



CORRIDOR STUDY

September 2026



1 AVENUE



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1 AVE N

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INTRODUCTION

STUDY PURPOSE

The purpose of the 1st Avenue North Corridor Study is to evaluate existing and projected conditions, consult with the public and property owners regarding issues and needs along the corridor and determine a proposed set of improvements for the corridor. The need for this study is based on deteriorating pavements conditions, rapidly changing land use patterns and a desire to improve multimodal features along the corridor. The 1st Avenue North Corridor Study evaluates existing conditions, future needs, and potential improvements along a key east–west transportation route in the City of Moorhead. Extending from approximately 12th Street North to U.S. Highway 10, the corridor serves as an important connection between downtown Moorhead and regional destinations, including downtown Fargo. Over time, the corridor has functioned as both a commuter route and a local access street, supporting vehicular traffic, transit, pedestrians, and bicyclists.

CORRIDOR NEEDS ASSESSMENT

EXISTING CORRIDOR CONDITIONS

The 1st Avenue North study area consists of a 5-lane, east-west section of roadway from the 12th Street intersection to the US 10/75 intersection. As shown in **Figure 1**, investments along 1st Avenue North are being driven by deteriorating pavement conditions, including significant deterioration of curbs, medians, and pedestrian infrastructure along the corridor. Changing travel conditions through downtown make the 1st Avenue North corridor the desired east-west connector through Downtown Moorhead.

Figure 1: Corridor Conditions

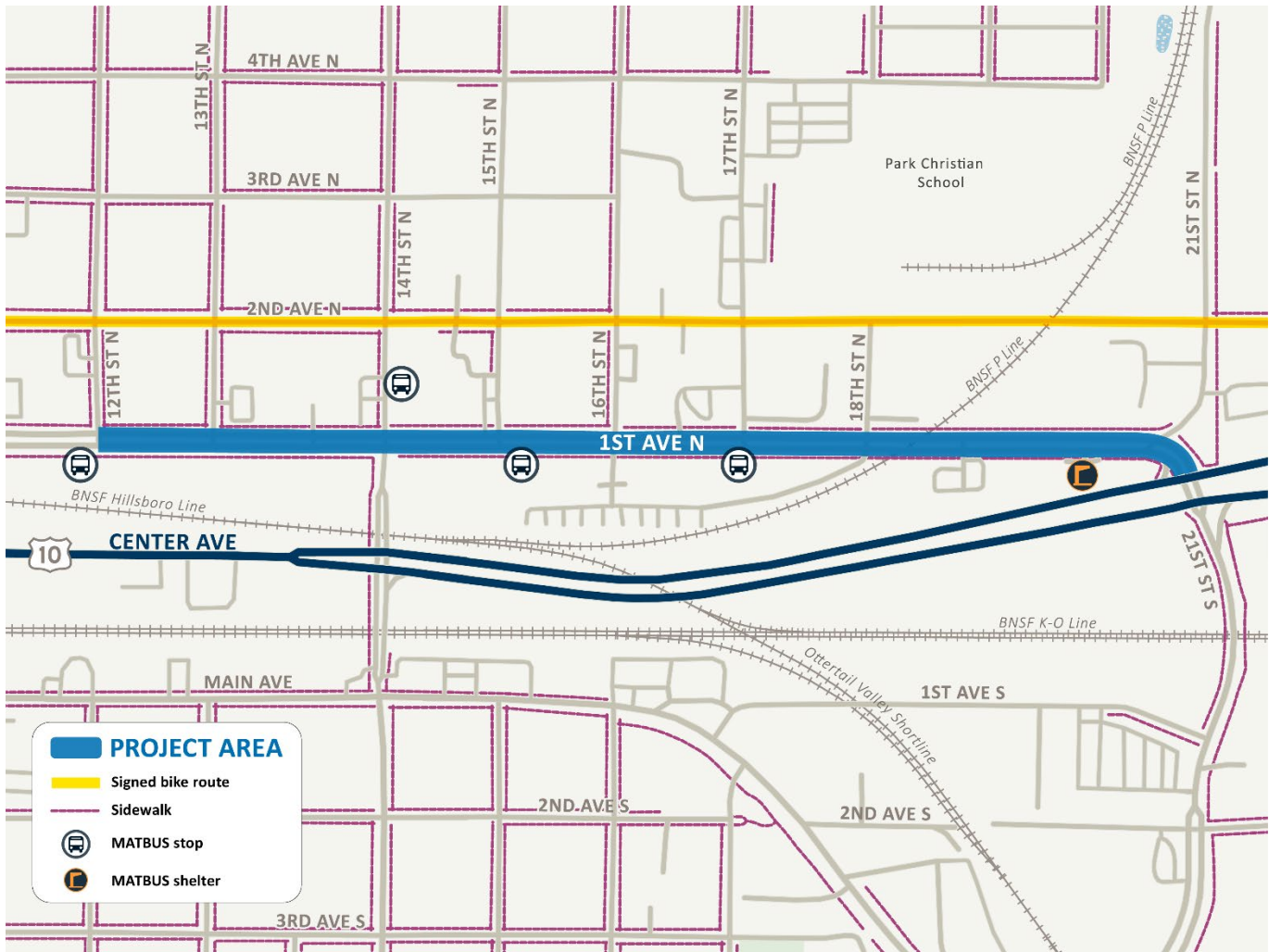


EXISTING MULTIMODAL

The corridor has a fairly complete network of sidewalk facilities in varying conditions, as shown in **Figure 2**, including a signed shared lane bike route along the 2nd Avenue North. The intersections at 14th Street and US 10/75 have signals with pedestrian phases and marked crosswalks; however, the crosswalk pavement markings have faded at 14th Street. On side-streets, there is a marked crosswalk on 16th Street and 17th Street. There is a pedestrian

crossing on the east leg of the 12th Street intersection, with the only other pedestrian crossings of 1st Avenue at the signals.

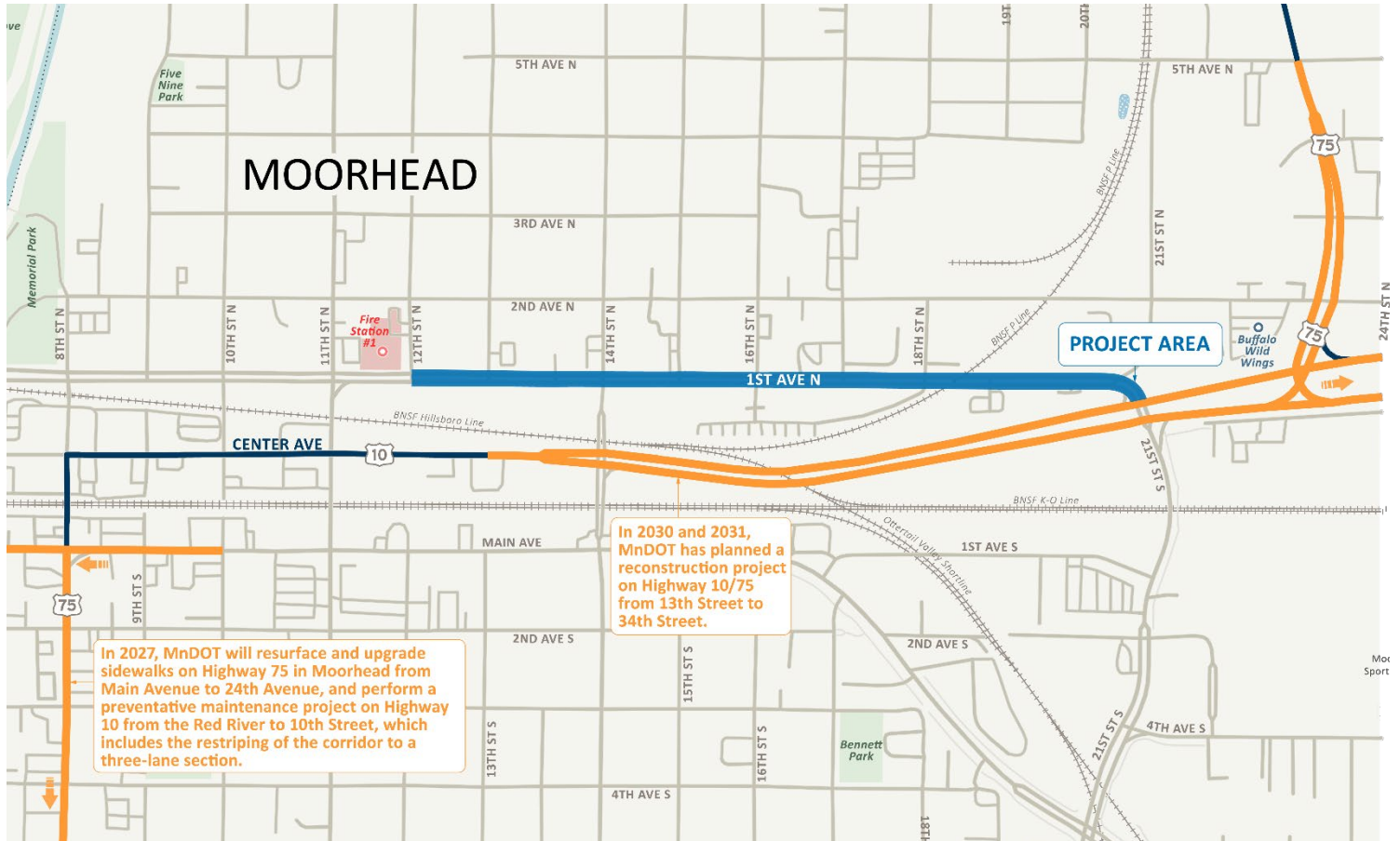
Figure 2: Existing Multimodal Inventory



RELATED PROJECT INVESTMENTS

Timing and phasing of a future project along 1st Avenue North is influenced by a series of related investments ongoing or planned by MnDOT. The 11th Street Underpass will be substantially completed later in 2026. However, several additional projects are planned by MnDOT over the next three to four years. Coordinating delivery of the 1st Avenue North corridor reconstruction is an important element of the Corridor Study.

Figure 3: Corridor investments



LAND USE CONSIDERATIONS – 1ST AVENUE NORTH

Changing Uses

The 1st Avenue North corridor in Moorhead is evolving from a primarily vehicle-oriented arterial into a more multimodal, mixed-use urban corridor that balances regional mobility with local development. While it continues to function as a key east–west connector between downtown Moorhead, U.S. Highway 10, and downtown Fargo, this study emphasizes that it also serves as a local access street supporting adjacent land uses, including residential, commercial, and institutional activities. This dual role reflects changing travel patterns, population growth, and the corridor’s importance as both a commuter route and a destination within the city.

Land use along the corridor is increasingly shaped by its proximity to downtown and its inclusion within the Creative Pioneers District, which promotes a mix of residential, commercial, and creative/production-oriented uses. The corridor is transitioning toward higher intensity and mixed-use development, with encouragement for upper-story housing and active ground-floor frontages. Existing uses already reflect this pattern, including apartment complexes, supportive housing (such as Gateway Gardens), local businesses, and community-serving institutions. This mix creates a corridor with high pedestrian, bicycle, and transit activity, especially around key nodes and housing clusters.

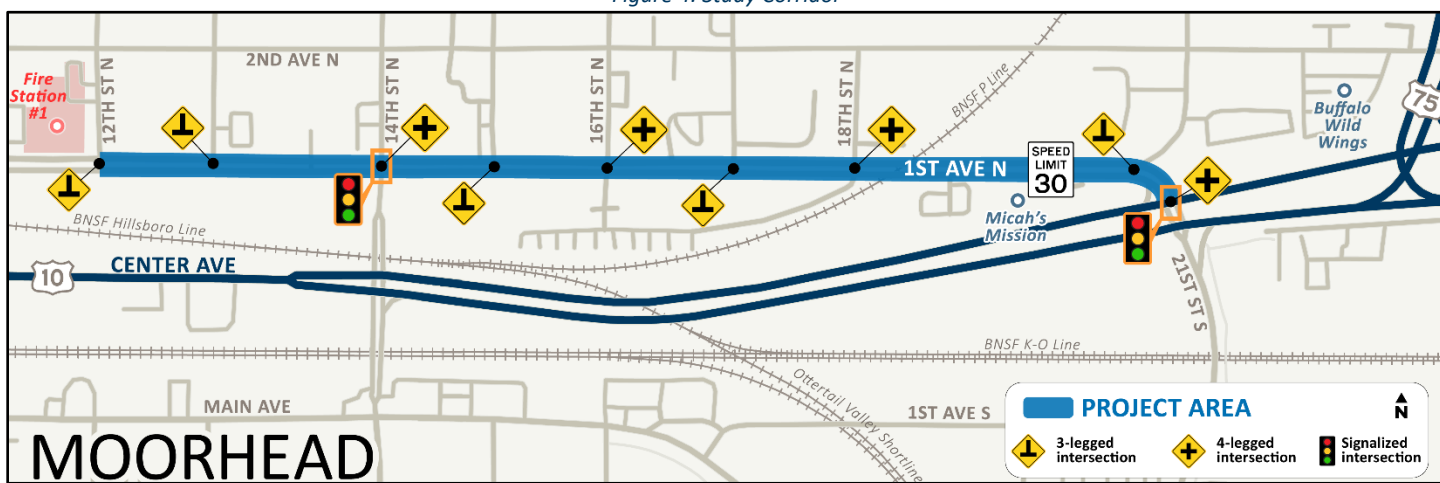
The corridor's design and streetscape are also being repositioned to better support this evolving land use pattern. The 1st Avenue North Corridor Study provides guidance for wide sidewalks, landscaped boulevards, street trees, and enhanced public spaces, creating a more comfortable and attractive pedestrian environment.

Overall, the corridor represents a shift toward a balanced urban arterial, where maintaining vehicular capacity (generally a five-lane section) is still important, but is increasingly integrated with placemaking, multimodal access, and redevelopment goals. Previous and current public input and planning efforts show strong support for preserving traffic capacity while improving pedestrian safety, transit access, and streetscape quality. As redevelopment occurs and access is consolidated, 1st Avenue North is expected to function not only as a transportation route but also as a central organizing spine for mixed-use development and neighborhood activity in downtown Moorhead.

EXISTING TRAFFIC

1st Avenue North has historically served as a commuting route across the Red River between Moorhead and Fargo. Over the past twenty years, Moorhead has experienced growth with a nearly 35% increase in population, however traffic volumes along 1st Avenue have remained stable due in large part to increase utilization of the 15th Avenue North corridor. 1st Avenue's parallel route with US 10, makes 1st Avenue an important roadway to preserve traffic creating a key connection on the north side of both downtowns. These factors have prompted this planning and engineering study to address emerging traffic and safety issues with ongoing multiuse development. The limits of the study area and key intersection features are shown in **Figure 4**.

Figure 4: Study Corridor

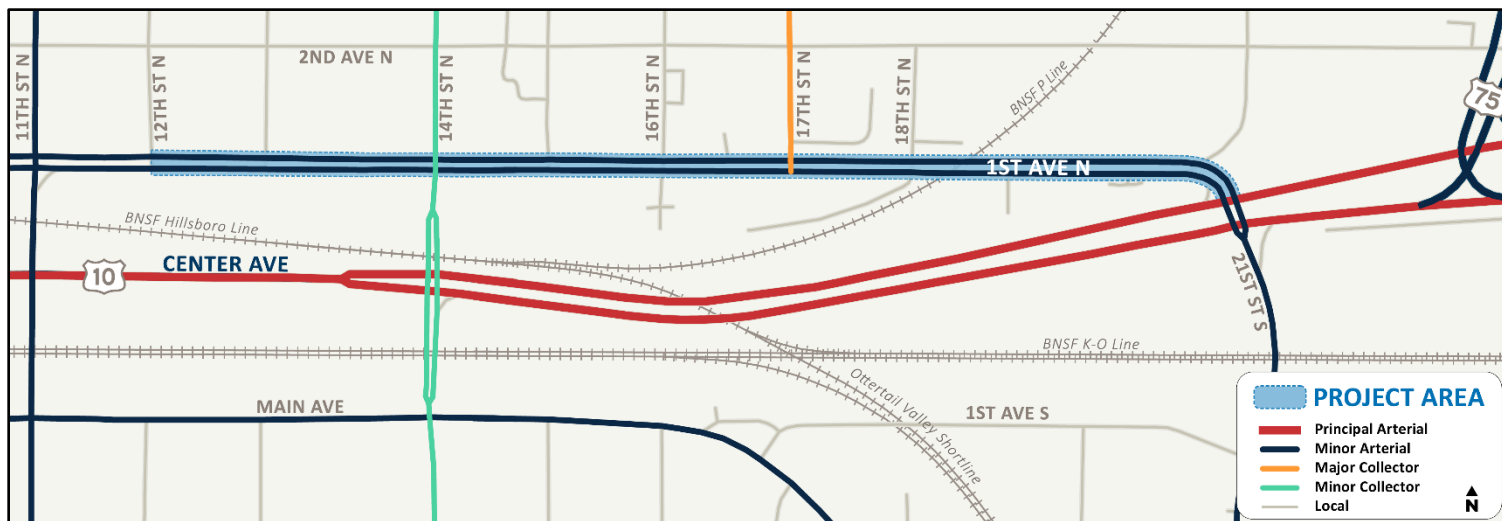


The current corridor has a 5-lane cross section with two through lanes in each direction and left-turn lanes split by narrow medians. The speed limit throughout the corridor is 30 mph. The 1st Avenue corridor includes a mix of minor approach stop-controlled intersections and two signals within the study area. US 10/75 and 14th Street intersections along 1st Avenue are currently signalized. All remaining intersections along 1st Avenue within the study limits are side-street stop controlled, while traffic on 1st Avenue operates under free-flow conditions.

As shown in **Figure 4**, the study corridor contains a mix of 4-legged and 3-legged (“T”) intersections.

Most streets and highways have a predominant function: either to provide the user with access to neighboring land or to allow movement through an area. Functional classification is an important and widely accepted tool in planning highway system development, as well as fiscal planning. The functional classifications of the corridor and the cross streets are shown in **Figure 5**.

Figure 5: Roadway Functional Classification



Arterials

US 10 is a principal arterial serving as a major east-west regional connection between North Dakota and Minnesota. 1st Avenue is classified as a minor arterial. Minor arterials serve longer trips within and between urban and suburban areas. They are typically designed with limited locations at which vehicles can enter or exit the roadway. Minor arterials typically have higher posted speed limits and account for longer metropolitan area trips.

Collectors

17th Street is classified as a major collector. 14th Street is classified as a minor Collector. Collectors service neighborhoods and districts by connecting traffic movement between arterials and local streets. This function commonly provides for some limited direct access to abutting property. These are moderate speed streets, with target speeds in the range of 30 to 40 mph. Lower target speeds are appropriate in residential and mixed-use areas, while higher target speeds may be appropriate in commercial, industrial and rural areas. The frequency of access and the type of access design will be affected by higher target speeds. Parking may be allowed along collectors, particularly those with lower target speeds.

Local Roads

All other roadways connected with 1st Avenue are classified as local roads. Local roads provide direct access to properties. In contrast to other classifications, local roads are lined with access points in the form of driveways, intersecting roadways, crosswalks, and transfer points for

buses and other modes. Speed limits are kept low to promote safety and neighborhood quality of life. The urban local road network serves denser land uses and therefore accounts for a larger proportion of travel than its rural counterpart.

CRASH HISTORY

Five years of crash data from January 1, 2021 to December 31, 2025 were analyzed to find trends that could be mitigated. Of the studied intersections, four had crashes in the last five years. Crash data is compiled in **Table 1**. Full crash data can be found in **Appendix A**.

Table 1: 1st Avenue Crash Data by Intersection

INTERSECTION	TCD	CRASH SEVERITY	N LEG AADT	S LEG AADT	E LEG AADT	W LEG AADT	MILLION ENTERING VEHICLES	TOTAL CRASHES	CRASH COST (\$/YR)*
12 th Street	TWSC	-	789	-	10,013	10,436	19.4	-	\$0
13 th Street	TWSC	-	402	244	10,057	10,014	18.9	-	\$0
14 th Street	Signal	2 – Inj C	2,709	2,611	9,988	10,058	23.2	2	\$52,000
15 th Street	TWSC	-	407	336	9,999	9,988	18.9	-	\$0
16 th Street	TWSC	-	448	776	10,187	9,999	19.6	-	\$0
Burger Time Access	TWSC	-	488	-	10,289	10,288	19.2	-	\$0
17 th Street	TWSC	1 – Inj B	3,060	-	9,800	9,440	20.4	1	\$50,000
18 th Street	TWSC	-	137	300	11,009	10,780	20.3	-	\$0
Gateway / Micah's Mission	TWSC	-	-	224	11,034	11,034	20.4	-	\$0
Micah's East Parking Lot	TWSC	-	-	188	11,109	11,072	20.4	-	\$0
21 st Street	TWSC	1 PDO	1,010	-	10,060	9,950	19.2	1	\$3,000
US 10	Signal	8 PDO	11,794	15,106	19,094	12,904	46.5	8	\$24,000
Total								12	\$129,000

*- Crash cost came from MnDOT's Intersection Toolkit

There were two crashes at the 14th Street signal (2 Potential Injuries), one at 17th Street (1 Minor Injury), one at 21st Street, and eight at the US 10/75 signal. Most of the crashes at the two signals were rear end crashes due to queuing and congestion, which is as expected for the intersection type. The crashes at 17th Street and 21st Street show deficiencies in sightlines and rushed driver behaviors due to queueing on mainline 1st Avenue, or on the side street, which can be addressed through access or intersection type changes.

Figure 6: Corridor crashes



EXISTING POLICIES AND PLANS

MATBUS Transit Development Plan (2025)

The plan identifies a Preferred Service Plan, which is designed to operate with existing financial resources and to better align existing service with demographic and travel changes in the Fargo-Moorhead region. These changes from the existing routes and conditions are meant to make bus routes simple and direct, bi-directional, require fewer transfers, maintain existing access, propose scalable changes, and maintain reliable schedules.

Under the Preferred Service Plan, Route 6 (currently Route 4) would increase service from one-hour service to half-hour service along the 1st Avenue study area. Furthermore, bus service would be offered earlier and later than today, starting at 6:16 a.m. and ending at 10:16 p.m. Monday through Saturday.

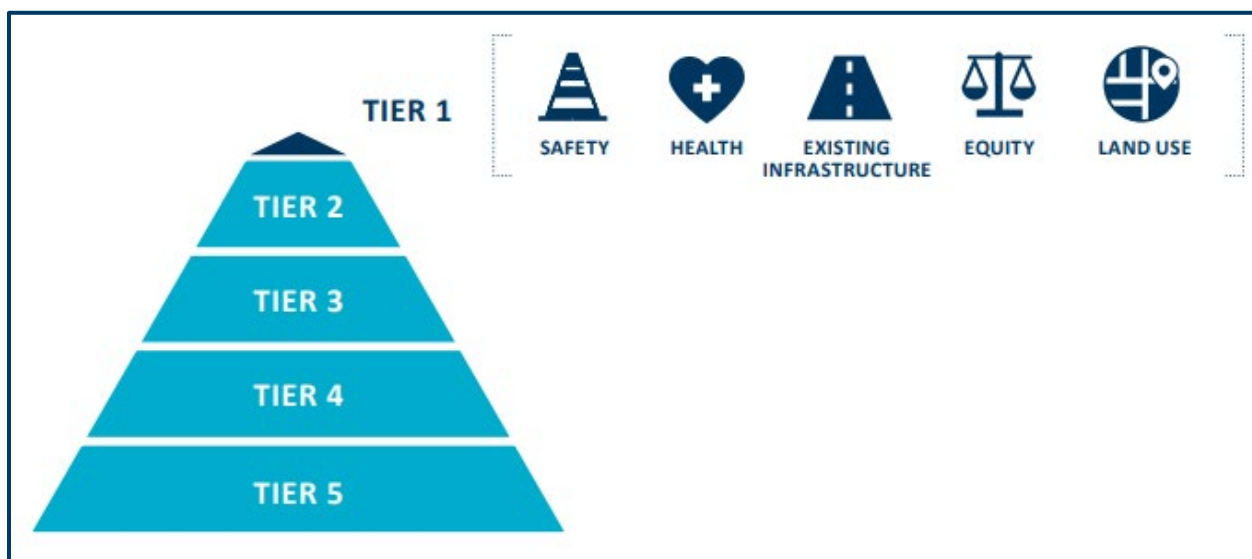
If transit service along the study area becomes bi-directional, new transit infrastructure is required along the north side of 1st Avenue North, including bus stop signs. Heightened amenities including benches and shelters should also be considered.

MnDOT Statewide Pedestrian System Plan (2021)

In their Statewide Pedestrian System Plan, MnDOT developed the Priority Areas for Walking Score (PAWS). The PAWS analysis integrates equity, safety, land use, health, and infrastructure

considerations to identify the highest priority areas for walking on trunk highways across the state. For the analysis, the entire area of the state was divided into hexagons, each of a half-mile diameter. Each hexagon then received a score based on 19 factors that indicate demand for walking and need for improvement to the walking environment. Hexagons are divided into five tiers, with the highest scoring areas receiving a Tier 1 ranking. The top 0.2% of all hexagons received a statewide Tier 1 ranking.

Figure 7: PAWS tiered ranking system and factors



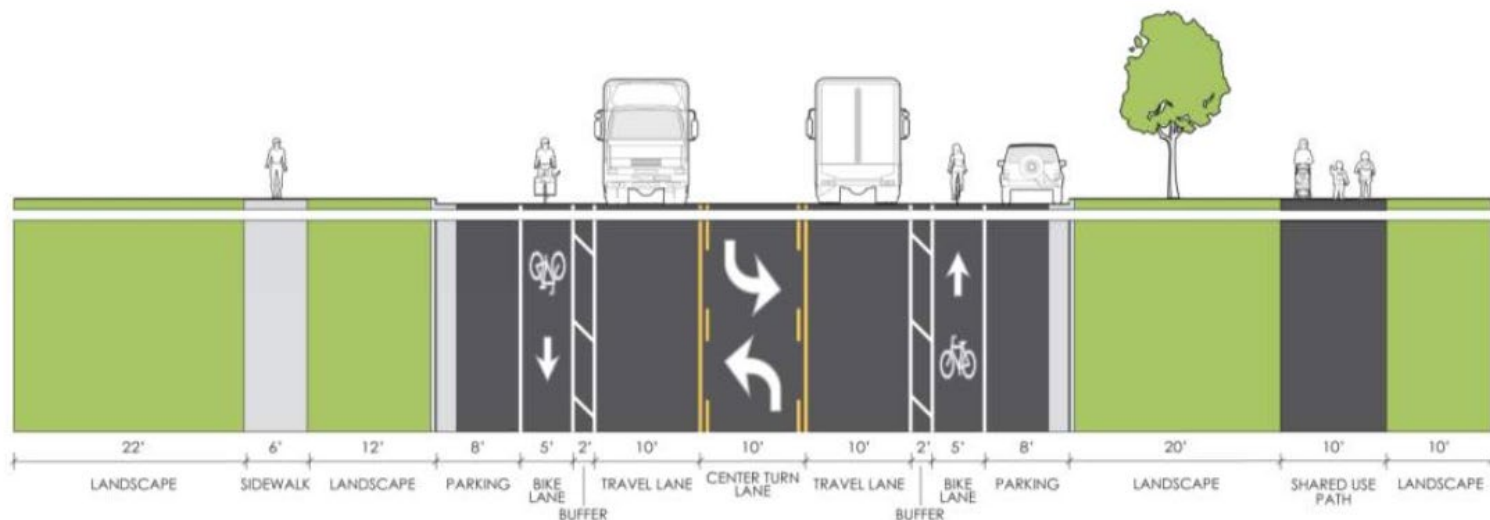
The study area encompasses two analysis hexagons. Both regions are Tier 1, meaning this area is a high priority for pedestrian connectivity and walkability.

17th Street Corridor Study (2021)

In 2021, the Fargo-Moorhead Metropolitan Council of Governments (Metro COG) and the City of Moorhead worked with the community to identify multimodal transportation improvements on 17th Street N between 1st Avenue N and 15th Avenue N.

Study recommends 17th Street immediately north of 1st Avenue be reconfigured to the cross section pictured in **Figure 8**.

Figure 8: Recommended Alternative 1B for Segment 1 (1st Avenue to 4th Avenue) from the 17th Street Corridor Study

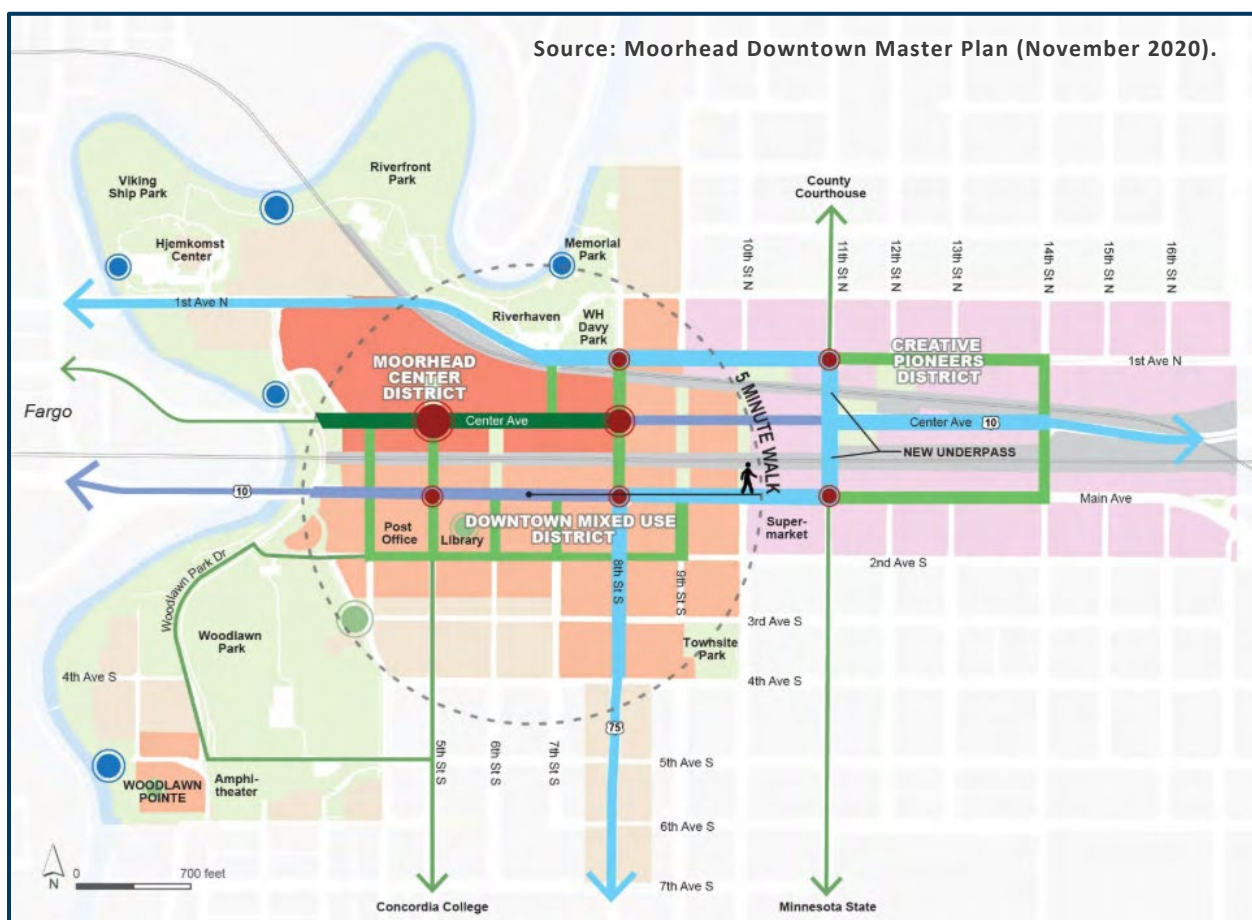


The cross section recommends a sidewalk separated by a boulevard on the west side paired with a shared use path separated by a boulevard on the east side. On-street parking remains on both sides of the street with 8-foot parking lanes. Vehicular travel maintains a three-lane section with two one-way travel lanes and one center left turn lane, all 10 feet in width. New to the corridor, the study recommends buffered bicycle lanes in each direction with 5-foot lanes and 2-foot hatched buffers separating bicyclists from the vehicular travel lane. This general cross section is being constructed in 2026 by the City of Moorhead with a comparable typical section and will be accounted for in this study.

Downtown Moorhead Master Plan (2020)

In 2020, through a collaboration between Downtown Moorhead Inc. and the City of Moorhead, the Downtown Moorhead Master Plan was created to chart the future of the downtown area and its surrounding neighborhoods. The 1st Avenue study corridor is just outside of the core of Moorhead's downtown. However, the plan designates a new "character district", the Creative Pioneers District, which spans between 9th Street N and 17th Street N and between 2nd Avenue S and 1st Avenue N.

Figure 9: Downtown Moorhead by Character District



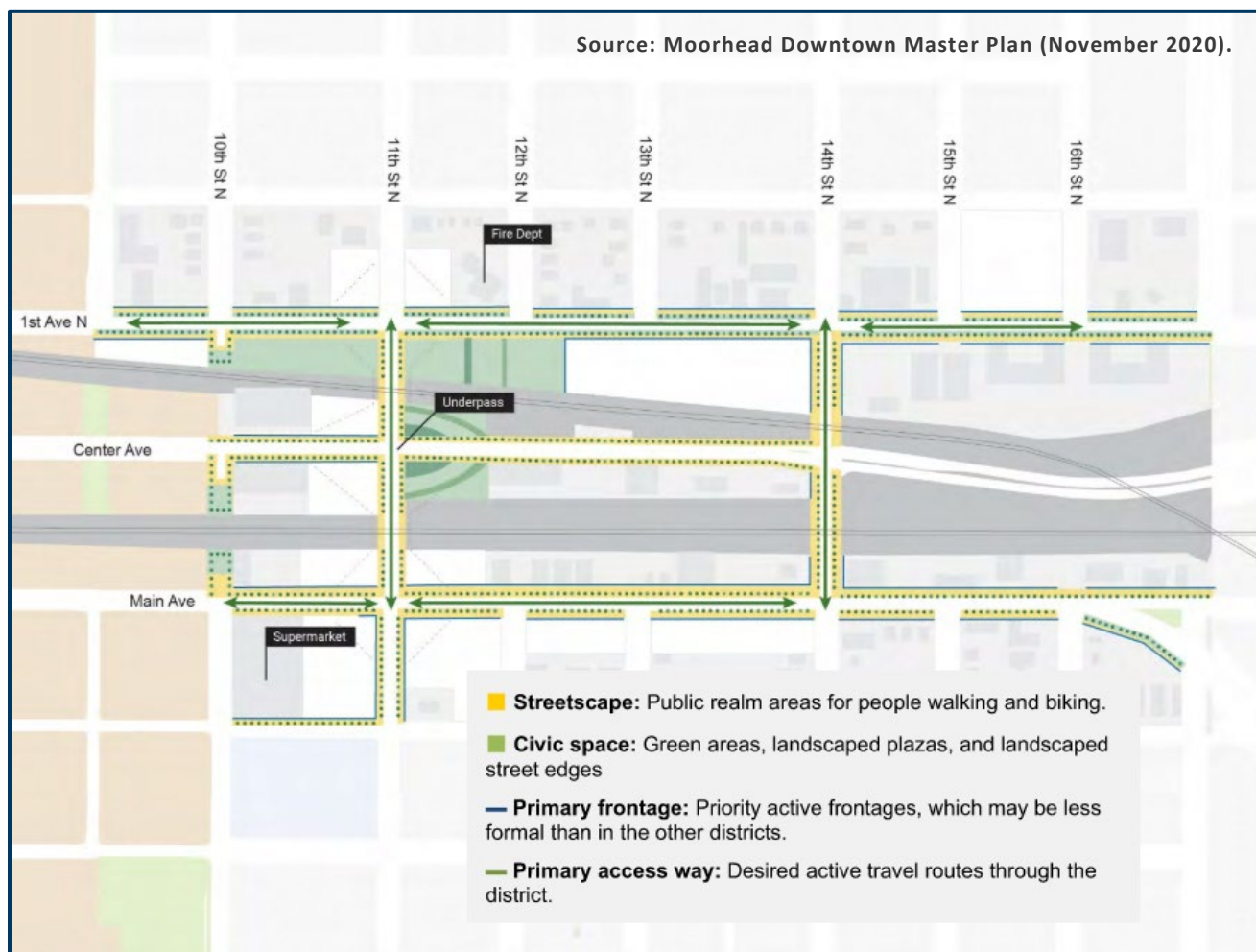
The Creative Pioneers character district supports Moorhead's creative energy by encouraging artistic and innovative activities alongside residential and commercial uses. The public space connects the district for safe walking and biking, and it has a strong public art component. Some of the district's recommended design goals are the following:

- **Streetscapes:** Where possible, sidewalks should be separated from busy travel lanes by a landscaping strip and shaded by street trees. The streetscaping palette can differ from that in the Center and Downtown districts by using concrete and stamped concrete. Impediments to foot traffic (light posts, fire hydrants, mailboxes) should be located towards the curb.
- **Civic spaces (South of 1st Avenue at 12th Street):** At the intersection of 1st Avenue and 11th Street, a public lawn is a good example of a large open space that could support an outdoor event, such as a festival related to the district's businesses. In the meantime, it can be a place where residents and workers can get in a workout or throw a ball in their off-hours.
- **Private site layouts and frontages:** Any front setbacks should be treated to conceal parking lots and have an attractive appearance by using fencing and landscaping. While single-story buildings dominate today, higher density and upper-story housing or offices are welcome, especially along the larger avenues like 1st Avenue.
- **Private architectural design:** Wherever possible, vibrant color should be employed to reinforce the district's creative identity.

The plan identifies vital streets for moving people in and out of the core downtown area. From 11th Street N to 14th Street N, the 1st Avenue study corridor is designated as a Walking Street. In the plan, Walking Streets have lower vehicle volumes and lower vehicle speeds. They are configured to create a pleasant walking experience, including wide sidewalks, street trees, and public art. Bicycles are either in their own lane or mixed in with the slow traffic. Bike parking shall be creative to contribute to the pedestrian experience. On-street parking is included where possible.

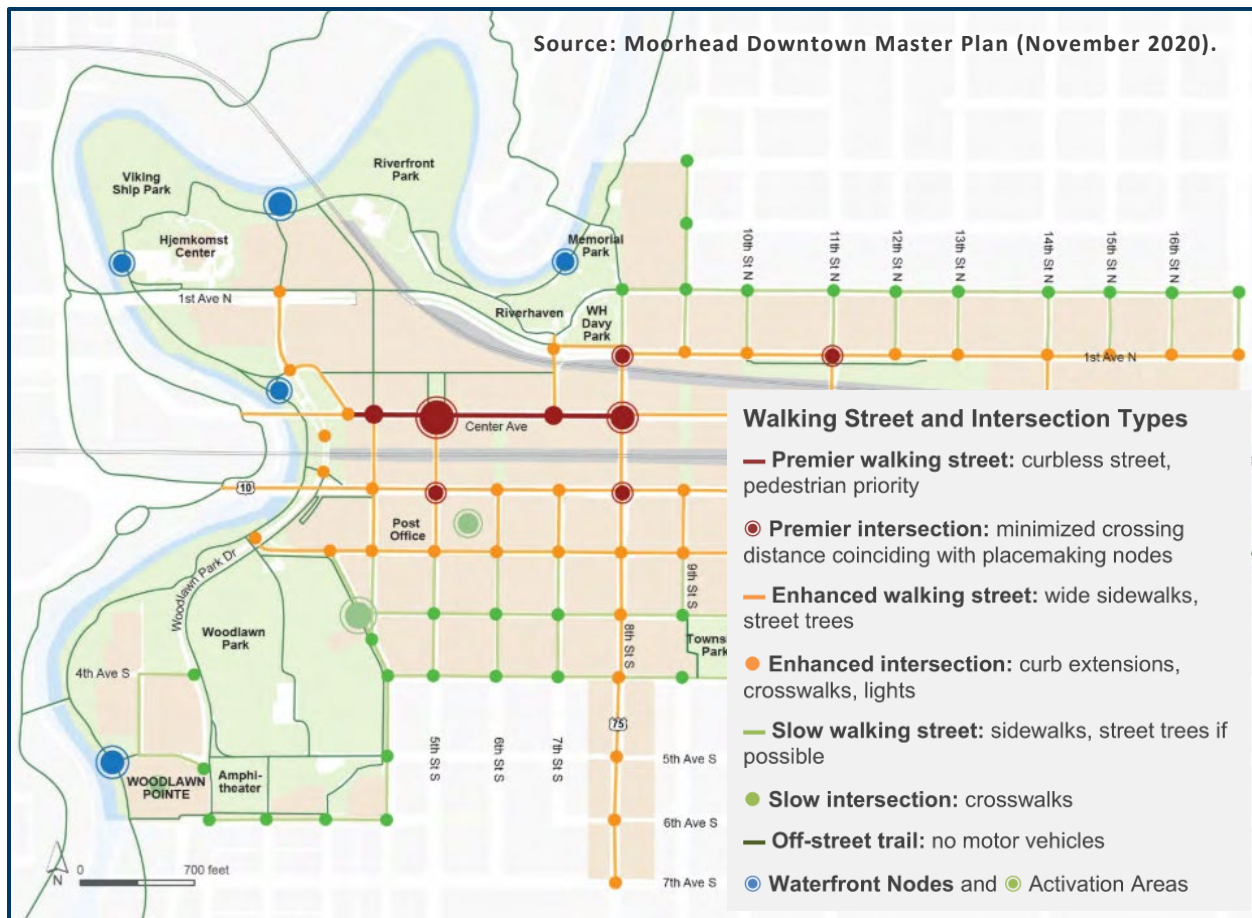
Just one block to the west of the 1st Avenue study corridor, 11th Street is recognized as a Placemaking Node. That intersection will serve as a point for travelers to reorient themselves in their trips towards or away from Downtown Moorhead using 1st Avenue as that connecting street.

Figure 10: Creative Pioneers district by streetscape type



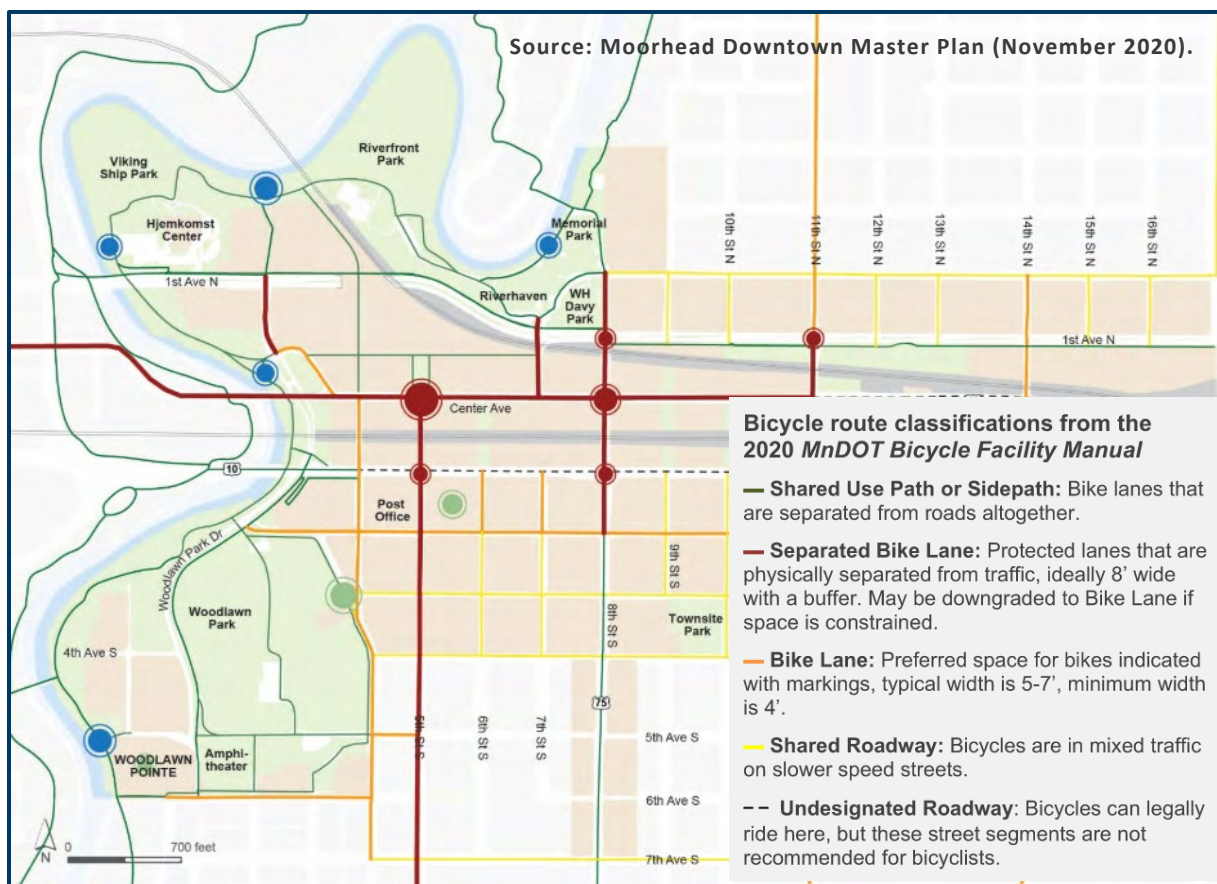
South of 1st Avenue between 12th Street and 10th Street, there is a planned civic space and meeting area. A sidewalk is shown on both sides of 1st Avenue as well as areas for green space and street trees. For land use, the district calls for primary active frontages to expand on higher-value production spaces, small-scale fabrication, food and beverage production, live-work residences, maker and artist workshop/studio spaces, and showrooms.

Figure 11: Downtown pedestrian street and intersection types



In the Downtown Master Plan, the 1st Avenue study corridor is designated as an enhanced walking street, calling for wide sidewalks and installed street trees. All intersections on the corridor are noted as Enhanced Intersections, meaning curb extensions and crosswalks are recommended to make for a more pedestrian- and bike-friendly area. An off-street trail is expected on the south side of 1st Avenue from 10th Street to 12th Street to accommodate multimodal trips crossing the railroad at the 11th Street underpass.

Figure 12: Downtown Moorhead by bicycle route classification



The 1st Avenue study corridor is recommended to have a shared use path or side path on the south side of the street that connects to the 11th Street underpass and to 8th Street. Intersection design along 1st Avenue should accommodate future on-street bike lanes on 14th Street N.

1st Avenue North Corridor Study (2008)

Completed nearly 20 years ago, transportation planning recommendations from this initial study of the 1st Avenue Corridor have been generally updated and refined based on recently completed studies. The original 1st Avenue North Corridor Report made recommendations regarding access management based on a general continuation of a center median throughout the corridor. A more detailed access management approach will be developed once a detailed preliminary layout for the corridor has been refined.



NEED FOR CORRIDOR STUDY

Recent changes in travel patterns, ongoing development, and aging infrastructure have highlighted the need to reevaluate the performance and role of 1st Avenue North. Moorhead has experienced notable population growth in recent decades, however traffic volumes along 1st Avenue have remained stable due in large part to increase utilization of the 15th Avenue North corridor. Despite this trend, 1st Avenue remains a critical parallel route to U.S. Highway 10 and continues to play a vital role in maintaining regional connectivity and supporting downtown access.

The corridor is currently characterized by a five-lane cross section with two through lanes in each direction and a center turn lane, operating at a posted speed of 30 mph. Intersections along the corridor are primarily side-street stop-controlled, with signalized intersections at 14th Street and U.S. 10. Sidewalks are generally present on both sides of the corridor, though conditions and continuity vary, and dedicated bicycle facilities are limited.

In addition to aging pavement conditions that are driving the timing of reconstruction, the corridor faces a range of multimodal, operational, and safety considerations. Existing pedestrian and bicycle accommodations are inconsistent, and opportunities exist to improve connectivity, particularly at key crossings and activity centers. Transit service along the corridor is also evolving, with anticipated increases in frequency and potential infrastructure upgrades needed to support improved service.



The 1st Avenue North Corridor Study builds upon a foundation of prior planning efforts, including the Downtown Moorhead Master Plan, the MnDOT Statewide Pedestrian System Plan, and previous corridor-specific studies. These efforts emphasize the importance of enhancing walkability, supporting multimodal access, and aligning transportation investments with broader land use and community development goals. The study area has been identified as a high-priority location for pedestrian improvements and placemaking initiatives, reinforcing the need for a balanced approach to future design.

This study aims to provide a comprehensive assessment of corridor conditions and identify strategies to improve safety, mobility, and accessibility for all users. By integrating traffic analysis, multimodal considerations, and community input, the study will inform future decision-making related to roadway reconstruction, intersection design, and long-term corridor planning. Ultimately, the goal is to support a corridor that functions efficiently for regional travel while enhancing the quality, safety, and livability of the surrounding community.

PUBLIC ENGAGEMENT SUMMARY

PUBLIC ENGAGEMENT EFFORTS

The City of Moorhead and KLJ used multiple outreach methods to engage stakeholders and gather public input by raising awareness of the online feedback map about the corridor and the local stakeholder and property owner meeting on March 24, 2026. For the online survey, a press release was published, KLJ created social media posts for the City of Moorhead to publish, and a print/digital advertisement was placed within the local paper, FM Extra. For the local stakeholder meeting, KLJ conducted one-on-one outreach via phone and email to businesses/stakeholders along the corridor. KLJ contacted over 30 local stakeholders (businesses, committees, schools, EMS, etc.) and followed up with two rounds of reminder outreach, an email, and a call. The public engagement efforts were successful with around 20 stakeholders attending the local stakeholders meeting and over 70 comments were made online via the comment map by community members.

Press Releases

The City of Moorhead distributed a press release (**Appendix B**) to inform the public about the website and invite the public to leave feedback. Over five different news stations picked up the story (FM Extra, InForum, KVRN, The Valley, and WDAY News), with three of those news stations doing video segments to accompany their written articles (**Appendix B**). The publication of these stories was between March 24 and March 27 in the form of either traditional media or digital media.

Social Media

In conjunction with the news articles being released, the news outlets also published posts on their Facebook pages encouraging readers to check out the project website and leave feedback (**Appendix B**). The City of Moorhead posted about the website on its Facebook and Instagram pages using a social media post KLJ graphics created (**Appendix B**).

Traditional Advertisement

An advertisement was placed in the FM Extra in their April 2, 2026 edition (**Appendix B**). The advertisement placed went out in the print and e-edition to the Moorhead/Fargo area. The ad encouraged residents to visit the website and submit their feedback/comments on the map.

DROP-IN OPEN HOUSE EVENT SUMMARY



An input meeting was held in late March that directly invited stakeholders and adjacent businesses along the 1st Avenue North Corridor. The input meeting was held as a drop-in session for participants to interact with the project team and learn more about the proposed project. The meeting turnout was exceptional, with around 20 stakeholders attending.

Event staff encouraged open house goers to leave their feedback in person or online via the website.

The following list details the main comments received during the meeting:

Construction timeline preference for 2028-2029. A lot of businesses are still recovering from the 11th Street Underpass project.

Stakeholders preferred to have two-way traffic on 1st Avenue North throughout this proposed construction period. The reasoning was to keep drive by traffic and customer access uninterrupted.

There are snow removal concerns along the corridor. Concerns stemming from incorrect plowing equipment or non-available space for snow piles.

Some were in favor of removing the raised median while others wanted to keep it in.

Coordination for business operation and deliveries during construction was pinpointed as an important concern.

Discussions about relocating MATBUS shelters located along 1st Avenue North to help meet traffic flow and rider needs.

Key Stakeholders

The project team interacted with stakeholders at various levels along the 1st Avenue Corridor. The engagement team met with broader stakeholders, including the Minnesota Department of Transportation (MnDOT), MATBUS, the Greater Moorhead Business Association, and BNSF. The City of Moorhead and KLJ met with BNSF on April 7 to discuss railroad coordination and possible railroad improvements to the BNSF crossing located at the intersection of 18th Street and 1st Avenue. Discussions include the use of a Rectangular Rapid Flashing Beacon (RRFB) system at mid-block crosswalks, with consideration for not blocking train warning lights.

On a more local scale, the City of Moorhead and KLJ meet with Micah's Mission (known as Church's United), which runs a non-profit homeless shelter on 1st Avenue North. There is a lot of foot and bus traffic near the shelter, so the KLJ team reached out to Pastor Devlyn, who oversees the shelter's operations. The City of Moorhead and KLJ coordinated a tour of their facility on April 17. Micah's Mission and the team discussed proposed improvements along 1st Avenue North. Micah's Mission is concerned with negative drainage along the northern building face. The City of Moorhead is willing to explore separate funding and/or cost participation options to aid in resolving northern structural and drainage issues in the Micah's Mission main building.

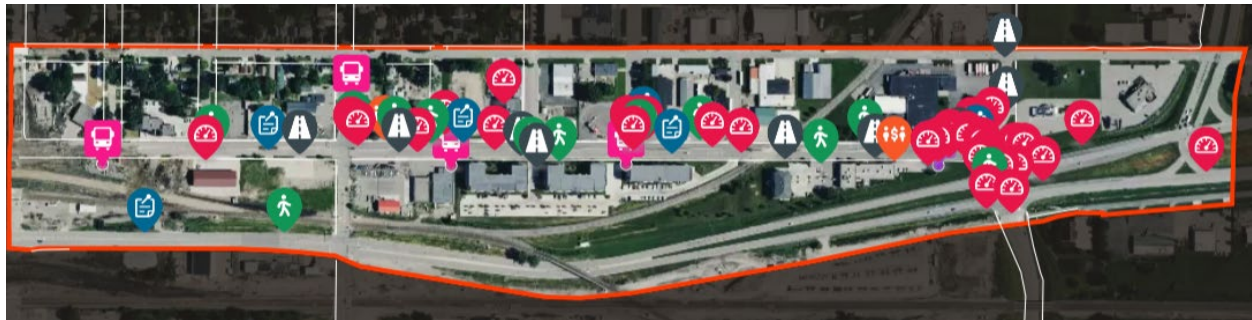
The design team also met with Clay County Housing Redevelopment Authority (Clay County HRA) on April 16 to discuss and obtain feedback on 1st Avenue designs. The Clay County HRA owns and operates a building on 1st Avenue called "Gateway Gardens," which is designated as supportive housing for long-term homeless individuals. Gateway Gardens is located next to Micah's Mission and sees significant vehicle and pedestrian traffic. One comment from Clay County HRA concerned safety concerns at left-turn movements on 1st Avenue North. The width of the raised median would not accommodate a vehicle refuge for left turn movements. The design team documented their comments and will continue analyzing options to determine the best design.

ONLINE PUBLIC COMMENTS AND DATA

The main method of gathering public data was through a social pinpoint website where members of the public could leave comments on the study area. The commenter could pick a specific point on the map and leave a written comment under the following categories: traffic safety, pedestrian/bike, pavement conditions, business access, and other. The commenter could go through other people's comments and either "upvote" or "downvote" the comment.

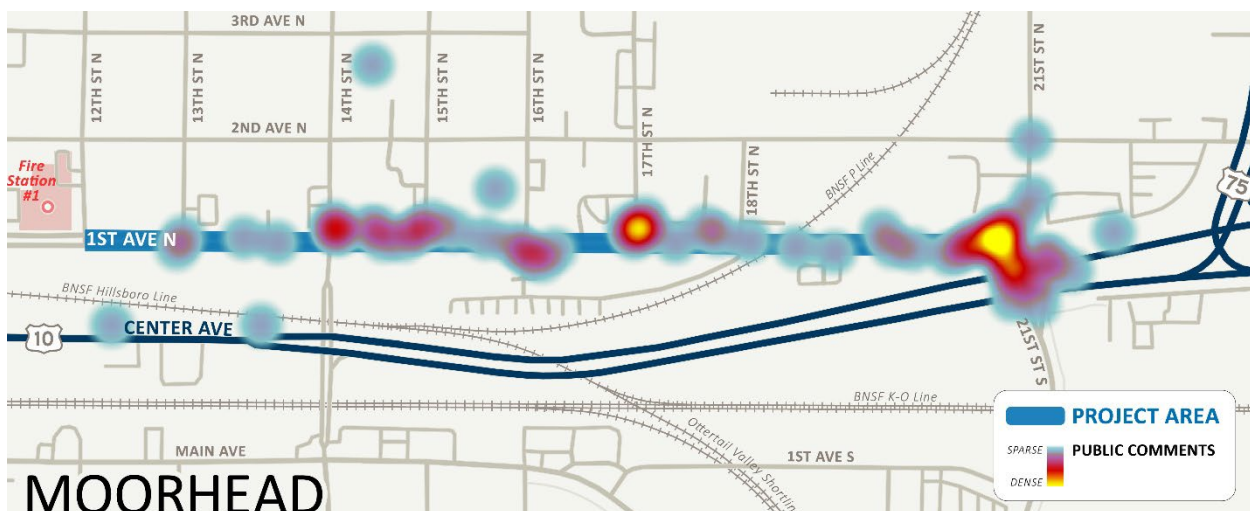
The website had over 70 contributions and 350 votes during the campaign run from February to March.

Figure 13: Map of online public comments



Category	Number of Comments
Traffic Safety	40
Pedestrian/Bike	13
Pavement Conditions	9
Business Access	3
Other	7

Comment Heat Map



This comment heat map shows which areas along the corridor received the most comments. The intersection at 1st Avenue North and 21st Street had the most comments, focusing on traffic safety and pedestrian safety.

Comment Breakdown

With over 70 comments from community members, AI was used to sort the data into common comment themes, the top two interactive comments, and the comments with the most positive/negative ratings.

TOP COMMON COMMENT THEMES

1. Traffic Safety & Intersection Design [Hwy 10 and 21st Street]

This is the strongest and most consistent theme. Many commenters describe intersections—especially near Hwy 10, 21st Street, and side streets—as confusing or dangerous due to:

- Blind turns and limited visibility
- Conflicting turning movements
- Inadequate lane markings or signage
- Issues with large vehicles and backups spilling into intersections

Residents frequently suggest targeted fixes such as dedicated turn lanes, better signage, signal timing adjustments, or redesigned intersections.

2. Pedestrian & Bicycle Safety (Multimodal Access)

A large share of comments focus on the corridor feeling unsafe or uncomfortable for people walking or biking. Common concerns include:

- Poor or missing crosswalks
- Long, stressful pedestrian crossings
- Sidewalks too close to traffic
- Lack of protected bike facilities

Many respondents support changes that prioritize safer crossings, buffers, and dedicated or protected bike lanes—even if it means reallocating roadway space.

3. Lane Configuration, Congestion & Traffic Flow

There is strong engagement around how many lanes 1st Avenue should have and how traffic should move:

- The majority sentiment from online comments and reactions was to maintain the current five lane section along 1st Avenue North, while improving accommodations for pedestrians and transit users.
- Concerns about backups, signal timing, and turning conflicts are raised frequently.

MOST INTERACTIVE COMMENTS

The top two comments that had the most interactions with other online commenters were:

1. “Trees on both sides of 1 Ave N”

Interactions: 15 (8 upvotes, 7 downvotes)

Theme: Streetscape / trees / aesthetics

***Why it stood out:** Strong reactions both for and against adding trees, signaling public interest in corridor appearance and design tradeoffs.*

2. “Enjoy seeing the summer open air curbside seating...”

Interactions: 14 (6 upvotes, 8 downvotes)

Theme: Lane reductions, business vitality, bike access

***Why it stood out:** Ties together slower traffic, outdoor dining, and bike access—classic “placemaking vs. throughput” discussion.*

POSITIVE AND NEGATIVE COMMENTS



The comments that had the [most upvotes/positive voting](#) were:

1. Pedestrian & Bicycle Safety

“Pavement is falling apart all around this intersection and the medians. There should be some sort of cross walk from the Vanne apartments to the Grove apartments as this is very high foot traffic. There doesn't need to be a whole intersection, or even a HAWK, but maybe just like what is on 20th street around 15th ave. Just a designated crosswalk with the stop while pedestrian is in crosswalk sign similar even to highway 75 near the water treatment facility to the apartments there.

This would seamlessly connect two plots of living areas and even the three buildings of the Grove with areas such as Domino's, Burger Time, and Junkyard more quickly and safely from The Grove.”

Interactions: 13 (13 upvotes, 0 downvotes)

2. Traffic Safety & Intersection Design

“Better lane designation signage is needed [Highway 10/75]. Left lane only allows a left turn onto the highway but traffic thinks it can also go straight since that is two lanes which causes collisions with the right lane that is also allowed to turn left onto the highway.”

Interactions: 13 (13 upvotes, 0 downvotes)

Overall positive comment themes: Residents strongly support improving pedestrian connectivity and safety by repairing deteriorating pavement and adding a clearly marked crosswalk to link nearby housing with local businesses safely. They also highlight a preference to retain the current section (avoiding any lane reductions) and better lane designation signage.



The two top comments with the most downvotes/negative rating were:

1. Traffic Safety & Intersection Design

“This [17th Street] intersection should be replaced with a roundabout like what was built at Main Ave and 2nd St in Fargo.”

Interactions: 11 (2 upvotes, 9 downvotes)

2. Lane Configuration, Congestion & Traffic Flow

“Enjoy seeing the summer open air curbside seating at these restaurants. Want more of that throughout downtown. But also slower cars or 1 less lane to make a safer buffer here and give bike access to these”

Interactions: 14 (6 upvotes, 8 downvotes)

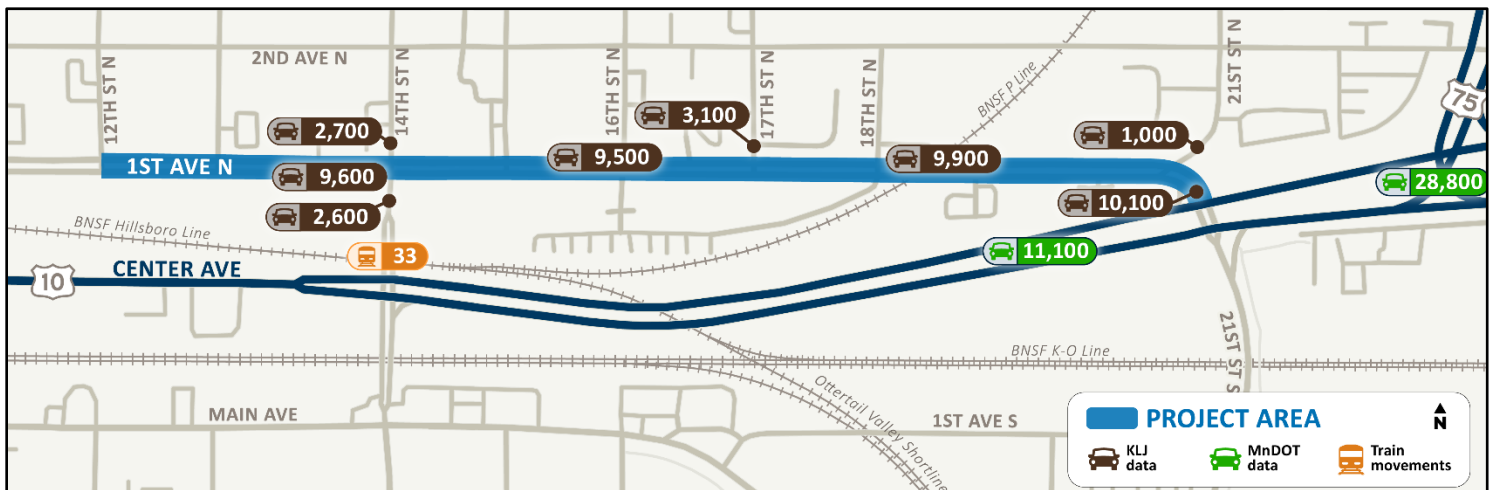
Overall negative comment themes: Feedback reflects mixed, largely critical views on the intersection and street design. Commenters preferred keeping the current corridor layout (avoiding any lane reductions or roundabouts). Comments also note concern that reducing lanes or slowing traffic to accommodate one street bike lane could worsen congestion and complicate traffic flow.

TRAFFIC ANALYSIS

VOLUMES & FORECASTING

The average annual daily traffic (AADT) volumes along the corridor were obtained from MnDOT for this study. Additional field counts were also collected during the spring of 2026 at 14th Street, 17th Street and 21st Street. The AADT volumes are shown in **Figure 14**.

Figure 14: MnDOT/KLI Collected AADT Data



Turning Movement Counts

24-Hour turning movement counts from traffic cameras were collected on Thursday March 12th, 2026 at three intersections along with AADT and StreetLight turning movement data to compile an existing volume set along the 1st Avenue corridor. The AM Peak was determined to be 7:15 AM to 8:15 AM and the PM Peak was determined to be 4:30 PM to 5:30 PM. AM and PM peak turning movement counts are shown below in **Table 2** and **Table 3**. Full turning movement counts can be found in the **compendium Technical Appendix**. Counts on 1st Avenue show directionality in the AM Peak in the westbound direction towards the City of Fargo and eastbound in the PM Peak from the City of Fargo to Moorhead.

Train volumes were taken on BNSF's Hillsboro Subdivision crossing of 14th St (DOT Crossing Inventory 062927V) between 1st Avenue South and Center Avenue on March 12th, 2026. Despite 8 train movements per day mentioned on the FRA Crossing Inventory, 33 train movements occurred over the observation of 24 hours of video.



Table 2: Existing 2026 AM Peak Turning Movement Counts

AM PEAK	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
12 th Street	-	-	-	5	-	5	5	261	-	-	642	11
13 th Street	5	5	5	5	5	7	5	256	5	5	641	11
14 th Street	29	28	23	50	67	40	14	240	12	23	571	66
15 th Street	7	5	7	5	5	5	5	301	7	7	636	5
16 th Street	84	5	14	5	5	11	22	286	5	5	553	16
Burger Time Access	-	-	-	-	-	5	-	305	-	-	569	5
17 th Street	-	-	-	66	-	108	91	214	-	5	466	164
18 th Street	5	0	25	5	0	5	5	218	5	5	331	5
Gateway/Micah's Mission	5	5	7	5	5	5	5	275	5	5	625	5
Micah's East Parking Lot	5	-	5	-	-	-	-	282	5	5	630	-
21 st Street	5	-	5	-	-	-	-	282	5	5	630	-
US 10	-	-	-	12	-	15	13	274	-	-	620	55

Table 3: Existing 2026 PM Peak Turning Movement Counts

PM PEAK	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
12 th Street	-	-	-	10	-	5	6	555	-	-	325	6
13 th Street	5	5	5	10	5	5	13	547	5	5	321	14
14 th Street	36	36	15	42	27	17	42	489	31	18	258	46
15 th Street	7	5	7	5	5	23	36	503	7	7	271	11
16 th Street	13	5	9	11	5	17	10	459	46	19	259	8
Burger Time Access	-	-	-	-	-	28	5	479	-	-	258	56
17 th Street	-	-	-	74	-	56	56	423	-	5	258	104
18 th Street	5	5	5	11	5	5	5	492	5	5	357	5
Gateway/Micah's Mission	5	-	5	-	-	-	-	503	5	5	362	-
Micah's East Parking Lot	5	-	5	-	-	-	-	503	5	5	362	-
21 st Street	-	-	-	8	-	12	25	483	-	-	355	24
US 10	29	196	417	290	197	5	22	572	45	333	285	161

After a review of the existing turning movement counts, through movements in the AM Peak and PM Peak reach to 650 and 550, respectively. There are approximately 130-170 movements entering 1st Avenue from 17th Street, with 160-250 leaving 1st Avenue to 17th Street. 17th Street has the highest turning movements along 1st Avenue outside of the intersection with US 10.

Counts were forecasted to 2050 in line with a growth rate of 1.5% along the corridor. A 1% forecasted increase in volumes was projected for 1st Avenue North in Metro COG's current 2050 Metropolitan Transportation Plan (MTP). Metro COG's 2050 projections were considered low based on recent conditions in Downtown Moorhead. Working with the City, it was



determined that a 1.5% growth rate was appropriate for the corridor level traffic analysis. Forecasted AM and PM peak turning movement counts are shown in **Table 4** and **Table 5**.

Table 4: Forecast 2050 AM Peak Turning Movement Counts

AM PEAK	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
12 th Street	-	-	-	7	-	7	7	373	-	-	918	16
13 th Street	7	7	7	7	7	10	7	366	7	7	916	16
14 th Street	41	40	33	71	96	57	20	343	17	33	816	94
15 th Street	10	7	10	7	7	7	7	430	10	10	909	7
16 th Street	120	7	20	7	7	16	31	409	7	7	791	23
Burger Time Access	-	-	-	7	-	7	-	436	-	-	813	7
17 th Street	-	-	-	94	-	154	130	306	-	7	666	234
18 th Street	7	7	10	7	7	7	7	393	7	7	893	7
Gateway/Micah's Mission	7	-	7	-	-	-	-	403	7	7	901	-
Micah's East Parking Lot	7	-	7	-	-	-	-	403	7	7	901	-
21 st Street	-	-	-	17	-	21	19	392	-	-	886	79
US 10	29	397	313	146	232	30	7	136	30	399	788	560

Table 5: Forecast 2050 PM Peak Turning Movement Counts

PM PEAK	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
12 th Street	-	-	-	14	-	7	9	793	-	-	465	9
13 th Street	7	7	7	14	7	7	19	782	7	7	459	20
14 th Street	51	51	21	60	39	24	60	699	44	26	369	66
15 th Street	10	7	10	7	7	33	51	719	10	10	387	16
16 th Street	19	7	13	16	7	24	14	656	66	27	370	11
Burger Time Access	-	-	-	40	-	40	7	685	-	-	369	80
17 th Street	-	-	-	106	-	80	80	605	-	7	369	149
18 th Street	7	7	7	16	7	7	7	703	7	7	510	7
Gateway/Micah's Mission	7	-	7	-	-	-	-	719	7	7	517	-
Micah's East Parking Lot	7	-	7	-	-	-	-	719	7	7	517	-
21 st Street	-	-	-	11	-	17	36	690	-	-	507	34
US 10	41	280	596	415	282	7	31	818	64	476	407	230

Signal Warrants

Signal warrants were analyzed for 14th Street, 17th Street, and 21st Street for both 2026 and 2050 volumes. 70% and 80% signal warrants are used to justify a signal installation in situations where certain criteria justify a reduced volume warrant. A 70% warrant is applied when a major street's speed limit is higher than 40 mph or in an isolated community with a population of less than 10,000. An 80% warrant is applied after adequate trial of other remedial measures (turn

lanes, pedestrian crossings, etc.). Meeting either threshold does not automatically mean a signal should be installed, but it does suggest the intersection merits observation and evaluation. At existing signalized intersections (e.g. 14th Street), the 70% and 80% warrant thresholds provide an indication if an existing signal is still justified or should be evaluated for removal.

14th Street is the only intersection collected that is currently signalized. Since the speed limit is below 40 mph and the population is over 10,000, the 70% signal warrant factor cannot be applied. The 80% factor was used in order to show that a signal could be justified in the future if changes from reconstruction still had deficiencies. Full warrant results can be found in **Table 6** and the **compendium Technical Appendix**. Examined warrants are shown below.

- Warrant 1a – Eight-Hour Minimum Vehicular Volume
- Warrant 1b – Eight-Hour Interruption of Continuous Traffic
- Warrant 2 – Four-Hour Vehicular Volume
- Warrant 3 – Peak Hour Volume
- MWSA – Multi-Way Stop Application (Eight Hours)

Table 6: 2026 & 2050 Signal Warrants

2026 SIGNAL WARRANTS	Warrant 1a	Warrant 1b	Warrant 2	Warrant 3	MWSA	Met?
14th Street	0/8	4/8	0/4	0/1	0/8	No
17th Street	0/8	4/8	0/4	0/1	0/8	No
21st Street	0/8	0/8	0/4	0/1	0/8	No
2050 100% SIGNAL WARRANTS	Warrant 1a	Warrant 1b	Warrant 2	Warrant 3	MWSA	Met?
14th Street	0/8	5/8	4/4	0/1	1/8	Yes
17th Street	0/8	5/8	3/4	0/1	0/8	No
21st Street	0/8	0/8	0/4	0/1	0/8	No
2050 80% SIGNAL WARRANTS	Warrant 1a	Warrant 1b	Warrant 2	Warrant 3	MWSA	Met?
14th Street	1/8	8/8	4/4	0/1	1/8	Yes
17th Street	1/8	9/8	3/4	0/1	0/8	Yes
21st Street	0/8	0/8	0/4	0/1	0/8	No

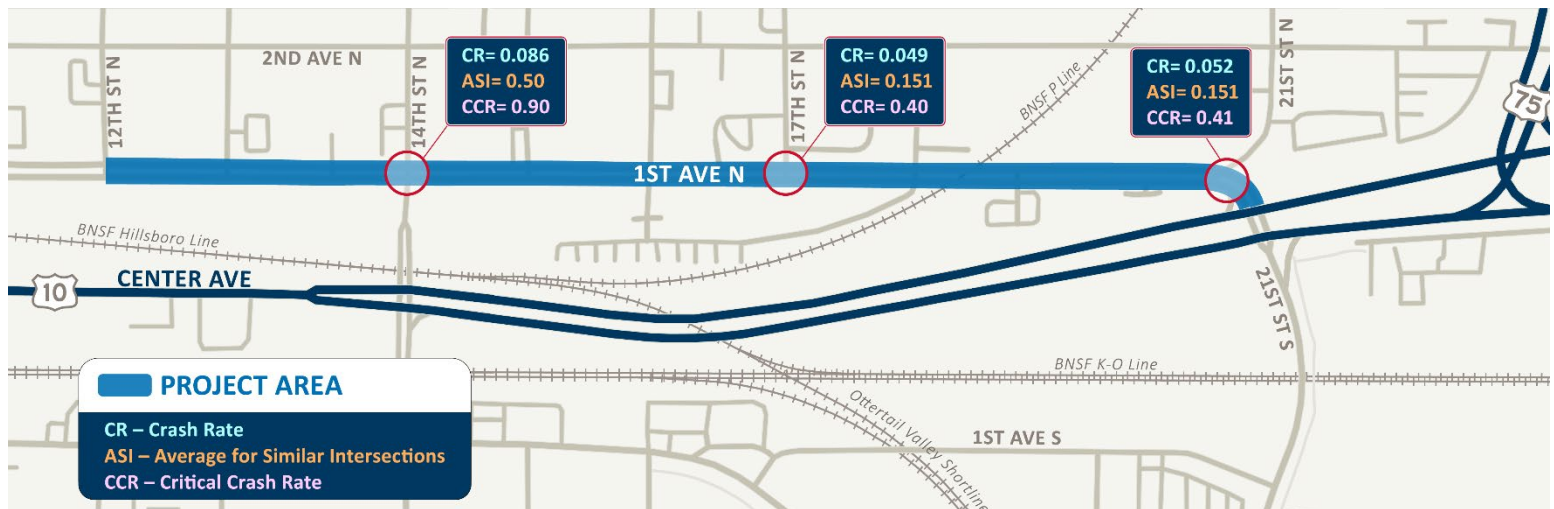
None of the intersections meet signal warrants at the 100% threshold in 2026, but 14th Street meets Warrant 2 in 2050. To show how close forecasted volumes are to meeting warrants at 17th Street, the 80% threshold was used, resulting in signal warrants being met in 2050. Since 14th Street is an existing signal, the threshold would be at 70% for testing signal removal. This analysis is not needed as 14th Street meets signal warrants at 100% in 2050. 14th Street has a longer extended peak, which helps meet Warrant 2 over 17th Street, which has a shorter peak period due to the school traffic exiting in the PM Peak. KLJ recommends utilizing traffic reroutes

from other access changes across the corridor to evaluate whether a signal would be the ideal alternative at 17th Street.

Crash Analysis

No serious injury crashes or fatalities have occurred on the corridor. A more detailed analysis was completed for the three primary intersections along the Study Corridors as shown in **Figure 15**. All three intersections have crash rates significantly lower than the average for similar intersections, indicating they are safer than typical locations. In addition, each intersection's crash rate is below its respective critical crash rate, meaning none meet the threshold for being classified as high-crash sites. Overall, these intersections are performing well in terms of safety and would not be prioritized for improvements based on crash rate analysis alone.

Figure 15: Intersection Crash Analysis



Proactive safety measures could be taken to continue this outcome as volume increases on the corridor, such as access management, movement restriction, or medians if the City of Moorhead desires.

CAPACITY ANALYSIS

METHODOLOGY

Vehicular Level of Service (VLOS) is a measure used to quantify the degree of congestion and efficiency of traffic flow on a roadway. Intersections are graded from LOS A through LOS F, which corresponds to the average delay per vehicle value as shown in **Table 7**. An overall intersection LOS A through LOS D is generally considered acceptable under MnDOT standards. LOS A indicates the best traffic operations, while LOS F indicates an intersection where demand exceeds capacity. Traffic delay and LOS were measured for each study intersection using PTV VISSIM software. VISSIM simulates the movement of every vehicle through an intersection and collects information for associated performance measures like delay, queue lengths, travel times, and vehicle density. Detailed VISSIM results can be found in the **compendium Technical Appendix**.

Table 7: Intersection Level of Service Thresholds

CONTROL DELAY (SEC/VEH)		LOS THRESHOLD
UNSIGNALIZED	SIGNALIZED	
≤ 10	≤ 10	A
> 10-15	> 10-20	B
> 15-25	> 20-35	C
> 25-35	> 35-55	D
> 35-50	> 55-80	E
> 50	> 80	F

For two-way stop-controlled intersections (TWSC), major roadway through and right-turn movements generally experience no delay, as they are uncontrolled and do not need to yield to any conflicting movements. However, vehicles turning left from the major approach, or vehicles turning from the minor approach to the major street or crossing the major street can experience significant delays. For these reasons, LOS assigned to side-street stop-controlled intersections are typically assumed to be the worst approach delay for that individual intersection.

The intersection operations analysis results for existing conditions during the identified peak hours are shown in **Table 8** and **Figure 16** for existing 2026 volumes.

Table 8: Existing AM & PM Peak Operations Results (Delay and LOS)

EXISTING AM	TYPE	NB	SB	EB	WB	INT
12 th Street	TWSC	-	15 (B)	1 (A)	1 (A)	1 (A)
13 th Street	TWSC	17 (C)	14 (B)	1 (A)	1 (A)	1 (A)
14 th Street	Signal	21 (C)	13 (B)	9 (A)	10 (A)	11 (B)
15 th Street	TWSC	26 (D)	22 (C)	1 (A)	1 (A)	1 (A)
16 th Street	TWSC	70 (F)	18 (C)	1 (A)	1 (A)	8 (A)
Burger Time Access	TWSC	-	1 (A)	1 (A)	1 (A)	1 (A)
17 th Street	TWSC	-	30 (D)	1 (A)	1 (A)	5 (A)
18 th Street	TWSC	17 (C)	20 (C)	1 (A)	1 (A)	1 (A)
Gateway/Micah's Mission	TWSC	16 (C)	-	1 (A)	1 (A)	1 (A)
Micah's East Parking Lot	TWSC	13 (B)	-	1 (A)	1 (A)	1 (A)
21 st Street	TWSC	-	29 (D)	8 (A)	1 (A)	3 (A)
US 10	Signal	25 (C)	29 (C)	20 (C)	22 (C)	23 (C)
EXISTING PM	TYPE	NB	SB	EB	WB	INT
12 th Street	TWSC	-	19 (C)	1 (A)	1 (A)	1 (A)
13 th Street	TWSC	23 (C)	19 (C)	1 (A)	1 (A)	1 (A)
14 th Street	Signal	22 (C)	14 (B)	10 (A)	10 (A)	11 (B)
15 th Street	TWSC	18 (C)	11 (B)	1 (A)	1 (A)	1 (A)
16 th Street	TWSC	21 (C)	14 (B)	1 (A)	1 (A)	1 (A)
Burger Time Access	TWSC	-	4 (A)	1 (A)	1 (A)	1 (A)
17 th Street	TWSC	-	28 (D)	1 (A)	1 (A)	4 (A)
18 th Street	TWSC	20 (C)	24 (C)	1 (A)	1 (A)	1 (A)
Gateway/Micah's Mission	TWSC	20 (C)	-	1 (A)	1 (A)	1 (A)
Micah's East Parking Lot	TWSC	17 (C)	-	1 (A)	1 (A)	1 (A)
21 st Street	TWSC	-	51 (F)	17 (C)	1 (A)	11 (B)
US 10	Signal	20 (C)	24 (C)	29 (C)	29 (C)	26 (C)

Delay represented in seconds per vehicle. Two-Way Stop-Control (TWSC) Intersection LOS calculated by highest delay minor approach.

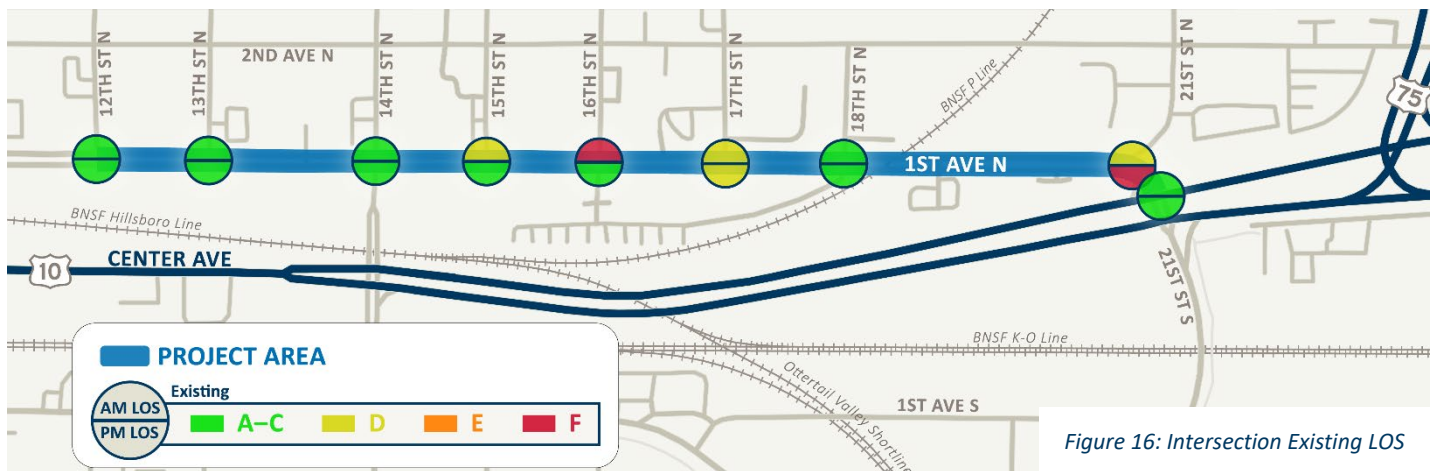


Figure 16: Intersection Existing LOS

Traffic flow on mainline 1st Avenue operates at an acceptable level of service. Minor approaches are more likely to become deficient in the AM peak due to the heavy westbound movements into the City of Fargo versus the PM peak when traffic is more balanced. Minor approaches with LOS D or worse are:

- 15th Street South Leg (AM)
- 16th Street South Leg (AM)
- 17th Street North Leg (AM & PM)
- 21st Street North Leg (AM & PM)

Volumes were forecasted to 2050 using a growth rate of 1.5% for the 1st Avenue North Corridor to develop the “No-Build” conditions. 2050 No-Build AM & PM peak results are presented in **Table 9** and intersection results are shown in **Figure 17**.

Under the 2050 No-Build scenario, mainline operations along 1st Avenue continue to operate at acceptable levels of service, generally LOS B–C, indicating the corridor maintains through-capacity for regional travel. However, side-street approaches at most two-way stop-controlled intersections degrade significantly, with many movements operating at LOS E and F during both peak periods due to increased mainline volumes and limited gaps for turning vehicles. This results in substantial delay and queueing on minor approaches, highlighting growing operational deficiencies that will worsen without access management or intersection control improvements.

Table 9: No-Build 2050 AM & PM Peak Operations Results (Delay and LOS)

NO-BUILD AM	TYPE	NB	SB	EB	WB	INT
12 th Street	TWSC	-	22 (C)	1 (A)	1 (A)	1 (A)
13 th Street	TWSC	25 (C)	21 (C)	1 (A)	1 (A)	1 (A)
14 th Street	Signal	23 (C)	16 (B)	11 (B)	10 (A)	12 (B)
15 th Street	TWSC	56 (F)	51 (F)	1 (A)	1 (A)	2 (A)
16 th Street	TWSC	383 (F)	41 (E)	1 (A)	1 (A)	2 (A)
Burger Time Access	TWSC	-	13 (B)	1 (A)	1 (A)	1 (A)
17 th Street	TWSC	-	267 (F)	2 (A)	1 (A)	35 (E)
18 th Street	TWSC	40 (E)	47 (E)	1 (A)	1 (A)	2 (A)
Gateway/Micah's Mission	TWSC	37 (E)	-	1 (A)	1 (A)	1 (A)
Micah's East Parking Lot	TWSC	29 (D)	-	1 (A)	1 (A)	1 (A)
21 st Street	TWSC	-	38 (E)	8 (A)	1 (A)	3 (A)
US 10	Signal	20 (C)	23 (C)	27 (C)	23 (C)	22 (C)
NO-BUILD PM	TYPE	NB	SB	EB	WB	INT
12 th Street	TWSC	-	35 (D)	1 (A)	1 (A)	1 (A)
13 th Street	TWSC	47 (E)	44 (E)	1 (A)	1 (A)	2 (A)
14 th Street	Signal	27 (C)	16 (B)	10 (B)	11 (B)	12 (B)
15 th Street	TWSC	26 (D)	15 (B)	1 (A)	1 (A)	1 (A)
16 th Street	TWSC	35 (E)	26 (D)	1 (A)	1 (A)	3 (A)
Burger Time Access	TWSC	-	11 (B)	1 (A)	1 (A)	1 (A)
17 th Street	TWSC	-	199 (F)	1 (A)	1 (A)	25 (D)
18 th Street	TWSC	37 (E)	46 (E)	1 (A)	1 (A)	2 (A)
Gateway/Micah's Mission	TWSC	32 (D)	-	1 (A)	1 (A)	1 (A)
Micah's East Parking Lot	TWSC	23 (C)	-	3 (A)	1 (A)	2 (A)
21 st Street	TWSC	-	326 (F)	28 (D)	1 (A)	21 (C)
US 10	Signal	24 (C)	20 (B)	44 (D)	31 (C)	30 (C)

Delay represented in seconds per vehicle. Two-Way Stop-Control (TWSC) Intersection LOS calculated by highest delay minor approach.

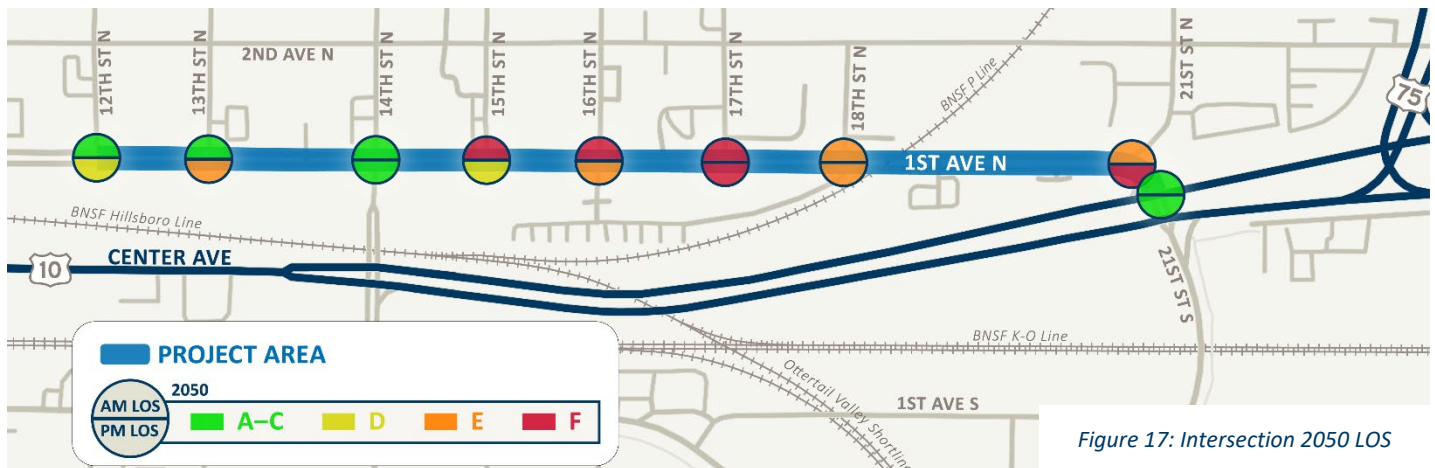


Figure 17: Intersection 2050 LOS

The minor approaches with LOS D or worse for No-Build 2050 conditions are:

- 12th Street North Leg (PM)
- 13th Street North Leg (PM) & South Leg (PM)
- 15th Street North Leg (PM) & South Leg (AM & PM)
- 16th Street North Leg (AM & PM) and South Leg (AM & PM)
- 17th Street North Leg (AM & PM)
- 18th Street North Leg (AM & PM) and South Leg (AM & PM)
- Gateway/Micah's Mission South Leg (AM & PM)
- Micah's Mission East Parking Lot South Leg (AM)
- 21st Street North Leg (AM & PM) and West Leg (PM)
- US 10 West Leg (PM)

Unacceptable delay due to increased mainline volume for the majority of TWSC intersections are mostly due to left-turning vehicles from the side street. Access management and intersection control changes were analyzed for recommendations across the corridor. If accesses and movements can be consolidated, traffic control can be improved for some intersections while still maintaining the mainline movements along the corridor.

INTERSECTION OPERATIONS ANALYSIS

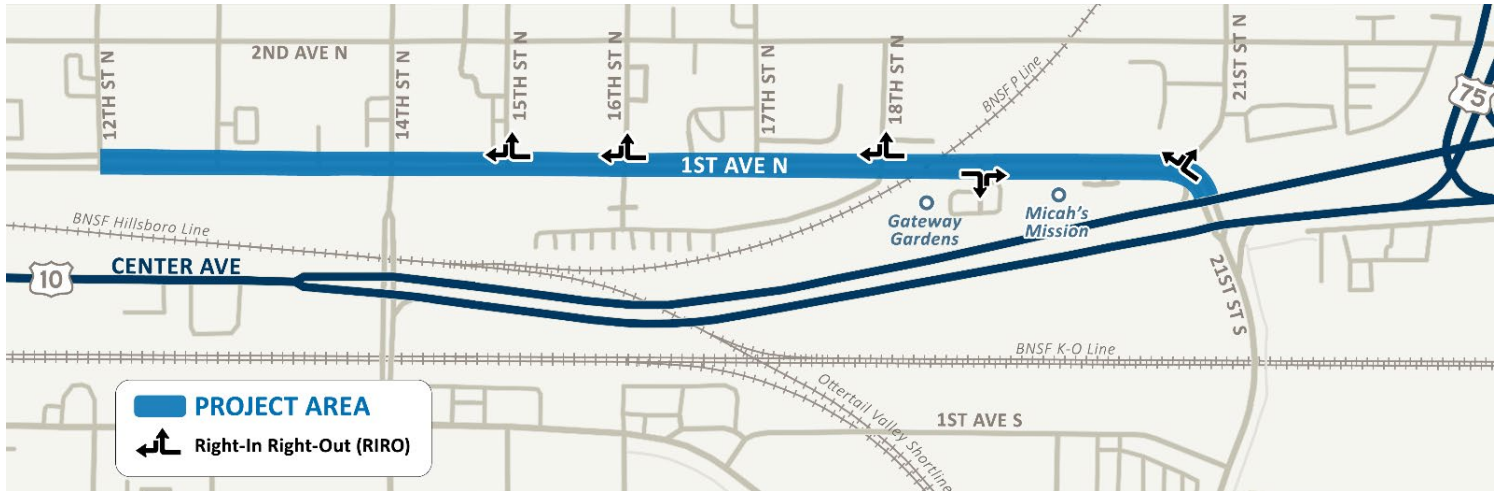
The intersection alternatives analysis focused on identifying strategies to address both existing and future operational and safety challenges along the 1st Avenue corridor while maintaining its role as a key east–west connection. Based on the 2050 No-Build analysis, several intersections were identified as having notable operational deficiencies, particularly at **15th Street, 16th Street, 17th Street, 18th Street, and 21st Street**. These locations experience significant delay on minor approaches and warrant further consideration for improvements.

Two primary categories of improvement strategies were evaluated: access management modifications and intersection control improvements.

Converting access to Right-In Right-Out (RIRO)

As shown in **Figure 18**, RIRO access reductions could be applied at 15th Street, 16th Street, 18th Street, Gateway Gardens, Micah's Mission, and 21st Street. Results would improve for the minor movements and not affect 1st Avenue through traffic, also diverting traffic to 17th Street to aid in meeting traffic signal warrants for 2050 forecasted volumes. RIRO access could be attained with the use of raised median islands instead of the center left-turn lane.

Figure 18: Right-In Right-Out



With potential RIRO access changes on the corridor, signal warrants were reanalyzed at 17th Street with additional volume being directed through the intersection from 16th, 18th and 21st Street if they were RIRO intersections. The reroutes add 730 vehicles a day, entering and exiting 17th Street. These vehicles provide enough volume to meet signal warrant 2 at 100% in 2050 and are shown in **Table 10**. Based on the volume growth assumptions and access revisions, signal warrants would not expect to be met until after 2045.

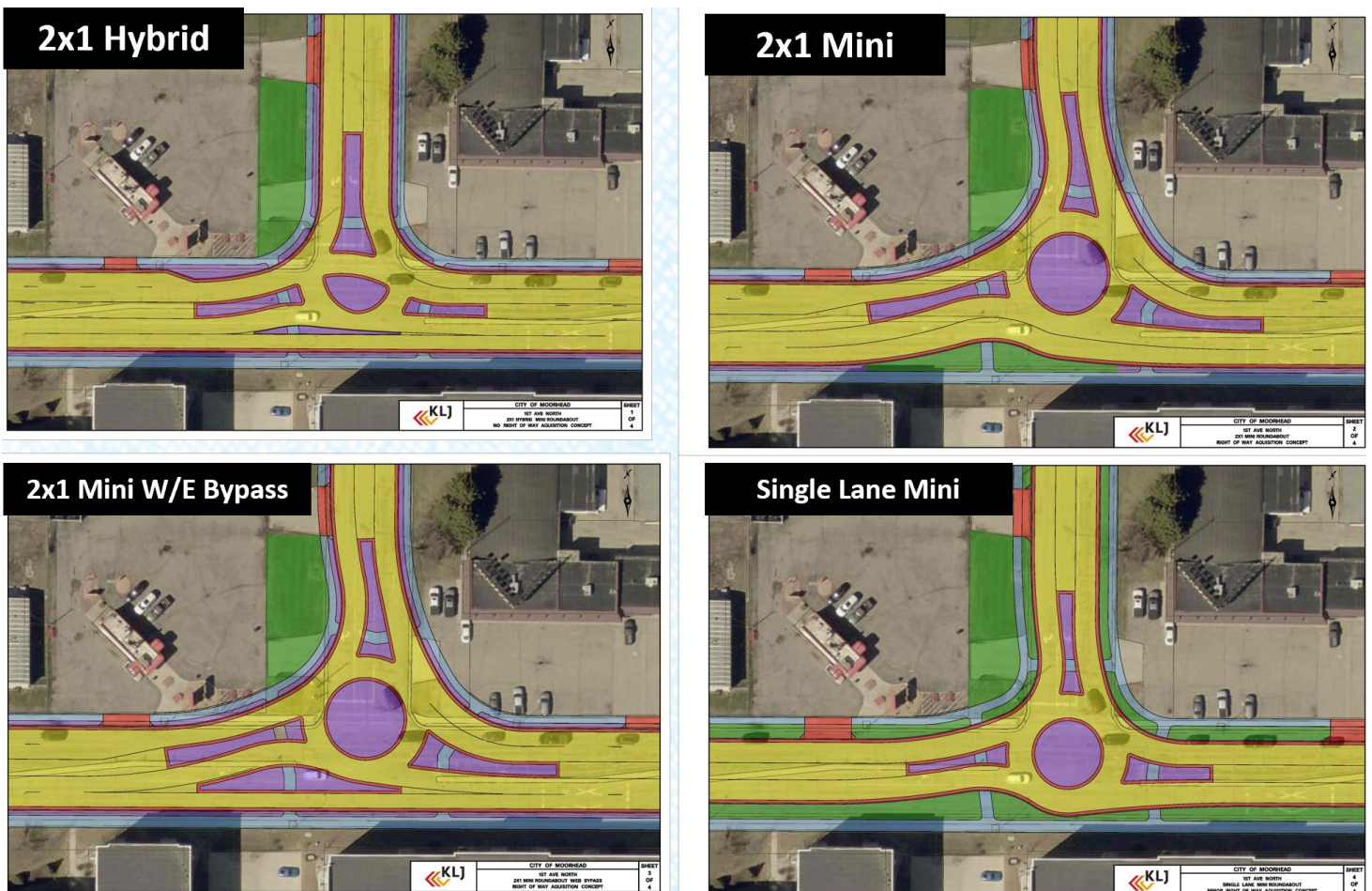
Table 10: 2026 & 2050 17th Street Reroute Signal Warrants

2026 SIGNAL WARRANTS	WARRANT 1A	WARRANT 1B	WARRANT 2	WARRANT 3	MWSA	MET?
17 th Street (80%)	0/8	5/8	0/8	0/8	0/8	No
17 th Street (100%)	0/8	1/8	0/4	0/1	0/8	No
2050 SIGNAL WARRANTS	WARRANT 1A	WARRANT 1B	WARRANT 2	WARRANT 3	MWSA	MET?
17 th Street (80%)	6/8	9/8	4/4	0/1	0/8	Yes
17 th Street (100%)	3/8	7/8	4/4	0/1	0/8	Yes

Roundabout Alternatives

17th Street did not meet existing signal warrants but could in the future. Any intersection control alternative at 17th Street would improve pedestrian access on the corridor. Four roundabout alternatives were considered at the intersection of 1st Avenue and 17th Street. The roundabout alternatives, shown in **Figure 19**, performed well operationally, but the right-of-way acquisition, public input, and corridor vision are challenges that would have to be addressed for the roundabout alternative to be successful. In all cases, each roundabout option came with significant potential right of way impacts and in other cases didn't meet the overall desired vision establish for the corridor. For these reasons, a roundabout option at 17th Street was dismissed.

Figure 19: 17th Street Roundabout Alternatives



Conclusions

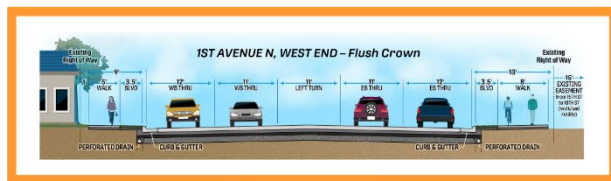
The City of Moorhead views 1st Avenue North as a primary connector route to downtown Moorhead. Although minor street intersection control alternatives (roundabout, RIRO access, etc.) have the potential to improve intersection LOS, they will also inhibit mainline 1st Avenue to fulfill its intended function. To facilitate 1st Avenue as the primary commuter route between downtown Fargo and downtown Moorhead, it is recommended utilizing a 5-lane corridor with limited raised medians to benefit the Moorhead community long term. 17th Street should still be monitored long-term after the completion of US 10 / US 75 improvements to determine if any north-south traffic patterns change after that regional project. 17th Street could also be designed with taking future signal alternatives into account, meaning the geometrical layout could be designed in a fashion that accommodates future signal poles and the installation of other amenities while minimizing the need for reconstruction.

CORRIDOR ALTERNATIVES

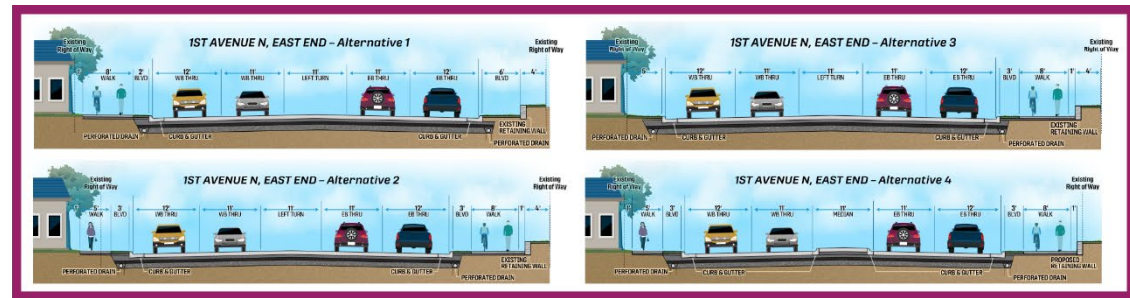
PROPOSED ALTERNATIVES

An initial set of design alternatives were made and shown to the businesses along the corridor in an initial phase of stakeholder engagement. The west side of the corridor, split at 17th Street, has one alternative. The east side of the corridor has four alternatives.

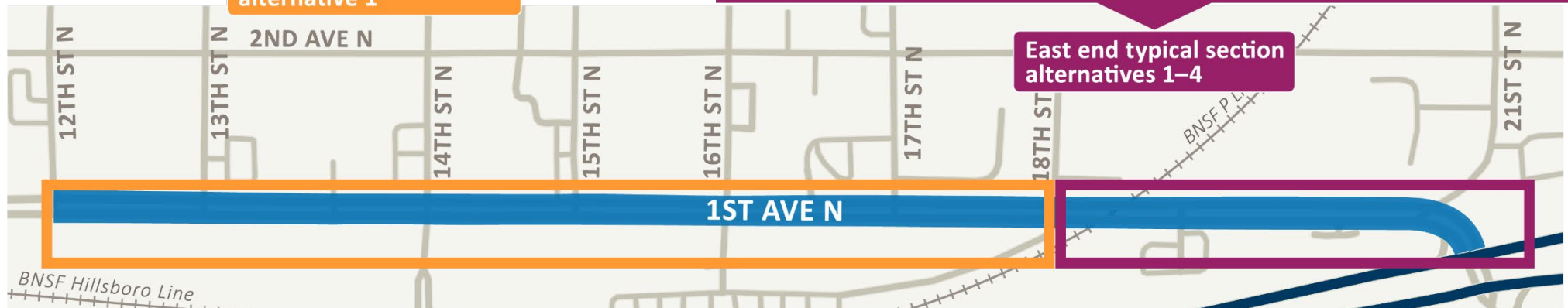
Figure 20: Corridor alternatives



West end typical section alternative 1



East end typical section alternatives 1-4



(see the following alternative discussions for full-size typical sections graphics)

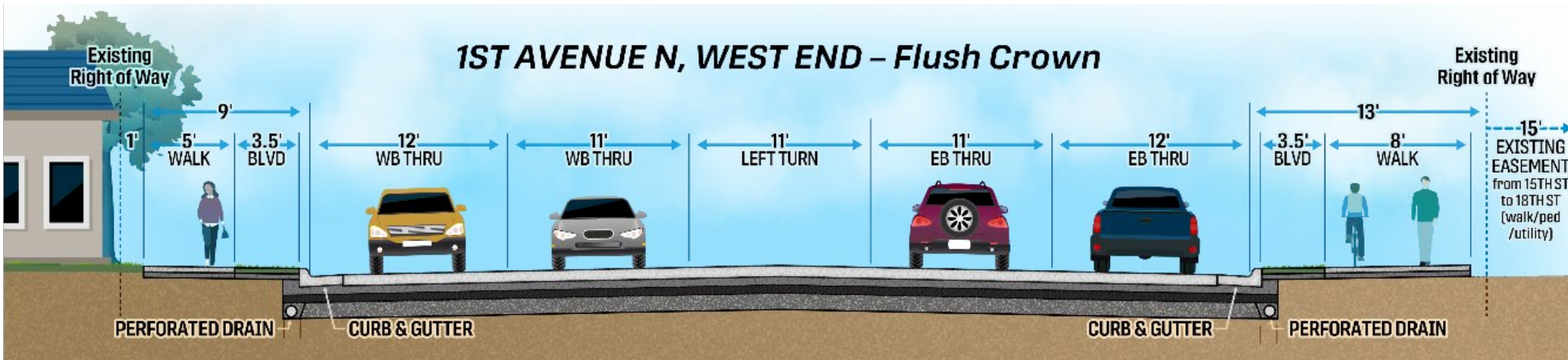


Figure 21: West Alternative 1 – Flush crown typical section

West Alternative 1 – Flush crown

From 12th Street to 17th Street, the initial proposed section has a 57-foot roadway width, a 13-foot off-road space on the south side, and a 9-foot off-road space on the north side. The existing traffic signal at 14th Street remains.

The roadway uses a five-lane design with two vehicular travel lanes in each direction and a center left turn lane. Different from the existing design, any existing raised median space is removed. The sidewalks on both sides of the road are separated from traffic by a 3.5-foot boulevard. The sidewalk on the south side of the street is 8 feet wide to accommodate pedestrian and bicyclist traffic while the north side is 5 feet wide for solely pedestrian traffic. This alternative is retained and will move further into preliminary design.

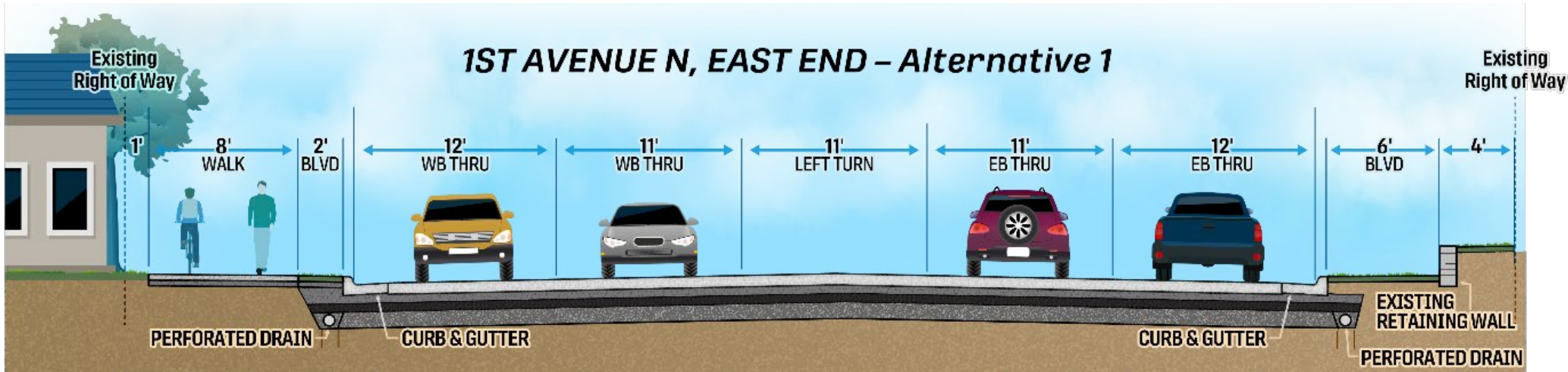


Figure 22: East Alternative 1 – North side sidewalk only typical section

East Alternative 1 – North side sidewalk only

In all east alternatives, the five-lane vehicular cross section is kept the same as the west side. In the first alternative, an expanded 8-foot sidewalk is proposed for the north side and the existing sidewalk on the south side is removed east of the railroad crossing and converted to a green boulevard. A 2-foot boulevard separating the sidewalk from the road is proposed on the north side. This alternative was dismissed from further consideration.

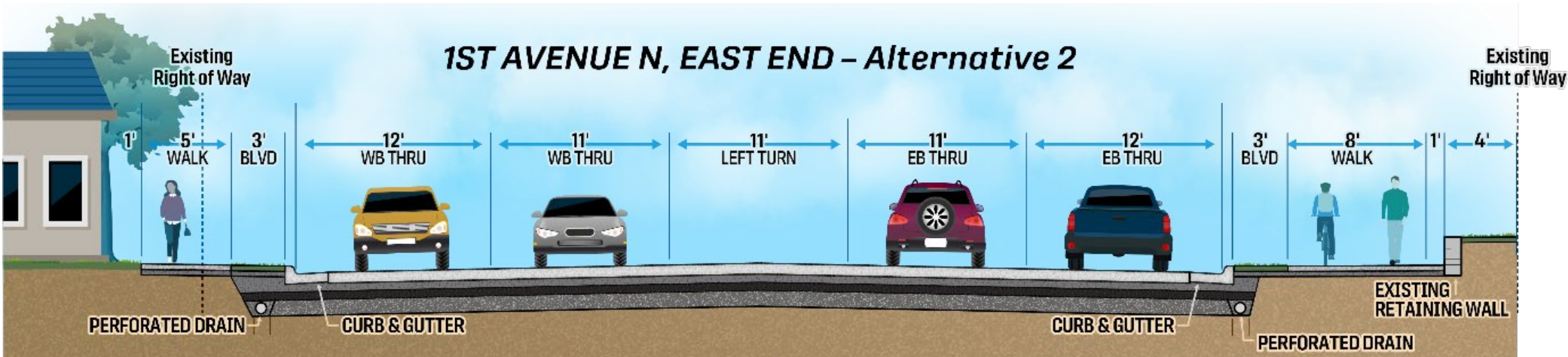


Figure 23: East Alternative 2 – Two sides sidewalk typical section

East Alternative 2 – Two sides sidewalk

In the second alternative, a sidewalk is kept on both sides of the street. The sidewalk widths on the north and south sides (5 and 8 feet respectively) are continued from the west side alternative. Additionally, the 3-foot boulevards are also kept through the corridor's design. This alternative was dismissed from further consideration.

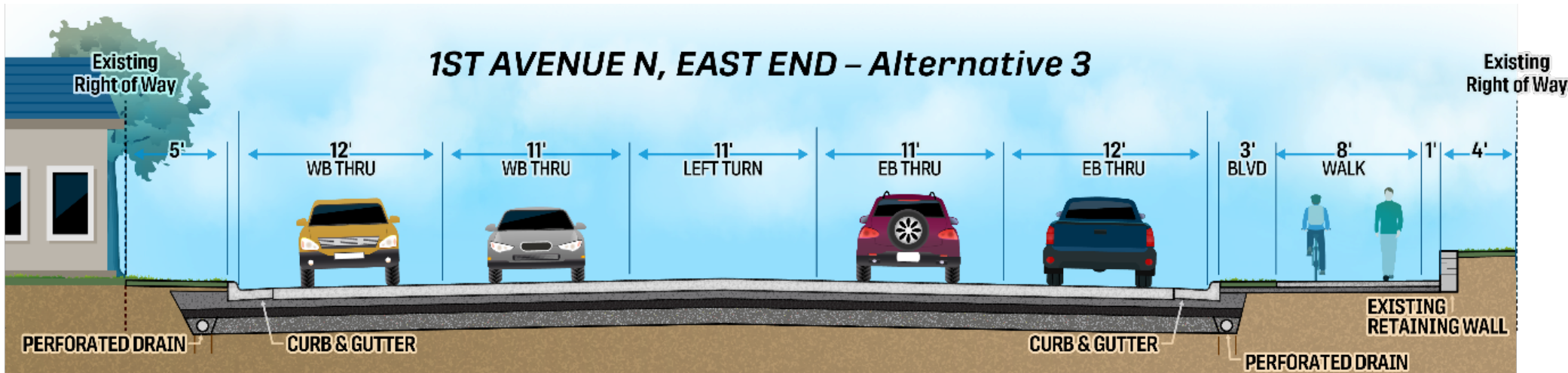


Figure 24: East Alternative 3 – South side sidewalk only typical section

East Alternative 3 – South side sidewalk only

The third east alternative provides a sidewalk on the south side of the street only. Pedestrian traffic on the north side crosses to the south side after the railroad tracks at the existing mid-block crossing. The sidewalk on the south side is 8 feet wide separated from traffic by a 3-foot green boulevard. This alternative was dismissed from further consideration.

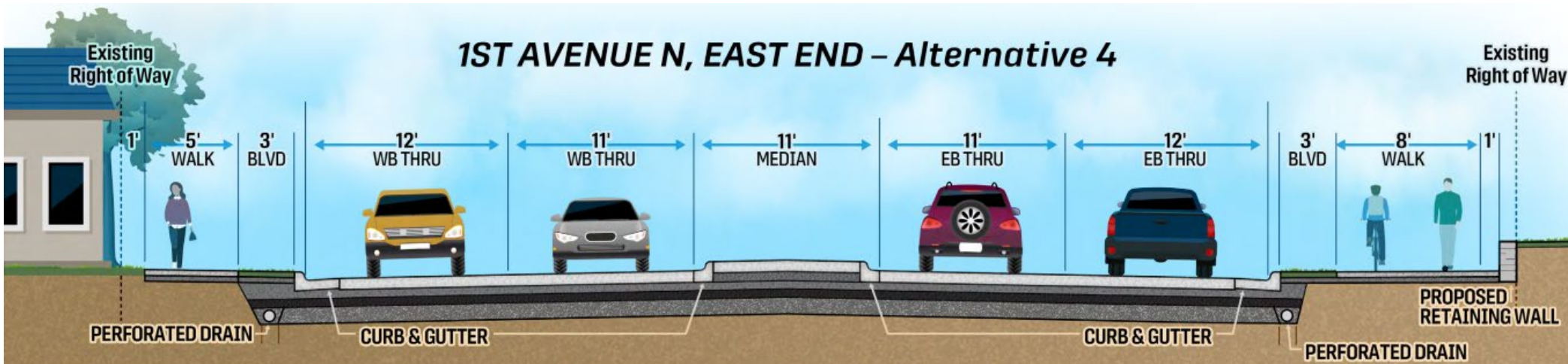


Figure 25: East Alternative 4 – Raised median typical section

East Alternative 4 – Raised median

The fourth east alternative provides a sidewalk on both sides of the street with a raised 11-foot median in the center. The existing midblock crossing east of the railroad tracks will be moved further east to more directly serve the Micah's Mission building and the Coca-Cola Bottling Facility. The raised median reduces the access to the south side driveways to right-in right-out (RIRO) only. In conversation with Micah's Mission, this option would coincide with the reconstruction of their front retaining wall and entrance area, separate from the 1st Avenue construction. This alternative is retained and will move further into preliminary design. Refer to **Appendix C** for detailed **Geometric Layout Exhibits**.

MULTIMODAL RECOMMENDATIONS

Core Design Philosophy

Vision: Preserve 1st Avenue's role as a key east–west corridor while systematically improving safety, access, and multimodal functionality through targeted, scalable, and consistent design interventions.

SAFETY FIRST (ALL USERS)

- Design for predictable, low-stress crossings for pedestrians and bicyclists. Evaluate the potential to reduce crossing distances with curb extensions and narrower side-street approaches (~32 ft).
- Provide frequent, visible crossings at key desire lines through enhanced treatments such as leading Pedestrian Intervals (LPI) and RRFBs at midblock crossings

MULTIMODAL CORRIDOR APPROACH

- Balance mobility and accessibility for all travel modes by treating 1st Avenue as a shared corridor for vehicles, pedestrians, bicyclists, and transit, maintain connectivity between mixed uses along the corridor. Incorporate wide sidewalks and buffered space where feasible.

TRANSIT-SUPPORTIVE DESIGN

- Enable reliable, frequent transit as the corridor evolves to support existing transit services and be prepared for bi-directional transit service. Add infrastructure where needed: Bus stop signage (north side where applicable), durable bus pads and space for shelters/amenities.

ACCESS MANAGEMENT

- Reduce turning conflicts and improve operations without reducing capacity, by consolidating driveways as redevelopment occurs and relocate or remove access near intersections. Where feasible, consider right-in/right-out (RIRO) configurations.

BICYCLE INTEGRATION

- Support everyday bike trips not just recreational use by providing continuous, safe connections through intersections. Add bike parking at key nodes: transit stops, commercial destinations and residential areas.

STREETSCAPE & PLACEMAKING

- Create a corridor that supports economic activity and community identity, by incorporating street trees and landscaping and green or paved boulevards as buffers. Partner with property owners for enhancements outside of the right of way that improve aesthetics along the corridor.

CONSISTENCY ACROSS CORRIDOR

- Consistency improves safety and reduces user confusion. Apply standardized elements: such crosswalk markings at all intersections, consistent boulevard treatments, and predictable intersection design.

Spot Specific Recommendations

11TH STREET

- The signal system should be evaluated to add Leading Pedestrian Intervals (LPI), which allow a pedestrian to enter the intersection 3 to 7 seconds before vehicles are given a green.

12TH/13TH STREETS

- Include a mid-block crossing between 12th Street and 13th Street.
- If existing transit service is made bi-directional, transit infrastructure (like signage) is needed on the north side of 1st Avenue at 12th Street.
- Additional bike parking should be considered in this area as parcels are redeveloped.

14TH STREET

- The signal system should be evaluated to add Leading Pedestrian Intervals (LPI), which allow a pedestrian to enter the intersection 3 to 7 seconds before vehicles are given a green.

15TH STREET

- If existing transit service is made bi-directional, transit infrastructure (like signage) is needed on the north side of 1st Avenue at 15th Street.
- With the presence of a transit stop and Junkyard Brewing Company, a major destination on the corridor, additional bike parking should be considered at this intersection.
- To facilitate bicycle and pedestrian traffic on the upcoming, a midblock crossing should be installed between 15th and 16th Street.

- The city should consider engaging with adjacent landowners about landscaping easements or agreements. In the short-term, there is one underutilized green area that can benefit from the addition of trees, shrubs, and other foliage: 15th Street N.

Figure 26: 1st Avenue at 15 Street N looking northeast



17TH STREET

- If existing transit service is made bi-directional, transit infrastructure (like signage) is needed on the north side of 1st Avenue at 17th Street.
- With the presence of The Grove Apartments, Burger Time, and a transit stop, bike parking should be considered in proximity to this intersection.
- 17th Street should be monitored long-term after the completion of US 10 / US 75 improvements to determine if any north/south traffic patterns change after that regional project to address any potential LOS concerns.

EAST OF 18TH STREET

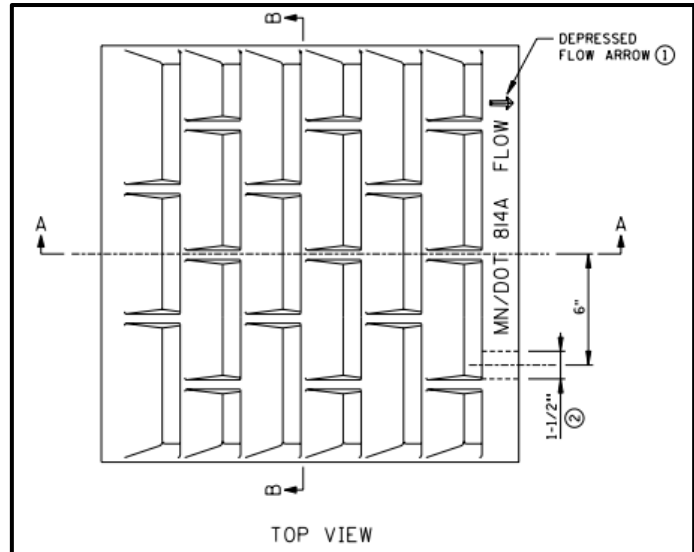
- If existing transit service is made bi-directional, transit infrastructure (like signage) is needed on the north side of 1st Avenue at 21st Street.
- With the presence of Micah's Mission, Gateway Gardens, and a transit stop, bike parking should be considered in this area.
- To facilitate bicycle and pedestrian a midblock crossing should be installed between east of the railroad in proximity to Micah's Mission.
- Continued collaboration with MnDOT should also continue for the future design and reconstruction of the intersection of US 10 and 21st Street. Pedestrian and bicyclist travel should be included to cross the highway.

- It is understood that the city wants to maintain eastbound left turn access to 21st Street from 1st Avenue. To make for more comfortable east-west pedestrian crossing, the 120-foot approach to the north leg should be narrowed, especially on the west side.

CORRIDOR-WIDE CONSIDERATIONS

- Utilize bicycle safe storm sewer inlet grate styles (MnDOT Standard Plates 4154 [Grate Casting 816] & 4152 [Grate Casting 814])
- Pave the 3-foot boulevard between the widened sidewalk and the road for better maintenance and increased multimodal space.
- Concrete bus pads should be considered at existing and future transit stops. Bus pads are a sturdier pavement section and design compared to the regular roadway and lessen road damage over time due to buses' heavier weight.

Figure 27: Top view of catch basin grate casting from MnDOT Standard Plate 4152C



- All of the remaining driveway access recommendations from the 2008 1st Avenue Corridor Study affect existing business and commercial operations. As properties redevelop, the city should consider consolidating driveway accesses across the corridor and its side streets to reduce vehicular and non-vehicular traffic conflicts.
- If the boulevard on the south side of the road remains 3 feet wide, it should be paved (preferably with pavers or other colored pavement) to provide a safer pathway for cyclists and for ease of maintenance for the city's operations staff.
- The proposed midblock islands can be narrowed from 11 feet to the minimum 6 feet to create curb extensions on each side of the street (each 2.5 feet wide). These extensions do not change the width of the thru lanes and thus should not conflict with the Minnesota State Aid Standards, which 1st Avenue must follow.
- If the city wants to position 1st Avenue N as a bike route to funnel bicycle trips in and out of downtown, crosswalk markings should be considered at the intersection of each street, and the stop sign (if applicable) should be moved in front of the trail. This prevents the initial drivers' stop from covering the bikeable area and endangering riders.

Figure 28 summarizes a broad range of multimodal concepts and considerations for 1st Avenue North. Some of these recommendations have been integrated into the concept alternatives developed for the planning study, which are illustrated in the **figures on page 51– 56**. Additional analysis and consideration will be given to these recommendations as project moves further into the design phase.

Figure 28: Future multimodal recommendations

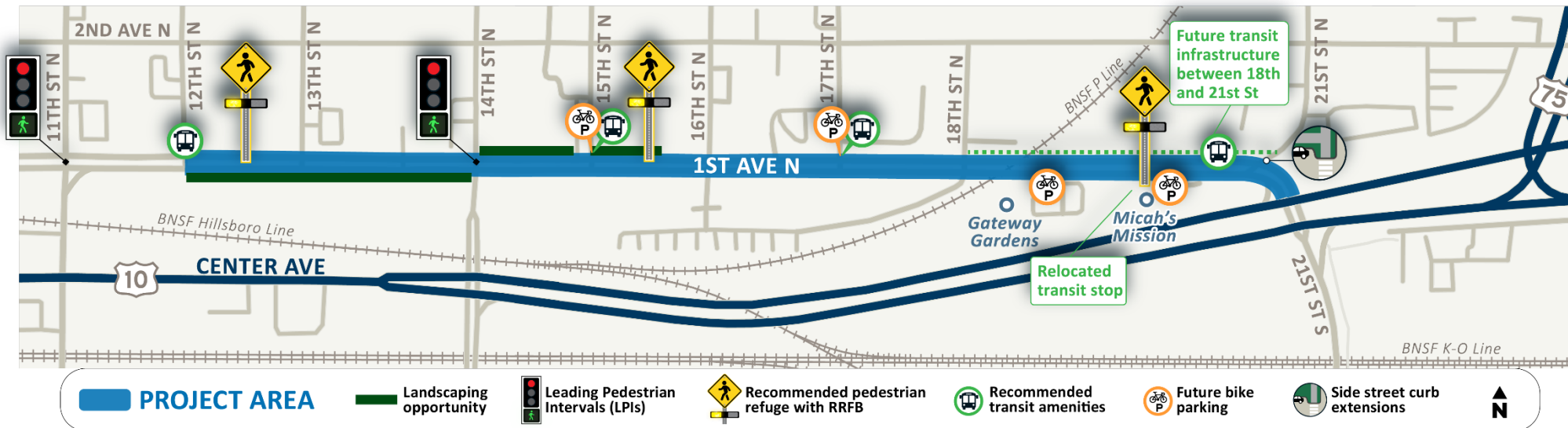


Figure 29: Birds-eye view of proposed improvements for 13th to 14th Street



Figure 30: Street view of proposed improvements at 13th Street looking West



Figure 31: Birds-eye view of proposed improvements for 14th to 17th Street



Figure 32: Street view of proposed improvements mid-block between 15th and 16th Street looking West



Figure 33: Birds-eye view of proposed improvements for 18th to 21st Street



Figure 34: Street view of proposed improvements near Micah's Mission looking West





APPENDIX A – DETAILED CRASH DATA

Intersection Safety Screening

Intersection: 1st Ave & 14th Street

Statewide Averages based on 2020-2024 crashes

Crashes by Crash Severity	
Fatal (K)	0
Incapacitating Injury (A)	0
Minor Injury (B)	0
Possible Injury (C)	2
Property Damage (PDO)	0
Total Crashes	2

Intersection Characteristics	
Entering Volume	12,683
Environment	Urban
Lighting	Lit
Traffic Control	Signal

Annual crash cost = \$52,000

Statewide comparison = Signal, Low Volume (<=20K)

Total Crash Rate	
Observed	0.086
Statewide Average	0.499
Critical Rate	0.900
Critical Index	0.10

Fatal & Serious Injury Crash Rate	
Observed	0.000
Statewide Average	0.945
Critical Rate	5.690
Critical Index	0.00

The observed crash rate is the number of crashes per million entering vehicles (MEV). The critical rate is a statistical comparison based on similar intersections statewide. An observed crash rate greater than the critical rate indicates that the intersection operates outside the expected, normal range. The critical index reports the magnitude of this difference (i.e. observed crash rate ÷ critical crash rate).

The observed total crash rate for this period is 0.09 per MEV; this is 90% below the critical rate. Based on similar statewide intersections, an additional 19 crashes over the five years would indicate this intersection operates outside the normal range.

The observed fatal and serious injury crash rate for this period is 0.00 per 100 MEV; this is 100% below the critical rate. The intersection operates within the normal range.

Intersection Safety Screening

Intersection: 1st Ave & 17th Street

Statewide Averages based on 2020-2024 crashes

Crashes by Crash Severity		Intersection Characteristics	
Fatal (K)	0	Entering Volume	11,150
Incapacitating Injury (A)	0	Environment	Urban
Minor Injury (B)	1	Lighting	Lit
Possible Injury (C)	0	Traffic Control	Thru-Stop
Property Damage (PDO)	0		
Total Crashes	1		

Annual crash cost = \$50,000

Statewide comparison = Thru/STOP, Urban

Total Crash Rate		Fatal & Serious Injury Crash Rate	
Observed	0.049	Observed	0.000
Statewide Average	0.151	Statewide Average	0.415
Critical Rate	0.400	Critical Rate	4.700
Critical Index	0.12	Critical Index	0.00

The observed crash rate is the number of crashes per million entering vehicles (MEV). The critical rate is a statistical comparison based on similar intersections statewide. An observed crash rate greater than the critical rate indicates that the intersection operates outside the expected, normal range. The critical index reports the magnitude of this difference (i.e. observed crash rate ÷ critical crash rate).

The observed total crash rate for this period is 0.05 per MEV; this is 88% below the critical rate. Based on similar statewide intersections, an additional 8 crashes over the five years would indicate this intersection operates outside the normal range.

The observed fatal and serious injury crash rate for this period is 0.00 per 100 MEV; this is 100% below the critical rate. The intersection operates within the normal range.

Intersection Safety Screening

Intersection: 1st Ave & 21st Street

Statewide Averages based on 2020-2024 crashes

Crashes by Crash Severity		Intersection Characteristics	
Fatal (K)	0	Entering Volume	10,510
Incapacitating Injury (A)	0	Environment	Urban
Minor Injury (B)	0	Lighting	Lit
Possible Injury (C)	0	Traffic Control	Thru-Stop
Property Damage (PDO)	1		
Total Crashes	1		

Annual crash cost = \$3,000

Statewide comparison = Thru/STOP, Urban

Total Crash Rate		Fatal & Serious Injury Crash Rate	
Observed	0.052	Observed	0.000
Statewide Average	0.151	Statewide Average	0.415
Critical Rate	0.410	Critical Rate	4.900
Critical Index	0.13	Critical Index	0.00

The observed crash rate is the number of crashes per million entering vehicles (MEV). The critical rate is a statistical comparison based on similar intersections statewide. An observed crash rate greater than the critical rate indicates that the intersection operates outside the expected, normal range. The critical index reports the magnitude of this difference (i.e. observed crash rate ÷ critical crash rate).

The observed total crash rate for this period is 0.05 per MEV; this is 87% below the critical rate. Based on similar statewide intersections, an additional 7 crashes over the five years would indicate this intersection operates outside the normal range.

The observed fatal and serious injury crash rate for this period is 0.00 per 100 MEV; this is 100% below the critical rate. The intersection operates within the normal range.

Intersection Safety Screening

Intersection: 1st Ave & US 10

Statewide Averages based on 2020-2024 crashes

Crashes by Crash Severity	
Fatal (K)	0
Incapacitating Injury (A)	0
Minor Injury (B)	0
Possible Injury (C)	0
Property Damage (PDO)	8
Total Crashes	8

Intersection Characteristics	
Entering Volume	25,449
Environment	Urban
Lighting	Lit
Traffic Control	Signal

Annual crash cost = \$24,000

Statewide comparison = Signal, Low Volume (<=20K)

Total Crash Rate	
Observed	0.172
Statewide Average	0.499
Critical Rate	0.780
Critical Index	0.22

Fatal & Serious Injury Crash Rate	
Observed	0.000
Statewide Average	0.945
Critical Rate	3.850
Critical Index	0.00

The observed crash rate is the number of crashes per million entering vehicles (MEV). The critical rate is a statistical comparison based on similar intersections statewide. An observed crash rate greater than the critical rate indicates that the intersection operates outside the expected, normal range. The critical index reports the magnitude of this difference (i.e. observed crash rate ÷ critical crash rate).

The observed total crash rate for this period is 0.17 per MEV; this is 78% below the critical rate. Based on similar statewide intersections, an additional 29 crashes over the five years would indicate this intersection operates outside the normal range.

The observed fatal and serious injury crash rate for this period is 0.00 per 100 MEV; this is 100% below the critical rate. The intersection operates within the normal range.

1st Avenue (Crash Data 2021-2025)
Moorhead, MN

Years of Crash Data =

5

Needed Data =

Intersection Crash Statistics

XXX = StreetLight AADTs

Intersection	TCD	AADT				Max SL	Years of Crash Data	Million Entering Vehicles	Total Crashes	K	A	B	C	N
										Crash Severity				
		N	S	E	W					K	A	B	C	PD
12 th Street	TWSC	789	-	10013	10436	30	5	19.4	0	0	0	0	0	0
13 th Street	TWSC	402	244	10057	10014	30	5	18.9	0	0	0	0	0	0
14 th Street	Signal	2709	2611	9988	10058	30	5	23.2	2	0	0	0	2	0
15 th Street	TWSC	407	336	9999	9988	30	5	18.9	0	0	0	0	0	0
16 th Street	TWSC	448	776	10187	9999	30	5	19.6	0	0	0	0	0	0
Burger Time Access	TWSC	488	-	10289	10288	30	5	19.2	0	0	0	0	0	0
17 th Street	TWSC	3060	-	9800	9440	30	5	20.4	1	0	0	1	0	0
18 th Street	TWSC	137	300	11009	10780	30	5	20.3	0	0	0	0	0	0
Gateway/Micah's Mission	TWSC	-	224	11034	11034	30	5	20.4	0	0	0	0	0	0
Micah's East Parking Lot	TWSC	-	188	11109	11072	30	5	20.4	0	0	0	0	0	0
21 st Street	TWSC	1010	-	10060	9950	30	5	19.2	1	0	0	0	0	1
US 10	Signal	11794	15106	19094	4904	30	5	46.5	8	0	0	0	0	8
									12	0	0	1	2	9

Corridor Crash Statistics

1.196

Segment	Segment Type	AADT	Miles	Max SL	Years of Crash Data	VMT per million	Total Crashes	<i>K</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>N</i>
								K	A	B	C	PD
1st Avenue	Urban 2-Lane AADT 5000-7998	10000	0.69	30	5	12.5	1	0	0	0	0	1
TOTAL		10000	0.69		5	12.5	1	0	0	0	0	1



APPENDIX B – PUBLIC ENGAGEMENT MATERIALS



Press Release

**CITY OF
MOORHEAD**

PROPERTY
SERVICES

PARKS &
REC

EMERGENCY
SERVICES

STREETS &
TRANSIT

BUSINESS &
DEVELOPMENT

GOVERNMENT

How Do I... 



NEWS RELEASE

MOORHEAD
MINNESOTA

Media Coverage

Who	When	Link
City of Moorhead Press Release	March 24, 2026	https://www.moorheadmn.gov/news/posts/city-invites-public-feedback-on-1-ave-n-study/
InForum	March 25, 2026	https://www.inforum.com/news/moorhead/moorhead-seeks-input-on-first-avenue-project
FmXtra	March 26, 2026	https://www.thefmextra.com/klj-city-of-moorhead-open-to-1st-avenue-north-corridor-ideas/ 
KRVV	March 25, 2026	https://www.kvrr.com/2026/03/25/city-of-moorhead-asks-residents-for-feedback-on-upcoming-1st-avenue-project/
The Valley	March 25, 2026	https://www.valleynewslive.com/2026/03/25/moorhead-seeks-public-input-1st-ave-n-rebuild/

Social Media Coverage

Who	When	Link
City of Moorhead Facebook	March 25, 2026	https://www.facebook.com/cityofmoorhead/posts/the-city-of-moorhead-invites-public-feedback-on-the-1-ave-n-corridor-study-from-/1364794815691984/
Fm Extra Facebook	March 27, 2026	https://www.facebook.com/theextranewspaper
City of Moorhead Instagram	March 25, 2026	https://www.instagram.com/p/DWT5IcUgimy/
InForum Facebook Page	March 25, 2026	https://www.facebook.com/inforumFM/posts/moorhead-is-studying-upgrades-to-first-ave-n-including-safety-traffic-flow-and-p/1429408969199075/
Valley News Live	March 25, 2026	https://www.facebook.com/ValleyNewsLive/posts/changes-could-be-coming-to-1st-avenue-north-in-moorhead-the-city-is-seeking-the-/1388683346624379/

Facebook Comment Themes

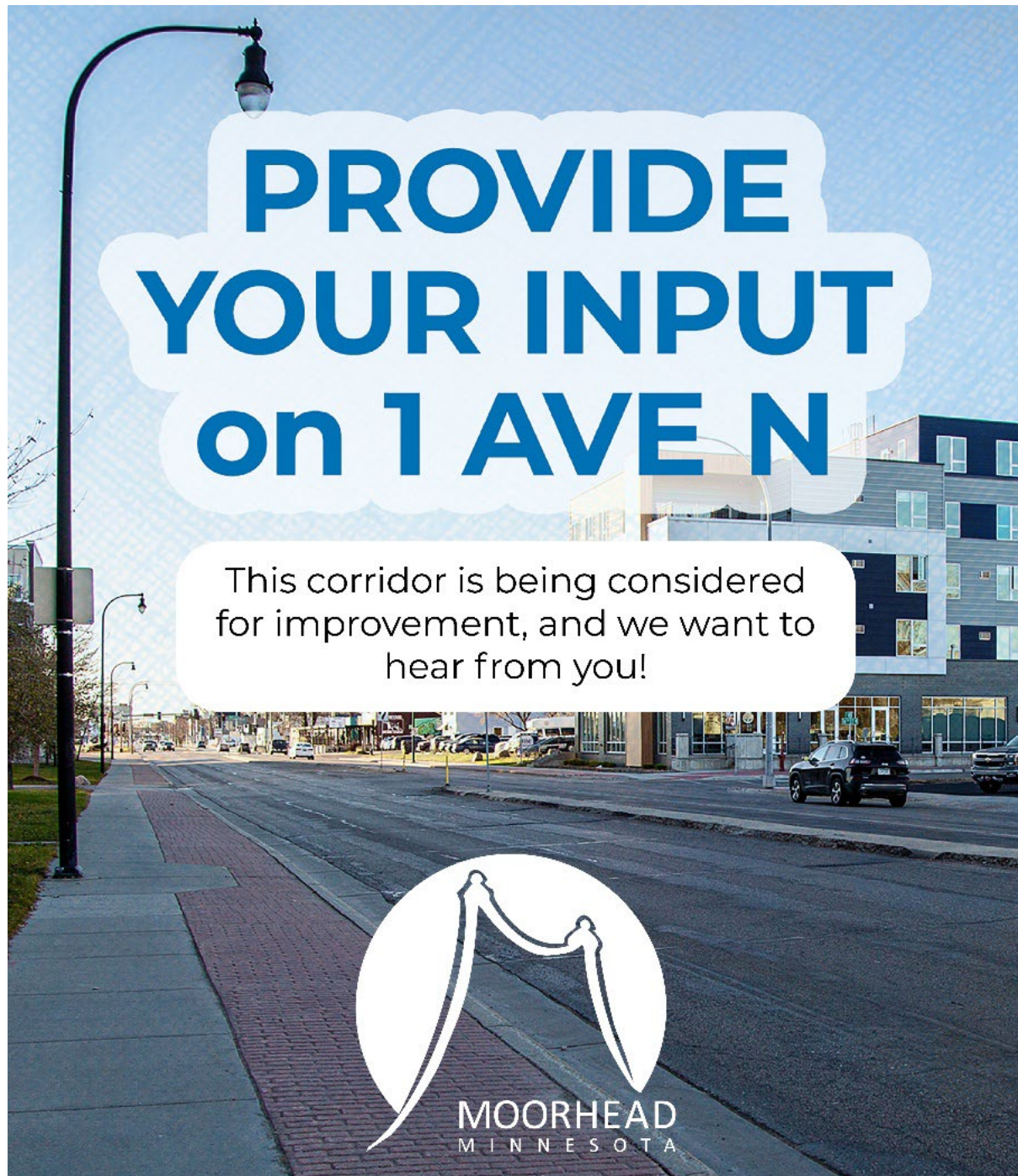
CITY OF MOORHEAD FB PAGE THEMES

- There should not be a reduction to one lane
- There is no need for any roundabouts
- Keep all 4 lanes
- Concerns about 8th Street
- Resurface the whole Street and "leave it alone."
- There is distrust of the feedback process, and Moorhead will "do whatever it wants."
- More opportunities for pedestrian crossings

VALLEY NEWS FB PAGE THEMES

- Frustration with the timeline for the 1st Avenue North closure. "Why wasn't the work completed during the underpass project?"
- "Fixing" 8th Street first
- "Resurface and leave it alone."
- Keeping 4 lanes
- Distrust the construction process, and "1st Avenue north will be ruined like Main."
- Concerns for business along 1st Avenue North

Social Media Graphic



FmXtra Advertisement

MOORHEAD
MINNESOTA

1st Avenue North

PLANNING AND PRELIMINARY ENGINEERING

Ongoing redevelopment, revitalization, and deteriorating pavement conditions along the 1st Avenue North corridor in Moorhead has prompted the need for a study to evaluate conditions along the corridor **from 12th Street North to Center Avenue (Hwy 10)**. The initial phase of the study will focus on gathering public input on needs and issues along the corridor. Your input will be utilized to develop roadway concepts. Timing of future improvements is dependent on funding.

PUBLIC INPUT

Please visit the website for the latest project information and share your comments directly on the interactive comment map. Your participation helps guide the future of the corridor.

inputcentral.com/moorhead-1st-avenue-corridor-study

 **Contact:**
jamie.olson@kljeng.com

 **Website:**
inputcentral.com/moorhead-1st-avenue-corridor-study

SCAN ME 



APPENDIX C – COST ESTIMATES & GEOMETRIC LAYOUT EXHIBITS



**2026 CORRIDOR STUDY
1ST AVENUE N - MOORHEAD, MN
CONCEPTUAL COST ESTIMATE**

NOTE	ITEM NO.	ITEM DESCRIPTION	UNITS	ESTIMATED QUANTITY	UNIT BID PRICE	ESTIMATED PRICE
1	2104.502	REMOVE MANHOLE	EACH	5	\$740.00	\$3,700.00
2	2104.502	REMOVE DRAINAGE STRUCTURE	EACH	25	\$650.00	\$16,250.00
	2104.502	REMOVE SIGNAL SYSTEM	EACH	1	\$15,000.00	\$15,000.00
2	2104.503	REMOVE SEWER PIPE (STORM)	LIN FT	1,224	\$20.00	\$24,480.00
	2104.503	REMOVE CURB & GUTTER	LIN FT	6,662	\$6.00	\$39,972.00
	2104.504	REMOVE CONCRETE MEDIAN	SQ YD	1,929	\$9.00	\$17,361.00
	2104.504	REMOVE CONCRETE WALK	SQ YD	4,437	\$10.00	\$44,370.00
	2104.504	REMOVE PAVEMENT	SQ YD	20,096	\$8.00	\$160,768.00
	2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT	SQ YD	768	\$14.00	\$10,752.00
	2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	16,822	\$16.00	\$269,152.00
	2112.519	SUBGRADE PREPARATION 6"-12"	ROAD STA	36	\$590.00	\$21,240.00
4	2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	5,236	\$65.00	\$340,340.00
4	2301.504	CONCRETE PAVEMENT 7.5"	SQ YD	19,770	\$100.00	\$1,977,000.00
	2502.503	4" PERF PE PIPE DRAIN	LIN FT	7,200	\$14.00	\$100,800.00
2	2503.503	12" RC PIPE SEWER DES 3006 CL III	LIN FT	840	\$70.00	\$58,800.00
2	2503.503	24" RC PIPE SEWER DES 3006 CL III	LIN FT	360	\$110.00	\$39,600.00
3	2504.602	ADJUST HYDRANT	EACH	9	\$2,200.00	\$19,800.00
3	2504.602	ADJUST GATE VALVE & BOX	EACH	9	\$650.00	\$5,850.00
3	2504.602	ADJUST CURB STOP	EACH	36	\$330.00	\$11,880.00
2	2506.502	CONST DRAINAGE STRUCTURE DES 48-4020	EACH	25	\$8,000.00	\$200,000.00
2	2506.502	CONST DRAINAGE STRUCTURE DES 60-4020	EACH	5	\$9,100.00	\$45,500.00
1	2506.502	ADJUST FRAME & RING CASTING	EACH	14	\$840.00	\$11,760.00
4	2521.518	4" CONCRETE WALK	SQ FT	35,059	\$10.00	\$350,590.00
4	2521.518	4" CONCRETE WALK SPECIAL	SQ FT	18,402	\$19.00	\$349,638.00
4	2521.518	6" CONCRETE WALK	SQ FT	1,846	\$15.00	\$27,690.00
4	2531.503	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	6,651	\$45.00	\$299,295.00
4	2531.503	CONCRETE CURB & GUTTER DESIGN V612	LIN FT	2,167	\$40.00	\$86,680.00
4	2531.504	CONCRETE MEDIAN	SQ YD	1,017	\$85.00	\$86,445.00
4	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	804	\$86.00	\$69,144.00
	2531.618	TRUNCATED DOMES	SQ FT	416	\$62.00	\$25,792.00
3	2545.602	ADJUST HANDHOLE	EACH	18	\$670.00	\$12,060.00
	2565.516	TRAFFIC CONTROL SIGNAL SYSTEM	SYSTEM	1	\$500,000.00	\$500,000.00
	2545.501	LIGHTING SYSTEM	LUMP SUM	1	\$400,000.00	\$400,000.00
	2021.501	MOBILIZATION (5%)	LUMP SUM	1	\$325,000.00	\$325,000.00
	2540.601	RAILROAD CROSSING (7%)	LUMP SUM	1	\$475,000.00	\$475,000.00
	2563.601	TRAFFIC CONTROL (2%)	LUMP SUM	1	\$135,000.00	\$135,000.00
	2564.901	SIGNAGE (0.5%)	LUMP SUM	1	\$35,000.00	\$35,000.00
	2575.901	EROSION CONTROL (1.0%)	LUMP SUM	1	\$70,000.00	\$70,000.00
	2582.503	PAVEMENT MARKINGS (1.5%)	LUMP SUM	1	\$100,000.00	\$100,000.00

NOTES:

1. ASSUMED REPLACING 5 MANHOLES DUE TO UNKNOWN CONDITIONS; REMAINING MANHOLES REQUIRE SURFACE ADJUSTMENTS.
2. ASSUMED REPLACING 1 BLOCK OF MAINLINE AND ALL INLET CONNECTIONS.
3. ASSUMED FOLLOWING # PER BLOCK: HYDRANT = 1, VALVE = 1, CURB STOP = 4, HANDHOLE = 2
4. PROPOSED SURFACING QUANTITIES BASED ON PROPOSED FLUSH MEDIAN CONFIGURATION.
5. MUNICIPAL UTILITIES AND EXISTING LINework DELINEATIONS BASED ON GIS SHAPE FILES AND AERIAL TRACING.
6. BID PRICES REFLECT MnDOT YEAR 2024 ESTIMATED CONSTRUCTION COST; INCLUDED TOTAL 6% INFLATION FACTOR.
7. ENGINEER'S ESTIMATE FOR APPLICATION PURPOSES ONLY; DETAILED COST ESTIMATE WILL BE DEVELOPED IN FINAL DESIGN.

SUBTOTAL

\$6,781,709.00

CONTINGENCY 10%

\$678,171.00

TOTAL

\$7,459,880.00



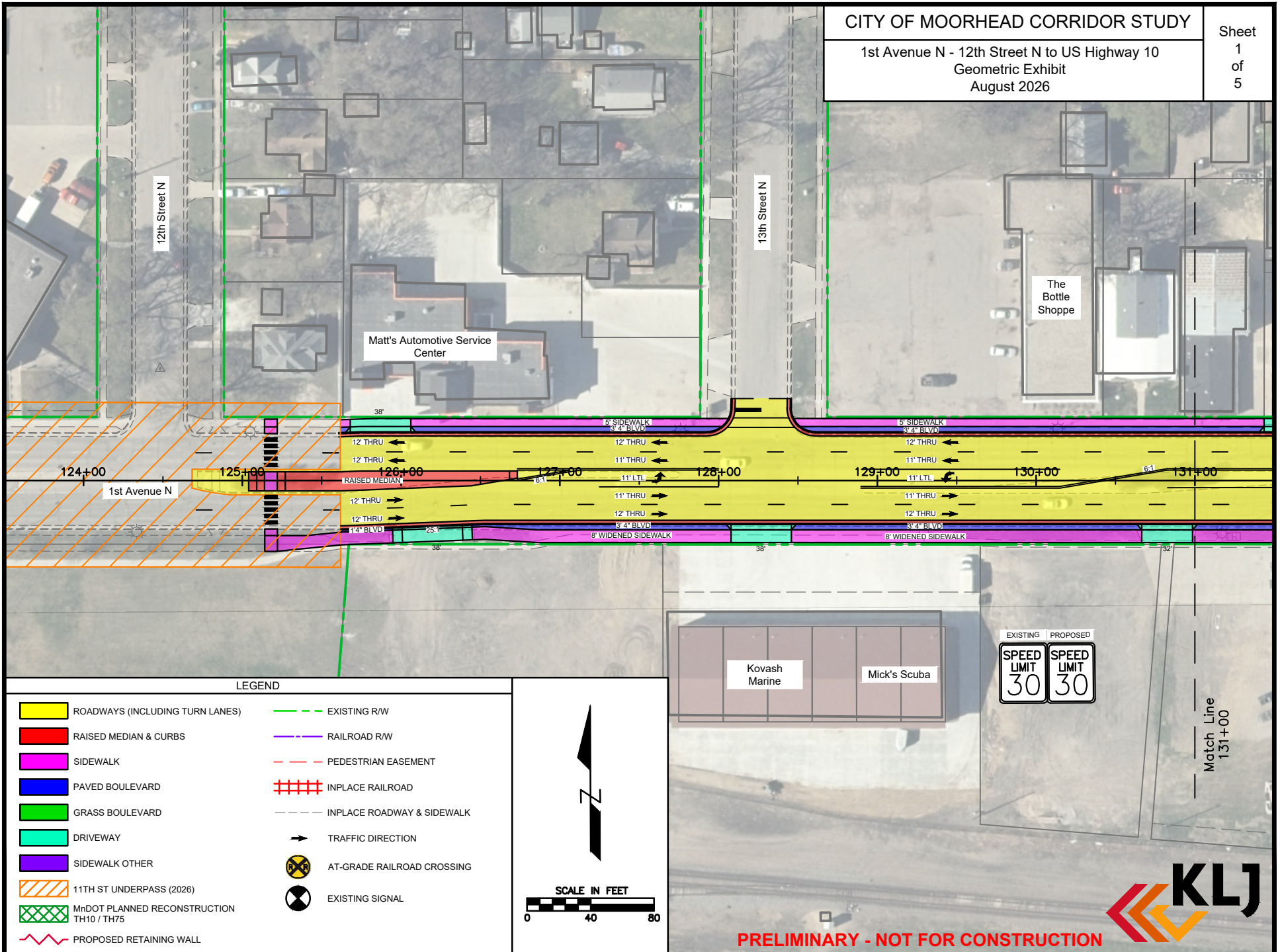
**MICAH'S MISSION RETAINING WALL
1ST AVENUE N - MOORHEAD, MN
CONCEPTUAL COST ESTIMATE**

NOTE	ITEM NO.	ITEM DESCRIPTION	UNITS	ESTIMATED QUANTITY	UNIT BID PRICE	ESTIMATED PRICE
	2104.503	REMOVE CONCRETE RETAINING WALL	LIN FT	365	\$77.00	\$28,105.00
	2104.503	REMOVE ORNAMENTAL RAILING	LIN FT	210	\$15.00	\$3,150.00
	2104.504	REMOVE CONCRETE WALK	SQ YD	318	\$10.00	\$3,180.00
	2104.601	REMOVE MISCELLANEOUS STRUCTURES	LUMP SUM	1	\$5,000.00	\$5,000.00
	2401.508	REINFORCEMENT BARS	POUND	6,743	\$1.50	\$10,114.50
	2401.508	REINFORCEMENT BARS (EPOXY COATED)	POUND	21,851	\$2.00	\$43,702.00
	2411.507	STRUCTURAL CONCRETE (1G52)	CU YD	78	\$650.00	\$50,700.00
	2411.507	STRUCTURAL CONCRETE (3G52)	CU YD	249	\$950.00	\$236,550.00
	2411.601	STRUCTURE EXCAVATION	LUMP SUM	1	\$92,625.00	\$92,625.00
	2411.618	ARCH SURFACE FINISH (SINGLE COLOR)	SQ FT	2,963	\$2.00	\$5,926.00
	2411.618	ARCH CONC TEXTURE (SPECIAL)	SQ FT	2,963	\$15.00	\$44,445.00
	2451.607	STRUCTURAL BACKFILL	CU YD	905	\$36.00	\$32,580.00
	2502.501	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1	\$7,850.00	\$7,850.00
	2521.518	4" CONCRETE WALK	SQ FT	2,732	\$10.00	\$27,320.00
NOTES: 1. MUNICIPAL UTILITIES AND EXISTING LINEWORK DELINEATIONS BASED ON GIS SHAPE FILES AND AERIAL TRACING. 2. BID PRICES REFLECT MnDOT YEAR 2024 ESTIMATED CONSTRUCTION COST; INCLUDED TOTAL 6% INFLATION FACTOR. 3. ENGINEER'S ESTIMATE FOR CORRIDOR STUDY PURPOSES ONLY; DETAILED COST ESTIMATE WILL BE DEVELOPED IN FINAL DESIGN.				SUBTOTAL		\$591,300.00
				CONTINGENCY 10%		\$59,200.00
				TOTAL		\$650,500.00

CITY OF MOORHEAD CORRIDOR STUDY

1st Avenue N - 12th Street N to US Highway 10
Geometric Exhibit
August 2026

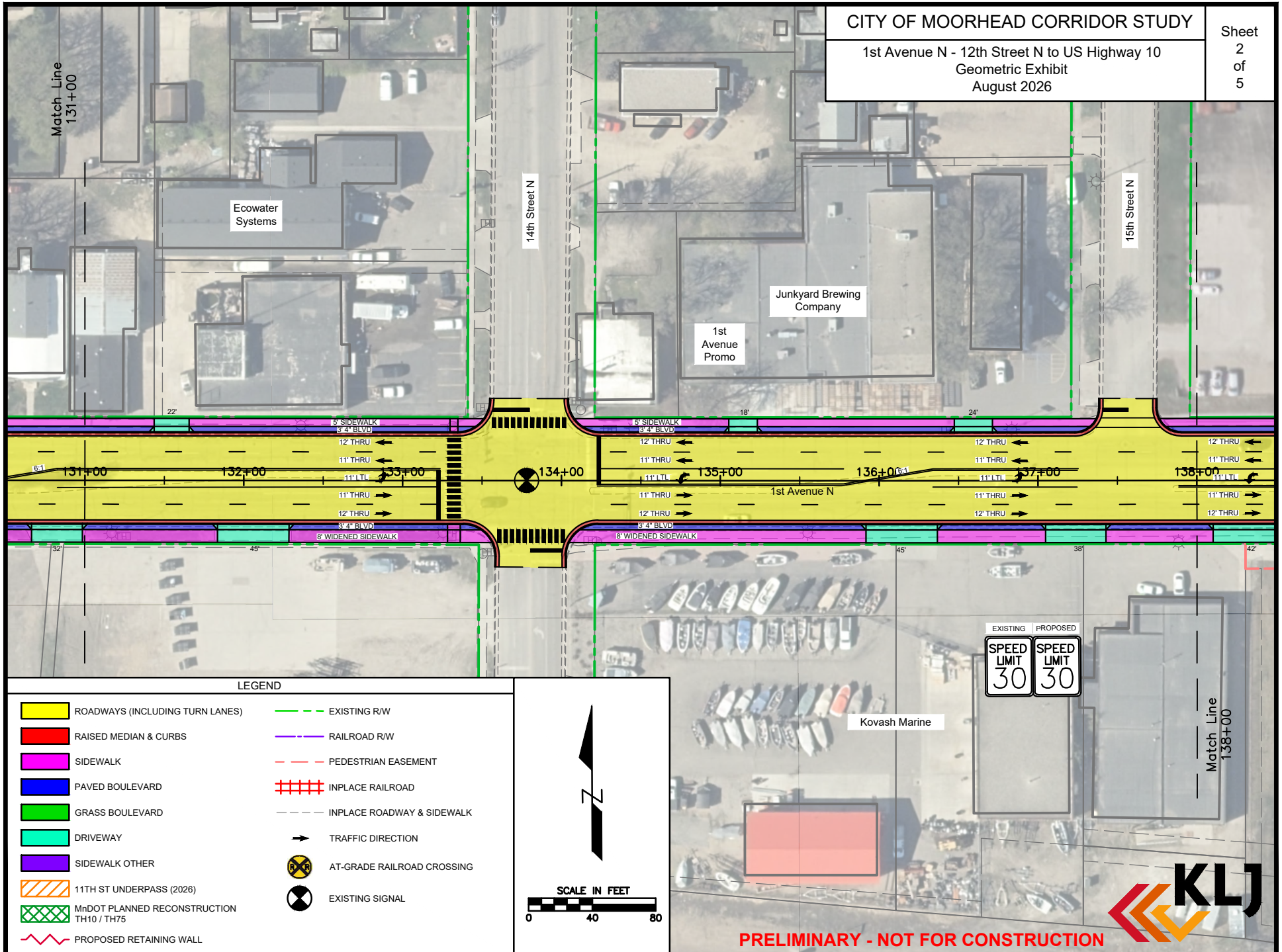
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CITY OF MOORHEAD CORRIDOR STUDY

1st Avenue N - 12th Street N to US Highway 10
Geometric Exhibit
August 2026

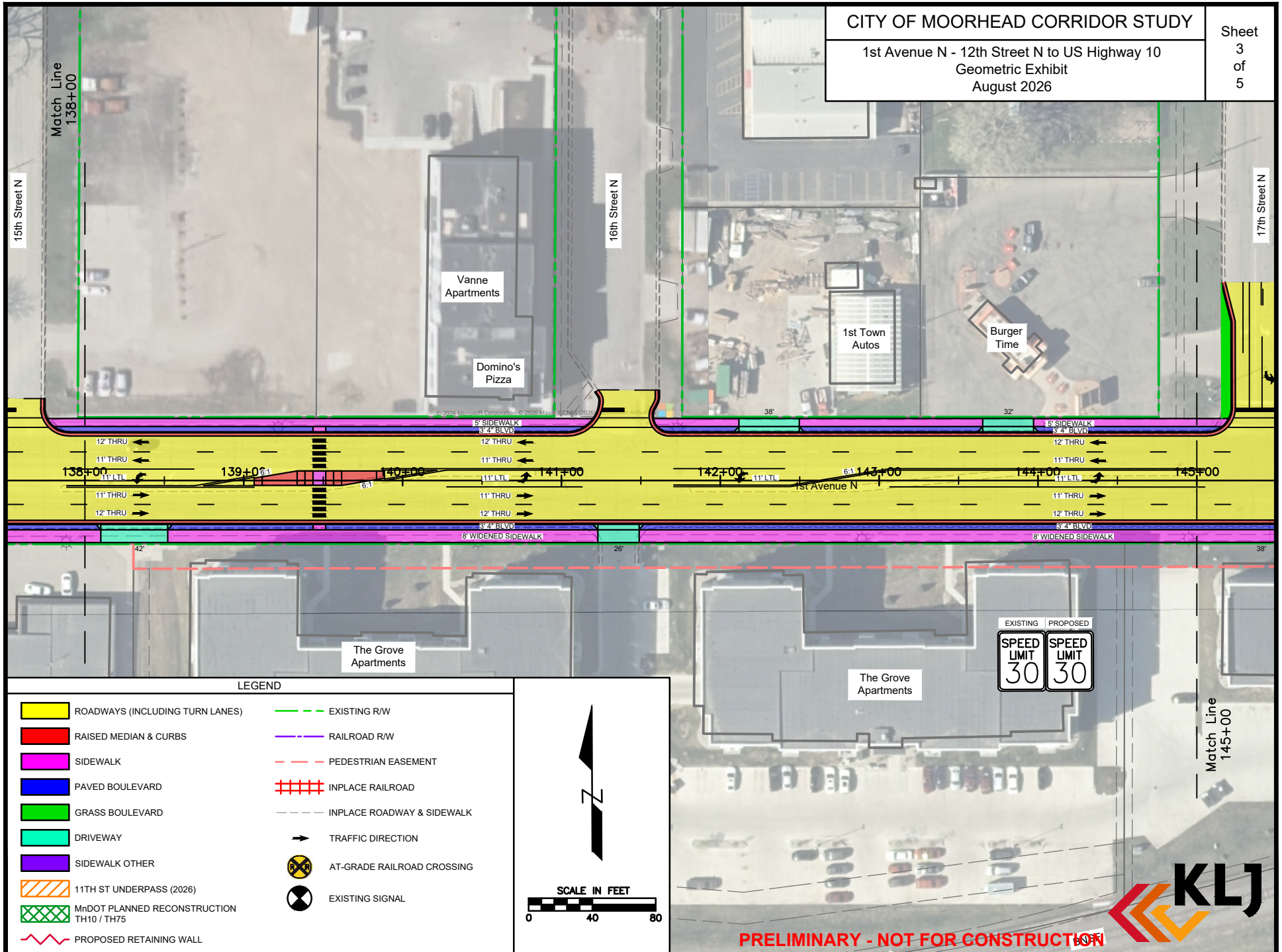
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CITY OF MOORHEAD CORRIDOR STUDY

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Geometric Exhibit
August 2026

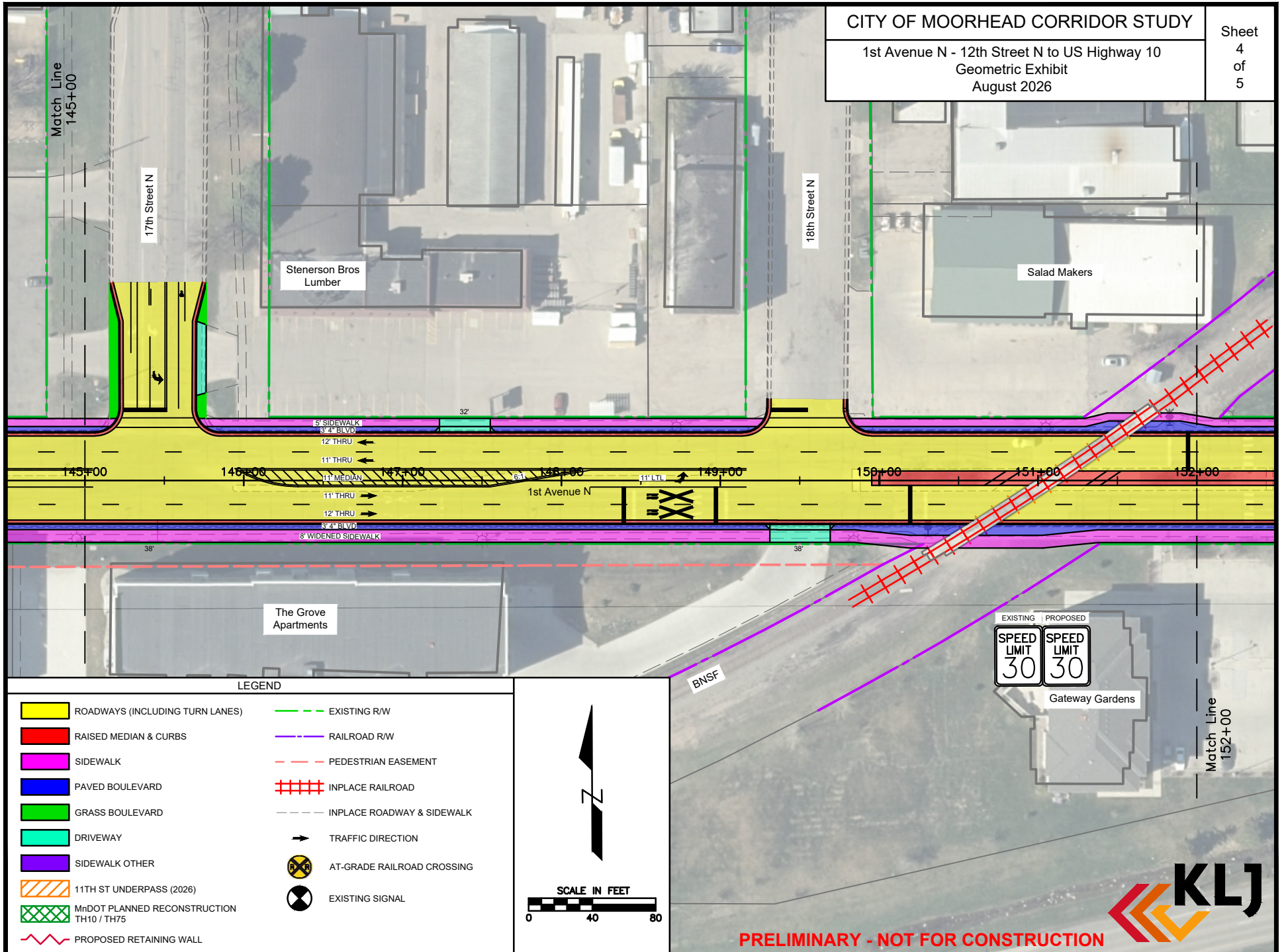
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CITY OF MOORHEAD CORRIDOR STUDY

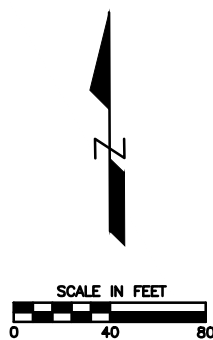
1st Avenue N - 12th Street N to US Highway 10
Geometric Exhibit
August 2026

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LEGEND

- | | | | |
|--|--|--|----------------------------|
| | ROADWAYS (INCLUDING TURN LANES) | | EXISTING R/W |
| | RAISED MEDIAN & CURBS | | RAILROAD R/W |
| | SIDEWALK | | PEDESTRIAN EASEMENT |
| | PAVED BOULEVARD | | INPLACE RAILROAD |
| | GRASS BOULEVARD | | INPLACE ROADWAY & SIDEWALK |
| | DRIVEWAY | | TRAFFIC DIRECTION |
| | SIDEWALK OTHER | | AT-GRADE RAILROAD CROSSING |
| | 11TH ST UNDERPASS (2026) | | EXISTING SIGNAL |
| | MnDOT PLANNED RECONSTRUCTION TH10 / TH75 | | |
| | PROPOSED RETAINING WALL | | |



PRELIMINARY - NOT FOR CONSTRUCTION



CITY OF MOORHEAD CORRIDOR STUDY

1st Avenue N - 12th Street N to US Highway 10
Geometric Exhibit
August 2026

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