76TH AVE

76TH AVENUE SOUTH CORRIDOR STUDY

81st Street South to the Red River

October 2020

METROCOG
FARGO-MOORHEAD METROPOLITAN COUNCIL OF GOVERNMENTS

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*Agency representing at the time of the study

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CONFLUENCE

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INTRODUCTION

01.

PROJECT BACKGROUND

76th Avenue South is a roadway in the southern fringes of the Fargo-Moorhead metropolitan area within the jurisdictions of Horace, Fargo, Cass County, and Stanley Township. Development within the southwest area of the region continues to rapidly change. Local jurisdictional leaders realized early on that there was a need for a clear vision and phasing plan for the 76th Avenue South corridor. This realization created the impetus for the 76th Avenue South Corridor Study; hereinafter referred to as "this study".

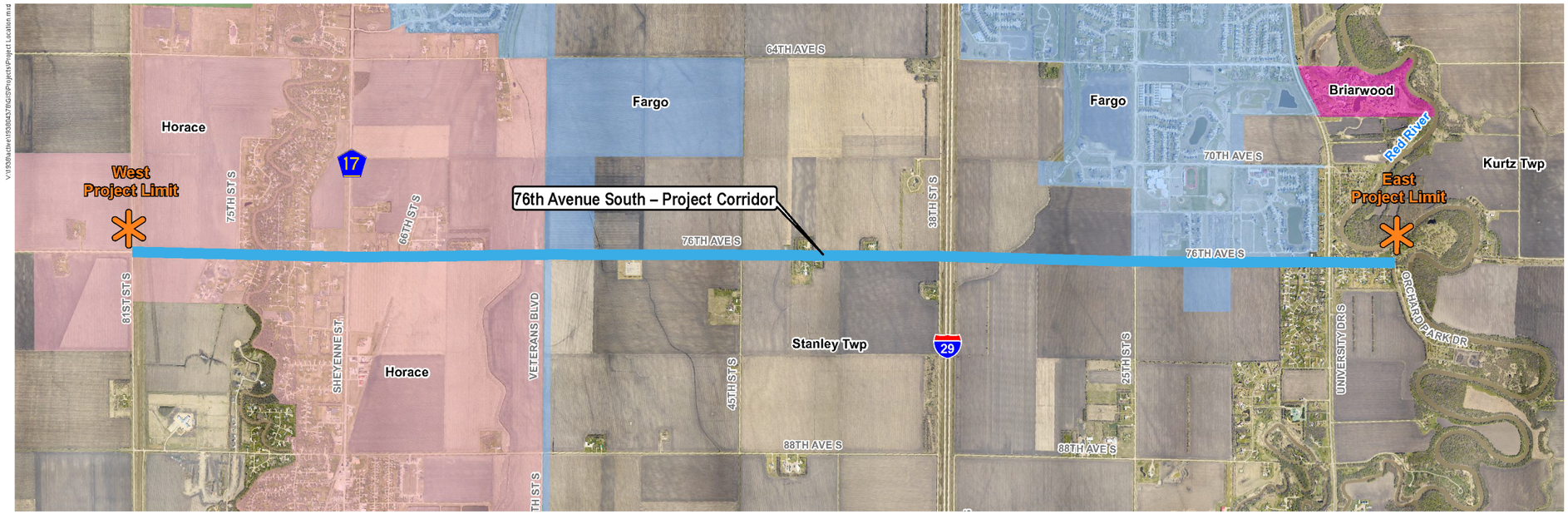
A key takeaway from this study includes developing a vision for the corridor, gaining consensus on the vision, and developing a phased implementation plan. This study considers the future functionality of 76th Avenue South by documenting existing conditions, land use and development, future traffic volumes, corridor aesthetic opportunities, and alternative concept analysis.

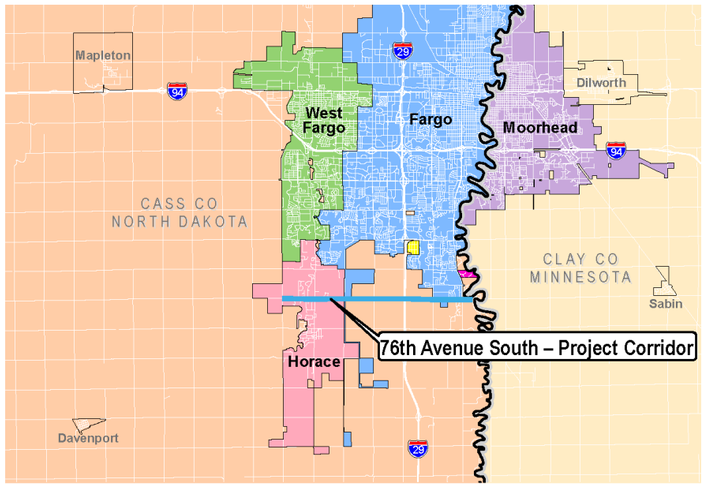
The development potential along 76th Avenue South is important to identifying and developing aspects of the corridor such as ultimate roadway capacity needs, roadway typical sections, right of way for both the corridor and a future interchange with I-29, functional classification, and the long term desired access management and intersection control spacings to ensure it will be protected in the short term.

STUDY AREA

The project limits on 76th Avenue South are from 81st Street South (current Sheyenne River Diversion) to the Red River (6.5 miles), as shown in Figure 1.1.

Figure 1.1 - Project Location Map





Project Location Map

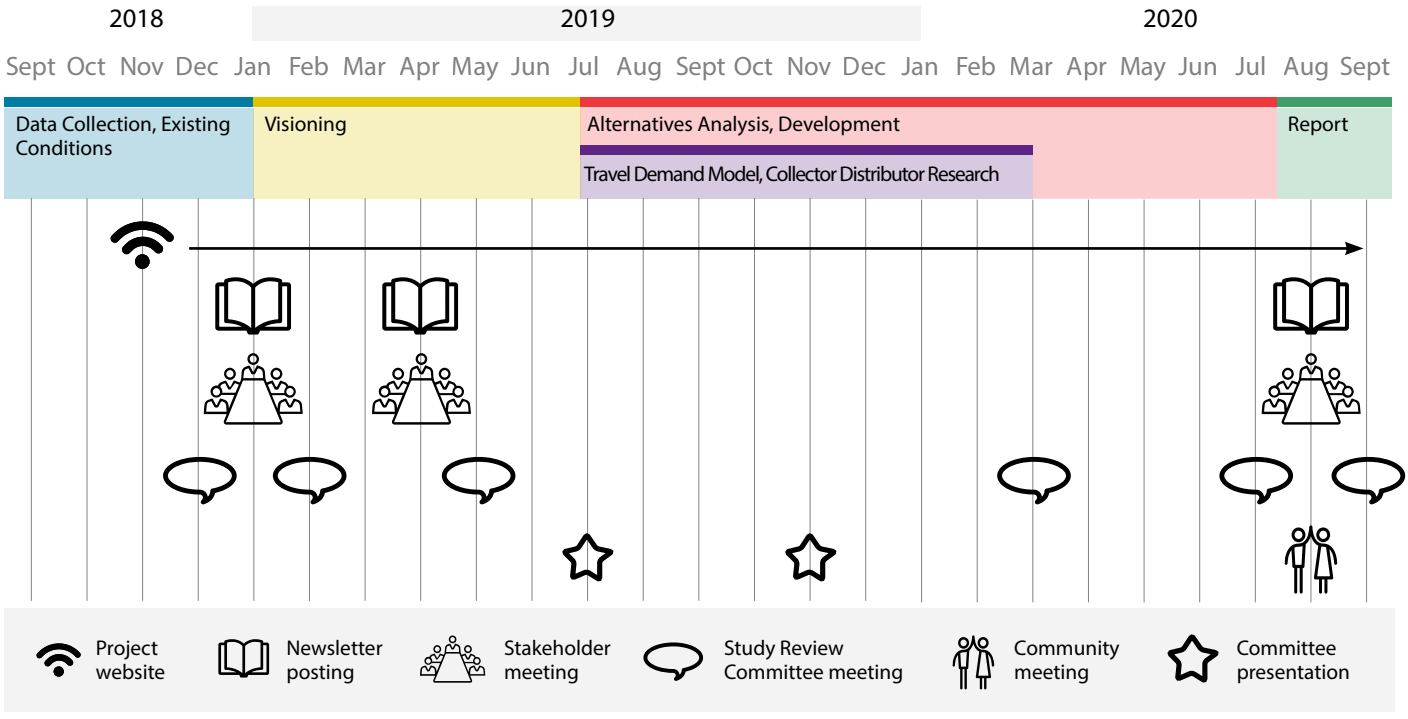
January 29, 2019

0 2,500 5,000 Feet N

PROJECT PROCESS AND TIMELINE

The 76th Avenue South Corridor Study was started in November 2018 and was divided into four phases, as shown in Figure 1.2. The Study Review Committee (SRC) helped guide and make decisions throughout the process. The SRC is discussed more in Chapter 2.

Figure 1.2 - Project Timeline



1 Phase 1:

The first phase of the planning process involved data collection and analysis to develop a common understanding of existing conditions along the corridor. During this phase, a website was launched and newsletter sent out to inform the public about the upcoming plan. The first meeting was held with the Study Review Committee, which acted as the oversight body for the plan. The project team also conducted meetings with a variety of stakeholders including those with a vested interest in the corridor such as property owners, business owners, developers, utility providers and elected officials. The SRC and Stakeholders are discussed further in **Chapter 2.**

2 Phase 2:

The second phase of the process involved creating a vision for the future of the corridor. Through a series of exercises, discussions and a survey with the Study Review Committee and stakeholders, the project team gained a greater understanding of the future needs of 76th Avenue South. These conversations led the project team to identify additional research that was required to develop alternatives for this study.

3 Phase 3:

During phase three of the plan, the project team conducted additional research identified by the Study Review Committee on Travel Demand Management and Collector-Distributor roadway systems. At the same time, the team also began to develop alternatives for the corridor, which were then be distilled into two preferred alternatives during a meeting with the Study Review Committee.

4 Phase 4:

Finally, phase four involved a series of meetings with the Study Review Committee, stakeholders and a public information meeting to provide an update on the study process, and describe the final recommendations for the corridor. Following these meetings, all pertinent information was compiled into a report with recommendations, phasing and implementation steps for the future of the corridor.

RELEVANT STUDIES

A major component to understanding a corridor is to review previous plans. These plans lay the groundwork for transportation planning within the study area and provide invaluable input on the general mindsets surrounding the future vision.

The most relevant plan for this study is most notably the **Southwest Metropolitan Transportation Plan (SWMTP)** completed in May 2016. This plan provided the precedent for much of the beginning planning assumptions along 76th Avenue South. A summary of this plan as it relates to 76th Avenue South is discussed below.

All additional related plans are summarized in **Appendix B** and include the following (listed in reverse chronological order, with the most recently completed listed first)

2020

2045 Horace Comprehensive Plan (May 2020)

The 2045 Horace Comprehensive Plan is the primary land use policy document guiding the zoning, transportation, infrastructure and land use related decisions for the City of Horace. The Plan anticipates significant change in Horace including a projected population of between 10,000-14,000 by 2045, groundbreaking on two new schools, the Fargo-Moorhead Diversion project and the planned I-29 interchange at 76th Avenue South.

2018

Sheyenne Street and 76th Avenue South Intersection Study (November 2018)

A traffic impact study was completed to identify traffic operations and safety impacts from the proposed School and High School on the intersections immediately adjacent to the school site. The study noted that the intersection of County Road 17 (CR 17) and 76th Avenue South is anticipated to become a roundabout in the future which was constructed in 2019.

2018

Future West Fargo School Site (November 2018)

In September 2018 a bond referendum was passed to build a new high school and middle school on the south side of the West Fargo district, within the city limits of Horace. The new school site will be located at the SE corner of County Road 17 and 76th Avenue South and will be fed by the attendance area that encompasses the areas south of 40th Ave S on the west side of the Sheyenne River and south of 52nd Ave S on the east side of the Sheyenne River.

2018

Fargo/West Fargo Parking & Access Requirements Study (October 2018)

This study does not include specifics to 76th Avenue South in its current condition, but was used as a reference document for varying segments of like context and identifies the future vision of the corridor segments.

2018

2019-2022 Draft Transportation Improvement Program (September 2018)

The Transportation Improvement Program (TIP) lists surface improvements scheduled for implementation in the Fargo-Moorhead region during the next four fiscal years, where a fiscal year starts on October 1st and ends on September 31st. The draft TIP for 2019 – 2022 does not show any existing planned projects directly on the 76th Avenue South Corridor.

2018

Traffic Impact Study for New West Fargo Schools (September 2018)

This traffic impact study was completed to identify the impacts of the proposed school site on the traffic operations and safety for the intersections of CR 17 at 64th Avenue South and CR 17 at 76th Avenue South.

2018

2019-2023 Cass County Comprehensive Highway Plan (September 2018)

The Cass County Comprehensive Highway Plan identifies system principals and standards, evaluates the existing transportation system, identifies future system needs, develops a maintenance plan, identifies funding sources, and outlines implementation strategies for the operation and maintenance of the Cass County roadway network. The 5 Year Capital Improvement Plan for 2019-2023 lists the following projects on 76th Avenue South:

- **County Road 17 to 63rd Street – 4-lane divided concrete grading & surfacing (completed in 2019)**
- **Roundabout at County Road 17 & 76th Avenue South Intersection**

2018

Cass County Comprehensive and Transportation Plan (July 2018)

The 2018 Comprehensive Plan is a broad vision and guide for the future of Cass County by providing guiding principles, strategies, objectives, and policies that address land use, growth management, and community development. This plan acknowledges the importance of intergovernmental coordination for 76th Avenue South due to its proposed future classification as a major arterial roadway.

2017

FM Alternative Route & Traffic Incident Management Guidebook (December 2017)

The FM Alternative Route & Traffic Incident Management Guidebook is a document which was created to assist officials and emergency responders in the event of an emergency, where the diversion of traffic is necessary. No routes or specifics to the 76th Avenue South corridor are referenced in this document.

2017

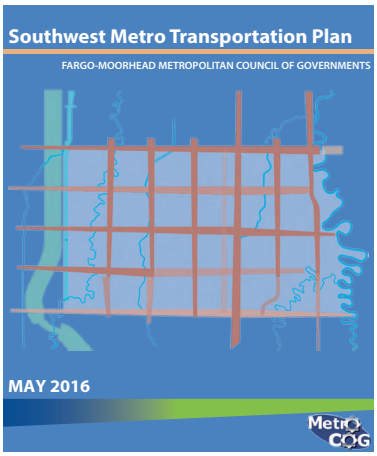
Fargo-Moorhead Regional Freight Plan (September 2017)

The Fargo-Moorhead Regional Freight Plan (FMRFP) was developed to gain a better understanding of the transportation service needs of industrial and retail sectors in the local Fargo-Moorhead economy. The need for an interstate beltway or by-pass to keep trucks from passing through the urban core was discussed as part of recommended corridors for preservation. The Regional Freight Plan notes that related studies including the Traffic Operations Incident Management Study (TOIMS), LRTP, and SWMTP all identify in a varying level of degree that 76th Avenue South is an important corridor to preserve

2016

2016-2020 Transit Development Plan (December 2016)

Metro Area Transit (MATBUS) provides fixed-route and demand-response transit service to the cities of Fargo, West Fargo, Moorhead, and Dilworth. There are currently no existing transit services along 76th Avenue South or any proposed improvements noted in the 2016-2020 Transit Development Plan.



Southwest Metro Transportation Plan (SWMTP) Report Cover

2016

Southwest Metropolitan Transportation Plan (SWMTP) (May 2016)

The Southwest Metropolitan Transportation Plan (SWMTP) was developed to address the steady growth of the area south of 52nd Avenue South and between 81st Street South and the Red River. This plan fully encompasses the 76th Avenue South study limits and will be a heavily referenced document during the planning process. Additional details on the outcomes of this plan are outlined below.

Analysis completed as part of the SWMTP included a tiered growth approach for the best fit scenario for the years 2020, 2030, 2040, and 2040+, and a sensitivity analysis for four network alternative scenarios. Three of the four scenarios involved 76th Avenue South and are as follows; 76th Avenue South Beltway between I-94 and Cass County Road 15 (2040), 76th Avenue South – Grade Separation Only at I-29 (2030), and 76th Avenue South – No connection across I-29 (2030).

Based on the results of the various model analysis, the SWMTP identified projects needed to accommodate future growth assumptions. The opportunity to expand on or improve the existing multi modal facilities in the area was also examined in the SWMTP. These improvements include identification of a transit corridor along 76th Avenue South between 45th Street and 25th Street and two trail connections from 81st Street S to 45th Street and from 25th Street to University Drive.

2016

Fargo-Moorhead Metropolitan Bicycle and Pedestrian Plan (2016)

The Bicycle and Pedestrian Plan is a sub-element of Metro COG's LRTP and is thus updated every five years and has a twenty-year planning horizon. In the plan, Cass County has a proposed long-range project for construction of a shared use path along 76th Avenue South from CR 17 to 45th Street.

2014

Metro 2040: Long Range Transportation Plan (July 2014)

Metro 2040 was completed in 2014 and is the long-range transportation plan (LRTP) for the Fargo- Moorhead metropolitan area. This plan guides how the region will grow and spend transportation dollars over the next twenty-five years. Projects identified in the LRTP along 76th Avenue S include:

- New 4-lane arterial roadway from 25th Street South to County Road 81
- New 4-lane arterial roadway from 38th Street SW to 25th Street South
- New 4-lane arterial roadway from 45th Street South to 38th Street SW
- New 4-lane arterial roadway from 45th Street South to Veterans Blvd Extension
- New 4-lane arterial roadway from County Road 17 to Veterans Blvd Extension
- New interchange at I-29 and 76th Avenue South
- Construct a new 2-lane bridge

2013

South Diversion Master Transportation Plan (October 2013)

To reduce flood risk for the metropolitan area, the US Army Corps of Engineers (USACE) conducted a 2011 study which identified a 30-mile diversion alignment extending around Horace, Fargo, and West Fargo. The Diversion Authority officially submitted "Plan B" as a revised footprint to the original preferred alternative following expressed concerns from the Minnesota DNR and others impacted by the diversion. The 76th Avenue South roadway is proposed to have a major bridge structure crossing of the future Red River Diversion.

2012

Go 2030 Fargo Comprehensive Plan (May 2012)

Adopted in 2012, Go2030 is the comprehensive plan for the City of Fargo. It represents the foundation for city policies related to growth and development.

2011

Traffic Operations Incident Management Strategy (TOIMS) (March 2011)

The Traffic Operations Incident Management Study (TOIMS) was created to assist in the movement of people and goods in the event of an incident or emergency. Important to 76th Avenue South, the TOIMS recommends adding the entire corridor to the list of Regionally Significant Transportation Infrastructure (RSTI) Corridors. In addition to 76th Avenue South being identified as a RSTI corridor, it was also identified as being a long-term beltway option.

2009

South Red River Bridge Corridor Preservation (2009)

During an update to the Long Range Transportation Plan (LRTP) in 2009 local jurisdictions readdressed the topic of a future Red River Bridge crossing along either 70th or 76th Avenue South. The topic of a future Red River Bridge crossing was not new and came after the following preceding studies:

- **Phase I - Red River Bridge Corridor Study, March 1999**
- **Red River Corridor Study, Phase II - Supplemental Report, May 2001**
- **Preliminary Geotechnical Study, South Side Red River Bridge and Corridor Study (Final Phase 3), October 2003**
- **Corridor Alignment and Bridge Alternatives Evaluation, South Side Red River Bridge and Corridor Study (Final Phase 4), October 2003**

2007

2007 Fargo Growth Plan (2007)

The 2007 Growth Plan is a growth management plan that builds upon previous efforts to establish a comprehensive land use plan, which guides development of the City of Fargo's urban fringe and southern extraterritorial area (ETA).

ISSUES IDENTIFICATION

Multi-jurisdictional coordination and a unified vision regarding the functional purpose of 76th Avenue South will be a key takeaway of this project.

Whether it's an arterial roadway or an inter-regional beltway, one thing is certain, corridor preservation and access management strategies need to be established long before the corridor is constructed, especially with development continuing in the southwest metropolitan area from Horace and Fargo, a new West Fargo School Site, and the likelihood of permanent flood protection from the future Red River Diversion.

A list of existing issues which will be addressed during the planning processes are listed below.

- **Multi-jurisdictional ownership along the corridor with different viewpoints, guidelines, standards, and needs;**
- **Development is happening faster in the City of Horace and slower in the City of Fargo than anticipated in the SWMTP;**
- **The roadway typical section is a rural roadway section with a mixture of paved, gravel, and dirt surface types;**
- **Traffic volumes will increase as development continues in the southwest metropolitan area from the cities of Horace and Fargo;**
- **They City of Fargo has not officially adopted updated future land use maps addressing new development trends occurring along the corridor;**
- **The future functionality of 76th Avenue in a regional planning context is unknown and needs to be determined;**
- **Corridor preservation in terms of access management and right of way have not been started;**
- **Multi-modal transportation elements are not present; and**
- **It is not currently a complete streets corridor in terms of both aesthetics or functionality**

ENGAGEMENT AND OUTREACH

02.

IMPORTANCE OF PUBLIC ENGAGEMENT

Public engagement is a crucial element of any successful plan; helping to bring the public and decision-makers on board with the plan and ensuring all voices and concerns are heard throughout the process. This was especially true for the 76th Avenue South Corridor, which spans several jurisdictions and involves many stakeholders.

A multifaceted public participation plan was implemented for the 76th Avenue South Corridor Study, with public engagement spanning all phases of the planning process. Engagement efforts included stakeholder meetings, a project specific website, newsletters, online surveys, and a virtual open house.

Study Review Committee (SRC)

Figure 2.1 - Public Engagement Activities

Public Engagement Process:

Public Participation included the following opportunities:

Six (6) Study Review Committee (SRC) Meetings

- **SRC #1:** December 18, 2018
- **SRC #2:** February 20, 2019
- **SRC #3:** May 10, 2019
- **SRC #4:** March 11, 2019
- **SRC #5 (Part 1):** July 21, 2019
- **SRC #5 (Part 2):** July 29, 2019
- **SRC #6:** September 1, 2020

Three (3) Stakeholder Meetings

- **January 21, 2019 – February 6, 2019** (Individual Stakeholder Meetings)
- **April 8, 2019** (Online Visioning Survey)
- **August 11, 2020** (Online via Zoom)

Three (3) Newsletters to properties within ½ mile of the Corridor

- **January 9, 2019**
- **April 3, 2019**
- **August 3, 2020**

One (1) Project Website featuring

- **One (1) Online Survey**

One (1) Public Meeting

- **August 12, 2020** (Online via Zoom)

STUDY REVIEW COMMITTEE

At the beginning of the process FM Metropolitan Council of Governments (MetroCOG) and the project team worked together to create a Study Review Committee (SRC) to help guide the project and make decisions for the plan.

Building block visioning exercise conducted as part of the engagement for the 76th Avenue South Corridor Study

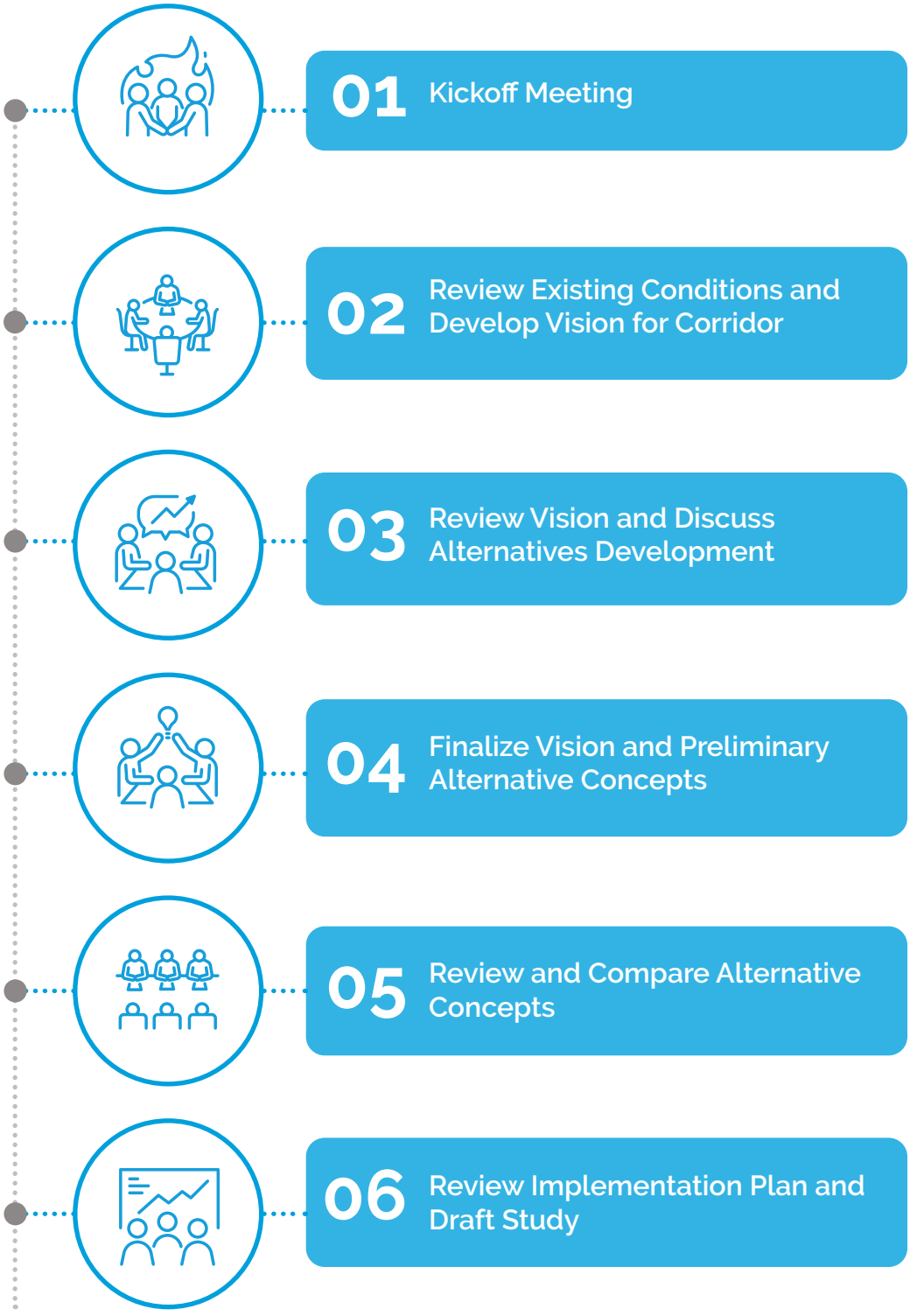
The SRC served as the project oversight committee and decision-making entity throughout the life of the study. The SRC helped to provide feedback on the public engagement plan, participated in visioning exercises, raised issues and ideas for discussion, and selected and vetted the design alternatives for the corridor.

The diagram in **Figure 2.2.** shows the SRC process. The SRC served a key role in gaining broad agreement throughout the process; leading to a final consensus on the study and its recommendations.

Organizations Represented in the Study Review Committee (SRC):

- Cass County
- City of Fargo
- City of Horace
- Fargo Public Schools
- FHWA
- Metro COG
- NDDOT

Figure 2.2 - Study Review Committee (SRC) Meeting Topics



STAKEHOLDER MEETINGS

The project team engaged with stakeholders three times throughout the study. The project team first met with each stakeholder individually to explain the purpose of the study and to gain perspective on their unique interest in the corridor. Topics of discussion with stakeholders included: **future development near the 76th Avenue South corridor, right of way and access, county drains and utilities, possibility of a future I-29 interchange, jurisdictional ownership, maintenance and bicycle and pedestrian facilities.**

The second stakeholder engagement opportunity was an online survey, which will be discussed more in depth later in this chapter. The final stakeholder meeting was held as a virtual meeting at the end of the project. While the social distancing impacts of Covid 19 precluded the facilitation of an in-person meeting, the online platform provide stakeholders an opportunity to hear final recommendaions and provide candid thoughts prior to the public open house. Stakeholder's interests are often different than those of the general public, so it was important that they were provided this opportunity to ask questions and weigh in on the plan.

Organizations Represented in the Stakeholder Meetings:

- Cass County Commission
- City of Fargo Planning Commission
- Dabbert Custom Homes, LLC
- Eagle Ridge Development
- Fargo Park District
- Holy Cross South Cemetery
- Horace City Council
- Minnkota Power Cooperative
- NAI North Central
- Property Resources Group
- SE Cass Water Resource District (Surface Water)
- Stanley Township
- The Mcinnes Group

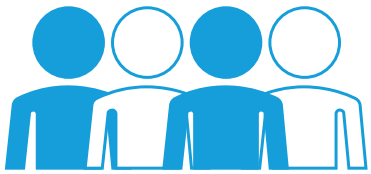
Stakeholder Meeting #3

A virtual stakeholder meeting was held on August 11, 2020 using Zoom as the meeting platform. The meeting took place over the lunch hour to try capitalize on an hour many have clear from prior engagements. Stakeholders were asked four polling questions.

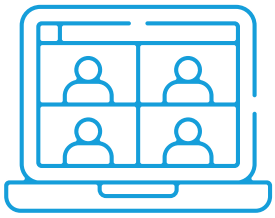
Responses to those questions are shown in the infographic (Figure 2.3) below.

Figure 2.3 - Infographic of Stakeholder Meeting Responses

Participants



Stakeholder Participation



10+

Attendees

Which of the two alternatives would you prefer?

33%

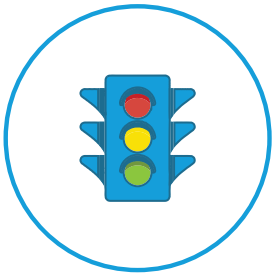
Regional Arterial
(Vehicles prioritized)

67%

Commercial Arterial
(Signals)

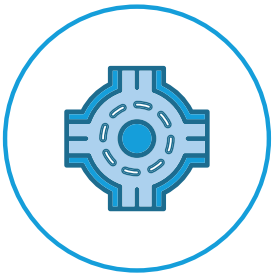
Figure 2.3 - Infographic of Stakeholder Meeting Responses (continued)

Which of these intersection treatments would work best along the corridor?



50%

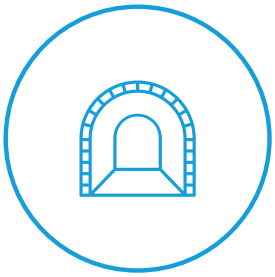
Signalized



50%

Roundabouts

What would be the best way for bicyclists and pedestrians to cross the street in the future?



75%

Underpasses

25%

Signals

How important is it to have future development oriented towards, versus away from 76th Ave S?

50%

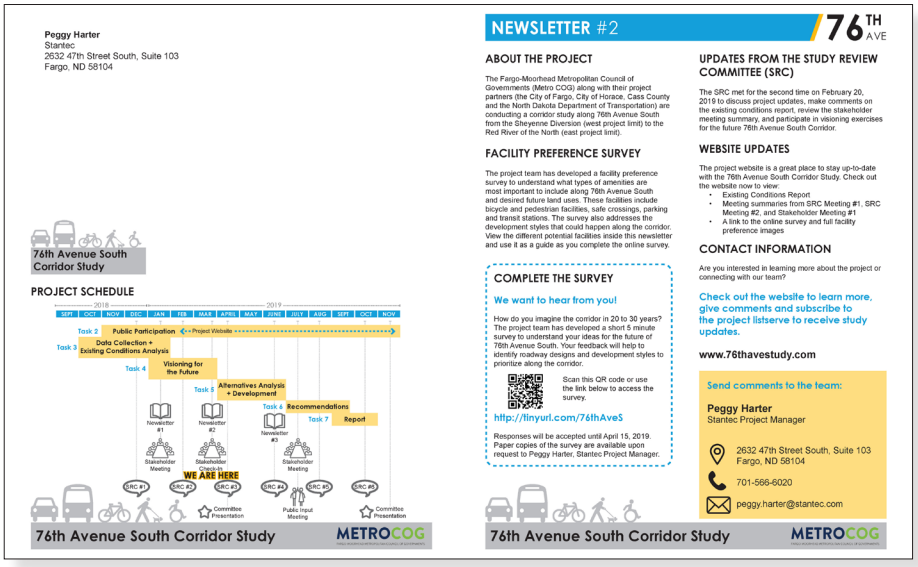
Very Important

50%

Somewhat Important

NEWSLETTERS

To further supplement public outreach efforts, project newsletters were sent out to all property owners within ½ mile north and south of the 76th Avenue Corridor three times throughout the project. The newsletters included information and provided relevant updates about the project at key milestones of the study process. The newsletters were crucial for keeping property and business owners along the corridor informed and involved with the study. All three newsletters are included in Appendix A: Public Engagement.



Peggy Harter
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Fargo, ND 58104

76th Avenue South Corridor Study

PROJECT SCHEDULE

2018 2019
SEPT OCT NOV DEC JAN FEB MAR APRIL MAY JUNE JULY AUG SEPT OCT NOV

Task 2 Public Participation ‹‹ Project Website ››
Task 3 Data Collection + Existing Conditions Analysis
Task 4 Visioning for the Future
Task 5 Alternatives Analysis + Development
Task 6 Recommendations
Task 7 Report
Newsletter #1
Newsletter #2
Newsletter #3
Stakeholder Meeting
Stakeholder Check-In
Stakeholder Meeting
WE ARE HERE
SRC #1 SRC #2 SRC #3 SRC #4 SRC #5 SRC #6
Committee Presentation
Public Input Meeting
Committee Presentation

76th Avenue South Corridor Study METROCOG

NEWSLETTER #2 76TH AVE

ABOUT THE PROJECT

The Fargo-Moorhead Metropolitan Council of Governments (Metro COG) along with their project partners (the City of Fargo, City of Horace, Cass County and the North Dakota Department of Transportation) are conducting a corridor study along 76th Avenue South from the Sheyenne Diversion (west project limit) to the Red River of the North (east project limit).

FACILITY PREFERENCE SURVEY

The project team has developed a facility preference survey to understand what types of amenities are most important to include along 76th Avenue South and desired future land uses. These facilities include bicycle and pedestrian facilities, safe crossings, parking and transit stations. The survey also addresses the development styles that could happen along the corridor. View the different potential facilities inside this newsletter and use it as a guide as you complete the online survey.

COMPLETE THE SURVEY

We want to hear from you!

How do you imagine the corridor in 20 to 30 years? The project team has developed a short 5 minute survey to understand your ideas for the future of 76th Avenue South. Your feedback will help to identify roadway designs and development styles to prioritize along the corridor.

Scan this QR code or use the link below to access the survey.

http://tinyurl.com/76thAveS

Responses will be accepted until April 15, 2019. Paper copies of the survey are available upon request to Peggy Harter, Stantec Project Manager.

UPDATES FROM THE STUDY REVIEW COMMITTEE (SRC)

The SRC met for the second time on February 20, 2019 to discuss project updates, make comments on the existing conditions report, review the stakeholder meeting summary, and participate in visioning exercises for the future 76th Avenue South Corridor.

WEBSITE UPDATES

The project website is a great place to stay up-to-date with the 76th Avenue South Corridor Study. Check out the website now to view:

- Existing Conditions Report
- Meeting summaries from SRC Meeting #1, SRC Meeting #2, and Stakeholder Meeting #1
- A link to the online survey and full facility preference images

CONTACT INFORMATION

Are you interested in learning more about the project or connecting with our team?

Check out the website to learn more, give comments and subscribe to the project listserve to receive study updates.

www.76thavestudy.com

Send comments to the team:

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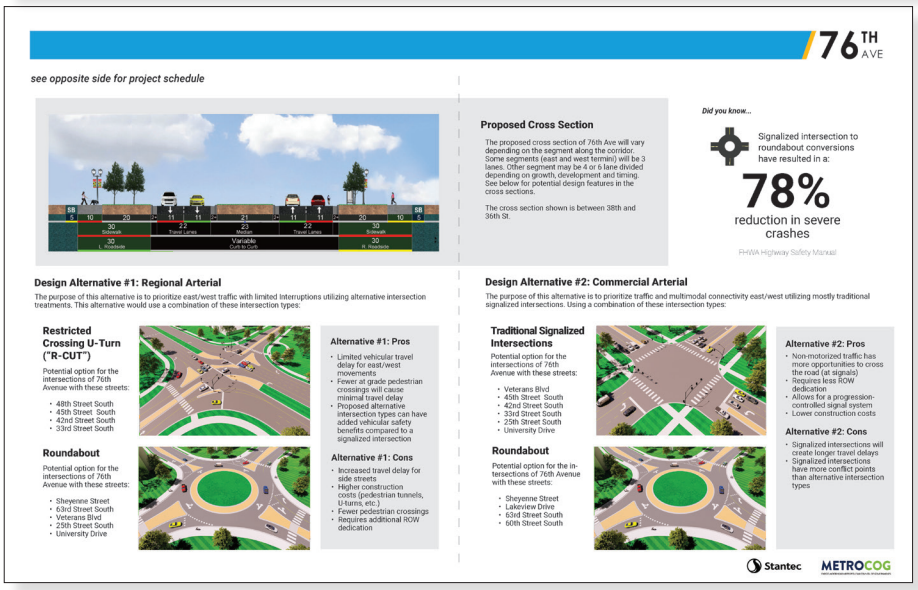
76th Avenue South Corridor Study METROCOG



76TH AVE

see opposite side for project schedule

Proposed Cross Section

The proposed cross section of 76th Ave will vary depending on the segment along the corridor. Some segments (east and west termini) will be 3 lanes. Other segment may be 4 or 6 lane divided depending on growth, development and timing. See below for potential design features in the cross sections.

The cross section shown is between 38th and 36th St.

Did you know...

Signalized intersection to roundabout conversions have resulted in a:

78%

reduction in severe crashes

FHWA Highway Safety Manual

Design Alternative #1: Regional Arterial

The purpose of this alternative is to prioritize east/west traffic with limited interruptions utilizing alternative intersection treatments. This alternative would use a combination of these intersection types:

Restricted Crossing U-Turn ("R-CUT")

Potential option for the intersections of 76th Avenue with these streets:

- 48th Street South
- 45th Street South
- 42nd Street South
- 33rd Street South

Roundabout

Potential option for the intersections of 76th Avenue with these streets:

- Sheyenne Street
- 63rd Street South
- Veterans Blvd
- 25th Street South
- University Drive

Alternative #1: Pros

- Limited vehicular travel delay for east/west movements
- Fewer at grade pedestrian crossings will cause minimal travel delay
- Proposed alternative intersection types can have added vehicular safety benefits compared to a signalized intersection

Alternative #1: Cons

- Increased travel delay for side streets
- Higher construction costs (pedestrian tunnels, U-turns, etc.)
- Fewer pedestrian crossings
- Requires additional ROW dedication

Design Alternative #2: Commercial Arterial

The purpose of this alternative is to prioritize traffic and multimodal connectivity east/west utilizing mostly traditional signalized intersections. Using a combination of these intersection types:

Traditional Signalized Intersections

Potential option for the intersections of 76th Avenue with these streets:

- Veterans Blvd
- 45th Street South
- 42nd Street South
- 33rd Street South
- 25th Street South
- University Drive

Roundabout

Potential option for the intersections of 76th Avenue with these streets:

- Sheyenne Street
- Lakeview Drive
- 63rd Street South
- 60th Street South

Alternative #2: Pros

- Non-motorized traffic has more opportunities to cross the road (at signals)
- Requires less ROW dedication
- Allows for a progression-controlled signal system
- Lower construction costs

Alternative #2: Cons

- Signalized intersections will create longer travel delays
- Signalized intersections have more conflict points than alternative intersection types

Stantec METROCOG

Newsletter examples sent to properties within 1/2 mile north and south of the corridor

PROJECT WEBSITE

Early in the process the 76th Avenue Study website (www.76thavestudy.com) was created to keep the public informed about the project. The website featured pages describing what the project was about, the study area, schedule, study documents ways to get involved, and a place to sign up for project updates. Those who signed up for updates received an email when information was posted to the website or to inform them of an engagement opportunity.

Surveys and information about upcoming public engagement opportunities were also posted on the website, along with a comment box for community members to provide input at any time throughout the project. Comments received were reviewed by the project team and brought forth in SRC meetings as needed.

All public comments received are located in **Appendix A.**

Screenshot of 76th Ave Corridor Study Website

ONLINE SURVEY

In March and April 2019, the project team hosted an online survey to determine the roadway development preferences along the 76th Avenue Corridor. The respondents were asked a series of questions about the future of the 76th Avenue Corridor, including existing challenges, future needs, and visual preferences.

The visual preference survey asked participants to review a series of images and identify which images would be appropriate **for urban areas of the corridor, for suburban/ residential areas, and not appropriate anywhere.**

Figure 2.4 summarizes the main takeaways from the survey, and **Appendix A** includes a full summary of the survey results

Figure 2.4 - Summary of Survey Results

Where do survey respondents live?

THE CITY OF Fargo FAR MORE

53.7%

Horace

31.3%

What are the biggest challenges with 76th Avenue South?

52%

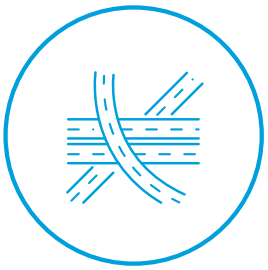
Dealing with Congestion

35%

Integrating Pedestrian Facilities

Figure 2.4 - Summary of Survey Results (continued)

Most respondents agree or strongly agree that an interchange at 1-29 and 76th Avenue South will be warranted and supported in the future.



88%

What are the top three missing development types?

69% Parks/ Greenways

57% Low Density Residential

40% Commercial

What modes should be prioritized along the 76th Avenue South Corridor?

83% Driving

43% Biking

41% Walking

Visual Preference Survey Results

Preferred Urban Options

Preferred Suburban Options

BIKE AMENITIES

On-Street Bicycle Lane

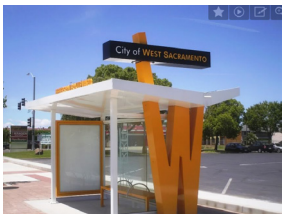
Bicycle Racks

Gravel Trail

Paved Shared Use Trail

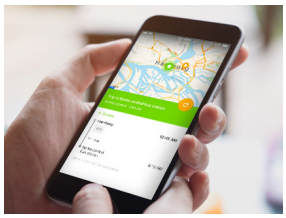
TRANSIT AND PARKING AMENITIES

City Bus



Enhanced Transit Shelter

Basic Transit Shelter



Smartphone Application

DEVELOPMENT AND STREETSCAPE

Front-facing store fronts

Planted Medians

Single Family Homes

Planted Medians

PEDESTRIAN AMENITIES

Pedestrian Count Down

Enhanced Crosswalk Treatments

Mid-block Pedestrian Beacon

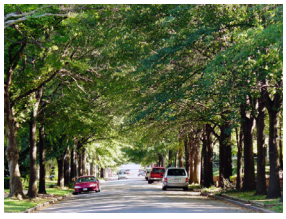
Pedestrian Lighting

TRAFFIC CALMING

Alternative Striping

Enhanced Streetscaping

Roundabout



Enhanced Streetscaping

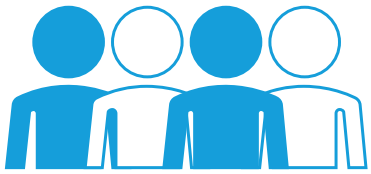
PUBLIC MEETING

A virtual public input meeting was held on August 12, 2020 using Zoom as the meeting platform. The meeting took place over the lunch hour to try capitalize on an hour many have clear from prior engagements. After the meeting, the presentation and supporting information was posted to the project website. Comments were collected until August 21st. Four polling questions were asked during the meeting.

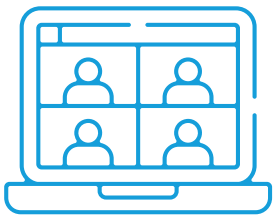
Results from these questions are shown in the infographic **(Figure 2.5)** below.

Figure 2.5 - Infographic of Public Meeting Responses

Participants



Public Participation



30+

Attendees

Which of the two alternatives would you prefer?

70%

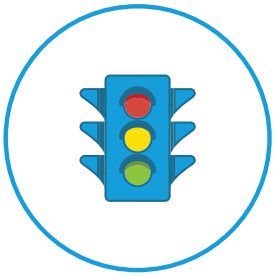
Regional Arterial
(Vehicles prioritized)

30%

Commercial Arterial
(Signals)

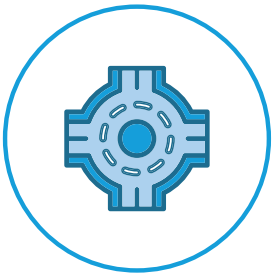
Figure 2.5 - Infographic of Public Meeting Responses (continued)

Which of these intersection treatments would work best along the corridor?



86%

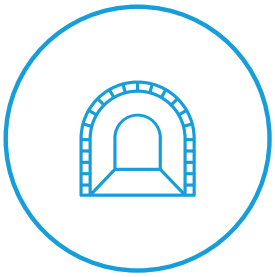
Signalized



57%

Roundabouts

What would be the best way for bicyclists and pedestrians to cross the street in the future?



38%

Underpasses

31%

Signals

How important is it to have future development oriented towards, versus away from 76th Ave S?

46%

Very Important

46%

Somewhat Important

EXISTING AND FORECAST CONDITIONS

03.

EXISTING ROADWAY CONDITIONS

The 6.5-mile-long section of 76th Avenue South being studied does not currently have a lot of existing infrastructure. Figure 3.1 provides an overview of what is currently there by utilizing a graphic technique called a dynamic cross section.

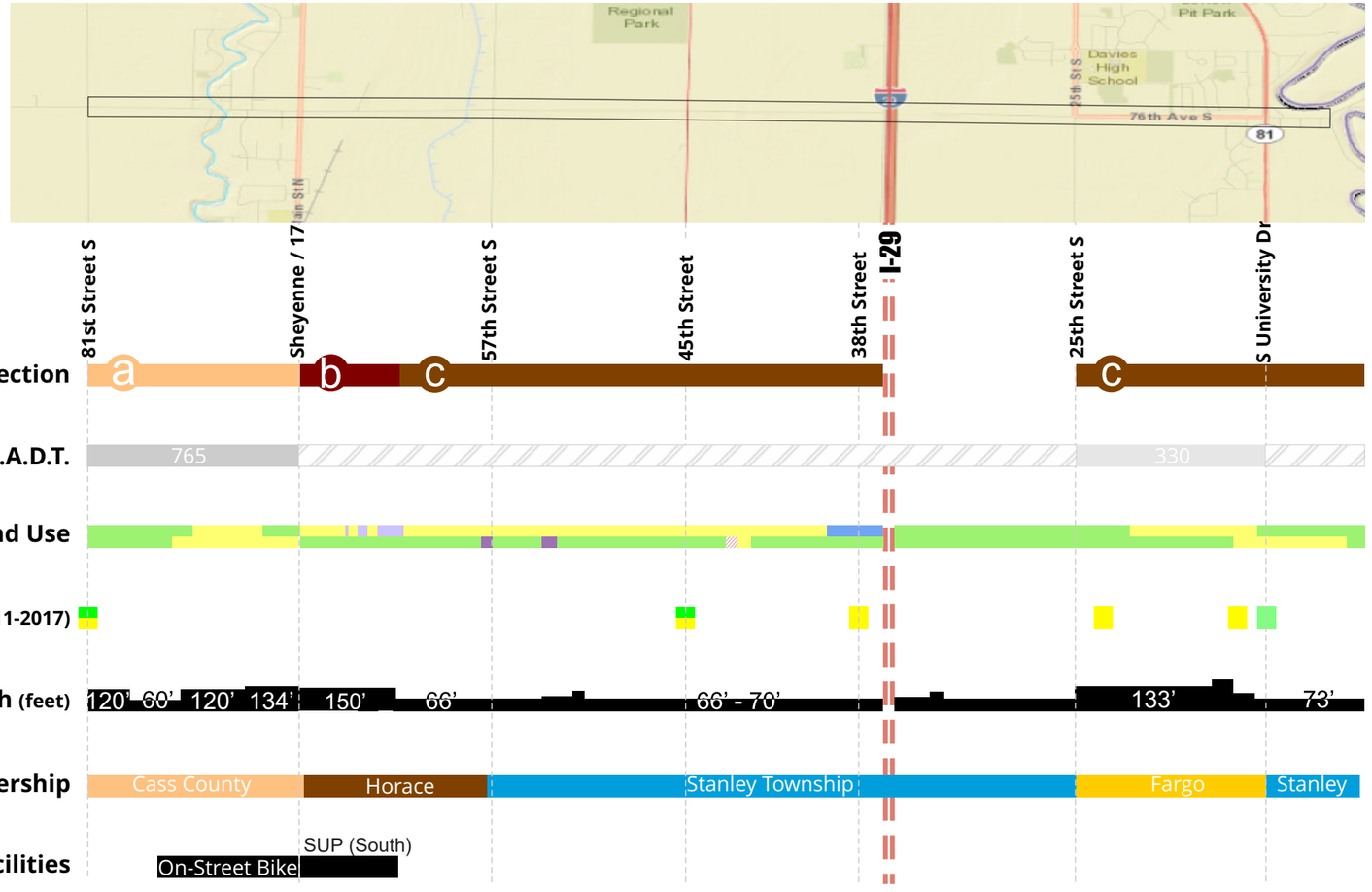
The dynamic cross section layers information on top of each other to give a picture of multiple conditions at one location. Subsequent sections in this chapter will discuss the following:

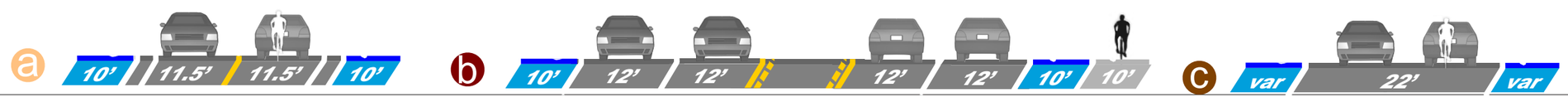
- Jurisdictional Ownership and Currently Programmed Projects;
- Existing Land Use, Potential Development, and Property Ownership;
- Existing Traffic Volumes and Crash History;
- Complete Streets;
- Access Management;
- Environmental Conditions;
- 100 year Floodplain and Property Buyouts

Figure 3.1 - Existing Conditions Dynamic Cross Section

land use codes
- Park / Open Space
- Low-Density Residential
- Industrial
- Public / Institutional
- Utilities
- Commercial Agriculture

crash severity codes
- Non-Incapacitating Injury
- Property Damage Only



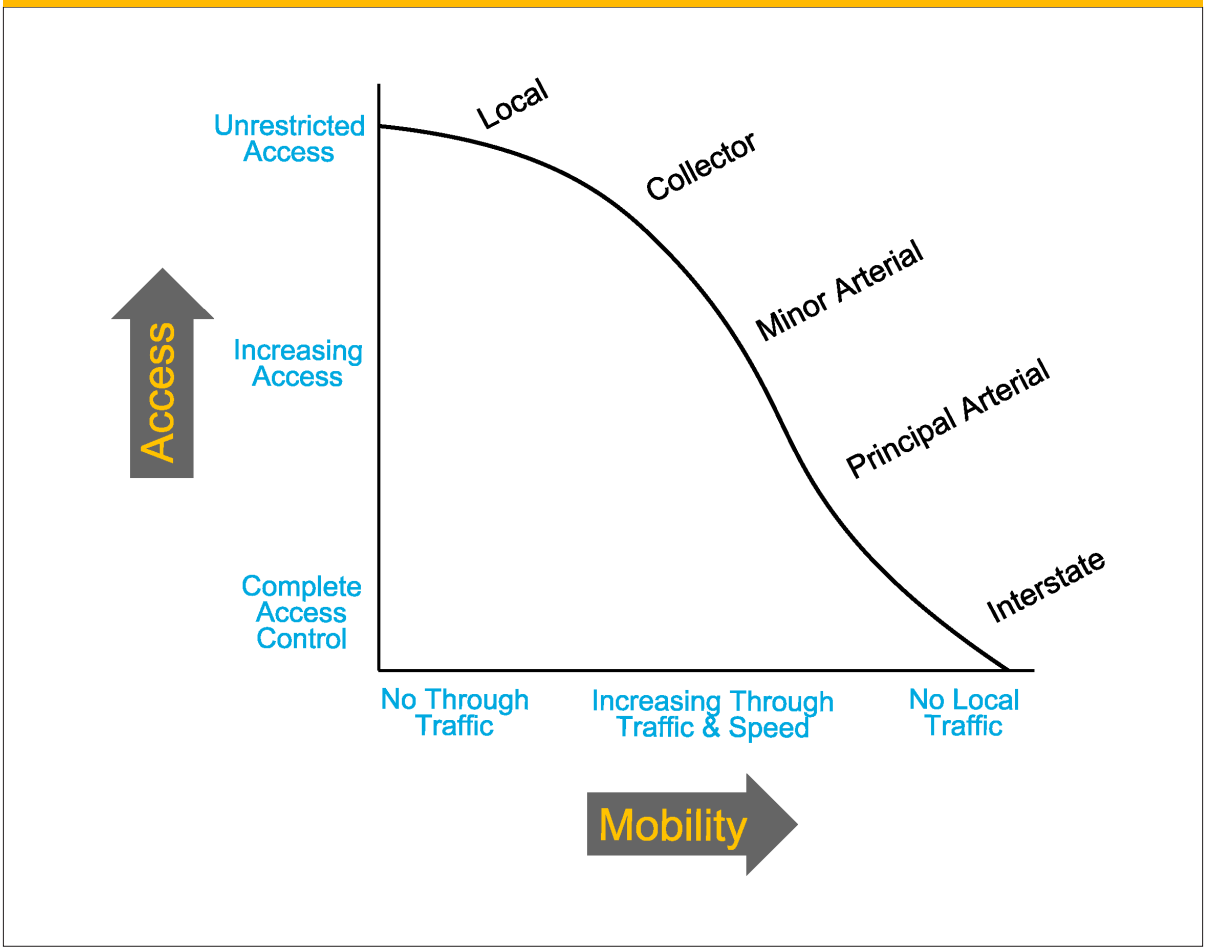


Roadway Classification:

Roadways are categorized into functional classifications based on facility type, ownership, and the role they play in the local transportation system. The four general roadway classifications are; interstate, arterial, collector, and local roadway. These main classifications can be further broken down into sub-categories such as principal arterial, minor arterial, major collector, minor collector etc.

In general, roadways with a higher functional classification, such as an interstate or arterial, provide for longer trips, greater mobility, limited access and connect larger areas of a region. Roadways with a lower level classification, such collector or local road, provide for shorter trips, have lower mobility, have more access points, and connect to higher functioning roadways.

Figure 3.2 - Relationship Between Roadway Classification and Access

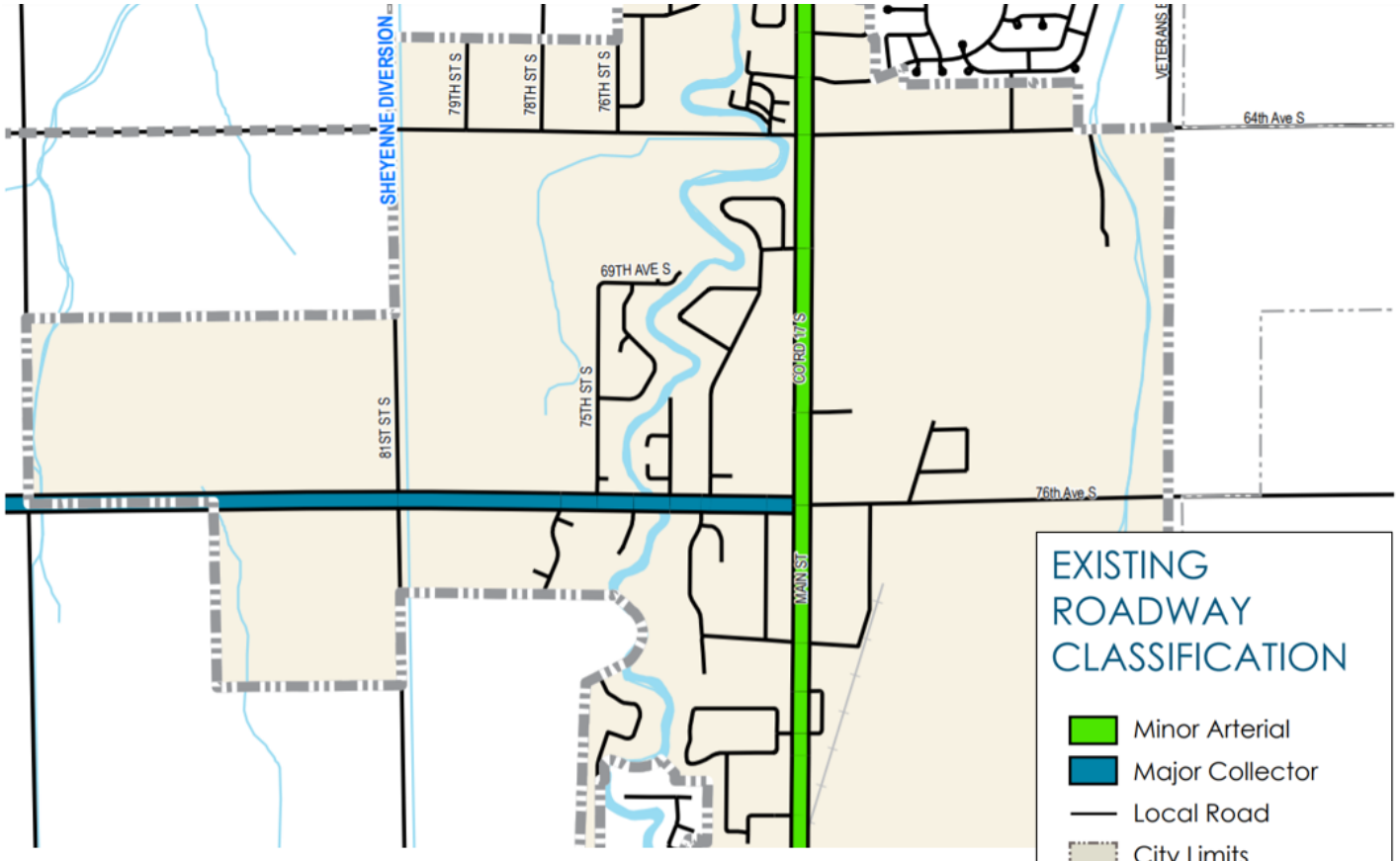


This balance is important in the transportation network and plays directly into access management. The carrying capacity of a roadway diminishes with multiple access points. Thus, managing access protects the functionality of a roadway.

Figure 3.2 graphically shows the relationship between roadway classification and access.

Currently, 76th Avenue South is classified as a major collector from 81st Street South to CR17 (Sheyenne Street) and a local roadway for the remainder of the study corridor (CR17 to the Red River). See Figure 3.3.

Figure 3.3 - Existing Roadway Classification



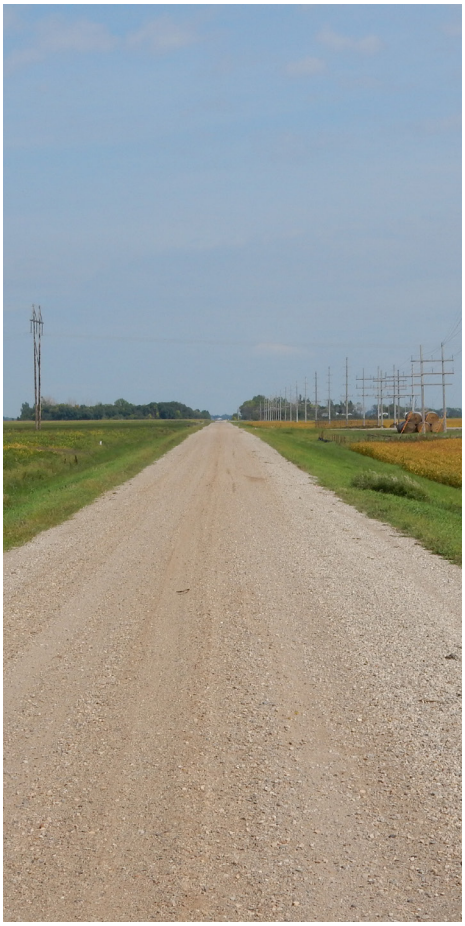
Source: Horace 2045

Pavement and Drainage Type:

The 76th Avenue South corridor is largely rural in nature, except for small portions within the City of Horace on the west end, the City of Fargo on the east end, and east of County Road 17 to 66th Street.

Figure 3.4 shows the pavement types along 76th Avenue South; paved road, gravel road, and field road. Figure 3.5 maps these pavement types along 76th Avenue South.

Figure 3.4 - Existing Roadway Pavements



Gravel roadway between Sheyenne Street and I-29.

Paved roadway between 25th Street and University Drive.

Field road between I-29 and 25th Street.

Access, Traffic Control, Typical Sections, and Drainage:

As previously discussed, roadway classification plays an important role into access management. **Figure 3.5** shows the existing accesses with the type (public roadway, field drive, private residential, private utility, and private access) and direction (north, south, and both directions).

Figure 3.5 also depicts the existing traffic control in place which is primarily stop signs at the side streets. There is one roundabout at CR 17 (Sheyenne Street) and 76th Avenue South which was constructed in 2019.

The typical section of 76th Avenue South is mostly a two-lane roadway with one travel lane in each direction and rural drainage ditches. The exception is from County Road 17 to approximately 66th Avenue South which is a 4-lane median-divided urban section and the field road between I-29 and 25th Street South. The existing dynamic cross section in **Figure 3.1** shows these typical sections.

Right-of-Way:

The right of way along 76th Avenue South varies from 66 feet to 160 feet wide along the corridor. According to North Dakota Century Code Chapter 24-07-03, congressional section lines are considered public roads open for public travel to the width of thirty-three feet [10.06 meters] on each side of the section lines.

76th ave south is on a section line, therefore, any row not implicitly dimensioned is at least 33 feet wide from the centerline of the roadway, or 66 feet wide total. **Figure 3.6** maps the existing right of way dimensions along the study corridor.

Structures:

There are two existing structures along the study corridor: one over the Sheyenne Diversion and another over the Sheyenne River, shown in **Figure 3.5.** The National Bridge Inventory (NBI) lists both structures as being in good condition and not deficient. Both structures currently can accommodate two lanes of traffic, one going each way.

In order to accommodate roadway improvements and potential expansion to meet future capacity needs, major structural improvements would be needed over Drain 27 and Drain 53.

Minnkota Power overhead power lines and sub-station.

Utilities:

The most prominent existing utility feature along 76th Avenue South is the Minnkota Power overhead power lines. West of CR 17 the lines are on both sides of the road, east of CR 17 they are only on the southern side. At University Drive the lines terminate and continue north/south. In addition to running parallel, the overhead power lines cross 76th Avenue South at 57th Street South and again half a mile east of the same intersection.

Minnkota Power also has three sub-stations located along the corridor in the following locations; SW corner of the intersection of 76th Avenue South and CR 17, SW corner of 76th Avenue South and 57th Street South, and ½ mile east of 76th Avenue South and 57th Street South. In addition, a cell phone tower is located in the NW corner of 76th Avenue South and 57th Street South. These utility features can be seen in **Figure 3.5.**

A North Dakota state one call was completed to identify which utility companies owned facilities in the area. The following utility companies were noted: Cable One, Cass County Electric, Cass Rural Water, Century Link, Consolidated Communications, City of Fargo, Dakota Carrier Net, Midcontinent Cable, Minnkota Power, Moore & Liberty Telephone, Red River Rural Telephone, Sprint Nextel, and Xcel Energy.

Figure 3.5 - Existing Roadway Conditions

December 12, 2018

Existing Roadway Conditions

- Access, Field Drive, Both Directions
- Access, Field Drive, from North
- Access, Field Drive, from South
- Access, Private Residential, from North
- Existing Utility Facility
- Access, Private Residential, from South
- Access, Private Utility, Both Directions
- Access, Private Utility, frrom South
- Access, Public, Both Directions
- Access, Public, from North
- Access, Public, from South
- Access, Trail, Both Directions
- Traffic Control, Stop Sign
- Bridge
- Paved Road
- Gravel Road
- Field Road
- Existing On-Street Bikeway
- Existing Shared Use Path
- Study Corridor
- Municipal Boundaries
- Map Panel Match Lines
- Roundabout

0 800 1,600 Feet

N

Figure 3.6 - Existing Right of Way Dimensions

September 24, 2020

Existing Right-of-Way Dimensions

- Measurement Location
- Current Right-of-Way
- Assumed Right-of-Way measured from Section Lines
- Preserved Right-of-Way
- A – B Map Panel Match Lines

0 800 1,600 Feet

N

JURISDICTIONAL OWNERSHIP AND CURRENTLY PROGRAMMED PROJECTS

76th Avenue South is a multi-jurisdictional roadway owned by Cass County, Horace, Stanley Township, and Fargo. Each jurisdictional owner has their own set of responsibilities, standards, and guidelines in place, depending on the role they play in the transportation network.

This makes jurisdictional coordination of the utmost importance along the corridor. It is likely that jurisdictional transfers will need to occur as the corridor develops. The existing jurisdictional ownership of the corridor is shown in Figure 3.7.

Table 3.1 shows the existing jurisdictional ownership and miles owned.

Table 3.1 - Existing Jurisdictional Ownership and Miles Owned

Segment	Current Jurisdiction	Miles of Roadway
Sheyenne Diversion to CR 17	Cass County	1 Mile
CR 17 to Veterans Boulevard	City of Horace	1 Mile
Veterans Boulevard to 25th Street	Stanley Township	3 Miles
25th Street to University Drive	City of Fargo	1 Mile
University Drive to the Red River	Stanley Township	1/3 Mile

The **SWMTP** identified opportunities for jurisdictional transfers along the corridor as development occurs. This study will validate jurisdictional transfer needs for each segment of roadway as it develops.

The **Cass County Comprehensive and Transportation Plan** discusses taking over 76th Avenue South as County Road 6 from CR 17 (Sheyenne Street) to 45th Street to proactively respond to the multi-jurisdictional nature of the corridor. The plan states that the addition of 76th Avenue as future CR 6 will maintain the corridor for future mobility and an eventual connection to I-29.

According to Metro COG's 2021 – 2024 TIP, Cass County has programmed a grading and roadway expansion project in 2021 on 76th Avenue South from CR 17 to 45th Street S. This project will continue north on 45th Street until 64th Avenue S. This will be considered the new alignment of CR 6. In 2022, this same corridor will be paved as 2-lane road with shoulders.

Figure 3.7 - Roadway Jurisdictions

January 2, 2019

Roadway Jurisdictions

Study Corridor
Current Right-of-Way
Future Right-of-Way

Roadway Jurisdiction:
NDDOT
Cass County
Fargo
Horace
Stanley Twp

Municipal Boundaries
A– –B Map Panel Match Lines

0 800 1,600 Feet

N

EXISTING LAND USE, POTENTIAL DEVELOPMENT & PROPERTY OWNERSHIP

The existing land uses directly adjacent to the 76th Avenue South corridor are primarily agricultural, with some rural and low density residential within Fargo and Horace. The West Fargo School District will soon be constructing a High School and Middle School in Horace on 76th Ave within the southeast quadrant of CR 17 (Sheyenne Street) and 76th Avenue South.

Corridor development pressure is occurring primarily along the western and eastern edges of 76th Avenue S within Horace and Fargo. This development pressure has largely been driven by new residential subdivisions as shown in the picture below.

New development north of 76th Avenue South at 25th Street South and 76th Avenue South.

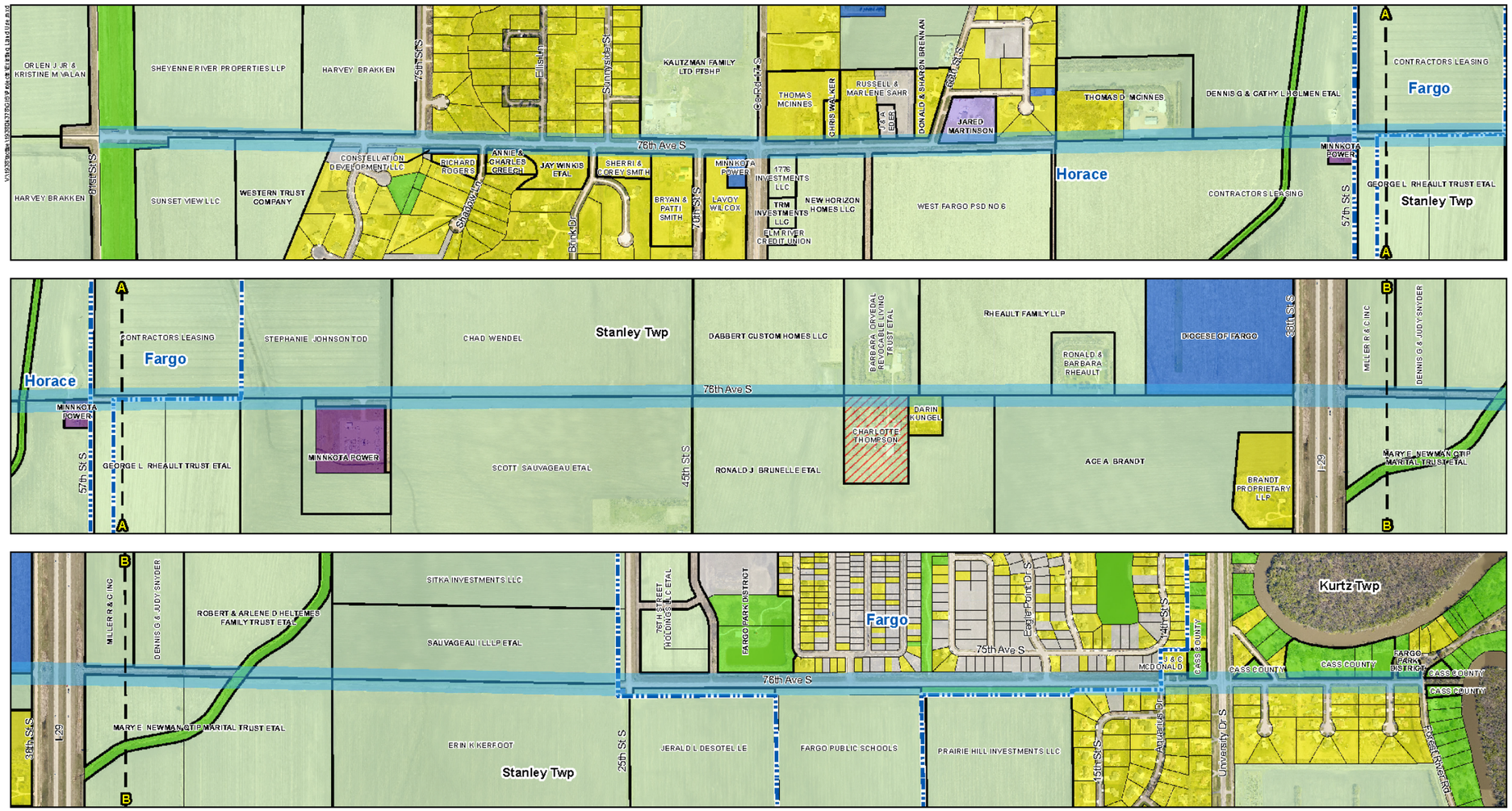
The proposed middle school is tentatively planned to open in 2020 and the high school in 2021. The buildings will be constructed for a capacity of 1,900 students and 220 staff with future expansions planned for a combined capacity of 2,750 students and 335 staff.

The Fargo Public School district has also recently purchased land along the south side of 76th Avenue South between 25th Street and University Drive.

The existing land uses and existing property ownership directly adjacent to the corridor are shown in **Figure 3.8.**

Completed roundabout on CR 17 looking to the southeast. The new school campus is in the southeast corner CR 17 and 76th Avenue South.

Figure 3.8 - Existing Land Use and Property Ownership



January 31, 2019

Existing Land Use and Adjacent Property Ownership

- Study Corridor
- Municipal Boundaries
- A–B Map Panel Match Lines
- Low Density Residential
- Industrial
- Public and Institutional
- Utilities
- Parks and Open Space
- Commercial Agriculture
- Agricultural
- Vacant/Other

0 800 1,600 Feet

N

EXISTING TRAFFIC VOLUMES AND CRASH HISTORY

Existing Traffic Volumes:

Due to the rural nature of 76th Avenue South, existing traffic data has not been collected along much of the roadway. Data sources used include Metro COG's 2015 Traffic Count Maps, the SWMTP (2016), and the West Fargo School Traffic Study (2018).

The future proposed ADT volumes in the SWMTP and West Fargo (WF) School Traffic Study, along with others, will be discussed in subsequent chapters.

Table 3.2. shows the existing traffic volumes from relevant sources.

County Road 17 and 76th Avenue South Roundabout.

Table 3.2 - Existing ADT from Relevant Sources

From	Current Jurisdiction	Metro COG 2015 Maps	SWMTP	WF School Traffic Study (July 2018)
81 st Street S	CR17	765	755	790
CR17	57th Street S	None	None	None
57th Street S	45th Street S	None	None	None
45th Street S	38th Street	None	None	None
38th Street	I-29	None	None	None
I-29	25th Street S	None	None	None
25th Street S	University Dr	330	330	None
University Dr	Forest River Rd	None	None	None

Crash History:

Crash data for five years was obtained from the NDDOT between the dates of January 1, 2013 and December 31, 2017.

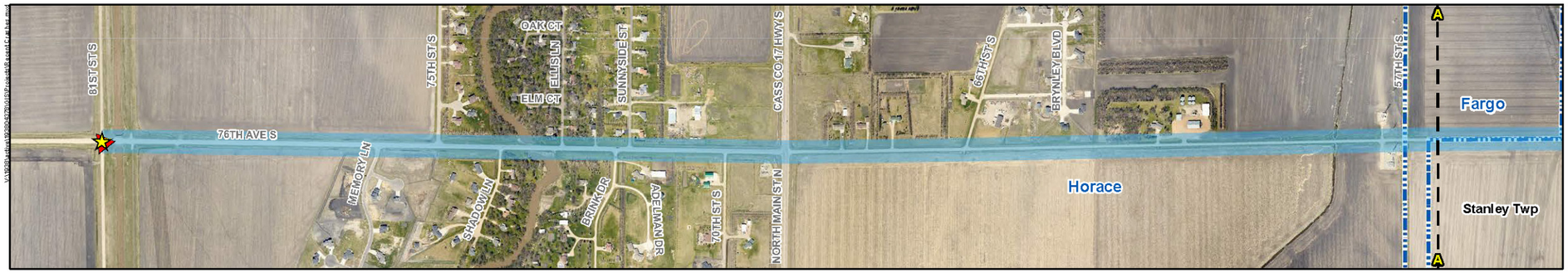
During this period there were four property damage only, three non-incapacitating injury, and no fatality crashes along the study corridor.

Crash locations are mapped in Figure 3.9 and listed from west to east in Table 3.3 with crash facility type, severity, surface condition, crash type, and year.

Table 3.3 - Existing Crash Summary

Location		Crash Facility Type	Severity	Surface Condition	Crash Type	Year
North/ South Road	East/West Road					
81st St S	76th Ave S	Intersection	Property Damage Only	Snow	Right Angle	2012
81st St S	76th Ave S	Intersection	Non-incapacitating Injury	Dry	Single Vehicle	2016
45th St S	76th Ave S	Intersection	Property Damage Only	Ice/ Compacted Snow	Single Vehicle	2011
45th St S	76th Ave S	Intersection	Non-incapacitating Injury	Ice/ Compacted Snow	Rear End	2011
38th St S	76th Ave S	Intersection	Property Damage Only	Dry	Single Vehicle	2017
None	76th Ave S	Segment	Property Damage Only	Dry	Rear End	2013
Aquarius Dr	76th Ave S	Intersection	Property Damage Only	Dry	Angle	2016
University Dr	76th Ave S	Intersection	Property Damage Only	Dry	Right Angle	2014

Figure 3.9 - 2011 to 2017 Crashes



December 12, 2018

2011 to 2017 Crashes

Crash Severity:

- Non-incapacitating injury
- Property Damage Only

- Study Corridor
- Municipal Boundaries
- A– –B Map Panel Match Lines

0 800 1,600 Feet

N

COMPLETE STREETS

Complete Streets refers to the concept of enabling a roadway to provide safe access to all transportation users of all ages and abilities. This includes pedestrians, bicyclists, motorists, and transit riders. Complete Street policies started being introduced in 2003, and have rapidly become integrated into many different ordnances, standards, and guidelines throughout the nation.

The Fargo-Moorhead area is no different, with many of the local jurisdictions putting an emphasis on a Complete Streets planning approach to ensure all modes and all users of the transportation system are considered.

Bicycle and Pedestrian Facilities:

Presently, 76th Avenue South has minimal bicycle and pedestrian facilities. The only noted multi-modal friendly facility, adjacent to the corridor, is an on-street bicycle facility from 75th Street South to CR 17 comprised of wide shoulders along both sides of the roadway.

This provides room for bicycles to ride but doesn't encompass the needs of pedestrians or less experienced cyclists.

Figure 3.10 maps the existing and proposed pedestrian facilities in the area, from the **2016 FargoMoorhead Metropolitan Bicycle and Pedestrian Plan**. It illustrates that long-term planning is anticipated to provide for more pedestrian and bicycle facilities along the corridor.

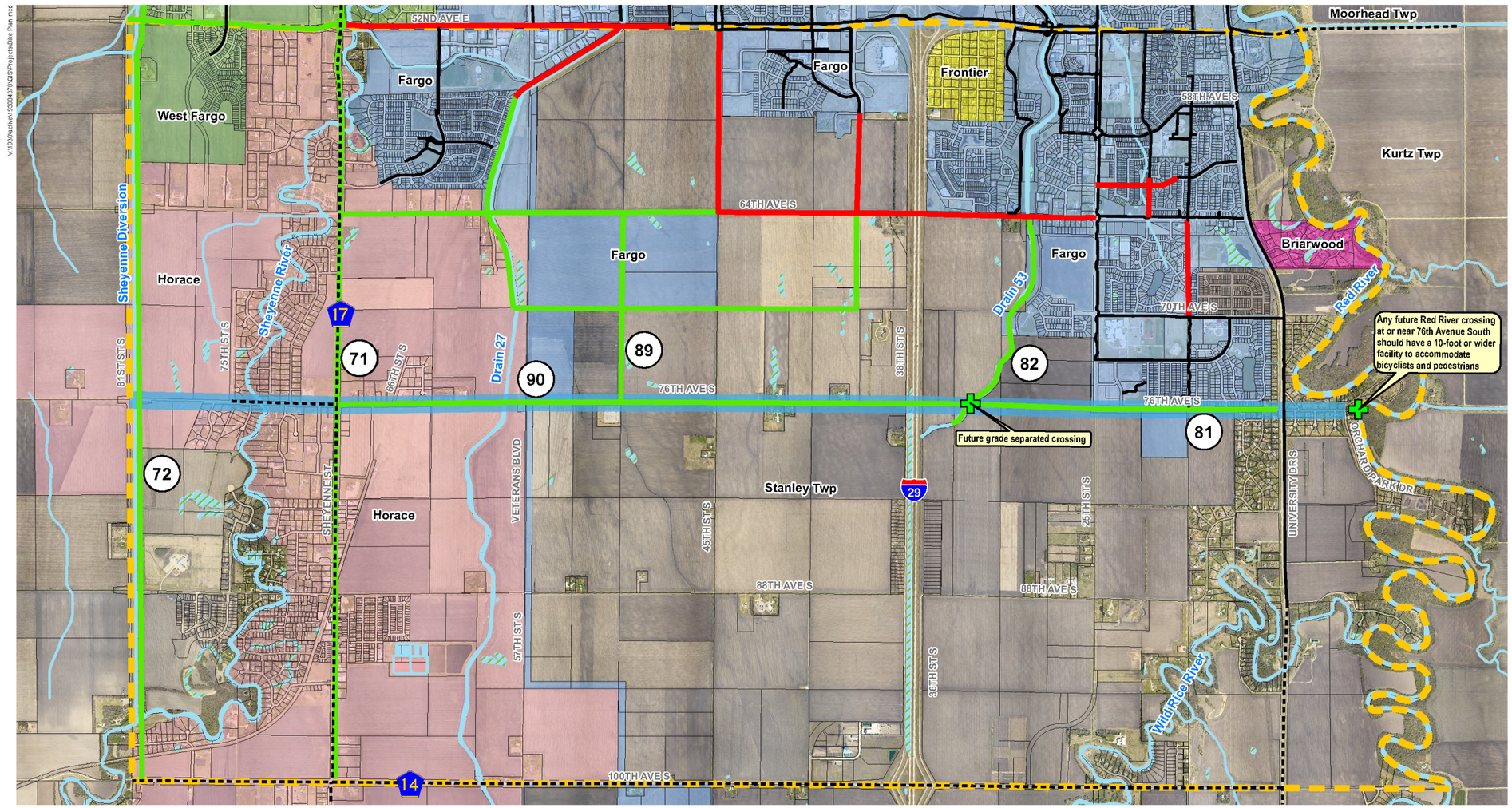
Transit Facilities:

Metro Area Transit (MATBUS) do not currently operate a fixed-route transit service along 76th Avenue South. The 2016 – 2020 Transit Development Plan does not anticipate extending service to this area.

However, the SWMTP shows a future transit corridor from 45th Street to 25th Street, along 76th Avenue South, as the area surrounding 76th Avenue South gets closer to full build out.

An existing MAT bus transit shelter in the Fargo-Moorhead Area.

Figure 3.10 - Existing and Proposed Bicycle and Pedestrian Facilities



January 2, 2019

Existing and Proposed Bicycle and Pedestrian Facilities

- Existing On-Street Bikeway
- Existing Shared Use Path
- Short Range Project
- Long Range Project
- (123) Future Shared Use Path Projects
- Study Corridor
- Study Area Boundary
- Open Water
- Wetland
- Fargo
- Horace
- West Fargo
- Briarwood
- Frontier

0 2,500 5,000 Feet

N

Source: 2016 FargoMoorhead Metropolitan Bicycle and Pedestrian Plan.

ACCESS MANAGEMENT

Access management is the planning, design, and implementation of land use and transportation strategies to maintain a safe flow of traffic while accommodating the access needs of adjacent development. Most importantly, it reduces congestion and crashes, preserves road capacity, improves travel times, eases movement between destinations, and supports local economic development. Successful access management practices require multi-jurisdictional coordination as development occurs.

As the graphic in **Figure 3.2** shows, the functional classification of a roadway and the level of access are directly correlated. As the functional classification of the roadway increases, so does the amount of access control. The SWMTP travel demand model assumed ½ mile spacing between intersections for 76th Avenue South; however, if an expressway design is implemented, this would impact route selection throughout the study area, and most likely limit access points to 1 mile spacing or greater.

The final facility type determination will play a large role in future access management guidelines along the corridor. Fargo, Horace, and Cass County all have access management standards in some form.

Metro COG completed a Fargo/West Fargo Parking & Access Requirements Study in October 2018. This study looked at specific street typologies and listed very specific access recommendations based on the street type. This study will be an important reference once a future street type for 76th Avenue South is determined later in the study process.

Mixed Use Arterial

Land Use	Multi-family Residential, Commercial, Industrial
Speed Limit	35 mph maximum
Travel lanes	3-5 travel lanes
Other	Landscaped median or center turn lane
Parking	On-street parking
Pedestrian Crossing	Signal or median-protected crosswalk

Access spacing	Traffic Signal:	Unsignalized Full Access:	Right-in/Right-out:	Driveways:
	600-800 feet	Block-Level (300-400 feet)	200 feet	200 feet

An example of access recommendations for a mixed use arterial from the Fargo, West Fargo Parking & Access Requirements Study.

The SWMTP reviewed the various jurisdictions access management policies noting Cass County had the most restrictive standards and the City of Horace had the least. The SWMTP made a recommendation to coordinate the access standards between the City of Horace and Cass County, reducing the need for county input within Horace's extra-territorial area (ETA).

The recommendations from the SWMTP for both arterial roadways and collector roadways is shown below.

This text from the SWMTP is intended to be a guiding reference. For example, the Arterial Roadway Access Recommendation states that "no intersections [should be] allowed within 2,500 feet of interchange ramp terminals accessing I-29". Roads such as 38th Avenue S may need to be realigned to meet this standard.

Arterial Roadway Access Management Recommendation (Source: SWMTP 2016):

*"Access control on arterial roadways should be limited to **preserve the function and capacity** of the resource. A maximum of four roadway access points per direction of the arterial. Where feasible these accesses should be **aligned directly across from one another** without offset creating four-way intersections making signalization or other traffic control easier and reducing delay through the corridor.*

***No direct driveway access** should be allowed onto the arterial system. Commercial uses should take their **access from the collector system** and allow for on-site internal circulation between businesses or for backage or frontage road facilities that serve traffic circulation needs.*

Interchanges along I-29 should be treated differently as they not only impact the arterial road, but if access points are too close to the interchange ramp terminals it can also impact the function of the interstate. ***Interchanges represent some of the largest investments*** *we make in our transportation system, and as such, should be afforded additional protections to preserve their function in perpetuity.*

Interchanges at 100th Avenue South, 76th Avenue South and 52nd Avenue South should have ***no intersections allowed within 2500 feet of interchange ramp terminals*** *accessing I-29. Providing this measure of access control around interchanges allows for appropriate distance for weaving movements and during times of heavy use can keep ramp traffic from backing onto the mainline of the interstate."*

Collector Roadway Access Management Recommendation (Source: SWMTP 2016):

"A ***minimum spacing of 300 feet*** *is required between driveways and/or intersections. This standard may be modified to a minimum of 150 feet through an application process.*

Access permits will only be issued for the lessor standard upon review and determination by the City/County Engineer that granting of such a permit would ***not compromise the function, safety or capacity of the collector street*** *at or around the location that access is granted."*

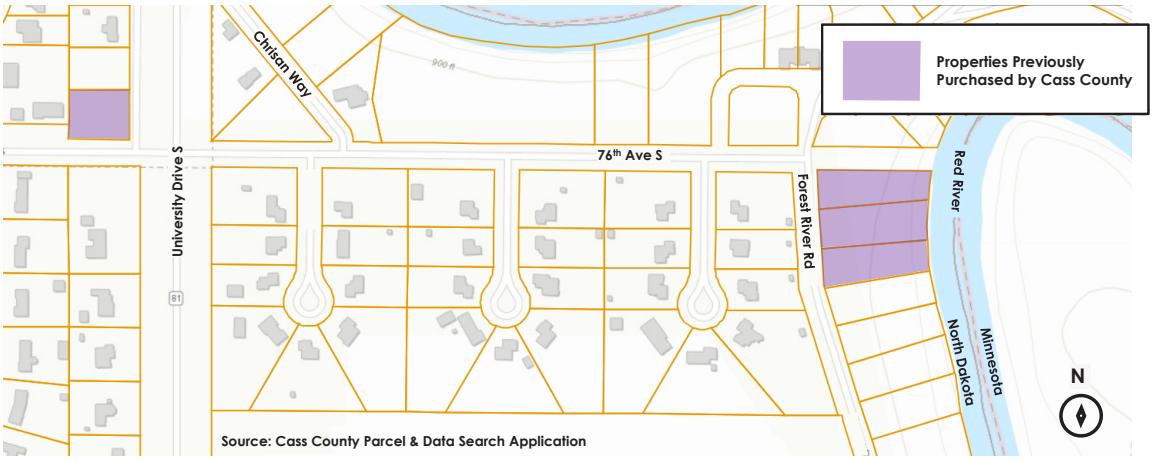
100 YEAR FLOODPLAIN AND PROPERTY BUYOUTS

Much of the project study limits are in the 100-year floodplain of the Red River. The 100-year floodplain means that the land is predicted to flood during a 100-year storm even, which has a 1% chance of occurring in any given year. The Fargo Moorhead Diversion is an ongoing project that is designed to protect the community during times of extreme flooding. Construction of the diversion began in early 2017 and is anticipated to protect more than 235,000 people from flooding once completed.

Due to the history of flooding along the Red River, some properties close to the river and 76th Avenue South have been bought out. The Federal Emergency Management Agency (FEMA) is one option for funding property buyouts; however, this funding comes with a stipulation that no permanent structures will be constructed on the property (including a bridge). Cass County saw this as a potential hurdle to someday constructing a Red River bridge crossing at 76th Avenue South and bought properties utilizing local funds.

Figure 3.11 shows the properties owned by Cass County.

Figure 3.11 - Properties Previously Purchased by Cass County



ENVIRONMENTAL CONDITIONS

A preliminary environmental review of the following issues was completed for the 76th Avenue South corridor: airport coordination, cultural resources, noise impacts, 4(f) and 6(f) properties, wetland/water resources, floodplain, right of way impacts, contaminated properties, farmland, environmental justice, and Section 7 – Threatened and Endangered (TE) species. **Appendix F** lays out the results of the study, and **Figure 3.12** shows the existing water features, wetland areas, and FEMA flood zones.

Top Environmental Considerations Include:

Wetland Review/Water Resources

Lengthening of culverts and filling ditches to widen could result in wetland impacts. A field wetland delineation and action report should be submitted to the USACE for a Jurisdictional Determination.

Floodplain

If the roadway work impacts any of the floodplain areas noted in **Appendix F**, base flood elevations will need to be modeled for the Zone A floodplains and coordination will be required with the USACE, Cass County and the North Dakota State Water Commission.

ROW Impacts/Relocations

If temporary and permanent right of way impacts occur, they will need to be managed in accordance with state and federal laws and regulations.

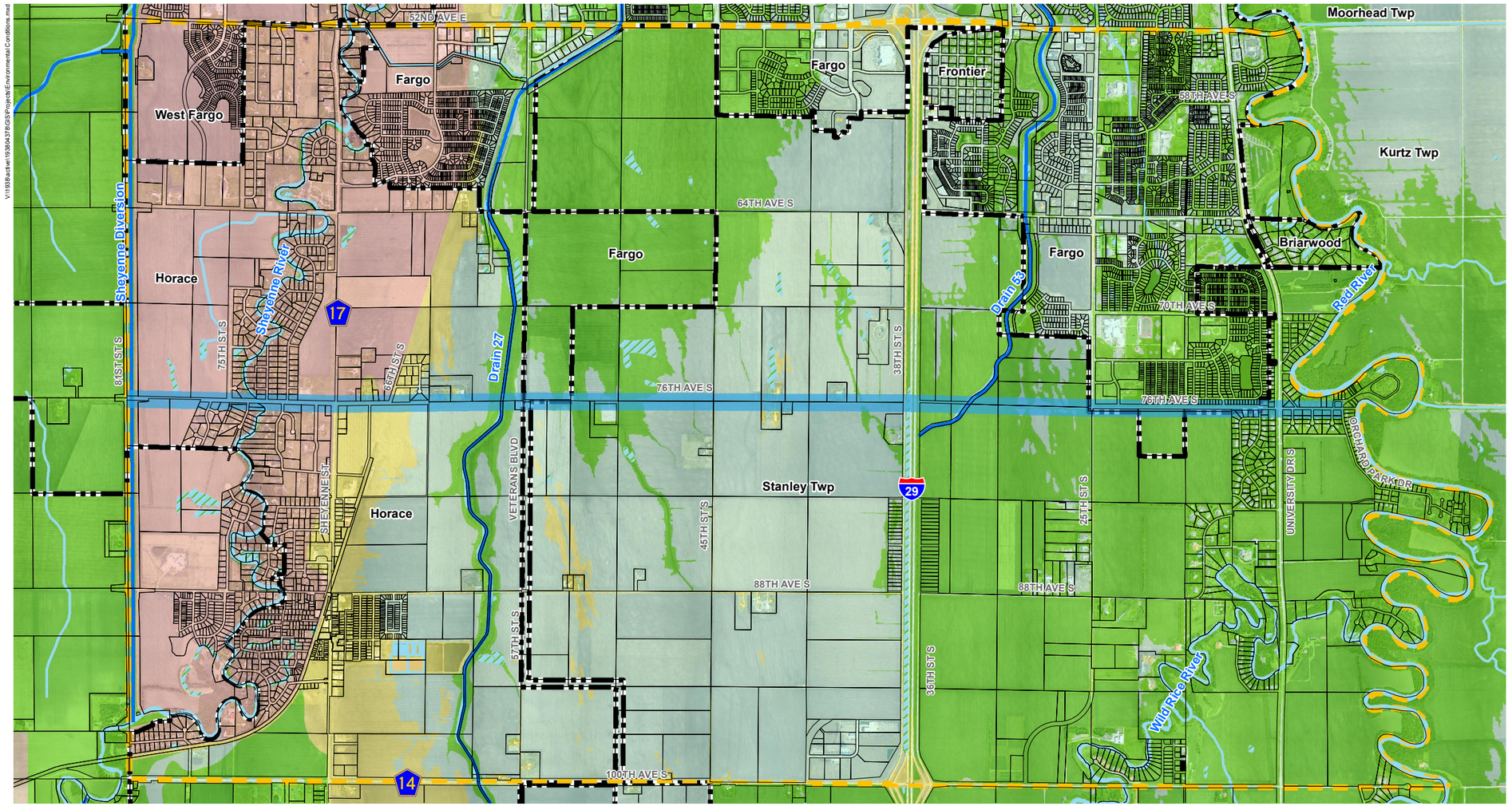
Farmland

If proposed improvements within the 76th Avenue corridor are federally funded AND will require ROW of any amount, the Farmland Preservation Policy Act (FPPA) must be addressed.

Section 7 – TE Species

Cass County has 4 listed Threatened and Endangered species, as well as eight migratory birds protected/managed by the US Fish and Wildlife Service and protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Species that will require further consideration when the project is underway include the Gray Wolf, Northern Long-Eared Bat, Whooping Crane, and Dakota Skipper.

Figure 3.12 - Environmental Conditions



VISION

04.

PLANNING ASSUMPTIONS AND PREFERENCES

One of the goals for **76th Avenue South Corridor Study** was to create a unified vision for the 6.5-mile corridor. Given limited existing development and traffic data, this vision relied heavily on input from leaders and decision makers and a new base Travel Demand Model (TDM).

Before visioning for the future could begin, important questions related to transportation connectivity and subsequent development needed to be answered. Questions such as; Will an I-29 interchange be built at 76th Avenue South?; Will the Red River Diversion be built within our planning horizon?; Will a bridge be built over the Red River connecting North Dakota and Minnesota? The answers to these questions will undoubtedly play a large role in determining how the corridor needs to function.

In order to understand how the general public and local agency leaders (making up the SRC) viewed these questions, a survey was conducted for each group. The opinions of the public generally mirrored the SRC and provided valuable insight into the high-level planning assumptions needed to move forward.

Planning assumptions and preferences as validated by the SRC for this study include:

- An interchange will be built at I-29 and 76th Avenue South
- The Red River Diversion will be built within the next 10 years
- A beltway type facility should be considered in conjunction with a more traditional facility
- A 76th Avenue South bridge over the Red River will not be built within the 20-year planning horizon of this study; however, right of way preservation should be on-going
- All modes will be represented and have the ability to use the corridor
- Access management will be implemented

Collector Distributor (C-D) System

As noted above, an interchange at I-29 and 76th Avenue South is a major planning assumption for this study. The City of Fargo and the North Dakota Department of Transportation (NDDOT) have recently been discussing future programming to build an interchange at I-29 and 64th Avenue South, one-mile north of 76th Avenue South.

Building an interchange at both 64th Avenue South and 76th Avenue South conflicts with past planning efforts which assumed a 2-mile interchange spacing south of 32nd Avenue South along I-29.

In order to reduce the weave/merge movements onto I-29 that would occur with two interchanges 1-mile apart, the NDDOT and the City of Fargo have been discussing the potential of utilizing a Collector-Distributor (C-D) roadway between the I-29/52nd Avenue South Interchange and a future I-29/76th Avenue South interchange.

The primary purpose of a C-D roadway is to collect and distribute traffic from the freeway to other major crossroads, local parallel roads or interchanges, while moving the weave merge movements away from the high-speed traffic on the freeway mainline. This would allow vehicles to enter/exit I-29 at 64th Avenue South while maintaining the 2-mile spacing of weave/merge movements onto I-29.

Additional research and discussion of the C-D System can be found in **Appendix D.**

A collector-distributor roadway system that is part of the interstate and services major crossroads and adjacent interchanges.

This example is from I-394, Xenia Avenue, and Highway 100 in Minneapolis, MN.

Travel Demand Analysis

Travel demand analysis is crucial to understanding the issues and future needs of a corridor. Travel demand modeling, or TDM, is often used to estimate travel behavior and travel demand in the future, based on a number of assumptions. Travel demand modeling was completed in 2016 for the 76th Avenue Corridor in the Southwest Metropolitan Transportation Plan (SWMTP). Analysis completed as part of the SWMTP included a tiered growth approach for the years 2020, 2030, 2040, and 2040+, under a number of scenarios including Full-Build.

Based on the known planning assumptions in 2016, the SWMTP forecasted traffic volumes along 76th Avenue South using TDM software. However, since 2016 new development and updated planning assumptions, including new planned transportation infrastructure, have arisen. Based on this, the SRC made the decision to update the Travel Demand Analysis from the SWMTP as a part of the scope of work for this study.

The new TDM updated the full-build scenario from the SWMTP (discussed above) with current planning assumptions, and also explored three potential network scenarios. These scenarios are summarized as follows:

- **Updated Full Build:** SWMTP 2040+ Full Build Scenario plus known development and planning assumptions
- **Full Build Scenario 1:** Updated Full Build Scenario plus 64th Avenue South/I-29 Interchange
- **Full Build Scenario 2:** Updated Full Build Scenario plus I-29 C-D Roadway between 52nd and 76th Avenue South and a 64th Avenue South/I-29 C-D Roadway Interchange
- **Full Build Scenario 3:** Modify Scenario 2 to add ½ mile drain crossings of Drain 27 (both ½ mile north and south of 76th Avenue South) and expand 64th Avenue South to 5 lanes west of I-29.

Overall, the traffic volumes typically ranged from 2,000 to 48,000 for all three scenarios. A comparison of all modeled scenarios reveals differences in daily traffic volumes between each scenario, which can be seen in Table 4.1. Full details, including maps, of the updated TDM are included in **Appendix C.**

Table 4.1 - Forecast Traffic Volume Comparison Between TDM Scenarios along 76th Avenue South

76th Avenue South Segment	2045 Metro Grow TDM	Updated Full Build TDM	Full Build TDM Scenario 1*	Full Build TDM Scenario 2*	Full Build TDM Scenario 3*
81st St to CR 17	N/A	3,500	4,000 (+14%)	3,800 (+9%)	3,200 (-9%)
Just east of CR 17	4,700	6,600	6,500 (-2%)	6,550 (-1%)	6,500 (-2%)
Just east of CR 17	N/A	31,000	29,100 (-6%)	30,000 (-3%)	31,000 (0%)
Veterans Blvd to 45th St	5,100	27,000	25,200 (-7%)	25,700 (-5%)	26,000 (-4%)
45th St to 38th St	N/A	48,000	45,500 (-5%)	47,000 (-2%)	48,000 (0%)
38th St to Inter. West Ramps	7,400	46,000	41,400 (-10%)	42,100 (-8%)	42,000 (-9%)
Inter. West Ramps to East Ramps	N/A	28,000	24,400 (-13%)	25,600 (-9%)	25,000 (-11%)
I-29 & 76th Ave S Inter. SW Ramp	N/A	1,200	930 (-23%)	940 (-22%)	940 (-22%)
I-29 & 76th Ave S Inter. SE Ramp	N/A	1,200	700 (-42%)	700 (-42%)	730 (-39%)
I-29 & 76th Ave S Inter. NW Ramp	N/A	28,000	24,300 (-13%)	26,100 (-7%)	26,000 (-7%)
I-29 & 76th Ave S Inter. NE Ramp	N/A	22,000	21,000 (-5%)	21,100 (-4%)	21,000 (-5%)
Inter. East Ramps to 36th St	N/A	19,000	16,900 (-11%)	18,400 (-3%)	18,000 (-5%)
36th St to 25th St	4,800	10,000	8,900 (-11%)	10,400 (+4%)	9,600 (-4%)
25th St to Univ Drive	5,000	4,900	4,600 (-6%)	4,700 (-4%)	4,500 (-8%)

Note: Full Build TDM Scenarios 1, 2, and 3 show the daily traffic volumes followed by the % change in traffic volumes from the Updated Full Build TDM

LAND USE AND DEVELOPMENT

How land is used impacts our transportation facilities, modes of travel, services and vice versa. For example, when 76th Avenue South is built-out and roadways and other utilitie are extended, the land becomes more accessible; the increased accessibility makes the land more valuable and attractive to developers; as land along the road is developed, traffic volumes and multi modal accessibility needs continue to change.

The type of development which occurs along the road (i.e. residential, commercial, industrial, etc.) also plays a significant role in what type of roadway facility is needed.

Since land use does play such an important role in the vision of a transportation facility, the project's Study Review Committee (SRC) was asked to complete a **Building Blocks Exercise,** shown in **Figure 4.1**, **Figure 4.2** **and** **Figure 4.3** with two sizes of Lego blocks representing different developmental densities (4 block vs 8 block) and seven colors representing different types of development (commercial, low-density residential, open space/parks, schools & government, etc.).

The SRC was broken into two groups and given two scenarios: 1) Grade Separation at 76th Avenue South and I-29 and 2) Interchange at 76th Avenue South and I-29. Each group was asked to show how they think the corridor will develop under each scenario.

Building Blocks Exercise Results

The results of this building block exercise show that there is consensus among SRC members on how the corridor will develop with and without an I-29 interchange. The groups agreed that in both scenarios, the western portion of the corridor will develop with low density land uses, with the exception of a high density/ commercial node at County Road 17. The area just south of I-29 was proposed to develop as high density residential and commercial in both scenarios as well.

Figure 4.1 - Building Blocks Exercise

Making the Place

= 4-Block = 8-Block

Lego	What?	Examples		
COMMERCIAL *(block = neighborhood center- 100-acres)*	Buy groceries, shoes, a car, or a meal		*More of these mean shorter trips, more variety and options, lower prices*	*In the wrong place and using bad/cheap design, these mean more parking lots and traffic, lower home value*
LOW-DENSITY RESIDENTIAL *(4 block = 50 homes; 8 block = 100 homes)*	Living in a single-family, detached home, probably with a garage and in a subdivision with the others of the same		*Quiet places for people to live to call their own ad invest in for the future*	*Can be costly to own and maintain; requires a lot of land; often requires a car for every trip that is made*
MEDIUM- & HIGH-DENSITY RESIDENTIAL *(4 block = 100 homes; 8 block = 200 homes)*	Living a duplex, townhomes, condominium or apartment with shared greenspace		*Easy to afford for young, lower-income, and elderly; often located near complementary uses (shopping, schools)*	*More localized traffic; poor design can devalue other properties over time*
FARMING, OPEN SPACE, & PASSIVE PARKS *(block = 100-acre open space or farm)*	Visiting natural, undisturbed lands; growing food; walking through trees by yourself or with your family		*Integrated green space into "harder" urban / suburban places; job diversity, sense of place*	*Generally lower tax revenues (or none) received, putting more burden on other property owners*
SCHOOLS & GOVERNMENT *(block = school or government complex 50-acres)*	Going to school or getting a driver's license renewed		*Necessary to have them; good job opportunities; especially nice when they are near where you live of work*	*Local generator of traffic and lower or no revenue returns than some other land uses*
INDUSTRIAL *(block = manufacturing or large distribution facility 100-acres)*	Light- or heavy-manufacturing, distribution with trucks or be rail		*Supports living-wage jobs directly, and other jobs indirectly; strong revenue source*	*Some (but not all) have operating or visual characteristics that lower nearby property values or present health concerns*
ACTIVE PARKS, GREENWAYS, & PLAYGROUNDS *(block = 25-arce park)*	Taking the children to play on the swings or participate in organized sports with others		*Great for relaxing, public health, and keeping green areas near built-up places*	*Lower tax revenues; often needs good maintenance and law enforcement presence to be perceived as an asset*

The biggest difference between the two scenarios is the area immediately surrounding the grade separation or interchange at I-29, which was proposed to develop as a mix of industrial, commercial and active park under a grade separation scenario, and as heavily commercial under an interchange scenario.

The area east of I-29 is also relatively unchanged between the two scenarios and is proposed to develop as a mix of residential, school and government, and active parks. The results of the building block exercise can be seen in Figure 4.2 and Figure 4.3.

It should be noted that at the time of this exercise, it was thought that 76th Avenue South would be the next interchange. Recent planning discussions have lead toward the next interchange being at 64th Street South which could impact the amount of commercial/retail development at 76th Avenue South.

Figure 4.2 - Development Pattern with Grade Separation Only at 1-29 (No Interchange)

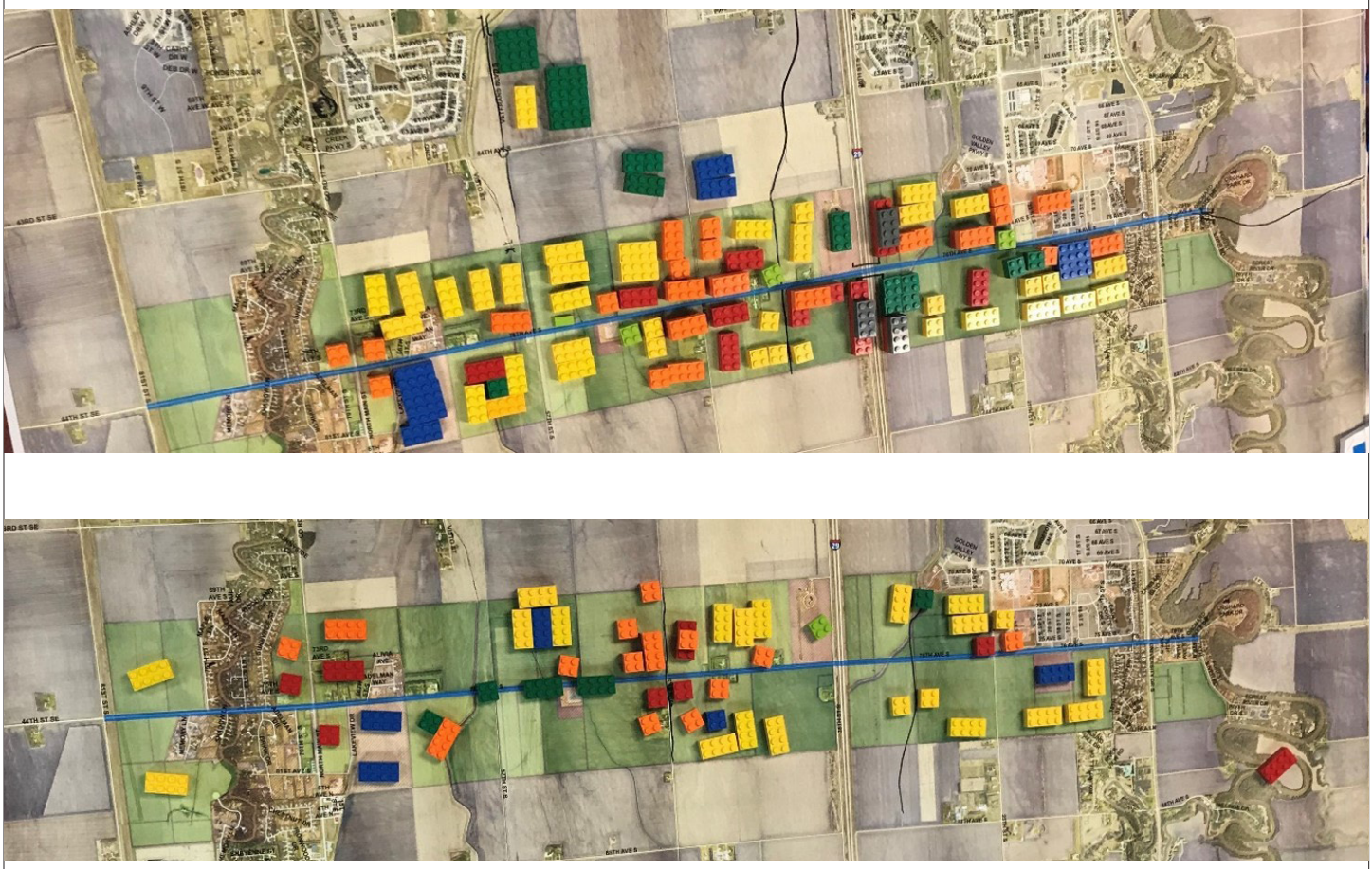


Figure 4.3 - Development Pattern with Interchange at 76th Avenue South and I-29

Figure 4.4 - Future Land Use Scenario 1

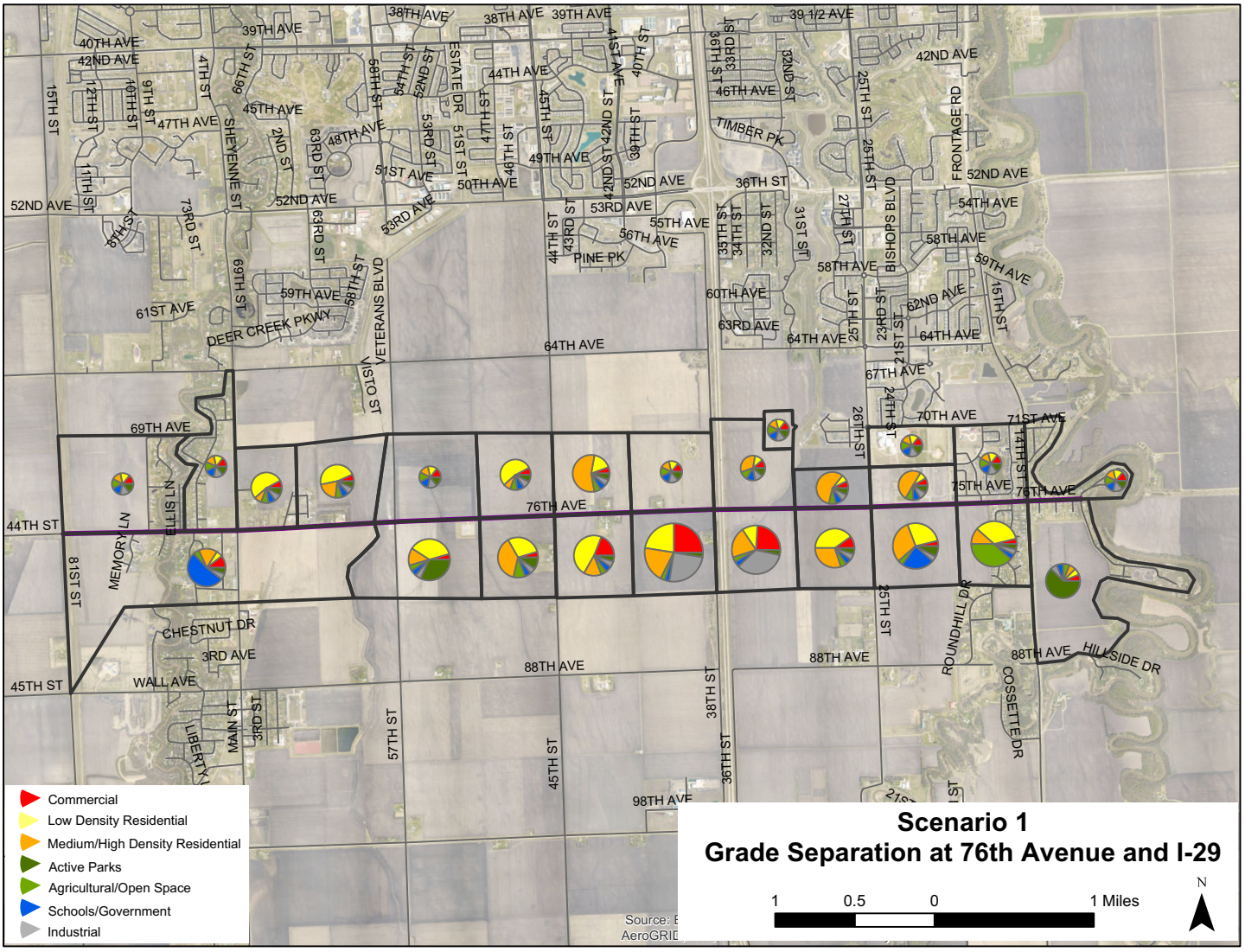
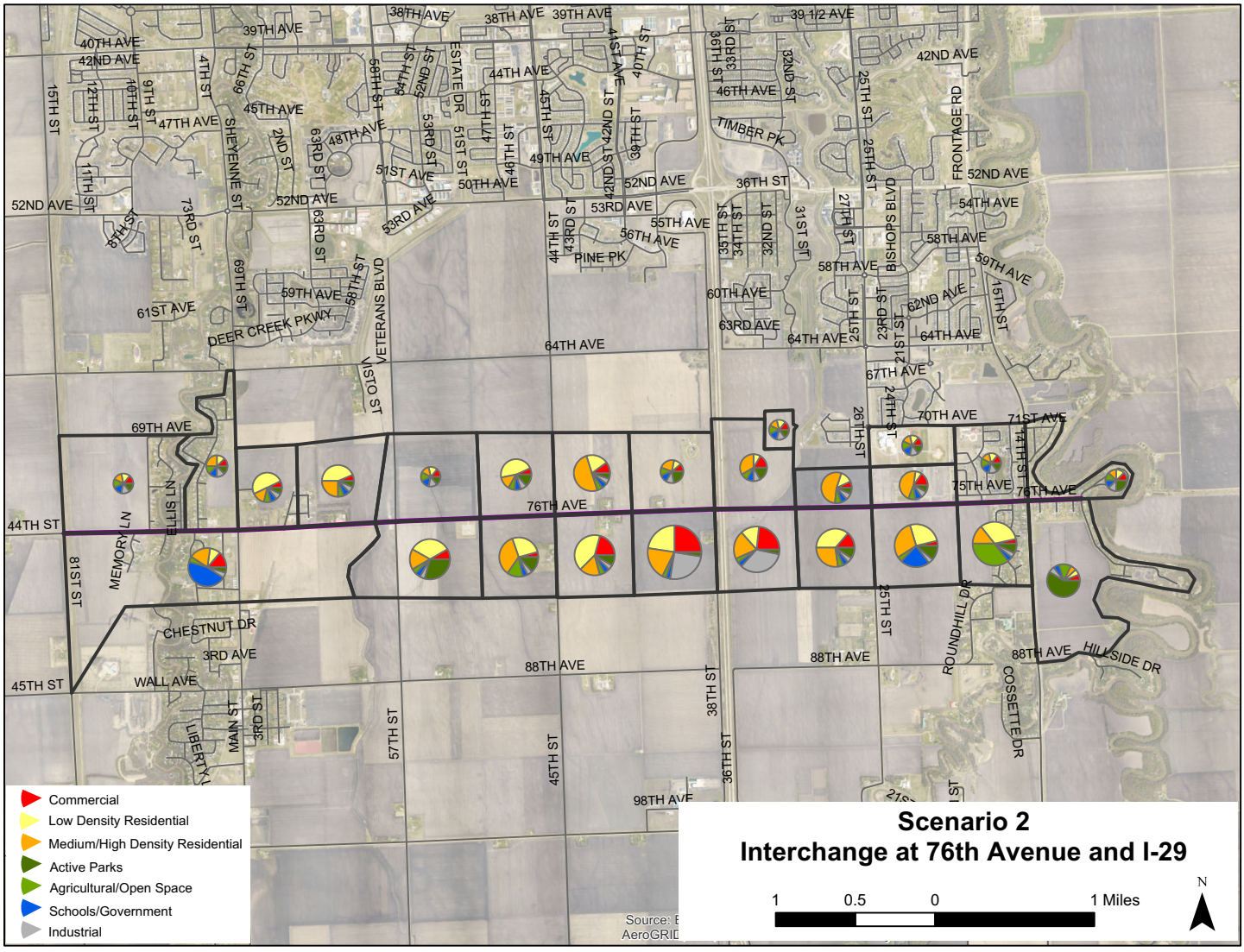


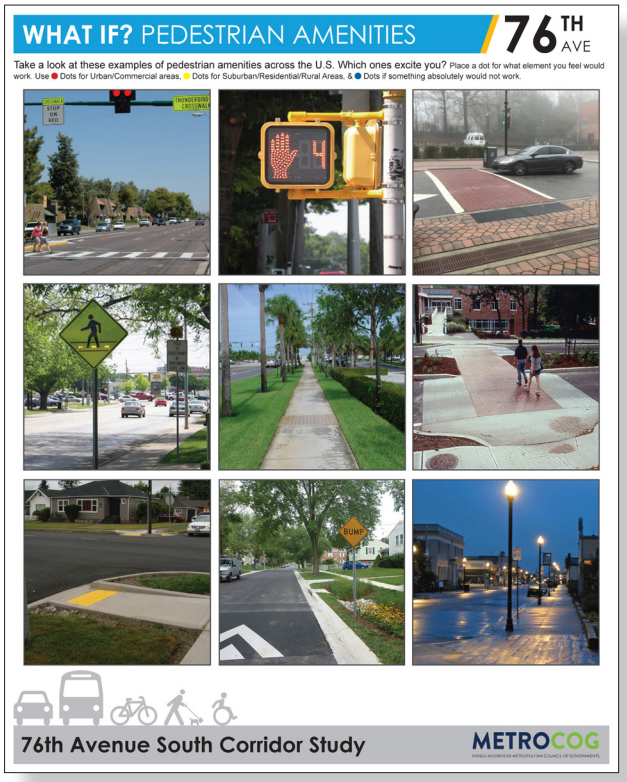
Figure 4.5 - Future Land Use Scenario 2

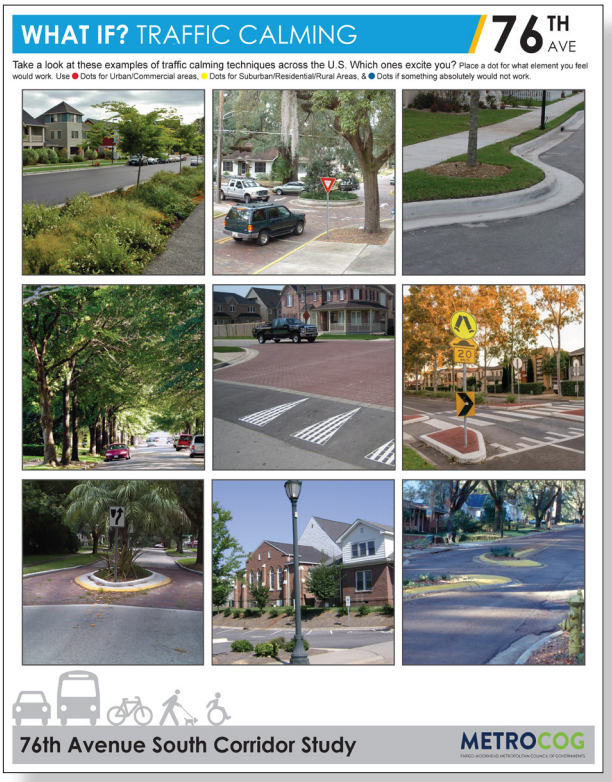


CORRIDOR AESTHETIC OPPORTUNITIES

When discussing corridor aesthetics the term "streetscape" is often used. This term refers to the natural and built fabric of the street and its visual effect in a community. The idea of streetscaping recognizes that streets are places where people engage in various activities, including but not limited to motor vehicle travel. Having an engaging streetscape environment encourages the principle of complete streets by striving to design, build, and maintain a transportation system for all types of roadway users (motorists, pedestrians, bicyclists, etc.).

Based on the survey results discussed in the engagement chapter of this plan, the general public recognized maintaining aesthetics and adding streetscaping as one of the top three most important

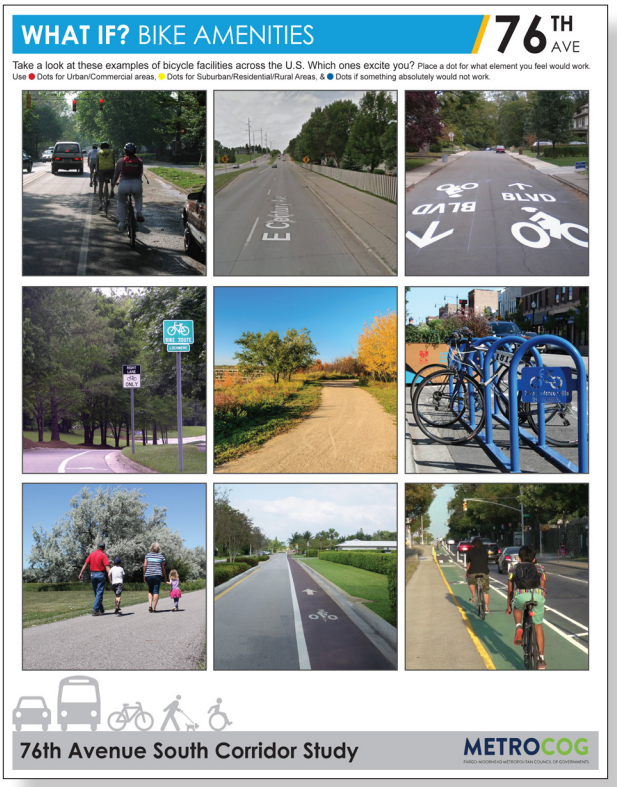




priorities along 76th Avenue South. A visual preference survey further defined which amenities and streetscape designs treatments they felt would be appropriate for urban areas, suburban/ residential areas, and which would not be appropriate anywhere along the corridor. The **results of the survey** can be seen on page 28 of the engagement chapter of this plan.

A takeaway from these findings is that people either preferred a more complete street or a beltway type facility and their subsequent preferences fell in line with that general notion.

Visual Preference Survey conducted as part of the 76th Avenue South Study



ALTERNATIVES DESCRIPTION AND ANALYSIS

05.

DEVELOPED ALTERNATIVES

Based on the input received by the public, stakeholders, and the SRC, two alternatives were moved forward for analysis: a regional arterial and commercial arterial. The differences and similarities between these two concepts are further explored below.

Regional Arterial

The regional arterial alternative places an emphasis on keeping traffic moving throughout the corridor in a free-flowing type manner. This is accomplished by utilizing alternative intersection controls (other than traffic signals) such as: roundabouts, R-Cuts, and ¾ access. Finally paring these controls with a free flowing interchange type at I-29, such as a C-D system with grade separated intersections, or a free flowing cloverleaf. Multiple types of alternative intersection controls could be utilized throughout the corridor, depending on the specific circumstances of that intersection.

Additional characteristics of the regional arterial alternative include a preference to move E-W traffic, high level of access control, and bike and pedestrian facilities that would require grade separated crossings. This alternative would support commercial development away from the roadway towards the interior of the development.

A regional arterial will most likely primarily consist of residential and commercial uses. Job centers would be located in other areas of the region, emphasizing mobility in this option to make it easier to move around and commute to employment opportunities.

Commercial Arterial

The commercial arterial alternative is more typical to what the Fargo/Moorhead Area is used to seeing on their main arterial roadways. With this concept, major intersections are controlled with traffic signals, fully stopping the movement of traffic. This alternative can still utilize alternative intersection control types but will predominately be signalized. This alternative can be paired with a signalized interchange type at I-29 such as a signalized diverging diamond.

Additional characteristics of the commercial arterial include a preference to move E-W traffic, high level of access control, and bike and pedestrian facilities that would occur at signalized/controlled intersections. The development is anticipated to be drawn in at commercial nodes and face the roadway.

A commercial arterial will most likely primarily consist of commercial or retail opportunities, much like 13th Avenue South. This option will emphasize interaction with the street and adjacent development.

PREFERRED ACCESS PLAN (PAP)

After establishing a broad definition of the two alternatives, a Preferred Access Plan (PAP) was created to act as a guide for future alternative analysis.

The PAP graphically showcases the visioning assumptions set forth in the previous phases of the project including the segments of like context, roadway classification, proposed typical sections, intersection control type, proposed collector street network and development orientation, and pedestrian crossing locations. Figures 5.1 and 5.2 show the PAP for the Regional Arterial and Commercial Arterial alternatives.

Segments of Like Context

Given the length and variability of the corridor, 76th Avenue South was broken up into multiple "Segments of Like Context" with differing transportation needs. The criteria analyzed for selecting the begin and end points for these segments included major existing and proposed north-south roadways, future land uses, future traffic volumes, and natural boundaries (i.e. rivers, diversions, drains, etc.).

Jurisdictional ownership was reviewed but was determined to not be a critical aspect in setting segment limits. Each alternative has the following Segments of Like Context 1a, 1b, 2a, 2b, 3a, 3b, 3c, 4, and 5.

The lettered sub-part of each segment further breaks down the segments of like context by future land use.

Figure 5.1 - Regional Arterial Preferred Access Plan (PAP)

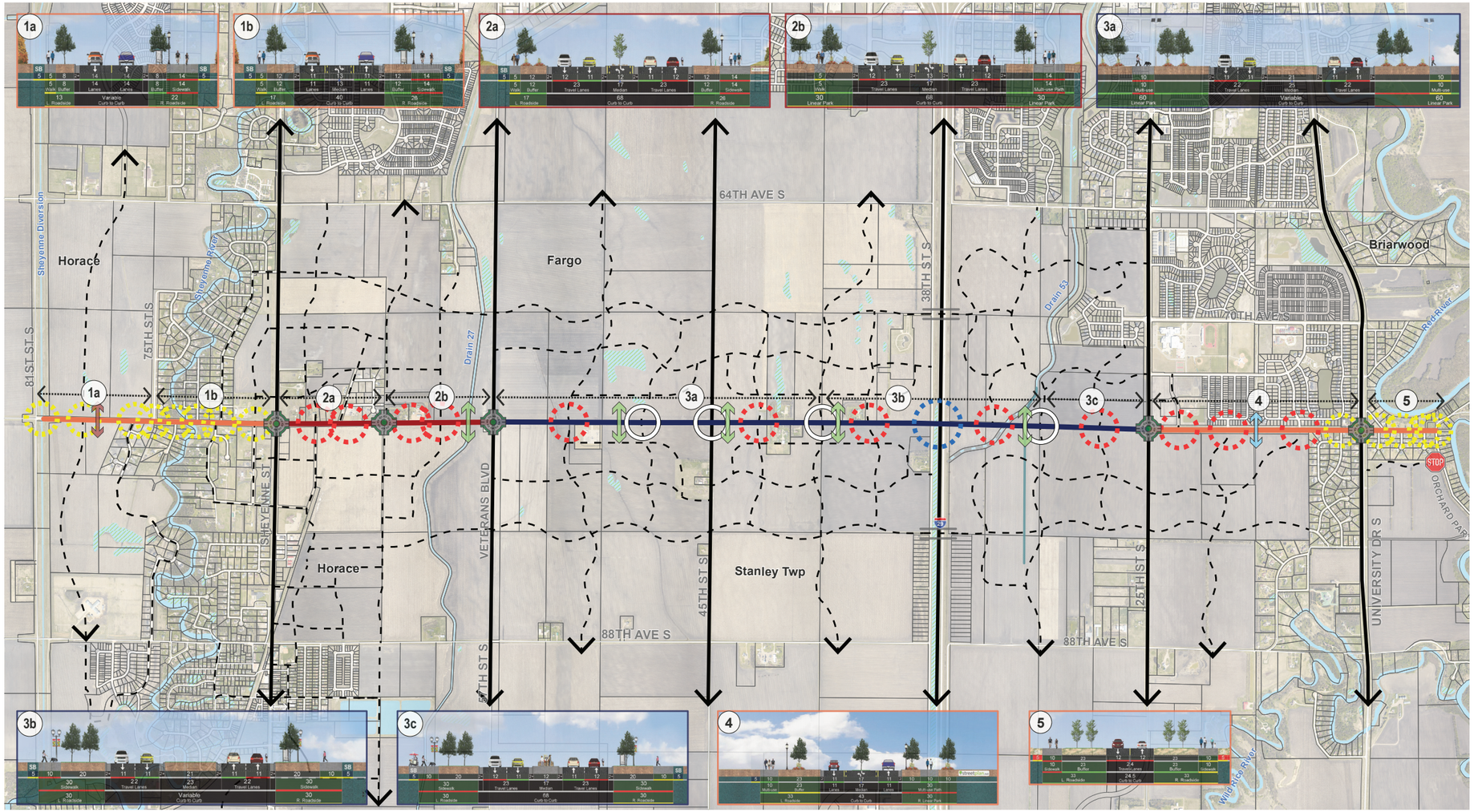
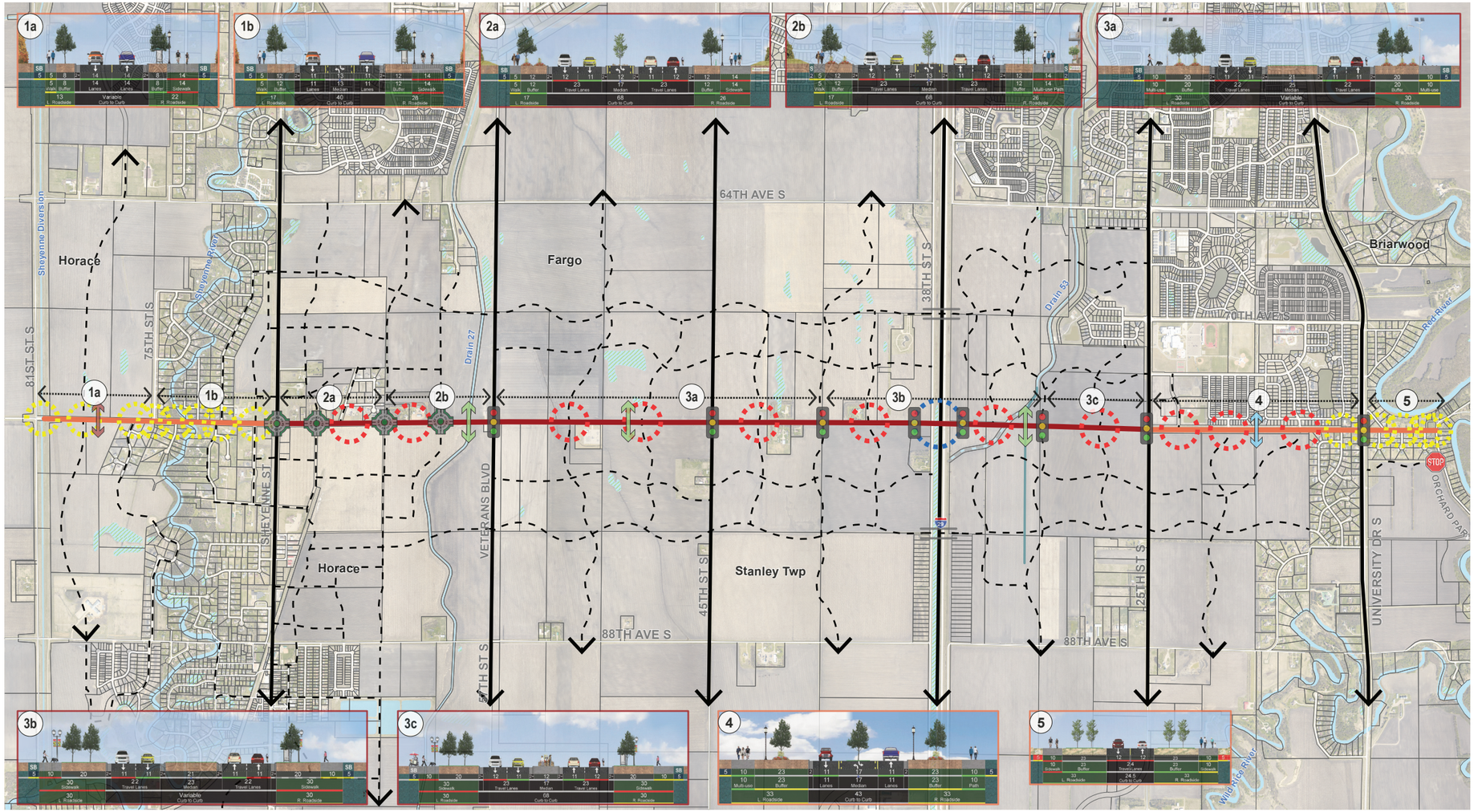


Figure 5.2 - Commercial Arterial Preferred Access Plan (PAP)



Roadway Classification

The functional roadway classifications used for the alternatives include regional arterial, commercial arterial, and a mixed-use arterial. However, only Alternative 1 utilizes the classification of regional arterial.

These roadway classifications coincide with Metro COG's 2018 "Fargo/West Fargo Access and Parking Study" in which a key element of this study was to lay out multiple street typologies. These street typologies provide general guidance on appropriate adjacent land use, speed limits, travel lanes, access spacing, and street elements such as medians, parking, and pedestrian crossings.

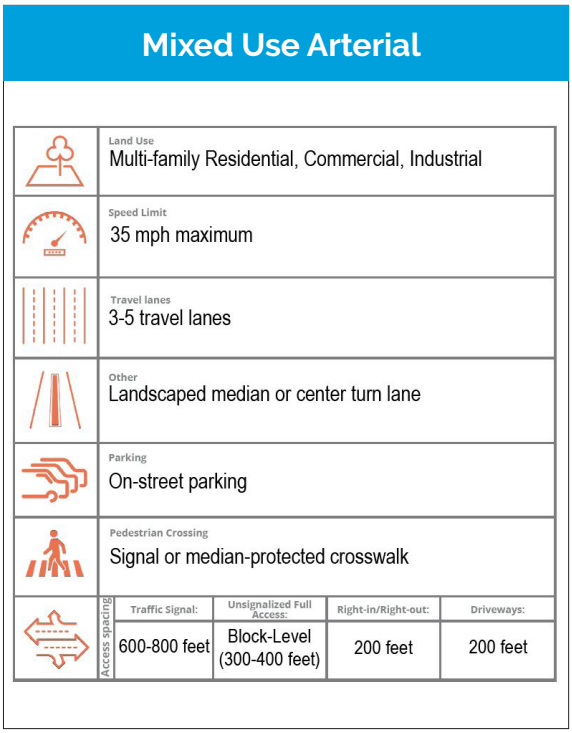
This study also noted that no current regional arterials exist in the Fargo-Moorhead region. 76th Avenue South has long been looked at as the first potential regional arterial.

The desire to further study this concept is what lead the project team to develop Alternative 1.

However, just because Alternative 1 has a regional arterial segment does not mean the speed limit will be higher than Alternative 2. It is anticipated this segment would have speeds around 45 mph, which is aligned with the guidelines put in place by the Fargo/West Fargo Access and Parking Study.

Mixed Use Arterial from the Fargo-West Fargo Parking & Access Requirement Study

"Mixed Use Arterial streets are business corridors where people live, shop, dine, and work. Mixed Use Arterial streets provide cross-town links to employment and commercial centers. These types of streets carry a higher volume of cars while providing access to a walkable street network. On-street parking should be allowed on these types of streets to encourage economic activity, as well as calm traffic and create a pedestrian buffer."

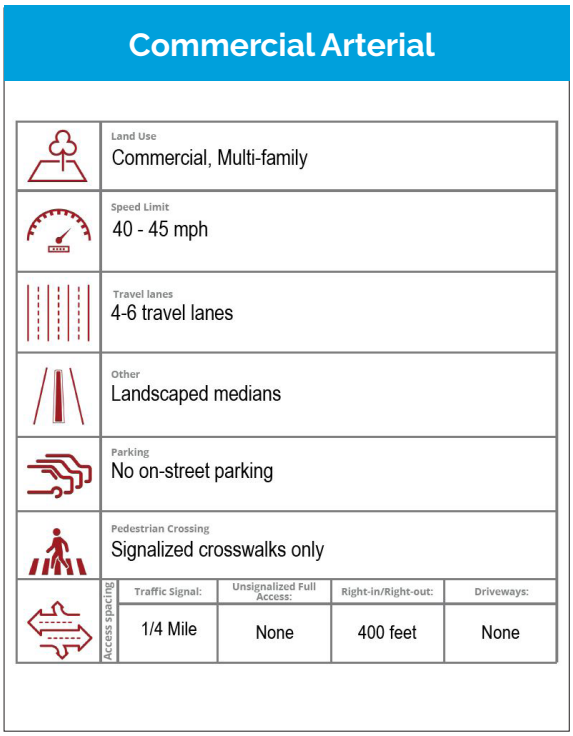


Fargo-West Fargo Parking & Access Requirement Study

Commercial Arterial from the Fargo-West Fargo Parking & Access Requirement Study

"Commercial Arterial streets act as gateways, connecting people from Fargo, West Fargo, and the wider region to the area's major destinations. Because these streets link everyone to important points of interest, it is critical that pedestrians have safe crossing opportunities.

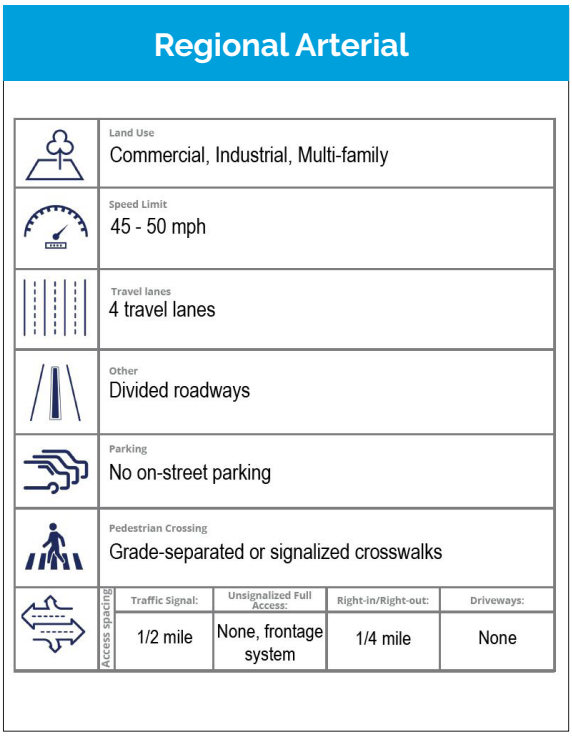
Access is more stringently managed on these types of streets, and on-street parking is generally not appropriate, so that a high volume of cars, trucks, and buses can travel efficiently."



Fargo-West Fargo Parking & Access Requirement Study

Regional Arterial from the Fargo-West Fargo Parking & Access Requirement Study

"Regional Arterial streets are intended to serve large traffic volumes with highly controlled interruptions and function as a secondary alternative and direct connection to the Interstate system. This type of street does not exist currently in the Fargo/West Fargo area and is intended to be used for future planning purposes."



Fargo-West Fargo Parking & Access Requirement Study

Proposed Typical Sections

The proposed typical sections shown in **Figure 5.3** were created with the understanding that full build traffic volumes are a long way away and no one really knows when they will come to fruition. According to the travel demand model, sections around the I-29 interchange could see vehicle volumes requiring 6-lanes of traffic; however, seeing these volumes are most likely decades away. In addition, the forecasted ADT volumes are on the edge of requiring 6 lanes. Metropolitan Transportation Plan (MTP) policy states that delay and reliability instead of straight volumes will be used to evaluate the need for any 6-lane roadway.

Therefore, the typical sections shown leave room for expansion as needed. The most important element of the typical sections now is to preserve the right of way needed for future full build.

The differences in typical sections between the two alternatives is minimal as both alternatives will need to carry similar vehicle volumes.

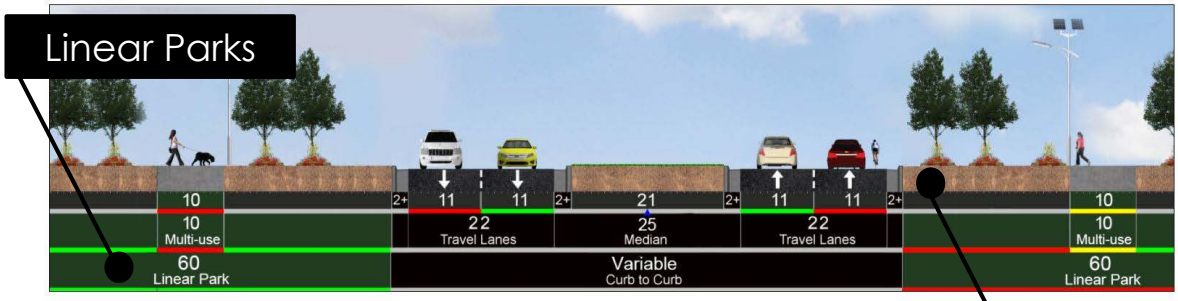
In addition, SRC members wanted to include robust pedestrian infrastructure no matter which alternative was chosen. This can be seen in the adjacent sidewalks and multi-use paths in all typical sections.

The major difference between these typical sections can be seen in segments 2b and 3a with long linear parks in Alternative 1 and no linear parks in Alternative 2. A linear park is a park in an urban setting that is considerably longer than it is wide.

The proposed linear parks in Alternative 1 would create a buffer between 76th Avenue South and future development. In Alternative 1, development will face away from 76th Avenue South and towards the internal roadway network. In contrast, development in Alternative 2 will face towards 76th Avenue South.

Figure 5.3 - Typical Sections

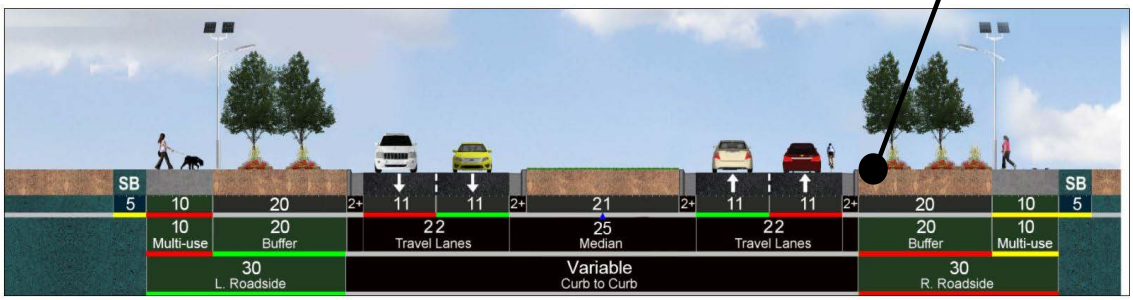
Alternative 1 - Regional Arterial



ROW:
120' – 200'

Ability to Widen to a 6-Lane Roadway

Alternative 2 - Commercial Arterial



ROW:
120' – 150'

Intersection Control Type

The intersection control types used between the two alternatives is a principal distinction between the two concepts. Alternative 1 focuses on using alternative intersection types in lieu of signalized intersections. These alternative intersection types consist predominately of roundabouts and Restricted Crossing U-Turn (RCUT) intersections. These alternative intersection treatments focus on keeping east/west vehicles moving along the corridor with minimal stops. An RCUT restricts left turns at an intersection but allows the same movement downstream via a U-turn.

In contrast, Alternative 2 uses more traditional signals to control vehicle movements at most intersections, coupled with roundabouts where they make sense. Since both alternatives place a high level of importance on access management, right-in/right-out controls are also prevalent along the corridor. Right-in/right-out intersections restrict turning movements through physical barriers such as a traffic island and/or median separation.

Figure 5.4 shows a rendering of 76th Avenue South and CR 17. This roundabout has already been constructed and is the same for both alternatives. Figure 5.5 and Figure 5.6 show the differences in alternatives at the intersection of 76th Avenue South and 45th Street. Figure 5.7 and Figure 5.8 show the differences in alternatives at the intersection of 76th Avenue South and 25th Street.

Intersection Control Types

Alternative 1 - Regional Arterial

Alternative 2 - Commercial Arterial

Side Street Stop Sign

15 15

Right in/Right out

11 10

Signalized Intersections*

0 6

Roundabouts

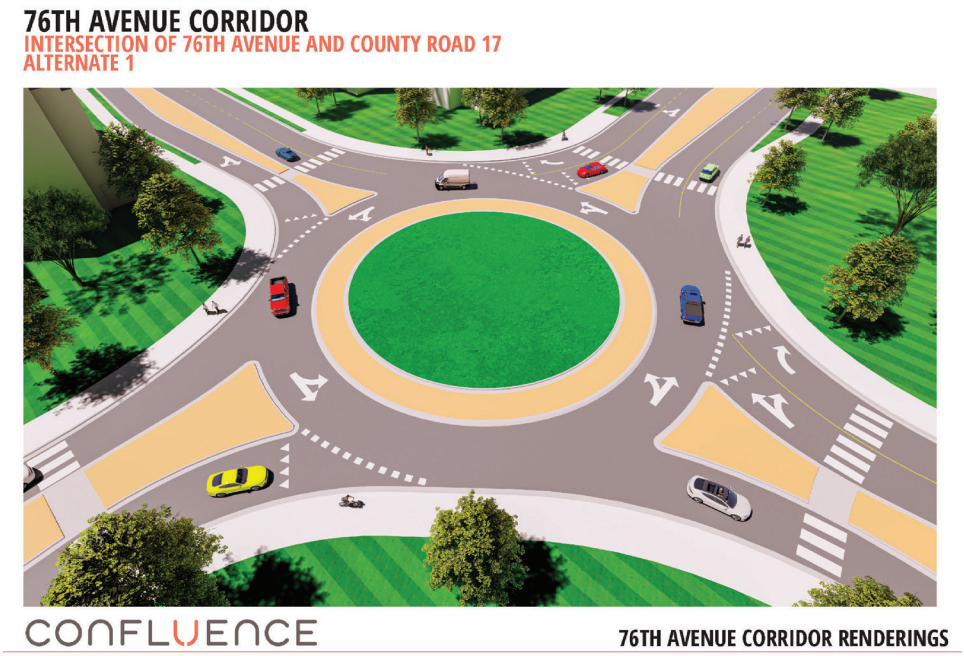
5 4

R-Cuts

4 0

**The 45th Street R-Cut will need a signal with full build traffic volumes and a DDI interchange at I-29 will require signalization.*

Figure 5.4 - Intersection of 76th Avenue and County Road 17 - Alternate 1 and 2



Note: This facility is existing and was constructed in 2019

Figure 5.5 - Intersection of 76th Avenue and 45th Street - Alternate 1

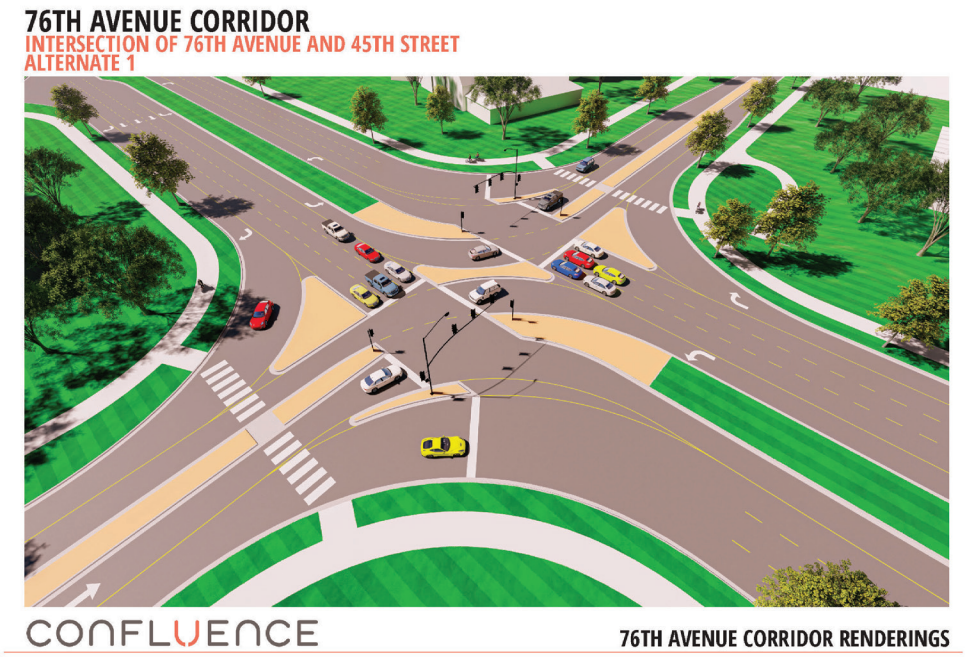


Figure 5.6 - Intersection of 76th Avenue and 45th Street - Alternate 2

Figure 5.7 - Intersection of 76th Avenue and 25th Street - Alternate 1

Figure 5.8 - Intersection of 76th Avenue and 25th Street - Alternate 2

Proposed Collector Street Network and Development Orientation

As mentioned previously, access management will be important along this corridor no matter which alternative is chosen. Access management is the practice of limiting driveway or street intersections on a road to avoid crashes and congestion. In order to manage minimal access points and facilitate development, a strong collector street network will be needed adjacent to 76th Avenue South to help provide better circulation and access to local development. As shown in the PAP, collector streets are recommended approximately every ¼ mile. This collector

Figure 5.9 - Alternative 1 Development

street network will help circulate traffic within residential and commercial areas, funneling longer distance travelers to 76th Avenue South.

A difference between the collector networks for each alternative is how robust the internal network will need to be in order to facilitate the development type. Alternative 1 will most likely need a bigger collector network. Figure 5.9 and Figure 5.10 show development concepts for Alternative 1 and Alternative 2 for approximately ¼ mile east of 45th Street South and ¼ mile north of 76th Avenue South.

These graphics portray the supporting street network, but do not show which way the buildings will orient.

Figure 5.10 - Alternative 2 Development

In Alternative 1, development will face away from 76th Avenue South and in Alternative 2 development will face towards 76th Avenue South.

Pedestrian Crossing Locations

Multi-model transportation ties into the philosophy of implementing complete streets. Metro COG, the City of Fargo, the City of Horace, and Cass County all have some form of guidelines, goals, or policies related to creating complete streets or multi-modal transportation infrastructure. Multi-modal transportation planning considers diverse transportation options such as walking, cycling, cars, public transit, etc.

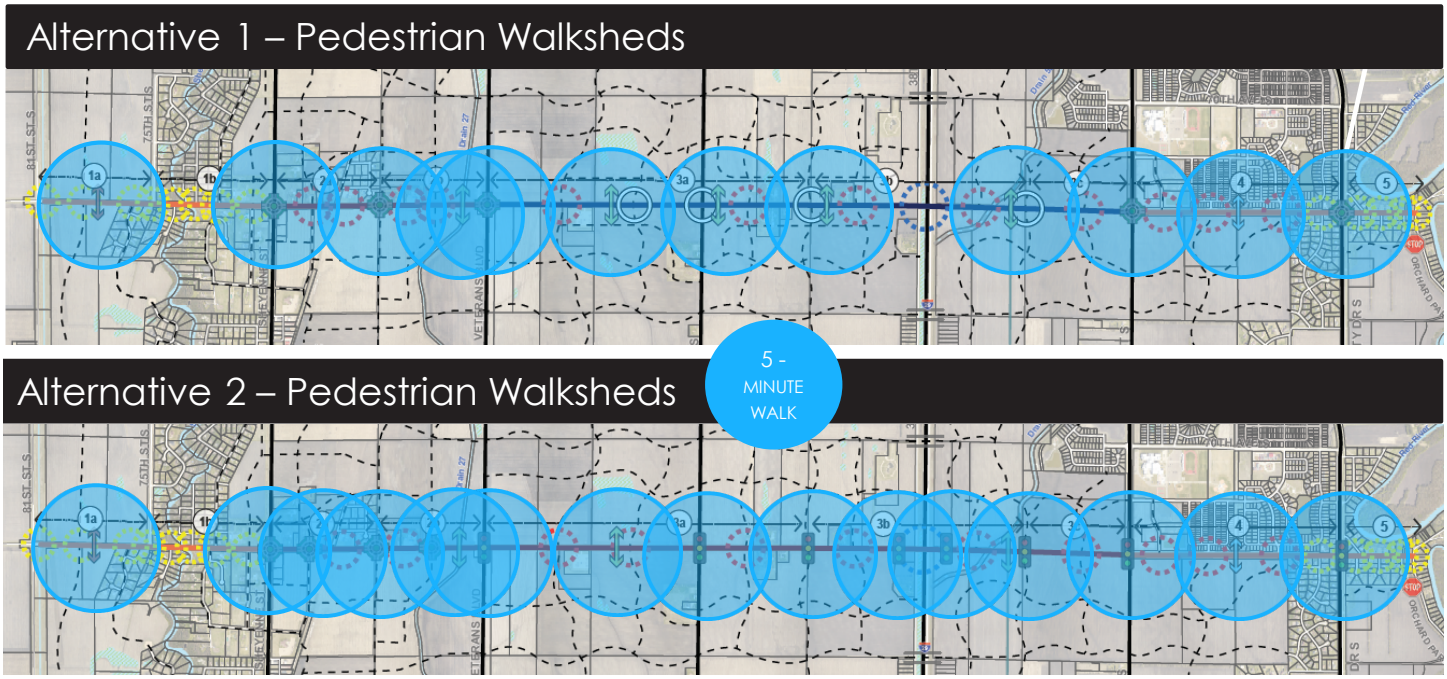
Alternative 1 and Alternative 2 differ in the number of opportunities for pedestrians to cross, how pedestrians cross, and where pedestrians can cross 76th Avenue South. Alternative 1 by definition prioritizes more of a free flow type vehicle movement, eliminating signals, and thus eliminating protected spaces for pedestrians to cross.

To facilitate north/south pedestrian movement across 76th Avenue South, more underpasses will need to be constructed. Due to the existence of signals, Alternative 2 provides a 25% increase in places for pedestrians to cross by utilizing at grade signals in conjunction with underpasses. See **Figure 5.11** for Alternative 1 & 2 Pedestrian Walksheds

Although these alternatives handle particular pedestrian crossings differently (underpasses vs signalized intersections) they possess many similarities including a Rectangular Rapid Flash Beacon (RRFB) within the City of Horace, a High-Intensity Activated crosswalk beacon (HAWK) within the City of Fargo, and underpasses at Drain 27, Drain 53, and 48th Street South.

When planning for crossings, it can be assumed that a pedestrian will not walk more than 2.5 minutes (eighth of a mile) out of their way to cross the road. The Preferred Access Plan for each alternative shows where each crossing type is proposed. The PAP are shown in **Figure 5.1** and **Figure 5.2**.

Figure 5.11 - Alternative 1 & 2 Pedestrian Walksheds



CONCEPT LAYOUTS

High level concept layouts (using CAD design software) were drawn for each of the alternatives described above. These concept layouts do not represent an engineering-design level, ROW acquisitions, environmental considerations, or phasing. They are intended to be used as a starting point for future design discussions.

The full concept layout for each alternative is in **Appendix E.**

Note that we were showing two theoretically different concepts, but final design may dictate a hybrid of these two.

Figure 5.12 - Conceptual Design Layout: Alternative 1

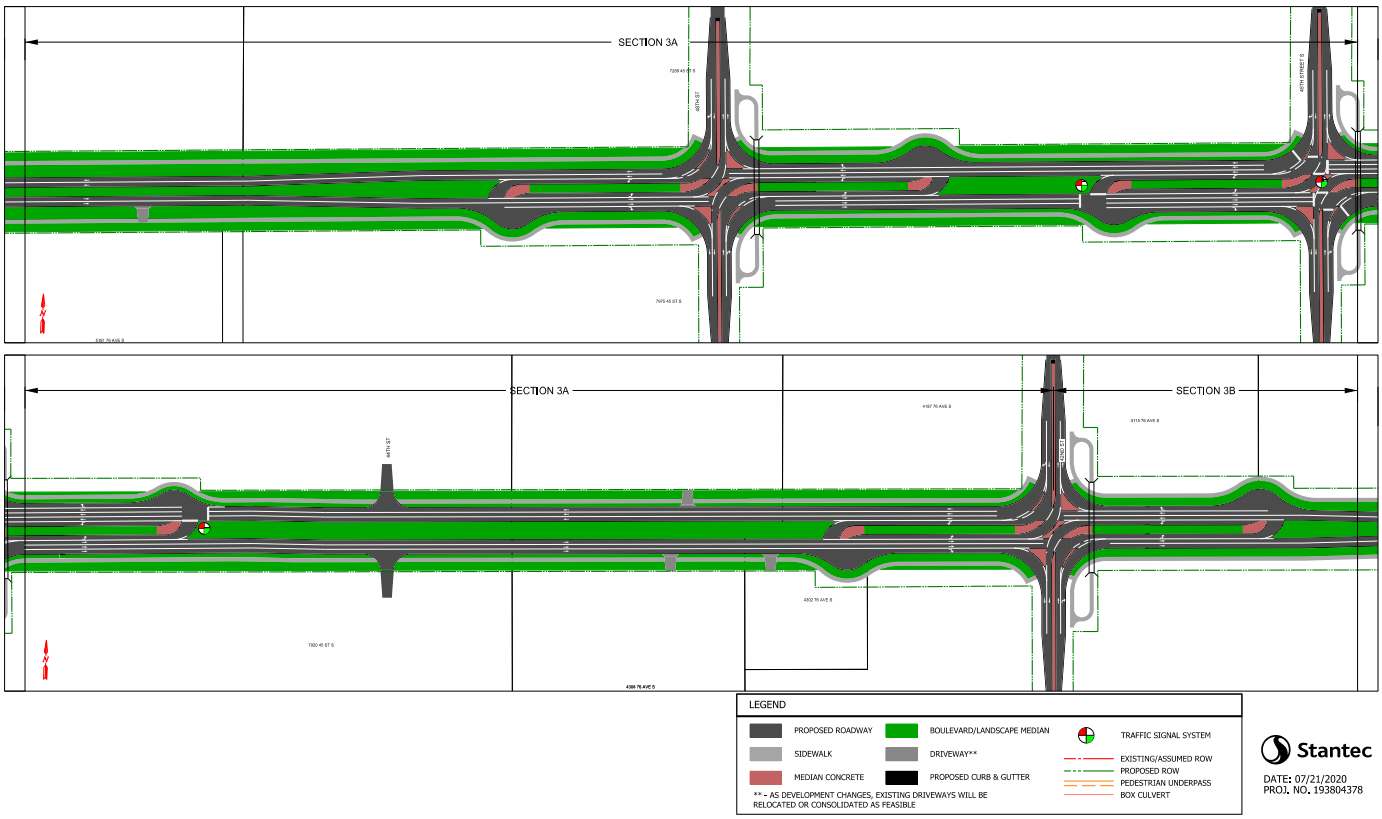
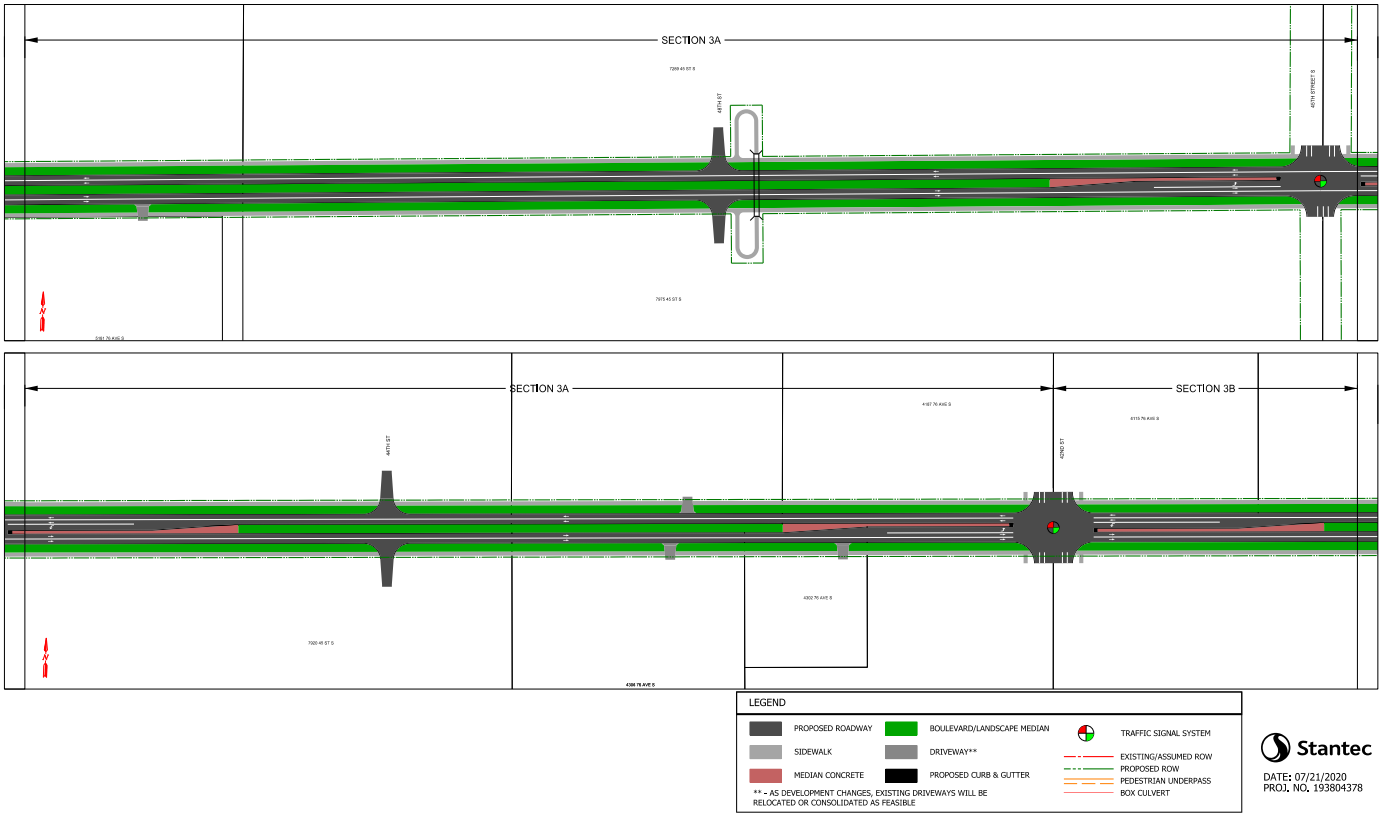


Figure 5.13 - Conceptual Design Layout: Alternative 2



ALTERNATIVE ANALYSIS

The Preferred Access Plan (PAP) discussed above in Chapter 5 is the starting point for being able to drill down into additional details highlighting the differences between Alternative 1, the regional arterial concept, and Alternative 2, the commercial arterial concept.

These details include adjacent development orientation, travel time, right of way impacts, and estimated construction costs.

Travel Time

The central difference between the two alternatives is free flow vehicular movement using alternative intersection types vs stopping vehicular traffic at more traditional signalized intersections.

The following question was asked; **how many minutes longer would it take to travel east/west along 76th Avenue South between the two alternatives?**

The methodology used to calculate travel time is highlighted in Figure 5.14 and the spreadsheet used to calculate it is included in **Appendix H** - Travel Time Calculations.

Due to the preliminary nature of this study, a detailed analysis was not possible. However, after making high-level assumptions such as the base travel time for the corridor and vehicular delay at specific intersection types, a travel time comparison was calculated.

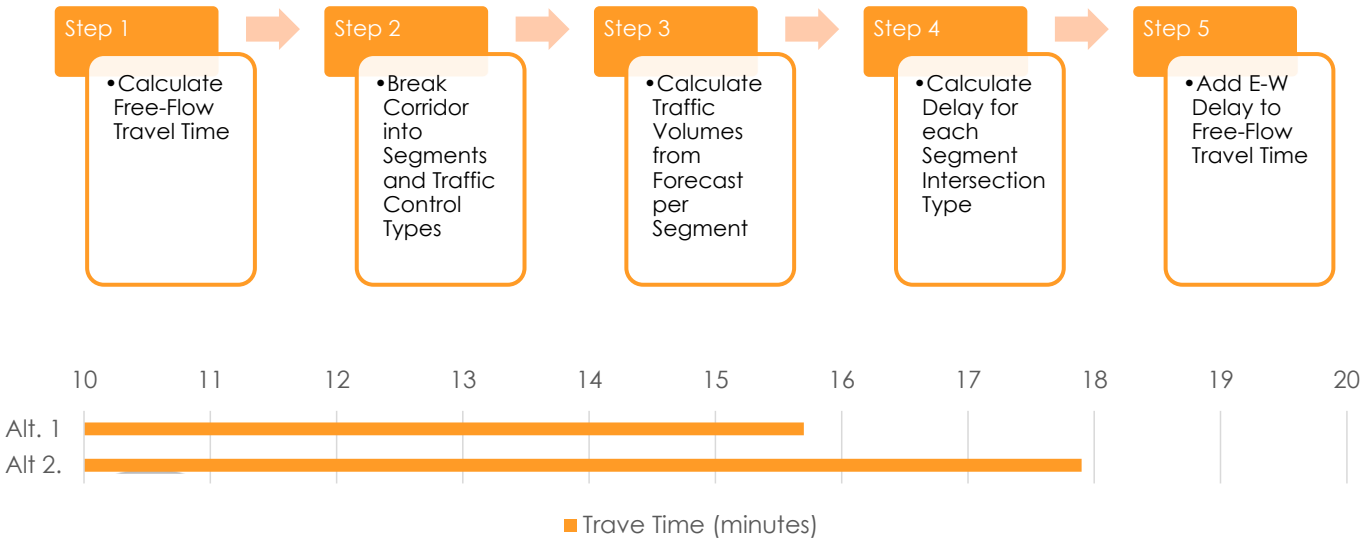
This analysis showed the time it would take from 81st Street South (western project limit) to the Red River (eastern project limit) was approximately 15.7 minutes for Alternative 1 and 17.9 minutes for Alternative 2 or a difference of 2.2 minutes.

Estimated Construction Costs

Another important distinction between alternatives is how much they will cost to construct. The typical sections are similar between both alternatives with the main difference being the linear parks in Alternative 1. The linear parks will also require more right of way, adding to the overall project costs.

However, for this cost comparison we did not include the costs of right of way acquisition. Details on right of way impacts by acres of land are discussed next in this Section.

Figure 5.14 - Travel Time Methodology



Construction cost estimates were created using planning level cost estimates from multiple Department of Transportation sources, engineering judgment, and locally constructed projects.

Both cost estimates assume a Diverging Diamond Interchange at I-29. The actual interchange type selected will based on additional studies and analysis. Calculating costs with the same interchange type allows for a more direct cost comparison.

- **Alternative 1 (Regional Arterial) Estimated Cost = $68,000,000**
- **Alternative 2 (Commercial Arterial) Estimate Cost = $66,000,000**

The difference between alternatives is approximately $2,000,000 and can be predominately attributed to the increased need for pedestrian underpass tunnels.

See **Appendix G** for estimated concept level costs.

Right of Way Impacts

Right of way preservation is an essential part of planning and visioning for the future of 76th Avenue South. Setting clear guidance and expectations as development occurs will be imperative to ensuring 76th Avenue South is a successful east/west thoroughfare with limited congestion issues and robust multi-model facilities.

The addition of linear parks and the desire to have wider building setbacks leads Alternative 1 to have greater right of way impacts than Alternative 2.

The right of way impacts for both alternatives are shown below in acres.

Alternative 1 has approximately 26 more acres of right of way impacts. In addition, Table 5.1 shows the recommended right of way widths for each segment.

These widths are based on the proposed typical sections, in addition to recommendations from jurisdictional representatives on the SRC.

- **Alternative 1 (Regional Arterial) Estimated Right of Way Impacts = 60 acres**

- **Alternative 2 (Commercial Arterial) Estimated Right of Way Impacts = 34 acres**

Table 5.1 - Recommended Right of Way (ROW) Widths

Alternative 1		Alternative 2	
Segment	Proposed ROW Width (Feet)	Segment	Proposed ROW Width (Feet)
1A	120	1A	120
1B	120	1B	120
2A	160	2A	160
2B	130	2B	120
3A	200	3A	140
3B	200	3B	140
3C	200	3C	140
4	200	4	200
5	150	5	150

Figure 5.15 shows how the two alternatives are the same and how the two are different. Key similarities include roadway laneage, collector street connectivity, strong access management, and a phasing plan based on triggers.

Key differences include intersection treatments, development orientation, and right of way needs.

Figure 5.15 - Alternative Comparison

What is the same?

- **Roadway Laneage** (number of lanes)
- Ability to widen once traffic volumes reach full build
- **Connectivity**
- Pedestrian linkages across Drain 27 and Drain 53
- **Strong Access Management** (limited driveway cuts)
- Pedestrian crossings at the western and eastern project limits
- Can accommodate future transit
- **Phasing Plan based on "triggers"**

What is different?

- **Intersection treatments**
- Roadway operating capacity
- Roadway network classification
- Side Street delay
- **Development Orientation**
- Building setback standards
- Linear Parks (pedestrian walkway)
- Travel Time
- Cost
- **Right of Way Needs**

A pros versus cons list is a simple way to detail both sides of a decision, alternative, or argument. Figure 5.16 breaks Alternative 1 into a list of positives for and against a regional arterial while Figure 5.17 breaks Alternative 2 into a list of positives for and against a commercial arterial.

Figure 5.16 - Corridor Alternative 1 (Regional Arterial) - Pros Vs. Cons List

PROS

- **Limited vehicular travel delay** for east/west movement
- Fewer at grade pedestrian crossings will cause minimal travel delay
- Proposed alternative intersection types can have **added vehicular safety benefits** compared to a signalized intersection

CONS

- **Intersection travel delay for side streets**
- Higher construction costs (pedestrian tunnels, U-turns, etc.)
- **Fewer pedestrian crossings**
- Requires additional ROW dedication

Figure 5.17 - Corridor Alternative 2 (Commercial Arterial) - Pros Vs. Cons List

PROS

- Non-motorized traffic has **more opportunities to cross the road** (at signals)
- Requires less ROW dedication
- Allows for a **progressions-controlled signal system**
- Lower construction costs

CONS

- Signalized intersections have more conflict points than alternative intersection types

I-29 INTERCHANGE OPTIONS

Multiple project discussions and engagement activities showed a clear preference for an I-29 interchange at 76th Avenue South. Alternative 1, the regional arterial concept, showcases the desire by the SRC to think unconventionally, outside of what has been traditionally constructed in the Fargo-Moorhead area.

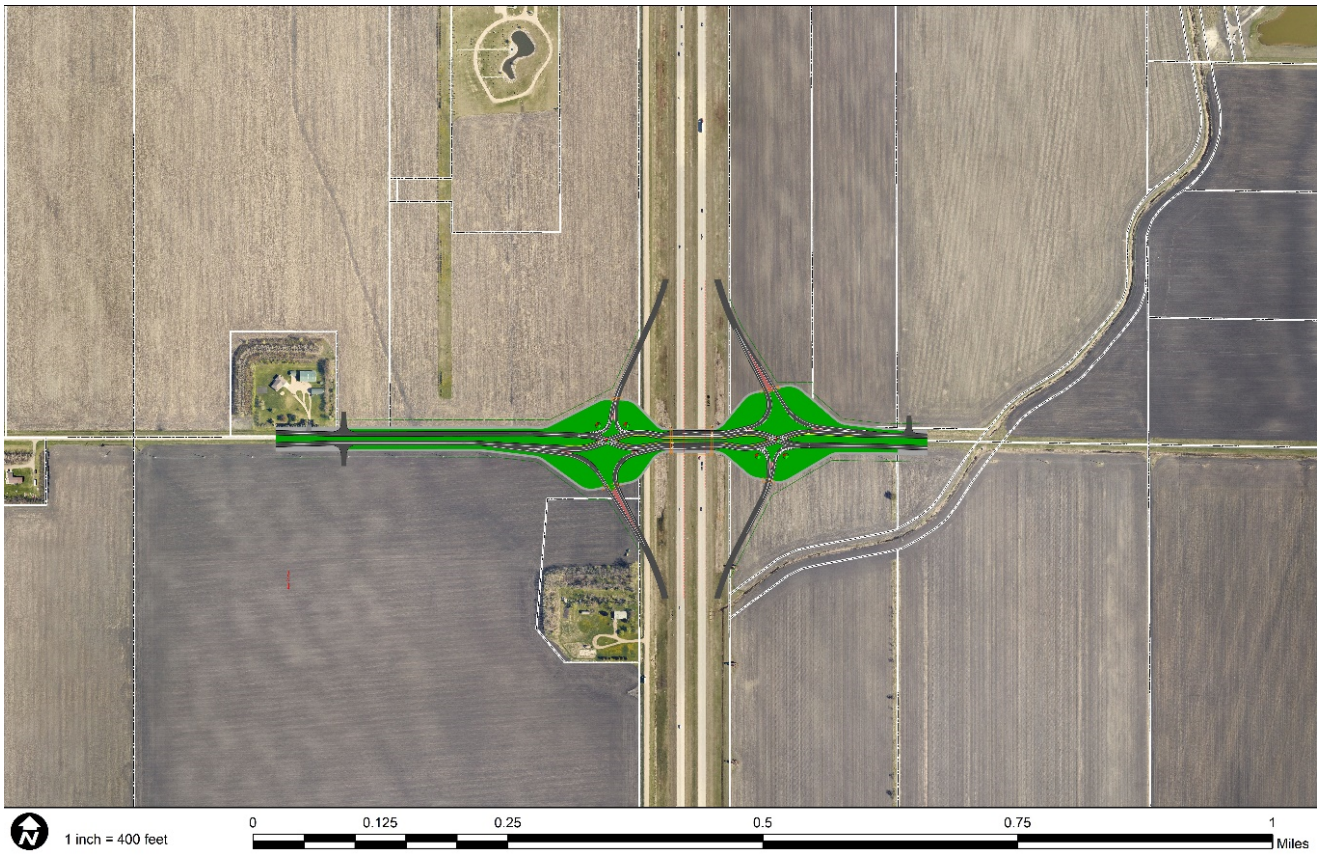
To stay in line with a free flow type corridor, the following I-29 interchange concepts were explored at a level consistent with this planning study. Other interchange types, such as a traditional diamond interchange with Eastbound to Northbound on-ramp loops, should not be precluded for further study.

Once an interchange at 76th Avenue south is closer to being imminent, Metro COG will work with the NDDOT to complete a detailed interchange study. For this study, the interchange options reviewed for Alternative 1 included a Diverging Diamond Interchange (DDI), Cloverleaf with Collector-Distributor, and Alternative Free flow.

Figures 5.18, 5.20, and **5.22** show examples of these interchange types superimposed on the study corridor. This exercise gives us an idea of potential right of way and property impacts. As the interchange type moves up the priority of free flow movement, the bigger the footprint it needs and the more expensive it becomes.

For example, the DDI allows free-flowing turns when entering and exiting an interstate but does still require signalization for other movements. This option takes up the least amount of space and costs the least. Contrastingly, the alternative free flow interchange is built to require no traffic signals but takes up a large footprint and is the most expensive to build.

Figure 5.18 - I-29 Interchange Type: DDI



Cost:
$10 - $18 mill

ROW Impacts:
20 - 25 acres

Figure 5.19 shows the pros vs cons of a DDI at 76th Avenue South and I-29. Pros include the use of two-phase signals with short cycle lengths and a smaller footprint compared to other interchange types. Cons include less driver familiarity with this type of intersection and pedestrian crossing challenges.

Figure 5.19 - DDI - Pros Vs. Cons List

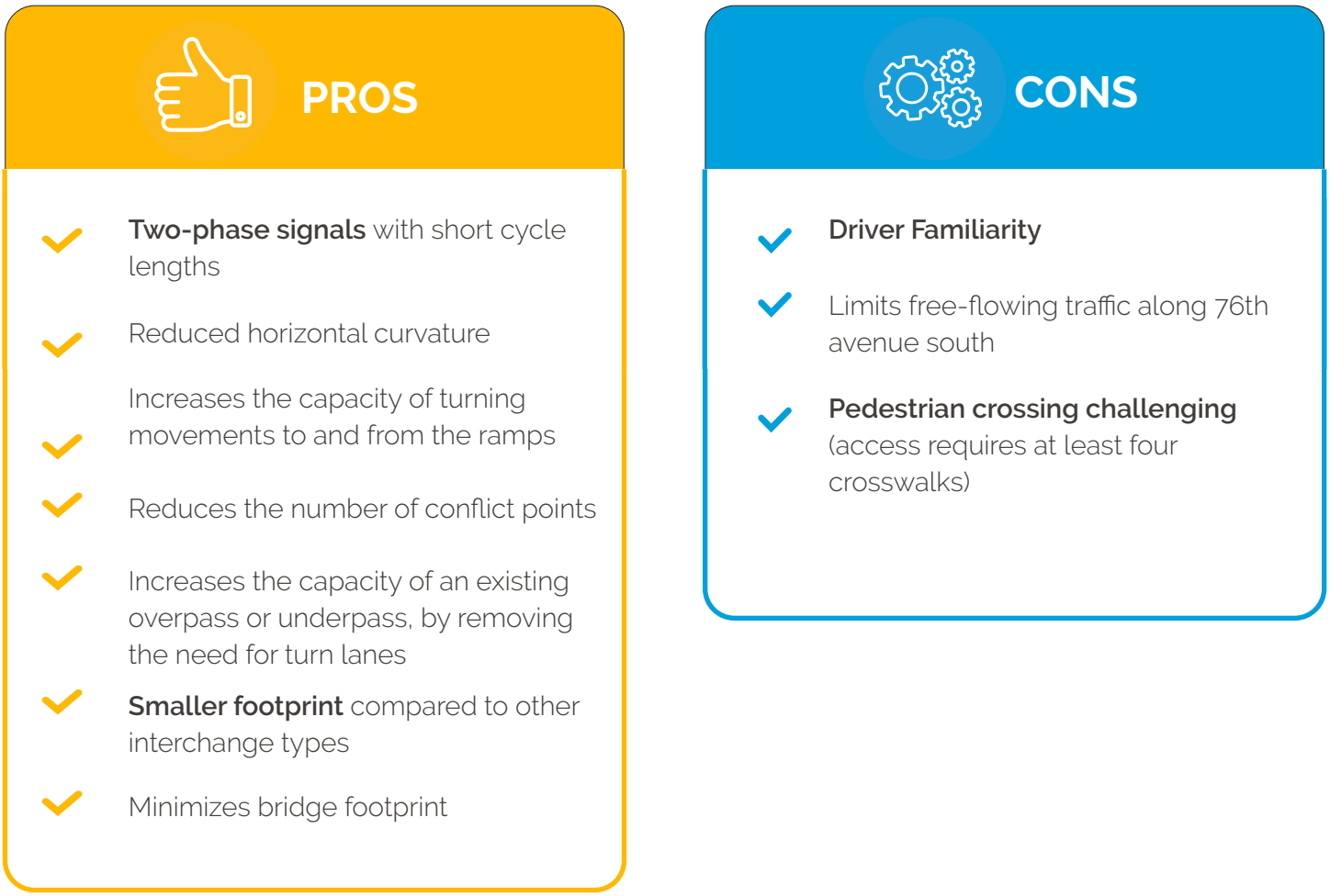
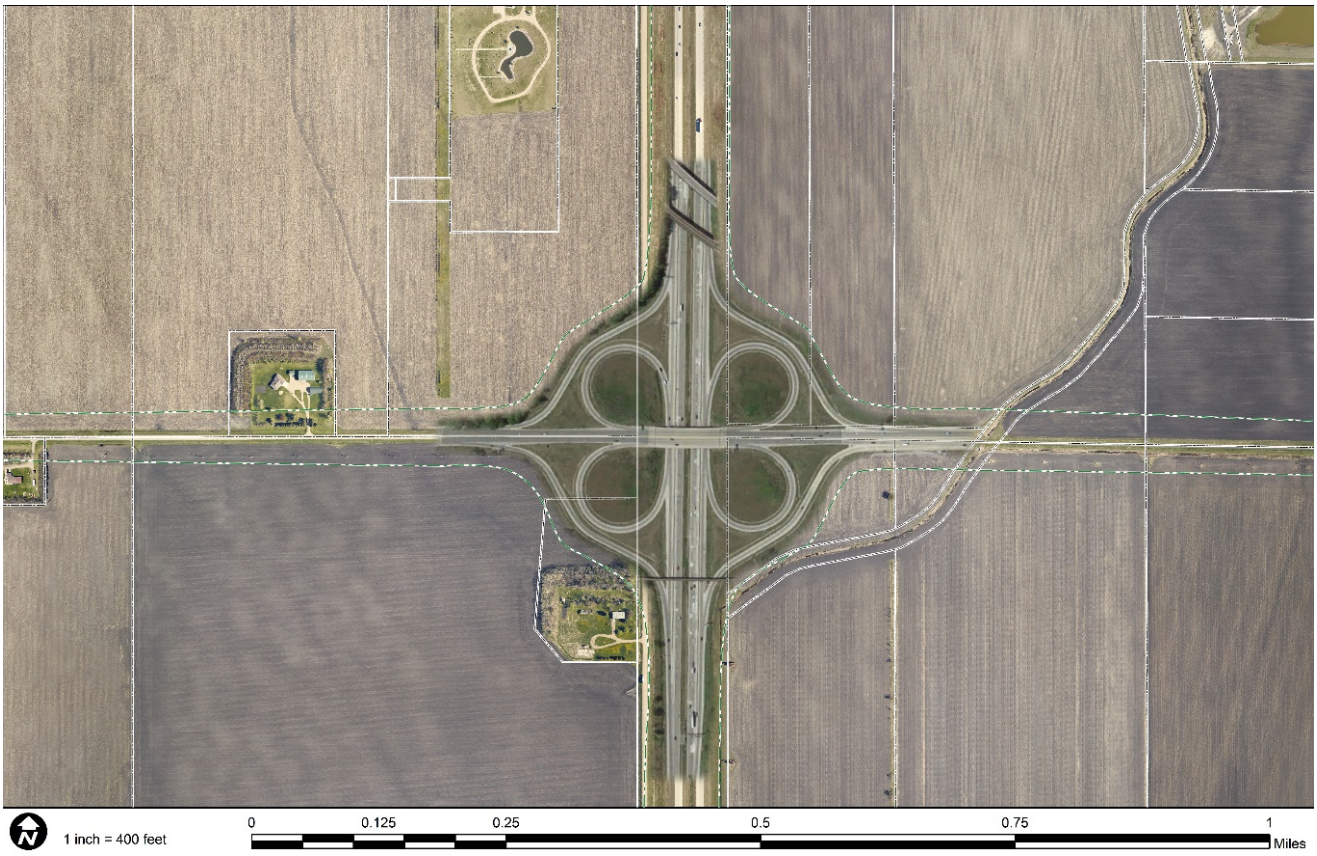


Figure 5.20 - I-29 Interchange Type: Coverleaf with Collector-Distributor



Cost:
$25 - $28 mill

ROW Impacts:
40 - 50 acres

Figure 5.21 shows the pros vs cons of a cloverleaf interchange with supporting C-D roadway system at 76th Avenue South and I-29. Pros include continuous flow and that the CD system helps minimize weave issues. Cons include the issue of multiple weaving patterns which create safety concerns and conflict points.

Figure 5.21 - Cloverleaf with Collector Distributor - Pros Vs. Cons List

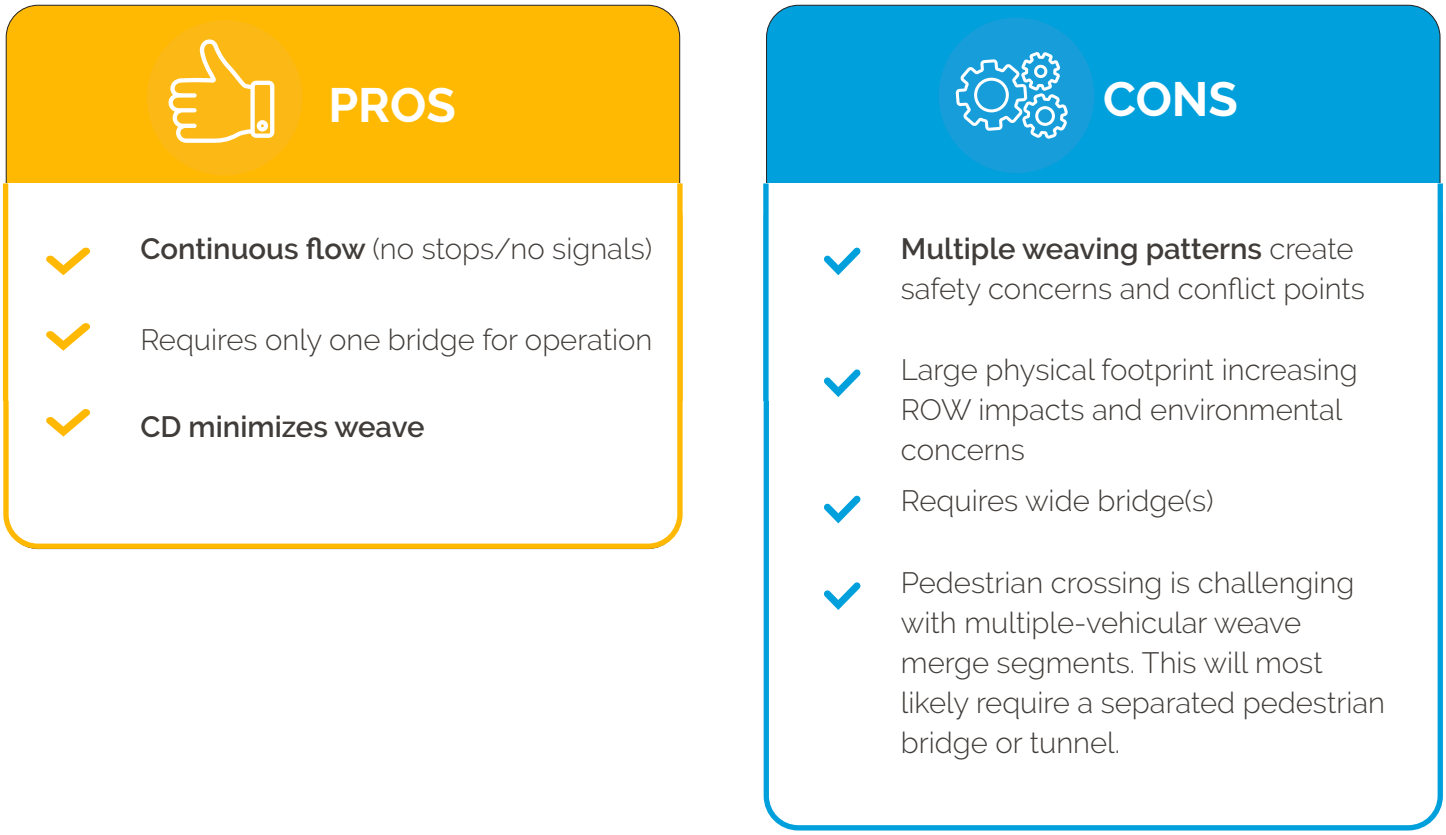
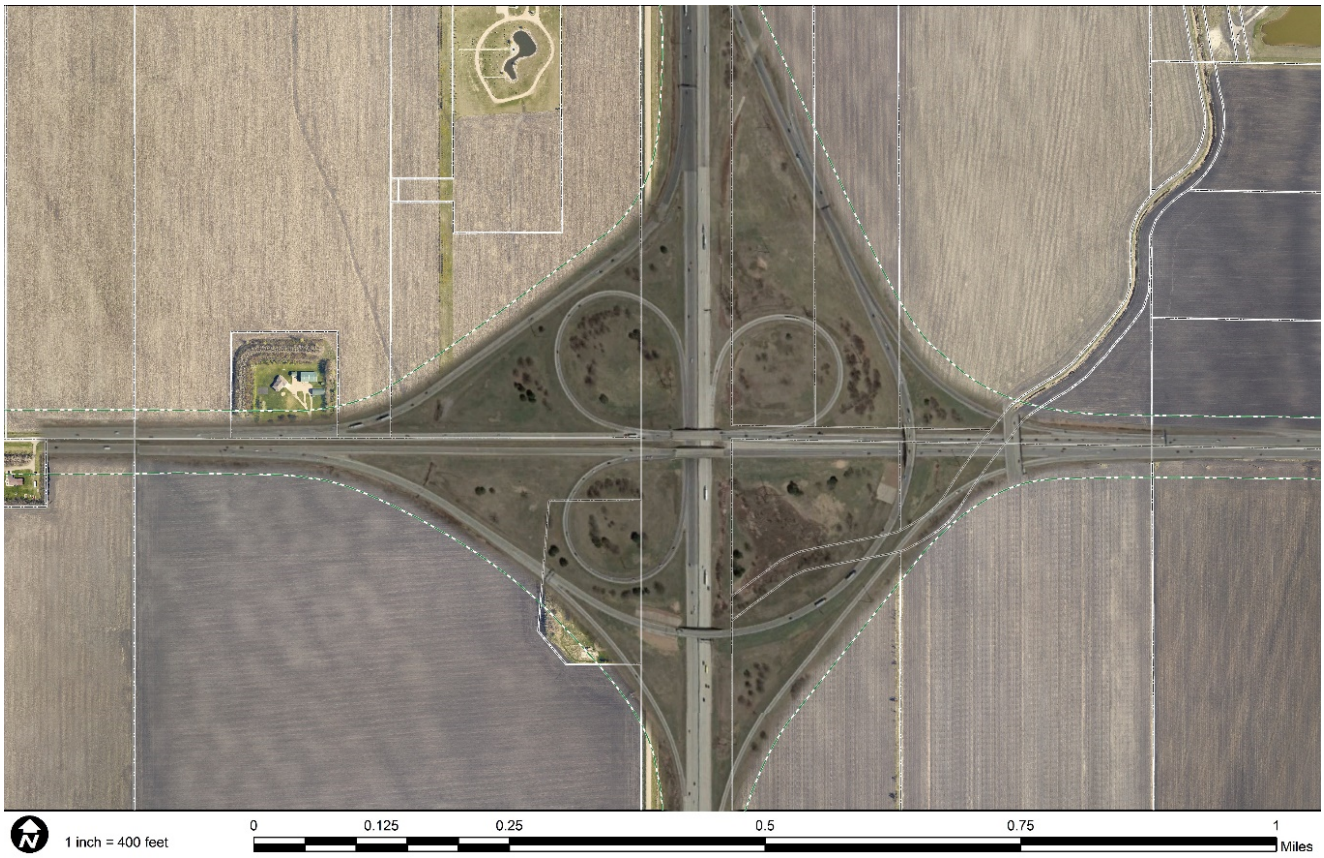


Figure 5.22 - I-29 Interchange Type: Alternative Free-Flow

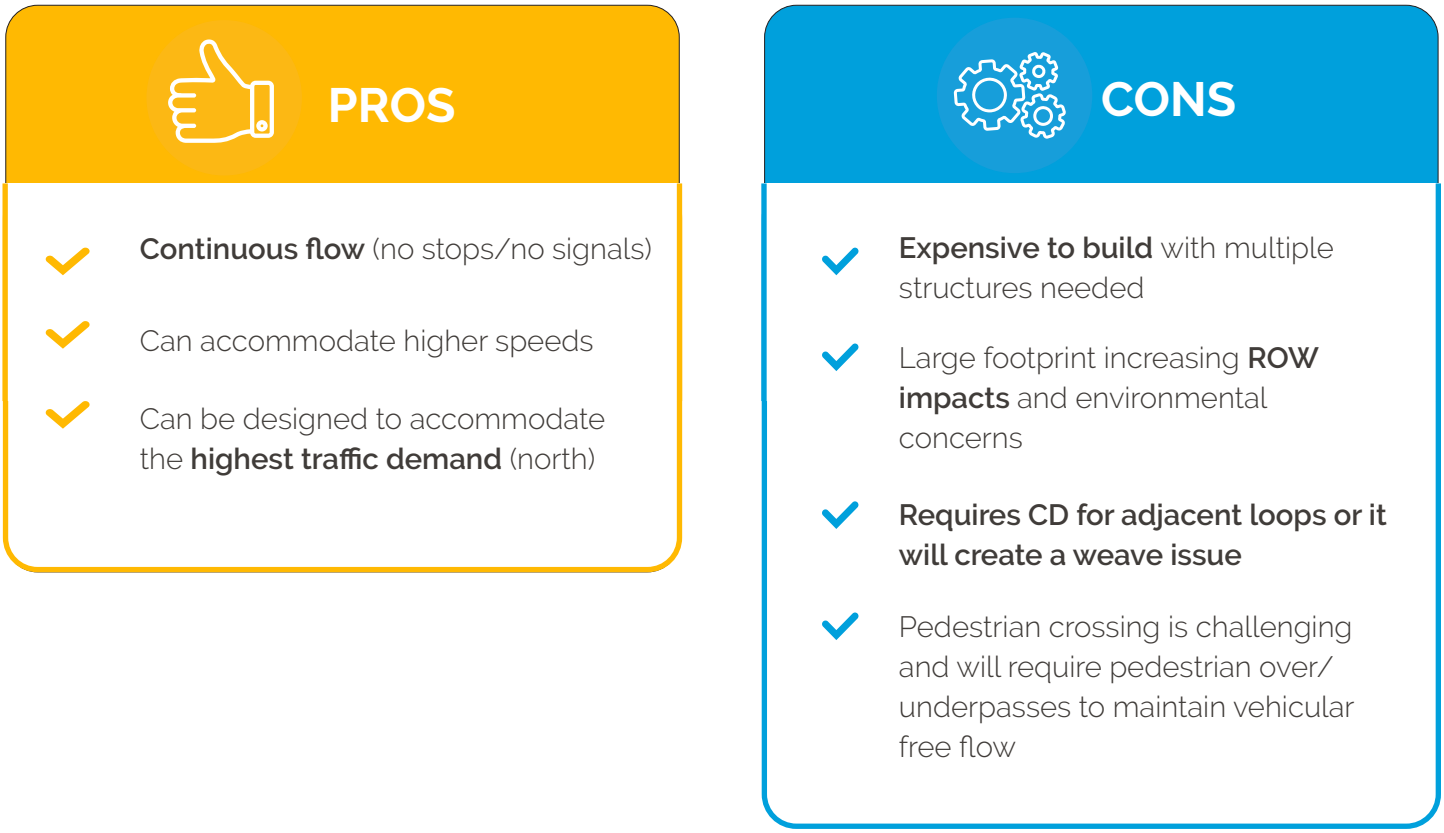


Cost:
$35 - $40 mill

ROW Impacts:
65 - 80 acres

Figure 5.23 shows the pros vs cons of an alternative free flow interchange at 76th Avenue South and I-29. Pros include continuous flow and the a design which can handle the highest traffic demand. Cons include that they are expensive to build and have the largest footprint.

Figure 5.23 - Alternative Free Flow - Pros Vs. Cons List



PHASING AND IMPLEMENTATION

06.

PHASING AND IMPLEMENTATION

Development in the southwest area of the Fargo-Moorhead region continues to rapidly change. Prior to this study, local jurisdictional leaders were meeting regularly to manage development and stay ahead of roadway congestion. The need for a clear vision and phasing plan for the 76th Avenue South corridor was a key takeaway from these early meetings.

A detailed phasing plan for Alternative 1 (regional arterial) and Alternative 2 (commercial arterial) was made for 76th Avenue South as shown in **Figure 6.1 through 6.6.** The general principle behind these graphics is to show what will trigger the next roadway improvement phase along various segments of the corridor.

Since no one knows exactly how, when, or where development will occur, these triggers are based on traffic volumes and the completion of an I-29 interchange instead of specific years.

Phasing

The intention of creating a phasing plan is to set general guidance related to when roadway improvements should be implemented. The phases should be used as general direction because many factors will ultimately decide when a roadway needs to be improved. Some of these factors include new development, crash history, network connectivity, congestion, and funding availability.

Due to the ongoing evolution of community development along the 76th Avenue corridor, it is anticipated that additional studies will be completed in the years to come, prior to full build-out.

The following notes coincide with the phasing plan laid out in Figures 6.1 through 6.6.

Notes

- The word "standard" in the phasing plan description denotes that the road section is assumed to meet the local agency's roadway standards and includes turn lanes as warranted.
- Multiple roadway segments can be in different phases at the same time.
- Future studies will be required including environmental assessments, preliminary and detailed engineering, and traffic analysis as development progresses.
- All pedestrian grade separated crossings should be built in Phase 3 with multi-lane divided roadway construction.
- Construction disturbance can be mitigated with a-typical (or asymmetrical) widening. For example, Segment 2b is constructed as a 2-lane standard in Phase 1. In Phase 3 it is widened to a 4-lane divided. If during Phase 1 the 2-lanes are constructed on the northern side then during construction, traffic can be maintained on the northern two lanes while building the southern 2-lanes.
- The traffic volumes listed in each phase indicate the point where local leaders should start to evaluate roadway widening options. Multiple factors will ultimately determine if widening is needed.

Proposed Cross Section

The proposed cross section segments correspond with the segments of like context shown in the Preferred Access Plan (PAP) in Figure 5.1 and Figure 5.2.

Future Traffic Numbers

The forecast 2045 average annualized daily traffic (AADT) for the no build scenario show how much traffic would be expected in the year 2045 if no changes were made along the corridor. The full build AADT numbers show how much traffic could be expected if full build along the corridor happened, including an I-29 interchange. AADT numbers are intended to show when local leaders should start considering if a widening project is needed.

These numbers do not take into account a Red River bridge crossing. It was determined that this study should preserve the right of way for a crossing, but not include it in traffic projections as construction of this crossing is anticipated far into the future.

Phase 0 (Existing + Committed)

This phase details the existing conditions of 76th Avenue South plus the projects committed for construction. Committed projects include a Cass County grading and paving project for the years 2021 and 2022 from approximately County Road 17 to 45th Street South which will be the new alignment of County Road 6.

Phase 1 (AADT < 12k, I-29 Grade Separation)

This phase is intended to bring all segments of 76th Avenue South up to at least a 2 or 3-lane standard. Segments 1b and 4 have a full build typical of 3-lanes and would be constructed to a 3-lane standard, requiring no additional widening in subsequent phases. Phase 1 will also consist of a grade separated roadway over I-29. Phase 1 will be triggered by either traffic volumes necessitating more capacity or by planned pavement or roadway improvement projects.

Phase 2 (I-29 Interchange Only)

This phase shows the construction of an interchange at I-29 and 76th Avenue South. A detailed interchange study will need to be completed prior to constructing an interchange. That study will determine if an interchange is warranted and what type of interchange will best serve the corridor. It is likely that development progression will need to occur in order to justify an interchange; however constructing an interchange also leads to accelerated development opportunities. Without an interchange, full build traffic volumes will not be reached.

Phase 3 (AADT > 12k)

As the amount of traffic grows, the roadway will need to be widened to create additional capacity and mitigate congestion. Segments 3a, 3b, and 3c will be constructed as 4-lane divided roadway sections as warranted. Full build traffic volumes show segments 2a and 2b will most likely not see volume levels to warrant a 4-lane, but for adjacent roadway continuity should be explored as a 4-lane.

Phase 4 (AADT > 40k)

This phase shows the full-build phase. Traffic volumes predict that segments 3a and 3b will both need to be expanded to 6-lanes in order to handle the number of vehicles expected under this scenario. This phase is not expected to be needed for at least two decades. and would require an excessive delay, breakdown in operations, and an ADT over 40,000 vehicles to be considered for widening, which is consistent with the current policy in the MTP.

Right of Way

The Phasing plans show the width of right of way in feet that should be preserved for each alternative. The width is measured from the northern right of way line to the southern right of way line. The ultimate ROW required for full build should be reserved, dedicated, or purchased during project development.

Each segment of like context may require different amounts of ROW as shown in the proposed cross sections. This may require development set aside for ROW in specific areas at different times.

Pedestrian Crossings, Access and Intersection Control

Pedestrian crossing locations and intersection control types are taken directly from the PAP shown in **Figure 5.1** and **Figure 5.2**. All pedestrian grade separated crossings should be built in Phase 3 with multi lane divided roadway construction.

Roadway Ownership

76th Avenue South is a multi-jurisdictional roadway with portions owned by Cass County, the City of Horace, Stanley Township, and the City of Fargo. The phasing plans show how roadway ownership is anticipated to change along 76th Avenue South.

Figure 6.1 - Phasing Plan for Alternative 1 - Segments 1 & 2

Legend

- Regional Arterial
- Commercial Arterial
- Mixed Use Arterial
- Roundabout
- R-Cut Intersec
- Side-Street Stop Control
- Limited Access - Right In/Right Out
- Interchange (Free Flow or Partial Free Flow)
- Pedestrian Grade Separated Crossing
- H.A.W.K. Signal Pedestrian Crossing
- R.R.F.B. Signal Pedestrian Crossing

	81st Street S	75th Street S	Sheyenne / 17	63rd Street S	Veterans / 57
Proposed Cross-Section	1a	1b	2a	2b	
Forecast 2045 A.A.D.T. (No Build)			4700	4700	
Full Build A.A.D.T.	4000	4000	6500	6500	
Phase 0 (Existing + Committed)	2-lane Gravel	2-lane Gravel	4-lane Divided	2-lane Paved	2-lane Standard
Phase 1 (A.A.D.T < 12k, Grade Sep. at I-29)	2-lane Standard	3-lane Standard		2-lane Std.	
Phase 2 (I-29 Interchange Only)					
Phase 3 (A.A.D.T. > 12K)				4-lane Divided Standard *	
Phase 4 (A.A.D.T. > 40k)					
Right-of-Way Width (feet)	120’	120’	160’	130’	
Ped Crossings, Access & Intersection Control					
Proposed Active Mode Facilities, North	5 foot Sidewalk				
Proposed Active Mode Facilities, South	14 foot Shared Use Path				
Existing Road Ownership	Cass County		Horace		Stanley
Jurisdictional Transfer	Cass County	Horace			Cass

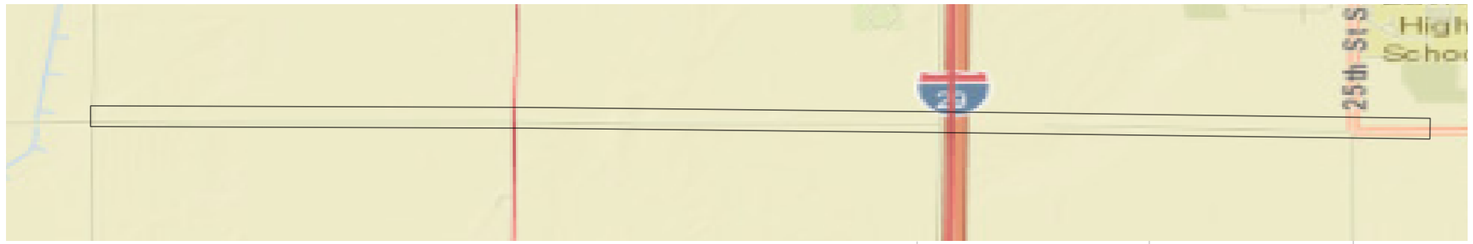
*4-lane Divided is proposed for roadway continuity

Note: All Pedestrian Grade Separated Crossings are built in Phase 3 with mulitlane divided roadway construction.

Figure 6.2 - Phasing Plan for Alternative 1 - Segment 3

Legend

- Regional Arterial
- Commercial Arterial
- Mixed Use Arterial
- Roundabout
- R-Cut Intersec
- Side-Street Stop Control
- Limited Access - Right In/Right Out
- Interchange (Free Flow or Partial Free Flow)
- Pedestrian Grade Separated Crossing
- H.A.W.K. Signal Pedestrian Crossing
- R.R.F.B. Signal Pedestrian Crossing



Proposed Cross-Section	3a		3b	3c
Forecast 2045 A.A.D.T. (No Build)	5100			4800
Full Build A.A.D.T.	26000	48000	18000	10000
Phase 0 (Existing + Committed)	2-lane Standard	2-lane Gravel		
Phase 1 (A.A.D.T < 12k, Grade Sep. at I-29)	2-lane Standard	3-lane Standard w/ Grade Separation		3-lane Standard
Phase 2 (I-29 Interchange Only)		Interchange		
Phase 3 (A.A.D.T. > 12K)	4-lane Divided Standard	4-lane Divided Standard		4-lane Divided Std.
Phase 4 (A.A.D.T. > 40k)	6-lane Divided Standard (if needed)	6-lane Divided Standard (if needed)		
Right-of-Way Width (feet)	200’	200’		200’
Ped Crossings, Access & Intersection Control				
Proposed Active Mode Facilities, North	10 foot Shared Use Path			
Proposed Active Mode Facilities, South	10 foot Shared Use Path			
Existing Road Ownership	Stanley Township			Fargo
Jurisdictional Transfer	Cass County	Fargo		Fargo

**Note: All Pedestrian Grade Separated Crossings are built in Phase 3 with mulitlane divided roadway construction.*

Figure 6.3 - Phasing Plan for Alternative 1 - Segments 4 & 5

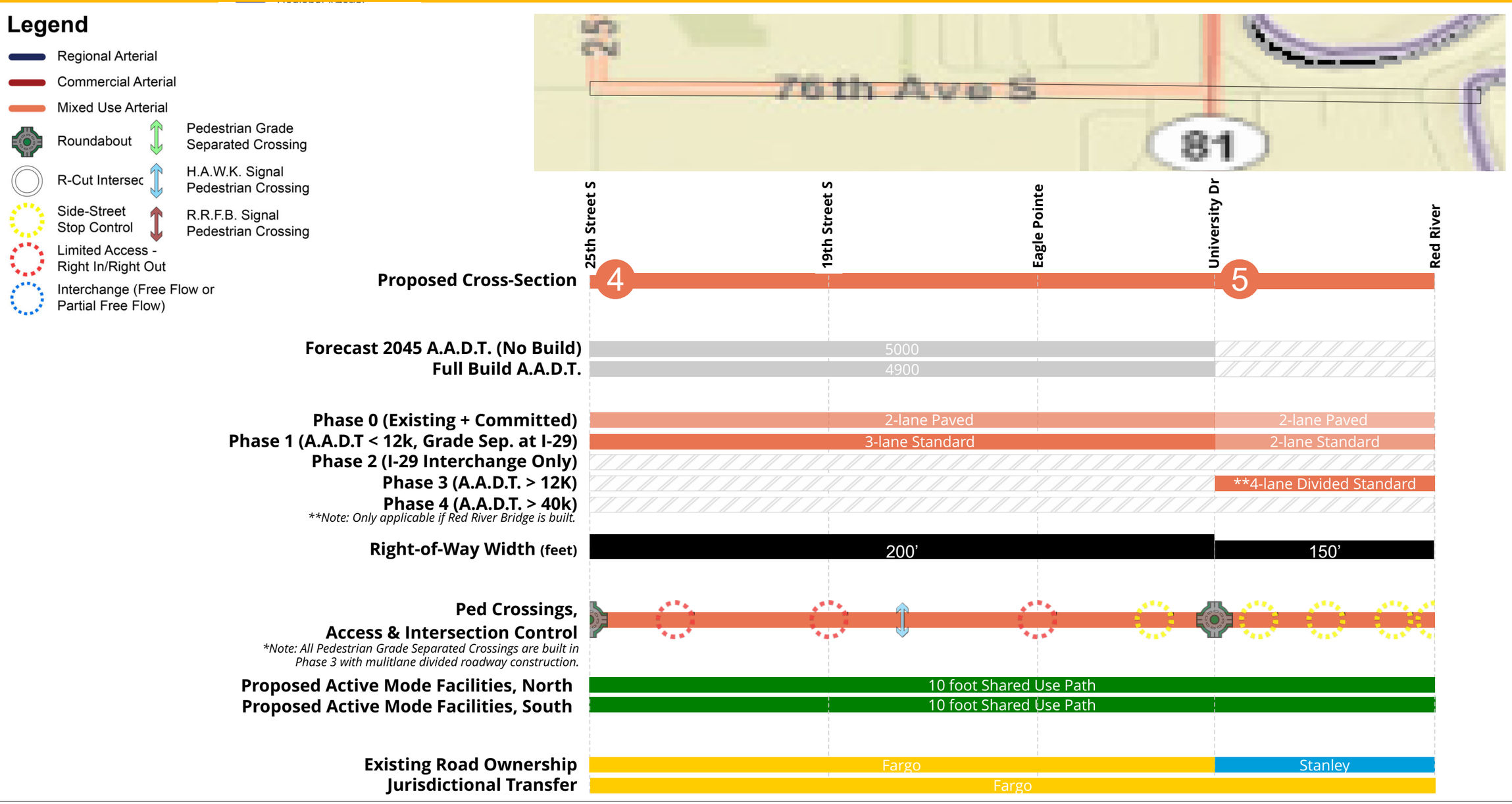


Figure 6.4 - Phasing Plan for Alternative 2 - Segments 1 & 2

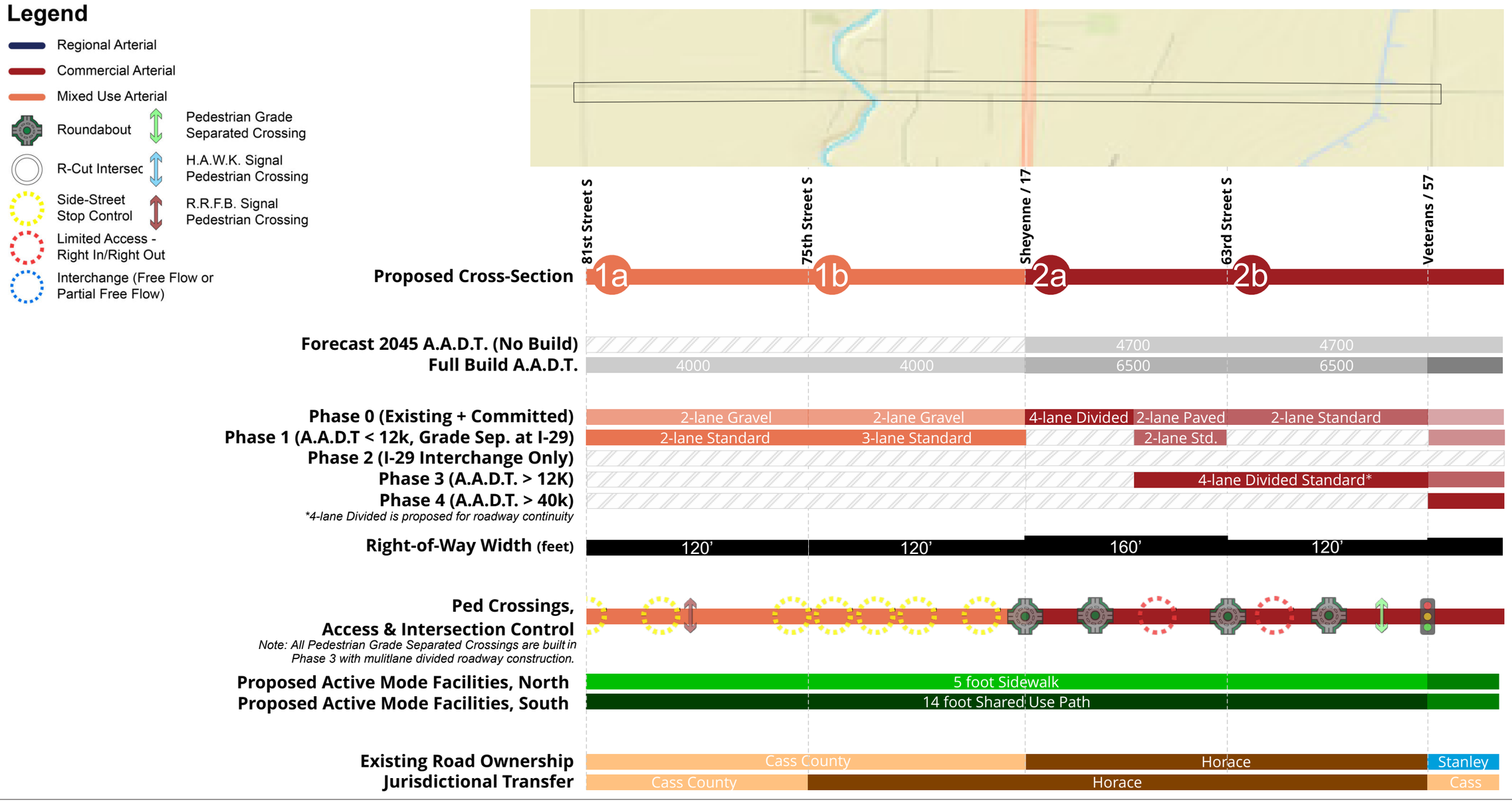
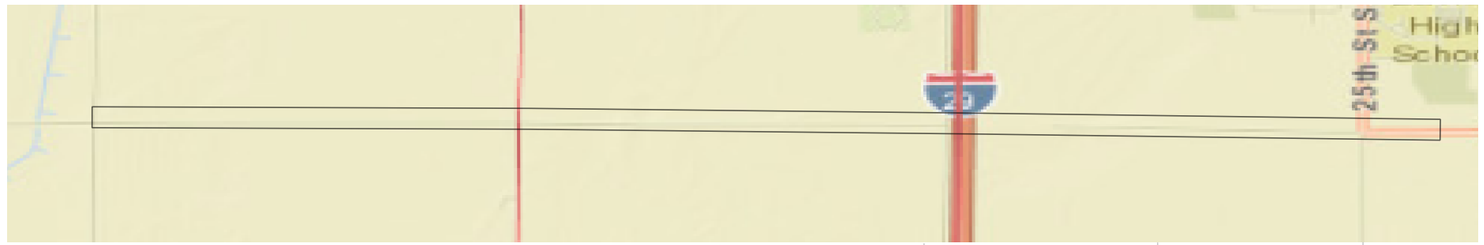


Figure 6.5 - Phasing Plan for Alternative 2 - Segment 3

Legend

- Regional Arterial
- Commercial Arterial
- Mixed Use Arterial
- Roundabout
- R-Cut Intersec
- Side-Street Stop Control
- Limited Access - Right In/Right Out
- Interchange (Free Flow or Partial Free Flow)
- Pedestrian Grade Separated Crossing
- H.A.W.K. Signal Pedestrian Crossing
- R.R.F.B. Signal Pedestrian Crossing



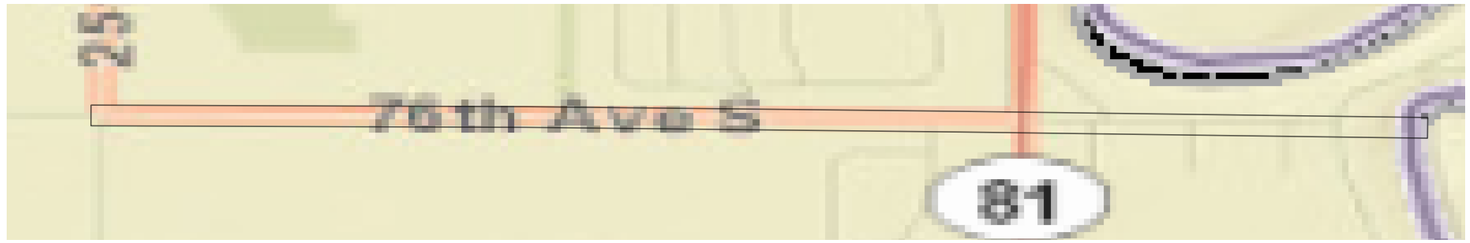
Proposed Cross-Section	3a	3b		3c
Forecast 2045 A.A.D.T. (No Build)	5100			4800
Full Build A.A.D.T.	26000	48000	18000	10000
Phase 0 (Existing + Committed)	2-lane Standard	2-lane Gravel		
Phase 1 (A.A.D.T < 12k, Grade Sep. at I-29)	2-lane Standard	3-lane Standard w/ Grade Separation		3-lane Standard
Phase 2 (I-29 Interchange Only)			Interchange	
Phase 3 (A.A.D.T. > 12K)	4-lane Divided Standard	4-lane Divided Standard		4-lane Divided Std.
Phase 4 (A.A.D.T. > 40k)	6-lane Divided Standard (if needed)	6-lane Divided Standard (if needed)		
Right-of-Way Width (feet)	140’	140’		140’
Ped Crossings, Access & Intersection Control				
Proposed Active Mode Facilities, North	10 foot Shared Use Path			
Proposed Active Mode Facilities, South	10 foot Shared Use Path			
Existing Road Ownership	Stanley Township			Fargo
Jurisdictional Transfer	Cass County	Fargo		Fargo

**Note: All Pedestrian Grade Separated Crossings are built in Phase 3 with mulitlane divided roadway construction.*

Figure 6.6 - Phasing Plan for Alternative 2 - Segments 4 & 5

Legend

- Regional Arterial
- Commercial Arterial
- Mixed Use Arterial
- Roundabout
- R-Cut Intersec
- Side-Street Stop Control
- Limited Access - Right In/Right Out
- Interchange (Free Flow or Partial Free Flow)
- Pedestrian Grade Separated Crossing
- H.A.W.K. Signal Pedestrian Crossing
- R.R.F.B. Signal Pedestrian Crossing



	25th Street S	19th Street S	Eagle Pointe	University Dr	Red River
Proposed Cross-Section	4			5	
Forecast 2045 A.A.D.T. (No Build)	5000				
Full Build A.A.D.T.	4900				
Phase 0 (Existing + Committed)	2-lane Paved			2-lane Paved	
Phase 1 (A.A.D.T < 12k, Grade Sep. at I-29)	3-lane Standard			2-lane Standard	
Phase 2 (I-29 Interchange Only)					
Phase 3 (A.A.D.T. > 12K)				**4-lane Divided Standard	
Phase 4 (A.A.D.T. > 40k)					
***Note: Only applicable if Red River Bridge is built.*					
Right-of-Way Width (feet)	200’			150’	
Ped Crossings, Access & Intersection Control					
**Note: All Pedestrian Grade Separated Crossings are built in Phase 3 with mulitlane divided roadway construction.*					
Proposed Active Mode Facilities, North	10 foot Shared Use Path				
Proposed Active Mode Facilities, South	10 foot Shared Use Path				
Existing Road Ownership	Fargo			Stanley	
Jurisdictional Transfer	Fargo				

Report Findings

The findings in this report are not intended to adversely affect the future development of this corridor. In fact, the intent of this study is to provide a framework for making decisions relative to corridor mobility, Complete Streets integration and design features.

This report is visionary in nature and is intended to provide a framework ahead of continued development pressures in Horace and Fargo. It should be used to provide direction to the ultimate cross sectional design features throughout the 6.5 mile corridor during final design stage.

The findings of this report seeks to make the right roadway for the region.

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