



To: Michael Maddox
Fargo-Moorhead Metro COG

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Date: March 31, 2019

Subject: US 10/75 Corridor Study – Existing Conditions Technical Memorandum

Introduction

This memorandum summarizes the existing conditions for the US 10/75 Corridor Study. Existing conditions includes an intersection capacity analysis, crash analysis, access management review, pedestrian/bicycle facility gap review as well as an overview of the existing transit routes, land use, typical cross-sections, pavement, lighting, utilities and historical resources. The study area was broken down into three focus areas (Downtown, US 10 East, and US 75 South). This technical memorandum details the scope of the work that was completed.

Existing Intersection Capacity Analysis

A capacity analysis was conducted for the a.m. and p.m. peak hours at the study intersections to determine how traffic currently operates in the study area. PTV VISSIM (Version 11.00-02) was used since it is an effective tool to analyze how pedestrian activity and train operations influence operations. Capacity analysis results identify a Level of Service (LOS) which indicates the quality of traffic flow through an intersection. Intersections are given a ranking from LOS A through LOS F. The LOS results are based on average delay per vehicle, which correspond to the delay threshold values shown in Table 3. LOS A indicates the best traffic operation, with vehicles experiencing minimal delays. LOS F indicates an intersection where demand exceeds capacity, or a breakdown of traffic flow. An overall LOS A through D is generally considered acceptable by drivers in the Fargo-Moorhead Area.

Table 1. Level of Service Criteria for Signalized and Unsignalized Intersections

LOS Designation	Signalized Intersection Average Delay/Vehicle (seconds)	Unsignalized Intersection Average Delay/Vehicle (seconds)
A	≤ 10	≤ 10
B	> 10 - 20	> 10 - 15
C	> 20 - 35	> 15 - 25
D	> 35 - 55	> 25 - 35
E	> 55 - 80	> 35 - 50
F	> 80	> 50

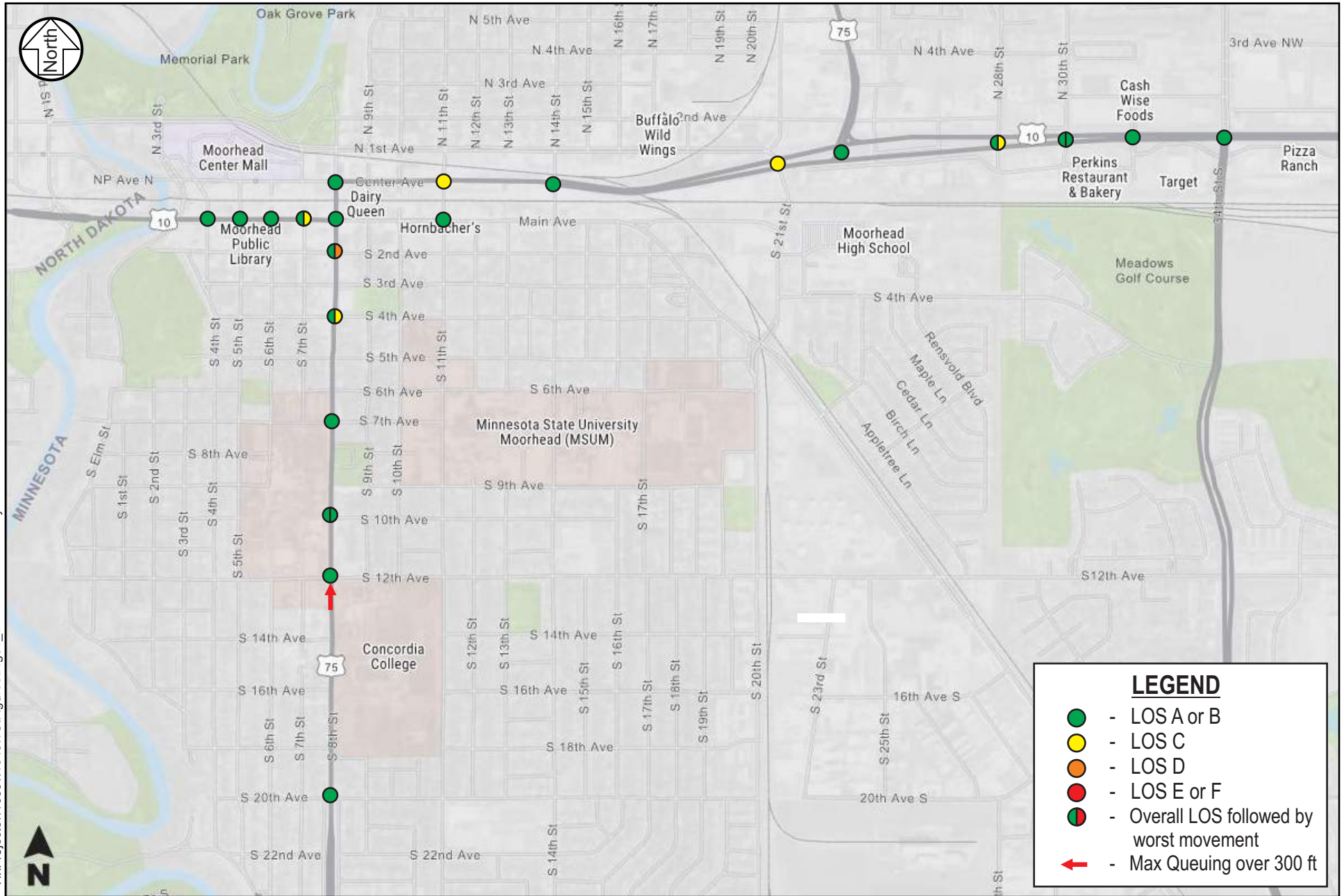
For side-street stop-controlled intersections, special emphasis is given to providing an estimate for the level of service of the side-street approach. Traffic operations at an unsignalized intersection with side-street stop control can be described in two ways. First, consideration is given to the overall intersection level of service. This takes into account the total number of vehicles entering the intersection and the capacity of the intersection to support these volumes. Second, it is important to consider the delay on the minor approach. Since the mainline does not have to stop, the majority of delay is attributed to the side-street approaches. It is typical of intersections with higher mainline traffic volumes to experience high levels of delay (i.e. poor levels of service) on the side-street approaches, but an acceptable overall intersection level of service.

Results of the existing capacity analysis shown in Table 2 indicate that all study intersections currently operate at an acceptable overall LOS C or better during the a.m. and p.m. peak hours with the existing traffic controls and geometric layout. LOS and queues that exceed 300 feet during the weekday a.m. and p.m. peak hours are illustrated in Figure 1 and Figure 2, respectively.

Table 2. Existing Intersection Capacity Analysis

Intersection	Level of Service (LOS)	
	A.M. Peak Hour	P.M. Peak Hour
Downtown		
Main Avenue (US 10)/4th Street	A	B
Main Avenue (US 10)/5th Street	B	B
Main Avenue (US 10)/6th Street	A	A
Main Avenue (US 10)/7th Street ⁽¹⁾	A/C	A/C
Main Avenue (US 10)/8th Street (US 75)	B	C
Main Avenue/11th Street	B	B
Center Avenue (US 10/US 75)/8th Street	B	C
Center Avenue (US 10/US 75)/11th Street	C	C
Center Avenue (US 10/US 75)/14th Street	B	B
US 10 East		
Center Avenue (US 10/US 75)/21st Street/1st Avenue	C	C
Center Avenue (US 10)/US 75	A	A
Center Avenue (US 10)/28th Street ⁽¹⁾	A/C	A/C
Center Avenue (US 10)/30th Street ⁽¹⁾	A/B	A/F
Center Avenue (US 10)/32nd Street	A	B
Center Avenue (US 10)/34th Street	B	C
US 75 South		
8th Street (US 75)/2nd Avenue ⁽¹⁾	A/D	A/E
8th Street (US 75)/4th Avenue ⁽¹⁾	A/C	A/D
8th Street (US 75)/7th Avenue	B	B
8th Street (US 75)/10th Avenue ⁽¹⁾⁽²⁾	A/B	A/C
8th Street (US 75)/12th Avenue	B	C
8th Street (US 75)/20th Avenue	A	A

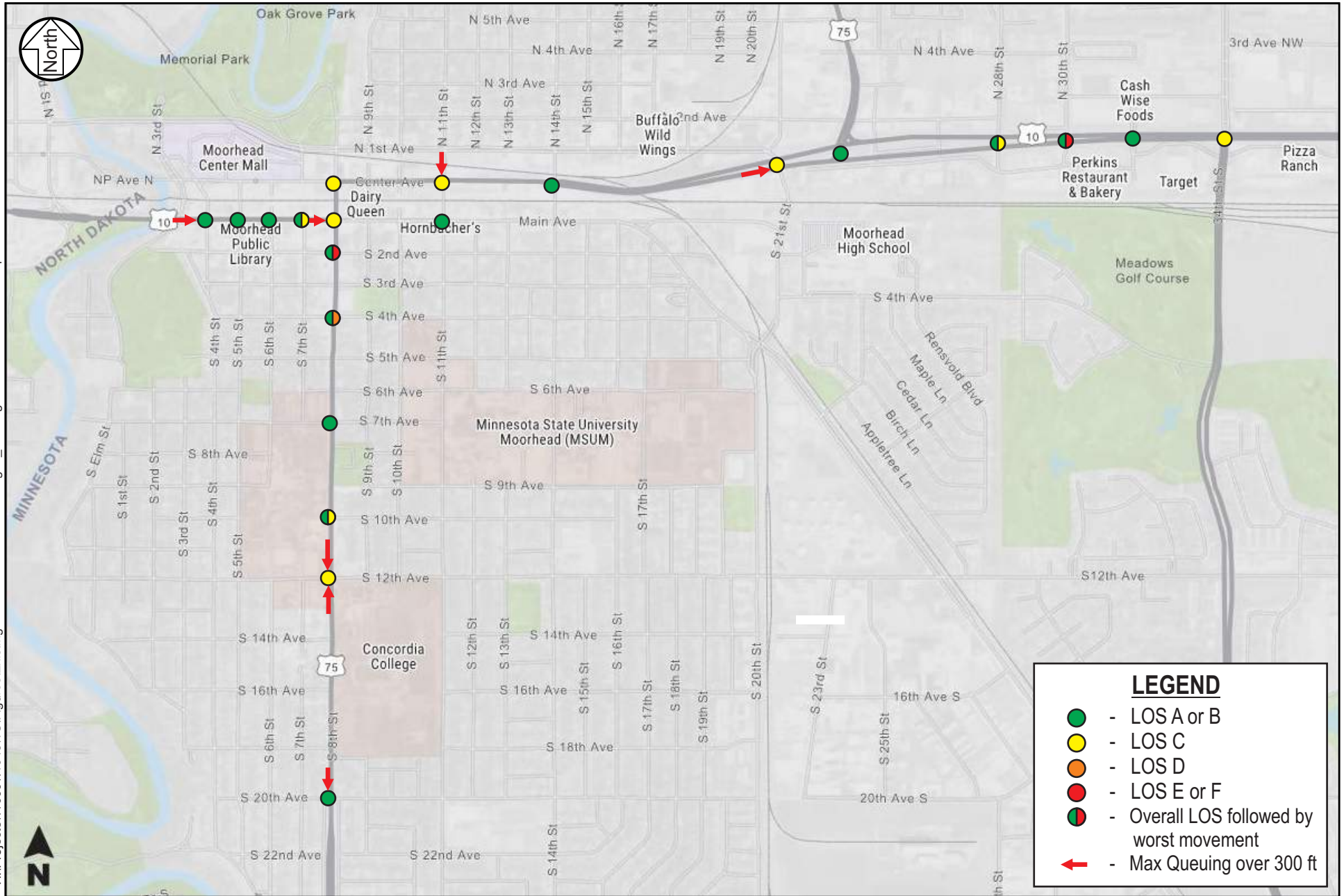
(1) Indicates an unsignalized intersection with side-street stop control, where the overall LOS is shown followed by the worst side-street approach LOS.
(2) A pedestrian signal is located at this intersection and was modeled to incorporate delay with this signal.



Existing A.M. Peak Hour Traffic Operations

US 10/ US 75 Corridor Study
Fargo-Moorhead Metropolitan Council

Figure 1



Existing P.M. Peak Hour Traffic Operations
 US 10/ US 75 Corridor Study
 Fargo-Moorhead Metropolitan Council

Figure 2

The following operational and queuing issues should be noted:

- Typical traffic operations during a train event for the Prosper Line and the KO Line are illustrated in Figure 3 and Figure 4, respectively.

Figure 3. Train Operations During the PM Peak Hour - Prosper Line Train Queuing

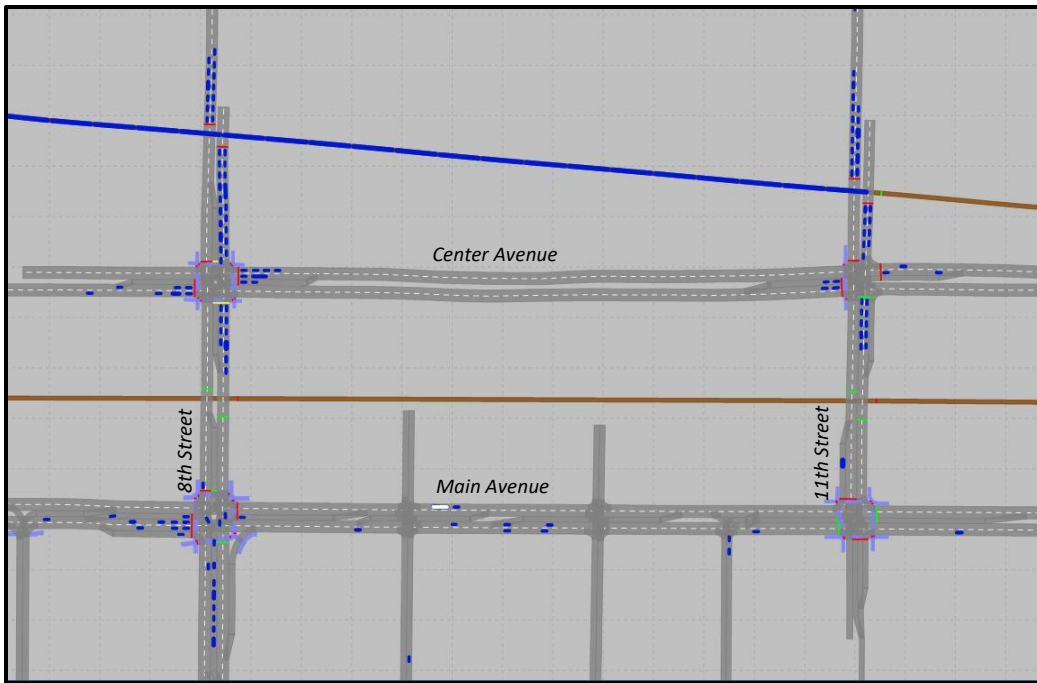
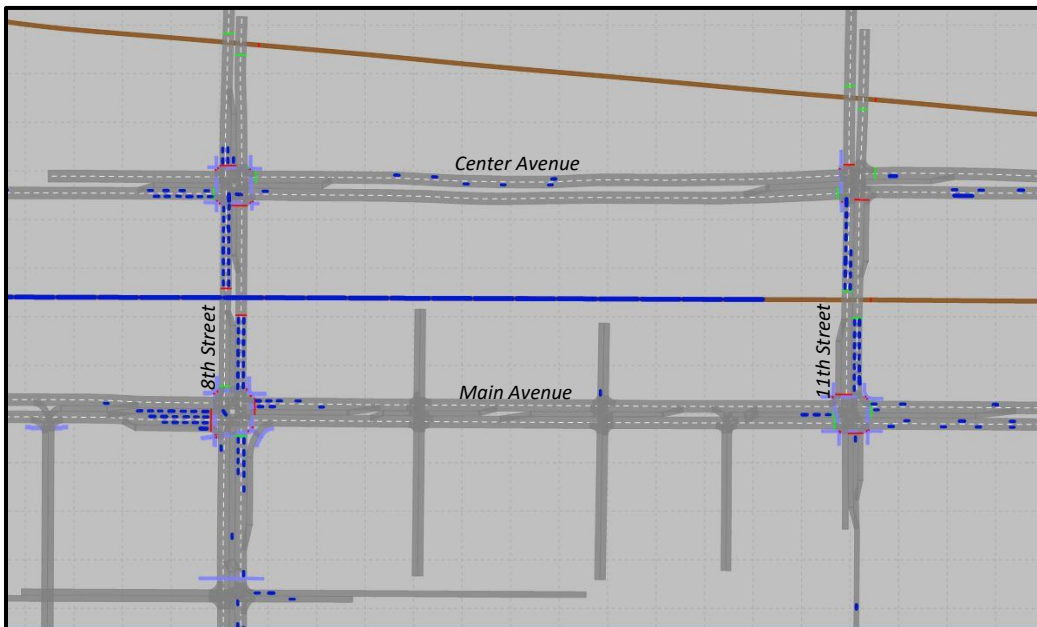


Figure 4. Traffic Operations During the PM Peak Hour - KO Line Train Queuing



- Generally during train events, queuing will extend into the adjacent intersection; after train events (i.e. the gate arms raise), a majority of vehicles are able to clear in one signal cycle, with a portion of vehicles taking two cycles to clear.
- Trains along the Prosper Line were observed to travel through the study area for up to 13 minutes.
- During train events, vehicles were observed to reroute through the study area to avoid the train. While train events were analyzed, the capacity analysis is not able to account for dynamic travel pattern shifts that occur during these events. The traffic modeling software is not able to recognize these dynamic travel pattern changes but does account for current travel patterns collected and observed.
- Center Avenue (US 10)/30th Street intersection operations
 - During the p.m. peak hour, the northbound and southbound left- and thru movements operate at LOS F.
 - Observations were conducted at this intersection to understand current driver behavior. A majority of northbound and southbound vehicles entering this intersection do not utilize the intersection as a two-stage crossing. This intersection (unlike the 24th Street, 26th Street, and 28th Street intersections) is not signed as a two-stage crossing (i.e. there is no yield sign in center median).
 - Since this is not a two-stage crossing, this creates a long crossing distance (approximately 125 feet) for northbound and southbound vehicles making left- and thru movements.
 - Northbound and southbound vehicles were observed to reverse/turn around to avoid making a left- or thru movement.
- 8th Street (US 75)/2nd Avenue intersection operations
 - The westbound approach operates at LOS E during the p.m. peak hour.
 - Observations were conducted at this intersection to understand current driver behavior. Based on observations, the eastbound and westbound left- and thru movements are difficult to make during the peak hours.
 - There are existing sight distance issues for the westbound left-turn movement. Vehicles were observed to make aggressive movements.
- 8th Street (US 75)/4th Avenue intersection operations
 - Eastbound and westbound left- and thru movements are difficult to make.
 - The roadway alignment has a reverse curve at the intersection, which is atypical.

Safety Analysis

A safety analysis was performed for key intersections and roadway segments along the US 10 and US 75 corridors based on data from January 1, 2013 through December 31, 2017. In addition to reviewing the specific types of crashes that occur along the corridor, the overall intersection and segment crash rates were calculated. The overall intersection or segment crash rates were then compared to typical crash rates for intersections or segments with similar characteristics. Typical crash rates published by MnDOT were used for comparison purposes. A higher than typical crash rate does not necessarily indicate a significant crash problem. Therefore, the critical crash rates were calculated to determine the statistical significance of the above average crash rates. If the calculated crash rate is below the critical crash rate, crashes that occurred are typically due to the random nature of crashes and not a geometric design or traffic control issue. This analysis is summarized in Table 3 and Table 4, respectively.

Table 3. Crash Analysis – Study Intersections

Intersection	Crash Rate		
	Expected	Actual	Critical
<i>Downtown</i>			
Main Avenue (US 10)/4th Street	0.70	0.35	1.05
Main Avenue (US 10)/5th Street	0.70	0.47	1.09
Main Avenue (US 10)/6th Street	0.70	0.28	1.09
Main Avenue (US 10)/7th Street	0.18	0.13	0.40
Main Avenue (US 10)/8th Street (US 75)	0.70	0.57	1.01
Main Avenue/11th Street	0.52	0.70	0.91
Center Avenue (US 10/US 75)/8th Street	0.70	0.79	1.12
Center Avenue (US 10/US 75)/11th Street	0.52	0.60	0.92
Center Avenue (US 10/US 75)/14th Street	0.52	0.32	0.93
<i>US 10 East</i>			
Center Avenue (US 10/US 75)/21st Street/1st Avenue	0.70	0.73	1.01
Center Avenue (US 10)/US 75	0.70	0.32	1.03
Center Avenue (US 10)/28th Street	0.18	0.30	0.38
Center Avenue (US 10)/30th Street	0.18	0.17	0.38
Center Avenue (US 10)/32nd Street	0.70	0.27	1.06
Center Avenue (US 10)/34th Street	0.70	1.12	0.99
<i>US 75 South</i>			
8th Street (US 75)/2nd Avenue	0.18	0.47	0.39
8th Street (US 75)/4th Avenue	0.18	0.27	0.39
8th Street (US 75)/7th Avenue	0.70	0.41	1.08
8th Street (US 75)/10th Avenue	0.18	0.24	0.34
8th Street (US 75)/12th Avenue	0.70	0.51	1.04
8th Street (US 75)/20th Avenue	0.70	0.38	1.01

Table 4. Crash Analysis – Study Segments

Segments	Crash Rate		
	Expected	Actual	Critical
Main Avenue (US 10) from the River to 9th Street	2.59	4.57	4.14
Main Avenue (US 10) from 9th Street to 12th Street	2.59	4.74	5.53
Center Avenue (US 10/US 75) from 7th Street to 15th Street	2.59	4.45	4.49
Center Avenue (US 10/US 75) from 15th Street to 21st Street/1st Avenue	2.76	1.62	5.02
Center Avenue (US 10) from 21st Street/1st Avenue to 34th Street	0.87	3.24	1.38
8th Street (US 75) from 2nd Avenue to 11th Avenue	2.59	2.78	3.92
8th Street (US 75) from 11th Avenue to 22nd Avenue	2.59	2.22	3.81

The intersections and segments identified that have a crash rate above critical are discussed as follows:

Center Avenue (US 10)/34th Street Intersection

- 64 crashes were reported at this intersection
- The majority of the crashes were rear-end (24 crashes), angle (25 crashes), or sideswipe (9 crashes) type collisions
- 11 of the crashes occurred on days when there was snow/slush on the roadway
- No severe crashes reported

8th Street (US 75)/2nd Avenue Intersection

- 16 crashes were reported at this intersection
- 11 of the crashes were angle type collisions
- The westbound approach has sight distance issues that may be contributing to the crash issue
- No severe crashes reported

Main Avenue (US 10) from the River to 9th Street

- 71 crashes were reported along this segment, 70 crashes were noted as intersection related
- The majority of the crashes were rear-end (26 crashes), angle (21 crashes), or sideswipe (13 crashes) type collisions
- 17 of the crashes occurred on days when there was snow/slush on the roadway
- No fatal crashes, one (1) injury type A crash reported

Center Avenue (US 10) from 21st Street/1st Avenue to 34th Street

- 152 crashes were reported along this segment, 148 crashes were noted as intersection related
- The majority of the crashes were rear-end (53 crashes), angle (60 crashes), or sideswipe (15 crashes) type collisions
- 26 of the crashes occurred on days when there was snow/slush on the roadway
- No severe crashes reported

A summary of the crash type and intersections/segments with crash rates that exceeded the critical crash rates are illustrated in Figure 5, Figure 6, and Figure 7.

Figure 5. Crash Analysis - Downtown Focus Area

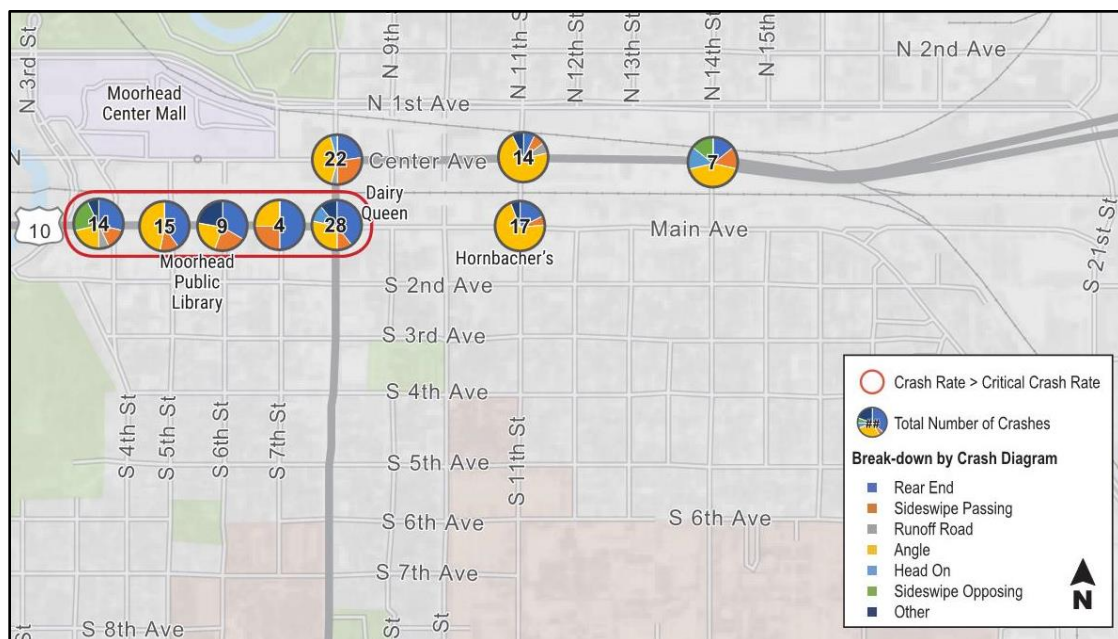


Figure 6. Crash Analysis - US 10 East Focus Area

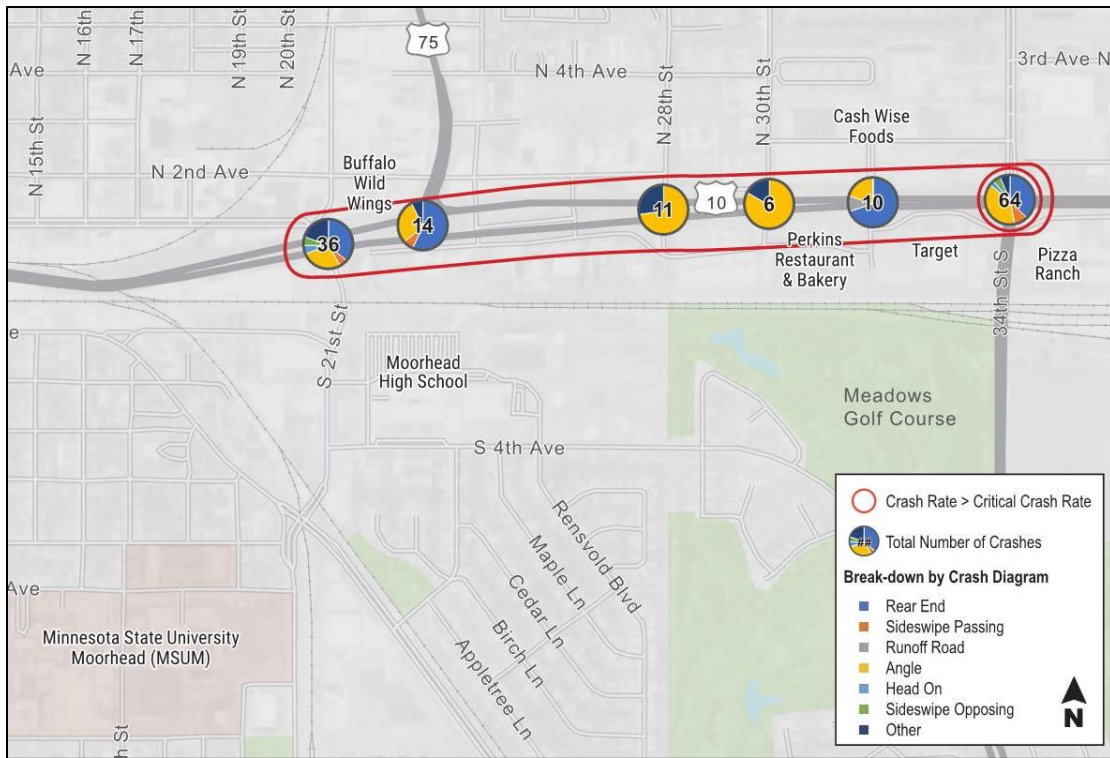
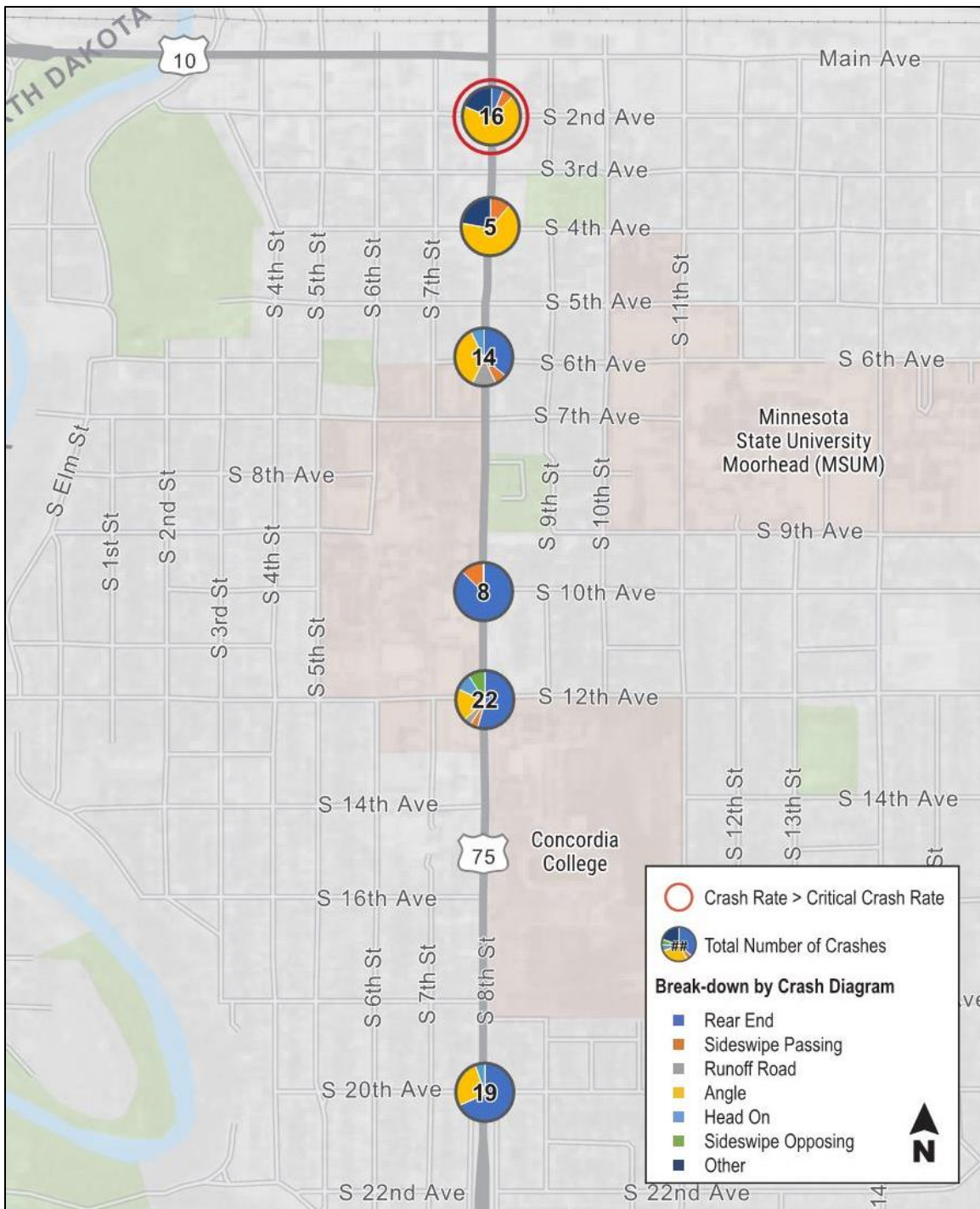


Figure 7. Crash Analysis - US 75 South Focus Area



Access Management

Access plays a critical role in how roadway facilities operate. A high frequency of access points along a given segment of roadway can reduce capacity and adversely affect operations. The US 10/75 corridor has varying functional purposes within each focus area. MnDOT understands that portions of its facilities fall within different corridor contexts. This is evident by the MnDOT categories applicable to these subject corridors:

- US 10 is classified as “urban/urbanizing” in some areas and “urban core” in others
 - US 10 west of 14th Street falls under the “urban core” category
 - US 10 from 14th Street to 34th Street falls under the “urban/urbanizing” category
- TH 75 is classified as “urban core” throughout

MnDOT’s access spacing guidelines state that “it is MnDOT’s preference to permit public street connections rather than driveways in urban/urbanizing areas. Where possible, MnDOT should work with local agencies to encourage the development of a supporting road system to serve the property.” With respect to the urban core category, driveways are permitted in areas where properties have access rights and no reasonable alternative is available for access to a public street. However, the statement of reasonableness should rule here to work toward access consolidation, where possible.

Table 5 shows how the existing public and private access along the corridors compares to MnDOT’s access spacing guidelines. As shown in Table 5, the access density all segments except Center Avenue (US 10/US 75) from 14th Street to 21st Street/1st Avenue exceed the standard.

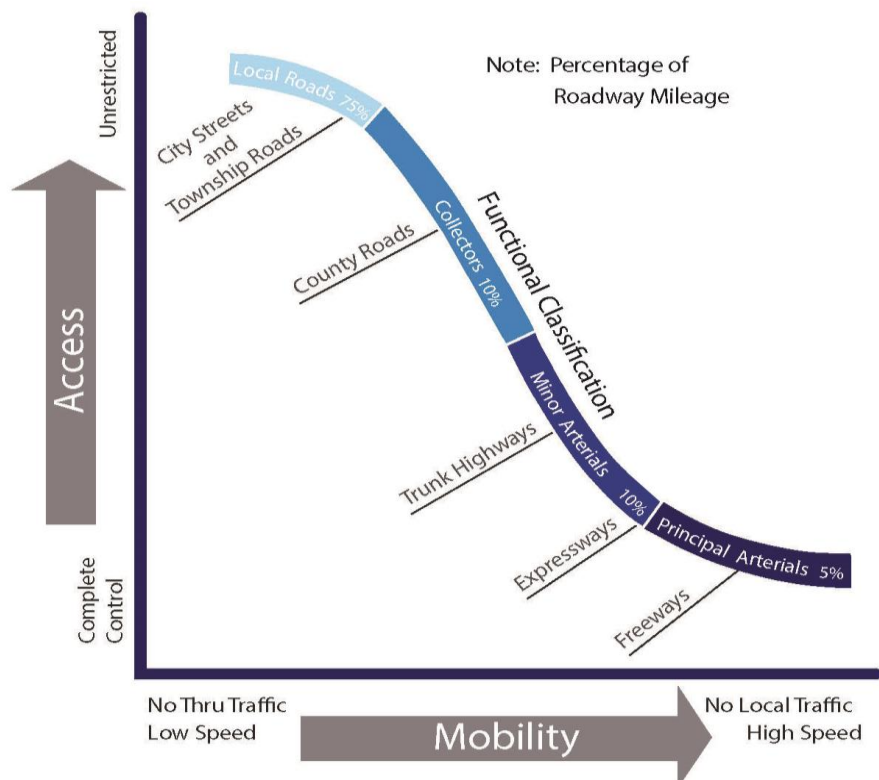


Table 5. Existing Public/Private Access Compared to Access Standards

Roadway Segment	Standard for Access Points (Private and Public)	Existing Access Density (Access/Mile)	Existing Access is...
Main Avenue (US 10) from the River to 8th Street	8-18	52	3 times higher than the standard
Main Avenue (US 10) from 8th Street to 11th Street	8-18	63	3.5 times higher than the standard
Center Avenue (US 10/US 75) from 8th Street to 14th Street	8-18	48	2.5 times higher than the standard
Center Avenue (US 10/US 75) from 14th Street to 21st Street/1st Avenue	4	4	In compliance with standards
Center Avenue (US 10) from 21st Street/1st Avenue to 34th Street	4	8	2 times higher than the standard
8th Street (US 75) from 2nd Avenue to 12th Avenue	8-18	60	3 times higher than the standard
8th Street (US 75) from 12th Avenue to 20th Avenue	8-18	36	2 times higher than the standard

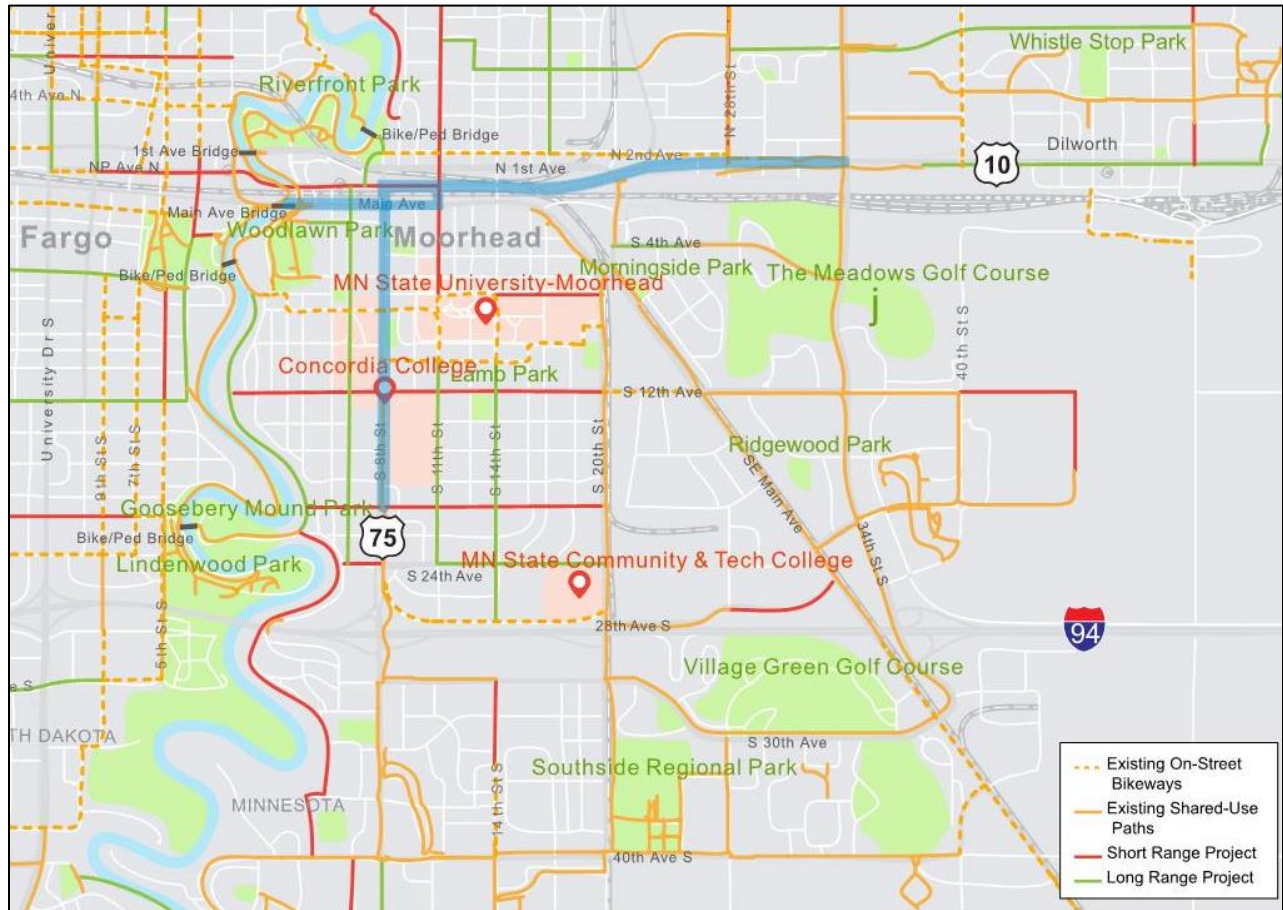
Pedestrian/Bicycle Facility

The existing pedestrian/bicyclist facilities along the study corridors were inventoried and summarized in Table 6. There is an existing gap in the pedestrian/bicycle system along Center Avenue (US 10/75) between the 11th Street and 21st Street/1st Avenue intersections. Bicycle facilities (i.e. shared use trails) are provided along 8th Street (US 75) south of 12th Avenue and along Center Avenue (US 10) east of 27th Street, however no other existing or planned trails are provided elsewhere along the study corridor. The existing and planning pedestrian/bicyclist network is illustrated in Figure 8.

Table 6. Existing Pedestrian/Bicycle Facility

Segment	Existing Facility
Main Avenue (US 10) from the River to 8th Street	Sidewalk on both sides
Main Avenue (US 10) from 8th Street to 11th Street	Sidewalk on both sides
8th Street (US 10/US 75) from Main Avenue to Center Avenue	Sidewalk on both sides
11th Street from Main Avenue to Center Avenue	Sidewalk on both sides
Center Avenue (US 10/US 75) from 8th Street to 11th Street	Sidewalk on both sides
Center Avenue (US 10/US 75) from 11th Street to 21st Street/1st Avenue	No sidewalk/trail facility
Center Avenue (US 10) from 21st Street/1st Avenue to 28th Street	No sidewalk/trail facility
Center Avenue (US 10) from 28th Street to 34th Street	Trail on both sides
8th Street (US 75) from 2nd Avenue to 12th Avenue	Sidewalk on both sides
8th Street (US 75) from 12th Avenue to 20th Avenue	Sidewalk (west) and trail (east)

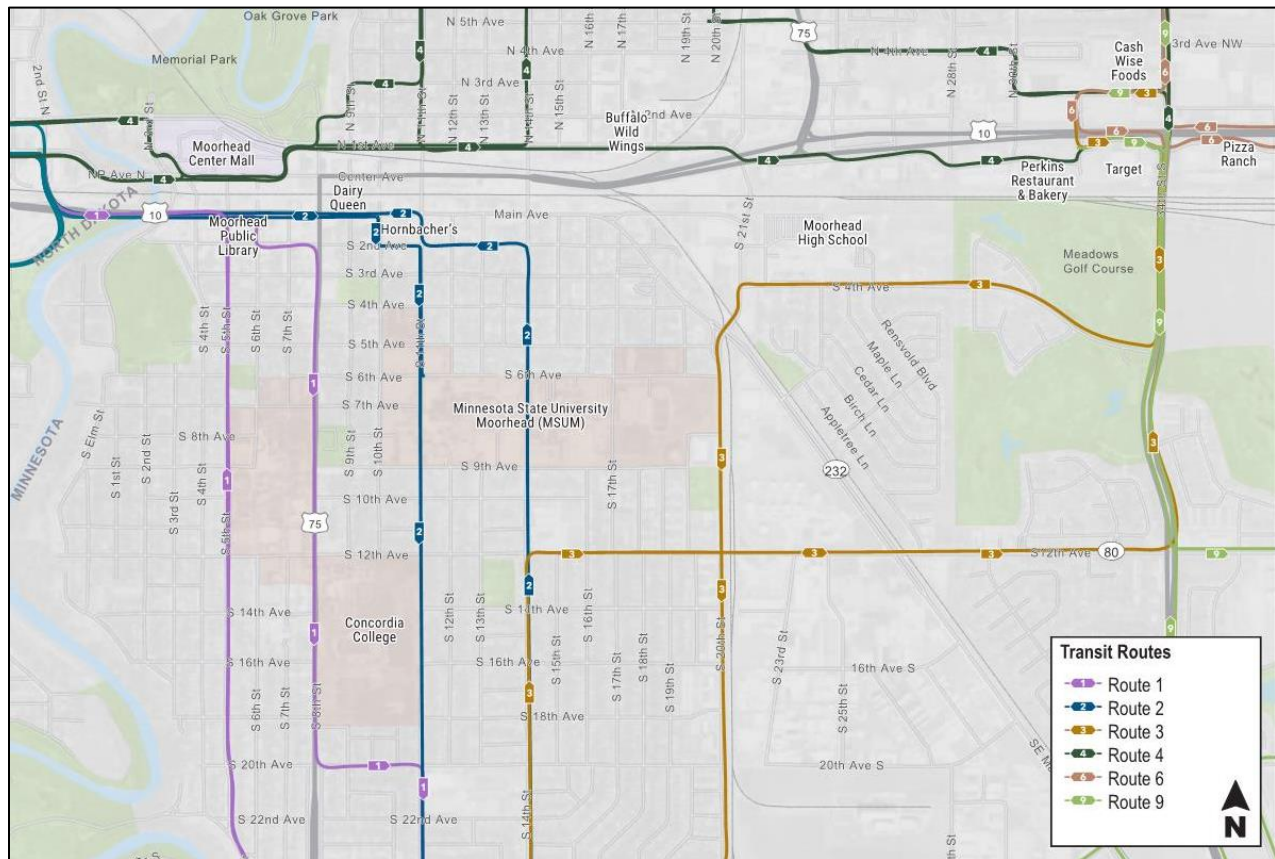
Figure 8. Existing and Planned Bikeways



Transit Routes

MATBUS operates routes in Moorhead that travel either along or across the US 10 or US 75 study corridors. Based on information provided by MATBUS the average dwell time for a bus at a transit stop is 11 seconds, however that does increase when a bike or wheelchair loads or unloads. The transit routes are illustrated in Figure 9.

Figure 9. Existing Transit Routes



Land Use

Understanding the existing land use is important. Just as important to understanding today's land use needs is understanding the needs of future land uses. Knowing the different land uses and future land uses will inform a design that balances the needs to different users. The following summarizes the existing land use along the US 10 and US 75 study corridors. The existing land use zoning map is summarized in Figure 10. There are three (3) Moorhead parks and recreation areas located within 1/8 mile of the corridors, including: 1) Wood Lawn Park; 2) Riverfront Park; and 3) Townsite Park.

Main Avenue/Center Avenue (US 10)

Along Main Avenue between 4th Street and 11th Street, the corridor has a combination of low-density office, service, and commercial land uses. In addition, there are existing high-density residential developments that are located near 4th Street and additional residential developments that are currently under construction in the southeast quadrant of the Main Avenue (US 10)/8th Street (US 75) intersection, the southwest quadrant of the Main Avenue/10th Street intersection, and the

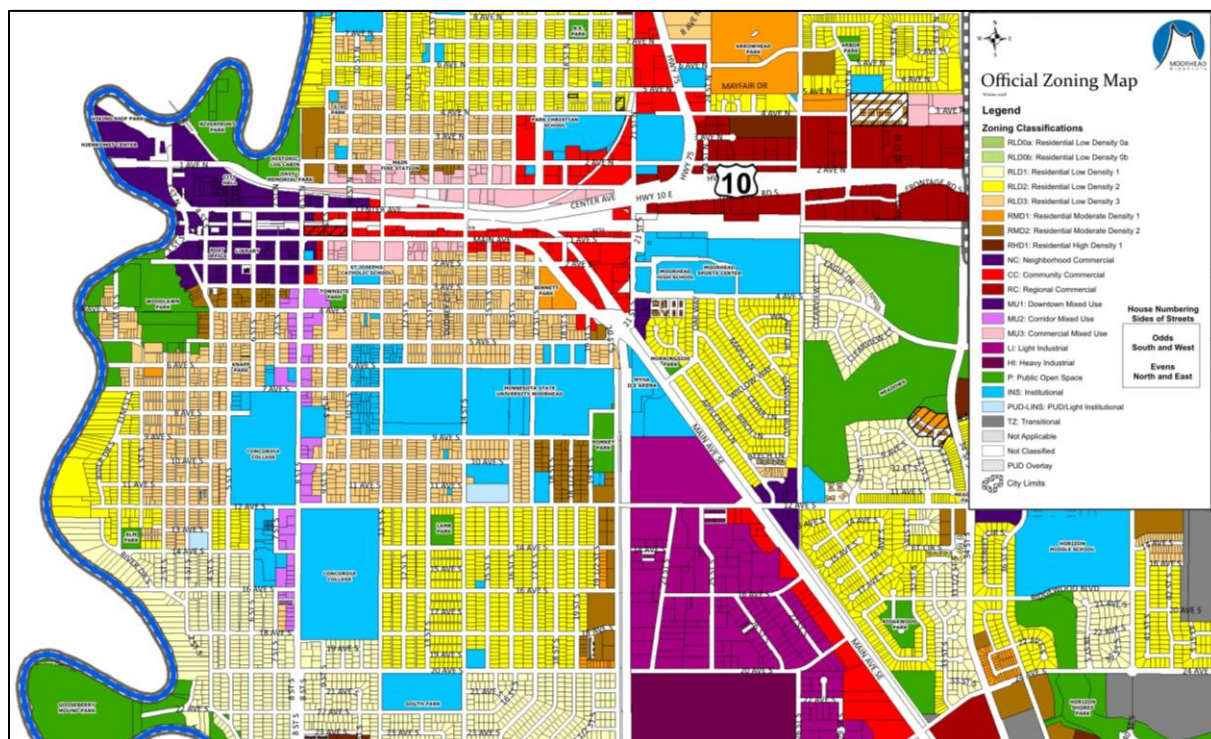
northwest quadrant of the Center Avenue (US 10/75)/10th Street intersection. Near 11th Street, the corridor transitions into an assortment of light industrial and light commercial uses.

The BNSF's KO and Prosper Subdivisions also line the north and south sides of this segment of the corridor between 11th Street and 14th Street. This land use pattern, which also includes vacant parcels and a small amount of residential uses, extends through 28th Street. East of 28th Street, there are commercial land uses, such as big box retailers and strip shopping centers.

8th Street (US 75)

Along 8th Street (US 75) between 4th Avenue and 20th Avenue, the corridor consists of low to mid density residential and institutional land uses (e.g. Concordia College, churches, and surface parking lots). The existing land uses along 8th Street (US 75) between Main Avenue and 4th Avenue are largely a combination of downtown office, service, and commercial uses. Similar to Main Avenue/Center Avenue (US 10) in the Downtown area, the density along this segment of the corridor is relatively low. Nearly all parcels adjacent to the 8th Street (US 75) corridor are privately held, excluding the Comstock House site (between 5th Avenue South and 6th Avenue South), which is owned by the Minnesota Historical Society.

Figure 10. Existing Land Use Zoning Map



Typical Sections & Right-of-Way

The existing street and highway typical sections and right-of-way are shown in Appendix A.

Pavement Condition

MnDOT performed pavement condition ratings along the study corridor via a Digital Inspection Vehicle that used the severity of transverse and longitudinal cracking, the severity of longitudinal joint distress, and the severity of cracking, rutting, raveling, and patching to determine a surface rating. The scale ranges from 0.0 for very poor to 5.0 for very good.

- The Downtown focus area has surface ratings of 2.7, 3.7 and 3.5 with maintenance last occurring in either 2013 or 2016 in the form of a thin mill & overlay. See table below.
- The US 10 East focus area has a surface rating of 3.6 with maintenance last occurring in either 2009 or 2010 in the form or a thin or medium mill & overlay. See table below.
- The US 75 South focus area has a surface rating of 3.1, 2.9 & 3.7 with maintenance last occurring in either 2010 or 2016 in the form of a think mill & overlay. See table below.

Based on 2018 Data										75
HWY #	From RP	To RP	Length (mi)	2018 SURFACE RATING	AADT	Last Year Worked On	ESTIMATED NEED YR. BASED ON EXISTING SECTION, PRIOR FIX, AADT & SURFACE RATING	NOTES:	SEGMENT	
75	248.669	248.856	0.187	3.6	25563	2016	2026	2016 MED M/OL	DIVIDED BIT SEGMENT N OF 24TH AVE to 20TH AVE	
	248.856	249.529	0.673	3.1	25563	2010	2024	2010 THIN M/OL	20TH AVE to 0.02 MILES OF 10TH AVE	
	249.529	250.148	0.619	2.9	16452	2010	2022	2010 THIN M/OL	10TH to 2ND AVE	
	250.148	250.308	0.16	3.7	16452	2016	2026	2016 THIN MILL / OL (2")	2ND AVE to WEST JCT US TH 10(MAIN TO CENTER)	

Based on 2018 Data										10
HWY #	From RP	To RP	Length (mi)	2018 SURFACE RATING	AADT	Last Year Worked On	ESTIMATED NEED YR. BASED ON EXISTING SECTION, PRIOR FIX, AADT & SURFACE RATING	NOTES:	SEGMENT	
10	0	0.428	0.428	2.7	17858	2013	2021	2013 THIN M/OL (2")	STATE LINE TO S JCT TH 75	
	0.516	0.76	0.244	3.7	9498	2016	2027	2016 THIN MILL / OL (2")	8TH ST. to JCT 11TH ST(CENTER AVE.)	
	0.76	1.01	0.25	3.5	9498	2016	2026	2016 THIN MILL / OL (2")	11TH ST to JCT 14TH ST	
	1.01	1.67	0.66	3.6	12886	2009	2026	2009 THIN M/OL	14TH ST to JCT TH 75	
	1.67	4.164	2.494	3.6	16221	2010	2026	2010 MED M/OL	JCT TH 75 to .1 MI E JCT S 7TH ST. IN DILWORTH	
	4.164	9.113	4.949	3.8	14147	2006	2027	2006 MED OL	DILWORTH to GLYNDON	

The roadway infrastructure data provided by MnDOT estimated an infrastructure improvement “need” year. A summary of the improvement year for sections of the study corridors are listed below:

- Main Avenue (US 10) from State Line to 8th Street (US 75) – 2021 Need
- Center Avenue (US 10) from 8th Street to 34th Street – 2026 Need
- 8th Street (US 75) from Center Avenue (US 10) to 2nd Avenue – 2026 Need
- 8th Street (US 75) from 2nd Avenue to 10th Avenue – 2022 Need
- 8th Street (US 75) from 10th Avenue to 20th Avenue – 2024 Need
- 8th Street (US 75) from 20th Avenue to 24th Avenue – 2026 Need

Lighting

The Downtown focus area lighting was replaced in 2016 with the CIMS project. Lighting units are alternating high mast and pedestrian poles with LED luminaires that are spaced evenly along the corridor and at intersections on traffic signals; the existing lighting levels are good and there are no deficiencies. The US 10 East focus area lighting consists of evenly spaced high mast poles with high pressure sodium luminaires. The existing lighting levels should be investigated and compared to current standards. The US 75 South focus area lighting consists of evenly spaced high mast poles with high pressure sodium luminaires. The existing lighting levels should be investigated and compared to current standards.

Drainage/Storm Sewer

The Downtown focus area has urban drainage systems, the storm sewer was retrofitted in 2016 with the CIMS project. Drainage from the state line to 8th Street is conveyed from curb inlets at intersections into mains along side streets and finally into the trunk line along 2nd Avenue where drainage outfalls into the Red River. Drainage from 8th Street to 14th Street is conveyed from curb inlets into mains along the corridor and finally into the Red River outfall north of the Moorhead Center Mall / City Hall.

The US 10 East focus area is primarily rural drainage consisting of ditches and culverts that drain to the BNSF Prosper Subdivision grade separation or the County legal drain along 28th Street. There is an urban drainage system at the BNSF separation that drains to lift station 1.1 and then into the County legal drain at US 75 and 15th Avenue N. The US 75 South focus area has urban drainage systems that convey drainage from the corridor to trunk lines and outfalls at 16th Avenue, 12th Avenue, or 2nd Avenue.

Sanitary Sewer

The Downtown focus area sanitary sewer system consists of a mixture of large diameter vitrified clay, brick, and PVC pipe that drains via gravity to Lift Station 1 at 9th Street N and 5th Street N and then from the lift station to the wastewater treatment facility via forcemain. The US 10 East focus area sanitary sewer consists of a 24-inch RCP gravity crossing at 26th Street N and a 24-inch PVC forcemain crossing at 34th Street N.

The US 75 South focus area sanitary sewer consists of 8-inch VCP between 12th Avenue S and 9th Avenue S that drains via gravity to Lift Station 3 at 2nd Street S and 6th Avenue S and then from the lift station to the wastewater treatment facility via forcemain. Sanitary sewer north of 9th Avenue consists of 10-inch to 18-inch VCP that drains via gravity to Lift Station 1 at 9th Street N and 5th Street N and then from the lift station to the wastewater treatment facility via forcemain.

Watermain

The Downtown focus area watermain consists of PVC pipe that was installed in 2016 with the CIMS project. The US 10 East focus area watermain consists of PVC pipe along the north right-of-way between 14th Street and US 75 and crossings at 21st Street, 28th Street, and 34th Street. The US 75 South focus area watermain consists of a mixture of cast iron and PVC pipe along the east right-of-way between 20th Avenue and 9th Avenue and a mixture of cast iron and PVC pipe along the west right-of-way between 7th Avenue and 2nd Avenue. Moorhead Public Service (MPS) will be replacing watermain between 12th Avenue S and 20th Avenue S in 2019. MPS would also replace watermain between 4th Avenue S and 6th Avenue S in cooperation with a MnDOT/City street project.

Private Utilities

Private utilities in all three focus areas consist of facilities owned by Century Link, Windstream, Sanford Hospital, MnDOT, Enventis, Concordia College, CableOne, 702 Communications, Dakota Carrier Network, Midco, Xcel Energy, Charter Communications, and Zayo bandwidth. These facilities are located within road right-of-way or within utility easements. Corridor improvements will likely impact private utilities and adjustment or relocation could be required.

Historic Resources

Preliminary archaeological, cultural, and historic resources near the US 10 and US 75 corridors were identified through data provided by Metro COG, the City of Moorhead, and National Register of Historic Places. Additional classification of historic districts and sites currently registered on the National Register of Historic Places was completed with data extracted from the National Parks Service website. Additional analysis and identification of sites will be completed as part of the environmental documentation phase of this process. This may include discovery of new sites that were not previously identified in any of the above-mentioned resources. Six (6) sites located along the study corridors are registered on the National Register of Historic Places, and include:

1. Burnham building, 420 Main Avenue: false front frame commercial/residential building typifying 1880's downtown Moorhead.
2. Solomon G. Comstock house, US 75/5th Avenue: late Victorian frame home designed by Kees & Fisk and build in 1883.
3. Federal Courthouse and Post Office, 521 Main Avenue: Moorhead Classical Revival brick building designed by federal government architect Oscar Wenderoth and built in 1915.
4. Lew A. Huntoon house, 709 US 75: English cottage style house designed by Bertrand & Chamberlain and built in 1910.
5. Old Main Building, Concordia College, US 75: Moorhead Classic Revival brick and stone building constructed in 1906.
6. Saint John the Divine Episcopal Church, 120 US 75: Moorhead shingled frame church with octagonal tower, designed by Cass Gilbert and built in 1898-1899.

In addition to the sites registered on the National Register of Historic Places, three (3) sites of regional historic importance are located within 1/8 mile of the corridors, including:

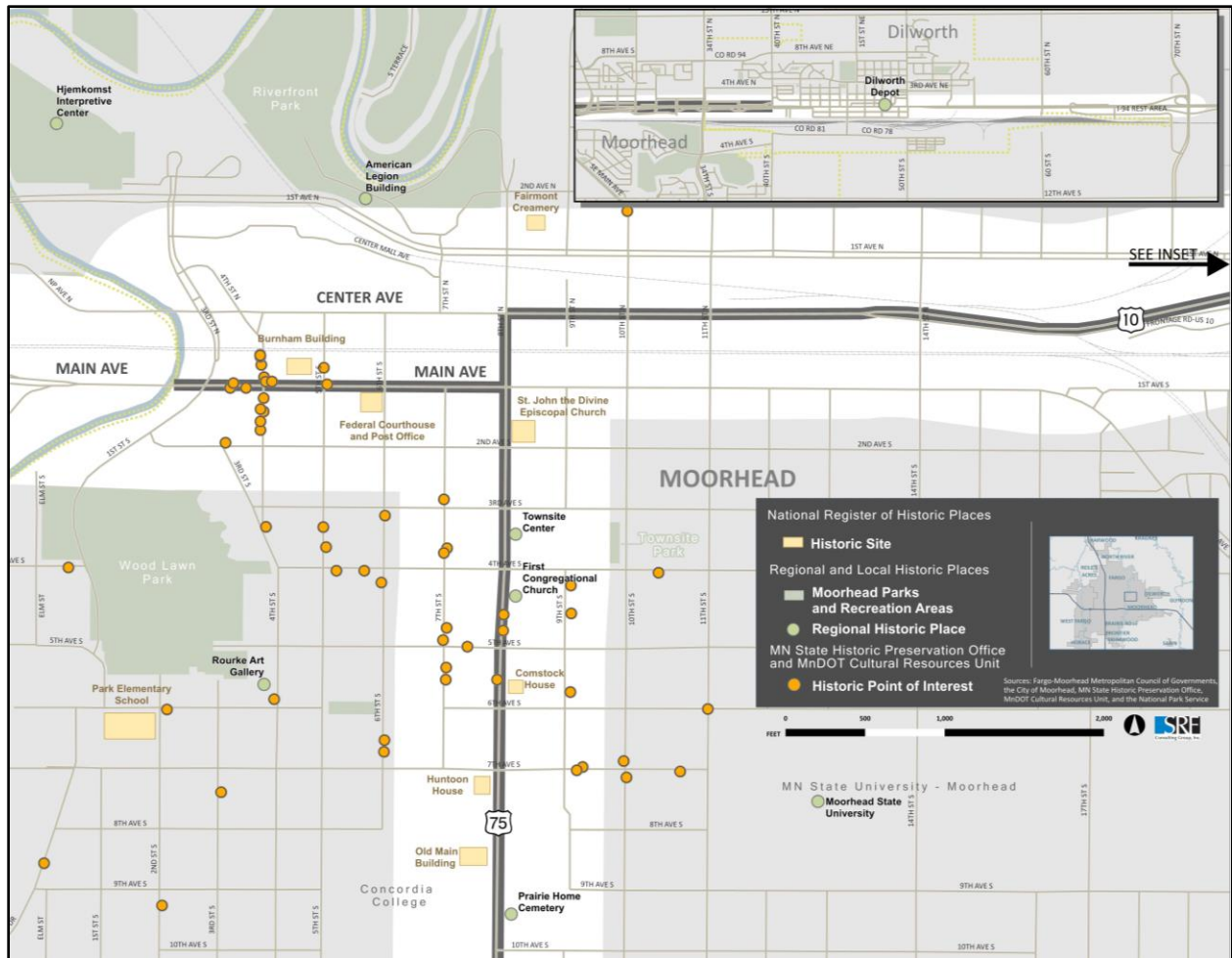
- Townsite Center
- First Congregational Church
- Prairie Home Cemetery

Additional points of interest were identified through data provided by the MN State Historic Preservation Office (SHPO) and the MnDOT Cultural Resources Unit (CRU) in the 2013 Corridor Study. Of the SHPO and CRU points of interest, 37 sites fall within 1/8 mile of the corridors, contained identifiable address data, and are not already registered on the National Register of Historic Places or recognized as a regional historic place. Twenty-one of these places are private residences and 16 are commercial sites

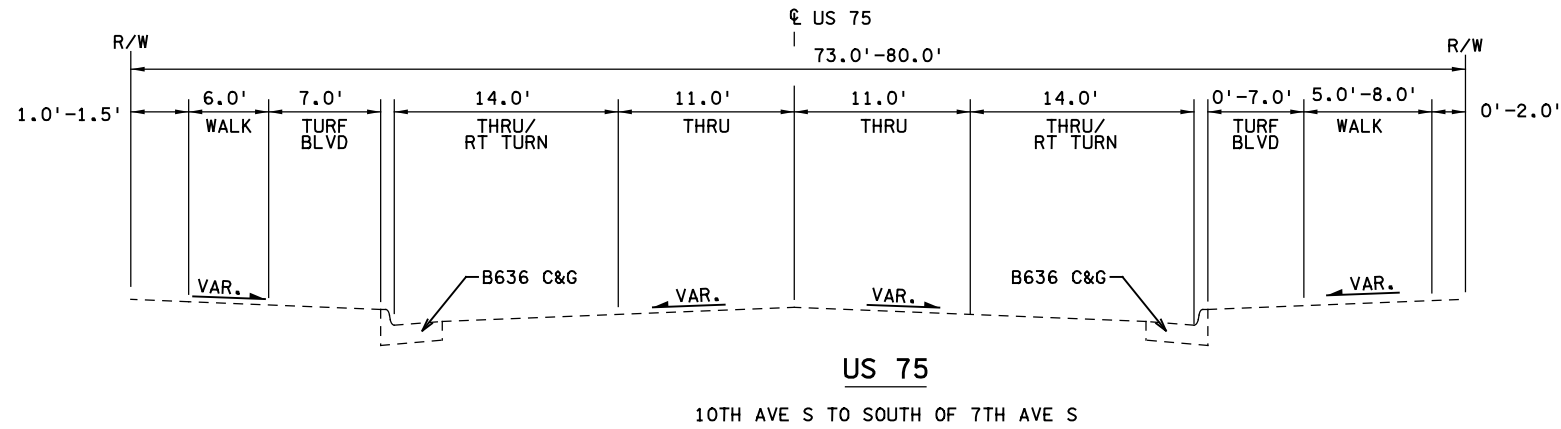
The identification and proper consideration of these sites is necessary to ensure that impacts to known or previously identified archaeological, cultural, and historic resources are minimized as part of the evaluation of the corridor alternatives. Furthermore, the alternatives selected for implementation must be in compliance with the following legislation:

- Department of Transportation Act of 1966, Section 4(f), which pertains to the preservation of all publicly-owned public parks, waterfowl and wildlife refuges, and all historic areas (49 U.S.C. 303; 23 U.S.C. 138)
- National Historic Preservation Act (NHPA) of 1966, Section 106, which protects cultural resources that are on or eligible for the National Register of Historic Places (NRHP)
- Archaeological Resources Protection Act of 1979, which applies to archaeological resources on tribal lands and non-tribal lands under Federal jurisdiction

Figure 11. Historical Resource Map

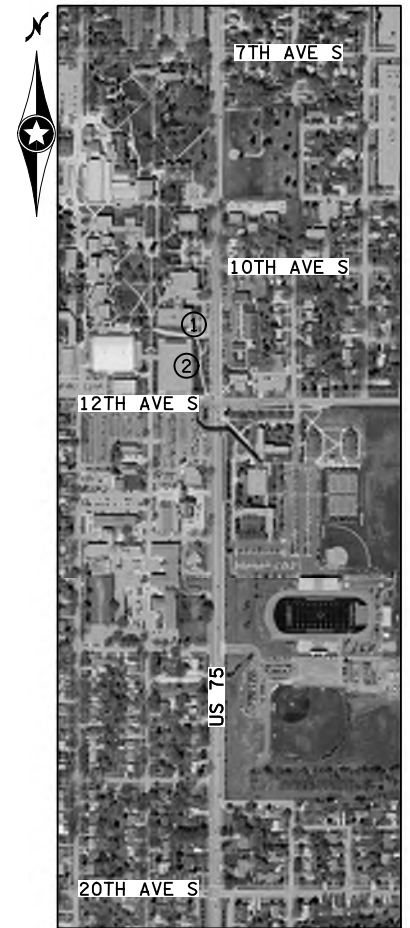
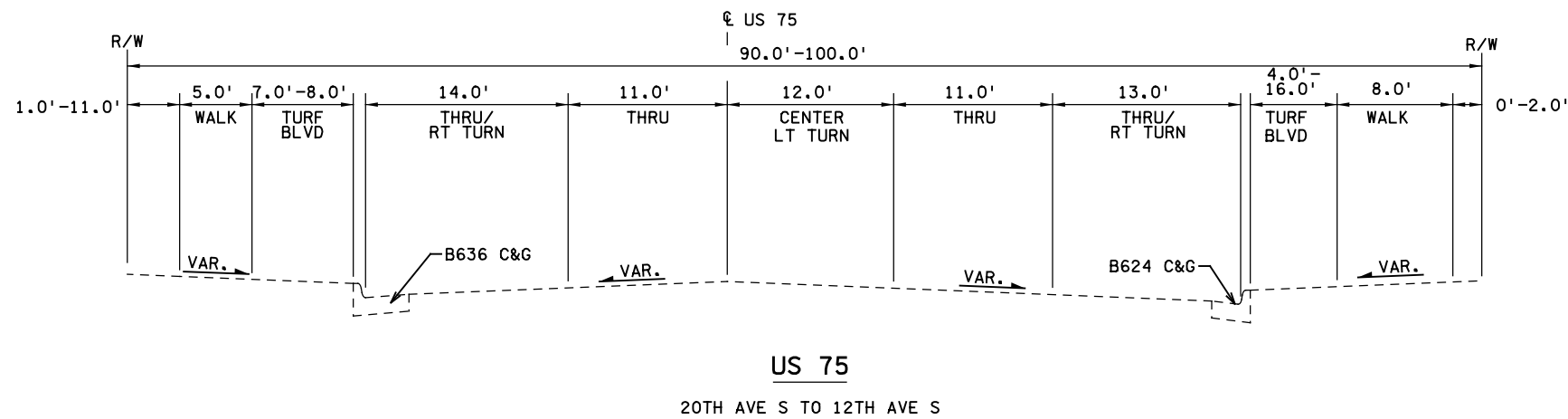
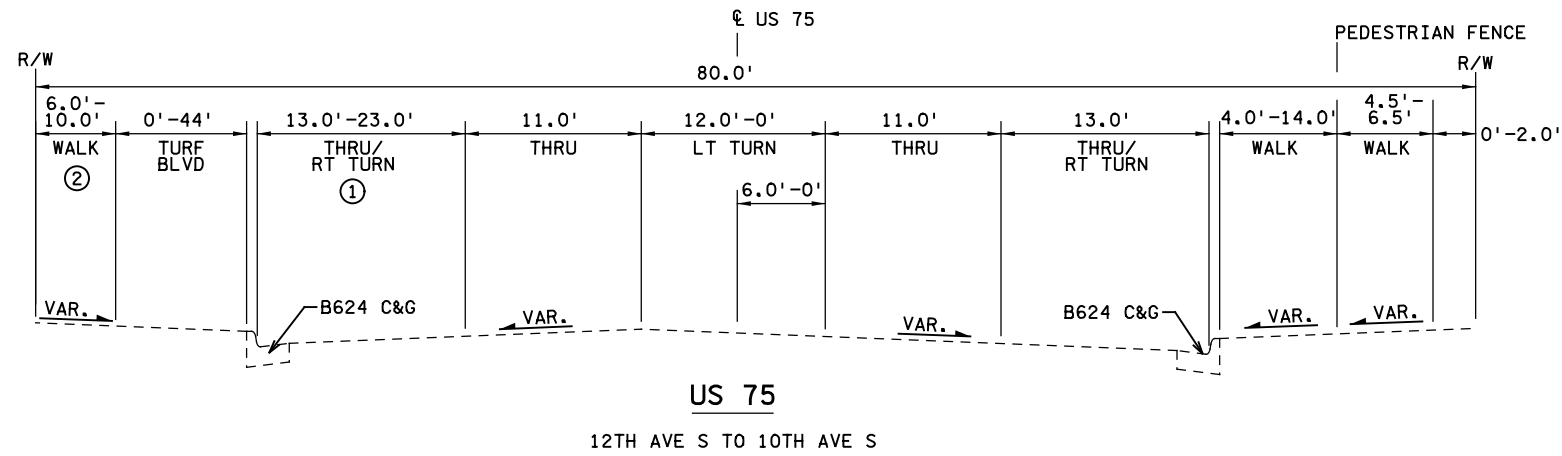


Appendix A
Existing Typical Sections



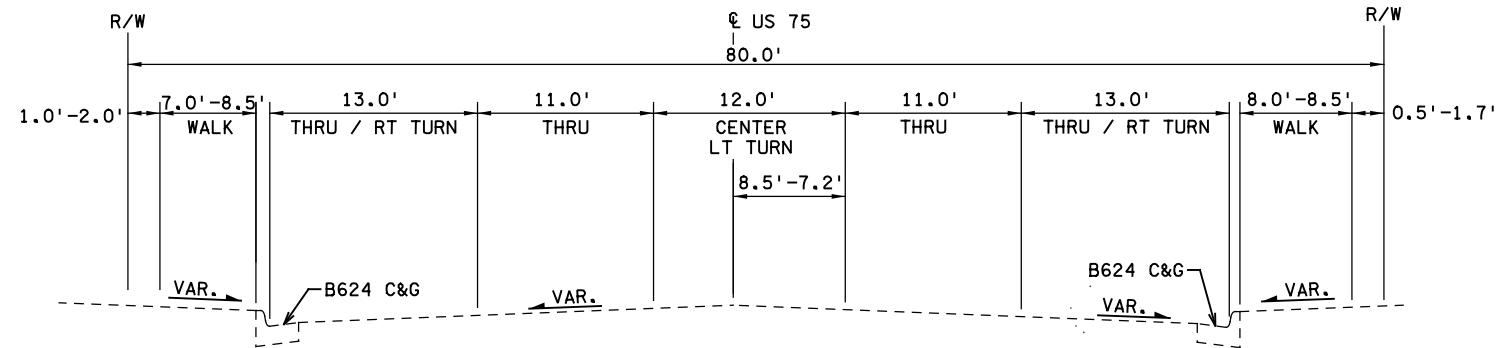
NOTES:

- ① 10' BUS STOP LANE LOCATED MID-BLOCK
- ② SIDEWALK IS OUTSIDE OF STATE OWNED RIGHT OF WAY. IT IS ON CONCORDIA COLLEGE CAMPUS.



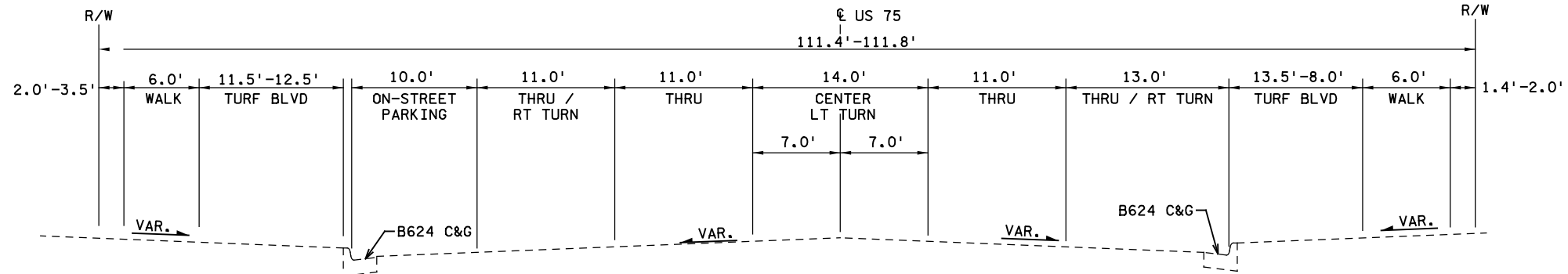
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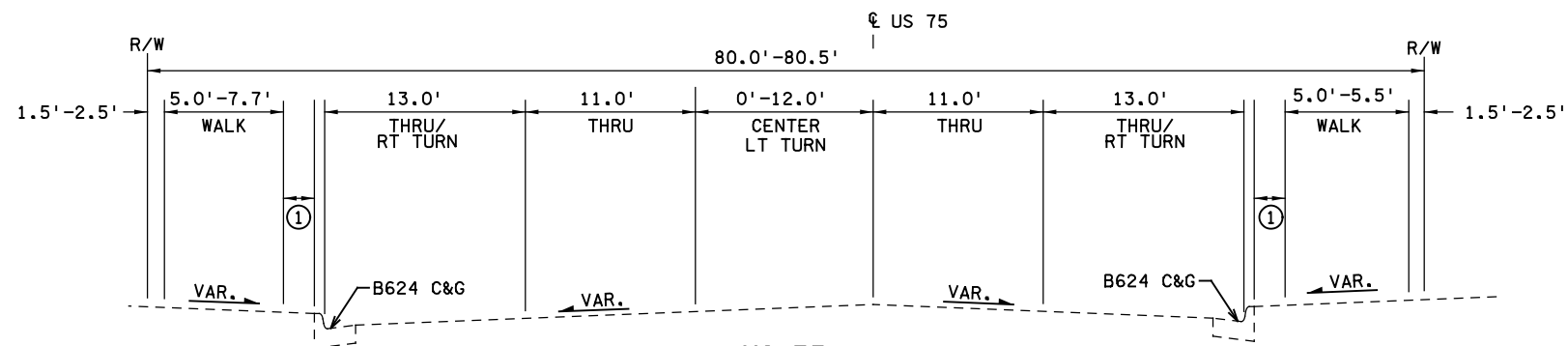


US 75
4TH AVENUE S TO 2ND AVENUE S

NOTES:
① 0'-2' SPECIAL SURFACE TREATMENT STAMPED & COLORED VARIABLE SLOPE

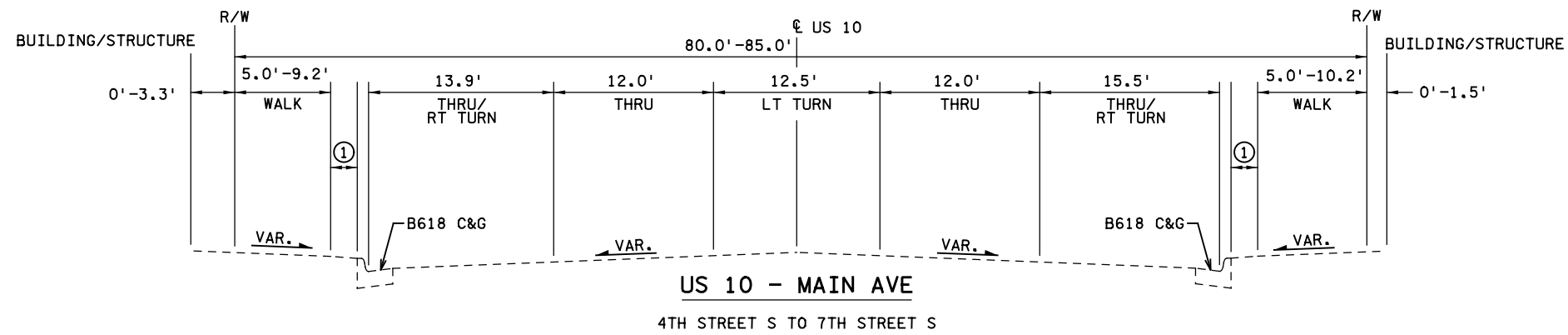


US 75
5TH AVENUE S TO 4TH AVENUE S



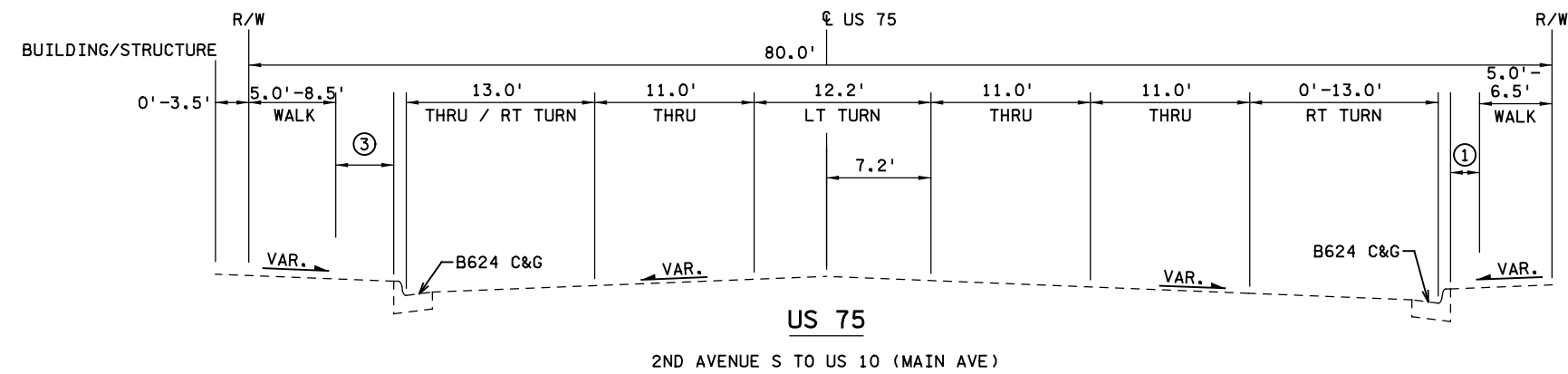
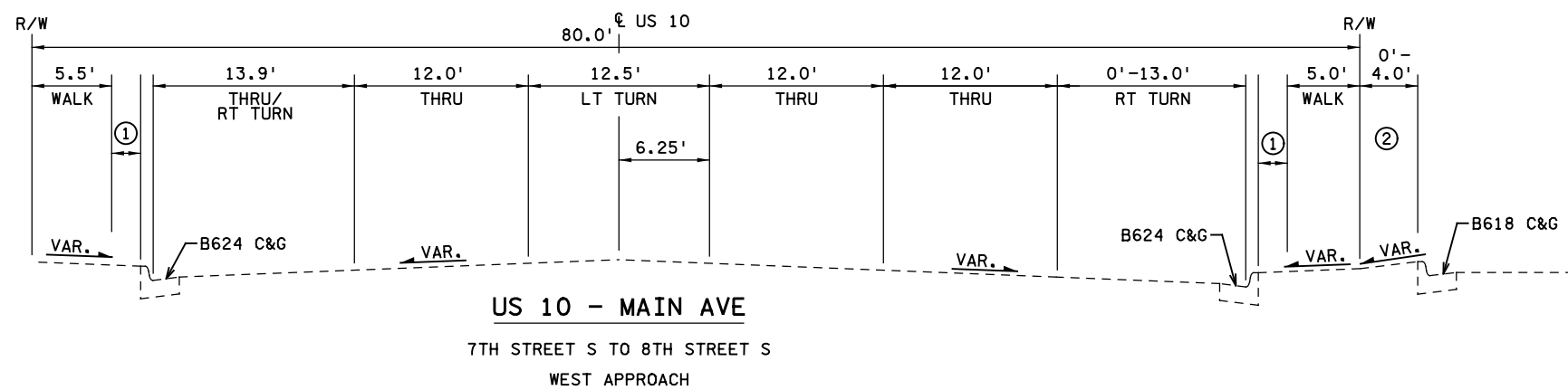
US 75
SOUTH OF 7TH AVE S TO 5TH AVE S



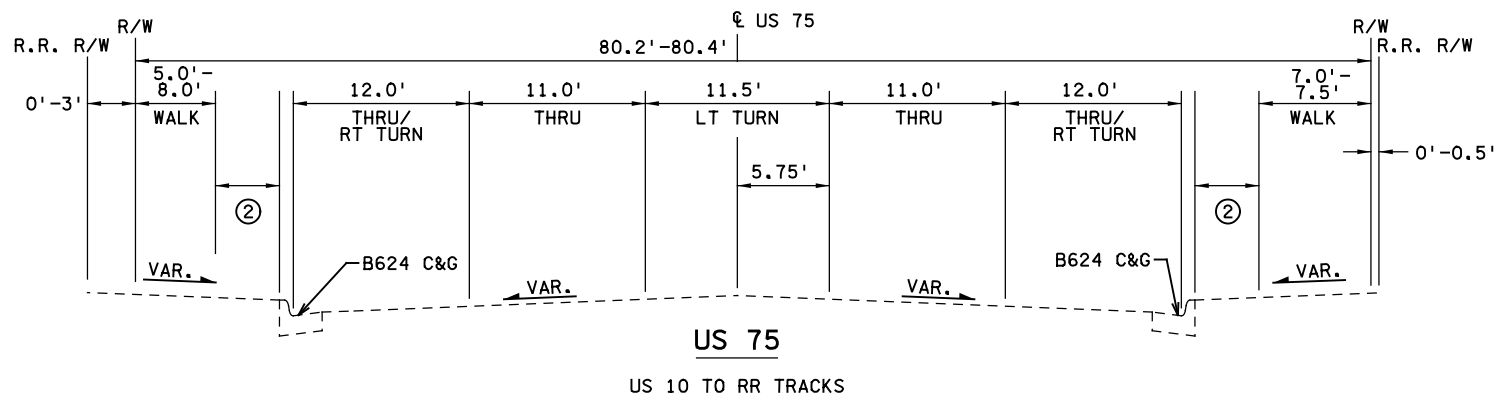


NOTES:

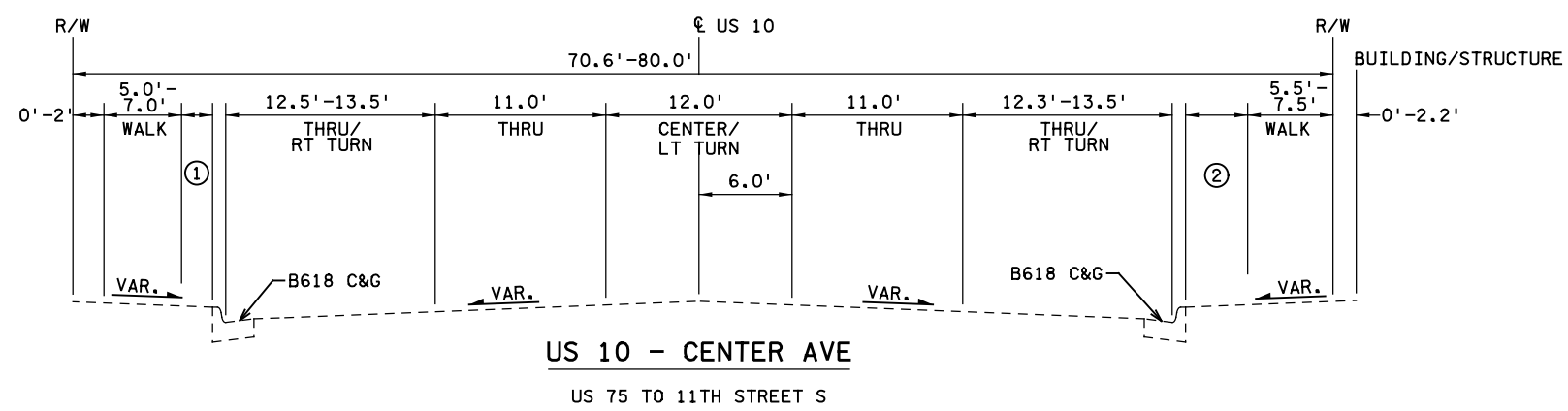
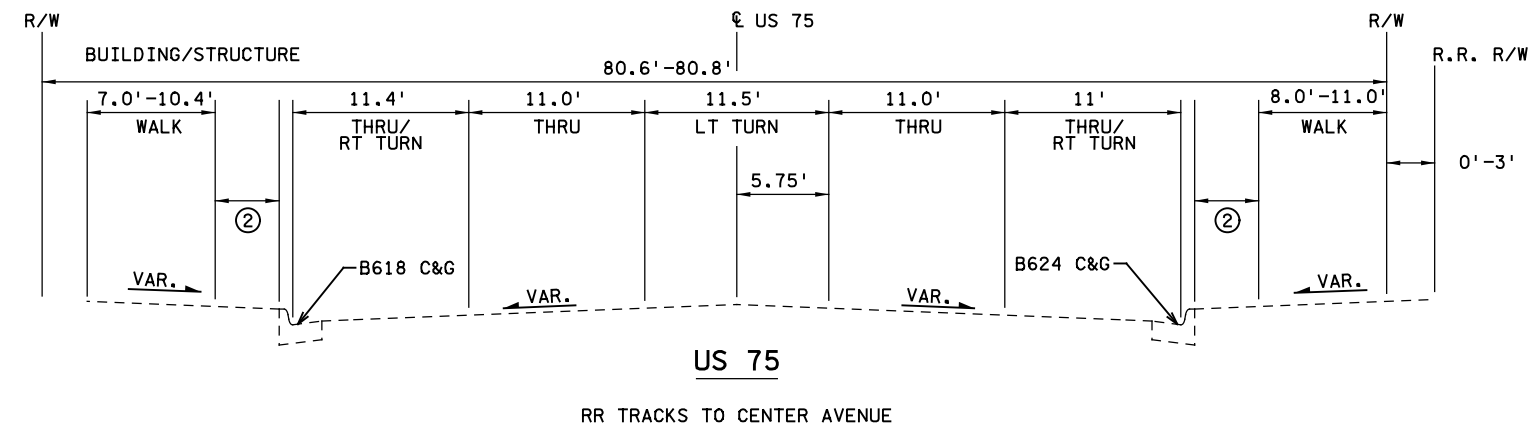
- ① 0'-2' SPECIAL SURFACE TREATMENT STAMPED & COLORED VARIABLE SLOPE
- ② 0'-4' SPECIAL SURFACE TREATMENT STAMPED & COLORED VARIABLE SLOPE
- ③ 3' SPECIAL SURFACE TREATMENT STAMPED & COLORED VARIABLE SLOPE



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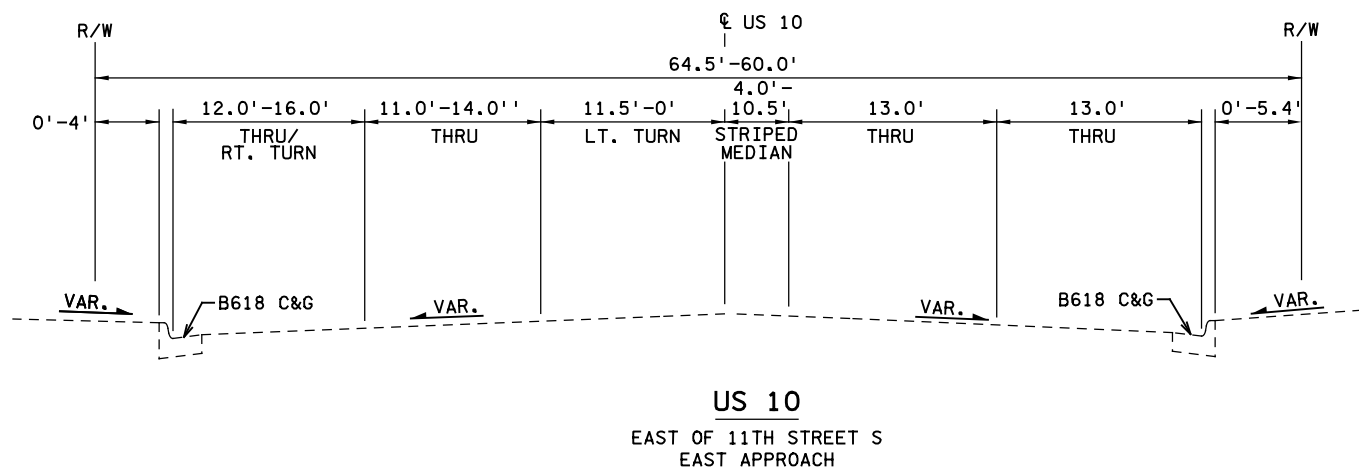
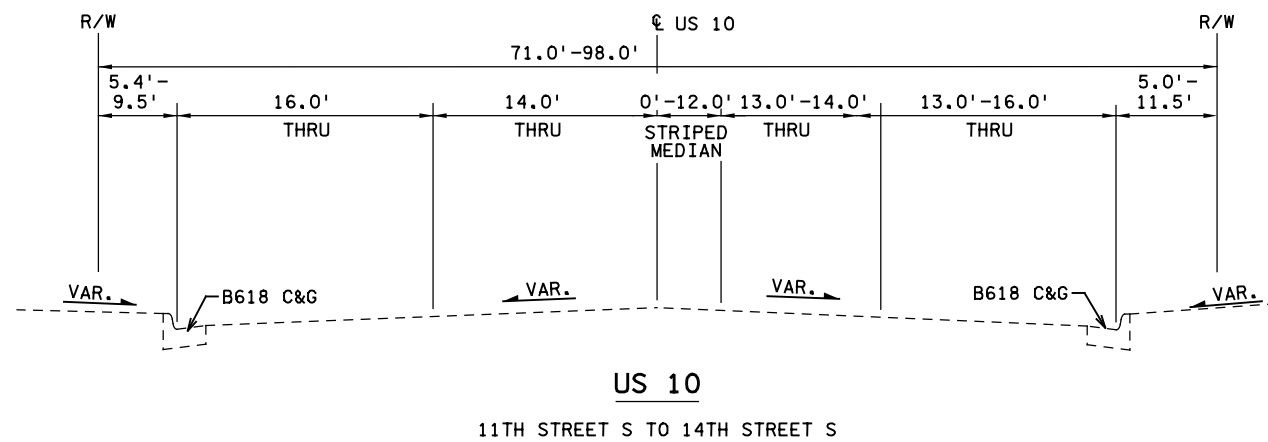
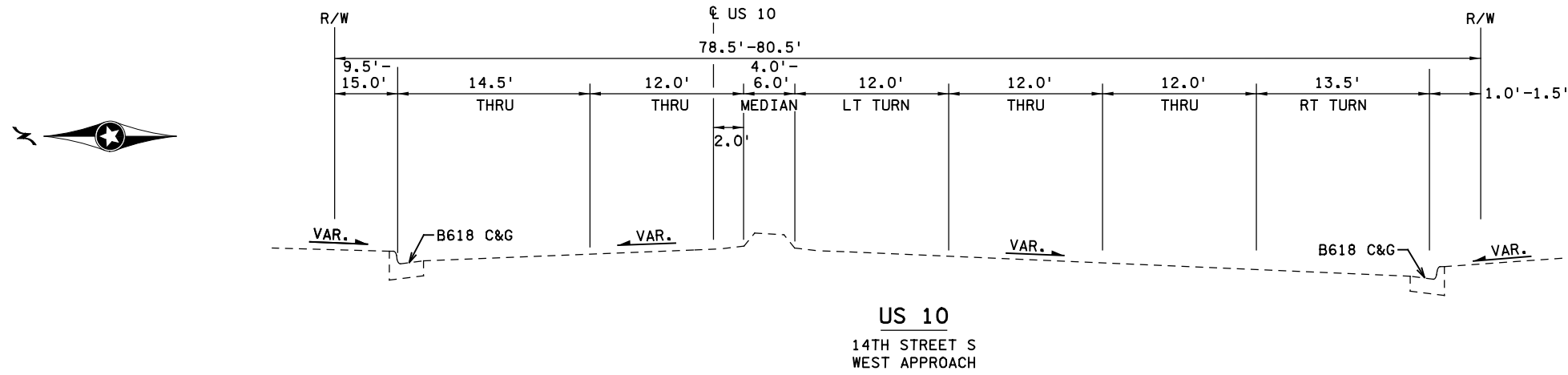


- NOTES:
- ① 0'-2' SPECIAL SURFACE TREATMENT STAMPED & COLORED VARIABLE SLOPE
 - ② 2'-4' SPECIAL SURFACE TREATMENT STAMPED & COLORED VARIABLE SLOPE

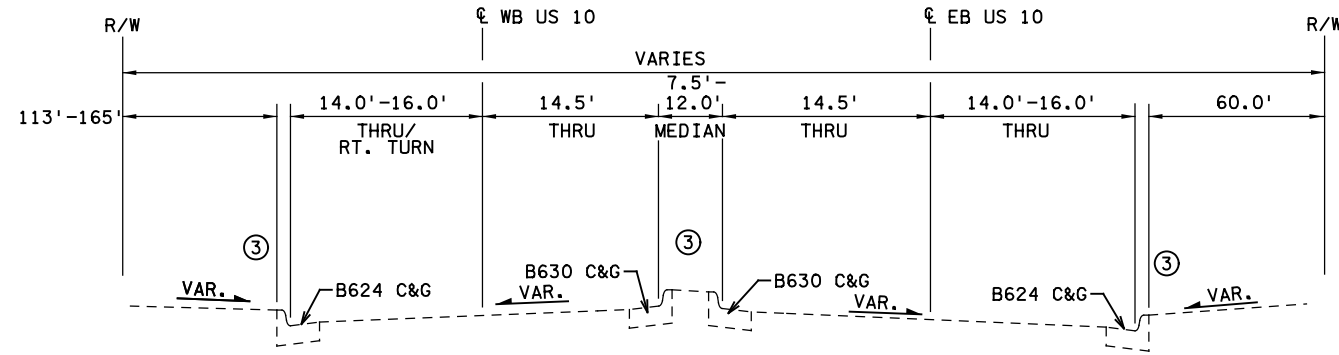


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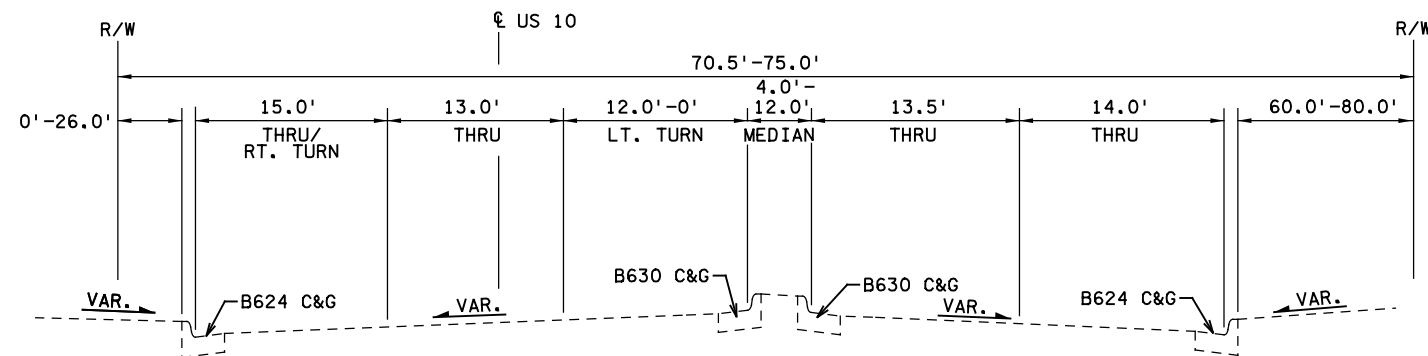


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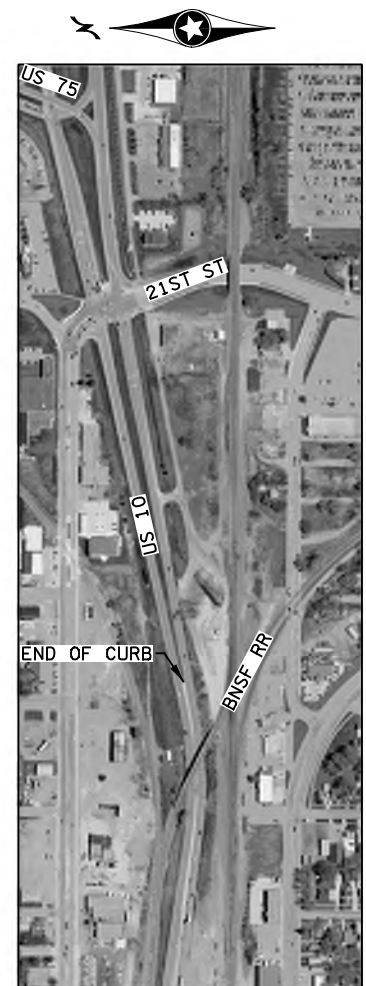
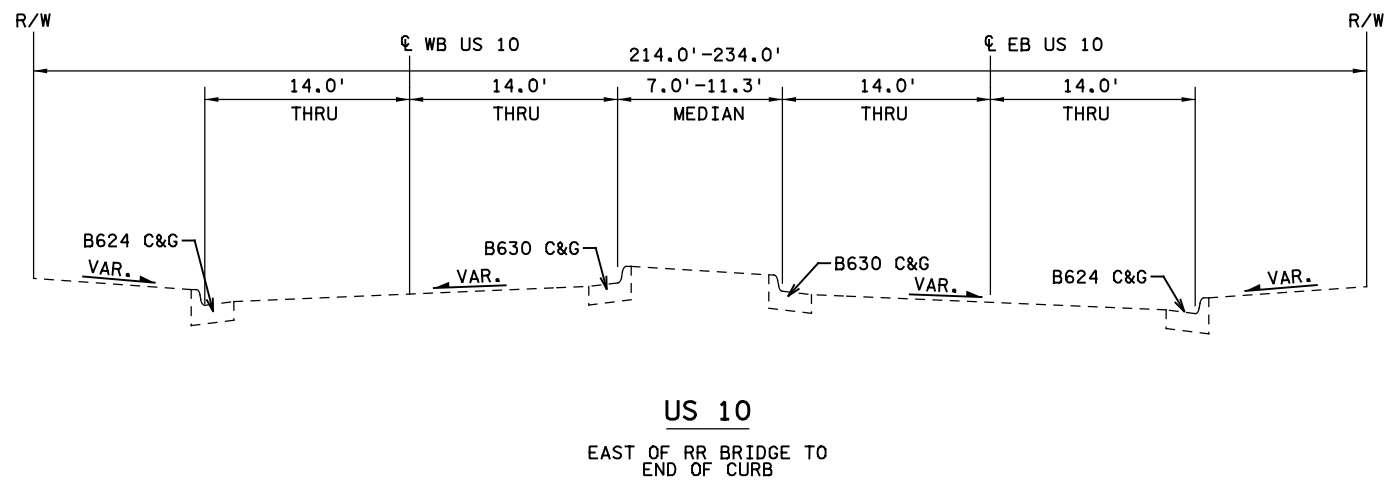
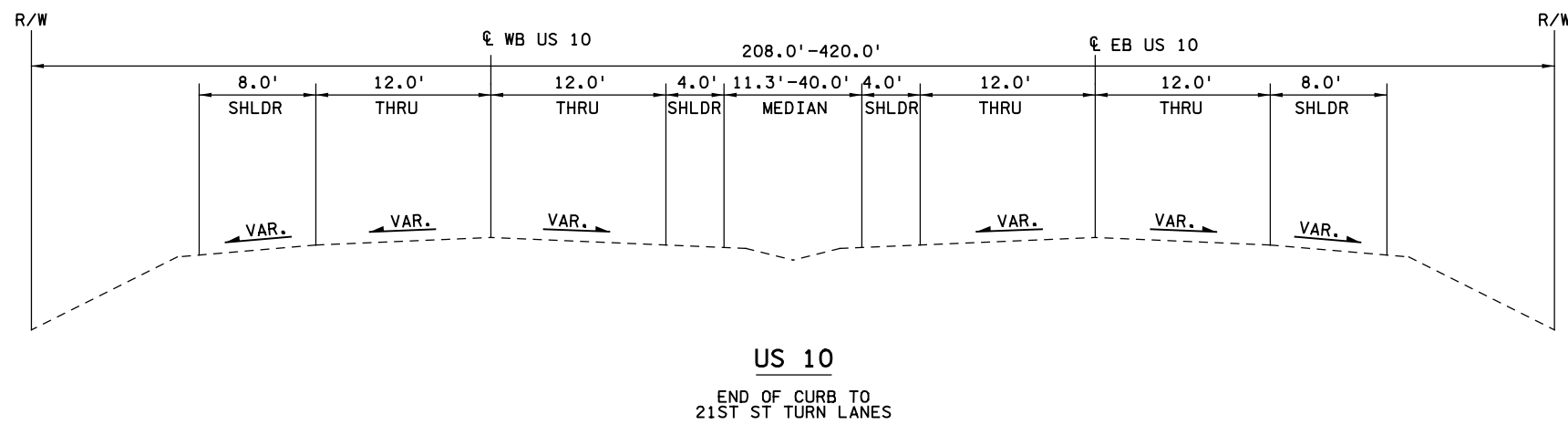
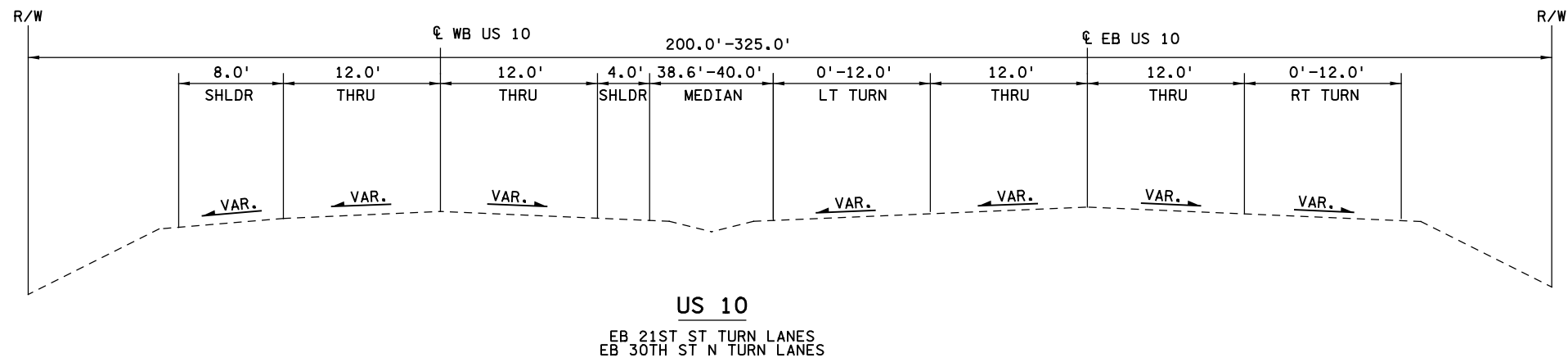
US 10
EAST OF 14TH STREET S TO EAST OF RR BRIDGE

③ GUARDRAIL LOCATIONS
NEAR RR BRIDGE



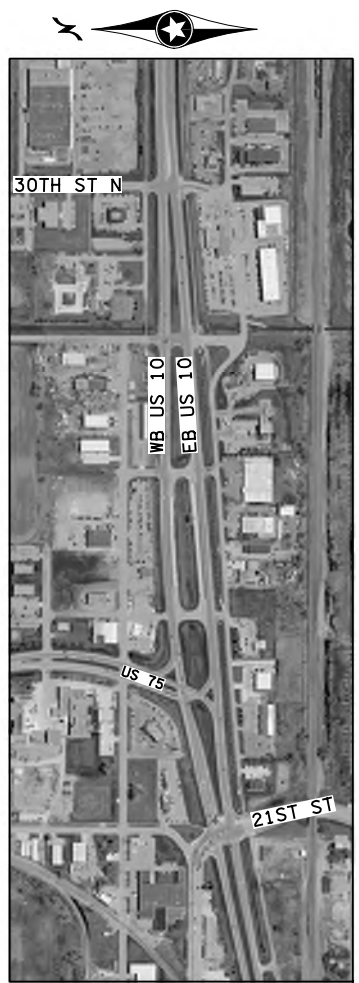
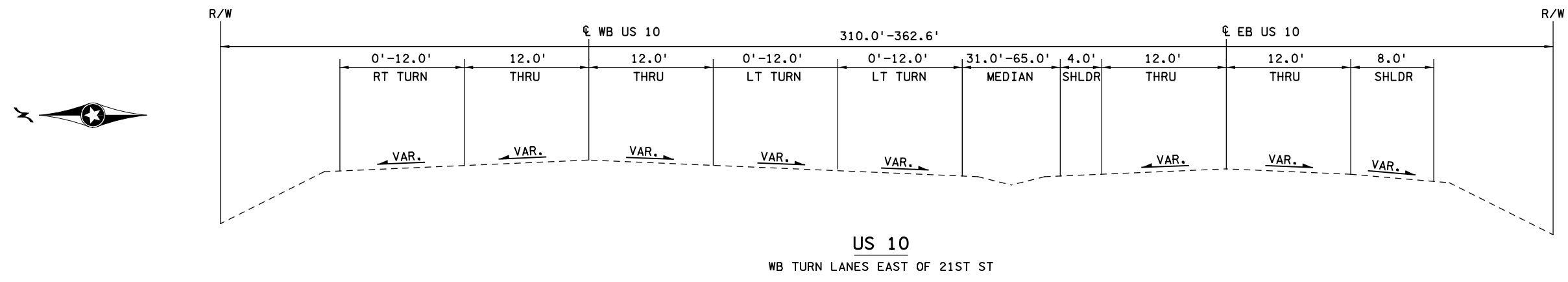
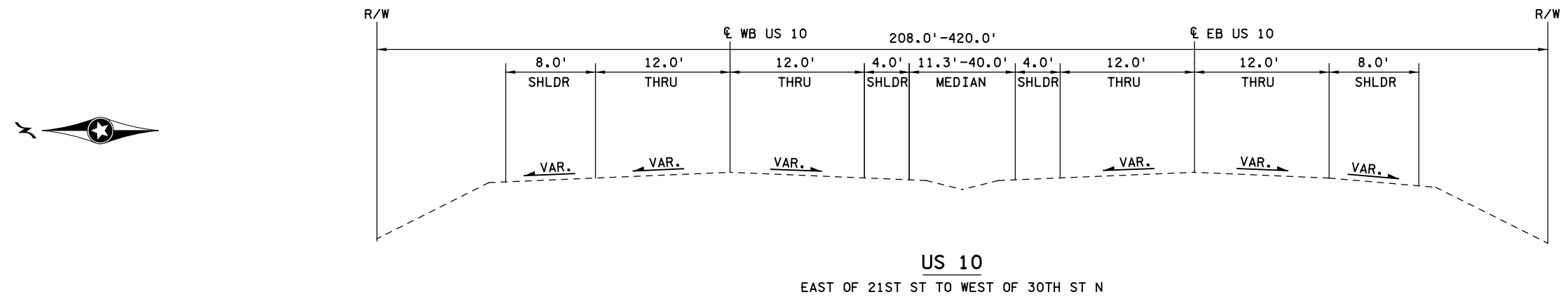
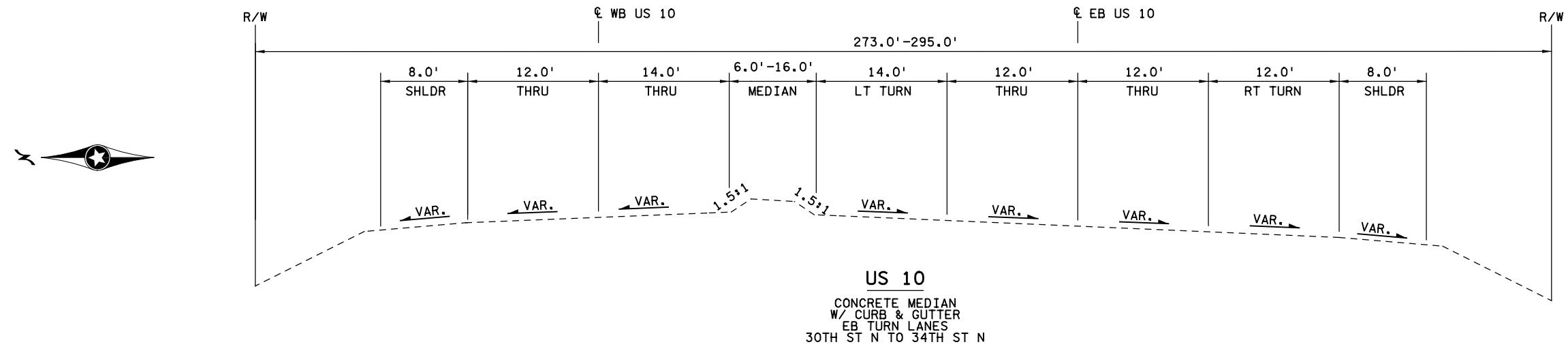
US 10
EAST OF 14TH STREET S
EAST APPROACH

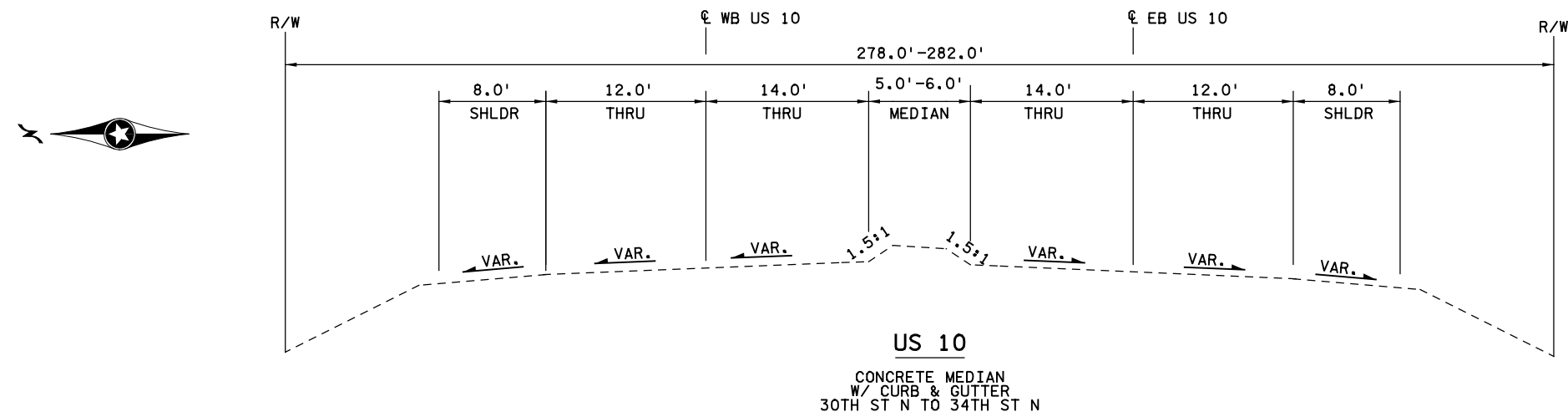
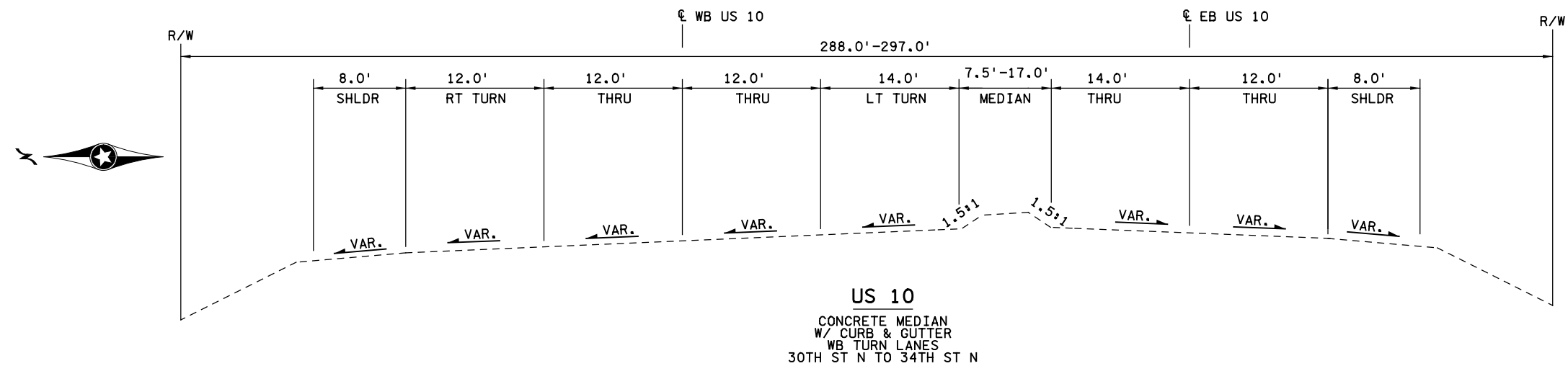




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