

Fargo-Moorhead Metro Bikeways Gap Analysis

FINAL REPORT

December 2019

METROCOG
FM REGIONAL TRANSPORTATION PLANNING ORGANIZATION

TOOLE
DESIGN

 **BOLTON
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Acknowledgments

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Metro COG Disclaimer

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The preparation of this document was funded in part by the United States Department of Transportation with funding administered through the North Dakota Department of Transportation, the Federal Highway Administration, and the Federal Transit Administration. Additional funding was provided by the Minnesota Department of Transportation and through local contributions from the governments of Fargo, West Fargo, Moorhead, and Clay County. The United States Government and the States of North Dakota and Minnesota assume no liability for the contents or use thereof.

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Report prepared by:



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1

Introduction and Overview

Study Overview

The purpose of the Fargo-Moorhead Metro Bikeways Gap Analysis Study (the Study) was to develop planning-level concept alternatives for closing 16 gaps in the existing bikeway network in the Fargo-Moorhead metropolitan area. The project team conducted analysis for each bikeway gap to review existing conditions, impacts to adjacent properties, relative costs, and where applicable, motor vehicle speeds and traffic volumes. This report includes a summary of input received from community members (Section 2), the results of the bikeway gap analysis, context maps of each bikeway gap, recommended bikeway concepts and planning-level cost estimates for each of the 16 gaps (Section 3), and next steps for implementation (Section 4).

Study Purpose and Objectives

Metro COG is the federally-designated Metropolitan Planning Organization (MPO) and the Council of Governments (COG) for the Fargo-Moorhead metropolitan area. Metro COG commissioned this Study to provide more detailed planning guidance for key bikeway gaps identified in earlier Metro COG planning documents.

The Study aims to accomplish the following objectives:

- Provide recommendations for concept alternatives to close bikeway gaps in the Fargo-Moorhead metropolitan area. This includes: analyzing existing conditions; engaging with community members; analyzing impacts of the proposed facilities on adjacent properties, right-of-way (ROW) requirements; complying with national bikeway design standards; developing concept alternatives, and analyzing the pros and cons of various alternatives.
- Develop planning-level cost estimates for each of the recommended bikeway concept alternatives.

Table 1: The 16 bikeway gaps included in the Study.

Bikeway Gap	Jurisdiction	Bikeway Gap Extents
1	West Fargo	North Elmwood Park to Scheels Soccer Complex via city easement corridor south of 10th Avenue West
2	West Fargo	9th Street West & 28th Avenue West to 5th Street West & 28th Avenue West, south to West Fargo Sports Arena
3	West Fargo	47th Avenue West & Sheyenne Street to the existing Osgood path, and south to intersection of 52nd Avenue East & 4th Street East
4	Fargo / Cass County	Dakota Drive / County Road 81 from 12th Avenue North to County Road 22
5	Fargo	Red River path from 15th Avenue North to 32nd Avenue North
6	Fargo	7th Avenue North and/or 6th Avenue North from University Drive to vicinity of Oak Grove School
7	Fargo	13th Avenue South from 21st Street to 4th Street
8	Fargo	24th Avenue South / 25th Avenue South from 18th Street to 5th Street
9	Fargo / Moorhead	Path and bridge from vicinity of 40th Avenue South & University Drive (Fargo) to Bluestem Performing Arts Center (Moorhead)
10	Fargo	Broadway (or parallel corridor) from 8th Avenue North to 35th Avenue North
11	Fargo	I-29 crossing at 28th Avenue South
12	Moorhead	Intersection of 6th Street & 12th Avenue South to intersection of 6th Street & 7th Avenue South (through Concordia or around campus)
13	Moorhead	Connect existing bike facilities on 28th Avenue South west of M-State to 20th Street path at either the intersection of 24th Avenue South & 20th Street or intersection of 20th Avenue South & 20th Street
14	Clay County / Moorhead	Connect existing bike facilities at intersection of 27th Avenue South & 26th Street to the existing bike facilities at the intersection of 24th Avenue South & Southeast Main Avenue
15	Clay County / Moorhead	County State Aid Highway 52 and 40th Street South, from the bridge over Interstate 94 to 40th Avenue South
16	Clay County / Moorhead	Path along 11th Street from 15th Avenue North to Wall Street Avenue North. Path along Wall Street Avenue from 11th Street to the Red River

Bikeway Gap Identification

The 2011 Fargo-Moorhead Metropolitan Bicycle and Pedestrian Plan identified gaps in bicycle facilities and barriers (such as major streets, railroad crossings, rivers, etc.). The next iteration of that plan, the 2016 Bicycle and Pedestrian Plan, identified 119 different short and long-term potential projects to improve bicycling connectivity.

This Study's 16 bikeway gaps were chosen based on the 2016 plan, local needs, public feedback, local staff expertise, and upcoming implementation opportunities (i.e. programmed road reconstruction or resurfacing projects). The 16 gaps are shown in **Figure 1**. The jurisdiction and extents of each bikeway gap are listed in **Table 1**.



A shared used path along the Red River just south of Main Ave in Fargo.

Project Process

The first step in the project process was to analyze existing conditions for each of the 16 bicycle gaps. The project team visited each bicycle gap location in person to review existing conditions. They also prepared base maps for each of the 16 gaps, analyzed existing conditions such as available right of way, surrounding destinations, nearby bicycle facilities, and where applicable, curb to curb widths, speed limits, and traffic volumes.

Following the existing conditions analysis, the project team developed one or more bikeway concept alternatives to close the bike gaps. Plan view and typical section graphics were developed for each concept. The project team analyzed advantages and disadvantages for each concept, gathered feedback from the

public, and worked with the Study Review Committee (SRC) to assess the benefits and trade-offs of each concept alternative. Based on this analysis, the project team developed recommended concepts for each bicycle gap, including planning-level cost estimates for each recommendation.

Study Review Committee

Metro COG and the project team worked with a Study Review Committee (SRC) composed of technical staff from local municipalities, counties, the North Dakota Department of Transportation (NDDOT), and the Federal Highway Administration (FHWA). The SRC was involved in the entire duration of the Study, overseeing the study process and providing technical advice and guidance at key points. The project team hosted four SRC meetings throughout the study, covering the following topics:

Meeting 1

SRC meeting 1 served as the kickoff meeting for the project to establish the project process and ensure that all study participants - SRC members, Metro COG, and project team - shared a common understanding of the project goals and desired outcomes. This meeting included a high-level overview of each of the 16 bicycle gaps, and conversations about potential concept alternatives.

Meeting 2

SRC meeting 2 occurred after the initial concept alternatives had been developed and before the public open house was hosted. The purpose of the second meeting was to review and provide comments on the bikeway gap analysis and the initial concept alternatives.

Meeting 3

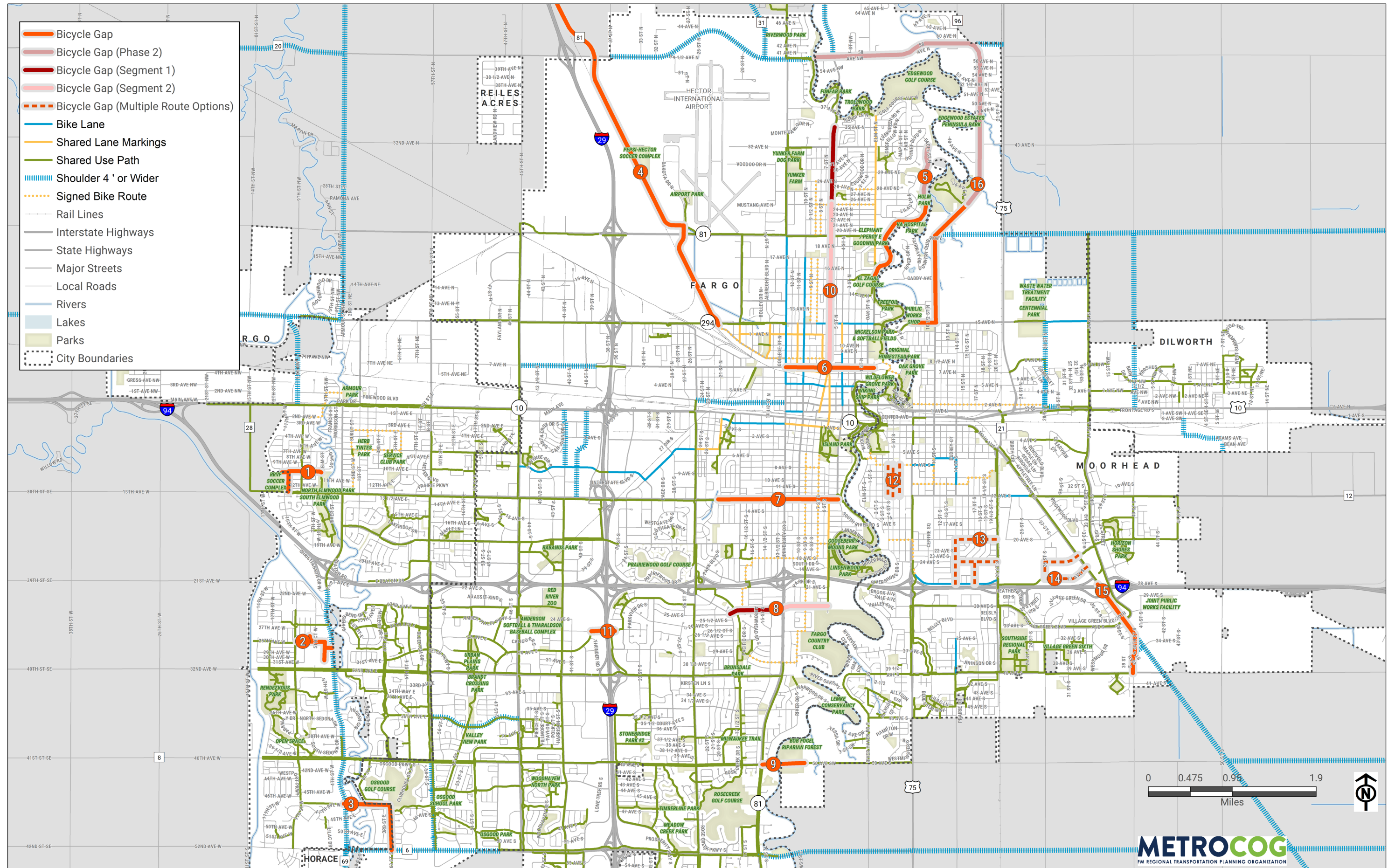
SRC meeting 3 occurred after the initial public feedback was solicited and summarized from the public open house and online surveys. The focus of the meeting was to review public feedback on each of the concept alternatives, and refine the draft concept recommendations for each bikeway gap.

Meeting 4

The fourth and final SRC meeting occurred during the last month of the study, and was focused on reviewing the draft report. SRC members and the project team reviewed and discussed the recommended concept alternatives in the report.

**Notes from each of the four SRC meetings are in Appendix B.*

Figure 1: Map showing the Fargo-Moorhead region's 16 bikeway gaps included in this Study.













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Community Engagement Overview

Community engagement took place between March 2019-August 2019. Over 300 community members provided over 600 total comments through all outreach methods. For detailed community engagement results, see **Appendix A**.

A number of outreach methods were used to engage with the community during the project, including:

-  Emails
-  Open House
-  Surveys
-  Web Updates
-  Postcards
-  Newspaper Ads
-  Flyer
-  Social Media
-  Online Comment Mapping
-  Trail Comment Boxes

Top 3 Key Findings



Gap 9 received the most support and positive comments

Gap 9 is a crossing of the Red River near 40th Avenue South (Fargo) to Bluestem Performing Arts Center (Moorhead)



Gap 2 received the least support and most negative comments

Gap 2 is located along 28th Avenue West and 5th Street West in the City of West Fargo

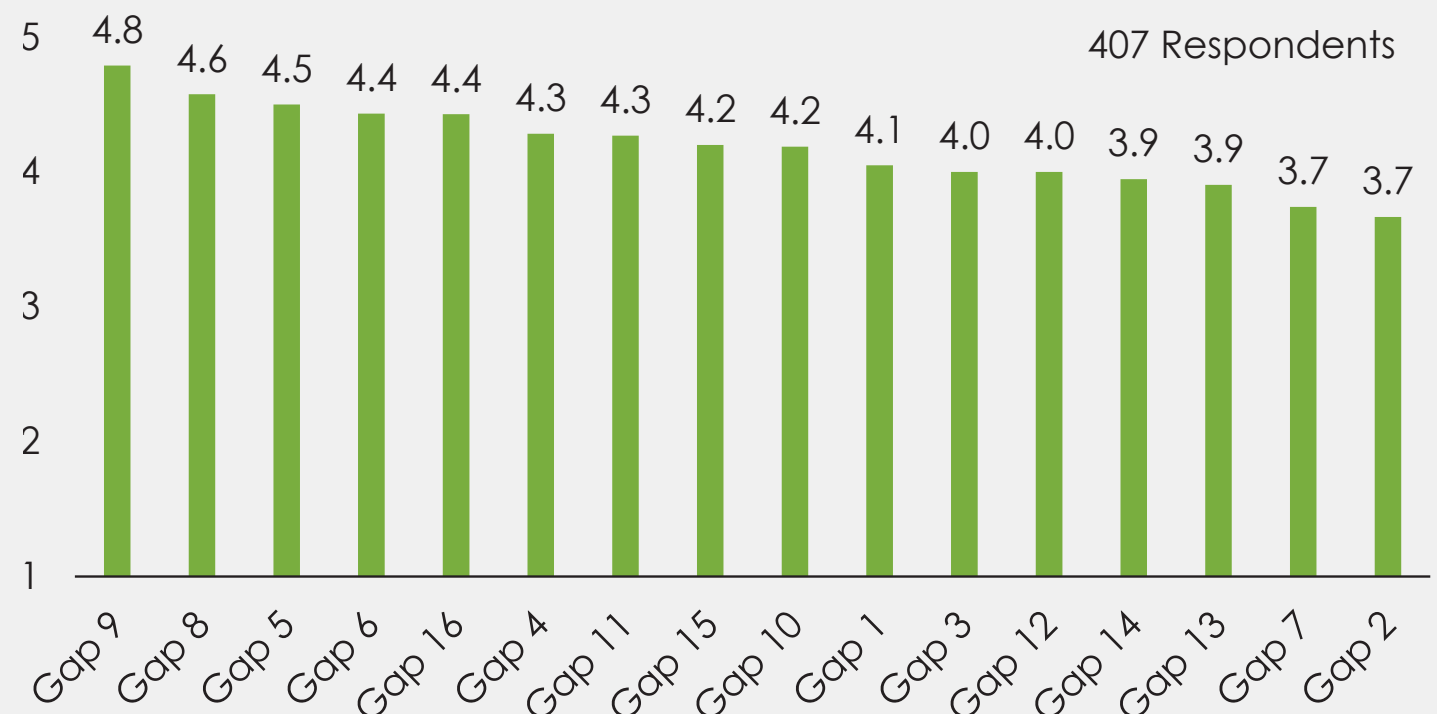


Gap 5 received the most comments overall

Gap 5 is located along the Red River from 15th Avenue North to 32nd Avenue North

Overall Bikeway Gap Support

Community members were asked: "How strongly do you support developing a bikeway in this gap?" The chart reflects results from the online survey and the paper survey from the project open house. Ratings were on a scale of 1 to 5 (5= strongly support).



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Bikeway Gap Analysis & Concept Recommendations

Overview

Section 3 provides individual subsections for each of the 16 bikeway gaps that include detailed technical information and analysis. Each subsection provides the following information:

- Existing Conditions Analysis
- Recommended Bikeway Concepts
- Planning-Level Cost Estimates

Existing Conditions Analysis

The Existing Conditions Analysis subsection provides a detailed analysis of the current conditions of the 16 bikeway gaps identified in West Fargo, Fargo, and Moorhead. This subsection identifies information about the existing land uses adjacent to each of the 16 gaps, nearby destinations, nearby bicycle facilities, and where applicable, road features (such as speed limits, traffic volume and right-of-way width). Additionally, the Existing Conditions Analysis includes a Key Map that highlights the location of the bicycle gap, identifies the existing bicycle facilities, potential crossing improvements, and additional notes related to the gap. The subsection also provides an existing plan view and a typical cross section rendering.

Recommended Bikeway Concept

After analyzing the existing conditions of each of the bikeway gaps, the project team and the SRC developed recommended bikeway concepts for each of the 16 bikeway gaps. Some of the gaps have multiple concept recommendations, while others only have one. Recommended bikeway concepts are identified for each bikeway gap, which in some cases, is a “no-build” scenario that maintains the corridor as the existing conditions.

The recommended bikeway concepts for each gap were based on a number of different factors, including community member support and feedback, existing conditions analysis, input

received from the SRC, and technical review from the project team. The project team considered a number of factors when developing recommendations, including implementation feasibility, construction cost, connectivity and transitions to existing bike facilities, roadway traffic volumes and speeds, on-street parking and access driveways, transit, right-of-way, and safety and comfort for bicyclists.

Planning-Level Cost Estimates

Planning-level cost estimates were developed for the recommended bikeway concepts for each gap. The cost estimates only include the costs for implementing the on-street bikeways or off-street shared use paths; they do not include costs for roadway resurfacing or reconstruction.

The cost estimates include typical construction materials such as grading, base, pavement, pavement markings, and signage. Individual project costs may vary; these estimates are only intended to be used at a planning level and should be refined throughout future project development.

The cost estimates have a low and a high range, and are based on [MnDOT 2018 statewide average bid prices](#). They were developed by identifying major pay items and establishing rough quantities to determine a rough order of magnitude cost. Cost estimates do not include an allowance for engineering, easement and right-of-way acquisition; permitting, inspection, or construction management; engineering, surveying, geotechnical investigation, environmental documentation, special site remediation, escalation, ongoing maintenance, or unusual project-specific cost items. The upper cost estimate range includes a 40% contingency that may account for some of those costs.

Toole Design Group, LLC makes no guarantees or warranties regarding the cost estimate herein. Construction costs will vary based on the ultimate project scope, actual site conditions and constraints, schedule, and economic conditions at the time of construction.



A separated bike lane on Northern Pacific Avenue, between University Drive and 10th Street North.

Overview

Gap 1 follows a City of West Fargo utility easement that travels behind residential parcels and connects Elmwood Park and the Scheels Soccer Complex. The gap primarily runs east-west from the Scheels Soccer Complex to North Elmwood Park. A portion of the gap runs north and south along the east side of the soccer fields. The existing topography is generally flat, and the easement has some encroachments based on a review of parcel line data and existing aerial imagery.

Field observations found that the easement between North Elmwood Park and the Scheels Soccer Complex is at a lower grade than adjacent properties and can be subject to standing water during wet conditions.

Land Use and Nearby Destinations

Land uses adjacent to the gap include residential use, parks, open spaces, and soccer fields. Nearby destinations include Scheels Soccer Complex, North Elmwood Park, Young Field, also known as the Veteran's Memorial Field, and Westside Elementary School.

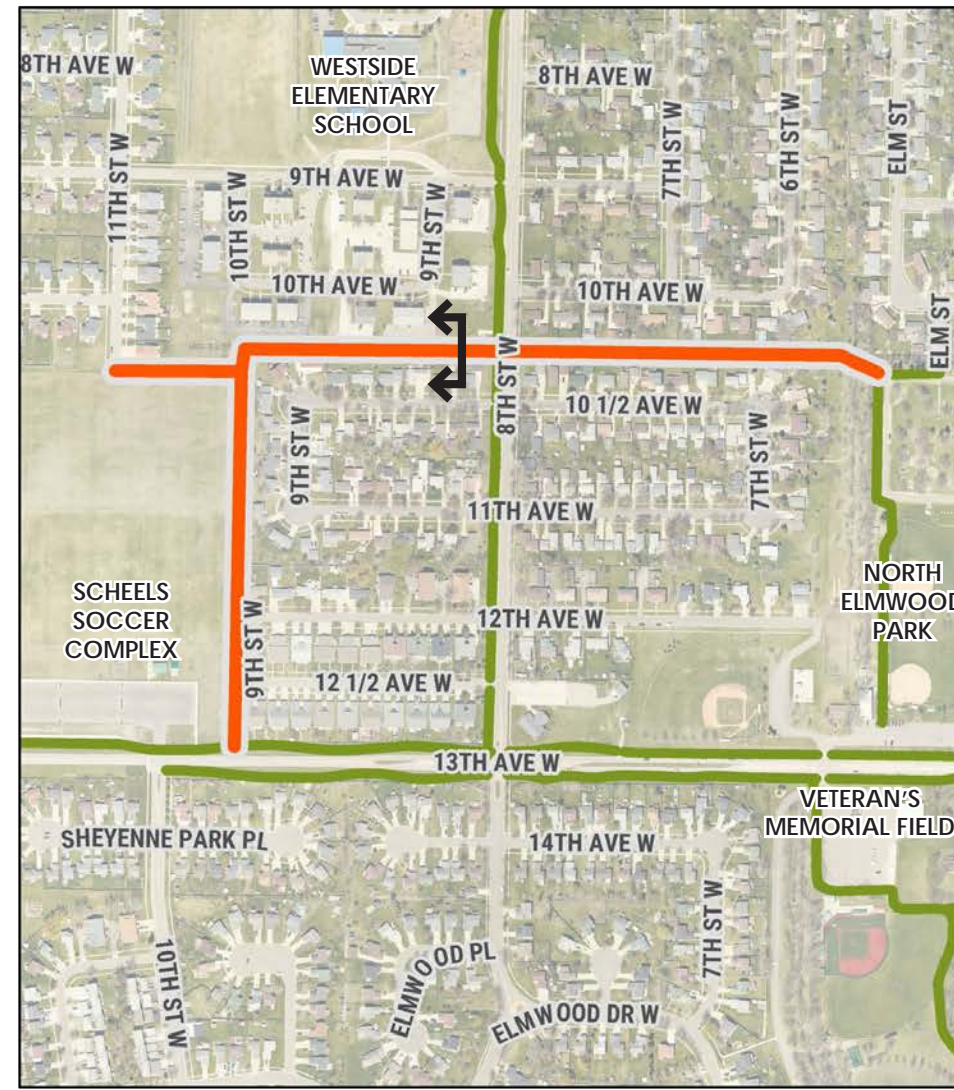
Connections to Nearby Bike Infrastructure

Gap 1 provides adjacent residents and students a more direct off-street connection to parks, soccer fields, and other bikeways in the neighborhood. This includes the existing shared use paths on the west side of 8th Street West and the north and south sides of 13th Avenue West.

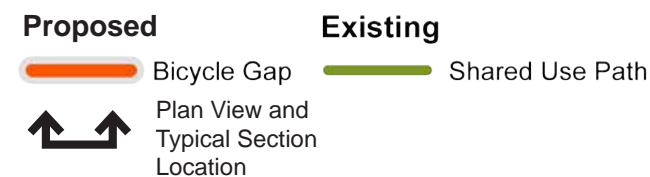
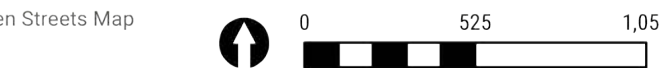
Corridor Features

	Speed Limit	Traffic Volume	Total Right-of-Way
n/a	n/a	n/a	varies (15-30')

Key Map



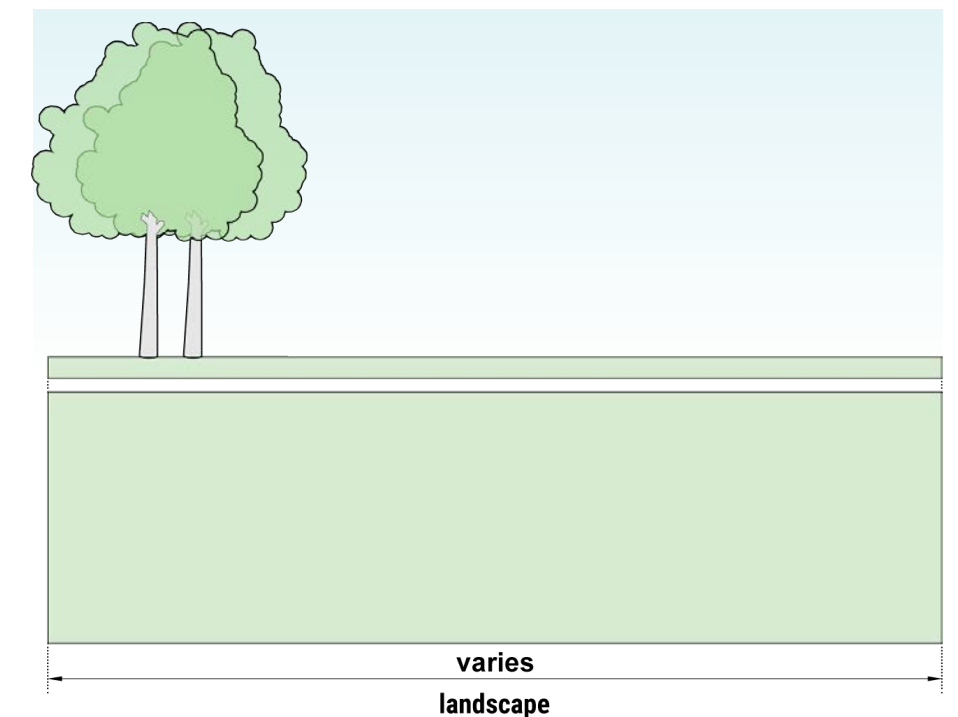
Data from MetroCOG and Open Streets Map



Existing Plan View



Existing Typical Section // Looking West



Recommended Bikeway Concept

The recommendation for Gap 1 is an 11' shared use path traveling through the easement area as well as along the eastern property line of the Scheels Soccer Complex (not shown in graphic). A new shared use path would provide the greatest amount of comfort and safety for bicyclists and also provide a connection for people walking to the soccer complex.

Between North Elmwood Park and the Scheels Soccer Complex, the existing easement would generally allow for the construction of this path without property acquisition. However, there are some encroachments of the easement area through the corridor, including vegetation, a parking lot and other structures. In addition, utility boxes are present within the corridor.

The proposed path along the east side of the Scheels Soccer Complex could be installed on either the west side of the existing fence or the east side. While parcel data and field observations indicate that right-of-way is sufficient for implementation of a path, there are some existing trees located within this corridor.

Since this gap is located in a well-established neighborhood, it is recommended that signs be installed intermittently along the corridor prior to any path construction. The purpose of the signs would be to mitigate potential concerns from neighboring property owners and help notify nearby residents of the future path. The signs could read, 'future shared use path location'.

Lead Agency:

- City of West Fargo
- West Fargo Parks

Key Stakeholders:

- Adjacent Property Owners

Planning-Level Cost Estimate

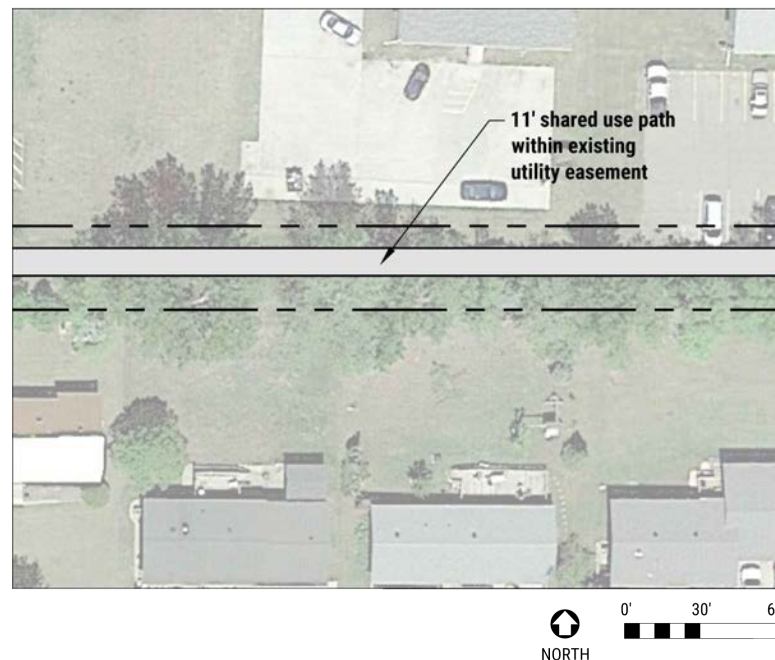
Recommended Concept	Approximate Cost Range
Shared Use Path	\$290,000 - \$410,000

Cost Estimate Notes:

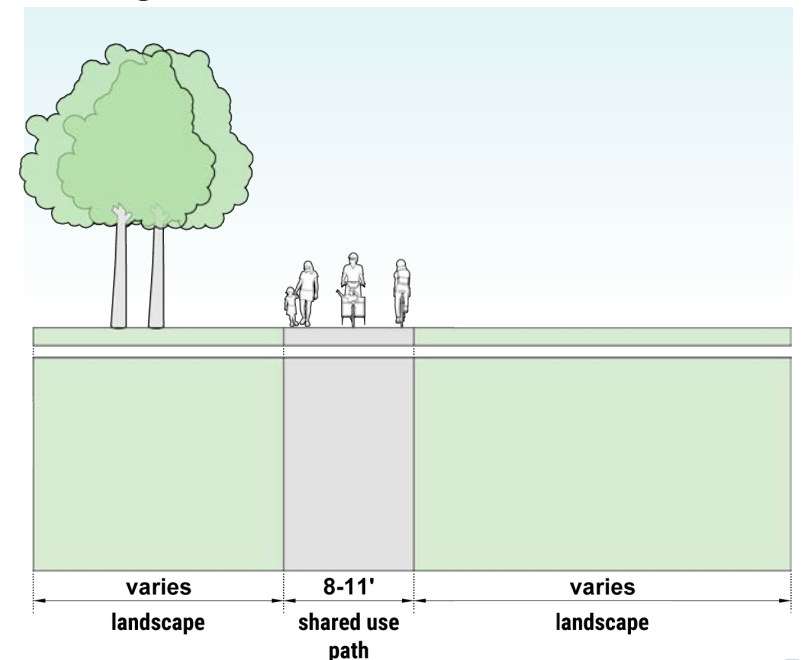
- Length: 3,569 ft. (0.68 mi.)
- Assumes a single 11' wide concrete path with signage and intersection crossing/curb ramp improvements
- Includes an allowance for drainage and landscaping
- Assumes right of way acquisition is not required
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars



Recommended Concept, Plan View



Recommended Concept, Typical Section // Looking West



Overview

Gap 2 travels through Eaglewood Park and alongside drainage / detention ponds, from residential neighborhoods to the north and west to the newly built West Fargo School District sports arena (the West Fargo Sports Arena) to the south, and Sheyenne Street to the east.

Land Use and Nearby Destinations

The corridor features residential, park and open space, commercial, and mixed use land uses. The corridor connects residents to parks and open spaces (Brooks Harbor Park to the northwest and Rendezvous Park to the southwest). Nearby destinations include the West Fargo Sports Arena, Eaglewood Park, Brooks Harbor Elementary School, and residential neighborhoods. Additionally, there is a large mixed use development currently under construction to the east of West Fargo Sports Arena on Sheyenne Street.

Connections to Nearby Bike Infrastructure

The corridor connects to multiple pieces of bike infrastructure. It directly connects to shared use paths on 9th Street West and 28th Avenue West and offers connections to other shared use paths on 32nd Avenue West (both sides of the street) and 26th Avenue West. A short segment of the corridor utilizes an existing shared use path on 29th Avenue West. Additionally, Sheyenne Street was reconstructed in 2019 with shared use paths constructed on both sides of the roadway.

Corridor Features

	Speed Limit	Traffic Volume	Total Right-of-Way
5th Street W	25 MPH	n/a	80'

Key Map



Data from MetroCOG and Open Streets Map

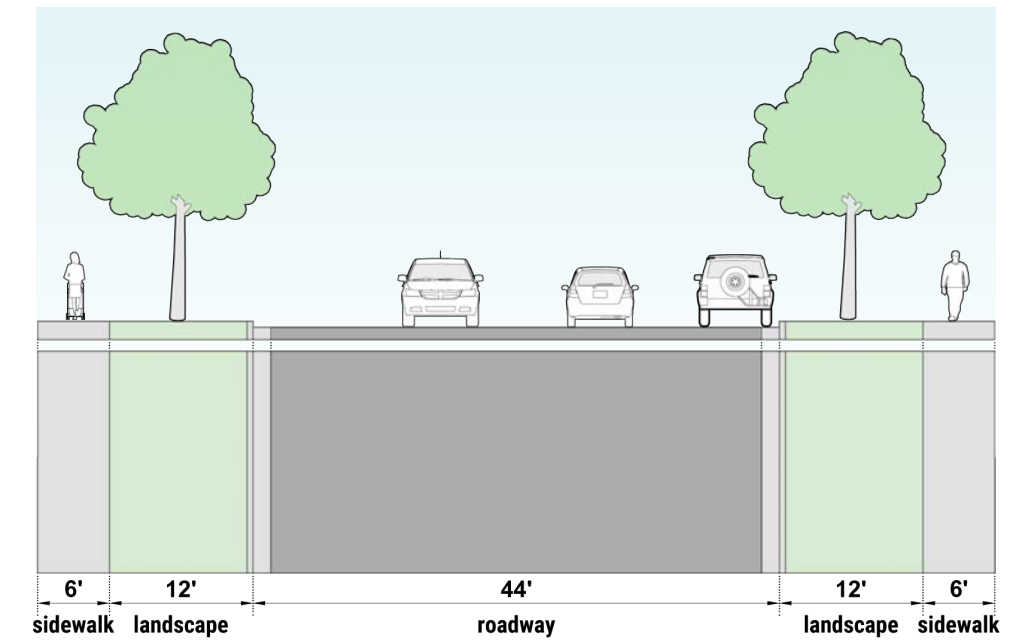
Proposed

- Bicycle Gap
- Plan View and Typical Section Location

Existing

- Shared Use Path
- Shoulder 4' or Wider

Existing Typical Section // 5th Street W, Looking North



Recommended Bikeway Concept

The recommendation for Gap 2 heavily utilizes existing sidewalk infrastructure, but also includes construction of new shared use paths. The recommendation includes widening existing sidewalks on the south side of 28th Avenue West between 9th Street West and 7th Street West. East of that point, a new shared use path would be constructed within city-owned property. A northern path spur would link to 27th Avenue West and provide connections for residents.

On the west side of 5th Street West, the existing sidewalk would be widened to between 8'-11' while a new shared use path segment would provide access to the West Fargo Sports Arena. An existing segment on 29th Avenue West be slightly extended to Sheyenne Street, where a new shared use path was constructed in 2019. A temporary construction easement of up to 5' may be required to construct the shared use path.

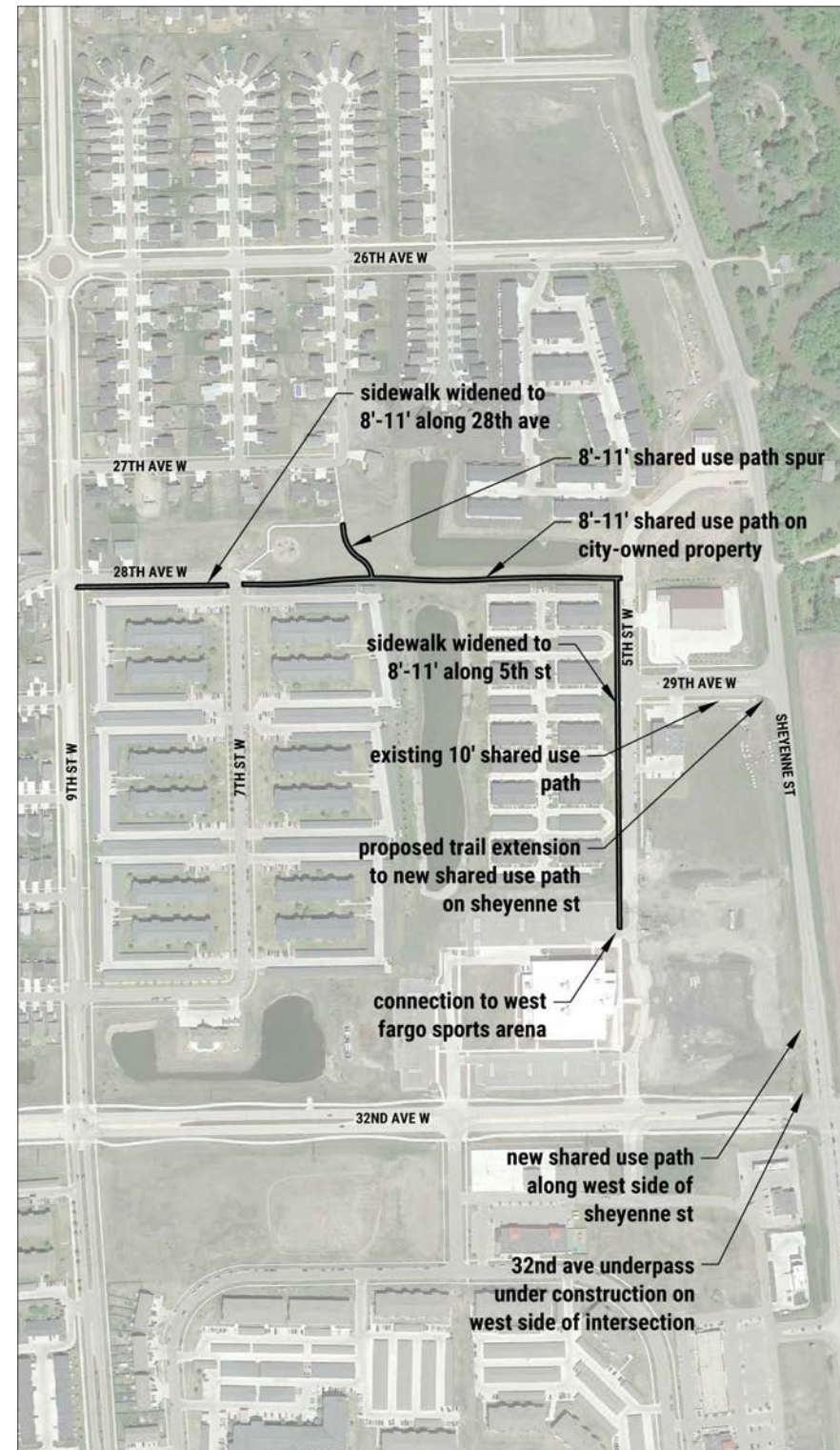
Planning-Level Cost Estimate

Recommended Concept	Approximate Cost Range
Shared Use Path	\$240,000 - \$340,000

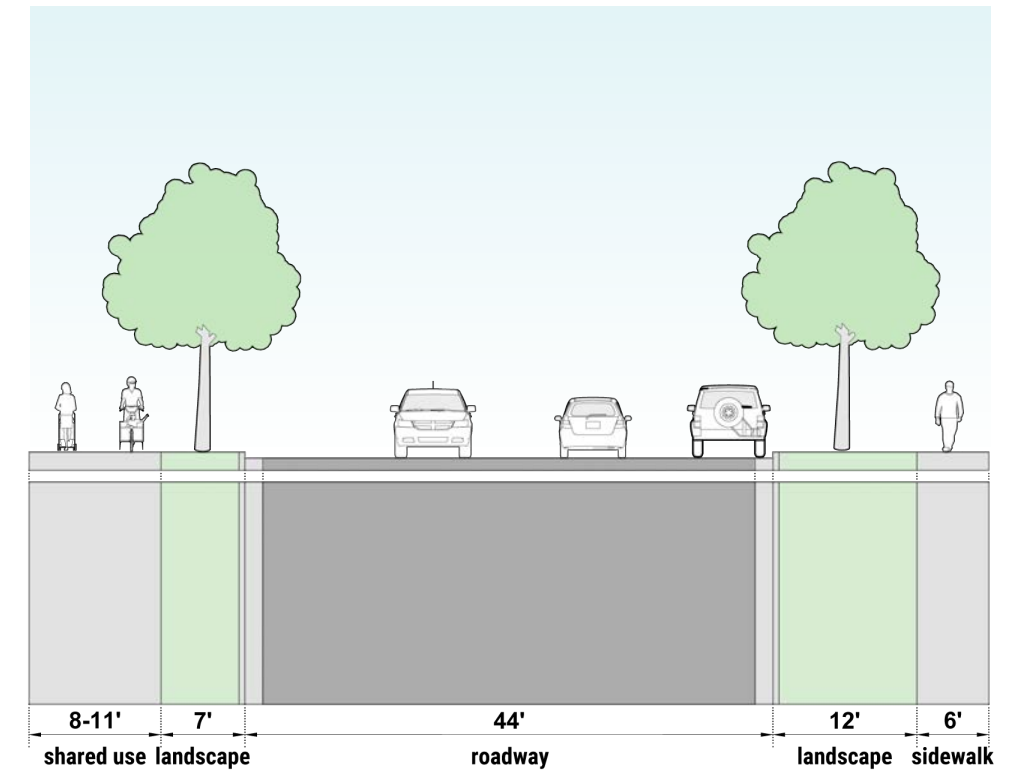
Cost Estimate Notes:

- Length: 2,925 ft. (0.55 mi.)
- In areas with existing sidewalk, assumes removing existing concrete sidewalks and replacing with entirely new 11-foot concrete shared use paths
- Includes signage and intersection crossing/curb ramp improvements
- Includes an allowance for drainage and landscaping
- Assumes shared use paths do not require any right of way acquisition
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

Recommended Concept Alignment



Recommended Concept, Typical Section // 5th Street W, Looking North



Lead Agency:

- City of West Fargo
- West Fargo Park District

Overview

Gap 3 includes an east-west and north-south segment. The east-west segment uses a 150' wide overhead electrical corridor behind residential lots. A crossing of the Sheyenne River is required. The Sheyenne River, two private residential lots west of the river, and Sheyenne Street separates the easement from an existing shared use path to the west. The north-south segment runs along an open City of West Fargo stormwater trench behind residential lots.

Land Use and Nearby Destinations

The corridor features mostly residential land uses with open spaces, parks, and a nearby golf course. Nearby destinations include the newly-constructed Deer Creek Elementary School.

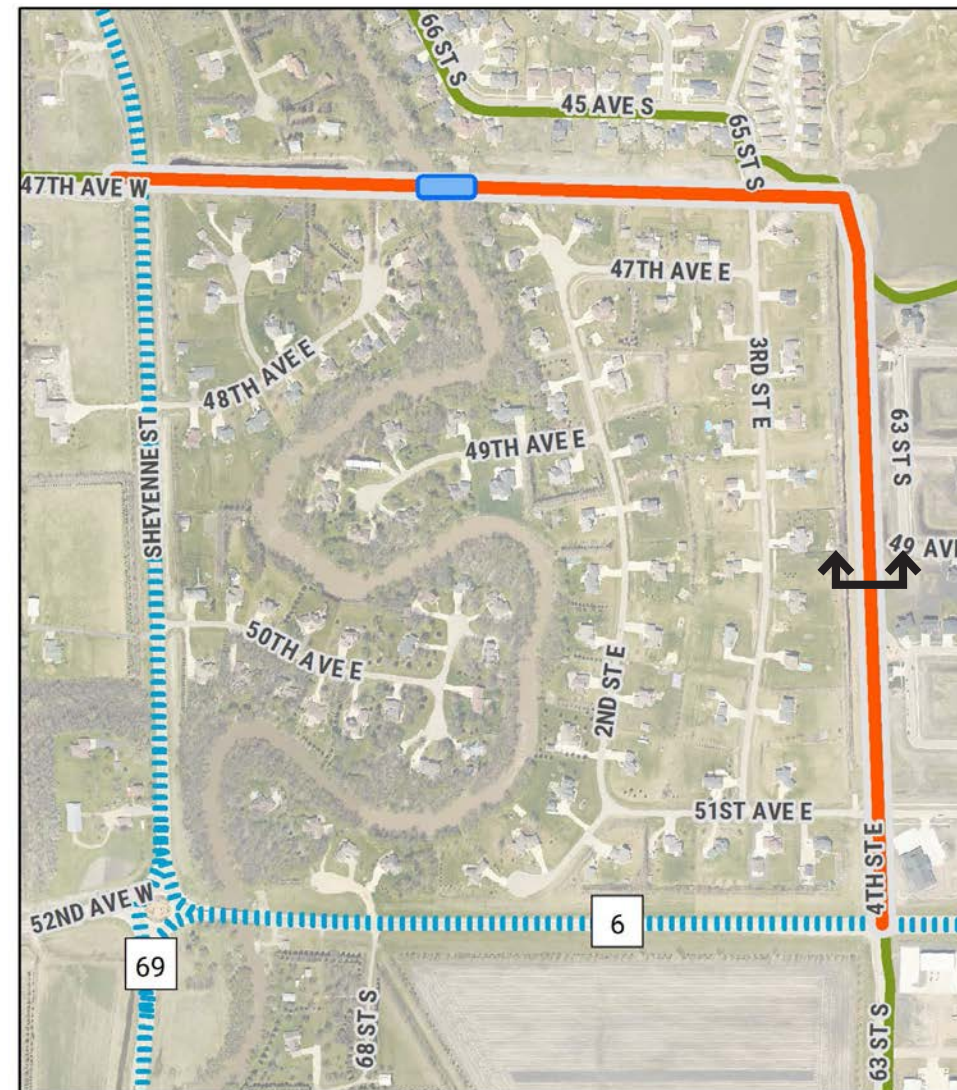
Connections to Nearby Bike Infrastructure

The gap directly connects to shared use paths on 47th Avenue West, 63 Street South, and on 66th Street South / 45 Avenue South. The facility links all these existing shared use paths together, thus creating a connected network. There is also a wide paved shoulder on Sheyenne Street and 52nd Avenue West.

Corridor Features

	Speed Limit	Traffic Volume	Total Right-of-Way
Gap 3	n/a	n/a	70'-150'

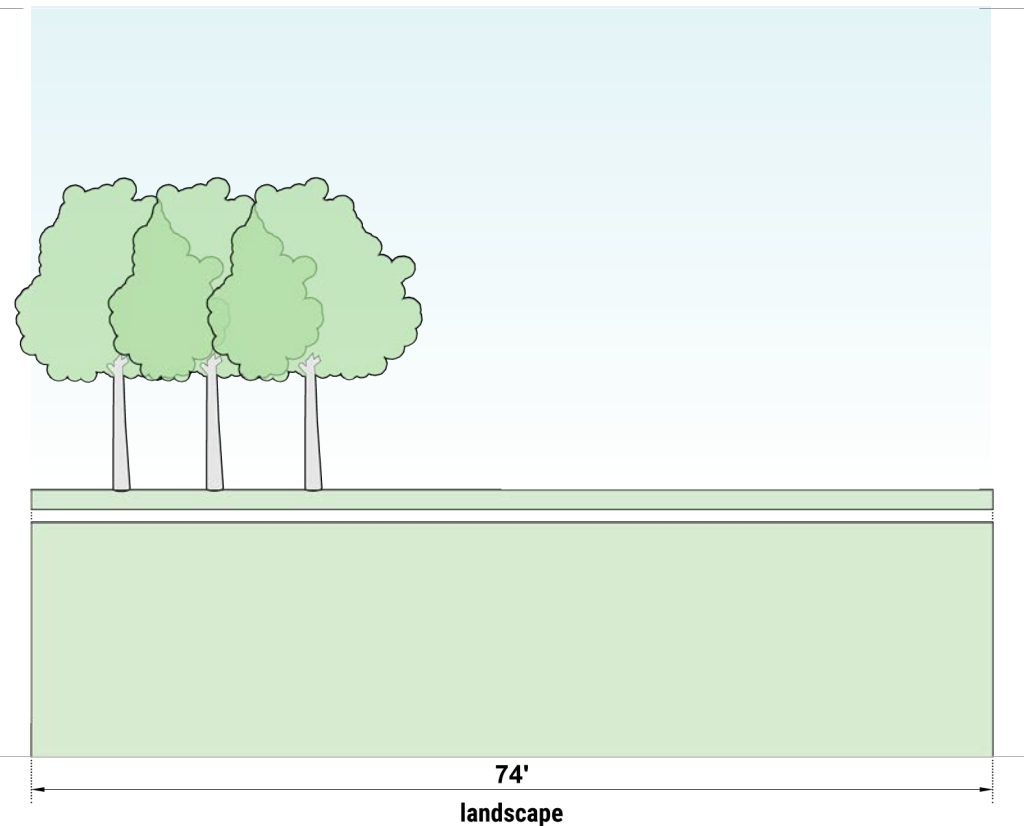
Key Map



Data from MetroCOG and Open Streets Map



Existing Typical Section // 4th St. Easement, Looking North



Recommended Bikeway Concept

The recommendation for Gap 3 is an 11' shared use path within the existing public utility easement. The shared use path would travel east-west within the easement between Sheyenne Street and an existing shared use path at 3rd Street East. The shared use path would then use the north-south easement between the existing shared use path and 51st Avenue South. Widening an existing sidewalk along the east side of 4th Street Southeast would allow connections to 52nd Avenue South, an important east-west corridor. This also allows connections to a previously proposed shared use path on 52nd Avenue South.

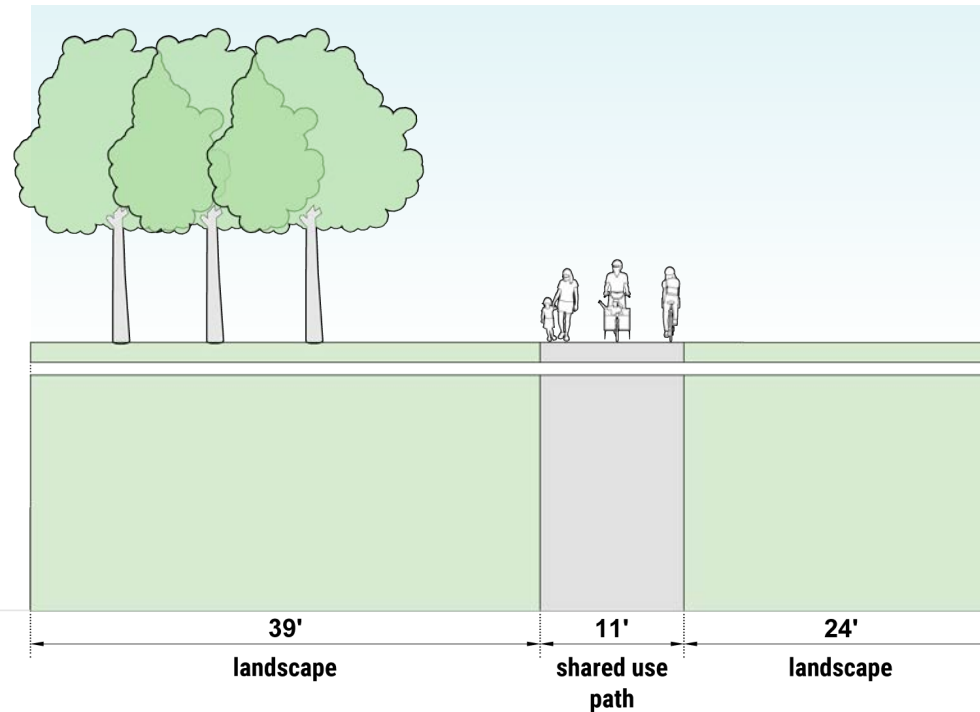
A new shared use path provides the greatest amount of comfort and safety for bicyclists (and pedestrians). It allows bicyclists to avoid using 52nd Avenue South and Sheyenne Street, both of which have 4' shoulders but also high traffic levels and speeds. Filling this bikeway gap requires a new pedestrian and bicycle bridge crossing of the Sheyenne River.

Between Sheyenne Street and the Sheyenne River, the proposed route would require crossing two privately-owned parcels. In addition, the existing wetland/pond and vegetation between Sheyenne Street and the Sheyenne River will pose notable challenges for implementation of the path in this area. With nearby residential properties along the proposed north-south portion of the path, it is recommended that signs be installed intermittently along the corridor prior to path construction. The purpose of the signs would be to mitigate potential concerns from neighboring property owners and help notify nearby residents of the future path. The signs could read, 'future shared use path location'.

Planning-Level Cost Estimate

Recommended Concept	Approximate Cost Range
Shared Use Path	\$485,000 - \$691,000
Steel Truss Pedestrian and Bicycle Bridge	\$685,000 - \$959,000
Total	\$1,170,000 - \$1,650,000

Recommended Concept, Typical Section // 4th St. Easement Looking West



Lead Agency:

- City of West Fargo

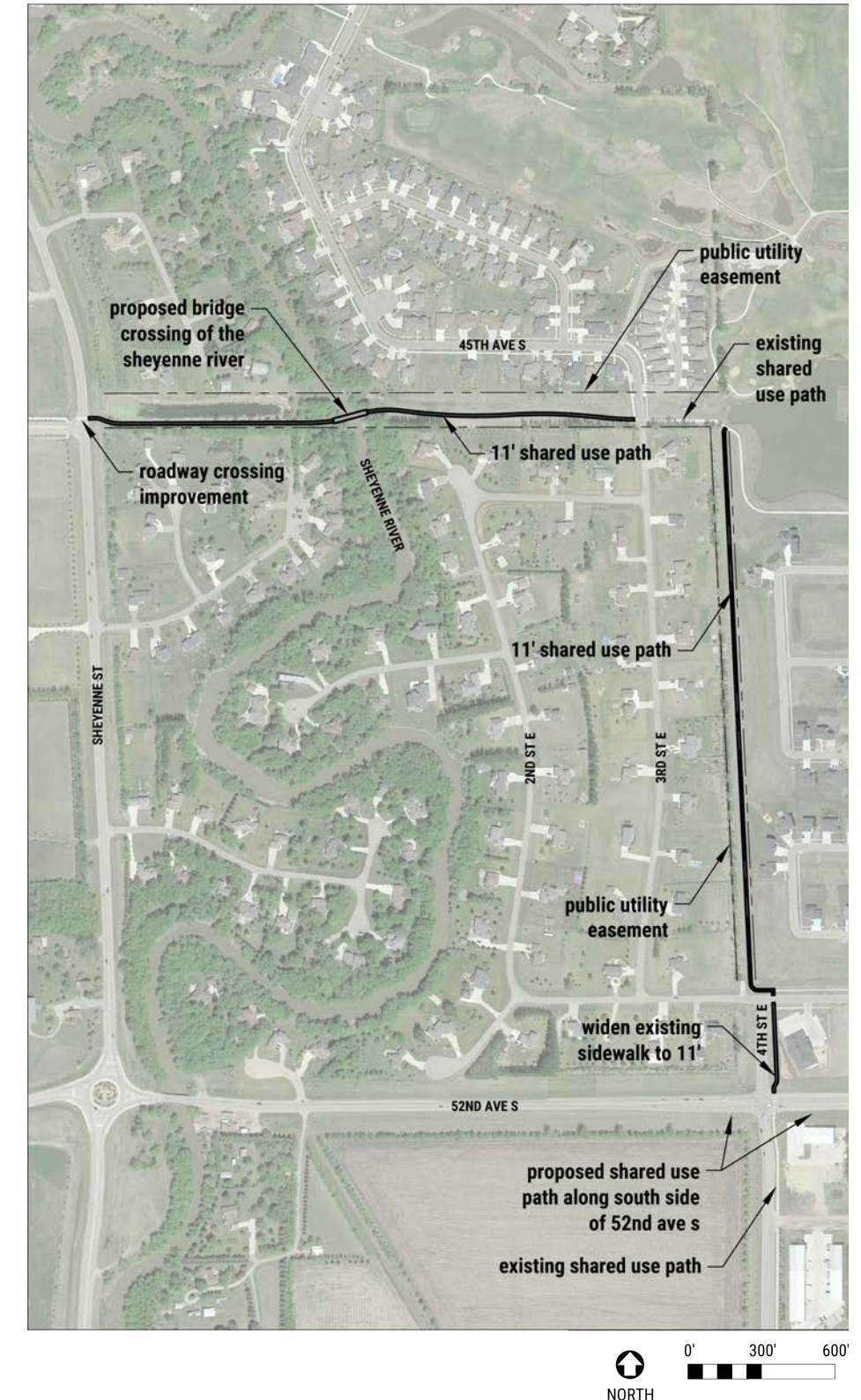
Key Stakeholders:

- Adjacent Property Owners
- West Fargo Park District
- City of Fargo
- Fargo Park District

Cost Estimate Notes:

- Length: 4,804 ft. (0.91 mi.)
- In areas with existing sidewalk, assumes removing existing concrete sidewalks and replacing with entirely new 11-foot concrete shared use paths
- New bridge assumed to be 165 feet long, 11-foot trail, 2 feet each side for parapets
- New path assumed to be 11-foot concrete
- Includes curb ramps at west limits
- Right of way acquisition not included
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

Recommended Concept Alignment



Overview

Gap 4 travels for seven miles along Dakota Drive / County Road (CR) 81, from 12th Avenue North to County Road (CR) 22. Some of the route is located in the City of Fargo, while sections extend out to unincorporated sections of Cass County, and the City of Harwood. The majority of the corridor consists of one travel lane in each direction.

The road right-of-way is wide compared to other corridors - 120' for most of the length. Traffic volumes through the corridor are very low, except along a short (500 feet) portion of Dakota Drive between 19th Avenue North and the beginning of CR 81. Traffic speeds are higher in the northern section of the corridor, north of 40th Avenue North.

The corridor is currently a marked bicycle route with narrow shoulders. Intersections are wide and potentially uncomfortable for bicyclists to cross. This is especially the case at 19th Avenue North / Dakota Drive, 40th Avenue North, and CR 22.

Land Use and Nearby Destinations

The corridor features a mix of industrial, institutional, and agricultural land uses. The route runs east of a 36' wide rail corridor. Nearby destinations include North Dakota State University, Hector International Airport, Fargo Park District's North Softball Complex, and the Pepsi Soccer Complex.

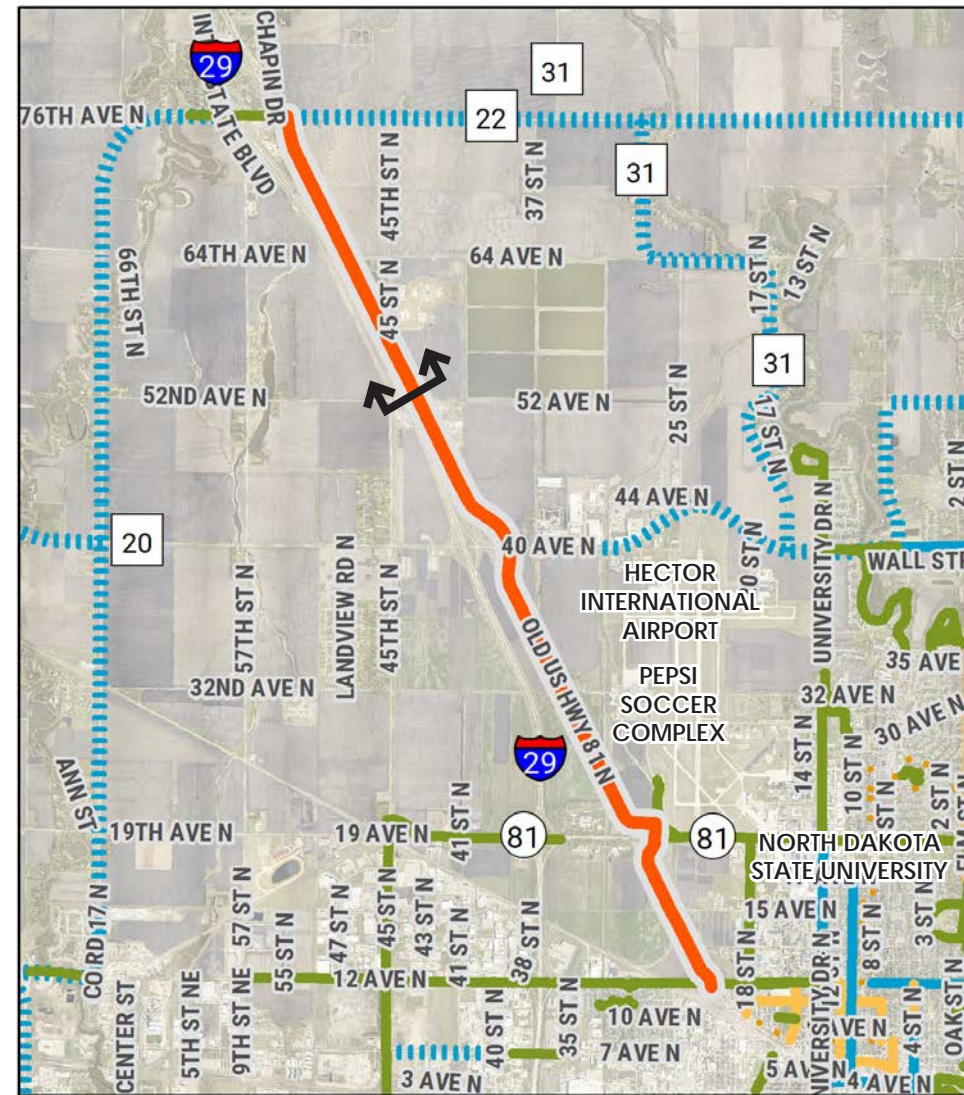
Connections to Nearby Bike Infrastructure

The corridor connects to several existing bicycle facilities (mostly running east-west). These include shared use paths on 12th Avenue North, 19th Avenue North, Dakota Drive, and CR 22. The corridor also connects to wide paved shoulders along 40th Avenue North, and along CR 22.

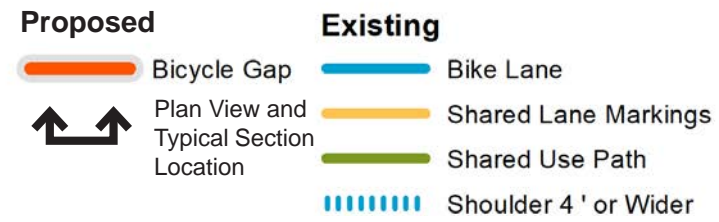
Corridor Features

	Speed Limit	Traffic Volume	Total Right-of-Way
Dakota Dr / Old US Hwy 81 N	40-55 MPH	1,000-3,800 AADT	120'

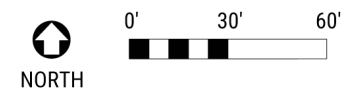
Key Map



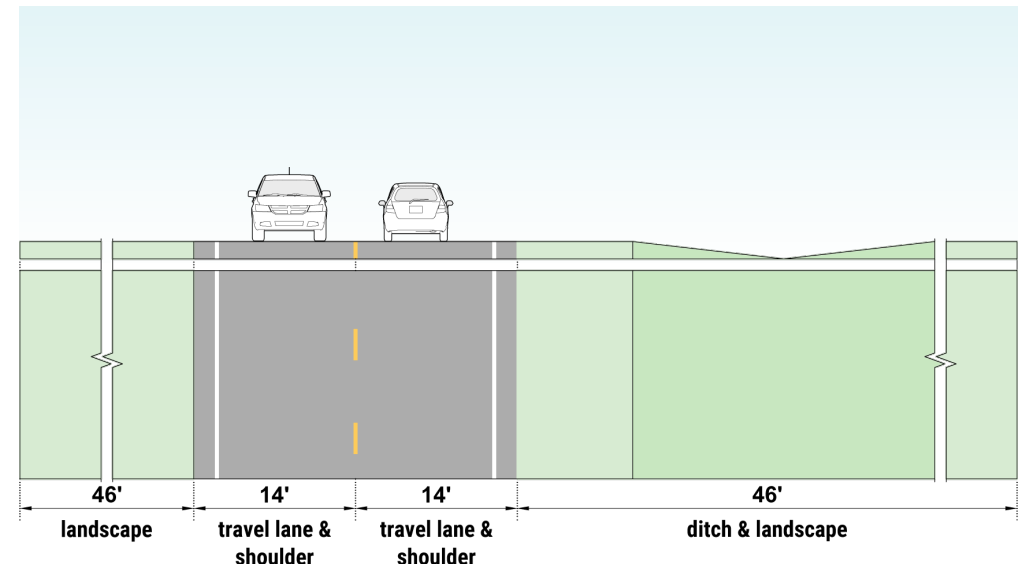
Data from MetroCOG and Open Streets Map



Existing Plan View // Old US Hwy 81



Existing Typical Section // Old US Hwy 81, Looking North



Recommended Bikeway Concept

The recommendation for Gap 4 is widened paved shoulders on each side of the roadway. Some segments of the existing roadway lack shoulders, while most of the corridor is characterized by 1' to 2' shoulders. This treatment would provide a more comfortable bicycle facility for the recreational bicyclists who are already bicycling along this roadway. A buffered rumble strip zone improves safety by reducing the likelihood of motor vehicles entering the shoulder.

A potential long-term alternative concept is a shared use path on the east side of the roadway. A shared use path would provide a more comfortable and safer bike route than riding on the shoulder, and it would provide a more direct connection to the North Softball Complex near CR 81 and 64th Avenue North than the widened paved shoulders.

Lead Agency:

- Cass County
- City of Fargo

Key Stakeholders:

- City of Harwood

Planning-Level Cost Estimate

Recommended Concept	Approximate Cost Range
Paved Shoulder	\$2,230,000 - \$3,130,000

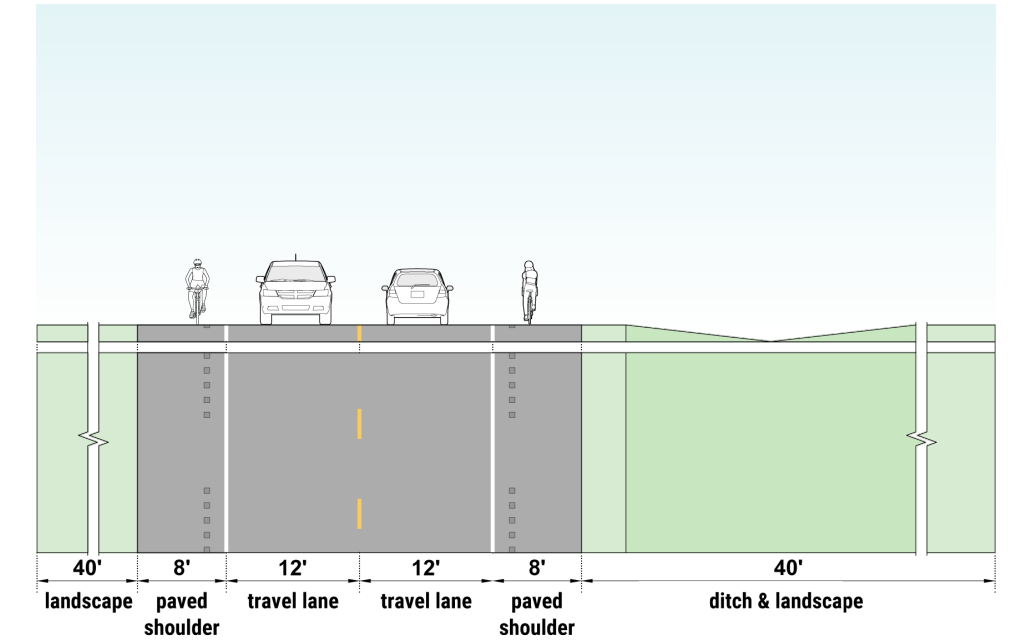
Cost Estimate Notes:

- Length: 36,432 ft. (6.9 mi.)
- Includes adding an 8-foot paved asphalt shoulder to both sides of the corridor
- Assumes no right of way acquisition needed
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

Recommended Concept, Plan View // Old US Hwy 81



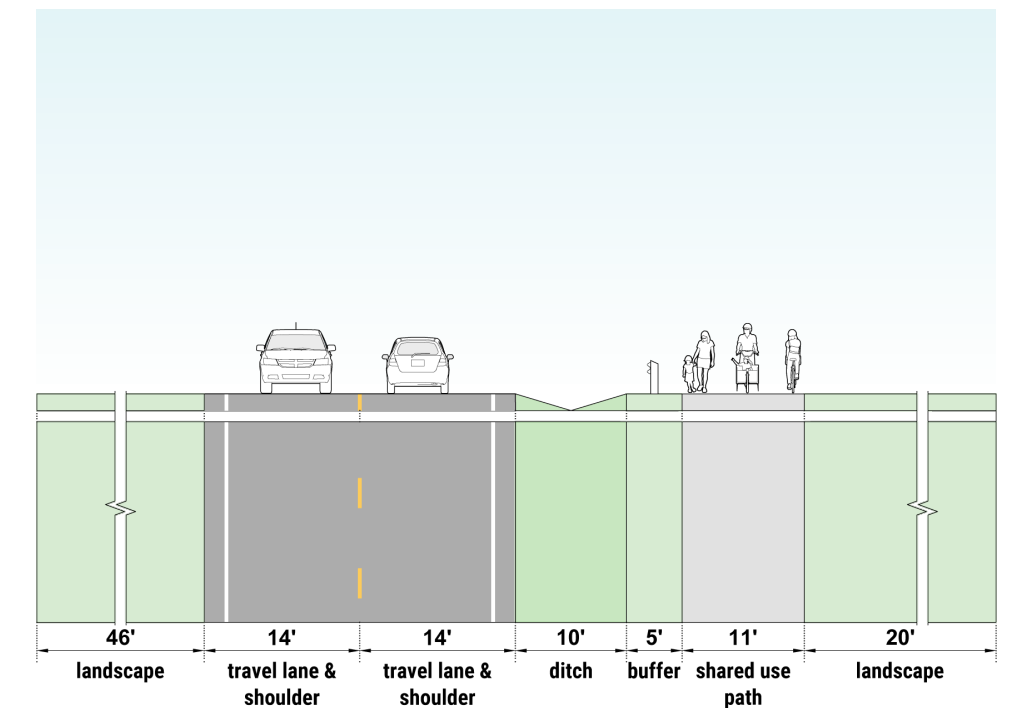
Recommended Concept, Typical Section // Old US Hwy 81, Looking North



Alternative Concept, Plan View // Old US Hwy 81



Alternative Concept, Typical Section // Old US Hwy 81, Looking North



Overview

Gap 5 travels for 2-miles in open space / park land that is adjacent to the Red River between 15th Avenue North and 32nd Avenue Northeast.

Gap 5 is separated into two phases:

- Phase 1 runs from 15th Avenue North to Holm Park (approximately 26th Avenue North)
- Phase 2 runs from Holm Park to 32nd Avenue Northeast

This gap connects to the path which runs adjacent to the Red River south of 15th Avenue North to Mickelson Park and just west of Oak Grove Park. From here a path continues south along the Red River while another path travels through Oak Grove Park and crosses the Red River into Moorhead.

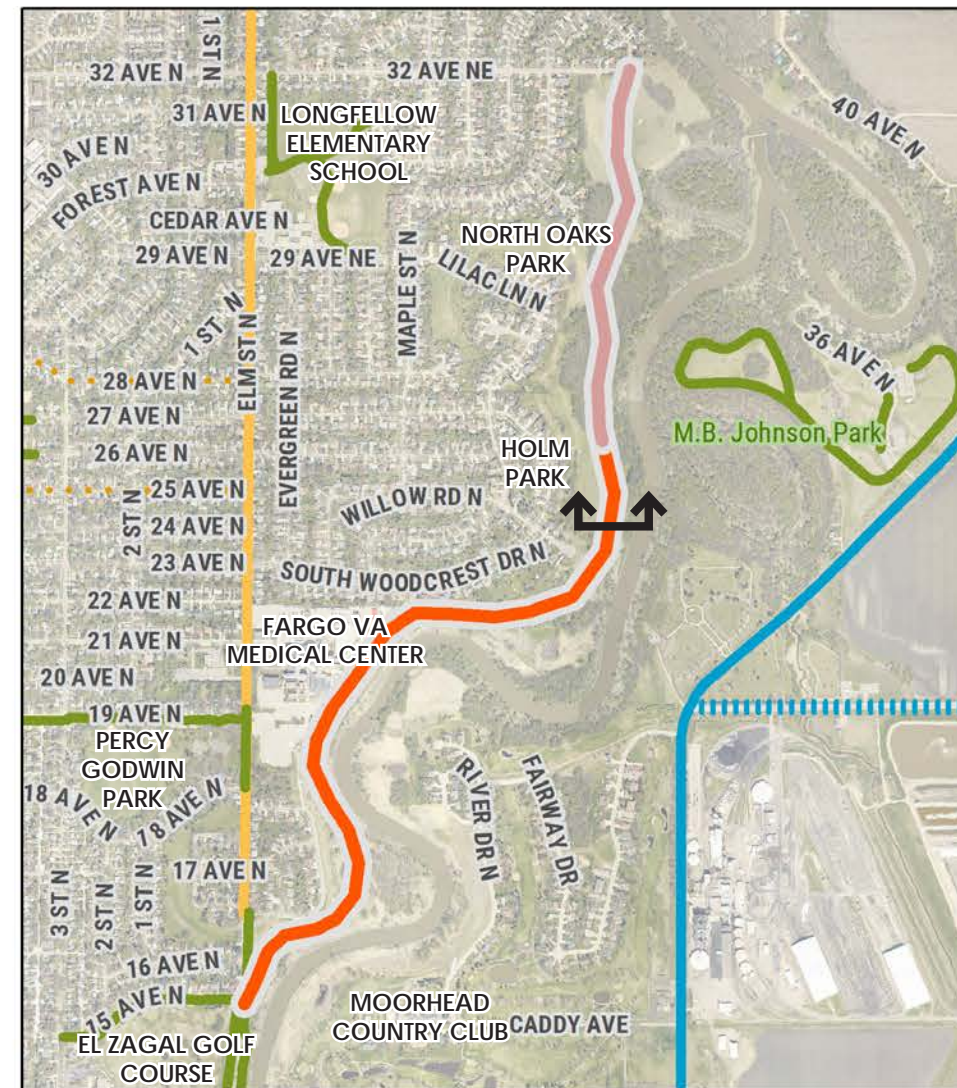
Land Use and Nearby Destinations

This corridor consists of residential and agricultural uses, parks, and open spaces. Nearby destinations include El Zagal Golf Course, Percy Godwin Park (Elephant Park), Fargo VA Medical Center, Holm Park, North Oaks Park, and Longfellow Elementary School. MB Johnson Park is also located across the river from this gap corridor, however there is currently no bridge in the vicinity connecting these two areas.

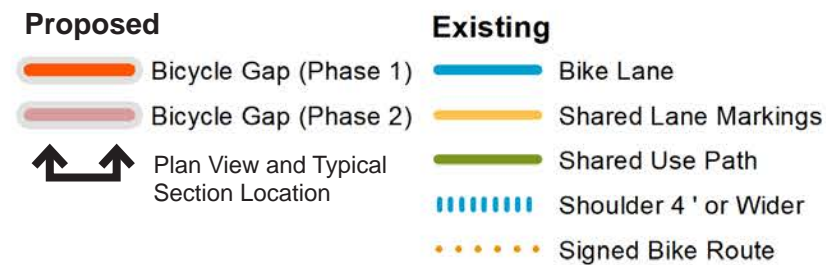
Connections to Nearby Bike Infrastructure

Nearby bicycle facilities include shared lane markings on Elm Street North, signed bike routes on 25th and 28th Avenues North, and shared use paths along Elm Street / Red River, 14th Avenue North, 15th Avenue North, and east of Longfellow Elementary School.

Key Map



Data from MetroCOG and Open Streets Map



Existing conditions through the park land near the Red River.

Recommended Bikeway Concept

The recommendation for Gap 5 is an 11-foot shared use path that would run adjacent to the Red River between 15th Avenue North and 32nd Avenue Northeast. The shared use path would connect to the Red River path at the intersection of Elm Street and 15th Avenue North and provide a contiguous, low-stress bike connection along the Red River from 32nd Avenue Northeast to Lindenwood Park.

The proposed trail is recommended to be located between the floodwall / levee and the river at a river elevation of 22 feet or higher. A segment of the proposed trail in Phase 1 passes along the Fargo Veterans Affairs Hospital (VA); this portion of the trail would require cooperation between the City of Fargo and the VA, and an easement on VA property may be required in order to accommodate the trail.

Initial conversations with VA staff as part of this study indicated that the VA-owned property between the existing floodwall and the Red River may not be available for the use of a future shared use path. Conversations with the VA should be continued and any other governmental agencies associated with this property to make all efforts to implement this shared use path between the floodwall and the Red River.

An interim, short-term solution could be to create a river trail from 15th Avenue North to the Woodcrest neighborhood adjacent to the river in the low-lying Park District land. This would not be an ideal long-term solution, but it would provide an interim connection until the long-term trail connection is constructed.

As a means of providing good connectivity to the proposed Gap 5 path, it is recommended that a connecting shared use path be considered on the Fargo Park District property known as VA Hospital Park (located between the VA property and Woodland Drive North). This would connect the proposed Gap 5 path with the shared use path along Elm Street. This connection would also avoid any 'dead end' termini of the Gap 5 path should permission of a path on the VA-owned land be denied.

Phase 2 of this gap involves City-owned property, Fargo Park District property, and private-owned property, with the majority of the proposed trail length being within a large parcel of private-owned property. Phase 2 should be considered if and when an opportunity arises for a trail within this parcel. Prior to project development, further coordination with property owners will be required as well as further concept analysis to determine specific trail alignment and analyze topography, flood impacts, tree impacts and more.

Recommended Concept, Plan View



Lead Agency:

- City of Fargo

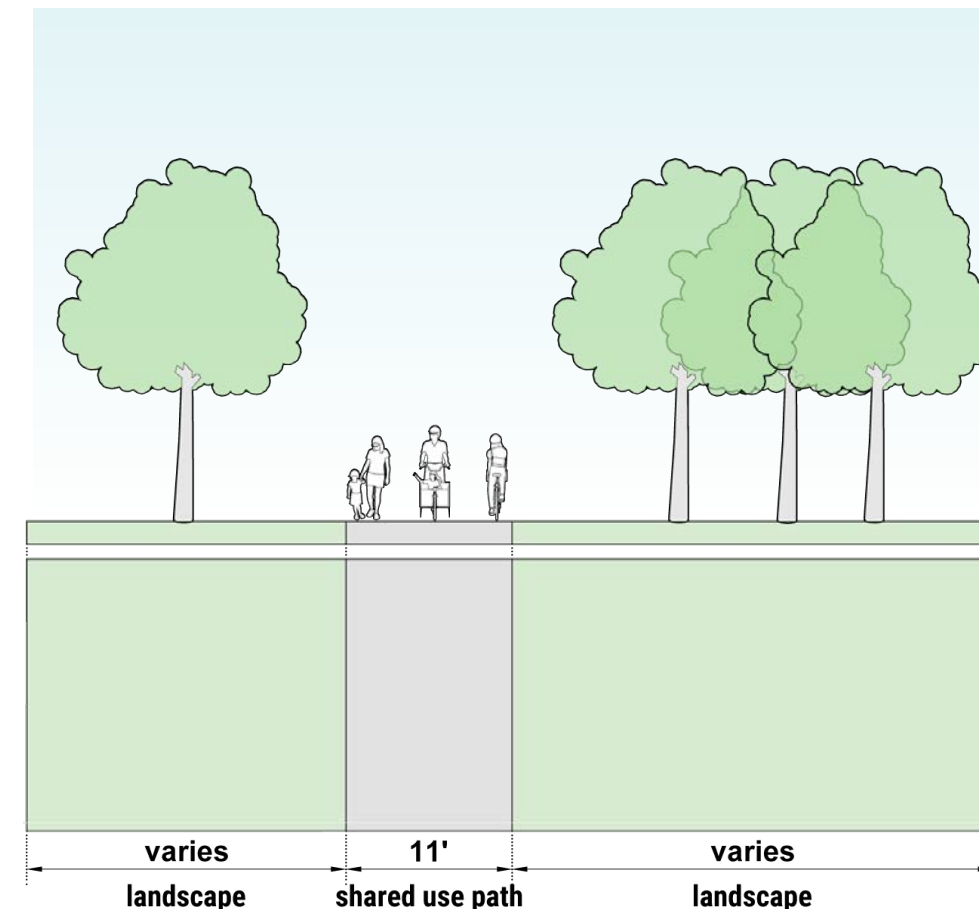
Key Stakeholders:

- Fargo Park District
- Fargo Veterans Affairs Hospital
- Adjacent Property Owners
- Riverkeepers

Planning-Level Cost Estimate

Recommended Concept	Approximate Cost Range
Phase 1: Shared Use Path	\$510,000 - \$730,000
Phase 2: Shared Use Path	\$240,000 - \$350,000
Total	\$750,000 - \$1,080,000

Recommended Concept, Typical Section // Looking North



Cost Estimate Notes:

- Length: 9,892 ft. total (1.87 mi. total)
 - Phase 1: 6,720 ft., Phase 2: 3,172 ft.
- Assumes a concrete path
- Assumes no overexcavation needed for poor soils
- Assumes no flood mitigation treatments required
- Assumes path is located at the top or bottom of slope; does not include treatments for placing path on a slope (i.e. retaining wall)
- Right of way acquisition costs not included
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

Overview

Gap 6 runs for 1-mile on 7th Avenue North between University Dr. North to just west of Oak Grove Lutheran School. This segment consists of one travel lane in each direction with turn lanes at major intersections. Some on-street parking is along 7th Avenue North, although it varies along the corridor.

Land Use and Nearby Destinations

The land uses along the corridor are residential and some light commercial uses. Nearby destinations include Mickelson Field, Wildflower Grove Park, Oak Grove Park, Sanford Medical Center, Downtown Fargo, and Oak Grove School.

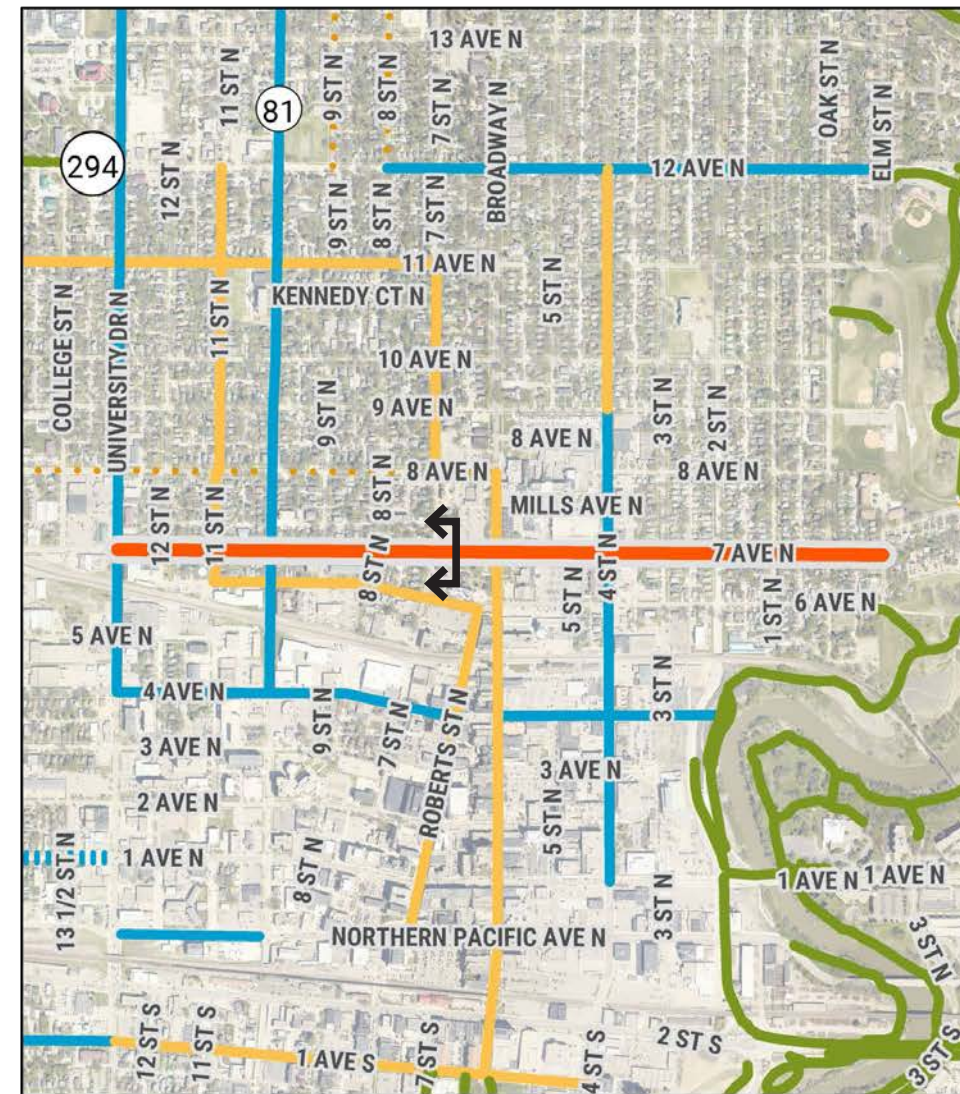
Connections to Nearby Bike Infrastructure

Nearby bicycle facilities include a one-way southbound buffered bike lane on University Drive North, shared lane markings on 11th Street North, a one-way, northbound buffered bike lane on 10th Street North, shared lane markings on 7th Street North, shared lane markings on Broadway North, bike lanes on both sides of 4th Street North, and shared lanes on 6th Avenue North. Access to the Red River shared use path is one block south at the intersection of 6th Street North / Elm Street.

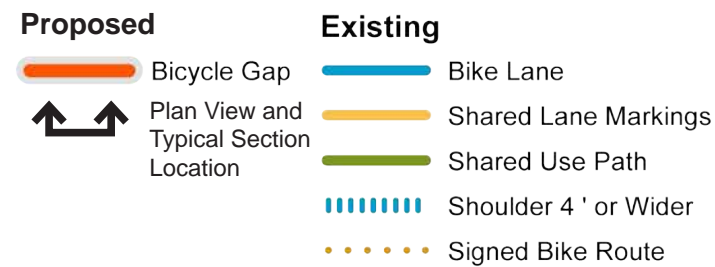
Corridor Features

	Speed Limit	Traffic Volume	Total Right-of-Way
7th Ave N	25 MPH	5,000-9,700 AADT	64'

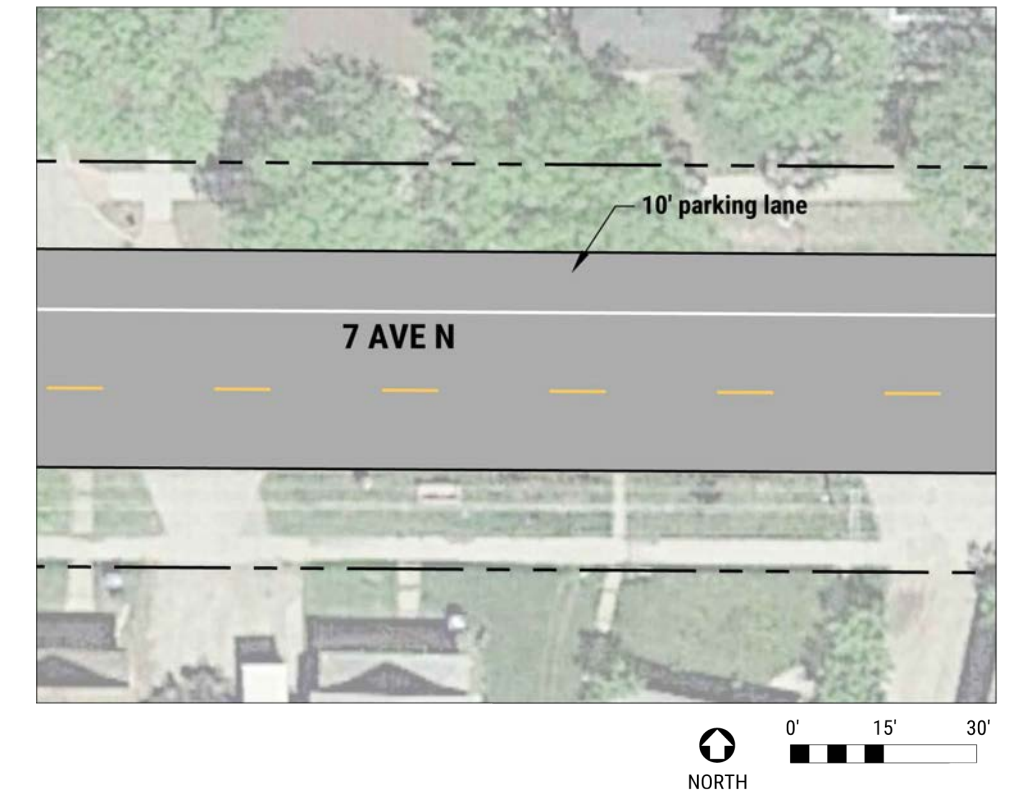
Key Map



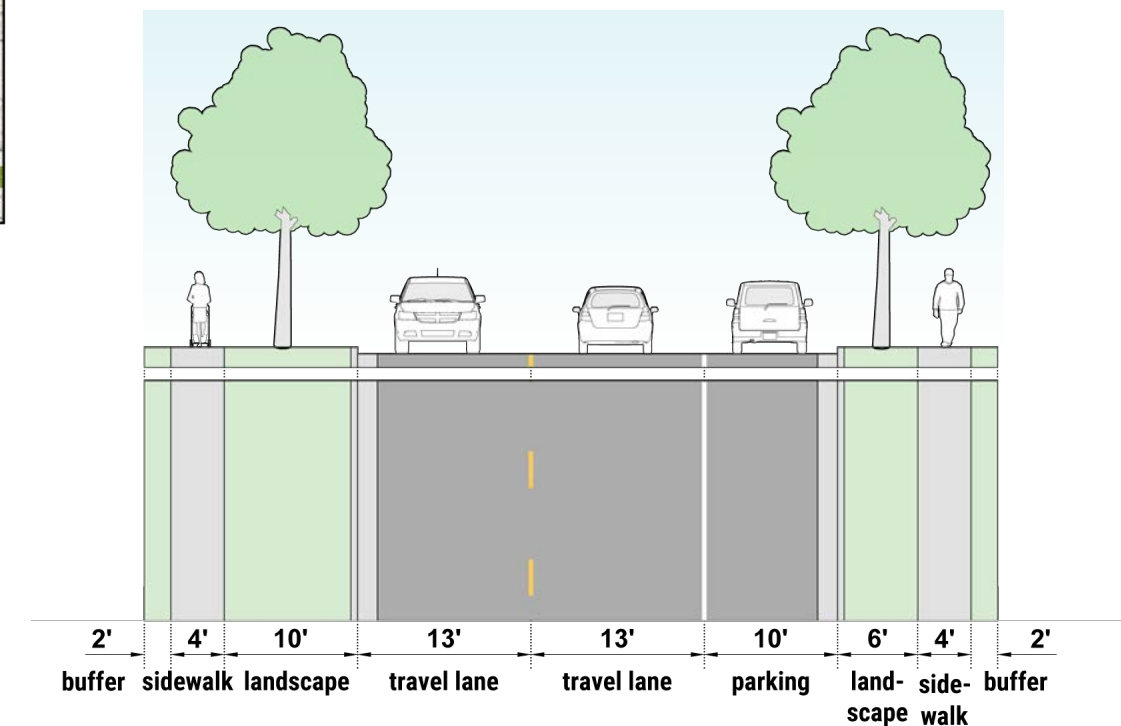
Data from MetroCOG and Open Streets Map



Existing Plan View // 7th Ave N



Existing Typical Section // 7th Ave N, Looking West



Recommended Bikeway Concept

A 'no-build' alternative is recommended along this corridor. The City is reconstructing 7th Avenue North from 2nd Street North to University Drive in 2020-2021. The roadway cross section will remain the same as the existing conditions and will not feature a bikeway. The no-build alternative maintains 13-foot travel lanes in each direction and a 10-foot parking lane on the north side of the street. In lieu of filling this bikeway gap in the short-term, the City of Fargo may consider 6th Avenue North as an alternative bikeway alignment to fill this gap. City of Fargo staff are considering adding shared lane markings and bikeway signage on 6th Avenue North east of Broadway to Wildflower Grove Park.

Lead Agency:

- City of Fargo

Key Stakeholders:

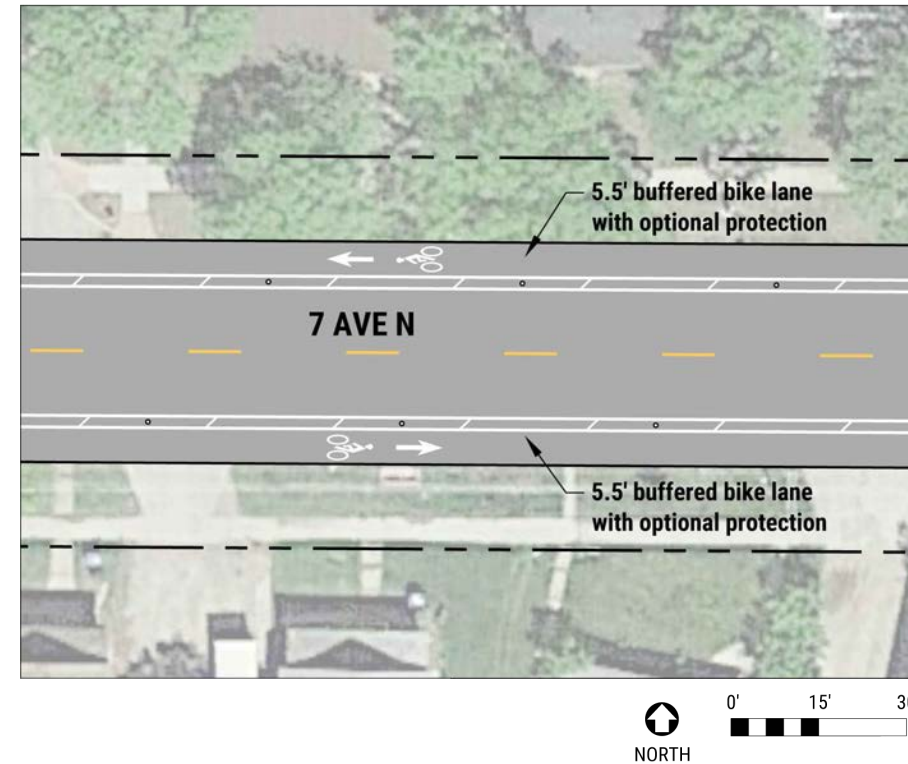
- Adjacent Property Owners

Planning-Level Cost Estimate

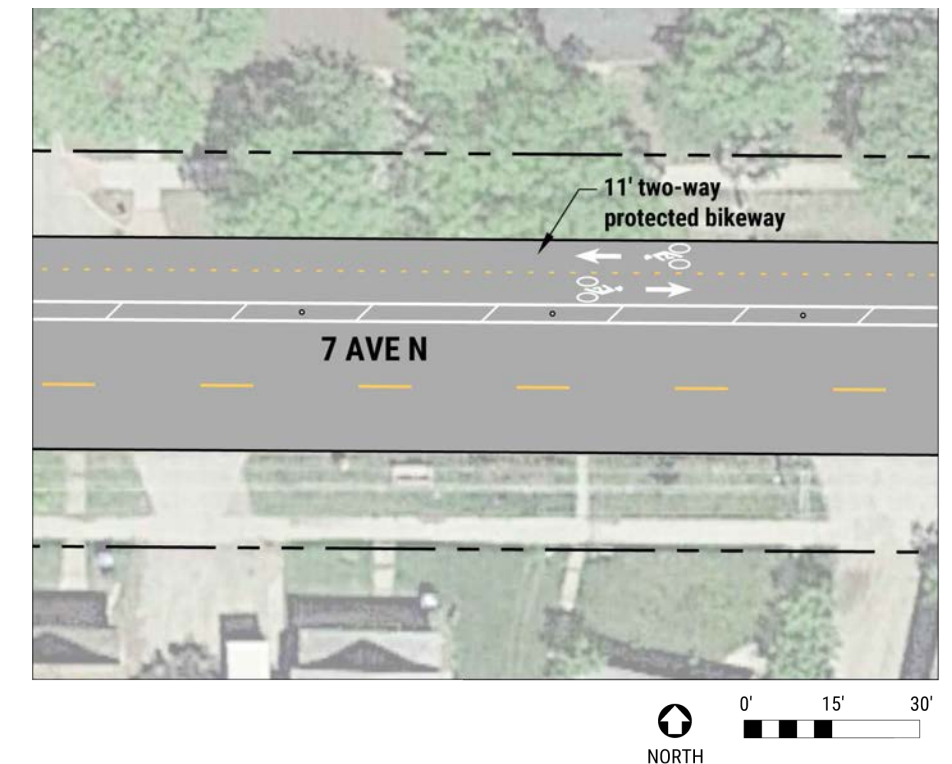
Recommended Concept	Approximate Cost Range
No-build alternative	n/a*

*No bikeway cost estimate due to no-build alternative

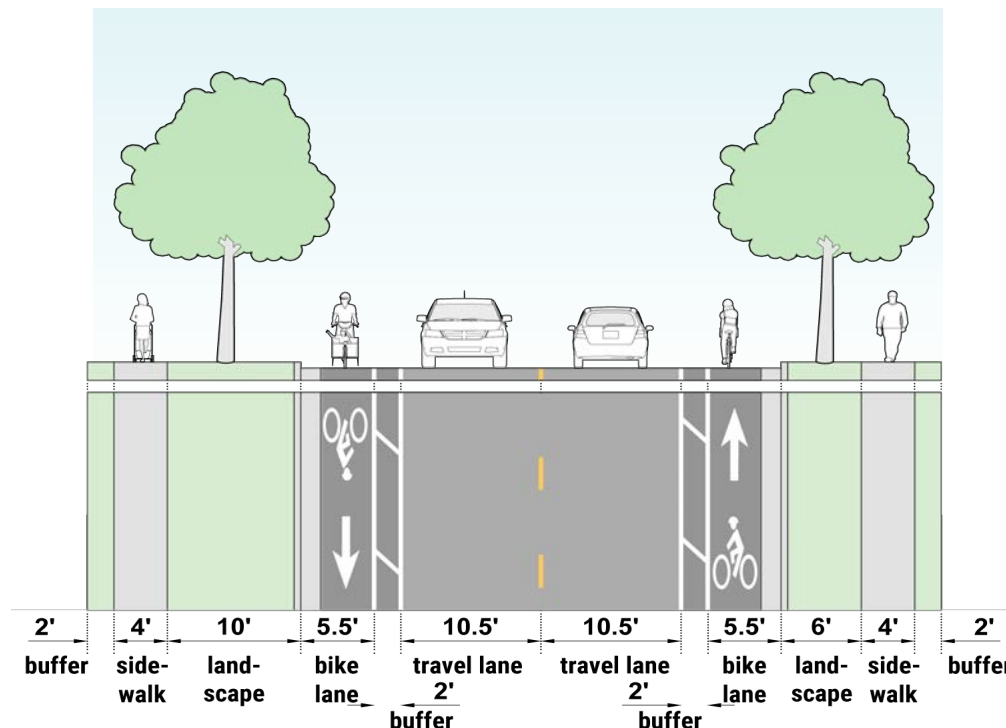
Alternative Concept 1, Plan View // 7th Ave N



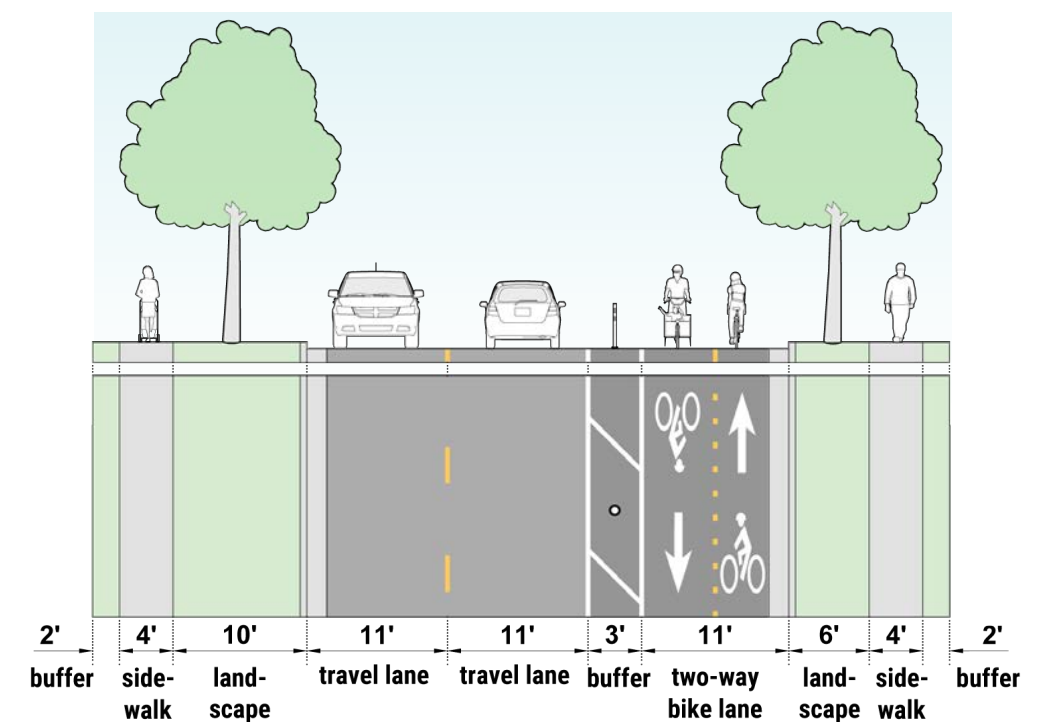
Alternative Concept 2, Plan View // 7th Ave N



Alternative Concept 1, Typical Section // 7th Ave N, Looking West



Alternative Concept 2, Typical Section // 7th Ave N, Looking West



Overview

Gap 7 is a 1.5-mile corridor on 13th Avenue South between 21st Street South to 4th Street South. 13th Avenue South is a minor arterial roadway. From 21st Street South to University Drive, the corridor consists of one travel lane in each direction and a center turn lane. From University Drive to 4th Street South, the corridor mostly consists of one travel lane in each direction with parking on the north side. The corridor provides bus service for MATBUS routes 14 and 15. Bus route 14 travels on the 13th Avenue corridor between University Drive and 4th Street, and bus route 15 travels on 13th Avenue between 10th Street and west beyond extents of the gap 7 corridor.

Land Use and Nearby Destinations

Land uses along the corridor include a mix of residential, civic, and commercial uses. Nearby destinations include Carl Ben Eielson Middle School, and Clara Barton Elementary School.

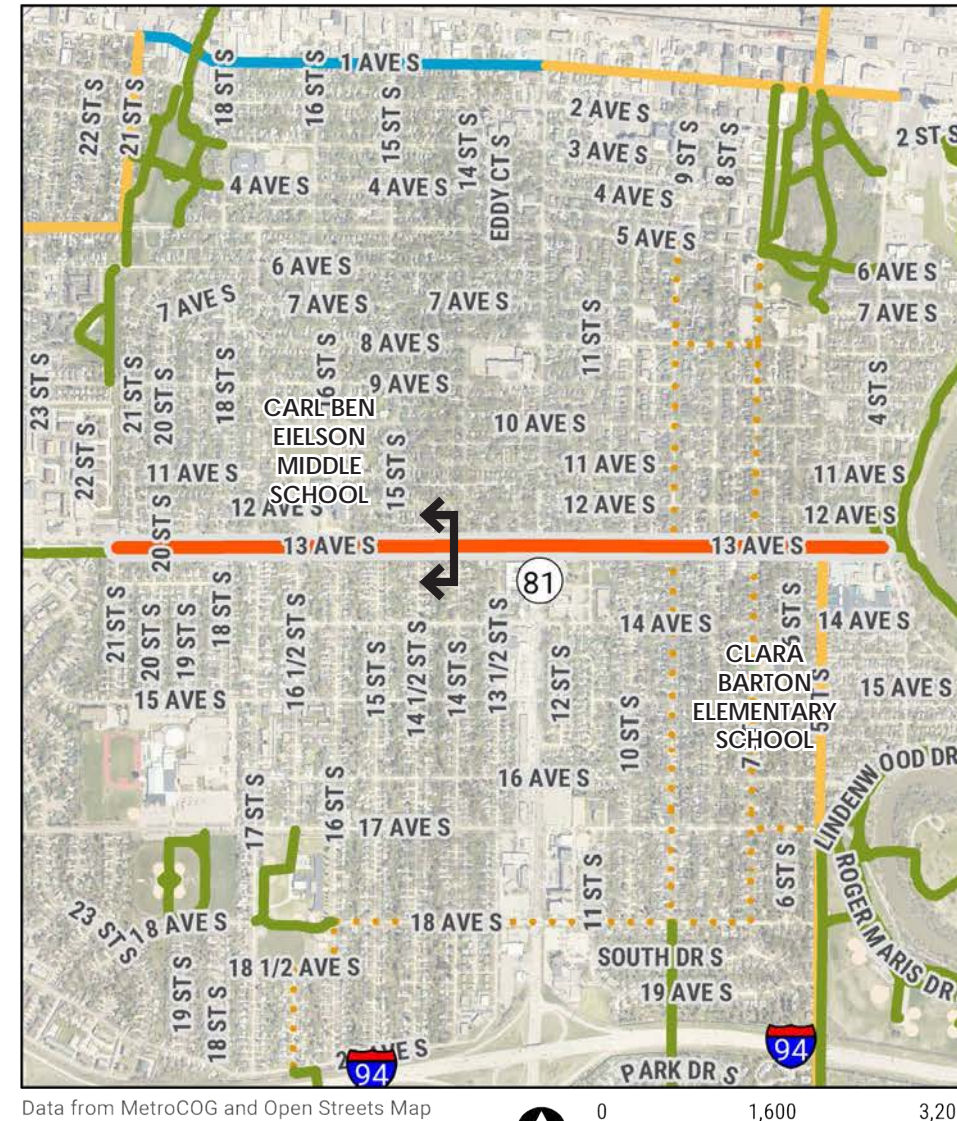
Connections to Nearby Bike Infrastructure

Nearby bicycle facilities include the shared use path along the Red River, shared lanes on 5th Street, signed bike routes on 7th Street and 9th Street, and a shared use path on 13th Avenue South (west of 21st Street). The eastern end of the corridor provides access to the Red River Trail.

Corridor Features

	Speed Limit	Traffic Volume	Total Right-of-Way
13th Ave S	25 MPH	13,000-19,000 AADT (west of 10th St. S) 5,900 AADT (east of 10th St. S)	76'

Key Map



Data from MetroCOG and Open Streets Map

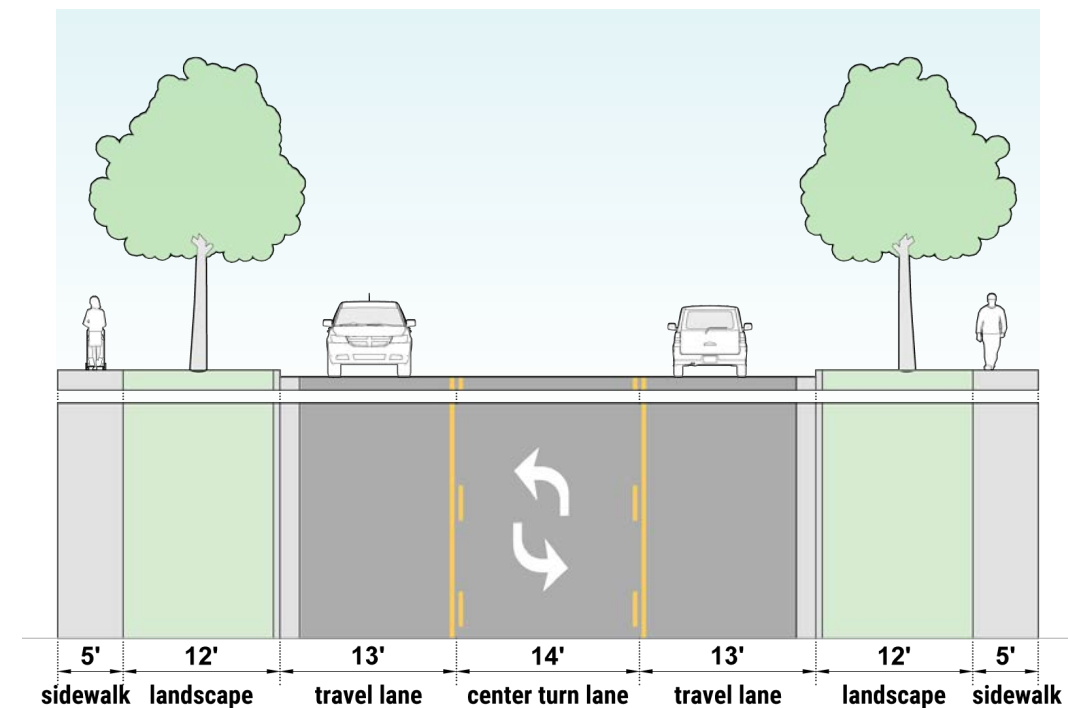
- Proposed**
- █ Bicycle Gap
- █ Bike Lane
- █ Shared Lane Markings
- █ Shared Use Path
- ⋯ Signed Bike Route
- ↔ Plan View and Typical Section Location

Existing Plan View // 13th Ave S



0' 15' 30'
NORTH

Existing Typical Section // 13th Ave S., Looking West



Recommended Bikeway Concept

Long-term

The recommended, long-term concept for Gap 7 is a two-way bikeway on the north side of 13th Avenue. A two-way on-street bikeway would provide a direct connection to the off-street shared use paths on each end of this gap and create a safer, more comfortable east-west route for bicyclists through this neighborhood.

The recommended long-term cross section varies slightly along the corridor due to varying street widths - 13th Avenue west of University Drive is significantly wider than east of University Drive. The recommended concept west of University Drive features a motor vehicle travel lane in each direction and a center turn lane. This recommendation is considered 'long-term' because it would require a full street construction project in order to be implemented. The curb-to-curb width of the existing roadway is 40-feet, and the curb-to-curb width of the recommended long-term concept is 44-feet. The recommendation is to widen the 13th Avenue by 2-feet of each side of the existing roadway between 21st Street and University Drive, which would allow enough space for the recommended roadway configuration without damaging any of the street trees located in the boulevard on either side of the street.

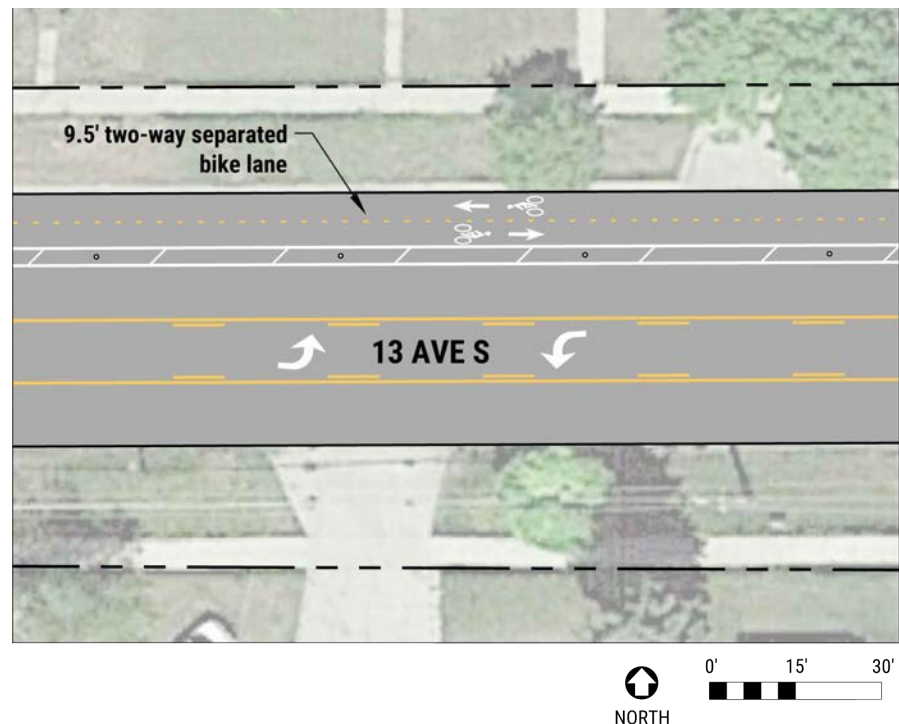
East of University Drive the existing curb-to-curb width is recommended to remain unchanged. The narrowest portion of the corridor is between 4th Street and 9th Street (32 feet), where the recommendation is to have two 10' drive lanes, a 10' two-way bikeway on the north side of the street, and a 2' buffer between the westbound drive lane and the bikeway.

It is noted that a two-way bikeway will create conflicts with westbound buses on the north side of 13th Avenue. Accommodating bus stops along two-way separated bikeways is more challenging due to the bi-directional travel of bicyclists, which increases the likelihood for conflicts between bicyclists and passengers alighting buses. Further analysis, coordination with MATBUS, and design of bus stops along this corridor is needed prior to implementation. Refer to Appendix C for more information on bus stop treatments along bikeways.

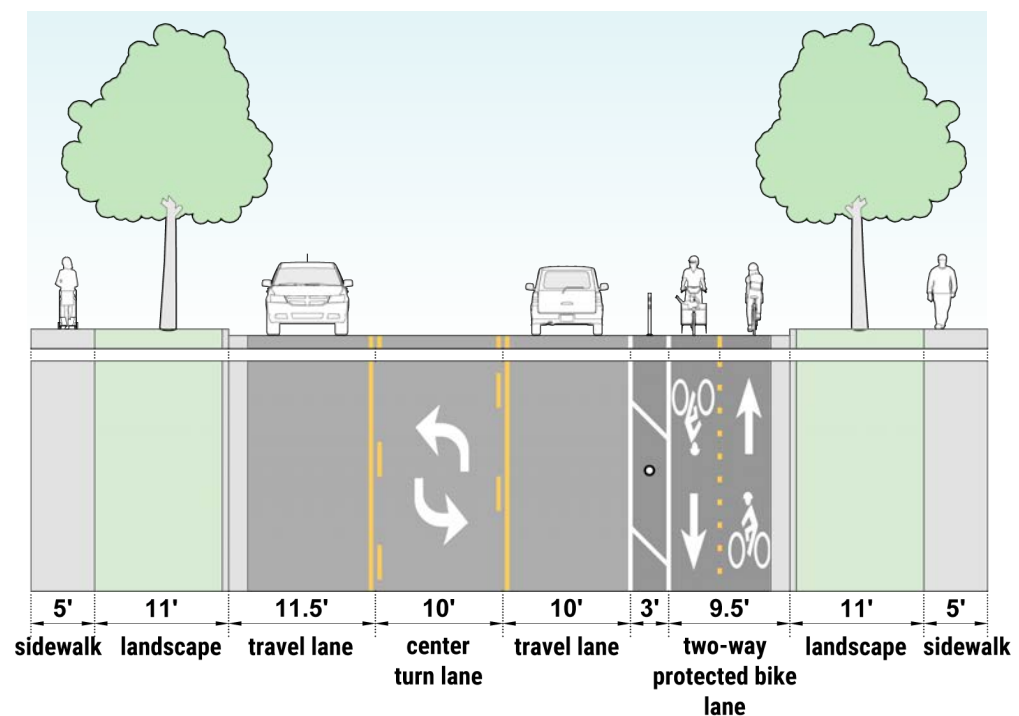
Short-term

The short term recommendation is to provide an on-street bike lane on 13th Avenue from 4th Street to 9th Street, which would only require re-striping of the roadway. This would connect the existing signed bike routes on 9th and 7th Streets, shared lane markings on 5th Street, buffered bike lanes on 4th Street, and the Red River path. The on-street parking on the north side of 13th Avenue would need to be removed. However, low parking utilization has been observed along this corridor.

Recommended Concept (Long-term), Plan View // 13th Ave S (West of University Drive)



Recommended Concept (Long-term), Typical Section // 13th Ave S, Looking West (West of University Drive)



Planning-Level Cost Estimate

Recommended Concept	Approximate Cost Range
Two-way separated bikeway	\$1,469,000 - \$1,906,000

Cost Estimate Notes:

- Length: 7,145 ft. (1.35 mi.)
- Includes street-level, two-way separated bikeway
- Requires striping, signing, and flexible delineators
- Includes the cost to widen the existing roadway between 21st Street and University Drive (3,800 feet/0.72 mi.) by 4 feet (2 feet on each side)
- Assumes integral curbs on each side of street between 21st Street and University Drive
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

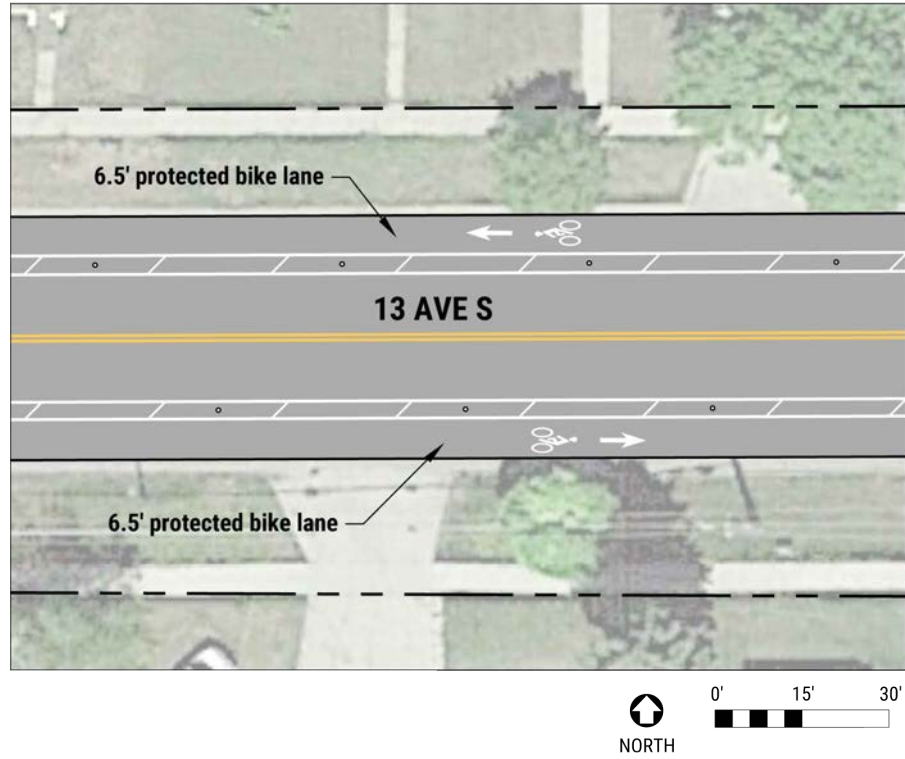
Lead Agency:

- City of Fargo

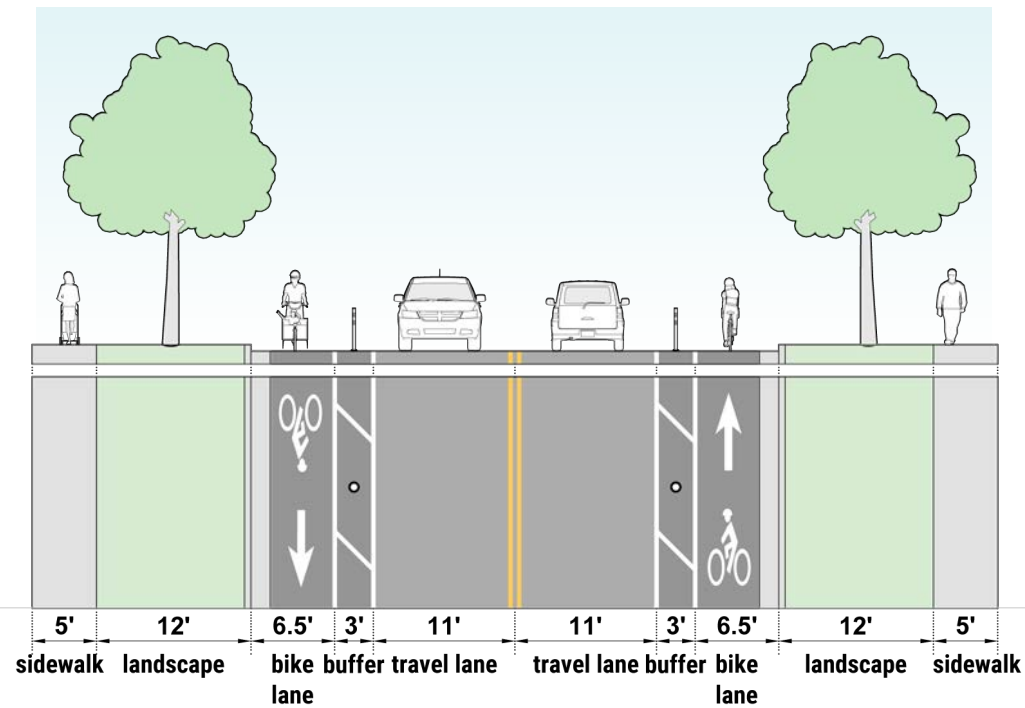
Key Stakeholders:

- MATBUS
- Adjacent Property Owners
- Carl Ben Eielson Middle School
- North Dakota Department of Transportation (NDDOT)
- City of Fargo Forestry Department

Alternative Concept, Plan View



Alternative Concept, Typical Section //
13th Ave S, Looking West



Overview

Gap 8 is a 1-mile corridor on 25th Avenue South and 24th Avenue South between 18th Street South and 5th Street South. The gap is broken into two segments - segment 1 is the western half of the gap on 25th Avenue South, and segment 2 is on 24th Avenue South. 25th Avenue South is a collector and 24th Avenue South is a minor arterial roadway. The corridor consists of one travel lane in each direction, as well as turn lanes to access University Drive. The corridor also provides bus service to MATBUS route 14, which travels on 25th Avenue between University Drive and 18th Street.

Land Use and Nearby Destinations

The corridor consists of residential and light commercial land uses. Nearby destinations include Lincoln Elementary School, Fargo Country Club, the Riverside Cemetery, and commercial destinations along University Drive.

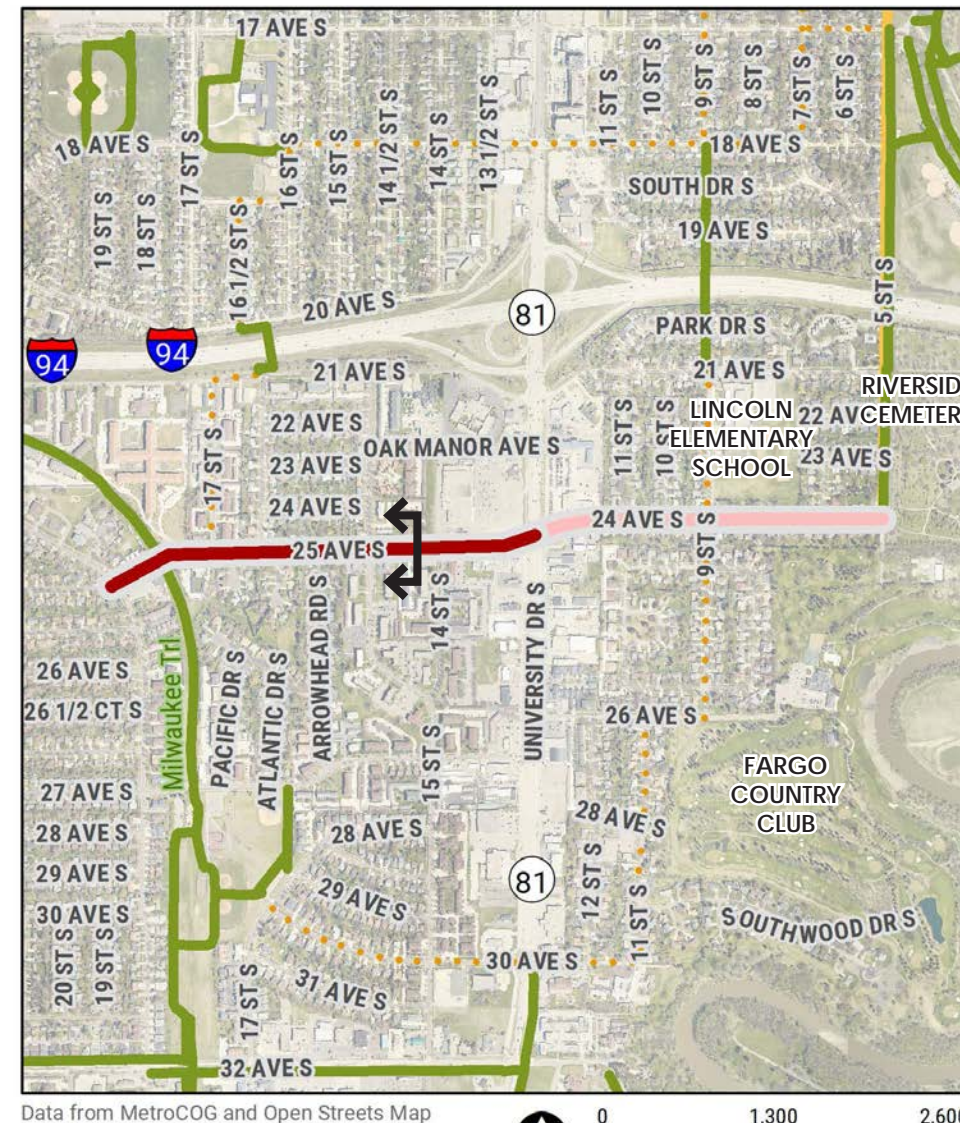
Connections to Nearby Bike Infrastructure

This corridor connects to off-street shared use paths on both the eastern and western ends. It connects to the Milwaukee Trail on the west and a path along the east side of 5th Street South, which provides a direct connection to Lindenwood Park. This corridor also connects to shared lanes located on 9th Street.

Corridor Features

	Speed Limit	Traffic Volume	Total Right-of-Way
Segment 1: 25th Ave S	25 MPH	5,600-6,300 AADT	80'
Segment 2: 24th Ave S	25 MPH	2,100-4,400 AADT	70'

Key Map



Data from MetroCOG and Open Streets Map

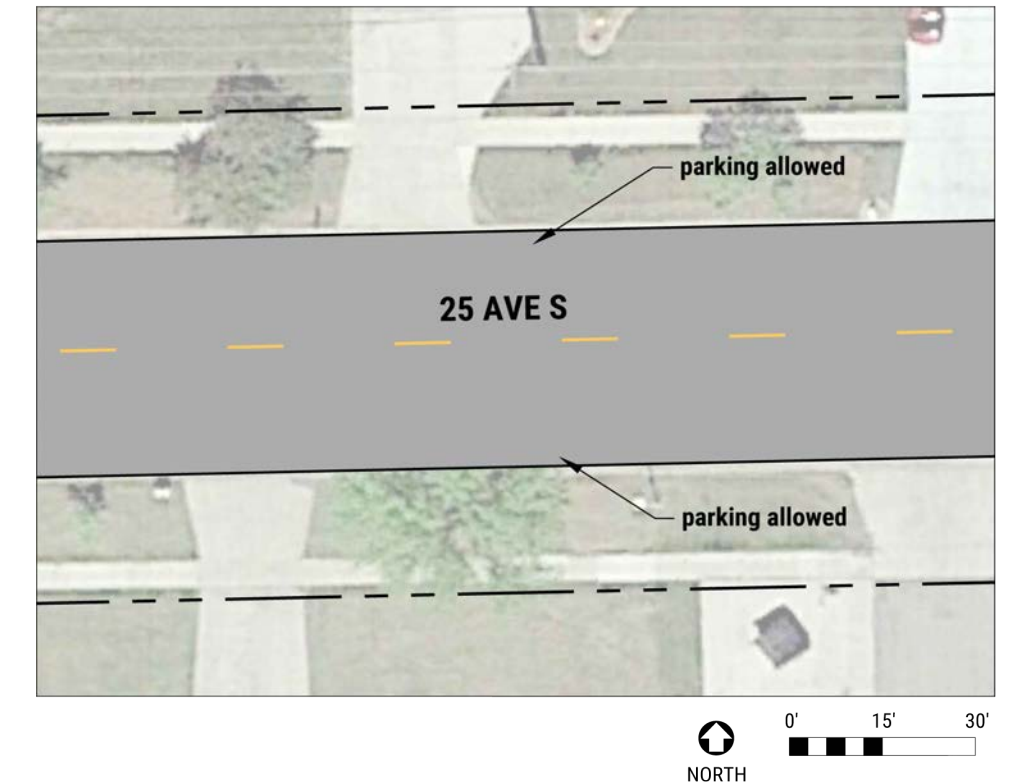
Proposed

- █ Bicycle Gap 8 (Segment 1)
- █ Bicycle Gap 8 (Segment 2)
- Plan View and Typical Section Location

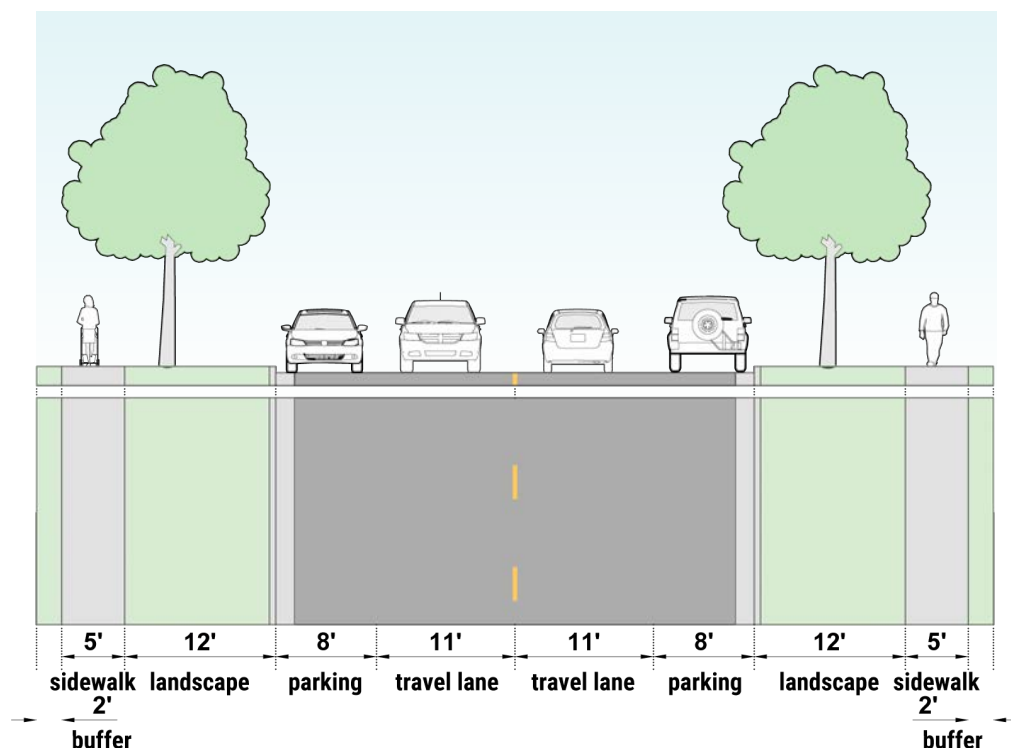
Existing

- █ Shared Lane Markings
- █ Shared Use Path
- ⋯ Signed Bike Route

Existing Plan View // Segment 1: 25th Ave S



Existing Typical Section // Segment 1: 25th Ave S, Looking West



Recommended Bikeway Concepts

The recommendation for Gap 8 is a variety of bike facilities due to the varying characteristics along the corridor. On segment 1 (25th Avenue South from 18th Street South to University Drive), the recommended concept is a two-way separated bikeway on the south side of the street with a 3-foot buffer and two 12-foot travel lanes. Intersection enhancements are recommended at University Drive and 25th Avenue to increase the safety and comfort of bicyclists, such as a marked bicycle crossing on University Drive.

It is noted that a two-way bikeway creates conflicts with eastbound buses on the south side of 25th Avenue. Accommodating bus stops along two-way separated bikeways is more challenging due to the bi-directional travel of bicyclists, which increases the likelihood for conflicts between bicyclists and passengers alighting buses. Further analysis, coordination with MATBUS, and design of bus stops along this corridor is needed prior to implementation. Refer to Appendix C for more information on bus stop treatments along bikeways.

On segment 2, the recommended concept is a shared use path along 24th Avenue South from University Drive to 9th Street. Further study and analysis should be done before determining the side of street for the shared use path. Preliminary analysis indicates that a shared use path could fit on the south side of the street without requiring land acquisition or property easements, and without causing damage to street trees. A path on the south side of the street would also provide a better connection to the proposed two-way separated bikeway on the south side of 25th Avenue South.

At the intersection of 9th Street and 24th Avenue South, the proposed shared use path would terminate and bicyclists would use the existing on-street (shared-lane markings) bike facility on 24th Avenue and 9th Street. The existing 24th Avenue bike route could be enhanced by adding bike route signage and traffic calming measures to help slow motor vehicle speeds and increase the safety and comfort of people bicycling.

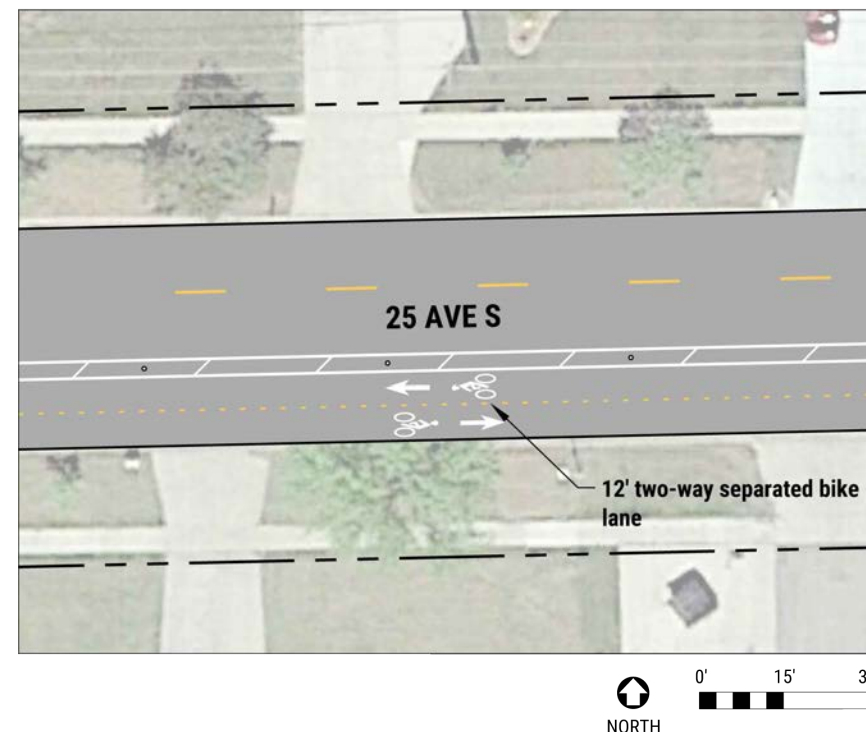
Lead Agency:

- City of Fargo

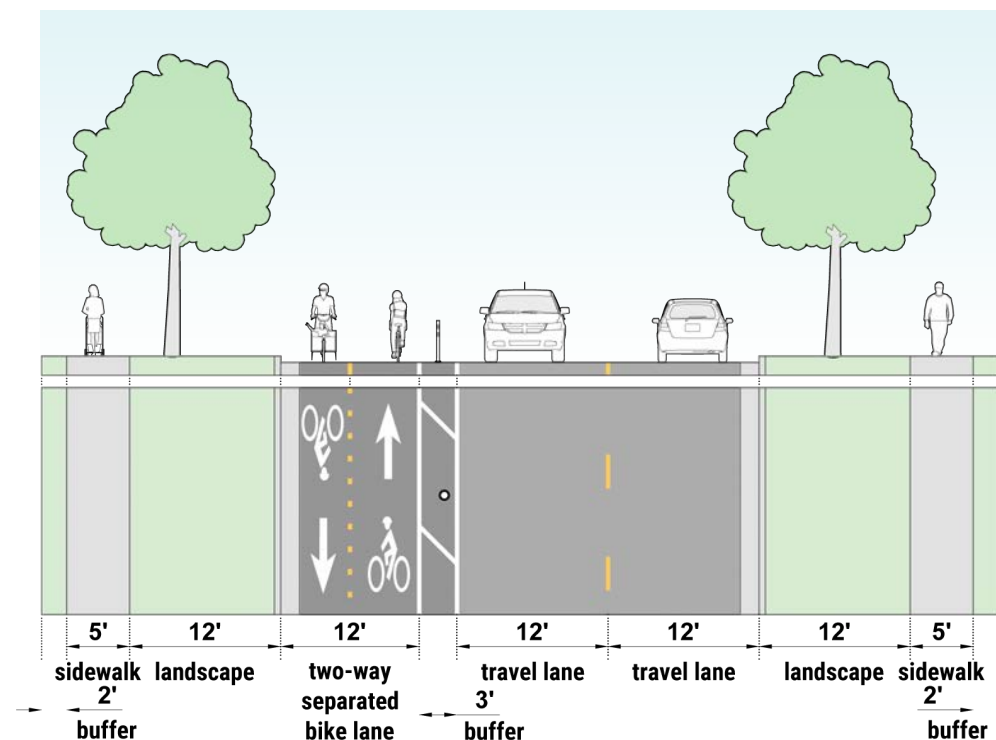
Key Stakeholders:

- Adjacent Property Owners
- MATBUS
- City of Fargo Forestry Department

Segment 1: Recommended Concept, Plan View



Segment 1: Recommended Concept, Typical Section // Looking West (25th Ave S)



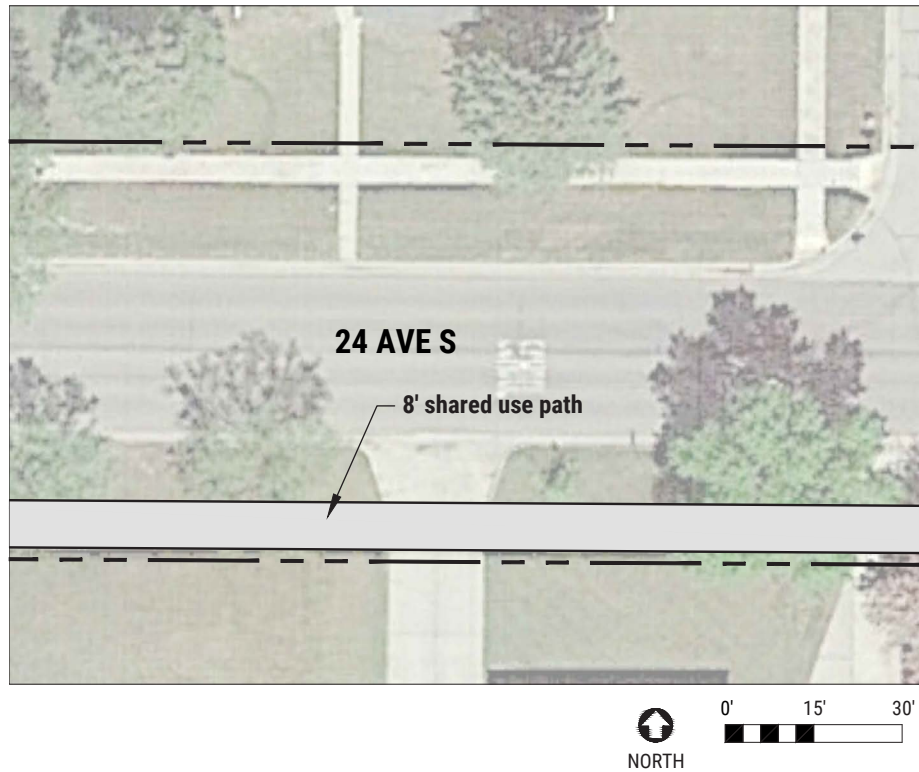
Planning-Level Cost Estimate

Recommended Concept	Approximate Cost Range
Segment 1: Two-way Separated Bikeway	\$8,000 - \$12,000
Segment 2: Shared Use Path	\$100,000 - \$150,000
Total	\$108,000 - \$162,000

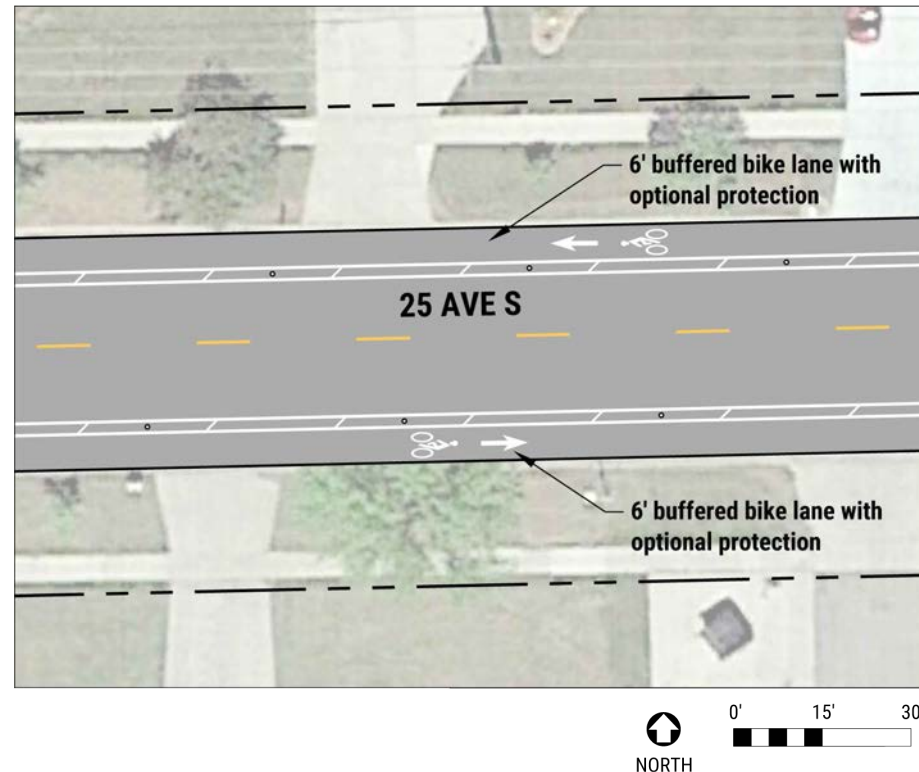
Cost Estimate Notes:

- Segment 1
 - Length: 3,130 ft. (0.59 mi.)
 - Street-level, two-way bikeway. Requires striping, signing, and flexible delineators.
- Segment 2
 - Length: 1,225 ft. (0.23 mi.)
 - Single 10' wide asphalt path with signage and intersection crossing/curb ramp improvements
 - Includes an allowance for drainage and landscaping
 - Assumes shared use paths do not require any removals or right of way acquisition
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

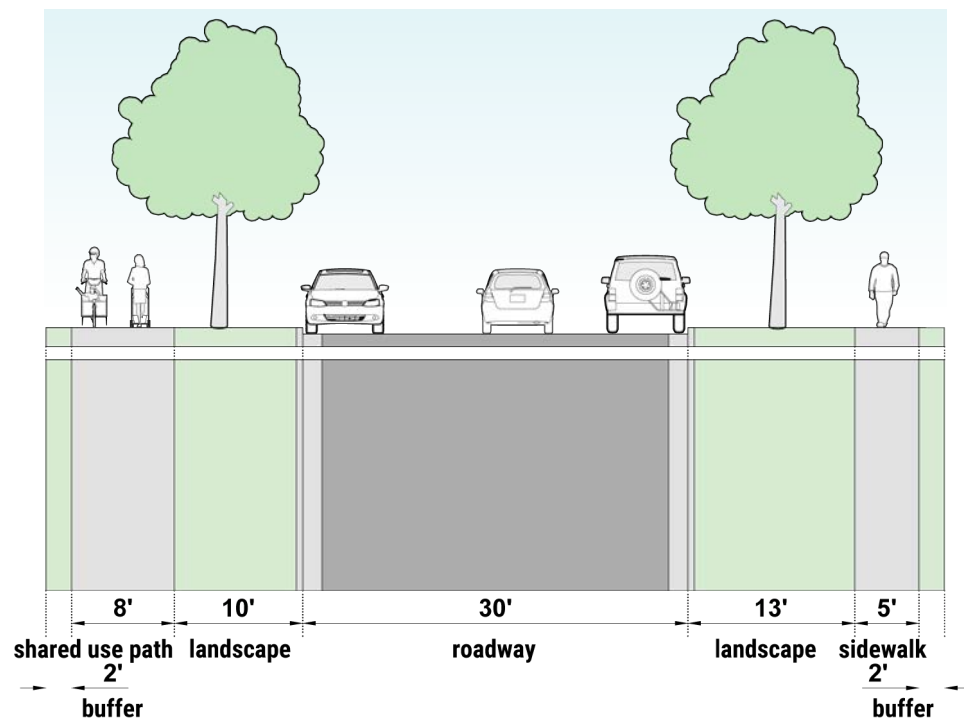
Segment 2: Recommended Concept, Plan View



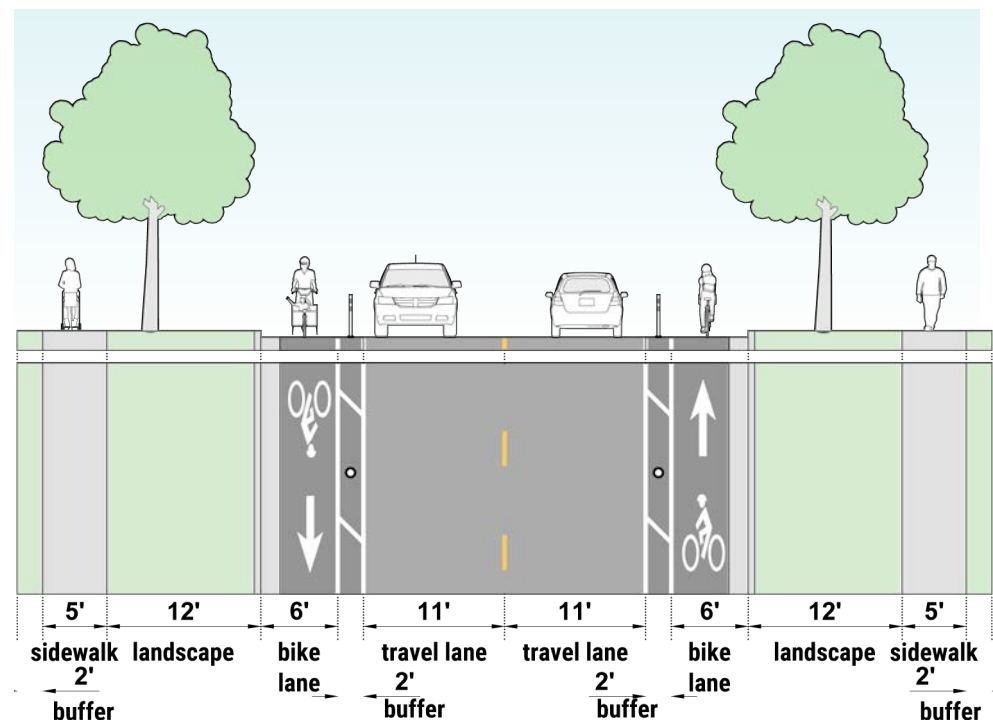
Segment 1: Alternative Concept, Plan View



Segment 2: Recommended Concept, Typical Section // Looking West (24th Ave S)



Segment 1: Alternative Concept, Typical Section // Looking West (25th Ave S)



Overview

Gap 9 is located between 40th Avenue South in Fargo and 50th Avenue Southwest in Moorhead, and crosses the Red River between University Dr. South (City of Fargo) and Trollwood Performing Arts School (City of Moorhead).

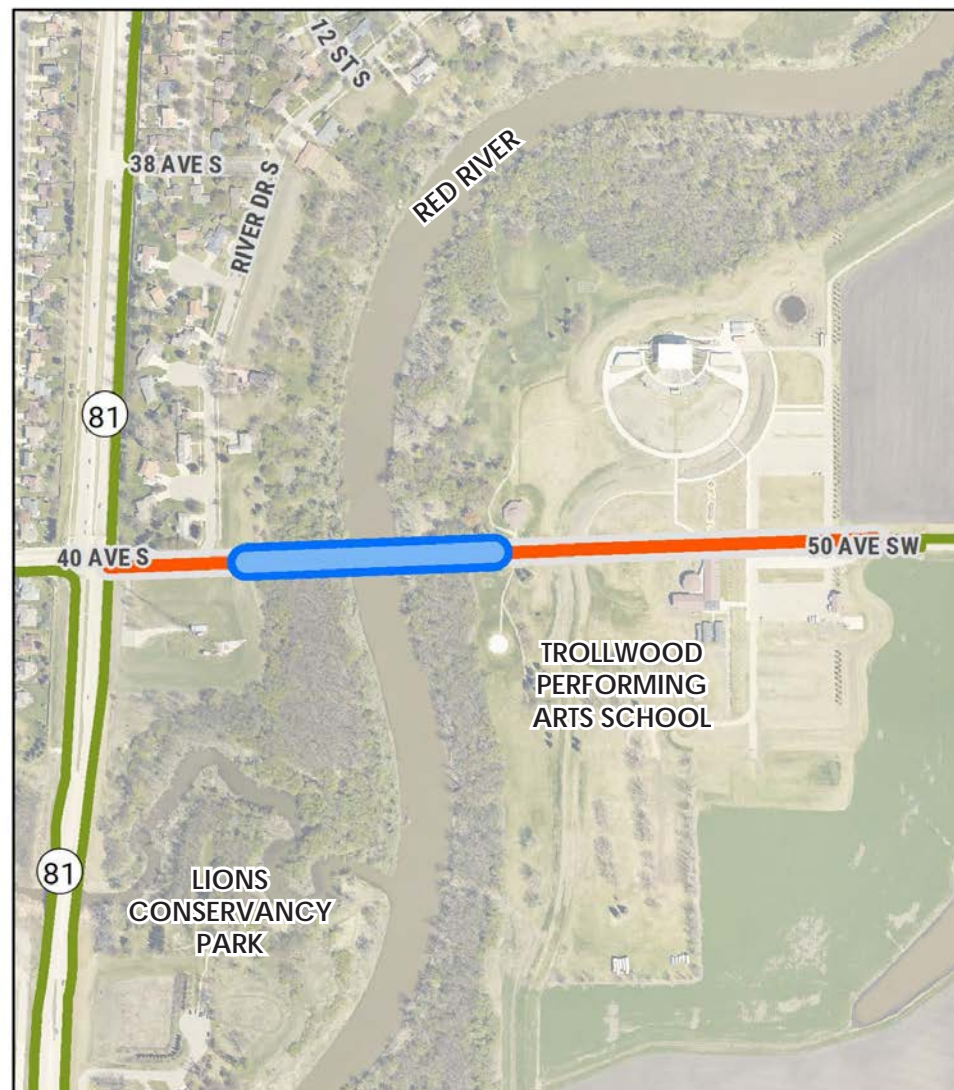
Land Use and Nearby Destinations

Nearby land uses are mostly residential and agricultural uses, parks, and open spaces. Nearby destinations in the City of Fargo include Discovery Middle School, Lions Conservancy Park, and the park system along the Milwaukee Trail. Nearby destinations in the City of Moorhead include the Trollwood Performing Arts School.

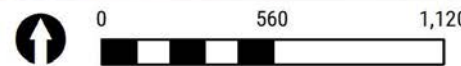
Connections to Nearby Bike Infrastructure

Nearby bicycle facilities include shared use paths along University Drive South, the north side of 50th Avenue South, and along 40th Avenue South, ultimately connecting to the Milwaukee Trail and several miles west in the City of Fargo. In the City of Moorhead, nearby bicycle facilities include a shared use path on the north side of 50th Avenue Southwest.

Key Map



Data from MetroCOG and Open Streets Map



Example Image: Bicycle and pedestrian bridge in Grand Forks, ND crossing the Red River.

Recommended Bikeway Concept

The recommendation for Gap 9 is a high-clearance bicycle and pedestrian bridge crossing the Red River and shared use paths that connect to existing paths on both sides of the river. Unlike the existing lift bridges crossing the Red River in Fargo/Moorhead, the proposed bridge would be a high-clearance bridge that would not need to be lifted during flood events. This is due to the existing slopes on both sides of the river at this location. A high-clearance bridge would also increase usability of the bridge during flood situations. The recommended bridge is assumed to be 800 feet long and 15 feet wide. The bridge is recommended to be 800 feet long so that it is located at an elevation high enough to avoid the vast majority of floods. At 800 feet in length, the bridge would be at an approximate elevation of 903 feet, which is equivalent to a 37-foot river stage and is above the 100-year floodplain. Implementation of this bridge will require geotechnical analysis, optimum crossing location analysis, coordination with the US Army Corps of Engineers, and more.

The proposed shared use paths would connect the bridge to existing shared use paths on both sides of the river. On the west side, a shared use path would connect the bridge to the path at the intersection of 40th Avenue S and University Drive in Fargo. On the east side, a shared use path would connect the bridge to the path on the north side of 50th Avenue SW in Moorhead. Implementation of this path on the east side will require approval and coordination with the Trollwood Performing Arts School. The path alignment shown does not necessarily reflect a preferred alignment; further coordination the City of Moorhead and Trollwood Performing Arts School is required.

Planning-Level Cost Estimate

Recommended Concept	Approximate Cost Range
Bicycle and Pedestrian Bridge	\$3,313,560 - \$4,638,984
Shared Use Path	\$646,440 - \$911,016
Total	\$3,960,000 - \$5,550,000

Cost Estimate Notes

- New path length: 1,737 ft. (0.33 mi.)
 - 464 ft (West) + 1,273 ft (East)
- New bridge assumed to be 800 feet long and 15 feet wide (11-foot trail, 2 feet each side for parapets)
- New path assumed to be 11-foot concrete
- Includes ADA curb ramps
- Right of way acquisition not included
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

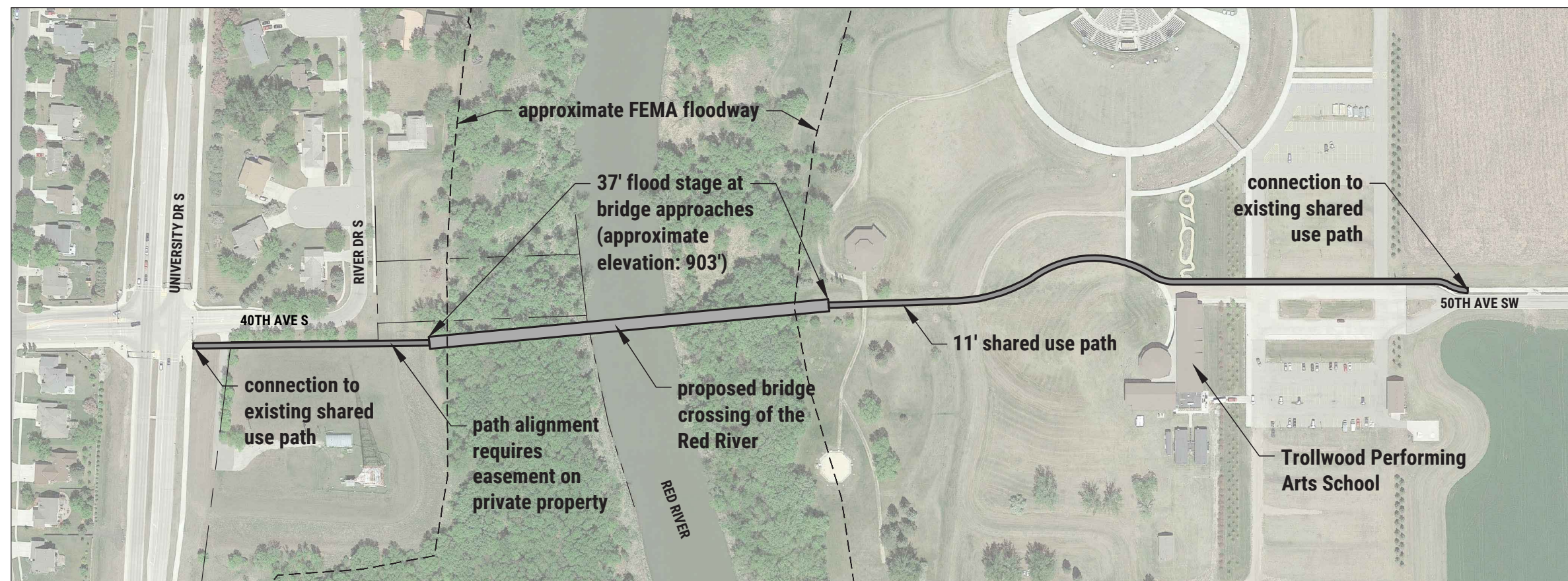
Lead Agencies

- City of Fargo
- City of Moorhead

Key Stakeholder

- Trollwood Performing Arts School
- Riverkeepers

Recommended Bridge Alignment



Overview

Gap 10 is located on Broadway from 8th Avenue North to 35th Avenue North. Adjacent land uses, street character, and street design changes significantly along the 2.6 mile corridor. The gap contains two segments - segment 1 runs from 35th Avenue North to 25th Avenue North, and segment 2 runs from 25th Avenue North to 9th Avenue North. The existing conditions graphics show the most common roadway configuration along the gap, although roadway widths and configuration varies along the corridor. The corridor provides bus service for routes 11 and 13. Broadway was fully reconstructed in 2016 from 9th Avenue North to 25th Avenue North.

Land Use and Nearby Destinations

Land uses vary significantly along the corridor. Land uses on the northern end of the corridor include residential and commercial. Further south along the corridor, the land uses include park space, schools, commercial uses, and residential homes.

Nearby destinations include Sanford Broadway Medical Center, Benjamin Franklin Middle School, Holy Spirit Elementary School, Washington Elementary School, North High School, Northport Shopping Center, Fargo Public Library, Northport Branch, New Horizons Manor, Friendship Park, McKinley Elementary School, and many apartment complexes.

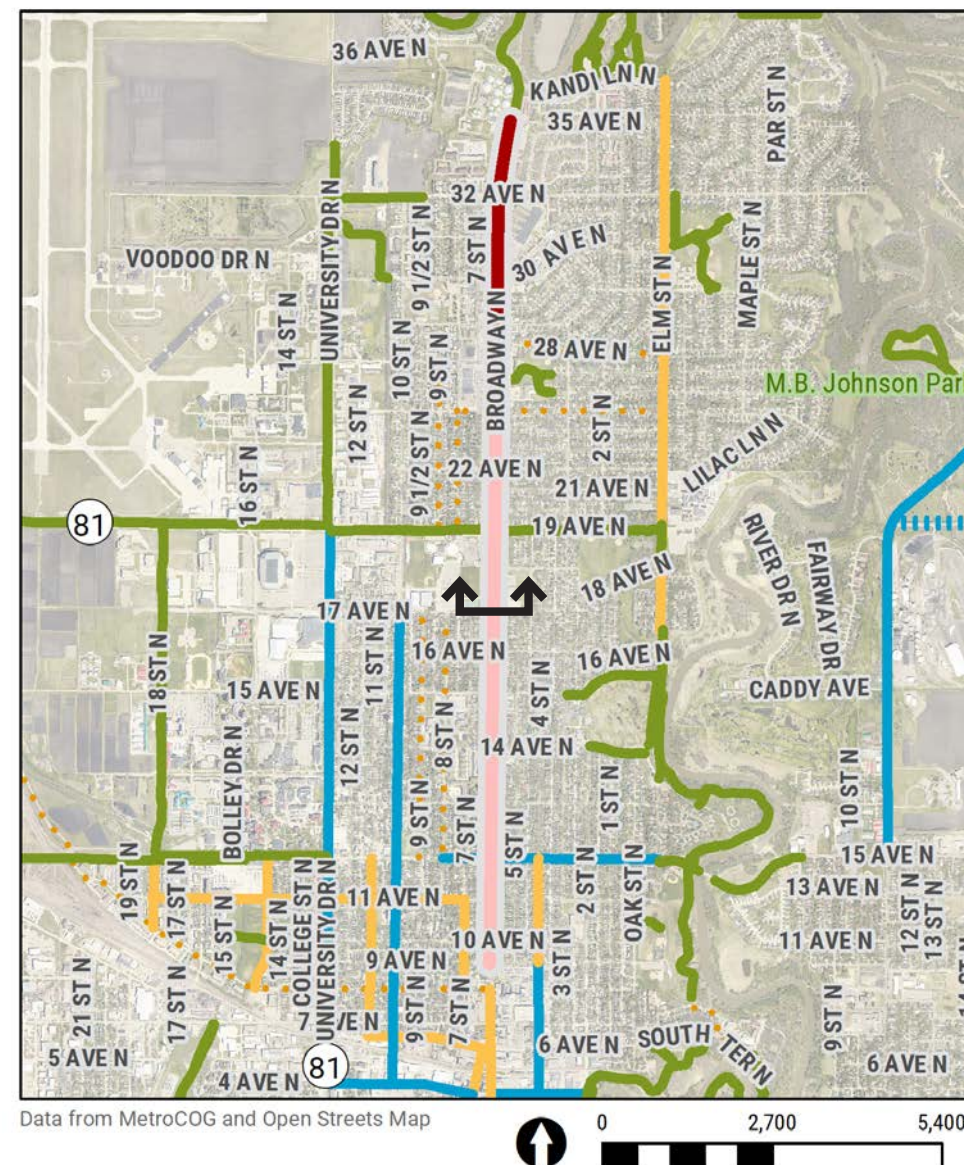
Connections to Nearby Bike Infrastructure

The southern end of the bikeway gap connects to the signed bike route on 8th Avenue North and downtown shared lanes on Broadway. The northern end of the gap connects to an existing trail on the east side of Broadway starting at 35th Avenue North and travels further north along the Red River to Riverwood Park.

Corridor Features

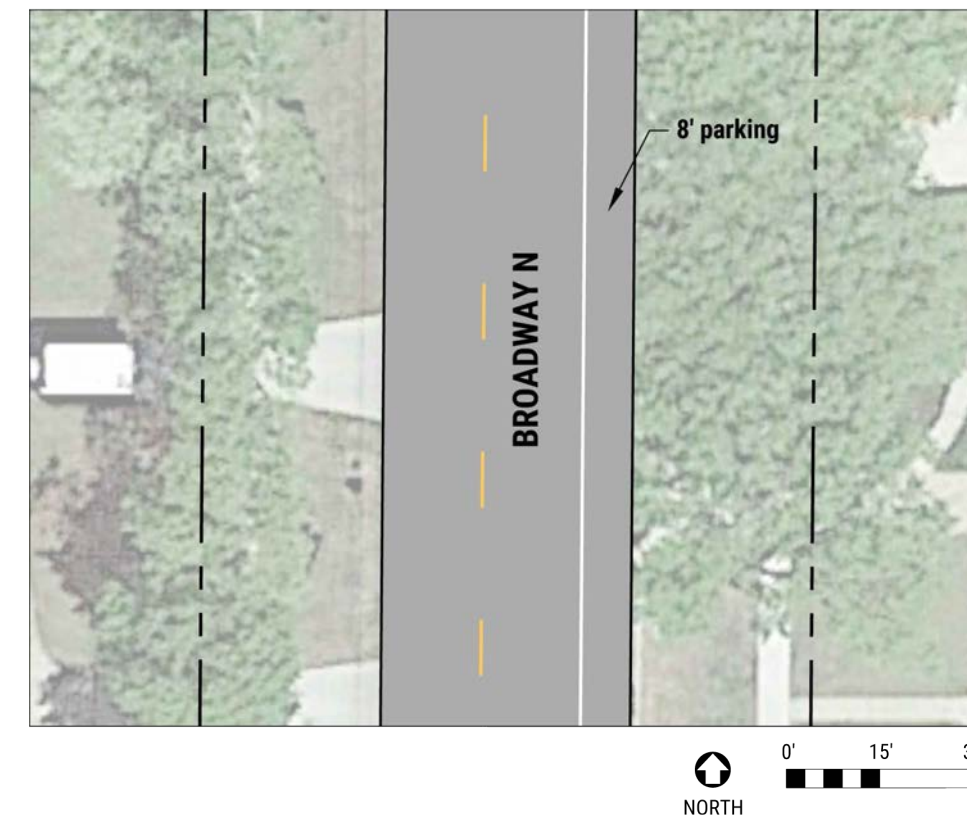
	Speed Limit	Traffic Volume	Total Right-of-Way
Broadway	25 MPH	6,200-11,300 AADT (south of 32nd Ave N) 3,000-4,000 AADT (north of 32nd Ave N)	100'

Key Map

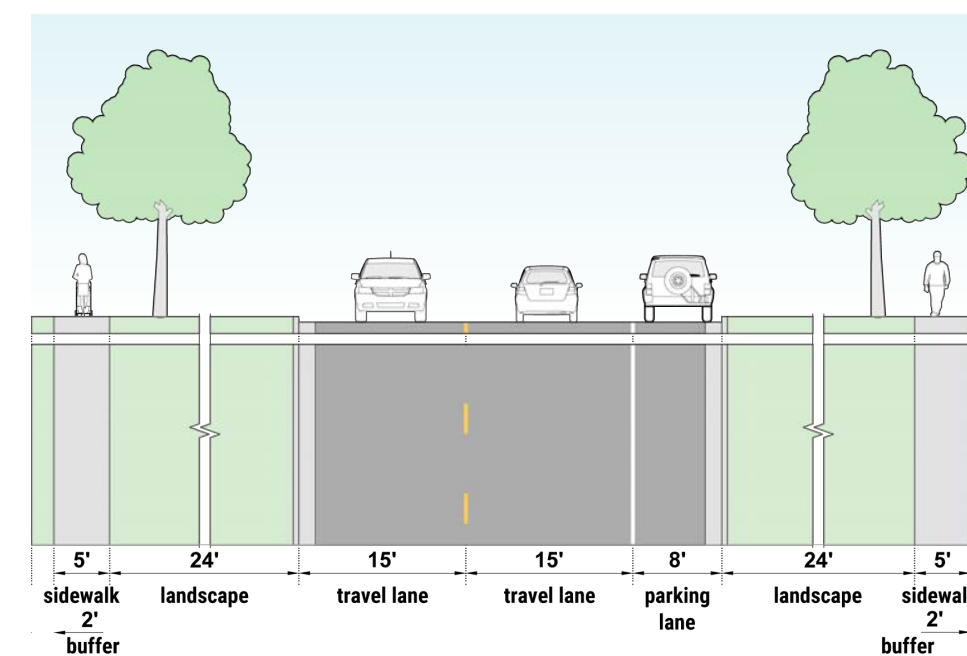


- | | |
|--|----------------------|
| Proposed | Existing |
| Bicycle Gap (Segment 1) | Bike Lane |
| Bicycle Gap (Segment 2) | Shared Lane Markings |
| Plan View and Typical Section Location | Shared Use Path |
| | Shoulder 4' or Wider |
| | Signed Bike Route |

Existing Plan View // Broadway N



Existing Typical Section // Broadway N, Looking North



Recommended Bikeway Concept

The recommendation for segment 1 is a shared use path on the east side of Broadway between 25th Avenue North and 35th Avenue North. This path would connect to the existing path on the east side of Broadway and 35th Avenue North, which travels north along the Red River to Riverwood Park in Fargo.

A no-build alternative is recommended for segment 2 between 8th Avenue North and 25th Avenue North. Two alternatives were considered for segment 2 - a shared use path on the east side of the street and buffered bike lanes with optional vertical separation. With an observed high utilization of parking along this corridor and the recent reconstruction of this corridor, retrofitting this newly constructed corridor was deemed unfeasible in the near future. However, it is recommended that the City of Fargo consider bicycle improvements to parallel roadways with lower vehicle traffic volumes. Additional analysis is needed to determine the parallel route and the type of bicycle improvements recommended.

Lead Agency

- City of Fargo

Key Stakeholders

- Adjacent Property Owners
- MATBUS

Planning-Level Cost Estimate

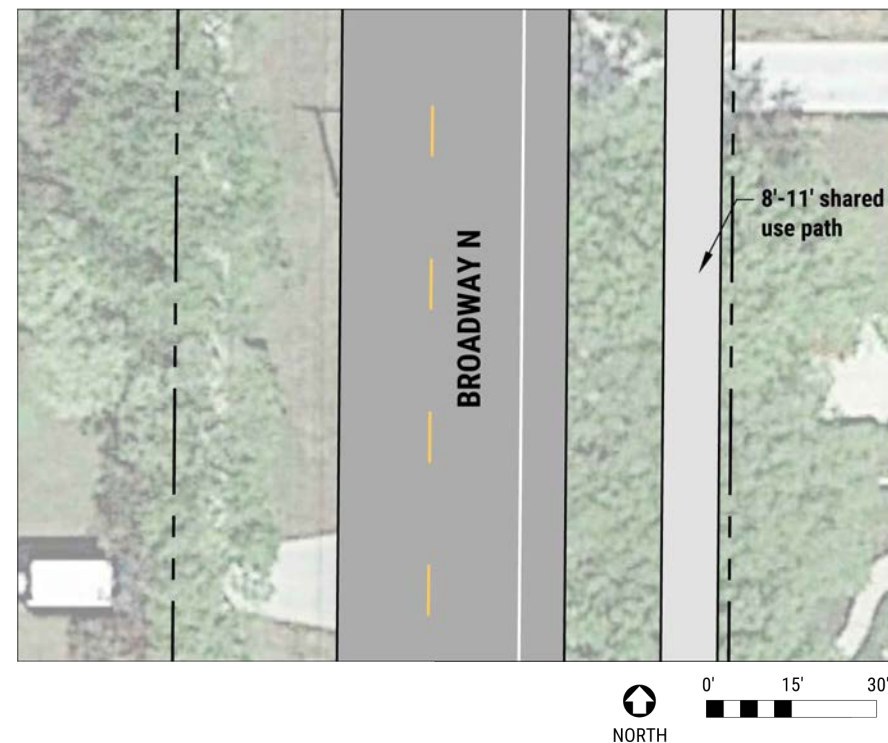
Recommended Concept	Approximate Cost Range
Segment 1: Shared Use Path (35th Ave N to 25th Ave N)	\$430,000 - \$620,000
Segment 2: No-build alternative (25th Ave N to 8th Ave N)	*n/a

*No bikeway cost estimate due to no-build alternative

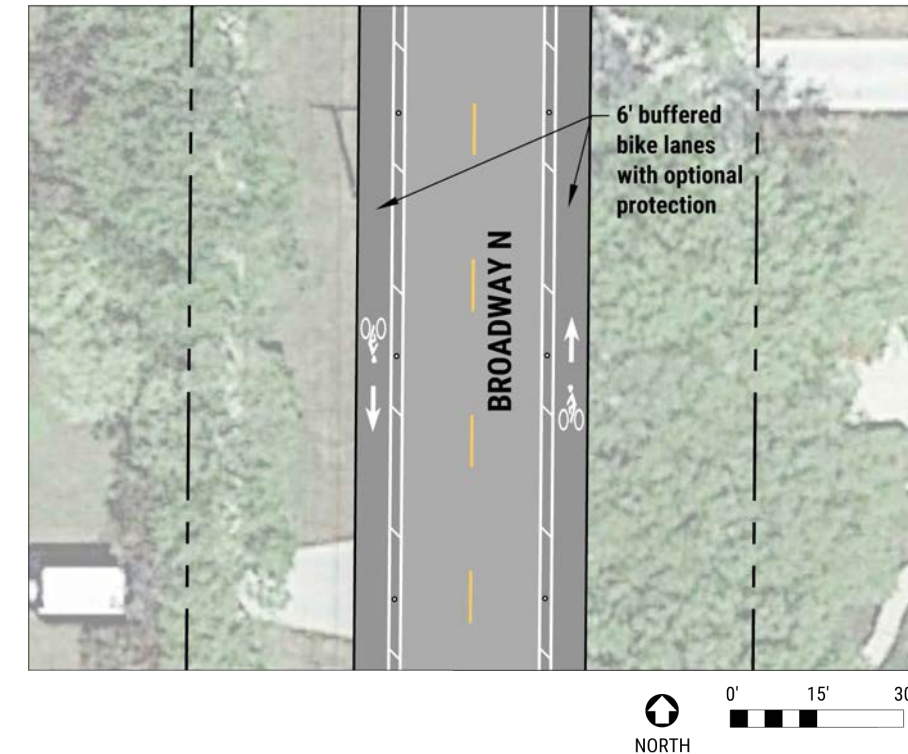
Cost Estimate Notes

- Segment 1:
 - Length: 4,526 ft. (0.86 mi.)
 - The cost estimate only includes developing a shared use path from 25th Avenue North to 35th Avenue North
 - Assumes removing existing concrete sidewalk and replacing with an 11' concrete shared use path
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

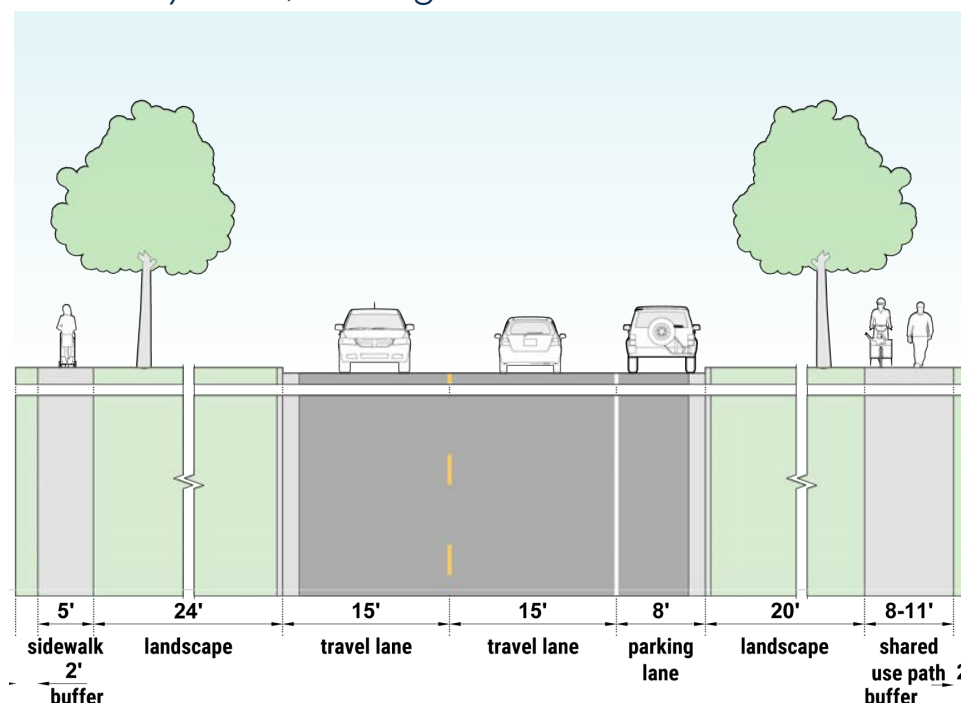
Segment 1: Recommended Concept, Plan View // Broadway N



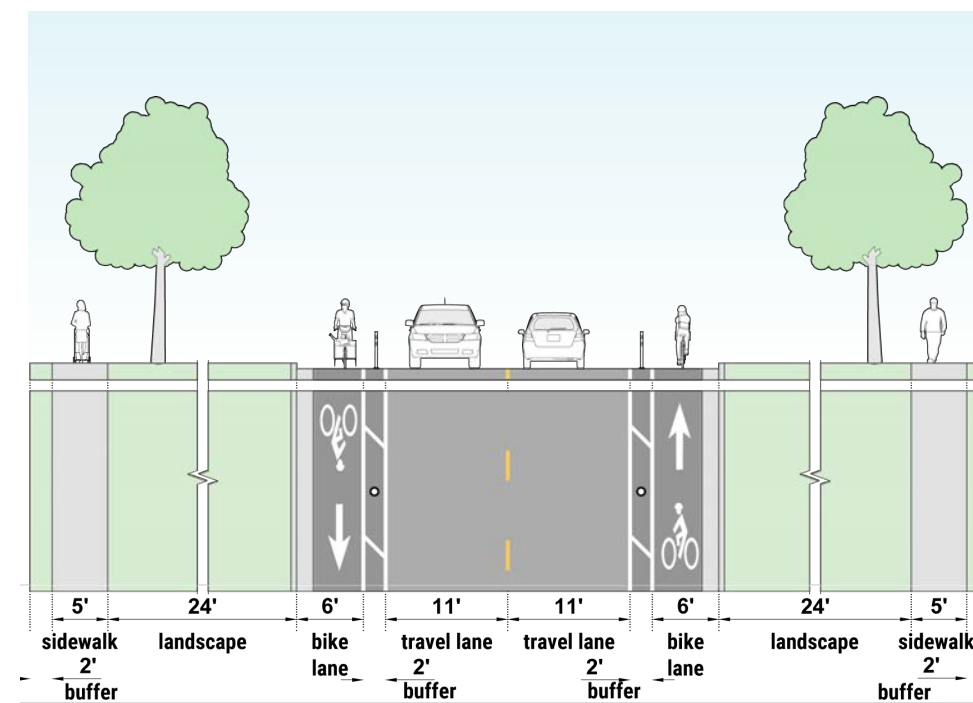
Segment 1: Alternative Concept, Plan View // Broadway N



Segment 1: Recommended Concept, Typical Section // Broadway North, Looking North



Segment 1: Alternative Concept, Typical Section // Broadway North, Looking North



Overview

Gap 11 travels east-west across Interstate 29 (I-29) in south Fargo. I-29 is as a barrier for pedestrians and bicyclists, as there are no accommodations to cross the highway between 32nd Avenue South and 17th Avenue South (1.5 miles). Filling this gap would provide a biking and walking connection over the interstate and link the Anderson Park neighborhood with the Bluemont Lakes neighborhood.

Land Use and Nearby Destinations

Land uses east of the highway are primarily residential, while the area west of the highway is a mix of commercial and higher density residential. Nearby destinations include the Red River Zoo, the Anderson Softball Complex, Thunder Road Amusement Park, Woodbury Park, and BSE Corporate Office.

Connections to Nearby Bike Infrastructure

Nearby bicycle facilities include shared use paths on 30th Avenue South, Wheatland Dr. South, and 36th Street South, which connects with 28th Avenue South.

Key Map



Example Image: Bicycle and pedestrian bridge crossing I-94 near 16th Street South in Fargo. Bridge shown is for display purposes only; the type of bridge for this bicycle gap has not been chosen.

Recommended Bikeway Concept

The recommendation for Gap 11 is a shared use path and bicycle and pedestrian bridge that connects 26th Avenue South in the Anderson Park neighborhood and 28th Avenue South in the Bluemont Lakes neighborhood, crossing over I-29.

This proposed bridge will need to be approved and closely coordinated with the North Dakota Department of Transportation (NDDOT). A portion of this gap is proposed on privately-owned land (west of the interstate) and will require discussion with property owners.

Planning-Level Cost Estimate

Recommended Concept	Approximate Cost Range
Bridge	\$2,424,922 - \$3,394,890
Shared Use Path	\$465,079 - \$705,110
Total	\$2,890,000 - \$4,100,000

Lead Agencies

- City of Fargo
- North Dakota Department of Transportation (NDDOT)

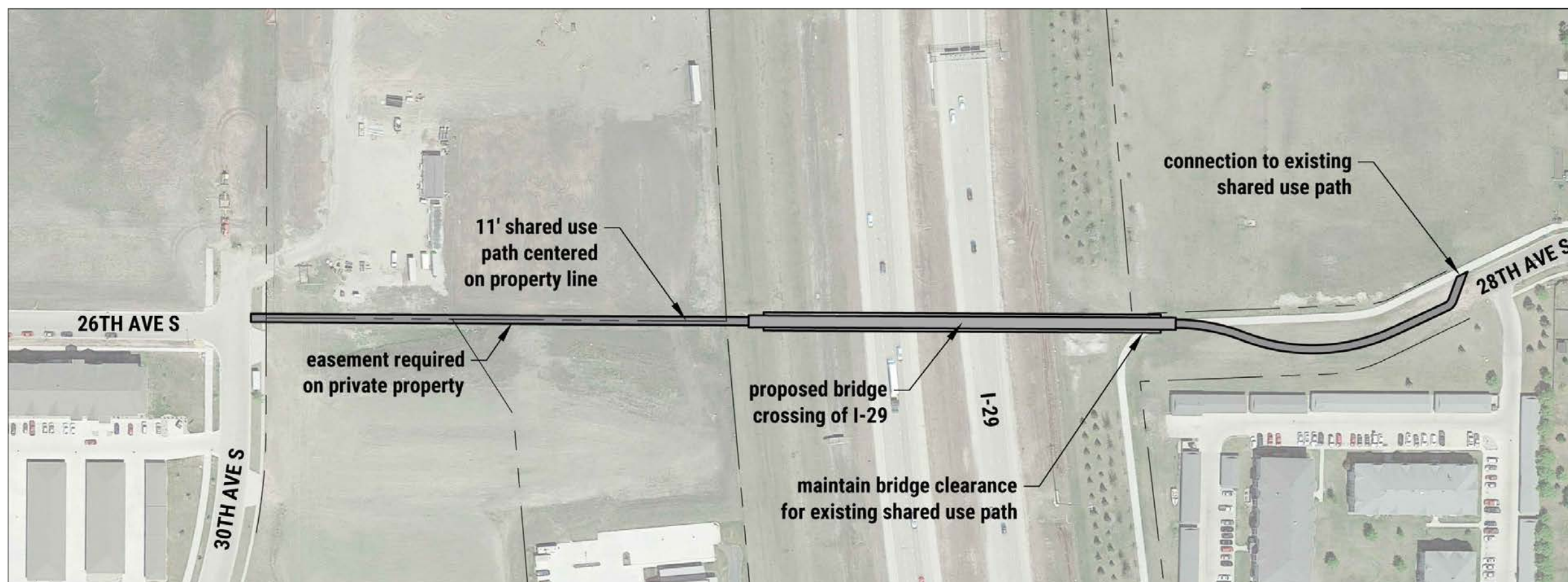
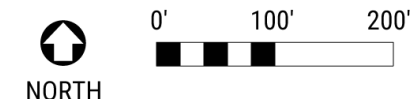
Key Stakeholder

- Adjacent Property Owner

Cost Estimate Notes

- New path length: 1,143 ft (0.22 mi.)
 - 637 ft. (West) + 506 ft (East)
- New bridge assumed to be 570 feet long and 15 feet wide (11-foot trail, 2 feet each side for parapets)
- New path assumed to be 11-foot concrete
- Includes ADA curb ramps
- Right of way acquisition not included
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

Recommended Bridge Alignment





Gap 12 | Existing Conditions Analysis

Overview

Gap 12 is located between 7th Avenue South and 12th Avenue South and runs through the campus of Concordia College along the alignment of 6th Street South. In addition to analyzing a bicycle route through Concordia College campus, the project team also analyzed the feasibility of bicycle facilities along two parallel streets - 4th Street South and 5th Street South. There may be an opportunity to extend the proposed bikeway farther north, although further study is recommended. The 5th Street South corridor provides bus service for MATBUS route 1.

Land Use and Nearby Destinations

The corridor consists of residential and commercial uses, schools, and parks. Nearby destinations include Concordia College, Minnesota State University-Moorhead (MSUM), and two different parks: Woodlawn Park (to the north); and Gooseberry Mound Park (to the south).

Connections to Nearby Bike Infrastructure

Nearby bicycle facilities include bike lanes on both sides of 7th Avenue South for the MSUM campus to 8th Street, at which point 7th Avenue S transitions to a signed bike route. Additionally, a shared use path is located on the east side of 8th Street. This bicycle gap also connects to a planned shared use path on the south side of 12th Avenue South between 5th Street and 11th Street.

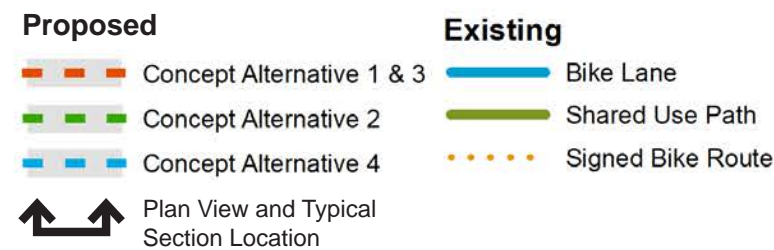
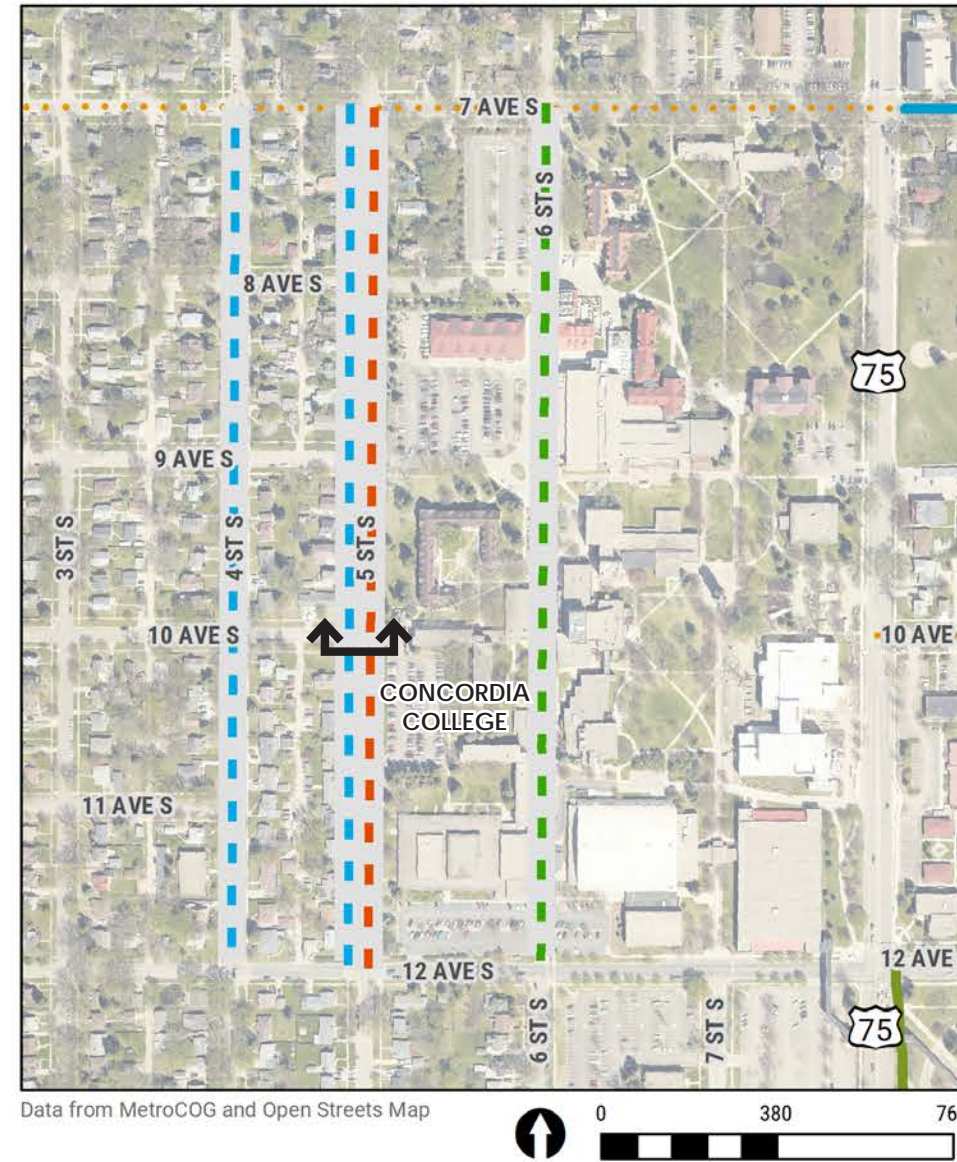
Corridor Features

	Speed Limit	Traffic Volume	Total Right-of-Way
4th St S	30 MPH	3,675 AADT	66'
5th St S	30 MPH	3,300 AADT	82'
6th St S	15 MPH	n/a	n/a

Notes

- 5th Street is a State Aid roadway. State Aid Rules should be considered. Variances may be needed for the proposed design.

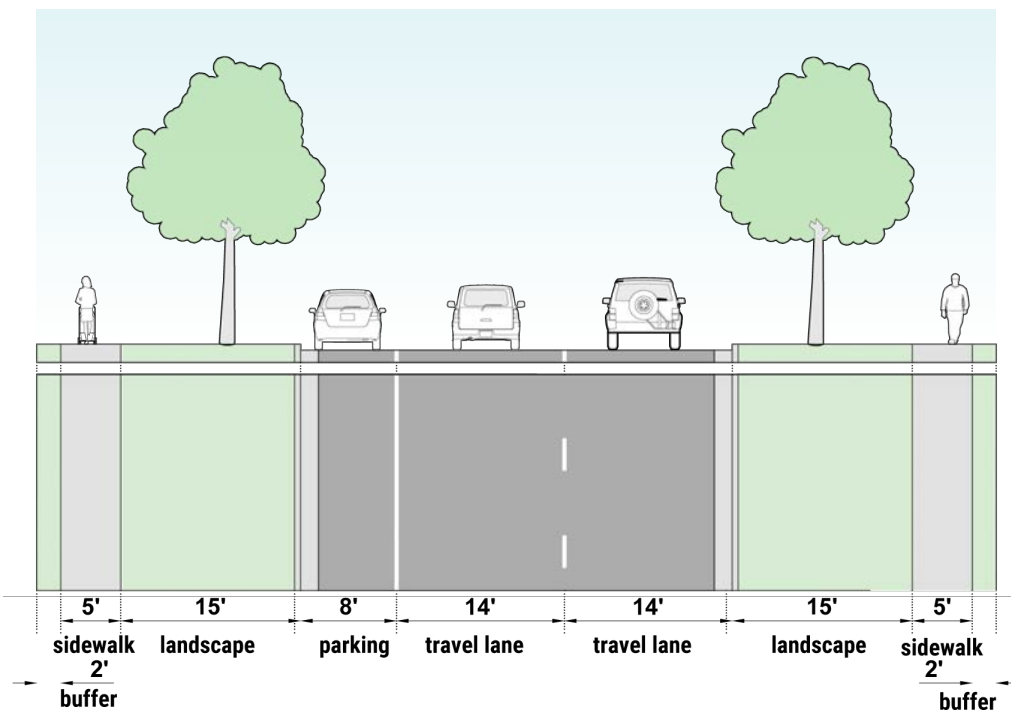
Key Map



Existing Plan View // 5th Street S



Existing Typical Section // 5th Street S, Looking North





Gap 12 | Recommended Bikeway Concept

Recommended Bikeway Concept

The recommendation for Gap 12 is a shared use path on the eastern side of 5th Street South from 7th Avenue South to 12th Avenue South, along the western border of the Concordia College campus. The shared use path is recommended to follow the same alignment as the existing sidewalk, but the recommended width of the shared use path is 8-11 feet. The width of the path may vary slightly depending on site constraints such as existing street trees or utilities, but the path should never be narrower than 8 feet in constrained areas.

The recommended shared use path would not impact any of the mature street trees along the corridor. The path may meander slightly along the corridor in order to avoid tree removal or damage to tree root systems. If needed, there may be an opportunity to obtain an easement from Concordia College to route the path slightly on Concordia College's land and avoid damage to existing mature trees. In addition to providing an enhanced facility for bicycling on the corridor, this concept alternative also provides a benefit to pedestrians by widening the existing sidewalk to accommodate people walking along 5th Street or students walking to campus. The shared use path recommendation would also avoid any conflicts with the bus stops along the corridor that serve MATBUS route 1.

Lead Agency

- City of Moorhead

Key Stakeholders

- Concordia College
- MATBUS
- City of Moorhead Forestry Department

Recommended Concept, Plan View // 5th Street S



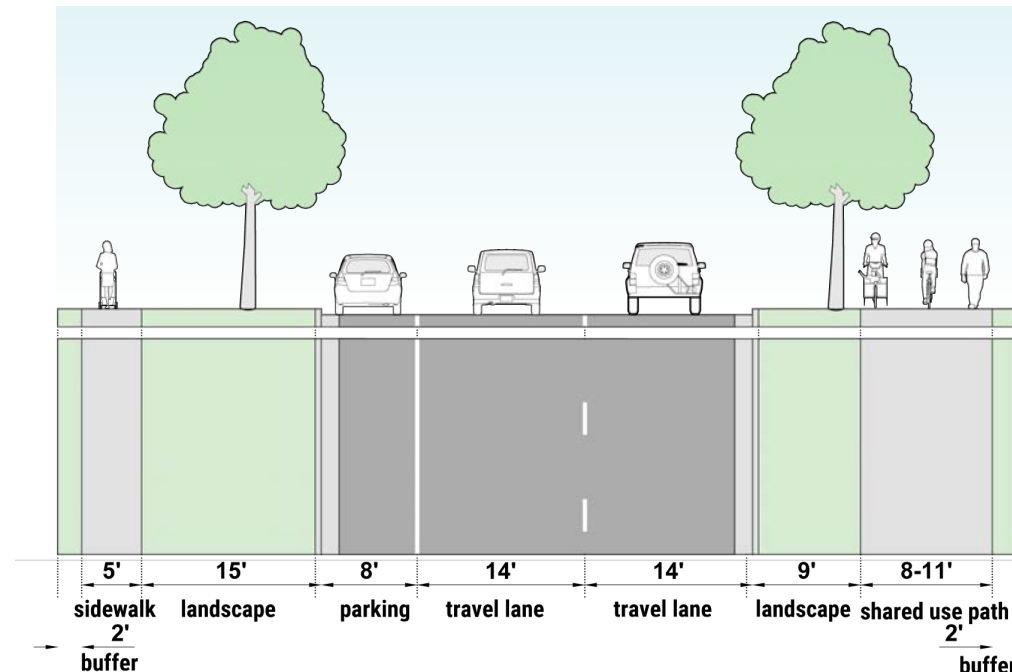
Planning-Level Cost Estimate

Recommended Concept	Approximate Cost Range
Shared Use Path	\$180,000 - \$260,000

Cost Estimate Notes

- Length: 1,825 feet (0.35 miles)
- Assumes removing existing concrete sidewalk and replacing with an 11' concrete shared use path
- Right of way acquisition not included
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

Recommended Concept, Typical Section // 5th Street S, Looking North



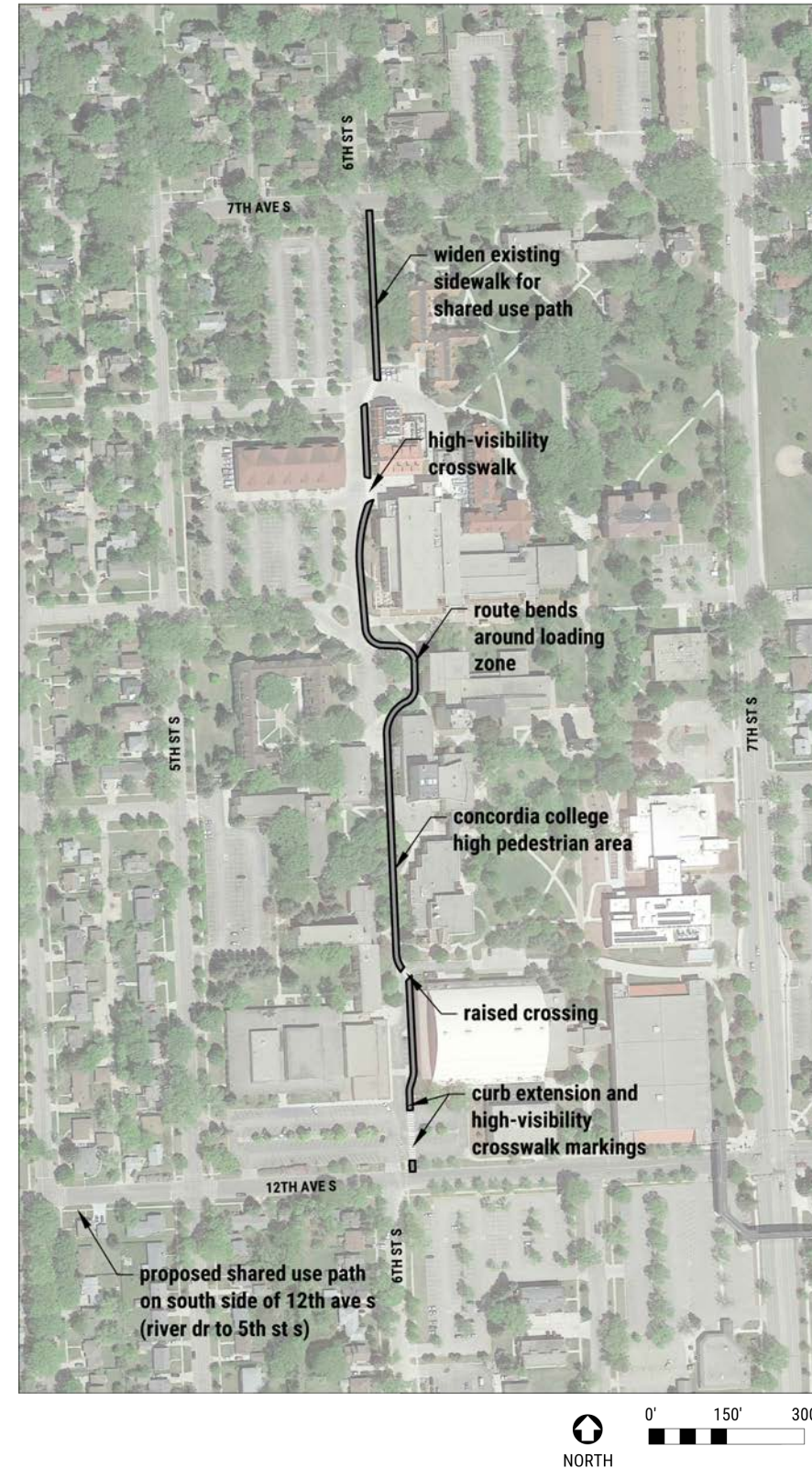


Gap 12 | Alternative Bikeway Concept

Alternative Concept 1 - Concordia Campus

Alternative concept 1 is a shared use path that would travel through the Concordia College campus from 7th Avenue South to 12th Avenue South. The graphic on the right displays the path alignment through campus. The alternative concept proposes a number of enhancements to help make the path more safe and comfortable for users, such as raised crossings, high visibility crosswalks, and curb extensions. This concept is not recommended, primarily due to site constraints on campus and high pedestrian volumes which would likely create conflicts between pedestrians and bicyclists.

Alternative Concept 1: Route Alignment





Gap 12 | Long-Term Alternative Bikeway Concepts

City of Moorhead staff expressed interest in potentially developing a bikeway that stretches further to the north and south outside of the Gap 12 corridor. The following two concepts are not recommended in the short-term; however, they could be considered as potential long-term bikeway options. The long-term option would be developed in addition to the shared use path recommendation. The long-term alternative bikeway concepts require further study and analysis prior to implementation.

Alternative Concept 2

Alternative concept 2 features a two-way, separated bikeway on the east side of 5th Street South. This concept would require removing one motor vehicle travel lane in order to accommodate the space needed for the bikeway. The concept alternative features a 4-foot buffer space between the bikeway and the travel lane, providing physical separation between bicyclists and motorists. 5th Street is currently a one-way street with traffic traveling northbound, including MATBUS route 1.

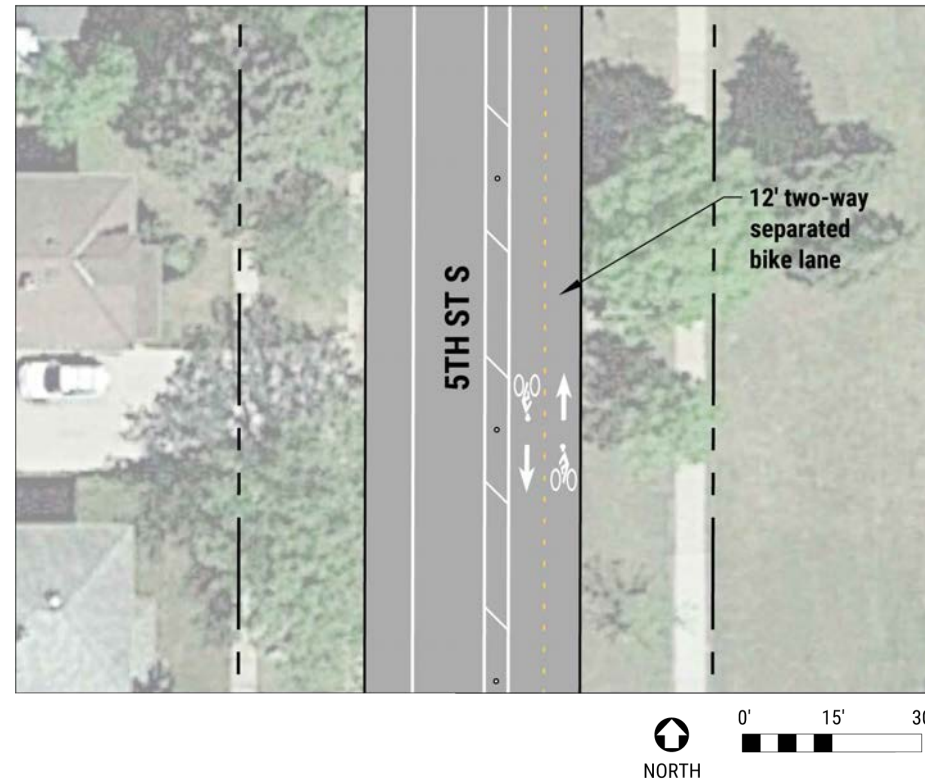
Accommodating bus stops along two-way separated bikeways is more challenging due to the bi-directional travel of bicyclists, which increases the likelihood for conflicts between bicyclists and passengers alighting buses. If this alternative concept were to be implemented in the future, floating bus stops should be considered to reduce conflicts between bus passengers and bicyclists. At bus stop locations, the bikeway could be narrowed to 8-feet in order to accommodate an 8-foot floating bus stop. Further analysis, coordination with MATBUS, and design of bus stops along this corridor is needed prior to implementation. Refer to Appendix C for more information on bus stop treatments along bikeways.

Alternative Concept 3

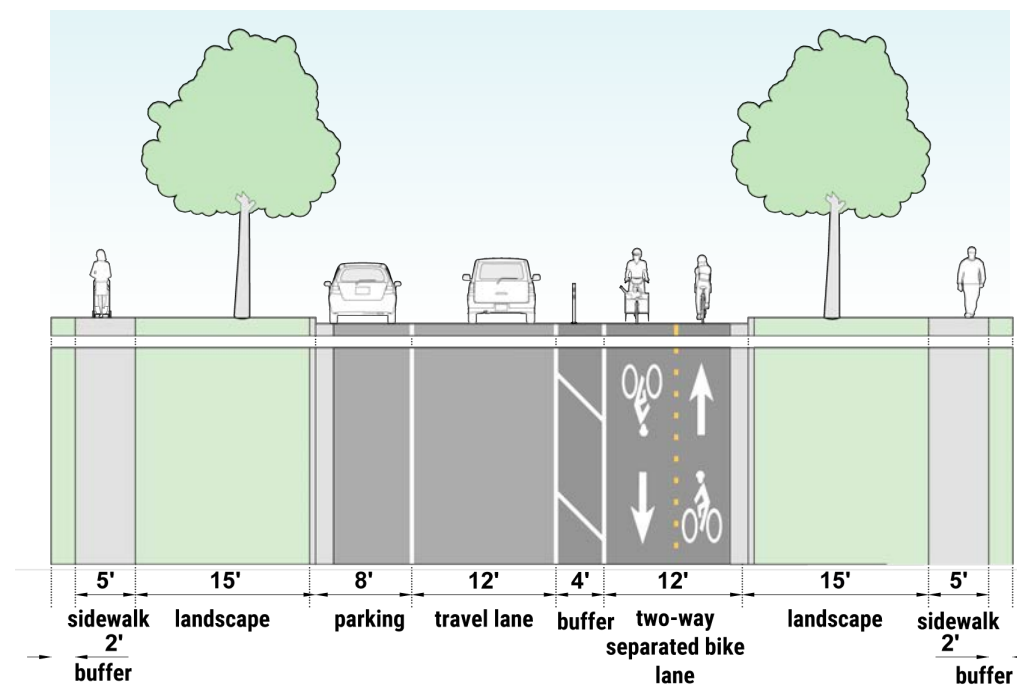
Alternative concept 3 features standard, one-way bike lanes on both 4th Street South and 5th Street south. Southbound bicyclists would use 4th Street South and northbound bicyclists would use 5th Street South. Alternative concept 3 maintains two travel lanes on both 4th Street South and 5th Street South, but the travel lanes are narrowed from the existing 14 feet to 11 feet in order to accommodate the 6-foot bike lanes.

5th Street is currently a one-way street with traffic traveling northbound (including MATBUS route 1), while 4th Street is currently a one-way street with traffic traveling southbound.

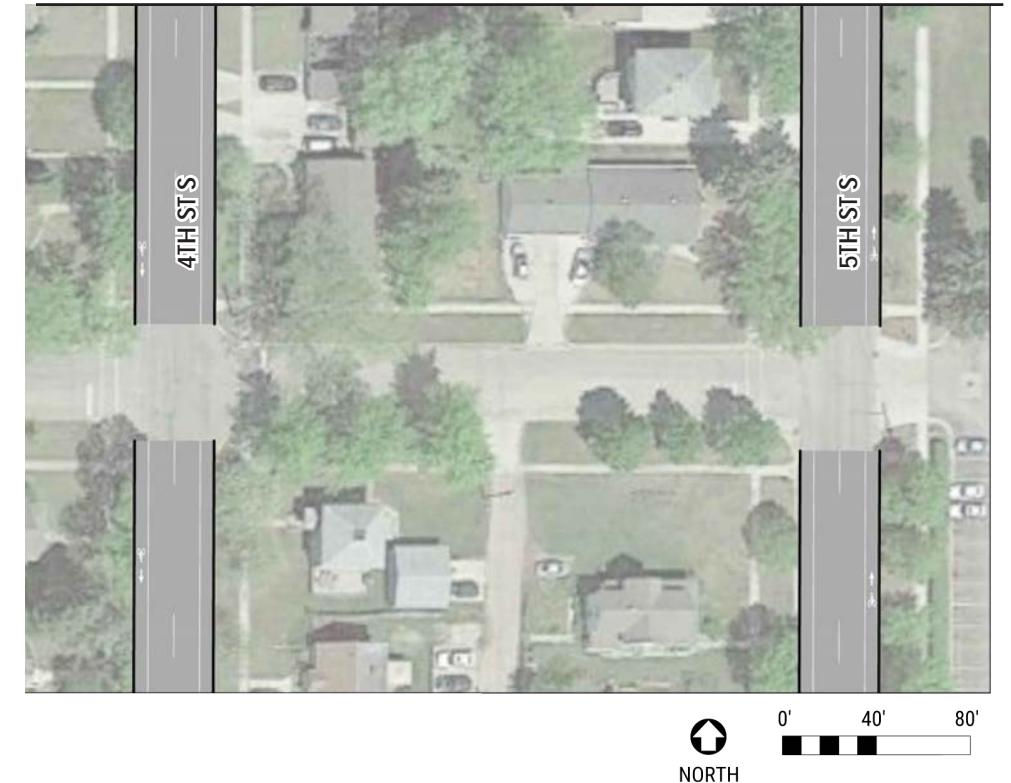
Alternative Concept 2, Plan View // 5th Street S



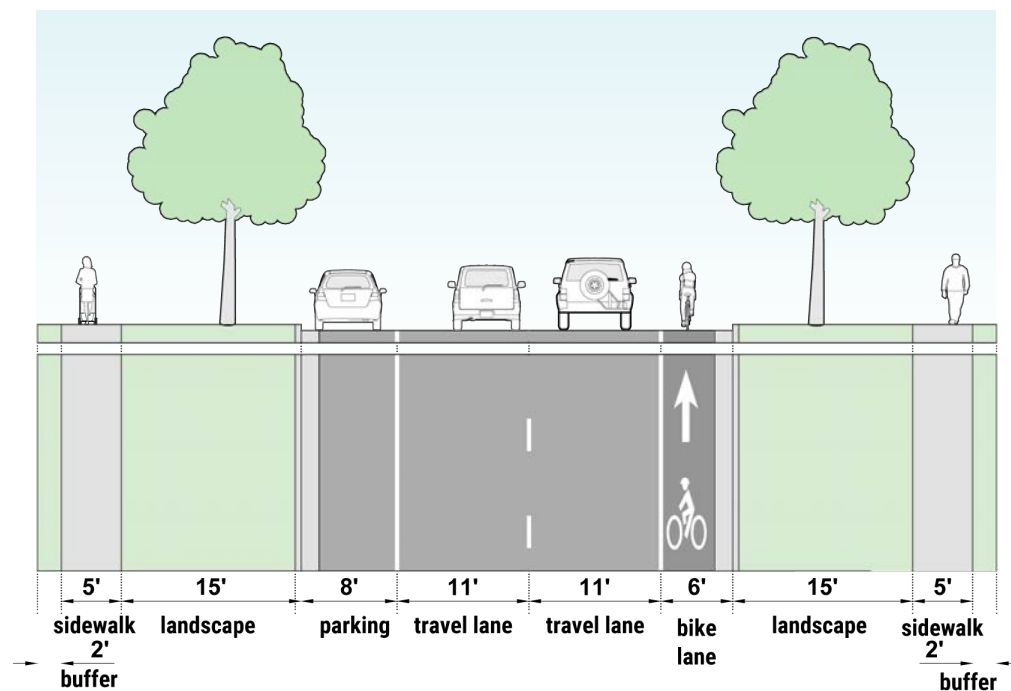
Alternative Concept 2, Typical Section // 5th Street S, Looking North



Alternative Concept 3, Plan View // 4th St S & 5th St S



Alternative Concept 3, Typical Section // 5th Street S (looking north) OR 4th Street S (looking south)





Gap 13 | Existing Conditions Analysis

Overview

Gap 13 is located directly north of Interstate 94 near Minnesota State Community and Technical College-Moorhead (M-State). A future bikeway in Gap 13 would improve connections to the existing bicycle lanes on 28th Avenue South to an existing shared use path that runs on the east side of 20th Street South. It would also provide improved bicycle access to M-State and the Probstfield Center for Education. The 14th Street South corridor consists of one travel lane in each direction and provides bus service for MATBUS routes 2 and 3. The 24th Avenue South corridor consists of one travel lane in each direction and provides bus service for MATBUS routes 3 and 5.

Land Use and Nearby Destinations

The corridor consists of residential and institutional land uses. Nearby destinations include M-State, Ellen Hopkins Elementary School, and the Probstfield Center for Education. A large commercial development is also located 0.5 mile west of the study area.

Connections to Nearby Bike Infrastructure

Nearby bicycle facilities include bike lanes on 28th Avenue South from 8th Street to 20th Street South, and a shared use path on 20th Street South.

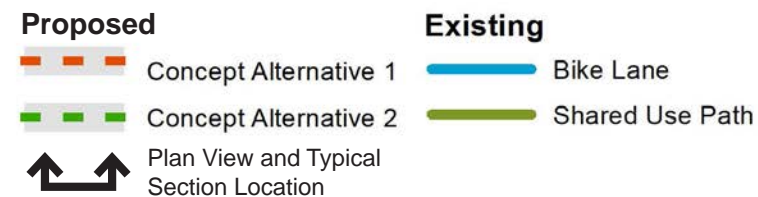
Corridor Features

	Speed Limit	Traffic Volume	Total Right-of-Way
14th St S	30 MPH	810 AADT	80'
20th Ave S	30 MPH	1,300 AADT	80'
24th Ave S	30 MPH	3,600 AADT	80'

Key Map



Data from MetroCOG and Open Streets Map



Existing conditions looking east on the south side of 24th Avenue South, between 19th Street South and 20th Street South.



Gap 13 | Existing Conditions Analysis

Existing Plan View // 14th St S



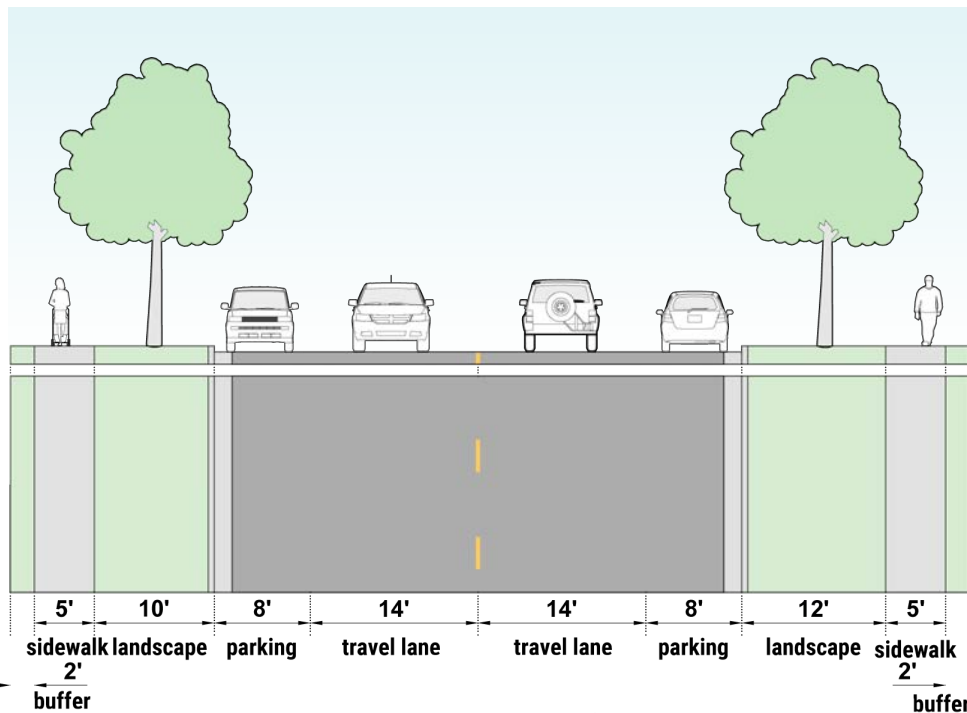
Existing Plan View // 20th Ave S



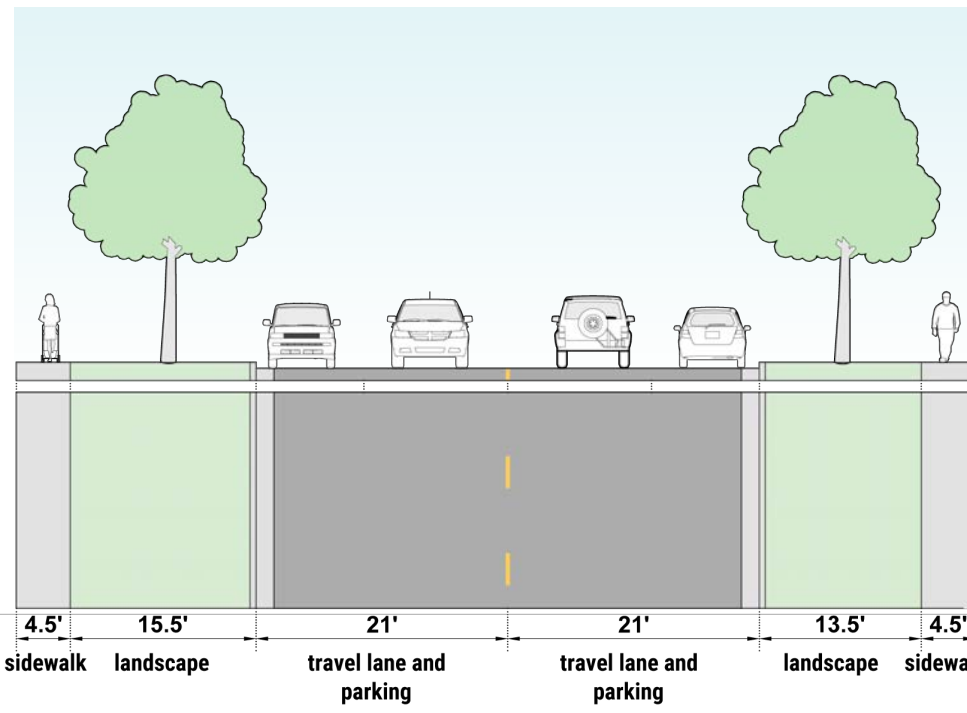
Existing Plan View // 24th Ave S



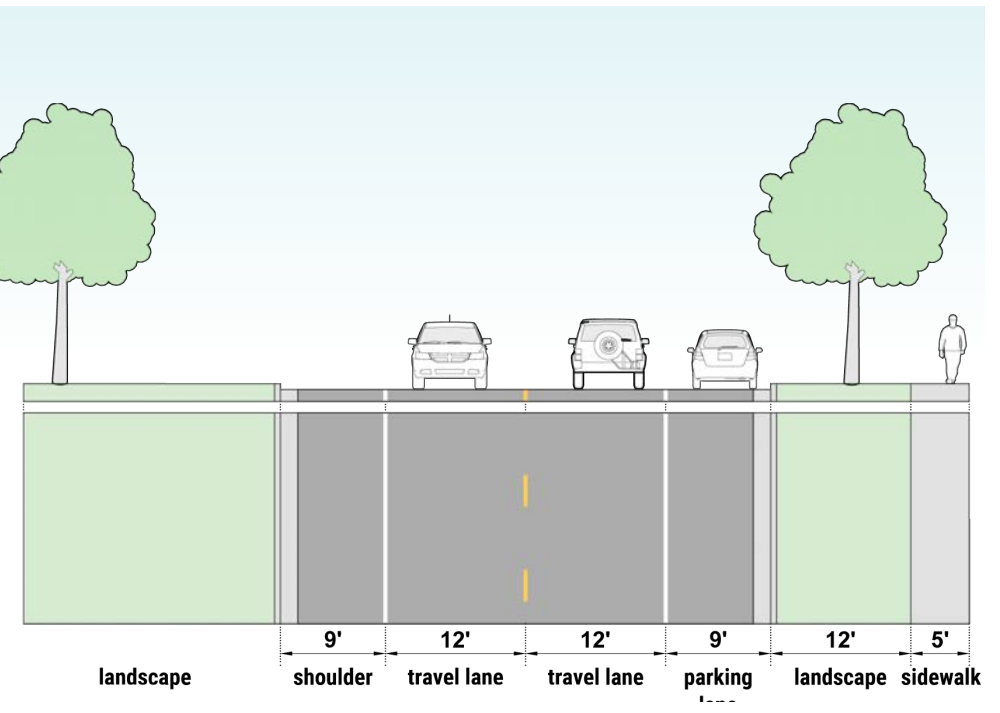
Existing Typical Section // 14th St S, Looking North



Existing Typical Section // 20th Ave S, Looking West



Existing Typical Section // 24th Ave S, Looking West





Gap 13 | Recommended Bikeway Concept

Recommended Bikeway Concept

The recommendation for Gap 13 is a shared use path on the south side of 24th Avenue South between 14th Street and 20th Street, and standard bike lanes on 14th Street South between 28th Avenue and 24th Avenue South (labeled Concept Alternative 1 in key map). Standard bike lanes are recommended on 14th Street South because existing motor vehicle traffic volumes are low (810 AADT), and there is not enough space to accommodate an off-street shared use path. This concept also preserves parking on the east side of 14th Street South. If this concept were to be implemented, the City of Moorhead should coordinate closely with MATBUS to prioritize the safety of bicyclists and transit riders.

A shared use path is recommended on 24th Avenue South because motor vehicle traffic volumes are higher (3,600 AADT) and there is enough space to accommodate the path off-street. 24th Avenue South was chosen over 20th Avenue South because it provides direct access to destinations in the area, such as M-State and the Probstfield Center for Education.

There are a number of mature boulevard street trees along 24th Avenue South. This includes the street trees on the northern property border of the Probstfield Center for Education. In order to preserve these trees and avoid damage to root systems, the shared use path may need to be narrowed along some portions, or easements may be needed along some properties.

There may also be an opportunity to develop a shared use path located on the western edge of the M-State property between 28th Avenue South and 24th Avenue South, as shown in the alternative concept route alignment map. This path would create an additional north-south bike route in addition to the bike lanes along 14th Street. Conversations with the college would be required to coordinate the development of the shared use path and a property easement may be needed. The development of this path is not included in the cost estimate shown below because conversations with M-State have not happened at the time of writing this report.

Lead Agency

- City of Moorhead

Key Stakeholders

- M-State
- Probstfield Center for Education
- Adjacent Property Owners
- MATBUS

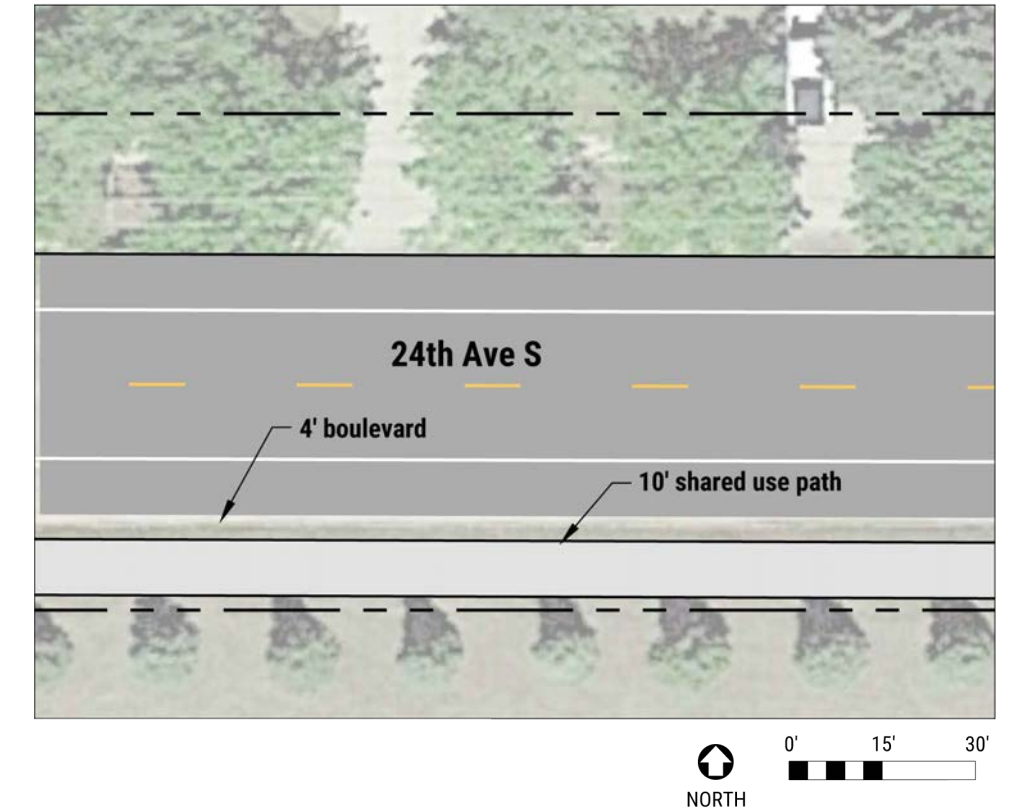
Planning-Level Cost Estimate

Recommended Concept	Approximate Cost Range
Shared Use Path (24th Avenue South, from 14th Street to 20th Street)	\$230,000 - \$330,000
Standard Bike Lanes (14th Street South, from 24th Avenue to 28th Avenue)	\$2,000 - \$3,000
Total	\$232,000 - \$333,000

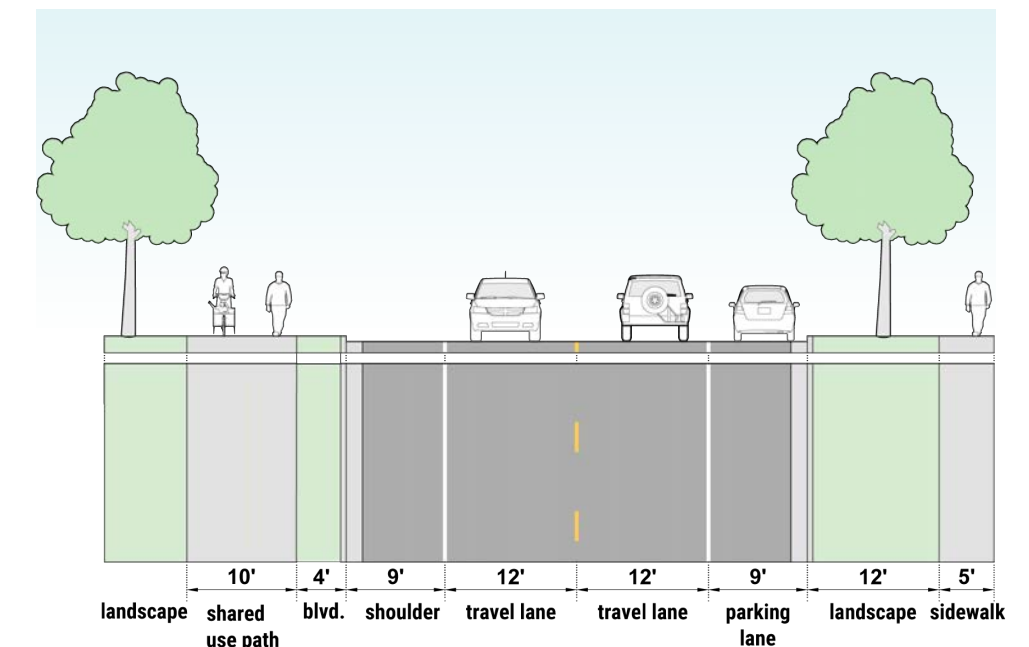
Cost Estimate Notes

- Length: 1,252 ft. (0.24 mi.)
- Includes an allowance for drainage and landscaping
- Assumes paths do not require right of way acquisition
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

Recommended Concept Plan View // 24th Avenue South



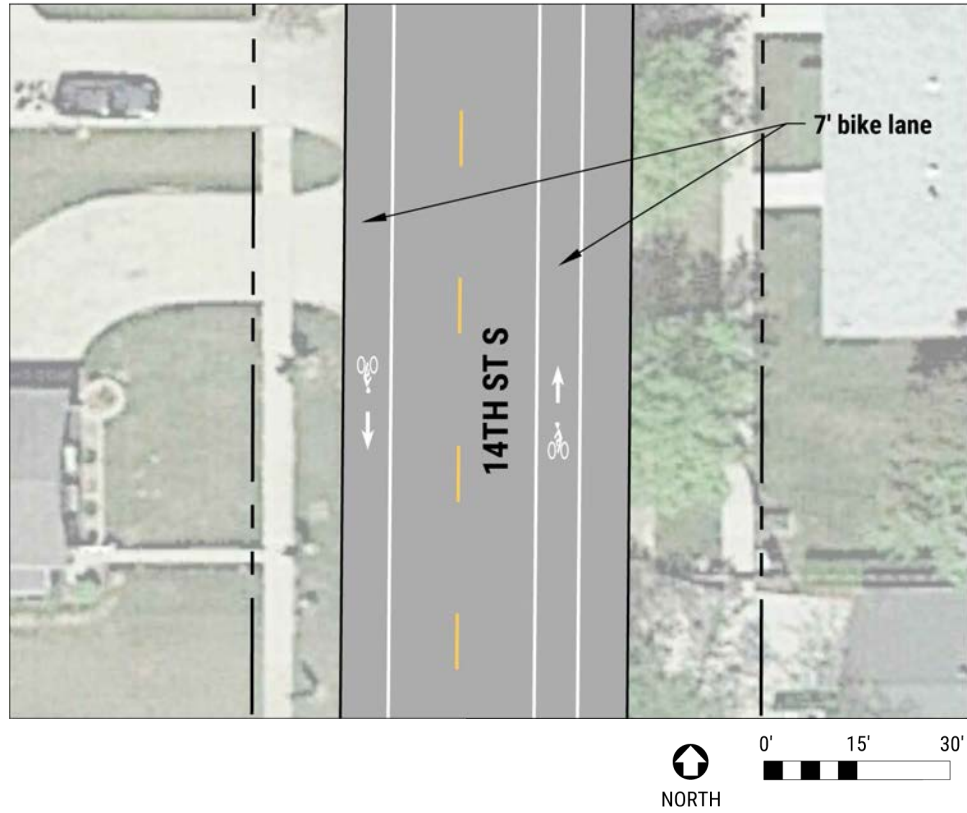
Recommended Concept Typical Section // 24th Avenue South, Looking West





Gap 13 | Recommended Bikeway Concept

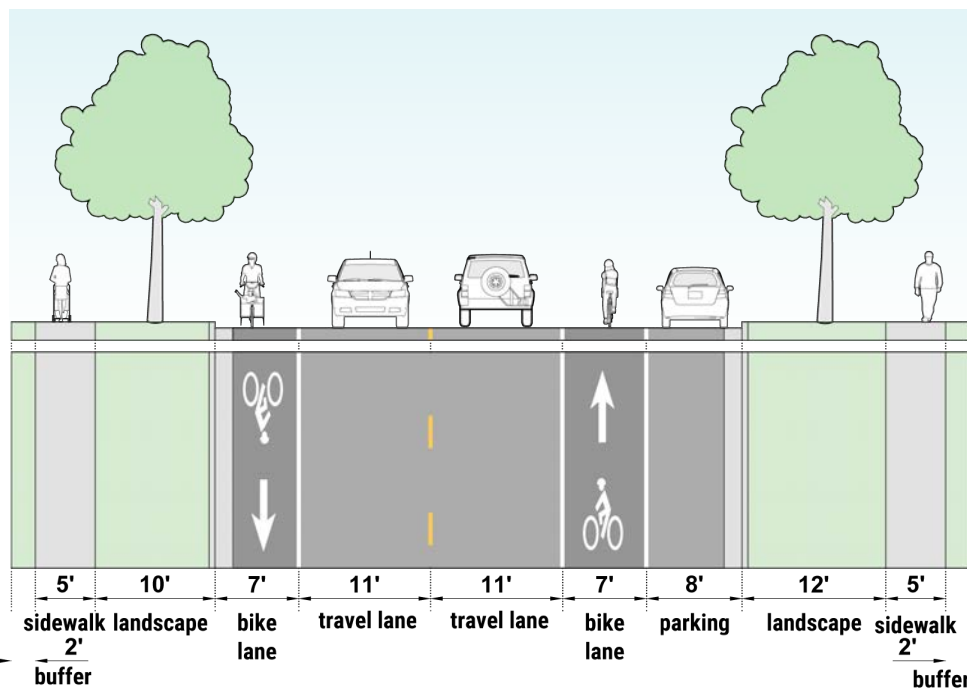
Recommended Concept Plan View // 14th Street South



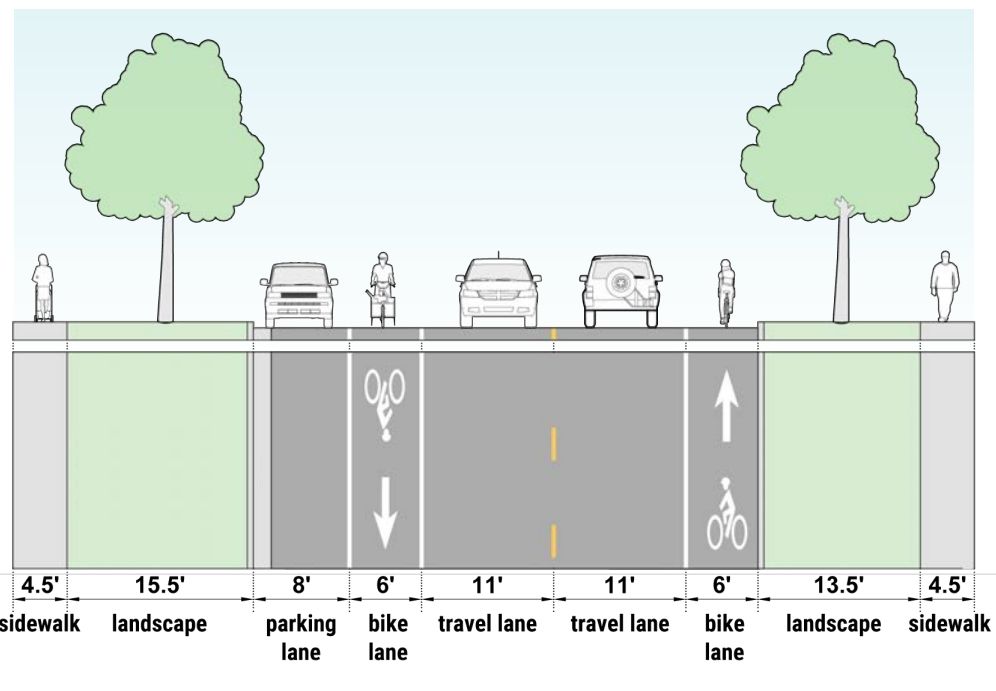
Alternative Concept Plan View // 20th Ave S



Recommended Concept Typical Section // 14th Street South, Looking North



Alternative Concept Typical Section // 20th Ave S, Looking West





Gap 14 | Existing Conditions Analysis

Overview

Gap 14 connects the terminus of the existing shared use path along the south side of 27th Avenue South at 26th Street South to the shared use path along the east side of Main Avenue Southeast. 26th Street South, 27th Avenue South, and 24th Avenue South each consist of one travel lane in each direction. The entire corridor provides bus service for Route 9.

Land Use and Nearby Destinations

The corridor consists of commercial, industrial, and agricultural land uses. Nearby destinations include M-State to the west, and Horizon Middle School and residential neighborhoods to the northeast. Additionally, the former Sam's Club building on the corner of 26th Street and 24th Avenue is being repurposed and will become the Moorhead School District Career and Technical Academy.

Connections to Nearby Bike Infrastructure

Nearby bicycle facilities include a shared use path on 20th Avenue South, Main Ave SE, and 24th Avenue South.

Corridor Features

	Speed Limit	Traffic Volume	Total Right-of-Way
26th St. S	30 MPH	1,800 AADT	75'
24th Ave. S	30 MPH	1,700 AADT	75'
27th Ave S	30 MPH	5,000 AADT	75'



Existing conditions on 24th Avenue South, looking east.

Key Map



Data from MetroCOG and Open Streets Map

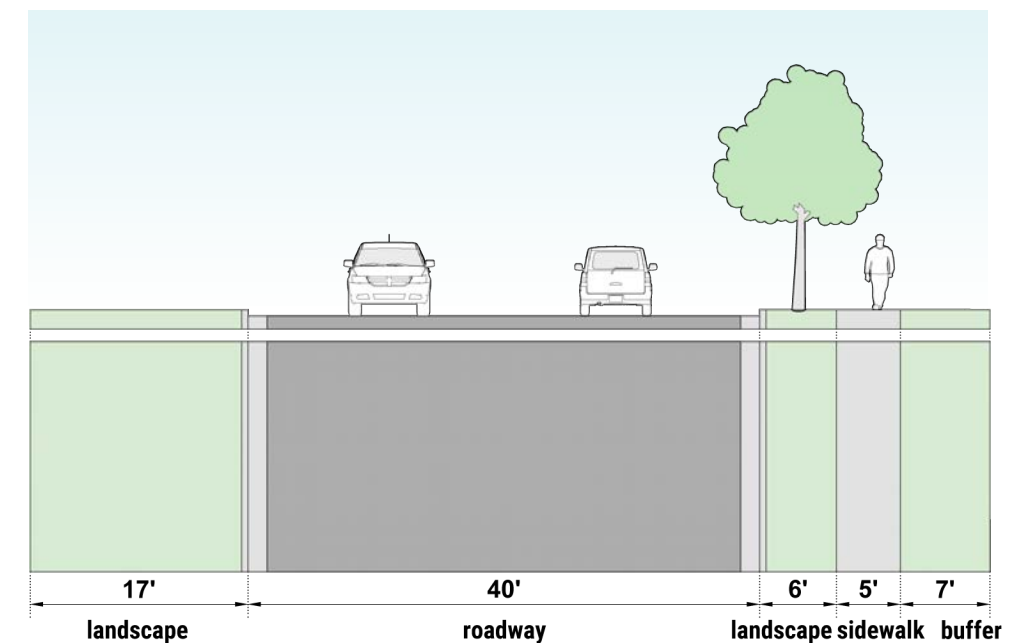


- Proposed**
- — — Concept Alternative 1
- — — Concept Alternative 2
- Plan View and Typical Section Location
- Existing**
- Shared Use Path

Existing Plan View // 26th St S



Existing Typical Section // 26th St S, Looking North





Gap 14 | Recommended Bikeway Concept

Recommended Bikeway Concept

The recommended bikeway concept for Gap 14 is a shared use path on the east side of 26th Street South between 27th Avenue South and 24th Avenue South, and a shared use path on the south side of 24 Avenue South between 26th Street South and Main Avenue Southeast (labeled Concept Alternative 1 on key map).

The alignment option on 24th Avenue South was chosen over 27th Avenue South primarily due to the intersection crossings at Main Avenue Southeast. The 24th Avenue South and Main Avenue Southeast intersection is an existing signalized intersection that provides a safer crossing for bicyclists, and it also aligns with the existing shared use path on the south side of 24th Avenue South that is east of Main Avenue Southeast. The marked crosswalk at Main Avenue and 27th Avenue is on the north side of the intersection, which would require bicyclists to cross two legs of the intersection to reach the shared use path on the east side of Main Avenue. Another benefit of the path location on 24th Avenue is that it will provide a direct connection to the Moorhead School District Career and Technical Academy which is planned to be located in the former Sam's Club building on the corner of 24th Avenue South and 26th Street South.

Lead Agency

- City of Moorhead

Key Stakeholders

- Adjacent Property Owners
- MATBUS

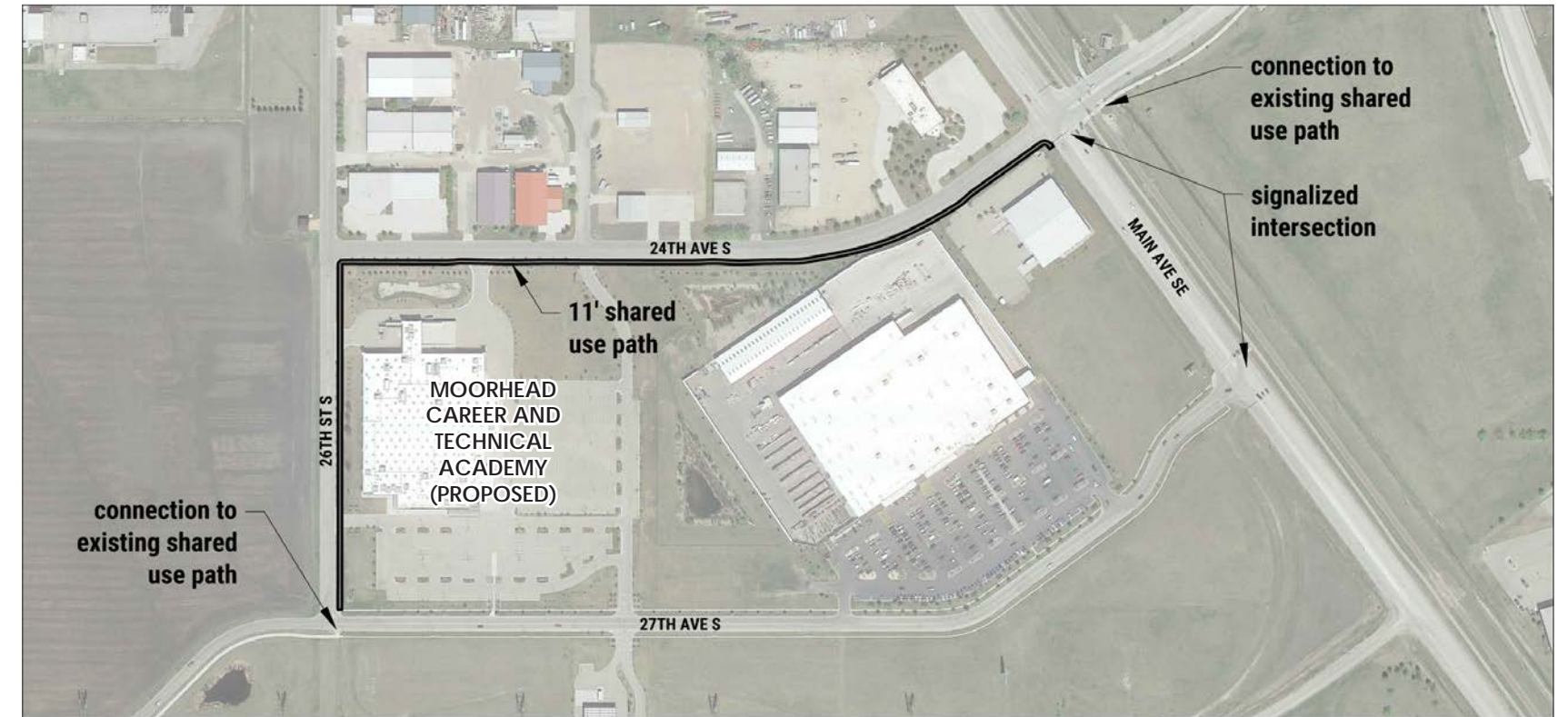
Planning-Level Cost Estimate

Recommended Concept	Approximate Cost Range
Shared Use Path	\$160,000 - \$230,000

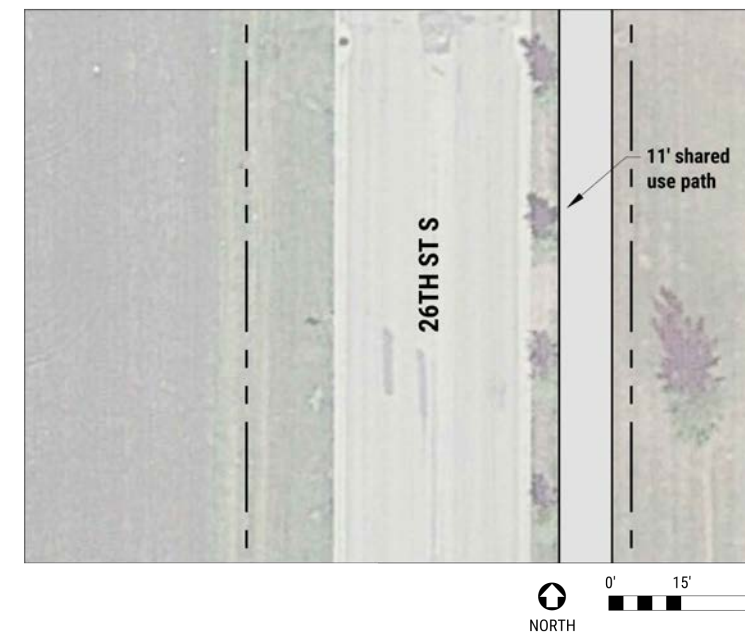
Cost Estimate Notes

- Length: 2,906 ft. (0.55 mi.)
- Assumes removing existing concrete sidewalk and replacing with an 11' concrete shared use path
- Right of way acquisition not included
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

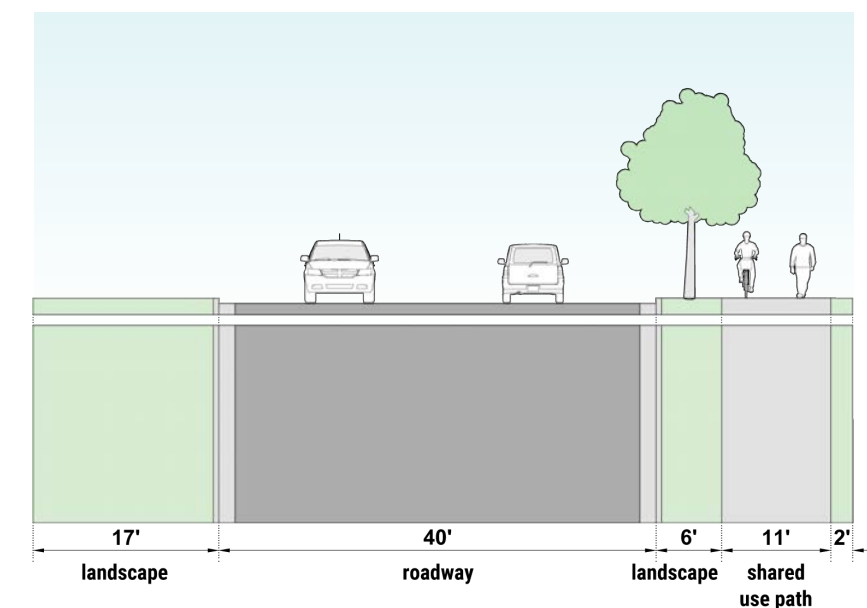
Recommended Alignment



Recommended Concept Plan View // 26th St S



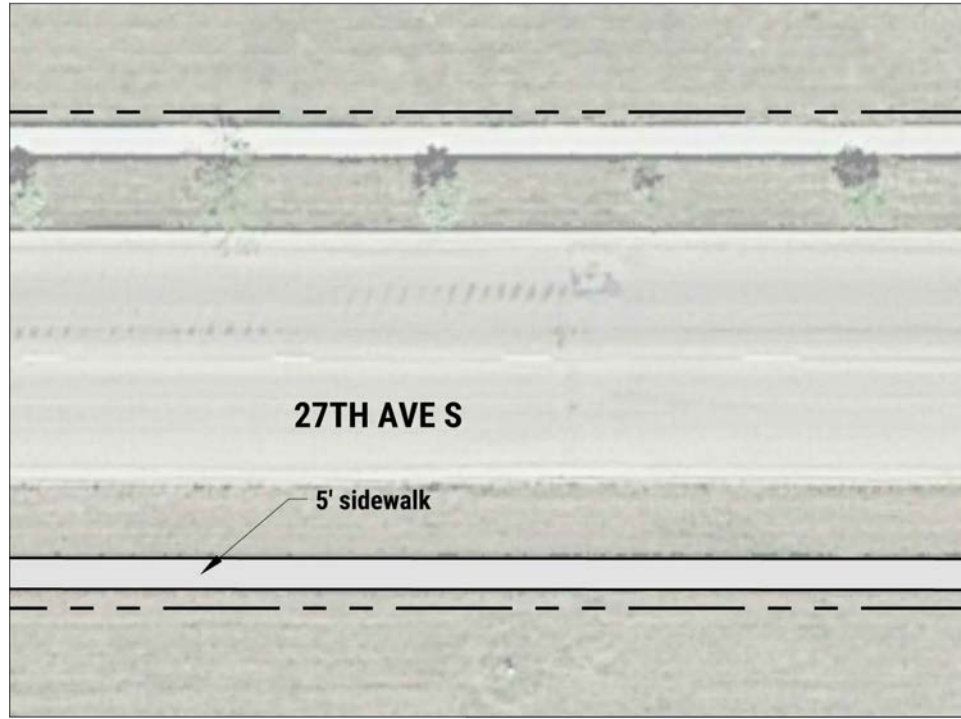
Recommended Concept Typical Section // 26th St S, Looking North



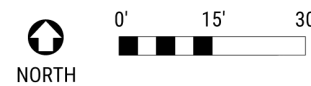
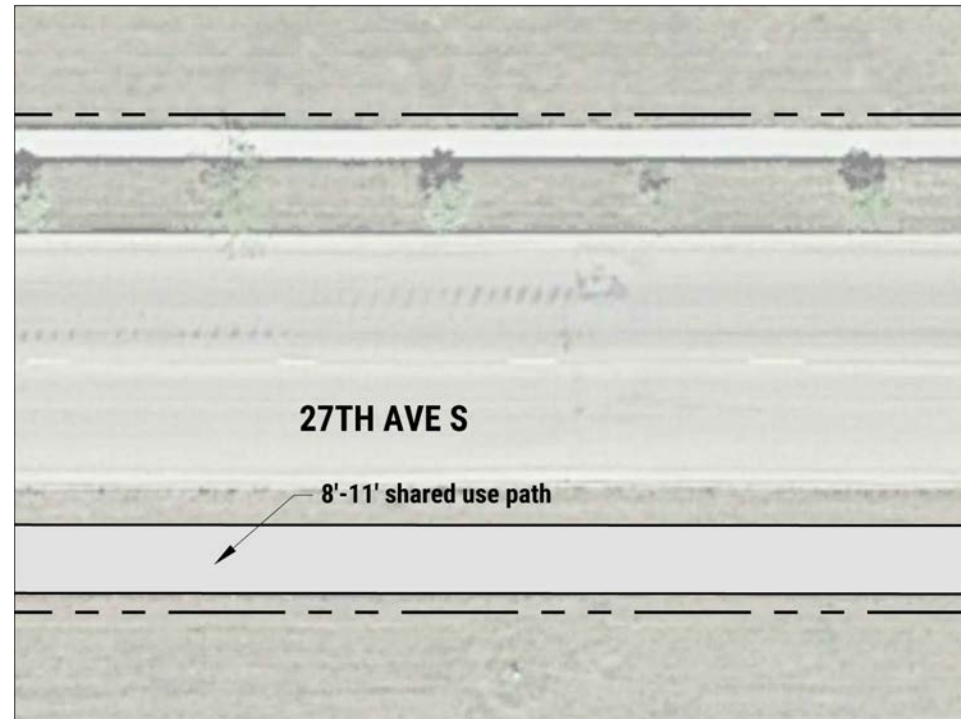


Gap 14 | Alternative Bikeway Concept

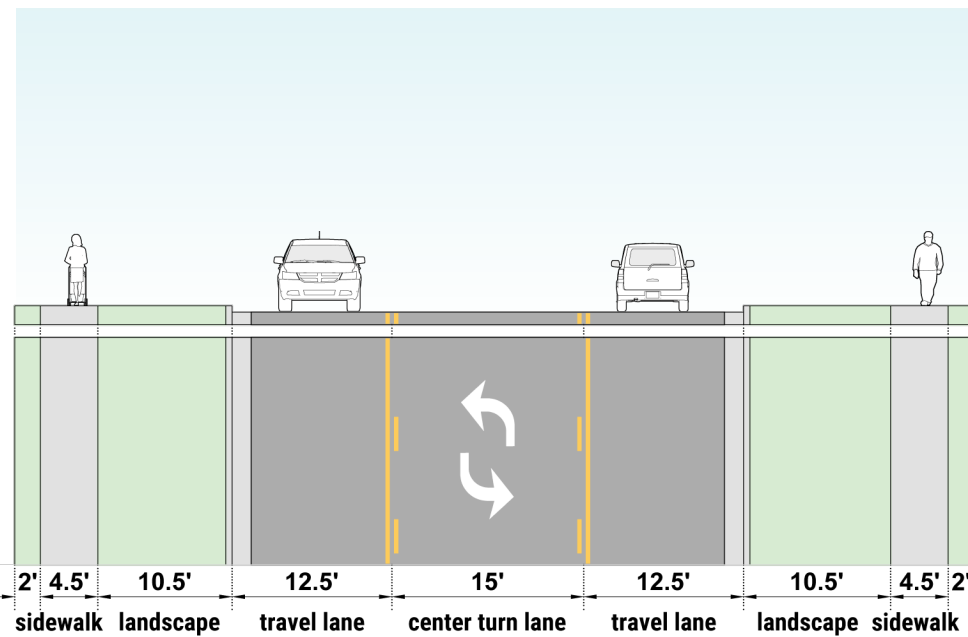
Existing Plan View // 27th Ave S



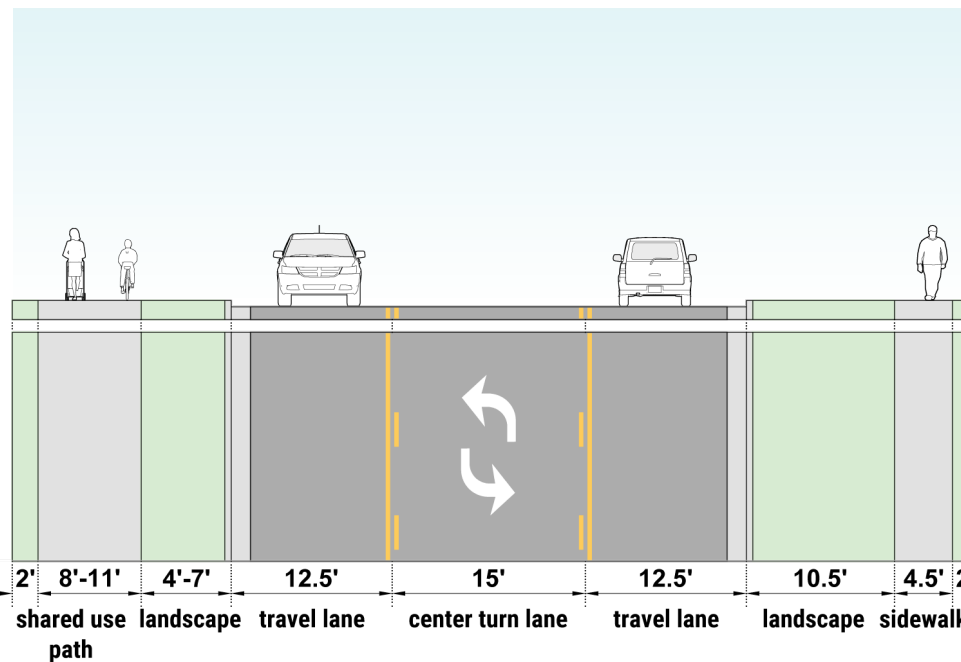
Alternative Concept, Plan View // 27th Ave S



Existing Typical Section // 27th Ave S, Looking West



Alternative Concept, Typical Section // 27th Ave S, Looking West



Overview

Gap 15 follows 40th Street South (County State Aid Highway 7), and County State Aid Highway (CSAH) 52 from 40th Avenue South to the bridge over Interstate 94. 40th Street South (CSAH 7) consist of one travel lane in each direction with turn lanes at major intersections. CSAH 52 consist of one travel lane in each direction with turn lanes at intersections and wide paved shoulders. Additionally, CSAH 52 has a signalized intersection at Village Green Boulevard / 30th Avenue South and 34 Street South.

Land Use and Nearby Destinations

The corridor consists of residential, commercial and agricultural uses. Nearby destinations include Vista Center for Education, Moorhead Antique Mall, and Village Green Golf Course.

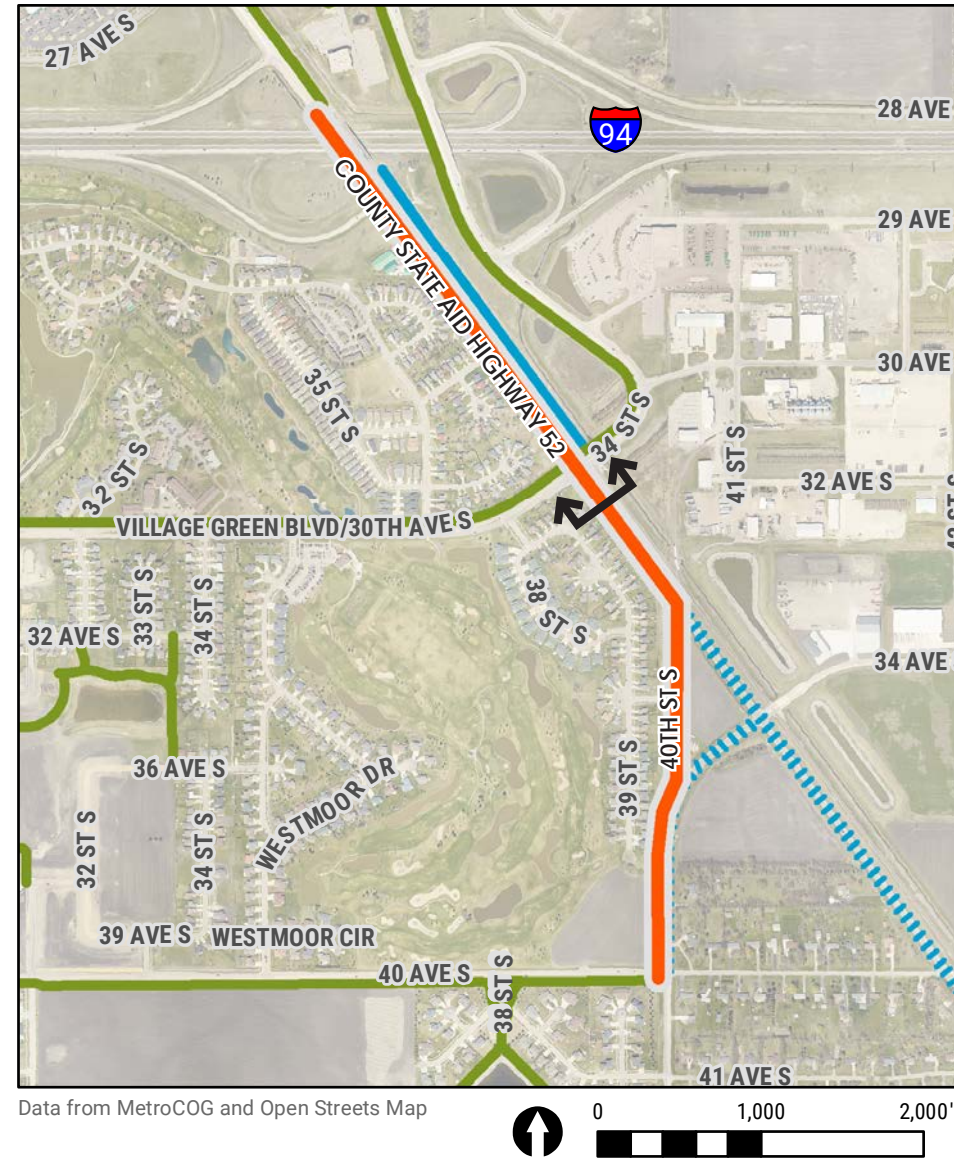
Connections to Nearby Bike Infrastructure

Nearby bicycle facilities include shared use paths on 40th Avenue South (CSAH 7), Village Green Boulevard / 30th Avenue South, 34th Street South, Main Avenue Southeast, 38 Street South, and wide paved shoulders on CSAH 52 and 40th Street South.

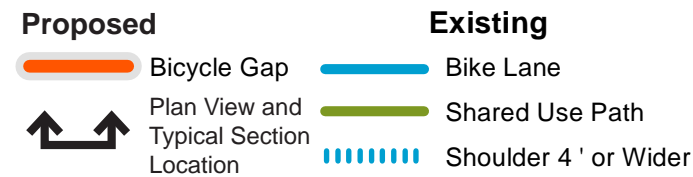
Corridor Features

	Speed Limit	Traffic Volume	Total Right-of-Way
40th St S (CSAH 7)	30 MPH	1,700 AADT	100'
CSAH 52	50 MPH	7,000 AADT	110'

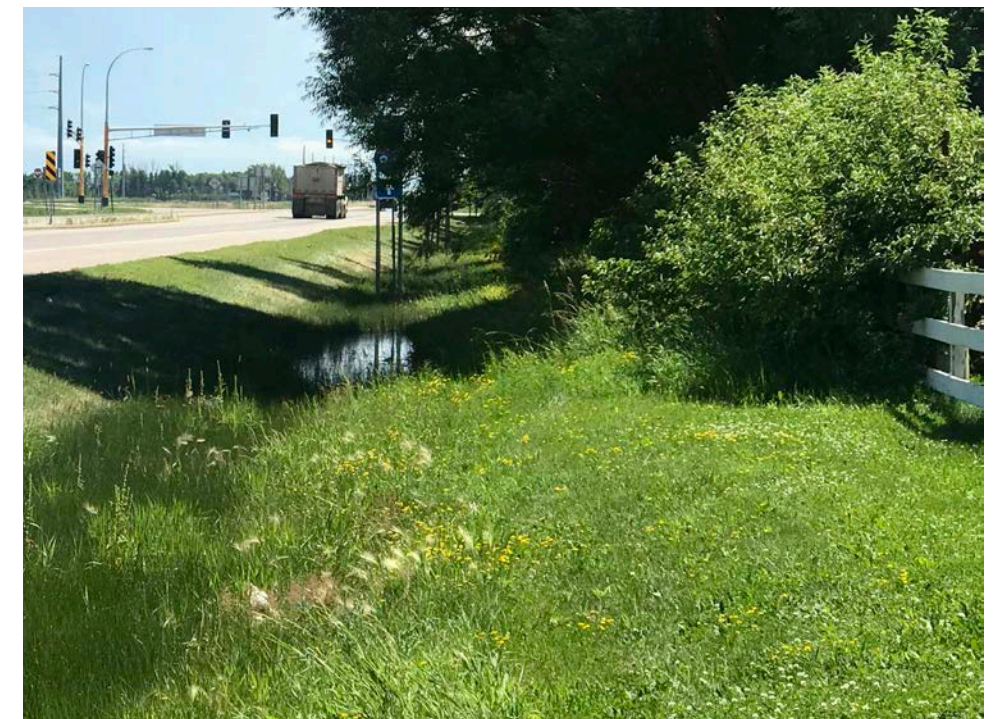
Key Map



Data from MetroCOG and Open Streets Map



Existing conditions on CSAH 52 near 34th Street, looking north.



Deep ditches on the side of CSAH 52 near 29th Avenue South.

Recommendation

The recommendation for Gap 15 is a no-build alternative. The project team analyzed the corridor and developed a bikeway concept that consists primarily of shared use paths. For a majority of the corridor, this alternative places the path immediately adjacent to CSAH 52, separated by a concrete barrier. This was the most feasible path placement due to the existing ditches along CSAH 52.

The alternative concept is not recommended due to the design and construction challenges related to moving the existing ditches and drainage areas along CSAH 52. Additionally, CSAH 52 has high traffic speeds and traffic volumes, so installing a path immediately adjacent to the roadway would make for an undesirable environment for path users.

The alternative concept includes a shared use path on the west side of 40th Street South (CSAH 7) that connects to the existing path on the south side of 40th Avenue South (CSAH 7), a short segment of an on-street, signed bike route on 40th Street South (CSAH 7), and a shared use path along CSAH 52.

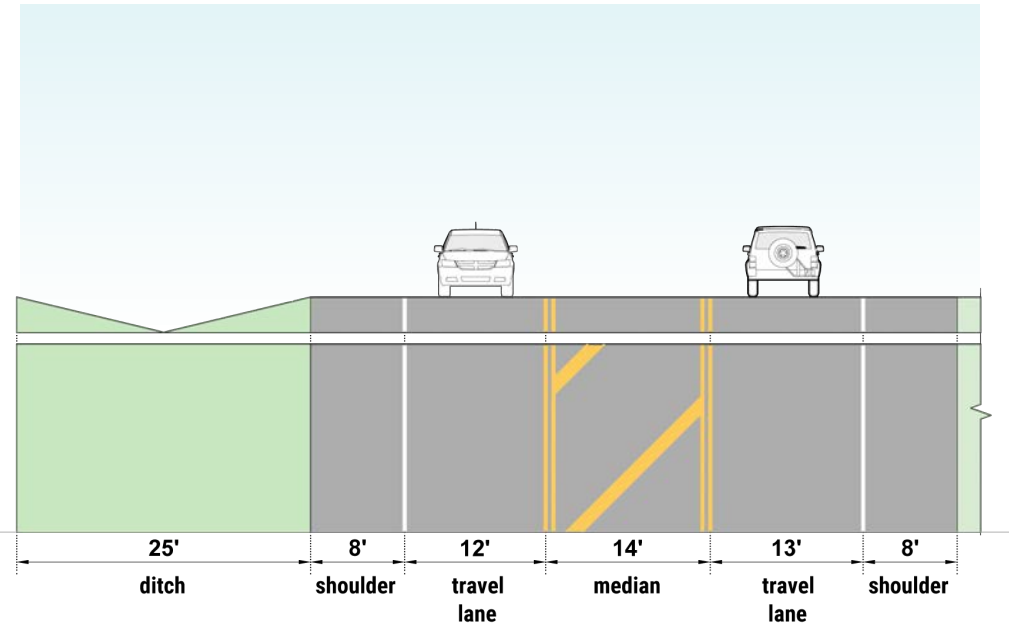
Along CSAH 52, the shared use path would be located on the east side at the northern end of the gap where it would connect to the existing shared use path on the I-94 bridge. The path would cross CSAH 52 at the existing signalized intersection at 30th Avenue South, and then would follow the western side of the CSAH 52 until it turns to the south to connect with 40th Street South (CSAH 7). CSAH 52 is a State Aid roadway; variances may be needed if the alternative concept were to be constructed.

Although a no-build alternative is recommended for this corridor, the project team and study review committee recognize that there may be alternative bikeway routes in this area that are more feasible than the route analyzed in this study. Alternative routes were discussed very late in the study, and were not presented to the public for input, so therefore the study does not recommend an alternative route. Further study and analysis from City and/or County staff is needed before recommending an alternative bikeway route and facility type.

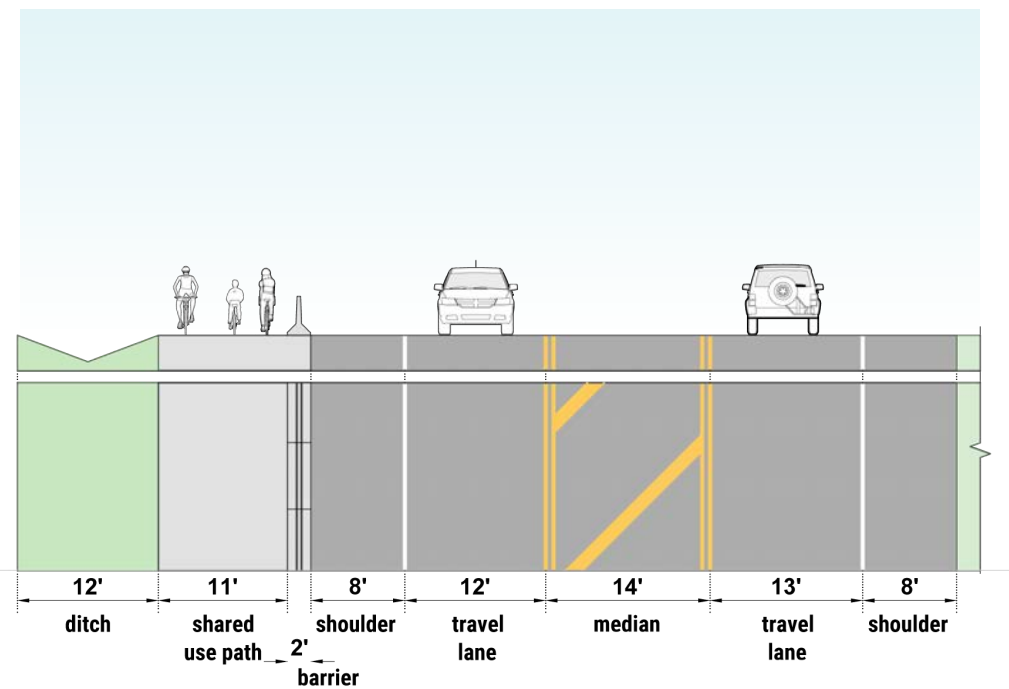
Planning-Level Cost Estimate

Alternative Concept	Approximate Cost Range
Shared Use Path	\$750,000-\$1,060,000

Existing Typical Section // CSAH 52, Looking North



Alternative Concept Typical Section // CSAH 52, Looking North



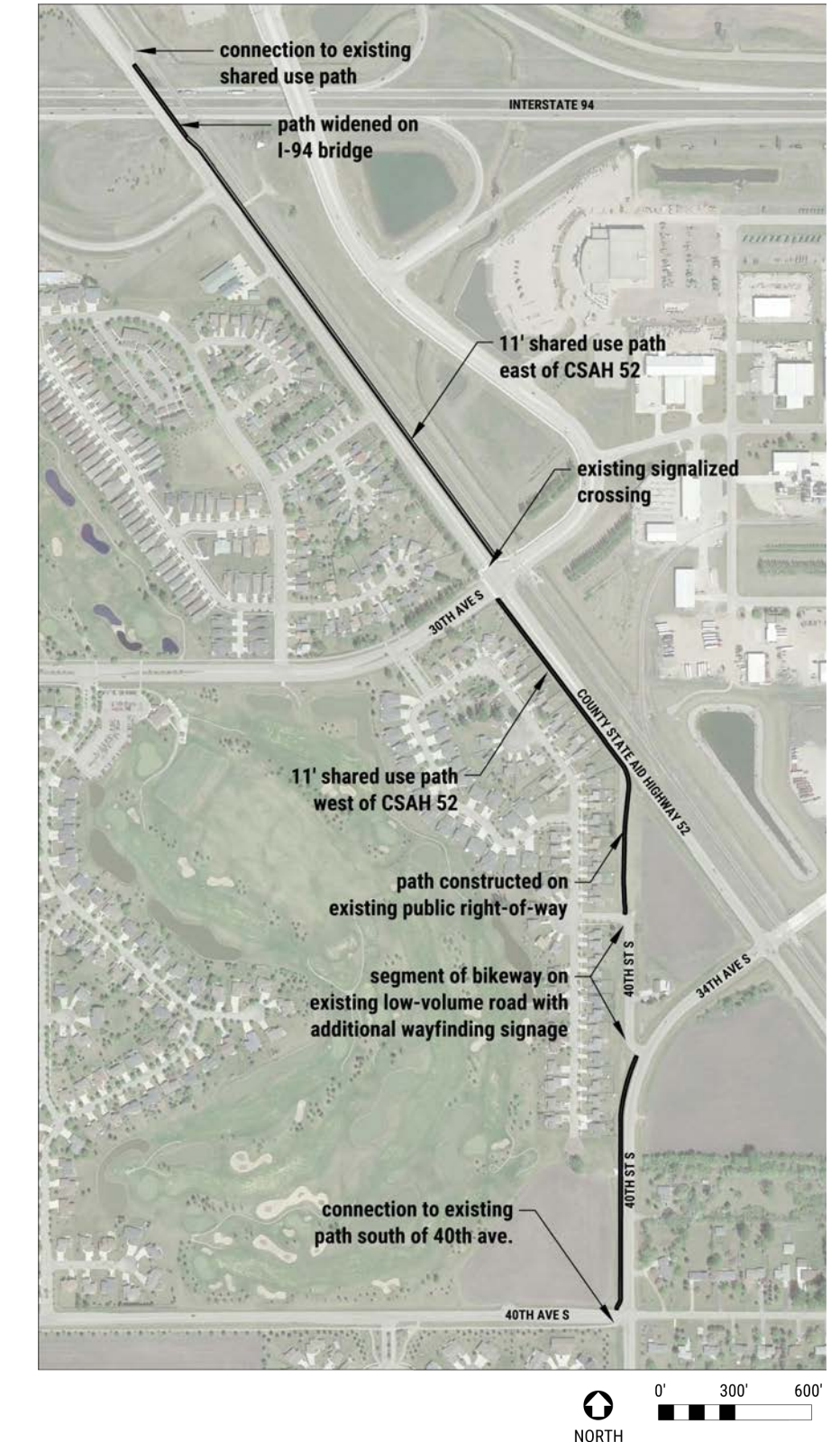
Lead Agency

- Clay County
- City of Moorhead

Key Stakeholders

- Minnesota Department of Transportation (MnDOT)

Alternative Concept Alignment



Overview

Gap 16 is located in the northernmost portion of the City of Moorhead. It runs along 15th Avenue North, 11th Street North/17th St North/County State Aid Road 3 (CSAH 3), and Wall Street Avenue North (also known as 57th Avenue North and CSAH 22), until crossing the Red River and turning into 40th Avenue North in the City of Fargo. 15th Avenue North, 11th Street North, and Wall Street Ave North consist of one travel lane in each direction.

Land Use and Nearby Destinations

The corridor mostly consists of residential, commercial and agricultural use, and parks and open spaces. Nearby destinations include Matson Field Park, Moorhead Country Club, Riverside & Prairie Home Cemetery, MB Johnson Park, and Audubon Dakota's Oakport Prairie.

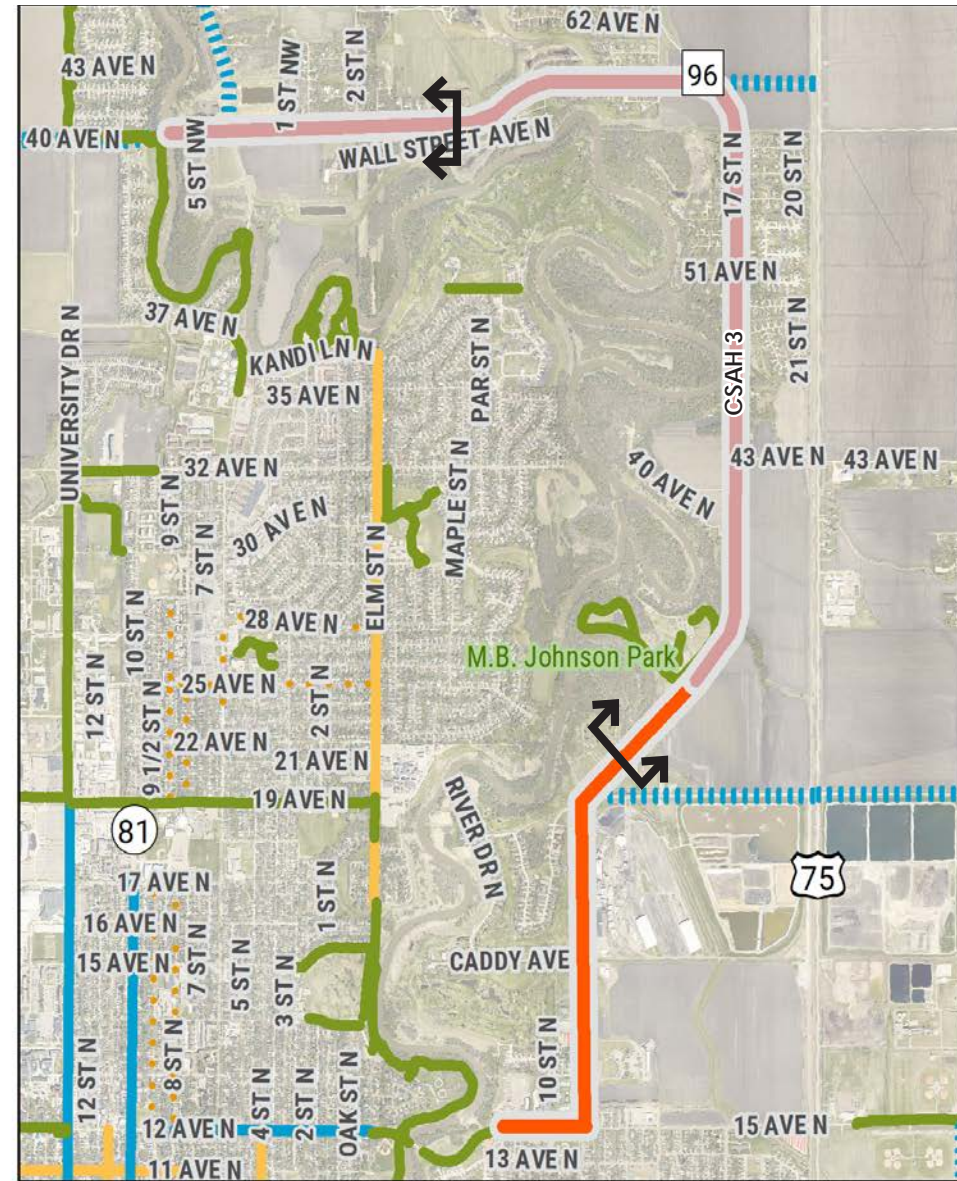
Connections to Nearby Bike Infrastructure

The shoulders on 11th Street North/17th St North/County State Aid Road 3 have been striped and marked as bicycle lanes between 11th Street and MB Johnson Park. Additional nearby bicycle facilities include bike lanes on 12th Avenue South in Fargo, a shared use path along the Red River in Fargo, bike lanes on 11th Street in Moorhead, and a shared use path along 15th Avenue North in Moorhead. New shared use paths were recently developed in M.B. Johnson Park.

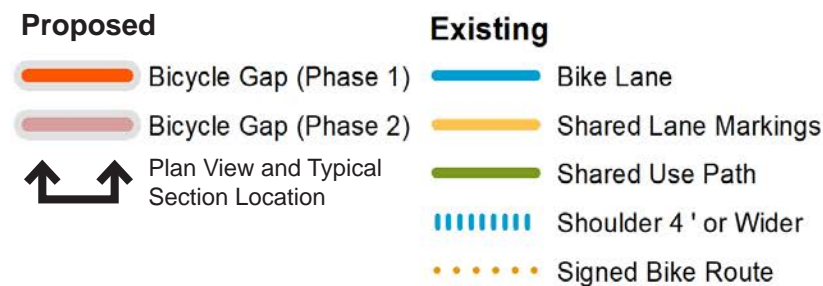
Corridor Features

	Speed Limit	Traffic Volume	Total Right-of-Way
15th Ave N	30 MPH	Unknown	72'
11th St N/17th St N/ CSAH 3	30/40/55 MPH	2,400 - 4,500 AADT	100'
Wall Street Ave N	55 MPH	4,500 AADT	100'

Key Map



Data from MetroCOG and Open Streets Map



A shared use path that was recently constructed along the north side of 15th Avenue North, which connects to the southern terminus of Gap 16.



Ditches and stormwater infrastructure along the west side of 11th Street North.

Recommendation

The recommendation for Phase 1 is a shared use path along the western side of 11th Street North from 15th Avenue North to MB Johnson Park. There may be some locations where the path will be challenging to construct due to existing ditches, stormwater, and utility infrastructure.

The path will need to pass over a creek just north of the Riverside & Prairie Home Cemetery. Further engineering and analysis will be required for the design of the path at this location. It will likely need to bend in towards the existing roadway shoulder to avoid any structural modifications to the existing culvert, and then bend back out after crossing the creek.

Lead Agency

- Clay County
- City of Moorhead

Key Stakeholders

- Adjacent Property Owners
- Moorhead Parks and Recreation Department

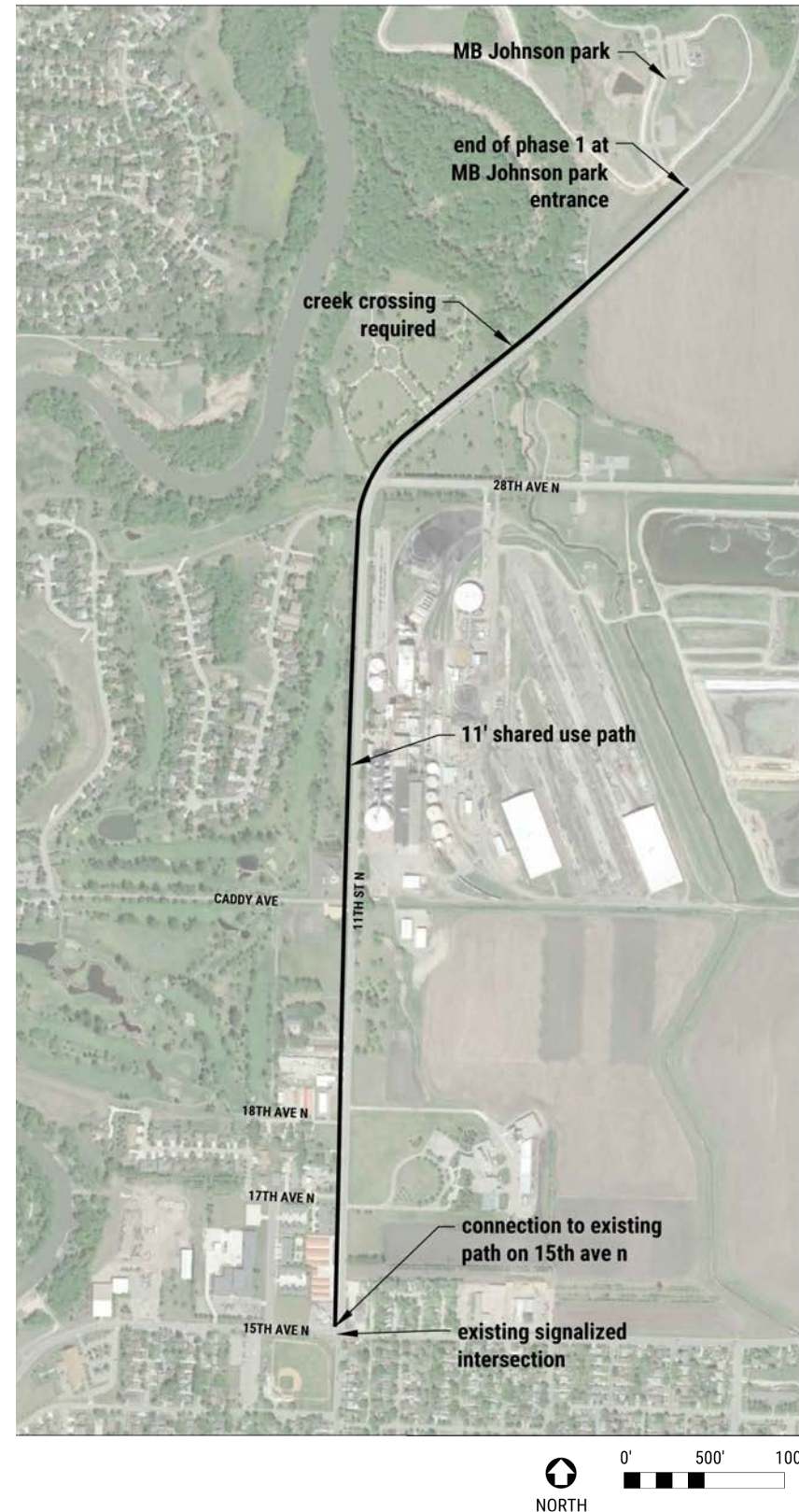
Planning-Level Cost Estimate

Recommended Concept	Approximate Cost Range
Phase 1: Shared Use Path	\$720,000 - \$1,010,000

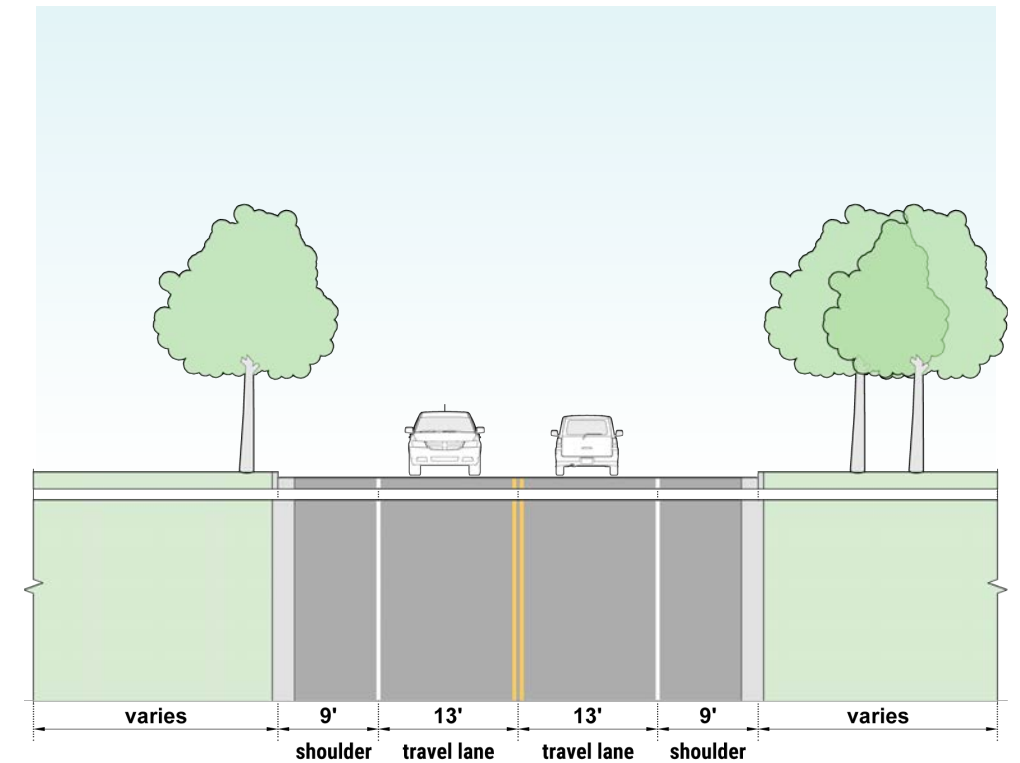
Cost Estimate Notes

- Phase 1 Length: 7,955 ft. (1.51 mi.)
- Does not include cost for modification to ditches
- Right of way acquisition not included
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

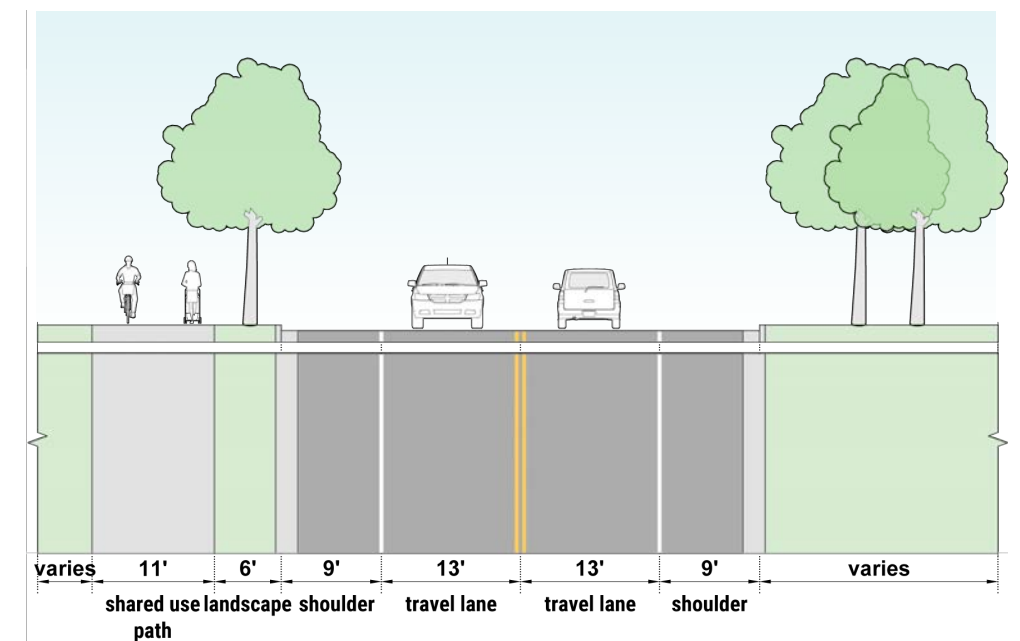
Recommended Phase 1 Alignment



Existing Typical Section // 11th St S, Looking Northeast



Recommended Typical Section // 11th Street South, Looking Northeast



Recommendation

The recommendation for Phase 2 is a shared use path from MB Johnson Park to Wall Street Ave North, and paved shoulders (existing conditions) on Wall Street Avenue North to 4th Street North. Although the roadway design of Wall Street Avenue North would remain unchanged, the project team recommends adding bike route signs along this stretch.

The project team analyzed the feasibility of developing a shared use path along Wall Street Avenue North, but it was deemed infeasible due to the deep ditches on the side of the roadway and the high costs anticipated for construction. In addition, the roadway was repaved in 2019 and features wide shoulders that are adequate for bicycling.

The recommendation for a shared use path from MB Johnson Park to Wall Street Ave North will be challenging in some areas due to ditches and stormwater infrastructure along the west side of 11th Street North.

The City of Moorhead is currently in the process of acquiring land along the east side of the Red River between Wall Street Avenue North and 40th Avenue North. Land acquisitions adjacent to the river are ongoing and future shared use path connections may use acquired land areas.

Lead Agency

- Clay County
- City of Moorhead

Key Stakeholders

- Adjacent Property Owners
- Moorhead Parks and Recreation Department

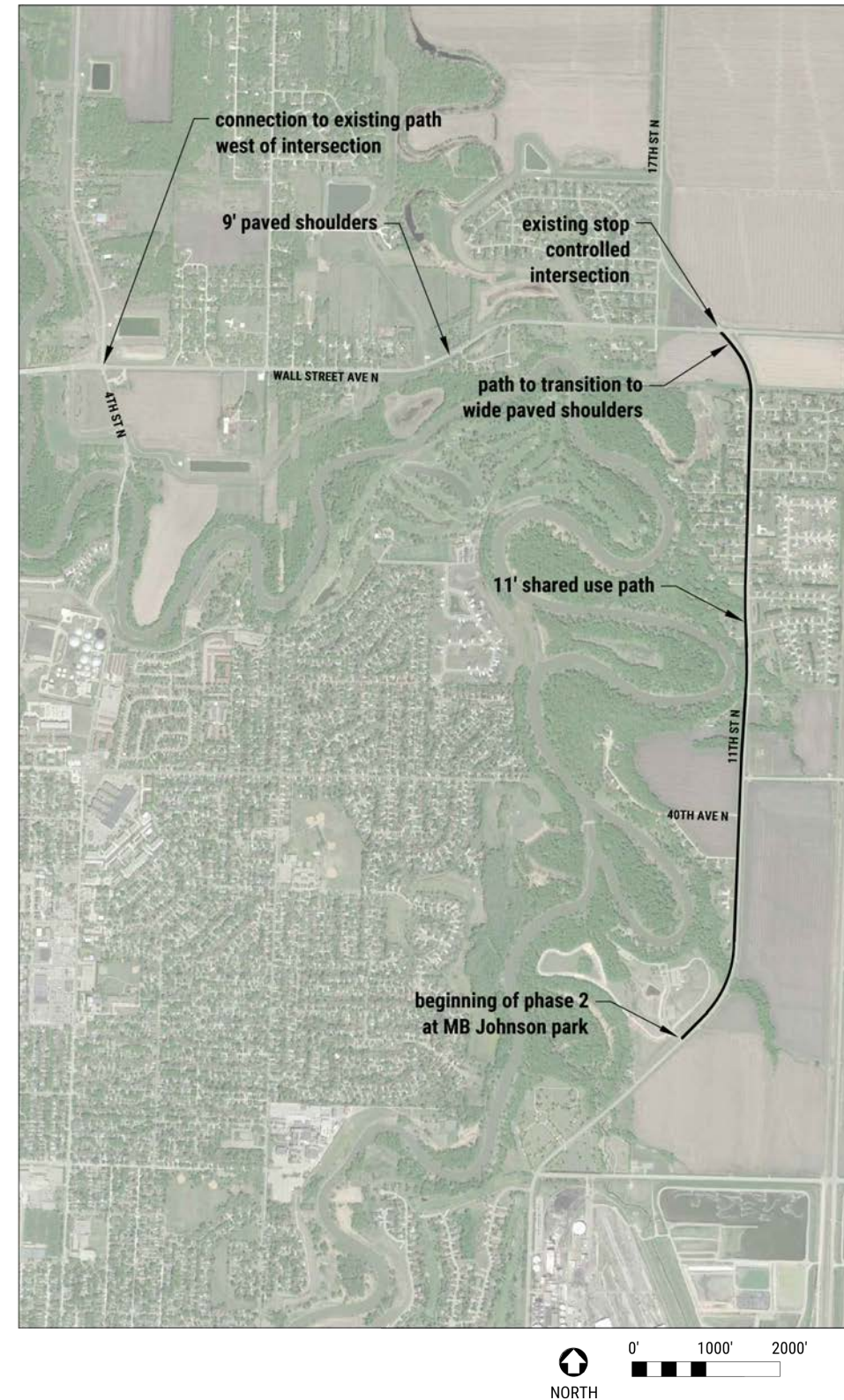
Planning-Level Cost Estimate

Recommended Concept	Approximate Cost Range
Phase 2: Shared Use Path	\$870,000 - \$1,230,000

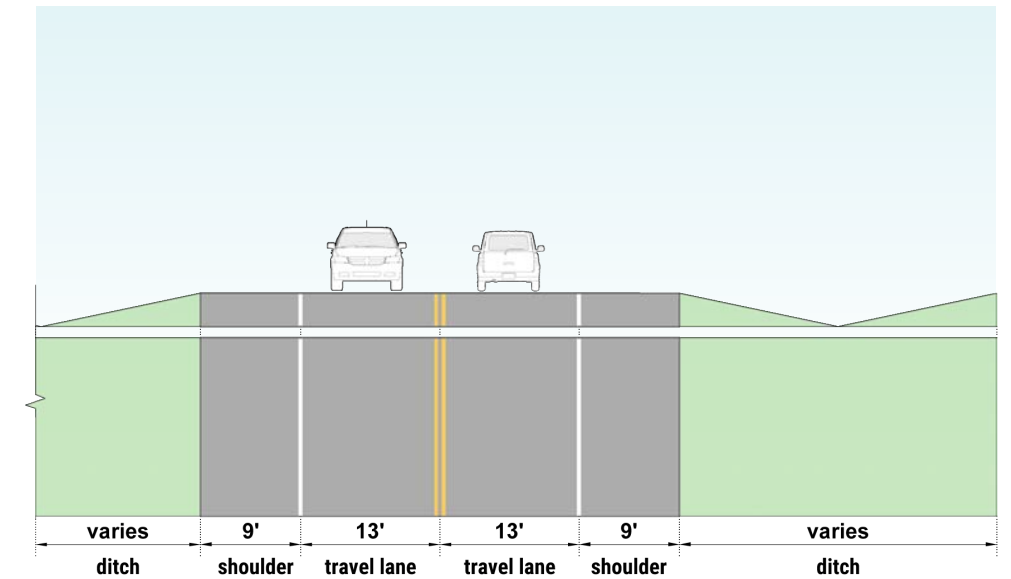
Cost Estimate Notes

- Phase 2 Length: 9,824 ft. (1.86 mi.)
- Right of way acquisition not included
- Does not include cost for modification to ditches
- Unit Prices per MnDOT 2018 Statewide Average Bid Prices
- All costs in 2018 dollars

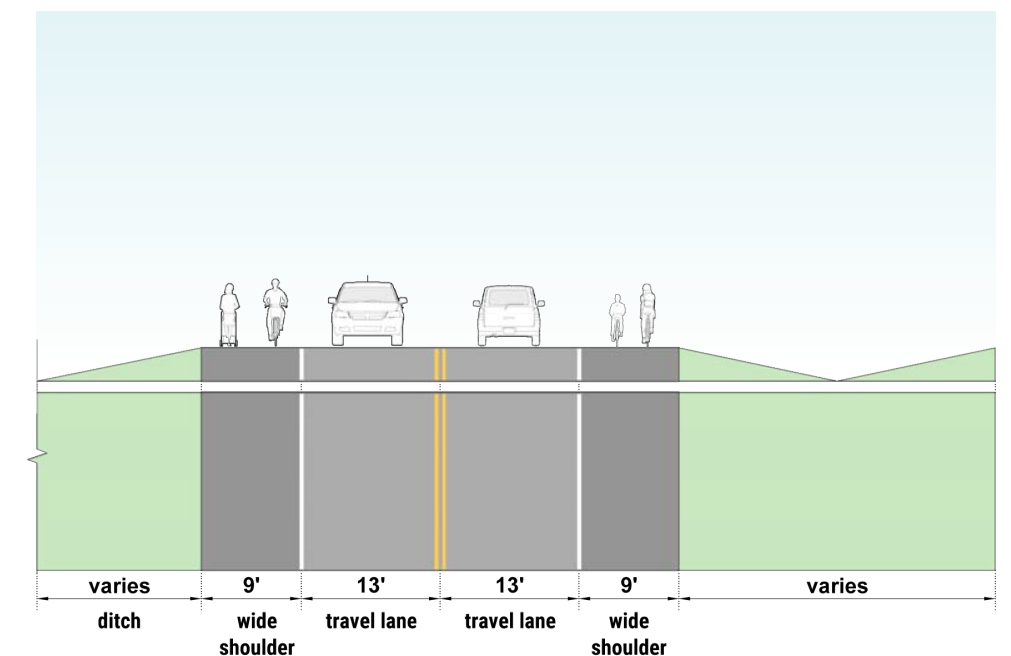
Recommended Phase 2 Alignment



Existing Typical Section // Wall Street Ave N, Looking West



Recommended Typical Section // Wall Street Avenue North, Looking West



4

Implementation and Funding

Implementation

Implementation of the bikeway concepts recommended in this report will be an incremental process involving several different jurisdictions. The process will likely take place over the course of several years and will evolve over time. The implementation of the bikeway concepts will be prioritized and developed by local jurisdictions as opportunities present themselves. Implementation will be based on available resources and willing project partners.

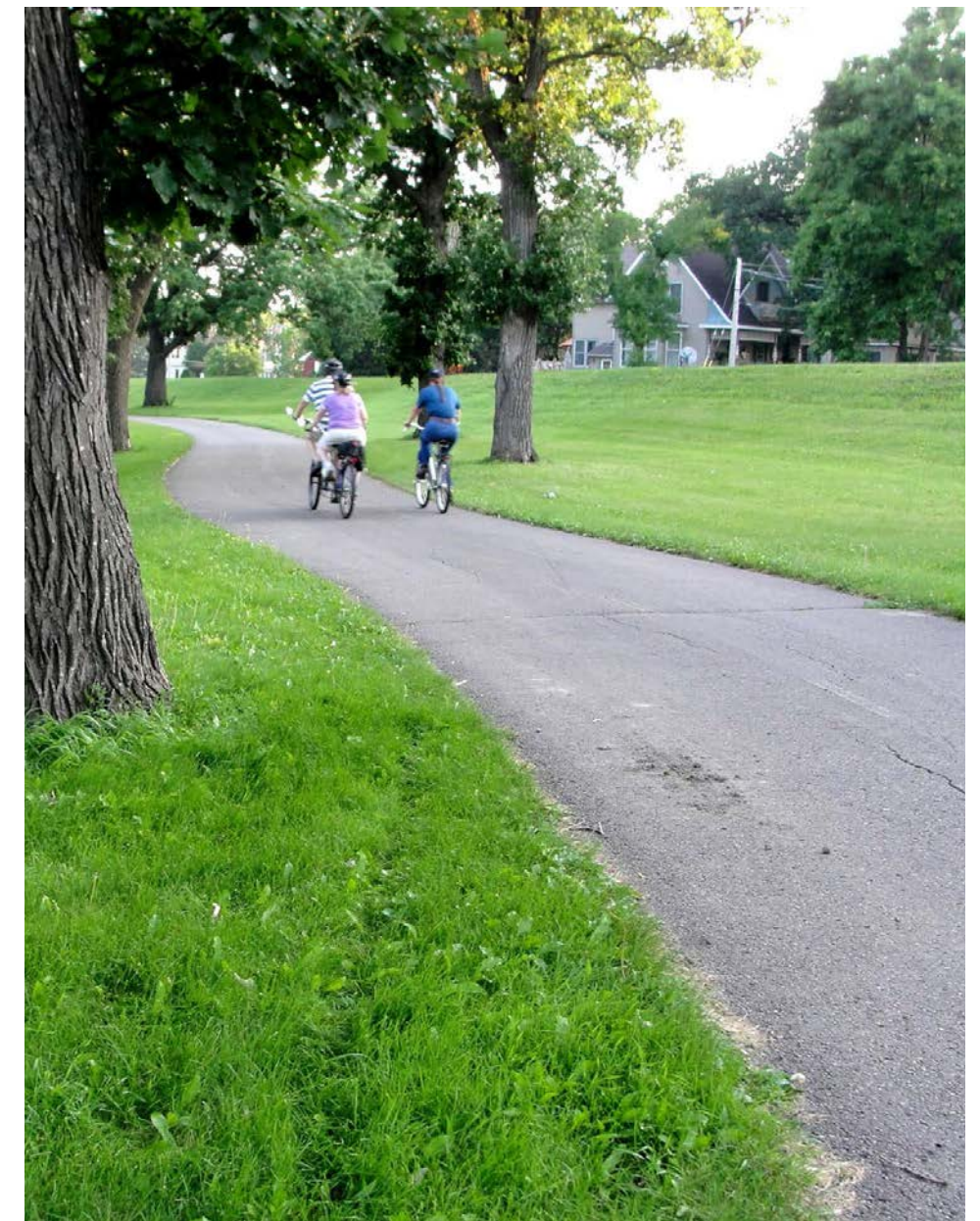
The most prudent and cost-effective method for implementation is to seek out opportunities related to projects already programmed for funding by counties or municipalities, such as county highway improvement programs or municipal capital improvement programs. These projects may include pavement overlays, chip sealing, full road reconstruction, or traffic signal replacement projects. Shared use path projects not tied to roadway projects can be implemented when opportunities and funding become available.

This study was developed at the same time as the Fargo Safe Routes to School (SRTS) Plan, also led by Metro COG. While these two efforts complement each other, infrastructure recommendations from the Fargo SRTS Plan are on a neighborhood-scale and are focused on student mobility, while recommendations from this study focus specifically on bikeways on a regional scale and are geared toward people of all ages and abilities. Nevertheless, the Fargo SRTS Plan should be referenced when considering implementing applicable gaps within the City of Fargo.

Funding

The implementation of the bikeway concepts will require the use of a variety of funding sources. Funding sources are available from the federal, state, regional, county, and local levels. Examples of potential funding sources for developing paths and bikeways in the Fargo-Moorhead region include:

- Municipal Capital Improvement Programs
- County Highway Improvement Plans
- Special assessment funding sources
- Transportation Alternatives Program
- Recreational Trails Program
- Highway Safety Improvement Program
- Surface Transportation Block Grant Program
- North Dakota Urban Grant Program (eligible for core business districts)
- Minnesota Legacy Funds
- Minnesota Department of Natural Resources Local Trail Connections Program
- Minnesota Department of Natural Resources Regional Trail Grant Program



People bicycling on a shared used path in Fargo.

Table 2: The 16 bikeway gaps included in the Study.

Bikeway Gap	Jurisdiction	Bikeway Gap Extents	Recommended Concept(s)	Approximate Cost Range
1	West Fargo	North Elmwood Park to Scheels Soccer Complex via city easement corridor south of 10th Avenue West	Shared Use Path	\$290,000 - \$410,000
2	West Fargo	9th Street West & 28th Avenue West to 5th Street West & 28th Avenue West, south to West Fargo Sports Arena	Shared Use Path	\$240,000 - \$340,000
3	West Fargo	47th Avenue West & Sheyenne Street to the existing Osgood path, and south to intersection of 52nd Avenue East & 4th Street East	Shared Use Path Pedestrian and Bicycle Bridge	\$485,000 - \$691,000 \$685,000 - \$959,000 Total: \$1,170,000 - \$1,650,000
4	Fargo / Cass County	Dakota Drive / CR 81 from 12th Avenue North to CR 22	Paved Shoulder	\$2,230,000 - \$3,130,000
5	Fargo	Red River path from 15th Avenue North to 32nd Avenue North	Phase 1: Shared Use Path Phase 2: Shared Use Path	\$510,000 - \$730,000 \$240,000 - \$350,000 Total: \$750,000 - \$1,080,000
6	Fargo	7th Avenue North and/or 6th Avenue North from University Drive to vicinity of Oak Grove School	No-build alternative	<i>No bikeway cost estimate due to no-build alternative</i>
7	Fargo	13th Avenue South from 21st Street to 4th Street	Two-way separated bikeway	\$1,469,000 - \$1,906,000
8	Fargo	24th Avenue South / 25th Avenue South from 18th Street to 5th Street	Two-way Separated Bikeway Shared Use Path	\$8,000 - \$12,000 \$100,000 - \$150,000 Total: \$108,000 - \$162,000
9	Fargo / Moorhead	Path and bridge from vicinity of 40th Avenue South & University Drive (Fargo) to Bluestem Performing Arts Center (Moorhead)	Bicycle and Pedestrian Bridge Shared Path	\$3,313,560-\$4,638,984 \$646,440- \$911,016 Total: \$3,960,000- \$5,550,000
10	Fargo	Broadway (or parallel corridor) from 8th Avenue North to 35th Avenue North	Shared Use Path (25th Ave N to 35th Ave N)	\$430,000 - \$620,000
11	Fargo	I-29 crossing at 28th Avenue South	Pedestrian and Bicycle Bridge Shared Use Path	\$2,424,922 - \$3,394,890 \$465,079 - \$705,110 Total: \$2,890,000 - \$4,100,000
12	Moorhead	Intersection of 6th Street & 12th Avenue South to intersection of 6th Street & 7th Avenue South (through Concordia or around campus)	Shared Use Path	\$180,000 - \$260,000
13	Moorhead	Connect existing bike facilities on 28th Avenue South west of M-State to 20th Street path at the intersection of 24th Avenue South & 20th Street	Shared Use Path (24th Avenue South, from 14th Street to 20th Street) Standard Bike Lanes (14th Street South, from 24th Avenue to 28th Avenue)	\$230,000 - \$330,000 \$2,000 - \$3,000 Total: \$232,000 - \$333,000
14	Clay County / Moorhead	Connect existing bike facilities at intersection of 27th Avenue South & 26th Street to the existing bike facilities at the intersection of 24th Avenue South & Southeast Main Avenue	Shared Use Path	\$160,000 - \$230,000
15	Clay County / Moorhead	County State Aid Highway 52 and 40th Street South (CSAH 7), from the bridge over Interstate 94 to 40th Avenue South	No-build alternative	<i>No bikeway cost estimate due to no-build alternative</i>
16	Clay County / Moorhead	Path along 11th Street from 15th Avenue North to Wall Street Avenue North. Path along Wall Street Avenue from 11th Street to the Red River.	Phase 1: Shared Use Path Phase 2: Shared Use Path	\$720,000 - \$1,010,000 \$870,000-\$1,230,000 Total: \$1,590,000 - \$2,240,000

Appendix A

Community Engagement Results

Bike Gap Descriptions

The study consists of 16 high-interest gaps in Fargo-Moorhead's existing bikeway network. While a total of 119 gaps were identified in the 2016 Fargo-Moorhead Bicycle & Pedestrian plan, the 16 gaps being analyzed in this study have been identified due to their local needs, public feedback, and other factors. A description of each of the 16 gaps is below.

West Fargo

Gap 1

- Path from North Elmwood Park to Scheels Soccer Complex via city easement corridor just south of 10th Ave W

Gap 2

- Path from intersection of 9th St W & 28th Ave W due east to Sheyenne St. Path from intersection of 6th St W & 27th Ave W south to West Fargo Sports Arena/Lights at Sheyenne 32 development.

Gap 3

- Path from intersection of 47th Ave W & Sheyenne St due east to existing Osgood path including Sheyenne River crossing. Path from Osgood path south to intersection of 52nd Ave E & 4th St E.

Fargo

Gap 4

- Dakota Dr/CR 81 from 12th Ave N to CR 22.

Gap 5

- Red River path from 15th Ave N to 32nd Ave N.

Gap 6

- 7th Ave N and/or 6th Ave N from University Dr to vicinity of Oak Grove School

Gap 7

- 13th Ave S from 21st St to 5th St

Gap 8

- 24th Ave S/25th Ave S from 18th St to 5th St

Gap 9

- Path and bridge from vicinity of 40th Ave S & University Dr to Bluestem Performing Arts Center (Moorhead)

Gap 10

- Broadway from 8th Ave N to 35th Ave N

Gap 11

- I-29 crossing at 28th Ave S

Moorhead

Gap 12

- Intersection of 6th St & 12th Ave S to intersection of 6th St & 7th Ave S (either through Concordia or around campus)

Gap 13

- Connect existing bike facilities on 28th Ave S west of M-State to 20th St path at either the intersection of 24th Ave S & 20th St or intersection of 20th Ave S & 20th St

Gap 14

- Connect existing bike facilities at intersection of 27th Ave S & 26th St to existing bike facilities at intersection of 24th Ave S & SE Main Ave

Clay County

Gap 15

- Path from 40th Ave S to I-94

Gap 16

- Path along 11th St from 15th Ave N to MB Johnson Park

Comments Received Per Gap

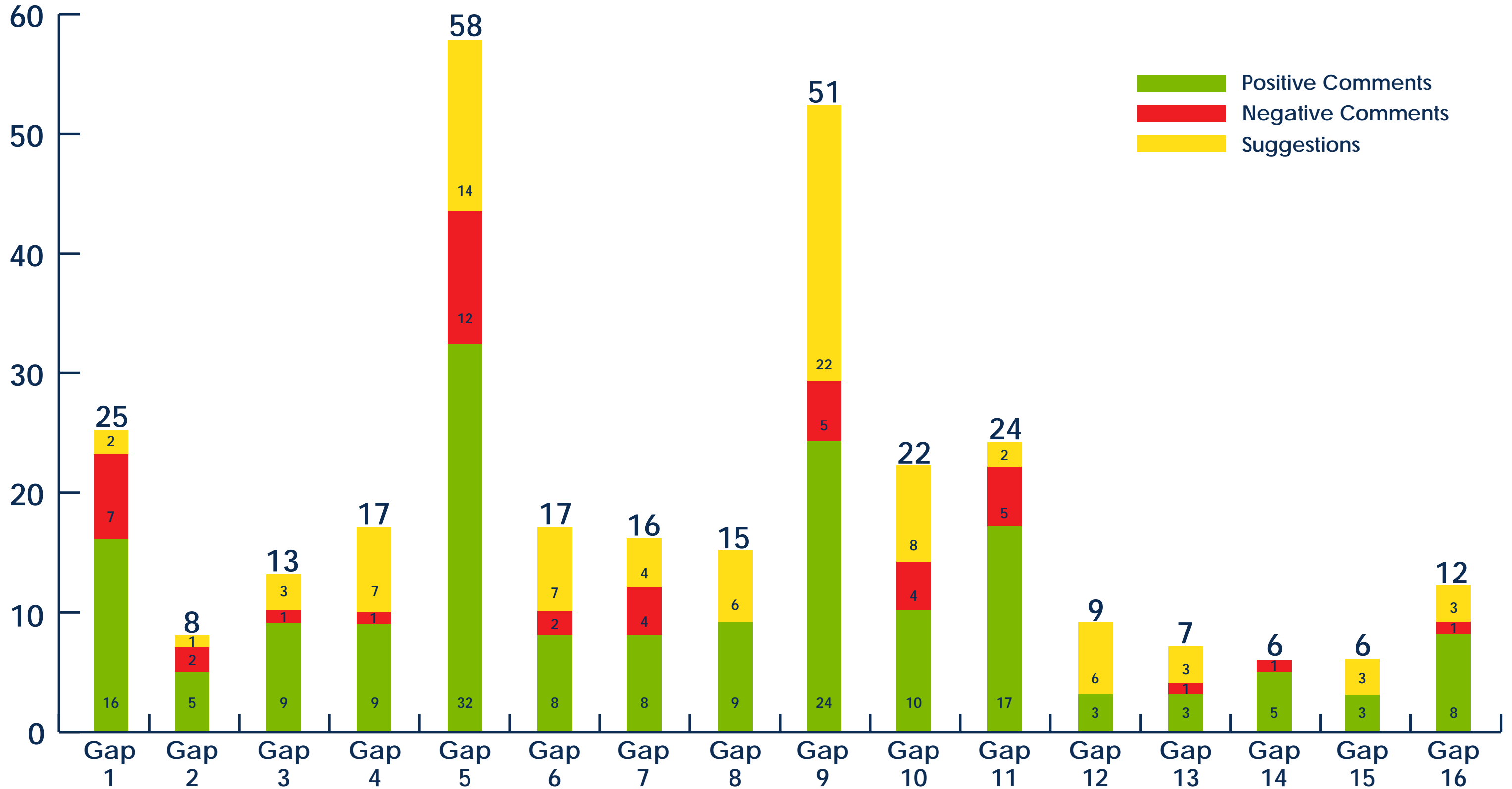


Figure 3: Comments from community members were sorted into three categories (positive, negative, and suggestions) which are shown above for each gap.

Comments by Gap

The following is a sampling of comments received through the various public outreach methods including the online survey, online comment mapping tool, comment boxes, and comment cards distributed at the open house. After reviewing each of the comments, the comments were manually sorted into three general categories: positive comments, negative comments, and suggestions. After categorizing all comments, the comments were sorted per gap into these three categories and the results are shown in Figure 3 on page 50.

Gap 1

"Encouraging biking and walking facilities to park and recreation facilities is extremely important, especially for children's safety."

"Not necessary, already have enough paths in this area."

"Great idea to improve 'old' West Fargo."

Gap 2

"Focus more on improving the core and allowing for bikes as an alternative to cars."

"Please do not congest the traffic any further than it already is."

"A new bike path through our area would be extremely wanted for safe paths for the kids in the community."

Gap 3

"Way out on the edge of town wouldn't have as many benefits as developments closer to the population core."

"Would be a great addition to provide the neighborhoods on the west side of the Sheyenne River with a safe option to go east."

"I am new to biking this area, however, after having cycled around and discovering all the dead ends, I think this addition would be fantastic!"

Gap 4

"Need a connection under the railroad on 19th Avenue North (south of airport)."

"Adding bike lanes on either side would make for easier maintenance and faster travel."

"Any bike paths are a good idea. Much safer for cyclists."

Gap 5

"This path would get a lot of use!"

"Waste of money. Usually underwater. Very, very low priority."

"A trail in this area would be desirable for so many people and would increase the value of homes in North Fargo, since nationally, trails are one of people's most desired recreational features."

Gap 6

"Get public works involved for sweeping protocol."

"I like the proposal for a bike lane on each side of the road. Filling this gap would make me feel much safer out on the roads!"

"Could this go just a little farther east to connect with the trail/route that goes along the river?"

Gap 7

"I am a fan of keeping bikes and pedestrians as far away from cars as possible."

"A dedicated lane on 13th would be pretty amazing."

Gap 8

"I am all for more E-W connectors."

"Crossing University Drive would have to have pedestrian dedicated movement and longer signalization. University feels like a major barrier to kids and families especially."

"My kids need safe passage to CBE."

Gap 9

"I would love to see a bridge here for concerts!"

"A bridge over the river in the south to connect the Fargo and Moorhead trails would really open up more options for biking/running."

"I like the idea of us not having to think about whether the bridge is up or down!"

Gap 10

"Broadway is the perfect place for Alternative 1! With mature trees and narrow streets, it would be a comfortable ride."

"Keep the bikes off the road."

"An additional route to downtown via Broadway would be fantastic, with on-street lanes or wider sidewalks. I wouldn't want a trail to negatively affect the boulevard trees, but maybe there's enough space for a bike lane on the street."

Gap 11

"Great connection across connecting neighborhoods."

"Low priority."

"As a resident in this area, YES."

Gap 12

"I went to Concordia and would love to see any of these happen."

"I think all you really need would be some 'Share the Road' signs/pavement markings and 'Bikes Yield to Pedestrians' signs."

"The Concordia Campus offers a nice route for bikes as does MSUM. Neither campus is signed as a bike route even though they are great connections."

Gap 13

"It would be a great way for kids to ride their bikes safely to school."

"Railroad tracks create large barriers and make going around this gigantic block cumbersome. Would be nice to have another access point to reduce trips around industrial park."

"Please do it! I use this almost everyday and I'd love to see it used more."

Gap 14

"I don't feel this gap is a priority. There aren't many people walking along this corridor compared to the rest of Moorhead."

"When I travel through Gap 14, I prefer using 24th Avenue."

"This seems like a good low-traffic area for biking."

Gap 15

"I used to live in this area as a kid, and I would always be nervous to ride on the shoulder to get to the part of Main where the path was. I think this is a huge need and would love to get this gap filled."

"Please extend the bike path south."

Gap 16

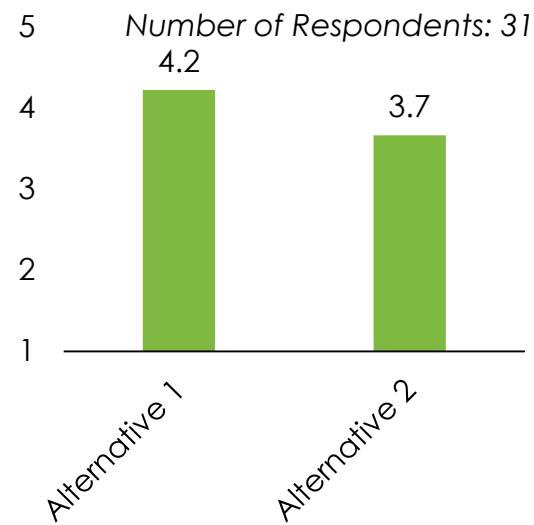
"I think a trail to MB Johnson would get lots of use."

"A trail on the Moorhead side at this location would be a great asset, as it would connect with trails and route on the Fargo side, creating a loop."

Alternative Preference by Gap

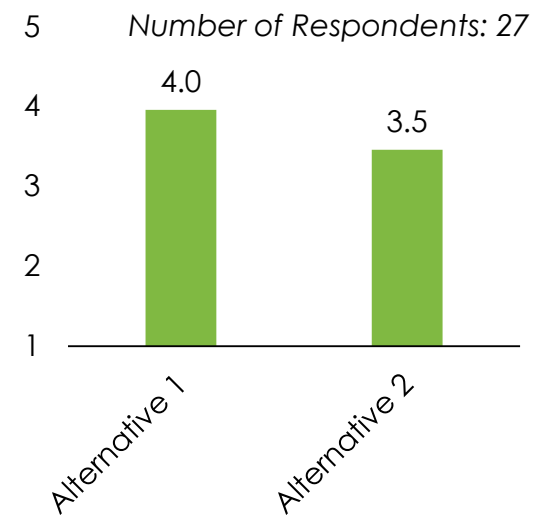
Gap #4 | City of Fargo

How do you feel about Alternative 1 and Alternative 2?
(5=Strongly like it, 1=Strongly dislike it)



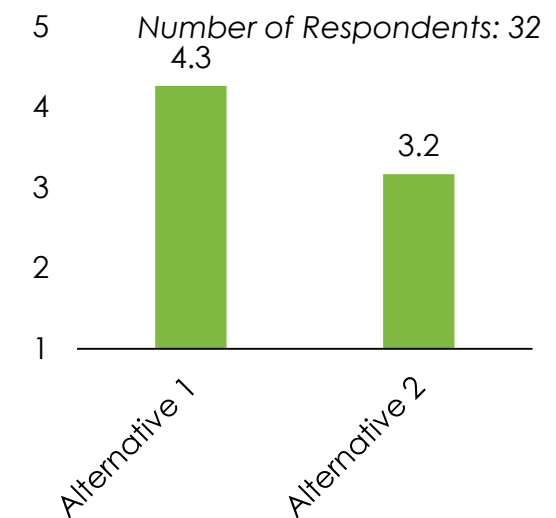
Gap #7 | City of Fargo

How do you feel about Alternative 1 and Alternative 2?
(5=Strongly like it, 1=Strongly dislike it)



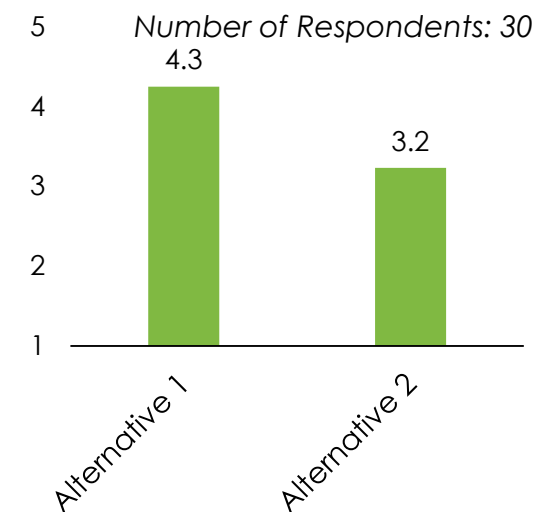
Gap #10 | City of Fargo

How do you feel about Alternative 1 and Alternative 2?
(5=Strongly like it, 1=Strongly dislike it)



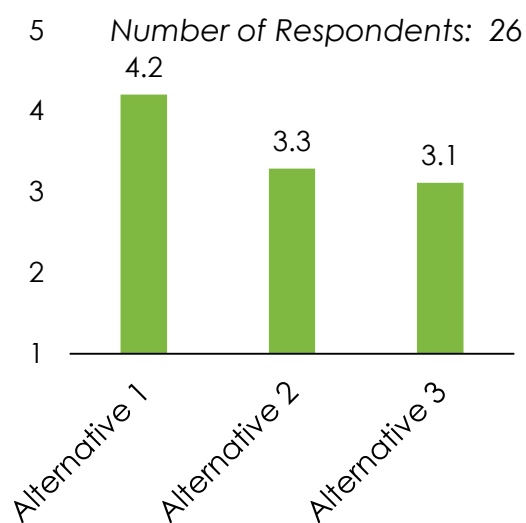
Gap #6 | City of Fargo

How do you feel about Alternative 1 and Alternative 2?
(5=Strongly like it, 1=Strongly dislike it)



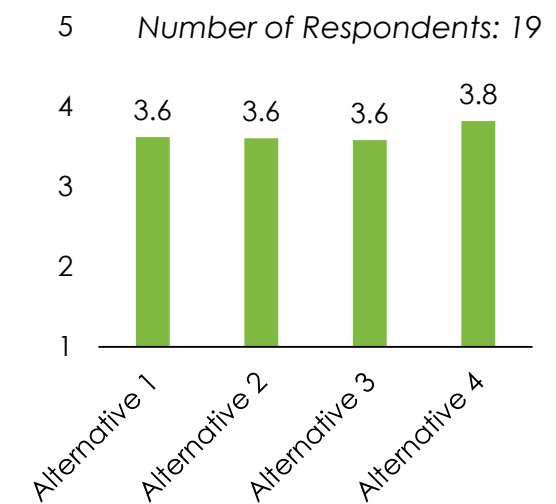
Gap #8 | City of Fargo

How do you feel about Alternative 1, Alternative 2 and Alternative 3?
(5=Strongly like it, 1=Strongly dislike it)



Gap #12 | City of Moorhead/Concordia College

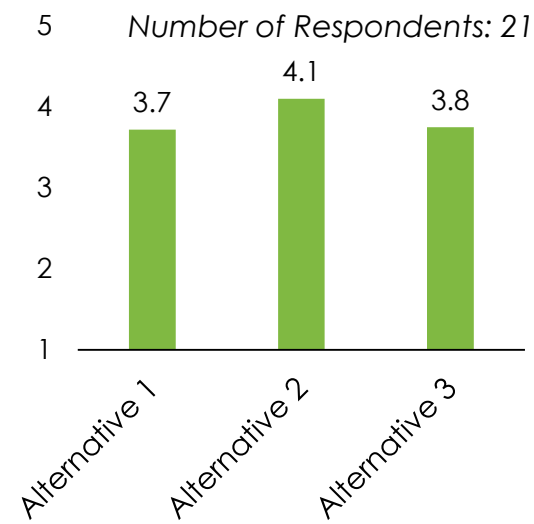
How do you feel about Alternative 1, Alternative 2, Alternative 3 and Alternative 4?
(5=Strongly like it, 1=Strongly dislike it)



Alternative Preference Per Gap

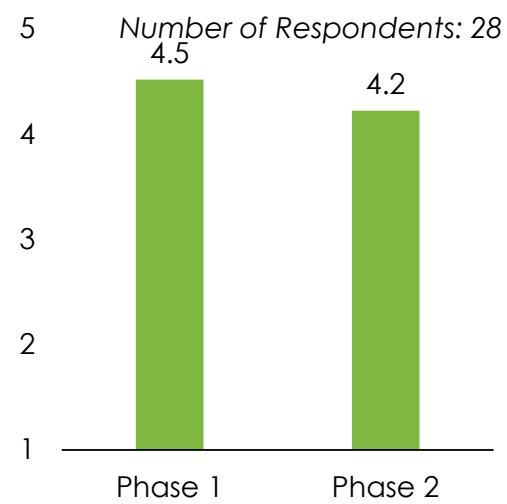
Gap #13 | City of Moorhead

How do you feel about Alternative 1, Alternative 2 and Alternative 3? (5=Strongly like it, 1=Strongly dislike it)



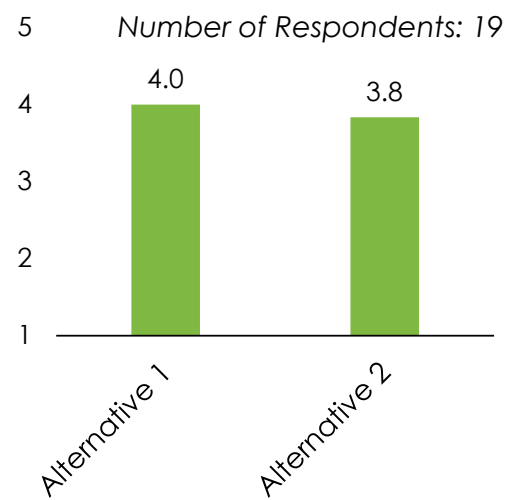
Gap #16 | City of Moorhead

How do you feel about the design of Phase 1 and Phase 2? (5=Strongly like it, 1=Strongly dislike it)



Gap #14 | City of Moorhead

How do you feel about Alternative 1 and Alternative 2? (5=Strongly like it, 1=Strongly dislike it)



Appendix B

Study Review Committee (SRC) Meeting Notes

Metro COG and the project team worked with a Study Review Committee (SRC) composed of technical staff from local municipalities, counties, the North Dakota Department of Transportation (NDDOT), and the Federal Highway Administration (FHWA). The SRC was involved for the entire duration of the study, overseeing the study process and providing technical advice and guidance at key points. The project team hosted four SRC meetings; notes from each of those meetings are listed on the following pages.

Study Review Committee Members and Meeting Attendance

✓ = Attended Meeting

Name	Representing	SRC Meeting #1	SRC Meeting #2	SRC Meeting #3	SRC Meeting #4
Jonathan Atkins	City of Moorhead	✓	✓		✓
Luke Champa	Metro COG	✓	✓	✓	✓
Richard Duran	FHWA - ND Division	✓			
Maegin Elshaug	City of Fargo	✓	✓	✓	✓
Barb Erbstoesser	City of West Fargo	✓			
Dan Farnsworth	Metro COG	✓	✓	✓	✓
Jeremy Gorden	City of Fargo	✓	✓	✓	✓
Cindy Gray	Metro COG	✓			
Michael Johnson Wayne Zacher	North Dakota Department of Transportation				
Tyler Kirchner	City of Fargo			✓	✓
Kristie Leshovsky	City of Moorhead	✓	✓	✓	✓
Malachi Peterson	City of West Fargo			✓	✓
Tim Solberg	City of West Fargo	✓	✓		
Justin Sorum	Clay County		✓	✓	✓

SRC Meeting #1

March 28th, 2019

Gap #1

- Fence would need to be moved, and the size of sports complex would need to shrink
- West Fargo anticipates neighborhood pushback, behind the Westwynd neighborhood in particular.
- Eliminate the trail alignment west of 11th St W. Make a connection to 11th St W.
- Parking lot encroachment in middle of E-W segment
- May be some private property encroachment too

Gap #2

- North alignment can be straightened out so it's not a 90 degree elbow
- 29th & Sheyenne will likely be signalized, need to verify
- Move connection with Sheyenne at 29th Ave. (not 28th Ave.)
- Move N-S connection to 5th St between 28th Ave. and the hockey complex
- Sidewalk being built along Sheyenne right now

Gap #3

- Likely a shared use path for both legs.
- River is narrow, so bridge wouldn't need to span too long
- Need to look at clearance requirements as far as high water, etc.
- Development owns the pond west of the Sheyenne River
- N-S segment is ROW in W Fargo with no existing road – 75' . Used as ditch right now.

Gap #4

- This would not be for all ages and abilities, this would be for avid bicyclists
- West of the airport is the soccer complex, very busy. Softball fields are also very busy.
- Could just be a paved shoulder option – widened shoulder might be an acceptable solution. Paving 4-5' shoulders and adding signage should be simple. City wants cost estimate.
- Traffic isn't super high, but getting higher with more traffic to softball fields
- Will involve County and Harwood (town of 1,000 people just N of Fargo) in discussing this option.
- Could add a rumble strip

Gap #5

- This option would be primarily public land.
- Peterson family owns the AMS Land Trust Parcel at the north end of the route. It is possible that a future project may be feasible on that land, but will need to work with property owner (second phase)
- VA owns land all the way to the middle of the river – Maybe the biggest challenge
- Nuisance floods leave a mess, and parks dept. must clear the trails after flood event. Keep the trail out of the very low land adjacent to the river to avoid this.
- Could be a path connecting to VA
- Would most likely need to go through GSA, who manages the facilities.
- If you can't get up to 32nd Ave (north end), there is a park district connection near Holm Park on an end road called Park Lane about 800' north of Woodcrest Drive South
- Work with the VA for a trail alignment behind the VA flood wall but not in the low land next to the river.
- This option could be a phased approach

Gap #6

- 7th Avenue N – arterial that's in horrendous shape from University to 2nd Street – going to be reconstructed, hopefully within a couple of years. Will be a full reconstruct – so there is flexibility in moving curbs
- Can't widen too much, but there is some flexibility
- 7th is most appealing because you can get across – its fully continuous. Leave 7th on table and forget about the option on 6th

Gap #7

- No one utilizes parking on N side of 13 Ave S from 10 St S to River
- Could fit in a 2-way on-street bikeway on N side has a good chance of being supported by the community
- From 9th to 13^{1/2} is another drive lane, which isn't necessary and is full of debris
- 17th Ave – City recommending a 2-way separated bicycle lane (SBL) on 17th Ave from 5th St to W Fargo – big corridor study is wrapping up now - May or may not be necessary to have 13th Ave bikeway

Gap #8

- US 81 is University Drive – major intersection
- West of University is wide, no need for parking.
- West end of the gap connects to the is Milwaukee trail (Old railroad bed)

- Currently have sharrows striped from 5th to 9th
- There are houses/driveways fronting both sides
- Historically, they have had issues trying to remove parking here
- 9th to University- need to look at that area. Will be a little trickier, but they do need to reconstruct that street in the future. Could be widened in the next couple of years
- From Milwaukee trail to University, it is easily doable
- Lincoln school is nearby (1/2 mile), so this could overlap with the Fargo Safe Routes to School Study too
- Crossing University is going to be a barrier

Gap #9

- Could be a lift bridge or a cable-stayed bridged
- Existing grades at the river may not allow for a short bridge and a very long bridge may be needed to span the entire river
- This would be a highly used bridge
- Forum Publishing Co owns the land on the Fargo side of the river near the utility tower. Forum Publishing Co may allow parking on their land for bluestem events.
- City could potentially receive 15-16M annually, so signature bridge is not out of the question (North Dakota Prairie Dog Funding bill)
- Moorhead side is actually City property but is leased by Fargo Public Schools to be used for Trollwood Performing Arts School. It might not be a straight line like its shown, but they are confident they could find an alignment
- Trollwood Performing Arts School/Bluestem Center for the Arts is a key stakeholder

Gap #10

- 9th to 25th was fully reconstructed recently – everything is very new.
- One of the boulevards on Broadway is wider than the other
- Parking is on the East side – but its heavily utilized from 12th to 18th
- Type of on-street bikeway to be determined
- Bus route here too
- Think its 36' wide – can check on as-built plans
- Shouldn't rule out long-term option even though the street was reconstructed – can we think about an interim solution and a longer-term solution?
- City of Fargo is open to removing center left turn lanes
- Might be some overlap with SRTS project – Washington School?
- Are there curb extensions as part of the new street reconstruction?

Gap #11

- Bike/ped bridge over freeway
- Could the signs be moved to the bike/ped bridge
- There was a 28th Avenue study that was done in 2005.
- 2011 Bike/Ped plan also has a concept design of this bridge?
- Mostly interested in a cost estimate for this bridge – could think about relocating the sign bridge south of the bike/ped bridge
- FHWA – says there is always a workaround for moving signage

Gap #12

- Commuter cyclists on 6 St S
- Potentially a new SUP on 12 Ave S up to 5th St
- 5th St – one way with two traffic lane and a parking lane
- Could be a two-way SBL on East side, OR widen sidewalk on east side
- 5th is a State Aid road
- Morning peak for 5th is a heavily used commuter route
- City has conversations about reverting one-ways back to two-ways
- If it were a two-way SBL on-street, it could be all the way to 28th?
- Introduces a 3rd option (SBL)

Gap #13

- Two options. Must choose one or the other, not both
- 20th Street has steady traffic, would need a ped signal or new traffic signal
- A lot of bus traffic on 14th, so on-street would be difficult.
- Many students do use the path
- 24th St may have an opportunity to have an off-street path, not 20 Ave.
- Add in a 3rd option to cut through school. Land owned by M State?
- Will want to talk to M State on that option before putting it out for public comment

Gap #14

- One or the other, not both
- Preference would be 27th – keep on S side to keep alignment
- 24 Ave is more industrial area
- Leave both route options open for public input.

Gap #15

- Entire segment would be an off-street path
- Would need to move the existing barrier on the I-94 bridge to get the 2-way bike path on the bridge
- After traffic signal at 34th Street – bike path would change to SW side of road
- Would need a pedestrian crossing on SW leg of intersection SW 30th

Gap #16

- Park is on west side, so that would be the preferred option
- East side has Crystal sugar, and cemetery. West side has more landowners
- West side has more driveways and access points
- 55 MPH does not begin until 28th Ave. 40 MPH from 17th N to 28th Ave N, then North it goes to 55.
- American Crystal Sugar has been a good partner
- Will there be a sight distance issue?

General Notes & Project Next Steps

- Think about short term and long term solutions. Fargo is open to any solutions
- Project timeline – Final Report by the end of 2019
- Next SRC meeting in July
- Open house in July
- May have opportunity to meet with municipal staff around that time to do on-site field visits
- Notification of public meetings
 - Press release
 - Facebook page, other social media
 - Mailers to adjacent property
 - City to provide addresses for residents adjacent to all bikeway gaps – or Bolton & Menk will run query to get addresses.

SRC Meeting #2

July 16th, 2019

Gap #1

- Conversation centered around 8-11 feet for recommended width of shared use path bike facilities
- AASHTO Guide for the Development of Bike Facilities recommends 11 feet to facilitate passing without increasing the potential for conflicts
- Tim Solberg looks forward to reviewing the design standards recommended in final report
- Potential right-of-way encroachments may include existing parking lot and shed structure that are located within utility easement
- 2' clear zone on either side of shared use paths is a good practice
- Utility boxes will need additional thought upon implementation

Gap #2

- Discuss planned modifications for 5th St W with City Engineer
- Include existing infrastructure for 5th St W
- 7th St W intersection crossing is a concern
- Existing right-of-way on 28th Ave W is approximately 62 feet
- May need earthwork in proximity of existing drainage ponds
- Highlight existing underpass on Sheyenne St

Gap #3

- Existing pond on the west end of the gap is on private property
- Existing pond does not serve a purpose to the City- landowner would need to be willing to allow a potential trail to route through
- Prioritize the north/south gap
- Intersection of 4th St E/52nd Ave S will be modified with a traffic signal
- 52nd Ave S will be adding a shared use path facility in the future
- Consider a larger improvement district that may assist with closing larger bike infrastructure gaps
- Consider showing phase 1 as north/south portion and phase 2 as east/west portion

Gap #4

- Cass County is prioritizing paving gravel shoulders, and 6' paved shoulders are their standard width. CR81 is not currently in their 5-year plan.

- Cass County is looking to pave shoulders north of 40th Ave
- Recreational ridership is high for this gap- alternative with wide paved shoulders is the preferred recommendation
- Shoulders in alternative are marked as 8', but they are effectively 6' considering the rumble strips
- Potential for a trail to be a longer term option, but paved shoulders are the recommended short term design

Gap #5

- Fargo VA Hospital is a private land owner for this gap- suggest engaging conversations in the short-term
- Existing river trails are 10 feet wide
- Land immediately adjacent to the river is owned by Fargo parks
- Connect bike gap on the north end near Park Lane
- Phase 1 will likely be easier to implement
- Opportunity for connection S of the VA parking lot (Fargo City Property)

Gap #6

- Full roadway reconstruction is anticipated to occur within two years
- Two-way bike facilities may be easier to maintain
- City is interested in using vertical flex-posts/delineators. Flex-posts/delineators would be used seasonally and removed during winter months
- East terminus for bike gap is Elm St., one block north of trails in Wildflower Grove Park. Elm Street appears to have low traffic volumes and could be a short bike boulevard connection with traffic calming treatments and signage

Gap #7

- Existing traffic volumes are divided east and west of 10th St S
- Preference for two-way bike facility on the north-side
- There is concern about transitioning bike facilities at the bike gap terminus
- There is concern with the high number and frequency of existing driveway curb cuts.

Gap #8

- 9th St S to 5th St was repaved relatively recently and should remain as shared lane markings in the short term
- 9th St S to University Dr is a challenging segment
- Consider adding on-street two-way option
- Preference for a two-way bike facility on the south side from 9th St S to 18th St S

Gap #9

- Bridge structure will be needed - potential to explore lift or cable-stayed bridge options
- May be able to add switchbacks on the levees and shelf landforms
- Consideration should be given to providing a longer span and maintaining higher elevation
- Bolton & Menk to engage with WDAY radio station regarding parking
- Look for new image that is not a lift bridge - Metro COG to send an example to Toole

Gap #10

- Consideration should be given to temporary, short, and long-term treatment recommendations
- Roadway was fully reconstructed back in 2016
- The potential bike gap recommendations may be further than five years down the road
- Broadway identified as an "active living" corridor in Fargo Comprehensive Plan

Gap #11

- Confirm if switchbacks are necessary for the bridge with the slope and ADA requirements
- Consideration should be given to providing a longer span and maintaining higher elevation
- Minimum of 26 feet clearance may be needed over the highway
- Bridge precedent is Sabo Bridge in Minneapolis, which crosses MnDOT Hwy 55 (Hiawatha Ave)

Gap #12

- Consider shared use path on the east side of 5th St S
- Consider an alternative with one-way bike facilities on 4th St S and 5th St S
 - 4th St S may be too far out of the way to be considered a potential solution for the bike gap. Would require bicyclists on 6th Street to take a 2 block detour
- Traffic volumes on 5th Street are relatively low at 3,300 AADT

Alternative 1

- Existing buildings on the south gap have high volumes of pedestrian volumes
- 12 Ave S will include an 8 foot shared use path to 5th St S
- Existing shared lane markings west

- Bolton & Menk to engage with Concordia College regarding preliminary bike facility alignments
- Modify bike alignment to reduce abrupt angles

Alternative 2

- Posted speed limit on 5th St S is 30 MPH
- 5th St S has existing bus service- 11 foot travel lanes are sufficient if on-street facility is considered
- 5th St S is a State Aid Road
- Peak volumes occur during the AM- heavily used commuter route
- City has talked about one-way to two-way street conversions
- Consider two-way protected bikeway to continue all the way to 28th Ave S

Gap #13

Alternative 1

- Revise existing cross section to include 8 foot on-street parking

Alternative 2

- Suggest adding a note to widen the proposed shared use path to 11 feet given parking is restricted in this area
- There is no parking on the south side of 24th Ave
- Add a callout for the shared use path option on M-State property

Alternative 3

- Revise existing sidewalk dimensions to 4.5 feet wide
- Revise road callout to 20th St S

Gap #14

- Bike infrastructure gap appears straight-forward

Alternative 1

- Revise existing sidewalk dimensions to 4.5 feet wide
- Revise shared use path to a range of 8-11 feet wide
- Consider mid-block crossing between Menard's and Sam's

Alternative 2

- Busch may provide an easement on the west side of 26th St S

Gap #15

- Infrastructure recommendations may close three different bike gaps
- This potential gap is targeting recreational riders
- Signalized intersection at 34th Ave E and Main
- Consider narrowing the proposed shared use path width
- Vertical barriers would be recommended the full gap length
- There may be potential to add storm sewer in place of ditch to accommodate shared use path facility
- Planned Clay County mill/overlay project 2022 on Hwy 52 from Sabin to I-94

Gap #16

Phase 1

- North of 43rd Ave N there may be acquisitions and the potential for a trail along the river
- Revise phase 1 and phase 2 limits on plan graphic to end at the entrance of MB Johnson Park
- Update proposed bikeway alignment map to show existing shared use path on N side of 15th Ave from 11th St to SUP on E side of Hwy 75 by end of construction project (this season)
- Existing curb and gutter is from 15th Ave NW to 28th Ave N
- North of 28th Ave N posted speed limits transitions to 55 MPH
- Planned Clay County mill/overlay project 2022 on CR 3 from 28th Ave N (CSAH 18) to Wall St Ave N (CSAH 22)
- Suggest narrowing the roadway to accommodate bike facility
 - 10 foot wide bike facility, 2 foot buffer, and 36 foot travel and shoulder

Phase 2

- Revise road callout from 40th Ave N to Wall St Ave N
- Consider wide shoulder bike facility
- Flooding issues have been documented in the curve near the river
- Remove curb and gutter in cross sections
- Posted speed limits for Phase 2 is 55 MPH in some areas and 40 MPH in other areas

SRC Meeting #3

September 30th, 2019

**The list below does not include all 16 gaps. Only the bikeway gaps with multiple concept alternatives were discussed at the meeting.*

Gap #4

- Paved shoulders are the recommendation for the short term and potentially the long term. Note, this corridor is not currently located within Cass County 5 year plan
- With the current ditch sections and distance of this corridor to residential and commercial areas, a shared use path would not be very feasible.
- Could be a combined project with Cass County

Gap #5

- Check to see what the elevations are near the trailhead at the Fargo VA Hospital
- Fargo Parks now strives to have trails at 22' to 23' flood elevations (Moorhead uses 22' for parks)
- Elm Street trail is at 19' flood stage
- Can this justify the need for the trail near the wall?

Gap #6

- City of Fargo moved ahead with a "No build" alternative for this gap. City of Fargo will be reconstructing this roadway in 2020
- In lieu of this gap, the City of Fargo may move ahead with adding signing and shared lane markings on 6th Avenue N east of Broadway to Oak Grove Park
- Refer to recommendations from Fargo's Downtown Infocus Plan

Gap #7

- Alternative 2 from 13th Street S to 9th Street S. From 9th Street S to 4th Street S may be tight, but doable
- Provide a recommendation for 21st Street S to 13th Street S
- Consider two-way separated bike lane on north side from 4th Street S to 13th Street S. West of 13th Street S is constrained so recommendation may need separated segments

Gap #8

- 18th Street to 9th Street is where alternative 3 would be implemented
- 9th Street east to cemetery has existing shared lane markings and currently functions well
- Alternative 3 allows for more flexibility with existing turn lanes at

University Drive

- Flex posts would be removed in winter
- Consider poured curb on this segment

Gap #9

- Reach out to Grand Forks for bridge cost, Dan to provide contact
- Preference for long span, higher bridge

Gap #11

- Consider showing a bridge that would be more realistic to what may be built. Perhaps show the pedestrian bridge over I-94 in Fargo (between 25th St & University Dr)

Gap 12

- Consider continuing the bikeway north.
- City of Moorhead's preferences are:
 - Alternative 1 if okay with Concordia College
 - Alternative 3 if okay with Concordia College
 - Alternative 4

Gap #14

- Potential two-way on-street facility as this would be less expensive to implement
- Preference for 24th Avenue Crossing
- General statement added for the on-street facility as interim measure

Gap #15

- Note for North/South potential neighborhood connection
- Drainage impacts may prohibit utilizing this corridor for bikeway gap recommendations

Gap #16

- Add note in report regarding acquisitions in progress:
 - "River acquisitions are on-going and future connections may use acquired land areas"
- Riverside or levy considered preferred path locations for future River Corridor Trail
- Wall Street Avenue is currently not striped for biking, but designated as a bikeway with wide shoulder treatment

SRC Meeting #4

December 9th, 2019

Shared Use Path Construction

- Concrete vs Asphalt
 - What material does each jurisdiction plan on using to construct trails?
 - Concrete is the assumed material in the draft report for the cost estimates
 - Moorhead prefers concrete
 - Asphalt is a fallback with a few paths
 - A lot of times they bid both to see what the prices come in at
 - Concrete holds up better; asphalt moves more due the weather conditions
 - Fargo Parks and Fargo engineering is all concrete
 - Reasons include soils, maintenance, and durability of concrete
 - West Fargo uses concrete on all new paths
- Widening sidewalks
 - For gaps where the recommendation is to build a path where there is an existing sidewalk, will the existing sidewalks be widened, or will they be ripped up and an entirely new path be constructed?
 - City of Moorhead, City of Fargo, Fargo Parks, and City of West Fargo all plan to replace existing panel completely and will reconstruct new, wider path. All staff agreed that this is a more effective approach

Bus and Bike Interactions

- Conflicts
 - Developing bikeways along bus routes can introduce conflicts between bicyclists, buses, and bus passengers getting on and off buses
 - Conflicts are most challenging with two-way separated bikeways, because there are bicyclists traveling in both directions and buses cannot pull into the two-way bikeway to drop off passengers at the curb
- Accessibility
 - Bus stops should always be designed to accommodate bus passengers using wheelchairs or other mobility device
 - Curb ramps should be provided as needed
- Design treatments

- Some design treatments are available to mitigate bus/bike conflicts at bus stops
- Discussion of the concept of 'floating bus stops'. Bikeway wraps around the back of the bus stop, effectively separating bus passengers from bicyclists and reduces conflicts.
 - Fargo staff would consider floating bus stops if feasible, they suggest adding more information on treatments in the report as an appendix
- An example was also shown of a bus stop in Ames, IA where the on-street bike lane transitions into a shared use path and wraps behind a bus shelter so that buses can pull up to the bus shelter without any conflict with bikes. The Study Review Committee was also interested in this option.
- Winter Maintenance
 - Two way facility is easier to plow because of the increased width of bikeway; easier for maintenance vehicles (full size trucks)
 - For the separated bikeway recommendations, will the agency maintain the bikeways in the winter? Or will the flexible delineators be removed in winter?
 - City of Fargo and City of Moorhead do not intend to plow separated bike lanes in the winter, and would likely remove flexposts

Bikeway Gaps Concept Recommendations Discussion

**This list does not include all 16 gaps; only some of the bikeway gaps were discussed at this meeting.*

West Fargo

- Gap 1 - Place signs prior to project "Future Shared Use Path"
- Gap 2 - Place signs prior to project "Future Shared Use Path"
- Gap 3 - Place signs prior to project "Future Shared Use Path"
 - Continue to assume bridge crossing the river, not a culvert

Gap 5

- Place signs prior to project "Future Shared Use Path"
- Existing conditions of 4.5' sidewalk
- FHWA could coordinate with VA hospital on behalf of the project
- Add Park District property on the last paragraph

Gap 7

- Look at bus interactions

- Cost estimate is for two-way bikeway only
- Cost estimate is not factoring reconstruction costs of the widening the roadway to accommodate on-street facilities
 - Add costs of the widening to the cost estimate, 2 feet on each side
- Consider adding a note for each cost estimate (for each of the gaps) that describes the scope of the cost estimates (only includes bikeway costs, not resurfacing or reconstruction costs)
- Add Fargo Forestry as a key stakeholder

Gap 8

- Add Fargo Forestry as a key stakeholder
- Is there any way to integrate or consider SRTS project?
- How to accommodate bus stops on the route?
 - This is a long-term planning study, so we need to think about this
 - Ames, Iowa example at an intersection
 - Yield for buses signing on two-way on-street facilities?
 - Ultimately, we will need to look at further treatments and options for bus stops
 - Could consider moving the bus stop to the intersections
 - Additional future coordination with MATBUS will be required
- Recommendations will not change, just need to consider how to accommodate bus stops
- Additional resources for design of bus stops, consider adding in the appendix
 - Add the photo of floating bus stop in Ames, IA in the appendix

Gap 9

- Longer bridge span to avoid flood conditions
 - Go to 800' bridge to get out of 100-year floodplain
 - Add the reason why the bridge should be longer, send draft text to City of Fargo and Moorhead prior to putting in report
 - Add to the cost estimate
 - Long term maintenance costs will drop
- Drawing switchback on plan view is not necessary
- Potential for public/private partnership
- Lift bridges are located where the natural grades are smoother, might not even be possible to do a lift bridge at this location
- Note high clearance over river in the report. Plenty of clearance to accommodate recreational boaters.

Gap 12

- Add city forestry as key stakeholder

Gap 15

- Although this is a no build, can we add additional language saying that there are other options, but keep short, simple and sweet
- May be an opportunity for an alternative alignment for this bike route
 - These options did not have opportunity for public comment, so should not be in the report
 - Identified late, but could potentially be vetted by city staff
- Change map label from US 52 to County State Aid Highway (CSAH) 52
- In the future, consider crossing island. The road is very wide.

General Comments

Fargo Staff

- Any overlap with Metro COG Safe Routes to School project?
 - Potentially add as a general comment in the report?
- More technical analysis in the recommendations
 - Consider adding more rationale for the recommendations for some of the alternatives

Moorhead Staff

- Additional Moorhead staff comments shared via email
- Moorhead developed bus stop standards; provides more information on the design recommendations for bus stops

Project Next Steps and Notes

- Compile public and stakeholder comments on draft report
- Revise and finalize report
- Policy board will be the final presentation, could be end of January or February

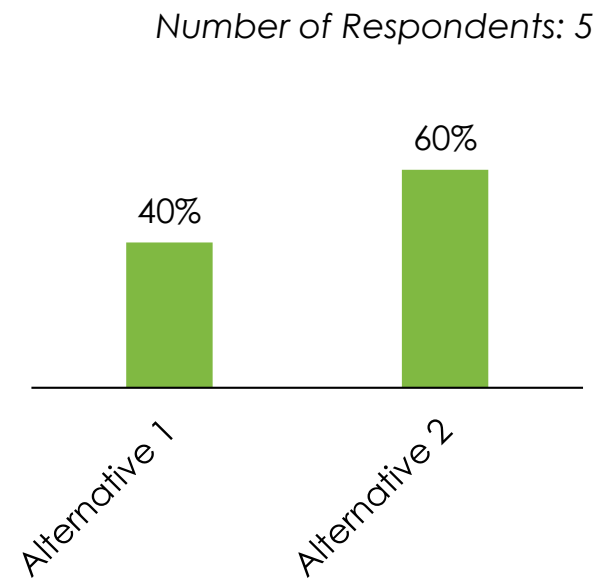
SRC Members Bikeway Gap Alternative Preferences

An online survey was developed for SRC members to rate the alternatives presented for bikeway gaps that had multiple alternatives. The survey was sent prior to SRC meeting #3, and results of the survey were discussed at that meeting. Many of the bikeway gaps did not have multiple concept alternatives developed, thus they were not part of the survey. The following charts present the bikeway concept alternative preferences of the SRC members who responded to the online survey.

**Note - not all SRC members responded to the online survey.*

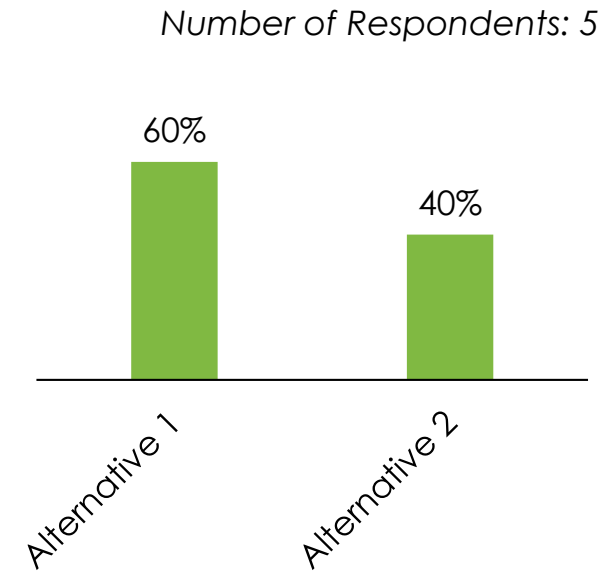
Gap #4 | City of Fargo

How do you feel about Alternative 1 and Alternative 2?
(5=Strongly like it, 1=Strongly dislike it)



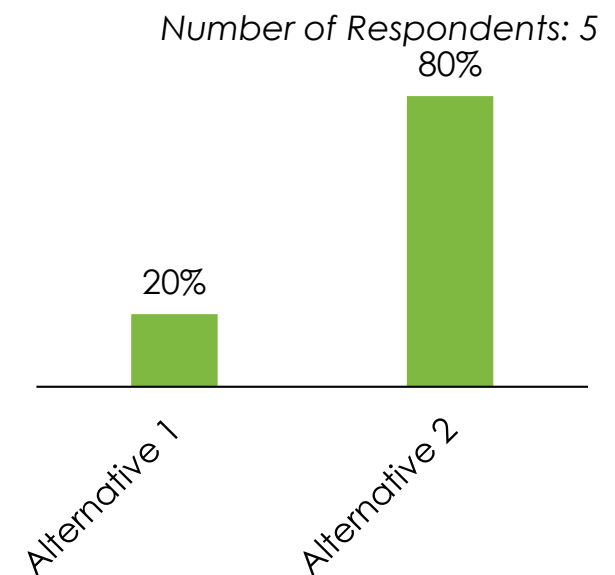
Gap #6 | City of Fargo

How do you feel about Alternative 1 and Alternative 2?
(5=Strongly like it, 1=Strongly dislike it)



Gap #7 | City of Fargo

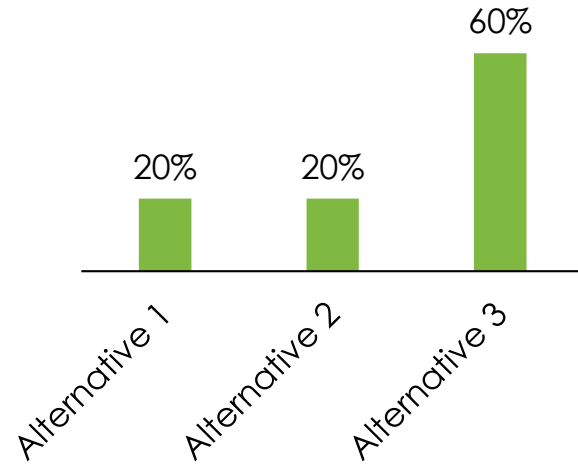
How do you feel about Alternative 1 and Alternative 2?
(5=Strongly like it, 1=Strongly dislike it)



Gap #8 | City of Fargo

How do you feel about Alternative 1, Alternative 2 and Alternative 3? (5=Strongly like it, 1=Strongly dislike it)

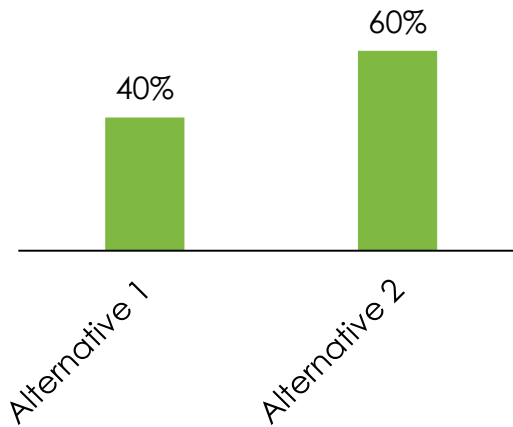
Number of Respondents: 5



Gap #10 | City of Fargo

How do you feel about Alternative 1 and Alternative 2? (5=Strongly like it, 1=Strongly dislike it)

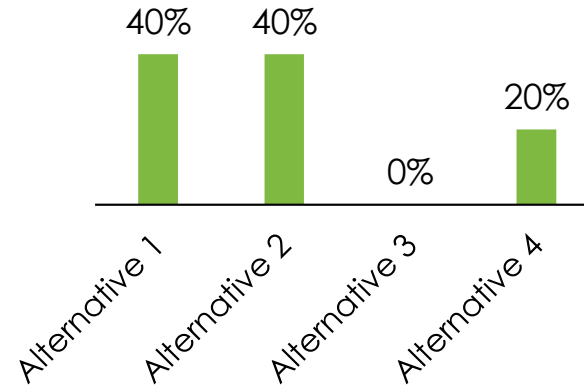
Number of Respondents: 5



Gap #12 | City of Moorhead/Concordia College

How do you feel about Alternative 1, Alternative 2, Alternative 3 and Alternative 4? (5=Strongly like it, 1=Strongly dislike it)

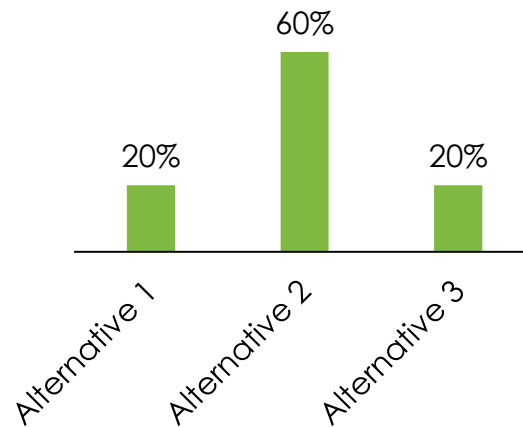
Number of Respondents: 5



Gap #13 | City of Moorhead

How do you feel about Alternative 1, Alternative 2 and Alternative 3? (5=Strongly like it, 1=Strongly dislike it)

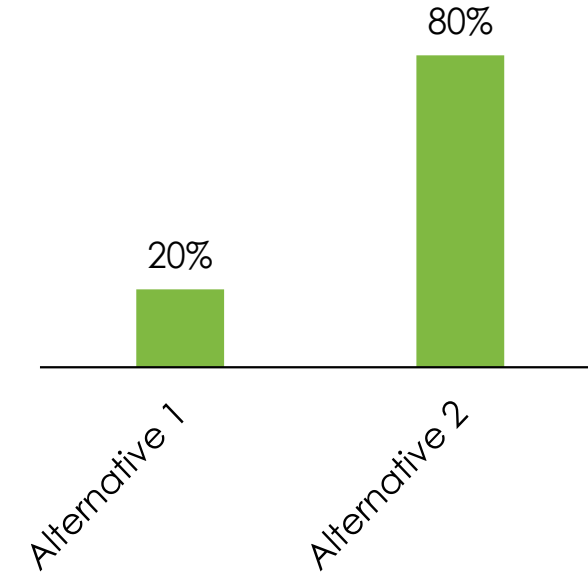
Number of Respondents: 5



Gap #14 | City of Moorhead

How do you feel about Alternative 1 and Alternative 2? (5=Strongly like it, 1=Strongly dislike it)

Number of Respondents: 5



Appendix C

Bus and Bike Conflicts and Treatments

Bus and Bike Conflicts

Developing bikeways on roadways that are bus routes can introduce conflicts between bicyclists, buses, and bus passengers getting on and off buses. Conflicts are most challenging with two-way separated bikeways, because there are bicyclists traveling in both directions and buses cannot pull into the two-way bikeway to drop off passengers at the curb.

Accessibility

The Americans with Disabilities Act (ADA) has requirements for bus stop access, bus boarding, and sidewalk clearance. Bus stops should always be designed to meet federal accessibility guidelines, and should accommodate bus passengers using wheelchairs or other mobility devices. The ADA requires bus stop boarding and alighting areas at the front door landing area, and an accessible route between the landing area, sidewalk, and bus shelters.

Bus Stop Treatment Options

Bus Stop Mixing Zones

(Not recommended for two-way bikeways)

Bus stop mixing zones are shared spaces used by both buses and bicyclists. This treatment should only be used on one-way bike facilities, not on two-way bikeways. Figures 4 and 5 illustrate how buses will pull into the mixing zone to board and alight passengers. When buses pull into the mixing zone, motorists and bicyclists may need to wait or move around a bus while passengers board and alight.

This treatment can be used with conventional bike lanes, buffered bike lanes, and one-way separated bikeways where the vertical separation (i.e. flexible delineators, curbs) is dropped at bus stops to allow buses to enter the mixing zone and reach the curb line. Federal accessibility guidelines do not allow buses to load or unload passengers from or into a lane with moving traffic, including a bike lane, whether at street or sidewalk height.

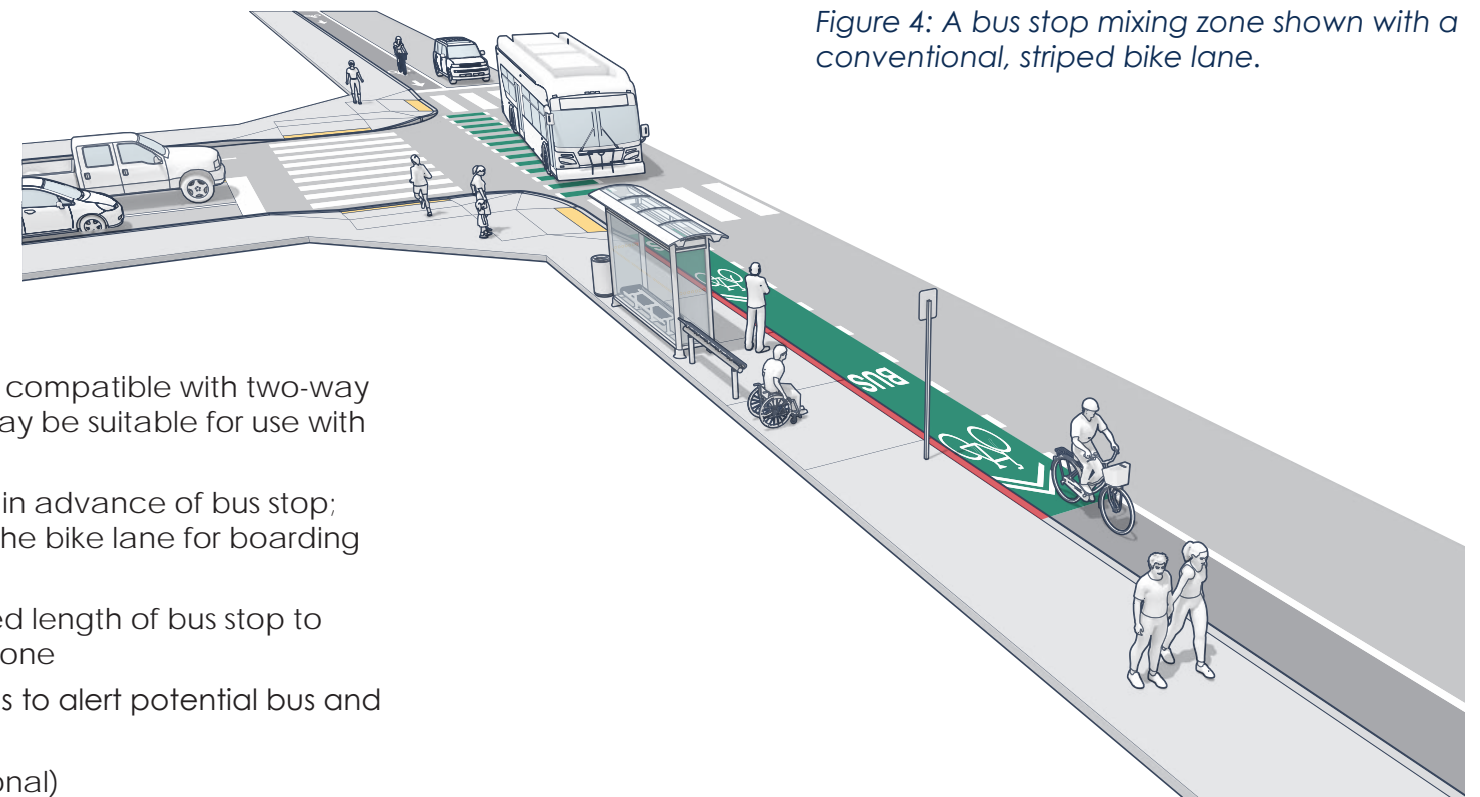
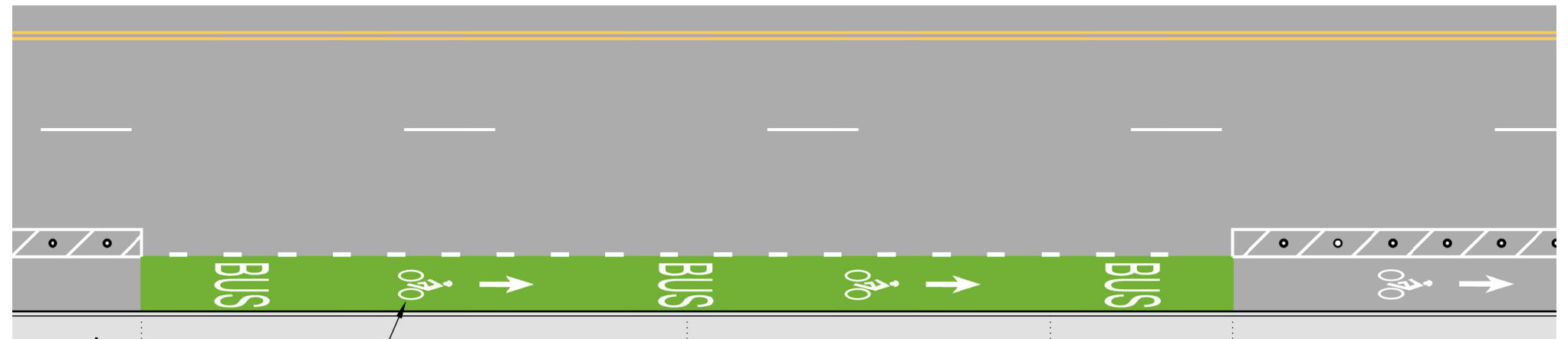


Figure 4: A bus stop mixing zone shown with a conventional, striped bike lane.

Bus Stop Mixing Zone Overview

- Mixing zone-style bus stops are NOT compatible with two-way separated bikeways; this solution may be suitable for use with one-way on-street bikeways
- Buffer and vertical separation ends in advance of bus stop; buses enter and temporarily block the bike lane for boarding and alighting
- Dashed bike lane line for anticipated length of bus stop to indicate bus merging area/mixing zone
- High-visibility green conflict markings to alert potential bus and bicycle conflicts (optional)
- Bus and bicycle lane symbols (optional)

Figure 5: Plan view of a bus stop mixing zone shown with a one-way separated bike lane. Green colored pavement optional.



Floating Bus Stops

(Recommended for two-way bikeways)

Floating bus stops are sidewalk-level platforms built between the bicycle lane and the roadway travel lane. The purpose of floating bus stops is to mitigate conflicts between bicyclists, buses, and bus passengers by directing bicyclists behind the bus stop. Floating bus stops have notable safety benefits for bicyclists because they eliminate bus and bicyclist interactions, and reduce interactions between bicyclists and bus passengers. They can also benefit

pedestrians, as the floating bus stop doubles as a pedestrian refuge, which if designed efficiently, can shorten crossing distances and enable shorter signal cycles.

Minimum design constraints for floating bus stops are derived from the need to comply with accessibility standards. At a minimum, a floating bus stop must include a five-by-eight-foot level landing area aligned with the front door of a stopped bus and ten-by-four-foot clear zone for the rear door. A crosswalk may be striped across the bike lane connecting the front door landing to the sidewalk.

Figure 6: Plan view of a floating bus stop, illustrating how the bus stop platform is located between the bike lane and travel lane.

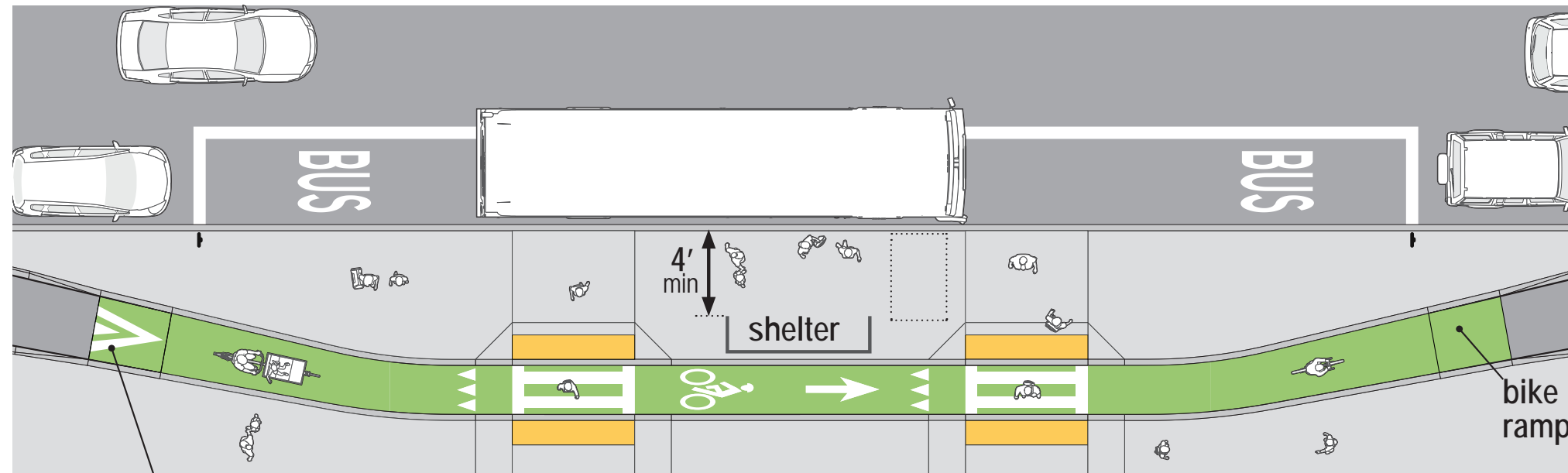
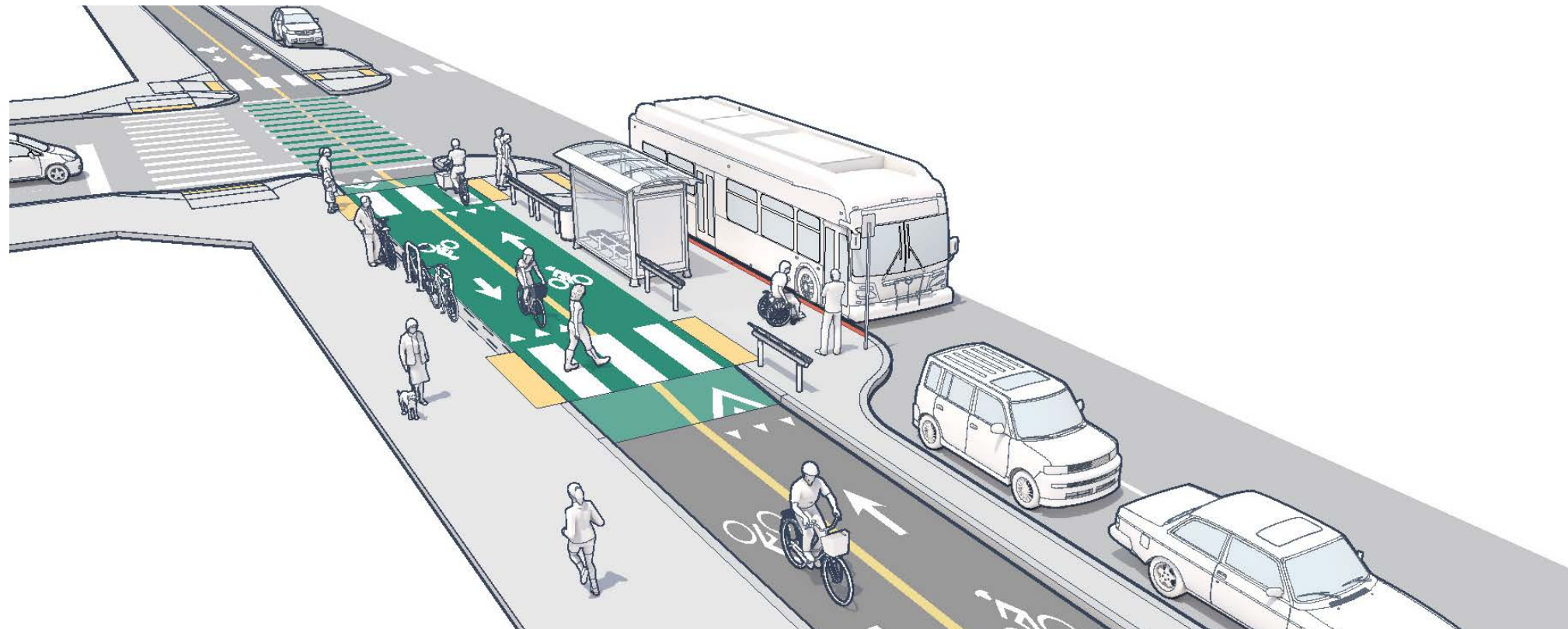


Figure 6: A floating bus stop shown with a two-way separated bikeway.



Floating Bus Stop Overview

- Floating bus stops route bike lanes behind bus stop
- Designed to prevent bike and bus conflicts
- Bike facility level may be designed at sidewalk, street, or intermediate level depending on site conditions
- Depending on conditions, this design may require drainage modification, although designs are possible to reduce impacts on drainage



An alternative design to a floating bus stop is shown above in Ames, Iowa. The on-street buffered bike lane transitions to an off-street shared use path located behind the bus stop, which reduces conflicts with bus passengers and bicyclists.

Additional Resources and Guidelines

The following is a list of additional bus stop resources and design guidelines, prepared by national and local bodies, which provide additional information pertaining to the planning and design of transit stops along bikeways.

- AASHTO Guide for Development of Bicycle Facilities
- AC Transit Multimodal Corridor Guidelines
- FHWA Separated Bike Lane Planning and Design Guide
- NACTO Transit Street Design Guide
- NACTO Urban Bikeway Design Guide