D	C	C	A	A	B	A	B	C	C	C	C	50.7 sec 264sec (4.4 minutes) 297sec (4.9 Minutes)	
	PM Peak Ex Cond	B	C	C	C	A	A	F	C	D	C	D	F	E	E	C	D	F	E	B	B	E	D	C	D	F	D	F	E	A	B	D	B	B	C	E	F	D	111.3 sec 371sec (6.2 minutes) 361sec (6.0 minutes)
	PM Peak Rev Cond	C	C	B	C	A	B	F	C	D	D	F	F	F	E	C	F	E	E	B	B	D	D	C	C	E	F	F	E	B	B	D	B	B	D	F	D	D	115.9 sec 388sec (6.4 minutes) 357sec (5.9 minutes)

-Values shown are LOS, Delay (sec), and 95th Percentile Queue Length (ft).

-LOS values of E or F are highlighted yellow.

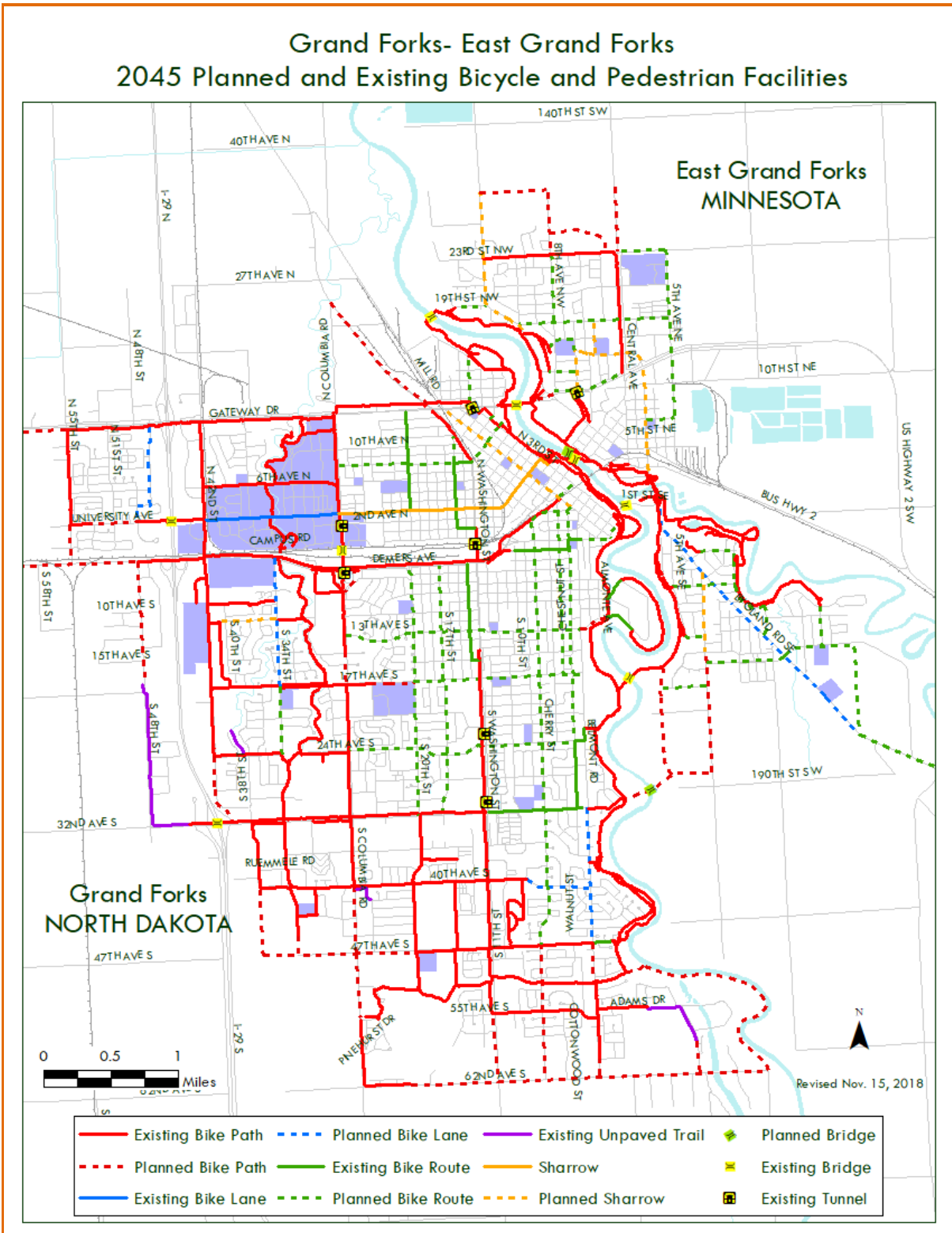
-Queue lengths 300ft or longer are highlighted blue and queue lengths 500ft or longer are highlighted red.

-The 2018 signal timings were used for both the 2018 and 2038 analyses.

-TT = Average Travel Time Through the Corridor.

23 USC § 409 Documents  
NDDOT Reserves All Objections

## 2. Existing Bicycle and Pedestrian Facilities Map





**One-Way Cash Fare\***

Adult	\$1.50
K-12 Student	\$0.75
Reduced Fare**	\$0.60

**10-Ride Cards**

Adult	\$13.00
K-12 Student	\$6.50
Reduced Fare**	\$5.25

\*Exact fare required

\*\*Seniors age 62+, Medicare card holders, and persons with disabilities

**Fixed Period Passes**

1-Day Pass	\$5.00
14-Day Pass	\$18.00
31-Day Pass	\$35.00

**Transfers** are free for use on the next connecting bus. Ask for a transfer upon boarding. Not valid on the same bus. Valid at transfer locations only. One time use.

**Children** age 5 and under ride free

**UND Students** ride free with student ID

**Northland College** students ride free with student ID and bus pass issued by Northland

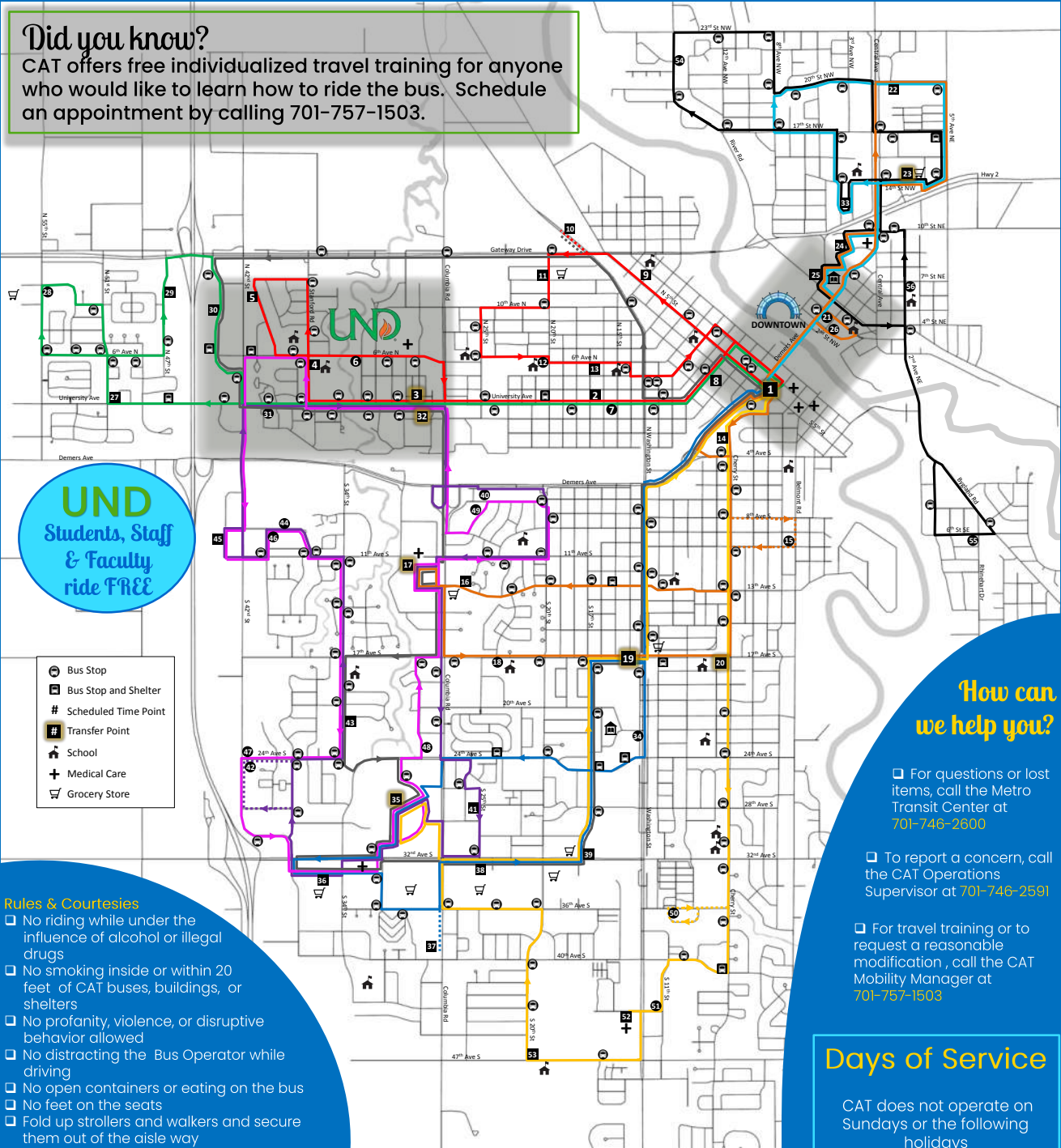
**NOTE:** Fare cards are non-refundable. Do not scratch or bend. Rechargeable fare media available for purchase at the Metro Transit Center.

**For Your Safety**

- Call 911 in case of emergency
- Be aware of your surroundings
- Remain seated while the bus is moving
- Do not walk in front of the bus
- Stay back from the painted yellow line
- Dress appropriately for adverse weather conditions
- If you see something suspicious, report it to the proper authority

**Did you know?**

CAT offers free individualized travel training for anyone who would like to learn how to ride the bus. Schedule an appointment by calling 701-757-1503.



**UND**  
Students, Staff  
& Faculty  
ride FREE

- Bus Stop
- Bus Stop and Shelter
- Scheduled Time Point
- Transfer Point
- School
- Medical Care
- Grocery Store

**Rules & Courtesies**

- No riding while under the influence of alcohol or illegal drugs
- No smoking inside or within 20 feet of CAT buses, buildings, or shelters
- No profanity, violence, or disruptive behavior allowed
- No distracting the Bus Operator while driving
- No open containers or eating on the bus
- No feet on the seats
- Fold up strollers and walkers and secure them out of the aisle way
- Shirt and shoes or other footwear required
- Passengers must maintain appropriate, reasonable personal hygiene
- Limit carry-on items to one armload or the equivalent of two grocery bags
- Have your bus fare ready before boarding
- Use earphones to listen to music
- Small animals may be transported in a carrier
- Service animals are welcome on board

**How can we help you?**

- For questions or lost items, call the Metro Transit Center at 701-746-2600
- To report a concern, call the CAT Operations Supervisor at 701-746-2591
- For travel training or to request a reasonable modification, call the CAT Mobility Manager at 701-757-1503

**Days of Service**

CAT does not operate on Sundays or the following holidays

- New Year's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Day

*We are committed to providing you with clean, safe, and reliable transportation.*

## 2045 Plan: Illustrative Projects

Project Number	Roadway	Location	Project Type	Project Description	Lead Agency	Prioritization Score	Current Cost
DIS-035	Columbia Rd	14th Ave S to 24th Ave S	Discretionary	Reconstruct to variable 5-lane to 6-lane roadway with 11 ft lanes, replacement of signing, signals, lights, construction of shared use path and replacement of sidewalks	City of Grand Forks	62.5	\$12,750,000
DIS-047	42nd Street	North of DeMers Avenue	Discretionary	Railroad Grade Separation	City of Grand Forks	50	\$40,000,000
REP-040	32nd Avenue South	South Washington Street to South 10th Street	State of Good Repair	Reconstruct	City of Grand Forks	47.5	\$989,880
DIS-011	42nd Street/32nd Avenue South	East of I - 29	Discretionary	Ramp Realignment	City of Grand Forks	47.5	\$16,000,000
DIS-031	South Columbia Road/South Washington Street	47th Avenue South to 62nd Avenue South/SED to 62nd Avenue South	Discretionary	Reconstruct	City of Grand Forks	47.5	\$12,000,000
DIS-032	32nd Ave	48th St to 52nd St	Discretionary	Urban to Rural transition improvement: Expand to 4 lanes	City of Grand Forks	47.5	\$1,391,851
REP-158	Minnesota Avenue	4th Avenue South to Bridge	State of Good Repair	Reconstruct	City of Grand Forks	45	\$1,079,869
REP-074	N 36th Street	18th Avenue North to RR Tracks	State of Good Repair	Reconstruct	City of Grand Forks	40	\$480,000
REP-075	N 36th Street	Gateway Drive (US 2) to RR Tracks	State of Good Repair	Reconstruct	City of Grand Forks	40	\$960,000
DIS-037	47th Avenue South & I - 29 Interchange	West of Columbia Road	Discretionary	New 2 Lane Road Extension and New Interchange with I - 29	City of Grand Forks	40	\$46,000,000
DIS-016	Mill Spur Railway	Gateway Dr to University Ave	Discretionary	Implement warning devices, gates and flashers, crossing Closures and median improvements and landscape and trail improvements	City of Grand Forks	35	\$3,229,000
REP-039	32nd Avenue South	South 48th Street to I-29	State of Good Repair	Concrete Pavement Rehabilitation (CPR) and Grind	City of Grand Forks	32.5	\$1,799,782

## Setup Scoring Categories & Factors

Score System State Highways



Max. Score 100

Max. Score 100

### Adjust Scoring Categories

Expected

Achieved

	Goals	Description	Weight	Points	Weight	Points
1	Economic vitality	Support the economic vitality through enhancing the economic competitiveness of the metropolitan area by giving people access to jobs, education services as well as giving business access to markets.	15 %	15 pts	13 %	13 pts
2	Security	Increase security of the transportation system for motorized and non-motorized uses.	5 %	5 pts	3 %	3 pts
3	Accessibility and Mobility	Increase the accessibility and mobility options for people and freight by providing more transportation choices.	10 %	10 pts	8 %	8 pts
4	Environmental/Energy/QOL	Protect and enhance the environment, promote energy conservation, and improve quality of life by valuing the unique qualities of all communities – whether urban, suburban, or rural.	10 %	10 pts	7 %	7 pts
5	Integration and Connectivity	Enhance the integration and connectivity of the transportation system, across and between modes for people and freight, and housing, particularly affordable housing located close to transit.	10 %	10 pts	2 %	2 pts
6	Efficient System Management	Promote efficient system management and operation by increasing collaboration among federal, state, local government to better target investments and improve accountability.	10 %	10 pts	6 %	6 pts
7	System Preservation	Emphasize the preservation of the existing transportation system by first targeting federal funds towards infrastructure to spur revitalization, promote urban landscapes and protect rural landscapes.	15 %	15 pts	3 %	3 pts
8	Safety	Increase safety of the transportation system for motorized and non-motorized uses.	10 %	10 pts	4 %	4 pts
9	Resiliency and Reliability	Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.	10 %	10 pts	6 %	6 pts
10	Tourism	Enhance travel and tourism.	5 %	5 pts	3 %	3 pts
<b>TOTAL</b>			<b>100 %</b>	<b>100 pts</b>	<b>54 %</b>	<b>54 pts</b>

TIP SCORING SHEETS



0= No  
1= Yes

State Highway

Project Number

Project Name

MPO SCORING SHEET FOR EACH PROJECT

Goal 1	Economic Vitality	Expected Weight (%)= 15	
Support the economic vitality through enhancing the economic competitiveness of the metropolitan area by giving people access to jobs, education services as well as giving business access to markets.		Assign score 0 or 1	Achieved Weight (%)
Objectives	1 <b>Coordinate land use and transportation planning, programming, and investments between agencies to advance smart growth objectives</b>		
	1.1 <b>Recognize and identify investments that support current &amp; future state highway network development plan</b>	1	2.50
	1.2 <b>Focus on highway network expansion and prime corridors in areas that are contiguous to current and future developed areas</b>	1	2.50
	2 <b>Enhance the state's economic competitiveness through the movement of goods and services</b>	1	2.50
	3 <b>Support efficient local and state highway, multimodal terminal connections for freight and rail movement</b>	1	2.50
	4 <b>Work located on identified truck route or identified in Freight Study</b>	1	2.50
5 <b>Consistent with regional or state economic development plans</b>	0	0.00	
		Total	12.50
Goal 2	Security	Expected Weight (%)= 5	
Increase the security of the transportation system for motorized and non-motorized users		Assign score 0 or 1	Achieved Weight (%)
Objectives	1 <b>Identify and maintain security of critical street and highway system assets.</b>		
	1.1 <b>Coordinate with regional emergency/security/hazardous materials movement</b>	1	0.71
	1.2 <b>Evaluate and manage the security of the transportation network, especially in critical areas</b>	1	0.71
	1.3 <b>Coordinate/improves Bridge Closure Management Plan</b>	0	0.00
	1.4 <b>Coordinate/improves Special Events Management Plan</b>	1	0.71
	2 <b>Support state and regional emergency, evacuation, and security plans.</b>		
	2.1 <b>Consistent with regional emergency and security planning system (ITS Regional Architecture)</b>	1	0.71
	2.2 <b>Provide necessary security training and equipment to monitor the security of the transportation infrastructure</b>	0	0.00
2.3 <b>Coordinate with safety/security agencies of the state to prevent harmful activities</b>	0	0.00	
		Total	2.86
Goal 3	Accessibility and Mobility	Expected Weight (%)= 10	
Increase the accessibility and mobility options to people and freight by providing more nonmotorized choices		Assign score 0 or 1	Achieved Weight (%)
Objectives	1 <b>Mitigate excessive travel delays by improving existing infrastructure to address traffic congestion delays</b>	1	1.67
	2 <b>Provides acceptable LOS for all state highways, intersection and facilities as recommended in LRTPs</b>	1	1.67
	3 <b>Consider advances in autonomous and connected vehicle technology in the transportation planning and programming processes</b>	0	0.00
	4 <b>consistent with state access control regulations</b>	1	1.67
	5 <b>Enhances the range of freight service options available to regional business</b>	1	1.67
	6 <b>Implements recommendations in ADA, railroad or any other ROW transition plans</b>	1	1.67
		Total	8.33



Goal 4	Environmental/Energy/QOL		Expected Weight (%)=	10
Protect and enhance the environment, promote energy conservation, and improve quality of life.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b><i>Avoid, minimize, and/or mitigate adverse social, environmental, and economic impacts resulting from existing or new transportation facilities.</i></b>		
	1.1	<b><i>Implements context sensitive solutions</i></b>	1	1.67
	1.2	<b><i>Address EJ analysis process</i></b>	1	1.67
	1.3	<b><i>Avoids or minimize impacts to wetlands or other natural habitats or cultural/historic resources</i></b>	1	1.67
	1.4	<b><i>Incorporates innovative stormwater management techniques</i></b>	0	0.00
	2	<b><i>Maintain and improve quality of life along streets and highways</i></b>	1	1.67
	3	<b><i>Maintain and improve regional air quality by promoting nonmotorized travel</i></b>	0	0.00
			Total	6.67

Goal 5	Integration and Connectivity		Expected Weight (%)=	10
Enhance the integration and connectivity of the transportation system across and between modes for people and freight.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b><i>Effectively coordinate transportation and land use by promoting the sustainability and livability principles, goals, and objectives from regional land use plans.</i></b>		
	1.1	<b><i>Increase the use of multi-modal transportation by providing additional transit service and reducing bicycle/pedestrian network gaps.</i></b>	0	0.00
	1.2	<b><i>Promote transportation improvements that support access to a mix of employment opportunities (e.g. jobs and income levels).</i></b>	1	1.67
	2	<b><i>Provide an advanced and balanced mix of local, collector, and arterial streets to help meet local and regional travel needs</i></b>		
	2.1	<b><i>Invest in signage techniques to reduce excessive travel delays and traffic congestion</i></b>	0	0.00
	2.2	<b><i>Maximize direct travel trips between states</i></b>	0	0.00
	2.3	<b><i>Maintain and update street and highway functional classification consistent with FHWA guidelines</i></b>	0	0.00
	2.4	<b><i>Address last segment/link of corridor</i></b>	0	0.00
			Total	1.67

Goal 6	Efficient System management		Expected Weight (%)=	10
Promote efficient system management and operation.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b><i>Implement best practice programming and innovative financing alternatives</i></b>		
	1.1	<b><i>Identify potential source of budget for year-round maintenance</i></b>	0	0.00
	1.2	<b><i>Provide an efficient and cost-effective motorized transport system</i></b>	1	1.25
	1.3	<b><i>Improving operations without adding through capacity</i></b>	0	0.00
	2	<b><i>Involve all local partners in the transportation planning process.</i></b>	1	1.25
	3	<b><i>Cooperate across jurisdictional boundaries to create an integrated transportation network.</i></b>	1	1.25
	4	<b><i>Maintain and update the regional ITS architecture</i></b>		
	4.1	<b><i>Enhances interoperability among modal equipment and technologies</i></b>	1	1.25
	5	<b><i>Demonstrates analysis of project risk in implementation</i></b>	1	1.25
6	<b><i>Includes specific evaluation method to provide a measurement of effectiveness by collecting real time traffic data</i></b>	0	0.00	
			Total	6.25

Goal 7	System Preservation		Expected Weight (%)=	15
Emphasize the preservation of the existing transportation system.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b>Cost effectively preserve, maintain and improve the existing transportation network systems and capacity</b>		
	1.1	<b>Utilize pavement management system results</b>	0	0.00
	1.2	<b>Emphasizes system rehabilitation rather than expansion</b>	0	0.00
	1.3	<b>Incorporate cost-effective maintenance and technologies new to the MPO area</b>	0	0.00
	1.4	<b>Preserve railroad ROW or other existing ROW</b>	1	2.50
	2	<b>Contributes to better system maintenance</b>	0	0.00
	3	<b>Identify sufficient funding for the program of projects included in GF/EGF MPO transportation plans.</b>	0	0.00
			Total	2.50

Goal 8	Safety		Expected Weight (%)=	10
Increase safety of the transportation system for motorized and nonmotorized uses.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b>Address locations identified as high crash locations in LRTP and review crash data to improve roadway design and traffic control elements</b>	1	1.11
	2	<b>Reduce frequency and severity of crash and intersection conflicts through traffic control and operational improvements in highways</b>	1	1.11
	3	<b>Consistent with Strategic local and regional Highway Safety Plan</b>		
	3.1	<b>Improve efficiency and effectiveness of aggressive driving/speed enforcement efforts</b>	0	0.00
	3.2	<b>Ensure that roadway design and traffic control elements support appropriate and safe speeds</b>	1	1.11
	3.3	<b>Improve sight distance at signalized and un-signalized intersections</b>	0	0.00
	3.4	<b>Improve the roadway and driving environment to better accommodate drivers' needs</b>	1	1.11
	3.5	<b>Improve Sight Distance and/or Visibility Between Motor Vehicles and Pedestrians/Bicyclists</b>	0	0.00
	4	<b>Enhances public safety of nonmotorized users</b>	0	0.00
	5	<b>Enhances safe and well-designed route to school zones and college campuses</b>	0	0.00
			Total	4.44

Goal 9	Resiliency and Reliability		Expected Weight (%)=	10
Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b>Reduce state highway system vulnerability to snow and storm water</b>		
	1.1	<b>Maintain passable highways under all reasonable weather conditions</b>	1	1.25
	1.2	<b>Strategically design and maintain state highway system to operate under all reasonable weather conditions</b>	0	0.00
	1.3	<b>Assess and mitigate any possible impacts new roadway construction may have on high water events, including proximity to waterways, construction</b>	1	1.25
	2	<b>Support the region's resilience and travel reliability through efficient detour and evacuation routes</b>		
	2.1	<b>During river flood events, reroute traffic consistent with the Bridge Closure Management Plan, or revised to respond to significant, observed delays or</b>	0	0.00
	2.2	<b>Be trained in and use established alternate routes and intelligent transportation systems (ITS) to maintain street and highway operations during incidents</b>	1	1.25
	2.3	<b>Provide auxiliary power sources to operate traffic signals when mainline power is interrupted</b>	1	1.25
	2.4	<b>Maintain on-time project performance and implementation</b>	1	1.25
	2.5	<b>Improve engagement of transportation system, across and between modes, partners and stakeholders</b>	0	0.00
			Total	6.25

Goal 10	<i>Travel &amp; Tourism</i>		Expected Weight (%)=	5
Enhance travel and tourism.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<i>Maintain convenient and intuitive state highway access to major activity centers and tourist spots</i>		
	1.1	<i>Develop and use event traffic management plans for major activity centers such as the Alerus Center, Ralph Engelstad Arena, and Greater Grand Forks</i>	1	1.00
	1.2	<i>Identify, coordinate, and communicate traffic plans for statewide simultaneous events</i>	1	1.00
	1.3	<i>Establish partnerships to foster tourism activities within state</i>	0	0.00
	2	<i>Enhance safety /easy access to tourist spots, major activity centers, Greenway Trail System and the Red River State Recreation Area</i>	1	1.00
	3	<i>Provides landscaping/streetscaping or similar amenities</i>	0	0.00
			Total	3.00

**URBAN REGIONAL & URBAN ROADS  
PROJECT SCOPING WORKSHEET**

DATE:2/28/2023

PRIORITY#1 -2027

Regional: (Y)/N      Urban Roads: Y/(N)

City: Grand Forks

Street: SH297/Demers Ave

County: Grand Forks

Length: ~0.4 miles

Proposed Improvement: Concrete Panel Repair, Grind, and Selective Dowel Bar Retrofitting of Demers Ave/SH 297 (Central Fire Station to N 6<sup>th</sup> St excluding the bridge)

Cost Estimates Breakdown (in \$1,000)							
PE	CE	R/W	Utility	Constr.	Bridges	Non-Participating	Total
85	57	19		566			727

Present Road: Surface Width? 4 lane divided

Surface Type? Concrete

On Street Parking Allowed? \_\_\_\_\_ Present: (No) One Side Both Sides Angle Parallel  
Proposed: (No) One Side Both Sides Angle Parallel

Proposed Improvements	
ADT Present: ~14,485-17,290 Yr: 2021	Travel Way Width : _____
ADT Design: ~22,774-33,642 Design year 2045	No. of Lanes: 5
Design Speed: 35 MPH	Roadway Width: 65'
Maximum Curve: _____	Min. R/W Width:90'
Maximum Grade: _____	

Right of Way
Will Additional ROW or easement be acquired? Unknown    ROW acquisition by: City (DOT)
Has any ROW easements been acquired since 7-1-72: UNK    ROW Condemnation by: City (DOT)
Est. No. of occupied family dwelling to be displaced? None Anticipated
Est. No. business to be displaced? None Anticipated



**Impacts**

Will there be any additional Impacts (Cultural and Environmental Resources): None Anticipated

Will there be any impacts to 4(f) or 6(f) properties: None Anticipated

Airports: None            Public Hearings: Maybe

Environmental Classification (Cat-Ex, EA, EIS): Cat-Ex

Transportation Enhancements: \_\_\_\_\_

Intermodal: \_\_\_\_\_

Pedestrian Needs: Nothing identified.

**Railroads Crossings**

RR Name	No. Xings	No. Tracks and Type of Crossing	Daily Train Movements	Train Speed	Present Protection	Proposed Protection
None						

**Purpose and Need Statement:**

This roadway has reached a point in which a rehabilitation project should be considered to extend the life of the pavement and maintain a state of good repair. The most recent rehabilitation project on this portion of SH297 was in 2010.

Existing Conditions:

1. When was the current street section built? Has there been any additional maintenance to the street section?

This roadway was originally constructed in 1971. A rehabilitation project including diamond grinding was completed in 2010. The 4<sup>th</sup> Ave S to westbound Demers Ave onramp was modified from a slip lane to a tee- intersection in 2013.

2. How many driving lanes and turning lanes does the street section currently have and what is the widths of the driving and turning lanes?

There are four through lanes approximately 12' wide with left turn lanes and right turn lanes at various intersections.

3. What is the condition of the pavement section?

- A. If the pavement section is asphalt, is there any alligator cracking, longitudinal cracking, transverse cracking, raveling, bituminous patching or rutting?

- B. If the pavement section is concrete, are there any broken slabs, faulting, bituminous patching, joint spalling, transverse cracking, or longitudinal cracking.

The pavement is showing signs of distress comparable with its age and a scheduled rehabilitation project will likely improve the pavement condition and extend the life of the pavement delaying the need for a reconstruction project. This project is proposed to primarily include concrete panel repair and grinding for the roadway. A pavement condition index and International Roughness Index analysis was completed in 2021. The weighted average PCI value was 84 and the weighted IRI value was 116 in/mi.

4. Any existing geometric concerns?

The existing geometrics appear to be satisfactory at this time.

5. Are there any access points to adjoining properties that present a special concern?

The access at 1<sup>st</sup> Ave N is unusually large, measuring approximately 175' at it's widest point. Three stop signs are installed on the southbound approach, two of which are located in roadway pavement. Consideration should be made at narrowing the throat of the north leg of the intersection.

6. Are there any existing sidewalks or shared use path in place?

On the portion of the project west of the overpass, there is a shared use path on the south side of Demers Ave and a sidewalk on the north side. On the eastern side of the project, there is sidewalk on the south side from approximately 1<sup>st</sup> Ave N to the eastern project limits, and on the north side there is sidewalk from N 8<sup>th</sup> St to the eastern project limits.

7. What is the condition of the existing storm sewer? Will any additional storm sewer work need to be done along with this project?

The original storm sewer varies significantly in materials, age, and size. Condition of the storm sewer is unknown.

8. What is the condition of the city's water and sewer line? Will any work have to be done to the city's water and sewer lines along with this project?

There are existing city water lines underneath the northern edge of the western segment of pavement. There is existing water and sanitary sewer under the northern edge of the eastern segment. Condition of sanitary sewer and sanitary sewer forcemain are unknown.

9. Describe the existing lighting system currently in place? What type of standards and luminaires are currently being used?

There are 250W HPS and 400W HPS fixtures on 40' tall poles offset on both sides of the road. Consideration should be made regarding replacing wiring and fixtures from HPS to LED fixtures.

10. What intersections currently have traffic signals? Are there any locations that have a high accident rate? Are additional turning lanes needed?

There is an existing set of emergency signals located near the Fire Station. There have been two fatal crashes which involved collision into the southern emergency traffic signal pole. One fatality was on August 22, 2018 and another on October 16, 2007. Consideration should be made to relocate the signal pole outside of the clear zone.

Remarks:

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City Engineer: Allen R A

Date: 2/28/23

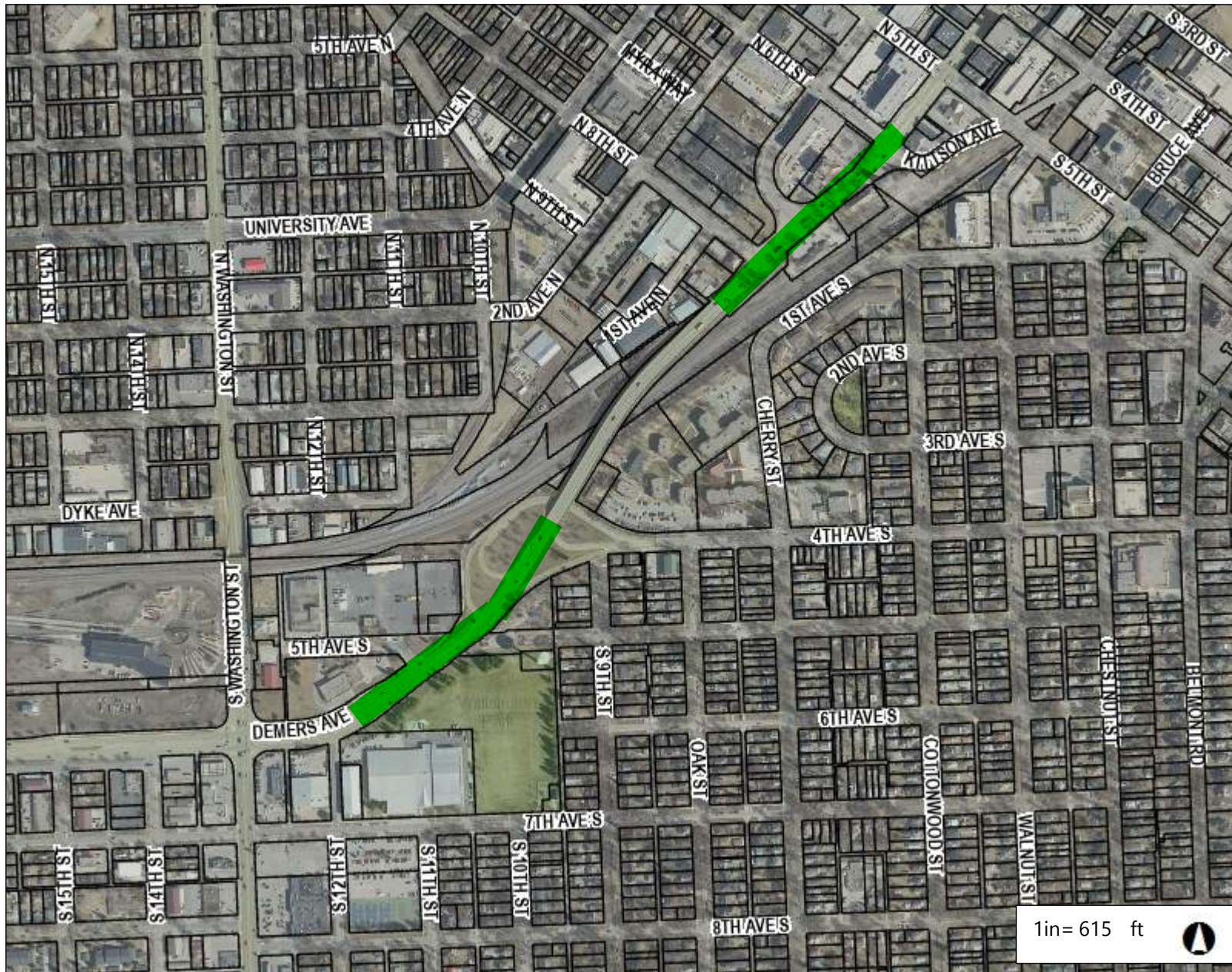
District Engineer: Edward Fatah

Date: 2/28/23












**Note:** *Please attach a map showing location and extent of the project, detailed cost estimate, and any additional supporting documents.*




# CPR & Grind Demers Ave (Central Fire Station to Skyway & Skyway to N 6th St) - 2027

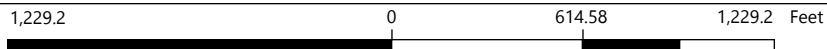


## Legend

-  Active Parcels
-  Boundary City Limit
-  Boundary Gray Area
- Address Labels
- Road Labels
- RoadCenterlines\_9K
  -  <all other values>
  -  I
  -  S
  -  U
-  Waterbodies
-  FacilitySites\_Parks\_9K
-  Railroad
-  MunicipalBoundaries

## Notes

1in= 615 ft 



NAD\_1983\_StatePlane\_North\_Dakota\_North\_FIPS\_3301\_Feet  
City of Grand Forks GIS

All dimensions, descriptions, measurements, boundaries and data contained in this nonstandard document are included for general information only. No warranties or covenants are made or given by the City of Grand Forks. Any user must confirm the accuracy of the same with official records, and/or by survey.

THIS MAP IS NOT TO BE USED FOR NAVIGATION



2024-2027 TIP

Cost Estimating Basis

7/22/2022

2021 Project Cost History

Urban Projects

Base Construction Costs

2021

Costs are per mile

Street Demers Ave/SH297

To/From Central Fire to N 6th St

Excluding bridge

Type CPR & Grind

	<u>Surfacing</u>
Construction & CE Only	\$1,200,000
Total Cost	\$1,400,000
Assumption	
CE is 10% of Construction	
Base Construction	\$1,090,909
Total Cost/Base Const	128.3%
Design Engineering	15%
Construction Engineering	10%
ROW/MISC	3.3%

Year of Expenditure	2027
Length (ft)	2,150
Length (mi)	0.41
Base Const Cost/mi	\$1,090,909
Inflated Const Cost/mi 4%	\$566,000
Const Cost	\$566,000
Design Eng	\$85,000
Const Eng	\$57,000
ROW/MISC	\$19,000
<b>Total Project Cost</b>	<b>\$727,000</b>

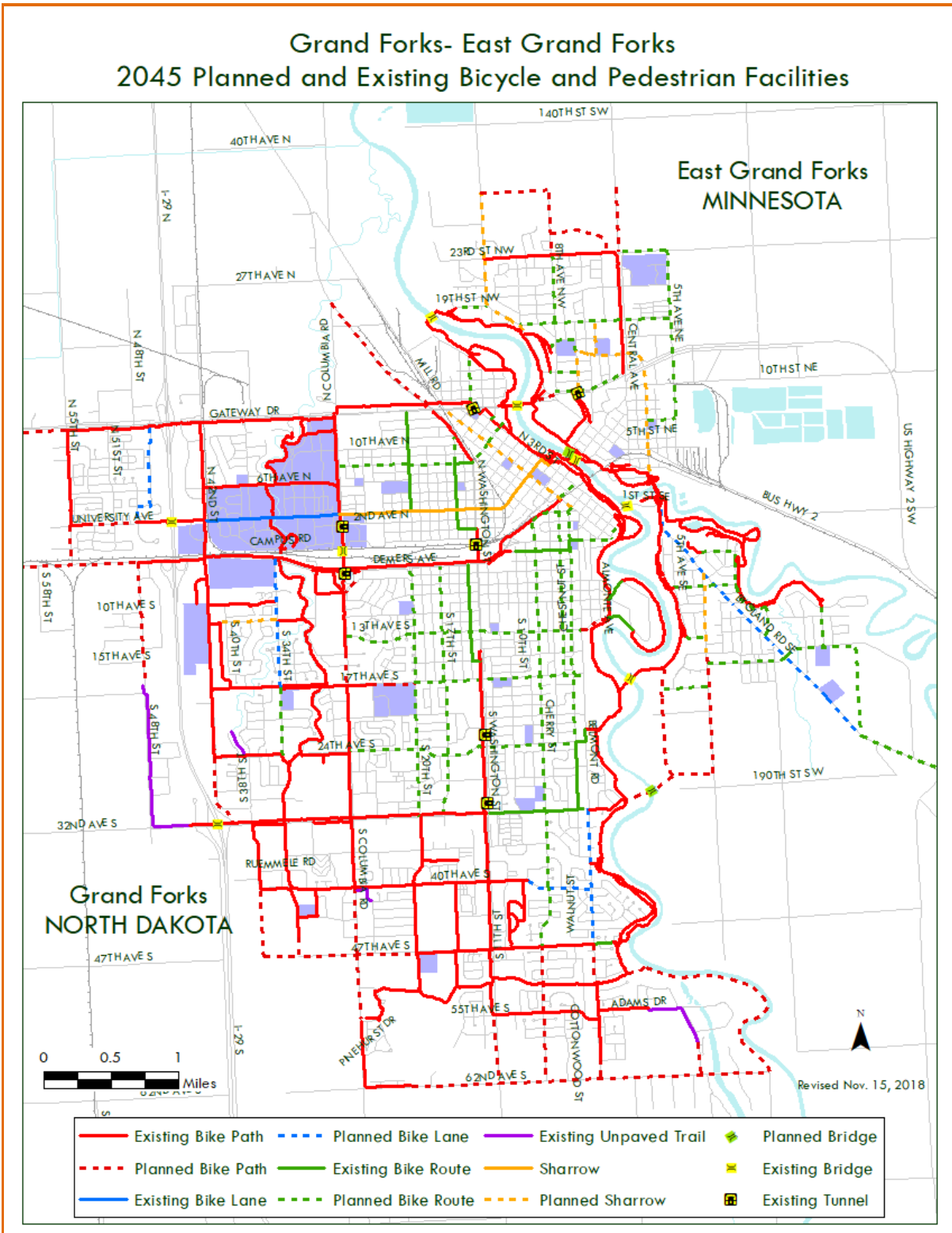
Construction Cost Breakdown

Contract Bond	1%
Mobilization	10%
Traffic Control	5%
Erosion Control	5%
Pavement	74%
Signing/Striping	5%
	100%

Base Const Cost Breakdown

Contract Bond	\$5,660
Mobilization	\$56,600
Traffic Control	\$28,300
Erosion Control	\$28,300
Pavement	\$418,840
Signing/Striping	\$28,300
<b>Const Total</b>	<b>\$566,000</b>

## 2. Existing Bicycle and Pedestrian Facilities Map



**One-Way Cash Fare\***

Adult	\$1.50
K-12 Student	\$0.75
Reduced Fare**	\$0.60

**10-Ride Cards**

Adult	\$13.00
K-12 Student	\$6.50
Reduced Fare**	\$5.25

\*Exact fare required

\*\*Seniors age 62+, Medicare card holders, and persons with disabilities

**Fixed Period Passes**

1-Day Pass	\$5.00
14-Day Pass	\$18.00
31-Day Pass	\$35.00

**Transfers** are free for use on the next connecting bus. Ask for a transfer upon boarding. Not valid on the same bus. Valid at transfer locations only. One time use.

**Children** age 5 and under ride free

**UND Students** ride free with student ID

**Northland College** students ride free with student ID and bus pass issued by Northland

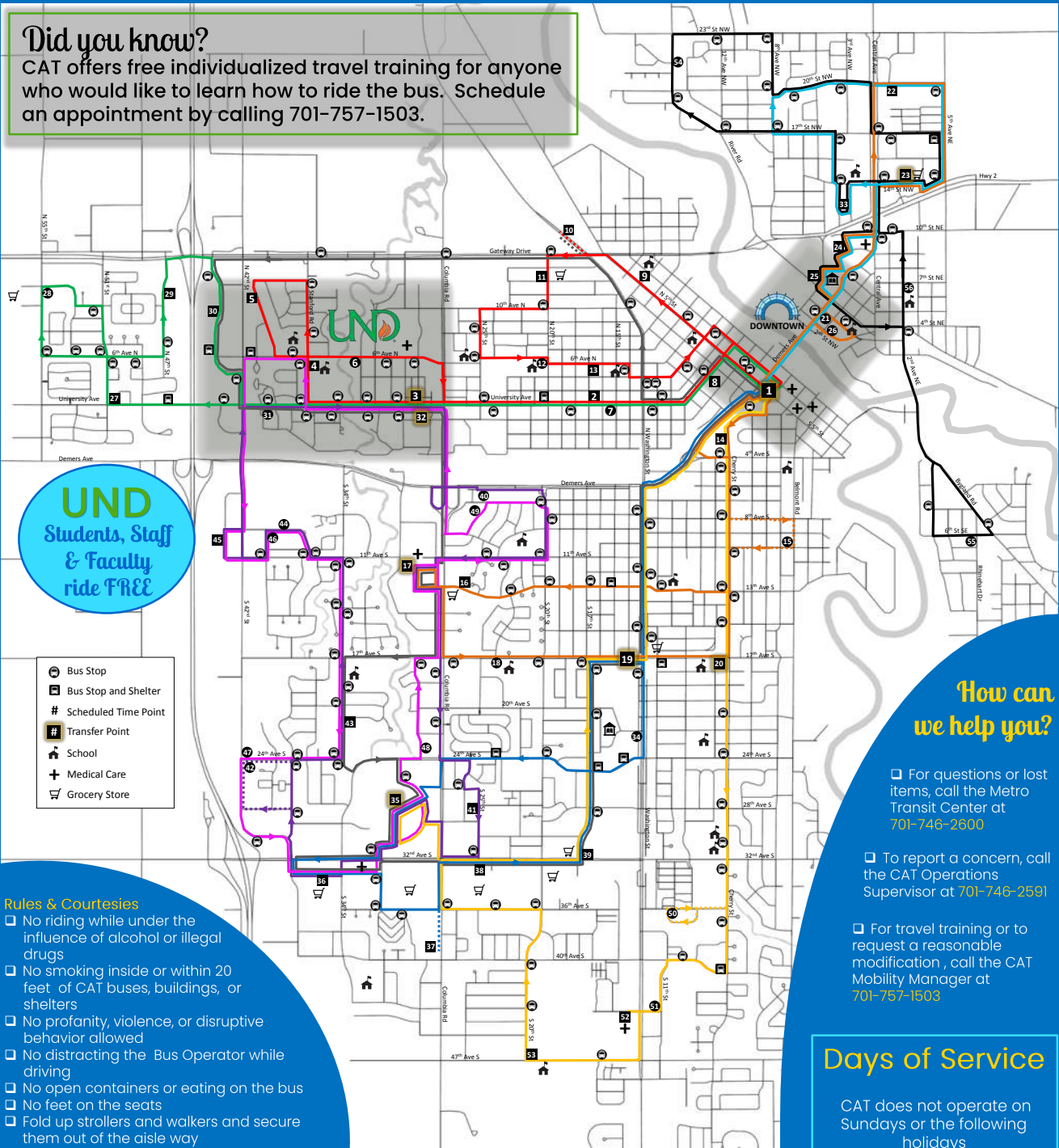
**NOTE:** Fare cards are non-refundable. Do not scratch or bend. Rechargeable fare media available for purchase at the Metro Transit Center.

**For Your Safety**

- Call 911 in case of emergency
- Be aware of your surroundings
- Remain seated while the bus is moving
- Do not walk in front of the bus
- Stay back from the painted yellow line
- Dress appropriately for adverse weather conditions
- If you see something suspicious, report it to the proper authority

**Did you know?**

CAT offers free individualized travel training for anyone who would like to learn how to ride the bus. Schedule an appointment by calling 701-757-1503.



**UND**  
Students, Staff  
& Faculty  
ride FREE

- Bus Stop
- Bus Stop and Shelter
- Scheduled Time Point
- Transfer Point
- School
- Medical Care
- Grocery Store

**Rules & Courtesies**

- No riding while under the influence of alcohol or illegal drugs
- No smoking inside or within 20 feet of CAT buses, buildings, or shelters
- No profanity, violence, or disruptive behavior allowed
- No distracting the Bus Operator while driving
- No open containers or eating on the bus
- No feet on the seats
- Fold up strollers and walkers and secure them out of the aisle way
- Shirt and shoes or other footwear required
- Passengers must maintain appropriate, reasonable personal hygiene
- Limit carry-on items to one armload or the equivalent of two grocery bags
- Have your bus fare ready before boarding
- Use earphones to listen to music
- Small animals may be transported in a carrier
- Service animals are welcome on board

*We are committed to providing you with clean, safe, and reliable transportation.*

**How can we help you?**

- For questions or lost items, call the Metro Transit Center at 701-746-2600
- To report a concern, call the CAT Operations Supervisor at 701-746-2591
- For travel training or to request a reasonable modification, call the CAT Mobility Manager at 701-757-1503

**Days of Service**

CAT does not operate on Sundays or the following holidays

- New Year's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Day



Track buses and plan trips with the CAT Prowler app

[www.rideCAT.org](http://www.rideCAT.org)



Metro Transit Center  
450 Kittson Ave  
Grand Forks, ND 58201  
701-746-2600

# NDDOT State of Good Repair Financially Constrained (2023 to 2045)

Table 3

Ref #	Roadway	Termini	Project Type	Agency	Time Frame	Federal/State Funds	City Match	YOE Total
REP-224	US 2 (Gateway Drive)	Grand Forks I-29 East to Columbia Road	CPR/DBR/Grind	NDDOT	Short-Range	\$753,000	\$0	\$753,000
REP-225	US 2 (Gateway Drive)	Gateway Drive-Columbia Road to Red River	CPR/DBR/Grind	NDDOT	Short-Range	\$811,000	\$0	\$811,000
REP-228A	US 2 Business	Grand Forks - Gateway Drive to DeMers	Chip Seal	NDDOT	Short-Range	\$45,900	\$5,100	\$51,000
REP-237	US 2 (Gateway Drive)	Grand Forks I-29 East to Columbia Road	CPR & Grind	NDDOT	Short-Range	\$753,000	\$0	\$753,000
REP-238	US 2 (Gateway Drive)	Gateway Drive - Columbia Road to Red River	CPR & Grind	NDDOT	Short-Range	\$811,000	\$0	\$811,000
REP-266A	US 81 Business	Grand Forks - South Washington Street (Hammerling to 8th Avenue South)	Reconstruct	NDDOT	Short-Range	\$5,329,800	\$592,200	\$5,922,000
REP-268A	US 81 Business	Grand Forks - South Washington Street (8th Avenue South to DeMers Avenue)	Reconstruct	NDDOT	Short-Range	\$1,065,600	\$118,400	\$1,184,000
REP-296	US 2 (Gateway Drive)	8 MI East of Grand Forks AFB to 2 MI West of Columbia Rd	Chip Seal	NDDOT	Short-Range	\$205,000	\$0	\$205,000
REP-305	Various	Various	Regional Traffic Signal Upgrade	NDDOT	Short-Range	\$6,514,200	\$723,800	\$7,238,000
REP-239A	I-29	N of ND 15 to Near 32nd Avenue Grand Forks (NB)	CPR & Grind	NDDOT	Short-Range	\$1,946,000	\$0	\$1,946,000
REP-239B	I-29	N of ND 15 to Near 32nd Avenue Grand Forks (SB)	CPR & Grind	NDDOT	Short-Range	\$1,946,000	\$0	\$1,946,000
REP-223	US 2 (Gateway Drive)	Grand Forks 55th Street East to I-29 East Bound	CPR/DBR/Grind	NDDOT	Mid-Range	\$570,600	\$63,400	\$634,000
REP-232	US 2 Business	DeMers to Red River (include 5th to 6th)	CPR/Grind	NDDOT	Mid-Range	\$158,000	\$0	\$158,000
REP-236	US 2 (Gateway Drive)	Grand Forks 55th Street East to I-29 West Bound	CPR & Grind	NDDOT	Mid-Range	\$634,000	\$0	\$634,000
REP-258A & REP-259A	US 81 Business	I-29 to South Washington Street	Reconstruct	NDDOT	Mid-Range	\$27,718,200	\$3,079,800	\$30,798,000
REP-262A	US 81 Business	Grand Forks South Washington Street (32nd Avenue South to 26th Avenue South)	CPR & Grind	NDDOT	Mid-Range	\$256,500	\$28,500	\$285,000
REP-263A	US 81 Business	Grand Forks - South Washington Street (26th Avenue to Hammerling)	CPR & Grind	NDDOT	Mid-Range	\$621,900	\$69,100	\$691,000
REP-277	US 81 Business	Grand Forks North Washington Street (.05 MI S 8th to 8th Avenue)	CPR & Grind	NDDOT	Mid-Range	\$9,000	\$1,000	\$10,000
REP-278	US 81 Business	Grand Forks North Washington Street (8th Avenue to 9th Avenue)	CPR & Grind	NDDOT	Mid-Range	\$29,700	\$3,300	\$33,000
REP-279	US 81 Business	Grand Forks North Washington Street (9th Avenue NE to 13th Avenue)	CPR & Grind	NDDOT	Mid-Range	\$262,800	\$29,200	\$292,000
REP-280	US 81 Business	Grand Forks North Washington Street (13th Avenue NE to US 2)	CPR & Grind	NDDOT	Mid-Range	\$36,000	\$4,000	\$40,000
REP-281	US 81 Business	Grand Forks North Washington Street (JCT US 2 to STA 105)	CPR & Grind	NDDOT	Mid-Range	\$285,300	\$31,700	\$317,000
REP-284	Hwy 297 (Demers Avenue)	Grand Forks DeMers Avenue (I-29 to Near 34th Street)	CPR & Grind	NDDOT	Mid-Range	\$540,900	\$60,100	\$601,000
REP-285	Hwy 297 (Demers Avenue)	Grand Forks DeMers Avenue (34th Street to US 2)	CPR & Grind	NDDOT	Mid-Range	\$1,641,600	\$182,400	\$1,824,000
REP-286	Hwy 297 (Demers Avenue)	Grand Forks DeMers Avenue (I-29 to US 2)	CPR & Grind	NDDOT	Mid-Range	\$2,046,600	\$227,400	\$2,274,000
REP-292	US 81 Business	DeMers Avenue to Dyke Avenue	CPR/Grind	NDDOT	Mid-Range	\$66,600	\$7,400	\$74,000
REP-294	US 81 Business	Dyke Avenue to .05 MI South of 8th Avenue	Reconstruction	NDDOT	Mid-Range	\$8,505,000	\$945,000	\$9,450,000
REP-297	US 2 (Gateway Drive)	8 MI East of Grand Forks AFB to 2 MI West of Columbia Rd	Mill & HBP 2"	NDDOT	Mid-Range	\$1,365,000	\$0	\$1,365,000
REP-240A	I-29	Near 32nd Avenue South N of HWY 2 Interchange	CPR & Grind	NDDOT	Mid-Range	\$1,635,000	\$0	\$1,635,000
REP-242A	I-29	N of ND 15 N to Near 32nd Avenue Grand Forks	CPR & Grind	NDDOT	Mid-Range	\$504,000	\$0	\$504,000
REP-246A	I-29	US 2 North	CPR & Grind	NDDOT	Mid-Range	\$1,134,000	\$0	\$1,134,000
REP-248A	I-29	South of North Grand Forks Interchange to North of North Grand Forks Interchange South Bound	CPR & Grind	NDDOT	Mid-Range	\$86,000	\$0	\$86,000
REP-243B	I-29	Near 32nd Avenue North to 32nd Avenue	CPR & Grind	NDDOT	Mid-Range	\$32,000	\$0	\$32,000
REP-245B	I-29	South US 2 to North US 2	CPR & Grind	NDDOT	Mid-Range	\$1,044,000	\$0	\$1,044,000
REP-254	I-29	N of US 2 North to South of N Grand Forks Interchange	CPR & Grind	NDDOT	Mid-Range	\$1,302,000	\$0	\$1,302,000
REP-228B	US 2 Business	Grand Forks - Gateway Drive to DeMers	Mill & HBP 3"	NDDOT	Long-Range	\$2,537,100	\$281,900	\$2,819,000
REP-228C	US 2 Business	Grand Forks - Gateway Drive to DeMers	Chip Seal	NDDOT	Long-Range	\$99,000	\$11,000	\$110,000
REP-258B	US 81 Business	32nd Avenue South Grand Forks (STA 14 to 95) 4 LN	CPR & Grind	NDDOT	Long-Range	\$0	\$0	\$0
REP-259B	US 81 Business	32nd Avenue South Grand Forks (STA 95 to S. Washington) 5 LN	CPR & Grind	NDDOT	Long-Range	\$0	\$0	\$0
REP-262B	US 81 Business	Grand Forks South Washington Street (32nd Avenue South to 26th Avenue South)	CPR & Grind	NDDOT	Long-Range	\$365,400	\$40,600	\$406,000
REP-263B	US 81 Business	Grand Forks - South Washington Street (26th Avenue to Hammerling)	CPR & Grind	NDDOT	Long-Range	\$885,600	\$98,400	\$984,000
REP-266B	US 81 Business	Grand Forks - South Washington Street (Hammerling to 8th Avenue South)	CPR & Grind	NDDOT	Long-Range	\$502,200	\$55,800	\$558,000
REP-268B	US 81 Business	Grand Forks - South Washington Street (8th Avenue South to DeMers Avenue)	CPR & Grind	NDDOT	Long-Range	\$144,900	\$16,100	\$161,000
REP-289	US 2 (Gateway Drive)	US 2 over the Red River, Bridge 9090 (Kennedy)	Repaint Bridge	NDDOT	Long-Range	\$2,750,000	\$0	\$2,750,000
REP-291	US 2 Business	US 2B over the Red River, Bridge 4700 (Sorlie)	Repaint Bridge	NDDOT	Long-Range	\$2,475,000	\$275,000	\$2,750,000
REP-293	US 81 Business	DeMers Avenue to Dyke Avenue	CPR/Grind	NDDOT	Long-Range	\$94,500	\$10,500	\$105,000
REP-295	US 81 Business	Dyke Avenue to .05 MI South of 8th Avenue	CPR/Grind	NDDOT	Long-Range	\$296,100	\$32,900	\$329,000
REP-298	US 2 (Gateway Drive)	8 MI East of Grand Forks AFB to 2 MI West of Columbia Rd	Chip Seal	NDDOT	Long-Range	\$399,000	\$0	\$399,000
REP-306	Various	Various	Regional Traffic Signal Upgrade	NDDOT	Long-Range	\$14,301,900	\$1,589,100	\$15,891,000
REP-299	I-29	HWY 2 Interchange to North of Grand Forks (NB)	CPR & Grind	NDDOT	Long-Range	\$3,511,000	\$0	\$3,511,000
REP-240B	I-29	Near 32nd Avenue South N of HWY 2 Interchange	CPR & Grind	NDDOT	Long-Range	\$2,326,000	\$0	\$2,326,000
REP-243A	I-29	Near 32nd Avenue North to 32nd Avenue	CPR & Grind	NDDOT	Long-Range	\$717,000	\$0	\$717,000
REP-244A	I-29	32nd Avenue North to South US 2	CPR & Grind	NDDOT	Long-Range	\$3,790,000	\$0	\$3,790,000
REP-245A	I-29	South US 2 to North US 2	CPR & Grind	NDDOT	Long-Range	\$3,790,000	\$0	\$3,790,000
REP-247	I-29	North of US 2 North to South of North Grand Forks Interchange	CPR & Grind	NDDOT	Long-Range	\$0	\$0	\$0
REP-242B	I-29	N of ND 15 N to Near 32nd Avenue Grand Forks	CPR & Grind	NDDOT	Long-Range	\$122,000	\$0	\$122,000
REP-244B	I-29	32nd Avenue North to South US 2	CPR & Grind	NDDOT	Long-Range	\$46,000	\$0	\$46,000
REP-246B	I-29	US 2 North	CPR & Grind	NDDOT	Long-Range	\$1,486,000	\$0	\$1,486,000
REP-248B	I-29	South of North Grand Forks Interchange to North of North Grand Forks Interchange South Bound	CPR & Grind	NDDOT	Long-Range	\$0	\$0	\$0
REP-300	I-29	HWY 2 Interchange to North of Grand Forks (NB)	CPR & Grind	NDDOT	Long-Range	\$3,511,000	\$0	\$3,511,000
<b>Totals</b>						<b>\$114,814,900</b>	<b>\$8,583,100</b>	<b>\$123,398,000</b>



## Setup Scoring Categories & Factors

Score System State Highways



Max. Score 100

Max. Score 100

### Adjust Scoring Categories

Expected

Achieved

	Goals	Description	Weight	Points	Weight	Points
1	Economic vitality	Support the economic vitality through enhancing the economic competitiveness of the metropolitan area by giving people access to jobs, education services as well as giving business access to markets.	15 %	15 pts	13 %	13 pts
2	Security	Increase security of the transportation system for motorized and non-motorized uses.	5 %	5 pts	4 %	4 pts
3	Accessibility and Mobility	Increase the accessibility and mobility options for people and freight by providing more transportation choices.	10 %	10 pts	3 %	3 pts
4	Environmental/Energy/QOL	Protect and enhance the environment, promote energy conservation, and improve quality of life by valuing the unique qualities of all communities – whether urban, suburban, or rural.	10 %	10 pts	7 %	7 pts
5	Integration and Connectivity	Enhance the integration and connectivity of the transportation system, across and between modes for people and freight, and housing, particularly affordable housing located close to transit.	10 %	10 pts	2 %	2 pts
6	Efficient System Management	Promote efficient system management and operation by increasing collaboration among federal, state, local government to better target investments and improve accountability.	10 %	10 pts	6 %	6 pts
7	System Preservation	Emphasize the preservation of the existing transportation system by first targeting federal funds towards infrastructure to spur revitalization, promote urban landscapes and protect rural landscapes.	15 %	15 pts	15 %	15 pts
8	Safety	Increase safety of the transportation system for motorized and non-motorized uses.	10 %	10 pts	1 %	1 pts
9	Resiliency and Reliability	Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.	10 %	10 pts	6 %	6 pts
10	Tourism	Enhance travel and tourism.	5 %	5 pts	3 %	3 pts
<b>TOTAL</b>			<b>100 %</b>	<b>100 pts</b>	<b>59 %</b>	<b>59 pts</b>

TIP SCORING SHEETS



0= No  
1= Yes

State Highway

Project Number

Project Name

MPO SCORING SHEET FOR EACH PROJECT

Goal 1	Economic Vitality	Expected Weight (%)= 15	
Support the economic vitality through enhancing the economic competitiveness of the metropolitan area by giving people access to jobs, education services as well as giving business access to markets.		Assign score 0 or 1	Achieved Weight (%)
Objectives	1 <b>Coordinate land use and transportation planning, programming, and investments between agencies to advance smart growth objectives</b>		
	1.1 <b>Recognize and identify investments that support current &amp; future state highway network development plan</b>	1	2.50
	1.2 <b>Focus on highway network expansion and prime corridors in areas that are contiguous to current and future developed areas</b>	1	2.50
	2 <b>Enhance the state's economic competitiveness through the movement of goods and services</b>	1	2.50
	3 <b>Support efficient local and state highway, multimodal terminal connections for freight and rail movement</b>	1	2.50
	4 <b>Work located on identified truck route or identified in Freight Study</b>	1	2.50
	5 <b>Consistent with regional or state economic development plans</b>	0	0.00
		Total	12.50
Goal 2	Security	Expected Weight (%)= 5	
Increase the security of the transportation system for motorized and non-motorized users		Assign score 0 or 1	Achieved Weight (%)
Objectives	1 <b>Identify and maintain security of critical street and highway system assets.</b>		
	1.1 <b>Coordinate with regional emergency/security/hazardous materials movement</b>	1	0.71
	1.2 <b>Evaluate and manage the security of the transportation network, especially in critical areas</b>	1	0.71
	1.3 <b>Coordinate/improves Bridge Closure Management Plan</b>	1	0.71
	1.4 <b>Coordinate/improves Special Events Management Plan</b>	1	0.71
	2 <b>Support state and regional emergency, evacuation, and security plans.</b>		
	2.1 <b>Consistent with regional emergency and security planning system (ITS Regional Architecture)</b>	1	0.71
	2.2 <b>Provide necessary security training and equipment to monitor the security of the transportation infrastructure</b>	0	0.00
2.3 <b>Coordinate with safety/security agencies of the state to prevent harmful activities</b>	0	0.00	
		Total	3.57
Goal 3	Accessibility and Mobility	Expected Weight (%)= 10	
Increase the accessibility and mobility options to people and freight by providing more nonmotorized choices		Assign score 0 or 1	Achieved Weight (%)
Objectives	1 <b>Mitigate excessive travel delays by improving existing infrastructure to address traffic congestion delays</b>	1	1.67
	2 <b>Provides acceptable LOS for all state highways, intersection and facilities as recommended in LRTPs</b>	0	0.00
	3 <b>Consider advances in autonomous and connected vehicle technology in the transportation planning and programming processes</b>	0	0.00
	4 <b>consistent with state access control regulations</b>	1	1.67
	5 <b>Enhances the range of freight service options available to regional business</b>	0	0.00
	6 <b>Implements recommendations in ADA, railroad or any other ROW transition plans</b>	0	0.00
		Total	3.33

Goal 4	Environmental/Energy/QOL		Expected Weight (%)=	10
Protect and enhance the environment, promote energy conservation, and improve quality of life.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b><i>Avoid, minimize, and/or mitigate adverse social, environmental, and economic impacts resulting from existing or new transportation facilities.</i></b>		
	1.1	<b><i>Implements context sensitive solutions</i></b>	1	1.67
	1.2	<b><i>Address EJ analysis process</i></b>	1	1.67
	1.3	<b><i>Avoids or minimize impacts to wetlands or other natural habitats or cultural/historic resources</i></b>	1	1.67
	1.4	<b><i>Incorporates innovative stormwater management techniques</i></b>	0	0.00
	2	<b><i>Maintain and improve quality of life along streets and highways</i></b>	1	1.67
	3	<b><i>Maintain and improve regional air quality by promoting nonmotorized travel</i></b>	0	0.00
			Total	6.67

Goal 5	Integration and Connectivity		Expected Weight (%)=	10
Enhance the integration and connectivity of the transportation system across and between modes for people and freight.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b><i>Effectively coordinate transportation and land use by promoting the sustainability and livability principles, goals, and objectives from regional land use plans.</i></b>		
	1.1	<b><i>Increase the use of multi-modal transportation by providing additional transit service and reducing bicycle/pedestrian network gaps.</i></b>	0	0.00
	1.2	<b><i>Promote transportation improvements that support access to a mix of employment opportunities (e.g. jobs and income levels).</i></b>	1	1.67
	2	<b><i>Provide an advanced and balanced mix of local, collector, and arterial streets to help meet local and regional travel needs</i></b>		
	2.1	<b><i>Invest in signage techniques to reduce excessive travel delays and traffic congestion</i></b>	0	0.00
	2.2	<b><i>Maximize direct travel trips between states</i></b>	0	0.00
	2.3	<b><i>Maintain and update street and highway functional classification consistent with FHWA guidelines</i></b>	0	0.00
	2.4	<b><i>Address last segment/link of corridor</i></b>	0	0.00
			Total	1.67

Goal 6	Efficient System management		Expected Weight (%)=	10
Promote efficient system management and operation.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b><i>Implement best practice programming and innovative financing alternatives</i></b>		
	1.1	<b><i>Identify potential source of budget for year-round maintenance</i></b>	0	0.00
	1.2	<b><i>Provide an efficient and cost-effective motorized transport system</i></b>	1	1.25
	1.3	<b><i>Improving operations without adding through capacity</i></b>	1	1.25
	2	<b><i>Involve all local partners in the transportation planning process.</i></b>	1	1.25
	3	<b><i>Cooperate across jurisdictional boundaries to create an integrated transportation network.</i></b>	1	1.25
	4	<b><i>Maintain and update the regional ITS architecture</i></b>		
	4.1	<b><i>Enhances interoperability among modal equipment and technologies</i></b>	0	0.00
	5	<b><i>Demonstrates analysis of project risk in implementation</i></b>	1	1.25
6	<b><i>Includes specific evaluation method to provide a measurement of effectiveness by collecting real time traffic data</i></b>	0	0.00	
			Total	6.25

Goal 7	System Preservation		Expected Weight (%)=	15
Emphasize the preservation of the existing transportation system.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b>Cost effectively preserve, maintain and improve the existing transportation network systems and capacity</b>		
	1.1	<b>Utilize pavement management system results</b>	1	2.50
	1.2	<b>Emphasizes system rehabilitation rather than expansion</b>	1	2.50
	1.3	<b>Incorporate cost-effective maintenance and technologies new to the MPO area</b>	1	2.50
	1.4	<b>Preserve railroad ROW or other existing ROW</b>	1	2.50
	2	<b>Contributes to better system maintenance</b>	1	2.50
	3	<b>Identify sufficient funding for the program of projects included in GF/EGF MPO transportation plans.</b>	1	2.50
			Total	15.00

Goal 8	Safety		Expected Weight (%)=	10
Increase safety of the transportation system for motorized and nonmotorized uses.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b>Address locations identified as high crash locations in LRTP and review crash data to improve roadway design and traffic control elements</b>	0	0.00
	2	<b>Reduce frequency and severity of crash and intersection conflicts through traffic control and operational improvements in highways</b>	0	0.00
	3	<b>Consistent with Strategic local and regional Highway Safety Plan</b>		
	3.1	<b>Improve efficiency and effectiveness of aggressive driving/speed enforcement efforts</b>	0	0.00
	3.2	<b>Ensure that roadway design and traffic control elements support appropriate and safe speeds</b>	0	0.00
	3.3	<b>Improve sight distance at signalized and un-signalized intersections</b>	0	0.00
	3.4	<b>Improve the roadway and driving environment to better accommodate drivers' needs</b>	1	1.11
	3.5	<b>Improve Sight Distance and/or Visibility Between Motor Vehicles and Pedestrians/Bicyclists</b>	0	0.00
	4	<b>Enhances public safety of nonmotorized users</b>	0	0.00
	5	<b>Enhances safe and well-designed route to school zones and college campuses</b>	0	0.00
			Total	1.11

Goal 9	Resiliency and Reliability		Expected Weight (%)=	10
Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b>Reduce state highway system vulnerability to snow and storm water</b>		
	1.1	<b>Maintain passable highways under all reasonable weather conditions</b>	1	1.25
	1.2	<b>Strategically design and maintain state highway system to operate under all reasonable weather conditions</b>	0	0.00
	1.3	<b>Assess and mitigate any possible impacts new roadway construction may have on high water events, including proximity to waterways, construction</b>	0	0.00
	2	<b>Support the region's resilience and travel reliability through efficient detour and evacuation routes</b>		
	2.1	<b>During river flood events, reroute traffic consistent with the Bridge Closure Management Plan, or revised to respond to significant, observed delays or</b>	1	1.25
	2.2	<b>Be trained in and use established alternate routes and intelligent transportation systems (ITS) to maintain street and highway operations during incidents</b>	1	1.25
	2.3	<b>Provide auxiliary power sources to operate traffic signals when mainline power is interrupted</b>	1	1.25
	2.4	<b>Maintain on-time project performance and implementation</b>	1	1.25
	2.5	<b>Improve engagement of transportation system, across and between modes, partners and stakeholders</b>	0	0.00
			Total	6.25



Goal 10	<i>Travel &amp; Tourism</i>		Expected Weight (%)=	5
Enhance travel and tourism.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<i>Maintain convenient and intuitive state highway access to major activity centers and tourist spots</i>		
	1.1	<i>Develop and use event traffic management plans for major activity centers such as the Alerus Center, Ralph Engelstad Arena, and Greater Grand Forks</i>	1	1.00
	1.2	<i>Identify, coordinate, and communicate traffic plans for statewide simultaneous events</i>	1	1.00
	1.3	<i>Establish partnerships to foster tourism activities within state</i>	0	0.00
	2	<i>Enhance safety /easy access to tourist spots, major activity centers, Greenway Trail System and the Red River State Recreation Area</i>	1	1.00
	3	<i>Provides landscaping/streetscaping or similar amenities</i>	0	0.00
			Total	3.00

**URBAN REGIONAL & URBAN ROADS  
PROJECT SCOPING WORKSHEET**

DATE: 2/28/2023

PRIORITY# 2 – 2027

Regional: (Y)/N      Urban Roads: Y/(N)

City: Grand Forks

Street: US Highway 2/Gateway Dr

County: Grand Forks

Length: ~0.7 miles

Proposed Improvement: Concrete Panel Repair, Grind, and Selective Dowel Bar Retrofitting of US Highway 2/Gateway Dr (I-29 to N 55<sup>th</sup> St)

Cost Estimates Breakdown (in \$1,000)							
PE	CE	R/W	Utility	Constr.	Bridges	Non-Participating	Total
137	92	31		912			1,172

Present Road: Surface Width? 4 lane divided

Surface Type? concrete

On Street Parking Allowed? \_\_\_\_\_ Present: (No) One Side Both Sides Angle Parallel  
 Proposed: (No) One Side Both Sides Angle Parallel

Proposed Improvements	
ADT Present: ~14,245-18,260 Yr: 2021	Travel Way Width : _____
ADT Design: ~26,100 Design year 2045	No. of Lanes: 5
Design Speed: 40 MPH	Roadway Width: 65'
Maximum Curve: _____	Min. R/W Width: 320'
Maximum Grade: _____	

Right of Way
Will Additional ROW or easement be acquired? Unknown ROW acquisition by: City (DOT)
Has any ROW easements been acquired since 7-1-72: UNK ROW Condemnation by: City (DOT)
Est. No. of occupied family dwelling to be displaced? None Anticipated
Est. No. business to be displaced? None Anticipated

**Impacts**

Will there be any additional Impacts (Cultural and Environmental Resources) None anticipated  
 Will there be any impacts to 4(f) or 6(f) properties: None anticipated  
 Airports: None                  Public Hearings: None anticipated  
 Environmental Classification (Cat-Ex, EA, EIS): Cat-Ex  
 Transportation Enhancements: \_\_\_\_\_  
 Intermodal: \_\_\_\_\_  
 Pedestrian Needs: Pedestrian access and crossing is limited near US 2 /Gateway Dr and N 47<sup>th</sup> St

**Railroads Crossings**

RR Name	No. Xings	No. Tracks and Type of Crossing	Daily Train Movements	Train Speed	Present Protection	Proposed Protection
None						

**Purpose and Need Statement:**

This roadway has reached a point in which a rehabilitation project should be considered to extend the life of the pavement and maintain a state of good repair.

Existing Conditions:

1. When was the current street section built? Has there been any additional maintenance to the street section?

This roadway was originally constructed in 1994. Left turn lanes were modified and a signal was installed at N 55<sup>th</sup> St in 2019

2. How many driving lanes and turning lanes does the street section currently have and what is the widths of the driving and turning lanes?

There are four through lanes approximately 12' wide with left turn lanes and right turn lanes at various intersections.

3. What is the condition of the pavement section?

A. If the pavement section is asphalt, is there any alligator cracking, longitudinal cracking, transverse cracking, raveling, bituminous patching or rutting?

B. If the pavement section is concrete, are there any broken slabs, faulting, bituminous patching, joint spalling, transverse cracking, or longitudinal cracking.

The pavement is showing signs of distress comparable with its age and a scheduled rehabilitation project will likely improve the pavement condition and

extend the life of the pavement delaying the need for a reconstruction project. This project is proposed to primarily include concrete panel repair and grinding for the roadway.

Pavement Condition Index and International Roughness Index data was obtained in 2021 from GoodPointe Technology.

Minimum PCI value 94      Minimum IRI value of 63

Median PCI value of 96.5      Median IRI value of 79

Maximum PCI value of 98      Maximum IRI Value of 101

4. Any existing geometric concerns?

None at this time.

5. Are there any access points to adjoining properties that present a special concern?

The US 2 Corridor Study did not identify any access point of concern.

6. Are there any existing sidewalks or shared use path in place?

There is a shared use path on the south side. There is no sidewalk or shared use path on the north side of US 2/Gateway Dr. The condition of these facilities is unknown and will need to be determined during the project development phase.

7. What is the condition of the existing storm sewer? Will any additional storm sewer work need to be done along with this project?

The original storm sewer was constructed in 1994 and the condition is unknown.

8. What is the condition of the city's water and sewer line? Will any work have to be done to the city's water and sewer lines along with this project?

The city water line along US 2/Gateway Dr are in unknown condition and are primarily located in utility easements or located underneath the frontage road. The watermain crosses US 2/Gateway Dr west of N 55<sup>th</sup> St and west of N 47<sup>th</sup> St.

There is no sanitary sewer parallel to US 2/Gateway Dr. There is a sanitary sewer crossing US 2/Gateway Dr between the I-29 ramps and N 47<sup>th</sup> St. There is a sanitary sewer forcemain located on the eastern side of N 48<sup>th</sup> St. Condition of sanitary sewer and sanitary sewer forcemain are unknown.

9. Describe the existing lighting system currently in place? What type of standards and luminaires are currently being used?

There are 310W HPS fixtures on 40' tall poles offset on both sides of the road.



10. What intersections currently have traffic signals? Are there any locations that have a high accident rate? Are additional turning lanes needed?

The following intersections along US 2/Gateway Dr have traffic signals: N 47<sup>th</sup> St and N 55<sup>th</sup> St. Neither of these intersections were located on the 2021 Urban High Crash Intersection List. Turn lanes should be evaluated at N 51<sup>st</sup> St per the US 2 Access Study recommendations.

Remarks:

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City Engineer: Allen R. K.

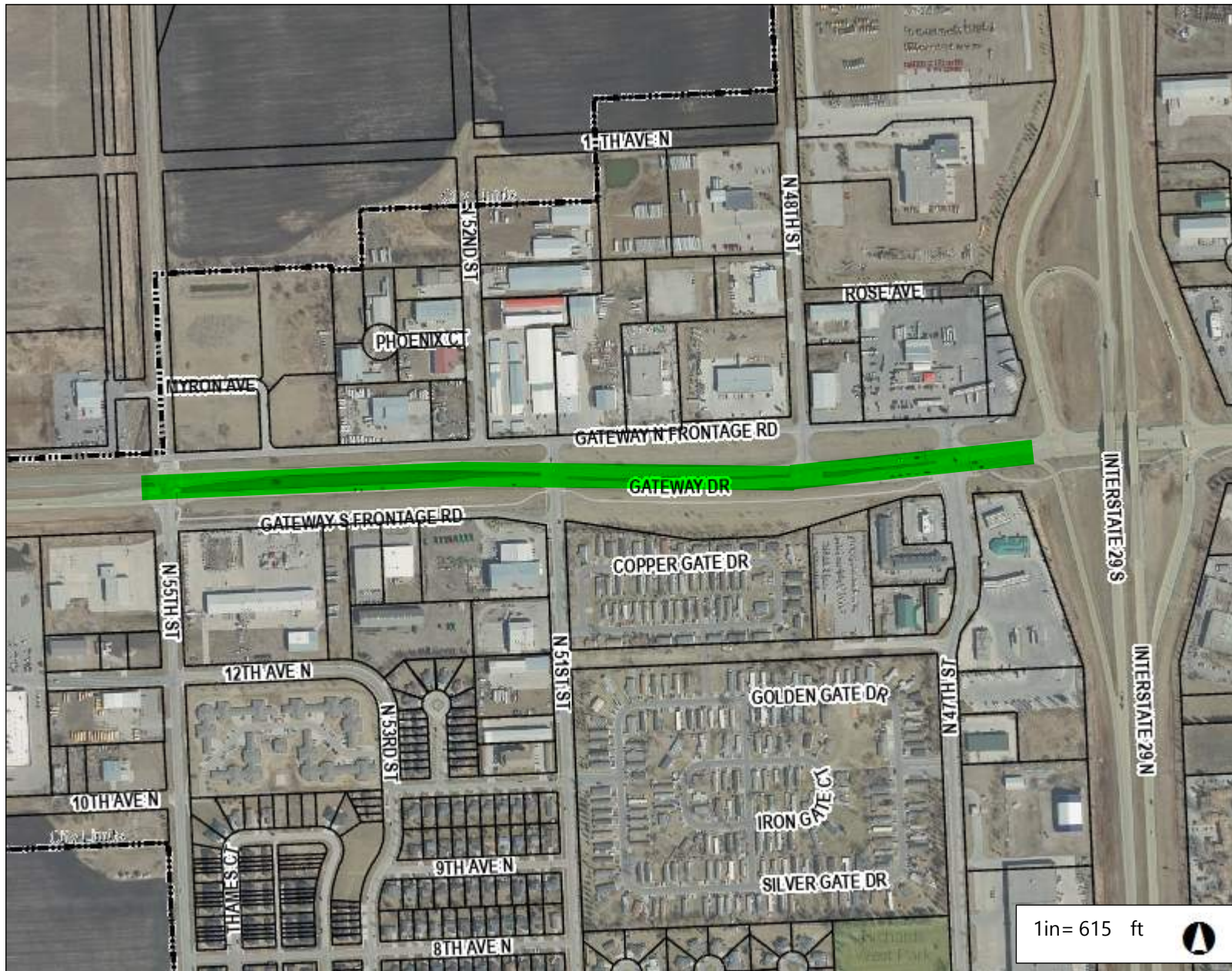
Date: 2/28/23

District Engineer: Edward Paulist

Date: 2/28/23

**Note:** Please attach a map showing location and extent of the project, detailed cost estimate, and any additional supporting documents.

# CPR & Grind US 2/Gateway Dr (I-29 to N 55th St) - 2027



## Legend

- Active Parcels
- Boundary City Limit
- Boundary Gray Area
- Address Labels
- Road Labels
- RoadCenterlines\_9K
  - <all other values>
  - I
  - S
  - U
- Waterbodies
- FacilitySites\_Parks\_9K
- Railroad
- MunicipalBoundaries

## Notes

1 in = 615 ft



1,229.2      0      614.58      1,229.2 Feet

NAD\_1983\_StatePlane\_North\_Dakota\_North\_FIPS\_3301\_Feet  
City of Grand Forks GIS

All dimensions, descriptions, measurements, boundaries and data contained in this nonstandard document are included for general information only. No warranties or covenants are made or given by the City of Grand Forks. Any user must confirm the accuracy of the same with official records, and/or by survey.

**THIS MAP IS NOT TO BE USED FOR NAVIGATION**

2024-2027 TIP

Cost Estimating Basis

7/22/2022

2021 Project Cost History

Urban Projects

Base Construction Costs 2021

Costs are per mile

Street US 2/Gateway Dr  
To/From I-29 to N 55th St  
Type CPR & Grind

	<u>Surfacing</u>	
Construction & CE Only	\$1,200,000	
Total Cost	\$1,400,000	
Assumption		
CE is 10% of Construction		
Base Construction	\$1,090,909	
Total Cost/Base Const	128.3%	
Design Engineering	15%	
Construction Engineering	10%	
ROW/MISC	3.3%	

Year of Expenditure	2027
Length (ft)	3,500
Length (mi)	0.66
Base Const Cost/mi	\$1,090,909
Inflated Const Cost/mi 4%	\$912,000
Const Cost	\$912,000
Design Eng	\$137,000
Const Eng	\$92,000
ROW/MISC	\$31,000
<b>Total Project Cost</b>	<b>\$1,172,000</b>

Construction Cost Breakdown

Contract Bond	1%
Mobilization	10%
Traffic Control	5%
Erosion Control	5%
Pavement	74%
Signing/Striping	5%
	100%

Base Const Cost Breakdown

Contract Bond	\$9,120
Mobilization	\$91,200
Traffic Control	\$45,600
Erosion Control	\$45,600
Pavement	\$674,880
Signing/Striping	\$45,600
<b>Const Total</b>	<b>\$912,000</b>



## Focus Area 6: Turn Lanes

The addition of turn lanes adds capacity and improves safety by clearing slowed or stopped vehicles making turning movements out of the through lanes. To identify where turn lanes can provide the greatest benefit to the study area, recommendations are provided based on two different analyses. The first was for the rural part of the corridor where speeds are greater than 50 miles per hour. Turn lanes for this section of the corridor were proposed based on the volume and crash criteria provided by NDDOT. For the urban section of the corridor where speeds were lower than 50 miles per hour, and on side streets, Synchro software was used to identify locations where approach LOS was at “D” or below. At these locations, turn lanes were evaluated to improve LOS to “C” or above. Turn lane recommendations at the Airport Drive/County Road 5 intersection or the interchange influence area can be found in previous chapters. Turn lanes should be considered at these intersections:

- 51<sup>st</sup> Street: Turn lanes for the northbound and southbound approaches can fit within the existing roadway footprint and are warranted under existing traffic volumes.
- 55<sup>th</sup> Street: Currently westbound right and northbound right turn lanes are warranted under existing traffic volumes. An eastbound left will be warranted by 2025.
- 58<sup>th</sup> Street: A  $\frac{3}{4}$  access configuration is recommended at 58<sup>th</sup> Street. Construction of an eastbound left turn will be necessary to accommodate this configuration.
- 64<sup>th</sup> Street: A  $\frac{3}{4}$  access configuration is also recommended at this intersection. Construction of an eastbound and westbound left turn lane will be necessary to accommodate this configuration.
- 69<sup>th</sup> Street. When NPN is fully operational, a southbound right turn lane will be warranted.

Proposed turn lanes can be seen in Figure 48.

### Implementation Plan

The following is an implementation plan for turn lanes to be considered.

NDDOT would be lead agency for the following turn lane projects:

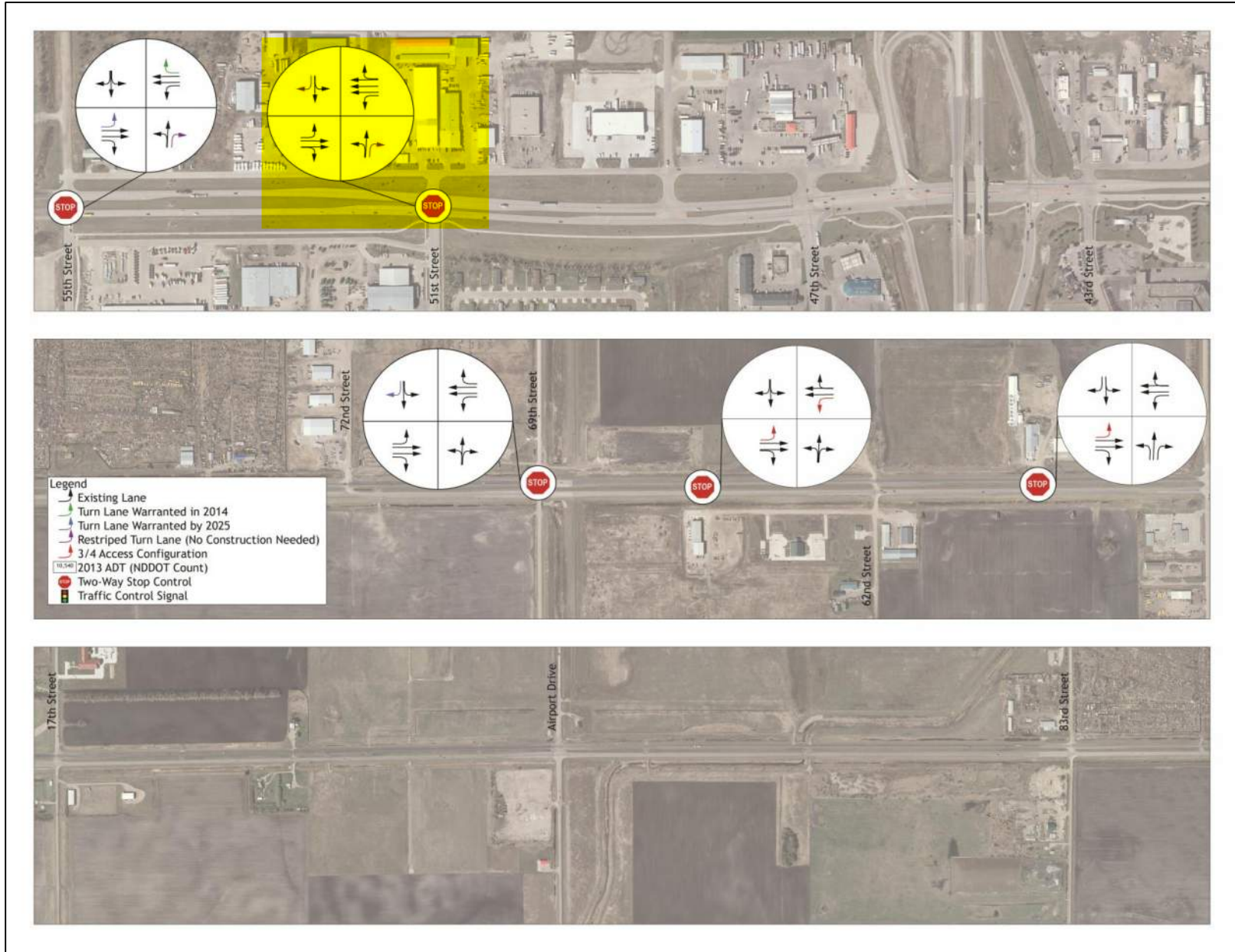
- 51<sup>st</sup> Street Turn Lanes (\$15,000). Northbound and southbound right turn lanes should be implemented during the next cycle of roadway striping costs.
- 55<sup>th</sup> Street Turn Lanes (\$327,500). These turn lanes should be implemented during the traffic signal project.
- 58<sup>th</sup> and 64<sup>th</sup> Street Turn Lanes for Access Restrictions (\$750,000). Turn lanes to accommodate a  $\frac{3}{4}$  access should only be implemented once the corridor has urbanized and frontage road access has been established to allow for restricted access at these locations.

The City of Grand Forks would be lead agency for the following turn lane project:

- 69<sup>th</sup> Street Turn Lanes (\$70,000). This turn lane should be implemented as part of the NPN roadway project improving 69<sup>th</sup> Street.



Figure 48: Proposed Turn Lanes







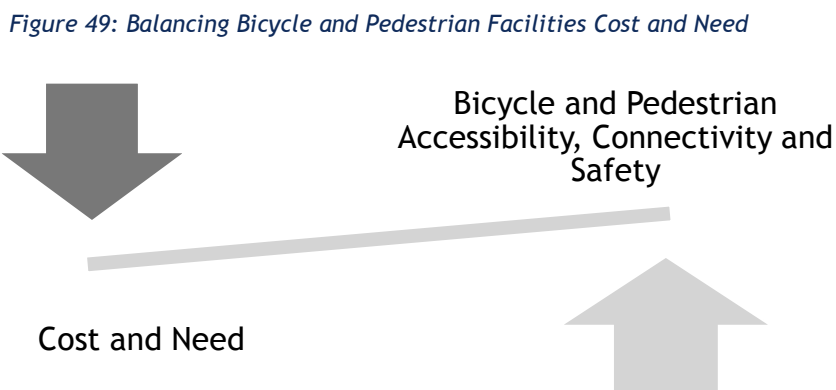
## Focus Area 7. Bicycle and Pedestrian Facilities

Historically, the corridor has primarily been made up of industrial land uses, but the onset of recent commercial and residential development increases the necessity to provide bicycle and pedestrian facilities to major existing and future generators. Currently only 10 percent of the corridor has bicycle and pedestrian specific facilities (counting both sides of the corridor). Recent development, such as Wal-Mart, did not incorporate bicycle and pedestrian facilities.

The high-speeds, volumes and truck activity make on-street bicycle activity unappealing to even advanced riders. Additionally, there are no signalized bicycle and pedestrian crossings across US 2 within the study area. This means that the traffic signals must be timed to allow pedestrians to cross the entire intersection without stopping on each phase. This requires very long green periods for the sidestreets, even when traffic is minimal, resulting in unnecessary delay and worsened operations due to the limited amount of pedestrian activity across US 2. To make US 2 conducive to non-motorized traffic, it is vital that bicycle and pedestrian facilities be planned and preserved as development occurs.

### Evaluation Criteria

The decision for increased bicycle and pedestrian activity can be graphically illustrated in the figure below. The lack of existing facilities along US 2 makes it difficult to gauge demand. However, not providing bicycle and pedestrian facilities or accessibility to the north side of the corridor has obvious impacts to multimodal activity and safety, and may even limit the types of development attracted to the area.



### Proposed Alternative

The Steering Committee and public were provided two alternatives. The first continued the design of the corridor with a shared use path exclusively on the south side of the corridor. The second alternative included a shared use path on both the north and south side. This would connect with plans to include the shared use path on 55<sup>th</sup> Street north of US 2, provide access to new developments on the



north side of the corridor and allow for safe and efficient crossing of US 2 at signalized locations of 42<sup>nd</sup> Street and 47<sup>th</sup> Street and the future signal at 55<sup>th</sup> Street.

There was no clear preference on the provision of bicycle and pedestrian facilities on the corridor. The Steering Committee preferred facilities on both sides (45.5 percent voted for facilities on both sides, 36.3 percent voted for facilities only on the south side and 18.2 percent voted to do nothing), while the public preferred facilities only on the south side (84.2 percent voted for facilities only on the south side and 15.8 percent voted for facilities on both sides). Land owners primarily opposed shared use paths on the north side because they opposed potential assessments.

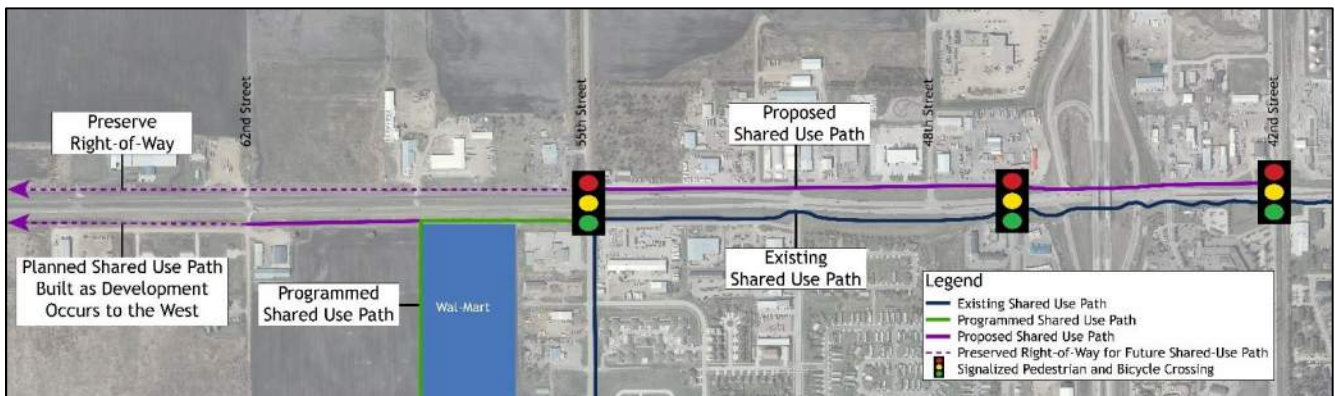
AASHTO guidance discourages shared use paths on only one side because it is counter to driver expectancy. Furthermore, the 2040 LRTP has extensive goals and objectives for the bicycle and pedestrian network:

- Reduce excessive travel delays by using the bike network
- Increase non-motorized mode split by 10 percent
- Promote the off-road network
- Increase miles of bikeway network by 63 percent
- Encourage installation of bicycle and pedestrian facilities during street repair, renovation and construction to reduce costs

For these reasons, the proposed alternative

- Provides facilities on the south side of US 2, constructing paths as development occurs to the west.
- Could provide facilities on the north side of US 2 between 42<sup>nd</sup> Street and 55<sup>th</sup> Street, in coordination with the roadway maintenance projects planned for 2026 and 2029.
- Preserves enough right-of-way along the north side of the corridor west of 55<sup>th</sup> Street that future provision of facilities could occur when redevelopment occurs or when financial assistance could increase support.
- Provides signalized crossings at existing and planned signals located at 42<sup>nd</sup> Street, 47<sup>th</sup> Street and 55<sup>th</sup> Street. All future signals along the corridor will facilitate signalized pedestrian crossings.

Figure 50: Bicycle and Pedestrian Facilities Recommendations



## Implementation Plan

Similar to access management, the bicycle and pedestrian improvement plan would not be to build shared use paths along the entirety of the corridor immediately, but rather to preserve the corridor for when development occurs and place the onus of constructing paths along the corridor on the



developer. That way, new developments, like Wal-Mart for example, are not constructed without bicycle and pedestrian connectivity.

There are several locations where redevelopment is unlikely but facilities may be desirable. This includes the north side of US 2 east of 55<sup>th</sup> Street and the south side of US 2 between 55<sup>th</sup> Street and 58<sup>th</sup> Street. The 2040 LRTP proposed a shared use path on the south side of US 2 between 55<sup>th</sup> Street and 58<sup>th</sup> Street that would wrap around Wal-Mart and connect to the shared use path and bike lane on University Avenue. This project was estimated for completion in 2021.

For the north side of US 2 east of 55<sup>th</sup> Street, a variety of funding and project phasing alternatives are available. The 2040 LRTP has identified a series of roadway maintenance projects scheduled for estimated completion between 2026 and 2029 that would stretch from 55<sup>th</sup> Street east to the Red River. The construction of shared use paths could be completed in tandem with these projects. Alternatively, these projects could be added to the universe of improvements evaluated and prioritized in the next Bicycle and Pedestrian Plan update, making them eligible for TAP funds. Finally, assessments could be considered to implement the desired facilities, allowing for a connected network as facilities are constructed in developing areas.



# Summary of Proposed Improvements

## Infrastructure Improvements

### ***Airport Drive Intersection***

The Staggered T-Intersection Configuration eliminates signal control and far-side crashes. This configuration will reduce total crash potential by 67 percent and 2040 peak hour delays by 77 percent. The design minimizes the environmental impacts.

### ***Interchange Influence Area***

The Northeast Loop alternative adds a loop ramp in the northeast quadrant and another turn lane on the northbound to eastbound off-ramp. By preventing northbound left-turns from conflicting with eastbound left turns and through movements, the traffic signal was reduced to only two phases, increasing throughput and reducing queues across adjacent US 2 intersections. This alternative reduces crash potential by 40 percent and 2040 vehicle hours traveled by 20 percent.

### ***55<sup>th</sup> Street Improvements***

55th Street was selected as the optimal location for a traffic signal because of its connectivity north and south, accessibility to adjacent intersections because of the frontage road configuration and the potential to reduce angle crashes. This intersection also requires eastbound left, westbound right and northbound right turn lanes.

### ***69<sup>th</sup> Street Improvements***

The planned NPN site will require improved roadways to access their site three miles north of US 2. 69<sup>th</sup> Street was selected for improvement because of limited potential impacts in the event of an anhydrous ammonia spill, less roadway improvement needs and no railroad impacts. 69<sup>th</sup> Street will need to be paved and southbound right turn lane from 69<sup>th</sup> Street onto US 2 should be constructed.

### ***Turn Lanes***

Additional turn lanes are proposed at 51<sup>st</sup> Street, 58<sup>th</sup> Street and 64<sup>th</sup> Street. The timeframe for implementation on these projects varies and is correlated with development growth on the corridor.

## Policy Improvements

### ***Access Management Plan***

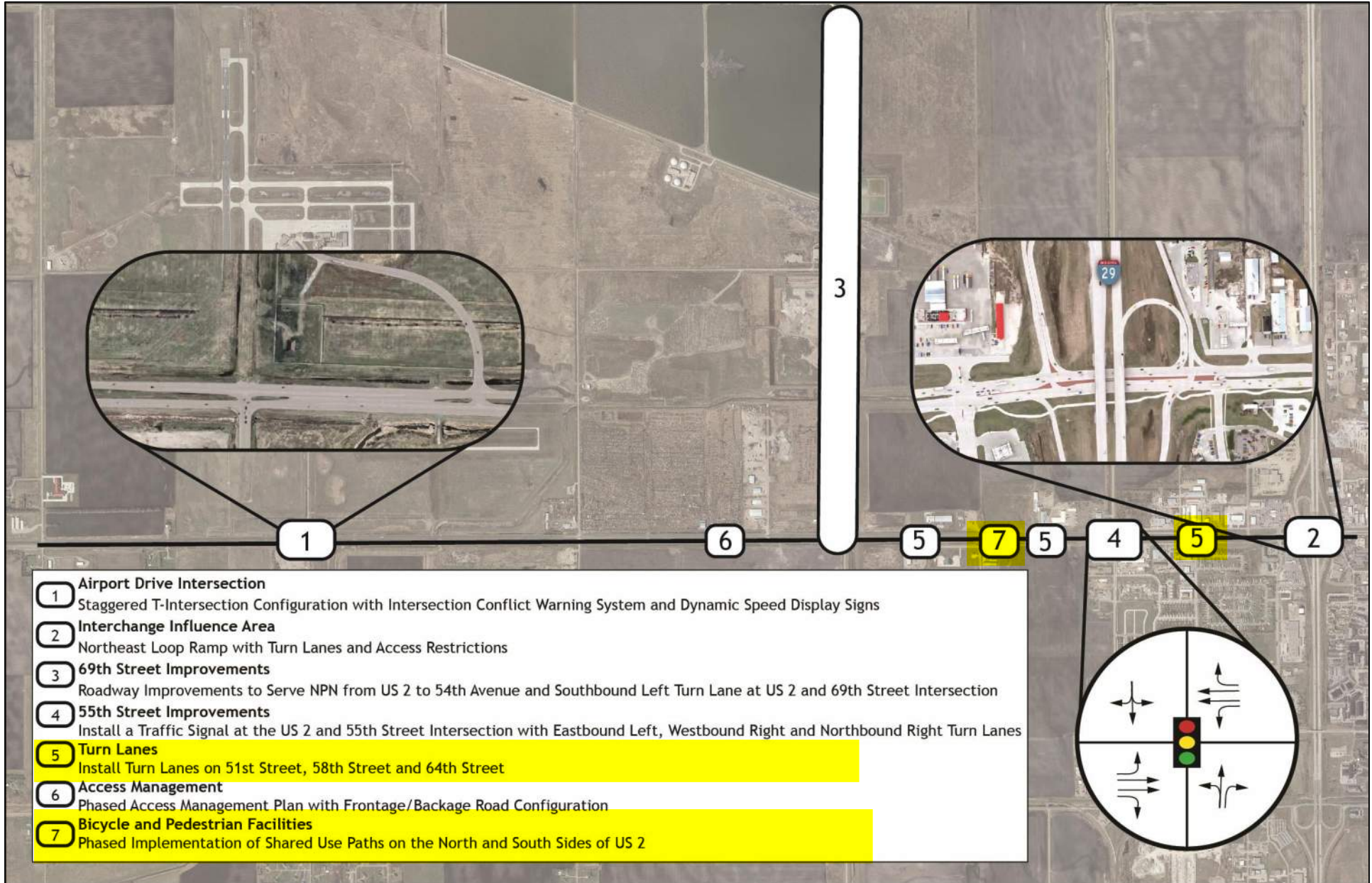
The proposed access management plan was designed to be a gradual process, implemented as development occurs. This plan provides refined solutions for the urbanizing growth area and flexibility for the rural growth areas, where development is not imminent.

### ***Bicycle and Pedestrian Facilities Plan***

The bicycle and pedestrian facilities plan also provides phasing for the provision of bicycle and pedestrian facilities. This plan will implement facilities on the north side of US 2 with the planned roadway projects and preserve right-of-way to the west on both sides of the corridor.

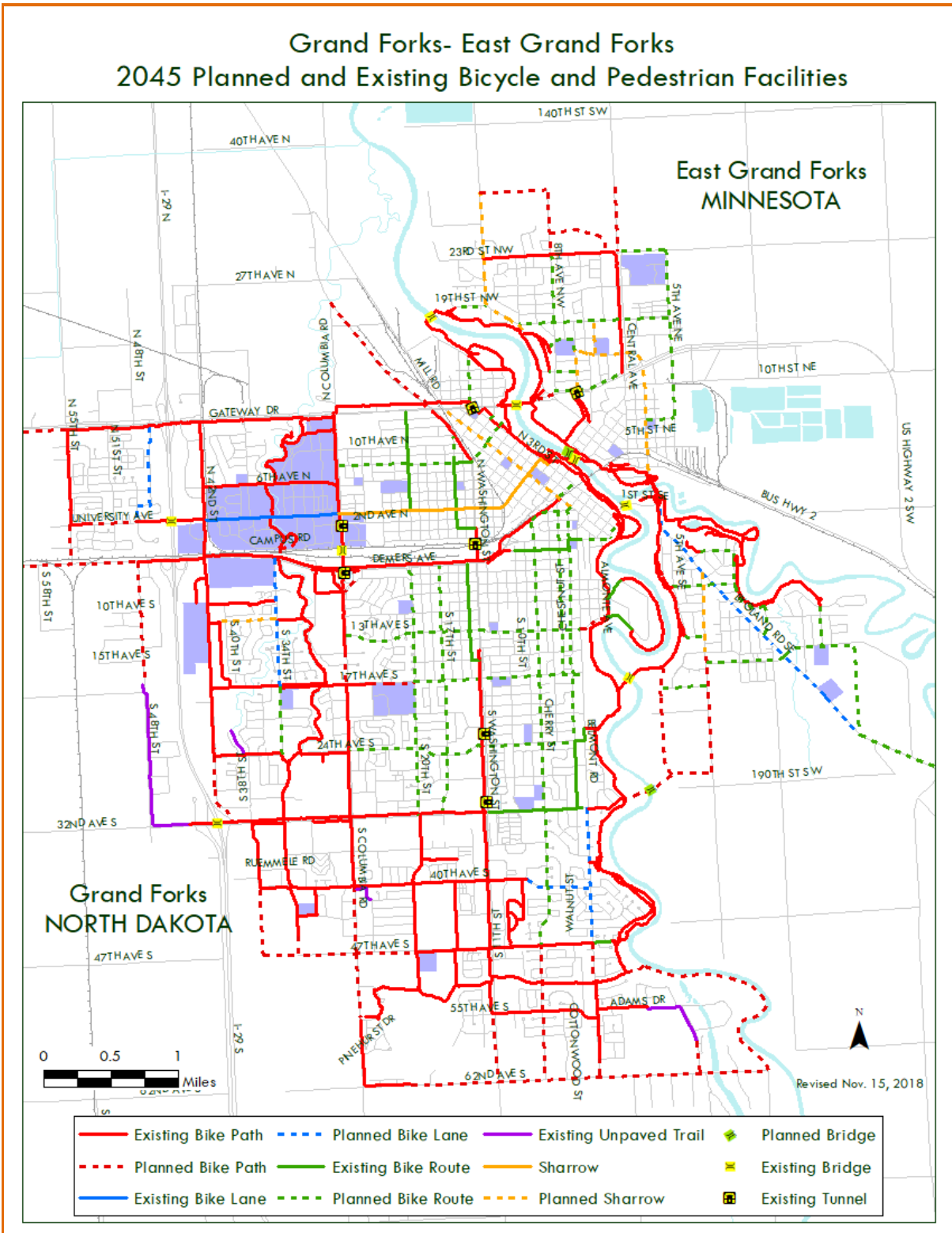


Figure 51: Proposed Infrastructure Improvements





## 2. Existing Bicycle and Pedestrian Facilities Map



**One-Way Cash Fare\***

Adult	\$1.50
K-12 Student	\$0.75
Reduced Fare**	\$0.60

**10-Ride Cards**

Adult	\$13.00
K-12 Student	\$6.50
Reduced Fare**	\$5.25

\*Exact fare required

\*\*Seniors age 62+, Medicare card holders, and persons with disabilities

**Fixed Period Passes**

1-Day Pass	\$5.00
14-Day Pass	\$18.00
31-Day Pass	\$35.00

**Transfers** are free for use on the next connecting bus. Ask for a transfer upon boarding. Not valid on the same bus. Valid at transfer locations only. One time use.

**Children** age 5 and under ride free

**UND Students** ride free with student ID

**Northland College** students ride free with student ID and bus pass issued by Northland

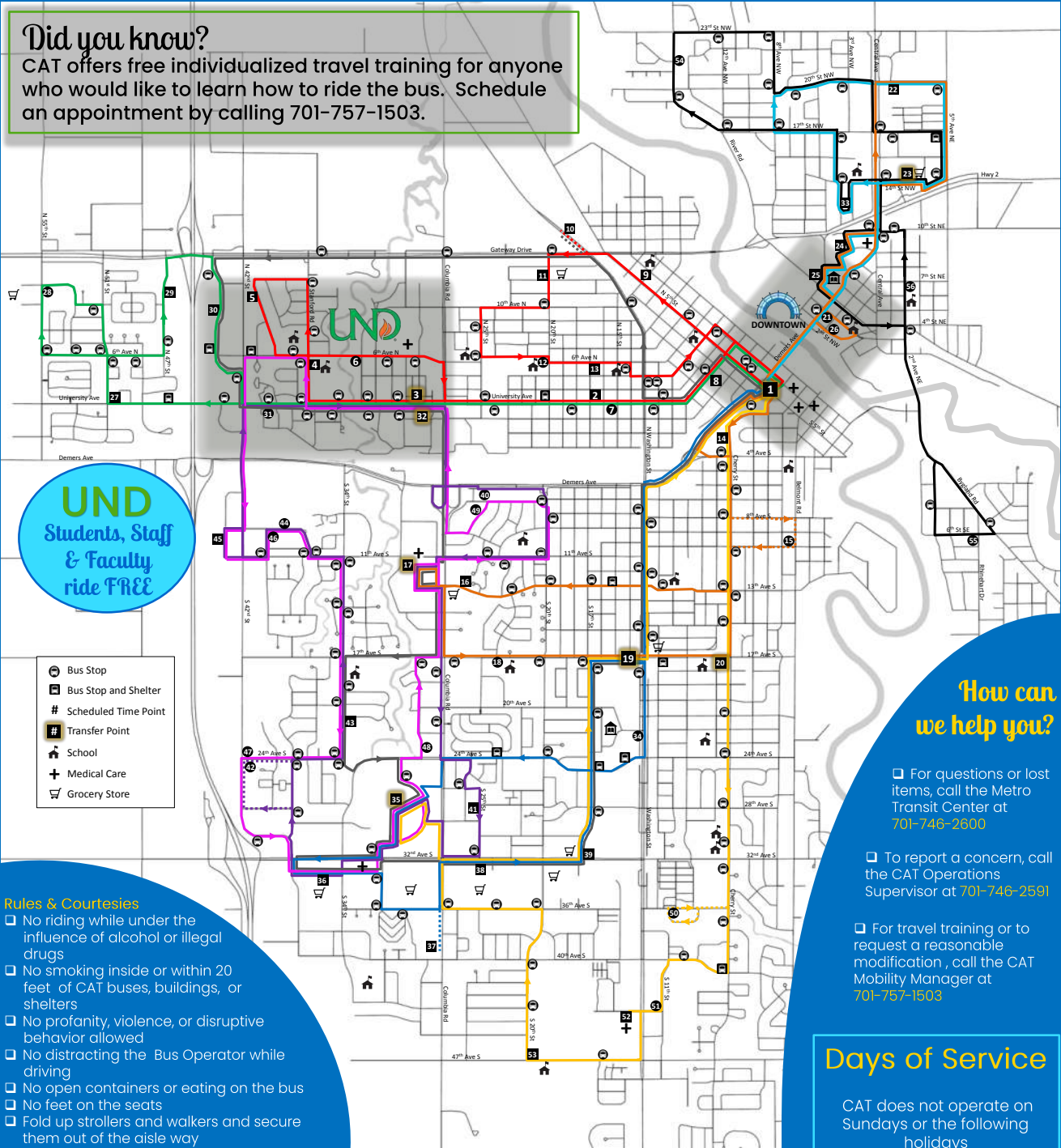
**NOTE:** Fare cards are non-refundable. Do not scratch or bend. Rechargeable fare media available for purchase at the Metro Transit Center.

**For Your Safety**

- Call 911 in case of emergency
- Be aware of your surroundings
- Remain seated while the bus is moving
- Do not walk in front of the bus
- Stay back from the painted yellow line
- Dress appropriately for adverse weather conditions
- If you see something suspicious, report it to the proper authority

**Did you know?**

CAT offers free individualized travel training for anyone who would like to learn how to ride the bus. Schedule an appointment by calling 701-757-1503.



**UND Students, Staff & Faculty ride FREE**

- Bus Stop
- Bus Stop and Shelter
- Scheduled Time Point
- Transfer Point
- School
- Medical Care
- Grocery Store

**Rules & Courtesies**

- No riding while under the influence of alcohol or illegal drugs
- No smoking inside or within 20 feet of CAT buses, buildings, or shelters
- No profanity, violence, or disruptive behavior allowed
- No distracting the Bus Operator while driving
- No open containers or eating on the bus
- No feet on the seats
- Fold up strollers and walkers and secure them out of the aisle way
- Shirt and shoes or other footwear required
- Passengers must maintain appropriate, reasonable personal hygiene
- Limit carry-on items to one armload or the equivalent of two grocery bags
- Have your bus fare ready before boarding
- Use earphones to listen to music
- Small animals may be transported in a carrier
- Service animals are welcome on board

**How can we help you?**

- For questions or lost items, call the Metro Transit Center at 701-746-2600
- To report a concern, call the CAT Operations Supervisor at 701-746-2591
- For travel training or to request a reasonable modification, call the CAT Mobility Manager at 701-757-1503

**Days of Service**

CAT does not operate on Sundays or the following holidays

- New Year's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Day

*We are committed to providing you with clean, safe, and reliable transportation.*

# NDDOT State of Good Repair Financially Constrained (2023 to 2045)

Table 3

Ref #	Roadway	Termini	Project Type	Agency	Time Frame	Federal/State Funds	City Match	YOE Total
REP-224	US 2 (Gateway Drive)	Grand Forks I-29 East to Columbia Road	CPR/DBR/Grind	NDDOT	Short-Range	\$753,000	\$0	\$753,000
REP-225	US 2 (Gateway Drive)	Gateway Drive-Columbia Road to Red River	CPR/DBR/Grind	NDDOT	Short-Range	\$811,000	\$0	\$811,000
REP-228A	US 2 Business	Grand Forks - Gateway Drive to DeMers	Chip Seal	NDDOT	Short-Range	\$45,900	\$5,100	\$51,000
REP-237	US 2 (Gateway Drive)	Grand Forks I-29 East to Columbia Road	CPR & Grind	NDDOT	Short-Range	\$753,000	\$0	\$753,000
REP-238	US 2 (Gateway Drive)	Gateway Drive - Columbia Road to Red River	CPR & Grind	NDDOT	Short-Range	\$811,000	\$0	\$811,000
REP-266A	US 81 Business	Grand Forks - South Washington Street (Hammerling to 8th Avenue South)	Reconstruct	NDDOT	Short-Range	\$5,329,800	\$592,200	\$5,922,000
REP-268A	US 81 Business	Grand Forks - South Washington Street (8th Avenue South to DeMers Avenue)	Reconstruct	NDDOT	Short-Range	\$1,065,600	\$118,400	\$1,184,000
REP-296	US 2 (Gateway Drive)	8 MI East of Grand Forks AFB to 2 MI West of Columbia Rd	Chip Seal	NDDOT	Short-Range	\$205,000	\$0	\$205,000
REP-305	Various	Various	Regional Traffic Signal Upgrade	NDDOT	Short-Range	\$6,514,200	\$723,800	\$7,238,000
REP-239A	I-29	N of ND 15 to Near 32nd Avenue Grand Forks (NB)	CPR & Grind	NDDOT	Short-Range	\$1,946,000	\$0	\$1,946,000
REP-239B	I-29	N of ND 15 to Near 32nd Avenue Grand Forks (SB)	CPR & Grind	NDDOT	Short-Range	\$1,946,000	\$0	\$1,946,000
REP-223	US 2 (Gateway Drive)	Grand Forks 55th Street East to I-29 East Bound	CPR/DBR/Grind	NDDOT	Mid-Range	\$570,600	\$63,400	\$634,000
REP-232	US 2 Business	DeMers to Red River (include 5th to 6th)	CPR/Grind	NDDOT	Mid-Range	\$158,000	\$0	\$158,000
REP-236	US 2 (Gateway Drive)	Grand Forks 55th Street East to I-29 West Bound	CPR & Grind	NDDOT	Mid-Range	\$634,000	\$0	\$634,000
REP-258A & REP-259A	US 81 Business	I-29 to South Washington Street	Reconstruct	NDDOT	Mid-Range	\$27,718,200	\$3,079,800	\$30,798,000
REP-262A	US 81 Business	Grand Forks South Washington Street (32nd Avenue South to 26th Avenue South)	CPR & Grind	NDDOT	Mid-Range	\$256,500	\$28,500	\$285,000
REP-263A	US 81 Business	Grand Forks - South Washington Street (26th Avenue to Hammerling)	CPR & Grind	NDDOT	Mid-Range	\$621,900	\$69,100	\$691,000
REP-277	US 81 Business	Grand Forks North Washington Street (.05 MI S 8th to 8th Avenue)	CPR & Grind	NDDOT	Mid-Range	\$9,000	\$1,000	\$10,000
REP-278	US 81 Business	Grand Forks North Washington Street (8th Avenue to 9th Avenue)	CPR & Grind	NDDOT	Mid-Range	\$29,700	\$3,300	\$33,000
REP-279	US 81 Business	Grand Forks North Washington Street (9th Avenue NE to 13th Avenue)	CPR & Grind	NDDOT	Mid-Range	\$262,800	\$29,200	\$292,000
REP-280	US 81 Business	Grand Forks North Washington Street (13th Avenue NE to US 2)	CPR & Grind	NDDOT	Mid-Range	\$36,000	\$4,000	\$40,000
REP-281	US 81 Business	Grand Forks North Washington Street (JCT US 2 to STA 105)	CPR & Grind	NDDOT	Mid-Range	\$285,300	\$31,700	\$317,000
REP-284	Hwy 297 (Demers Avenue)	Grand Forks DeMers Avenue (I-29 to Near 34th Street)	CPR & Grind	NDDOT	Mid-Range	\$540,900	\$60,100	\$601,000
REP-285	Hwy 297 (Demers Avenue)	Grand Forks DeMers Avenue (34th Street to US 2)	CPR & Grind	NDDOT	Mid-Range	\$1,641,600	\$182,400	\$1,824,000
REP-286	Hwy 297 (Demers Avenue)	Grand Forks DeMers Avenue (I-29 to US 2)	CPR & Grind	NDDOT	Mid-Range	\$2,046,600	\$227,400	\$2,274,000
REP-292	US 81 Business	DeMers Avenue to Dyke Avenue	CPR/Grind	NDDOT	Mid-Range	\$66,600	\$7,400	\$74,000
REP-294	US 81 Business	Dyke Avenue to .05 MI South of 8th Avenue	Reconstruction	NDDOT	Mid-Range	\$8,505,000	\$945,000	\$9,450,000
REP-297	US 2 (Gateway Drive)	8 MI East of Grand Forks AFB to 2 MI West of Columbia Rd	Mill & HBP 2"	NDDOT	Mid-Range	\$1,365,000	\$0	\$1,365,000
REP-240A	I-29	Near 32nd Avenue South N of HWY 2 Interchange	CPR & Grind	NDDOT	Mid-Range	\$1,635,000	\$0	\$1,635,000
REP-242A	I-29	N of ND 15 N to Near 32nd Avenue Grand Forks	CPR & Grind	NDDOT	Mid-Range	\$504,000	\$0	\$504,000
REP-246A	I-29	US 2 North	CPR & Grind	NDDOT	Mid-Range	\$1,134,000	\$0	\$1,134,000
REP-248A	I-29	South of North Grand Forks Interchange to North of North Grand Forks Interchange South Bound	CPR & Grind	NDDOT	Mid-Range	\$86,000	\$0	\$86,000
REP-243B	I-29	Near 32nd Avenue North to 32nd Avenue	CPR & Grind	NDDOT	Mid-Range	\$32,000	\$0	\$32,000
REP-245B	I-29	South US 2 to North US 2	CPR & Grind	NDDOT	Mid-Range	\$1,044,000	\$0	\$1,044,000
REP-254	I-29	N of US 2 North to South of N Grand Forks Interchange	CPR & Grind	NDDOT	Mid-Range	\$1,302,000	\$0	\$1,302,000
REP-228B	US 2 Business	Grand Forks - Gateway Drive to DeMers	Mill & HBP 3"	NDDOT	Long-Range	\$2,537,100	\$281,900	\$2,819,000
REP-228C	US 2 Business	Grand Forks - Gateway Drive to DeMers	Chip Seal	NDDOT	Long-Range	\$99,000	\$11,000	\$110,000
REP-258B	US 81 Business	32nd Avenue South Grand Forks (STA 14 to 95) 4 LN	CPR & Grind	NDDOT	Long-Range	\$0	\$0	\$0
REP-259B	US 81 Business	32nd Avenue South Grand Forks (STA 95 to S. Washington) 5 LN	CPR & Grind	NDDOT	Long-Range	\$0	\$0	\$0
REP-262B	US 81 Business	Grand Forks South Washington Street (32nd Avenue South to 26th Avenue South)	CPR & Grind	NDDOT	Long-Range	\$365,400	\$40,600	\$406,000
REP-263B	US 81 Business	Grand Forks - South Washington Street (26th Avenue to Hammerling)	CPR & Grind	NDDOT	Long-Range	\$885,600	\$98,400	\$984,000
REP-266B	US 81 Business	Grand Forks - South Washington Street (Hammerling to 8th Avenue South)	CPR & Grind	NDDOT	Long-Range	\$502,200	\$55,800	\$558,000
REP-268B	US 81 Business	Grand Forks - South Washington Street (8th Avenue South to DeMers Avenue)	CPR & Grind	NDDOT	Long-Range	\$144,900	\$16,100	\$161,000
REP-289	US 2 (Gateway Drive)	US 2 over the Red River, Bridge 9090 (Kennedy)	Repaint Bridge	NDDOT	Long-Range	\$2,750,000	\$0	\$2,750,000
REP-291	US 2 Business	US 2B over the Red River, Bridge 4700 (Sorlie)	Repaint Bridge	NDDOT	Long-Range	\$2,475,000	\$275,000	\$2,750,000
REP-293	US 81 Business	DeMers Avenue to Dyke Avenue	CPR/Grind	NDDOT	Long-Range	\$94,500	\$10,500	\$105,000
REP-295	US 81 Business	Dyke Avenue to .05 MI South of 8th Avenue	CPR/Grind	NDDOT	Long-Range	\$296,100	\$32,900	\$329,000
REP-298	US 2 (Gateway Drive)	8 MI East of Grand Forks AFB to 2 MI West of Columbia Rd	Chip Seal	NDDOT	Long-Range	\$399,000	\$0	\$399,000
REP-306	Various	Various	Regional Traffic Signal Upgrade	NDDOT	Long-Range	\$14,301,900	\$1,589,100	\$15,891,000
REP-299	I-29	HWY 2 Interchange to North of Grand Forks (NB)	CPR & Grind	NDDOT	Long-Range	\$3,511,000	\$0	\$3,511,000
REP-240B	I-29	Near 32nd Avenue South N of HWY 2 Interchange	CPR & Grind	NDDOT	Long-Range	\$2,326,000	\$0	\$2,326,000
REP-243A	I-29	Near 32nd Avenue North to 32nd Avenue	CPR & Grind	NDDOT	Long-Range	\$717,000	\$0	\$717,000
REP-244A	I-29	32nd Avenue North to South US 2	CPR & Grind	NDDOT	Long-Range	\$3,790,000	\$0	\$3,790,000
REP-245A	I-29	South US 2 to North US 2	CPR & Grind	NDDOT	Long-Range	\$3,790,000	\$0	\$3,790,000
REP-247	I-29	North of US 2 North to South of North Grand Forks Interchange	CPR & Grind	NDDOT	Long-Range	\$0	\$0	\$0
REP-242B	I-29	N of ND 15 N to Near 32nd Avenue Grand Forks	CPR & Grind	NDDOT	Long-Range	\$122,000	\$0	\$122,000
REP-244B	I-29	32nd Avenue North to South US 2	CPR & Grind	NDDOT	Long-Range	\$46,000	\$0	\$46,000
REP-246B	I-29	US 2 North	CPR & Grind	NDDOT	Long-Range	\$1,486,000	\$0	\$1,486,000
REP-248B	I-29	South of North Grand Forks Interchange to North of North Grand Forks Interchange South Bound	CPR & Grind	NDDOT	Long-Range	\$0	\$0	\$0
REP-300	I-29	HWY 2 Interchange to North of Grand Forks (NB)	CPR & Grind	NDDOT	Long-Range	\$3,511,000	\$0	\$3,511,000
<b>Totals</b>						<b>\$114,814,900</b>	<b>\$8,583,100</b>	<b>\$123,398,000</b>

## Setup Scoring Categories & Factors

Score System State Highways



Max. Score 100

Max. Score 100

### Adjust Scoring Categories

Expected

Achieved

	Goals	Description	Weight	Points	Weight	Points
1	Economic vitality	Support the economic vitality through enhancing the economic competitiveness of the metropolitan area by giving people access to jobs, education services as well as giving business access to markets.	15 %	15 pts	13 %	13 pts
2	Security	Increase security of the transportation system for motorized and non-motorized uses.	5 %	5 pts	4 %	4 pts
3	Accessibility and Mobility	Increase the accessibility and mobility options for people and freight by providing more transportation choices.	10 %	10 pts	3 %	3 pts
4	Environmental/Energy/QOL	Protect and enhance the environment, promote energy conservation, and improve quality of life by valuing the unique qualities of all communities – whether urban, suburban, or rural.	10 %	10 pts	7 %	7 pts
5	Integration and Connectivity	Enhance the integration and connectivity of the transportation system, across and between modes for people and freight, and housing, particularly affordable housing located close to transit.	10 %	10 pts	2 %	2 pts
6	Efficient System Management	Promote efficient system management and operation by increasing collaboration among federal, state, local government to better target investments and improve accountability.	10 %	10 pts	6 %	6 pts
7	System Preservation	Emphasize the preservation of the existing transportation system by first targeting federal funds towards infrastructure to spur revitalization, promote urban landscapes and protect rural landscapes.	15 %	15 pts	15 %	15 pts
8	Safety	Increase safety of the transportation system for motorized and non-motorized uses.	10 %	10 pts	1 %	1 pts
9	Resiliency and Reliability	Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.	10 %	10 pts	6 %	6 pts
10	Tourism	Enhance travel and tourism.	5 %	5 pts	3 %	3 pts
<b>TOTAL</b>			<b>100 %</b>	<b>100 pts</b>	<b>59 %</b>	<b>59 pts</b>

TIP SCORING SHEETS



0= No  
1= Yes

State Highway

Project Number

Project Name

MPO SCORING SHEET FOR EACH PROJECT

Goal 1	Economic Vitality	Expected Weight (%)=	15
Support the economic vitality through enhancing the economic competitiveness of the metropolitan area by giving people access to jobs, education services as well as giving business access to markets.		Assign score 0 or 1	Achieved Weight (%)
Objectives	1 <b>Coordinate land use and transportation planning, programming, and investments between agencies to advance smart growth objectives</b>		
	1.1 <b>Recognize and identify investments that support current &amp; future state highway network development plan</b>	1	2.50
	1.2 <b>Focus on highway network expansion and prime corridors in areas that are contiguous to current and future developed areas</b>	1	2.50
	2 <b>Enhance the state's economic competitiveness through the movement of goods and services</b>	1	2.50
	3 <b>Support efficient local and state highway, multimodal terminal connections for freight and rail movement</b>	1	2.50
	4 <b>Work located on identified truck route or identified in Freight Study</b>	1	2.50
	5 <b>Consistent with regional or state economic development plans</b>	0	0.00
		Total	12.50
Goal 2	Security	Expected Weight (%)=	5
Increase the security of the transportation system for motorized and non-motorized users		Assign score 0 or 1	Achieved Weight (%)
Objectives	1 <b>Identify and maintain security of critical street and highway system assets.</b>		
	1.1 <b>Coordinate with regional emergency/security/hazardous materials movement</b>	1	0.71
	1.2 <b>Evaluate and manage the security of the transportation network, especially in critical areas</b>	1	0.71
	1.3 <b>Coordinate/improves Bridge Closure Management Plan</b>	1	0.71
	1.4 <b>Coordinate/improves Special Events Management Plan</b>	1	0.71
	2 <b>Support state and regional emergency, evacuation, and security plans.</b>		
	2.1 <b>Consistent with regional emergency and security planning system (ITS Regional Architecture)</b>	1	0.71
	2.2 <b>Provide necessary security training and equipment to monitor the security of the transportation infrastructure</b>	0	0.00
2.3 <b>Coordinate with safety/security agencies of the state to prevent harmful activities</b>	0	0.00	
		Total	3.57
Goal 3	Accessibility and Mobility	Expected Weight (%)=	10
Increase the accessibility and mobility options to people and freight by providing more nonmotorized choices		Assign score 0 or 1	Achieved Weight (%)
Objectives	1 <b>Mitigate excessive travel delays by improving existing infrastructure to address traffic congestion delays</b>	1	1.67
	2 <b>Provides acceptable LOS for all state highways, intersection and facilities as recommended in LRTPs</b>	0	0.00
	3 <b>Consider advances in autonomous and connected vehicle technology in the transportation planning and programming processes</b>	0	0.00
	4 <b>consistent with state access control regulations</b>	1	1.67
	5 <b>Enhances the range of freight service options available to regional business</b>	0	0.00
	6 <b>Implements recommendations in ADA, railroad or any other ROW transition plans</b>	0	0.00
		Total	3.33



Goal 4	Environmental/Energy/QOL		Expected Weight (%)=	10
Protect and enhance the environment, promote energy conservation, and improve quality of life.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b><i>Avoid, minimize, and/or mitigate adverse social, environmental, and economic impacts resulting from existing or new transportation facilities.</i></b>		
	1.1	<b><i>Implements context sensitive solutions</i></b>	1	1.67
	1.2	<b><i>Address EJ analysis process</i></b>	1	1.67
	1.3	<b><i>Avoids or minimize impacts to wetlands or other natural habitats or cultural/historic resources</i></b>	1	1.67
	1.4	<b><i>Incorporates innovative stormwater management techniques</i></b>	0	0.00
	2	<b><i>Maintain and improve quality of life along streets and highways</i></b>	1	1.67
	3	<b><i>Maintain and improve regional air quality by promoting nonmotorized travel</i></b>	0	0.00
			Total	6.67

Goal 5	Integration and Connectivity		Expected Weight (%)=	10
Enhance the integration and connectivity of the transportation system across and between modes for people and freight.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b><i>Effectively coordinate transportation and land use by promoting the sustainability and livability principles, goals, and objectives from regional land use plans.</i></b>		
	1.1	<b><i>Increase the use of multi-modal transportation by providing additional transit service and reducing bicycle/pedestrian network gaps.</i></b>	0	0.00
	1.2	<b><i>Promote transportation improvements that support access to a mix of employment opportunities (e.g. jobs and income levels).</i></b>	1	1.67
	2	<b><i>Provide an advanced and balanced mix of local, collector, and arterial streets to help meet local and regional travel needs</i></b>		
	2.1	<b><i>Invest in signage techniques to reduce excessive travel delays and traffic congestion</i></b>	0	0.00
	2.2	<b><i>Maximize direct travel trips between states</i></b>	0	0.00
	2.3	<b><i>Maintain and update street and highway functional classification consistent with FHWA guidelines</i></b>	0	0.00
	2.4	<b><i>Address last segment/link of corridor</i></b>	0	0.00
			Total	1.67

Goal 6	Efficient System management		Expected Weight (%)=	10
Promote efficient system management and operation.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b><i>Implement best practice programming and innovative financing alternatives</i></b>		
	1.1	<b><i>Identify potential source of budget for year-round maintenance</i></b>	0	0.00
	1.2	<b><i>Provide an efficient and cost-effective motorized transport system</i></b>	1	1.25
	1.3	<b><i>Improving operations without adding through capacity</i></b>	1	1.25
	2	<b><i>Involve all local partners in the transportation planning process.</i></b>	1	1.25
	3	<b><i>Cooperate across jurisdictional boundaries to create an integrated transportation network.</i></b>	1	1.25
	4	<b><i>Maintain and update the regional ITS architecture</i></b>		
	4.1	<b><i>Enhances interoperability among modal equipment and technologies</i></b>	0	0.00
	5	<b><i>Demonstrates analysis of project risk in implementation</i></b>	1	1.25
6	<b><i>Includes specific evaluation method to provide a measurement of effectiveness by collecting real time traffic data</i></b>	0	0.00	
			Total	6.25

Goal 7	System Preservation		Expected Weight (%)=	15
Emphasize the preservation of the existing transportation system.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b>Cost effectively preserve, maintain and improve the existing transportation network systems and capacity</b>		
	1.1	<b>Utilize pavement management system results</b>	1	2.50
	1.2	<b>Emphasizes system rehabilitation rather than expansion</b>	1	2.50
	1.3	<b>Incorporate cost-effective maintenance and technologies new to the MPO area</b>	1	2.50
	1.4	<b>Preserve railroad ROW or other existing ROW</b>	1	2.50
	2	<b>Contributes to better system maintenance</b>	1	2.50
	3	<b>Identify sufficient funding for the program of projects included in GF/EGF MPO transportation plans.</b>	1	2.50
			Total	15.00

Goal 8	Safety		Expected Weight (%)=	10
Increase safety of the transportation system for motorized and nonmotorized uses.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b>Address locations identified as high crash locations in LRTP and review crash data to improve roadway design and traffic control elements</b>	0	0.00
	2	<b>Reduce frequency and severity of crash and intersection conflicts through traffic control and operational improvements in highways</b>	0	0.00
	3	<b>Consistent with Strategic local and regional Highway Safety Plan</b>		
	3.1	<b>Improve efficiency and effectiveness of aggressive driving/speed enforcement efforts</b>	0	0.00
	3.2	<b>Ensure that roadway design and traffic control elements support appropriate and safe speeds</b>	0	0.00
	3.3	<b>Improve sight distance at signalized and un-signalized intersections</b>	0	0.00
	3.4	<b>Improve the roadway and driving environment to better accommodate drivers' needs</b>	1	1.11
	3.5	<b>Improve Sight Distance and/or Visibility Between Motor Vehicles and Pedestrians/Bicyclists</b>	0	0.00
	4	<b>Enhances public safety of nonmotorized users</b>	0	0.00
	5	<b>Enhances safe and well-designed route to school zones and college campuses</b>	0	0.00
			Total	1.11

Goal 9	Resiliency and Reliability		Expected Weight (%)=	10
Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b>Reduce state highway system vulnerability to snow and storm water</b>		
	1.1	<b>Maintain passable highways under all reasonable weather conditions</b>	1	1.25
	1.2	<b>Strategically design and maintain state highway system to operate under all reasonable weather conditions</b>	0	0.00
	1.3	<b>Assess and mitigate any possible impacts new roadway construction may have on high water events, including proximity to waterways, construction</b>	0	0.00
	2	<b>Support the region's resilience and travel reliability through efficient detour and evacuation routes</b>		
	2.1	<b>During river flood events, reroute traffic consistent with the Bridge Closure Management Plan, or revised to respond to significant, observed delays or</b>	1	1.25
	2.2	<b>Be trained in and use established alternate routes and intelligent transportation systems (ITS) to maintain street and highway operations during incidents</b>	1	1.25
	2.3	<b>Provide auxiliary power sources to operate traffic signals when mainline power is interrupted</b>	1	1.25
	2.4	<b>Maintain on-time project performance and implementation</b>	1	1.25
	2.5	<b>Improve engagement of transportation system, across and between modes, partners and stakeholders</b>	0	0.00
			Total	6.25

Goal 10	<i>Travel &amp; Tourism</i>		Expected Weight (%)=	5
Enhance travel and tourism.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<i>Maintain convenient and intuitive state highway access to major activity centers and tourist spots</i>		
	1.1	<i>Develop and use event traffic management plans for major activity centers such as the Alerus Center, Ralph Engelstad Arena, and Greater Grand Forks</i>	1	1.00
	1.2	<i>Identify, coordinate, and communicate traffic plans for statewide simultaneous events</i>	1	1.00
	1.3	<i>Establish partnerships to foster tourism activities within state</i>	0	0.00
	2	<i>Enhance safety /easy access to tourist spots, major activity centers, Greenway Trail System and the Red River State Recreation Area</i>	1	1.00
	3	<i>Provides landscaping/streetscaping or similar amenities</i>	0	0.00
			Total	3.00

**URBAN REGIONAL & URBAN ROADS  
PROJECT SCOPING WORKSHEET**

DATE: 2/28/2023

PRIORITY# 1 -2028

Regional: (Y)/N

Urban Roads: Y/(N)

City: Grand Forks Street: Bus US 81/S Washington St (Demers Ave to Hammerling Ave)

County: Grand Forks

Length:~0.6 miles

Proposed Improvement: Reconstruction of Bus US 81/S Washington St from Demers Ave to Hammerling Ave.

Cost Estimates Breakdown (in \$1,000)							
PE	CE	R/W	Utility	Constr.	Bridges	Non-Participating	Total
838	559	246		5,583			7,226

Present Road: Surface Width? 60'

Surface Type? 9" Concrete with asphalt overlay

On Street Parking Allowed? \_\_\_\_\_

Present: (No) One Side Both Sides Angle Parallel

Proposed: (No) One Side Both Sides Angle Parallel

Proposed Improvements		
ADT Present: ~27,100-27,400	Yr: 2021	Travel Way Width : 60'
ADT Design: ~37,000-38,000	Design year 2045	No. of Lanes: 5
Design Speed: 35MPH		Roadway Width: 60'
Maximum Curve: _____		Min. R/W Width:80'
Maximum Grade: _____		

Right of Way
Will Additional ROW or easement be acquired? Yes ROW acquisition by: City (DOT)
Has any ROW easements been acquired since 7-1-72: Likely ROW Condemnation by: City (DOT)
Est. No. of occupied family dwelling to be displaced? None anticipated
Est. No. business to be displaced? None anticipated

**Impacts**

Will there be any additional Impacts (Cultural and Environmental Resources): None anticipated  
 Will there be any impacts to 4(f) or 6(f) properties: None anticipated  
 Airports: none Public Hearings: maybe  
 Environmental Classification (Cat-Ex, EA, EIS): Cat-Ex  
 Transportation Enhancements: To be determined during the NEPA phase  
 Intermodal: To be determined during the NEPA phase  
 Pedestrian Needs: To be determined during the NEPA phase

**Railroads Crossings**

RR Name	No. Xings	No. Tracks and Type of Crossing	Daily Train Movements	Train Speed	Present Protection	Proposed Protection
None						

**Purpose and Need Statement:**

The pavement has reached a point in which reconstruction should be considered to address underlying pavement issues and address other deficiencies within the right of way.

Existing Conditions:

1. When was the current street section built? Has there been any additional maintenance to the street section?

The original concrete pavement was constructed in 1952 with asphalt mill and overlays in 1974, 1985, 2002 and 2018. The pavement is in relatively good condition as it was overlaid in 2018, at the time of the proposed project the pavement surface will be nine years old. However, the pavement underneath the asphalt overlay is continuing to deteriorate, which was likely partially responsible for the asphalt mill and overlay project originally requested for 2020 to be accelerated and constructed in 2018.

2. How many driving lanes and turning lanes does the street section currently have and what is the widths of the driving and turning lanes?

There are four through lanes, two in each direction with a shared left turn lane. The lanes are approximately 12' wide.

3. What is the condition of the pavement section?

- A. If the pavement section is asphalt, is there any alligator cracking, longitudinal cracking, transverse cracking, raveling, bituminous patching or rutting?



- B. If the pavement section is concrete, are there any broken slabs, faulting, bituminous patching, joint spalling, transverse cracking, or longitudinal cracking.

With the overlay in 2018, the pavement is in good condition, however the subsurface pavement is showing deterioration

Pavement Condition Index and International Roughness Index data was obtained in 2021 from GoodPointe Technology.

Minimum PCI value 82	Minimum IRI value of 72
Median PCI value of 87	Median IRI value of 102
Maximum PCI value of 92	Maximum IRI Value of 170

4. Any existing geometric concerns?

The KLJ Washington St Corridor Study recommended realigning the offset intersections of 8<sup>th</sup> Ave S, 10<sup>th</sup> Ave S, and 14<sup>th</sup> Ave S.

5. Are there any access points to adjoining properties that present a special concern?

There are several existing access points for businesses along this corridor. The KLJ Washington St Corridor Study that further examines the impact of these access points. The large quantity of access presents a concern for both vehicles merging onto and traveling on Bus US81/Washington St. Consideration should be made to removing or consolidating access points along the corridor.

6. Are there any existing sidewalks or shared use path in place?

There are existing sidewalks on both sides of the road. These sidewalks span from the back of the curb to the edge of the existing right of way line. Numerous street lights and signs can be found in the sidewalk. The condition of these facilities is unknown and will need to be determined during the project development phase.

7. What is the condition of the existing storm sewer? Will any additional storm sewer work need to be done along with this project?

Existing storm sewer had surface repair work completed by the city prior to the mill and overlay project in 2018. This did not address any subsurface issues. Further investigation will be required to determine the extent of any storm sewer repairs or replacement.

8. What is the condition of the city's water and sewer line? Will any work have to be done to the city's water and sewer lines along with this project?

The existing city waterline and sanitary sewer primarily cross Bus US 81/S Washington St, there are some short sections which run parallel to this street. The condition of these utilities is unknown and will need to be determined during the project development phase.

9. Describe the existing lighting system currently in place? What type of standards and luminaires are currently being used?

The existing street lighting is 40' steel davit arm style poles, with a 250W High Pressure Sodium (HPS) fixture with staggered spacing placed on both sides of the road in the sidewalks.

10. What intersections currently have traffic signals? Are there any locations that have a high accident rate? Are additional turning lanes needed?

There is a traffic signal located at the intersection of Bus US 81/S Washington St and 13<sup>th</sup> Ave S. This signal appears to have been installed in or around 1972 and is anticipated to be replaced as part of the regional traffic signal rehabilitation project currently programmed in the STIP for construction in 2025.

The intersection of Demers and Washington is listed on the 2019-2021 Urban High Crash Location report released in 2022 with a #12 ranking. Though outside of the project limits, it is near the proposed project.

Evaluation of turn lanes is anticipated to be completed in the project development phase. If turn lanes are needed it is anticipated that significant efforts will be required for ROW acquisition.

Remarks:

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City Engineer: Allen R. A.

Date: 2/28/23

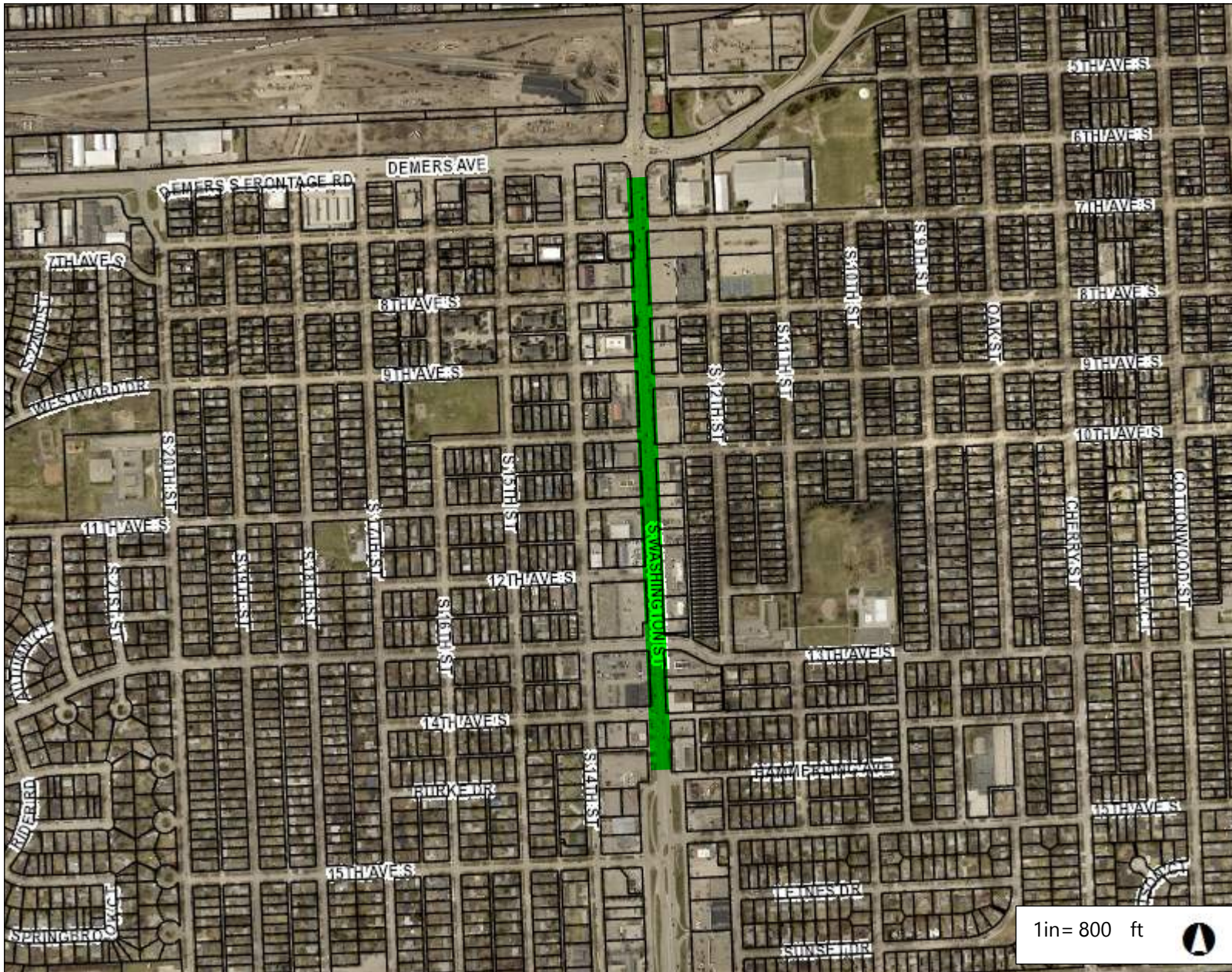
District Engineer: Edward Palusz

Date: 2/28/23




**Note:** Please attach a map showing location and extent of the project, detailed cost estimate, and any additional supporting documents.




# Reconstruct Bus US 81/N Washington St (Demers Ave to Hammerling Ave) - 2028

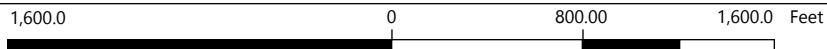


## Legend

-  Active Parcels
-  Boundary City Limit
-  Boundary Gray Area
- Address Labels
- Road Labels

## Notes

1in= 800 ft 



NAD\_1983\_StatePlane\_North\_Dakota\_North\_FIPS\_3301\_Feet  
City of Grand Forks GIS

All dimensions, descriptions, measurements, boundaries and data contained in this nonstandard document are included for general information only. No warranties or covenants are made or given by the City of Grand Forks. Any user must confirm the accuracy of the same with official records, and/or by survey.

**THIS MAP IS NOT TO BE USED FOR NAVIGATION**

2024-2027 TIP

Cost Estimating Basis

7/22/2022

2021 Project Cost History

Urban Projects

Base Construction Cost 2021

Costs are per mile

Street Bus US 81/Washington St

To/From Hammerling to Demers

Type Reconstruct

	<u>Reconstruct</u>
Construction & CE Only	\$7,650,000
Total Cost	\$9,000,000
Assumption	
CE is 10% of Construction	
Base Construction	\$6,954,545
Total Cost/Base Const	129.4%
Design Engineering	15%
Construction Engineering	10%
ROW/MISC	4.4%

Year of Expenditure	2028
Length (ft)	3,200
Length (mi)	0.61
Base Const Cost/mi	\$6,954,545
Inflated Const Cost/mi 4%	\$5,583,000
Const Cost	\$5,583,000
Design Eng	\$838,000
Const Eng	\$559,000
ROW/MISC	\$246,000
<hr/>	
Total Project Cost	\$7,226,000

Construction Cost Breakdown

Contract Bond	1%
Mobilization	10%
Traffic Control	5%
Erosion Control	5%
Underground Utilities	9%
Pavement	65%
Signing/Striping	2%
Electrical	3%
	100%

Base Const Cost Breakdown

Contract Bond	\$55,830
Mobilization	\$558,300
Traffic Control	\$279,150
Erosion Control	\$279,150
Underground Utilities	\$502,470
Pavement	\$3,628,950
Signing/Striping	\$111,660
Electrical	\$167,490
<hr/>	
Const Total	\$5,583,000

Recommended Alternatives



## Corridor Improvements

As part of the Washington Street Corridor Study, improvement recommendations were developed to address vehicle, pedestrian, bicycle and transit transportation needs within the corridor. The purpose of formulating recommendations is to identify the alternatives that most effectively meet the overall study goal of creating a safe, efficient and harmonic transportation environment for all road users while limiting business impacts. Recommendations are subject to change based upon new or varied information uncovered during project development.

## Vehicular Improvements

### Recommendation: Reconstruct the Corridor With Existing Basic Lane Configuration

With the exception of the corridor section south of Hammerling Avenue, the original pavement section along the Washington Street corridor was built between 1940 and 1964. Structural overlays have maintained acceptable rideability and roadway conditions throughout the corridor except underneath the BNSF Railway Bridge structure. The section of corridor has been limited to rehabilitation efforts due to vertical clearance constraints underneath the bridge. At some point in the future, the pavement along the corridor will approach the end of its useful life. At this time, either an additional structural overlay or a full roadway reconstruction should be considered. In conjunction with the City and State's pavement management plan, it is recommended the corridor be reconstructed sometime within the study horizon to maintain a suitable driving surface.

The existing lane configuration is recommended to be reconstructed with 12-foot wide lanes. This allows for an additional four feet throughout the corridor to be used for widening sidewalks.

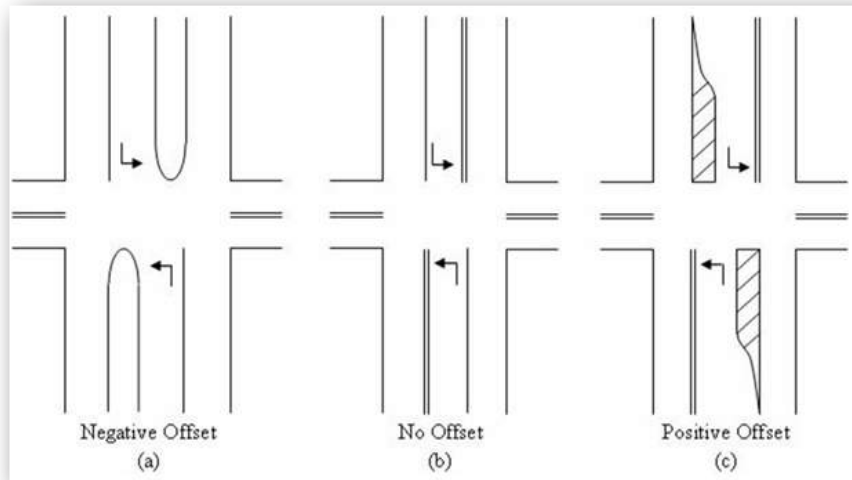
### Discarded Alternative: Temporary Roadway Rehabilitation Only

Pavement rehabilitation such as structural overlays may temporarily extend the lifespan of the roadway section along Washington Street. However, these improvements do not improve the base sections of the roadway that continue to deteriorate. Based upon the current age of the base pavement on Washington Street north of Hammerling Avenue, it is anticipated that this base section will reach or nearly approach the end of its useful life sometime before 2035. Furthermore, exclusive pavement rehabilitation eliminates the option to narrow the roadway cross-section which limits any potential pedestrian and ADA related improvements. Temporary rehabilitation efforts are not discarded as a potential improvement alternative for this section of the corridor; however, they were discarded as the only required alternative through the study horizon year of 2035.

### Discarded Alternative: Positive Offset Turn-Lanes

Ideally, roadways are configured to prevent left-turn lanes with negative or no offset. Turn-lanes with negative or no offset reduce sight distance for left-turning vehicles due to the presence of a vehicle in the opposing left-turn lane obstructing the view of oncoming motorists. To modify the lane configuration to a positive offset alignment would require, at minimum, 12 feet of additional ROW. The option was discarded for business impact considerations. Additionally, all locations with left-turn crash rates higher than anticipated were addressed through site specific improvement strategies.

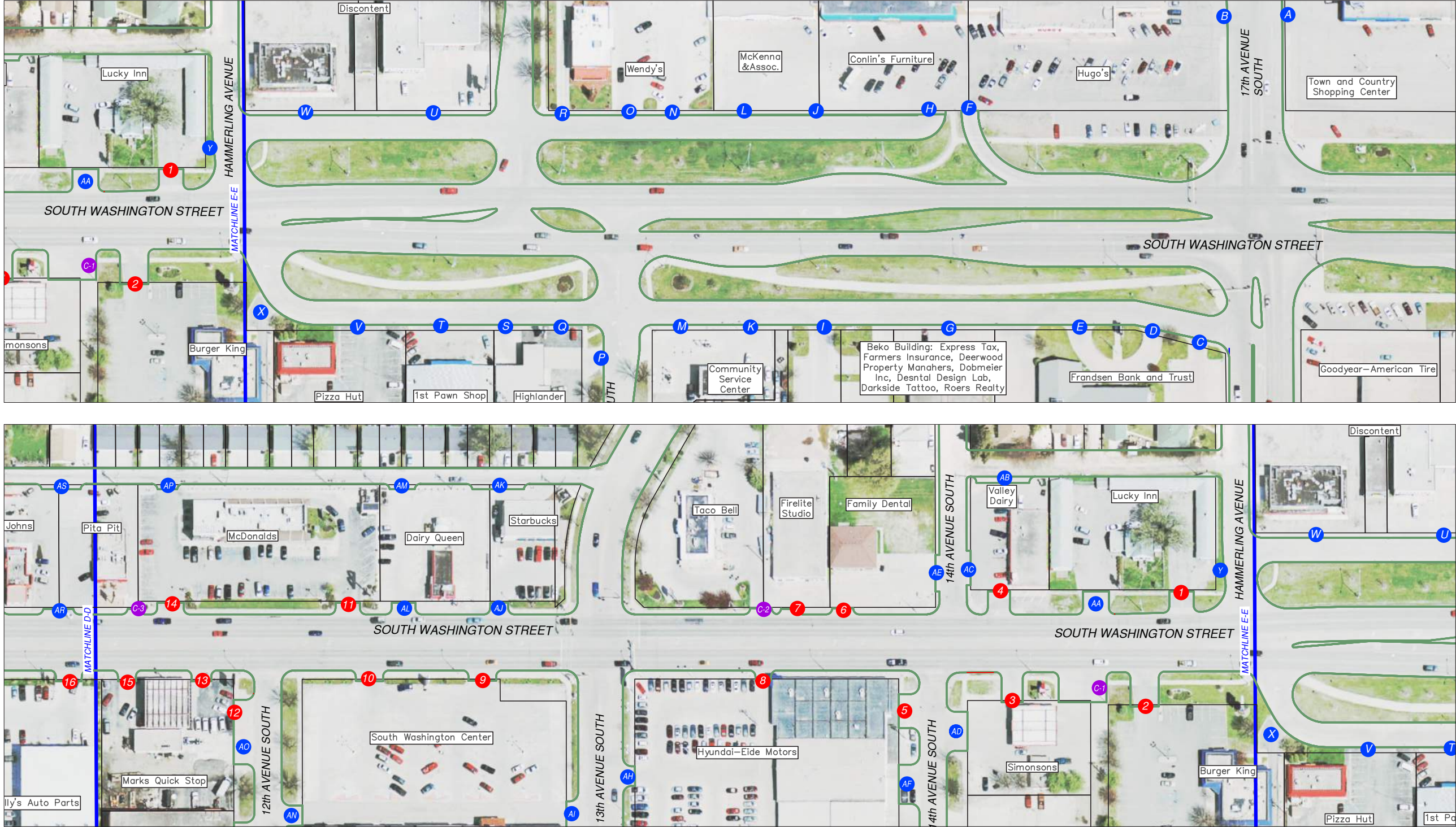
FIGURE 7.1 – Illustration of Negative, No and Positive Offset Left-Turn Lanes



### Recommendation: Implement Access Management Plan

An access management plan was prepared to reduce conflicts and crashes based upon a review of existing property uses, access locations and crash history. Although complete access control is impractical due to business functionality and mobility concerns, opportunities exist to improve mid-block traffic flow through implementation of driveway modifications. The strategy eliminated redundant access points onto Washington Street, relocated access points from Washington Street to side-streets or alleyways with low traffic volumes or consolidated adjacent property access points. It is important to note closed driveways may divert traffic to alleyways that formerly experienced minimal traffic volumes. In response to the changes in travel patterns, all unpaved alleyways that are anticipated to experience higher traffic volumes post-reconstruction are recommended to be paved. The strategy removed 100 percent of the driveways onto Washington Street north of DeMers Avenue and 71 percent of the driveways south of DeMers Avenue (refer to FIGURES 7.2 A-7.2 C and Tables 7.1 A and 7.1B for documentation of the recommended access management plan).

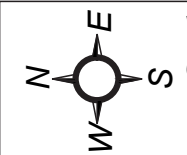
It is important to note that inactive driveways are documented in TABLE 7.1 A and 7.1B. Inactive accesses within the corridor are the result of several car dealerships and autobody shops along the corridor that have one or more of their driveways blocked by parked vehicles. It is important to consider these access points in the event that a driveway is utilized in the future by the current business or in the event that these sites are redeveloped.



Note: All driveways with access to Washington Street shall be reconfigured to conform to Grand Forks City Code, North Dakota Department of Transportation, and ADA design standards and requirements if not currently in conformance.

**LEGEND**

- 1 Removed Access
- A Remaining Access
- C-1 Consolidated Access



**Washington St. Corridor Study**  
Grand Forks - East Grand Forks MPO

**Access Management Plan**

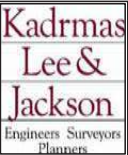
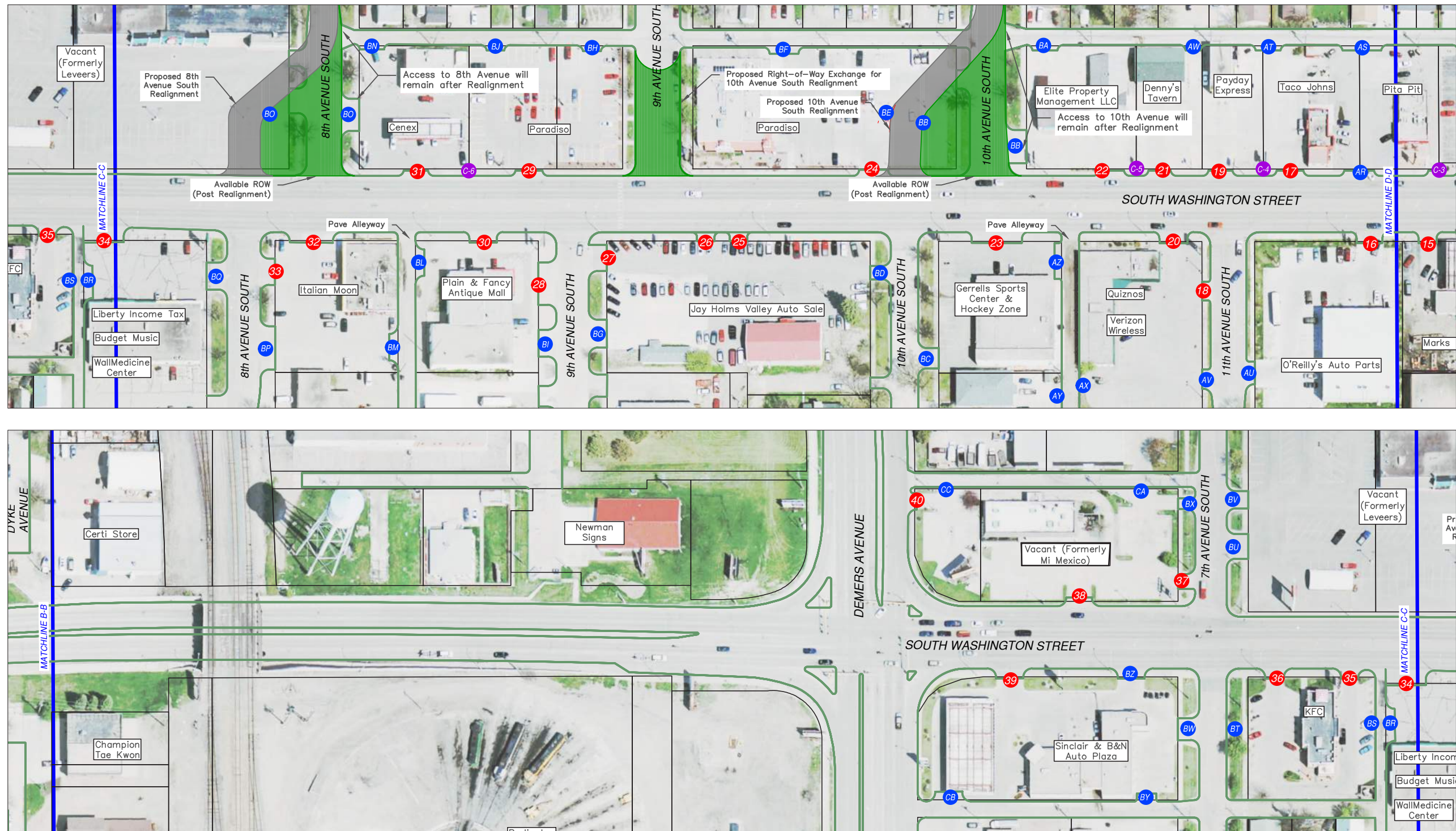


FIGURE 7.2 A – Access Management Plan





Note: All driveways with access to Washington Street shall be reconfigured to conform to Grand Forks City Code, North Dakota Department of Transportation, and ADA design standards and requirements if not currently in conformance.

**LEGEND**

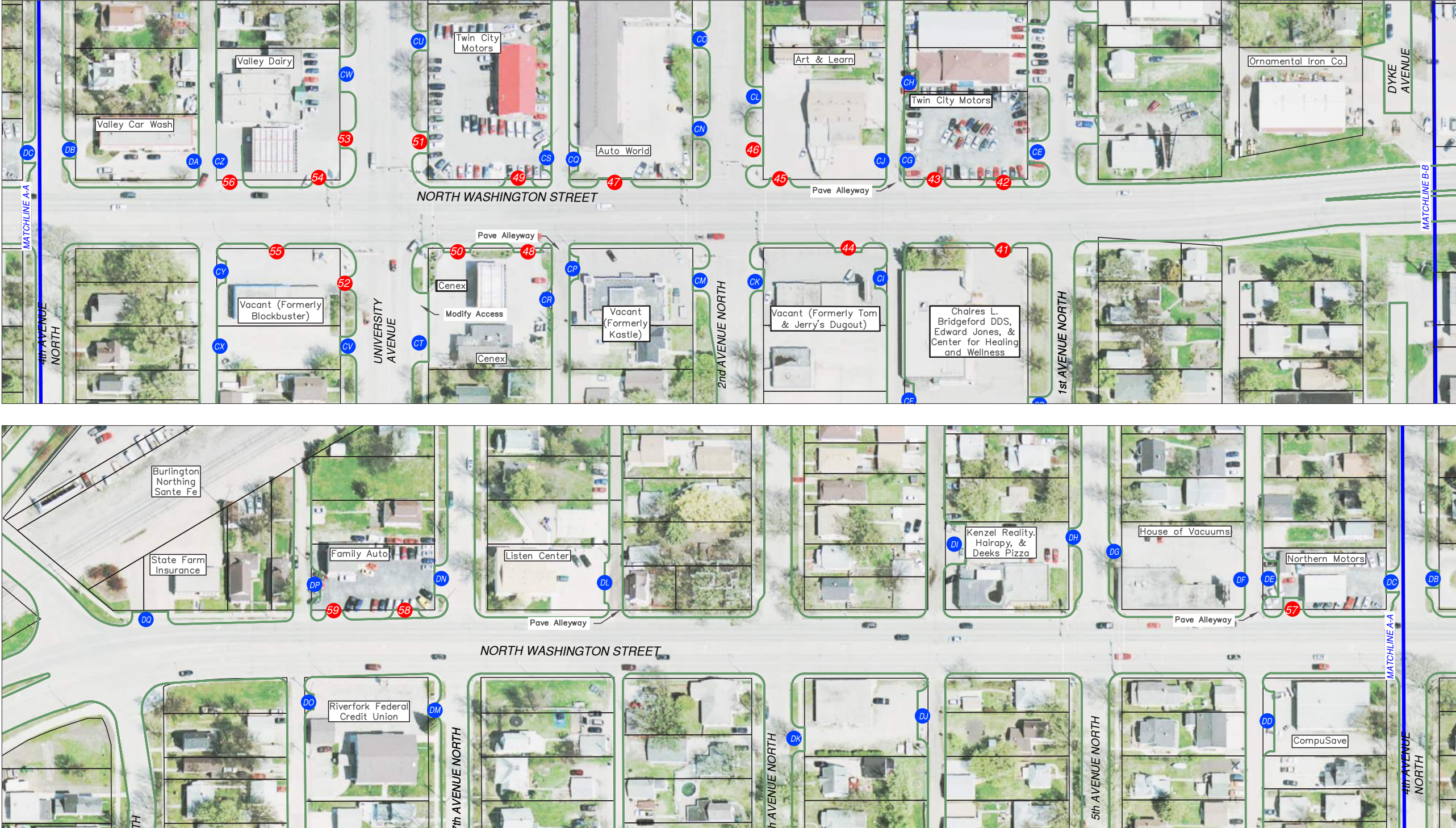
- ⓧ Removed Access
- Ⓐ Remaining Access
- ⓐ Consolidated Access

**Washington St. Corridor Study**  
 Grand Forks - East Grand Forks MPO

**Access Management Plan**

FIGURE 7.2 B – Access Management Plan

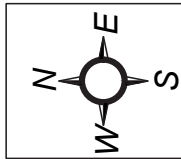




Note: All driveways with access to Washington Street shall be reconfigured to conform to Grand Forks City Code, North Dakota Department of Transportation, and ADA design standards and requirements if not currently in conformance.

**LEGEND**

- Removed Access
- Remaining Access
- Consolidated Access



**Washington St. Corridor Study**  
Grand Forks - East Grand Forks MPO

**Access Management Plan** **Kadmas Lee & Jackson**  
Engineers Surveyors Planners

FIGURE 7.2 C – Access Management Plan



# WASHINGTON ST. CORRIDOR STUDY

TABLE 7.1 A – Access Management Plan

Removed Access ID	Impacted Business	Remaining Access ID	Location of Remaining Access Point(s)	Notes
1	Lucky Inn	Y	Hammerling Ave	
		AA	Washington St	
2	Burger King	X	Washington St service road	
		C-1	Washington St	New consolidated access point shared with Simonson's
3	Simonson's	C-1	Washington St	New Consolidated access point shared with Burger King
		AD	14th Ave S	
4	Valley Dairy	AB	East alley	
		AC	14th Ave S	
5, 8	Hyundai-Eide Motors	AF	14th Ave S	
		AH	13th Ave S	
6	Family Dental	AE	14th Ave S	
7	Firelite Studio	C-2	Washington St	New consolidated access point shared with Taco Bell
9, 10	South Washington Center	AI	13th Ave S	
		AN	12th Ave S	
11, 14	McDonald's	C-3	Washington St	New consolidated access point shared with Pita Pit
		AP	East alley	
12, 13, 15	Mark's Quick Stop	AO	12th Ave S	
16	O'Reilly's Auto Parts	AU	11th Ave S	
17	Taco John's	C-4	Washington St	New consolidated access point shared with Payday Express
		AR	Washington St	Shared with Pita Pit
		AS	East alley	Shared with Pita Pit
		AT	East alley	Shared with Payday Express
18, 20	Quizno's & Verizon Wireless	AV	11th Ave S	
		AX	North alley	
19	Payday Express	C-4	Washington St	New consolidated access point shared with Taco John's
21	Denny's Tavern	C-5	Washington St	New consolidated access point shared with Elite Property Mgmt
		AW	East alley	
22	Elite Property Management LLC	1-B	Washington St	New consolidated access point shared with Denny's Tavern
		BA	East alley	
		BB	10th Ave S	
23	Garrell's Sports Center & Hockey Zone	AZ	South alley	
		BC	10th Ave S	
24	Paradiso	BE	10th Ave S	
		BF	East alley	
25, 26, 27	Jay Holm's Valley Auto Sale	BD	10th Ave S	Driveways 25 and 26 are currently inactive
		BG	9th Ave S	

# WASHINGTON ST. CORRIDOR STUDY

TABLE 7.1 B – Access Management Plan

Access Management		Trip Reassignment		
Removed Access ID	Impacted Business	Remaining Access ID	Location of Remaining Access Point(s)	Notes
28, 30	Plain and Fancy Antique Mall	BI	9th Ave S	
		BL	North alley	
29	Paradiso	BH	East alley	
		BJ	East alley	
		C-6	Washington St	New consolidated access point shared with Cenex
31	Cenex	C-6	Washington St	New consolidated access point shared with Cenex
		BN	East alley	
		BO	8th Ave S	
32, 33	Italian Moon	BM	South alley	
		BP	8th Ave S	
34	Liberty Income Tax, Budget Music, & Wall Medicine Center	BQ	8th Ave S	
		BR	North alley	
35, 36	KFC	BS	South alley	
		BT	7th Ave S	
37, 38, 40	Vacant (Formerly Mi Mexico)	BX	7th Ave S	
		CA	East alley	
		CC	East alley	
39	Sinclair & B and N Auto Plaza	BW	7th Ave S	
		BY	West alley	
		BZ	Washington St	
		CB	West alley	
41	Charles L. Bridgeford DDS, Edward Jones, & Center for	CD	1st Ave N	
		CF	North alley	
42, 43	Twin City Motors	CE	1st Ave N	Driveway 42 is currently inactive
		CG	North alley	
44	Vacant (Formerly Tom and Jerry's Dugout)	CI	South alley	
		CK	2nd Ave N	
45, 46	Art and Learn	CJ	South alley	
		CL	2nd Ave N	
47	Auto World	CN	2nd Ave N	
		CO	2nd Ave N	
		CQ	North alley	
48, 50	Cenex	CR	South alley	
		CT	University Ave	
49	Twin City Motors	CS	South alley	Driveway 49 is currently inactive
		CU	University Ave	
51	Twin City Motors	CS	South alley	Driveway 51 is currently inactive
		CU	University Ave	
52, 55	Vacant (Formerly Blockbuster)	CV	University Ave	
		CX	North alley	
		CY	North alley	
53, 54, 56	Valley Dairy	CW	University Ave	
		CZ	North alley	
57	Northern Motors	DC	4th Ave N	Driveway 57 is currently inactive
		DE	North alley	
58, 59	Family Auto	DN	7th Ave N	Driveway 58 is currently inactive
		DP	North alley	

## Discarded Alternative: Raised Medians

Raised medians were studied within the corridor. Raised medians improve roadway safety by minimizing the number of conflict points created at driveways (refer to FIGURE 7.3). Additionally, medians provide refuge for pedestrians attempting to cross the street. Due to the high percentage of driveway closures proposed by access management plan, a raised median was discarded.

FIGURE 7.3 – Example of Conflict Elimination Through Median Control



The only location that may benefit from a raised median is the section of corridor between 10th Avenue South and 13th Avenue South where a high density of driveways remained due to business functionality and mobility requirements. It is important to note queue lengths present at 13th Avenue South do not allow for adequate taper or storage distance for northbound left-turn movements at 12th Avenue South. Additionally, a raised median over the short stretch was deemed impractical.

If a relaxed access management plan is implemented, it may be appropriate to consider installing raised medians within the corridor to manage conflicts by eliminating left-turns to or from driveways within the corridor. Of the driveway and alleyway related crashes within the study corridor, 44 percent occurred when a motorist attempted a turning movement into or out of a private driveway. Typically, crashes caused by motorists turning across the roadway or making left turns can lead to more severe crashes than merging or diverging conflicts because of the angle and speed differentials between the vehicles.

## Recommendation: Periodic Signal Timing Optimization

In December 2010, traffic signal timing and coordination upgrades were completed within the study corridor. Signal timing optimization should be conducted periodically to adequately serve the needs of motorists as future developments affect traffic patterns and operations. Signal timing optimization for 2035 traffic volumes is anticipated to improve the LOS at the intersections of 13th and 17th Avenues South from a "D" to "C."

Crash records for the three year period prior to signal upgrades indicated a rear-end and/or angled crash susceptibility at the signalized intersections within the corridor. Recent signal timing improvements may improve signal operations resulting in shorter queues and fewer crashes. If the recent upgrades do not improve the crash rates, signal timing, coordination and detection should be reexamined.

## Recommendation: Install New Traffic Signal Interconnection Hardware Throughout the Corridor

Currently, no hardwire connects the portion of the city north of the railroad tracks and the portion south of the tracks. According to City of Grand Forks Public Works staff, one long range goal of the traffic signal system is the fiber optic hardwire interconnect of the entire Grand Forks traffic signal network that is capable of streaming video footage recorded by video detection units at each applicable intersection. City-wide fiber optic interconnect is possible through boring new lines of during potential bridge replacement strategies discussed later in this chapter. If the bridge is replaced, conduit can be installed that connects the north and south side of the corridor and subsequently, the city. Once the connection is made, single mode fiber can be installed throughout the corridor that connects each signal within the study corridor to existing hardwire on Gateway Drive. The small core and single light-wave operation of single-mode fiber minimizes any distortion that could result from overlapping light pulses, providing the least signal attenuation and the highest transmission speeds of any fiber cable type. Single-mode is the preferred fiber optic hardwire for the City of Grand Forks (refer to FIGURE 7.4 for a graphic illustration of the alternative).

FIGURE 7.4 – Corridor-Wide Traffic Signal and Video Monitoring Interconnection

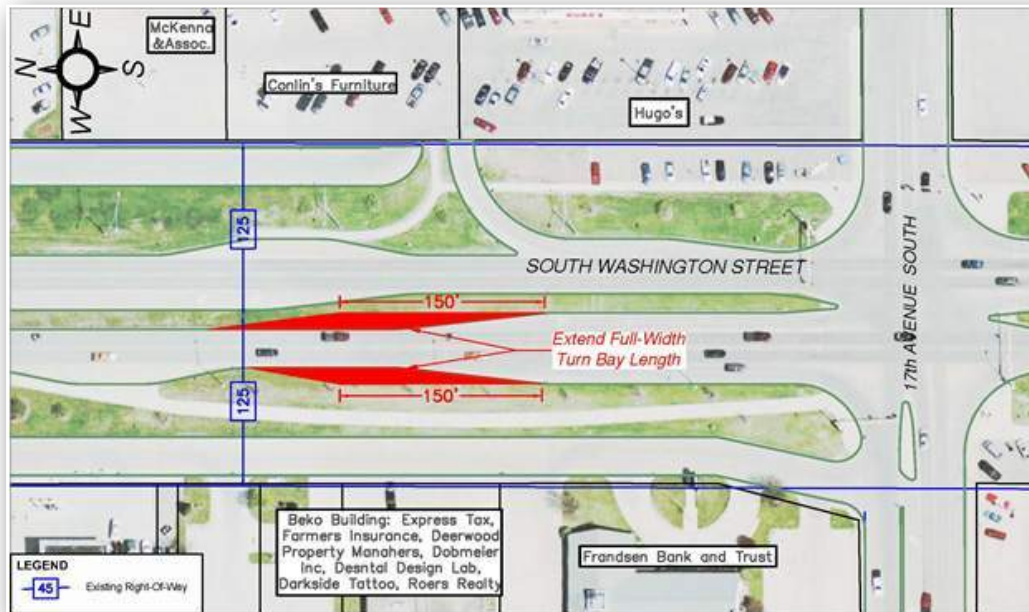


## Recommendation: Extend Southbound Turn Lanes at 17th Avenue South

The southbound approach of 17th Avenue South is anticipated to incur a 95 percent through lane queue lengths of 450 feet under forecasted 2035 traffic conditions respectively. Seventeenth Avenue South is currently raised median controlled with southbound full-width turn bay lengths of 300. As a result, raised median adjustments may be necessary on the approach to accommodate future traffic volumes. It is important to note a bus turn-out is currently in place north of 17th Avenue South on the west side of the street. The turn-out restricts the available right-turn lane taper length. As a result, the right-turn lane taper length was adjusted to within a reasonable distance to the bus turn-out to limit motorists from confusing the turn-out with the beginning of the right-turn lane. Refer to FIGURE 7.5 for a graphic illustration of the alternative.



FIGURE 7.5 – 17th Avenue South Southbound Full-Width Turn-Lane Extensions

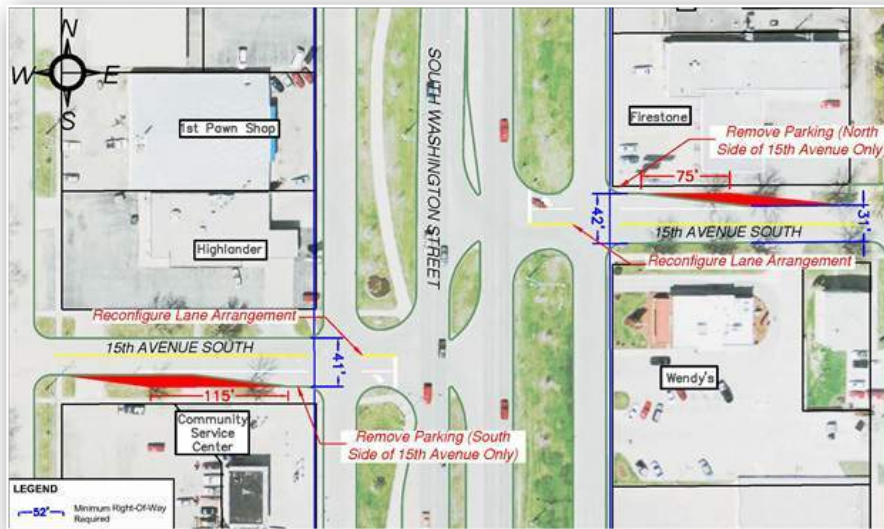


## Recommendation: Install Right-Turn Lanes on 15th Avenue South Approaches

The intersection at 15th Avenue South is anticipated to experience a LOS “F” under forecasted 2035 peak-hour capacity analysis with existing geometries. The intersection has east and west approaches offset by approximately 90 feet centerline to centerline. The current offsets create atypically long and complicated through movements that require inordinately long gaps in traffic to complete. Currently, the east and west approaches of 15th Avenue South are marked as one combined left-turn/through/right-turn lane. This requires left-turning and right-turning traffic to queue behind through traffic. It is important to note although approaches are marked as one lane, they are wide enough for two-lanes and often times operate as such.

Constructing right-turn lanes prevents queues of right-turning traffic from building up while a motorist waits for an adequate gap in traffic to make a through or left-turn movement. The improvement is anticipated to improve overall intersection LOS to “A”. It is important to note the left-turning and through movements at the approaches are still anticipated to experience a LOS “F”. If the delay reaches an unacceptable level at the approaches, motorists may be inclined to reroute to the intersection of 17th Avenue South. The intersection is signalized and directly adjacent to 15th Avenue South. The left-turning and through traffic at 15th Avenue South is minimal, and would have a minimal effect on intersection delay at 17th Avenue South if 100 percent of the 15th Avenue South traffic is diverted to this location. Refer to FIGURE 7.6 for a graphic illustration of the option.

FIGURE 7.6 – 15th Avenue South Intersection Eastbound and Westbound Lane Reconfiguration



## Discarded Alternative: Side-Street Realignment

The alternative was discarded due to impacts. Realigning 15th Avenue South to a zero offset would improve traffic operations to an acceptable level. However, the improvement would be at the cost of at least one building depending on the approach selected for realignment.

## Recommendation: Realign the Offset Intersections of 14th, 10th and 8th Avenues South

The intersection at 14th Avenue South, 10th Avenue South and 8th Avenue South are negatively offset by approximately 25 feet, 100 feet and 120 feet centerline to centerline, respectively. Negatively offset roadways create access points that are in close proximity to one another and require shared use of the TWLTL. With the alignment, when two motorists are using the TWLTL at the same time, the drivers' paths would overlap as each driver tries to access the side-streets. The scenario creates a head-on conflict point. If a raised median is not utilized to prevent crashes caused by the negative offset of the east and west approaches at the intersection, realigning driveways to have positive or no offset to minimize conflicts between left-turning vehicles is advantageous. Although no head-on crashes were documented during the study period, crash analysis found two crashes occurred during a westbound left-turn or through movements at 10th in the past three years. Additionally, negatively offset side-streets also experience inordinately long delays for through movements from one offset approach to the other due to the adequate gap time required to cross an offset intersection.

Realigning the east and west approaches of the intersections is anticipated to improve safety and traffic operations at this intersection. Improvements are anticipated to minimize the potential for head-on collisions within the Washington Street TWLTL and potentially reducing westbound through movement crash susceptibility at the intersection of 10th Avenue South. Additionally the improvement is anticipated to reduce minor street motorist delays by as much as 29 percent, 85 percent and 95 percent for 14th Avenue South, 10th Avenue South and 8th Avenue South, respectively. This improves the overall 8th Avenue South LOS from "E" to "A". The intersections of 14th Avenue South and 10th Avenue South experience a LOS "A" during forecasted peak-hours due to the minimal amount of side-street traffic.

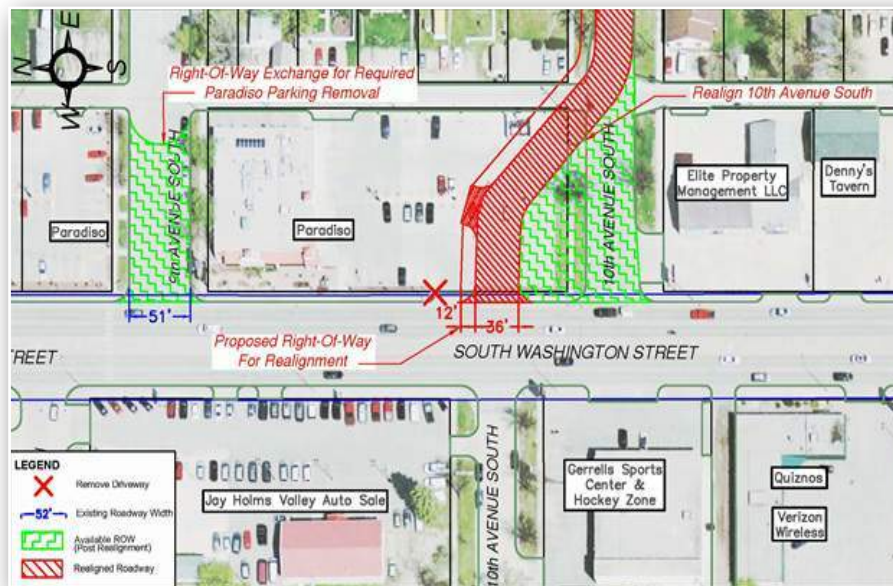
Due to the minor offset of the 14th Avenue South side-streets, full side-street realignment is not necessary to experience safety and operation improvement. Increasing the side-street curb radii to allow motorists to align in a skewed fashion may provide a cost effective improvement alternative. Refer to FIGURE 7.7 for an illustration of this option.

FIGURE 7.7 – 14th Avenue South Realignment



Realigning the westbound approach of 10th Avenue South to the north would require ROW acquisition from Paradiso Mexican Restaurant. Paradiso currently owns property north of 9th Avenue South that is maintained as a parking lot for the establishment. A ROW exchange is proposed that would substitute the portion of 9th Avenue South from Washington Street to the alleyway to the east of Washington Street in exchange for the parking that would be removed during the 10th Avenue South Realignment. The ROW exchange would allow Paradiso to build additional parking at the location and connect the two parcels of land owned by Paradiso. The improvement would allow patrons that park in the north parking lot to access the restaurant without having to navigate across 9th Avenue. Refer to FIGURE 7.8 for a graphic illustration of this option.

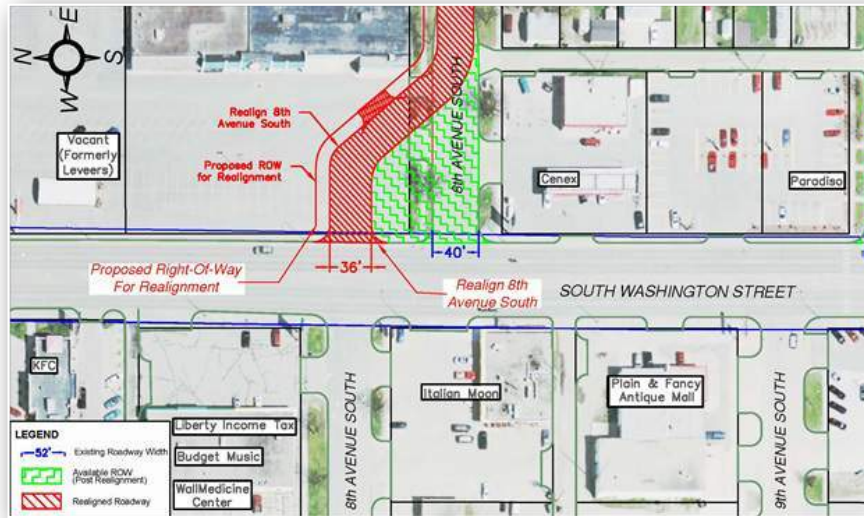
FIGURE 7.8 – 10th Avenue South Realignment





The parcel on the northeast quadrant of the 8th Avenue South intersection is currently being redeveloped. Although realignment would require ROW acquisition, realigning the westbound leg of the intersection to the north could be completed without any building impacts. The proposed realignment option can be reviewed on FIGURE 7.9.

FIGURE 7.9 – 8th Avenue South Realignment



## Discarded Alternative: Install Additional Turn Lanes on Minor Approaches

Providing additional lanes at a negatively offset intersection offers minimal traffic operational benefits and was discarded from further analysis. Intersections with negative offsets require right-turning traffic to queue behind through moving traffic. Though movements incur inordinately long delays due to the adequate gap time required to cross an offset intersection.

## Discarded Alternative: Realign Eastbound Approaches of 10th and 8th Avenue South

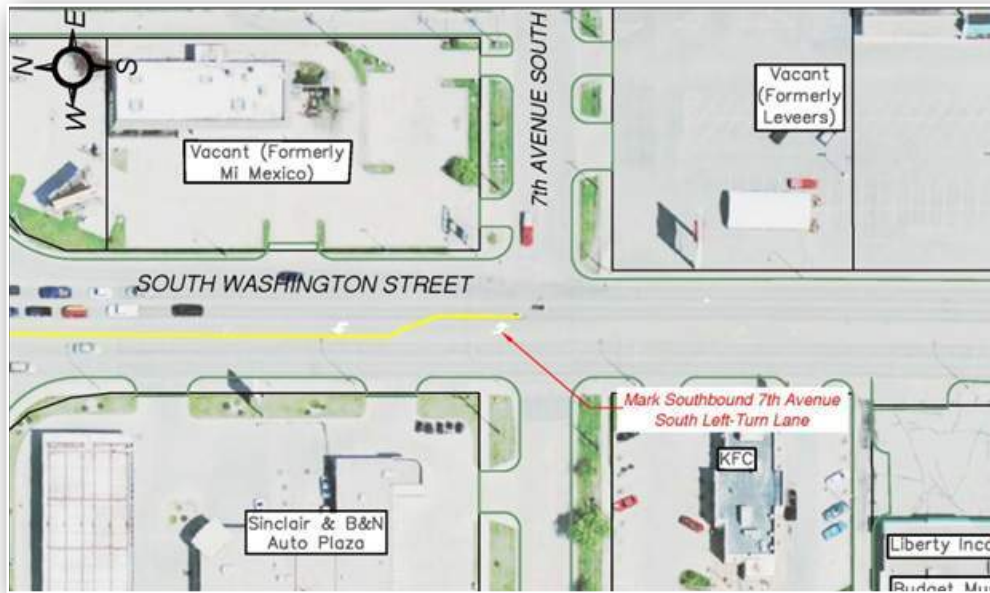
The alternatives were discarded due to resulting businesses impacts. Realigning the eastbound approaches of the 10th and 8th Avenue South intersections would require the acquisition of Gerrell's Sports Center and Hockey Zone and Italian Moon, respectively.

## Recommendation: Stripe Southbound Left-Turn Lane at 7th Avenue South Intersection

To accommodate the long queues experienced at DeMers Avenue, the southbound approach of 7th Avenue South utilizes the area typically designated for a left-turn lane as storage for the northbound left-turn lane on DeMers Avenue. This is the only approach within the corridor without a designated left-turn lane. The configuration results in motorist expectancy concerns and congested traffic operations between DeMers Avenue and 7th Avenue South. Two rear-end crashes involved southbound Washington Street through traffic and a southbound motorists stopped in the same through lane waiting for a gap in traffic to make a left-turn. If the recommended DeMers Avenue improvement (discussed later in this chapter) is adopted and implemented, spillback operations are anticipated to be alleviated for current and forecasted traffic conditions. Spillback alleviation allows a southbound left-turn lane to be striped at 7th Avenue South. The turn-lane may conform to motorist expectancy and subsequently reduce crash rates. Additionally, the improvement may reduce congestion between the section of Washington Street between DeMers Avenue and 7th Avenue South resulting from southbound left-turning vehicles stopped in the through lane. Refer to FIGURE 7.10 for a graphic illustration representation of this alternative.



FIGURE 7.10 – Marked Southbound 7th Avenue South Left-Turn Lane



## Discarded Alternatives: Restricted 7th Avenue South Access

Crash analysis conducted at the intersection of South Washington Street with 7th Avenue South indicate higher than expected crash rates at three of the four left-turning movements and the westbound through movement at the intersection. The majority of the aforementioned crashes occurred when DeMers Avenue spilled back across 7th Avenue South. During spillback conditions, vehicles queued across the 7th Avenue South obstructing sight distance for motorists entering or exiting 7th Avenue South.

As documented above, if the recommended DeMers Avenue improvement is adopted and implemented, spillback operations are anticipated to be alleviated for current and forecasted traffic conditions. However, if the DeMers Avenue intersection improvements are not adopted, it may be appropriate to prohibit certain movements at the 7th Avenue intersection to reduce current crash susceptibility. One potential option would be to operate the intersection of 7th Avenue South as a right-out access controlled intersection. Right-in/Right-out operation would eliminate the potential for crashes resulting from queued vehicles at DeMers Avenue restricting sight distance for left-turning and through moving traffic at 7th Avenue South. Trip diversion resulting from the improvement is anticipated to be minimal during forecasted peak hour operation due to the low left-turning traffic volumes at the intersection and low volume of through movements across 7th Avenue South. Refer to FIGURE 7.11 for a graphic illustration of the discarded option.

FIGURE 7.11 – Restricted Access to 7th Avenue South (Discarded)



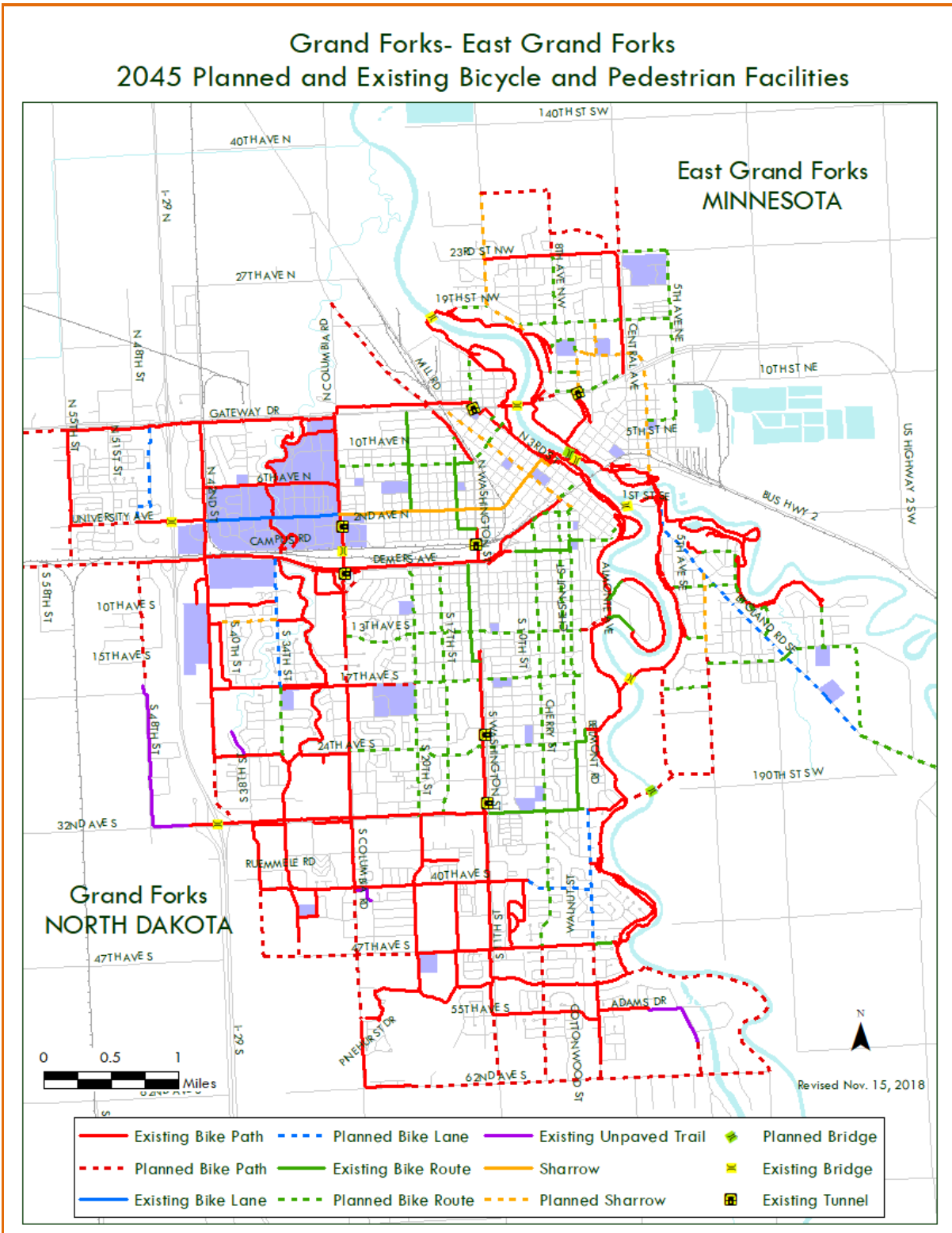
## Recommendation: Construct a Partial Continuous Flow Intersection on DeMers Avenue

The Washington Street and DeMers Avenue intersection has the highest level of traffic and travel delay in the Grand Forks-East Grand Forks metropolitan area. The intersection has been identified for improvements dating back to the Grand Forks-East Grand Forks 1969 Urban Area Study. For decades, the L RTP repeatedly recommended an urban interchange coupled with a new river crossing reliever route as a solution. To date, no new river crossing has been established and no interchange constructed due to unacceptable ROW and business impacts. All the while, increased traffic volumes have resulted in compounded traffic congestion. Now, even with an additional river crossing and the existing intersection configuration, forecasted 2035 peak-hour motorist delay is anticipated to reach nearly seven times the maximum delay value corresponding to LOS “D”. LOS “D” is currently the minimum acceptable design threshold for this intersection.

In addition to the aforementioned traffic operation deficiencies, the intersection had the highest number of crashes within the corridor and the second highest crash rate. Crash analysis indicated a prevalence for rear-end crashes potentially due to the long queue lengths experienced at the intersection. Crash analysis also identified pedestrian and bicycle safety concerns at the yield controlled porkchop islands, sideswipe crashes within the double left-turn lane bays and left-turn crashes for the southbound to eastbound left-turn movement.

A partial continuous flow intersection offers an optimum balance between competing goals of intersection capacity and safety versus cost and property impacts at the Washington Street and DeMers Avenue intersection (refer to FIGURE 7.12). A continuous flow intersection displaces left-turning traffic to the left of oncoming traffic. Vehicles turning left access the left-turn bay a few hundred feet in front of the intersection at a signalized midblock location. Signals are coordinated with the central intersection to prohibit conflicting movements from entering the midblock intersection and to promote smooth traffic progression. The major breakthrough with the design is the arterial through traffic and traffic from the displaced left-turn bay can move during the same signal phase at the central intersection without conflicting.

## 2. Existing Bicycle and Pedestrian Facilities Map



**One-Way Cash Fare\***

Adult	\$1.50
K-12 Student	\$0.75
Reduced Fare**	\$0.60

**10-Ride Cards**

Adult	\$13.00
K-12 Student	\$6.50
Reduced Fare**	\$5.25

\*Exact fare required

\*\*Seniors age 62+, Medicare card holders, and persons with disabilities

**Fixed Period Passes**

1-Day Pass	\$5.00
14-Day Pass	\$18.00
31-Day Pass	\$35.00

**Transfers** are free for use on the next connecting bus. Ask for a transfer upon boarding. Not valid on the same bus. Valid at transfer locations only. One time use.

**Children** age 5 and under ride free

**UND Students** ride free with student ID

**Northland College** students ride free with student ID and bus pass issued by Northland

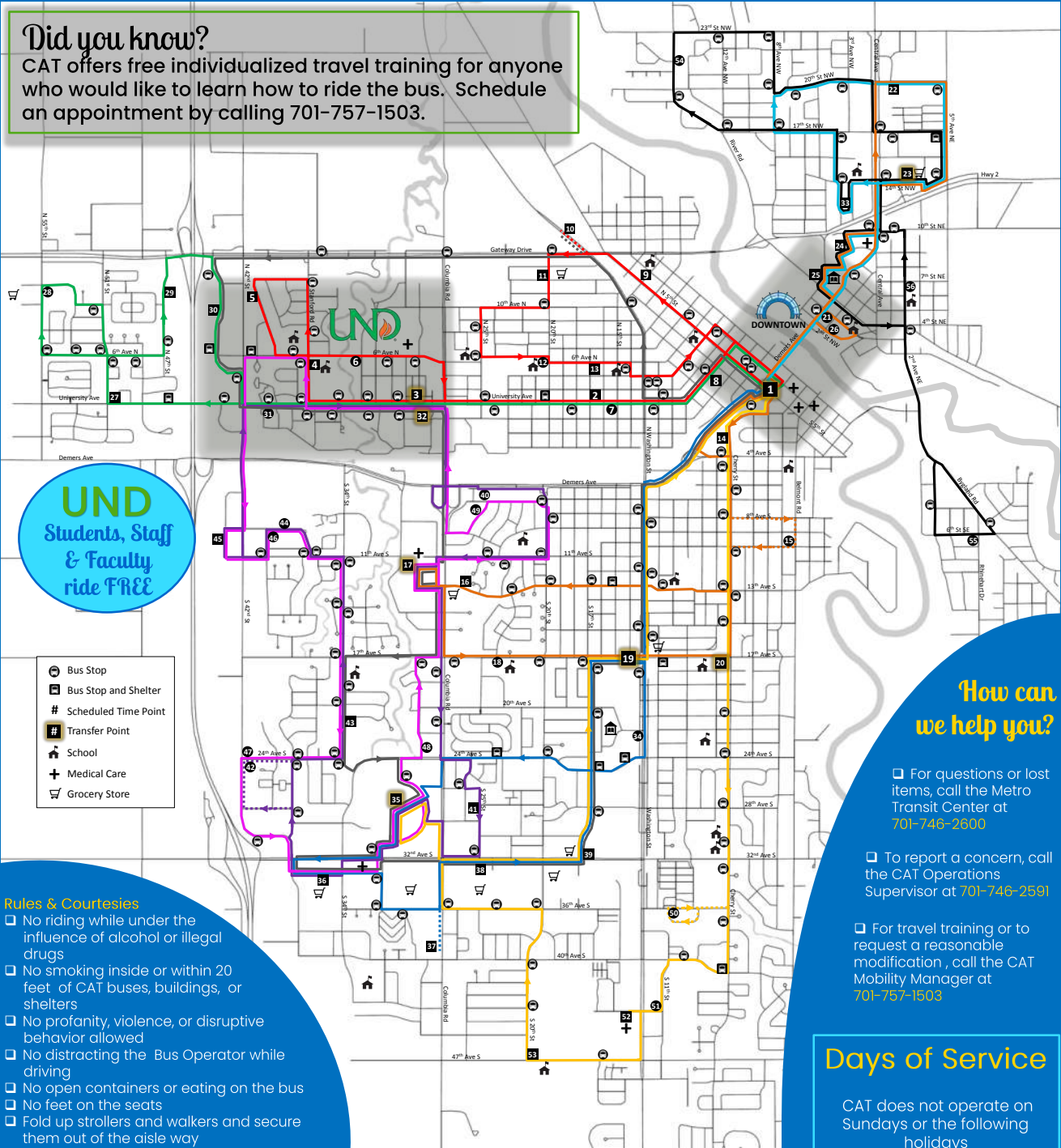
**NOTE:** Fare cards are non-refundable. Do not scratch or bend. Rechargeable fare media available for purchase at the Metro Transit Center.

**For Your Safety**

- Call 911 in case of emergency
- Be aware of your surroundings
- Remain seated while the bus is moving
- Do not walk in front of the bus
- Stay back from the painted yellow line
- Dress appropriately for adverse weather conditions
- If you see something suspicious, report it to the proper authority

**Did you know?**

CAT offers free individualized travel training for anyone who would like to learn how to ride the bus. Schedule an appointment by calling 701-757-1503.



**UND Students, Staff & Faculty ride FREE**

- Bus Stop
- Bus Stop and Shelter
- Scheduled Time Point
- Transfer Point
- School
- Medical Care
- Grocery Store

**Rules & Courtesies**

- No riding while under the influence of alcohol or illegal drugs
- No smoking inside or within 20 feet of CAT buses, buildings, or shelters
- No profanity, violence, or disruptive behavior allowed
- No distracting the Bus Operator while driving
- No open containers or eating on the bus
- No feet on the seats
- Fold up strollers and walkers and secure them out of the aisle way
- Shirt and shoes or other footwear required
- Passengers must maintain appropriate, reasonable personal hygiene
- Limit carry-on items to one armload or the equivalent of two grocery bags
- Have your bus fare ready before boarding
- Use earphones to listen to music
- Small animals may be transported in a carrier
- Service animals are welcome on board

**How can we help you?**

- For questions or lost items, call the Metro Transit Center at 701-746-2600
- To report a concern, call the CAT Operations Supervisor at 701-746-2591
- For travel training or to request a reasonable modification, call the CAT Mobility Manager at 701-757-1503

**Days of Service**

CAT does not operate on Sundays or the following holidays

- New Year's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Day

*We are committed to providing you with clean, safe, and reliable transportation.*



Track buses and plan trips with the CAT Prowler app

[www.rideCAT.org](http://www.rideCAT.org)



Metro Transit Center  
450 Kittson Ave  
Grand Forks, ND 58201  
701-746-2600



# NDDOT State of Good Repair Financially Constrained (2023 to 2045)

Table 3

Ref #	Roadway	Termini	Project Type	Agency	Time Frame	Federal/State Funds	City Match	YOE Total
REP-224	US 2 (Gateway Drive)	Grand Forks I-29 East to Columbia Road	CPR/DBR/Grind	NDDOT	Short-Range	\$753,000	\$0	\$753,000
REP-225	US 2 (Gateway Drive)	Gateway Drive-Columbia Road to Red River	CPR/DBR/Grind	NDDOT	Short-Range	\$811,000	\$0	\$811,000
REP-228A	US 2 Business	Grand Forks - Gateway Drive to DeMers	Chip Seal	NDDOT	Short-Range	\$45,900	\$5,100	\$51,000
REP-237	US 2 (Gateway Drive)	Grand Forks I-29 East to Columbia Road	CPR & Grind	NDDOT	Short-Range	\$753,000	\$0	\$753,000
REP-238	US 2 (Gateway Drive)	Gateway Drive - Columbia Road to Red River	CPR & Grind	NDDOT	Short-Range	\$811,000	\$0	\$811,000
REP-266A	US 81 Business	Grand Forks - South Washington Street (Hammerling to 8th Avenue South)	Reconstruct	NDDOT	Short-Range	\$5,329,800	\$592,200	\$5,922,000
REP-268A	US 81 Business	Grand Forks - South Washington Street (8th Avenue South to DeMers Avenue)	Reconstruct	NDDOT	Short-Range	\$1,065,600	\$118,400	\$1,184,000
REP-296	US 2 (Gateway Drive)	8 MI East of Grand Forks AFB to 2 MI West of Columbia Rd	Chip Seal	NDDOT	Short-Range	\$205,000	\$0	\$205,000
REP-305	Various	Various	Regional Traffic Signal Upgrade	NDDOT	Short-Range	\$6,514,200	\$723,800	\$7,238,000
REP-239A	I-29	N of ND 15 to Near 32nd Avenue Grand Forks (NB)	CPR & Grind	NDDOT	Short-Range	\$1,946,000	\$0	\$1,946,000
REP-239B	I-29	N of ND 15 to Near 32nd Avenue Grand Forks (SB)	CPR & Grind	NDDOT	Short-Range	\$1,946,000	\$0	\$1,946,000
REP-223	US 2 (Gateway Drive)	Grand Forks 55th Street East to I-29 East Bound	CPR/DBR/Grind	NDDOT	Mid-Range	\$570,600	\$63,400	\$634,000
REP-232	US 2 Business	DeMers to Red River (include 5th to 6th)	CPR/Grind	NDDOT	Mid-Range	\$158,000	\$0	\$158,000
REP-236	US 2 (Gateway Drive)	Grand Forks 55th Street East to I-29 West Bound	CPR & Grind	NDDOT	Mid-Range	\$634,000	\$0	\$634,000
REP-258A & REP-259A	US 81 Business	I-29 to South Washington Street	Reconstruct	NDDOT	Mid-Range	\$27,718,200	\$3,079,800	\$30,798,000
REP-262A	US 81 Business	Grand Forks South Washington Street (32nd Avenue South to 26th Avenue South)	CPR & Grind	NDDOT	Mid-Range	\$256,500	\$28,500	\$285,000
REP-263A	US 81 Business	Grand Forks - South Washington Street (26th Avenue to Hammerling)	CPR & Grind	NDDOT	Mid-Range	\$621,900	\$69,100	\$691,000
REP-277	US 81 Business	Grand Forks North Washington Street (.05 MI S 8th to 8th Avenue)	CPR & Grind	NDDOT	Mid-Range	\$9,000	\$1,000	\$10,000
REP-278	US 81 Business	Grand Forks North Washington Street (8th Avenue to 9th Avenue)	CPR & Grind	NDDOT	Mid-Range	\$29,700	\$3,300	\$33,000
REP-279	US 81 Business	Grand Forks North Washington Street (9th Avenue NE to 13th Avenue)	CPR & Grind	NDDOT	Mid-Range	\$262,800	\$29,200	\$292,000
REP-280	US 81 Business	Grand Forks North Washington Street (13th Avenue NE to US 2)	CPR & Grind	NDDOT	Mid-Range	\$36,000	\$4,000	\$40,000
REP-281	US 81 Business	Grand Forks North Washington Street (JCT US 2 to STA 105)	CPR & Grind	NDDOT	Mid-Range	\$285,300	\$31,700	\$317,000
REP-284	Hwy 297 (Demers Avenue)	Grand Forks DeMers Avenue (I-29 to Near 34th Street)	CPR & Grind	NDDOT	Mid-Range	\$540,900	\$60,100	\$601,000
REP-285	Hwy 297 (Demers Avenue)	Grand Forks DeMers Avenue (34th Street to US 2)	CPR & Grind	NDDOT	Mid-Range	\$1,641,600	\$182,400	\$1,824,000
REP-286	Hwy 297 (Demers Avenue)	Grand Forks DeMers Avenue (I-29 to US 2)	CPR & Grind	NDDOT	Mid-Range	\$2,046,600	\$227,400	\$2,274,000
REP-292	US 81 Business	DeMers Avenue to Dyke Avenue	CPR/Grind	NDDOT	Mid-Range	\$66,600	\$7,400	\$74,000
REP-294	US 81 Business	Dyke Avenue to .05 MI South of 8th Avenue	Reconstruction	NDDOT	Mid-Range	\$8,505,000	\$945,000	\$9,450,000
REP-297	US 2 (Gateway Drive)	8 MI East of Grand Forks AFB to 2 MI West of Columbia Rd	Mill & HBP 2"	NDDOT	Mid-Range	\$1,365,000	\$0	\$1,365,000
REP-240A	I-29	Near 32nd Avenue South N of HWY 2 Interchange	CPR & Grind	NDDOT	Mid-Range	\$1,635,000	\$0	\$1,635,000
REP-242A	I-29	N of ND 15 N to Near 32nd Avenue Grand Forks	CPR & Grind	NDDOT	Mid-Range	\$504,000	\$0	\$504,000
REP-246A	I-29	US 2 North	CPR & Grind	NDDOT	Mid-Range	\$1,134,000	\$0	\$1,134,000
REP-248A	I-29	South of North Grand Forks Interchange to North of North Grand Forks Interchange South Bound	CPR & Grind	NDDOT	Mid-Range	\$86,000	\$0	\$86,000
REP-243B	I-29	Near 32nd Avenue North to 32nd Avenue	CPR & Grind	NDDOT	Mid-Range	\$32,000	\$0	\$32,000
REP-245B	I-29	South US 2 to North US 2	CPR & Grind	NDDOT	Mid-Range	\$1,044,000	\$0	\$1,044,000
REP-254	I-29	N of US 2 North to South of N Grand Forks Interchange	CPR & Grind	NDDOT	Mid-Range	\$1,302,000	\$0	\$1,302,000
REP-228B	US 2 Business	Grand Forks - Gateway Drive to DeMers	Mill & HBP 3"	NDDOT	Long-Range	\$2,537,100	\$281,900	\$2,819,000
REP-228C	US 2 Business	Grand Forks - Gateway Drive to DeMers	Chip Seal	NDDOT	Long-Range	\$99,000	\$11,000	\$110,000
REP-258B	US 81 Business	32nd Avenue South Grand Forks (STA 14 to 95) 4 LN	CPR & Grind	NDDOT	Long-Range	\$0	\$0	\$0
REP-259B	US 81 Business	32nd Avenue South Grand Forks (STA 95 to S. Washington) 5 LN	CPR & Grind	NDDOT	Long-Range	\$0	\$0	\$0
REP-262B	US 81 Business	Grand Forks South Washington Street (32nd Avenue South to 26th Avenue South)	CPR & Grind	NDDOT	Long-Range	\$365,400	\$40,600	\$406,000
REP-263B	US 81 Business	Grand Forks - South Washington Street (26th Avenue to Hammerling)	CPR & Grind	NDDOT	Long-Range	\$885,600	\$98,400	\$984,000
REP-266B	US 81 Business	Grand Forks - South Washington Street (Hammerling to 8th Avenue South)	CPR & Grind	NDDOT	Long-Range	\$502,200	\$55,800	\$558,000
REP-268B	US 81 Business	Grand Forks - South Washington Street (8th Avenue South to DeMers Avenue)	CPR & Grind	NDDOT	Long-Range	\$144,900	\$16,100	\$161,000
REP-289	US 2 (Gateway Drive)	US 2 over the Red River, Bridge 9090 (Kennedy)	Repaint Bridge	NDDOT	Long-Range	\$2,750,000	\$0	\$2,750,000
REP-291	US 2 Business	US 2B over the Red River, Bridge 4700 (Sorlie)	Repaint Bridge	NDDOT	Long-Range	\$2,475,000	\$275,000	\$2,750,000
REP-293	US 81 Business	DeMers Avenue to Dyke Avenue	CPR/Grind	NDDOT	Long-Range	\$94,500	\$10,500	\$105,000
REP-295	US 81 Business	Dyke Avenue to .05 MI South of 8th Avenue	CPR/Grind	NDDOT	Long-Range	\$296,100	\$32,900	\$329,000
REP-298	US 2 (Gateway Drive)	8 MI East of Grand Forks AFB to 2 MI West of Columbia Rd	Chip Seal	NDDOT	Long-Range	\$399,000	\$0	\$399,000
REP-306	Various	Various	Regional Traffic Signal Upgrade	NDDOT	Long-Range	\$14,301,900	\$1,589,100	\$15,891,000
REP-299	I-29	HWY 2 Interchange to North of Grand Forks (NB)	CPR & Grind	NDDOT	Long-Range	\$9,511,000	\$0	\$9,511,000
REP-240B	I-29	Near 32nd Avenue South N of HWY 2 Interchange	CPR & Grind	NDDOT	Long-Range	\$2,326,000	\$0	\$2,326,000
REP-243A	I-29	Near 32nd Avenue North to 32nd Avenue	CPR & Grind	NDDOT	Long-Range	\$717,000	\$0	\$717,000
REP-244A	I-29	32nd Avenue North to South US 2	CPR & Grind	NDDOT	Long-Range	\$3,790,000	\$0	\$3,790,000
REP-245A	I-29	South US 2 to North US 2	CPR & Grind	NDDOT	Long-Range	\$3,790,000	\$0	\$3,790,000
REP-247	I-29	North of US 2 North to South of North Grand Forks Interchange	CPR & Grind	NDDOT	Long-Range	\$0	\$0	\$0
REP-242B	I-29	N of ND 15 N to Near 32nd Avenue Grand Forks	CPR & Grind	NDDOT	Long-Range	\$122,000	\$0	\$122,000
REP-244B	I-29	32nd Avenue North to South US 2	CPR & Grind	NDDOT	Long-Range	\$46,000	\$0	\$46,000
REP-246B	I-29	US 2 North	CPR & Grind	NDDOT	Long-Range	\$1,486,000	\$0	\$1,486,000
REP-248B	I-29	South of North Grand Forks Interchange to North of North Grand Forks Interchange South Bound	CPR & Grind	NDDOT	Long-Range	\$0	\$0	\$0
REP-300	I-29	HWY 2 Interchange to North of Grand Forks (NB)	CPR & Grind	NDDOT	Long-Range	\$3,511,000	\$0	\$3,511,000
<b>Totals</b>						<b>\$114,814,900</b>	<b>\$8,583,100</b>	<b>\$123,398,000</b>

## Setup Scoring Categories & Factors

Score System State Highways



Max. Score 100

Max. Score 100

### Adjust Scoring Categories

Expected

Achieved

	Goals	Description	Weight	Points	Weight	Points
1	Economic vitality	Support the economic vitality through enhancing the economic competitiveness of the metropolitan area by giving people access to jobs, education services as well as giving business access to markets.	15 %	15 pts	13 %	13 pts
2	Security	Increase security of the transportation system for motorized and non-motorized uses.	5 %	5 pts	2 %	2 pts
3	Accessibility and Mobility	Increase the accessibility and mobility options for people and freight by providing more transportation choices.	10 %	10 pts	0 %	0 pts
4	Environmental/Energy/QOL	Protect and enhance the environment, promote energy conservation, and improve quality of life by valuing the unique qualities of all communities – whether urban, suburban, or rural.	10 %	10 pts	7 %	7 pts
5	Integration and Connectivity	Enhance the integration and connectivity of the transportation system, across and between modes for people and freight, and housing, particularly affordable housing located close to transit.	10 %	10 pts	2 %	2 pts
6	Efficient System Management	Promote efficient system management and operation by increasing collaboration among federal, state, local government to better target investments and improve accountability.	10 %	10 pts	6 %	6 pts
7	System Preservation	Emphasize the preservation of the existing transportation system by first targeting federal funds towards infrastructure to spur revitalization, promote urban landscapes and protect rural landscapes.	15 %	15 pts	15 %	15 pts
8	Safety	Increase safety of the transportation system for motorized and non-motorized uses.	10 %	10 pts	3 %	3 pts
9	Resiliency and Reliability	Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.	10 %	10 pts	8 %	8 pts
10	Tourism	Enhance travel and tourism.	5 %	5 pts	2 %	2 pts
<b>TOTAL</b>			<b>100 %</b>	<b>100 pts</b>	<b>57 %</b>	<b>57 pts</b>

TIP SCORING SHEETS



0= No  
1= Yes

State Highway

Project Number

Project Name

MPO SCORING SHEET FOR EACH PROJECT

Goal 1	Economic Vitality	Expected Weight (%)=	15
Support the economic vitality through enhancing the economic competitiveness of the metropolitan area by giving people access to jobs, education services as well as giving business access to markets.		Assign score 0 or 1	Achieved Weight (%)
Objectives	1 <b>Coordinate land use and transportation planning, programming, and investments between agencies to advance smart growth objectives</b>		
	1.1 <b>Recognize and identify investments that support current &amp; future state highway network development plan</b>	1	2.50
	1.2 <b>Focus on highway network expansion and prime corridors in areas that are contiguous to current and future developed areas</b>	1	2.50
	2 <b>Enhance the state's economic competitiveness through the movement of goods and services</b>	1	2.50
	3 <b>Support efficient local and state highway, multimodal terminal connections for freight and rail movement</b>	1	2.50
	4 <b>Work located on identified truck route or identified in Freight Study</b>	1	2.50
	5 <b>Consistent with regional or state economic development plans</b>	0	0.00
		Total	12.50
Goal 2	Security	Expected Weight (%)=	5
Increase the security of the transportation system for motorized and non-motorized users		Assign score 0 or 1	Achieved Weight (%)
Objectives	1 <b>Identify and maintain security of critical street and highway system assets.</b>		
	1.1 <b>Coordinate with regional emergency/security/hazardous materials movement</b>	1	0.71
	1.2 <b>Evaluate and manage the security of the transportation network, especially in critical areas</b>	1	0.71
	1.3 <b>Coordinate/improves Bridge Closure Management Plan</b>	0	0.00
	1.4 <b>Coordinate/improves Special Events Management Plan</b>	0	0.00
	2 <b>Support state and regional emergency, evacuation, and security plans.</b>		
	2.1 <b>Consistent with regional emergency and security planning system (ITS Regional Architecture)</b>	1	0.71
	2.2 <b>Provide necessary security training and equipment to monitor the security of the transportation infrastructure</b>	0	0.00
2.3 <b>Coordinate with safety/security agencies of the state to prevent harmful activities</b>	0	0.00	
		Total	2.14
Goal 3	Accessibility and Mobility	Expected Weight (%)=	10
Increase the accessibility and mobility options to people and freight by providing more nonmotorized choices		Assign score 0 or 1	Achieved Weight (%)
Objectives	1 <b>Mitigate excessive travel delays by improving existing infrastructure to address traffic congestion delays</b>	0	0.00
	2 <b>Provides acceptable LOS for all state highways, intersection and facilities as recommended in LRTPs</b>	0	0.00
	3 <b>Consider advances in autonomous and connected vehicle technology in the transportation planning and programming processes</b>	0	0.00
	4 <b>consistent with state access control regulations</b>	0	0.00
	5 <b>Enhances the range of freight service options available to regional business</b>	0	0.00
	6 <b>Implements recommendations in ADA, railroad or any other ROW transition plans</b>	0	0.00
		Total	0.00

Goal 4	Environmental/Energy/QOL		Expected Weight (%)=	10
Protect and enhance the environment, promote energy conservation, and improve quality of life.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b><i>Avoid, minimize, and/or mitigate adverse social, environmental, and economic impacts resulting from existing or new transportation facilities.</i></b>		
	1.1	<b><i>Implements context sensitive solutions</i></b>	1	1.67
	1.2	<b><i>Address EJ analysis process</i></b>	1	1.67
	1.3	<b><i>Avoids or minimize impacts to wetlands or other natural habitats or cultural/historic resources</i></b>	1	1.67
	1.4	<b><i>Incorporates innovative stormwater management techniques</i></b>	0	0.00
	2	<b><i>Maintain and improve quality of life along streets and highways</i></b>	1	1.67
	3	<b><i>Maintain and improve regional air quality by promoting nonmotorized travel</i></b>	0	0.00
			Total	6.67

Goal 5	Integration and Connectivity		Expected Weight (%)=	10
Enhance the integration and connectivity of the transportation system across and between modes for people and freight.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b><i>Effectively coordinate transportation and land use by promoting the sustainability and livability principles, goals, and objectives from regional land use plans.</i></b>		
	1.1	<b><i>Increase the use of multi-modal transportation by providing additional transit service and reducing bicycle/pedestrian network gaps.</i></b>	0	0.00
	1.2	<b><i>Promote transportation improvements that support access to a mix of employment opportunities (e.g. jobs and income levels).</i></b>	1	1.67
	2	<b><i>Provide an advanced and balanced mix of local, collector, and arterial streets to help meet local and regional travel needs</i></b>		
	2.1	<b><i>Invest in signage techniques to reduce excessive travel delays and traffic congestion</i></b>	0	0.00
	2.2	<b><i>Maximize direct travel trips between states</i></b>	0	0.00
	2.3	<b><i>Maintain and update street and highway functional classification consistent with FHWA guidelines</i></b>	0	0.00
	2.4	<b><i>Address last segment/link of corridor</i></b>	0	0.00
			Total	1.67

Goal 6	Efficient System management		Expected Weight (%)=	10
Promote efficient system management and operation.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b><i>Implement best practice programming and innovative financing alternatives</i></b>		
	1.1	<b><i>Identify potential source of budget for year-round maintenance</i></b>	0	0.00
	1.2	<b><i>Provide an efficient and cost-effective motorized transport system</i></b>	1	1.25
	1.3	<b><i>Improving operations without adding through capacity</i></b>	0	0.00
	2	<b><i>Involve all local partners in the transportation planning process.</i></b>	1	1.25
	3	<b><i>Cooperate across jurisdictional boundaries to create an integrated transportation network.</i></b>	1	1.25
	4	<b><i>Maintain and update the regional ITS architecture</i></b>		
	4.1	<b><i>Enhances interoperability among modal equipment and technologies</i></b>	1	1.25
	5	<b><i>Demonstrates analysis of project risk in implementation</i></b>	1	1.25
6	<b><i>Includes specific evaluation method to provide a measurement of effectiveness by collecting real time traffic data</i></b>	0	0.00	
			Total	6.25



Goal 7	System Preservation	Expected Weight (%)=	15
Emphasize the preservation of the existing transportation system.		Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b>Cost effectively preserve, maintain and improve the existing transportation network systems and capacity</b>	
	1.1	<b>Utilize pavement management system results</b>	1
	1.2	<b>Emphasizes system rehabilitation rather than expansion</b>	1
	1.3	<b>Incorporate cost-effective maintenance and technologies new to the MPO area</b>	1
	1.4	<b>Preserve railroad ROW or other existing ROW</b>	1
	2	<b>Contributes to better system maintenance</b>	1
	3	<b>Identify sufficient funding for the program of projects included in GF/EGF MPO transportation plans.</b>	1
Total			15.00

Goal 8	Safety	Expected Weight (%)=	10
Increase safety of the transportation system for motorized and nonmotorized uses.		Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b>Address locations identified as high crash locations in LRTP and review crash data to improve roadway design and traffic control elements</b>	0
	2	<b>Reduce frequency and severity of crash and intersection conflicts through traffic control and operational improvements in highways</b>	1
	3	<b>Consistent with Strategic local and regional Highway Safety Plan</b>	
	3.1	<b>Improve efficiency and effectiveness of aggressive driving/speed enforcement efforts</b>	0
	3.2	<b>Ensure that roadway design and traffic control elements support appropriate and safe speeds</b>	1
	3.3	<b>Improve sight distance at signalized and un-signalized intersections</b>	0
	3.4	<b>Improve the roadway and driving environment to better accommodate drivers' needs</b>	1
	3.5	<b>Improve Sight Distance and/or Visibility Between Motor Vehicles and Pedestrians/Bicyclists</b>	0
	4	<b>Enhances public safety of nonmotorized users</b>	0
	5	<b>Enhances safe and well-designed route to school zones and college campuses</b>	0
Total			3.33

Goal 9	Resiliency and Reliability	Expected Weight (%)=	10
Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation		Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b>Reduce state highway system vulnerability to snow and storm water</b>	
	1.1	<b>Maintain passable highways under all reasonable weather conditions</b>	1
	1.2	<b>Strategically design and maintain state highway system to operate under all reasonable weather conditions</b>	1
	1.3	<b>Assess and mitigate any possible impacts new roadway construction may have on high water events, including proximity to waterways, construction</b>	0
	2	<b>Support the region's resilience and travel reliability through efficient detour and evacuation routes</b>	
	2.1	<b>During river flood events, reroute traffic consistent with the Bridge Closure Management Plan, or revised to respond to significant, observed delays or</b>	1
	2.2	<b>Be trained in and use established alternate routes and intelligent transportation systems (ITS) to maintain street and highway operations during incidents</b>	1
	2.3	<b>Provide auxiliary power sources to operate traffic signals when mainline power is interrupted</b>	1
	2.4	<b>Maintain on-time project performance and implementation</b>	1
	2.5	<b>Improve engagement of transportation system, across and between modes, partners and stakeholders</b>	0
Total			7.50

Goal 10	<b>Travel &amp; Tourism</b>		Expected Weight (%)=	5
Enhance travel and tourism.			Assign score 0 or 1	Achieved Weight (%)
Objectives	1	<b>Maintain convenient and intuitive state highway access to major activity centers and tourist spots</b>		
	1.1	<b>Develop and use event traffic management plans for major activity centers such as the Alerus Center, Ralph Engelstad Arena, and Greater Grand Forks</b>	0	0.00
	1.2	<b>Identify, coordinate, and communicate traffic plans for statewide simultaneous events</b>	1	1.00
	1.3	<b>Establish partnerships to foster tourism activities within state</b>	0	0.00
	2	<b>Enhance safety /easy access to tourist spots, major activity centers, Greenway Trail System and the Red River State Recreation Area</b>	1	1.00
	3	<b>Provides landscaping/streetscaping or similar amenities</b>	0	0.00
			Total	2.00

255 N. 4th St.  
PO Box 5200  
Grand Forks, ND 58206-5200



ENGINEERING DEPARTMENT  
(701) 746-2640  
Fax#(701) 787-3744

March 2, 2023

Mrs. Stephanie Halford  
Grand Forks/East Grand Forks MPO  
600 Demers Ave  
East Grand Forks, MN 56721

RE: Urban Roads Program Application

Dear Mrs. Halford:

Attached please find the City of Grand Forks' Urban Roads Program project applications. Please forward the applications to NDDOT. If you have any questions or comments, please contact David Kuharenko at 701-746-2649.

1. 2023 – 42<sup>nd</sup> St/Demers Ave Railroad Grade Separation Preliminary Engineering (50%)

Sincerely,

A handwritten signature in blue ink, appearing to read "David Kuharenko".

David Kuharenko, P.E.  
Assistant City Engineer

DJK

Cc: Al Grasser  
Ed Liberman  
Christian Danielson

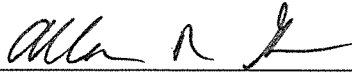
**NDDOT URBAN PROGRAM  
SUBMITTAL CHECKLIST**

**Instructions:** Review all tasks and check mark the completed items. Sign and return this checklist with your submittal.

**Tasks**

1. Review the enclosed 2023-2026 Urban Program sheet. Mark any requests for revisions on the sheet and return it with your submittal.
  - a.  I have reviewed the enclosed 2023-2026 Urban Program sheet, including project limits, scope of work, costs, and funding year. I am requesting no changes to these projects.
  - b.  I have reviewed the enclosed 2023-2026 Urban Program sheet and am requesting the changes noted below.
    - i.  Project limits – a new map is enclosed.
    - ii.  Scope of work – a revised scoping worksheet is enclosed.
    - iii.  Costs – a detailed cost estimate and revised scoping worksheet are enclosed.
    - iv.  Funding year – I have marked my requested change on the Urban Program sheet.
2. Submittal requirements for FY 2027 solicitation of Urban Regional & Urban Roads projects:
  - a.  I am submitting **new** projects **only** for FY 2027.
  - b.  I am providing a look ahead for FY 2028 – potential projects my jurisdiction is considering for future planning/budgeting purposes.
  - c.  I have reviewed the projected Urban Roads account balance and the submitted projects are within the budget shown on the balance sheet.
  - d.  I have reviewed my request to make sure all projects are functionally classified and on the federal-aid system.
  - e.  I have reviewed my request to make sure all project limits achieve logical termini (must begin and end at a functionally classified route).
  - f.  I have prioritized my project requests.
  - g.  I have prepared the Project Submittal List (table) – this table outlines my federal aid request for each project.
  - h.  I am submitting a signed Scoping Worksheet for each project.
    - i.  The District and City have signed all Urban Regional Scoping Worksheets.
    - ii.  The City has signed all Urban Roads Scoping Worksheets.
    - iii.  I have included a non-NEPA level purpose and need statement for all projects to identify why the projects are important/needed by my jurisdiction.
  - i.  I am submitting a Detailed Cost Estimate in year of expenditure dollars for each new project. The estimate includes totals for all phases (PE, CE, construction, R/W, utilities, structures, non-participating).
  - j.  I am submitting a Map of project limits for each project.

I hereby certify that I have reviewed all tasks and that submitted materials are complete. I understand that failure to provide complete information by March 31, 2023 may make this submittal ineligible.

  
\_\_\_\_\_  
City Engineer

2/28/23  
Date



## PROJECT SUBMITTAL LIST

Entity: Grand Forks

Contact Person: Al Grasser

Revision: November 2019

Date: February 28, 2023

Phone Number: 701-746-2640

If you have questions with filling out the list, please contact Stacey Hanson at 701-328-4469

FISCAL YEAR	FUNDING CATEGORY <sup>(1)</sup>	FUNCTIONAL CLASSIFICATION <sup>(2)</sup>	INVESTMENT STRATEGY <sup>(3)</sup>	TYPE OF WORK <sup>(4)</sup>	PROJECT LOCATION	PROJECT COST				
						TOTAL	FEDERAL	STATE	LOCAL	NON-PARTICIPATING
2023	URP	Principal Arterial/ Minor Arterial/ Collector	PM	Signals	Traffic Signal Rehabilitation Citywide Non-Regional	\$ 3,335,000	\$ 2,360,000	\$ -	\$ 975,000	
2023	URP	Principal Arterial/ Minor Arterial	PE	Preliminary Engineering	42nd St/Demers Ave Railroad Grade Separation Preliminary Engineering (50%)	\$ 3,200,000	\$ 2,560,000	\$ -	\$ 640,000	
2024	URP	Principal Arterial	PM	Bridge Rehabilitation	Columbia Rd Overpass	\$ 8,930,000	\$ 6,744,000	\$ -	\$ 2,186,000	
2025	URP	Principal Arterial	N/R	Reconstruct	N Columbia Rd (Reconstruction) (University Ave to 8th Ave N)	\$ 7,302,000	\$ 5,167,000	\$ -	\$ 2,135,000	
2026	URP	Minor Arterial	PM	Bridge Rehabilitation	Point Bridge Rehabilitation	\$ 1,150,000	\$ 920,000	\$ -	\$ 230,000	
2027	URP	N/A	N/A	N/A	No Project in 2027	\$ -	\$ -	\$ -	\$ -	

**Notes Description**

(1) PriR = Primary Regional, SecR = Secondary Regional, URP = Urban Roads Program, INT = Interstate, BRI = Bridge

(2) Interstate, Principal Arterial, Minor Arterial, Collector

(3) PM = Preventive Maintenance, MiR = Minor Rehabilitation, SI = Structural Improvement, MaR = Major Rehabilitation, N/R = New/Reconstruction

(4) Brief description of the project (Exs: Thin Lift Overlay, Mill and Overlay, Concrete Pavement Repair, etc.)

**URBAN REGIONAL & URBAN ROADS  
PROJECT SCOPING WORKSHEET**

DATE: 2/28/2023

PRIORITY# 1 - 2023

Regional: Y/(N)

Urban Roads: (Y)/N

City: Grand Forks

Street: 42<sup>nd</sup> St Grade Separation (Urban)

County: Grand Forks

Length: Intersection Improvement

Proposed Improvement: Preliminary Engineering for the 42<sup>nd</sup> St Grade Separation Project.  
(\$3.2 million funded through the Urban Road Program for 42<sup>nd</sup> St and \$3.2 million funded  
through the Regional Roads Program for SH297/Demers Ave. for a total of \$6.4 million).

Cost Estimates Breakdown (in \$1,000)							
PE	CE	R/W	Utility	Constr.	Bridges	Non-Participating	Total
3,200							3,200

Present Road: Surface Width? 42<sup>nd</sup> St 90'  
SH297/Demers Ave 80'

Surface Type? Concrete

On Street Parking Allowed? \_\_\_\_\_

Present: (No) One Side Both Sides Angle Parallel

Proposed: (No) One Side Both Sides Angle Parallel

Proposed Improvements	
ADT Present: <u>42<sup>nd</sup> St 13,775-14,700</u> Yr: <u>2018</u>	Travel Way Width : <u>~72'</u>
<u>SH 297/Demers Ave 14,150-15,440</u>	
ADT Design: <u>~20,000-23,700</u> Design year <u>2045</u>	No. of Lanes: <u>6 (RTL, LTL, 2 through in either direction)</u>
Design Speed: <u>40mph</u>	Roadway Width: _____
Maximum Curve: <u>TBD</u>	Min. R/W Width: _____
Maximum Grade: <u>TBD</u>	

Right of Way
Will Additional ROW or easement be acquired? <u>Yes</u> ROW acquisition by: City (DOT)
Has any ROW easements been acquired since 7-1-72: <u>UNK</u> ROW Condemnation by: City (DOT)
Est. No. of occupied family dwelling to be displaced? <u>0</u>
Est. No. business to be displaced? <u>1 possibly</u>

### Impacts

**Will there be any additional Impacts (Cultural and Environmental Resources):** A class III Cultural Resource Inventory was performed in July of 2021. The report recommended a finding of No Historic Properties Affected for the project. An Aquatic Resource Delineation Report and Traffic Noise Analysis were completed as part of the ongoing Cat-Ex. It is anticipated that depending on the alternative selected there will need to be wetland mitigation.

**Will there be any impacts to 4(f) or 6(f) properties:** A 4(f) Determination memo has been submitted to the NDDOT regarding the Ray Richard’s Golf Course owned and operated by the University of North Dakota.

**Airports:** None anticipated

**Public Hearings:** TBD

**Environmental Classification (Cat-Ex, EA, EIS):** Cat-Ex is currently being prepared for the project with an anticipated completion date of spring/summer of 2023

**Transportation Enhancements:** There is an existing shared use path along the western side of 42<sup>nd</sup> St on either side of the intersection. Along SH297/Demers Ave there is a shared use path along the north side east of 42<sup>nd</sup> St and along the south side to the west of 42<sup>nd</sup> St. As part of the project it is proposed to maintain these shared use path connections

**Intermodal:** There are no current transit stops near this intersection.

**Pedestrian Needs:** There is an existing shared use path along the western side of 42<sup>nd</sup> St on either side of the intersection. Along SH297/Demers Ave there is a shared use path along the north side east of 42<sup>nd</sup> St and along the south side to the west of 42<sup>nd</sup> St. As part of the project it is proposed to maintain these shared use path connections.

Railroads Crossings						
RR Name	No. Xings	No. Tracks and Type of Crossing	Daily Train Movements	Train Speed	Present Protection	Proposed Protection
BNSF 081329H	1	2	10	1-35	Gates/ Flashers/ Medians	Grade Separation

**Purpose and Need Statement:**

The existing at grade rail crossing at 42<sup>nd</sup> St near SH297/Demers Ave creates safety hazards, traffic delays, and operational inefficiencies for the residents of Grand Forks, students, faculty, and visitors of the University of North Dakota, and the flow of freight traffic along the BNSF Railway. This intersection currently experiences 130.9 vehicle-hours of delay per day from train operations. The intersection’s current level of service is currently D or E for peak conditions on all approaches. Under a no-build scenario the Traffic Operations report predicted that the LOS would worsen to between E and F by 2045.

The NDDOT, BNSF Railway, and the City of Grand Forks have submitted applications for funding to construct a grade separated crossing at the intersection of SH297/Demers Ave and 42<sup>nd</sup> St. These federal programs include Consolidated Rail Infrastructure and Safety Improvements (CRISI), Railroad Crossing Elimination, and Reconnecting Communities. The timing of when the funding would be received to when the project needs to be completed complicates the project. In an effort to mitigate this complication, we are requesting funding to move forward on the Preliminary Engineering phase of the project.

It is estimated that the total cost for preliminary engineering will be approximately \$6.4 million. It is proposed that the funding be split 50/50 between the Urban Roads and the Regional Roads programs. This would result in a cost split of \$3.2 million for the Urban Roads and \$3.2 million for the Regional Roads.

Project Funding by Source from the Federal Funding applications

Funding Source	Funding Type	Description	Amount	Percentage of Total Project Cost
Federal Railroad Administration	Federal	Grant Funds Administrator	\$30,000,000	50.0%
North Dakota Department of Transportation	Non-Federal	Project Applicant	\$4,200,000	7.0%
North Dakota Department of Transportation	Federal	NDDOT Federal Formula Funds	\$7,500,000	12.5%
BNSF Railway	Non-Federal	Private Funding Partner	\$1,500,000	2.5%
City of Grand Forks	Non-Federal	Public Funding Partner	\$16,800,000	28.0%
<b>TOTAL PROJECT COST</b>	-	-	<b>\$60,000,000</b>	<b>100.0%</b>

Project Budget by Project Component from Federal Funding applications

Project Component/Task	Cost	Percentage of Total Cost
Construction and Construction Engineering	\$34,400,000	57.3%
Land Purchases, Relocations, and Environmental Mitigation	\$19,200,000	32.0%
Design and Engineering	\$6,400,000	10.7%
<b>TOTAL PROJECT COST</b>	<b>\$60,000,000</b>	<b>100.0%</b>

Existing Conditions:

1. When was the current street section built? Has there been any additional maintenance to the street section?

SH 297/Demers Ave was originally constructed in 1992 under NDDOT projects SU-6-986(030)033 and CMU-6-297(004)000 City Project P-4006

SH297/Demers Ave was rehabilitated in 2016 under NDDOT project NHU-6-297(008)008 City Project P-7164

42<sup>nd</sup> St was originally constructed in 2001 under NDDOT projects U-CMU-6-986(057)060, U-CMU-6-986(058)061, SER-6-986(051)054, and CPU-6-986(002)062 City Project P-5048

42<sup>nd</sup> St was rehabilitated in 2019 under City Project P-8026



2. How many driving lanes and turning lanes does the street section currently have and what is the widths of the driving and turning lanes?

Each leg of the intersection consists of 1 left turn lane, 2 through lanes, and 1 right turn lane. Lanes are approximately 12' wide.

3. What is the condition of the pavement section?

Pavement Condition Index and International Roughness Index data was obtained in 2021 from GoodPointe Technology.

The north leg of 42<sup>nd</sup> St has a PCI of 97 and IRI of 189

The south leg of 42<sup>nd</sup> St has a PCI of 100 and IRI of 156

The westbound west leg of SH297/Demers Ave has a PCI of 89 and IRI of 100

The eastbound west leg of SH297/Demers Ave has a PCI of 86 and IRI of 98

The westbound east leg of SH297/Demers Ave has a PCI of 87 and IRI of 75

The eastbound east leg of SH297/Demers Ave has a PCI of 96 and IRI of 79

4. Any existing geometric concerns?

If a left turn lane is provided to the gas station from Demers Ave it is likely that the turn lane may not meet design standards and may need a design exemption.

5. Are there any access points to adjoining properties that present a special concern?

The access to the Dusterhoft Cenex gas station and service center located to the west of the intersection of SH297/Demers Ave and 42<sup>nd</sup> St.

6. Are there any existing sidewalks or shared use path in place?

Yes, on the north and south legs of the intersection there is a shared use path along the west side of 42<sup>nd</sup> St, on the east leg of the intersection there is a shared use path on the north side of SH297/Demers Ave, and on the west leg of the intersection there is a shared use path along the south side of SH297/Demers Ave. There are no sidewalks.

7. What is the condition of the existing storm sewer? Will any additional storm sewer work need to be done along with this project?

Condition of the existing storm sewer is unknown. However because of the work associated with a grade separation project, storm sewer will likely need to be relocated, and a storm sewer lift station required to pump out water from the water collecting in the underpass.

8. What is the condition of the city's water and sewer line? Will any work have to be done to the city's water and sewer lines along with this project?

The city has a 20" AC watermain pipe, two 30" Ductile Iron Pipes Raw Water Lines, and a 14" PVC Raw Water Line running through the project area. It is likely that these lines will need to be rerouted with the grade separation project.

There is no city sanitary sewer within the project limits. There is a private sanitary sewer on the east side of the Dusterhoft Cenex gas station and service center property.

9. Describe the existing lighting system currently in place? What type of standards and luminaires are currently being used?

East of the intersection along SH297/Demers Ave there are 250W HPS Fixtures mounted on 40' standards with truss style arms.

West of the intersection along SH297/Demers Ave there are 165W LED Autobahn Fixtures mounted on 40' standards with truss style arms.

North of the intersection along 42<sup>nd</sup> St there are 276W LED Autobahn fixtures mounted on 40' standards with truss style mast arms

South of the intersection along 42<sup>nd</sup> St there are 273W LED Autobahn fixtures mounted on 40' standards with truss style mast arms.

10. What intersections currently have traffic signals? Are there any locations that have a high accident rate? Are additional turning lanes needed?

The intersection of SH297/Demers Ave and 42<sup>nd</sup> St is currently signalized. At the time this scoping report was written the traffic signals are roughly 20 years old. Due to the realignment at the intersection it is anticipated that the signals will be replaced as part of the project.

The NDDOT State Action Plan for Highway-Rail Crossing Safety includes the 42<sup>nd</sup> St crossing in the list of crossings that have experienced crashes from 2018-2020

This intersection was not included on the 2019-2021 Urban High Crash Location List.

No additional turn lanes are anticipated with this project.

Remarks:

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City Engineer: Alta N. J.

Date: 2/28/23

**Note:** Please attach a map showing location and extent of the project, detailed cost estimate, and any additional supporting documents.

# 42nd St Grade Separation - 2023



## Legend

- Boundary City Limit
- Boundary Gray Area
- Address Labels
- Road Labels
- RoadCenterlines\_4K
- <all other values>
- I
- S
- U
- FacilitySites\_Parks\_4K
- Railroad
- Waterbodies
- MunicipalBoundaries

## Notes

1 in = 333 ft



666.7 0 333.33 666.7 Feet

NAD\_1983\_StatePlane\_North\_Dakota\_North\_FIPS\_3301\_Feet  
City of Grand Forks GIS

All dimensions, descriptions, measurements, boundaries and data contained in this nonstandard document are included for general information only. No warranties or covenants are made or given by the City of Grand Forks. Any user must confirm the accuracy of the same with official records, and/or by survey.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

# U. S. DOT CROSSING INVENTORY FORM

**DEPARTMENT OF TRANSPORTATION**  
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk \* denotes an optional field.

<b>A. Revision Date</b> (MM/DD/YYYY) 08 / 04 / 2022	<b>B. Reporting Agency</b> <input checked="" type="checkbox"/> Railroad <input type="checkbox"/> Transit <input type="checkbox"/> State <input type="checkbox"/> Other	<b>C. Reason for Update (Select only one)</b> <input checked="" type="checkbox"/> Change in Data <input type="checkbox"/> Re-Open <input type="checkbox"/> New Crossing <input type="checkbox"/> Date Change Only <input type="checkbox"/> Closed <input type="checkbox"/> Change in Primary Operating RR <input type="checkbox"/> No Train Traffic <input type="checkbox"/> Quiet Zone Update <input type="checkbox"/> Admin. Correction	<b>D. DOT Crossing Inventory Number</b> 081329H
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## Part I: Location and Classification Information

<b>1. Primary Operating Railroad</b> BNSF Railway Company [BNSF]		<b>2. State</b> NORTH DAKOTA		<b>3. County</b> GRAND FORKS	
<b>4. City / Municipality</b> <input checked="" type="checkbox"/> In <input type="checkbox"/> Near GRAND FORKS		<b>5. Street/Road Name &amp; Block Number</b> 42ND ST (Street/Road Name)   * (Block Number)		<b>6. Highway Type &amp; No.</b> Not Yet Reported by State	
<b>7. Do Other Railroads Operate a Separate Track at Crossing?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Specify RR			<b>8. Do Other Railroads Operate Over Your Track at Crossing?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Specify RR		
<b>9. Railroad Division or Region</b> <input type="checkbox"/> None TWIN CITIES		<b>10. Railroad Subdivision or District</b> <input type="checkbox"/> None GRAND FORKS		<b>11. Branch or Line Name</b> <input type="checkbox"/> None CASS LK-DL SW	
<b>12. RR Milepost</b> 0110.069 (prefix)   (nnnn.nnn)   (suffix)		<b>13. Line Segment</b> * 32		<b>14. Nearest RR Timetable Station</b> * UNIVERSITY	
<b>15. Parent RR (if applicable)</b> <input checked="" type="checkbox"/> N/A		<b>16. Crossing Owner (if applicable)</b> <input type="checkbox"/> N/A BNSF		<b>17. Crossing Type</b> <input checked="" type="checkbox"/> Public <input type="checkbox"/> Private	
<b>18. Crossing Purpose</b> <input checked="" type="checkbox"/> Highway <input type="checkbox"/> Pathway, Ped. <input type="checkbox"/> Station, Ped.		<b>19. Crossing Position</b> <input checked="" type="checkbox"/> At Grade <input type="checkbox"/> RR Under <input type="checkbox"/> RR Over		<b>20. Public Access (if Private Crossing)</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>21. Type of Train</b> <input checked="" type="checkbox"/> Freight <input type="checkbox"/> Intercity Passenger <input type="checkbox"/> Commuter		<input type="checkbox"/> Transit <input type="checkbox"/> Shared Use Transit <input type="checkbox"/> Tourist/Other		<b>22. Average Passenger Train Count Per Day</b> <input type="checkbox"/> Less Than One Per Day <input type="checkbox"/> Number Per Day 0	
<b>23. Type of Land Use</b> <input checked="" type="checkbox"/> Open Space <input type="checkbox"/> Farm <input type="checkbox"/> Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Institutional <input type="checkbox"/> Recreational <input type="checkbox"/> RR Yard					
<b>24. Is there an Adjacent Crossing with a Separate Number?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Provide Crossing Number			<b>25. Quiet Zone (FRA provided)</b> <input type="checkbox"/> No <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> Partial <input type="checkbox"/> Chicago Excused Date Established		
<b>26. HSR Corridor ID</b> <input checked="" type="checkbox"/> N/A		<b>27. Latitude in decimal degrees</b> (WGS84 std: nn.nnnnnnn) 47.9185735		<b>28. Longitude in decimal degrees</b> (WGS84 std: -nnn.nnnnnnn) -97.0883505	
<b>29. Lat/Long Source</b> <input checked="" type="checkbox"/> Actual <input type="checkbox"/> Estimated					
<b>30.A. Railroad Use *</b>			<b>31.A. State Use *</b>		
<b>30.B. Railroad Use *</b>			<b>31.B. State Use *</b>		
<b>30.C. Railroad Use *</b>			<b>31.C. State Use *</b>		
<b>30.D. Railroad Use *</b>			<b>31.D. State Use *</b>		
<b>32.A. Narrative (Railroad Use) *</b> (1.27 1.28 1.29) Value Provided by Railroad, Not Yet			<b>32.B. Narrative (State Use) *</b>		
<b>33. Emergency Notification Telephone No. (posted)</b> 800-832-5452		<b>34. Railroad Contact (Telephone No.)</b> 817-352-1549		<b>35. State Contact (Telephone No.)</b> 701-328-4409	

## Part II: Railroad Information

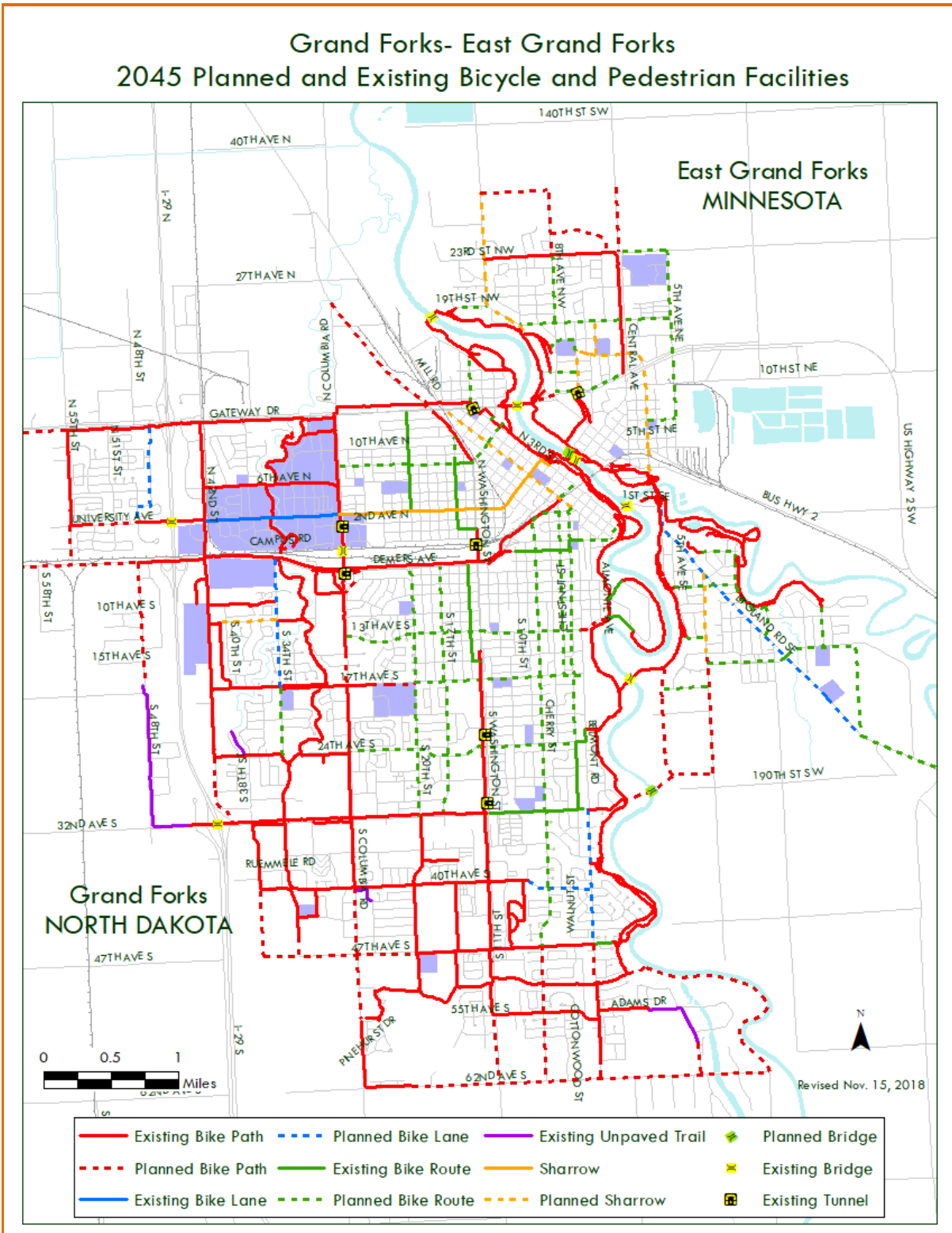
<b>1. Estimated Number of Daily Train Movements</b>				
<b>1.A. Total Day Thru Trains (6 AM to 6 PM)</b> 5	<b>1.B. Total Night Thru Trains (6 PM to 6 AM)</b> 5	<b>1.C. Total Switching Trains</b> 0	<b>1.D. Total Transit Trains</b> 0	<b>1.E. Check if Less Than One Movement Per Day</b> <input type="checkbox"/> How many trains per week? _____
<b>2. Year of Train Count Data (YYYY)</b> 2019		<b>3. Speed of Train at Crossing</b> 3.A. Maximum Timetable Speed (mph) 35 3.B. Typical Speed Range Over Crossing (mph) From 1 to 35		
<b>4. Type and Count of Tracks</b> Main 2 Siding 0 Yard 0 Transit 0 Industry 0				
<b>5. Train Detection (Main Track only)</b> <input checked="" type="checkbox"/> Constant Warning Time <input type="checkbox"/> Motion Detection <input type="checkbox"/> AFO <input type="checkbox"/> PTC <input type="checkbox"/> DC <input type="checkbox"/> Other <input type="checkbox"/> None				
<b>6. Is Track Signaled?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>7.A. Event Recorder</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>7.B. Remote Health Monitoring</b> <input type="checkbox"/> Yes <input type="checkbox"/> No

# U. S. DOT CROSSING INVENTORY FORM

A. Revision Date (MM/DD/YYYY) 08/04/2022		PAGE 2		D. Crossing Inventory Number (7 char.) 081329H	
<b>Part III: Highway or Pathway Traffic Control Device Information</b>					
1. Are there Signs or Signals? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		2. Types of Passive Traffic Control Devices associated with the Crossing			
2.A. Crossbuck Assemblies (count) 0		2.B. STOP Signs (R1-1) (count) 0	2.C. YIELD Signs (R1-2) (count)	2.D. Advance Warning Signs (Check all that apply; include count) <input type="checkbox"/> None <input checked="" type="checkbox"/> W10-1 4 <input type="checkbox"/> W10-3 _____ <input type="checkbox"/> W10-11 _____ <input checked="" type="checkbox"/> W10-2 3 <input checked="" type="checkbox"/> W10-4 4 <input type="checkbox"/> W10-12 _____	
2.E. Low Ground Clearance Sign (W10-5) <input type="checkbox"/> Yes (count _____) <input checked="" type="checkbox"/> No		2.F. Pavement Markings <input checked="" type="checkbox"/> Stop Lines <input type="checkbox"/> Dynamic Envelope <input type="checkbox"/> RR Xing Symbols <input type="checkbox"/> None		2.G. Channelization Devices/Medians <input checked="" type="checkbox"/> All Approaches <input type="checkbox"/> Median <input type="checkbox"/> One Approach <input type="checkbox"/> None	2.H. EXEMPT Sign (R15-3) <input type="checkbox"/> Yes <input type="checkbox"/> No
2.I. ENS Sign (I-13) Displayed <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		2.J. Other MUTCD Signs <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Specify Type W10-9 Count 6 Specify Type R15-8 Count 4 Specify Type R8-8 Count 2		2.K. Private Crossing Signs (if private) <input type="checkbox"/> Yes <input type="checkbox"/> No	2.L. LED Enhanced Signs (List types)
3. Types of Train Activated Warning Devices at the Grade Crossing (specify count of each device for all that apply)					
3.A. Gate Arms (count) Roadway 3 Pedestrian _____		3.B. Gate Configuration <input type="checkbox"/> 2 Quad <input type="checkbox"/> Full (Barrier) Resistance <input type="checkbox"/> 3 Quad <input type="checkbox"/> Median Gates <input type="checkbox"/> 4 Quad		3.C. Cantilevered (or Bridged) Flashing Light Structures (count) Over Traffic Lane 1 <input type="checkbox"/> Incandescent Not Over Traffic Lane 0 <input type="checkbox"/> LED	
3.F. Installation Date of Current Active Warning Devices: (MM/YYYY) ____/____/____ <input type="checkbox"/> Not Required		3.G. Wayside Horn <input type="checkbox"/> Yes Installed on (MM/YYYY) ____/____/____ <input type="checkbox"/> No		3.D. Mast Mounted Flashing Lights (count of masts) 3 <input type="checkbox"/> Incandescent <input type="checkbox"/> LED <input type="checkbox"/> Back Lights Included <input type="checkbox"/> Side Lights Included	3.E. Total Count of Flashing Light Pairs 9
3.H. Highway Traffic Signals Controlling Crossing <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		3.I. Bells (count) 2		3.J. Non-Train Active Warning <input type="checkbox"/> Flagging/Flagman <input type="checkbox"/> Manually Operated Signals <input type="checkbox"/> Watchman <input type="checkbox"/> Floodlighting <input type="checkbox"/> None	
3.K. Other Flashing Lights or Warning Devices Count 0      Specify type _____		4.A. Does nearby Hwy Intersection have Traffic Signals? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
4.B. Hwy Traffic Signal Interconnection <input type="checkbox"/> Not Interconnected <input checked="" type="checkbox"/> For Traffic Signals <input type="checkbox"/> For Warning Signs		4.C. Hwy Traffic Signal Preemption <input checked="" type="checkbox"/> Simultaneous <input type="checkbox"/> Advance		5. Highway Traffic Pre-Signals <input type="checkbox"/> Yes <input type="checkbox"/> No Storage Distance * _____ Stop Line Distance * _____	6. Highway Monitoring Devices (Check all that apply) <input type="checkbox"/> Yes - Photo/Video Recording <input type="checkbox"/> Yes - Vehicle Presence Detection <input type="checkbox"/> None
<b>Part IV: Physical Characteristics</b>					
1. Traffic Lanes Crossing Railroad Number of Lanes 2 <input type="checkbox"/> One-way Traffic <input checked="" type="checkbox"/> Two-way Traffic <input type="checkbox"/> Divided Traffic		2. Is Roadway/Pathway Paved? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		3. Does Track Run Down a Street? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4. Is Crossing Illuminated? (Street lights within approx. 50 feet from nearest rail) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Crossing Surface (on Main Track, multiple types allowed) Installation Date * (MM/YYYY) ____/____/____ Width * _____ Length * _____ <input type="checkbox"/> 1 Timber <input type="checkbox"/> 2 Asphalt <input type="checkbox"/> 3 Asphalt and Timber <input type="checkbox"/> 4 Concrete <input checked="" type="checkbox"/> 5 Concrete and Rubber <input type="checkbox"/> 6 Rubber <input type="checkbox"/> 7 Metal <input type="checkbox"/> 8 Unconsolidated <input type="checkbox"/> 9 Composite <input type="checkbox"/> 10 Other (specify) _____					
6. Intersecting Roadway within 500 feet? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No      If Yes, Approximate Distance (feet) 75			7. Smallest Crossing Angle <input type="checkbox"/> 0° - 29° <input type="checkbox"/> 30° - 59° <input checked="" type="checkbox"/> 60° - 90°		8. Is Commercial Power Available? * <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Part V: Public Highway Information</b>					
1. Highway System <input type="checkbox"/> (01) Interstate Highway System <input type="checkbox"/> (02) Other Nat Hwy System (NHS) <input checked="" type="checkbox"/> (03) Federal AID, Not NHS <input type="checkbox"/> (08) Non-Federal Aid		2. Functional Classification of Road at Crossing <input type="checkbox"/> (0) Rural <input checked="" type="checkbox"/> (1) Urban <input type="checkbox"/> (1) Interstate <input type="checkbox"/> (5) Major Collector <input type="checkbox"/> (2) Other Freeways and Expressways <input type="checkbox"/> (3) Other Principal Arterial <input type="checkbox"/> (6) Minor Collector <input checked="" type="checkbox"/> (4) Minor Arterial <input type="checkbox"/> (7) Local		3. Is Crossing on State Highway System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4. Highway Speed Limit 35 _____ MPH <input checked="" type="checkbox"/> Posted <input type="checkbox"/> Statutory
7. Annual Average Daily Traffic (AADT) Year 2015      AADT 17215		8. Estimated Percent Trucks 1 _____ %	9. Regularly Used by School Buses? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Average Number per Day _____		10. Emergency Services Route <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Submission Information - This information is used for administrative purposes and is not available on the public website.</b>					
Submitted by _____ Organization _____ Phone _____ Date _____					
Public reporting burden for this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. According to the Paperwork Reduction Act of 1995, a federal agency may not conduct or sponsor, and a person is not required to, nor shall a person be subject to a penalty for failure to comply with, a collection of information unless it displays a currently valid OMB control number. The valid OMB control number for information collection is 2130-0017. Send comments regarding this burden estimate or any other aspect of this collection, including for reducing this burden to: Information Collection Officer, Federal Railroad Administration, 1200 New Jersey Ave. SE, MS-25 Washington, DC 20590.					



## 2. Existing Bicycle and Pedestrian Facilities Map



<b>One-Way Cash Fare*</b>	
Adult	\$1.50
K-12 Student	\$0.75
Reduced Fare**	\$0.60

<b>Fixed Period Passes</b>	
1-Day Pass	\$5.00
14-Day Pass	\$18.00
31-Day Pass	\$35.00

UND Students ride free with student ID

Northland College students ride free with student ID and bus pass issued by Northland

NOTE: Fare cards are non-refundable. Do not scratch or bend. Rechargeable fare media available for purchase at the Metro Transit Center.

<b>10-Ride Cards</b>	
Adult	\$13.00
K-12 Student	\$6.50
Reduced Fare**	\$5.25

Transfers are free for use on the next connecting bus. Ask for a transfer upon boarding. Not valid on the same bus. Valid at transfer locations only. One time use.

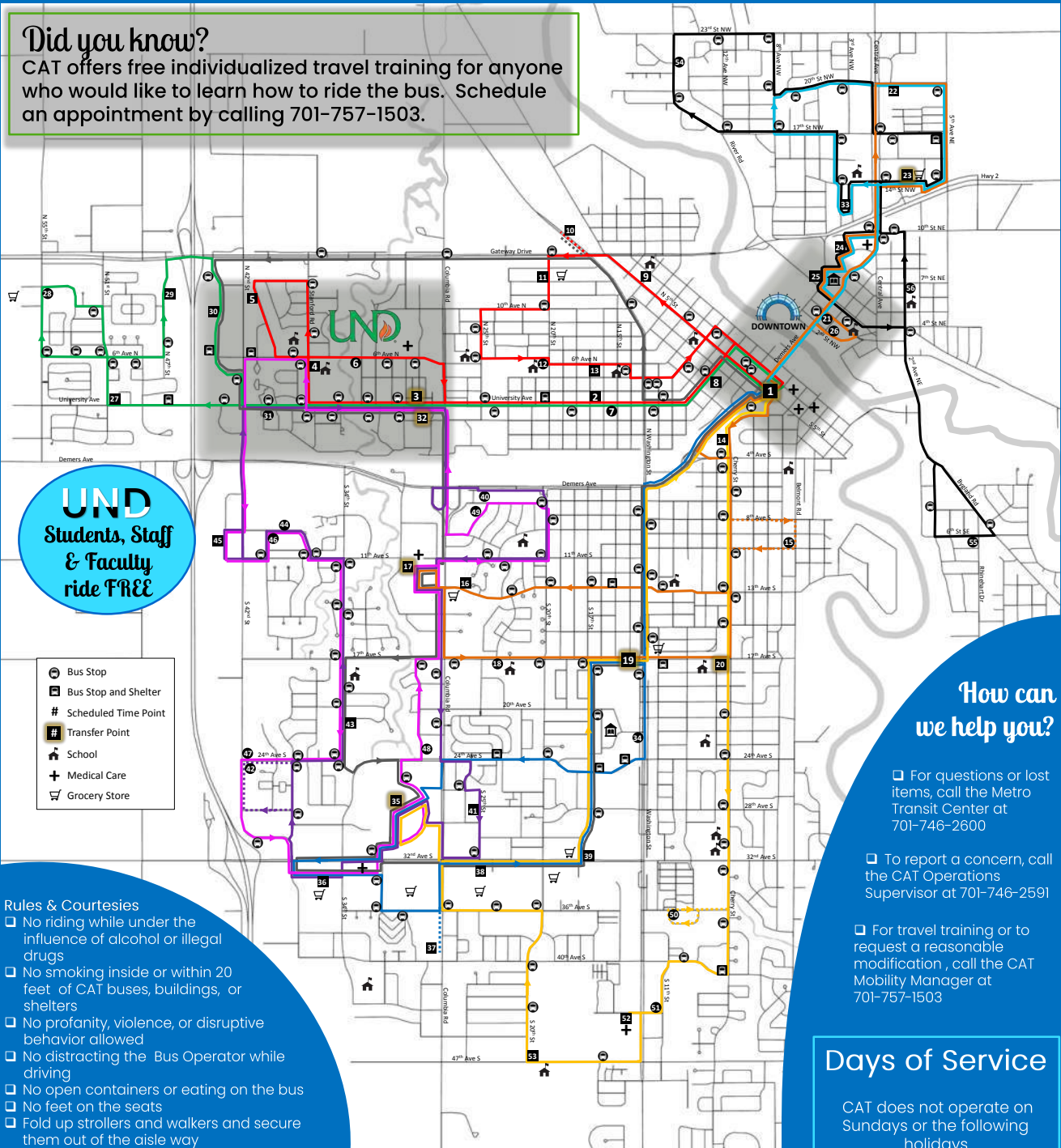
Children age 5 and under ride free

\*Exact fare required  
\*\*Seniors age 62+, Medicare card holders, and persons with disabilities

- For Your Safety**
- Call 911 in case of emergency
  - Be aware of your surroundings
  - Remain seated while the bus is moving
  - Do not walk in front of the bus
  - Stay back from the painted yellow line
  - Dress appropriately for adverse weather conditions
  - If you see something suspicious, report it to the proper authority

## Did you know?

CAT offers free individualized travel training for anyone who would like to learn how to ride the bus. Schedule an appointment by calling 701-757-1503.



**UND**  
Students, Staff  
& Faculty  
ride FREE

- Bus Stop
- Bus Stop and Shelter
- Scheduled Time Point
- Transfer Point
- School
- Medical Care
- Grocery Store

- Rules & Courtesies**
- No riding while under the influence of alcohol or illegal drugs
  - No smoking inside or within 20 feet of CAT buses, buildings, or shelters
  - No profanity, violence, or disruptive behavior allowed
  - No distracting the Bus Operator while driving
  - No open containers or eating on the bus
  - No feet on the seats
  - Fold up strollers and walkers and secure them out of the aisle way
  - Shirt and shoes or other footwear required
  - Passengers must maintain appropriate, reasonable personal hygiene
  - Limit carry-on items to one armload or the equivalent of two grocery bags
  - Have your bus fare ready before boarding
  - Use earphones to listen to music
  - Small animals may be transported in a carrier
  - Service animals are welcome on board

## How can we help you?

- For questions or lost items, call the Metro Transit Center at 701-746-2600
- To report a concern, call the CAT Operations Supervisor at 701-746-2591
- For travel training or to request a reasonable modification, call the CAT Mobility Manager at 701-757-1503

## Days of Service

CAT does not operate on Sundays or the following holidays

- New Year's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Day

*We are committed to providing you with clean, safe, and reliable transportation.*

# 2045 Plan: Illustrative Projects

Project Number	Roadway	Location	Project Type	Project Description	Lead Agency	Prioritization Score	Current Cost
DIS-035	Columbia Rd	14th Ave S to 24th Ave S	Discretionary	Reconstruct to variable 5-lane to 6-lane roadway with 11 ft lanes, replacement of signing, signals, lights, construction of shared use path and replacement of sidewalks	City of Grand Forks	62.5	\$12,750,000
DIS-047	42nd Street	North of DeMers Avenue	Discretionary	Railroad Grade Separation	City of Grand Forks	50	\$40,000,000
REP-040	32nd Avenue South	South Washington Street to South 10th Street	State of Good Repair	Reconstruct	City of Grand Forks	47.5	\$989,880
DIS-011	42nd Street/32nd Avenue South	East of I - 29	Discretionary	Ramp Realignment	City of Grand Forks	47.5	\$16,000,000
DIS-031	South Columbia Road/South Washington Street	47th Avenue South to 62nd Avenue South/SED to 62nd Avenue South	Discretionary	Reconstruct	City of Grand Forks	47.5	\$12,000,000
DIS-032	32nd Ave	48th St to 52nd St	Discretionary	Urban to Rural transition improvement: Expand to 4 lanes	City of Grand Forks	47.5	\$1,391,851
REP-158	Minnesota Avenue	4th Avenue South to Bridge	State of Good Repair	Reconstruct	City of Grand Forks	45	\$1,079,869
REP-074	N 36th Street	18th Avenue North to RR Tracks	State of Good Repair	Reconstruct	City of Grand Forks	40	\$480,000
REP-075	N 36th Street	Gateway Drive (US 2) to RR Tracks	State of Good Repair	Reconstruct	City of Grand Forks	40	\$960,000
DIS-037	47th Avenue South & I - 29 Interchange	West of Columbia Road	Discretionary	New 2 Lane Road Extension and New Interchange with I - 29	City of Grand Forks	40	\$46,000,000
DIS-016	Mill Spur Railway	Gateway Dr to University Ave	Discretionary	Implement warning devices, gates and flashers, crossing Closures and median improvements and landscape and trail improvements	City of Grand Forks	35	\$3,229,000
REP-039	32nd Avenue South	South 48th Street to I-29	State of Good Repair	Concrete Pavement Rehabilitation (CPR) and Grind	City of Grand Forks	32.5	\$1,799,782



**MPO Staff Report**  
**Technical Advisory Committee:**  
**March 8, 2023**  
**MPO Executive Board:**  
**March 15, 2023**

**RECOMMENDED ACTION:** Approval of the Carbon Reduction Applications for FY2023 and 2024.

**TAC RECOMMENDED ACTION:**

Matter of approval of the Carbon Reduction Program applications for funding for FY2023 and 2024.

**Background:**

The Carbon Reduction Program is a new program created by the Infrastructure Investment and Jobs Act (IIJA). President Biden signed into law the Infrastructure and Jobs Act on November 15, 2021. It established the Carbon Reduction Program and funds with \$1.234 billion in FY2022 with an annual increase of approximately 1.9%. Minnesota will receive approximately \$20.5 million annually with an annual increase of approximately 1.9%.

Program funding is assigned into two main categories with subcategories:

- Areas based on population (65%)
  - Urban areas with a population greater than 200,000
  - Urban areas with a population between 50,000 and 200,000
  - Urban areas with a population between 5,000 and 49,999
  - Areas with populations of less than 5,000
- Statewide (35%)

Cities and counties submit projects to MPOs, and ATPs based on the project location. The MPO or ATP reviews and selects projects to build.

**Findings and Analysis**

- [INFORMATION: Carbon Reduction Program \(CRP\) Implementation Guidance \(dot.gov\)](#)
- [Carbon Reduction Program - MnDOT \(state.mn.us\)](#)

**Support Materials:**

- CPR Letter
- Carbon Reduction Program FY2023 and FY2024 Solicitation
- 2023 CRP Project for East Grand Forks
- 2024 CRP Project for East Grand Forks



Minnesota Department of Transportation  
Office of Sustainability and Public Health  
395 John Ireland Boulevard, MS 120  
Saint Paul, Minnesota 55155

December 9, 2022

Ms. Stephanie Halford  
Executive Director  
Grand Forks-East Grand Forks Metropolitan Planning Organization  
255 North 4<sup>th</sup> Street  
Grand Forks, ND 58203

Good afternoon Stephanie,

Through the Infrastructure Investment and Jobs Act (IIJA) a number of new funding programs were developed. One is the Carbon Reduction Program (CRP) fund. The purpose of the program is to reduce carbon dioxide (CO<sub>2</sub>) emissions from on-road highway sources.

Funding for the program is suballocated into 2 main categories:

- Areas based on population (65%)
- Statewide (35%)

Minnesota will receive approximately \$20.5 to \$20.9 million annually in CRP funds. To use CRP funds, Minnesota must solicit, select and obligate eligible CRP projects in the TIP (if applicable) and STIP.

The Grand Forks-East Grand Forks Metropolitan Planning Organization planning area will receive \$20,000 to be spent in the metropolitan planning area in State Fiscal Year (FY)2023 and \$20,000 to be spent in FY2024. These funds are to be programmed in the Minnesota side of the planning area.

This requires teamwork, coordination and cooperation at all levels of government. Therefore, MnDOT in coordination and consultation with metropolitan planning organizations (MPOs) and Area Transportation Partnerships (ATPs) is soliciting projects for FY2023 and FY2024 use of CRP funds.

Attached is a template to use for your regional or metropolitan planning area solicitation process. MPOs and ATPs should coordinate with each other on the timeline and process for their solicitation for FY2023 and FY2024 CRP funded projects.

Note that this solicitation process for FY2023 and FY2024 is not indicative of future CRP solicitations.



Over the next year, MnDOT will work with our transportation partners and a consultant to develop a Carbon Reduction Strategy, which will define the carbon reduction priorities and process in Minnesota for future years of CRP funds.

In the next two weeks, I will be following up with each ATP and MPO to discuss the CRP solicitation individually and answer any questions. In the meantime, please reach out with any questions.

Sincerely,

Anna Pierce  
Carbon Reduction Program Coordinator

CC:

Tim Sexton, SPPM

Amber Dallman, OSPH

Siri Simons, OSPH

Brian Gage, OTSM

Patrick Weidemann, OTSM

J.T. Anderson, District 2 Engineer

Jon Mason, District 2 Planner

*Equal Opportunity Employer*

Attachments:

*Carbon Reduction Program FY2023 and FY2024 Solicitation Template*

## Carbon Reduction Program Funding

The Carbon Reduction Program (CRP) is a new program created by the Infrastructure Investment and Jobs Act (IIJA)<sup>1</sup>. The purpose of the program is to reduce carbon dioxide (CO<sub>2</sub>) emissions from on-road highway sources.

Funding for the program is suballocated into 2 main categories:

- Areas based on population (65%)
  - Urbanized areas with an urbanized population greater than 200,000 (obligated in MPA)
  - Urbanized areas with an urbanized area population between 50,000 and 199,999 (obligated in MPA)
  - Urban areas with population between 5,000 and 49,999
  - Areas with populations of less than 5,000
- Statewide (35%)

Minnesota will receive approximately \$20.5 million for Federal Fiscal Year (FFY) 2022 and \$20.9 million for FFY2023 in CRP funds. It's expected that Minnesota should continue to receive approximately \$20.9 million annually. As such, Minnesota must solicit and select eligible projects for CRP funding.

The goal is to spend \$20.5-20.9 million annually. This requires teamwork, coordination, and cooperation at all levels of government. Therefore, MnDOT is soliciting projects for State Fiscal Year (FY) 2023 and FY 2024 use of CRP funds. These will use the oldest FFY funds first to avoid a lapse in funding.

Key aspects of the FY2023 and FY2024 Carbon Reduction Program solicitation include:

- Consultation, cooperation & coordination
- Eligible projects
- Applications
- Evaluation & prioritization
- Obligation of funds
- Project suggestions
- Future solicitations
- Questions

Note that this solicitation process for FY2023 and FY2024 is not indicative of future CRP solicitations.

Over the next year, MnDOT will work with our transportation partners and a consultant to develop a Carbon Reduction Strategy, which will define the carbon reduction priorities and process in Minnesota for future years of CRP funds.

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<sup>1</sup> Pub. L. 117-58 (Nov. 15, 2021)

## Consultation, cooperation & coordination

Establishing the definitions of consultation, cooperation, coordination, and designated recipient help set the stage for how and why there are various solicitation processes for the CRP funds.

- [Consultation](#) occurs when one or more parties confer with other identified parties in accordance with an established process and, prior to acting, considers the views of the other parties and periodically informs them about action taken.
- [Cooperation](#) occurs when the parties involved work together to achieve a common goal or objective
- [Coordination](#) occurs when parties involved work together to develop and adjust plans, programs, and schedules to achieve general consistency as appropriate.
- [Designated recipient](#) is an entity selected to receive and allocate an amount of funds that are attributable to urbanized areas of 200,000 or more in population, or a State or regional authority if the authority is responsible under the laws of a State for a capital project and for financing and directly providing public transportation.

### Urbanized areas that are TMAs (>200,000)

Per [23 CFR 450.332\(c\)](#), in areas designated as TMAs, the MPO shall select all 23 U.S.C. and 49 U.S.C. Chapter 53 funded projects in **consultation** with the State and public transportation operator(s). For funds to be obligated to a project, the project must be included in the approved TIP and in accordance with the priorities in the approved TIP. The State shall select projects on the NHS in **cooperation** with the MPO, from the approved TIP. TMAs are considered **designated recipients** of federal funds. It's presumed that TMAs will also be **designated recipients** of CRP funds.

### Urbanized areas that are not TMAs (50,000-199,999)

Per [23 USC 175 \(e\)\(4\)](#), a State shall **coordinate** with any metropolitan planning organization (MPO) that represents the urbanized area prior to determining which activities should be carried out under the project. This is a new process for the selection of projects funded through the Carbon Reduction Program in areas of 50,000-199,999 people. [23 CFR 450.332\(b\)](#) states that in metropolitan areas not designated as TMAs, the State and/or the public transportation operator(s), in **cooperation** with the MPO shall select projects to be implemented using title 23 U.S.C. funds (other than Tribal Transportation Program, Federal Lands Transportation Program, and Federal Lands Access Program projects) or funds under title 49 U.S.C. Chapter 53, from the approved metropolitan TIP.

### Rural Areas (<50,000)

Per [23 USC 175 \(e\)\(5\)](#), a State shall **consult** with any regional transportation planning organization (RTPO) or metropolitan planning organization (MPO) that represents the rural area prior to determining which activities should be carried out under the project.

## Eligible projects

Projects that support the reduction of transportation emissions, including, but not limited to:

- a project described in [23 U.S.C. 149\(b\)\(4\)](#) to establish or operate a traffic monitoring, management, and control facility or program, including advanced truck stop electrification systems
- a public transportation project eligible under [23 U.S.C. 142](#)
- a transportation alternative (as defined under the Moving Ahead for Progress under the 21st Century Act [[23 U.S.C. 101\(a\)\(29\)](#)], as in effect on July 5, 2012)), including, but not limited to, the construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other nonmotorized forms of transportation
- a project described in [23 U.S.C. 503\(c\)\(4\)\(E\)](#) for advanced transportation and congestion management technologies, these include:
  - advanced traveler information systems;
  - advanced transportation management technologies;
  - advanced transportation technologies to improve emergency evacuation and response by Federal, State, and local authorities;
  - infrastructure maintenance, monitoring, and condition assessment;
  - advanced public transportation systems;
  - transportation system performance data collection, analysis, and dissemination systems;
  - advanced safety systems, including vehicle-to-vehicle and vehicle-to-infrastructure communications, technologies associated with autonomous vehicles, and other collision avoidance technologies, including systems using cellular technology;
  - integration of intelligent transportation systems with the Smart Grid and other energy distribution and charging systems;
  - integrated corridor management systems;
  - advanced parking reservation or variable pricing systems;
  - electronic pricing, toll collection, and payment systems;
  - technology that enhances high occupancy vehicle toll lanes, cordon pricing, or congestion pricing;
  - integration of transportation service payment systems;
  - advanced mobility, access, and on-demand transportation service technologies, such as dynamic ridesharing and other shared-use mobility applications and information systems to support human services for elderly and disabled individuals;
  - retrofitting dedicated short-range communications (DSRC) technology deployed as part of an existing pilot program to cellular vehicle-to-everything (C-V2X) technology, subject to the condition that the retrofitted technology operates only within the existing spectrum allocations for connected vehicle systems; or
  - advanced transportation technologies, in accordance with the research areas described in section 6503 of title 49.
- deployment of infrastructure-based intelligent transportation systems capital improvements and the installation of vehicle-to-infrastructure communications equipment;

- a project to replace street lighting and traffic control devices with energy-efficient alternatives
- development of a carbon reduction strategy developed by a State per requirements in [23 U.S.C. 175\(d\)](#);
- a project or strategy designed to support congestion pricing, shifting transportation demand to nonpeak hours or other transportation modes, increasing vehicle occupancy rates, or otherwise reducing demand for roads, including electronic toll collection, and travel demand management strategies and programs
- efforts to reduce the environmental and community impacts of freight movement
- a project that supports deployment of alternative fuel vehicles, including—
  - acquisition, installation, or operation of publicly accessible electric vehicle charging infrastructure or hydrogen, natural gas, or propane vehicle fueling infrastructure; and
  - purchase or lease of zero-emission construction equipment and vehicles, including the acquisition, construction, or leasing of required supporting facilities
- a project described in [23 U.S.C. 149\(b\)\(8\)](#) for a diesel engine retrofit
- certain types of projects to improve traffic flow that are eligible under the CMAQ program, and that do not involve construction of new capacity [[§ 11403](#); [23 U.S.C. 149\(b\)\(5\)](#); and [175\(c\)\(1\)\(L\)](#)]
- a project that reduces transportation emissions at port facilities, including through the advancement of port electrification
- any other STBG-eligible project, if the Secretary certifies that the State has demonstrated a reduction in transportation emissions, as estimated on a per capita and per unit of economic output basis. [[§ 11403](#); [23 U.S.C. 133\(b\)](#) and [175\(c\)\(2\)](#)]
  - Note: FHWA will issue guidance on how the Secretary will make such certifications.
  - Per [23 U.S.C. 175\(c\)\(2\)](#) Flexibility, in addition to the eligible projects under paragraph (1), a State may use funds apportioned under section 104(b)(7) for a project eligible under section 133(b) if the Secretary certifies that the State has demonstrated a reduction in transportation emissions- (A) as estimated on a per capita basis; and (B) as estimated on a per unit of economic output basis.

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## Applications

To apply for funding, please submit a project application to Grand Forks-East Grand Forks Metropolitan Planning Organization no later than **Thursday, February 23, 2023**.

The project application should include:

1. A description of the proposed project in detail including project location and what will be constructed or planned (maps are helpful). See [CRP Eligible Projects](#) for what's eligible.
2. Approximate carbon reduction the project will have. Use [CMAQ Emissions Calculator Tools](#) to calculate the estimated carbon reduction for the project.
3. Total project cost
4. Total amount of CRP funds requested (maximum of 80% of the project total)
5. Total amount and source of local funds committed to the project (minimum of 20% of project total)
6. Total amount and source of additional federal funds obligated to the project already, if applicable.
7. Identify the jurisdiction responsible for completing the project and receiving the CRP funds as partial reimbursement.
8. Identify the timeline for the project to be let and anticipated completion date.
9. Identify if and to what degree the project impacts disadvantage communities per Justice40 using the [Climate and Economic Justice Screening Tool](#).
10. Identify how the project meets the regional priorities related to carbon reduction
  - Grand Forks-East Grand Forks Metropolitan Planning Organization
11. Identify how the project meets Minnesota carbon reduction priorities
  - [2022 Statewide Multimodal Transportation Plan \(SMTP\)](#)
  - [Minnesota Climate Action Framework](#)
  - [Pathways to Decarbonizing Transportation report](#)

*Remainder of page intentionally left blank.*

## Evaluation & prioritization

Grand Forks-East Grand Forks Metropolitan Planning Organization staff will conduct a preliminary evaluation to rank all applications for FY 2023 and FY 2024 solicitation using the following criteria:

1. Project eligibility to receive CRP funds
2. Cost-benefit analysis using a ratio of reduction of carbon dioxide emissions to total CRP funds requested.
3. Project consistency with the goal and objectives of the Metropolitan Transportation Plan<sup>2</sup> and/or the Regional Active Transportation Plan<sup>3</sup>
4. Project consistency with Minnesota carbon reduction priorities (see Applications point 10 above)
5. How the project impacts Justice40 defined disadvantaged communities using the [Climate and Economic Justice Screening Tool](#).
6. Project initiation and completion timeline

Proposed projects will be ranked in priority order. Starting with the #1 ranked project, the requested CRP funds will be deducted from the available funding pool of \$20,000, then funds from the #2 ranked project will be deducted, etc., until all the funds have been accounted for.

Grand Forks-East Grand Forks Metropolitan Planning Organization staff will then submit their preliminary project ranking to the Grand Forks-East Grand Forks Metropolitan Planning Organization Technical Advisory Committee for its review, consideration, and recommendation.

## Obligation of funds

The selected project(s) will be amended into the applicable Transportation Improvement Program (TIP) and subsequently into the Minnesota Statewide Transportation Improvement Program (STIP) for obligation of funding. FY 2023 funds must be obligated in the Grand Forks-East Grand Forks Metropolitan Planning Organization 2023-2026 TIP and 2023-2026 STIP no later than June 7, 2023. FY 2024 funds must be obligated in the Grand Forks-East Grand Forks Metropolitan Planning Organization TIP and STIP no later than June 7, 2024.

## Project suggestions

Projects need to be obligated using the CRP funds in FY2023 and FY2024 for this solicitation. That means that projects must be included in the Grand Forks-East Grand Forks Metropolitan Planning Organization TIP and STIP no later than June 7, 2024. To do this, projects for this solicitation may be add-on carbon reducing components

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[2045 Metropolitan Transportation Plan - Grand Forks-East Grand Forks Metropolitan Planning Organization \(theforksmpo.org\)](#)

to an existing project in the applicable TIP and STIP. These add-on components cannot be already federally funded if already locally funded, the add-on components of the project can apply for the CRP funds.

The purpose of these funds is not to remove existing federal funds and replace CRP funds on projects already programmed in the TIP and STIP, so that the existing federal funds are used on another project. Instead, the purpose is to add or create new opportunities to further reduce carbon dioxide (CO<sub>2</sub>) emissions from on-road highway sources. Specific questions can be directed to Anna Pierce (see contact information in the questions section below).

*Example 1: Project A is a FY2023 federally funded STBGP pavement project. This project originally included a shared-use path within the right-of-way to increase connectivity within a community and promote alternative travel modes. Due to inflation or other cost increases, the shared-use path component was removed from the project, but the STBGP funded portion of pavement project is still included in FY2023 of the TIP and STIP. Project A could apply for CRP funds to supplement this gap in funding to fund the shared-use path component of the project.*

*Example 2: Project B is a FY2023 federally funded STBGP pavement project. This project includes a shared-use path within the right-of-way to increase connectivity within a community and promote alternative travel modes. The shared-use path component is currently funded 100% with local funds and the pavement portion of the project is currently funded 80% with STBGP funds in FY2023 of the TIP and STIP. Project B could apply for CRP funds to supplement the local funded portion of the project for the shared-use path component to reduce the total local match of the project.*

## Future Solicitations

In the calendar year 2023, MnDOT with a consultant will develop a Carbon Reduction Strategy (CRS). The CRS will document the programming priorities and processes for CRP funds in Minnesota. It will also develop a review and update cycle for the CRS. The CRS is due to USDOT by November 15, 2023.

Engagement with transportation partners and stakeholders will occur throughout 2023 on the priorities and processes for programming CRP funds. The CRS will guide the CRP solicitation process for FY 2025 and beyond.

Note that the FY 2023 and FY 2024 solicitation process is not indicative of future CRP solicitations. Lessons learned from the FY 2023 and FY 2024 solicitation will be taken into consideration as the CRS is developed.

## Questions

If you have any questions about the Carbon Reduction Program and/or the solicitation, please contact MnDOT Carbon Reduction Program Coordinator Anna Pierce at 651-366-3793 or [anna.m.pierce@state.mn.us](mailto:anna.m.pierce@state.mn.us). Specific local questions can be directed to Stephanie Halford Executive Director of the Grand Forks-East Grand Forks Metropolitan Planning Organization [stephanie.halford@theforksmplanning.org](mailto:stephanie.halford@theforksmplanning.org) 701-746-2660.

## 2023 CRP Project for East Grand Forks

1. We are purchasing 11 pre-emption emitters for the fire department vehicles. Traffic signal preemption, also called traffic signal prioritization, is a system that allows the normal operation of traffic lights to be preempted. The most common use of these systems manipulates traffic signals in the path of an emergency vehicle, halting conflicting traffic and allowing the emergency vehicle right-of-way, thereby reducing response times and enhance traffic safety. We are installing new emitters in our Fire Department vehicles as part of the MnDOT project of replacement of our city's traffic signals. This project falls under those projects described in the CRP program as advanced transportation and congestion management technologies; more specifically advanced transportation technologies to improve emergency evacuation and response by Federal, State, and local authorities.
2. See attachment.
3. Total project cost \$6225
4. Total amount of CRP funds requested \$4980 (80%)
5. Total amount of local funds committed from our city's general fund: \$1245
6. No additional federal funds are obligated to the project.
7. The City of East Grand Forks Fire Department is responsible for completing the project that the City of East Grand Forks will receive the CRP funds as partial reimbursement.
8. Timeline: Approval of project by the MPO and MnDOT and placed on the TIP/STIP – end of May 2023; Order product after notification of project on TIP/STIP; Receive product, installation and test of product by end of year 2023. Request funds after payment in full by City to contractor and product is installed and tested by end of January 2024.
9. The downtown/central area of East Grand Forks has been identified as disadvantaged due to its combination of low income and low life expectancy, as well as its proximity to risk management plan facilities. We feel this project impacts the disadvantaged area by providing more efficient transportation with a reduction of exposure to harmful transportation and its related emissions.
10. 2045 Street and Highway Plan Goal 4: Environmental/Energy/Quality of Life

### 3. Maintain and improve regional air quality

- Recognize the role of transportation choices in reducing emissions and support state and regional goals for reducing greenhouse gas and air pollutant emissions.

11. According to the SMTP, reducing emissions from the transportation sector will create healthier and more livable communities. Minnesota's transportation sector is the largest contributor to greenhouse gas emissions—the most significant cause of climate change—in the state. Lower emissions modes of travel (such as walking, rolling, bicycling and taking transit), electric vehicles, alternative fuels and innovative technologies and solutions can help reduce GHG emissions. This project of including pre-emptive emitters to the fire department vehicles allows them to get to the scene quicker without delay. They can use the quickest route of travel which includes several traffic signals. We feel that this project meets the following objective: focus on tailpipe emissions as this presents a significant near-term opportunity to curb GHG emissions. Lower emissions modes of travel, electric vehicles, alternative fuels and **specifically innovative technologies and solutions** can help reduce GHG emissions.



## 2024 CRP Project for East Grand Forks

1. The City of East Grand Forks will complete a trail and sidewalk project. First, it will install sidewalk along 5<sup>th</sup> Ave NW from the bus shelter/stop to the corner of 5<sup>th</sup> Ave NW and 4<sup>th</sup> St NW, as well as, across 4<sup>th</sup> St NW to fill in the gap and connect to sidewalks on both sides of 4<sup>th</sup> St NW. Second, the city will also install a new 10' trail connection from the existing trail at 5<sup>th</sup> Ave NW and fill a gap along the north side of 4<sup>th</sup> St NW from 5<sup>th</sup> Ave NW, thru the flood control wall, and connect with the existing trail on the north side of flood control wall that runs thru the State campground and park areas.
2. See attachment.
3. Total project cost estimate: \$104149
4. Total amount of CRP funds requested: \$35020 remaining available CRP funds (34%)
5. Total amount of local funds committed from our city's state aid maintenance funds: \$69129 (66%)
6. No additional federal funds are obligated to the project.
7. The City of East Grand Forks is responsible for completing the project and will receive the CRP funds as partial reimbursement.
8. Timeline: Approval of project by the MPO and MnDOT and placed on the TIP/STIP – end of May 2023; Prepare plans and specs for the project summer and fall of 2023; Bid project by end of year 2023; Award bid – winter of 2023/2024; Construction of project and completion by beginning of July 2024. Request funds after payment in full by City to contractor and product is installed by end of August 2024
9. The downtown/central area of East Grand Forks is identified as disadvantaged due to its combination of low income and low life expectancy, as well as its proximity to risk management plan facilities. We feel this project impacts the disadvantaged area by providing clean transportation with increased bike and walking paths.
10. Bike and Pedestrian element of the 2045 Street and Highway Plan Goal 4: Environmental/Energy/Quality of Life – Protect and enhance the environment, promote energy conservation, and improve quality of life by valuing the unique qualities of all communities – whether urban, suburban, or rural.

Objective 3: Promote walking and biking to help achieve local, regional, state, and federal environmental goals to reduce vehicle miles traveled, reduce greenhouse gas emissions, and improve air quality.

11. According to the SMTP, reducing emissions from the transportation sector will create healthier and more livable communities. Minnesota's transportation sector is the largest contributor to greenhouse gas emissions—the most significant cause of climate change—in the state. Lower emissions modes of travel (such as walking, rolling, bicycling, and taking transit), electric vehicles, alternative fuels and innovative technologies and solutions can help reduce GHG emissions. This project adds connections to transit and fills gaps to sidewalks and a multipurpose trail in our downtown, parks and recreation areas. We feel that our project meets the following objectives of SMTP: 1) To ensure that the planning and implementation of all modes of transportation are consistent with the environmental and energy goals of the state; 2) To promote and increase bicycling and walking as a percentage of all trips as energy-efficient, nonpolluting and healthy forms of transportation; and 3) To reduce greenhouse gas emissions from the state's transportation sector.



# **MPO Staff Report**

## **MPO Executive Board:**

**February 17, 2021**

**RECOMMENDED ACTION: Approve Contract for the Digital Orthophotography**

**TAC RECOMMENDED ACTION:**

Matter of Approval of Contract for the Aerial Imagery Collection.

**Background:** The Aerial Imagery project is a project that allows the MPO and its partners to keep up to date GIS information. The aerial image of the MPO area has been on a three-year cycle to get a new image. With the high growth that has happened in the Grand Forks/East Grand Forks area since 2021, it have been requested to increase the frequency of aerial imagery collection. The new imagery will help the city see where the growth is happening and helps people visualize concepts for planning and building purposes. There is a not to exceed consultant budget of \$55,000 for the project.

This RFP was advertised on Jan. 19<sup>th</sup>, with contract approval on March 15<sup>th</sup>. The flight will take place sometime between April 7<sup>th</sup> and May 26<sup>th</sup>. The goal is to have no snow on the ground and no leaves on the trees. It is also preferable to have the river in its banks or as close as possible. With these conditions it is easy to see road widths, sidewalks, and other items in the right-of-way. The final deliverables are due by October 31<sup>st</sup>.

We received four (4) quotes from: Fugro; Aryes; 95° West; and Sky Skopes. The selection committee met on March 1<sup>st</sup> to choose the recommended consultant.

### **Findings and Analysis**

- UPWP identifies the completion of Aerial Imagery.
- Selection committee aggregated scoring.

### **Support Materials:**

- Scope of Work
- Cost Proposal

## 2. Response to Administrative Questions

### 2.1 Respondent's Authorized Negotiator

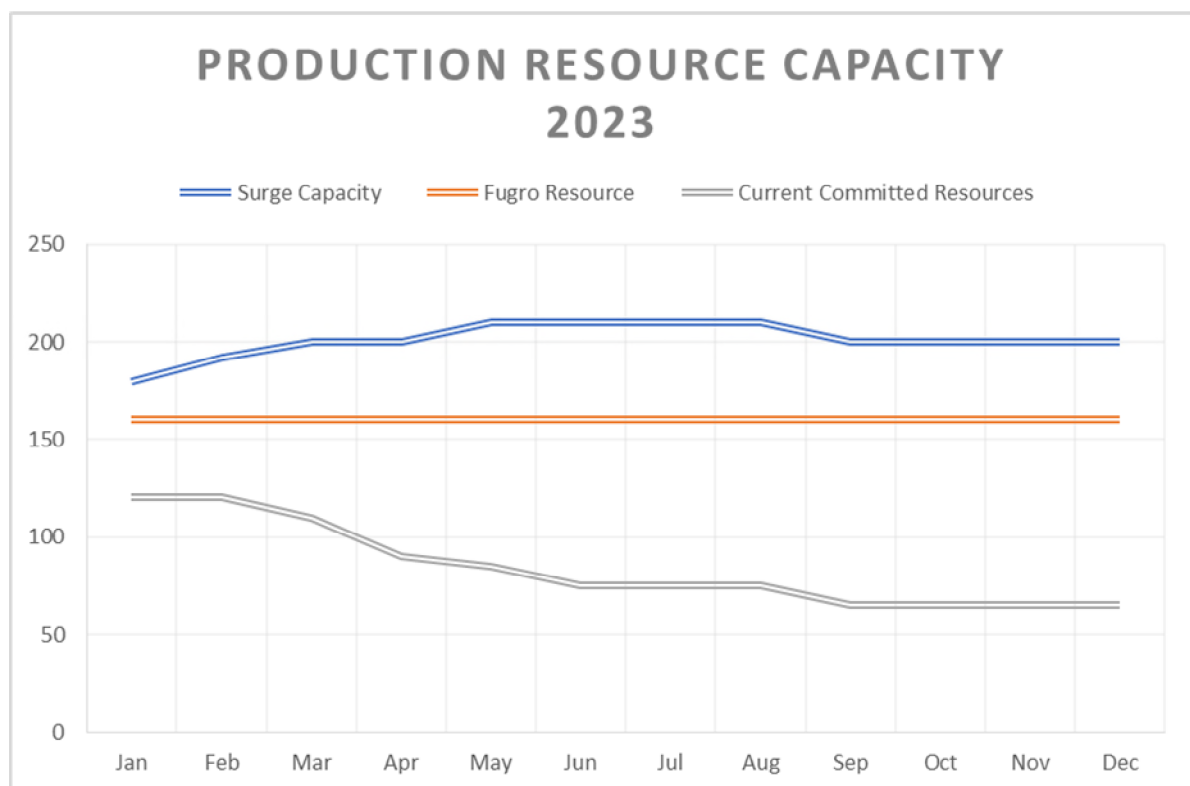
Dave White, Regional Manager

7320 Executive Way, Frederick, MD 21704, USA

(301) 963-2064

### 2.2 Workload and Manpower Summaries

#### 2.2.1 Current Workload



#### 2.2.2 Resource Planning

Fugro's Geo-data experience is complemented by ample resources, including a fleet of aircraft and vessels, geospatial sensors (lidar, imagery (natural color, multispectral, hyperspectral, thermal, oblique, SAR, sonar)), geophysical sensors (magnetometer, gravimeter), and more than 570 highly-qualified engineering, surveying / mapping, and geospatial professionals in the US. Personnel assigned to this project include registered ASPRS CP, PMP, PE, PLS, GISP and highly qualified and experienced analysts and technical support personnel to ensure all products meet quality and accuracy specifications. Additionally, we have on staff, FAA Certified/ Licensed Pilots,

and FAA Certified Airframe and Powerplant (A&P) mechanics to keep our aircraft in a peak state of readiness for project operations and emergency response.

Our employees participate in ongoing, advanced technical training to keep at the forefront of the rapid technological changes that are inherent in the field of surveying, mapping, and GIS. This knowledge ensures that we embrace the latest technologies and apply the appropriate industry standards to deliver robust mapping solutions.

### 2.2.3 Capacity Planning

Fugro's Production Manager is responsible for maintaining a detailed schedule to monitor the production status of all current and upcoming projects. This schedule details:

1. Available and committed production hours per production department.
2. Estimated and actual (accrued daily) hours per production phase.
3. Anticipated projects expected to enter production in the next 30, 60, and 90 days.
4. Potential impacts on the current production schedule.

Fugro uses this master schedule to:

1. Determine whether or not we can take on new projects.
2. Evaluate the length of time required for production so we can work to develop a delivery schedule that meets both parties' expectations.

The production scheduling system comprises the number of hours available in each major production department against jobs booked (in hours) and potential opportunities that are highly likely to become jobs. Team members are polled weekly to determine production capacity and ability to perform within the desired timeframe.

Fugro also creates a project-specific production schedule that outlines all major production phases, milestones, interim deliverable and due dates, and final deliverable and due dates. This schedule is developed during the project initiation/kick-off phase and guides production throughout the life of the project.

### 2.2.4 Key Personnel Capacity and Experience

Fugro's aerial acquisition and processing capabilities for orthoimagery, lidar, planimetric, and topographic map data are supported by a highly experienced team of project planning staff, pilots, sensor operators, field crews, production staff, and project managers who possess the experience and expertise to meet the needs of our customers.

### 2.2.5 Personnel Capacity

Our staff of over 570 US-based technical professionals has specialized education and experience in data acquisition (flight and sensor operations), photogrammetry, photo interpretation, remote



sensing, cartography, GIS, computer science, GPS surveying, and more. Fugro’s global processing facilities are available for cost and schedule efficiency, increasing our staff count as shown in the column in the table below.

Table 2.1: Technical and Administrative Personnel Capacity

Labor Category	Quantity (US)	Additional Quantity (Global)
Acquisition	>33	N/A
Production	>78	+140
Project Management / Administrative	>46	+3
Total Employees	>570	+146

### 2.2.6 Professional Certifications

One major factor to Fugro's success over the last 65 years is attributed to employing highly trained Geospatial and GIS professionals. Fugro staff maintains professional licenses, registrations, and certifications related to the surveying and mapping profession. The personnel listed in the table below are utilized in supervisory and management positions and are an invaluable resource ensuring quality products and services are delivered.

Table 2.2: Professional Certifications

Type	Name
CP	Lynn Baker; Dave Holm; Doug Johnson; Nora May; Suzee Parsons; Kirk Spell;
PLS	Ryan Chapman; Jesse Thibodeaux; Mark Buhrke; Brian Moyle; Tony Gray
PMP	Shelby Coder
GISP	Debbie Simerlink; Dave Holm
PE	Guy Meiron (SD)
CQM	Dave White (Pending Reinstatement)

CP: Certified Photogrammetrist PLS: Professional Land Surveyor PMP: Project Management Professional GISP: GIS Professional PE: Professional Engineer CQM: Certified Quality Manager

## 3. Summary of Proposed Technical/Planning Process

Fugro’s Technical and Business Development Manager and Project Staging and Controls department (PSC) has taken an in depth and detailed review of the Digital Orthophotography project and has a complete understanding of Grand Forks requirements and specifications. This involves a project design with ample and well managed equipment/personnel resources, and acquisition and production capabilities to complete this project within the proposed schedule.

### 3.1.1 Project Planning

Fugro’s preliminary plan of the project includes the time and resources it will take to deliver imagery and Geo-data products that meet the project technical specifications, schedule, and budget. This information is created in coordination with Fugro’s technical staff from each department (data acquisition, position, processing, and quality control) to provide detailed input to the project plan.

#### Work Plan Details - Project Planning Phase

Task/Work Elements	<ul style="list-style-type: none"> <li>▪ Project Planning</li> <li>▪ Internal Capacity Review</li> <li>▪ Specification Review</li> <li>▪ Project Kick-off Meeting</li> <li>▪ Flight/Mobilization Planning</li> <li>▪ Ground Control Planning</li> </ul>														
Supervisory Staff:	<table border="0"> <tr> <td>Rob Rombough</td> <td>Project Manager</td> </tr> <tr> <td>Tian Wang</td> <td>Production Manager</td> </tr> <tr> <td>Suzee Parsons, CP</td> <td>Planning, Staging</td> </tr> <tr> <td>Mike Rusenko</td> <td>Flight Operations</td> </tr> <tr> <td>Todd Giesey</td> <td>AT Specialist</td> </tr> <tr> <td>Dave Stuck</td> <td>Imagery Processing Lead</td> </tr> <tr> <td>Jarrett Leas, PLS</td> <td>Ground Control Planning</td> </tr> </table>	Rob Rombough	Project Manager	Tian Wang	Production Manager	Suzee Parsons, CP	Planning, Staging	Mike Rusenko	Flight Operations	Todd Giesey	AT Specialist	Dave Stuck	Imagery Processing Lead	Jarrett Leas, PLS	Ground Control Planning
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Hardware/Software:	<table border="0"> <tr> <td>MS Excel</td> <td>Project Planning/Estimating</td> </tr> <tr> <td>MS Project</td> <td>Project Scheduling</td> </tr> <tr> <td>J-Flight/AutoCAD 3D</td> <td>Flight Planning</td> </tr> <tr> <td>ArcMAP 10.6.1</td> <td>Boundary/Shapefile Edit</td> </tr> </table>	MS Excel	Project Planning/Estimating	MS Project	Project Scheduling	J-Flight/AutoCAD 3D	Flight Planning	ArcMAP 10.6.1	Boundary/Shapefile Edit						
MS Excel	Project Planning/Estimating														
MS Project	Project Scheduling														
J-Flight/AutoCAD 3D	Flight Planning														
ArcMAP 10.6.1	Boundary/Shapefile Edit														
Outcome:	Following the planning/kick-off phase, all parties including Fugro, subcontractors, the client and all stakeholders will have a complete understanding of the project design, schedule, deliverables and the specification to which they will be produced.														

### 3.1.2 Data Acquisition Specifications

The table below summarizes Fugro’s acquisition plan for Imagery.

#### Orthoimagery Acquisition Specifications

Camera/Sensor Type:	Leica ADS100 (Imagery)
Acquisition Timeframe:	Spring 2023
Sun Angle:	> 30 degrees
Airspace:	Fugro will obtain all approvals necessary.
Flight Lines	30 flight lines, 372.1 flight line miles
Tilt:	<p>Fugro orthoimagery cameras are mounted in a vertical position and will meet the required limits for tilt as detailed below:</p> <ul style="list-style-type: none"> <li>▪ Any tilt on the imagery: &lt; four degrees (4°)</li> <li>▪ Relative tilt between images or strips: &lt; six degrees (6°).</li> </ul>

	<ul style="list-style-type: none"> <li>In any 16km (10 mile) section of a flight line: &lt; two degrees (2°) on average</li> <li>Entire Project: &lt; one degree (1°) on average</li> </ul>
Environmental Conditions During Acquisition:	<p>Fugro will acquire imagery only under the following conditions:</p> <ul style="list-style-type: none"> <li>Sky free from clouds, cloud shadows, high overcast clouds causing low illumination, haze, fog, smoke, and dust.</li> <li>Ground features free of excessive waters due to rain or snow. Other environmental factors causing non-manmade obstruction of the ground surface will be minimal.</li> <li>Light conditions such that images are free from smear, blur, excessive glare, or noise.</li> <li>Less than 5% cloud cover per final uncompressed image tile AND less than 5% of the entire AOI. "5%" includes cloud shadows.</li> </ul>
Forward Overlap:	Not applicable to the camera and sensor as we are proposing
Side lap:	40% (Imagery)
Flight Altitude:	3,100' AMT (Imagery)
Coverage:	Quality Control performed before de-mobilization from the AOI ensures no voids due to cloud cover (< 5%), instrument failure, or water bodies will be contained in the imagery. Reflights are scheduled as soon as possible while the crews and equipment are still onsite.
Airborne GPS:	<p>To ensure accurate positioning the following quality measures are taken with regard to ABGPS:</p> <ul style="list-style-type: none"> <li>Camera position (latitude, longitude, and elevation) recorded with airborne GPS.</li> <li>Airborne GPS data differentially corrected and organized as individual datasets grouped by corresponding flight line.</li> <li>Differentially corrected airborne GPS positional data is stored on portable media, in a non-proprietary format.</li> </ul>
IMU Exterior Orientation:	The RMSE of the adjusted IMU data will not exceed 0.3m and will be used to ensure accuracy.
Projection:	North Dakota State Plane Coordinate System (North Zone) based on NAD 83 datum in US Survey Feet
Accuracy:	National Map Accuracy Standards (NMAS) for 1"=100' mapping products.
Geodetic Control:	Ground control is collected to ensure the imagery meets the absolute geometric accuracy specified in the Horizontal Accuracy Standards table.

## 3.2 Design and Planning

Planning for this project include a review of the project area to determine project complexity and level of effort required to acquire and process the Geo-data. PSC plots the ground control locations, flight lines and delivery tiles against the project boundary. This provides the metrics to measure the time and resources required to complete the project. The results are a detailed project estimate, of equipment and man hours, that follows the project from kick-off to delivery.

### 3.2.1 Ground Control Planning

The ground control survey will consist of (3) existing primary Static Network GNSS stations (KLJ) and (City of Grand Forks benchmarks). The primary Static Network GNSS stations will utilize existing geodetic control stations tied to NGS, PACS, FBN's, other HARN stations as well as

pertinent KLJ control stations. KLJ survey members with Trimble GNSS Receivers will be used daily during the survey.

KLJ will recover and verify GNSS control to establish horizontal and vertical control for Aerial mapping. Each of the (8) Fugro GCP points (KLJ will locate or place accordingly) will be observed once from while a base is running on Each of the (3) City of Grand Forks benchmarks, for three GNSS solutions to be averaged.

### 3.2.2 Flight Planning

Fugro uses a proprietary CAD-based application developed in 1996 (J-Flight) that uses a height model within the project limits to generate 3D flight lines ensuring that data resolution and lateral overlaps remain within the required tolerances. The software focuses attention to areas of large relief and indicates where adjustments of flight parameters or breaks in flight lines are necessary to maintain imagery resolution and coverage with no data gaps.

The digital files created by J-Flight are compatible with the on-board Flight Control Management System (FCMS) used during operation of the acquisition system.

In accordance with Fugro's ISO9001:2015 certified quality management system, copies of the acquisition plans will be reviewed by our Project Manager and submitted to Grand Forks for approval prior to initiation of the acquisition. The accompanying shapefile for the plan will include:

- The acquisition block reference
- Mission number
- Design altitude
- Direction of flight per line
- Sensor ID and description
- Proposed date of flight

### 3.2.3 Aerial Imagery Sensor – Leica ADS100

Imagery for this project will be acquired using the latest in aerial imaging technology, Leica's ADS100. With its unique features, the ADS100 is designed to meet the 21st century airborne imaging needs. A full multispectral color swath width of 20,000 pixels in RGBN guarantees the highest data acquisition efficiency, and full color RGBN in the forward, nadir and backward offers more flexibility for stereo interpretation. The improved cycle time allows acquisition of higher resolution/smaller GSD at faster speeds, and the 62.5 mm focal length increases ground resolution, making the ADS100 SH100 the perfect sensor for urban mapping and high-altitude data collection applications.

Table 3.1: Leica ADS100 Sensor

<b>Digital Sensor System:</b>	Leica ADS100	
<b>Band Capture:</b>	Pan, R, G, B, IR	
<b>Capture Width Across Track:</b>	20,000 pixels	
<b>Radiometric Resolution:</b>	12 bits/pixel/band	
<b>Processed Image Type:</b>	4 band R/G/B/IR	
<b>Sensor Spectral Bands (ADS100):</b>	Red	619-651nm
	Green	525-585nm
	Blue	435-495nm
	Near-infrared	808-882nm

**Focal plate (FPM):**  
Total of 13 CCD lines with 20,000 pixels each in three line groups (forward, nadir, backward), pixel size 5um, TDI stages selectable 1, 2, 4, 8, 15 (1/2, 1/4, 1/8, 1/16 @ Cycle time > 1 ms)

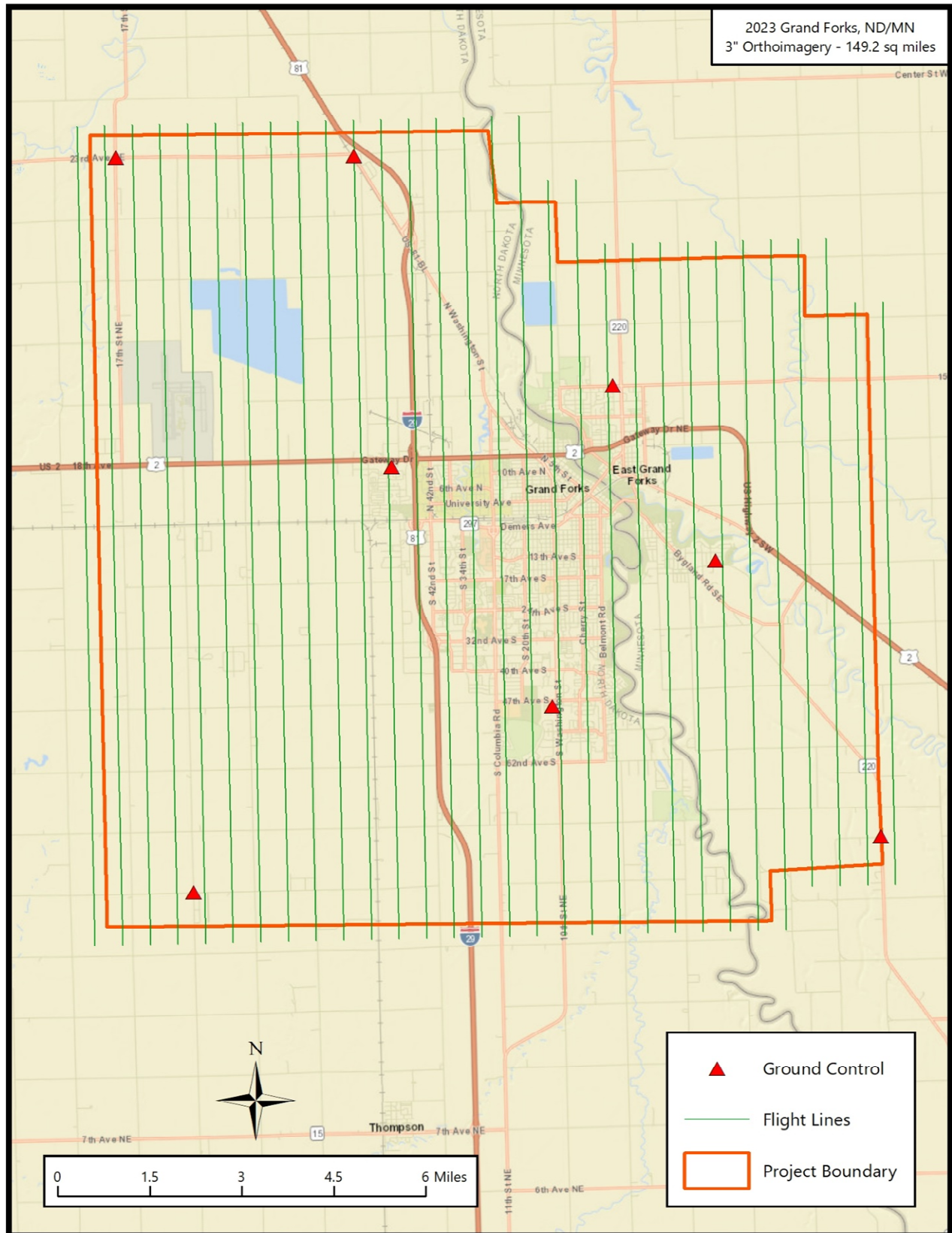
**Focal length:** 62.5  
**Cycle time:** > 0.5ms

**Field of View:**  
Forward 65.2° across track  
Nadir 77.3° across track  
Backward 71.4° across track

**Spectral Range:**  
Red: 619 – 651 nm  
Green: 525 – 585 nm  
Blue: 435 – 495 nm  
NIR: 808 – 882 nm

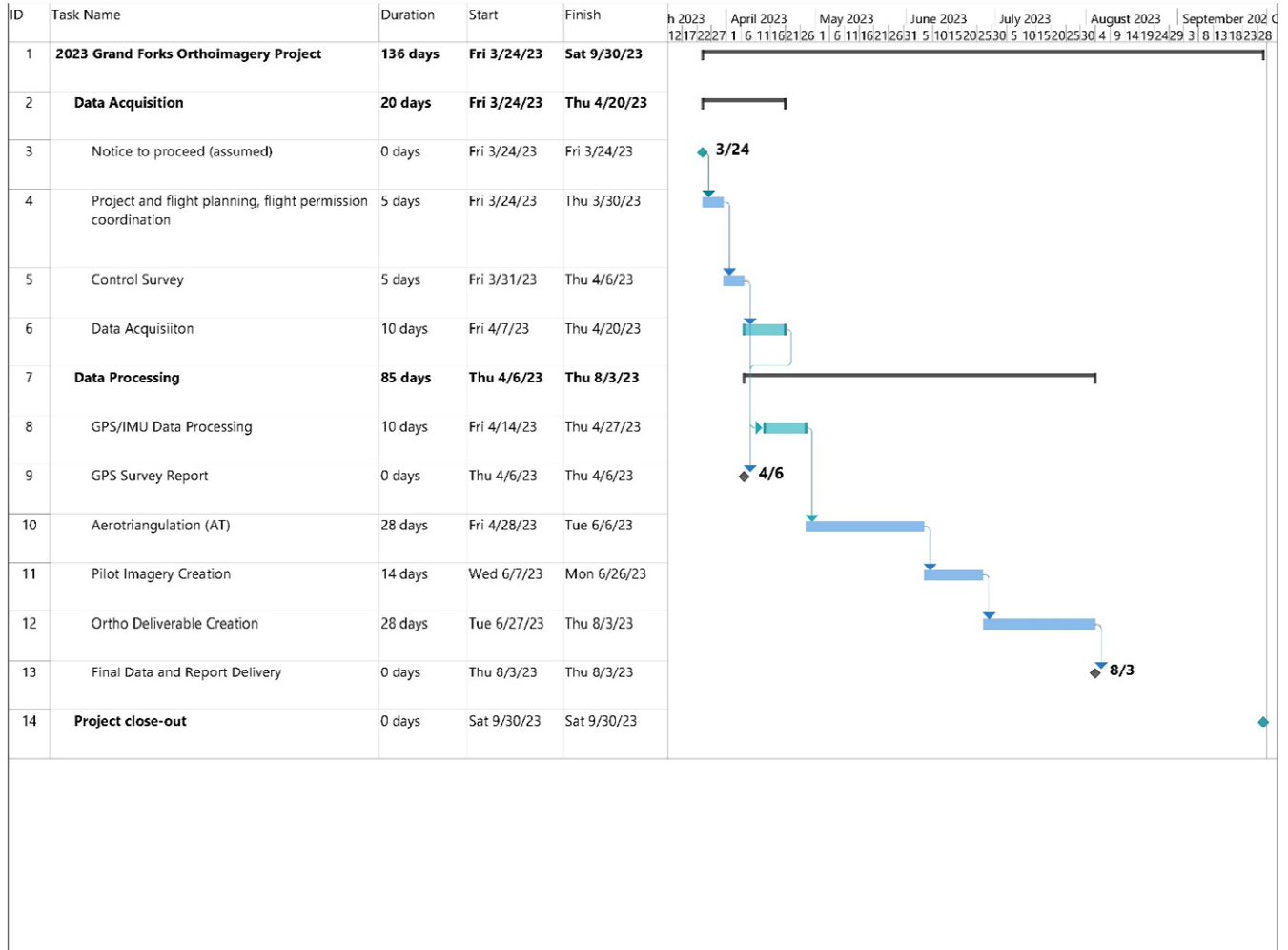


### 3.2.4 Flight Map



### 3.2.5 Project Schedule

#### 3.2.5.1 Orthoimagery Production Schedule



### 3.3 Project Management

All Fugro projects undertaken shall be planned, managed, and delivered in an effective manner that is transparent in terms of scope, schedule, resourcing, and finance, with a high regard for achieving Client satisfaction, regulatory requirements, efficient operations, QHSSE performance, and financial success. It is Fugro's goal that projects are managed in accordance with internally developed best practices, standards, and procedures to achieve delivery excellence. Furthermore, our competence shall be externally certified by the International Project Management Association (IPMA) or equivalent, and the established standards shall be continuously improved and assessed for suitability. This policy is intended to achieve the following goals:

- Increase Client satisfaction and internal confidence in Fugro's project delivery
- Improve organizational efficiency
- Optimize the utilization of resources
- Make certain we deliver our services efficiently and consistently meet project requirements
- Improve Client's return on investment
- Submit invoices on time and error free based on Client needs
- Create strong and lasting partnerships with Clients and other stakeholders
- Effectively close out projects for Client and company success

#### 3.3.1 Project Management Work Plan

Our standard Fugro project management work plan is separated into **four** major components as follows, with specific items to be analyzed and defined for each component:

##### 1. The client is best served by a full-time project manager

Fugro's project managers have more than 20 years of experience in all aspects of orthoimagery, photogrammetric and lidar mapping and GIS, including the management of large City, County and State mapping programs throughout the US. It is the Project Manager's responsibility to ensure that the project is completed on schedule, on budget, and to the required specifications.

Project Manager oversight responsibilities include:

- Project initiation
- Project plan compilation and review
- Flight plan review
- Control plan review
- Pilot project plan review
- Quality control plan review
- Final project report

## 2. An up-front investment of time and resources in project planning ensures success

Experience has proven that an investment in planning, establishing, and maintaining lines of communication, and customizing our reporting system to fit the project and our clients' needs serves everyone well throughout the life of the contract.

## 3. First-time-right, on time means staying on schedule and within budget

Because project events are not always predictable, effective communication ensures that unanticipated issues are immediately and effectively addressed and resolved. In many cases, our project tracking system enables project personnel to avert potential problems.

## 4. Client involvement is requisite to project success

Fugro project management requires the combined efforts of Fugro and the client in planning, careful examination, and discussion of project scopes of work and specifications, ongoing monitoring of production schedules, and regular communication.

### 3.4 Data Acquisition

Daily flight operation components include accurate weather predictions, proper communication, data collection efforts, project tracking, and quality control measures. Weather predictions and monitoring are conducted hourly by Fugro's aviation staff (pilots, sensor operators, managers, etc.) utilizing FAA weather sources (WSI PilotBrief Optima) for detailed analysis of weather patterns and the impact on each project. The weather analysis includes a review of the local monitoring stations, radar, visible satellite (for cloud cover), temperature, barometric pressure, winds aloft (wind speed and direction at flight altitude), and forecasts. Additional checks on multiple weather monitoring programs (NOAA, Weather Underground, Weather.com etc.) provide redundancy on predictions and forecasts which help attain the highest level of successful data capture.

#### 3.4.1 Project Specification Review

Fugro's Project Manager, project planners, aviation supervisors, and technical staff will conduct an internal project evaluation to review the details of the project prior to mobilizing crews to the project site. This final quality control check compares the results of the kick-off meeting with Fugro's project design (flight plans, project boundaries, tile layouts, etc.). Once complete, the finalized project plans are distributed to the appropriate departments, and mobilization of aircraft, sensor(s), and flight crew(s) is scheduled.

#### 3.4.2 Geo-data Asset Mobilization and Data Acquisition

The finalized technical specifications and flight plan layouts for the project are conveyed to Fugro's flight operations department in preparation of the acquisition mission. All technical

aspects of final deliverables are reviewed and finalized to ensure goals are met regarding overall project expectations. Acquisition considerations such as airspace restrictions, airport accessibility, terrain, weather patterns, and other customer or special project needs are addressed. Final ground and aircrew safety protocols are reviewed and confirmed, and the flight crew(s) mobilize to the project area.

### 3.4.3 Geo-data Collection

Following the receipt of the flight authorization and the successive establishment of active GPS base stations, we will conduct aerial imagery acquisition controlled by airborne GPS and IMU and supported by the network of surveyed ground control. This project requires one (1) twin engine aircraft to complete the work. Additional matched sensors and aerial platforms will be maintained in a back-up, mission ready position to provide data collection continuity if it becomes necessary to mitigate possible mechanical or weather delays during data acquisition.

Data collection activities consist of safety inspections of the aircraft, operational inspections of the sensors and the ability for the crew to successfully capture the data to the project specifications when weather and airspace present the opportunity. Below is an itemized acquisition scenario for airborne data collection:

- Inspect storage and system components to ensure all units are operational and have enough storage space
- Select and confirm the lever arm coordinates
- Load navigation system and perform system check
- Perform 5-minute static alignment and record PDOP, GPS, and UTC start time
- Ensure IMU is operational
- Ensure all channels are operational, as applicable.
- Observe in flight video display, POS status, and mass memory screens
- Begin flight line data recording: UTC start/stop times, GPS data, ground speed, altitude, concerns, lines, waypoints and times on flight log
- Perform a 5-minute static alignment after the flight mission is complete, followed by a systematic shutdown of the system
- Download data for in-field QC
- Arrange delivery of data and email flight log to team; perform data backup.

At the end of each day's data collection, the sensor operator forwards the completed flight logs to the Aviation and Project Manager to update Fugro's Project Tracking system (Fugro Access). Fugro Access is available for all project participants, providing up-to-date project information, flight line status and acceptance.





Figure 3.1: Fugro Pilot and Aircraft Acquiring Geo-data

Digital imagery data from each sortie will be downloaded at our on-site base of operations and reviewed to verify image quality and complete project area coverage. Airborne GPS and IMU data will be field processed within 48 hours of acquisition to ensure that the GPS satellite geometry and IMU data will support the mapping accuracy requirements.

#### 3.4.4 Geo-data QC and Re-flights

Quality control measures are performed before the flight/acquisition crew(s) leaves the project area. Airborne GPS and IMU data are field processed to ensure that GPS satellite geometry and IMU data will support the accuracy requirements. If any coverage or quality issues are identified, re-flights are called for immediately.

Upon confirmation that full coverage of the project area has been acquired and QC'd, the data is transferred to one or more of Fugro's production facilities for orthoimagery processing.

### 3.5 Data Processing

The following digital image production process is unique to Fugro and is used for pushbroom sensors including the ADS. The core application for ADS digital image sensor processing is the XPro software package from Leica. XPro was developed in parallel with the sensor and designed to take the data from a raw state to an intermediate product that can be exploited by more traditional photogrammetry software. Typical intermediate products are stereo models and strip orthos.

Following raw image generation and inspection, Fugro will begin the ortho production process. These steps include:

- Image post processing

- Aerotriangulation
- DEM extraction
- Radiometric adjustments
- Orthoimagery rectification
- Project mosaicking and seamline generation
- Quality Control

Fugro has a proven QC plan for acceptance of all products delivered and will prepare documentation that is consistent with client acceptance review.

### 3.5.1 Aerotriangulation (AT)

“AT” is the process of assigning ground control values to points on a block of photographs by determining the relationship between the photographs and known ground control points. XPro software is used to process the imagery and ORIMA is used to derive the AT solution. XPro works in conjunction with several independent software packages to accomplish this task. IPAS and ORIMA (both from Leica GeoSystems) are used during this processing phase. The following details the AT process:

**Step 1:** The AT technician sets up the project using the camera settings, project information, ground control, and approved imagery. Sample segments of the imagery are inspected in an uncorrected state to verify the integrity of each data set.

**Step 2:** The GPS/IMU parameters for each airborne mission are optimized using the ground control points and the error calibration map. The horizontal and vertical positions of all ground control points in the block are observed in each panchromatic band.

**Step 3:** The ground control, GPS, and IMU information is ingested and tie points between strips are identified. The analyst will plot and measure the project’s ground control, with known XYZ information, onto the AT imagery. A single control point, which should be identifiable in the imagery, may be projected onto one or many overlapping images. To ensure accurate results in the final bundle adjustment, each control point must be accurately measured on each intersecting image.

**Step 4:** Once the control and tie points have been generated, the analyst processes the bundle adjustment for the project block. The bundle adjustment will solve the relative and absolute orientations of all images referenced in the block. The results will optimize the geometry of all AT images.

**Step 5:** A digital file containing the RMSE computations of the adjustment is then derived. The results of the adjustment are verified through the development of a sub-sampled panchromatic mosaic of the data. The mosaic is corrected using the AT points only. This mosaic is inspected by

the photogrammetric technician to identify any gross errors in the adjustment, voids or image quality problems.

### 3.5.1.1 AT Reporting

A full report on the methodology and results of the AT adjustment is prepared and delivered shortly after completion of this phase. The AT report includes:

- General Project Information
- Ground Control Coordinates
- AT Procedure
- AT Results
- AT Approvals and Contact Information

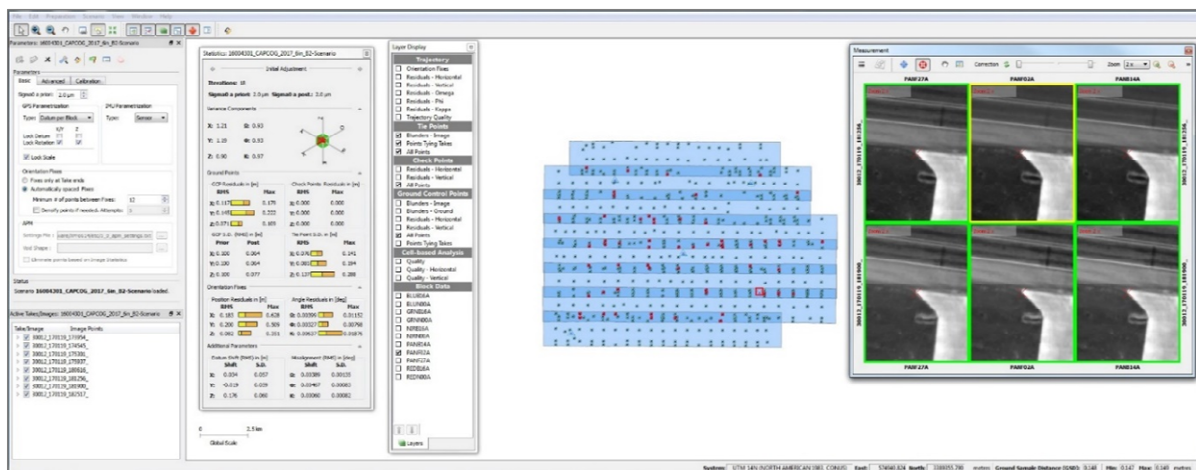


Figure 3.2: Aerotriangulation Processing

## 3.5.2 Digital Elevation Models (DEM)

An accurate DEM is required for orthophoto production. Fugro utilizes best available DEM for orthoimagery rectification. When the project has lidar data available or collected simultaneously, automatic filtered lidar ground surface is used.

When there is an existing DEM available and there is no or little terrain change from when the DEM was generated, this existing DEM is used, and can be updated to improve accuracy in an area of change. When there is no existing DEM available or if the DEM is outdated, Fugro generates auto-correlated digital surface models (DSM) from collected imagery and filters it to an ortho-suitable accurate DEM.

### 3.5.2.1 Existing DEM Update

Fugro will review all existing DEM/DTM from previous projects. While this data should provide elevation coverage for most of the project, additional new DEM generation may be required in

new collection areas and areas of change. Additional areas may be identified as unsuitable during the production phase of the project, thus requiring further new DEM generation.

Fugro will utilize and update the existing DEM in order to generate the orthoimagery to the requested scale. In the absence of an existing DEM, XPro can generate auto-correlated DSM surface. That DSM is filtered to produce ortho suitable DEM's. This process would speed up the ortho deliverable without having to wait for a compiled DEM or edited lidar dataset while meeting orthoimagery ASPRS Class 1 Standards.

### 3.5.3 Radiometric Adjustments

Radiometric processing will compensate for the effects of temperature, aperture, and other radiometric factors. A set of intermediate images are generated from radiometric processing and are written to the intermediate storage on the central server. Using our proprietary image color and radiometric balancing software, we implement a process that reduces the lens vignetting and any image hotspot effects.

The software then applies a global histogram manipulation to balance the image in tone, contrast, and color to re-create the "real world" view of the project area. This is accomplished while maintaining the largest dynamic range possible. This software allows us to easily switch between viewing each individual image and an entire project block for balancing. Prior to full orthoimagery production, Fugro will submit sample imagery to be used as the standard for which the final orthoimagery will be compared to.

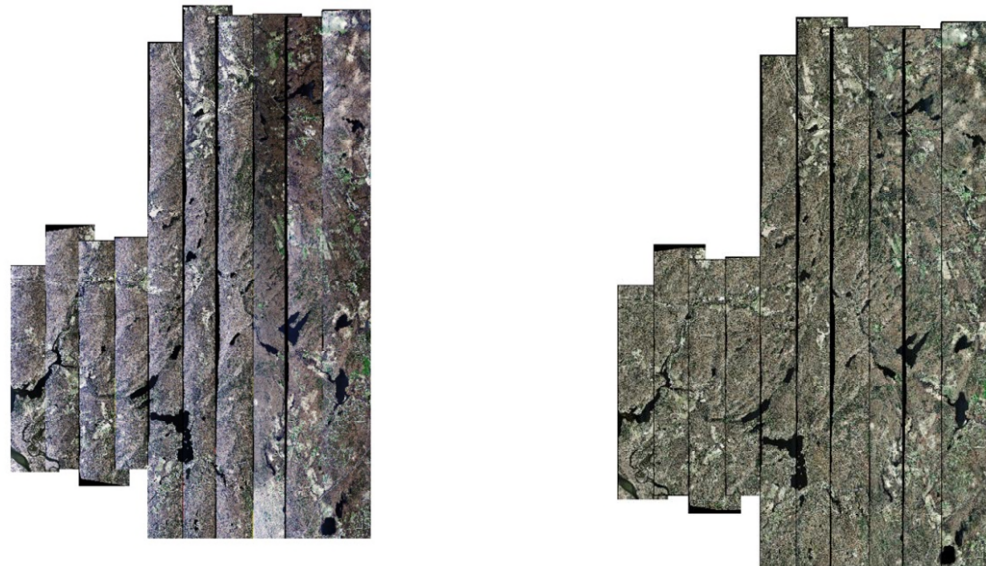


Figure 3.3: Strip Imagery Radiometric Correction



### 3.5.4 Orthoimagery Rectification

With the refined orientation data file from aerotriangulation and a suitable DEM, XPro is again used to produce a strip ortho for all or a portion of a flight line. Several processing options are available including creation of single band, 3-band (RGB), or 4-band (RGB+CIR) ortho images. The factory radiometric calibration is applied, and the modified Chavez Atmospheric (haze removal) correction may be applied. The output image is segmented to stay under 4GB tiff (uncompressed) file size limit. Each of the segments carries its own geo-reference so further processing may be done on individual segments.

### 3.5.5 Project Mosaicking and Seam Line Generation

Fugro's image database mosaicking and editing suite is an automated image mosaic software that creates an image database for an entire project. The ortho footprints can be viewed and modified in order to produce the best mosaic possible (i.e. reduce the footprint size in order to force the seam lines to best utilize the nadir view in each exposure/flight line while maximizing the side lap). Our image database software automatically generates a seam line file that is used to mosaic the imagery. Mosaic seam lines are determined using a "shortest path" algorithm.

Our editing process provides the ability to interactively change/modify seam lines and input/paste additional or different orthophoto imagery into the image database without having to re-mosaic the project. This process also allows us the flexibility to extract image tiles in multiple resolutions and/or coordinate projections without re-working the project.

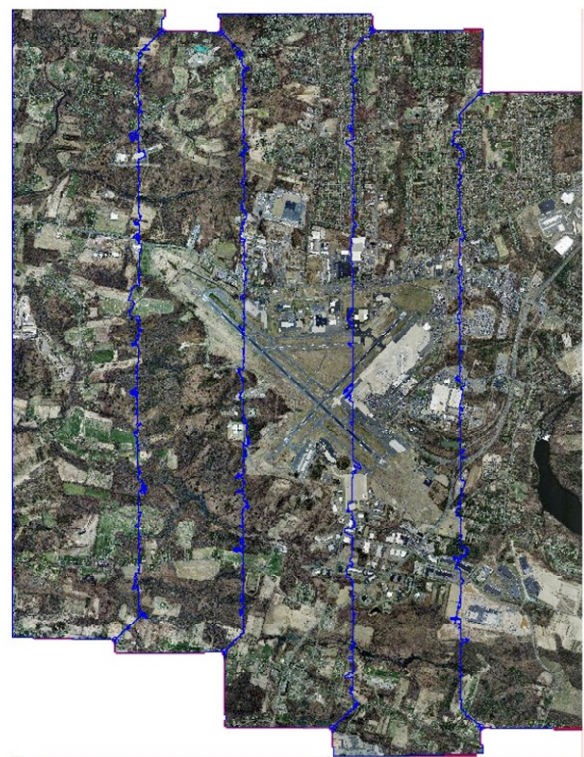


Figure 3.4: Orthoimagery Mosaic and Seam Line Edit

### 3.5.6 Orthoimagery Mosaic QC

Digital orthoimagery are visually checked for accuracy on the workstation screen, and its absolute accuracy is verified by overlaying and comparing the locations of the paneled control that are visible on the image against a CAD file containing the point locations in vector form. The edge matching of adjacent strips of imagery is accomplished using a single-color band from



adjoining strips of imagery displaying each strip in alternating colors of red and cyan. In areas where the overlapping images are coincident, the imagery appears in a gray scale rendition while any offset is colored red or cyan. Any offsets are measured to confirm that the offset falls within the accuracy specification for the project.

Subsampled L2 strip orthos are exported and parameters are developed. The finishing department radiometrically balances the subsampled L2 tracks while the auto-generated seam lines undergo manual inspections and alterations to prevent splitting buildings and minimizing above ground features from being clipped. The balanced subsampled L2 tracks are then imported and mosaicked using the final edited seam lines. The subsampled mosaic is then applied to the full resolution tracks and mosaicked.

### 3.5.7 Final Inspection and Formatting for Delivery

After a closing inspection, the finished mosaic is packaged to the final projection and tile layout. The finishing department performs a 100% final visual check for ortho image quality prior to outputting the approach data to the designated media. The media is then inspected to confirm that there is no corruption within the data files and to confirm that all necessary data files are present. The project manager is responsible for conducting a final overview QC of all deliverables leaving the department. A review of the lead technician's QC, file management procedures, and delivery format and coverage are reviewed a final time before a deliverable is sent out. Reporting of deliveries and QC report submission is the direct responsibility of the project manager.

## 3.6 Quality Control

The success of the project is realized through a combination of comprehensive planning and a structured approach to quality control. With an emphasis on identifying potential risks, mitigation, and preventing errors, our planning and assessment procedures ensure that all products delivered under this contract meet the highest possible quality standards.

Fugro's ISO9001:2015-certified Quality Management System (QMS) encompasses all operations—from aviation operations to finance—and provides customers with an added level of assurance in our design, development, production, and delivery processes. Fugro requires input from the client personnel to develop quality control acceptance criteria, as well as to provide feedback during the production and review and acceptance processes upon final delivery.

The history of our QMS dates to 2001 when we first achieved certification for compliance to the ISO9001 quality standard. In November 2008, we achieved OHSAS 18001:2007 certification, and we achieved certification for ISO 9001:2008 compliance in 2010, and ISO 9001:2015 compliance in 2016.

Additionally, we maintain the following related certifications:

- OHSAS 18001 – Occupational Health & Safety Management System
- ISO 14001 – Environmental Management System
- ISO 27001 – Information Security Management System

The success of our QMS system is evidenced by a number of improvements, including our first-time-right delivery rate, which improved to over 99% for since 2009. More importantly, Fugro has realized dramatic and measured improvements for cycle time reduction, reduced rework, improved subcontractor management, and performance. Together, these achievements have benefited our customers by transferring the burden of quality control from the customer to Fugro.

Finally, a key component of our QMS is the mandatory process of auditing and updating production and management procedures and quality metrics. This requirement allows us to continually and efficiently adapt our processes to technology innovations, which then translate into benefits for our customers.

Based on requirements, specific quality control checks are built into each production process so that quality control occurs throughout the life of a project and not simply as a final review.

### 3.6.1 Imagery QA/QC

Initial Imagery QA/QC includes the following five-step process:

1. Data Transfer/Data Conversion
2. GPS/IMU Processing
3. Quality QC
4. Coverage QC
5. Final Assessment

#### 3.6.1.1 Data Transfer and Data Conversion

- Raw data is delivered from the field and copied to secure network
- Raw data is converted from raw sensor format to useable/deliverable format
- A second copy of the raw data is archived onto tape or hard drive

#### 3.6.1.2 GPS and IMU Processing

This workflow uses Applanix POSPac software and subscription-based continuously operating reference networks.

- Process differential airborne GPS with surveyed base station or continuously operating reference network.
- Process combined GPS/IMU smoothed best estimate of trajectory
- QC results. Accept or rerun with different settings/values.
- Export .SBET solution file and GPS Event File.

### 3.6.13 Imagery Quality Control

This workflow uses an in-house image viewer to scan through image frames.

- Each image frame is viewed at monitor-scale in a proprietary viewer
- The viewer works like a slideshow, flipping through each image in one-second intervals
- Flag anomalies such as clouds, shadows, smoke, turbulence, over-saturation, glare, noise.
- Issues are flagged based on issue type and severity.
- For more in-depth review, spot check several image frames from each camera to verify the accuracy of the GSD resolution.

### 3.6.14 Imagery Coverage Review

This workflow uses commercial software to create approximate footprints of the image frames for each flight line of each camera.

- Create frame footprints for each flight line of each camera using the GPS solution file, camera exposure event files, image frames, and a global DEM.
- Organize each set of footprints by "view" direction (Nadir, North, South, East, and West)
- Check footprints in ArcMap to verify full coverage and that there are no data gaps due to flight trajectory or terrain variations

### 3.6.15 Final Imagery Assessment

This workflow uses a master tracking sheet to organize the QA/QC results in a tabular format. The tracking sheet is in Microsoft Excel format and includes information such as: flight date, flight ID, block ID, flight line ID, flight crew comments, production analyst comments, QC status, acceptance status, re-flight instructions.

- Update the master tracking spreadsheet after every acquisition, and then again after every QA/QC process step
- Depending on the QA/QC status of the previous four steps, the data is either accepted and passed onto the next process or rejected and flagged for re-flight
- Send email containing all the tracking information to defined group which includes project managers, aviation managers, production analysts

### 3.6.16 Final Imagery Delivery Quality Review

The Project Manager for the project is responsible for conducting a final overview QC of all deliverables leaving the department. A review of the lead technician's QC, file management procedures, and delivery format and coverage are all checked a final time before a deliverable is sent out. Reporting of deliveries and submitting any QC reports is the direct responsibility of the Project Manager.

Some of the additional quality control routines that are incorporated into each phase of processing are

- Existing ground control and elevation data can be used to assess the accuracy of the data
- Peer reviews are conducted by the technicians during the entire process
- The Project Manager consistently checks on quality during production

### 3.7 Product Standards and Metadata

All work performed by Fugro comply with National Standards where appropriate, which may include ASPRS, USGS, NDEP, NGS, NSSDA, FEMA, and USACE.

Metadata records will be developed to document each data deliverable in accordance with the FGDC Content Standard for Digital Geospatial Metadata (FGDC-STD-001-1998). Compliance with these guidelines will be verified using the "mndata.usgs.gov/validation" USGS site. Metadata records will be peer reviewed to identify and correct any typographic or other errors that would not be flagged by automated tools.

Fugro has developed proprietary automated metadata tools that greatly increase the speed and efficiency of metadata production. During the lidar production a metadata master file is developed that has input and review from leads at all key phases of production. Once the master file has been submitted and approved by the customer it is used to propagate tile level metadata.

### 3.8 Data Delivery

This data can be delivered by physically mailing hard drives of the data or through our Secure File Transfer service (Media Shuttle). The Fugro Media Shuttle is a SaaS solution for 'hands on' accelerated transfer of large files. Combining the simplicity of online file sharing with enterprise-class acceleration, security, and control, it has no file size limits and can be accessed from any web browser. Fugro can create a private data sharing site the duration of the project. The site could be accessible through common web browsers at a unique address.

(for example: <https://clientname.mediashuttle.com>)

### 3.9 Contingency Plans

#### 3.9.1.1 Pre-flight Planning and Project Kick-off

Our Project Staging and Control (PSC) department has completed a thorough review of the project requirements and will prepare the final flight plan, ground control layout and data processing plan to meet the requirements. These planning files are sent for review and easily adjusted prior to beginning the work. Should alterations to the approach be required after the project has started, PSC can quickly respond to any requests, make the changes, and

communicate to the land survey crew and flight department for alterations or adjustments to our approach while the team is on-site.

### 3.9.12 Data Acquisition Process

Data acquisition processes have many components that can go wrong. During project planning, PSC reviews the project layout with the Flight Operations Manager to set contingency plans for each possible scenario. These scenarios may include:

**Aircraft Issues:** Fugro has multiple twin engine aircraft outfitted to acquire lidar and imagery on standby, in a mission ready position, to mobilize to the project site to back up our proposed aircraft should any unforeseen scenarios occur that would limit the acquisition of data.

**Equipment Issues:** Fugro has multiple imagery and lidar sensors available should our proposed sensor have issues during data collection. In the unlikely event Fugro's own sensors become unavailable; our multiple teaming partners are available to provide their sensors and aircraft to assist with completing the work. Fugro has regular meetings with teaming partners to be ready should any of these scenarios require back-up.

### 3.9.13 Data Processing

**Personnel Issues:** A thorough review of the project has allowed our Production Manager to set capacity and a realistic schedule to respond to the project requirements. Additional personnel and subcontractors are available and on standby to assist Fugro in the unlikely event that our proposed schedule and capacity are delayed.

**Equipment Issues:** Multiple production workstations and software licenses are available to accomplish the tasks listed in the RFP. In the event that Fugro exceeds the current license amount or production equipment fails, Fugro will call upon our global facilities to borrow licenses and equipment to respond to any unforeseen issues that will cause production delays.

### 3.9.14 Final Product Development

**Final Schedule and Delivery:** All the listed contingency plans above will reduce the impact on project deliverables to all parties involved to help keep a smooth and timely product delivery. Clear communication with each project participant on project issues (at the time of the issue) will allow Fugro to set schedules and capacity to respond accordingly to problems that may develop during all phases of the project.



## 4. Project Staff Information

### 4.1 Breakdown of Estimated Staff Hours by Each Staff Class Per Tasks

#### 4.1.1 Orthoimagery Acquisition and Processing

Staff Classification	Hours
Project Manager	17
QA/QC Manager	3
Aerial Photographer/Digital Sensor System Operator	18
Aerial Photographer/Digital Sensor System Pilot	18
Imagery Analyst	63
Senior Imagery Analyst	18
GIS Technician/Imagery Analyst Supervisor	9
Senior Photogrammetrist	40
Turbine Engine Airplane w/ABGPS	9
Digital Imaging System	5

## 4.2 Technical Skills of Each Key Team Member

The following table identifies key supervisory staff who will be assigned to the contract, indicating the responsibilities and qualifications of such personnel.

Table 4.1: Staff Qualifications and Experience

Name	Role/Responsibilities	Qualifications Summary
Dave White	Principal-in-Charge/Regional Manager	Over 30 years' experience in the mapping industry. Instrumental in developing Fugro's ISO9001:2015 Quality Management System.
Dave Holm, CP, SP, GISP	Technical and Business Development Manager	Over 25 years' experience in the mapping industry. Provides oversight of Fugro's largest IDIQ contracts and programs.
Rob Rombough	Project Manager	Over 10 years' experience in the mapping industry. Expertise includes project planning, financial and cost management, managing subcontractors, and liaising with clients to ensure all project needs are met throughout the contract life cycle.
Tian Wang	Production Manager	Over 20 years' experience in the mapping industry. Instrumental in developing and improving Fugro's production / delivery processes. Ensures quality data delivery on Fugro's largest and most complex lidar projects.
Suzee Parsons, CP	Project Staging and Controls Manager	Over 20 years' experience in the mapping industry at Fugro. Supervises all aspects of proposal/project planning, project execution, providing plans, technical parameters, and direction for photogrammetric and remote sensing projects.
Mike Rusenko	Aviation Manager	Over 40 years' experience as a pilot and aerial photographer. Has completed thousands of aerial photographic projects. Plans and directs all aerial sensor and airborne GPS acquisition missions and manages Fugro's flight crews, aircraft, aerial camera systems, and GPS systems.
Doug Johnson, CP	Flight Coordinator	Over 35 years' experience in the mapping industry. Involved with virtually every aerial data acquisition project to ensure data quality and coverage before the flight crews leave the project AOI.
Kirk Spell, CP	Orhthoimagery Technical Lead	Over 25 years' experience creating and managing complex orthoimagery projects Has vast experience with imagery collection and processing techniques
Todd Geisey	Technical Lead AT	Over 30 years' experience in the mapping industry. Focused on the continued improvement of production workflows to create the best, most accurate Geo-data product. Committed to continually improving the AT workflow efficiency and product accuracy for creating an authoritative Geo-data product.
Dave Stuck	Imagery Lead	Over 25 years' experience in the mapping industry. Leads the Rapid City lidar processing department as supervisor of imagery production.

## Cost Form For Orthoimagery

<b>1. Direct Labor</b>		<b>Hours</b>	<b>X</b>	<b>Rate</b>	<b>=</b>	<b>Total</b>
Project Manager		17	x	\$ 168.07	=	\$ 2,857.19
QA/QC Manager		3	x	\$ 139.22	=	\$ 417.66
Aerial Photographer/Digital Sensor System Operator		18	x	\$ 104.31	=	\$ 1,877.58
Aerial Photographer/Digital Sensor System Pilot		18	x	\$ 113.41	=	\$ 2,041.38
Imagery Analyst		63	x	\$ 95.29	=	\$ 6,003.27
Senior Imagery Analyst		18	x	\$ 135.05	=	\$ 2,430.90
GIS Technician/Imagery Analyst Supervisor		9	x	\$ 131.30	=	\$ 1,181.70
Senior Photogrammetrist		40	x	\$ 127.66	=	\$ 5,106.40
Turbine Engine Airplane w/ABGPS		9	x	\$ 1,130.00	=	\$ 10,170.00
Digital Imaging System		5	x	\$ 690.00	=	\$ 3,450.00
2. Overhead						
<b>3. General &amp; Administrative Overhead</b>						<b>170.00%*</b>
<b>4. Subcontractor Costs</b>						<b>\$7,669.00</b>
5. Materials and Supplies Costs						Included
6. Travel Costs						Included
<b>7. Fixed Fee</b>						<b>\$6,480.76</b>
8. Miscellaneous Costs						N/A
					<b>TOTAL COST</b>	<b>\$ 49,685.84</b>

\* This number represents the cap reduced/accepted from the attached DOT audited overhead rates.



**MPO Staff Report**  
**Technical Advisory Committee:**  
**March 8, 2023**  
**MPO Executive Board:**  
**March 15, 2023**

**RECOMMENDED ACTION:** Informational

**TAC RECOMMENDED ACTION:**

Matter of information about Urban SDK.

**Background:**

The MPO is always looking for new ways of getting good information to the public and our partners as efficiently as possible. Technology and access to data is always improving. With tracking performance measures a yearly or bi-yearly need the MPO needs to balance staff time needed for this task against other tasks. If staff, partners, and the public can have an easy to understand dashboard with the information automatically available that staff doesn't have to constantly maintain, then it may have more benefit than cost. If we have a source of information that consultants can get origin and destination data that the MPO doesn't need to pay for with every study, then there is benefit.

Urban SDK is a company that is focusing on Metropolitan Planning needs. They are focusing on data needed for performance measures and the type of data needed for studies done by MPOs. Staff has been weighing the benefits of obtaining their services for our MPO area. We have asked them to present to the TAC. We would like the TAC's feedback as to if this is something they would also be able to use and would like access to.

**Findings and Analysis**

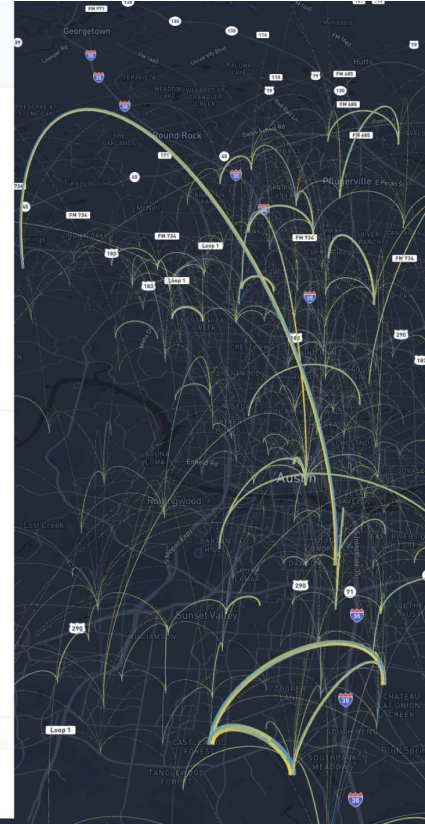
- Informational

**Support Materials:**

- Presentation

# Data made easy

Data Management tools for performance reporting, visualization and analysis.





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# Data-driven decisions from urban insights.

Save on cost and bandwidth with a single platform to enrich data, map insights, and transform data management on an organizational scale.



"The Urban SDK platform has made communication with the board so much easier and more effective. Being able to have all the data in one spot gives us the ability to present visual aids when speaking to the board."

**Johnny Wong,**  
Executive Planner



"With the old data I used, it took me 3-4 weeks to create a presentation. I will be able to do 3-4x the work with your data and platform."

**Brandon Orr,**  
Transportation Planner



What you guys have done for performance measures and the dashboards looks the best out of everything we have see."

**JoAnna Hand,**  
Transportation Planning

# Case Study

"With Urban SDK, we have become more efficient. They have allowed us to establish our priorities and figure out the best use of funding."

- Jeff Sheffield, North Florida TPO



## Problem

Performance measures, LRTP, CMP all require manual data collection.



## Solution

Develop a regional mobility analytics platform for daily and annual insights.



## Results

1. Consolidated multiple consulting tasks
2. Automate data collection and analysis
3. Provide a regional data sharing asset



# Product Review



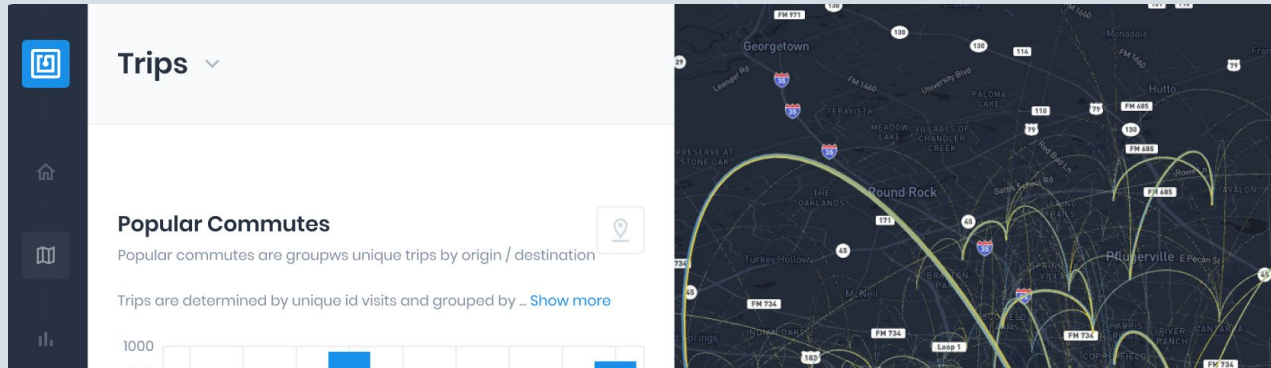
## Overview

Proposal submission overview and product demo.



## Qualifications

Overview of existing capabilities and case studies.



All annual subscriptions include onboarding, training and customer support.

## Annual Subscription

# Inclusions

- ✓ Insights
- ✓ Studio
- ✓ Data Hub
- ✓ Region Wide Data Share

- + 7 users
- + 50 GB Data Storage
- + Customer Support



### Insights

- ✓ Speed
- ✓ Trips
- ✓ Bridges
- ✓ Fatality Analysis

+ 1 year backfill speed



### Studio

- ✓ Open Data
- ✓ Templates
- ✓ Website Embed
- ✓ Branded Portal

+ Unlimited Maps



### Data Hub

- ✓ Mobility
- ✓ Population
- ✓ Boundaries
- ✓ Demographics

+ Unlimited Downloads

\*10% Onboarding fee included for all new customers



# GIS data, visualization studio, and insights management.

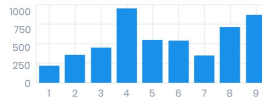
## Insights

- Transportation Improvement Plan (TIP) prioritization
- Long Range Transportation Plans (LRTP)
- Automated performance reports
- Vision Zero action plans

### Traffic Counts

Annual average daily traffic

Daily traffic counts for vehicles and truck. [Show more](#)



DATE TYPE DASHBOARD MAP COMPONENT

## Studio

- Shareable/publishable
- Traffic Count maps
- Safety hot spots
- TIP Visualization
- Corridor planning
- Visualize data through time and layers



+ Create maps and datasets

## Data Hub

- Economic development
- Visualization of grant needs
- Census & Bureau of Labor Statistics
- Justice 40 Data Sets
- LRTP data inputs

### Data Hub

Manage your datasets and export to the tools you use everyday.

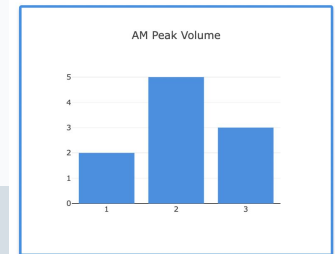
 Foot Traffic Data

 Daily Congestion

Download

## Dashboard Builder

- State performance measures (create custom reports based on state requirements)
- Congestion management plans
- Safety Planning Dashboards
- Growth rates





Mobility  
Reliability

# Speed and Reliability

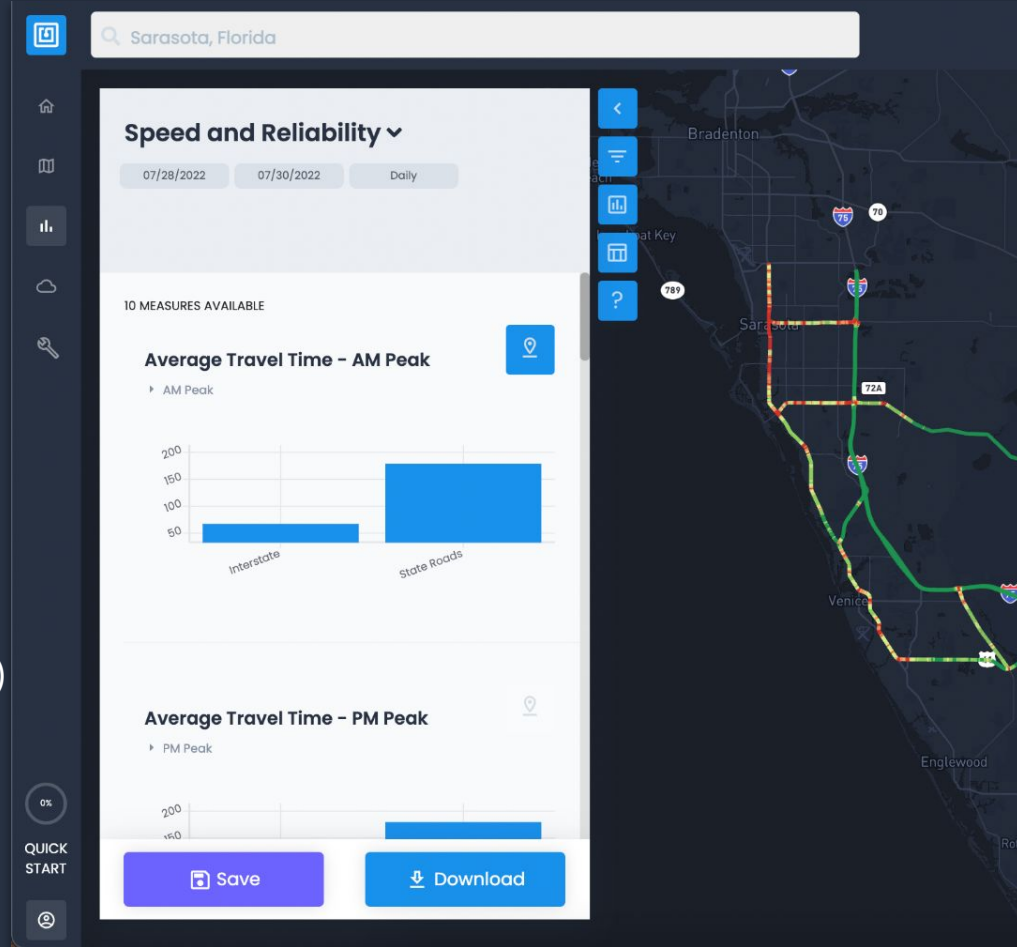
Performance measures for average speed, travel time, and travel time reliability for system and corridor analysis.

## Metrics include:

- Average travel time (AM and PM Peak)
- Hours below target speed

**Datasource:** HERE

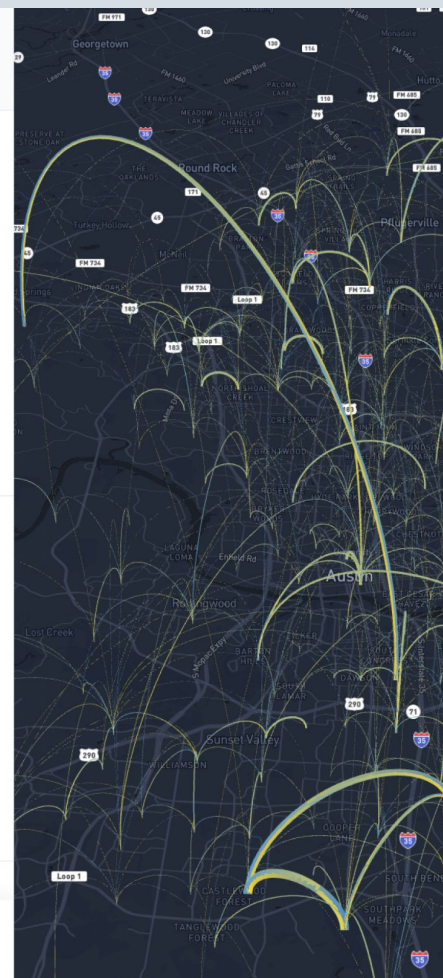
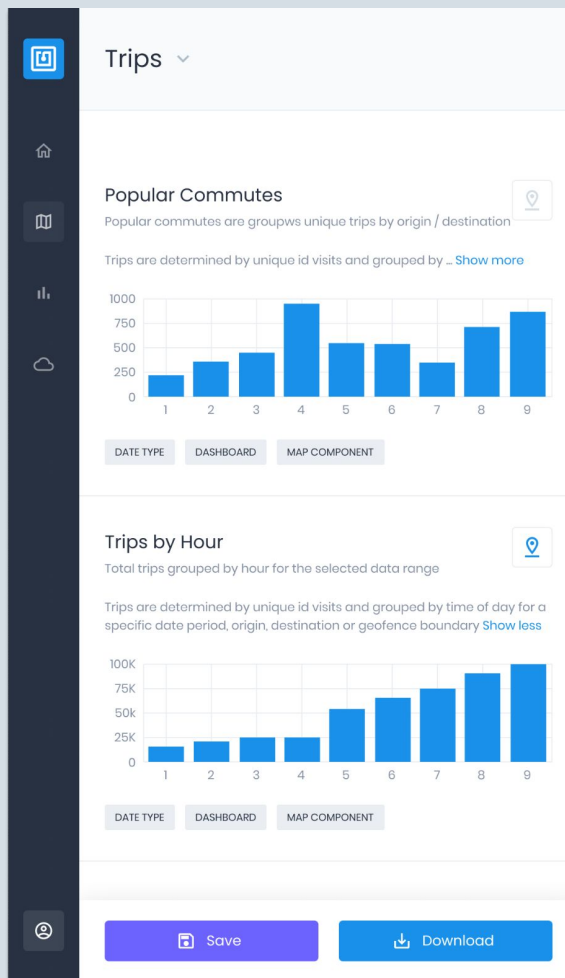
[Help Article: How to build an Insights report](#)



# Origin-Destination

Trips is a compact origin-destination reporting tool. Urban SDK can provide backfill data for O/D studies, enabling you to analyze commuting patterns, foot traffic, vehicle volumes. This will provide help in any O/D, pedestrian, parking, transit demand, traffic impact, or land use study.

[Help Article: How to Use Trips](#)





Safety

# Fatality Analysis

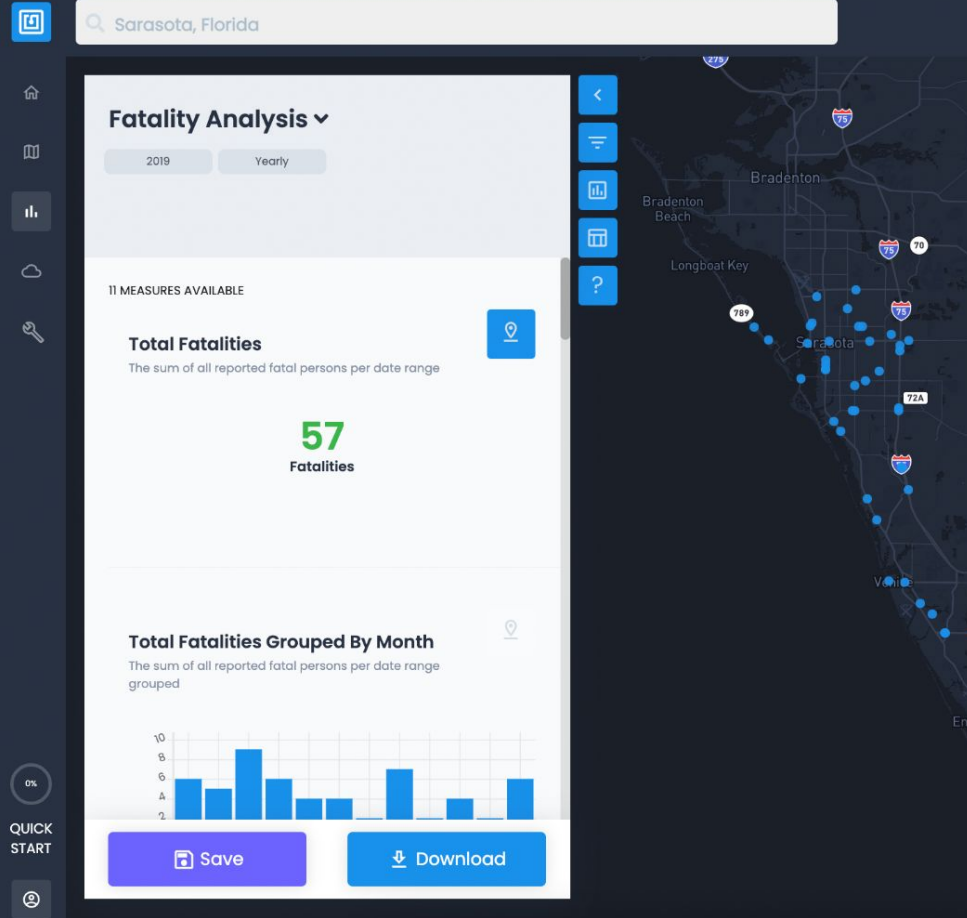
The fatality analysis report identifies fatal crashes by location and year.

## Metrics include:

- Number of fatalities
- Number of non-motorized (bicycle and pedestrian) fatalities and serious injuries

**Datasource:** NHTSA FARS

[Help Article: How to build an Insights report](#)





Infrastructure

# Bridge Condition

Performance measures for bridge condition reporting for system and corridor analysis.

## Metrics include:

- NHS bridges in Good condition
- NHS bridges in Poor condition

**Datasource:** National Bridge Inventory

[Help Article: How to build an Insights report](#)

The screenshot displays a web application interface for bridge condition analysis. At the top, a search bar contains the text "Manatee, Florida". Below the search bar is a sidebar with navigation icons: a home icon, a list icon, a bar chart icon, a cloud icon, and a key icon. The main content area is titled "Bridges" and features a dropdown menu. Below the title, there are two tabs: "2019" (selected) and "Yearly". A section titled "8 MEASURES AVAILABLE" contains two data cards. The first card, "Total Bridge Inspections", shows a large green number "211" and a subtitle "Total Bridge Inspections". Below it, a small text says "Total number of bridges with inspection results." The second card, "Poor Inspection Conditions", shows a large green number "2" and a subtitle "Poor Inspection Conditions". Below it, a small text says "Total number of bridges with poor inspection results." At the bottom of the main content area, there are two buttons: "Save" and "Download". To the right of the main content area is a map showing the location of Manatee, Florida, with various blue dots representing bridge locations. The map includes labels for "Pinellas Park", "Saint Petersburg", "Bradenton", "Bradenton Beach", "Longboat Key", and "Sarasota".





Data Share

# Regional Data Share

All members of the region will have the opportunity to use the Urban SDK platform, the data, and its tools.

## 7 licenses include:

- Regional partner access
- Consultant access
- Creating a regional Datahub

Manatee, Florida

### Bridges

2019 Yearly

8 MEASURES AVAILABLE

#### Total Bridge Inspections

Total number of bridges with inspection results.

**211**  
Total Bridge Inspections

#### Poor Inspection Conditions

Total number of bridges with poor inspection results.

**2**  
Poor Inspection Conditions

Save Download

0% QUICK START

Pinellas Park Saint Petersburg Sun City Bradenton Bradenton Longboat Key Sarasota

726 75 75 70 75 72A

## Additional Datasets Included



### Speed

Analyze travel speeds and congestion on roadways.



### Travel Time

Track roadway travel times for road segment and route analysis.



### Congestion

Measure heavy congestion across roadways and routes.



### Fatality Analysis (FARS)

Measure crashes, rates, fatalities, dangerous roads.



### Trips

Report origin and destination for intermodal and commuting.



### Education

The highest level of education individuals have completed.



### Income Inequality

GINI Index measuring the dispersion of income across households.



### Vehicle Availability

Identifies the vehicles available by household.



### Disability

Percentage of the population living with a disability by census tract.



### Bridges

Bridge maintenance conditions and reporting from the NBI.



### School Districts

Identify school district polygons for chosen location.



### Income

Median household income in last 12 months, adjusted for inflation.



### Congressional Districts

Identify the congressional district polygons for chosen location.



### Commuter Travel Time

Avg. number of minutes commuters spends traveling to work daily.



### Demographics

Age, population, gender, race, english proficiency, ancestry.

# Integrate all your data with Urban SDK



## Transit

Transit revenue miles, passenger trips, LOS



## Business Metrics

Revenue, transaction volumes and times, trend analysis



## Traffic

Vehicle traffic counts, bicycle counts, footfall, micromobility



## Crash Risk

Forecast of crash and incident risk by routes



## Land Use

Land surface characteristics — agriculture, recreational, utility



## Places

Point of interest data showing restaurants, stores, schools, etc.

# Onboarding to the Urban SDK Platform



## Kick-Off

Schedule onboarding session allows the Account Executive to introduce the customer to their Customer Success team. This call typically occurs about one week after the contract is signed.



## Deliverables Review

The Customer Success team will meet with the team to review deliverables and set deadlines.



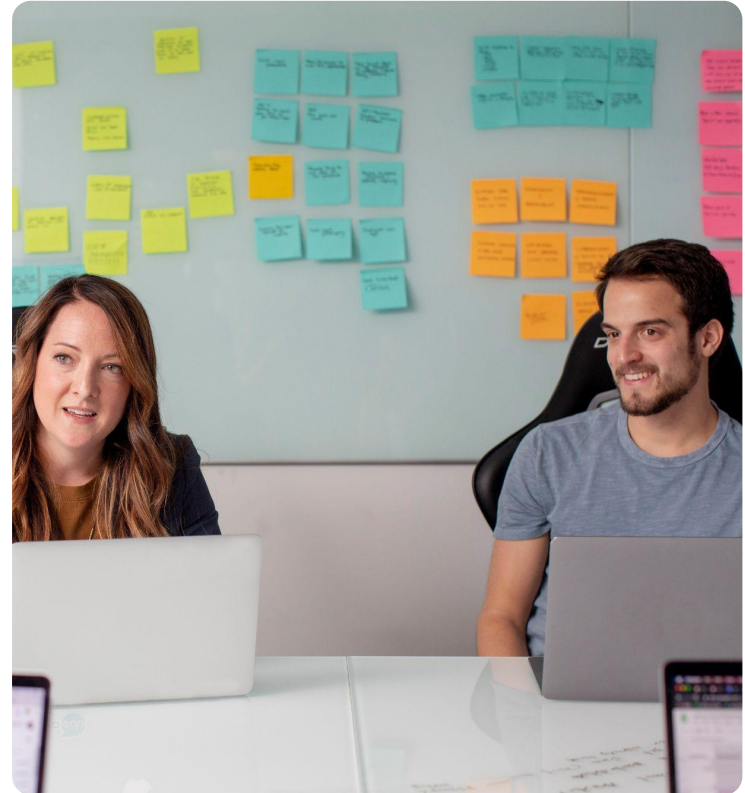
## Webinar Training

The Customer Success team hosts weekly webinars to train the team. .



## Training Check Up

Ongoing support, recorded webinars to go over best practices, GIS concepts, new releases, and geospatial ideas.



“We began investing in roadway technologies like cameras and sensor controls... we were collecting all this data, but now we needed a way to aggregate that data and put it to better use.”

“You can’t build smart cities with paper and spreadsheets. Urban SDK’s technology is modernising the planning sector... allowing us to make data-driven decisions.”

- **Jeff Sheffield**

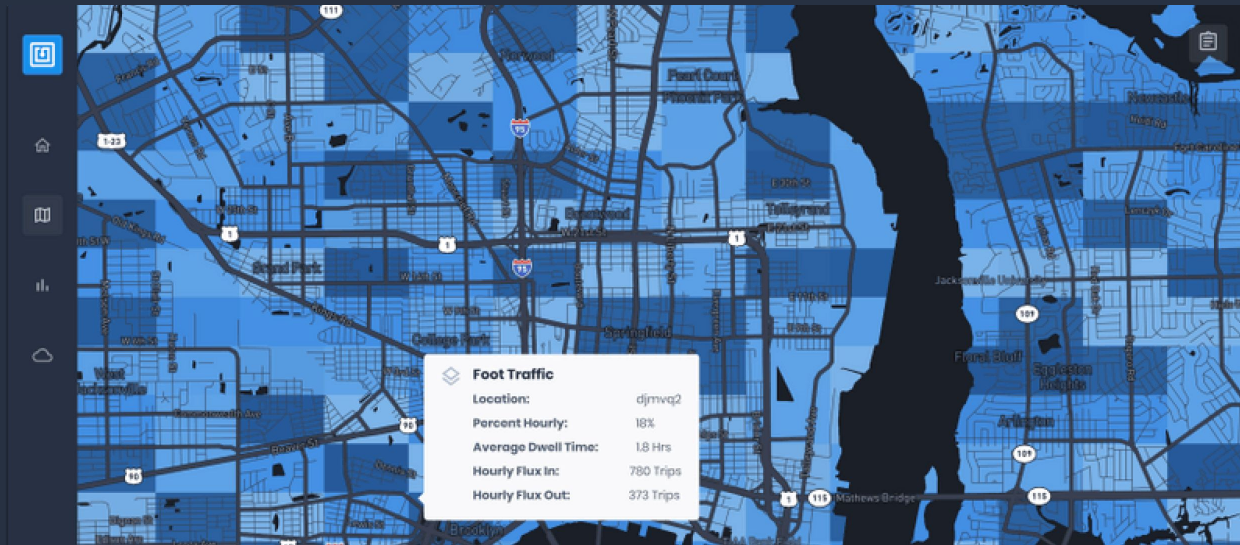
Executive Director

North Florida Transportation Planning Organization

[“Leveraging the Cloud to Reduce Traffic Congestion” Govtech.com](#) | [“Urban SDK helps Florida transport planning” itsinternational.com](#)



# Questions?



## MPO Unified Planning Work Program 2023-2024

Task	Update	% Completed	Local Adoption	State/ Federal Approval
<b>Bike &amp; Pedestrian Plan Update</b>	The Bike and Ped committee is reviewing the final draft and public/stakeholder meetings in the month of March.	89%	Apr. 2023	May 2023
<b>Street &amp; Highway Plan / MTP</b>	East Grand Forks Industrial Park discussion	39%	Dec. 2023	Jan. 2024
<b>Aerial Imagery</b>	Conducted interviews and getting Board approval of the contract.			
<b>ATAC - Planning Support Program</b>	On-going			
<b>TIP Adoptions and Amendments</b>	On-going			
<b>ITS Architecture</b>	2024 Project			
<b>ATAC - Traffic Counting Program</b>	On-going			
<b>Land Use Plan</b>	On-going/As needed			
<b>Future Bridge Discussions/Assistance</b>	On-going/As needed			
<b>Updating Policy and Procedures/By-Laws</b>	2023/2024 Project			
<b>Micro Transit Study</b>	2024 Project			
<b>Grand Valley Study</b>	2023 Project			
<b>Safe Streets For All (SS4A) Grant</b>	Awarded!!!!!!!!!!		TBD	TBD
<b>Smart Grant</b>	TBD			

