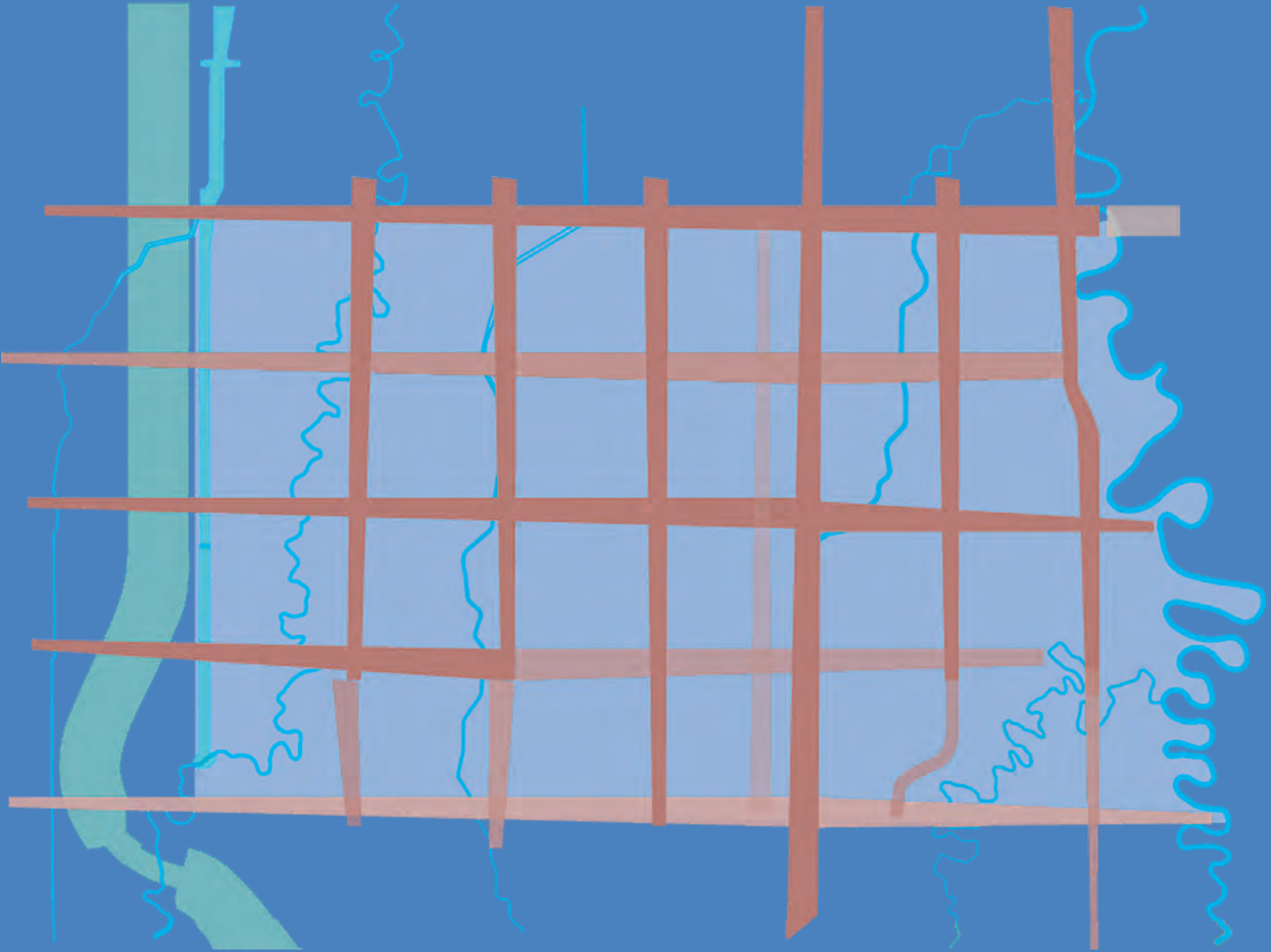


# Southwest Metro Transportation Plan

FARGO-MOORHEAD METROPOLITAN COUNCIL OF GOVERNMENTS



MAY 2016



# Southwest Metro Transportation Plan

Adopted May 2016

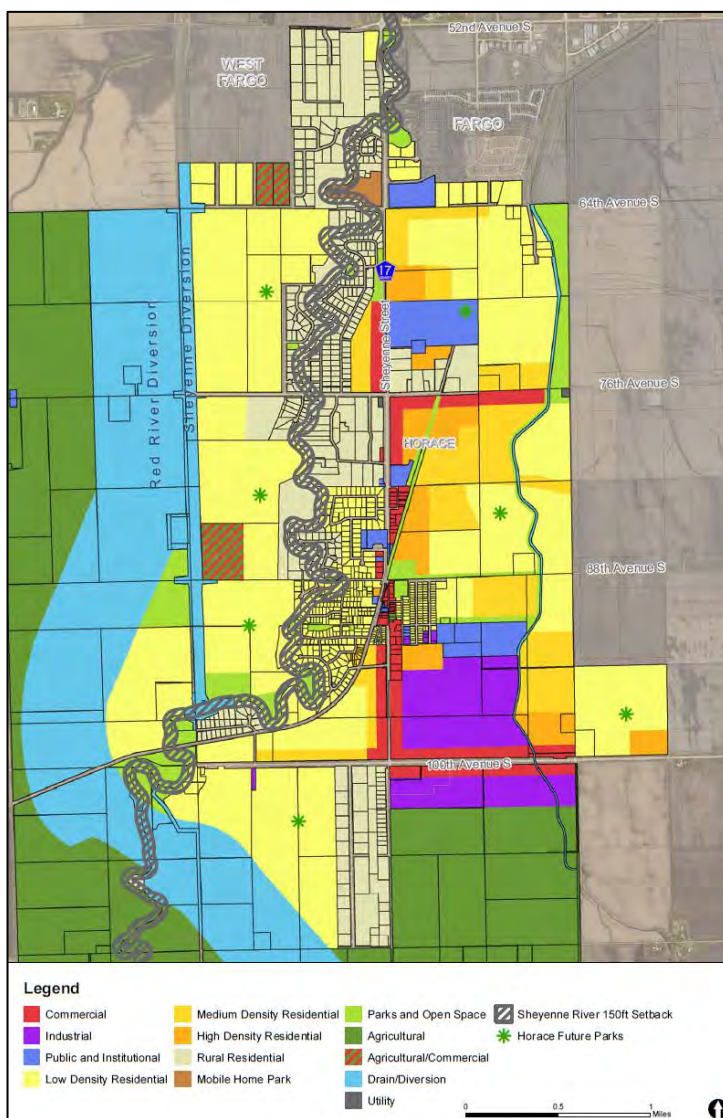


## Executive Summary

Backed by a strong economic climate, the Fargo-Moorhead metropolitan area has grown at a rapid, steady rate in the last two decades. Much of this growth has been concentrated south of Interstate 94 and west of the Red River, where the cities of Fargo, Horace, and West Fargo have continued to expand municipal services, utilities, and transportation infrastructure. As these cities converge, it is imperative to follow a regional transportation plan. Metro COG's Long Range Transportation Plan (Metro 2040) analyzed metro-wide transportation needs, but was not charged with looking in depth at the future right-of-way and capacity needs of the roadway system where Fargo and Horace will grow together south of 52<sup>nd</sup> Avenue South. The Southwest Metro Transportation Plan (SWMTP) is a thorough and timely document that addresses this planning gap through its comprehensive, coordinated, and long-term approach.

The SWMTP was developed through collaborative effort by stakeholders, planners, and members of the public. A Study Review Committee guided the project from start to finish, meeting six times beginning in May 2014. This group consisted of 16 representatives from Fargo, Horace, Cass County, Stanley Township, and the Fargo-Moorhead Metropolitan Council of Governments. The SRC ensured that planning methods were sound, conclusions were logical, and that the final product would be supported by citizens and administrators.

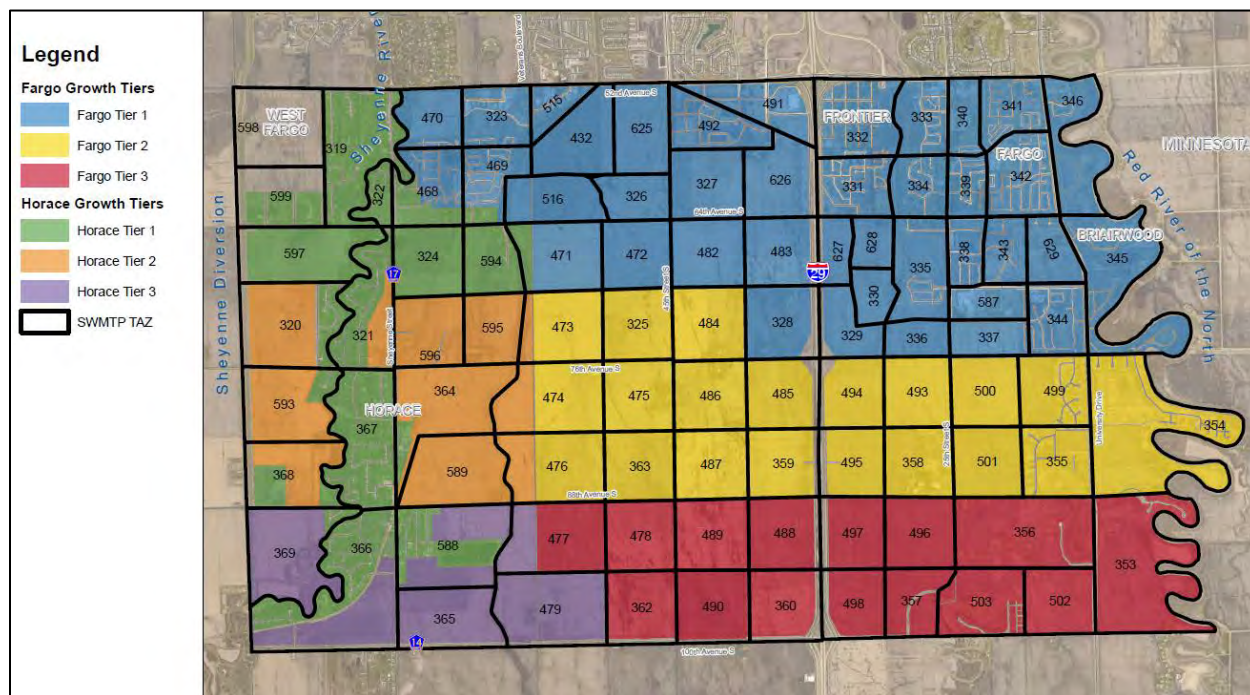
Public involvement was central to the planning process. Three meetings were fully open to the public. Community members were shown alternative network improvements and asked to provide input on what roadway features were important to them. In addition, citizen input was key to creating a travel demand model that would be representative of future land use. To initiate development of the travel



demand model, the City of Horace completed a future land use plan and the City of Fargo updated its future land use plan as it pertains to the study area. Creating these plans with the support of the community was a critical step in formulating realistic assumptions about the location and intensity of future land uses, which were then converted to GIS data to set model parameters.

Urban growth progresses over space and time. The Southwest Metro Transportation Plan has an expansive scope, with a study area encompassing more than 25 square miles and a planning horizon stretching several decades. The rate of growth will not be uniform across this timeline. Initially, growth may be suppressed by many factors, including limited sewer capacity in Horace, limited infrastructure in general, and flooding obstacles across the study area. On the other hand, the completion of a major improvement, such as the proposed interchange at 76<sup>th</sup> Avenue South and I-29, would catalyze development in the study area. When constraints are removed and conditions favorable to growth are put in place, the rate of growth in the study area will accelerate, then peak and follow a natural decline until build-out is complete.

To address phasing, the SWMTP utilizes a set of four growth tiers, each of which is tied to a geographic sub-region and a growth timeframe. Throughout the document, Tiers 1, 2, 3, and 4 are denoted as 2020, 2030, 2040, and 2040+. However, it is important to emphasize that actual development probably won't correspond precisely to these timeframes. Originally, it was assumed that flooding obstacles could be overcome at an early stage of development. If flood protection is delayed, however, the growth figures shown for "2020" may not be reached until a later date, and subsequently Tier 1 would be extended and the need for transportation improvements associated with that tier would be pushed back.



Likewise, the pace of growth may not align neatly with these timelines. If growth proceeds faster or slower than is implied to occur over each ten-year period, it will impact the schedule of roadway improvements. Therefore, it is best to follow the sequence of growth, which should progress generally from north to south, and not target a specific year as a trigger for network improvements. Rather than update growth tier labels throughout the document, the original naming scheme has been maintained.

The SWMTP contains seven chapters and appendices:

1. Plan Introduction
2. Existing Plan Review
3. Existing Conditions
4. Public Involvement
5. Travel Demand Model Development and Validation
6. Model Analysis
7. Findings and Recommendations

#### Appendices

- A. Planning Level Cost Calculations
- B. 76<sup>th</sup> Avenue Corridor Concept

Chapters 1, 2, and 3 provide background information to orient the reader. This information will help familiarize the reader with the existing planning landscape, and provides context for material that is presented in later chapters. However, the body of plan itself – new analysis, maps, recommendations, etc. – is contained in Chapters 5, 6, and 7. Readers who are more familiar with recent planning efforts in the Fargo-Moorhead growth area may wish to skip to these chapters.

Chapter 1, Plan Introduction, discusses recent growth trends and the impetus for the plan in greater detail. It identifies development opportunities and constraints to regional growth.

Chapter 2, Existing Plan Review, examines other planning documents of project relevance, including the 2007 Growth Plan, Go 2030, and existing corridor studies.

Chapter 3, Existing Conditions, inventories current land use, parcel, and roadway data and assesses baseline network performance. Most importantly, this chapter identifies starting population and household figures for Fargo, Horace, West Fargo, and Cass County. Based on those estimates, the amount of the growth that is expected to occur within each tier was calculated.

	2020			2030			2040		
Municipality	Population	Households	Jobs	Population	Households	Jobs	Population	Households	Jobs
Fargo	29,243	12,274	5,923	46,669	19,598	9,477	58,155	24,427	11,909
Horace	6,019	2,010	330	6,309	2,109	734	6,309	2,109	775
<b>Total</b>	<b>35,262</b>	<b>14,284</b>	<b>6,253</b>	<b>52,978</b>	<b>21,707</b>	<b>10,211</b>	<b>64,465</b>	<b>26,536</b>	<b>12,684</b>

Chapter 4, Public Involvement, describes the proceedings and planning outcomes for each meeting of the Study Review Committee and the three public meetings.

Chapter 5, Travel Demand Model Development and Validation, describes the process of updating, testing, and refining the travel demand model. The travel demand model is a traditional four-step model that allocates jobs and households to traffic analysis zones, generates trips between zones based on socioeconomic forecasts derived from the future land use plans, and assigns trips to the anticipated roadway network in an iterative fashion. Use of the tiered modeling framework allowed for improvements forecasted for one tier to be carried through subsequent tiers in a progressive manner.

Chapter 6, Model Analysis, documents the traffic forecasts and capacity issues. During each growth tier, a capacity analysis was performed to ensure that the new roadway network performed acceptably. Thorough review of model output led to the selection of a “best-fit” roadway network for each tier. Effort was made to optimize network efficiency while minimizing investment costs. Sensitivity analysis was performed to compare the impacts of network alteration at three links: Veterans Boulevard, the 76<sup>th</sup> Avenue South corridor, and the I-29 Interchange at 76<sup>th</sup> Avenue South. Based on these analyses, the extension of Veterans Boulevard is not a critical improvement; north/south volumes can be accommodated on other roadways. The 76<sup>th</sup> Avenue South/I-29 interchange, however, is an important component of the metro area’s future roadway network, and the extension of the 76<sup>th</sup> Avenue South corridor across the Red River, with connectivity to the east and west, has the benefit of reducing volumes on 52<sup>nd</sup> Avenue South and on important north/south corridors such as 25<sup>th</sup> Street and 45<sup>th</sup> Street South.

In Chapter 7, Findings and Recommendations, specific improvements are identified by growth tier on Figures 7.1-7.4. Preliminary cost estimates are provided. With annual costs adjusted for inflation, total project investments are estimated at \$98.9 million in Tier 1, \$158.4 million in Tier 2, and \$282.5 million in Tier 3. Chapter 7 concludes with a corridor observation summary, which highlights potential impediments to corridor expansion.

Chapters 6 and 7 constitute the body of the plan. These chapters contain essential information that would not be available without the use of a travel demand model. Modeling remains the most reliable, cost-effective method to forecast traffic volumes and prioritize network improvements. Good forecasts depend on practical assumptions as well as robust datasets that are representative of the real world. In the coming decades, growth in the southwest metro could unfold in a number of scenarios, all of which are dependent on the growth of the metro area as a whole. While the tiered framework accounts for some local growth restraints, all forecasts in the SWMTP nonetheless represent a straightforward scenario in which the regional economy is stable and metro-area population growth is steady. They assume that the entire study area is developable to build out, with some variation in density accounted for due to differing elevations and fill requirements. Following these assumptions leads to a series of first-order forecasts, which are highly useful for establishing an overall picture of

urban development, but which will require refinement if a significantly different scenario were to occur.

For instance, if the City of Fargo establishes interim flood protection prior to or in lieu of the Red River Diversion Project, it may pursue higher residential densities to maximize its investment in flood resiliency infrastructure. Efforts to concentrate development in certain locations may be associated with minimal development in others. If the pattern or intensity of land use changes significantly, the model will need to be updated. Likewise, if the City of Horace resolves its waste water treatment dilemma sooner rather than later, the model should be updated to reflect accelerated development during earlier growth tiers.

Finally, further study of access management along the 76<sup>th</sup> Avenue corridor is warranted. Currently, the travel demand model assumes ½-mile spacing between intersections. If access points are limited to 1-mile spacing or greater, which has been recommended for an expressway design, this will impact route selection throughout the study area.

As it stands, the SWMTP fills a void in regional planning activities. It will aid policy makers, planners, engineers, and developers as demand for housing and services responds to continued growth pressure in the metropolitan area. The SWMTP should be consulted as other relevant planning documents are updated. These include Metro COG's Long-Range Transportation Plan, the capital improvement programs for Fargo, Horace, and Cass County, those entities' comprehensive plans, and any specific transportation plans, such as transit or bicycle/pedestrian plans, that impact the study area.



# Table of Contents

<b>Executive Summary.....</b>	<b>i</b>
<b>List of Figures.....</b>	<b>xi</b>
<b>List of Tables.....</b>	<b>xii</b>
<b>Chapter 1 – Plan Introduction.....</b>	<b>1</b>
Existing Issues and Conditions .....	1
Land Use and Transportation Planning.....	3
Findings and Recommendations.....	4
<b>Chapter 2 – Existing Plan Review .....</b>	<b>5</b>
Introduction .....	5
Fargo .....	5
Go 2030.....	5
2007 Growth Plan .....	6
Horace.....	7
Comprehensive Plan .....	7
Key Policies, Standards, and Improvements.....	7
West Fargo.....	8
Growth Management Procedures .....	8
Capital Improvements.....	8
Cass County.....	8
Comprehensive Plan .....	8
Zoning and Subdivision Ordinances .....	8
Fundability Plan (Capital Improvement Program) .....	9
Red River Bridge Corridor and Geotechnical Studies.....	9
Fargo-Moorhead Metropolitan Council of Governments.....	13
Metro 2040 .....	13
Transportation Improvement Program .....	13
25 <sup>th</sup> Street/64 <sup>th</sup> Avenue South Corridor Study.....	15
South Diversion Master Transportation Plan .....	15
Traffic Operations Incident Management Strategy .....	15
Fargo-Moorhead Diversion Plan .....	16
<b>Chapter 3 – Existing Conditions .....</b>	<b>17</b>
Introduction .....	17

Flood Hazard Areas .....	17
General Flood Protection Strategies and Features.....	18
Existing Land Use .....	18
Fargo .....	21
Horace .....	21
West Fargo .....	21
Existing Demographics .....	25
Fargo .....	25
Horace .....	26
West Fargo .....	27
Stanley Township .....	27
Roadway Inventory .....	28
Gravel.....	28
Paved.....	29
Field.....	29
Existing and Committed Roadways.....	31
Collision Analysis.....	31
Collision Data .....	31
Crash Severity .....	31
Intersection Crash Locations.....	34
Jurisdictional Responsibility.....	35
Corridor Issue Identification .....	35
West Area.....	38
West Area Corridors.....	38
52nd Avenue South.....	38
64th Avenue South and 76th Avenue South.....	39
County Road 17.....	39
Veterans Boulevard.....	40
Central Area .....	40
Central Area Corridors .....	40
52 <sup>nd</sup> Avenue South .....	40
64 <sup>th</sup> Avenue South.....	40
76 <sup>th</sup> Avenue South.....	41

45 <sup>th</sup> Street South .....	41
42 <sup>nd</sup> Street South.....	41
38 <sup>th</sup> Street South .....	41
Interstate 29.....	42
East Area .....	42
East Area Corridors .....	42
52 <sup>nd</sup> Avenue South .....	42
64 <sup>th</sup> Avenue South.....	42
76 <sup>th</sup> Avenue South.....	42
25 <sup>th</sup> Street South .....	43
University Drive South .....	43
Summary .....	43
<b>Chapter 4 – Public Involvement .....</b>	<b>44</b>
Introduction .....	44
SRC Meetings .....	44
SRC Meeting #1 .....	44
SRC Meeting #2 .....	45
SRC Meeting #3 .....	45
SRC Meeting #4 .....	45
SRC Meeting #5 .....	45
SRC Meeting #6 .....	45
General Public Meetings .....	46
Workshop.....	46
Public Meeting #2 and Planning Commission Review .....	46
Public Open House #3 .....	46
Other Input Activities.....	47
<b>Chapter 5 – Travel Demand Model (TDM) Development and Validation .....</b>	<b>49</b>
Introduction .....	49
Socioeconomic Data.....	49
Fargo Land Use Plan Update .....	50
Horace Future Land Use Plan.....	51
Modeled Growth Tiers and Future Populations .....	55
Growth Tier Development .....	57

Southwest Metro Traffic Analysis Zones .....	58
Existing and Committed Roadways.....	58
<b>Chapter 6 – Model Analysis .....</b>	<b>61</b>
Introduction .....	61
Volume/Capacity Standards .....	61
LOS Standards .....	61
Modeled Roadway Capacities.....	61
Best Fit Scenarios .....	64
2020 Capacity Analysis.....	64
2030 Capacity Analysis.....	65
2040 Capacity Analysis.....	65
2040+ Capacity Analysis.....	65
Sensitivity Analysis .....	70
76 <sup>th</sup> Avenue South.....	70
Veterans Boulevard.....	71
I-29 and 76 <sup>th</sup> Avenue South, Grade Separation .....	72
I-29 and 76 <sup>th</sup> Avenue South, No Connection.....	72
Conclusion.....	73
<b>Chapter 7 – Findings and Recommendations.....</b>	<b>79</b>
Introduction .....	79
Identified Projects.....	79
2020 Projects .....	79
2030 Projects .....	82
2040 Projects .....	85
2040+ Projects .....	88
Multimodal Transportation Features .....	90
Go2030 – Fargo Comprehensive Plan.....	90
Fargo Moorhead Red River Diversion Recreation and Use Master Plan .....	90
Proposed Multimodal Transportation Features .....	91
Planning Level Cost Estimates.....	94
Jurisdictional Coordination .....	96
Cass County Road 17 through Horace .....	98
38 <sup>th</sup> Street South from the City of Fargo Boundary to Cass CR 14 (100 <sup>th</sup> Avenue South).....	98

36th Street South from 88th Avenue South to 100th Avenue South .....	98
25th Street South from 76th Ave S to 100th Avenue South .....	98
South University Drive from 64th Ave S to 100th Ave S .....	98
52nd Avenue South from 45th Street South to the Sheyenne Diversion .....	99
64th Avenue South from 38th Street South to Drain 27 .....	99
76th Avenue South (Cass CR 6) from Cass CR 17 to the Sheyenne Diversion .....	100
76th Avenue South from 38th Street South to the Veterans Boulevard Section Line .....	100
76th Avenue South from 25th Street South to Drain 53 .....	100
88th Avenue South from the Sheyenne River to the Sheyenne Diversion .....	100
88th Avenue South from the City of Horace boundary to 38th Street South .....	100
88th Avenue South from 36th Street South to the Wild Rice River .....	100
Cass CR 14 (100th Avenue South) from the Sheyenne Diversion to South University Drive.....	100
Access Management .....	102
Recommendations .....	108
76th Avenue South .....	109
Corridor Issue Identification .....	110
52 <sup>nd</sup> Avenue South .....	111
64 <sup>th</sup> Avenue South.....	113
76 <sup>th</sup> Avenue South.....	115
100 <sup>th</sup> Avenue South – Interchange with I-29 .....	117
County Road 17 .....	118
25 <sup>th</sup> Street South .....	120
<b>Appendix A – Resolutions of Adoption.....</b>	<b>122</b>
<b>Appendix B – Planning Level Cost Calculations .....</b>	<b>127</b>
<b>Appendix C – 76<sup>th</sup> Avenue Corridor Concept.....</b>	<b>134</b>

# List of Figures

Figure 1.1: Study Area and Municipalities .....	2
Figure 2.1: South Fargo Recreation Trail (Source: Go2030) .....	6
Figure 2.2A: 70th Avenue South Alternative (Source: Red River Bridge Corridor Study) .....	10
Figure 2.2B: 76th/70th Avenue South Alternative (Source: Red River Bridge Corridor Study) .....	10
Figure 2.2C: Original 76th Avenue South Alternative (Source: Red River Bridge Corridor Study) .....	11
Figure 2.2D: New 76th Avenue South Alternative (Source: Red River Bridge Corridor Study) .....	11
Figure 2.2E: Jogged 76th Avenue South Alternative (Source: Red River Bridge Corridor Study) .....	12
Figure 2.2F: Jogged 76th/70th Avenue South Alternative (Source: Red River Bridge Corridor Study) .....	12
Figure 2.3: LRTP Fiscally Constrained Projects (Source: Metro COG) .....	14
Figure 3.1: FEMA Flood Hazard Areas.....	19
Figure 3.2: Existing Water Features.....	20
Figure 3.3: Existing Land Use – Study Area.....	22
Figure 3.4: Existing Land Use – City of Fargo .....	23
Figure 3.5: Existing Land Use – City of Horace.....	24
Figure 3.6: Household Size, Fargo TAZs .....	26
Figure 3.7: Household Size, Horace TAZs.....	26
Figure 3.8: Household Size, West Fargo TAZs.....	27
Figure 3.9: Household Size, Stanley Township TAZs .....	28
Figure 3.10: Existing Roadway Network and Surface Type.....	30
Figure 3.11: Existing Roadway Functional Classifications .....	32
Figure 3.12: Motor Vehicle Crashes (2012-2014) .....	33
Figure 3.13: Existing Roadway Jurisdictional Responsibilities .....	36
Figure 3.14: West Area, Central Area, East Area .....	37
Figure 5.1: Fargo Preferred Future Land Use Plan Update .....	53
Figure 5.2: Horace Preferred Future Land Use Plan .....	54
Figure 5.3: Study Area Growth Tiers.....	56
Figure 5.4: Study Area TAZs .....	59
Figure 5.5: Existing and Committed Roadways.....	60
Figure 6.1: Two-Lane Capacity Comparison, LRTP and SWMTP Travel Demand Models.....	63
Figure 6.2: Four-Lane Capacity Comparison, LRTP and SWMTP Travel Demand Models .....	64
Figure 6.3: Year 2020 Best Fit Scenario – Capacity Analysis .....	66
Figure 6.4: Year 2030 Best Fit Scenario – Capacity Analysis .....	67
Figure 6.5: Year 2040 Best Fit Scenario – Capacity Analysis .....	68
Figure 6.6: Year 2040+ Best Fit Scenario – Capacity Analysis .....	69
Figure 6.7: ADT change under 76 <sup>th</sup> Avenue South Sensitivity Analysis.....	71
Figure 6.8: 2040+ Best Fit Scenario, 76 <sup>th</sup> River Crossing Sensitivity Analysis .....	74
Figure 6.9: 2040+ with Aggressive Horace Growth and Veterans Boulevard Extension .....	75
Figure 6.10: 2030 Sensitivity Test, Without 76 <sup>th</sup> Avenue Interchange and Grade Separation .....	76
Figure 6.11: 2030 Sensitivity Test, Without 76 <sup>th</sup> Avenue Interchange or Grade Separation.....	77
Figure 6.12: Best Fit Scenario Improvements.....	78
Figure 7.1: 2020 Network Improvements.....	81

Figure 7.2: 2030 Network Improvements.....	84
Figure 7.3: 2040 Network Improvements.....	87
Figure 7.4: 2040+ Network Improvements.....	89
Figure 7.5: Proposed Multimodal Transportation Features .....	93
Figure 7.5A: 2-Lane Arterial/Collector Typical Section .....	94
Figure 7.5B: 3-Lane Arterial/Collector Asphalt Typical Section .....	94
Figure 7.5C: 3-Lane Arterial/Collector Concrete Typical Section.....	94
Figure 7.5D: 4-Lane Divided Arterial/ Collector Typical Section .....	95
Figure 7.5E: 5-Lane Arterial/Collector Typical Section .....	95
Figure 7.5F: 6-Lane Divided Arterial/Collector Typical Section .....	95
Figure 7.6A: Roadway Access and Driveway Spacing Guidelines – City of Fargo .....	104
Figure 7.6B: Driveway Access from Block Corner – City of Fargo .....	106
Figure 7.7: 52 <sup>nd</sup> Avenue South from Sheyenne River Diversion to 45 <sup>th</sup> Street .....	111
Figure 7.8: 52 <sup>nd</sup> Avenue South from 25 <sup>th</sup> Street to Red River.....	112
Figure 7.9: 64 <sup>th</sup> Avenue South at Drain 27 Crossing .....	113
Figure 7.10: 64 <sup>th</sup> Avenue South from 45 <sup>th</sup> Street South to University Drive .....	114
Figure 7.11: 76 <sup>th</sup> Avenue South from County Road 17 to 45 <sup>th</sup> Street .....	115
Figure 7.12: 76 <sup>th</sup> Avenue South from 45 <sup>th</sup> Street to Red River .....	116
Figure 7.13: 100 <sup>th</sup> Avenue South at I-29 Interchange.....	117
Figure 7.14: County Road 17 from 52 <sup>nd</sup> Avenue South to 76 <sup>th</sup> Avenue South.....	118
Figure 7.15: County Road 17 from 76 <sup>th</sup> Avenue South to 100 <sup>th</sup> Avenue South .....	119
Figure 7.16: 25 <sup>th</sup> Street South from 52 <sup>nd</sup> Avenue South to 76 <sup>th</sup> Avenue South .....	120
Figure 7.17: 25 <sup>th</sup> Street South from 76 <sup>th</sup> Avenue South to 100 <sup>th</sup> Avenue South .....	121

## List of Tables

Table I – List of Acronyms .....	xiii
Table 3.1: Crash Severity.....	31
Table 3.2: Location and Manner of Crash .....	34
Table 5.1: 2020, 2030, and 2040 Study Area Population, Household, and Job Forecasts.....	55
Table 5.2: Tiered Growth Allocation – Fargo .....	57
Table 5.3: Tiered Growth Allocation – Horace.....	58
Table 6.1: Daily Capacity Assumptions, LRTP and SWMTP Travel Demand Models.....	62
Table 7.1: 2020 Identified Improvements .....	80
Table 7.2: 2020 Intersection Improvements.....	82
Table 7.3: 2030 Identified Corridor Improvements .....	83
Table 7.4: 2030 Intersection Improvements.....	85
Table 7.5: 2040 Identified Corridor Improvements .....	86
Table 7.6: 2040 Intersection Improvements.....	88
Table 7.7: 2040+ Identified Corridor Improvements .....	88
Table 7.8: Planning Level Cost Estimates.....	96
Table 7.9: Roadways Requiring Jurisdictional Coordination.....	97
Table 7.10: Study Area Jurisdictional Coordination by Corridor.....	101

*Table I – List of Acronyms*

ACRONYM	DEFINITION
<b>ADT</b>	Average Daily Traffic
<b>BFE</b>	Base Flood Elevation
<b>CIP</b>	Capital Improvement Plan
<b>CR</b>	County Road/County Highway (Cass)
<b>ETA</b>	Extraterritorial Area
<b>FEMA</b>	Federal Emergency Management Agency
<b>GIS</b>	Geographic Information Systems (software)
<b>ITS</b>	Intelligent Transportation Systems
<b>MATBUS</b>	Metro Area Transit
<b>Metro COG</b>	Fargo-Moorhead Metropolitan Council of Governments
<b>LOS</b>	Level of Service
<b>LRTP</b>	Long Range Transportation Plan
<b>MPO</b>	Metropolitan Planning Organization
<b>MSA</b>	Metropolitan Statistical Area
<b>NDCC</b>	North Dakota Century Code
<b>NDDOT</b>	North Dakota Department of Transportation
<b>PWPEC</b>	Public Works Projects Evaluation Committee (Fargo)
<b>ROW</b>	Right of Way
<b>RSTI</b>	Regionally Significant Transportation Infrastructure
<b>SECWRD</b>	Southeast Cass Water Resource District
<b>SRC</b>	Study Review Committee
<b>SWMTP</b>	Southwest Metro Transportation Plan
<b>TAZ</b>	Traffic Analysis Zone
<b>TDM</b>	Travel Demand Model
<b>TIP</b>	Transportation Improvement Program
<b>TOIMS</b>	Traffic Incident Management Strategy
<b>TTC</b>	Transportation Technical Committee
<b>USACE</b>	United States Army Corps of Engineers
<b>V/C</b>	Volume over Capacity Ratio

# Chapter 1 – Plan Introduction

## Existing Issues and Conditions

Fargo, Cass County, and Horace – in collaboration with the Fargo-Moorhead Metropolitan Council of Governments (Metro COG) – have entered into a planning process to determine needed transportation improvements within the study area for the Southwest Metro Transportation Plan (SWMTP). The area immediately north of this study area, as well as a portion of the study area itself, has grown steadily and rapidly since the late 1990s. This growth is due in part to the region’s excellent economic climate, but was also made possible by major infrastructure projects, including:









- Fargo’s extension of water and sewer infrastructure west of Interstate 29 and south of Interstate 94 around the year 2000 opened this area to major urbanization.
- West Fargo’s extension of municipal services south of Interstate 94 led to urban expansion nearly as far south as Horace.
- Completion of the Sheyenne River Diversion improved flood protection for existing and future developments in the western portion of the study area.
- In Fargo, the construction of Bennett Elementary School and Davies High School required infrastructure extensions that spurred growth in the surrounding areas.
- Horace’s small size combined with its proximity to a large metropolitan area and availability of land for greenfield development have made it an attractive option for residential growth.

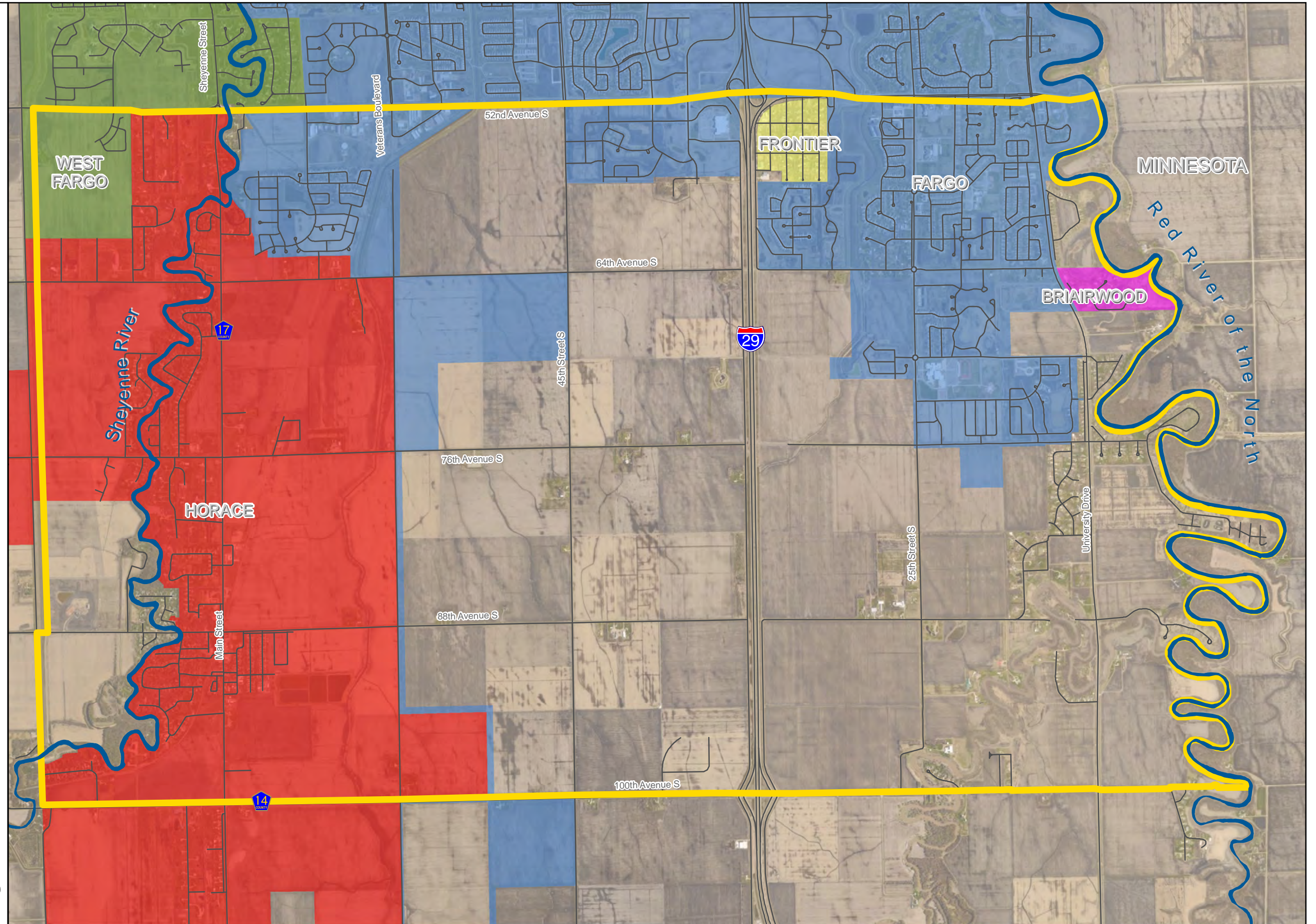
In recent decades, Fargo’s southwest growth area and West Fargo’s southerly growth area experienced a significant portion of the metro area’s growth. The area continues to experience infill growth, consisting of major developments such as the Sanford Health medical campus, Costco, The Preserve, and other residential and commercial developments. In 2000, when utilities were extended west of I-29 and south of I-94, Fargo was faced with the demand to grow in the absence of a plan. A fringe area land use plan was completed for Fargo’s portion of the growth area. West Fargo also extended utilities south of I-94 and prepared land use plans for this new growth area. All of these infrastructure improvements increased growth pressure on the project planning area.

As Fargo and West Fargo continue to grow to the south and towards each other, both cities enter this new phase of growth with a long history of transportation planning, corridor preservation, and access management as part of their planning partnership with Metro COG. To address the transportation needs of the area, several individual corridor studies were completed for roads within the project study area. In contrast to planning on a facility-by-facility basis, the SWMTP takes a comprehensive approach to transportation development in the planning area.



# Legend

-  Study Area
-  City of Briarwood
-  City of Fargo
-  City of Frontier
-  City of Horace
-  City of West Fargo
-  Rivers
-  Road Centerlines



0 0.5 1 Miles



## Study Area and Municipalities

Southwest Metro Transportation Plan • • • • FARGO-MOORHEAD METROPOLITAN COUNCIL OF GOVERNMENTS

Figure 1.1



The design of various components of the Red River Diversion has progressed steadily since the record flood of 2009. In the meantime, the City of Fargo and developers have devised strategies to build new projects at base flood elevations which are above the new 100-year-flood plain. Phased flood-risk reduction projects are planned in the project study area. However, the demand for housing and transportation development in the Southwest Metro is likely to outpace the development of diversion flood protection.

Horace's growth, along with that of Fargo and West Fargo, has the potential to expand toward the other cities. City documents need to be updated based on the findings of this plan. As the area develops, many corridors which are currently very rural in nature are on the verge of receiving dramatically increased travel demand. Corridor preservation is critical. The ability to implement the visions and goals of adopted local plans is dependent upon identification of future capacity and ROW needs before this area develops further.

The City of Horace has reached the limits of its sanitary sewer capacity and is determining the best way to proceed with phased improvements. The City has considered building additional capacity into its own system as well as partnering with Fargo or West Fargo and tying into those cities' wastewater treatment facilities. Once a solution is determined and implemented, this will address the city's most pressing growth constraint, following providing flood protection to the potential growth areas. It is assumed that the flood protection will be achieved through the implementation of the diversion. Provided these basic interests can be addressed it becomes critical to examine the needs and priorities of the southwest metro area – specifically the project study area.

Section line roads form the framework of the transportation system throughout the metro area as they transform from rural gravel roads to multi-lane arterial streets to meet the needs of development. If a section line road is unable to fulfill the planned role of an arterial roadway, it is important to identify this constraint far in advance of implementing the urban roadway improvements. The absence or limitation of one corridor is likely to place increased demand on other corridors. This could result in the need for more capacity and ROW on certain corridors or require land use and urban design decisions that do not generate traffic in excess of the system's capacity.

The SWMTP identifies the opportunities, constraints, and needs of the transportation infrastructure within the study area, with primary emphasis on the portions of the study area north of 88<sup>th</sup> Avenue South. The planning effort has emphasized inter-jurisdictional communication, including coordination between the City of Fargo, the City of Horace, and Cass County regarding infrastructure extension and corridor preservation. Likewise, the plan involved communication and coordination with the NDDOT, Metro COG, Stanley Township, and Southeast Cass Water Resource District (SECWRD).

### Land Use and Transportation Planning

To plan and implement transportation improvements requires knowledge about how the area may develop. Building from existing conditions, the SWMTP forecasts future land use in the study area

for input to the transportation model. The Fargo future land use plan was updated within the study area, and a land use plan was created for Horace. The travel demand model (TDM) uses a series of household and employment figures to generate and distribute traffic onto the roadway network in a way that is both geographically and time sensitive. This produced a series of traffic projections and associated transportation improvements that were identified in sequence by decade, including 2020, 2030, 2040, and beyond (a “2040+” scenario).

As growth continues, parts of the transportation network will begin to congest. With each decade, the model addresses increasing congestion by adding capacity to the network in the form of new lanes and roadways that would allow alternative routes through the network. This iterative approach resulted in a recommended system of arterial and collector roadways throughout the project study area.

## Findings and Recommendations

The SWMTP presents a series of transportation improvements by decade that will allow growth of the cities in the study area to proceed at a comfortable pace and in a relatively uncongested way. The largest hurdle to implementation will be to identify funding sources as project improvements are needed. The entirety of this plan has been done outside of fiscal constraint that the regional Long Range Transportation Plan (LRTP) is required to use. Some funding can be anticipated based on growth and population increases which have the potential to increase federal funding allocations. In addition, new development areas typically result in the formation of special assessment districts. Federal support is not expected to be sufficient to finance all necessary improvements within the study area. Financial limitations must be addressed as growth progresses. The planning level cost estimates provided in Chapter 7 can be used to address fiscal decision-making and funding strategies as growth occurs in the study area.

## Chapter 2 – Existing Plan Review

### Introduction

The first step in developing a comprehensive transportation and land use plan for the SWMTP study area is to establish a working knowledge of the planning environment within which this plan must operate. Preliminary work for this plan involved a review of existing planning documents (Chapter 2) as well as an analysis of existing conditions in the study area (Chapter 3). The literature review summarizes the important parts of each plan and presents a framework for planning within the project study area. These plans impact the study area in two ways: some are regional policy directives to which this plan must abide, and others address specific needs within the geographic scope of the study area.

Many existing planning documents have implications for this planning effort. Some are general, such as Go2030, which stands as the policy-making guide for the City of Fargo. This and other relevant plans should be consulted during the process of drafting more specific plans that impact the City of Fargo and surrounding jurisdictions to assure consistency across planning initiatives. Indeed, the general success of a comprehensive plan rests with its ability to inform future planning activities.

Many of the policies and principles described in a comprehensive plan apply throughout the metropolitan region, regardless of study area. For example, initiatives such as Complete Streets and Safe Routes to School prioritize policies that emphasize safety and accessibility for users of non-automotive transportation modes. Other documents, such as the Preliminary Geotechnical Study for the South Side Red River Bridge and Corridor, have specific application for the study area. The following literature review covers general metropolitan standards as well as more specific elements which apply to the SWMTP study area. The chapter describes some of the existing issues, goals, policies, and strategies that this plan must acknowledge. Specific factors were identified in discussions with the public and confirmed by the Study Review Committee (SRC).

### Fargo

#### Go 2030

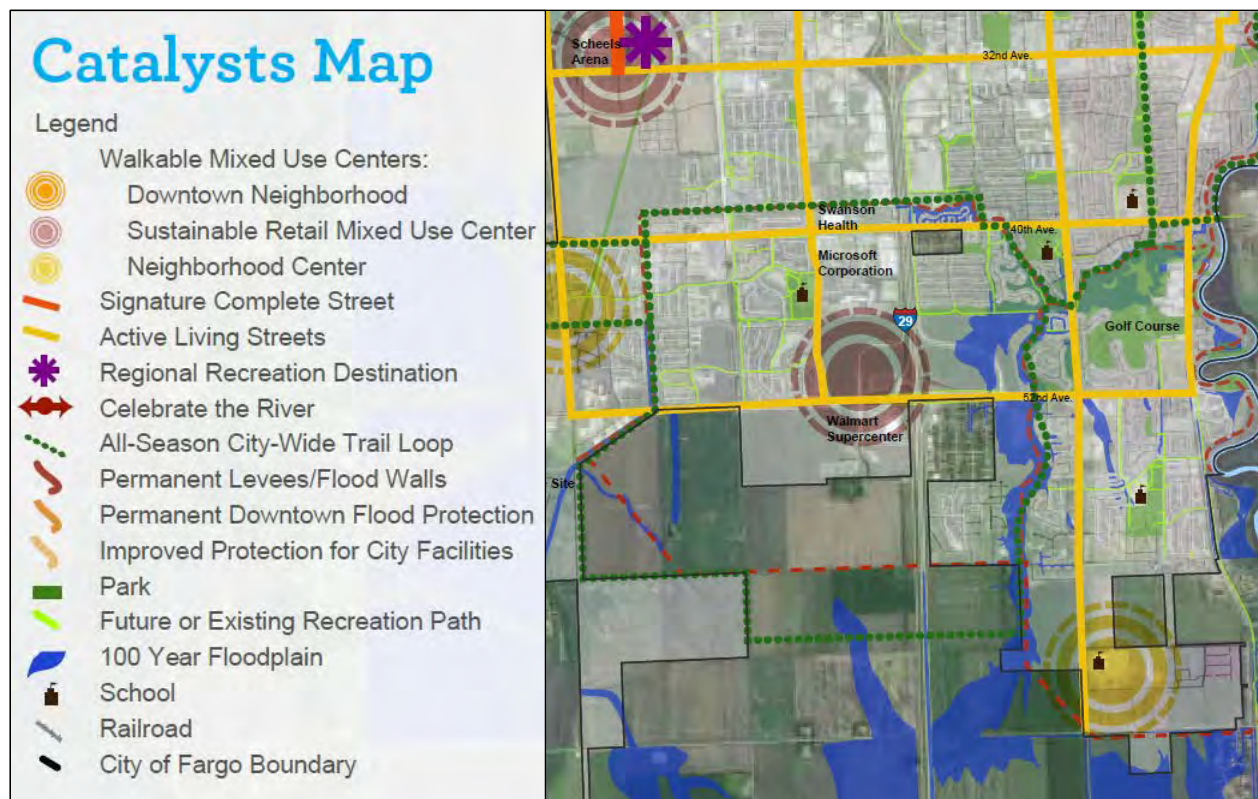
Adopted in 2012, Go2030 is the comprehensive plan for the City of Fargo. It represents the foundation for city policies related to growth and development. In the process of creating Go2030, city planners consulted with members of the public and a steering committee, and maintained an online forum to gather additional input. The feedback from each of these groups was incorporated into a weighted ranking scheme, which prioritizes key initiatives in terms of overall importance. A total of 39 initiatives are listed. “Bicycle/Pedestrian” Infrastructure ranked 4<sup>th</sup> overall. “Complete Streets” and “Transit Improvements” ranked 18<sup>th</sup> and 19<sup>th</sup>. Taken together, these rankings indicate a community desire for public investment in support of multiple transportation modes. These values should be weighed appropriately when undertaking transportation-specific plans.

Specifically, Go2030 designates Active Living Streets, which are defined as key corridors that prioritize mobility and that have the potential to support multiple modes of transportation, including

pedestrians, novice and advanced cyclists, transit, and other vehicles. Twenty-fifth Street South, located in the east-central portion of the study area, has been designated as an Active Living Street.

Finally, Go2030 envisions a city-wide trail loop, which would connect walkable mixed-use centers and provide a year-round recreation amenity. As currently conceptualized, the southern portion of this trail passes through the study area, crossing 52<sup>nd</sup> Avenue South at two locations and circling around the Walmart Supercenter. Go2030 states that the City will prioritize the acquisition of ROW for this trail as perimeter land is developed.

Figure 2.1: South Fargo Recreation Trail (Source: Go2030)



## 2007 Growth Plan

The 2007 Growth Plan is a growth management plan that specifically addresses the study area. It builds upon previous efforts to establish a comprehensive land use plan for the purpose of guiding development at the City of Fargo's urban fringe and within its southern extraterritorial area (ETA). By state statute, Fargo exercises influence over an ETA that extends up to four miles beyond city limits. All county land in the study area falls within this ETA.

The 2007 Growth Plan designates two tiers for land development, with the purpose of restricting the leap-frog development which requires costly extension of city infrastructure. The plan states that growth over the first 20-year period (through approximately 2025) should occur in Tier 1, and that development in Tier 2 should be limited during that time. Half of the study area – essentially

everything north of 76<sup>th</sup> Avenue – lies within Tier 1. Land south of 76<sup>th</sup> Avenue lies within Tier 2. This tiered system provides the basis of the geographical growth areas defined later in the SWMTP.

A primary focus of the 2007 Growth Plan is to increase population density in future growth areas beyond the average of 10 persons per acre for the existing metropolitan area. The plan calculates that Fargo’s current ETA can accommodate all of the city’s forecasted population growth through mid-century if population density in the ETA averages 12 persons per acre.

## Horace

### Comprehensive Plan

Horace currently faces infrastructural, geographical, and geological barriers to growth at urban densities. The Horace Comprehensive Plan, adopted in 2007, emphasizes that low quantities of surface and ground water limit capacity of the city’s wastewater treatment system and will limit future development if alternatives are not available. Without an expansion to the sanitary sewer system, on-site septic systems must be used, forcing development with very low density. Were these barriers to growth removed, however, the plan estimates that the population of Horace could reach 20,000 by the year 2030.

The comprehensive plan highlights a few areas for the development of a town center, including land north of 88<sup>th</sup> Avenue South and east of County Road 17, and the area south of the developed city and east of CR-17. Future development will be dictated by the location of floodplains and the construction of the Red River Diversion, if and when that occurs. In the short term, the orientation of the city with respect to the Sheyenne River and diversion requires that the majority of new development continue eastward. The population of Horace is less than 5,000; therefore the city’s extraterritorial area extends 1 mile beyond its border, based on the formula specified in the North Dakota Century Code (NDCC). When the population surpasses 5,000, the ETA may be extended to 2 miles. NDCC requires joint jurisdiction with the township or county in the outer half of the ETA.

### Key Policies, Standards, and Improvements

Key policies, standards, and improvements are identified in the city’s comprehensive plan and zoning ordinances. In general, these documents state that premature zoning changes from agricultural to other zoning districts should be avoided, especially along County Road 14 and County Road 17. The agricultural district should remain a “holding zone” – Horace prefers to manage each rezoning request on a case-by-case basis. Horace has indicated a preference for concentrated, block-development of its commercial district, rather than development along a linear corridor.

The plan identifies future roadway improvements for 52<sup>nd</sup>, 64<sup>th</sup>, 76<sup>th</sup>, and 88<sup>th</sup> Avenues South. All are designated as future east-west arterials. The comprehensive plan states that extension of these roads should occur west as well as east – even though the Sheyenne River and Sheyenne Diversion are physical barriers. It states that construction of an arterial road network along existing gravel section

lines would improve connectivity and support city development. To accommodate an increase in vehicle volumes, the comprehensive plan calls for the widening of County Road 14.

## West Fargo

### Growth Management Procedures

Growth management strategies are covered in West Fargo's Comprehensive Plan, which was last updated in 2008. At that time, the City's long-range infrastructure plans were based on a build-out population of 45,000. While there are numerous opportunities for infill development in flood-protected areas, much of the new growth will occur west of the Sheyenne Diversion and outside the SWMTP study area. West Fargo's potential to develop within the study area is limited to a one-square mile section located between 52<sup>nd</sup> Avenue South and 64<sup>th</sup> Avenue South west of County Road 17.

### Capital Improvements

The 2008 Comprehensive Plan itemizes long-range improvements to transportation facilities. None of these projects is located south of 52<sup>nd</sup> Avenue South. Capacity improvements to Sheyenne Street north of 52<sup>nd</sup> Avenue South were studied in 2014-15.

## Cass County

### Comprehensive Plan

The existing Comprehensive Plan for Cass County was adopted in 2005. This document includes information that applies to incorporated cities and townships and the remaining county land. A map of Stanley Township shows that the rural agricultural region of the study area boasts some of the most highly productive soils in one of the world's richest agricultural regions. The plan puts it well: "The soils in Cass County do not allow for indiscriminate development."

Meanwhile, the plan acknowledges that the rapidly growing metro area is under considerable pressure to develop in the urban fringe. The value of agricultural land is greatly influenced by encroaching development which increases the value of land for urban use and decreases the value of land used for agricultural production. This dynamic reinforces a pattern of development at the urban fringe. The Comprehensive Plan emphasizes the use of infill development as a means of counteracting market forces and discouraging the development of highly productive agricultural land. County policies are intended to prevent premature development, direct development to the urban boundary, and discourage nonfarm development in farming areas.

### Zoning and Subdivision Ordinances

County Zoning and Subdivision Ordinances were adopted in 2006. Consistent with its stated effort to restrict leap-frog development pursuant to the goals of the plan, the Cass County ordinances limit subdivision density to one buildable lot per quarter-quarter section (40 acres.) Each quarter-quarter is granted a single development right; however, development rights may be transferred among contiguous quarter-quarter sections under common ownership, permitting development of additional

lots. The comprehensive plan, zoning ordinance, and subdivision regulations have been highly successful at limiting rural non-farm development since they were adopted nearly ten years ago.

### Fundability Plan (Capital Improvement Program)

There are no 2016-2020 improvements located in the study area.

### Red River Bridge Corridor and Geotechnical Studies

In 2003, a series of corridor and geotechnical studies identified two preferred corridors and a third hybrid alternative for a future crossing of the Red River in the south metro area. The studies were intended to provide the preliminary planning for the construction of a crossing 15-20 years from the time of publication; identify topographical and geological limitations and associated alignment issues; and estimate the cost of completing each alternative. The three alternatives include 70<sup>th</sup> Avenue South; 76<sup>th</sup>/70<sup>th</sup> Avenue South, with the west approach via 76<sup>th</sup> Avenue South and the east approach via 70<sup>th</sup> Avenue South; and 76<sup>th</sup> Avenue South.

Preliminary slope stability, soil settlement, and erosion control analyses showed that long setbacks between the riverbank and bridge abutments were required in all cases to ensure the long-term stability of the structure. While those setback requirements had little impact on the overall alignment of the 70<sup>th</sup> Avenue South alternative, steeper slopes at the 76<sup>th</sup> Avenue South site left that alternative “highly constrained,” increasing the costs of ROW acquisition and construction. Overall, the 76<sup>th</sup> Avenue South Alternative was estimated to cost \$33.5 million, while the 70<sup>th</sup> Avenue South and 76<sup>th</sup>/70<sup>th</sup> Avenue South Alternatives were estimated to cost about \$28.8 million each.

In Phase 4 of the studies, two additional “jogged” alternatives were proposed to avoid residential impacts and farmland severance under the 76<sup>th</sup> Avenue South Alternative. Phase 4 concludes that all bridge location and corridor alignments are technically feasible. It emphasizes the tradeoff between the selection of a straight alignment for the 76<sup>th</sup> Avenue South Alternative, with its associated residential and farmland impacts, and the selection of a “jogged” alignment, which is less desirable in terms of traffic circulation. Although the 70<sup>th</sup> Avenue South Alternative avoids that tradeoff, it introduces a new 6.2-mile arterial corridor 0.5 mile north of 76<sup>th</sup> Avenue South and 0.5 mile south of 64<sup>th</sup> Avenue South, which is less than the preferred 1-mile spacing between arterial roads. Recent subdivision approvals along the 70<sup>th</sup> Avenue South corridor between University Drive South and I-29 have resulted in major hurdles to the use of this route. Many riverfront properties south of 76<sup>th</sup> Avenue South were bought out with funds from the Federal Emergency Management Agency (FEMA), which limits opportunities to acquire ROW for a bridge structure.

Figures 2.2A-F show the six alternatives for the Red River crossing.

Figure 2.2A: 70th Avenue South Alternative (Source: Red River Bridge Corridor Study)

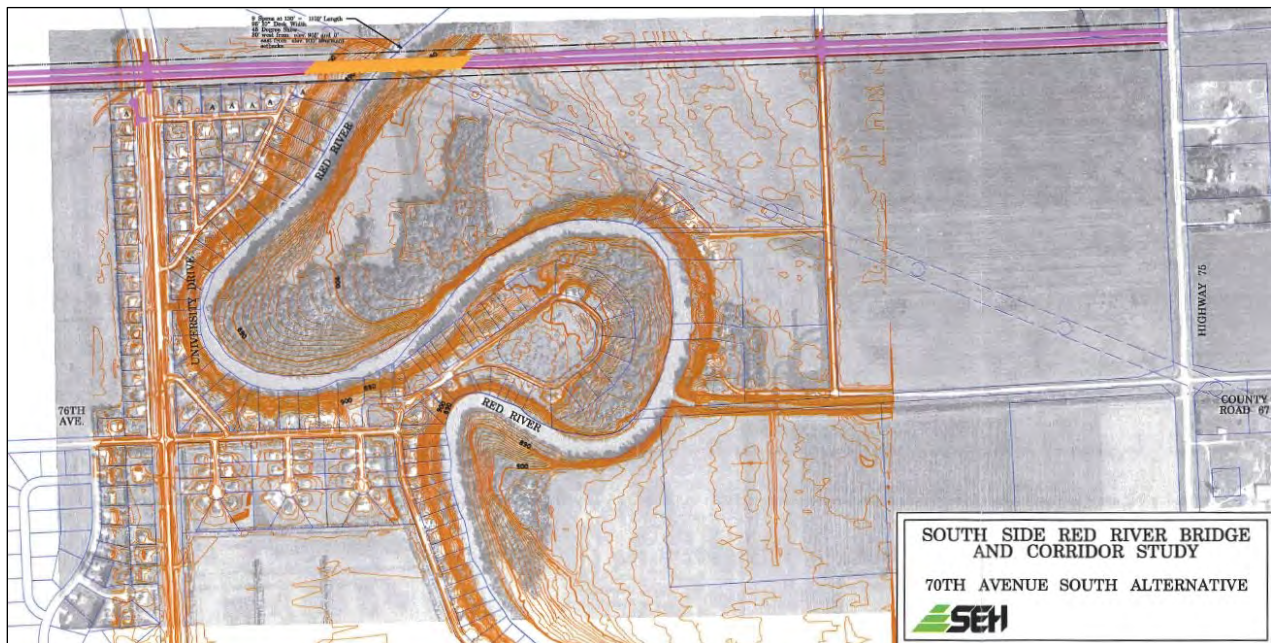
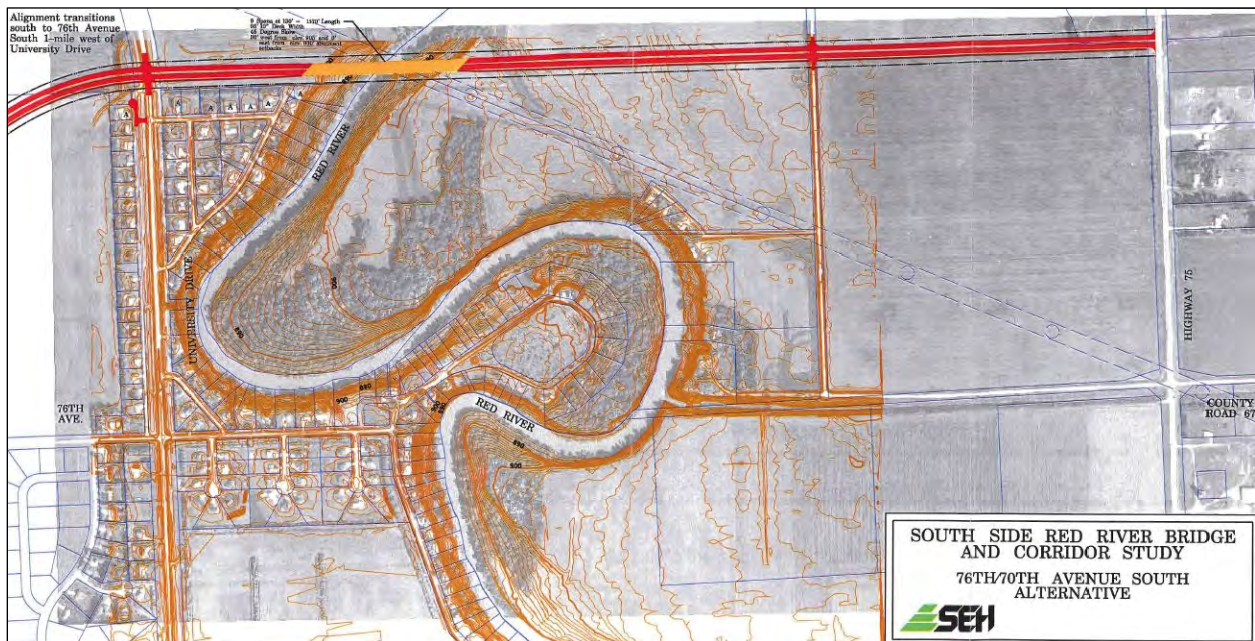


Figure 2.2B: 76th/70th Avenue South Alternative (Source: Red River Bridge Corridor Study)



**SOUTH SIDE RED RIVER BRIDGE AND CORRIDOR STUDY**

**76TH AVENUE SOUTH ALTERNATIVE**

**SEH**

**SOUTH SIDE RED RIVER BRIDGE AND CORRIDOR STUDY**  
**NEW SOUTH 76TH AVENUE ALTERNATIVE**

**SEH**

[illegible]

76TH AVE.

TRANSELY DRIVE

RED RIVER

HIGHWAY 75

COUNTY ROAD 67

**SOUTH SIDE RED RIVER BRIDGE  
AND CORRIDOR STUDY**

**NEW "JOGGED" 76TH/70TH AVENUE  
SOUTH ALTERNATIVE**

**SEH**

## Fargo-Moorhead Metropolitan Council of Governments

### Metro 2040

Completed in 2014, Metro 2040 is the long-range transportation plan (LRTP) for the Fargo-Moorhead metropolitan area. Metro 2040 forecasts that more than 90 percent of household growth through 2040 will occur in the metro's outlying regions, including the SWMTP study area. The plan was designed to guide the development of multi-modal transportation systems - including transit, bicycle, and pedestrian facilities – across the metropolitan area for the next 25 years. It prioritizes the expansion of Metro Area Transit (MATBUS) services to reflect at a minimum the pace of population growth, and recommends two bikeway routes – a college connector and a trans-metropolitan route – to address connectivity gaps in the bikeway network.

Metro 2040 is key for the identification and prioritization of transportation improvements that require assistance through federal funding. The LRTP identifies fiscally constrained projects to be completed in the short-term (2015-2020), midterm (2021-2030), and long-term (2031-2040). While the majority of roadways provide adequate levels of service through 2040, development pressure south of 52<sup>nd</sup> Avenue South is expected to contribute to congestion in the I-29 corridor, even with the implementation of all fiscally constrained improvements. A proposed interchange at 76<sup>th</sup> Avenue South could mitigate potential congestion, but was not included in the LRTP travel demand model because that project was deemed financially infeasible.

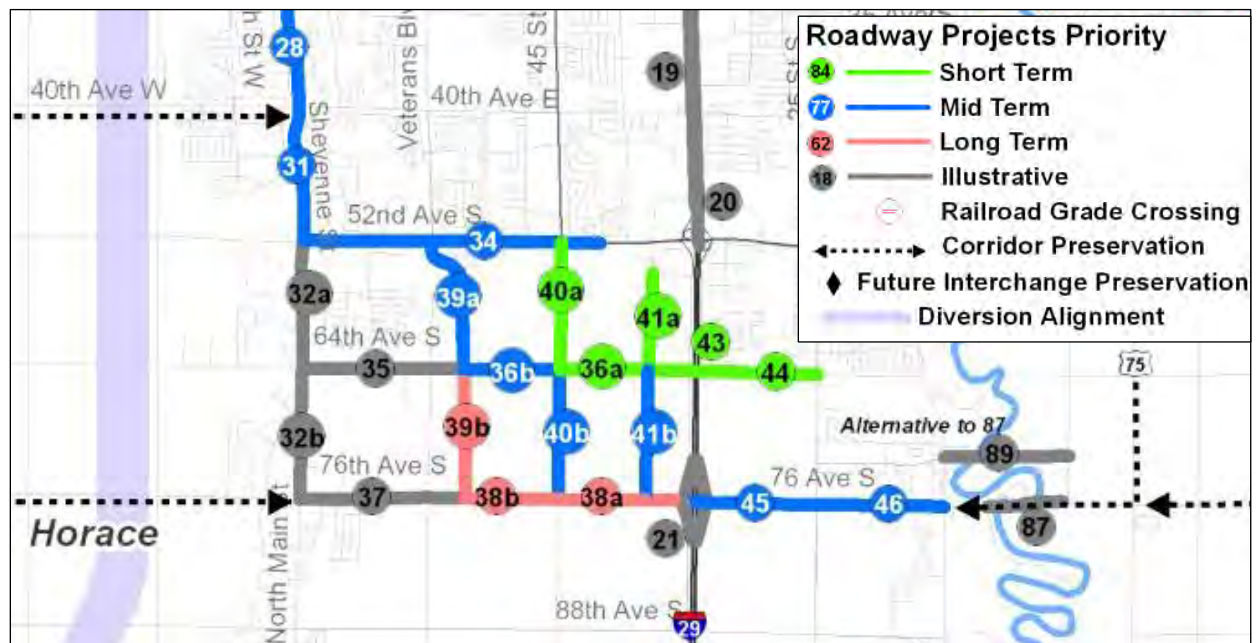
Additionally, seven alternative locations for a new Red River bridge crossing are comparatively evaluated using a cost-benefit framework. Metro 2040 considers the 76<sup>th</sup> Avenue South and 70<sup>th</sup> Avenue South crossing alternatives to be infeasible because of potentially high environmental impacts and high project costs.

Figure 2.3 shows fiscally constrained projects that Metro COG has identified within the study area.

### Transportation Improvement Program

In contrast to the LRTP, the Transportation Improvement Program (TIP) lists short-term surface improvements scheduled for implementation in the Fargo-Moorhead region. Projects are planned over a four-year period. Relevant non-roadway improvements, such as operation and expansion/replacement of the transit bus fleet, are also itemized for receipt of federal funding. All Regionally Significant projects which are listed in the Capital Improvement Plans (CIP) of Metro COG member localities are included in the first two years of the TIP. The 2016-2019 TIP programs one project within the study area. Construction of 64<sup>th</sup> Avenue South as a four-lane arterial from 33<sup>rd</sup> Street to 38<sup>th</sup> Street (project number 418011) is programmed for 2019.

Figure 2.3: L RTP Fisc ally Constrained Projects (Source: Metro COG)



MAP ID	PROJECT NAME	DESCRIPTION	LOCATION
<b>SHORT-TERM (2015-2020)</b>			
40a	45th St Extension	New 4-lane arterial	52nd Ave S to 64th Ave S
41a	38th St Extension	New 4-lane arterial	55th Ave S to 64th Ave S
44	64th Ave S	New 4-lane arterial	45th St S to 38th St SW
43	64th Ave S Extension and I-29 Overpass	New 4-lane arterial and bridge	38th St SW to 36th St SW
44	64th Ave S	New 4-lane arterial	33rd St SW to 25th St S
<b>MID-TERM (2021-2030)</b>			
34	52nd Ave S	Reconstruct/widen 2 to 4 lanes	Sheyenne St to 42nd St S
39a	Veterans Blvd Extension	New 2-lane arterial	52nd Ave S to 64th Ave S
36b	64th Ave S	New 4-lane arterial	45th St S to Veterans Blvd Extension
40b	45th St S Extension	New 4-lane arterial	64th Ave S to 76th Ave S
41b	38th St Extension	New 4-lane arterial	64th Ave S to 76th Ave S
45	76th Ave S Extension	New 4-lane arterial	38th St SW to 25th St S
46	76th Ave S Extension	New 4-lane arterial	25th St S to CR 81
<b>LONG-TERM (2031-2040)</b>			
39b	Veterans Blvd Extension	New 2-lane arterial	64th Ave S to 76th Ave S
38b	76th Ave S	New 4-lane arterial	45th St S to Veterans Blvd Extension
38a	76th Ave S	New 4-lane arterial	45th Street S to 38th St SW
<b>ILLUSTRATIVE</b>			
21	I-29/76th Ave S Interchange	New Interchange	

### 25<sup>th</sup> Street/64<sup>th</sup> Avenue South Corridor Study

The 25<sup>th</sup> Street/64<sup>th</sup> Avenue South Corridor Study, completed in 2008, provides the planning basis for making improvements to two 4-mile arterial corridors in the SWMTP growth area. One important purpose of the study was to consider the effects of an I-29 crossing at 64<sup>th</sup> Avenue South – both a grade-separated alternative and an interchange – on traffic patterns at key intersections in each corridor. While an interchange at 64<sup>th</sup> Avenue South would not preclude the construction of an interchange at 76<sup>th</sup> Avenue South, the scope of the document does not address the effects of multiple interchanges. Other documents covered by this review, such as the LRTP and the Traffic Operations Incident Management Strategy (TOIMS), consider the effects of an interchange at 76<sup>th</sup> Avenue South in greater detail.

The travel model used in the 25<sup>th</sup> Street/64<sup>th</sup> Avenue Corridor Study included a crossing of the Red River at 76<sup>th</sup> Avenue South. While the Red River Bridge Corridor Study identified this alignment as the preferred alternative, it was not considered in the LRTP. The study preferred the existing alignment of 64<sup>th</sup> Avenue South to two other scenarios in which the alignment was shifted south by 1/8 mile and 1/4 mile to replace impacts to existing developments and access along the corridor. Likewise, the study recommended an alternative alignment of 25<sup>th</sup> Street South in which widening of the existing corridor would be shifted slightly to the east to avoid impact to existing development along the west side of the corridor and accommodate a frontage road for access management purposes. The study concluded that a grade-separated crossing of I-29 at 64<sup>th</sup> Avenue South would be necessary before an interchange could be constructed, but that ROW for a future interchange should be preserved.

### South Diversion Master Transportation Plan

To reduce flood risk for the metropolitan area, the US Army Corps of Engineers (USACE) conducted a 2011 study which identified a 30-mile diversion alignment extending around Horace, Fargo, and West Fargo. The new river channel would begin at Cass County Highway 17 just south of Horace and terminate north of the confluence of the Red River and Sheyenne River near the City of Georgetown, MN. In addition, an embankment would be constructed between the Diversion Inlet and the Red River, and then continue on into Minnesota until it reaches high ground.

An undertaking of this magnitude introduces numerous transportation obstacles, some of which are addressed in the South Diversion Master Transportation Plan completed in 2008. Connectivity issues arise where the diversion channel cuts through the existing grid of township, county, and state roads. When existing linkages are severed, traffic will be funneled to avenues with diversion crossings. One planned crossing is located at 100<sup>th</sup> Avenue South, near the southwest corner of the study area. An additional crossing is located at County Road 17, south of 100<sup>th</sup> Avenue South.

### Traffic Operations Incident Management Strategy

The TOIMS, completed in 2011, identifies improvements to policy, protocol, roadways, and Intelligent Transportation Systems (ITS) architecture with the aim of facilitating a coordinated,

efficient evacuation in the event of an emergency in the metropolitan area. The primary goal of the TOIMS was to refine the list of Regionally Significant projects defined in the LRTP. These projects, as well as future additions, are included in a map of Regionally Significant Transportation Infrastructure (RSTI). RSTI corridors passing through the SWMTP study area include I-29 and South University Drive, and a proposed east/west corridor traversing 76<sup>th</sup>/80<sup>th</sup> Avenue South. This corridor includes the 76<sup>th</sup> Avenue South Alternative crossing of the Red River. Likewise, the conceptual interchange at I-29 and 76<sup>th</sup> Avenue South is identified for the corridor to achieve full functionality. It should be noted that the current TOIMS was completed in 2011, and therefore did not utilize the outcomes of Metro 2040 and the most current version of the LRTP.

A second goal of the TOIMS is to further the concept of a metropolitan beltway, which would allow inter-regional traffic to bypass the urban core, relieve arterial congestion, and function as an alternate route in the event of an emergency evacuation. It is anticipated that this beltway will be constructed incrementally over the course of several decades. Again, multiple alternatives were considered. One option considers a northern bypass, which would circumvent the study area entirely. A second option utilizes the 52<sup>nd</sup> Avenue South corridor for the interim alignment; however, the study documents that development south of 52<sup>nd</sup> Avenue South and into the SWMTP study area is already beginning to demonstrate the challenges associated with making this corridor a beltway route over the long term.

### Fargo-Moorhead Diversion Plan

After the record flood of 2009, USACE recommended that the Fargo-Moorhead metropolitan region adopt a strategy of permanent flood protection. In 2010, the Cities of Fargo and Moorhead elected to pursue a regional flood protection plan which will divert river flow to a new 30-mile channel with a capacity of 20,000 cubic feet per second. USACE approved the plan in 2011, estimating that the diversion would lower the 100-year flood stage to 35.6 feet through Fargo and Moorhead and the 500-year flood stage to 40.0 feet.<sup>1</sup> The diversion would protect approximately 200,000 residents in the event of a flood, as well as remove a barrier to development in the Southwest Metro planning region. Total construction cost is estimated at \$1.8 billion, of which approximately \$1 billion would be paid through non-federal funding. The Diversion Authority intends to cover part of the cost through a public-private partnership, but due to a lack of federal appropriations no timeline has been established for project completion. Unclear scheduling creates a moving target for developers, who face uncertainty regarding the volume of fill required to meet base flood elevation and offer certifiable protection.

---

<sup>1</sup> U.S. Army Corps of Engineers. Final Feasibility Report and Environmental Impact Statement: Fargo-Moorhead Metropolitan Area Flood Risk Management

## Chapter 3 – Existing Conditions

### Introduction

Knowledge of existing conditions is necessary to identify future challenges and opportunities. Existing conditions include everything from the locations of drains and diversions to farms, housing units, and businesses, as well as the roads and ROW linking these land uses. A firm understanding of these conditions will help this plan be consistent with adopted plans, in step with studies currently underway, and allow for new infrastructure to dovetail with current development.

The study area is largely agrarian and rural in nature, but is changing rapidly. The area is urbanized or urbanizing on the east side, with Fargo growth occurring between I-29 and the Red River and north of 76<sup>th</sup> Avenue South, west of I-29 along the south side of 52<sup>nd</sup> Avenue South, and on the far west side, in the City of Horace. Recently, a commercial subdivision was approved in the northwest quadrant of I-29 and 100<sup>th</sup> Avenue South. Given the mixture of rural and urban patterns within the study area, roadway types range from minimum maintenance field access roads to concrete with full urban features such as curbs, gutters, sidewalks, and traffic controls. The need to upgrade to urban standards for the arterial and collector network is a primary focus as development occurs in the SWMTP study area.

Studying accident patterns can help to identify safety concerns that could become exacerbated with traffic growth. Crash data were collected for the study area and tabulated to identify high accident locations and locations with irregularities. Given the degree of current development and the lower traffic volumes, there are no existing high crash locations. However, one irregularity was identified at the intersection of 52<sup>nd</sup> Avenue South and 25<sup>th</sup> Street South.

Existing land use data was collected for the purpose of forecasting growth and updating the metro area travel demand model. In addition to the land use data, population, household and jobs data were aggregated and distributed throughout the existing developed areas, again for model development purposes.

Flooding potential presents a major obstacle for development in certain portions of the study area. Much of the study area lies within the 100-year floodplain that is currently defined by FEMA. However, the boundaries of flood hazard areas change periodically as FEMA updates its datasets to reflect increasing frequency and intensity of recent flood events, and as physical mitigation treatments such as diversions and levies are constructed.

### Flood Hazard Areas

The Fargo-Moorhead metro area is prone to heavy flood events. Much of the land south of I-94 would be jeopardized in the event of overland flooding from the Wild Rice River, such as occurred in 1997 and 2009. The USACE estimates that there is a one percent chance each year of a flood stage of 41 feet (100-year flood) and a 0.2 percent chance each year of a flood stage of 46.7 feet (500-year flood). As heavy flood events occur more frequently, FEMA is continually adjusting its flood hazard

designations. The agency released its most recent datasets in 2015. Approximately one-half of the study area lies within the 100-year floodplain as currently defined by FEMA. It is anticipated that FEMA will perform a general remapping of the floodplain beginning in 2020, which would place an additional 20,000 residents in the metro area within the flood hazard zone.<sup>2</sup> The 100-year floodplain and 500-year floodplain are shown in Figure 3.1. .

Flood risk restricts development in urban fringe areas, which would otherwise be ripe for municipal expansion. The Cass County Comprehensive Plan discourages development of flood-prone areas, as well as development that exacerbates flooding potential. Specifically, large-scale engineering projects involving fill, leveeing, drainage, or diversion would be necessary to mitigate flood risk in the western portion of the SWMTP study area.

### General Flood Protection Strategies and Features

The Sheyenne River Diversion provides flood protection for more than 2,700 acres in the western portion of the study area. Nearly all of the existing development in the City of Horace is protected. However, some recently platted subdivisions are located within the 500-year floodplain. County Drain 27 is a major storm-water drainage facility for the city's eastern growth area.

A number of in-town projects have been constructed to provide protection to existing properties from the current adopted 100-year flood plain. Since 2009, the City of Fargo has constructed 19 miles of permanent levees. Inlet gates associated with the Diversion and in-town levees would allow for a 35-foot river flow through Fargo and Moorhead during an event that would otherwise result in a flood stage of 42.5 feet. Construction on the Oxbow-Hickson-Bakke ring levee began in 2014 and is approximately 25 percent complete.

Property buyouts are another common prevention strategy. Since the 1997 flood, approximately 500 properties have been removed in the metro area.








### Existing Land Use

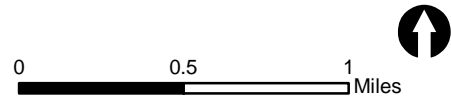
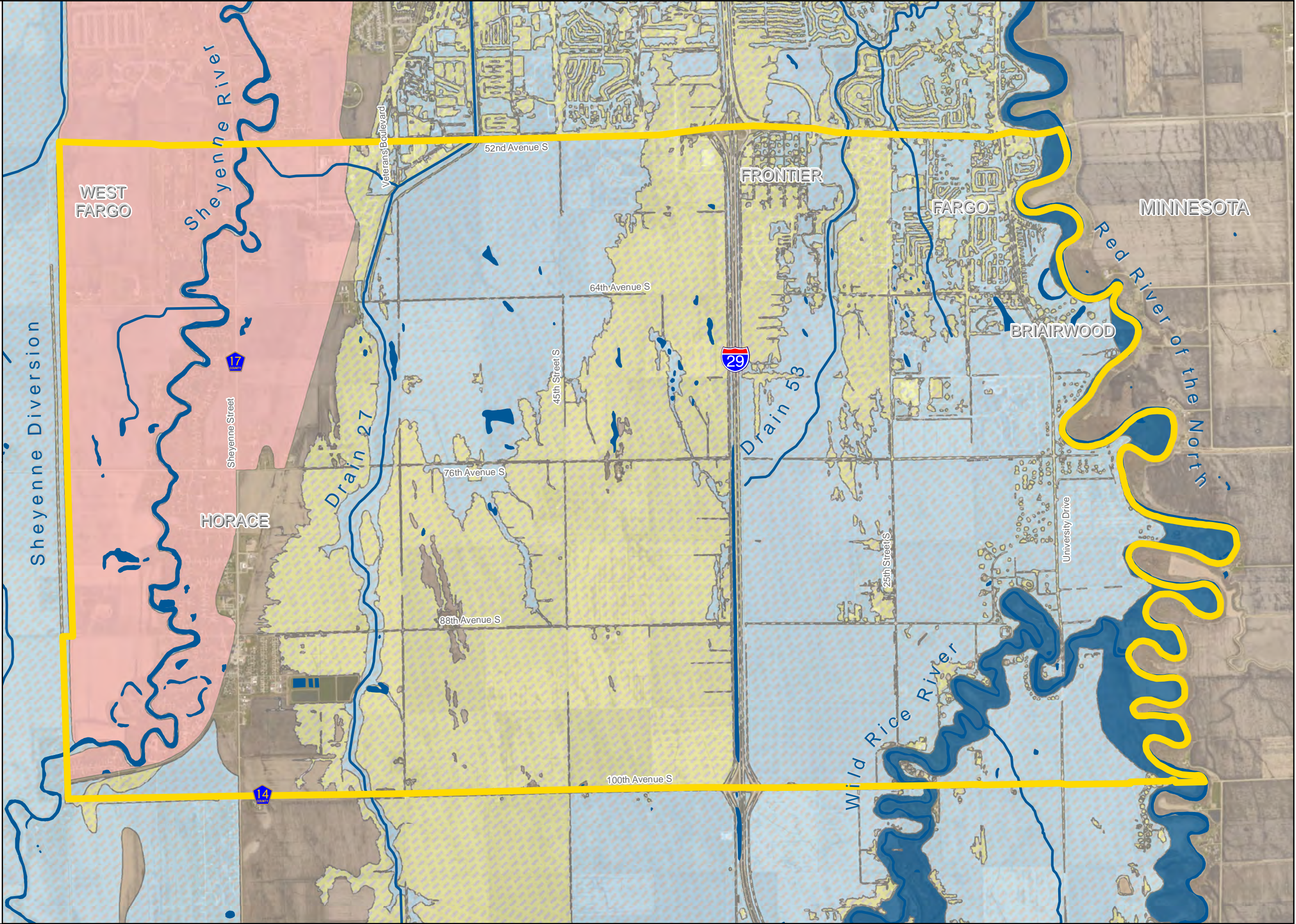
Existing land use within the study area has established the building blocks for future development. This is an exceptionally large study area encompassing over 12,000 acres of land. There is opportunity to develop a range of uses, although some types of land uses may not be compatible with existing development. That said, the study area is large enough to comfortably play host to all types of development, and for the most part, the study area offers a clean slate and an opportunity to establish a well planned growth area that wisely uses the land that is ultimately anticipated to be protected by the Red River Diversion. Figures 3.1-3.4 show the locations of existing land uses, water features, and drains/diversions within the study area and its associated jurisdictions.

---

<sup>2</sup> [www.fmdiversion.com](http://www.fmdiversion.com): "FEMA warns remapping of the floodplain could start in five years"

**Legend**



-  Study Area
-  Water Features
-  Floodway
-  100-Year Floodplain
-  500-Year Floodplain
-  Minimal Hazard
-  Reduced Risk due to Levee

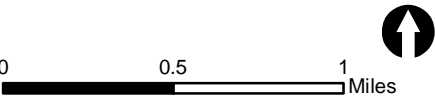
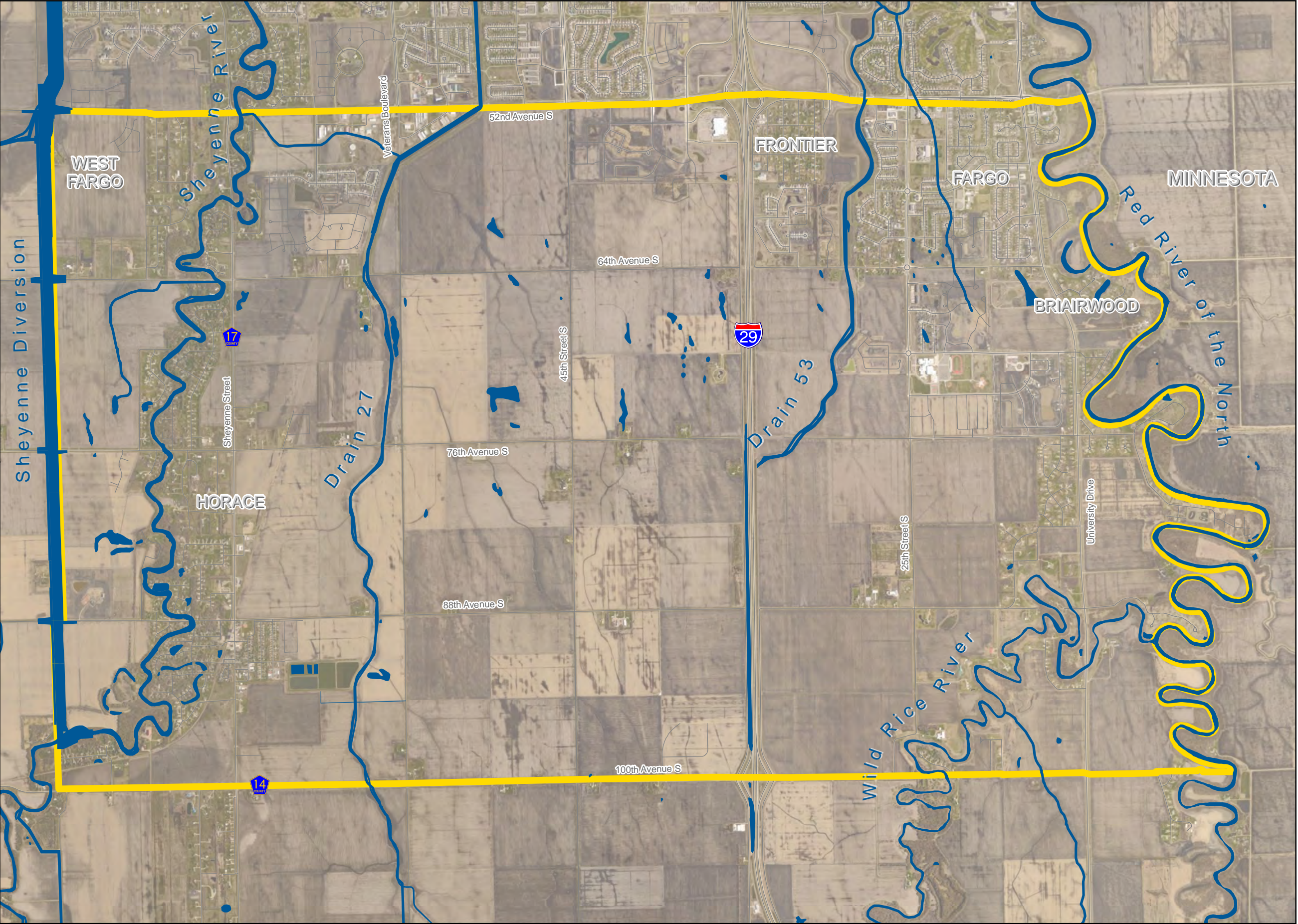


**Figure 3.1**



Legend

-  Study Area
-  Existing Water Features



Existing Water Features

Figure 3.2



## Fargo

Fargo has the most influence over the study area not only because of growth pressure inside the city and in its extraterritorial area, but also because of its ability to accommodate that growth by extending its existing utility infrastructure. The city has studied its ability to serve growth areas with city water and sanitary sewer service and continues to carry out necessary system expansion.

Over the course of the last 15 years, Fargo has expanded into areas south of 52<sup>nd</sup> Avenue south and between South University Drive and I-29. Much of the areas north of 64<sup>th</sup> Avenue South have been developed, but zoning changes and subdivisions have been approved as far south as 76<sup>th</sup> Avenue South, and development within these subdivisions is taking place. This expansion has surrounded the small municipalities of Frontier and Briarwood.

Growth in the Fargo-Moorhead metropolitan area has accelerated in the last ten years. The burgeoning economic climate of North Dakota is a factor in this growth and has resulted in the need to expand available land resources for city development. The city's southern growth area experienced higher growth pressures than the northern growth area. This precipitates the need to develop viable land holdings in the southern portion of the municipal and extraterritorial area. The City of Fargo has received development applications as far south as 100<sup>th</sup> Avenue South.

## Horace

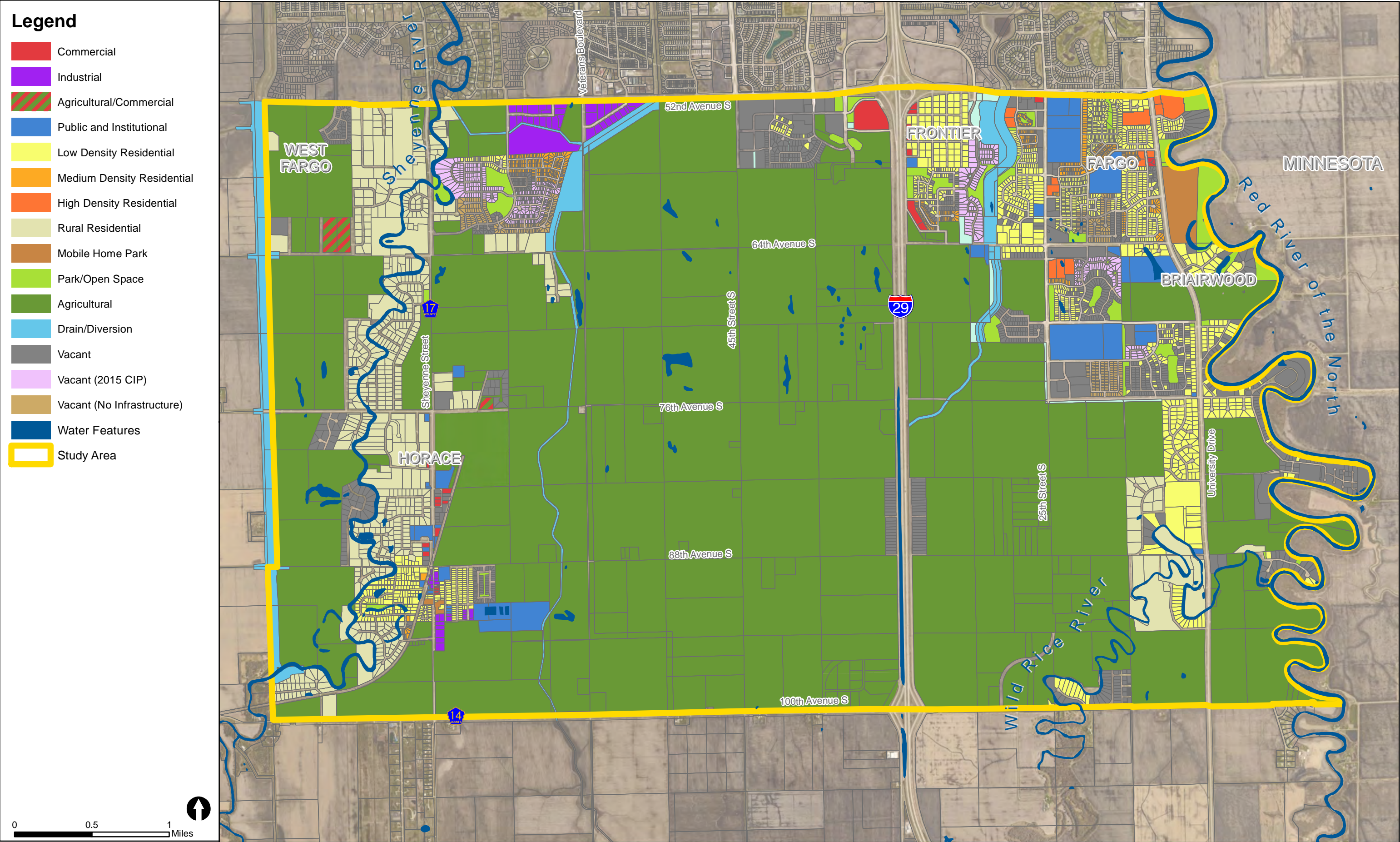
The City of Horace primarily consists of single-family residences. Horace is characterized by a combination of urban-sized lots served by the city's sanitary sewer system and larger residential lots with on-site septic systems and drain fields. For the most part, the community is surrounded by farmland to the east, south, and west. Commercial areas in Horace are small and more rural in nature. Given the community's proximity to Fargo and West Fargo, Horace residents primarily work and shop in those cities.

Current growth in Horace has maxed out the city's ability to process wastewater. This has limited the community's growth potential. The City of Fargo has studied its ability to provide sanitary sewer service to growth areas in Horace. The cost of that option is approximately \$10 million and is currently beyond the community's resources. If and when Horace increases capacity for sewage treatment, it has ample space to grow within its city boundaries. In the meantime, Horace continues to approve large-lot subdivisions that will need to have on-site septic systems.

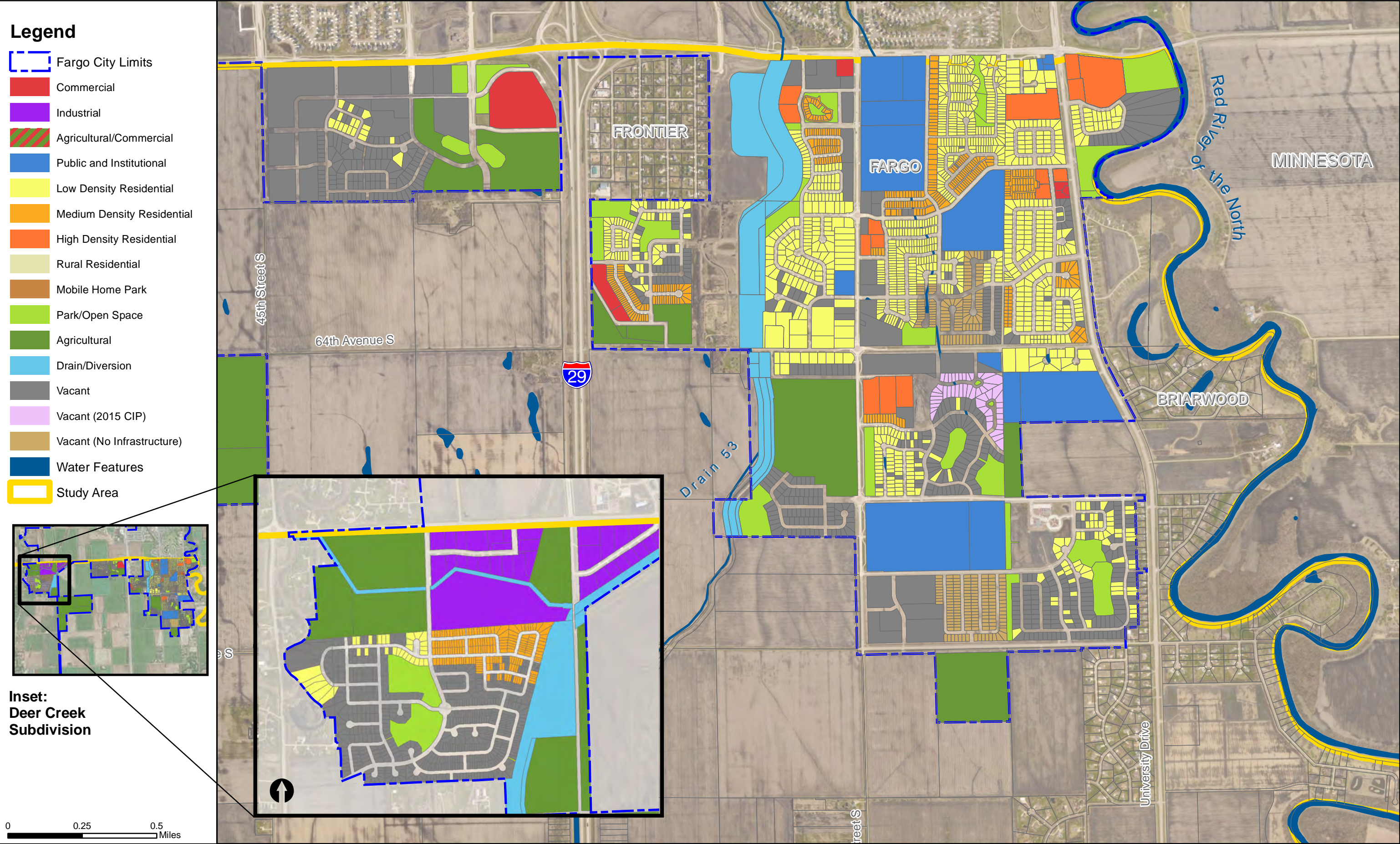
## West Fargo

Only the far northwest corner of the study area is located in West Fargo. However, West Fargo borders 52<sup>nd</sup> Avenue South for approximately 1.5 miles. Thus, any recommendations for 52<sup>nd</sup> Avenue South along that frontage will impact the city. The impact of West Fargo's growth on the study area will be minimal compared to that of Horace and Fargo.





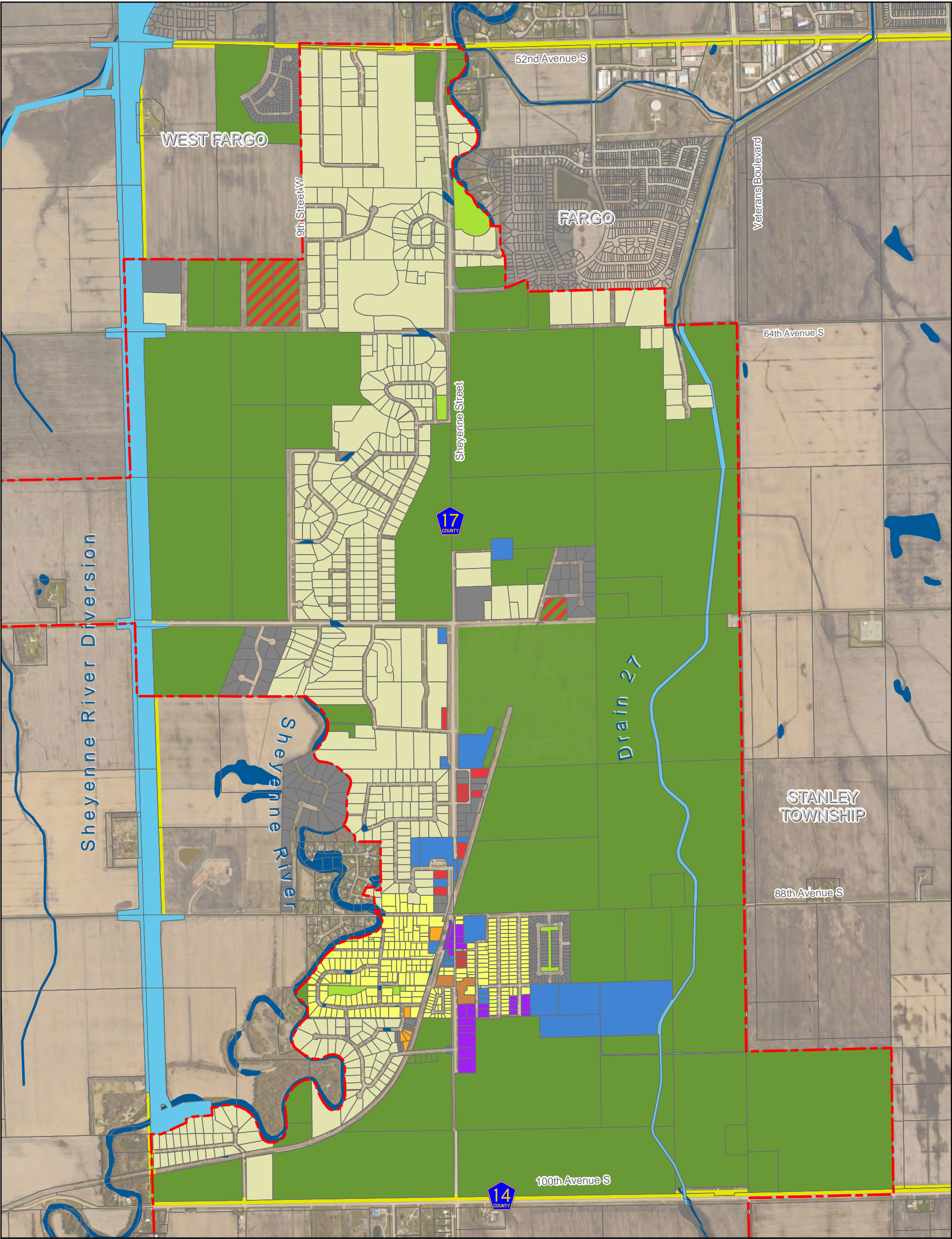




**Existing Land Use - City of Fargo**

**Figure 3.4**





**Legend**

- |                          |                            |                            |                    |
|--------------------------|----------------------------|----------------------------|--------------------|
| Commercial               | Medium Density Residential | Agricultural               | Water Features     |
| Industrial               | High Density Residential   | Drain/Diversion            | Horace City Limits |
| Agricultural/Commercial  | Rural Residential          | Vacant                     | Study Area         |
| Public and Institutional | Mobile Home Park           | Vacant (2015 CIP)          |                    |
| Low Density Residential  | Park/Open Space            | Vacant (No Infrastructure) |                    |



Metro COG's Metro Profile states that the estimated population of West Fargo was 31,771 in 2014. The city's population grew by 73 percent between 2000 and 2010, which is the largest percentage increase for any jurisdiction in the metropolitan statistical area (MSA). West Fargo is largely built out north of I-94, and the area to the south of the interstate is largely subdivided and/or developed to 52<sup>nd</sup> Avenue South.

## Existing Demographics

Travel demand models rely on accurate population and employment data. Households generate trips, and jobs attract them. Thus, it is essential to know how jobs and households are spatially distributed throughout the study area. A model also requires accurate data on household size – a one-person household has very different commuting patterns than a large household in which not every person owns a vehicle, trips may be undertaken for a variety of purposes, and many trips involve more than one person. Modelers must know how household size varies within the study area. Likewise, it is important to understand how jobs are distributed within communities. The following sections present household and employment data for each jurisdiction.

As part of the SWMTP planning process, Metro COG's travel demand model was updated to reflect the existing spatial distribution of land uses and the transportation network of the study area. This effort involved the creation of new traffic analysis zones (TAZs) for the purpose of forecasting trip generations and attractions across the study area. Data from the 2010 Census was aggregated by TAZ and was used to populate the model. All transportation forecasts are derived from this data; therefore, to maintain consistency with the model, the following sections present existing population and demographic data for each jurisdiction in terms of the TAZs that were assigned to each community. TAZ boundaries do not always align with existing jurisdictional boundaries. Additionally, the entirety of each jurisdiction's population is not included in the study area. For these reasons, there are discrepancies between the following statistics and the raw Census data.

## Fargo

### Baseline Data

Fargo TAZs encompass 4,624 acres, which cover approximately 22 percent of the study area. For the purposes of the SWMTP, the Fargo TAZs include the communities of Frontier and Briarwood. In 2010, this portion of the study area supported 3,795 total residents. There were 1,469 total households, with an average of 2.6 residents per household. The majority of homes were two-person households.

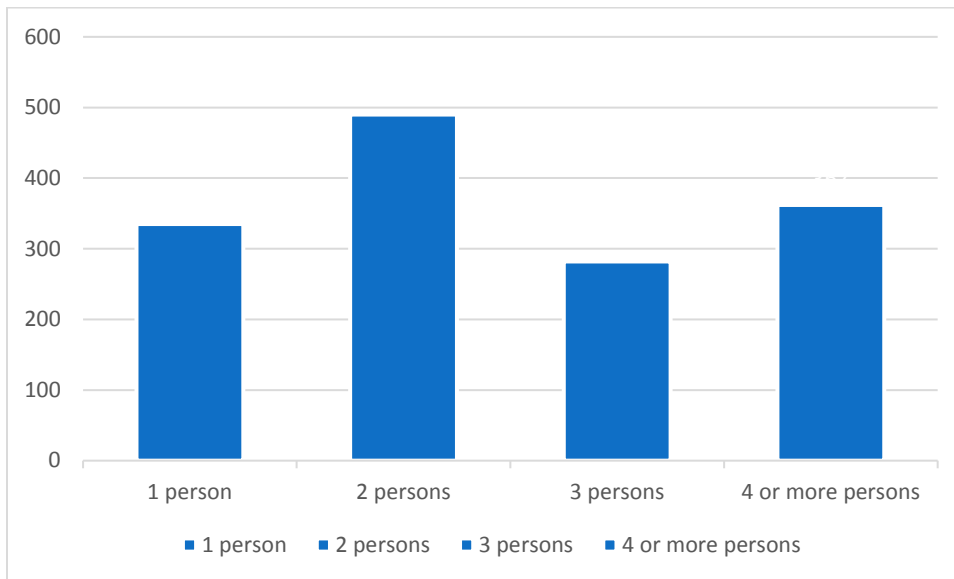
In 2010, the Fargo portion of the study area supported 984 jobs. Of these, 243 were considered retail jobs and 435 were considered service jobs; 306 jobs were designated as other.

### Implications for Study Area

Overall trip generations and attractions are fairly low and easily handled by the existing roadway network. However, level of service can change rapidly if roadway connections and ROW needs are

not sufficiently planned as the area continues to develop. Maintaining connections over manmade and natural barriers will be important to not overtax facilities with connectivity. Likewise, appropriate ROW widths must be dedicated given projected traffic volumes.

*Figure 3.6: Household Size, Fargo TAZs*



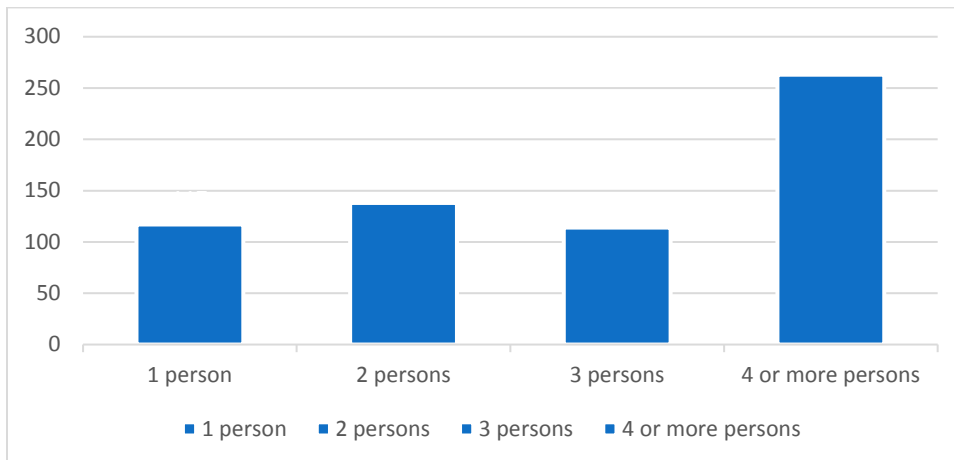
## Horace

### Baseline Data

Horace TAZs encompass 9,189 acres, or roughly 43 percent of the study area. In 2010, the total population within these TAZs was 1,796. There were 633 households with an average of 2.8 persons per household. Unlike households within the Fargo and West Fargo TAZs, the majority of households in Horace have four or more residents.

In 2010, total employment within the Horace TAZs was 171. Of these jobs, 13 were considered retail, 90 were service-related, and 68 were designated as other.

*Figure 3.7: Household Size, Horace TAZs*



### Implications for Study Area

Land use in Horace is primarily residential. In 2010, more than 41 percent of households had four or more residents, and another 19 percent of households had three residents. Because it is a bedroom community, Horace attracts few trips, and the majority of its trip productions are attracted by TAZs in other areas of the metro.

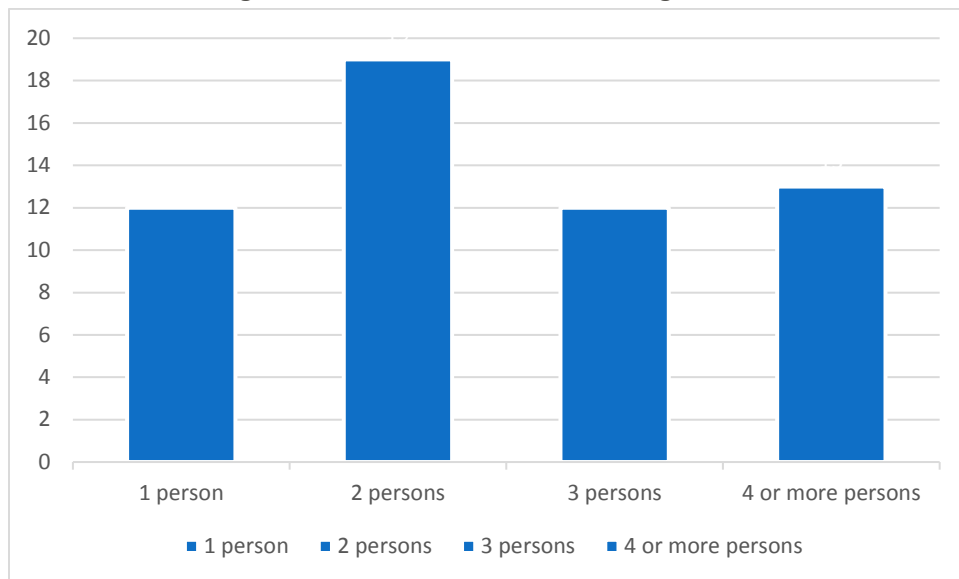
## West Fargo

### Baseline Data

West Fargo TAZs encompass 684 acres, which cover approximately 3 percent of the study area. In 2010, this area supported a total population of 138. There were 56 total households, with an average of 2.5 residents per household. The majority of homes were two-person households.

In 2010, the West Fargo portion of the study area supported 22 jobs. Of these, 9 were considered service jobs and 13 were designated as other.

*Figure 3.8: Household Size, West Fargo TAZs*



### Implications for Study Area

TAZs assigned to the jurisdiction of West Fargo constitute only a small portion of the study area. They contain comparatively few jobs and households. Many of the city's workforce hold jobs outside these TAZs and commute to destinations in other communities. Overall, this portion of the study area currently generates and attracts few trips.

## Stanley Township

### Baseline Data

The TAZs assigned to Stanley Township (Cass County) encompass 6,900 acres, which is 42 percent of the study area. In 2010, total population within these TAZs was 762. There were 227 total households with an average of 3.6 persons per household. As this statistic suggests, the majority of

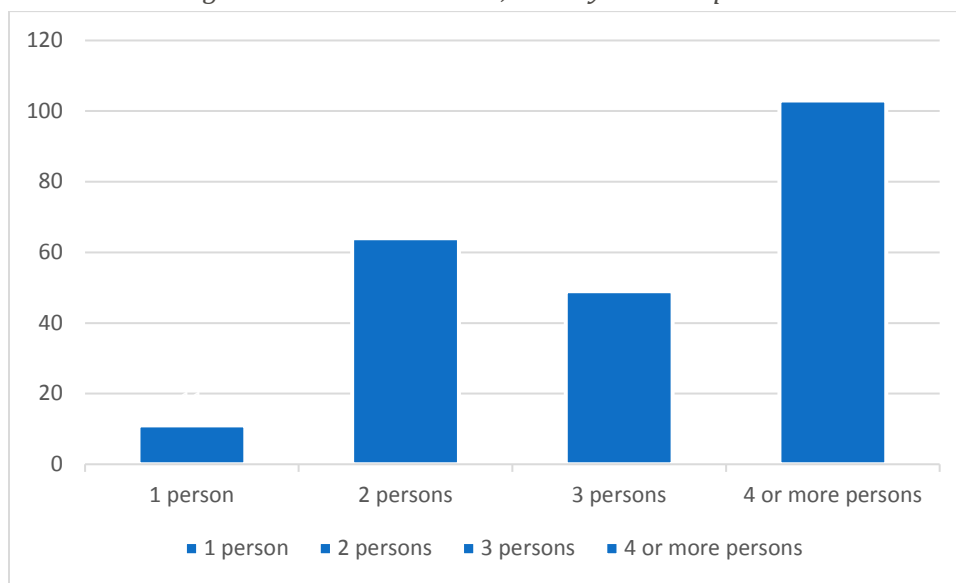
households contained four or more persons. Only 11 households – less than 5 percent of the total – were single-person households.

Stanley Township supported 62 jobs in 2010. Of these, 21 were considered retail, 28 were service-related, and 12 were designated as other.

### Implications for Study Area

County land covers a large portion of the study area but has low population and job densities. Thus, Stanley Township currently produces and attracts relatively few trips. Because Stanley Township supports few jobs and amenities, many trips through Stanley Township are produced and attracted externally (i.e., commercial through traffic via I-29, etc.).

*Figure 3.9: Household Size, Stanley Township TAZs*



### Roadway Inventory

An inventory of roads was collected to understand the basic state of roadway infrastructure in the study area. The inventory includes paved, gravel, field access, and platted roads. The platted roads do not exist currently, but given the pace of development in the study area it is reasonable to assume they will be constructed within the 2020 “short-term” study horizon.

### Gravel

Within the study area, gravel roads serve a variety of land uses at different intensities. Some primarily serve residential land uses. Others provide access to the various agricultural uses and farmsteads.



**Gravel Road**



**Paved Road**

### Paved

Within the study area there are varying types of paved roads as well. Beyond the urbanized area, most paved roadways are constructed as a rural cross sections, lacking urban features such as curbs, gutters, and sidewalks. Paved roadways such as South University Drive, portions of 52<sup>nd</sup> Avenue South, County Road 17, and 100<sup>th</sup> Avenue South (County Road 14) are significant rural highways that carry regional, commuter, and farm-to-market traffic. Other paved roads in the study area are essentially paved-gravel roads that primarily serve residential uses. Paved roads in the urbanized areas serve higher land use intensities, including commercial, industrial, and higher-density residential. These roads typically have storm sewers and higher levels of traffic control such as roundabouts or traffic signals at key intersections. In addition, there are different surface pavements within the study area. Some roads are paved with bituminous asphalt, and others are concrete.

### Field

Much of the project study area is agrarian, and farmers need access for their field equipment. Most field access roads follow section lines, and are unimproved, minimum maintenance roadways at this time. These section line roads are identified in existing planning documents and eventually make up the backbone of the arterial network that will serve as primary accesses for future development.

Figure 3.10 shows the surface types of the existing roadway network.

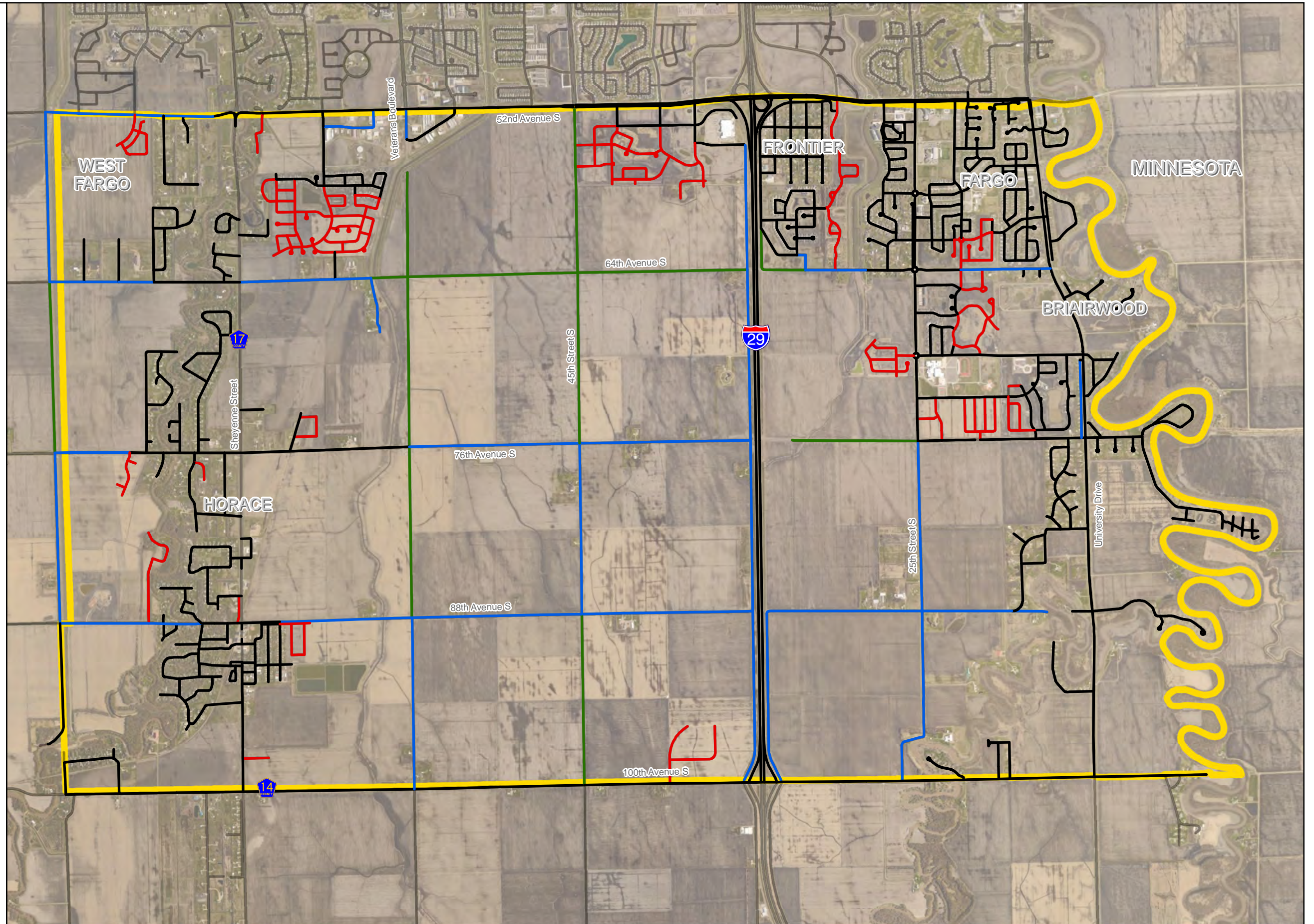


**Field Road**



# Legend

- Paved
- Gravel
- Field Roads/Private Roads
- Platted/In Transition
- External Roadways
- Study Area





## Existing and Committed Roadways

Figure 3.11 shows Functionally Classified Roadways within the study area. For the most part, section line roadways are included on the functionally classified grid so they can receive federal dollars for construction and maintenance. Subsequent chapters of this document discuss the development of a system of collector roadways to serve the growing region.

## Collision Analysis

### Collision Data

Crash data points from the NDDOT were plotted and analyzed from January 1, 2012, to December 31, 2014, the most recent three-year period available. Figure 3.12 displays this data.

To capture the effects of the larger roadway network, crashes located within a one-mile buffer of the study area were included in the analysis. The boundaries for the crash analysis are: 81<sup>st</sup> Street South (western border); 40<sup>th</sup> Avenue South (northern border); the Red River/state border (eastern border); and 112<sup>th</sup> Avenue South (Southern border). A total of 360 crashes were reported over the three-year period within the crash analysis area. Presently, most of the study area is undeveloped. In general, low traffic volumes limit the number and severity of vehicle collisions.

### Crash Severity

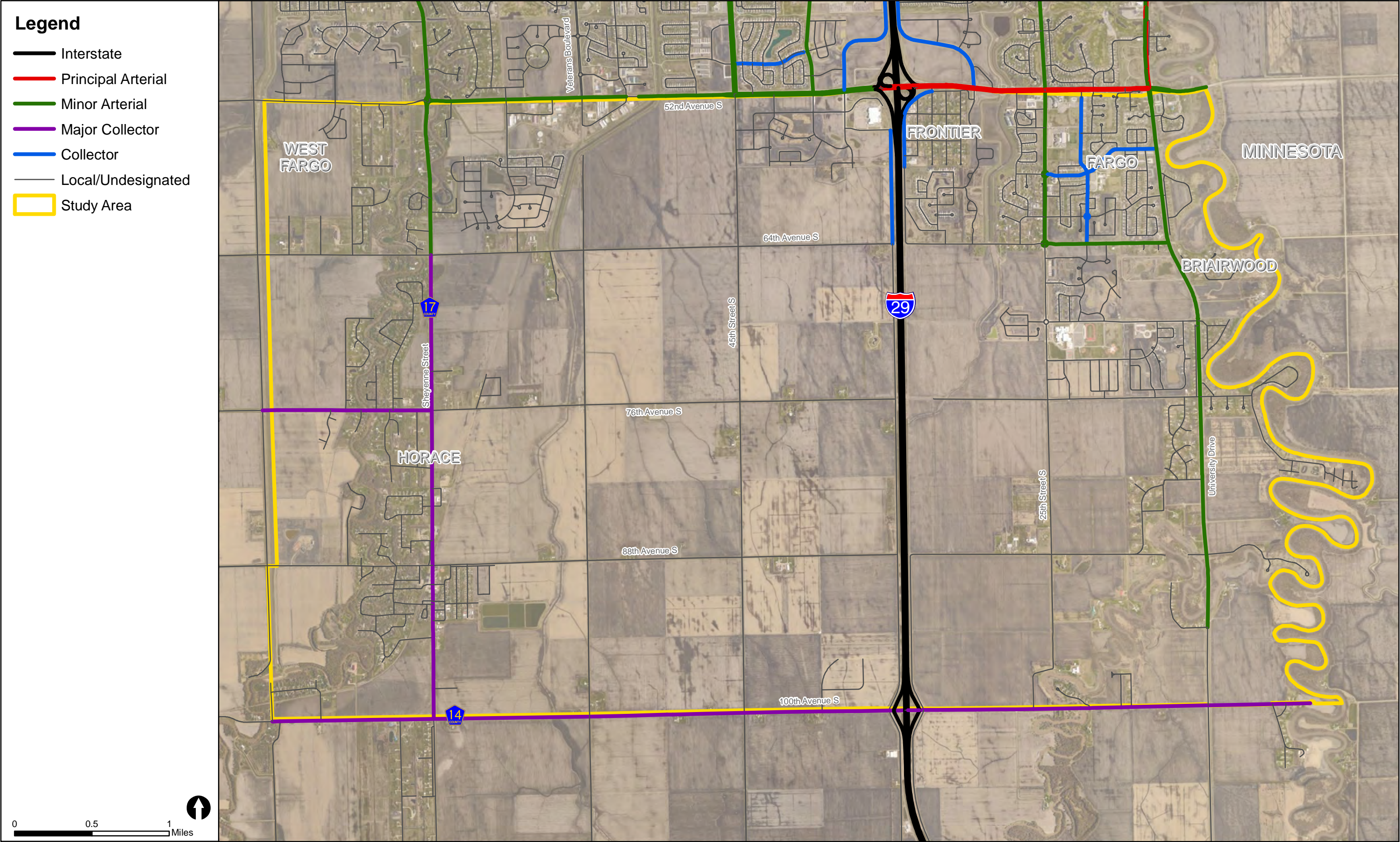
Special attention is paid to fatal crashes and crashes resulting in incapacitating injuries as they have the most serious consequences for the vehicle occupants and their families. One fatality occurred in 2014 on 88<sup>th</sup> Avenue South. Six crashes are classified as resulting in incapacitating injury. Fatal crash and crashes resulting in incapacitating injuries represent 1.9 percent of total crashes.

*Table 3.1: Crash Severity*

CRASH SEVERITY	2012	2013	2014	TOTAL
Fatal	0	0	1	<b>1</b>
Incapacitating Injury	2	1	3	<b>6</b>
Non-incapacitating Injury	5	8	9	<b>22</b>
Possible Injury	13	12	28	<b>53</b>
Property Damage Only	59	77	142	<b>278</b>
<b>Total</b>	<b>79</b>	<b>98</b>	<b>183</b>	<b>360</b>

All fatalities should be investigated no matter where and how they occur. The fatal crash in 2014 occurred on a narrow, curved section of 88<sup>th</sup> Avenue South, where the posted speed limit is 55 MPH. The crash occurred in daylight conditions on clear, dry pavement. The driver was simply driving too fast given the conditions of the roadway.





**Existing Roadway Functional Classifications**

**Figure 3.11**



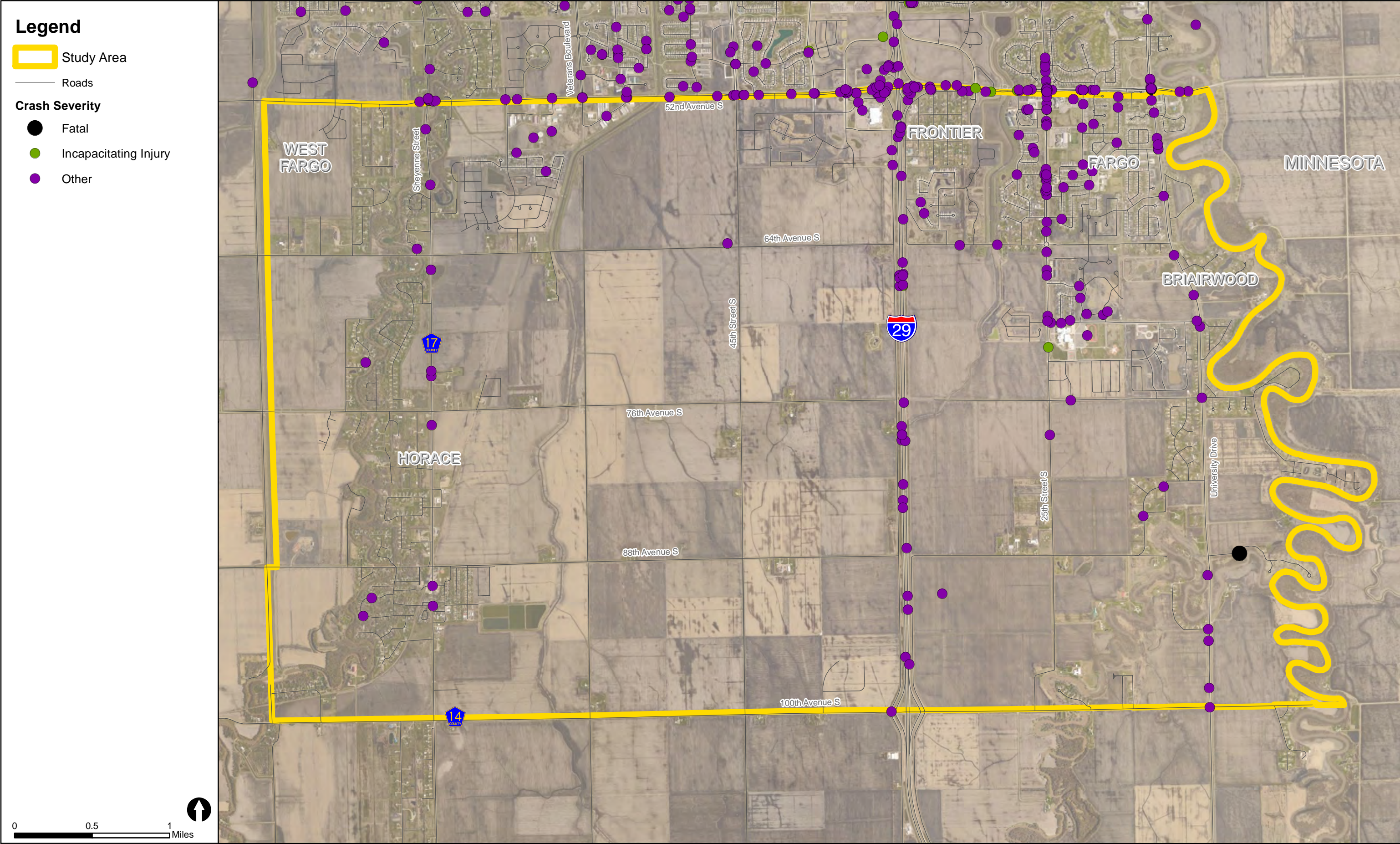


Figure 3.12



## Intersection Crash Locations

More than half of vehicle crashes during the three-year study period occurred in 2014. The increasing number of crashes provides context for analysis – it gives a clear indication that the study area is developing – but is not in itself alarming because the rising number of crashes correlates with higher average daily traffic volumes.

Crashes are categorized as intersection related or non-intersection related. Intersection crashes provide the most useful data, because this is where conflicting traffic movements converge, and where traffic safety measures are most often implemented. Crash patterns emerge when the data is studied in this format.

*Table 3.2: Location and Manner of Crash*

CRASH LOCATION	MANNER OF CRASH					
	SINGLE VEHICLE	HEAD-ON	REAR-END	ANGLE	SIDESWIPE (SAME DIR.)	TOTAL
<b>52<sup>nd</sup> Avenue S</b>						
CR- 17	2	---	2	3	1	<b>8</b>
Veterans Blvd	---	---	1	3	1	<b>5</b>
51 <sup>st</sup> Street S	---	1	1	1	---	<b>3</b>
53 <sup>rd</sup> Street S	---	---	---	1	---	<b>1</b>
45 <sup>th</sup> Street S	---	---	1	---	2	<b>3</b>
42 <sup>nd</sup> Street S	---	---	1	---	1	<b>2</b>
36 <sup>th</sup> Street S	---	---	---	1	---	<b>1</b>
25 <sup>th</sup> Street S	1	3	10	10	3	<b>27</b>
Bishops BLVD	---	---	---	1	---	<b>1</b>
20 <sup>th</sup> Street S	1	---	---	3	---	<b>4</b>
S University Drive	2	---	2	9	4	<b>17</b>
<b>25<sup>th</sup> Street S</b>						
58 <sup>th</sup> Avenue S	---	---	2	---	---	<b>2</b>
64 <sup>th</sup> Avenue S	1	---	---	---	---	<b>1</b>
67 <sup>th</sup> Avenue S	---	---	1	---	---	<b>1</b>
<b>S University Drive</b>						
76 <sup>th</sup> Avenue S	---	---	---	1	---	<b>1</b>
58 <sup>th</sup> Avenue S	---	---	3	---	---	<b>3</b>
<b>County Road 17</b>						
Dakota Avenue	---	---	---	---	1*	<b>1</b>
73 <sup>rd</sup> Avenue S	1	---	---	---	---	<b>1</b>
<b>Intersection Total</b>	<b>8</b>	<b>4</b>	<b>24</b>	<b>33</b>	<b>13</b>	<b>82</b>

\* Opposing direction

The first noticeable characteristic is that the vast majority of intersection related crashes are along 52<sup>nd</sup> Avenue South. This roadway is heavily used by commuters and is the only highly urbanized corridor that runs the length of the study area. The intersection with the highest number of crashes is located at 52<sup>nd</sup> Avenue and 25<sup>th</sup> Street South. The majority of crashes at this intersection are rear-end and angle collisions. Satellite imagery reveals one movement with skid tracks; however, analysis of the

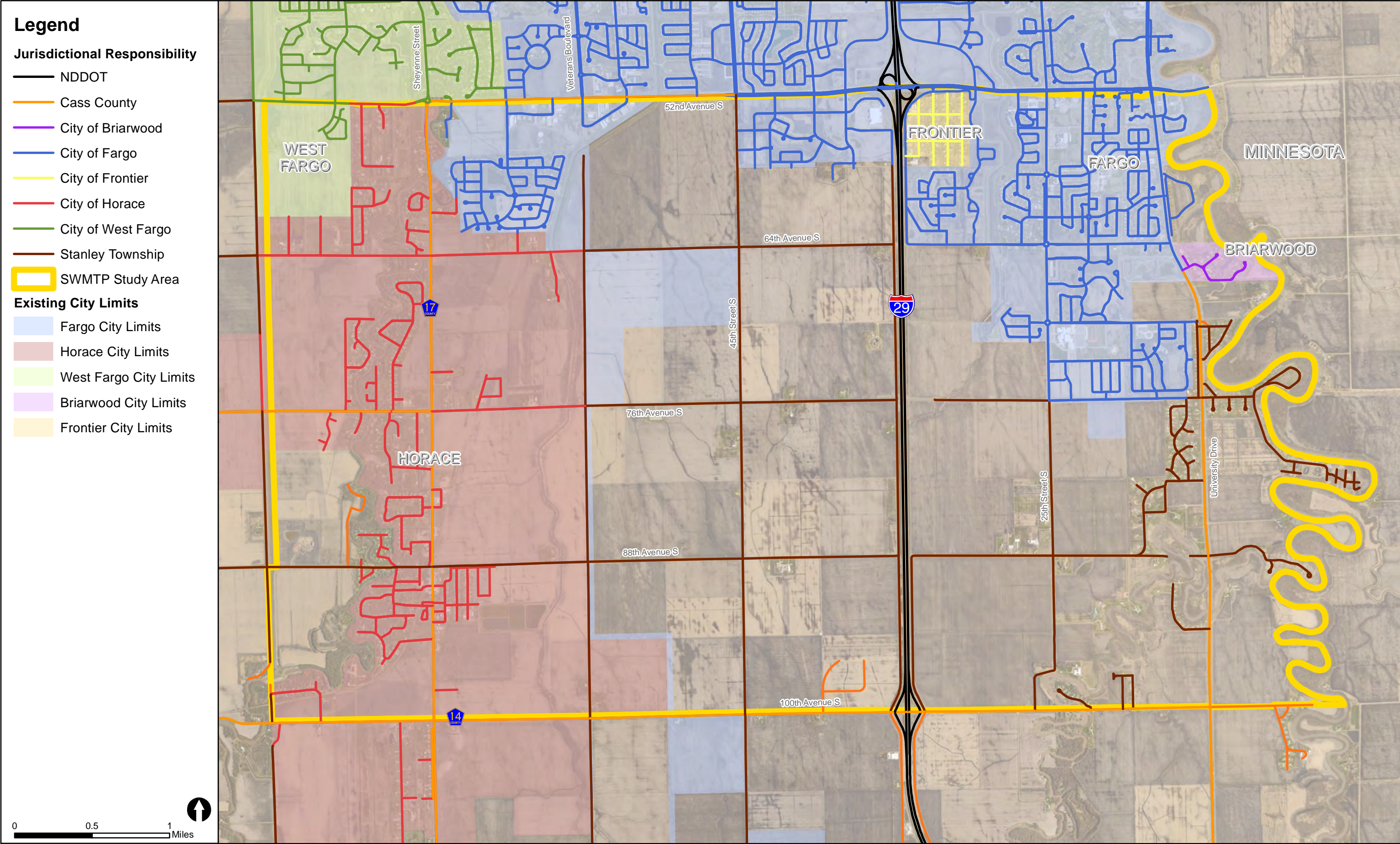
detailed collision data does not indicate the existence of a persistent problem. This particular intersection may have other problems that have yet to be identified. Perhaps the installation of cautionary signage or glare-resistant signal heads would be appropriate. All other crashes fall within normal ranges for a corridor of this volume.

### Jurisdictional Responsibility

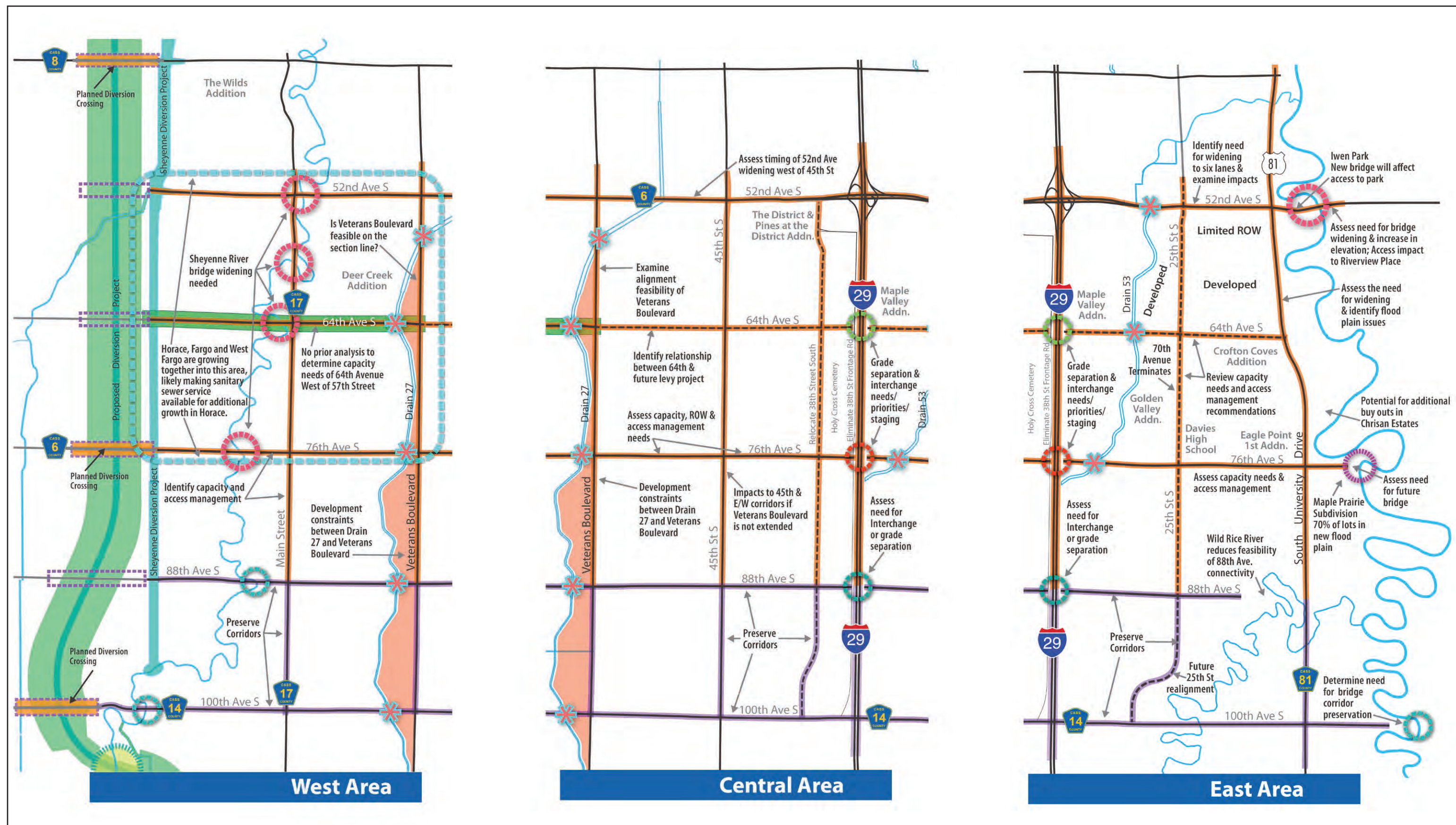
Existing jurisdictional responsibilities for roadways within the study area are shown in Figure 3.13. Horace will eventually have jurisdictional responsibility for additional arterial roadway connections, but if these roadway improvements are needed before the community grows to a population of 5,000 – the population is close to 3,000 now – it will need a sponsor in order to use Federal funding for roadway improvements. Likely sponsors would be Cass County or potentially the City of Fargo, particularly if a project involved both communities.

### Corridor Issue Identification

This plan addresses many issues associated with developing a future roadway network in the study area. In this section, a preliminary corridor analysis defines present conditions, challenges, and opportunities for existing and future arterial roadways in the study area. For organizational purposes, the project study area is divided into three areas, which are illustrated in Figure 3.14.






**West Area, Central Area, East Area - Issue Identification**

### Figure 3.14



## West Area

The west area includes the area from the existing Sheyenne River Diversion to Veterans Boulevard. The area is composed of the City of Horace, a small part of Fargo, a very small part of West Fargo, and part of Stanley Township. Deer Creek Addition was recently approved in Fargo and development is under way. Horace has approved several new subdivisions, most of which have larger lots and will have on-site septic systems. In addition to the core urbanized area of Horace, portions of the community consist of formerly rural subdivisions that were annexed within the past 10 years.

Horace, Fargo, and West Fargo growth is converging in the northern part of the west area. This presents an opportunity to share services for wastewater disposal and treatment. Doing so would remove a constraint to continued Horace growth. Fargo and West Fargo are developing and providing city utilities in the vicinity of 52<sup>nd</sup> Avenue South and Cass County Road 17. Horace's growth has been slowed by the lack of wastewater treatment capacity. If sanitary sewer service arrangements are made with Fargo and West Fargo, Horace's growth may accelerate. Provision of services and resulting growth would likely occur north to south, placing short-term demands on 52<sup>nd</sup> Avenue South and 64<sup>th</sup> Avenue South.

On the west side, there are several planned crossings of the proposed Red River Diversion in or near the study area. Currently planned crossings are two to three miles apart both in and near the project study area.

The South Diversion Master Transportation Plan recommends east/west diversion crossings at 40<sup>th</sup> Avenue South, 76<sup>th</sup> Avenue South, and 100<sup>th</sup> Avenue South. These crossing locations provide corridor continuity with a planned interchange at I-29 and 76<sup>th</sup> Avenue (based on early outcomes of Metro 2040) and an existing I-29 interchange at 100<sup>th</sup> Avenue South.

The majority of the west area is within the City of Horace's jurisdiction. Since Horace has fewer than 5,000 people, a project sponsor will be required for the use of federal transportation funds to make needed improvements. A likely partner is Cass County, unless another funding mechanism is used or roadway improvements are delayed until Horace has officially reached the 5,000 population threshold.

## West Area Corridors

### 52nd Avenue South

Metro 2040 shows a high level of need and community support for widening 52<sup>nd</sup> Avenue South from two to four lanes between Sheyenne Street and 45<sup>th</sup> Street South. Expansion will affect the bridge over Drain 27, the Sheyenne River Bridge, and Fargo's adjacent emergency water intake system, which is located at the Sheyenne River just south of the 52<sup>nd</sup> Avenue South corridor. Other issues include access management, particularly near the Sheyenne River. Additionally, existing development will complicate ROW expansion at some locations west of Veterans Boulevard. Finally, because 52<sup>nd</sup> Avenue South borders Fargo and West Fargo, those communities must negotiate shared project costs.

### 64th Avenue South and 76th Avenue South

The future capacity and ROW needs on these corridors have not been defined in great detail, but the Metro 2040 Roadway Vision Plan identifies the desire for widening them from two to four lanes between Veterans Boulevard and County Road 17. East of CR-17, 64<sup>th</sup> Avenue South and 76<sup>th</sup> Avenue South are presently rural gravel roads. The cost of expanding a rural section to a four-lane urban roadway is significant and includes many potential expenses beyond cost of ROW acquisition and paving. For example, future Drain 27 crossings could be costly depending upon the extent of drain widening.

As the west area develops, traffic volumes will quickly increase on these two corridors. An electrical substation and a cell tower will complicate improvements to the intersection of 76<sup>th</sup> Avenue South and Veterans Boulevard. West of CR-17, 64<sup>th</sup> Avenue and 76<sup>th</sup> Avenue are rural paved roadways, and corridor expansion may require transitioning from a rural to an urban section and widening the Sheyenne River crossings.

Fargo's Deer Creek Addition includes a street access to 64<sup>th</sup> Avenue South approximately one mile west of Veterans Boulevard. As currently platted, Horace's Lakeview Heights Addition includes three street intersections along 76<sup>th</sup> Avenue South one mile east of CR-17. However, based on input from City officials, this subdivision will need to be revised due to soil conditions which are not conducive to the type of development envisioned by the layout. A replat would allow for an improved access management plan.

### County Road 17

The Metro 2040 Roadway Vision Plan identifies widening CR-17 from a two-lane highway to a four-lane arterial. The improvement ranked highly for roadway project priority. The roundabout at 52<sup>nd</sup> Avenue South was designed with the ability to expand the corridor into a four-lane facility. However, roadway widening will undoubtedly be a challenge due to the close proximity of the Sheyenne River, both north and south of 52<sup>nd</sup> Avenue South, as well as and the need to widen the existing CR-17 bridge over the Sheyenne River one half-mile south of the roundabout. The 2002 County Road 17 Corridor Study examined access management along the highway. Many of these access management strategies still apply, but should be reviewed in light of updated traffic projections from the 2040 travel demand model.

South of 88<sup>th</sup> Avenue South, identification of future capacity and ROW needs on CR-17 will determine future corridor preservation recommendations. The City of Horace should be particularly concerned about capacity and ROW constraints, due to the tight pattern of development up against the highway in the City's downtown area. If widening isn't feasible through the core of Horace, the corridor will have a permanent constraint that will need to be addressed through other roadway connections and parallel corridors.

## Veterans Boulevard

Extension of Veterans Boulevard south of 52<sup>nd</sup> Avenue South is complicated by several factors, including the need to cross Drain 27 approximately 1,500 feet south of 52<sup>nd</sup> Avenue South. A field drain enters Drain 27 at the section line. The curved alignment of Drain 27 at this location may require a realignment of Veterans Boulevard to allow for a perpendicular drain crossing, or will require lengthy box culvert structures under the corridor to allow for a skewed crossing. Existing storm-water retention plans just south of the angled segment of the drain may further complicate the drain crossing.

South of where Drain 27 crosses the section line, there is a narrow band of property between the drain and the ROW for the Veterans Boulevard extension. Between 64<sup>th</sup> and 76<sup>th</sup> Avenues South, the area between the drain and the section line is approximately 200 feet. This narrow width complicates the future use of that property and its effects on Veterans Boulevard from the standpoint of access management. Without a local roadway network, access points could become too closely spaced, and the narrowness of the area makes it difficult to design a local roadway network that allows for consolidated access points. The fact that Drain 27 cuts off access to Veterans Boulevard from the west will further complicate access management and place heightened importance on concentrating access points at other section lines, including 64<sup>th</sup>, 76<sup>th</sup>, 88<sup>th</sup>, and 100<sup>th</sup> Avenues South. If these complications prohibit further extension of Veterans Boulevard, the result could be major capacity implications for County Road 17, 45<sup>th</sup> Street South, 52<sup>nd</sup> Avenue South, and 64<sup>th</sup> Avenue South.

## Central Area

The central area is located between Veterans Boulevard and I-29. It consists primarily of areas already annexed by the City of Fargo and areas that remain within Stanley Township, but which are also part of Fargo's extraterritorial area. Existing developments in the central area include Walmart, industrial development in Austin's Subdivision, and Holy Cross Cemetery. Approved subdivisions include an area west and south of Walmart referred to as the District of Fargo and the Pines at the District. A combination of commercial and residential lots has been platted in these subdivisions.

## Central Area Corridors

### 52<sup>nd</sup> Avenue South

The Metro 2040 Roadway Vision Plan includes widening 52<sup>nd</sup> Avenue from two to four lanes west of 42<sup>nd</sup> Street South. The roadway has been widened between 42<sup>nd</sup> and 45<sup>th</sup> Streets, but additional widening will be needed west of 45<sup>th</sup> Street South. Completed improvements have addressed a power transmission line which crosses 52<sup>nd</sup> Avenue South, but this facility will continue to complicate corridor improvements just west of 45<sup>th</sup> Street. Further analysis is needed to verify the 2040 capacity needs of the corridor.

### 64<sup>th</sup> Avenue South

The future capacity needs of 64<sup>th</sup> Avenue South were identified in the 64<sup>th</sup> Avenue South and 25<sup>th</sup> Street Corridor Study. Access consolidation and ROW needs were also identified. However, since the study was completed, one of the assumptions changed: the Metro 2040 Roadway Vision Plan

identified a grade separated crossing of I-29 rather than an interchange. One important component of the Southwest Metro Transportation Plan is to review previous capacity and ROW needs, and determine if construction of a grade separation should be prioritized over another I-29 interchange at 76<sup>th</sup> Avenue South. To compare this potential tradeoff, it is important to forecast the extent to which an interchange 76<sup>th</sup> Avenue location would relieve future congestion. The effects of multiple engineering scenarios are analyzed in Chapter 6.

The 64<sup>th</sup> Avenue South corridor remains a rural gravel road between Veterans Boulevard and I-29. The manner in which future roadway improvements relate to flood resiliency plans in the study area will be an important aspect of analyzing right-of-way needs and design features. The two-mile stretch of the 64<sup>th</sup> Avenue corridor between Veterans Boulevard and I-29 is free of direct property access.

### 76<sup>th</sup> Avenue South

Metro 2040 identifies 76<sup>th</sup> Avenue South as a future interchange location. The Southwest Metro Transportation Plan identifies capacity and ROW for the corridor and the interchange in subsequent chapters. Corridor expansion from I-29 to Veterans Boulevard may be complicated by power lines along the south side of the roadway, a major north/south power line which crosses the corridor one mile west of 45<sup>th</sup> Street, and determination of the necessary roadway elevation.

### 45<sup>th</sup> Street South

The Metro 2040 Roadway Vision Plan identifies the extension of 45<sup>th</sup> Street as a two-lane roadway from 52<sup>nd</sup> Avenue South to 76<sup>th</sup> Avenue South. While this improvement may be adequate for the short term, development along both sides of the corridor will necessitate additional acquisition and capacity improvements before 2040. At this time, the section line exists as a dirt field road.

### 42<sup>nd</sup> Street South

This street serves the function of a minor arterial roadway north of 52<sup>nd</sup> Avenue South. Since it is the first continuous roadway west of I-29, it serves the dual purpose of continuity (six continuous miles between 52<sup>nd</sup> Avenue and Main Avenue) and connectivity to east/west arterials and collectors that provide access to properties along I-29. South of 52<sup>nd</sup> Avenue South, 42<sup>nd</sup> Street South was curved sharply east and terminated at 38<sup>th</sup> Street South. Since a high demand for traffic to use 42<sup>nd</sup> Street South is anticipated, the intersection of 38<sup>th</sup> Street South and 42<sup>nd</sup> Street South is viewed as a potential issue.

### 38<sup>th</sup> Street South

This corridor currently serves as a frontage road along the west side of I-29. The road was realigned west of Walmart just south of 52<sup>nd</sup> Avenue South. When The Pines at the District was platted, the southern extension of 42<sup>nd</sup> Street South was terminated into the realigned portion of 38<sup>th</sup> Street South. To improve property access and avoid a situation where a corridor has development along only one side, the intent going into this study was to move 38<sup>th</sup> Street South to the quarter-quarter line west of I-29.

## Interstate 29

Interstate 29 is a four-lane corridor throughout the study area (two lanes in each direction). It was reviewed for future capacity needs on the main-line and at existing and future interchanges.

## East Area

The east area is located between I-29 and the Red River, where full development has occurred as far south as 64<sup>th</sup> Avenue South. Davies High School was completed south of 70<sup>th</sup> Avenue, and several residential subdivisions have been approved in the surrounding area. The City of Fargo and Cass County have purchased many properties located within floodways, and additional buyouts are pending.

## East Area Corridors

### 52<sup>nd</sup> Avenue South

The main focus of this portion of 52<sup>nd</sup> Avenue South revolves around the widening of the bridge over the Red River and any additional roadway widening west of University Drive. Impacts to Riverview Place and Iwen Park access need to be reviewed for potential issues. These issues are particularly relevant if the elevation of 52<sup>nd</sup> Avenue South between South University Drive and the Red River, and the bridge itself, is raised to ensure that it remains usable during major flood events.

### 64<sup>th</sup> Avenue South

As discussed, this corridor was analyzed in the 64<sup>th</sup> Avenue South and 25<sup>th</sup> Street Corridor Study. In Chapter 6, the Southwest Metro Transportation Plan reviews those recommendations using the new Metro 2040 travel demand model forecast.

East/west collector streets that cross Drain 53 are likely to be an important component of the study area's transportation network, since the Golden Valley Addition terminates the 70<sup>th</sup> Avenue South corridor west of 25<sup>th</sup> Street South. Traffic generated west of Drain 53 will increase volumes on 64<sup>th</sup> Avenue South and 76<sup>th</sup> Avenue South without east/west collector street connections over Drain 53.

In addition, if capacity issues arise on 52<sup>nd</sup> Avenue South and 76<sup>th</sup> Avenue South, it may be necessary to examine a scenario with I-29 interchanges at both arterials.

### 76<sup>th</sup> Avenue South

An I-29 interchange has been tentatively identified for this corridor in Metro 2040. The capacity needs of this corridor with an interchange, both with and without a grade-separated crossing at 64<sup>th</sup> Avenue South, are analyzed in Chapter 6. This analysis will help set project sequencing and priorities. Identification of access management and other corridor preservation needs is also critical for this corridor.

A key initiative of Fargo's Go2030 Plan prioritizes mobility improvements by providing transportation linkages across the Red River south of 52<sup>nd</sup> Avenue South. In addition, the initiative calls for

improving river crossing access for bicyclists and pedestrians. The failure to provide crossings along section line corridors north of 52<sup>nd</sup> Avenue has had lasting effects. For the past 10 years, various bridge corridor alternatives have been considered. The Red River Geotechnical Studies concluded that a crossing at 76<sup>th</sup> Avenue was the most logical option between 52<sup>nd</sup> Avenue South and 112<sup>th</sup> Avenue South. Nevertheless, development of the area has not resulted in the type of traffic concerns that have forced metro-area leaders into a final decision on the need for a bridge corridor or the alignment of a bridge corridor. A combination of poor soil conditions along the river oxbow in Clay County, neighborhood opposition from Maple Prairie Subdivision, and the use of FEMA funds to buy some of the riverfront properties in Forest River Subdivision has resulted in no final decisions about a roadway corridor and bridge location or even if a bridge should be constructed in the vicinity of 70<sup>th</sup> and 76<sup>th</sup> Avenues South. The Metro 2040 planning process determined that a bridge at 76<sup>th</sup> Avenue South would relieve congestion on the 52<sup>nd</sup> Avenue South corridor, with marginal reductions in volume on the I-94 Bridge. In Chapter 6, the Southwest Metro Transportation Plan examines the need for the river crossing corridor, the constraints and opportunities associated with securing a corridor, and the improvements needed to other corridors if a bridge is not constructed at this location.

### 25<sup>th</sup> Street South

The 25<sup>th</sup> Street South corridor was examined in the 25<sup>th</sup> Street and 64<sup>th</sup> Avenue South Corridor Study. As noted, the recommendations for capacity, access management, and corridor preservation are reviewed using the updated travel demand model. Fargo's Go2030 Plan identifies 25<sup>th</sup> Street South as an “active living street.” A review of corridor plans and ROW needs must take this into consideration.

### University Drive South

This corridor was reconstructed to provide flood protection up to a 40-foot flood stage of the Red River. Turn lanes exist at most intersections, extending the efficiency of the corridor as a two-lane facility. The Metro 2040 Roadway Project Priorities do not identify the need for improvements beyond 52<sup>nd</sup> Avenue South. A more detailed analysis of the corridor, in light of the potential for east/west corridor connections and improvements, is necessary. A popular bike trail is located along the east side of the corridor, extending to 88<sup>th</sup> Avenue South.

### Summary

Many corridor and land use issues were known going into the Southwest Metro Transportation Plan, and have been summarized above. The main purpose of this study was to consider the needs of the future transportation network based on updated land use plans and development projections for the study area. The existing characteristics and issues about corridors, recent subdivisions, and other issues were summarized, because they influence the future roadway network options, feasibility, and cost.

## Chapter 4 – Public Involvement

### Introduction

The Southwest Metro Transportation Plan is a document designed to guide transportation planning and development decision making for the next 25+ years in the area south and west of the incorporated cities. This is a long-range planning document that will allow the cities of Fargo and Horace to preserve right of way, connectivity, roadway frontages, bicycle and pedestrian features and transit needs in the area as development occurs.

The public involvement process that accompanied this planning document allowed planners to understand the issues and needs of both residents and property owners within the plan study area. It was important to consult with the public at key points within the planning process, as well as in an on-going meaningful way to ensure this plan has the support and ownership necessary for future implementation.

The involvement process as crafted incorporated public open house meetings, a planning workshop that was open to the public for their input, an on-going process with a Study Review Committee (SRC), information published to Metro COG's web site, and stakeholder group meetings with the MPO, City of Fargo, City of Horace, and the Fargo Public Works Project Evaluation Committee. In addition, a meeting with the Fargo Planning Commission was held to get input on a project study area land use development plan, and a meeting with an SRC subcommittee consisting of Fargo representatives was conducted to gain input on roadway network scenario alternatives that were specific to the Fargo region of the project study area.

### SRC Meetings

The Study Review Committee process was designed to give on-going feedback to planners as the study progressed through technical development. The SRC was a sounding board for planners and local government officials to ensure the plan has an appropriate level of technical rigor as well as to ensure that the results that were presented to them were logical and could be supported as the study developed. Furthermore, the SRC members are involved in on-going development proposals as well as planning and progress associated with the Red River Diversion and other associated flood resiliency projects that are applicable to the study area.

#### SRC Meeting #1

Held on May 9<sup>th</sup> 2014, this initial meeting helped to address study area issues that were identified through the preliminary planning process. The SRC confirmed issues that were presented and suggested others that the planning process should address. Additionally, data that were collected in advance of this meeting were presented to understand the existing conditions for traffic. Demographic characteristics of the study area were presented.

The analysis process relied heavily on a travel demand modeling effort that was presented to the SRC. In their first meeting the SRC reviewed draft modeling results from the 2020 forecast model and the

2040 forecast model. They reviewed the methodology that was used in the preparation of the model, and gave feedback for sensitivity analyses that would be needed to determine the need for alternative improvement scenarios.

### **SRC Meeting #2**

This meeting was held on July 16<sup>th</sup> 2014. Based on the growth assumptions used in Metro 2040, estimated growth for the years 2020, 2030, and 2040 were reviewed. The SRC reviewed the development growth tiers and their progression toward build-out in the 2020, 2030, and 2040 time frames. Socioeconomic data for population growth in Fargo and Horace were reviewed, and household and employment projections were presented by Traffic Analysis Zone (TAZ).

Between the first and second meetings of the SRC, land use plan updates within the study area were developed for Horace and Fargo. These were presented to the SRC for review and comment. Capacity assumptions were discussed for future roadway and ROW planning for the proposed arterial and collector roadway network within the project study area. Finally, upcoming public involvement meetings were discussed, including content of public meetings, invitees, and meeting content.

### **SRC Meeting #3**

The third SRC meeting took place on August 22, 2014. The first half of this meeting focused on revised land use plans for Fargo and Horace, as well as the resulting socioeconomic data that came from those revisions. The City of Fargo had an internal review process and the City of Horace conducted a public open house process to receive input on future land use.

The meeting also focused on the travel demand model (TDM) findings for the baseline conditions. A Volume/Capacity analysis was reviewed using the existing roadway network and existing traffic volumes. Locations that were over capacity were identified.

### **SRC Meeting #4**

This meeting took place on December 19<sup>th</sup>, 2014. The SRC reviewed model results for 2020, 2030, and 2040. The modelling methodology and approach was presented, as well as a brief summary of the Volume/Capacity analysis. Best fit roadway scenarios for 2020, 2030, and 2040 were reviewed along with several sensitivity tests on different parts of the network for 2030, 2040, and 2040+.

### **SRC Meeting #5**

The fifth SRC committee meeting was held on May 29<sup>th</sup>, 2015, to review the draft plan. SRF Consultants prepared a PowerPoint presentation that detailed the planning process chronologically and concluded with findings and recommendations. The SRC gave feedback for incorporation into the final plan document.

### **SRC Meeting #6**

The sixth SRC meeting was held on December 4<sup>th</sup>, 2015, to review the draft plan. SRF consultants prepared a PowerPoint presentation to address recent additions to the document, including a series of roadway network improvements that were identified using the travel demand model. The

committee reviewed an express route concept for the 76<sup>th</sup> Avenue South Corridor. The SRC provided feedback for incorporation in the final document.

### General Public Meetings

Three meetings were fully open to the public. Two of these meetings were public open house style meetings and one was a workshop that was developed for deeper input into the planning process.

### Workshop

This meeting was held on October 8<sup>th</sup>, 2014, at Davies High School. A presentation about the project was provided. The 2020 and 2030 roadway network scenarios were described, and alternatives for the 2040 network scenarios were presented. Attendees were asked to participate in group discussions according to their geographic location (west, central, or east) and provide group and individual input on roadway network features of particular interest to them.

Displays included:

- Proposed land use
- Study growth tiers
- Study tiers with growth assumptions
- Conceptual roadway networks
- Population statistics and growth assumptions
- Six sensitivity analysis maps
- Tabletop graphics for public comments

Each of these displays was available for participants to view and discuss with local and consultant planning and engineering staff.

### Public Meeting #2 and Planning Commission Review

This meeting was held in the City of Fargo City Commission Room on July 15<sup>th</sup>, 2015. This was an advertised meeting open to the general public. Study findings to date were presented. In addition, projects identified in the best fit scenarios for 2020, 2030, 2040, and 2040+ were presented with preliminary planning level cost figures. Members of the Planning Commission, City Commission, the SRC, and other City of Fargo staff attended the meeting.

The group in attendance reviewed growth projections, updated land use plans, best-fit roadway network scenarios, summaries of the sensitivity analyses, and planning level cost estimates for projects throughout the horizon years of the plan.

### Public Open House #3

This Open House took place on March 21, 2016, to review the draft final plan. Open house activities were held at Horace City Hall. Copies of the draft final plans were made available, along with comment sheets and displays that walked people through the project from the initial phases of data gathering through to project findings and scheduled roadway, transit, and bike/pedestrian

improvements. In addition to the plans at the venue, copies were made available at various locations for review including the Fargo public library, Fargo City Hall, Horace City Hall, and Fargo-Moorhead Metro COG. A digital version of the draft plan was posted on the Metro COG web site. The review and comment period extended two weeks past the last open house, allowing people to review the plan and its findings and provide input prior to finalization of the document.

### Other Input Activities

In addition to the open houses and SRC review meetings, other feedback was sought at critical junctures of the project. This included meetings with the Cities of Horace and Fargo to develop and refine land use plans within the study area, two updates for the MPO Transportation Technical Committee (TTC), an update to the Fargo Public Works Projects Evaluation Committee (PWPEC), and an SRC subcommittee meeting of just Fargo Representatives to discuss alternative best fit scenarios that primarily affected the City of Fargo's future roadway network.

#### City of Horace

##### Public Input Meeting on Land Use Plan

After a workshop to review and refine draft land use plan alternatives with representatives of the City of Horace Planning Commission and City Council, a draft land use plan was prepared and presented to the Planning Commission on July 22<sup>nd</sup>, 2014. The Planning Commission requested further refinements to the draft plan. Since Horace did not previously have a land use plan, city leaders felt that public input about the draft plan should be sought. The draft plan was presented to the City Council on August 4<sup>th</sup> at a regular City Council meeting, and a public meeting was held on August 18<sup>th</sup>, 2014, at Horace City Hall. Input was gathered from people residing in and around Horace and provided to City leaders.

##### City Council Input on Growth Projections

During the completion of the SWMTP, a separate study was taking place for Sheyenne Street through West Fargo. The traffic projections for Sheyenne Street were developed based on the results of the SWMTP TDM. In the fall of 2014, it was determined that the Sheyenne Street projections would benefit from assuming a higher level of future growth in Horace. A meeting was conducted with the Horace City Council to review three different growth scenarios over and above the growth assumed in the LRTP. The Council was asked to decide upon a low, medium, or high alternative growth scenario for use in the development of the future traffic projections for Sheyenne Street. The Council selected the "aggressive" growth scenario for the development of 2040 projections for Sheyenne Street.

#### City of Fargo

##### Meeting with Fargo Planning Commission on Land Use Map

The draft land use plan for the Fargo portion of the study area was presented to the Fargo Planning Commission on August 20<sup>th</sup>, 2014. Information was provided as to how the plan relates to the development of the SWMTP.

On October 6<sup>th</sup>, 2014, the project team met with Fargo's Public Works Project Evaluation Committee. Information presented to the committee included network build scenarios, sensitivity analyses, the Fargo land use plan, the Horace land use plan, growth tiers and assumptions for the amount and pace of growth, capacity analyses completed to date, and an explanation of how the SWMTP relates to the fiscally constrained nature of the LRTP.

#### **MPO Transportation Technical Committee (TTC)**

Two updates were provided to the TTC to provide information about project approach and project progress. The first update was provided on July 10<sup>th</sup>, 2014, and the second progress report was provided on August 13<sup>th</sup>, 2015. Committee feedback and comments and concerns were addressed and are included in this final plan document. The draft plan was presented to the TTC on May 12, 2016.

#### **MPO Policy Board**

One meeting was held with the Metro COG Policy Board to review of the final draft plan prior to its approval and adoption.

#### **SRC Fargo Subcommittee**

A subcommittee of the SRC, consisting of City of Fargo planning and engineering staff, met on November 14<sup>th</sup>, 2014. The purpose of the meeting was to discuss the TDM results that had been completed and to discuss alternatives for further analyses relative to the 2040 and 2040+ scenarios and the sensitivity analyses.

# Chapter 5 – Travel Demand Model (TDM) Development and Validation

## Introduction

Chapter 3 described existing land uses for the jurisdictions within the study area. The relationship between transportation and land use is dynamic. Road improvements facilitate land development, generating additional traffic, just as land development creates the need for roadway extension and construction. The 2010 Fargo-Moorhead Regional Travel Demand Model (TDM) was applied to develop daily traffic forecasts in the study area.

Like the Fargo-Moorhead TDM, the updated model for the SWMTP study area is a four-step model, which follows the conventional framework of trip generation, trip distribution, mode choice, and trip assignment to the travel network. These three TDM inputs impact model validity:

- Spatially allocated socioeconomic data
- Travel Analysis Zones (TAZs)
- Committed and existing roadway network

The SWMTP TDM generated daily traffic volumes for four planning periods: 2020, 2030, 2040, and 2040+. Balancing input from multiple jurisdictions with different growth forecasts posed a challenge for the generation of reliable demographic assumptions. To finalize demographic forecasts for the TDM, the future land use plan for the City of Fargo was updated and a new future land use plan for the City of Horace was created. Chapter 5 outlines the development of input data used in the SWMTP TDM. Project deliverables were drafted throughout the planning process and are included in the Appendix.

## Socioeconomic Data

To perform trip generation, future land use plans were translated into socioeconomic data consisting primarily of household and employment figures. Future land use plans were created or updated to reflect average housing densities for low, medium, and high density residential land uses. These plans consider retail and service centers, industrial zones, and other non-residential land uses associated with unique job/visitor densities and trip volumes. Through discussions with stakeholders from Fargo and Horace, existing and future household and employment densities were used to estimate jobs and households by TAZ.

Fargo and Horace have different populations, household structures, and development patterns. Growth of these municipalities is affected by a variety of environmental and infrastructural factors, some of which are unique to each jurisdiction and some of which are shared. Limited wastewater treatment capacity, for instance, constrains Horace growth in the near term, while the location of flood-risk areas will shape growth of both cities, with a much greater short-term influence on Fargo's growth. Due to differences in existing and projected socioeconomic factors, data for the cities of Fargo and Horace were analyzed individually.

## Fargo Land Use Plan Update

### Existing Planning Efforts

In 2007 the City of Fargo adopted the Fargo Growth Plan, which provided guidance on future growth and development decisions within the extraterritorial areas of the City, including the study area for this effort. The plan has undergone amendments since its adoption eight years ago. However, the amendments have been specific to certain areas and have not captured changes within the overall development climate, including recent flooding and advances in flood protection, increased density, mixture of uses, the results of Metro 2040, etc. The 2007 Growth Plan has been used to forecast future population estimates for many efforts.

The 2007 Growth Plan not only provides guidance on future land uses and transportation connectivity, but also forecasts an assumed area of growth within the next 20 years. These forecasts are very useful in day-to-day planning practices, but leave gaps in information needed for the long-range planning horizons of this effort.

### Development and Policy Changes

In the past two decades Fargo and the surrounding region have undergone several flood related natural disasters, which have resulted in public policy and regulatory updates which have changed the way development can occur in 2015 and beyond. Development policies and the regulatory environment relative to base flood elevations (BFE) contradict the methodology used in 2007. The key events which prompted the changes were the record-setting floods of 2009 and 2010. The historic crest of 40.84 feet in 2009 and subsequent top-ten crest of 2010 (36.99 feet) warranted modifications to development policies and design standards. Additionally, the recurrence of major flooding events within a three-year timeframe prompted city, county, and state leaders to review permanent flood protection for the region. The Fargo-Moorhead Area Red River Diversion Project proposes the development of various permanent flood protection measures in the region, the most substantial being a 30-mile long, 1,500-foot-wide diversion channel. The proposed diversion alignment created an interim growth boundary for the City, warranting a review of how efficiently land is used within the flood protection areas.

Policy changes based on these events were made at the planning and design levels. Various design requirements have been established within new growth areas to assist in flood protection efforts. For example, new construction must flood proof to anticipated future BFE of 41 feet + 1.2 feet. The fill at the foundation can be 41 feet - .07. This change requires the placement of additional fill to bring development areas to that level, resulting in the potential need for larger lot sizes to tie the BFE back to the existing ground elevation between structures. Additionally, the provision of appropriately sized storm water management facilities has increased in importance, not only on individual sites, but for the region. Incorporating higher density developments and mixed-use sites has been encouraged in the updated land use plan to assist in the efficient use of land. The changes have resulted in a modified development style not reflected in creating the 2007 Growth Plan from a land use perspective.

As part of this planning effort, the land use plan was updated to respond to the changing development climate. This allowed for revisions to the forecasted job and household assignments in the study area.

### Fargo Future Land Use Plan

To update Fargo's adopted future land use plan, a review of the existing land uses and 2007 Growth Plan was completed (See Chapter 2). This review was necessary to gain an understanding of the existing makeup of the area and identify recent development. Two future land use alternatives were developed based on this review for discussion by study area stakeholders. This discussion and review allowed for developing a preferred land use plan (Figure 5.1).

Using the preferred land use plan, job and household forecasts were developed for the study area. These forecasts were reviewed to account for recent policy changes and development trends. Modifications were made to average household sizes, residential densities, and employment densities to develop socioeconomic forecasts. This analysis projected the study area's capacity within Fargo's jurisdiction to support approximately 15,300 jobs and 31,022 households. This data was aggregated by traffic analysis zone for use as spatial input to the TDM, as described in this chapter.

### Horace Future Land Use Plan

#### Existing Planning Efforts

Prior to this study, the City of Horace had not developed a future land use plan for the areas within city limits or its extraterritorial area. Non-agricultural zoning districts within the study area offer information about Horace's plans for future growth in the short term, but a long-term vision for future land use did not exist. Within its growth area, Horace faces similar challenges to the City of Fargo relative to flooding and the relationship between land use and transportation corridors. Additionally, Horace is considering various options for the provision of future sanitary sewer infrastructure to new development. With the existing sanitary sewer lagoons nearing capacity, city growth at an urban density will likely be delayed until decisions are made and additional capacity is identified. During the process of completing a land use plan, city leaders expressed concern over the cost of maintaining roadways and infrastructure in a city that continues to develop in a pattern of low density with on-site septic systems. Therefore, the land use plan developed as part of this project envisions urban densities that must be served by an urban sanitary sewer system.

#### Development and Policy Changes

Much of the City of Horace is provided flood protection from the Sheyenne River Diversion, which runs parallel to the proposed Red River Diversion and forms the western boundary of the study area. The existing protection provided by the Sheyenne Diversion significantly reduces the potential of flooding along the Sheyenne River. The diversion facility protects land in Horace and the surrounding area. An associated "tieback levy" provides protection from overland flooding that would result from Sheyenne River breakouts south of the diversion, or from breakouts of the Wild Rice or Red Rivers. However, the city is at or near capacity of the existing sewage lagoons, which limits the rate and type of development that can occur. Without the ability to connect to city sanitary service, residential

developments must provide community or individual septic systems, which require a greater amount of land than a typical urban-sized residential lot. Until the city can determine a solution for expanding their sewage capacity, the city will likely allow only larger lot residential subdivisions with the provision of on-site septic systems.

### Horace Future Land Use Plan

Developing a future land use plan for the City of Horace began with a review of the existing land uses within city limits and the extraterritorial area. Additionally, existing zoning districts and approved subdivisions were reviewed to aid in the understanding of the area and development climate. Based on this review, two land use plan alternatives were developed for the Horace study area. These alternatives were modified through various reviews by the public, project stakeholders, city staff, and elected and appointed officials. This review allowed for developing a preferred land use plan (Figure 5.2).

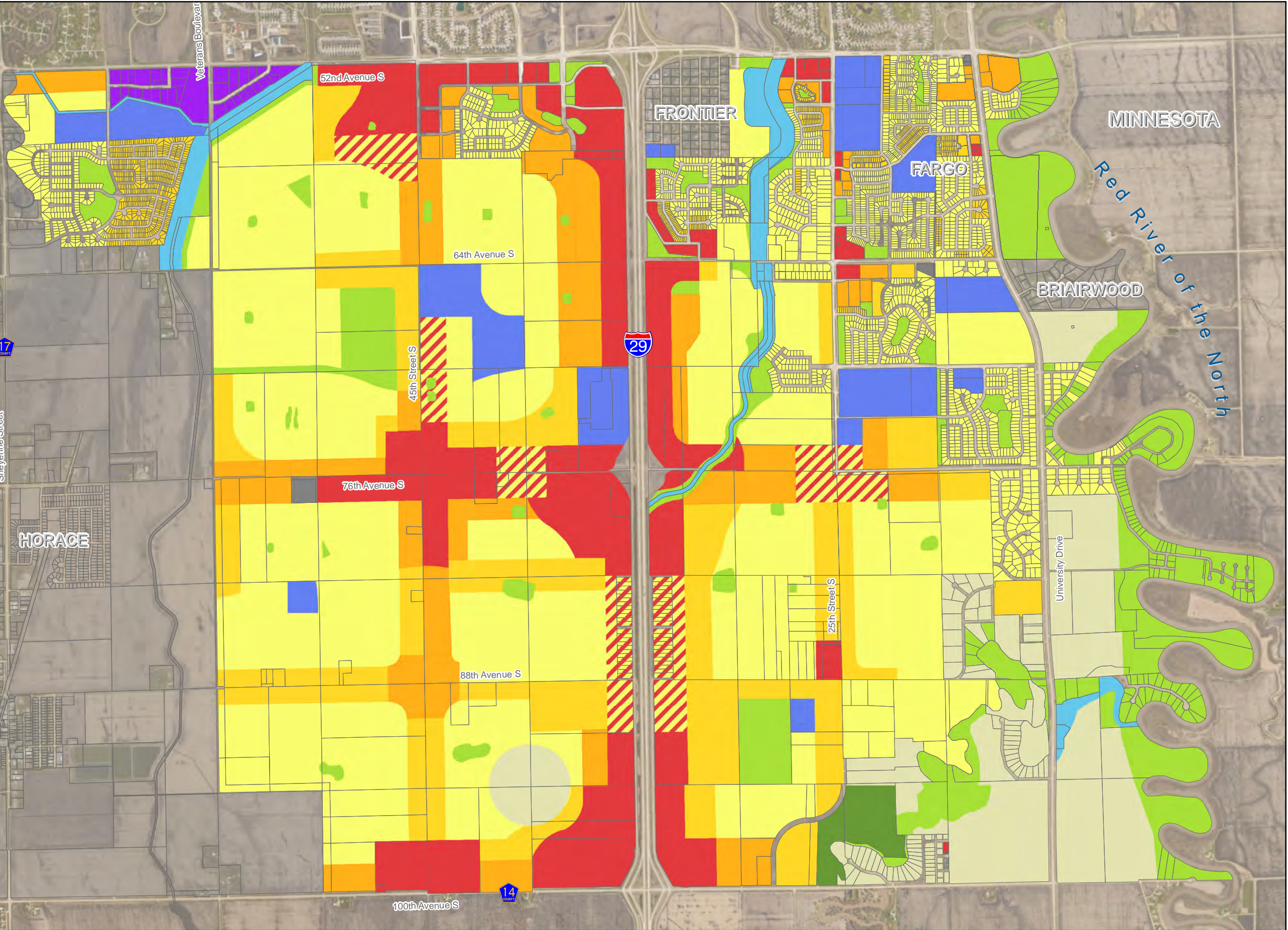
Future job and household forecasts were also developed within Horace's portion of the overall study area. These forecasts were developed specifically for the City of Horace and its growth area to account for appropriate densities, household sizes, etc. For example, Horace has a higher number of persons per household than Fargo. It was assumed this characteristic would continue to exist as the community grows, particularly in the low-density residential land use category. A total of 5,132 households and 8,172 jobs were estimated as a growth capacity for the city, within the study area.



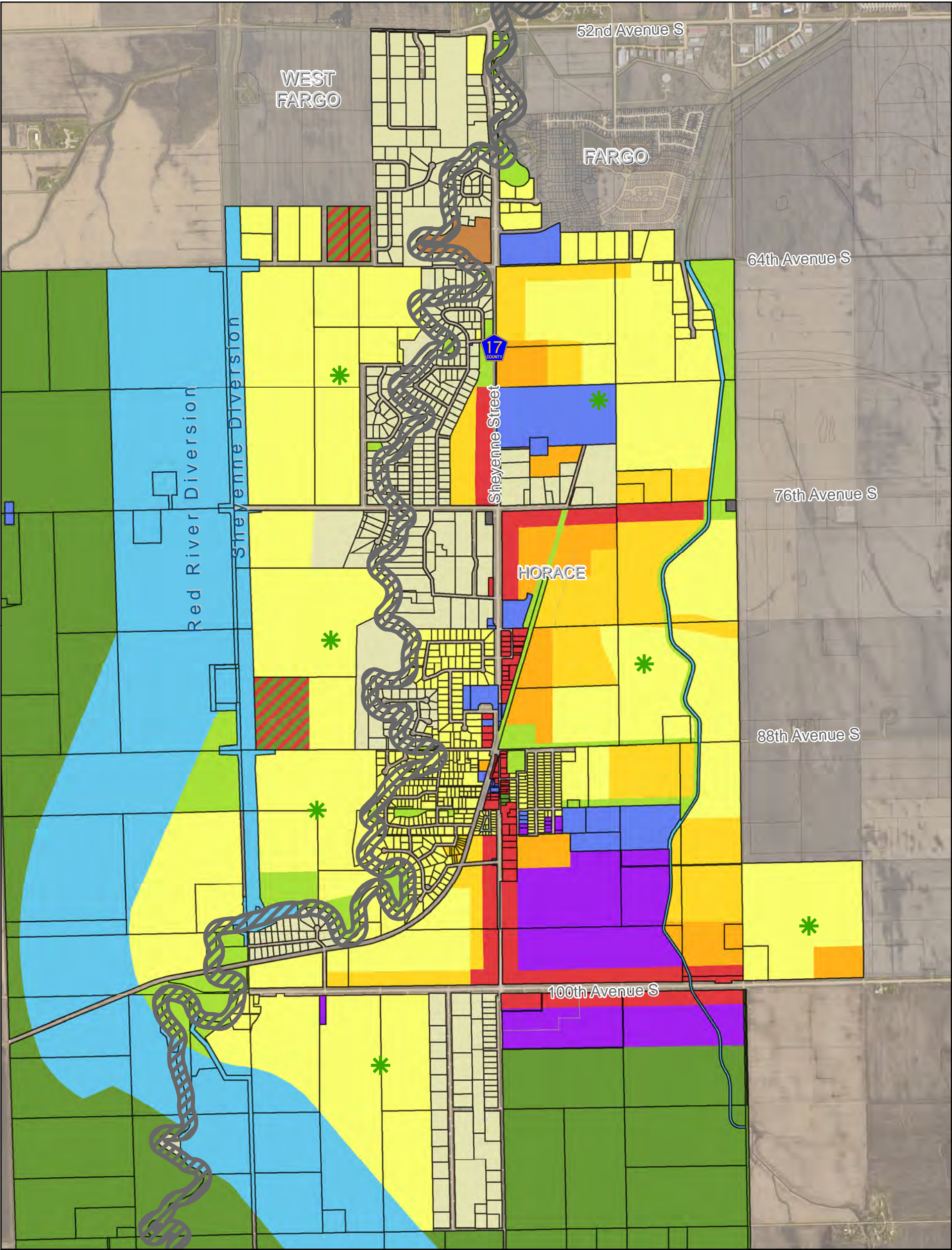
Legend

Future Land Use

- Low Density Residential
- Commercial
- Industrial
- Public and Institutional
- Agricultural
- Park and Open Space
- Medium Density Residential
- High Density Residential
- Rural Residential
- Mixed Use
- Drain/Diversion
- Utility







### Legend

- |   |  |   |   |
|---|--|---|---|
| <span style="color: red;">■</span> Commercial                 | <span style="color: orange;">■</span> Medium Density Residential   | <span style="color: green;">■</span> Parks and Open Space   | <span style="border: 1px solid black; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); display: inline-block; width: 15px; height: 10px;"></span> Sheyenne River 150ft Setback |
| <span style="color: purple;">■</span> Industrial              | <span style="color: darkorange;">■</span> High Density Residential | <span style="color: darkgreen;">■</span> Agricultural   | <span style="color: green;">✱</span> Horace Future Parks  |
| <span style="color: blue;">■</span> Public and Institutional  | <span style="color: lightgreen;">■</span> Rural Residential        | <span style="color: red; border-left: 2px solid green; border-right: 2px solid green; height: 10px; display: inline-block;"></span> Agricultural/Commercial |   |
| <span style="color: yellow;">■</span> Low Density Residential | <span style="color: brown;">■</span> Mobile Home Park              | <span style="color: lightblue;">■</span> Drain/Diversion  |   |
|   | <span style="color: grey;">■</span> Utility                        |   |   |

0 0.5 1 Miles





## Modeled Growth Tiers and Future Populations

Urban growth occurs over space and time. To reflect progressive development, growth tiers allowed for the geographical distribution of growth throughout the study area within specific time frames. Growth was phased into the four tiers over four planning periods: 2020, 2030, 2040, and 2040+. The socioeconomic forecast for 2040 and beyond assumes nearly a full build-out of the study area.

The majority of growth for both Fargo and Horace is expected to progress from north to south as sections of agricultural land are annexed and the logical extension of city services is carried out to meet the needs of land slated for development. However, the north/south orientation of Horace, combined with current infrastructure limitations, requires that growth be tied to existing infrastructure in the short-term. The agreed-upon growth tiers are displayed in Figure 5.3. Generally, Tier 1 includes the area between 52<sup>nd</sup> Avenue South to 76<sup>th</sup> Ave South; Tier 2 includes the area between 76<sup>th</sup> Avenue South and 88<sup>th</sup> Avenue South; and Tier 3 includes the area between 88<sup>th</sup> Avenue South and 100<sup>th</sup> Avenue South.

Table 5.1 provides the population associated with 2020, 2030 and 2040 growth within the study area, and the resulting job and household projections.

*Table 5.1: 2020, 2030, and 2040 Study Area Population, Household, and Job Forecasts*

	2020			2030			2040		
Municipality	Population	Households	Jobs	Population	Households	Jobs	Population	Households	Jobs
Fargo	29,243	12,274	5,923	46,669	19,598	9,477	58,155	24,427	11,909
Horace	6,019	2,010	330	6,309	2,109	734	6,309	2,109	775
<b>Total</b>	<b>35,262</b>	<b>14,284</b>	<b>6,253</b>	<b>52,978</b>	<b>21,707</b>	<b>10,211</b>	<b>64,465</b>	<b>26,536</b>	<b>12,684</b>



# Legend

## Fargo Growth Tiers

- Fargo Tier 1
- Fargo Tier 2
- Fargo Tier 3

## Horace Growth Tiers

- Horace Tier 1
- Horace Tier 2
- Horace Tier 3
- SWMTP TAZ

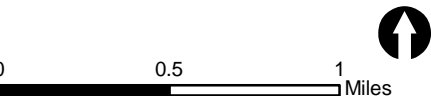
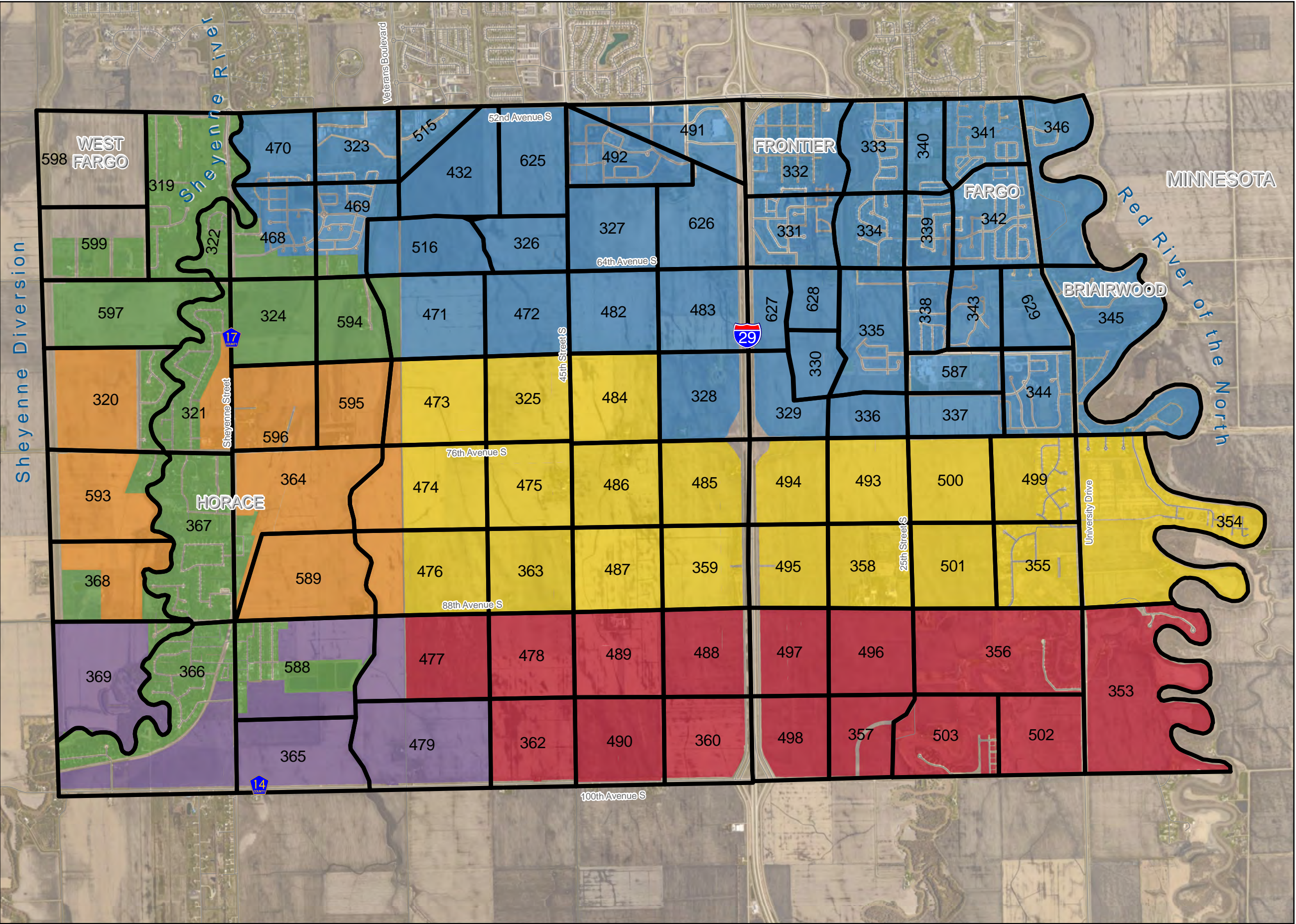


Figure 5.3



The 2040+ Tier was developed to account for development beyond the 2040 planning horizon, and to complete the transportation network within the study area and the associated traffic projections in the TDM. However, long-range demographic forecasts are influenced by several factors. Therefore, growth beyond the 2040 population projections is not tied to a specific year. Beyond 2040, the model assumes that Tier 1 is built out, Tier 2 is 90 percent developed, and Tier 3 is 75 percent developed within the Fargo portion of the study area. In Horace, Tiers 1 and 2 are assumed to be built out. In Tier 3, commercial land use is built out and housing is 50 percent developed.

Growth Tier Development

Fargo and Horace have different growth trajectories given their geographical orientation and infrastructure constraints. It is anticipated that Fargo’s growth within the study area will decelerate within each progressive growth tier as the City reaches build-out in the study area. Meanwhile, Horace’s growth is expected to accelerate as infrastructure limitations are addressed. The tiered-growth framework allows for a detailed analysis of these growth patterns.

City of Fargo

Historical growth patterns and development strategies informed the development of the tiered growth scenarios. The City of Fargo has historically provided infrastructure extensions that do not necessarily require full development of an area prior to making infrastructure extensions that allow development of new areas or tiers of growth. For example, the land in the southwest quadrant of I-29 and I-94 and the Brandt land south of 32<sup>nd</sup> Avenue South remain undeveloped, while areas farther to the south have been partially or fully developed. Evidence of this pattern still exists north of I-94, where tracts of land along the interstate highway and between 42<sup>nd</sup> Street South and 45<sup>th</sup> Street South continue to experience what can now be described as infill development. This same pattern has been accounted for in development phasing assumptions for the SWMTP. It was assumed that near-term development would phase in within the northern portion of the study area, and that while infill is occurring, new development areas will open up to the south. Thus, while the largest growth is concentrated in Tier 1, all growth areas are assumed to develop to some extent during every planning period. Table 5.1 shows how Fargo growth was allocated by growth tier and time frame.

Table 5.2: Tiered Growth Allocation – Fargo

Model Year	Tier 1	Tier 2	Tier 3
2020	75%	5%	5%
2030	85%	60%	10%
2040	90%	75%	50%
2040+	100%	90%	75%

City of Horace

Similar to the process used with the City of Fargo land use plan update, the forecasted growth within the Horace portion of the study area was assigned within growth tiers for use within the TDM. The historic rate of growth, overall lot sizes, and sanitary sewer capacity were considered in developing

these tiers. Growth was assumed to occur at a slower rate within the Tier 1 (2020) timeframe, with an increased rate of growth in the following tiers, assuming a solution for sewer expansion is identified and implemented within this time frame. Table 5.2 provides the percentage of growth assumed in each tier within the planning timeframe.

*Table 5.3: Tiered Growth Allocation – Horace*

Model Year	Tier 1	Tier 2	Tier 3 HH	Tier 3 Jobs
2020	25%	10%	3%	5%
2030	75%	50%	3%	20%
2040	100%	75%	3%	50%
2040+	100%	100%	50%	100%

As shown above, Horace’s Tier 3 jobs were assumed to grow at a faster pace than households within Tier 3. This was due to the presence of 100<sup>th</sup> Avenue South (Cass County Road 14) along the south edge of the study area, and the community’s input about the timing of commercial and/or industrial development within this area as a form of economic development and job growth. This is one of the few locations within the city where leaders could envision industrial land use without negative impacts to existing neighborhoods. Cass County Road 14 is one of very few roadways within Horace that has a high level of continuity and is a direct connection to I-29. To incorporate this vision into the TDM assumptions, job growth was accelerated ahead of residential growth within this tier.

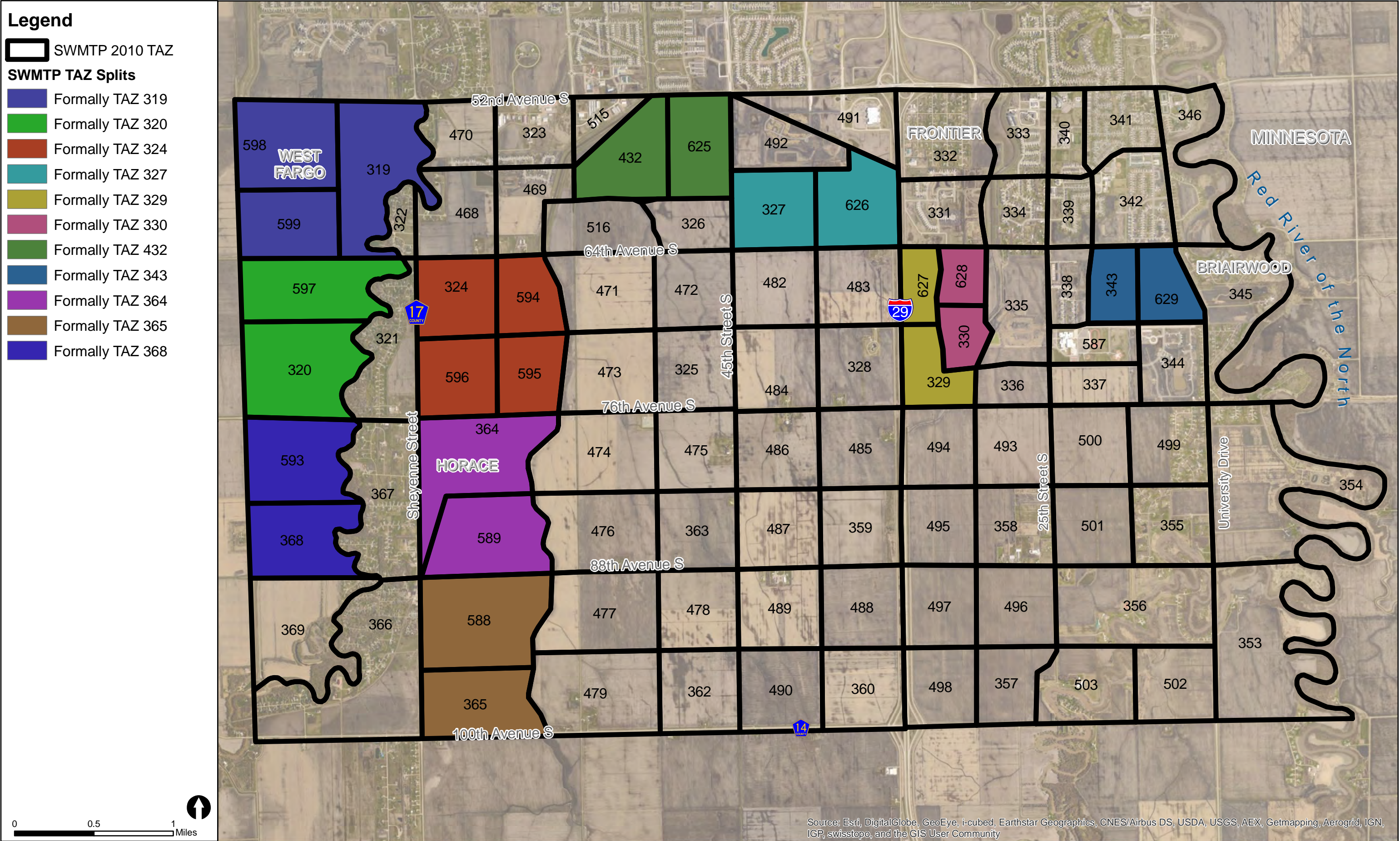
### Southwest Metro Traffic Analysis Zones

The traffic analysis zones utilized in the Southwest Metro TDM were similar to those used in Metro COG’s regional travel demand model. However, because the study area was being reviewed at a higher level of detail, with a more finely grained roadway network and an increased amount of development, it was important to build a finer level of detail into the TAZs. Therefore, some TAZs in the original travel demand model were subdivided to produce the final network shown in 5.4.

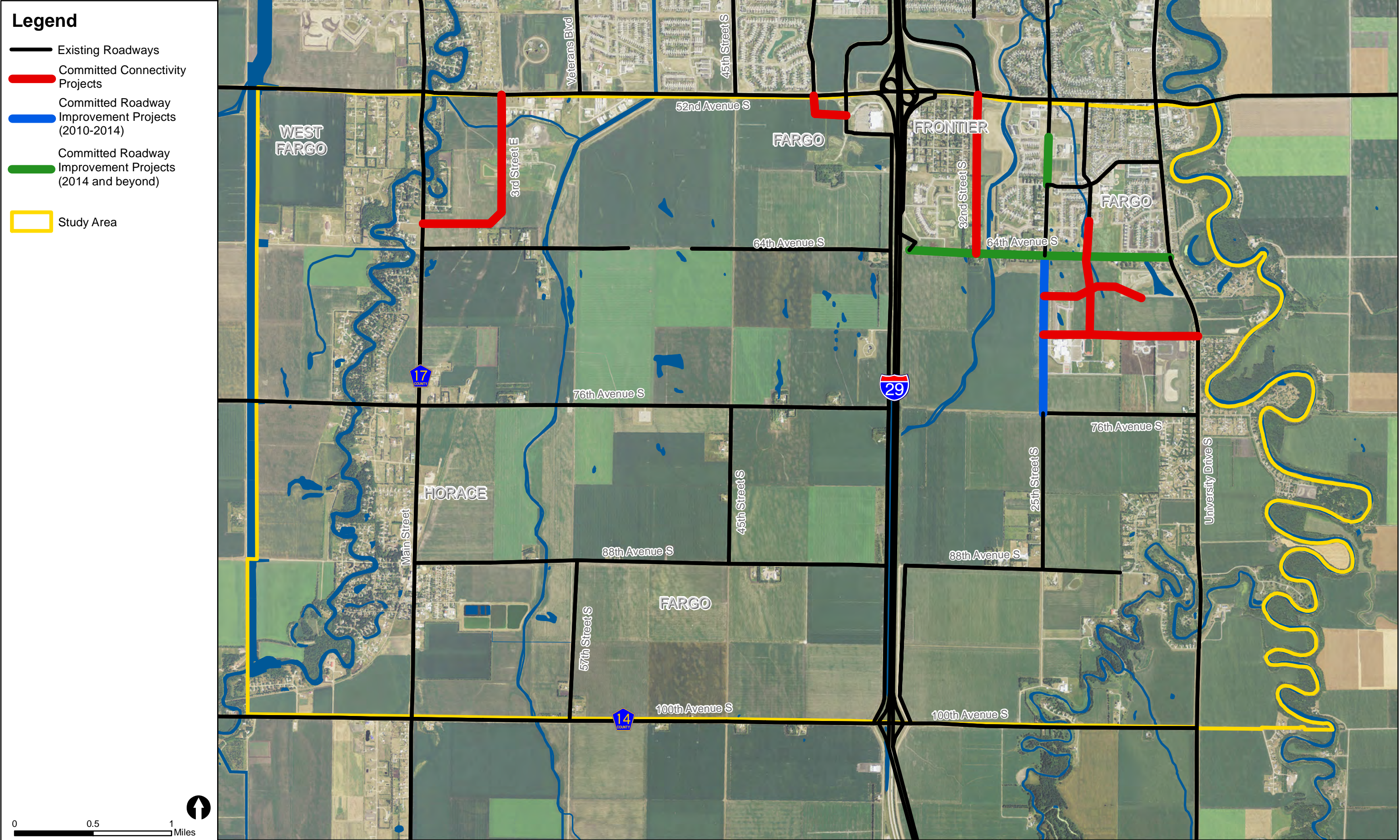
### Existing and Committed Roadways

Committed roadways are identified in Metro 2040 as fiscally constrained projects. Additional roadways are identified in individual jurisdictions’ Transportation Improvement Programs or Capital Improvement Programs. Figure 5.5 shows the existing and committed roadway network.

It is crucial to know the location of existing and committed roadways to perform trip assignment, the final step of the four-step TDM. This aids in identifying the need for future roadway improvements. A capacity analysis was conducted for the 2020, 2030, 2040, and 2040+ timeframes. The results of this analysis are presented in Chapter 6.









## Chapter 6 – Model Analysis

### Introduction

This chapter documents the analysis completed for the SWMTP. Alternative scenarios were modeled for each planning horizon through 2040. A capacity analysis was performed to ensure that the anticipated roadway network performs acceptably as development occurs. Finally, a “best fit” roadway network was identified for each horizon year to maximize roadway network efficiency while minimizing investment costs.

### Volume/Capacity Standards

#### LOS Standards

Level of Service explains intersection performance and roadway congestion in easily understood terms. It is based on a report-card-style scale in which LOS A indicates uncongested/free-flowing traffic and LOS F indicates complete congestion or “gridlock.” While LOS is easily communicated, it is used more frequently when addressing detailed peak hour intersection or corridor operations, rather than broad-based corridor level planning. For corridor and roadway network planning, traffic engineers and planners typically use the Volume/Capacity (V/C) Ratio. This ratio expresses congestion in terms of traffic volume divided by the engineered capacity of the roadway. When  $V/C = 1.00$ , volume is equivalent to capacity. SRF typically applies a two-tiered grading scheme:

- $V/C\ 0.85-1.00 =$  “congesting”
- $V/C > 1.00 =$  “congested”

#### Modeled Roadway Capacities

The two-tiered V/C scale was refined for use in the Southwest Metro Transportation Plan, so that V/C could be translated to LOS for the sake of establishing a broader understanding of anticipated roadway conditions and explaining a broader range of conditions. Table 6.1 shows how LOS relates to the V/C ratio. For comparison, the capacities used in the SWMTP TDM are provided along with those from the LRTP model, from which the SWMTP model was derived.

Table 6.1: Daily Capacity Assumptions, LRTP and SWMTP Travel Demand Models

NUMBER OF LANES	LRTP TRAVEL DEMAND MODEL		SWMTP TRAVEL DEMAND MODEL	
	ROADWAY TYPE	CAPACITY THRESHOLD	ROADWAY TYPE	CAPACITY THRESHOLD
2	major arterial rural	21,800	undivided rural	15,000
	minor arterial rural	13,700		
	collector/local rural	9,200		
	major arterial urban	22,100	undivided urban	10,000
	minor arterial urban	13,500		
	collector/local urban	9,400		
	minor arterial (3-lane urban)	17,500	divided (2 lane) urban	17,000
4	major arterial rural	39,100	divided rural	38,000
	collector/undivided urban	18,200	divided urban	22,000
	major arterial (5-lane urban)	40,300	divided (5 lane) urban	32,000
	minor arterial (5-lane urban)	28,500		
	freeway	68,000	freeway	80,000
6	major arterial urban	56,500	divided urban	48,000
	freeway	102,000	freeway	120,000

The adjusted capacity thresholds for each roadway type were incorporated into the SWMPT TDM. This allowed for the analysis of congested areas, or areas with high V/C ratios. The model reflects differing capacity assumptions for two-lane and four-lane roadways. Figure 6.1 displays the capacity comparison for two-lane roadways, and Figure 6.2 shows the capacity comparison for roadways with four or more lanes. The height of each bar indicates the volume of traffic that leads to congestion for each roadway assumption. LRTP model capacities are included for reference. All figures represent average daily vehicle volumes.

Figure 6.1: Two-Lane Capacity Comparison, LRTP and SWMTP Travel Demand Models

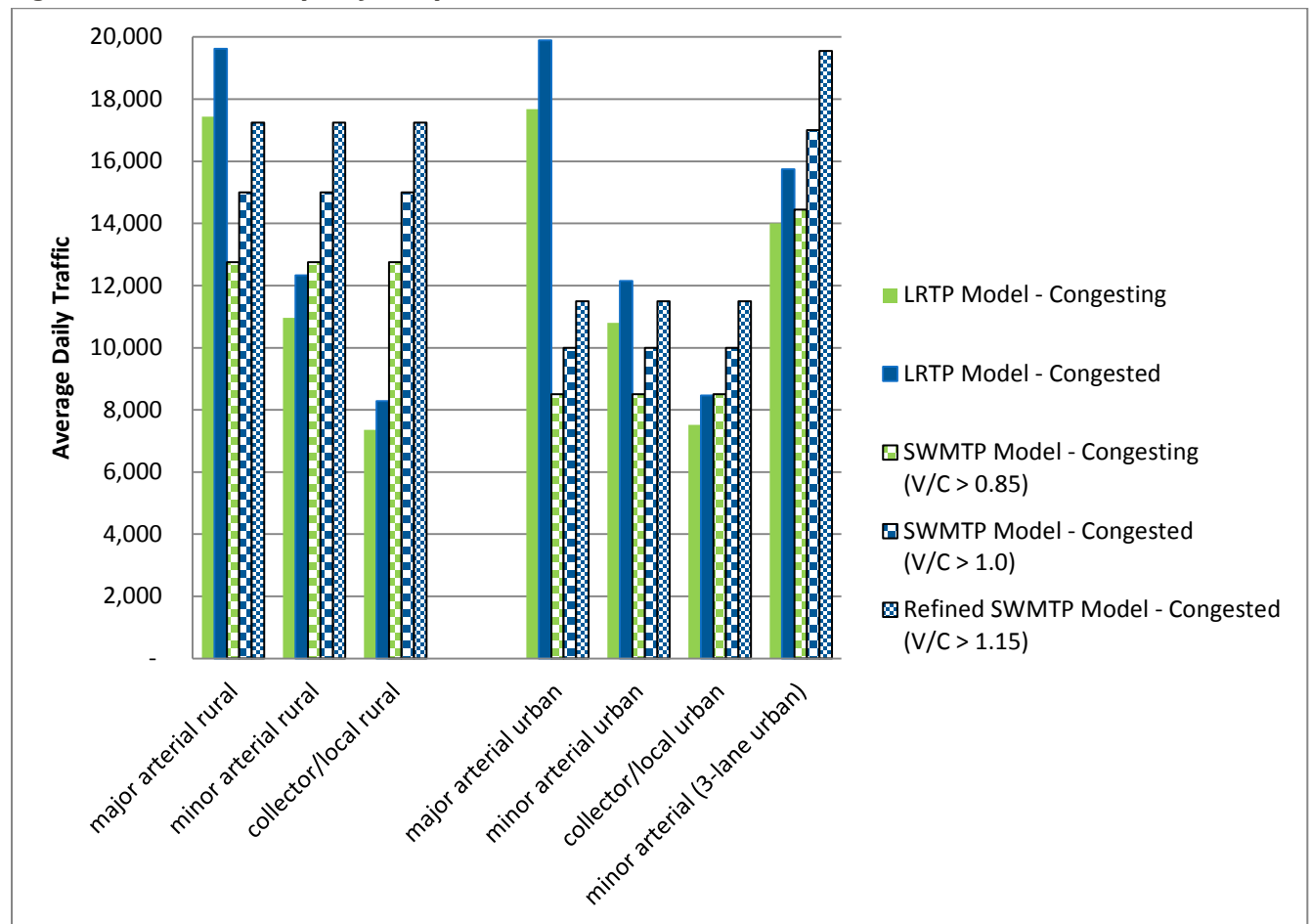
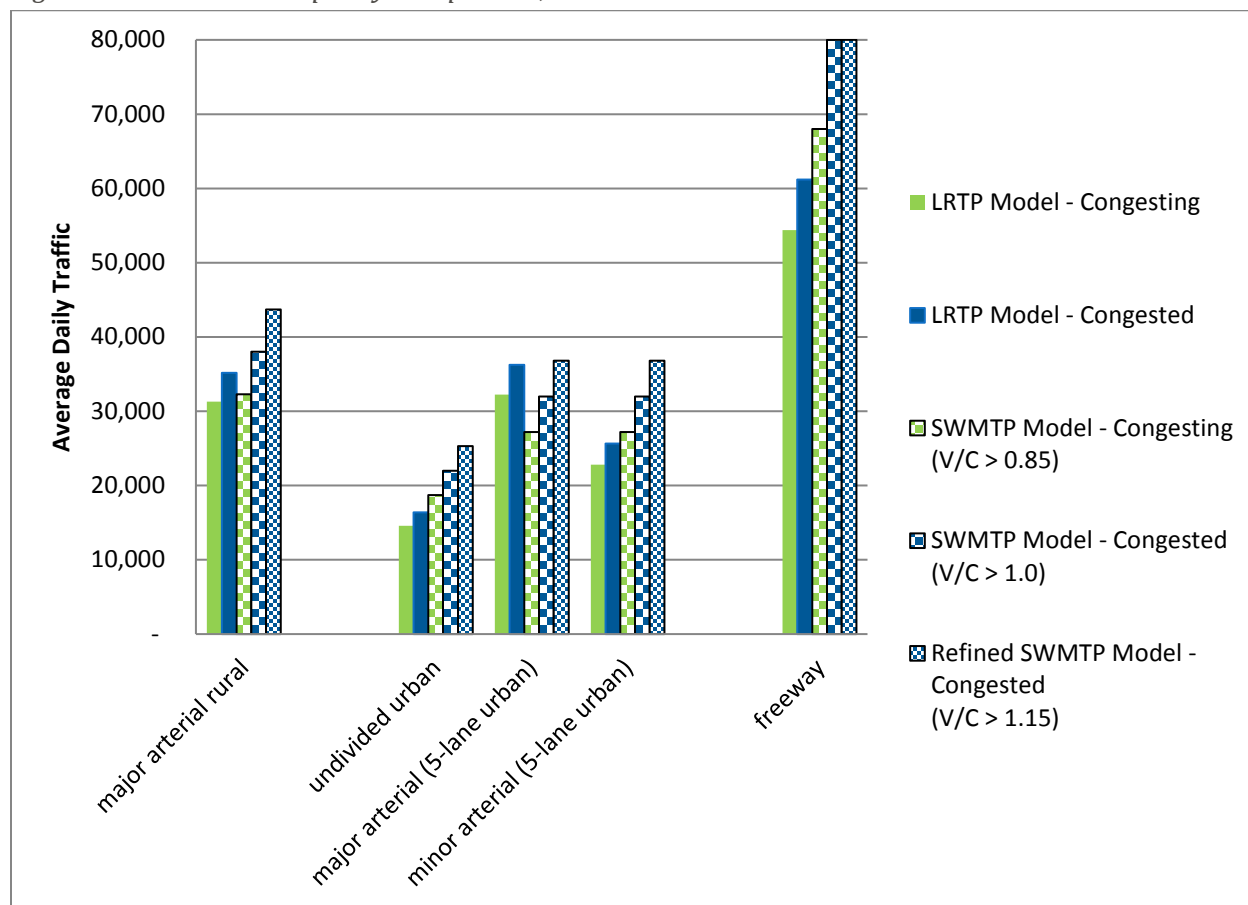


Figure 6.2: Four-Lane Capacity Comparison, LRTP and SWMTP Travel Demand Models



## Best Fit Scenarios

The best fit scenario analysis reflects a snapshot in time. Capacity issues in the form of peak hour congestion are identified by analysis year 2020, 2030, 2040, and 2040+. The congestion resulting from each decade's development is served by adding roadway capacity in these decades.

## 2020 Capacity Analysis

It is anticipated that congestion in this portion of the study area will get slightly worse before it improves. This is because financial resources and projects must be identified before design and construction can begin. This process takes time and resources and depends largely on the pace and nature of development. Using the 2020 best fit roadway network from the travel demand model, congestion is forecasted at the following locations:

- Sheyenne Street between 52<sup>nd</sup> Avenue South and 64<sup>th</sup> Avenue South
- 45<sup>th</sup> Street South immediately south of 52<sup>nd</sup> Avenue South
- 64<sup>th</sup> Avenue South between 45<sup>th</sup> Street South and 38<sup>th</sup> Street South
- 52<sup>nd</sup> between I-29 and 25<sup>th</sup> Street South
- 25<sup>th</sup> Street South between 52<sup>nd</sup> Avenue South and 64<sup>th</sup> Avenue South

Figure 6.3 shows the capacity analysis for the 2020 best fit scenario.

### 2030 Capacity Analysis

By 2030, many additional arterial and collector street capacity improvements will be needed, especially within the central part of the study area (Tier 2). Additional improvements within Tier 1 will also be needed. For the 2030 best fit scenario, only a few short links will experience low levels of congestion.

Figure 6.4 shows the capacity analysis for the 2030 best fit scenario.

### 2040 Capacity Analysis

In 2040, a slight amount of congestion builds on 64<sup>th</sup> Avenue South between I-29 and 25<sup>th</sup> Street South, and on 25<sup>th</sup> Street South between 52<sup>nd</sup> Avenue South and 64<sup>th</sup> Avenue South. In addition, congestion builds on 76<sup>th</sup> Avenue South between 45<sup>th</sup> Street South and I-29, but is somewhat mitigated by 2040+ with a capacity expansion on 76<sup>th</sup> Avenue South to eight lanes between 45<sup>th</sup> Street South and I-29.

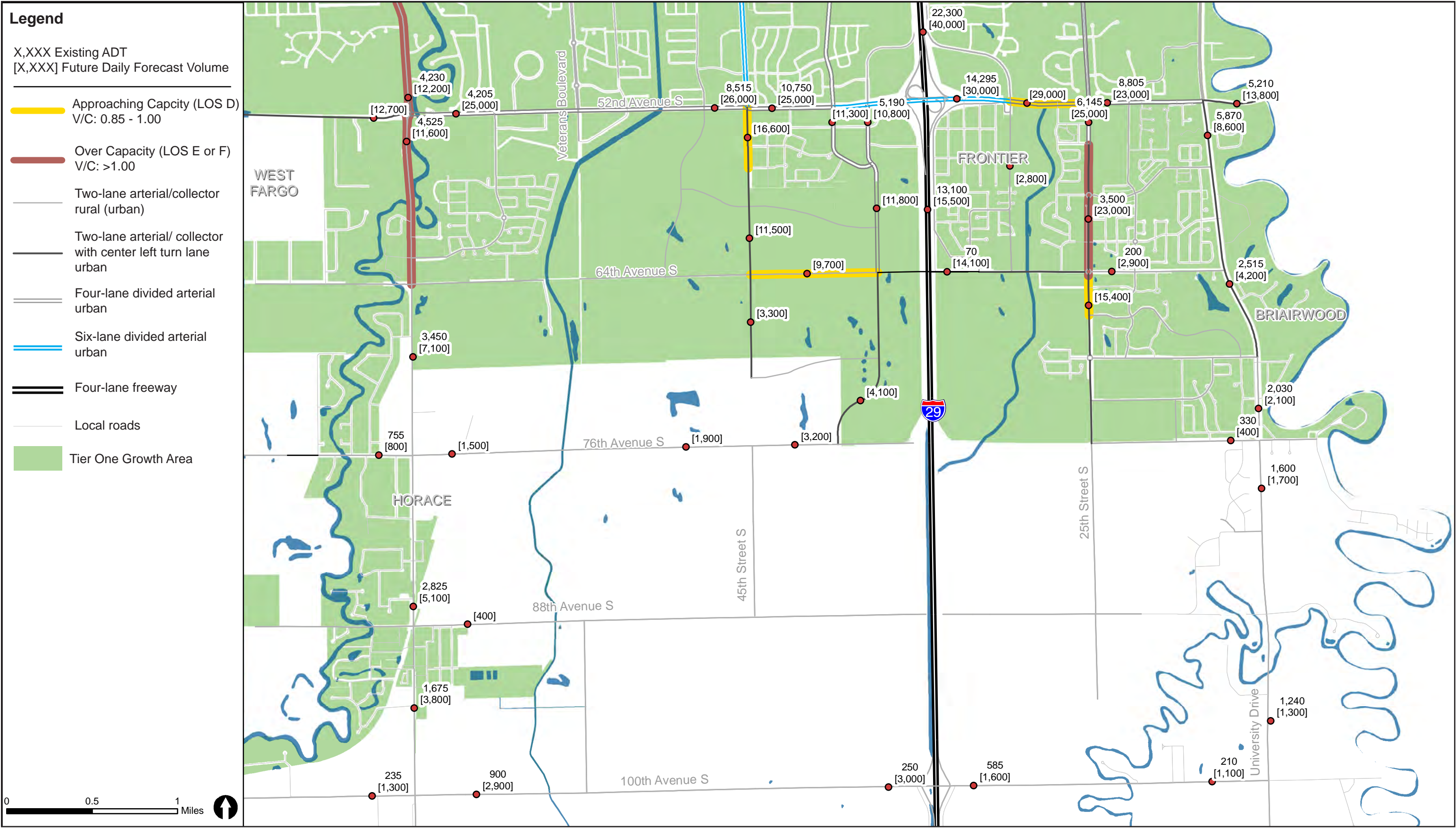
Figure 6.5 shows the capacity analysis for the 2040 best fit scenario.

### 2040+ Capacity Analysis

As development progresses southward into the 2040+ scenario, minor congestion builds on 45<sup>th</sup> Street South between 52<sup>nd</sup> Avenue South and 64<sup>th</sup> Street South, and on 88<sup>th</sup> Avenue South west of 45<sup>th</sup> Street South. In this timeframe serious consideration ought to be given to construction of an alignment of Veteran's Boulevard south of 52<sup>nd</sup> Avenue South to 100<sup>th</sup> Avenue South. If the alignment stays on the section line it would require a crossing of Drain 27 and might create orphan properties between the roadway and Drain 27 in the northern reaches of the roadway. However, if the roadway is shifted to an alignment east of Drain 27, this eliminates an expensive crossing structure, but the roadway's effectiveness of reducing congestion on parallel roadways is compromised somewhat. This issue will need to be addressed in the decision to extend the facility and its design.

Figure 6.6 shows the capacity analysis for the 2040+ best fit scenario.





**SR** Year 2020 Best Fit Scenario - Capacity Analysis

**Figure 6.3**

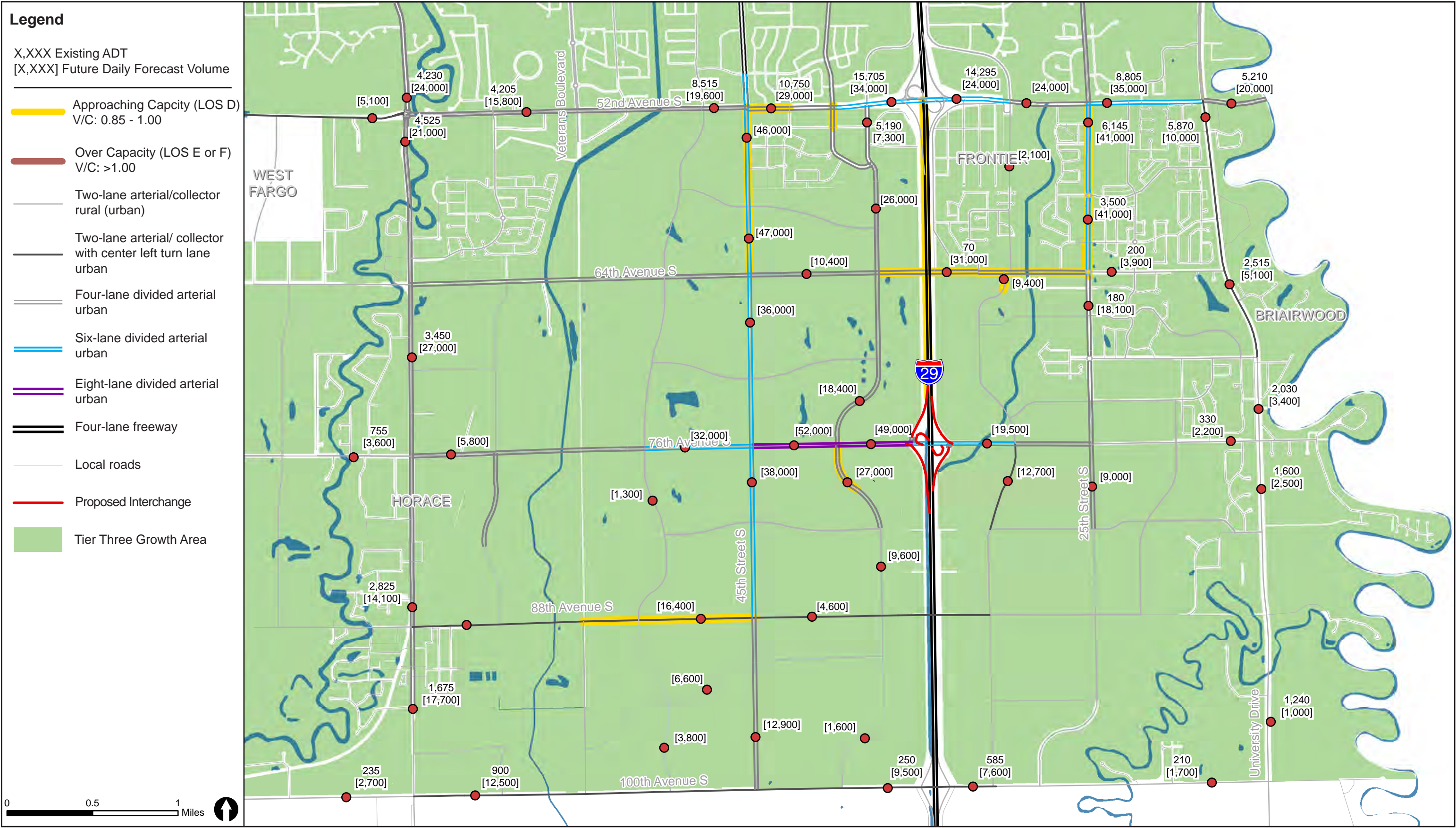












**SR** Year 2040+ Best Fit Scenario - Capacity Analysis

**Figure 6.6**



## Sensitivity Analysis

Sensitivity analyses were performed to determine the impacts, both positive and negative, of network alteration. The following sensitivity tests were developed in response to questions raised by the Study Review Committee.

- a. 76<sup>th</sup> Avenue South Beltway between I-94 and Cass County Road 15 (2040)
- b. 76<sup>th</sup> Avenue South – Grade Separation Only at I-29 (2030)
- c. 76<sup>th</sup> Avenue South – No connection across I-29 (2030)
- d. Veterans Boulevard from 52<sup>nd</sup> Avenue South to 100<sup>th</sup> Avenue South (2040+)

The results of these sensitivity tests are summarized below.

### 76<sup>th</sup> Avenue South

The first analysis was to determine the impact of making 76<sup>th</sup> Avenue South an arterial connection from I-94 in Minnesota proceeding through the study area to County Road 15 in North Dakota. This would create an alternative to I-94, the primary east-west corridor through the Fargo-Moorhead metropolitan area. The sensitivity analysis was conducted for the 2040+ growth scenario. The capacity needs of the corridor were determined to consist of primarily a four-lane facility with limited access points, with a six-lane section between I-29 and 45<sup>th</sup> Street South. Adding a high mobility, limited-access facility has several positive impacts to traffic within the study area and beyond:

- Traffic on I-94 is reduced, mitigating future congestion issues on the primary east-west interstate, particularly between South University Drive in Fargo and Highway 75 (8<sup>th</sup> Street South) in Moorhead.
- Traffic is significantly reduced on the I-29 corridor between I-94 north of the study area and 76<sup>th</sup> Avenue South. The biggest reduction is to southbound trips). While the majority of existing traffic accesses the study area via the I-94-to-I-29 route, the 76<sup>th</sup> Avenue connection would absorb some trips between South Fargo and South Moorhead, as well as trips with an origin/destination in external cities to the southeast of the study area, such as Barnesville, Pelican Rapids, and Fergus Falls. As a consequence, daily traffic volumes on I-29 are reduced compared to the null scenario. This reduction could delay or eliminate the need to expand I-29 as the study area develops.
- The improvement eliminates the need for a six-lane capacity expansion on 52<sup>nd</sup> Avenue South between 25<sup>th</sup> Street South and South University Drive.

Figure 6.7: ADT change under 76<sup>th</sup> Avenue South Sensitivity Analysis

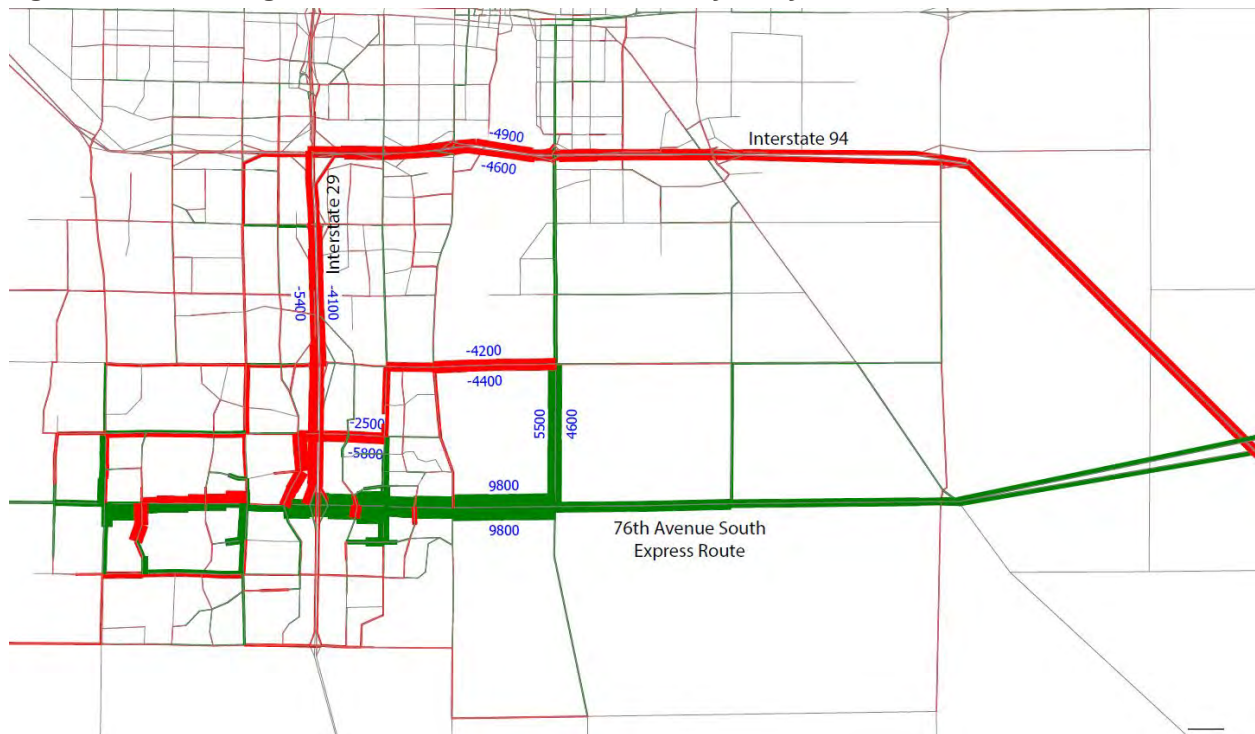


Figure 6.7 maps some of the most significant impacts to traffic volumes and capacity associated with the 76<sup>th</sup> Avenue South River Crossing Sensitivity Analysis.

### Veterans Boulevard

The extension of Veterans Boulevard from 52<sup>nd</sup> Avenue South to 100<sup>th</sup> Avenue South was studied for the 2040+ growth scenario. The analysis was conducted using the aggressive growth scenario for the City of Horace. In this scenario, the segment between 52<sup>nd</sup> and 76<sup>th</sup> Avenues South would be constructed as a four-lane arterial, and the segment from 76<sup>th</sup> Avenue South to 100<sup>th</sup> Avenue South would be a two-lane arterial. Adding Veterans Boulevard to the study area roadway network reduces congestion on several linkages:

- Sheyenne Street between 52<sup>nd</sup> and 76<sup>th</sup> Avenues South
- 76<sup>th</sup> Avenue South between Veterans Boulevard and 25<sup>th</sup> Street South
- 45<sup>th</sup> Street South between 52<sup>nd</sup> to 88<sup>th</sup> Avenues South
- 52<sup>nd</sup> Avenue South between Sheyenne Street and 45<sup>th</sup> Street South

Reduced traffic projections on the links listed above resulted in the ability to reduce or delay capacity improvements on them.

Due to the physical constraints associated with constructing Veterans Boulevard on the section line, a second scenario was also reviewed that took the corridor off the section line and placed it at

approximately the quarter section line, with some variation. Under this alignment, the roadway would intersect with 52<sup>nd</sup> Avenue South between Drain 27 and 45<sup>th</sup> Street South. This alignment would function more as a collector street rather than an arterial roadway, and would not allow for connectivity with Veterans Boulevard north of 52<sup>nd</sup> Avenue South. This scenario did not result in the same level of volume reductions on roadways within the study area.

While Veterans Boulevard provides some relief to roadways experiencing congestion in the 2040+ scenario, it does not appear to offset the need and cost of constructing capacity improvements to other corridors.

Figure 6.8 maps some of the most significant impacts to traffic volumes and capacity that can be expected with the extension of Veterans Boulevard.

### I-29 and 76<sup>th</sup> Avenue South, Grade Separation

This analysis shows the impact of eliminating the proposed interchange at 76<sup>th</sup> Avenue South in lieu of constructing only a grade-separated crossing in the 2030 scenario. Compared to a full interchange, a grade-separated crossing increases congestion on several linkages:

- 45<sup>th</sup> Street South between 52<sup>nd</sup> Avenue South and 88<sup>th</sup> Avenue South
- 64<sup>th</sup> Avenue South between 45<sup>th</sup> Street South and I-29
- 76<sup>th</sup> Avenue South west of I-29

Figure 6.9 maps some of the most significant impacts to traffic volumes and capacity that can be expected if a grade-separated crossing is constructed at I-29 and 76<sup>th</sup> Avenue South, rather than a full interchange.

### I-29 and 76<sup>th</sup> Avenue South, No Connection

This sensitivity analysis shows the impacts of making no connection of 76<sup>th</sup> Avenue South at I-29 – neither the grade separation nor the interchange. This scenario has widespread negative consequences for future traffic circulation, including:

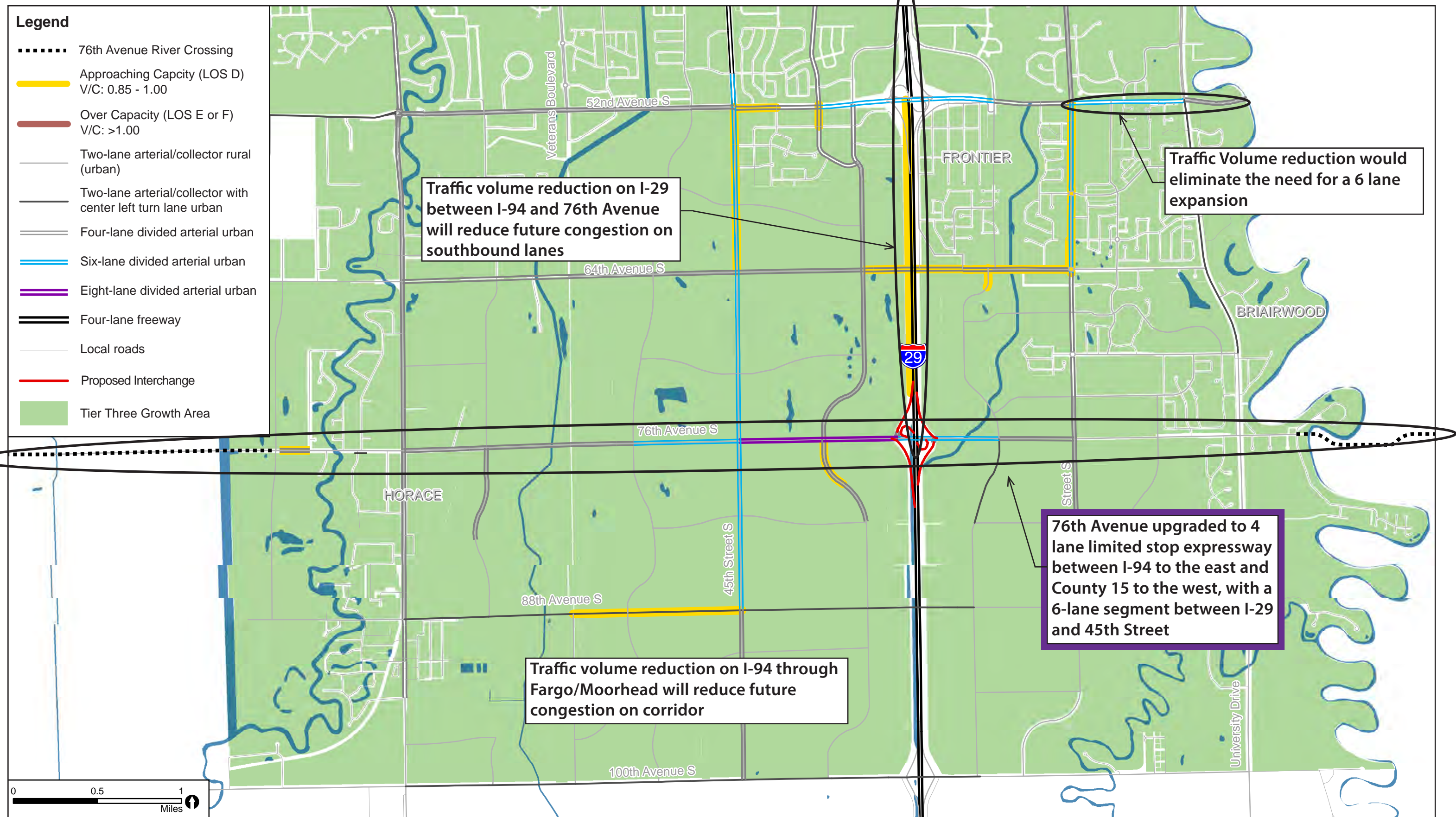
- Significantly increased congestion on 52<sup>nd</sup> Avenue South from Sheyenne Street to University Drive
- Increased congestion on Sheyenne Street between 64<sup>th</sup> Avenue South and 76<sup>th</sup> Avenue South
- Increased congestion on 45<sup>th</sup> Street South between 52<sup>nd</sup> Avenue South and 76<sup>th</sup> Avenue South
- Increased congestion on 64<sup>th</sup> Avenue South between 45<sup>th</sup> Street South and 25<sup>th</sup> Street South
- Increased congestion on 25<sup>th</sup> Street South between 76<sup>th</sup> Avenue South and 52<sup>nd</sup> Avenue South
- Increased congestion on 76<sup>th</sup> Avenue South east of I-29

Figure 6.10 maps some of the most significant impacts to traffic volumes and capacity that are forecasted under a scenario in which neither an interchange nor the grade-separated crossing is constructed at I-29 and 76<sup>th</sup> Avenue South.

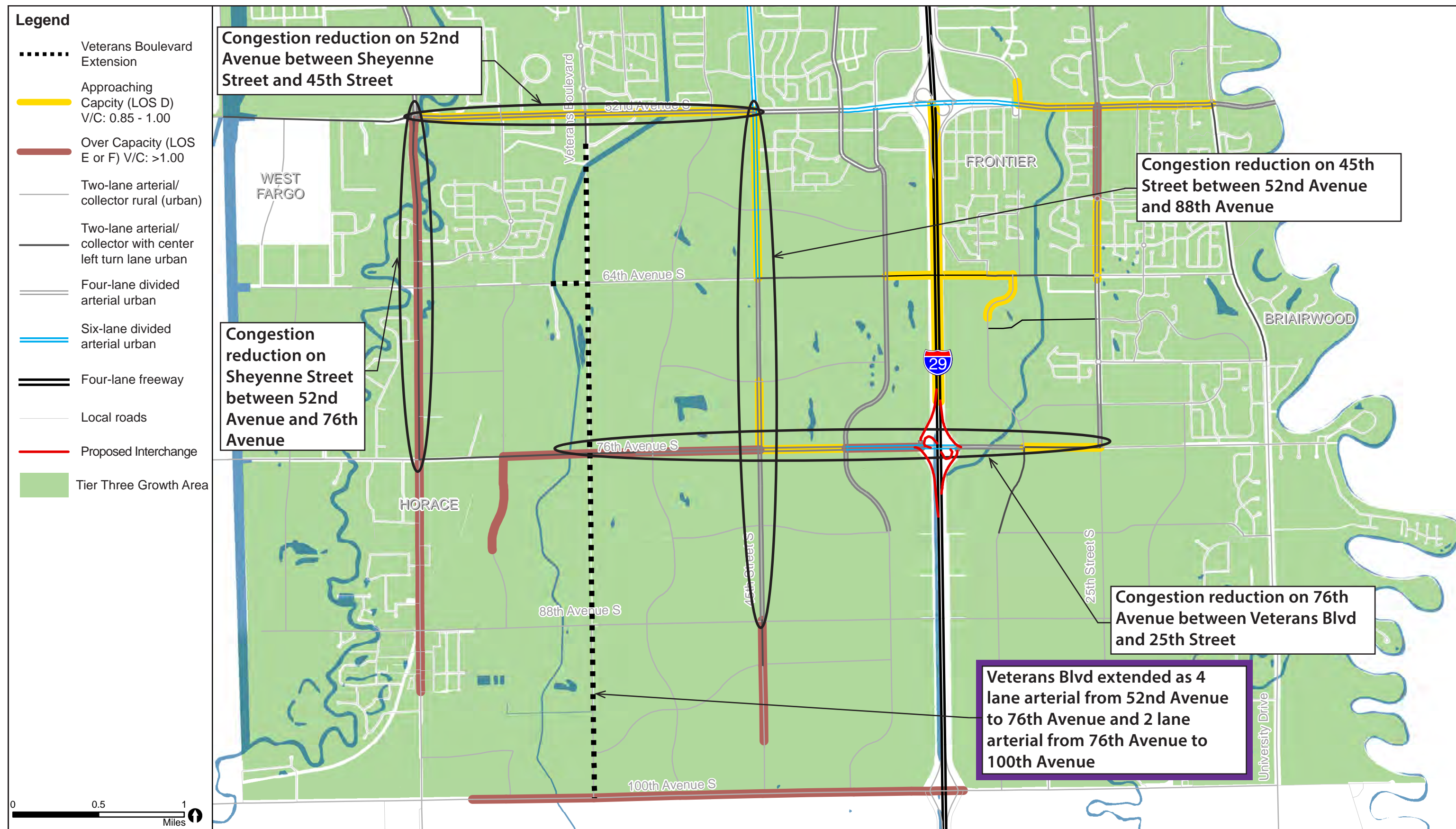
## Conclusion

Figures 6.7 through 6.10 depict future congestion issues for multiple project scenarios. By using the TDM to identify capacity issues, a list of roadway improvement projects was identified to serve anticipated development during each timeframe. Figure 6.11 maps improvements for each timeframe. The project list for each time frame is extensive and differs from that of Metro 2040 in that 1) traffic projections are based on a higher rate of growth, and 2) projects are not fiscally constrained.

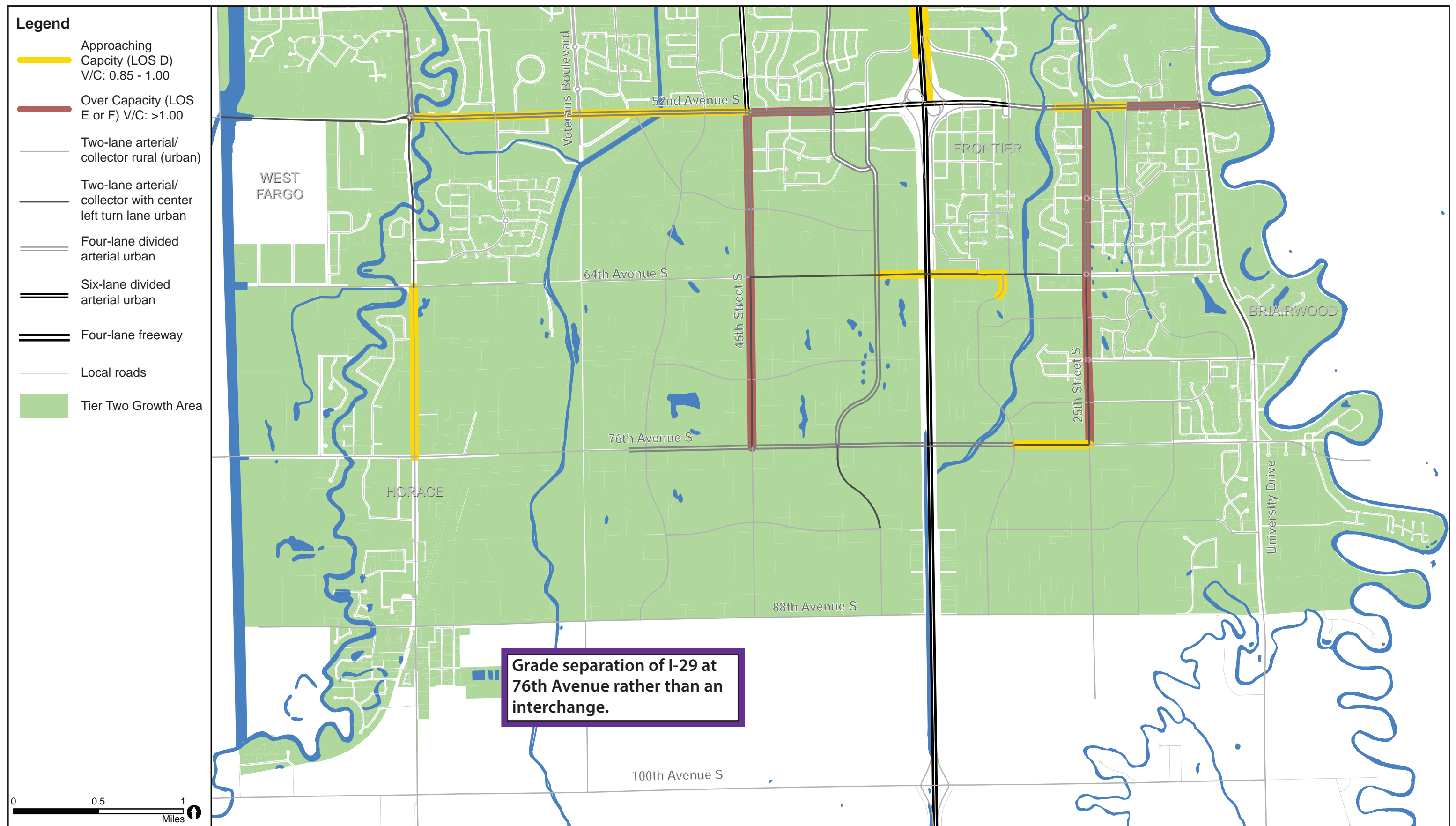
The TDM forecasts and best fit roadway scenarios were used to calculate planning level cost estimates. In addition, access management strategies and typical roadway network cross-sections were used to determine project costs. Project costs and other information are presented in Chapter 7.



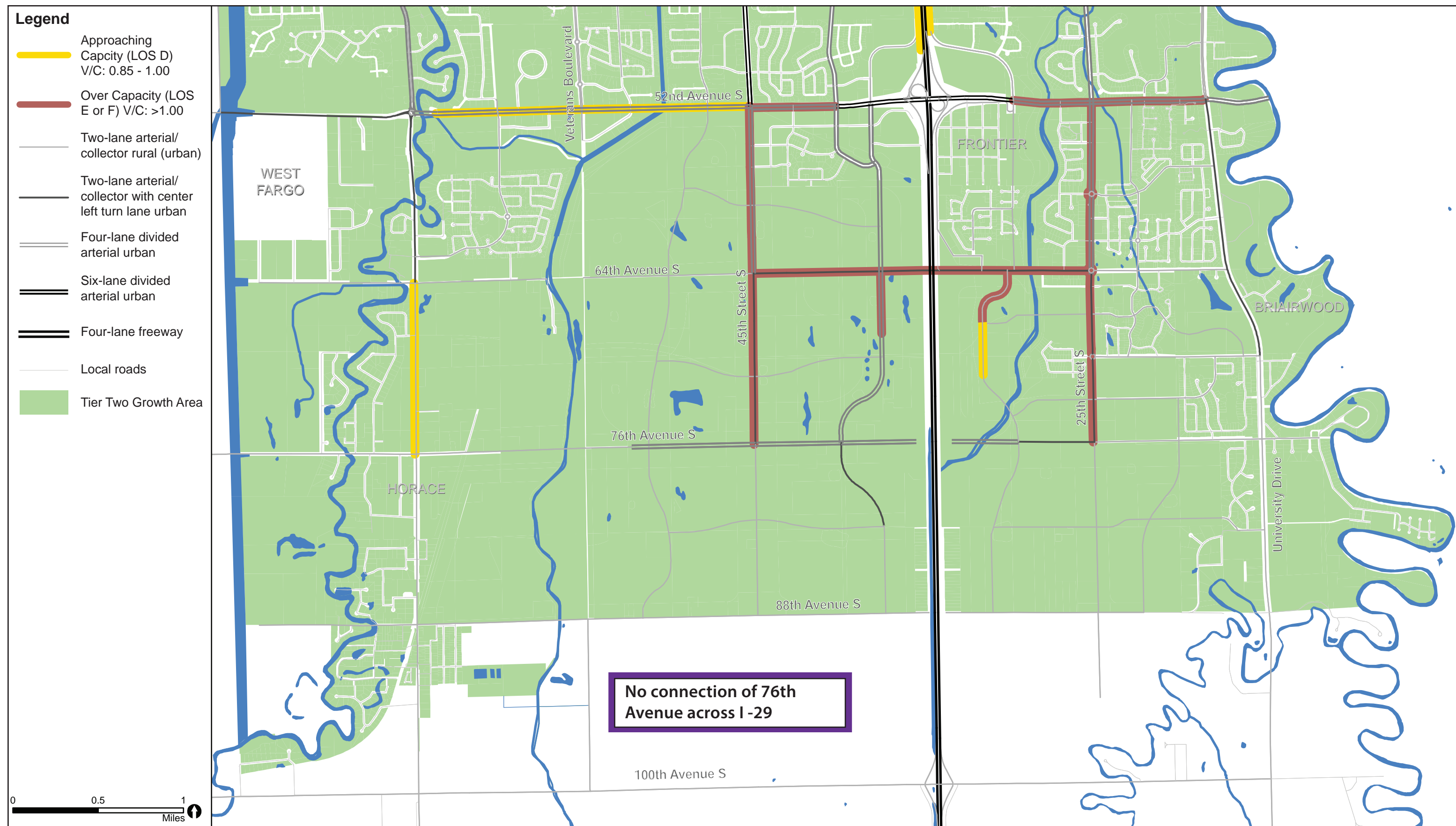




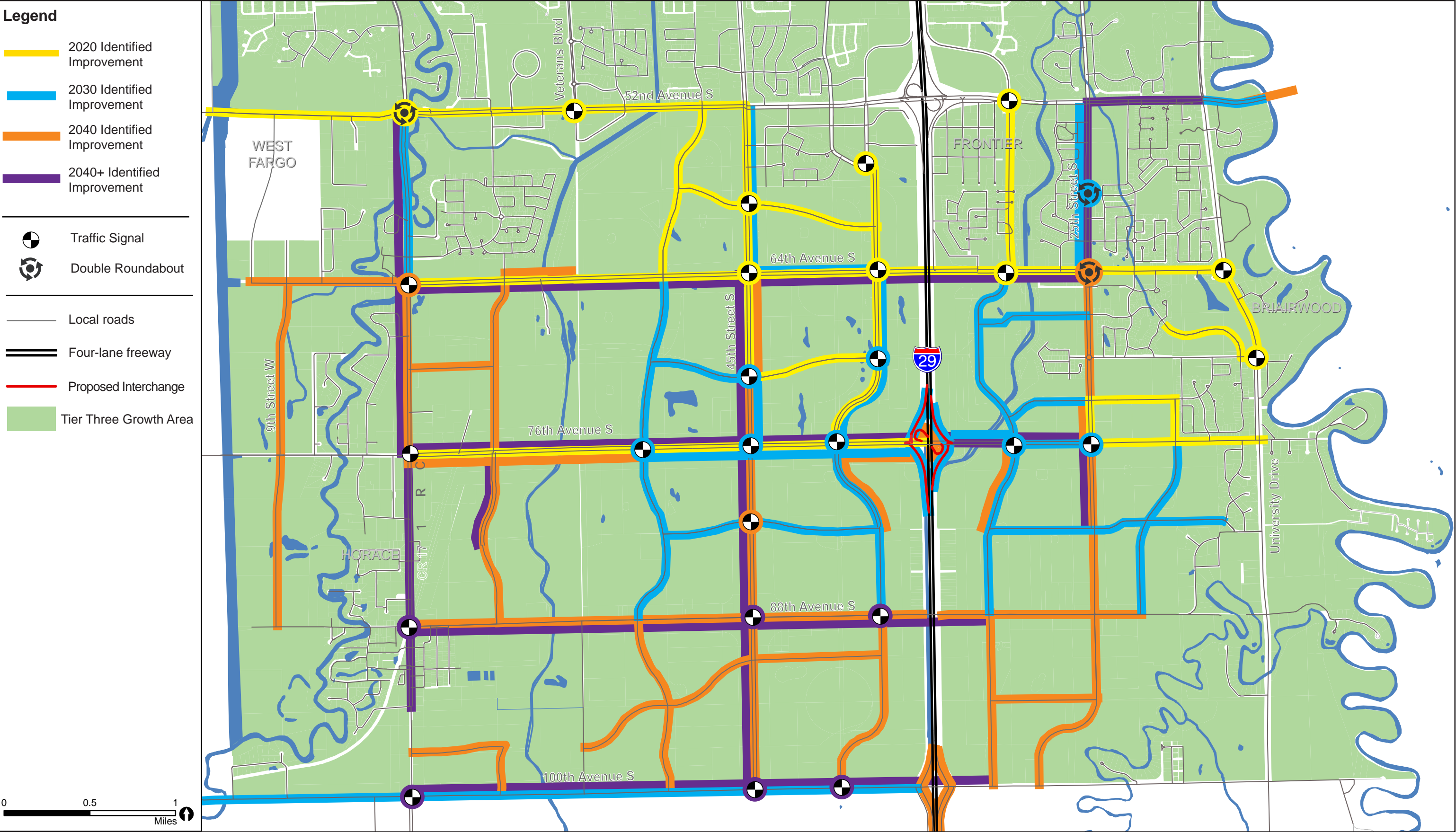














# Chapter 7 – Findings and Recommendations

## Introduction

The model analysis and best fit scenario development described in Chapter 6 allowed for the identification of improvement to existing roadways or new construction projects for corridors within the study area. These projects are broken into timeframes to match the tiered growth assumptions of the socioeconomic data. Preliminary cost estimates were also developed for these projects to aid in the future planning of needed improvements within the planning horizon.

## Identified Projects

Based on the results of various model analysis, projects were defined for the network to accommodate the future growth assumptions. The following narrative outlines the project specifics within each of the planning timeframes studied.

### 2020 Projects

Growth in 2020 was forecasted in areas north of the 76<sup>th</sup> Avenue South alignment, resulting in a majority of the identified improvements being focused between 52<sup>nd</sup> Avenue South and 76<sup>th</sup> Avenue South. Table 7.1 outlines the corridor improvement projects identified as needed to accommodate anticipated levels of traffic by 2020. Figure 7.1 can be referenced for the specific project location within the study area.

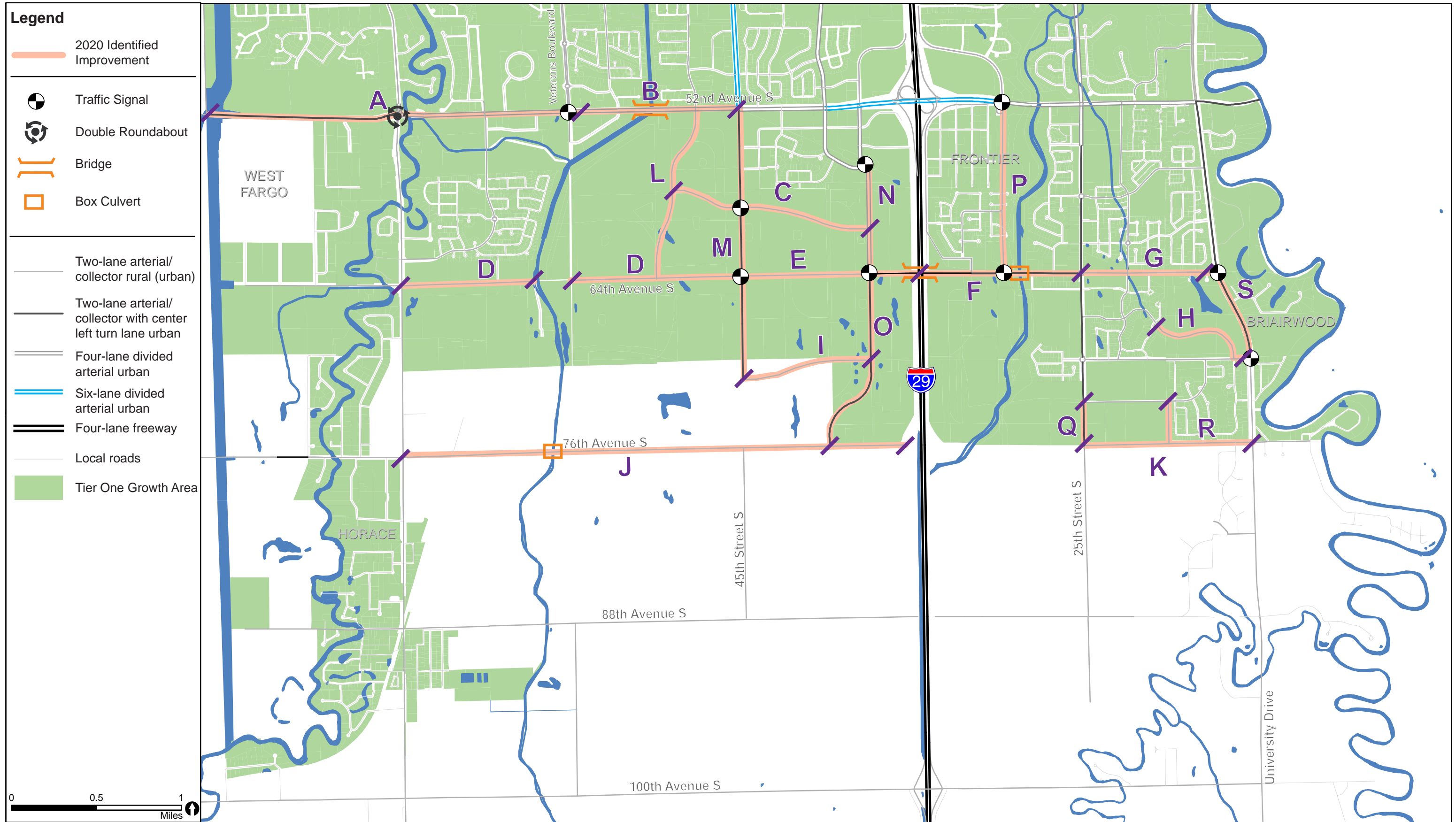
Intersection improvements were also identified within the 2020 project list. Signal installation or upgrades are needed throughout the study area to accommodate corridor upgrades or new construction. The improvements identified for intersections by 2020 are provided in Table 7.2.

A grade separation of I-29 at 64<sup>th</sup> Avenue South is included in the list of project improvements by 2020. This grade separation will allow for another crossing of I-29 in addition to the two existing interchanges at the north and south end of the study area (52<sup>nd</sup> Avenue South and 100<sup>th</sup> Avenue South). Additionally, the existing 52<sup>nd</sup> Avenue South bridge over Drain 27 and the Sheyenne River will be expanded as part of the improvements to the corridor.

In order for the anticipated growth to be realized, flood protection has to be in place. The Metro Flood Diversion project would achieve this. Additionally, the City of Fargo is seeking to implement interim protection in many growth areas; however, the timing of implementation is uncertain, and the extent of the protection has not been finalized. While the SWMTP refers to each growth tier by decade, actual growth targets and project schedules probably won't correspond precisely to these timeframes. As flood mitigation is constructed, it is best to follow the sequence of growth, which should progress generally from north to south, and not target a specific year as a trigger for network improvements.

Table 7.1: 2020 Identified Improvements

Corridor Segment		Identified Improvement by 2020
<b>52<sup>nd</sup> Ave S</b>		
A	15 <sup>th</sup> St S to Veterans Blvd	Expand the existing 2-lane section to a divided 4-lane section
B	Veterans Blvd to 45 <sup>th</sup> St S	Expand the existing 3-lane section to a divided 4-lane section
<b>60<sup>th</sup> Ave S</b>		
C	48 <sup>th</sup> St S to 38 <sup>th</sup> St S	Construct a new 2-lane roadway
<b>64<sup>th</sup> Ave S</b>		
D	CR 17 to Veterans Blvd	Reconstruct a gravel 2-lane section as a paved 2-lane section
E	Veterans Blvd to I-29	Construct a new 2-lane roadway
F	I-29 to 25 <sup>th</sup> St S	Expand the existing 2-lane section to a 3-lane section
G	25 <sup>th</sup> St to S University Dr	Reconstruct a gravel 2-lane section as a paved 2-lane section
<b>68<sup>th</sup> Ave S</b>		
H	31 <sup>st</sup> St S to 70 <sup>th</sup> Ave S	Construct a new 2-lane roadway
<b>70<sup>th</sup> Ave S</b>		
I	45 <sup>th</sup> St S to 38 <sup>th</sup> St S	Construct a new 2-lane roadway
<b>76<sup>th</sup> Ave S</b>		
J	CR 17 to I-29	Upgrade an existing rural gravel 2-lane section to a paved 2-lane section
K	25 <sup>th</sup> St to S University Dr	Upgrade an existing rural 2-lane section to an arterial 2-lane section
<b>48<sup>th</sup> St S</b>		
L	52 <sup>nd</sup> Ave S to 64 <sup>th</sup> Ave S	Construct a new 2-lane roadway
<b>45<sup>th</sup> St S</b>		
M	52 <sup>nd</sup> Ave S to 70 <sup>th</sup> Ave S	Construct a new 3-lane roadway
<b>38<sup>th</sup> St S</b>		
N	42 <sup>nd</sup> St S to 64 <sup>th</sup> Ave S	Construct a new divided 4-lane roadway
O	64 <sup>th</sup> Ave S to 76 <sup>th</sup> Ave S	Construct a new 3-lane roadway
<b>31<sup>st</sup> St S</b>		
P	52 <sup>nd</sup> Ave S to 64 <sup>th</sup> Ave S	Construct a new 2-lane roadway
<b>25<sup>th</sup> St S</b>		
Q	73 <sup>rd</sup> Ave S to 76 <sup>th</sup> Ave S	Expand the existing 2-lane section to a 3-lane section
<b>17<sup>th</sup> St S</b>		
R	73 <sup>rd</sup> Ave S to 76 <sup>th</sup> Ave S	Construct a new 2-lane roadway
<b>S University Dr</b>		
S	Briarwood to 70 <sup>th</sup> Ave S	Expand the existing 2-lane section to a 3-lane section





*Table 7.2: 2020 Intersection Improvements*

Intersection	Identified Improvement by 2020
52 <sup>nd</sup> Ave S and CR 17	Expand existing single-lane roundabout to a 2-lane roundabout
52 <sup>nd</sup> Ave S and Veterans Blvd	Install new traffic signal
52 <sup>nd</sup> Ave S and 31 <sup>st</sup> St S	Upgrade traffic signal
60 <sup>th</sup> Ave S and 45 <sup>th</sup> St S	Install new traffic signal
64 <sup>th</sup> Ave S and 45 <sup>th</sup> St S	Install new traffic signal
64 <sup>th</sup> Ave S and 38 <sup>th</sup> St S	Install new traffic signal
64 <sup>th</sup> Ave S and 31 <sup>st</sup> St S	Install new traffic signal
64 <sup>th</sup> Ave S and S University Dr	Install new traffic signal
65 <sup>th</sup> Ave S and 70 <sup>th</sup> Ave S	Install new traffic signal

## 2030 Projects

By 2030, development within the study area is anticipated to be actively underway in Tier 2. 88<sup>th</sup> Avenue South generally serves as the southern boundary of the tier. This additional growth area results in the identification of many projects between 76<sup>th</sup> Avenue South and 88<sup>th</sup> Avenue South. However, various roadway expansion and new construction projects were also warranted within the Tier 1 growth area, north of 76<sup>th</sup> Avenue South. Table 7.3 and Figure 7.2 identify the projects needed to accommodate traffic generated by the 2030 growth scenario. Corresponding intersection improvements along the corridors are described in Table 7.4.

Beyond the construction of new roadways and expansion projects, the introduction of an interchange at I-29 and 76<sup>th</sup> Avenue South is included in the 2030 identified improvements. This change will create a two-mile spacing between the 76<sup>th</sup> Avenue South interchange and the existing interchanges at 52<sup>nd</sup> Avenue South and 100<sup>th</sup> Avenue South. An interchange at this location will expand access to I-29, relieving pressure on the interchanges to the north and south – particularly at 52<sup>nd</sup> Avenue South, which would otherwise bear the majority of traffic generated within the study area that desires access to/from I-29.

Table 7.3: 2030 Identified Corridor Improvements

Corridor Segment		Identified Improvement by 2020
<b>52<sup>nd</sup> Avenue S</b>		
A	University Dr to Red River	Expand existing 2-lane section to a 4-lane section
<b>64<sup>th</sup> Avenue S</b>		
B	45 <sup>th</sup> St to 38 <sup>th</sup> St	Expand existing 2-lane section to a 3-lane section
<b>70<sup>th</sup> Avenue S</b>		
C	48 <sup>th</sup> St to 45 <sup>th</sup> St	Construct 2-lane roadway
<b>73<sup>rd</sup> Avenue S</b>		
D	25 <sup>th</sup> St to 31 <sup>st</sup> St	Construct 2-lane roadway
<b>76<sup>th</sup> Avenue S</b>		
E	48 <sup>th</sup> St to I-29	Expand existing 2-lane section to a divided 4-lane section
F	I-29 to 31 <sup>st</sup> St	Construct interchange and divided 4-lane roadway
G	31 <sup>st</sup> St to 25 <sup>th</sup> St	Construct 3-lane roadway
<b>80<sup>th</sup> Avenue S</b>		
H	48 <sup>th</sup> St to University Dr	Construct 2-lane roadway
<b>100<sup>th</sup> Avenue S</b>		
I	Sheyenne Diversion to I-29	Mill and overlay of existing 2-lane roadway
<b>County Road 17</b>		
J	52 <sup>nd</sup> Ave to 64 <sup>th</sup> Ave	Expand existing 2-lane section to a 3-lane section
<b>48<sup>th</sup> Street S</b>		
K	64 <sup>th</sup> Ave to 88 <sup>th</sup> Ave	Construct 2-lane roadway
<b>45<sup>th</sup> Street S</b>		
L	52 <sup>nd</sup> Ave to 64 <sup>th</sup> Ave	Expand existing 3-lane section to a divided 4-lane section
M	70 <sup>th</sup> Ave to 76 <sup>th</sup> Ave	Construct 3-lane roadway
<b>38<sup>th</sup> Street S</b>		
N	64 <sup>th</sup> Ave to 76 <sup>th</sup> Ave	Expand existing 3-lane section to a divided 4-lane section
O	70 <sup>th</sup> Ave to 76 <sup>th</sup> Ave	Construct 3-lane roadway
P	76 <sup>th</sup> Ave to 88 <sup>th</sup> Ave	Construct 2-lane roadway
<b>31<sup>st</sup> Street S</b>		
Q	64 <sup>th</sup> Ave to 88 <sup>th</sup> Ave	Construct 2-lane roadway
<b>25<sup>th</sup> Street S</b>		
R	52 <sup>nd</sup> Ave to 64 <sup>th</sup> Ave	Expand existing 3-lane section to a 5-lane section
<b>17<sup>th</sup> Street S</b>		
S	76 <sup>th</sup> Ave to 88 <sup>th</sup> Ave	Construct 2-lane roadway

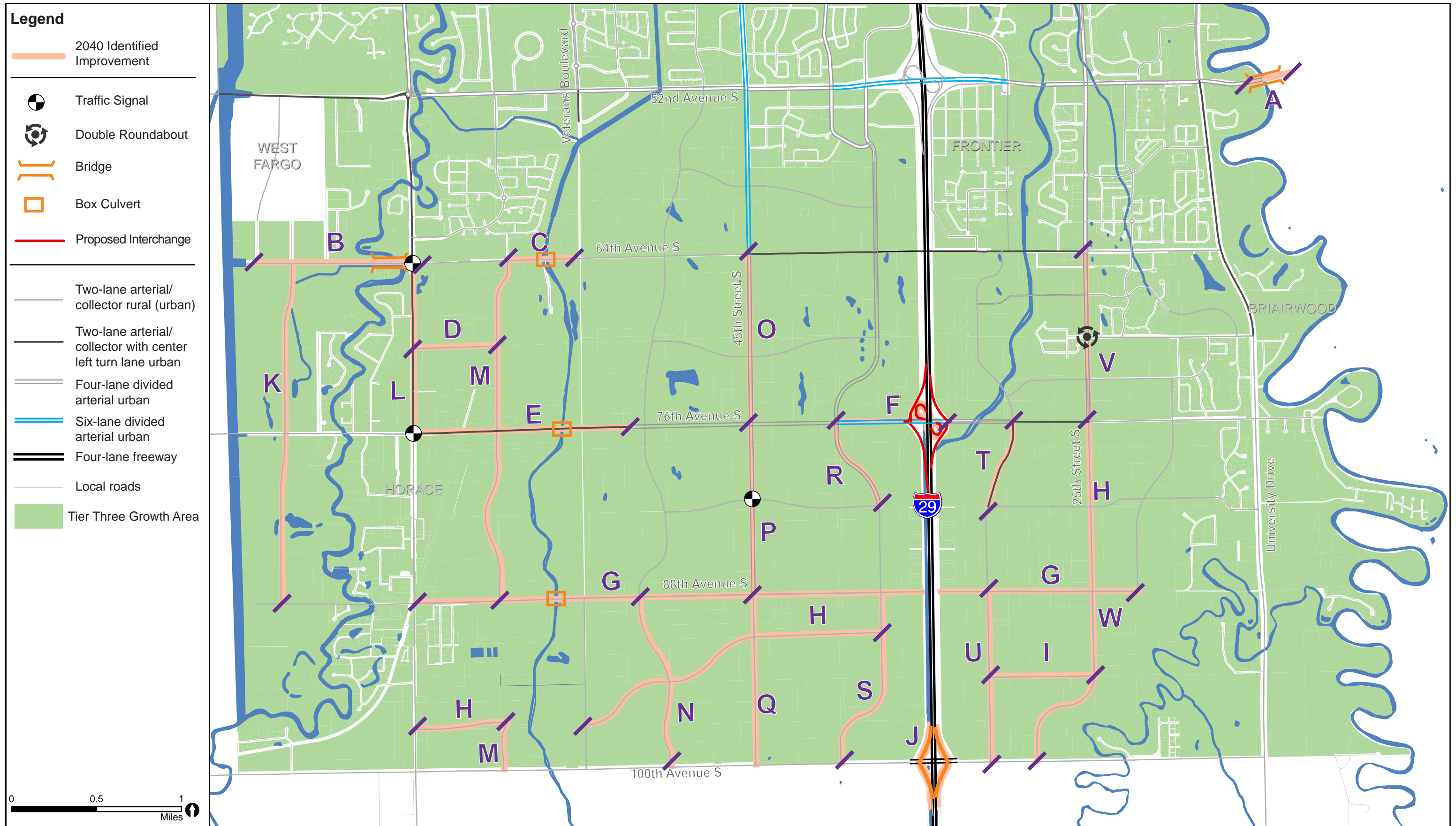




Table 7.4: 2030 Intersection Improvements

Intersection	Identified Improvement by 2030
58 <sup>th</sup> Ave S and 25 <sup>th</sup> St S	Expand existing single-lane roundabout to a 2-lane roundabout
64 <sup>th</sup> Ave S and 25 <sup>th</sup> St S	Expand existing single-lane roundabout to a 2-lane roundabout
70 <sup>th</sup> Ave S and 45 <sup>th</sup> St S	Install traffic signal
70 <sup>th</sup> Ave S and 38 <sup>th</sup> St S	Install traffic signal
76 <sup>th</sup> Ave S and 48 <sup>th</sup> St S	Install traffic signal
76 <sup>th</sup> Ave S and 45 <sup>th</sup> St S	Install traffic signal
76 <sup>th</sup> Ave S and 38 <sup>th</sup> St S	Install traffic signal
76 <sup>th</sup> Ave S and 31 <sup>st</sup> St S	Install traffic signal
76 <sup>th</sup> Ave S and 25 <sup>th</sup> St S	Install traffic signal

## 2040 Projects

By 2040, increased levels of growth are expected to occur in all three tiers between 52<sup>nd</sup> Avenue South and 100<sup>th</sup> Avenue South. A majority of the identified improvements are concentrated along 88<sup>th</sup> Avenue South, where improvements were not warranted when growth was concentrated in Tiers 1 and 2. Additional improvements consist of adding capacity in Tiers 1 and 2, including improvements along north/south corridors connecting the new growth areas to existing development. The list of identified corridor projects is provided in Table 7.5 and graphically shown in Figure 7.3. Multiple intersection improvements have also been identified for the 2040 timeframe, as shown in Table 7.6.

The corridor improvements identified by the 2040 growth scenario also require the new construction or reconstruction of structures and interstate ramps to support the corridor expansions. The existing 52<sup>nd</sup> Avenue South 2-lane bridge over the Red River will need to be expanded from a 2-lane section to a 4-lane section to match the corridor improvements completed as a result of traffic generated by the 2030 scenario. Additionally, the existing 64<sup>th</sup> Avenue South bridge over the Sheyenne River will also require reconstruction with associated roadway improvements. Loop on-ramps will need to be added to the interchange at 76<sup>th</sup> Avenue South and I-29. Finally, the traffic generated by the 2040 growth scenario is anticipated to warrant reconstruction of the I-29 and 100<sup>th</sup> Avenue South (Cass County Road 14) interchange. This interchange is very rural in nature, with limited sight distance over the bridge and limited width for turn lanes and stacking. Higher traffic volumes are expected to result in the need for a redesigned and reconstructed interchange.

Table 7.5: 2040 Identified Corridor Improvements

Corridor Segment		Identified Improvement by 2040
<b>52<sup>nd</sup> Ave S</b>		
A	S University Dr to Red River	Bridge reconstruction (2-lane to 4-lane section)
<b>64<sup>th</sup> Ave S</b>		
B	9 <sup>th</sup> St W to CR 17	Construct 2-lane roadway
C	Drain 27 to Section Line	Construct 2-lane roadway with box culvert
<b>70<sup>th</sup> Ave S</b>		
D	CR 17 to 7 <sup>th</sup> St E	Construct 2-lane roadway
<b>76<sup>th</sup> Ave S</b>		
E	CR 17 to 48 <sup>th</sup> St S	Construct 3-lane roadway
F	38 <sup>th</sup> St S to I-29	Expand existing 4-lane section to a divided 6-lane section and add loops to NW and SE quadrants of interchange
<b>88<sup>th</sup> Ave S</b>		
G	CR 17 to Wild Rice River	Upgrade a rural gravel 2-lane section to an arterial 2-lane section
<b>92<sup>nd</sup> Ave S</b>		
H	CR 17 to 38 <sup>th</sup> St S	Construct 2-lane roadway
I	31 <sup>st</sup> St S to 25 <sup>th</sup> St S	Construct 2-lane roadway
<b>100<sup>th</sup> Avenue S</b>		
J	Section Line to I-29	Expand existing 2-lane section to a divided 4-lane section and reconstruct interchange
<b>9<sup>th</sup> Street</b>		
K	52 <sup>nd</sup> Ave S to 88 <sup>th</sup> Ave S	Construct 2-lane roadway
<b>County Road 17</b>		
L	64 <sup>th</sup> Ave S to 76 <sup>th</sup> Ave S	Expand to 3-lane section
<b>7<sup>th</sup> Street</b>		
M	64 <sup>th</sup> Ave S to 100 <sup>th</sup> Ave S	Construct 2-lane roadway
<b>48<sup>th</sup> Street S</b>		
N	88 <sup>th</sup> Ave S to 100 <sup>th</sup> Ave S	Construct 2-lane roadway
<b>45<sup>th</sup> Street S</b>		
O	64 <sup>th</sup> Ave S to 76 <sup>th</sup> Ave S	Expand existing 3-lane section to a divided 4-lane section
P	76 <sup>th</sup> Ave S to 88 <sup>th</sup> Ave S	Expand existing 2-lane section to a divided 4-lane section
Q	88 <sup>th</sup> Ave S to 100 <sup>th</sup> Ave S	Construct 2-lane roadway
<b>38<sup>th</sup> Street S</b>		
R	76 <sup>th</sup> Ave S to 80 <sup>th</sup> Ave S	Expand existing 3-lane section to a divided 4-lane section
S	88 <sup>th</sup> Ave S to 100 <sup>th</sup> Ave S	Construct 2-lane section
<b>31<sup>st</sup> Street S</b>		
T	76 <sup>th</sup> Ave S to 80 <sup>th</sup> Ave S	Expand existing 2-lane section to a 3-lane section
U	88 <sup>th</sup> Ave S to 100 <sup>th</sup> Ave S	Construct new 2-lane section
<b>25<sup>th</sup> Street S</b>		
V	58 <sup>th</sup> Ave S to 76 <sup>th</sup> Ave S	Expand existing 3-lane section to a 5-lane section
W	76 <sup>th</sup> Ave S to 100 <sup>th</sup> Ave S	Construct 2-lane roadway

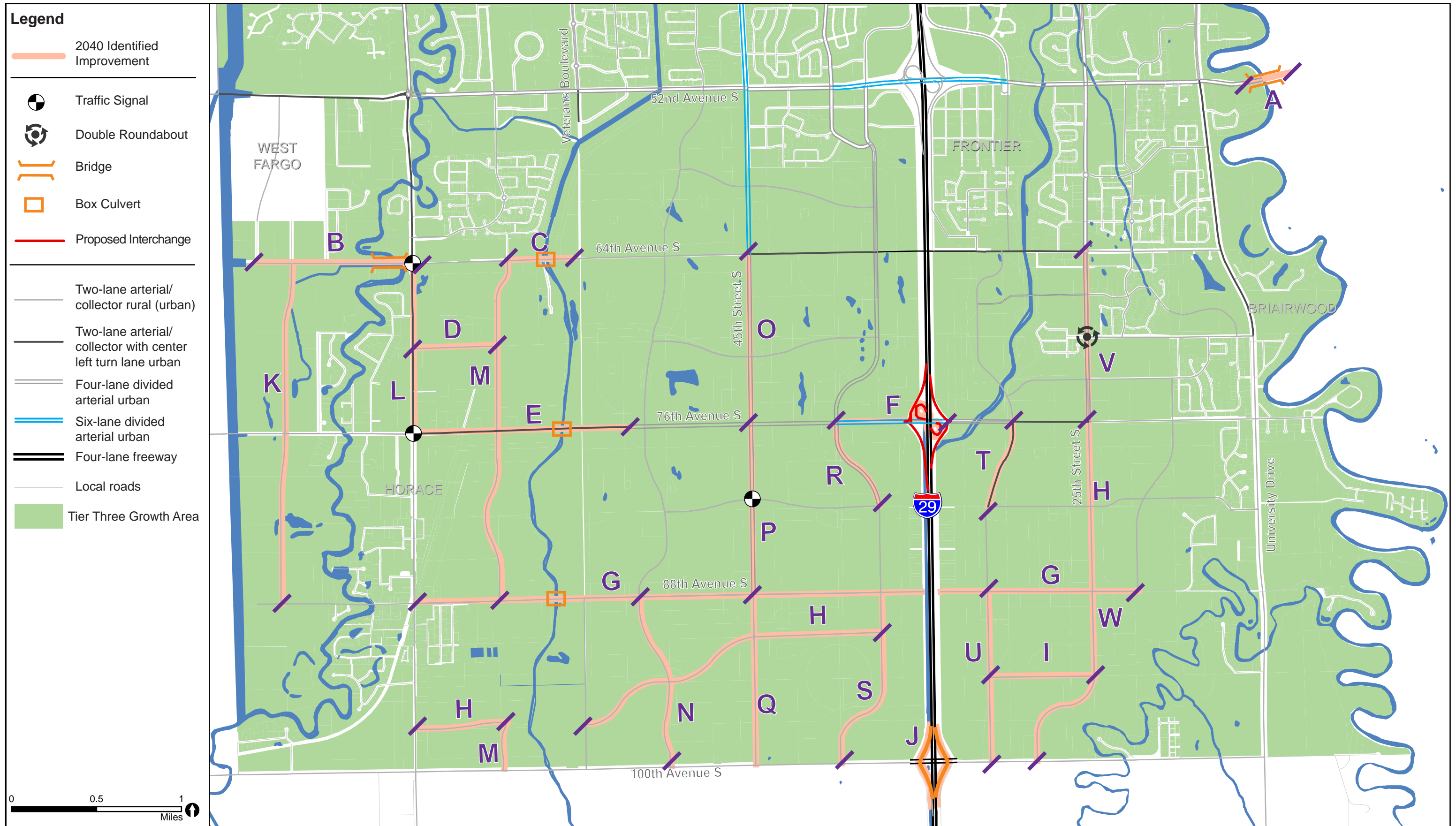




Table 7.6: 2040 Intersection Improvements

Intersection	Identified Improvement by 2040
64 <sup>th</sup> Ave S and CR 17	Install traffic signal
68 <sup>th</sup> Ave S and 25 <sup>th</sup> St S	Expand existing single-lane roundabout to a 2-lane roundabout
76 <sup>th</sup> Ave S and CR 17	Install traffic signal
80 <sup>th</sup> Ave S and 45 <sup>th</sup> St S	Install traffic signal

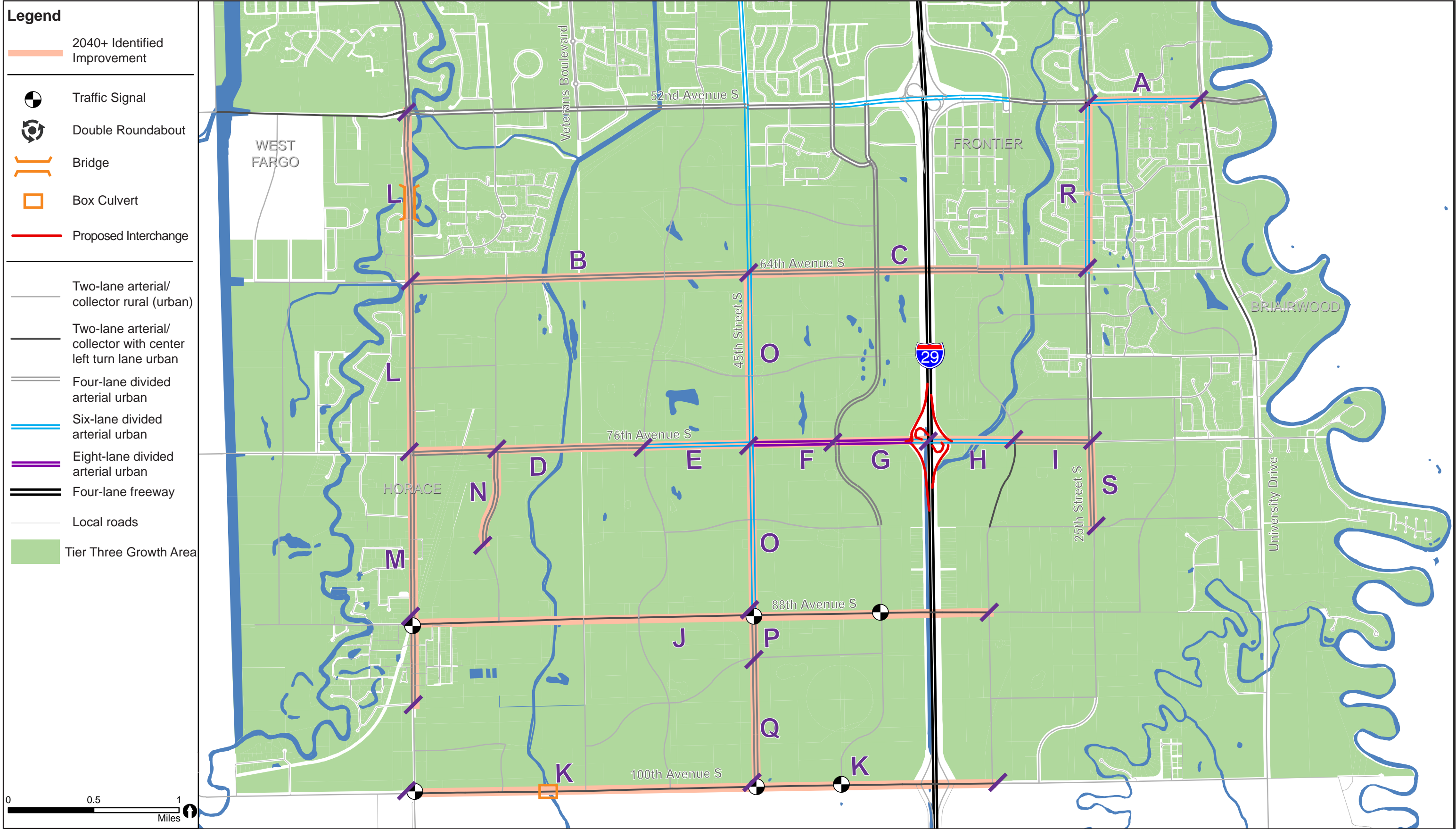
## 2040+ Projects

The 2040+ Best Fit Scenario and identified improvement list were generated with the assumption of nearly a full build-out of the study area. This growth resulted in a variety of additional roadway improvements identified as needed throughout the study area to reduce congestion and provide access to and from both new growth areas and fully developed neighborhoods and commercial centers. Table 7.7 and Figure 7.4 list the identified improvements needed as development continues over and above the 2040 scenario.

Table 7.7: 2040+ Identified Corridor Improvements

Corridor Segment		Identified Improvement by 2040+
<b>52<sup>nd</sup> Avenue S</b>		
A	25 <sup>th</sup> St S to S University Dr	Expand existing 4-lane section to 6-lane section
<b>64<sup>th</sup> Avenue S</b>		
B	CR 17 to 45 <sup>th</sup> St S	Expand existing 2-lane section to a divided 6-lane section
C	45 <sup>th</sup> St S to 25 <sup>th</sup> St S	Expand existing 3-lane section to a divided 6-lane section
<b>76<sup>th</sup> Avenue S</b>		
D	CR 17 to 48 <sup>th</sup> St S	Expand existing 3-lane section to a divided 4-lane section
E	48 <sup>th</sup> St S to 45 <sup>th</sup> St S	Expand existing 4-lane section to 6-lane section
F	45 <sup>th</sup> St S to 38 <sup>th</sup> St S	Expand existing 4-lane section to 8-lane section
G	38 <sup>th</sup> St S to I-29	Expand existing 6-lane section to 8-lane section
H	I-29 to 31 <sup>st</sup> St S	Expand existing 4-lane section to 6-lane section
I	31 <sup>st</sup> St S to 25 <sup>th</sup> St S	Expand existing 3-lane section to a divided 4-lane section
<b>88<sup>th</sup> Avenue S</b>		
J	CR 17 to 31 <sup>st</sup> St S	Expand existing 2-lane section to 3-lane section
<b>100<sup>th</sup> Avenue S</b>		
K	CR 17 to 31 <sup>st</sup> St S	Expand existing 2-lane section to 3-lane section
<b>County Road 17</b>		
L	52 <sup>nd</sup> Ave S to 76 <sup>th</sup> Ave S	Expand existing 3-lane section to a divided 4-lane section
M	76 <sup>th</sup> Ave S to Liberty Ln	Expand existing 2-lane section to a divided 4-lane section
<b>7<sup>th</sup> Street</b>		
N	76 <sup>th</sup> Ave S to 80 <sup>th</sup> Ave S	Expand existing 2-lane section to a divided 4-lane section
<b>45<sup>th</sup> Street S</b>		
O	64 <sup>th</sup> Ave S to 88 <sup>th</sup> Ave S	Expand existing 4-lane section to 6-lane section
P	88 <sup>th</sup> Ave S to 90 <sup>th</sup> Ave S	Expand existing 3-lane section to a divided 4-lane section
Q	90 <sup>th</sup> Ave S to 100 <sup>th</sup> Ave S	Expand existing 2-lane section to a divided 4-lane section
<b>25<sup>th</sup> Street S</b>		
R	52 <sup>nd</sup> Ave S to 64 <sup>th</sup> Ave S	Expand existing 4-lane section to 6-lane section
S	76 <sup>th</sup> Ave S to 80 <sup>th</sup> Ave S	Expand existing 2-lane section to a divided 4-lane section







## Multimodal Transportation Features

The need to provide infrastructure and services for a variety of transportation options has become a key initiative for communities across the nation. Multimodal facilities provide a variety of benefits for a community and its transportation system. For example, reduced auto dependency may lower network congestion and roadway maintenance needs. Furthermore, a commitment to increasing bicycle and pedestrian mode shares can have tangible health benefits. Multiple agencies within the region have developed plans to expand or improve multimodal facilities in the project study area. These efforts are included in the City of Fargo's Comprehensive Plan, Go2030, and the Fargo Moorhead Diversion Recreation and Use Master Plan.

### Go2030 – Fargo Comprehensive Plan

Fargo's comprehensive plan update, Go2030, was adopted in 2012, and provides key guidance for developing many initiatives within the city and its growth areas. Transportation initiatives include a discussion of bicycle and pedestrian infrastructure, Complete Streets, and transit system enhancements. The plan does not outline specific projects to achieve these initiatives, but does support the consideration of these elements through additional planning efforts, such as the SWMTP.

Beyond the key initiatives of the plan, specific catalyst projects were identified. The development of an all-season, city-wide trail loop was identified as one of these projects. This loop provides an opportunity to connect neighborhoods and commercial centers for various modes (walking, biking, cross-country skiing, etc.). Go2030 proposes an alignment for the trail loop within the study area which utilizes future roadways and existing drainage areas.

Another Go2030 initiative focused on the development of Complete Streets as part of a national Smart Growth initiative which emphasizes roadway accessibility for all modes and users. This initiative applies to existing roadways as well as future expansion areas. It is supported in Go2030 by the development of signature streets and active living streets. Active living streets were identified within the plan as key corridors that have the potential to support multiple modes of transportation, in addition to innovative stormwater management techniques and public green spaces. Though 25<sup>th</sup> Street South and 52<sup>nd</sup> Avenue South are the only corridors identified as active living streets in Go2030, the principles discussed in the plan can be carried to other corridors.

### Fargo Moorhead Red River Diversion Recreation and Use Master Plan

The planning and development of the proposed Fargo Moorhead Red River Diversion has included the development of a Recreation and Use Master Plan for the 30-mile channel. The plan accounts for multiple forms of active and passive recreation, including equestrian trails, walking loops, bike facilities, fishing areas, snowmobile trails, and campgrounds. Various multimodal facilities included within this effort are located in the SWMTP study area.

### Potential Bikeway Network Expansion

The Recreation and Use Master Plan explored the expansion of bicycle facilities throughout the future flood protected area and the future connections to and across the diversion. The network expansions

focus on connections between the various communities and the individual neighborhoods within. The diversion corridor is planned to include a designated bikeway along the 36-mile alignment with connections to the internal network. The plan currently includes bridged crossings and connections to the system at 76<sup>th</sup> Avenue South and 100<sup>th</sup> Avenue South.

### Walking Loops

The Recreation and Use Master Plan proposes the development of walking loops along the diversion within the cities of West Fargo and Horace. These loops connect to existing development within each city and provide loops of varying length along the proposed diversion alignment.

### Proposed Multimodal Transportation Features

Existing planning documents provide a great foundation for the identification of multimodal features within the Southwest Metro Transportation Plan study area. The various existing documents, in combination with existing features of the study area have been reviewed to develop a proposed multimodal transportation feature network. This network utilizes existing drainage/open space features and the proposed best fit network scenario as the framework upon which to build these features into the overall plan for the area. The potential diversion and associated recreation master plan are also incorporated into the proposed multimodal features, as shown in Figure 7.5.

### Active Streets

Active streets represent corridors that include components beyond the standard roadway and 5-foot sidewalk. These corridors are intended to provide opportunities for a variety of modes while combining the concepts of the transit corridors and trail connections.

### Trail Connections

The City of Fargo currently requires the construction of sidewalks on both sides of newly constructed roadways. These sidewalks are typically 5 feet wide, typical for a lower volume corridor. Shared-use paths intended to serve a higher volume of multiple modes of travel are typically 10 feet wide, which is the recommended width for the Trail Connections shown in Figure 7.5. These trails are meant to improve connectivity throughout the study area, the metropolitan area, and eventually, the entire region. The use of existing or proposed structures to cross water features or I-29 reduces the overall financial impact of constructing these facilities.

### Transit Corridors

MATBUS currently has one route (Route 23) that extends south of 52<sup>nd</sup> Avenue South. The route provides a connection to Wal-Mart, with a designated departure time every hour from 6:30 am to 9:30 pm. The lack of additional destinations within the study area and limited transit supportive density in the near term limits the extension of transit routes within the early portion of the planning horizon of this plan. A conceptual expansion of the existing Route 23 has been illustrated in Figure 7.5. The extension of the route onto 45<sup>th</sup> and 25<sup>th</sup> Streets South and 64<sup>th</sup> Avenue South would need further analysis to verify the cost/benefit of the route extension, which is directly related to residential and job density which translates into potential ridership. These corridors were selected as logical transit

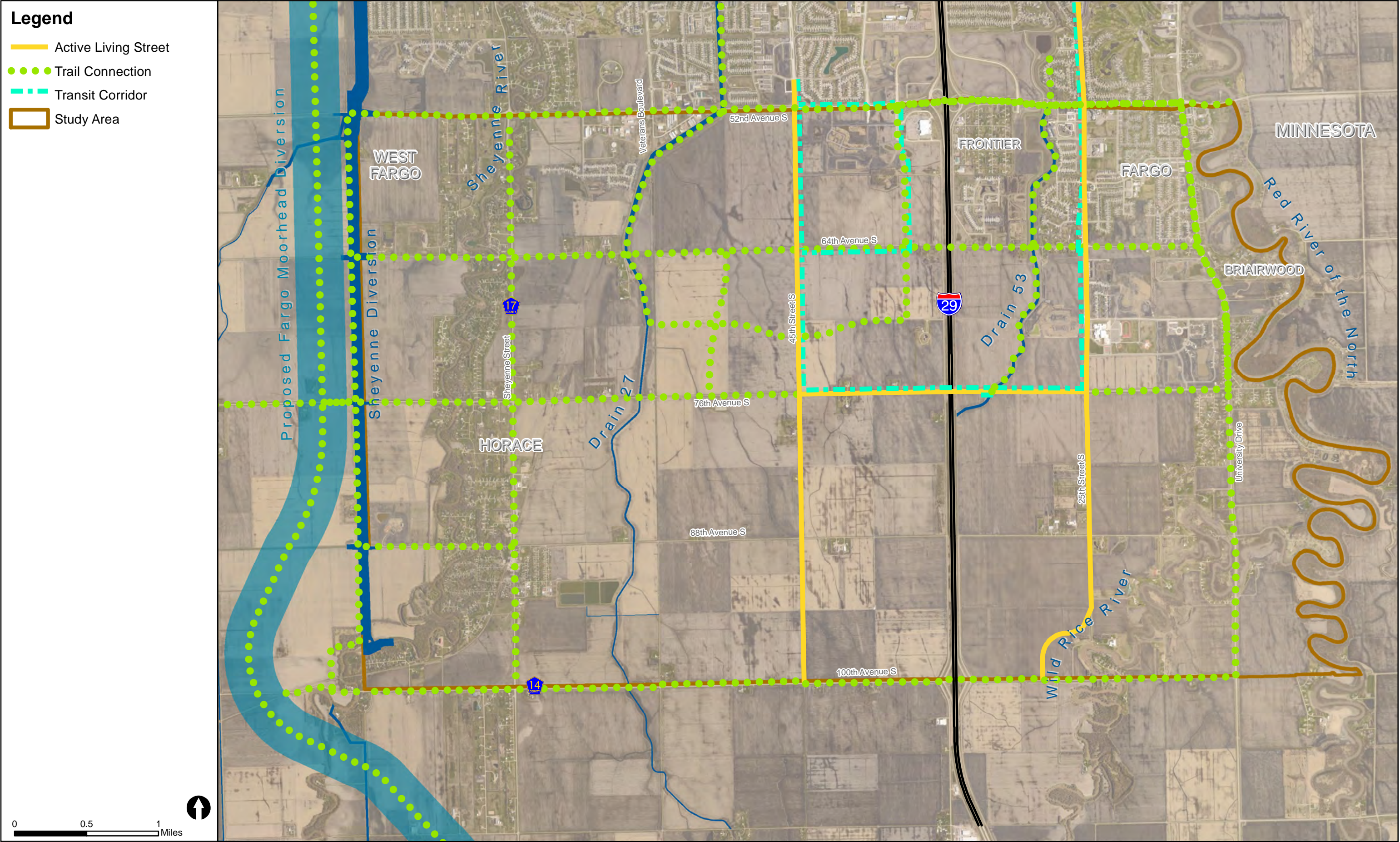
corridors due to their proximity in the near term of growth phasing and ability to provide appropriate household and job densities to support economical transit service.

MATBUS runs its routes on collector roads, preferring the ease of movement these facilities provide to the more congested and in many cases slower arterial network. This presents a challenge, because many transit destinations are located on arterials; however, it is more difficult to maintain schedule while running routes on the arterial roadways. On arterial roadways at congested intersections or during peak hours of roadway operation it can be difficult for large city buses to maneuver into and out of the traffic stream. While dedicated bus pullouts can help get the bus out of traffic, merging back onto a busy travel-way can prove difficult and contribute to service delays. For this reason, some cities, including Fargo, primarily locate bus routes on lower-volume collector streets.

One interim step MATBUS could take would be to establish Transit Signal Priority routes on arterial roads during peak hours. This is a technology that gives priority green time to arterial roadways when a bus is within close proximity to the signal. Rather than pre-empting signal phasing at all times, the prioritization works with the normal operation of the signal and does not drastically affect progression timing.

Transit Signal Priority technology requires that a beacon be installed on the bus and a detector placed on the signal. Utilizing loop detection in the roads, the signal controller can then determine whether to interrupt the signal's cycle to extend the green phase, allowing the bus to proceed through the intersection unimpeded, or to cut the green time short on the cross street traffic. This type of system is easy to install, inexpensive, and does not require additional right of way to implement. Its benefits allow for improved movement of transit vehicles, allowing them to stay on schedule during peak traffic times on congested corridors.







## Planning Level Cost Estimates

Using the list of identified projects, planning level cost estimates were developed for each timeframe (see Table 7.8) to aid in the revenue allocation and planning for future transportation projects within the cities of Fargo and Horace, Cass County, and the State of North Dakota. These planning level cost estimates utilize a typical cross-section for each roadway type (2-lane section, divided 4-lane section, etc.) to determine a cost per linear foot of roadway. The features of each type of roadway facility are shown in Figures 7.5A-F

Figure 7.5A: 2-Lane Arterial/Collector Typical Section

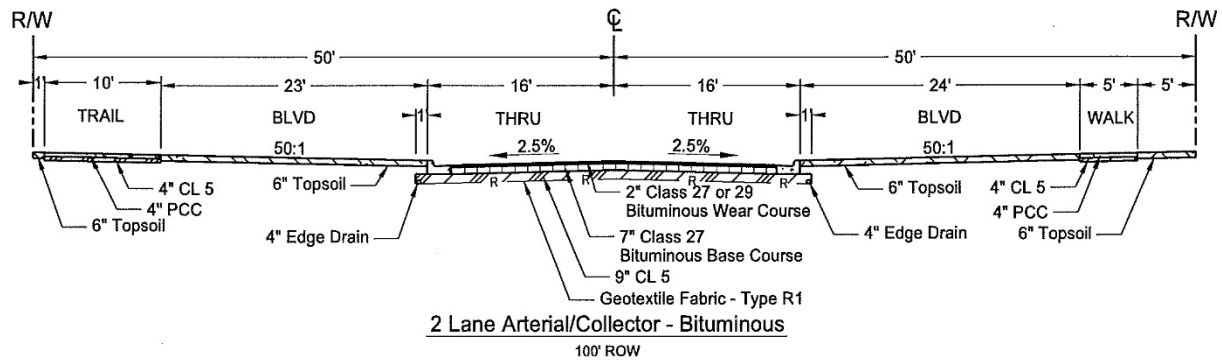


Figure 7.5B: 3-Lane Arterial/Collector Asphalt Typical Section

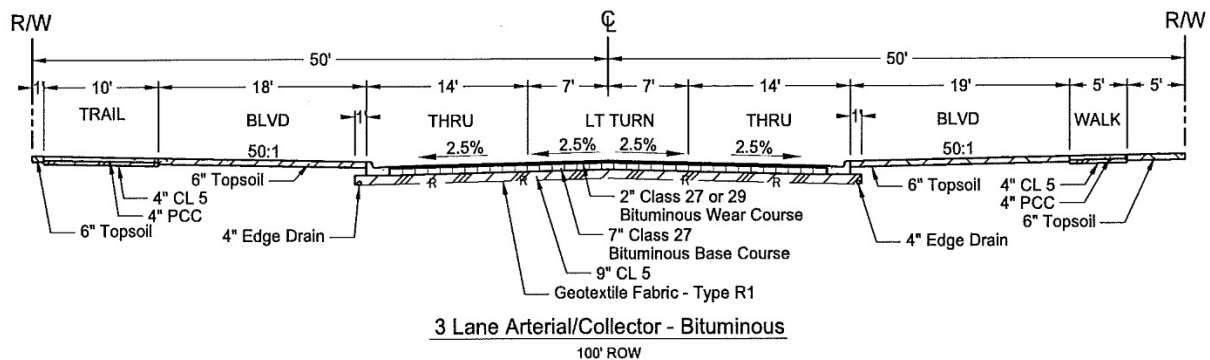


Figure 7.5C: 3-Lane Arterial/Collector Concrete Typical Section

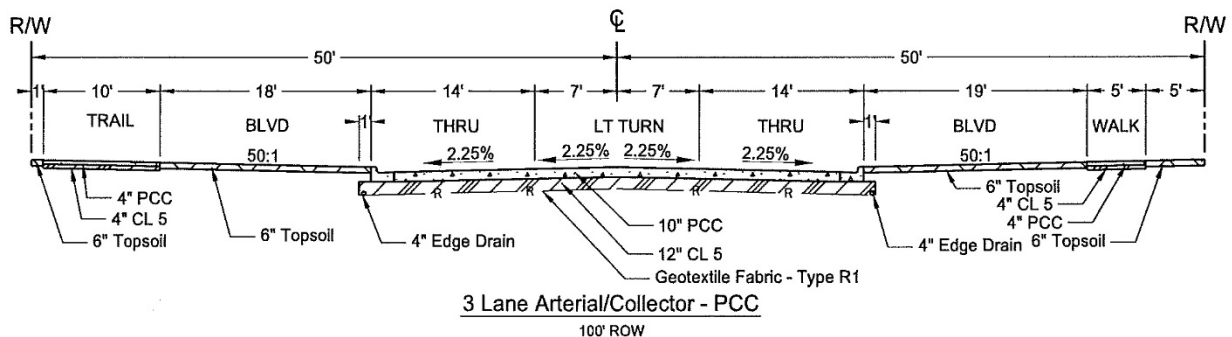


Figure 7.5D: 4-Lane Divided Arterial/ Collector Typical Section

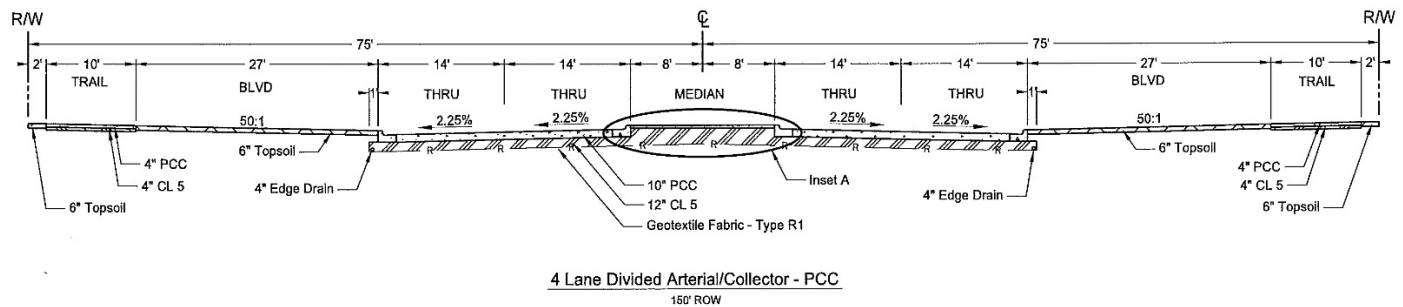


Figure 7.5E: 5-Lane Arterial/Collector Typical Section

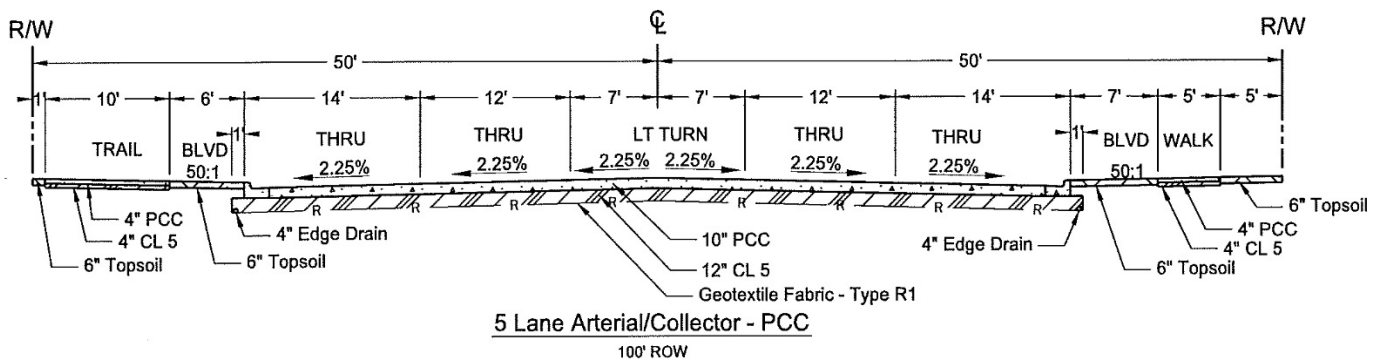
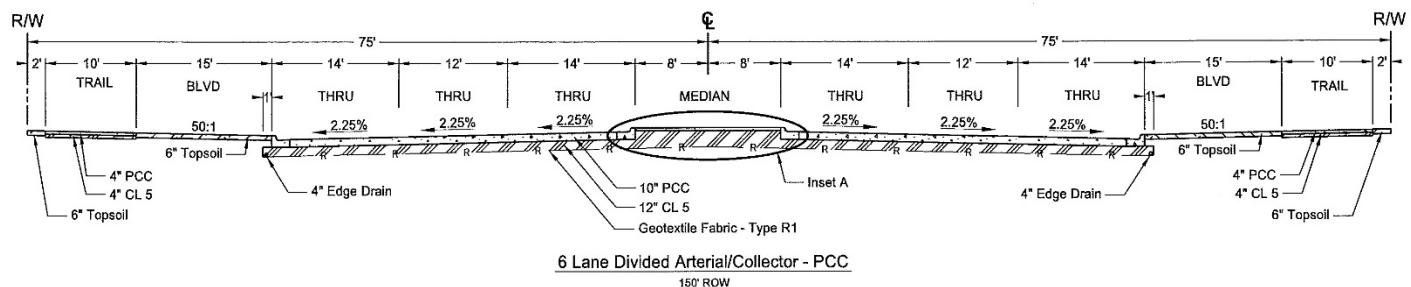


Figure 7.5F: 6-Lane Divided Arterial/Collector Typical Section



Additional costs were also factored into these estimates for the construction of box culverts, bridge reconstruction, traffic signals, and other safety and capacity improvements. These estimates were developed for projects to be constructed within a 25-year timeframe, requiring an assumption of increased unit costs commensurate with likely inflation. A four percent annual price increase was assumed for the inflation of unit prices within all estimates. Appendix A includes a description of the typical sections and unit prices, along with the spreadsheet used to calculate the planning-level cost assumptions.

Table 7.8: Planning Level Cost Estimates

Arterial Corridor	Planning Level Cost Estimate		
	2020	2030	2040
52 <sup>nd</sup> Ave S	\$20.7 Million	\$1.7 Million	\$33.3 Million
64 <sup>th</sup> Ave S	\$25.1 Million	\$2.1 Million	\$14.0 Million
76 <sup>th</sup> Ave S	\$13.4 Million	\$56.6 Million	\$19.0 Million
88 <sup>th</sup> Ave S	---	---	\$36.1 Million
100 <sup>th</sup> Ave S	---	\$1.5 Million	\$16.5 Million
CR 17	---	\$5.2 Million	\$10.1 Million
45 <sup>th</sup> St S	\$7.1 Million	\$15.1 Million	\$27.3 Million
38 <sup>th</sup> St S	\$8.9 Million	\$16.9 Million	\$16.5 Million
25 <sup>th</sup> St S	\$1.0 Million	\$8.5 Million	\$25.0 Million
S University Dr	\$1.9 Million	---	---
<b>Arterial Total</b>	<b>\$78.1 Million</b>	<b>\$107.6 Million</b>	<b>\$197.8 Million</b>
Collector Corridor	Planning Level Cost Estimate		
	2020	2030	2040
60 <sup>th</sup> Ave S	\$3.9 Million	---	---
68 <sup>th</sup> Ave S	\$3.6 Million	\$3.9 Million	---
70 <sup>th</sup> Ave S	\$2.5 Million	\$2.9 Million	\$3.6 Million
73 <sup>rd</sup> Ave S	\$2.9 Million	\$2.5 Million	---
92 <sup>nd</sup> Ave S	---	---	\$22.4 Million
9 <sup>th</sup> St W	---	---	\$22.0 Million
7 <sup>th</sup> St E	---	---	\$17.0 Million
48 <sup>th</sup> St S	\$3.5 Million	\$10.4 Million	\$7.7 Million
31 <sup>st</sup> St S	\$3.6 Million	\$11.5 Million	\$12.0 Million
17 <sup>th</sup> St S	\$0.8 Million	\$5.3 Million	---
<b>Collector Total</b>	<b>\$20.8 Million</b>	<b>\$50.8 Million</b>	<b>\$84.7 Million</b>
<b>Overall Total</b>	<b>\$98.9 Million</b>	<b>\$158.4 Million</b>	<b>\$282.5 Million</b>

## Jurisdictional Coordination

The Southwest Metro Transportation Plan study area includes three cities, one township, and one county, all with different jurisdictional responsibility for corridors throughout the study area. This responsibility defines which jurisdiction is responsible for the original construction of a roadway and continued maintenance (snow removal, pavement condition, and future expansion). Some corridors warrant shared responsibility between two jurisdictions.

Horace's 2010 population was less than 2,500; it will be several years before the population of the city reaches 5,000. The city will not receive direct federal funding allocations for transportation improvements until such time as that threshold is reached. In the meantime, jurisdictional sponsorship by other jurisdictions in the study area will need to be explored.

The primary jurisdiction for the corridors within the study area will evolve throughout the planning horizon of this plan as development occurs and cities annex growth areas into their city limits. A large number of roadways within the study area are already under the jurisdiction of the Cities of Fargo and Horace. This transition generally automatically occurs when township roads are annexed. The responsibility for maintenance and funding of roadway improvements typically transitions seamlessly. As a result, the cities are often responsible for gravel or minimum-maintenance roadways in recently annexed areas. Within these annexed areas, some roadways remain under the jurisdiction of Cass County or NDDOT until a more formal jurisdictional transfer is carried out.

During the planning horizon for this study, jurisdictional coordination will be needed on the following roadways, and it is likely that a jurisdictional transfer will ultimately occur. Table 7.9 shows anticipated jurisdictional transfers. Each facility is addressed below.

*Table 7.9: Roadways Requiring Jurisdictional Coordination*

Roadway	Segment	Current Jurisdiction	Future Jurisdiction
North/South Roadways			
<b>Cass CR 17</b>	52 <sup>nd</sup> Ave S to 100 <sup>th</sup> Ave S	Cass County	City of Horace
<b>45<sup>th</sup> St S</b>	52 <sup>nd</sup> Ave S to 100 <sup>th</sup> Ave S	Stanley Township	City of Fargo
<b>38<sup>th</sup> St S*</b>	City of Fargo boundary to 100 <sup>th</sup> Ave S	Stanley Township	City of Fargo
<b>36<sup>th</sup> St S*</b>	88 <sup>th</sup> Ave S to 100 <sup>th</sup> Ave S	Stanley Township	City of Fargo
<b>25<sup>th</sup> St S</b>	76 <sup>th</sup> Ave S to 100 <sup>th</sup> Ave S	Stanley Township	City of Fargo
<b>S University Dr</b>	64 <sup>th</sup> Ave S to 100 <sup>th</sup> Ave S	Cass County	City of Fargo
East/West Roadways			
<b>52<sup>nd</sup> Ave S</b>	45 <sup>th</sup> St S to Cass CR 17	Cass County	Cities of Fargo, West Fargo, and Horace
<b>64<sup>th</sup> Ave S</b>	38 <sup>th</sup> St S to Drain 27	Stanley Township	Cities of Fargo and Horace
<b>76<sup>th</sup> Ave S (Cass CR 6)</b>	Cass CR 17 to Sheyenne Diversion	Cass County	City of Horace
<b>76<sup>th</sup> Ave S</b>	38 <sup>th</sup> St S to Veterans Blvd section line	Stanley Township	City of Fargo
<b>76<sup>th</sup> Ave S</b>	25 <sup>th</sup> St S to Drain 53	Stanley Township	City of Fargo
<b>88<sup>th</sup> Ave S</b>	Sheyenne River to Sheyenne Diversion	Stanley Township	City of Horace
<b>88<sup>th</sup> Ave S</b>	City of Horace boundary to 38 <sup>th</sup> St S	Stanley Township	City of Fargo
<b>88<sup>th</sup> Ave S</b>	36 <sup>th</sup> St S to Wild Rice River (and subdivision road to north connecting to S University Dr	Stanley Township	City of Fargo
<b>Cass CR 14 (100<sup>th</sup> Ave S)</b>	Sheyenne Diversion to S University Dr	Cass County	Cities of Fargo and Horace

\*Roadways planned for future alignment

### **Cass County Road 17 through Horace**

Coordination between Cass County and the City of Horace will be needed to arrange the transfer of this roadway from a county facility to a city street. Since Horace's population is currently less than 5,000, Cass County will continue to maintain roadway jurisdiction responsibilities, which will facilitate County sponsorship of roadway improvement projects involving federal funds. Once Horace reaches the population threshold of 5,000, the City can receive funds directly without a project sponsor.

Since the roadway serves as a major gateway to the city and city development will have a significant impact on the volumes of the roadway, a transfer from the County to the City will be appropriate. The transfer could be completed in phases, but since Horace has urbanized growth along the majority of the corridor, it may make more sense to transfer the entire four-mile segment to the City at one time.

### **38<sup>th</sup> Street South from the City of Fargo Boundary to Cass CR 14 (100<sup>th</sup> Avenue South)**

Upon annexation and further growth to the south, it is anticipated that the City of Fargo will take on the responsibility for 38<sup>th</sup> Street South, which is the I-29 west frontage road. As documented in this Plan, it is anticipated that the roadway alignment will be moved to the west to allow space for development on both sides of the roadway. Coordination with NDDOT will also be required if the frontage road is located on I-29 ROW. The south end of the corridor (north of 100<sup>th</sup> Avenue South) has already been slated for realignment as part of a subdivision approved by the City of Fargo within their ETA.

### **36<sup>th</sup> Street South from 88<sup>th</sup> Avenue South to 100<sup>th</sup> Avenue South**

This roadway is the frontage road on the east side of I-29. It is anticipated that as Fargo grows to the south and annexes the area, the responsibility for the roadway will transfer to the City. A frontage road is not part of the long-range street network plan identified for this area as part of this Plan. The roadway will most likely be eliminated or realigned away from I-29 to connect with a collector street to the north, allowing space for development on both sides of the roadway. Realignment will also provide additional intersection spacing between 36<sup>th</sup> Street South and the east ramps of the I-29 and 100<sup>th</sup> Avenue South interchange. As with 38<sup>th</sup> Street South, coordination with NDDOT may be needed to get approval to eliminate/realign the frontage road.

### **25<sup>th</sup> Street South from 76<sup>th</sup> Ave S to 100<sup>th</sup> Avenue South**

This portion of 25<sup>th</sup> Street is currently the responsibility of Stanley Township. It is anticipated that the City of Fargo will work with Stanley Township to take responsibility for the roadway in phases as annexation and growth continue to the south.

### **South University Drive from 64<sup>th</sup> Ave S to 100<sup>th</sup> Ave S**

This segment of roadway is currently the responsibility of Cass County. Upon signalization of intersections along the corridor, such as 70<sup>th</sup> Avenue South, the County will work with the City of Fargo to transfer jurisdiction to a logical point along the roadway, such as 76<sup>th</sup> Avenue South. As the City grows, a phased approach to transferring roadway jurisdiction is anticipated.

### 52nd Avenue South from 45th Street South to the Sheyenne Diversion

The City of Fargo currently maintains the segment of 52<sup>nd</sup> Avenue South between 45<sup>th</sup> Street and Veterans Boulevard since recent roadway improvements extend west of 45<sup>th</sup> Street for a short distance, and because this arrangement makes sense to do so given the routes of maintenance equipment. However, this one-mile segment of the road technically remains under the jurisdiction of Cass County similar to the remainder of the roadway going west to the Sheyenne Diversion. Further widening of the roadway will require widening of the structure over Drain 27. The County anticipates maintaining jurisdiction of the roadway from 45<sup>th</sup> Street to 63<sup>rd</sup> Street South until such time as the structure has been widened to accommodate future roadway widening.

Between 63<sup>rd</sup> Street South and the Sheyenne River, 52<sup>nd</sup> Avenue South is the border between Fargo (and a small portion of its ETA) and West Fargo. West of the Sheyenne River, 52<sup>nd</sup> Avenue South is the border between Horace and West Fargo for ½ mile. Between Ponderosa Subdivision and the Sheyenne Diversion, the corridor lies entirely within the City of West Fargo. Widening of the corridor west of 63<sup>rd</sup> Street South will require significant jurisdictional coordination. The bridge over the Sheyenne River involves four jurisdictions at this time:

- West Fargo in the northeast and northwest quadrants of the bridge
- Horace in the southwest quadrant of the bridge
- Fargo in the southeast quadrant of the bridge (and the owner of the water intake equipment in the Sheyenne River just south of the existing bridge)
- Cass County, which currently maintains jurisdiction of the roadway

Southeast Cass Water Resource District (SECWRD) must also be involved in this improvement to some capacity due to its ownership of and responsibility for Drain 27. Development in West Fargo along the County Road 17 (Sheyenne Street) corridor is accelerating; Fargo's Deer Creek Addition is underway; several small subdivisions have been approved by the City of Horace over the past two years. As demonstrated by the 2020 best fit scenario, improvements to 52<sup>nd</sup> Avenue South will be critical to serving traffic generated by existing and short-term development. The jurisdictional coordination necessary to fund and implement improvements to 52<sup>nd</sup> Avenue South from 45<sup>th</sup> Street to just west of County Road 17 must be carried out in the very short term.

### 64th Avenue South from 38th Street South to Drain 27

As Fargo annexes and develops to the south, the majority of this roadway will need to be transferred from Stanley Township to the City of Fargo. The City of Horace currently surrounds three quadrants of the corridor where it crosses Drain 27. Future improvements and widening to the portion of the corridor that crosses Drain 27 will require coordination between the Cities of Horace and Fargo, as well as with SECWRD.

### 76th Avenue South (Cass CR 6) from Cass CR 17 to the Sheyenne Diversion

The Cass County Highway Department intends to pave the portion of this roadway that is currently gravel (between 75<sup>th</sup> Street South and the Sheyenne Diversion) and transfer roadway responsibility to the City of Horace. Eventually, the paving of Cass CR 6 between the Sheyenne Diversion and Cass CR 18 is planned, and will provide an important regional paved highway connection.

### 76th Avenue South from 38th Street South to the Veterans Boulevard Section Line

This roadway will need to transfer from Stanley Township to the City of Fargo as the City annexes and develops up to and around the corridor. West of this segment, the roadway is already within the City of Horace.

### 76th Avenue South from 25th Street South to Drain 53

As the City of Fargo annexes and develops to the south on the east side of I-29, this corridor will need to transfer from Stanley Township to the City of Fargo. A crossing of Drain 53 in close proximity to the future interchange with I-29 will need to be considered when planning this improvement, since the drain connects to the east ditch of I-29. SECWRD, Stanley Township, Cass County and NDDOT may all need to coordinate with the City to ensure upstream drainage issues are addressed.

### 88th Avenue South from the Sheyenne River to the Sheyenne Diversion

This segment of 88<sup>th</sup> Avenue South is currently outside of Horace's municipal boundary and within its ETA. As the City annexes and grows into this area, the roadway jurisdiction should be transferred from Stanley Township to the City of Horace.

### 88th Avenue South from the City of Horace boundary to 38th Street South

It is anticipated that this roadway segment will remain the responsibility of Stanley Township for at least another 15 years, if not longer. Eventually, as the City of Fargo annexes and grows into the area, a transfer from the Township to the City should be planned and coordinated.

### 88th Avenue South from 36th Street South to the Wild Rice River

East of I-29, Stanley Township is responsible for this segment of roadway which connects the east I-29 frontage road to two rural subdivision roads called Round Hill Drive and Libra Lane. Via these roadways, a connection between the I-29 east frontage road and South University Drive is established. Eventually, when Fargo annexes and grows to the south, which is anticipated in approximately the 2030 time frame, it will be important to coordinate with Stanley Township to accomplish the transfer of these roadways to the City of Fargo.

### Cass CR 14 (100th Avenue South) from the Sheyenne Diversion to South University Drive

Within this Plan's horizon, a transfer of 100<sup>th</sup> Avenue South to the Cities of Fargo and Horace is not anticipated. At such time as the cities begin to grow along the north side of 100<sup>th</sup> Avenue South, resulting in the need for roadway capacity and operational improvements, it will be important to begin coordinating with the applicable city regarding an eventual transfer of the roadway jurisdiction. Urban

growth along the south side of the corridor, similar to what now exists along 52<sup>nd</sup> Avenue South, will result in the tipping point where County responsibility no longer makes sense.

As discussed, roadway jurisdiction can change gradually in phases, or an entire roadway corridor can be transferred at one time. This depends largely on the nature of urbanization along previously rural corridors. A scattered urban pattern may result in transferring the entire corridor all at once, whereas an orderly urban growth pattern facilitates the transfer of small segments of roadways from the township or county to the applicable city. Table 7.10 outlines the identified primary and secondary jurisdictions for arterial and collector corridor improvements as they are needed within each scenario. These assignments are dependent on the timeframe, the specific location of the identified improvement, and the level of improvement to the corridor.

*Table 7.10: Study Area Jurisdictional Coordination by Corridor*

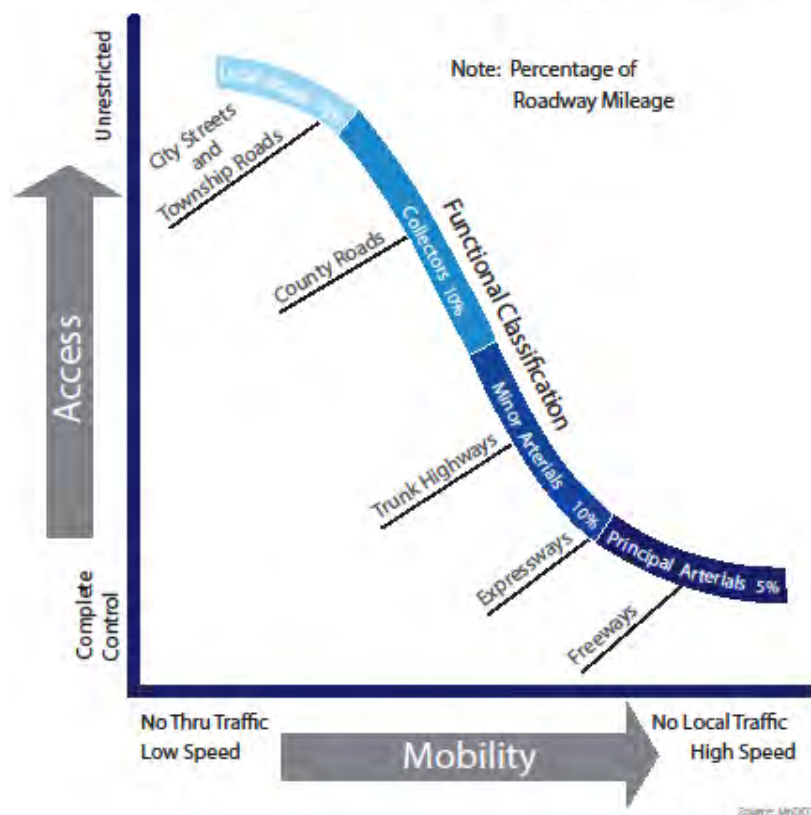
Arterial Corridor	2020		2030		2040	
	Primary Jurisdiction	Secondary Jurisdiction	Primary Jurisdiction	Secondary Jurisdiction	Primary Jurisdiction	Secondary Jurisdiction
<b>52<sup>nd</sup> Ave S</b>	Fargo	Horace/WF	Fargo	-	Fargo	Clay County
<b>64<sup>th</sup> Ave S</b>	Fargo	Horace	Fargo	-	Horace	-
<b>76<sup>th</sup> Ave S</b>	Fargo	Horace	Fargo	NDDOT	Fargo/Horace	-
<b>88<sup>th</sup> Ave S</b>	-	-	-	-	Fargo/Horace	-
<b>100<sup>th</sup> Ave S</b>	-	-	Cass County	Fargo/Horace	Cass County	Fargo/Horace
<b>Cass CR 17</b>	-	-	Cass County	Horace	Cass County	Horace
<b>45<sup>th</sup> St S</b>	Fargo	-	Fargo	-	Fargo	-
<b>38<sup>th</sup> St S</b>	Fargo	-	Fargo	-	Fargo	-
<b>25<sup>th</sup> St S</b>	Fargo	-	Fargo	-	Fargo	-
<b>S University Dr</b>	NDDOT	Fargo/Cass County	-	-	NDDOT	Fargo
Collector Corridor	2020		2030		2040	
	Primary Jurisdiction	Secondary Jurisdiction	Primary Jurisdiction	Secondary Jurisdiction	Primary Jurisdiction	Secondary Jurisdiction
<b>60<sup>th</sup> Ave S</b>	Fargo	-	Fargo	-	-	-
<b>68<sup>th</sup> Ave S</b>	Fargo	-	Fargo	-	-	-
<b>70<sup>th</sup> Ave S</b>	Fargo	-	Fargo	-	Horace	-
<b>73<sup>rd</sup> Ave S</b>	Fargo	-	Fargo	-	-	-
<b>92<sup>nd</sup> Ave S</b>	-	-	-	-	Fargo/Horace	-
<b>9<sup>th</sup> St W</b>	-	-	-	-	Horace	-
<b>7<sup>th</sup> St E</b>	-	-	-	-	Horace	-
<b>48<sup>th</sup> St S</b>	Fargo	-	Fargo	-	Fargo	-
<b>31<sup>st</sup> St S</b>	Fargo	-	Fargo	-	Fargo	-
<b>17<sup>th</sup> St S</b>	Fargo	-	Fargo	-	-	-

## Access Management

Access Management standards are a valuable tool to maintain the efficiency and safety of the roadway network. However, cities and counties are often pressured to vary from standards to allow more closely spaced intersections and driveways. Access to high volume roadways should be controlled because it improves both congestion and safety for the traveling public. However there is an inherent conflict between providing access to adjacent land uses and keeping traffic flowing well. Unfortunately busy corridors are where most retail establishments want to locate, and they want direct access to the corridor to minimize confusion for customers to access their location. Thus most communities look for a compromise between access and traffic flow/safety.

Below is a diagram of how access and mobility work in a perfect world. As the functional classification of the roadway intensifies, the amount of access and local circulation of traffic decreases. Trips are typically longer and more regional in nature and fewer access points are allowed. Lower volume roadways have more access to individual driveways for residential units and access points become less restrictive.

In addition the graphic shows parameters on percent (of linear miles) of roadways expected within each classification level for the community. Thus, approximately 5% of roadways should be considered principal arterials, 10% Minor arterials, 10% Collectors, and the remaining 75% of roadways as local.



The SWMTP has laid out a system of arterial and collector roadways within the south reaches of Fargo, the Stanley Township portion of Cass County, and Horace. This network, while not in place today, needs to have protections in place to preserve its function as the backbone of mobility within the study area. Each jurisdiction has Access Management in some form. The City of Fargo makes reference to its Land Development Code in their 2007 Growth Plan, which at its most restrictive allows access onto arterial roadways every 600 feet.

The City of Fargo is currently in the process of updating their Access Management procedures and standards. The following tables and text have been reprinted from documents provided by the City. The access management update is still in draft form, but could be the new standard if it gets adopted without revision.

Figure 7.6A - Roadway Access and Driveway Spacing Guidelines - City of Fargo

**§20-0702 Roadway Access and Driveways**    **\*Draft LDC Text Amendment\***

**A. Driveway Spacing**

Access to streets shall be allowed as follows, unless otherwise restricted by negative access easements, other limitations as indicated on the plat, or as indicated in the block corner spacing standards.

Functional Classification	Typical Volume Range (ADT)	SR	MR	Commercial or Industrial
Local	0-2,499	N/A	N/A	50' spacing
Local Collector	2,500-4,999	N/A	50' spacing	50' driveway spacing
Collector	5,000-9,999	150' spacing	150' spacing	TBD
Minor Arterial	10,000-19,999	Shared driveways wherever possible	Shared driveways wherever possible	Shared driveways wherever possible
Principal Arterial	20,000 or more	Shared driveways wherever possible	Shared driveways wherever possible	Shared driveways wherever possible

**B. Driveway Access from Block Corner (see attached chart)**

Notes:

- A. The functional classification map is referenced as the City approved \_\_\_\_\_ (or as defined by the City Engineer).
- B. Driveway spacing is measured from block corner to center of driveway.
- C. Both sides of the road shall comply with the spacing and must be taken into account as part of the requirements.
- D. If different zoning districts are in effect, the most restrictive zoning district applies.
- E. Driveway spacing shall account for the future traffic plans of the designated road as designated by the City Engineer.
- F. Existing lot sizes and access locations do not always allow for the practical enforcement. In these areas, the City Engineer shall have the authority to review driveway and intersection spacing on a case-by-case basis, taking into consideration the necessity of the access, the relative location of other access points along the same and opposite sides of the street, opportunities for shared access, and opportunities for on-site modifications that will optimize the location of the driveway or intersection. Using these considerations, the City Engineer shall have the authority to approve or deny driveway and intersection spacing. This footnote shall not also apply to corridors where subdivision accounted for access control or where access control has been applied through a street reconstruction project.

## Draft LDC Text Amendment

G. Future traffic plans may indicate a round-a-bout or traffic signal. Special spacing is required with these improvements:

- 275' driveway spacing for a local street, and 350' driveway spacing for a collector for signal
- Case by case, for round-a-about

H. Reference the City Engineer in the following circumstances:

1. When a site is redeveloped and has existed prior to 1998.
2. An existing driveway exists and is incorporated into a new development application
3. If the zoning district is DMU or UMU
4. Altering an existing driveway, reference Non-Conforming section of the LDC.
5. If daily classification volumes fall outside the range allocated in the chart.
6. If a median is incorporated into the roadway.

Figure 7.6.B: Driveway Access from Block Corner - City of Fargo

DRAFT

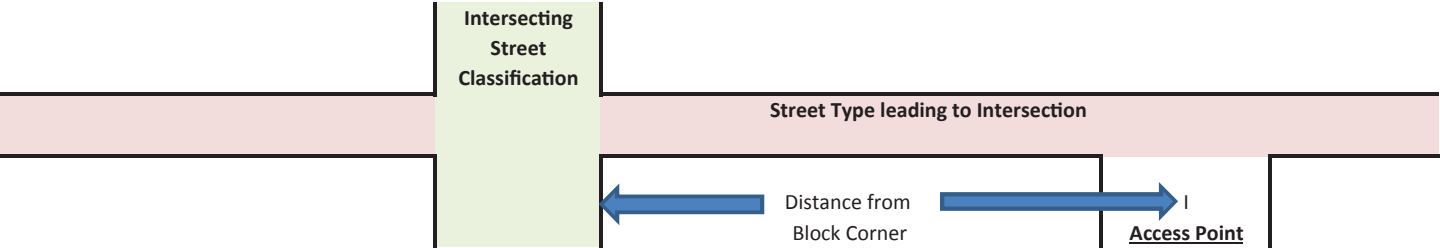
Access from Block Corners

A. Local & Collector Streets

This chart provides the setback distance to the first access point on described roadways (See graphic below). Distances provided are from block corner to center of access point.

Intersection Type	Street Classification	Private Connections & Local Streets			Local Collector Street			Collector Street		
		2-Lane SR	2-Lane MR	2-Lane Comm/Industrial	2-Lane SR	2-Lane MR	2-Lane Comm/Industrial	2-Lane SR	2-Lane MR	2-lane Comm/Industrial
Full Intersections	Local Street	30	70	95	55	95	120	115	145	170
	Local Collector	45	95	95	55	95	120	115	145	170
	Collector	65	120	120	65	120	145	165	220	270

Graphic



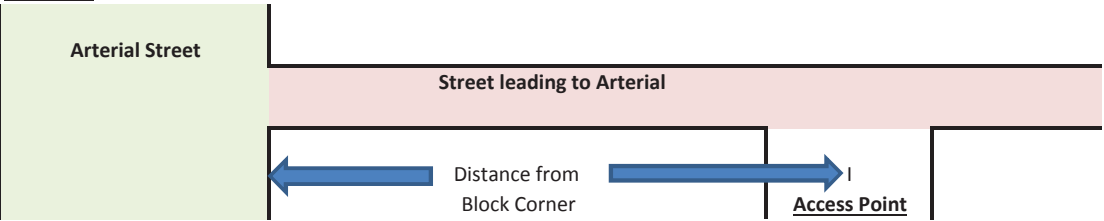
B. Arterials

This chart provides the setback distance to the first access point on roadways leading up to arterials (see graphic below). Distances provided are from block corner to center of access point

Intersection Type	Arterial Size (# of lanes)	Private Connections		Local Streets		Local Collector Streets			Collector Streets				Arterial Streets		
		2-Lane SR/MR	2-Lane Commercial	2-Lane SR/MR*	2-Lane Commercial*	2 & 3-Lane SR/MR*	2-Lane Commercial*	3-Lane Commercial*	2-Lane SR/MR*	2-Lane Commercial*	3-Lane Commercial*	4-lane Commercial*	2 & 3 Lane No Median*	5-Lane No Median**	4 & 6 Lane W/ Median*
Full Intersections	4 & 6 Lane w/Median	115	220	115	220	115	270	295	265	270	295	295	600	600	600
	5 Lane No Median	115	170	115	170	115	270	295	115	270	270	270	350	600	600
	2 & 3 Lane No Median	90	120	90	120	115	170	170	115	170	170	270	300	350	600
Right-in/right-out Intersections	4 & 6-lane w/Median	90	120	90	120	90	120	120	115	270	295	295			
	5-lane No Median	90	120	90	120	90	120	120	115	220	295	295			
Roundabouts	2 & 3-lane No Median			115	120	115	120	120	115	120	170	170	300		

\* Traffic Signals - Do they exist or planned? If so, 275' minimum on private & local streets; 350' on local collectors & collectors; 600' if there are multiple through lanes and turn lanes  
\*\* Does the intersection have multi-lanes entering & exiting, and are there drop lanes where an access would fit? Access to property on departing side of intersection with median may be possible.

Graphic



This chart does not apply to CBD.



Cass County is more restrictive. Their Subdivision Ordinance states “*There shall only be one access per one-quarter (0.25) mile on section line roads or roads classified as arterial by the County Engineer, except where it may result in real practical difficulties, unnecessary hardship or injustice.*” This spacing, while more restrictive than City of Fargo, gives the County Engineer a lot of latitude in addressing access spacing.

The City of Horace Land Use Ordinance has possibly the least restrictive Access Management guidelines. It states “*All access points to minor and major arterial streets shall be via street intersection and no private driveways shall be permitted. The total number of access points for minor and major arterial shall be limited to eight (8) per side per mile. An existing driveway access point may be exchanged with a street access.*” This standard doesn’t actually restrict the spacing of intersections, just the number per mile. This could easily create pockets of congestion where multiple points of conflict are clustered, creating pinch points in traffic flow.

The City of Horace has requested, on some applications for development, an opinion be given by the Cass County Engineer regarding access control. This coordination is important as the decisions that are made for access control within the City of Horace impact the function and safety of the roadway network in and around the City. These opinions have been requested within the City’s Extra Territorial Area (ETA). Within the ETA, city standards apply. Given the City of Horace’s liberal access policy, and Cass County’s more rigorous standard, an effort to coordinate a standard that would apply within the ETA should be developed. Through a coordinated effort between the City of Horace and Cass County, development of a shared standard for access control along arterial roadways would reduce the need for County input within the ETA.

With the exception of Cass County’s standard, these access management requirements are fairly liberal in the amount of access allowed onto arterial roadways. However there are roadways that are projected to be running near to capacity in the 2040 best fit scenario capacity analysis. These roadways include:

- 76<sup>th</sup> Avenue South between 45<sup>th</sup> St and I-29,
- 64<sup>th</sup> Avenue South between 45<sup>th</sup> St and 25<sup>th</sup> Street, and
- 25<sup>th</sup> Street South between 52<sup>nd</sup> Avenue South and 64<sup>th</sup> Avenue South.
- CR 17 between 52<sup>nd</sup> Avenue South and 88<sup>th</sup> Avenue South

This suggests that for these facilities a more restrictive access management standard may be in order as the study area develops. Where Fargo’s standard allows access every 600 feet, potentially allowing up to 8 access points per mile per direction, a more rigorous standard may allow these facilities to serve a greater number of vehicles before they reach capacity.

The following recommendations would apply to the entire roadway network proposed within the project study area. These recommendations will protect existing as well as future roadways from congestion points or safety concerns solely due to access spacing. Existing access points which fall below the recommended standard should be reviewed for consolidation or elimination upon

improvement of the corridor or change of land use or intensification of the permitted land use when building permit applications are made.

Within the ETA, city standards apply. Given the City of Horace's liberal access policy, and Cass County's more rigorous standard, an effort to coordinate a standard that would apply within the ETA should be developed. Through a coordinated effort between the City of Horace and Cass County, development of a shared standard for access control along arterial roadways would reduce the need for County input within the ETA.

## Recommendations

Greater access control means that the lifespan of these roadways will be extended whether they are arterial roadways or collectors. There are a couple of standards and several roadways that should be considered for a more restrictive access control standard.

These recommendations focus mostly on the City of Fargo's access standards but this recommendation applies throughout the study area for all arterials.

To preserve the function of arterial roadways throughout the study area the following standard should be applied:

“Access control on arterial roadways should be limited to preserve the function and capacity of the resource. A maximum of four roadway access points per direction of the arterial. Where feasible these accesses should be aligned directly across from one another without offset creating four way intersections making signalization or other traffic control easier and reducing delay through the corridor. No direct driveway access should be allowed onto the arterial system. Commercial uses should take their access from the collector system, and allow for on-site internal circulation between businesses or for backage or frontage road facilities that serve traffic circulation needs.

Interchanges along I-29 should be treated differently as they not only impact the arterial road, but if access points are too close to the interchange ramp terminals it can also impact the function of the interstate. Interchanges represent some of the largest investments we make in our transportation system, and as such should be afforded additional protections to preserve their function in perpetuity. Interchanges at 100<sup>th</sup> Avenue South, 76<sup>th</sup> Avenue South and 52<sup>nd</sup> Avenue South should have no intersections allowed within 2500 feet of interchange ramp terminals accessing I-29. Providing this measure of access control around interchanges allows for appropriate distance for weaving movements and during times of heavy use can keep ramp traffic from backing onto the mainline of the interstate.”

Collector streets while being more liberal in their function where access is allowed, also should have access controls placed upon them, because while they should provide access to adjacent land uses their intent is also to move traffic to and from the arterial network. The City of Fargo's ordinance is the only local regulation that addresses access management for collector streets. As for arterials this verbiage on collector streets should be applied to the entire study area.

Fargo's standard varies for collector streets based on the type of land use served. Lower intensity land uses like residential roads and driveways have a minimum spacing of 150 feet and more intense land

uses such as retail, commercial or industrial land uses have a minimum spacing of 300 feet between roadways and driveway access points. Functionally, this describes a difference between Major and Minor Collector roadways with major collectors serving more intense land uses and minor serving mainly residential uses. The issue that needs to be resolved with a standard like this one is what happens when the same roadway serves both types of uses. Engineering judgment is needed when, for example a medium density residential use which qualifies for the 150 foot standard, is adjacent to another use like a hotel or convenience store which is at the higher standard. This becomes problematic with the migration to more mixed use environments and more compact development forms.

On one hand a 300 foot access control is excessive for residential uses but a 150 foot access standard is too liberal for more intense uses, particularly in areas where truck access is expected. In a case such as this it is best to defer to the higher standard of 300 feet between access points and only allow the lesser standard of 150 feet on a case by case basis depending on the operational characteristics of the area.

Because of these potential conflicts, the recommendation for Collector Street access control within the project study area is:

*“A minimum spacing of 300 feet is required between driveways and/or intersections. This standard may be modified to a minimum of 150 feet through an application process. Access permits will only be issued for the lesser standard upon review and determination by the City/County Engineer that granting of such a permit would not compromise the function, safety or capacity of the collector street at or around the location that access is granted.”*

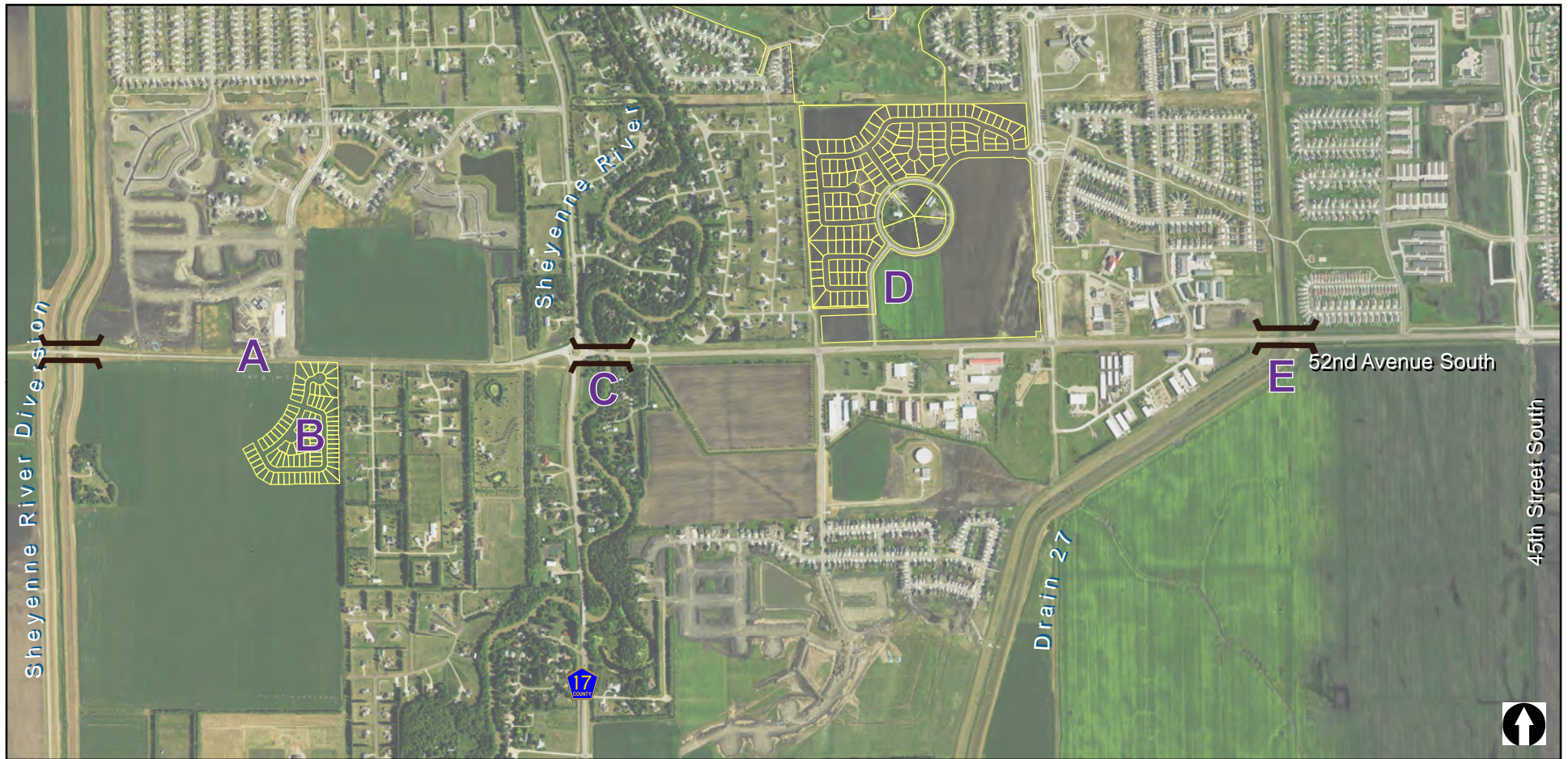
Traffic impact studies are often required in order to evaluate the appropriate access spacing along collector streets, especially between the arterial roadway and the first intersection away from the arterial.

### 76th Avenue South

During development of the Southwest Metro Transportation Plan an idea was developed to make 76<sup>th</sup> Avenue South an express type roadway with limited access and higher speeds throughout the corridor. The thought being that it could connect with I-94 in Minnesota and run through the study area, finally connecting across the proposed diversion at CR-15. Because the purpose of this type of improvement would be to move high volumes of traffic at higher speeds it is appropriate to limit access at a more restrictive standard than a typical arterial roadway. *The proposed standard for this roadway would be one access per mile at section line roadways.* Of course there are already access points on this facility at some points on the corridor; an attempt would be made to consolidate those, but for developed areas it may be difficult to provide access without deviating from this standard. In those cases every effort will be made to give them access to a N/S section line roadway prior to allowing direct access. Onto 76<sup>th</sup> Avenue South.

## Corridor Issue Identification

Corridor development may be constrained by many factors. In the simplest cases – transforming a bare field road into an urban corridor, for example – the greatest hurdle is ROW acquisition. For developed and developing corridors, the surrounding land uses and infrastructure may be resistant to change. For instance, when a cemetery is impacted, it is a difficult process to relocate grave sites. Likewise, a large electrical substation is not moving. These features and others will determine what corridor improvements can be made. The following figures highlight potential obstacles to development for six corridors: 52<sup>nd</sup>, 64<sup>th</sup>, 76<sup>th</sup>, and 100<sup>th</sup> Avenues South, as well as County Road 17 and 25<sup>th</sup> Street South.



**A** From the Sheyenne Diversion to CR-17, the roadway is dirt and gravel surface.

**B** This developing subdivision takes its access from 9th Street West in West Fargo. Once developed, the roadway surface from CR-17 to 9th Street should be paved with appropriate turn lanes installed at the intersection.

If this subdivision can be made accessible from the existing side street to the east, an additional direct access from 52nd Avenue could be eliminated.

**C** 2-lane bridge; flood control station located at southeast quadrant of intersection.

**D** Trips generated by this large subdivision could significantly impact traffic volumes on 52nd Avenue. Utility installations located near the ROW may complicate corridor expansion.

**E** This 2-lane bridge will need to be widened to accommodate corridor expansion.



## 52nd Avenue South from Sheyenne River Diversion to 45th Street

**Figure 7.7**



**A** The large electrical substation located in the southeast quadrant of the 25th Street intersection could complicate corridor expansion.

**B** The location of Iwen Park, a 4-F resource, could impact efforts to improve the corridor.

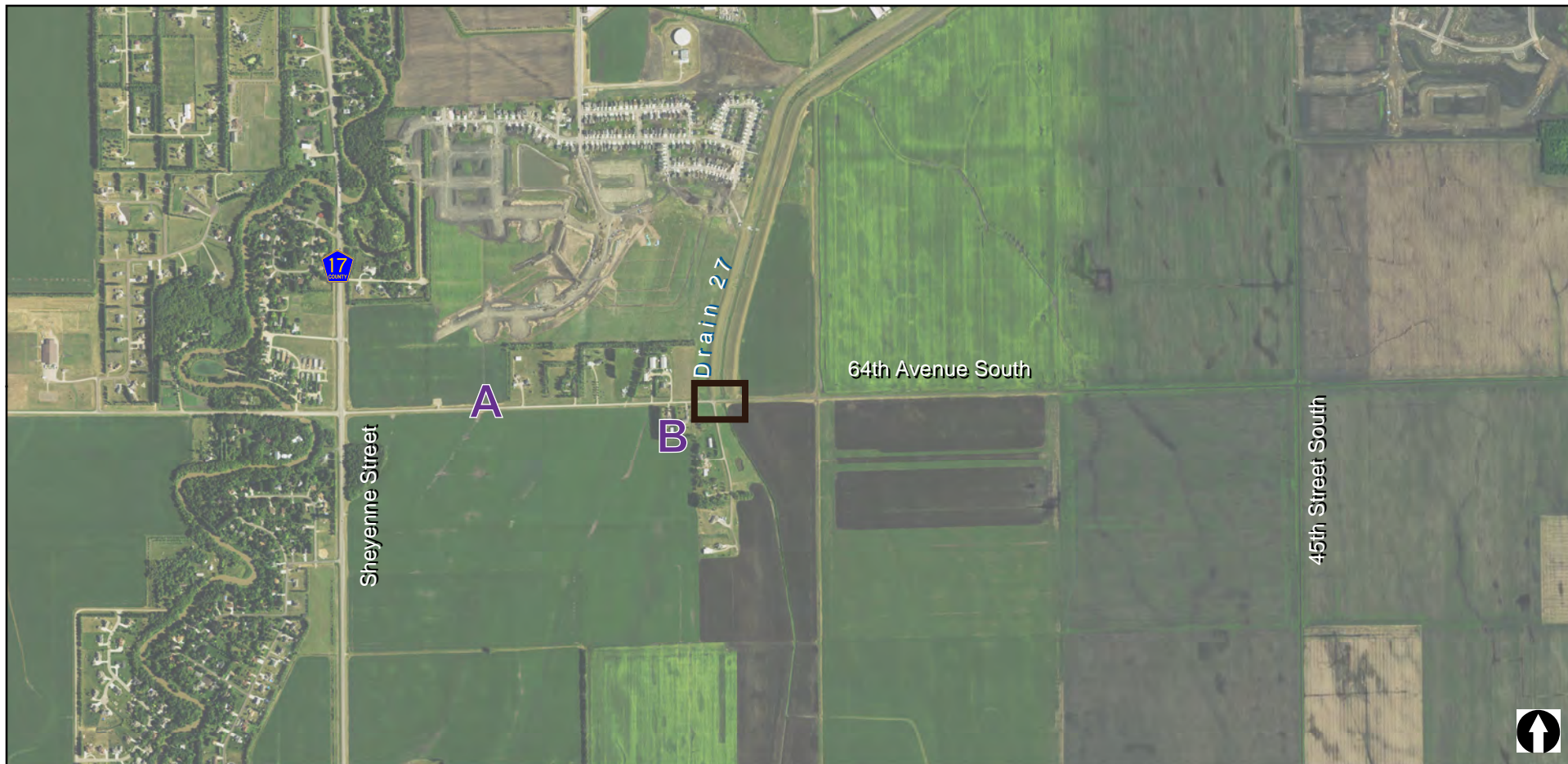
**C** The existing asphalt surface should be replaced with concrete when the roadway is widened.

**D** This bridge is two lanes, as is the approaching roadway on the North Dakota side of the river.



## 52nd Avenue South from 25th Street to Red River

Figure 7.8



0 0.25 0.5  
Miles

**A** Between CR-17 and Drain 27 there are 9 access points, including 7 individual driveway accesses. Individual access may need to be consolidated when the corridor is urbanized.

**B** Drain 27 crosses 64th Avenue with a metal culvert. The position of the culvert appears to have shifted over time. It will need to be replaced by a more permanent structure.



## 64th Avenue South at Drain 27 Crossing

Figure 7.9



\* West of I-29, 64th Avenue is a farm access road. East of the interstate, the road has a gravel surface along the entirety of its length.

**A** Roadway ends; currently there is no crossing of I-29

**B** Two large metal culverts will need to be replaced if the roadway is improved

**C** Individual access points will need to be managed/consolidated.

**D** A utility tower is located close to the ROW.



## 64th Avenue South from 45th Street to University Drive

Figure 7.10



**A** This crossing of the Sheyenne River is a 2-lane bridge. There is a cluster of roadway intersections on both sides of the river.

**B** There are three electrical substations/-cell towers along this stretch of the corridor.

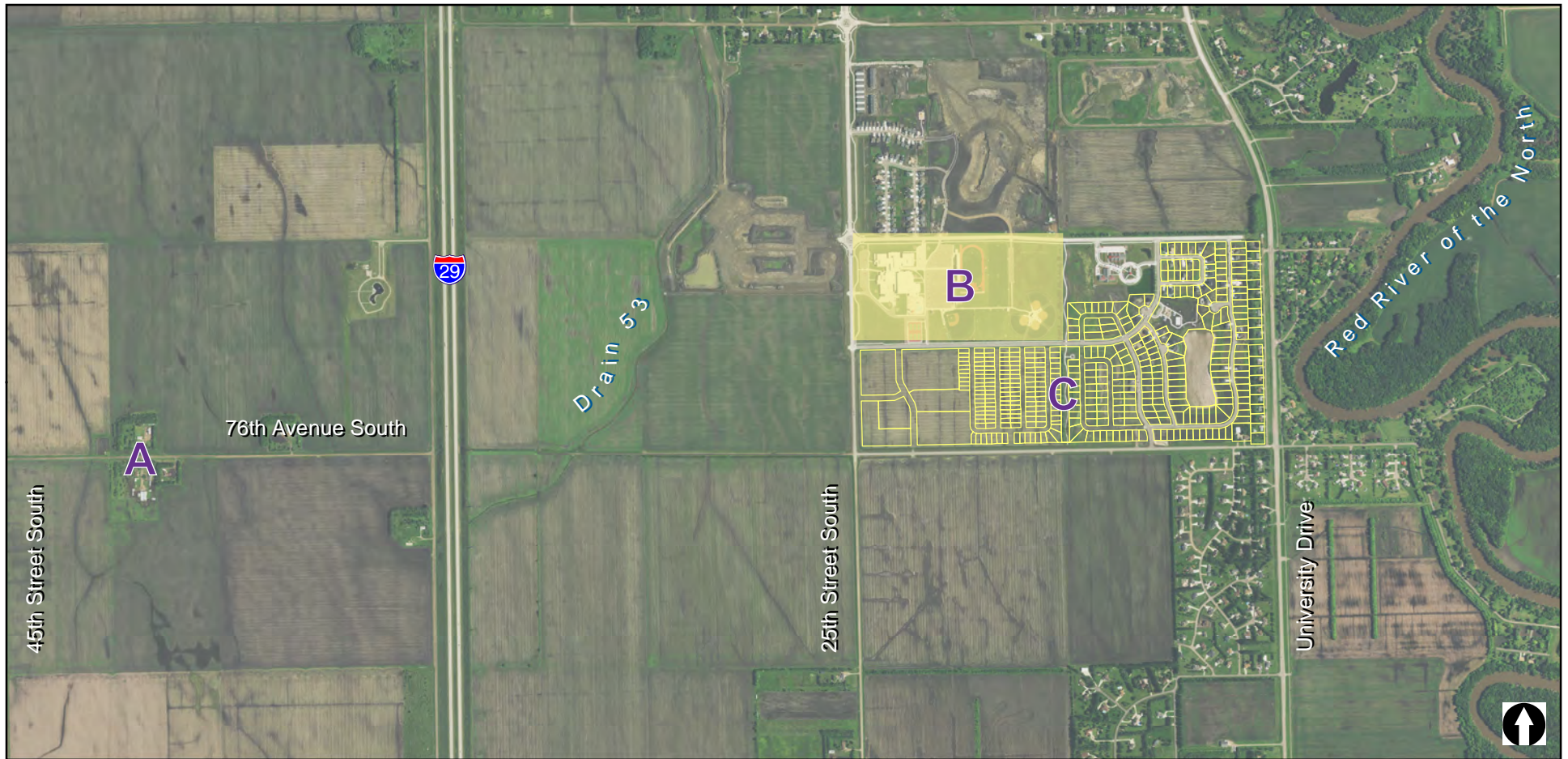
**C** Multiple residences have direct driveway access.

**D** 64th Avenue crosses Drain 27 with a box culvert.



## 76th Avenue South from County Road 17 to 45th Street

Figure 7.11



**A** Direct private access to future arterial roadway.

**B** Davies High School has a student enrollment of approximately 1,200. A community swimming pool and ball fields also attract regional trips.

**C** Two new residential subdivisions are under construction. Each will have one main access from 64th Avenue.



## 76th Avenue South from 45th Street to University Drive

**Figure 7.12**



**A** This tight diamond interchange will complicate growth along the 100th Avenue South corridor. The crown of the bridge limits visibility at the ramp terminals. The proximity of

the frontage road access points poses an operational challenge. In addition, some turning movements would be difficult for trucks. The asphalt on the interchange shows signs of considerable wear.

It will be important for Cass County to preserve an appropriate amount of ROW to redevelop the interchange to an urban standard and to move the intersections of the frontage roads farther from I-29.

**B** This narrow 2-lane bridge is functionally obsolete.



## 100th Avenue South at I-29 Interchange

**Figure 7.13**



**Figure 7.14**

**A** Intersection capacity will be an issue. Currently, the roundabout has a single lane for circulating traffic. The SWMTP calls for a double roundabout.

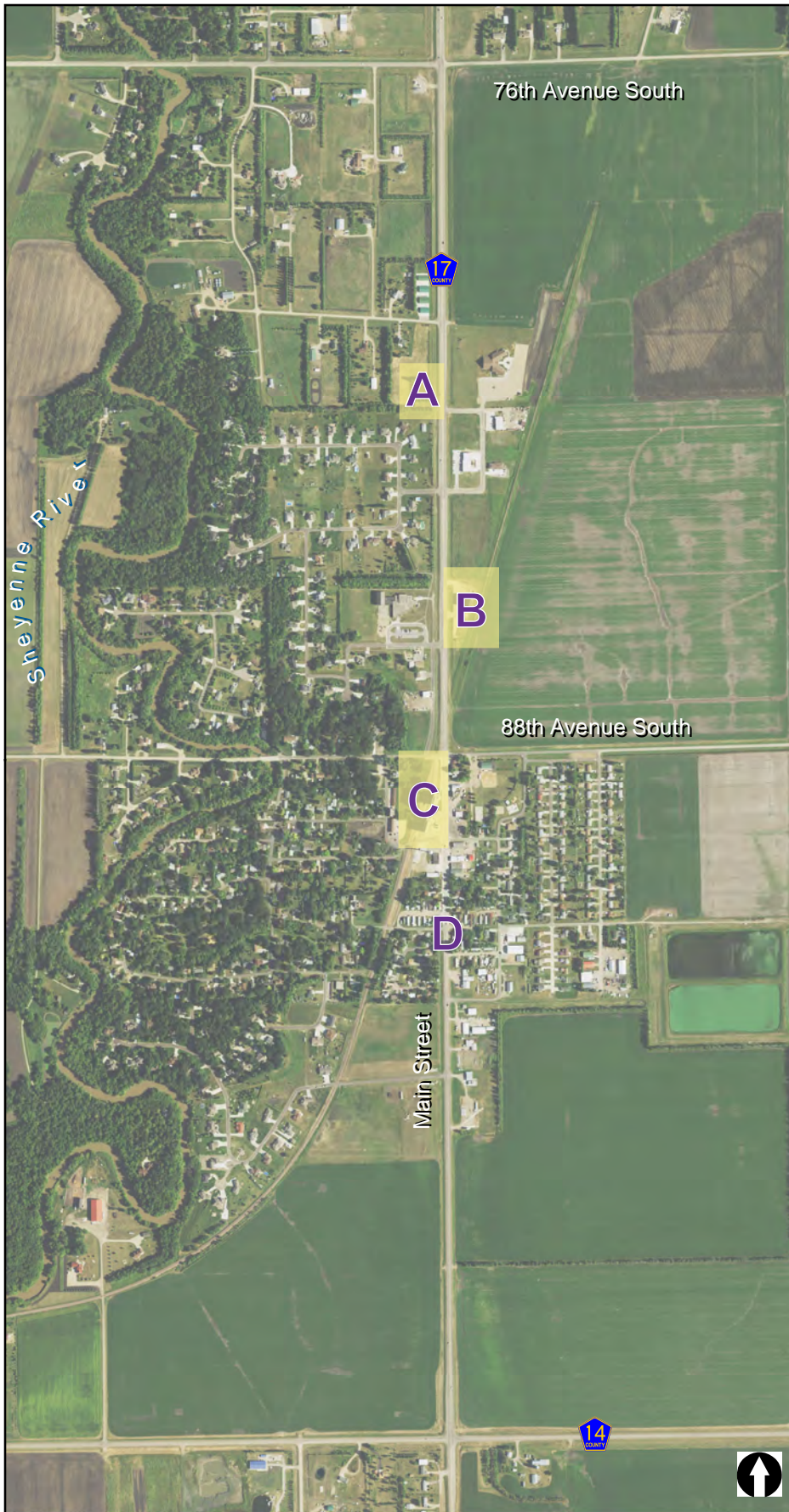
**B** The course of the Sheyenne River runs very close to the roadway.

**C** There are several staggered driveways with direct access to the highway.

**D** This 2-lane bridge will be replaced with a box culvert when the road is widened.

**E** Future school property. It will be important to plan for access control and bus circulation.

**F** Electrical substation.



**Figure 7.15**

**A** Horace Lutheran Cemetery is located very close to the ROW. Corridor expansion could involve property acquisition and relocation of grave sites. A detailed study by the USACE outlines the impacts of the Diversion Project to all cemeteries in the metro area; this cemetery is not prone to flooding.

**B** An old rail station is on the state list of historic sites, but will likely be closed in the near future.

**C** The Harvest State's Grain Elevator has direct access from Main Street and uses the roadway and shoulder as a queuing area during its occasional use. It is unlikely that a railroad bridge will be constructed over the Diversion to serve the grain elevator, so it could end up as a redevelopment site.

**D** Building front setbacks are shallow throughout the town center. Widening the road in its current location would involve many property purchases and general overhaul.

A trailer park is located immediately adjacent to ROW on both sides of Main Street. ROW expansion could pose an environmental justice concern. Overall, many driveways have direct access to Main Street.

Plans to expand the Horace fire station will need to consider future widening of CR-17.



**Figure 7.16**

\* 25th Street has been designated an Active Living Corridor, which follows Complete Streets principles. There are sidewalks on both sides of the corridor, bicycle lanes, and several roundabouts.

**A** St. Anne and Joachim Catholic Church owns a large parcel.

**B** New multi-family housing development.

**C** A frontage road provides access to housing west of 25th Street. It is immediately adjacent to the 25th Street ROW, and may limit opportunities to expand the corridor in this location.

East of the roadway, street lamps have been located immediately adjacent to the curb.

**D** New residential plat.

**E** Davies High School.



**Figure 7.17**

**A** Rural housing with direct driveway access to 25th Street.

**B** Large residential property.

**C** Utility lines located close to ROW.

**D** Large horse farm.

**E** Private drive; public ROW has been purchased to the west.



## Appendix A – Resolutions of Stakeholder Adoption

City of Fargo  
City of Horace  
Cass County  
Fargo-Moorhead Metropolitan Council of Governments



### **Resolution to Adopt the Southwest Metro Transportation Plan**

WHEREAS, the Board of Commissioners is the duly elected governing body for Cass County and is responsible for the planning and development of a safe and functional transportation system;

WHEREAS, the Fargo-Moorhead Metropolitan Council of Governments (Metro COG), as the metropolitan planning organization designated by the Governors of North Dakota and Minnesota to maintain the metropolitan area's transportation planning process in accordance with federal regulations, has completed the Southwest Metropolitan Transportation Plan, which is a vital piece of this planning process;

WHEREAS, the Southwest Metro Transportation Plan provides a comprehensive, coordinated program of projects and strategies that will improve the regional transportation system in the Fargo-Moorhead metropolitan region as the southern growth area continues to urbanize;

WHEREAS, the contents herein are consistent with those of the Long Range Transportation Plan, Metro 2040;

WHEREAS, the planning process was guided by the Study Review Committee (SRC) and the Metro COG Transportation Technical Committee (TTC), composed of a wide cross-section of local multi-modal technical experts including engineers, planners, transit administrators, and state and federal transportation officials;

WHEREAS, public and private organizations representing numerous transportation interests, as well as groups and individuals from socially disadvantaged populations were invited, encouraged, and involved in this Plan's preparation in full compliance with Metro COG's Public Participation Plan;

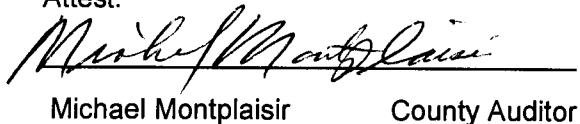
Now, Therefore Be It Resolved that Cass County does hereby adopt the Southwest Metro Transportation Plan and agrees to use it as a tool to implement metropolitan transportation goals and objectives, which will complement overall development of the metropolitan transportation system;

Approved and adopted this 4th day of April, 2016

Approved by:

  
Mary Scherling                      Chair

Attest:

  
Michael Montplaisir                      County Auditor



## **Resolution to Adopt the Southwest Metro Transportation Plan**

WHEREAS, the City Commission is the duly elected governing body for the City of Fargo and is responsible for the planning and development of a safe and functional transportation system;

WHEREAS, the Fargo-Moorhead Metropolitan Council of Governments (Metro COG), as the metropolitan planning organization designated by the Governors of North Dakota and Minnesota to maintain the metropolitan area's transportation planning process in accordance with federal regulations, has completed the Southwest Metropolitan Transportation Plan, which is a vital piece of this planning process;

WHEREAS, the Southwest Metro Transportation Plan provides a comprehensive, coordinated program of projects and strategies that will improve the regional transportation system in the Fargo-Moorhead metropolitan region as the southern growth area continues to urbanize;

WHEREAS, the contents herein are consistent with those of the Long Range Transportation Plan, Metro 2040;

WHEREAS, the planning process was guided by the Study Review Committee (SRC) and the Metro COG Transportation Technical Committee (TTC), composed of a wide cross-section of local multi-modal technical experts including engineers, planners, transit administrators, and state and federal transportation officials;

WHEREAS, public and private organizations representing numerous transportation interests, as well as groups and individuals from socially disadvantaged populations were invited, encouraged, and involved in this Plan's preparation in full compliance with Metro COG's Public Participation Plan;

Now, Therefore Be It Resolved the City of Fargo does hereby adopt the Southwest Metro Transportation Plan and agrees to use it as a tool to implement metropolitan transportation goals and objectives, which will complement overall development of the metropolitan transportation system;

Approved and adopted this 14 day of March, 2016

Approved by:

  
\_\_\_\_\_  
Tim Mahoney Mayor

Attest:

  
\_\_\_\_\_  
Steve Spague City Auditor



### **Resolution to Adopt the Southwest Metro Transportation Plan**

WHEREAS, the City Council is the duly elected governing body for the City of Horace and is responsible for the planning and development of a safe and functional transportation system;

WHEREAS, the Fargo-Moorhead Metropolitan Council of Governments (Metro COG), as the metropolitan planning organization designated by the Governors of North Dakota and Minnesota to maintain the metropolitan area's transportation planning process in accordance with federal regulations, has completed the Southwest Metropolitan Transportation Plan, which is a vital piece of this planning process;

WHEREAS, the Southwest Metro Transportation Plan provides a comprehensive, coordinated program of projects and strategies that will improve the regional transportation system in the Fargo-Moorhead metropolitan region as the southern growth area continues to urbanize;

WHEREAS, the contents herein are consistent with those of the Long Range Transportation Plan, Metro 2040;

WHEREAS, the planning process was guided by the Study Review Committee (SRC) and the Metro COG Transportation Technical Committee (TTC), composed of a wide cross-section of local multi-modal technical experts including engineers, planners, transit administrators, and state and federal transportation officials;

WHEREAS, public and private organizations representing numerous transportation interests, as well as groups and individuals from socially disadvantaged populations were invited, encouraged, and involved in this Plan's preparation in full compliance with Metro COG's Public Participation Plan;

Now, Therefore Be It Resolved the City of Horace does hereby adopt the Southwest Metro Transportation Plan and agrees to use it as a tool to implement metropolitan transportation goals and objectives, which will complement overall development of the metropolitan transportation system;

Approved and adopted this 2<sup>nd</sup> day of May, 2016

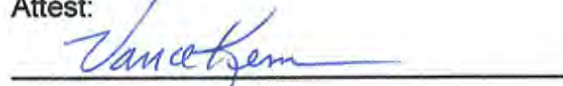
Approved by:



Shane Walock

Mayor

Attest:



Vance Kemmer

City Auditor



## **Resolution to Adopt the Southwest Metro Transportation Plan**

WHEREAS, the Policy Board is the duly appointed governing body for the Fargo-Moorhead Metropolitan Council of Governments and is responsible for the planning and development of a safe and functional transportation system;

WHEREAS, the Fargo-Moorhead Metropolitan Council of Governments, as the metropolitan planning organization designated by the Governors of North Dakota and Minnesota to maintain the metropolitan area's transportation planning process in accordance with federal regulations, has completed the Southwest Metropolitan Transportation Plan, which is a vital piece of this planning process;

WHEREAS, the Southwest Metro Transportation Plan provides a comprehensive, coordinated program of projects and strategies that will improve the regional transportation system in the Fargo-Moorhead metropolitan region as the southern growth area continues to urbanize;

WHEREAS, the contents herein are consistent with those of the Long Range Transportation Plan, Metro 2040;

WHEREAS, the planning process was guided by the Study Review Committee (SRC) and the Metro COG Transportation Technical Committee (TTC), composed of a wide cross-section of local multi-modal technical experts including engineers, planners, transit administrators, and state and federal transportation officials;

WHEREAS, public and private organizations representing numerous transportation interests, as well as groups and individuals from socially disadvantaged populations were invited, encouraged, and involved in this Plan's preparation in full compliance with Metro COG's Public Participation Plan;

Now, Therefore Be It Resolved the Fargo-Moorhead Metropolitan Council of Governments Policy Board does hereby adopt the Southwest Metro Transportation Plan and agrees to use it as a tool to implement metropolitan transportation goals and objectives, which will complement overall development of the metropolitan transportation system;

Approved and adopted this 19 day of MAY, 2016


Approved by:



Dave Piepkorn

Policy Board Chair

Attest:



William A. Christian

Executive Director



## Appendix B – Planning Level Cost Calculations



SEGMENT				2015 DESIGNATION		2020 DESIGNATION																		
CORRIDOR	FROM	TO	LENGTH (FT)	ROADWAY	EXISTING INTERSECTION CONTROL	ROADWAY	PROPOSED INTERSECTION CONTROL	PROPOSED BOX CULVERT	ROADWAY	TRAFFIC SIGNAL	SINGLE ROUNDABOUT	DOUBLE ROUNDABOUT	BOX CULVERT	BRIDGE	ON/OFF RAMP	ON RAMP LOOPS	BUS SHELTER	DRAINAGE	LIGHTING	PAVEMENT MARKINGS	PERMANENT SIGNAGE	TRAFFIC CONTROL	TOTAL COST TO CONSTRUCT	
52ND AVE S.	RED RIVER	UNIVERSITY DRIVE	1,691	PCC FOUR LANE DIVIDED ARTERIAL	SIGNAL	N/A	N/A	-	\$0															
	UNIVERSITY DRIVE	25TH STREET	3,544	PCC FOUR LANE DIVIDED ARTERIAL	SIGNAL	N/A	N/A	-	\$0															
	25TH STREET	31ST / 36TH STREET	2,430	PCC FOUR LANE DIVIDED ARTERIAL	N/A	N/A	SIGNAL	-	\$0	\$243,400													\$243,400	
	31ST / 36TH STREET	I-29	2,639	PCC SIX LANE DIVIDED ARTERIAL	SIGNAL	N/A	N/A	-	\$0															
	I-29	38TH STREET	1,795	PCC SIX LANE DIVIDED ARTERIAL	SIGNAL	N/A	N/A	-	\$0															
	38TH STREET	42ND STREET	1,067	PCC SIX LANE DIVIDED ARTERIAL	SIGNAL	N/A	N/A	-	\$0															
	42ND STREET	45TH STREET	2,675	PCC FOUR LANE DIVIDED ARTERIAL	SIGNAL	N/A	N/A	-	\$0															
	45TH STREET	VETERANS BLVD	5,231	HBP TWO LANE ARTERIAL W/ CLTL	N/A	PCC FOUR LANE DIVIDED ARTERIAL	SIGNAL	N/A	-	\$6,015,990	\$243,400			\$1,192,660				\$120,571	\$361,712	\$6,029	\$6,029	\$1,206	\$7,947,595	
VETERANS BLVD	CR 17	5,127	HBP TWO LANE ARTERIAL	SINGLE RABT	PCC FOUR LANE DIVIDED ARTERIAL	DBL RABT	-	\$5,896,383				\$563,146		\$2,129,750				\$118,173	\$354,520	\$5,909	\$5,909	\$1,182	\$9,074,972	
	CR 17	15TH STREET W	5,504	HBP TWO LANE ARTERIAL	N/A	HBP TWO LANE ARTERIAL W/ CLTL	N/A	-	\$2,947,282										\$126,863	\$380,589	\$6,343	\$6,343	\$1,269	\$3,468,689
60TH AVE S.	38TH STREET	45TH STREET	4,049	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,168,159										\$93,326	\$279,979	\$4,666	\$4,666	\$933	\$2,551,730
	45TH STREET	48TH STREET	2,220	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$1,188,766										\$51,169	\$153,508	\$2,558	\$2,558	\$512	\$1,399,071
64TH AVE S.	UNIVERSITY DRIVE	25TH STREET	4,139	RURAL GRAVEL TWO LANE	SINGLE RABT	HBP TWO LANE ARTERIAL	N/A	-	\$2,216,352										\$95,401	\$286,202	\$4,770	\$4,770	\$954	\$2,608,449
	25TH STREET	31ST STREET	2,418	RURAL GRAVEL TWO LANE	N/A	HBP TWO LANE ARTERIAL W/ CLTL	N/A	YES	\$1,515,494				\$486,800						\$55,733	\$167,199	\$2,787	\$2,787	\$557	\$2,231,357
	31ST STREET	I-29	2,460	RURAL GRAVEL TWO LANE	N/A	HBP TWO LANE ARTERIAL W/ CLTL	N/A	-	\$1,541,817										\$56,701	\$170,103	\$2,835	\$2,835	\$567	\$1,774,859
	I-29	38TH STREET	1,575	N/A	N/A	HBP TWO LANE ARTERIAL W/ CLTL	SIGNAL	-	\$987,139	\$243,400				\$8,626,096					\$36,303	\$108,908	\$1,815	\$1,815	\$363	\$10,005,839
	38TH STREET	45TH STREET	3,943	N/A	N/A	HBP TWO LANE ARTERIAL	SIGNAL	N/A	-	\$2,111,398	\$243,400								\$90,883	\$272,649	\$4,544	\$4,544	\$909	\$2,728,327
	45TH STREET	48TH STREET	2,634	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$1,410,454										\$60,712	\$182,135	\$3,036	\$3,036	\$607	\$1,659,979
	48TH STREET	SECTION LINE	2,640	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$1,413,667										\$60,850	\$182,550	\$3,043	\$3,043	\$609	\$1,663,761
	SECTION LINE	DRAIN 27	1,141	N/A	N/A	N/A	N/A	-	\$0															
	DRAIN 27	CR 17	3,960	RURAL GRAVEL TWO LANE	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,120,501										\$91,275	\$273,825	\$4,564	\$4,564	\$913	\$2,495,641
	CR 17	9TH STREET	4,837	N/A	N/A	N/A	N/A	-	\$0															
68TH AVE S.	70TH AVE	25TH STREET	5,711	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,058,126										\$131,634	\$394,903	\$6,582	\$6,582	\$1,316	\$3,599,143
	25TH STREET	31ST STREET	3,388	N/A	N/A	N/A	N/A	-	\$0															
70TH AVE S.	38TH STREET	45TH STREET	4,028	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,156,913										\$92,842	\$278,527	\$4,642	\$4,642	\$928	\$2,538,495
	45TH STREET	48TH STREET	3,116	N/A	N/A	N/A	N/A	-	\$0															
	7TH STREET	CR 17	2,611	N/A	N/A	N/A	N/A	-	\$0															
73RD AVE S.	70TH AVE	25TH STREET	4,750	N/A	N/A	N/A	N/A	-	\$0															
	25TH STREET	31ST STREET	2,672	N/A	N/A	N/A	N/A	-	\$0															
76TH AVE S.	UNIVERSITY DRIVE	25TH STREET	5,200	RURAL HBP TWO LANE	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,784,496										\$119,856	\$359,568	\$5,993	\$5,993	\$1,199	\$3,277,104
	25TH STREET	31ST STREET	2,353	N/A	N/A	N/A	N/A	-	\$0															
	31ST STREET	I-29	2,626	N/A	N/A	N/A	N/A	-	\$0															
	I-29	38TH STREET	2,872	RURAL GRAVEL TWO LANE	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$1,537,899										\$66,197	\$198,592	\$3,310	\$3,310	\$662	\$1,809,970
	38TH STREET	45TH STREET	2,658	RURAL GRAVEL TWO LANE	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$1,423,306										\$61,265	\$183,795	\$3,063	\$3,063	\$613	\$1,675,105
	45TH STREET	48TH STREET	3,307	RURAL GRAVEL TWO LANE	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$1,770,832										\$76,224	\$228,672	\$3,811	\$3,811	\$762	\$2,084,112
	48TH STREET	VETERANS BLVD	1,977	RURAL GRAVEL TWO LANE	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$1,058,644										\$45,568	\$136,705	\$2,278	\$2,278	\$456	\$1,245,930
	VETERANS BLVD	CR 17	5,232	RURAL GRAVEL TWO LANE	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,801,631										\$120,594	\$361,781	\$6,030	\$6,030	\$1,206	\$3,297,271
80TH AVE S.	UNIVERSITY DRIVE	25TH STREET	5,446	N/A	N/A	N/A	N/A	-	\$0															
	25TH STREET	31ST STREET	3,195	N/A	N/A	N/A	N/A	-	\$0															
	38TH STREET	45TH STREET	3,975	N/A	N/A	N/A	N/A	-	\$0															
	45TH STREET	48TH STREET	2,765	N/A	N/A	N/A	N/A	-	\$0															
	48TH STREET	VETERANS BLVD	2,599	N/A	N/A	N/A	N/A	-	\$0															
88TH AVE S.	WILD RICE RIVER	25TH STREET	3,885	RURAL GRAVEL TWO LANE	N/A	N/A	N/A	-	\$0															
	25TH STREET	31ST STREET	3,275	RURAL GRAVEL TWO LANE	N/A	N/A	N/A	-	\$0															
	31ST STREET	I-29	1,747	RURAL GRAVEL TWO LANE	N/A	N/A	N/A	-	\$0															
	I-29	38TH STREET	1,576	RURAL GRAVEL TWO LANE	N/A	N/A	N/A	-	\$0															
	38TH STREET	45TH STREET	3,962	RURAL GRAVEL TWO LANE	N/A	N/A	N/A	-	\$0															
	45TH STREET	48TH STREET	3,563	RURAL GRAVEL TWO LANE	N/A	N/A	N/A	-	\$0															
	48TH STREET	VETERANS BLVD	1,711	RURAL GRAVEL TWO LANE	N/A	N/A	N/A	-	\$0															
	VETERANS BLVD	CR 17	5,292	RURAL GRAVEL TWO LANE	N/A	N/A	N/A	-	\$0															
92ND AVE	25TH STREET	31ST STREET	3,279	N/A	N/A	N/A	N/A	-	\$0															
	38TH STREET	45TH STREET	3,962	N/A	N/A	N/A	N/A	-	\$0															
	45TH STREET	48TH STREET	3,093	N/A	N/A	N/A	N/A	-	\$0															
	48TH STREET	SECTION LINE	3,072	N/A	N/A	N/A	N/A	-	\$0															
	7TH STREET	CR 17	2,853	N/A	N/A	N/A	N/A	-	\$0															
100TH AVE S.	I-29	SECTION LINE	10,386	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
	SECTION LINE	CR 17	5,315	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
	CR 17	DIVERSION	5,513	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															

SEGMENT				2015 DESIGNATION		2020 DESIGNATION																		
CORRIDOR	FROM	TO	LENGTH (FT)	ROADWAY	EXISTING INTERSECTION CONTROL	ROADWAY	PROPOSED INTERSECTION CONTROL	PROPOSED BOX CULVERT	ROADWAY	TRAFFIC SIGNAL	SINGLE ROUNDABOUT	DOUBLE ROUNDABOUT	BOX CULVERT	BRIDGE	ON/OFF RAMP	ON RAMP LOOPS	BUS SHELTER	DRAINAGE	LIGHTING	PAVEMENT MARKINGS	PERMANENT SIGNAGE	TRAFFIC CONTROL	TOTAL COST TO CONSTRUCT	
UNIVERSITY DRIVE	52ND AVE	58TH AVE	2,081	PCC TWO LANE ARTERIAL W/ CLTL	SIGNAL	N/A	N/A	-	\$0															
	58TH AVE	64TH AVE	3,236	PCC TWO LANE ARTERIAL W/ CLTL	N/A	N/A	SIGNAL	-	\$0	\$243,400													\$243,400	
	64TH AVE	BRIARWOOD	1,013	PCC TWO LANE ARTERIAL W/ CLTL	N/A	N/A	N/A	-	\$0															
	BRIARWOOD	70TH AVE	1,874	HBP TWO LANE ARTERIAL	N/A	PCC TWO LANE ARTERIAL W/ CLTL	SIGNAL	-	\$1,299,975	\$243,400								\$43,194	\$129,583	\$2,160	\$2,160	\$432	\$1,720,904	
	70TH AVE	76TH AVE	2,577	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
17TH ST S.	73RD AVE	76TH AVE	1,313	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$703,085										\$30,264	\$90,791	\$1,513	\$1,513	\$303	\$827,469
	76TH AVE	80TH AVE	2,714	N/A	N/A	N/A	N/A	-	\$0															
	80TH AVE	88TH AVE	2,924	N/A	N/A	N/A	N/A	-	\$0															
25TH ST S.	52ND AVE	58TH AVE	2,753	PCC TWO LANE ARTERIAL W/ CLTL	SINGLE RABT	N/A	N/A	-	\$0															
	58TH AVE	64TH AVE	2,213	PCC TWO LANE ARTERIAL W/ CLTL	SINGLE RABT	N/A	N/A	-	\$0															
	64TH AVE	70TH AVE	2,516	PCC TWO LANE ARTERIAL W/ CLTL	SINGLE RABT	N/A	N/A	-	\$0															
	70TH AVE	73RD AVE	1,245	PCC TWO LANE ARTERIAL W/ CLTL	N/A	N/A	N/A	-	\$0															
	73RD AVE	76TH AVE	1,327	HBP TWO LANE ARTERIAL	N/A	PCC TWO LANE ARTERIAL W/ CLTL	N/A	-	\$920,527										\$30,586	\$91,759	\$1,529	\$1,529	\$306	\$1,046,237
	76TH AVE	80TH AVE	2,633	N/A	N/A	N/A	N/A	-	\$0															
	80TH AVE	88TH AVE	2,645	N/A	N/A	N/A	N/A	-	\$0															
	88TH AVE	92TH AVE	2,638	N/A	N/A	N/A	N/A	-	\$0															
	92TH AVE	100TH AVE	3,653	N/A	N/A	N/A	N/A	-	\$0															
31ST ST S.	52ND AVE	64TH AVE	5,283	N/A	N/A	HBP TWO LANE ARTERIAL	SIGNAL	-	\$2,828,941	\$243,400									\$121,769	\$365,307	\$6,088	\$6,088	\$1,218	\$3,572,812
	64TH AVE	76TH AVE	6,067	N/A	N/A	N/A	N/A	-	\$0															
	76TH AVE	80TH AVE	2,726	N/A	N/A	N/A	N/A	-	\$0															
	80TH AVE	88TH AVE	2,726	N/A	N/A	N/A	N/A	-	\$0															
	88TH AVE	92TH AVE	2,669	N/A	N/A	N/A	N/A	-	\$0															
	92TH AVE	100TH AVE	2,635	N/A	N/A	N/A	N/A	-	\$0															
38TH ST S.	52ND AVE	42ND ST/55TH AVE	1,872	PCC FOUR LANE DIVIDED ARTERIAL	N/A	N/A	SIGNAL	-	\$0	\$243,400													\$243,400	
	42ND ST/55TH AVE	64TH AVE	3,393	N/A	N/A	PCC FOUR LANE DIVIDED ARTERIAL	SIGNAL	-	\$3,902,171	\$243,400									\$78,206	\$234,618	\$3,910	\$3,910	\$782	\$4,466,998
	64TH AVE	70TH AVE	2,657	N/A	N/A	HBP TWO LANE ARTERIAL W/ CLTL	SIGNAL	-	\$1,665,288										\$61,242	\$183,726	\$3,062	\$3,062	\$612	\$1,916,992
	70TH AVE	76TH AVE	3,211	N/A	N/A	HBP TWO LANE ARTERIAL W/ CLTL	N/A	-	\$2,012,510										\$74,011	\$222,033	\$3,701	\$3,701	\$740	\$2,316,696
	76TH AVE	80TH AVE	3,061	N/A	N/A	N/A	N/A	-	\$0															
	80TH AVE	88TH AVE	2,689	N/A	N/A	N/A	N/A	-	\$0															
	88TH AVE	90TH AVE	1,247	N/A	N/A	N/A	N/A	-	\$0															
	90TH AVE	100TH AVE	4,683	N/A	N/A	N/A	N/A	-	\$0															
45TH ST S.	52ND AVE	60TH AVE	3,063	N/A	N/A	PCC TWO LANE ARTERIAL W/ CLTL	SIGNAL	-	\$2,124,772	\$243,400									\$70,600	\$211,799	\$3,530	\$3,530	\$706	\$2,658,338
	60TH AVE	64TH AVE	2,113	N/A	N/A	PCC TWO LANE ARTERIAL W/ CLTL	SIGNAL	-	\$1,465,767	\$243,400									\$48,703	\$146,109	\$2,435	\$2,435	\$487	\$1,909,337
	64TH AVE	70TH AVE	3,189	N/A	N/A	PCC TWO LANE ARTERIAL W/ CLTL	N/A	-	\$2,212,177										\$73,504	\$220,512	\$3,675	\$3,675	\$735	\$2,514,279
	70TH AVE	76TH AVE	2,107	N/A	N/A	N/A	N/A	-	\$0															
	76TH AVE	80TH AVE	2,341	N/A	N/A	N/A	N/A	-	\$0															
	80TH AVE	88TH AVE	2,965	N/A	N/A	N/A	N/A	-	\$0															
	88TH AVE	90TH AVE	1,320	N/A	N/A	N/A	N/A	-	\$0															
	90TH AVE	100TH AVE	3,992	N/A	N/A	N/A	N/A	-	\$0															
48TH ST S.	52ND AVE	60TH AVE	2,718	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$1,455,435										\$62,648	\$187,944	\$3,132	\$3,132	\$626	\$1,712,917
	60TH AVE	64TH AVE	2,770	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$1,483,280										\$63,846	\$191,539	\$3,192	\$3,192	\$638	\$1,745,688
	64TH AVE	70TH AVE	2,703	N/A	N/A	N/A	N/A	-	\$0															
	70TH AVE	76TH AVE	2,667	N/A	N/A	N/A	N/A	-	\$0															
	76TH AVE	80TH AVE	2,775	N/A	N/A	N/A	N/A	-	\$0															
	80TH AVE	88TH AVE	2,964	N/A	N/A	N/A	N/A	-	\$0															
	88TH AVE	90TH AVE	2,856	N/A	N/A	N/A	N/A	-	\$0															
	90TH AVE	100TH AVE	2703	N/A	N/A	N/A	N/A	-	\$0															
	VETERANS BLVD	52ND AVE	64TH AVE	5,209	N/A	N/A	N/A	N/A	-	\$0														
64TH AVE		76TH AVE	5,281	N/A	N/A	N/A	N/A	-	\$0															
76TH AVE		88TH AVE	5,302	N/A	N/A	N/A	N/A	-	\$0															
88TH AVE		100TH AVE	5,330	N/A	N/A	N/A	N/A	-	\$0															
7TH ST.	64TH AVE	70TH AVE	2,734	N/A	N/A	N/A	N/A	-	\$0															
	70TH AVE	76TH AVE	2,646	N/A	N/A	N/A	N/A	-	\$0															
	76TH AVE	88TH AVE	5,433	N/A	N/A	N/A	N/A	-	\$0															
	92ND AVE	100TH AVE	1,515	N/A	N/A	N/A	N/A	-	\$0															
CR 17	52ND AVE	64TH AVE	4,852	N/A	N/A	N/A	N/A	-	\$0															
	64TH AVE	70TH AVE	2,734	N/A	N/A	N/A	N/A	-	\$0															
	70TH AVE	76TH AVE	2,646	N/A	N/A	N/A	N/A	-	\$0															
9TH ST	52ND AVE	64TH AVE	5,309	N/A	N/A	N/A	N/A	-	\$0															
	64TH AVE	76TH AVE	5,320	N/A	N/A	N/A	N/A	-	\$0															
	76TH AVE	88TH AVE	5,311	N/A	N/A	N/A	N/A	-	\$0															

[illegible]

SEGMENT				2020 DESIGNATION			2030 DESIGNATION																	
CORRIDOR	FROM	TO	LENGTH (FT)	ROADWAY	PROPOSED INTERSECTION CONTROL	ROADWAY	PROPOSED INTERSECTION CONTROL	PROPOSED BOX CULVERT	ROADWAY	TRAFFIC SIGNAL	SINGLE ROUNDABOUT	DOUBLE ROUNDABOUT	BOX CULVERT	BRIDGE	ON/OFF RAMPS	ON RAMP LOOP	BUS SHELTER	DRAINAGE	LIGHTING	PAVEMENT MARKINGS	PERMANENT SIGNAGE	TRAFFIC CONTROL	TOTAL COST TO CONSTRUCT	
UNIVERSITY DRIVE	52ND AVE	58TH AVE	2,081	N/A	N/A	N/A	N/A	-	\$0															
	58TH AVE	64TH AVE	3,236	N/A	SIGNAL	N/A	N/A	-	\$0															
	64TH AVE	BRIARWOOD	1,013	N/A	N/A	N/A	N/A	-	\$0															
	BRIARWOOD	70TH AVE	1,874	PCC TWO LANE ARTERIAL W/ CLTL	SIGNAL	N/A	N/A	-	\$0															
	70TH AVE	76TH AVE	2,577	N/A	N/A	N/A	N/A	-	\$0															
17TH ST S.	73RD AVE	76TH AVE	1,313	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
	76TH AVE	80TH AVE	2,714	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,150,682									\$92,574	\$277,722	\$4,629	\$4,629	\$926	\$2,531,162	
	80TH AVE	88TH AVE	2,924	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,317,095									\$99,737	\$299,212	\$4,987	\$4,987	\$997	\$2,727,014	
25TH ST S.	52ND AVE	58TH AVE	2,753	N/A	N/A	PCC FIVE LANE ARTERIAL	DBL RABT	-	\$3,867,359			\$257,062						\$93,904	\$281,713	\$4,695	\$4,695	\$939	\$4,510,369	
	58TH AVE	64TH AVE	2,213	N/A	N/A	PCC FIVE LANE ARTERIAL	DBL RABT	-	\$3,108,778			\$257,062						\$75,485	\$226,455	\$3,774	\$3,774	\$755	\$3,676,084	
	64TH AVE	70TH AVE	2,516	N/A	N/A	N/A	N/A	-	\$0															
	70TH AVE	73RD AVE	1,245	N/A	N/A	N/A	N/A	-	\$0															
	73RD AVE	76TH AVE	1,327	PCC TWO LANE ARTERIAL W/ CLTL	N/A	N/A	SIGNAL	-	\$0	\$360,200													\$360,200	
	76TH AVE	80TH AVE	2,633	N/A	N/A	N/A	N/A	-	\$0															
	80TH AVE	88TH AVE	2,645	N/A	N/A	N/A	N/A	-	\$0															
	88TH AVE	92TH AVE	2,638	N/A	N/A	N/A	N/A	-	\$0															
	92TH AVE	100TH AVE	3,653	N/A	N/A	N/A	N/A	-	\$0															
31ST ST S.	52ND AVE	64TH AVE	5,283	HBP TWO LANE ARTERIAL	SIGNAL	N/A	N/A	-	\$0															
	64TH AVE	76TH AVE	6,067	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	YES	\$4,807,733				\$720,400					\$206,944	\$620,833	\$10,347	\$10,347	\$2,069	\$6,378,675	
	76TH AVE	80TH AVE	2,726	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,160,191									\$92,983	\$278,950	\$4,649	\$4,649	\$930	\$2,542,353	
	80TH AVE	88TH AVE	2,726	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,160,191									\$92,983	\$278,950	\$4,649	\$4,649	\$930	\$2,542,353	
	88TH AVE	92TH AVE	2,669	N/A	N/A	N/A	N/A	-	\$0															
	92TH AVE	100TH AVE	2,635	N/A	N/A	N/A	N/A	-	\$0															
38TH ST S.	52ND AVE	42ND ST/55TH AVE	1,872	N/A	SIGNAL	N/A	N/A	-	\$0															
	42ND ST/55TH AVE	64TH AVE	3,393	PCC FOUR LANE DIVIDED ARTERIAL	SIGNAL	N/A	N/A	-	\$0															
	64TH AVE	70TH AVE	2,657	HBP TWO LANE ARTERIAL W/ CLTL	SIGNAL	PCC FOUR LANE DIVIDED ARTERIAL	N/A	-	\$4,522,068	\$360,200								\$90,630	\$271,890	\$4,531	\$4,531	\$906	\$5,254,757	
	70TH AVE	76TH AVE	3,211	HBP TWO LANE ARTERIAL W/ CLTL	N/A	PCC FOUR LANE DIVIDED ARTERIAL	N/A	-	\$5,464,945									\$109,527	\$328,580	\$5,476	\$5,476	\$1,095	\$5,915,100	
	76TH AVE	80TH AVE	3,061	N/A	N/A	HBP TWO LANE ARTERIAL W/ CLTL	N/A	-	\$2,839,123									\$104,410	\$313,231	\$5,221	\$5,221	\$1,044	\$3,268,250	
	80TH AVE	88TH AVE	2,689	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,130,871									\$91,721	\$275,164	\$4,586	\$4,586	\$917	\$2,507,846	
	88TH AVE	90TH AVE	1,247	N/A	N/A	N/A	N/A	-	\$0															
	90TH AVE	100TH AVE	4,683	N/A	N/A	N/A	N/A	-	\$0															
45TH ST S.	52ND AVE	60TH AVE	3,063	PCC TWO LANE ARTERIAL W/ CLTL	SIGNAL	PCC SIX LANE DIVIDED ARTERIAL	N/A	-	\$3,199,549									\$104,478	\$313,435	\$5,224	\$5,224	\$1,045	\$3,628,955	
	60TH AVE	64TH AVE	2,113	PCC TWO LANE ARTERIAL W/ CLTL	SIGNAL	PCC SIX LANE DIVIDED ARTERIAL	N/A	-	\$2,207,198									\$72,074	\$216,222	\$3,604	\$3,604	\$721	\$2,503,422	
	64TH AVE	70TH AVE	3,189	PCC TWO LANE ARTERIAL W/ CLTL	N/A	N/A	SIGNAL	-	\$0	\$360,200													\$360,200	
	70TH AVE	76TH AVE	2,107	N/A	N/A	PCC TWO LANE ARTERIAL W/ CLTL	N/A	-	\$2,162,983															
	76TH AVE	80TH AVE	2,341	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,403,200									\$71,869	\$215,608	\$3,593	\$3,593	\$719	\$2,458,366	
	80TH AVE	88TH AVE	2,965	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,043,780									\$79,851	\$239,553	\$3,993	\$3,993	\$799	\$2,731,389	
	88TH AVE	90TH AVE	1,320	N/A	N/A	N/A	N/A	-	\$0									\$101,136	\$303,407	\$5,057	\$5,057	\$1,011	\$3,459,448	
	90TH AVE	100TH AVE	3,992	N/A	N/A	N/A	N/A	-	\$0															
48TH ST S.	52ND AVE	60TH AVE	2,718	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
	60TH AVE	64TH AVE	2,770	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
	64TH AVE	70TH AVE	2,703	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,141,965									\$92,199	\$276,597	\$4,610	\$4,610	\$922	\$2,520,903	
	70TH AVE	76TH AVE	2,667	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,113,437										\$90,971	\$272,913	\$4,549	\$4,549	\$910	\$2,487,328
	76TH AVE	80TH AVE	2,775	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,199,021										\$94,655	\$283,964	\$4,733	\$4,733	\$947	\$2,588,052
	80TH AVE	88TH AVE	2,964	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,348,792										\$101,102	\$303,305	\$5,055	\$5,055	\$1,011	\$2,764,320
	88TH AVE	90TH AVE	2,856	N/A	N/A	N/A	N/A	-	\$0															
	90TH AVE	100TH AVE	2703	N/A	N/A	N/A	N/A	-	\$0															
VETERANS BLVD	52ND AVE	64TH AVE	5,209	N/A	N/A	N/A	N/A	-	\$0															
	64TH AVE	76TH AVE	5,281	N/A	N/A	N/A	N/A	-	\$0															
	76TH AVE	88TH AVE	5,302	N/A	N/A	N/A	N/A	-	\$0															
	88TH AVE	100TH AVE	5,330	N/A	N/A	N/A	N/A	-	\$0															
7TH ST.	64TH AVE	70TH AVE	2,734	N/A	N/A	N/A	N/A	-	\$0															
	70TH AVE	76TH AVE	2,646	N/A	N/A	N/A	N/A	-	\$0															
	76TH AVE	88TH AVE	5,433	N/A	N/A	N/A	N/A	-	\$0															
	92ND AVE	100TH AVE	1,515	N/A	N/A	N/A	N/A	-	\$0															
CR 17	52ND AVE	64TH AVE	4,852	N/A	N/A	HBP TWO LANE ARTERIAL W/ CLTL	N/A	-	\$4,500,303									\$165,501	\$496,503	\$8,275	\$8,275	\$1,655	\$5,180,512	
	64TH AVE	70TH AVE	2,734	N/A	N/A	N/A	N/A	-	\$0															
	70TH AVE	76TH AVE	2,646	N/A	N/A	N/A	N/A	-	\$0															
9TH ST	52ND AVE	64TH AVE	5,309	N/A	N/A	N/A	N/A	-	\$0															
	64TH AVE	76TH AVE	5,320	N/A	N/A	N/A	N/A	-	\$0															
	76TH AVE	88TH AVE	5,311	N/A	N/A	N/A	N/A	-	\$0															

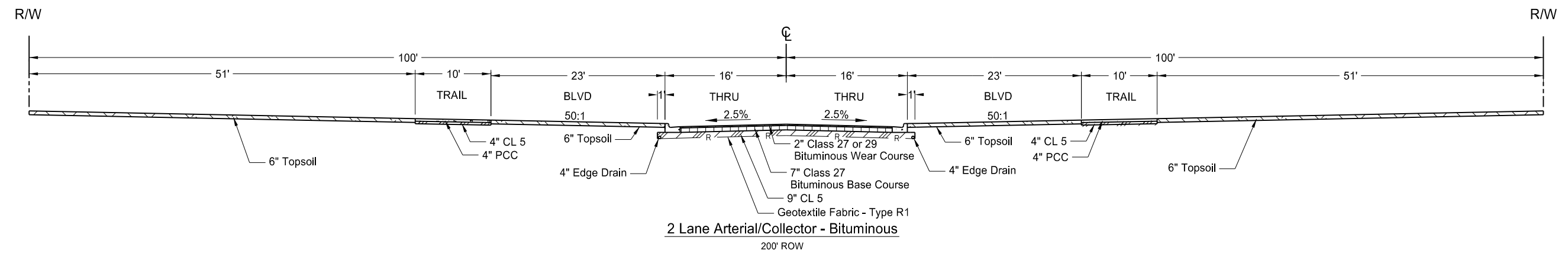
SEGMENT				2030 DESIGNATION			2040 DESIGNATION																		
CORRIDOR	FROM	TO	LENGTH (FT)	ROADWAY	PROPOSED INTERSECTION CONTROL	ROADWAY	PROPOSED INTERSECTION CONTROL	PROPOSED BOX CULVERT	ROADWAY	TRAFFIC SIGNAL	SINGLE ROUNDBABOUT	DOUBLE ROUNDBABOUT	BOX CULVERT	BRIDGE	ON/OFF RAMPS	ON RAMP LOOP	BUS SHELTER	DRAINAGE	LIGHTING	PAVEMENT MARKINGS	PERMANENT SIGNAGE	TRAFFIC CONTROL	TOTAL COST TO CONSTRUCT		
52ND AVE S.	RED RIVER	UNIVERSITY DRIVE	1,691	PCC FOUR LANE DIVIDED ARTERIAL - 900 FT	N/A	PCC FOUR LANE DIVIDED ARTERIAL - 900 FT	N/A	-	\$2,998,983					\$30,083,144				\$45,443	\$136,330	\$2,272	\$2,272	\$454	\$33,268,899		
	UNIVERSITY DRIVE	25TH STREET	3,544	N/A	N/A	N/A	N/A	-	\$0																
	25TH STREET	31ST / 36TH STREET	2,430	N/A	N/A	N/A	N/A	-	\$0																
	31ST / 36TH STREET	I-29	2,639	N/A	N/A	N/A	N/A	-	\$0																
	I-29	38TH STREET	1,795	N/A	N/A	N/A	N/A	-	\$0																
	38TH STREET	42ND STREET	1,067	N/A	N/A	N/A	N/A	-	\$0																
	42ND STREET	45TH STREET	2,675	N/A	N/A	N/A	N/A	-	\$0																
	45TH STREET	VETERANS BLVD	5,231	N/A	N/A	N/A	N/A	-	\$0																
VETERANS BLVD	CR 17	5,127	N/A	N/A	N/A	N/A	-	\$0																	
	CR 17	15TH STREET W	5,504	N/A	N/A	N/A	N/A	-	\$0																
60TH AVE S.	38TH STREET	45TH STREET	4,049	N/A	N/A	N/A	N/A	-	\$0																
	45TH STREET	48TH STREET	2,220	N/A	N/A	N/A	N/A	-	\$0																
64TH AVE S.	UNIVERSITY DRIVE	25TH STREET	4,139	N/A	N/A	N/A	N/A	-	\$0																
	25TH STREET	31ST STREET	2,418	N/A	N/A	N/A	N/A	-	\$0																
	31ST STREET	I-29	2,460	N/A	N/A	N/A	N/A	-	\$0																
	I-29	38TH STREET	1,575	N/A	N/A	N/A	N/A	-	\$0																
	38TH STREET	45TH STREET	3,943	HBP TWO LANE ARTERIAL W/ CLTL	N/A	N/A	N/A	-	\$0																
	45TH STREET	48TH STREET	2,634	N/A	N/A	N/A	N/A	-	\$0																
	48TH STREET	SECTION LINE	2,640	N/A	N/A	N/A	N/A	-	\$0																
	SECTION LINE	DRAIN 27	1,141	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	YES	\$1,338,439				\$1,066,400					\$57,612	\$172,836	\$2,881	\$2,881	\$576	\$2,641,623		
	DRAIN 27	CR 17	3,960	N/A	N/A	N/A	N/A	-	\$0																
CR 17	9TH STREET	4,837	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$5,673,994					\$4,665,500					\$244,232	\$732,696	\$12,212	\$12,212	\$2,442	\$11,343,287		
68TH AVE S.	70TH AVE	25TH STREET	5,711	N/A	N/A	N/A	N/A	-	\$0																
	25TH STREET	31ST STREET	3,388	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0																
70TH AVE S.	38TH STREET	45TH STREET	4,028	N/A	N/A	N/A	N/A	-	\$0																
	45TH STREET	48TH STREET	3,116	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0																
	7TH STREET	CR 17	2,611	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,062,807									\$131,836	\$395,507	\$6,592	\$6,592	\$1,318	\$3,604,652		
73RD AVE S.	70TH AVE	25TH STREET	4,750	N/A	N/A	N/A	N/A	-	\$0																
	25TH STREET	31ST STREET	2,672	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0																
76TH AVE S.	UNIVERSITY DRIVE	25TH STREET	5,200	N/A	N/A	N/A	N/A	-	\$0																
	25TH STREET	31ST STREET	2,353	HBP TWO LANE ARTERIAL W/ CLTL	SIGNAL	N/A	N/A	-	\$0																
	31ST STREET	I-29	2,626	PCC FOUR LANE DIVIDED ARTERIAL	N/A	N/A	N/A	-	\$0																
	I-29	38TH STREET	2,872	PCC FOUR LANE DIVIDED ARTERIAL	SIGNAL	PCC 6 LANE DIVIDED	N/A	-	\$1,569,634							\$4,406,898		\$145,014	\$435,043	\$7,251	\$7,251	\$1,450	\$6,572,541		
	38TH STREET	45TH STREET	2,658	PCC FOUR LANE DIVIDED ARTERIAL	SIGNAL	N/A	N/A	-	\$0																
	45TH STREET	48TH STREET	3,307	PCC FOUR LANE DIVIDED ARTERIAL	SIGNAL	N/A	N/A	-	\$0																
	48TH STREET	VETERANS BLVD	1,977	N/A	N/A	PCC TWO LANE ARTERIAL W/ CLTL	N/A	-	\$3,004,289									\$99,824	\$299,471	\$4,991	\$4,991	\$998	\$3,414,563		
	VETERANS BLVD	CR 17	5,232	N/A	N/A	PCC TWO LANE ARTERIAL W/ CLTL	N/A	-	\$7,950,652									\$264,176	\$792,529	\$13,209	\$13,209	\$2,642	\$9,036,417		
80TH AVE S.	UNIVERSITY DRIVE	25TH STREET	5,446	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0																
	25TH STREET	31ST STREET	3,195	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0																
	38TH STREET	45TH STREET	3,975	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0																
	45TH STREET	48TH STREET	2,765	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0																
	48TH STREET	VETERANS BLVD	2,599	N/A	N/A	N/A	N/A	-	\$0																
88TH AVE S.	WILD RICE RIVER	25TH STREET	3,885	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$4,557,260									\$196,163	\$588,489	\$9,808	\$9,808	\$1,962	\$5,363,491		
	25TH STREET	31ST STREET	3,275	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,841,706									\$165,363	\$496,088	\$8,268	\$8,268	\$1,654	\$4,521,347		
	31ST STREET	I-29	1,747	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,049,301									\$88,210	\$264,631	\$4,411	\$4,411	\$882	\$2,411,845		
	I-29	38TH STREET	1,576	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$1,848,711									\$79,576	\$238,728	\$3,979	\$3,979	\$796	\$2,175,769		
	38TH STREET	45TH STREET	3,962	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$4,647,584									\$200,051	\$600,153	\$10,003	\$10,003	\$2,001	\$5,469,794		
	45TH STREET	48TH STREET	3,563	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$4,179,542									\$179,905	\$539,714	\$8,995	\$8,995	\$1,799	\$4,918,949		
	48TH STREET	VETERANS BLVD	1,711	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$2,007,071									\$86,393	\$259,178	\$4,320	\$4,320	\$864	\$2,362,145		
	VETERANS BLVD	CR 17	5,292	N/A	N/A	HBP TWO LANE ARTERIAL	SIGNAL	YES	\$6,207,728	\$533,200				\$1,066,400				\$267,206	\$801,618	\$13,360	\$13,360	\$2,672	\$8,905,544		
92ND AVE	25TH STREET	31ST STREET	3,279	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,846,398									\$165,565	\$496,694	\$8,278	\$8,278	\$1,656	\$4,526,869		
	38TH STREET	45TH STREET	3,962	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$4,647,584									\$200,051	\$600,153	\$10,003	\$10,003	\$2,001	\$5,469,794		
	45TH STREET	48TH STREET	3,093	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,628,213									\$156,173	\$468,519	\$7,809	\$7,809	\$1,562	\$4,270,084		
	48TH STREET	SECTION LINE	3,072	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,603,579									\$155,113	\$465,338	\$7,756	\$7,756	\$1,551	\$4,241,092		
	7TH STREET	CR 17	2,853	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,346,683									\$144,055	\$432,165	\$7,203	\$7,203	\$1,441	\$3,938,749		
100TH AVE S.	I-29	SECTION LINE	10,386	MILL AND OVERLAY	N/A	PCC FOUR LANE DIVIDED ARTERIAL (600 LF)	N/A	-	\$1,511,622					\$11,346,496	\$3,549,771			\$30,295	\$90,886	\$1,515	\$1,515	\$303	\$16,532,403		
	SECTION LINE	CR 17	5,315	MILL AND OVERLAY	N/A	N/A	N/A	-	\$0																
	CR 17	DIVERSION	5,513	MILL AND OVERLAY	N/A	N/A	N/A	-	\$0																

SEGMENT				2030 DESIGNATION		2040 DESIGNATION																		
CORRIDOR	FROM	TO	LENGTH (FT)	ROADWAY	PROPOSED INTERSECTION CONTROL	ROADWAY	PROPOSED INTERSECTION CONTROL	PROPOSED BOX CULVERT	ROADWAY	TRAFFIC SIGNAL	SINGLE ROUNDABOUT	DOUBLE ROUNDABOUT	BOX CULVERT	BRIDGE	ON/OFF RAMPS	ON RAMP LOOP	BUS SHELTER	DRAINAGE	LIGHTING	PAVEMENT MARKINGS	PERMANENT SIGNAGE	TRAFFIC CONTROL	TOTAL COST TO CONSTRUCT	
UNIVERSITY DRIVE	52ND AVE	58TH AVE	2,081	N/A	N/A	N/A	N/A	-	\$0															
	58TH AVE	64TH AVE	3,236	N/A	N/A	N/A	N/A	-	\$0															
	64TH AVE	BRIARWOOD	1,013	N/A	N/A	N/A	N/A	-	\$0															
	BRIARWOOD	70TH AVE	1,874	N/A	N/A	N/A	N/A	-	\$0															
	70TH AVE	76TH AVE	2,577	N/A	N/A	N/A	N/A	-	\$0															
17TH ST S.	73RD AVE	76TH AVE	1,313	N/A	N/A	N/A	N/A	-	\$0															
	76TH AVE	80TH AVE	2,714	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
	80TH AVE	88TH AVE	2,924	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
25TH ST S.	52ND AVE	58TH AVE	2,753	PCC FIVE LANE ARTERIAL	DBL RABT	N/A	N/A	-	\$0															
	58TH AVE	64TH AVE	2,213	PCC FIVE LANE ARTERIAL	DBL RABT	N/A	N/A	-	\$0															
	64TH AVE	70TH AVE	2,516	N/A	N/A	PCC FIVE LANE ARTERIAL	DBL RABT	N/A	\$3,797,852			\$380,526						\$127,039	\$381,117	\$6,352	\$6,352	\$1,270	\$4,700,508	
	70TH AVE	73RD AVE	1,245	N/A	N/A	PCC FIVE LANE ARTERIAL	N/A	-	\$1,879,303										\$62,863	\$188,589	\$3,143	\$3,143	\$629	\$2,137,670
	73RD AVE	76TH AVE	1,327	N/A	SIGNAL	PCC FIVE LANE ARTERIAL	N/A	-	\$1,838,943										\$67,003	\$201,010	\$3,350	\$3,350	\$670	\$2,114,327
	76TH AVE	80TH AVE	2,633	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,088,614										\$132,947	\$398,840	\$6,647	\$6,647	\$1,329	\$3,635,025
	80TH AVE	88TH AVE	2,645	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,102,691										\$133,552	\$400,657	\$6,678	\$6,678	\$1,336	\$3,651,591
	88TH AVE	92TH AVE	2,638	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,094,480										\$133,199	\$399,597	\$6,660	\$6,660	\$1,332	\$3,641,927
	92TH AVE	100TH AVE	3,653	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$4,285,115										\$184,449	\$553,346	\$9,222	\$9,222	\$1,844	\$5,043,200
31ST ST S.	52ND AVE	64TH AVE	5,283	N/A	N/A	N/A	N/A	-	\$0															
	64TH AVE	76TH AVE	6,067	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
	76TH AVE	80TH AVE	2,726	HBP TWO LANE ARTERIAL	N/A	PCC TWO LANE ARTERIAL W/ CLTL	N/A	-	\$4,142,484										\$137,642	\$412,927	\$6,882	\$6,882	\$1,376	\$4,708,194
	80TH AVE	88TH AVE	2,726	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
	88TH AVE	92TH AVE	2,669	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,130,844										\$134,764	\$404,293	\$6,738	\$6,738	\$1,348	\$3,684,725
	92TH AVE	100TH AVE	2,635	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,090,960										\$133,048	\$399,143	\$6,652	\$6,652	\$1,330	\$3,637,786
38TH ST S.	52ND AVE	42ND ST/55TH AVE	1,872	N/A	N/A	N/A	N/A	-	\$0															
	42ND ST/55TH AVE	64TH AVE	3,393	N/A	N/A	N/A	N/A	-	\$0															
	64TH AVE	70TH AVE	2,657	PCC FOUR LANE DIVIDED ARTERIAL	N/A	N/A	N/A	-	\$0															
	70TH AVE	76TH AVE	3,211	PCC FOUR LANE DIVIDED ARTERIAL	N/A	N/A	N/A	-	\$0															
	76TH AVE	80TH AVE	3,061	HBP TWO LANE ARTERIAL W/ CLTL	N/A	PCC FOUR LANE DIVIDED ARTERIAL	N/A	-	\$7,711,792										\$154,557	\$463,672	\$7,728	\$7,728	\$1,546	\$8,347,022
	80TH AVE	88TH AVE	2,689	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
	88TH AVE	90TH AVE	1,247	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$1,462,781										\$62,964	\$188,892	\$3,148	\$3,148	\$630	\$1,721,563
	90TH AVE	100TH AVE	4,683	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$5,493,346										\$236,456	\$709,368	\$11,823	\$11,823	\$2,365	\$6,465,181
45TH ST S.	52ND AVE	60TH AVE	3,063	PCC SIX LANE DIVIDED ARTERIAL	N/A	N/A	N/A	-	\$0															
	60TH AVE	64TH AVE	2,113	PCC SIX LANE DIVIDED ARTERIAL	N/A	N/A	N/A	-	\$0															
	64TH AVE	70TH AVE	3,189	N/A	SIGNAL	PCC SIX LANE DIVIDED ARTERIAL	N/A	-	\$4,931,087										\$161,020	\$483,061	\$8,051	\$8,051	\$1,610	\$5,592,881
	70TH AVE	76TH AVE	2,107	PCC TWO LANE ARTERIAL W/ CLTL	N/A	PCC SIX LANE DIVIDED ARTERIAL	N/A	-	\$3,258,012										\$106,388	\$319,163	\$5,319	\$5,319	\$1,064	\$3,695,265
	76TH AVE	80TH AVE	2,341	HBP TWO LANE ARTERIAL	N/A	PCC TWO LANE ARTERIAL W/ CLTL	N/A	-	\$3,557,430	\$533,200									\$118,203	\$354,608	\$5,910	\$5,910	\$1,182	\$4,576,444
	80TH AVE	88TH AVE	2,965	HBP TWO LANE ARTERIAL	N/A	PCC TWO LANE ARTERIAL W/ CLTL	SIGNAL	-	\$4,505,673	\$533,200									\$149,710	\$449,130	\$7,486	\$7,486	\$1,497	\$5,654,182
	88TH AVE	90TH AVE	1,320	N/A	N/A	PCC TWO LANE ARTERIAL W/ CLTL	SIGNAL	-	\$2,005,898										\$66,650	\$199,950	\$3,333	\$3,333	\$667	\$2,279,830
	90TH AVE	100TH AVE	3,992	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$4,682,776										\$201,566	\$604,697	\$10,078	\$10,078	\$2,016	\$5,511,211
48TH ST S.	52ND AVE	60TH AVE	2,718	N/A	N/A	N/A	N/A	-	\$0															
	60TH AVE	64TH AVE	2,770	N/A	N/A	N/A	N/A	-	\$0															
	64TH AVE	70TH AVE	2,703	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
	70TH AVE	76TH AVE	2,667	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
	76TH AVE	80TH AVE	2,775	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
	80TH AVE	88TH AVE	2,964	HBP TWO LANE ARTERIAL	N/A	N/A	N/A	-	\$0															
	88TH AVE	90TH AVE	2,856	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,350,202										\$144,206	\$432,619	\$7,210	\$7,210	\$1,442	\$3,942,890
	90TH AVE	100TH AVE	2703	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,170,727										\$136,481	\$409,443	\$6,824	\$6,824	\$1,365	\$3,731,664
VETERANS BLVD	52ND AVE	64TH AVE	5,209	N/A	N/A	PCC FOUR LANE DIVIDED ARTERIAL	DOUBLE RABT	YES	\$13,123,398			\$1,233,646	\$2,132,800						\$263,015	\$789,045	\$13,151	\$13,151	\$2,630	\$17,570,836
	64TH AVE	76TH AVE	5,281	N/A	N/A	PCC FOUR LANE DIVIDED ARTERIAL	DOUBLE RABT	-	\$13,304,793			\$1,233,646							\$266,650	\$799,951	\$13,333	\$13,333	\$2,667	\$15,634,373
	76TH AVE	88TH AVE	5,302	N/A	N/A	PCC TWO LANE ARTERIAL W/ CLTL	SINGLE RABT	-	\$8,057,025		\$853,120								\$267,711	\$803,133	\$13,386	\$13,386	\$2,677	\$10,010,437
	88TH AVE	100TH AVE	5,330	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$6,252,303										\$269,125	\$807,374	\$13,456	\$13,456	\$2,691	\$7,358,405
7TH ST.	64TH AVE	70TH AVE	2,734	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,207,091										\$138,046	\$414,139	\$6,902	\$6,902	\$1,380	\$3,774,462
	70TH AVE	76TH AVE	2,646	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$3,103,864										\$133,603	\$400,809	\$6,680	\$6,680	\$1,336	\$3,652,972
	76TH AVE	88TH AVE	5,433	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$6,373,126										\$274,325	\$822,976	\$13,716	\$13,716	\$2,743	\$7,500,603
	92ND AVE	100TH AVE	1,515	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$1,777,156										\$76,496	\$229,488	\$3,825	\$3,825	\$765	\$2,091,554
CR 17	52ND AVE	64TH AVE	4,852	HBP TWO LANE ARTERIAL W/ CLTL	N/A	N/A	SIGNAL	-	\$0	\$533,200													\$533,200	
	64TH AVE	70TH AVE	2,734	N/A	N/A	HBP TWO LANE ARTERIAL W/ CLTL	N/A	-	\$3,753,755										\$138,046	\$414,139	\$6,902	\$6,902	\$1,380	\$4,321,125
	70TH AVE	76TH AVE	2,646	N/A	N/A	HBP TWO LANE ARTERIAL W/ CLTL	SIGNAL	-	\$3,632,932	\$533,200									\$133,603	\$400,809	\$6,680	\$6,680	\$1,336	\$4,715,240
9TH ST	52ND AVE	64TH AVE	5,309	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$6,227,669										\$268,064	\$804,193	\$13,403	\$13,403	\$2,681	\$7,329,414
	64TH AVE	76TH AVE	5,320	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$6,240,573										\$268,620	\$805,859	\$13,431	\$13,431	\$2,686	\$7,344,600
	76TH AVE	88TH AVE	5,311	N/A	N/A	HBP TWO LANE ARTERIAL	N/A	-	\$6,230,015	</														

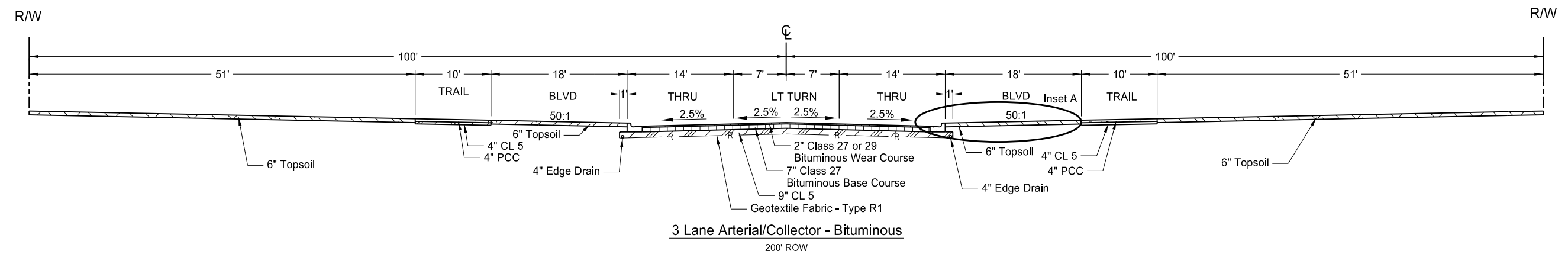
## Appendix C – 76<sup>th</sup> Avenue Corridor Concept



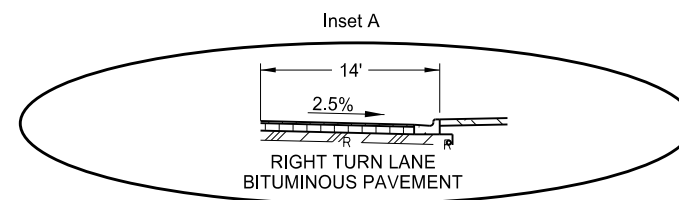
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	project number	30	1



76th Avenue South 1+90.51 to 19+54.32  
25th Street (South of 76th Avenue)



CR 17  
45th Street (South of 76th Avenue)

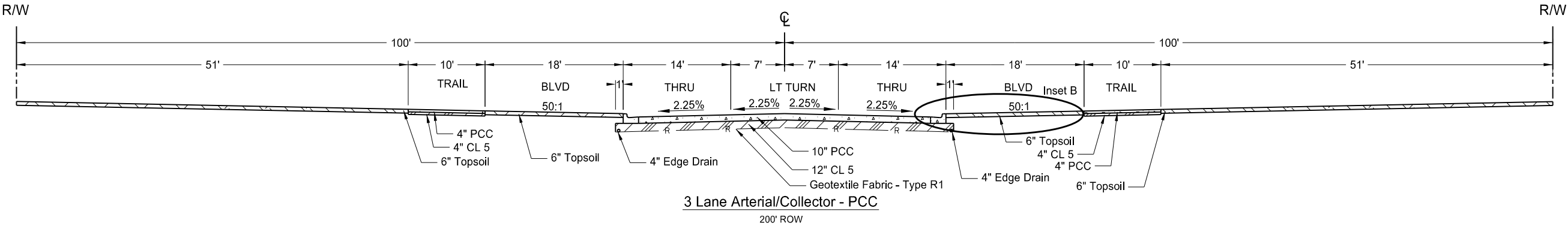


This document  
is preliminary  
and not for  
construction or  
implementation  
purposes.

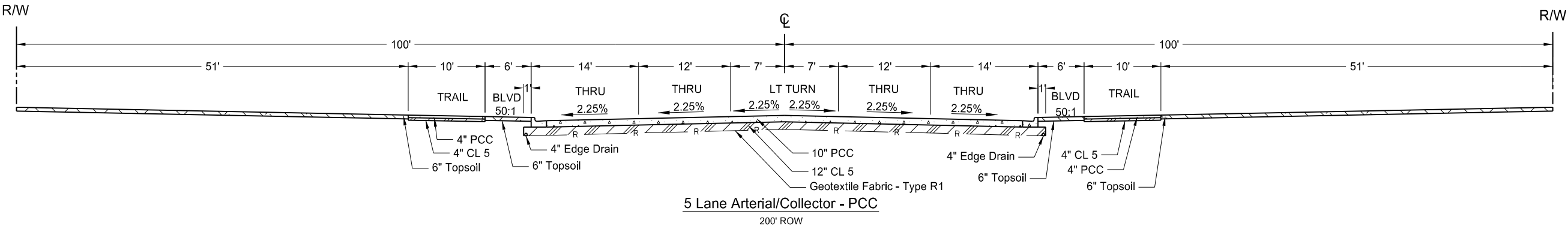
Southwest Metro Transportation Plan  
76th Avenue South



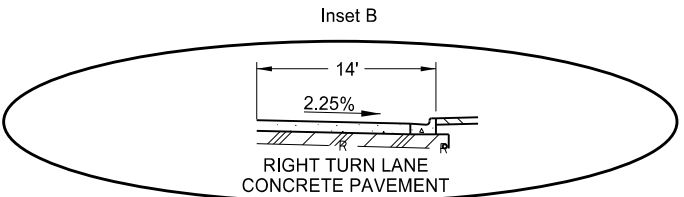
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	project number	30	2



76th Avenue South 19+54.32 to 59+55.31



25th Street (North of 76th Avenue)

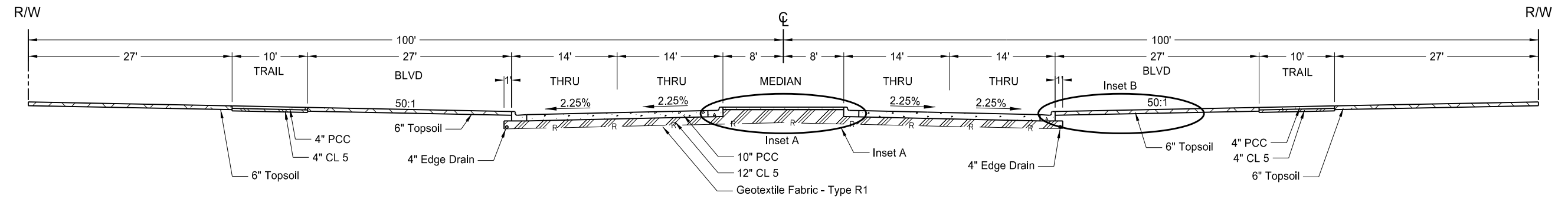


This document  
is preliminary  
and not for  
construction or  
implementation  
purposes.

Southwest Metro Transportation Plan  
76th Avenue South



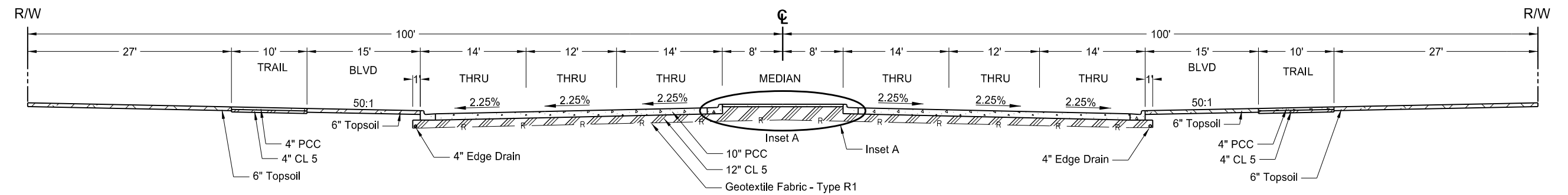
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	project number	30	3



4 Lane Divided Arterial/Collector - PCC

200' ROW

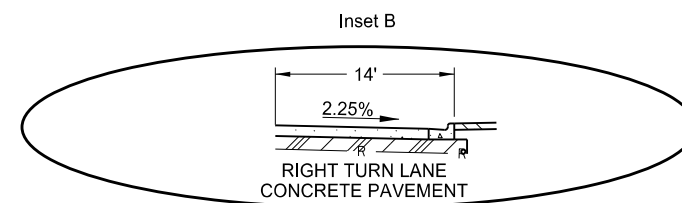
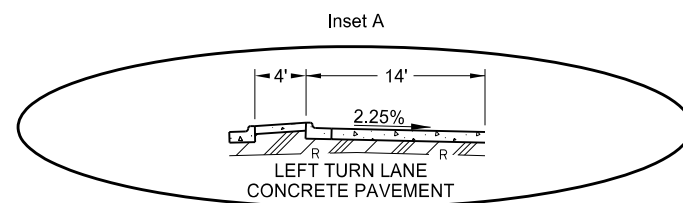
76th Avenue South 59+55.31 to 131+65.04  
76th Avenue South 269+82.30 to 358+22.89



6 Lane Divided Arterial/Collector - PCC

200' ROW

76th Avenue South 131+65.04 to 269+82.30  
45th Street (North of 76th Avenue)

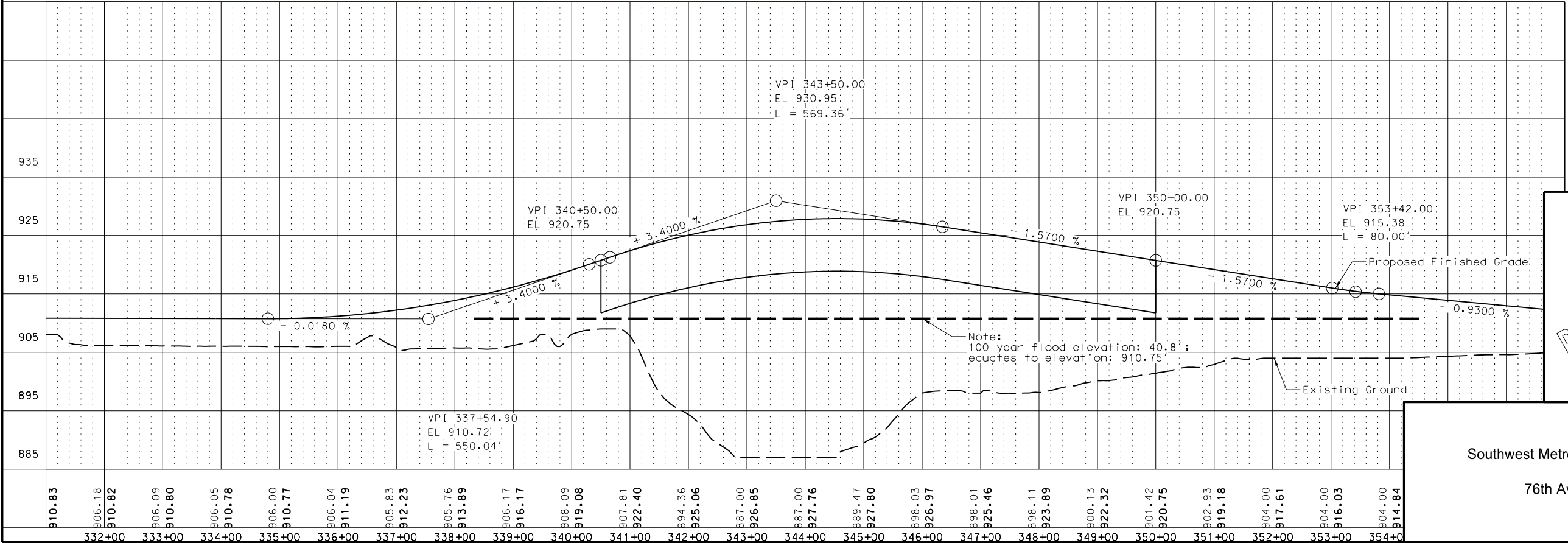
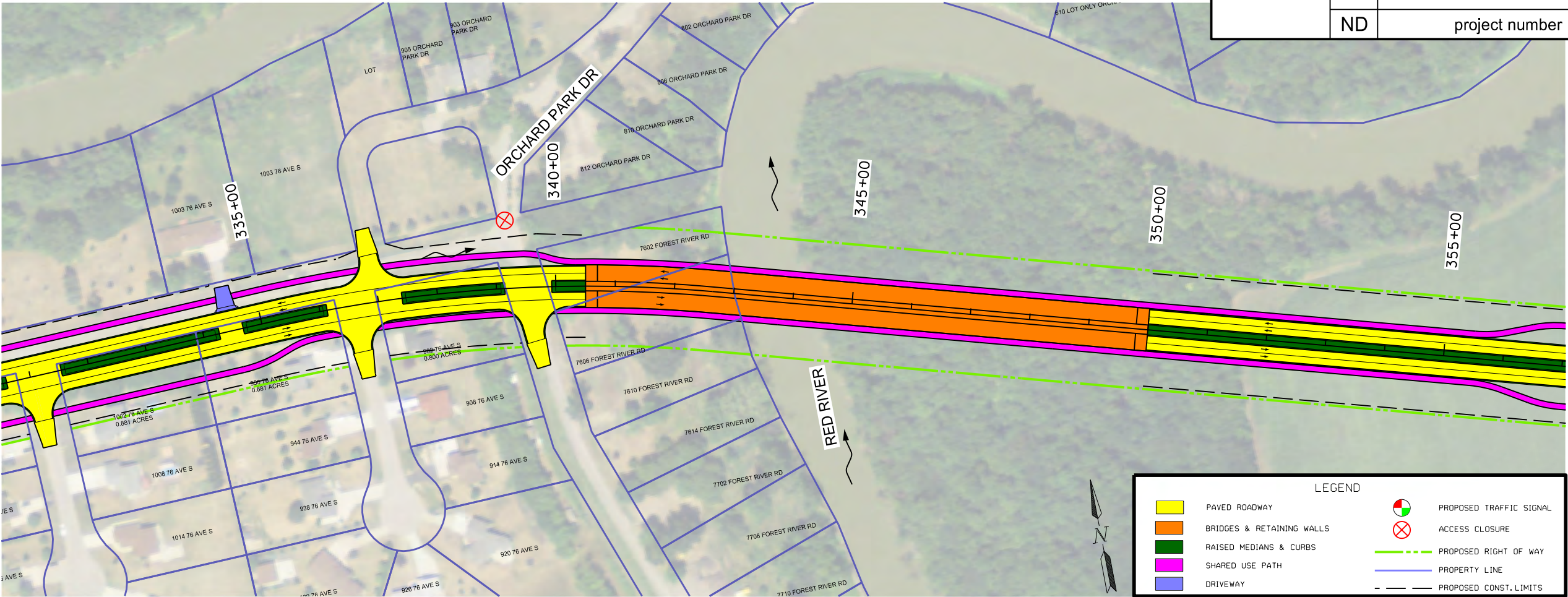


This document  
is preliminary  
and not for  
construction or  
implementation  
purposes.

Southwest Metro Transportation Plan  
76th Avenue South



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	project number	60	1

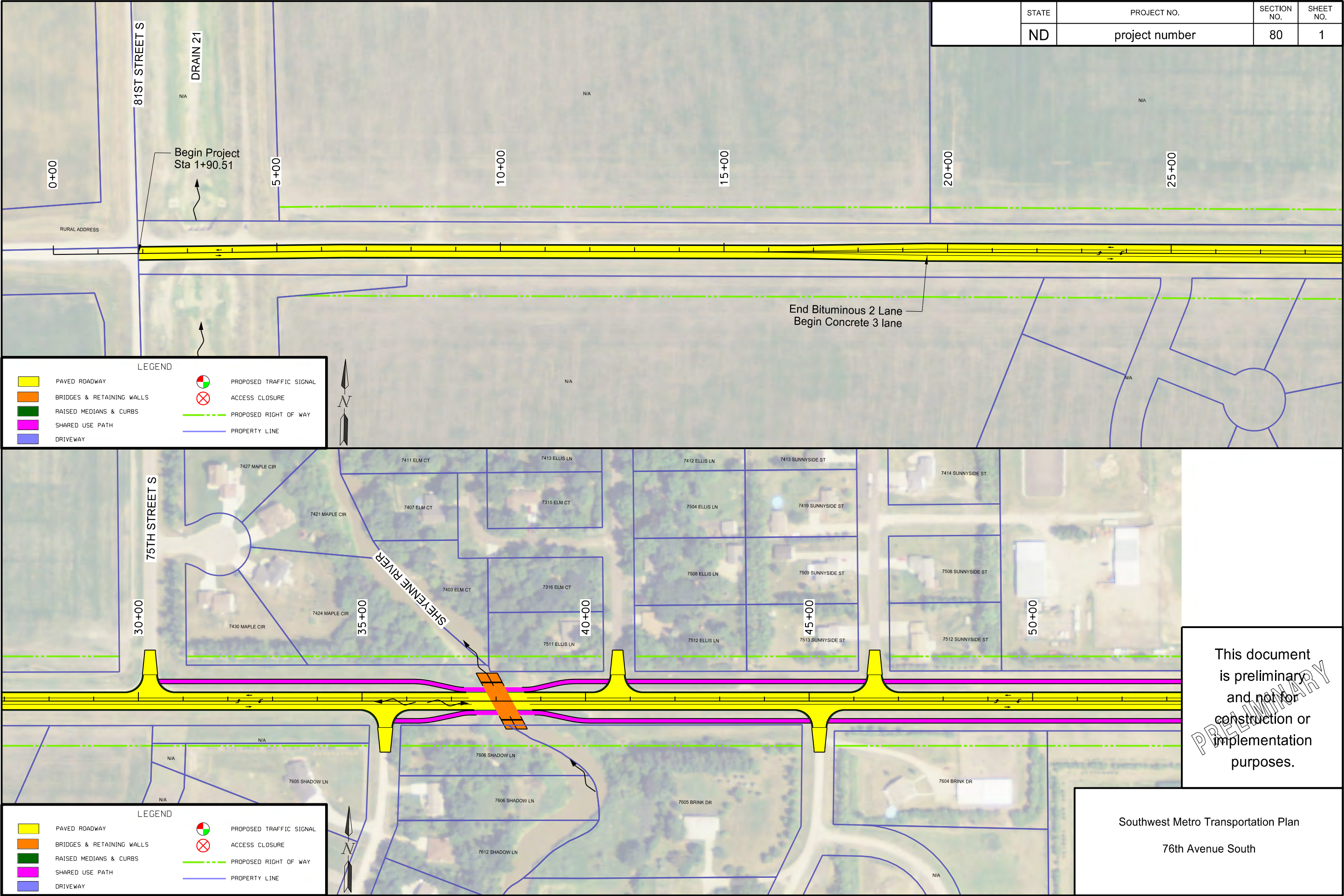


This document is preliminary and not for construction or implementation purposes.

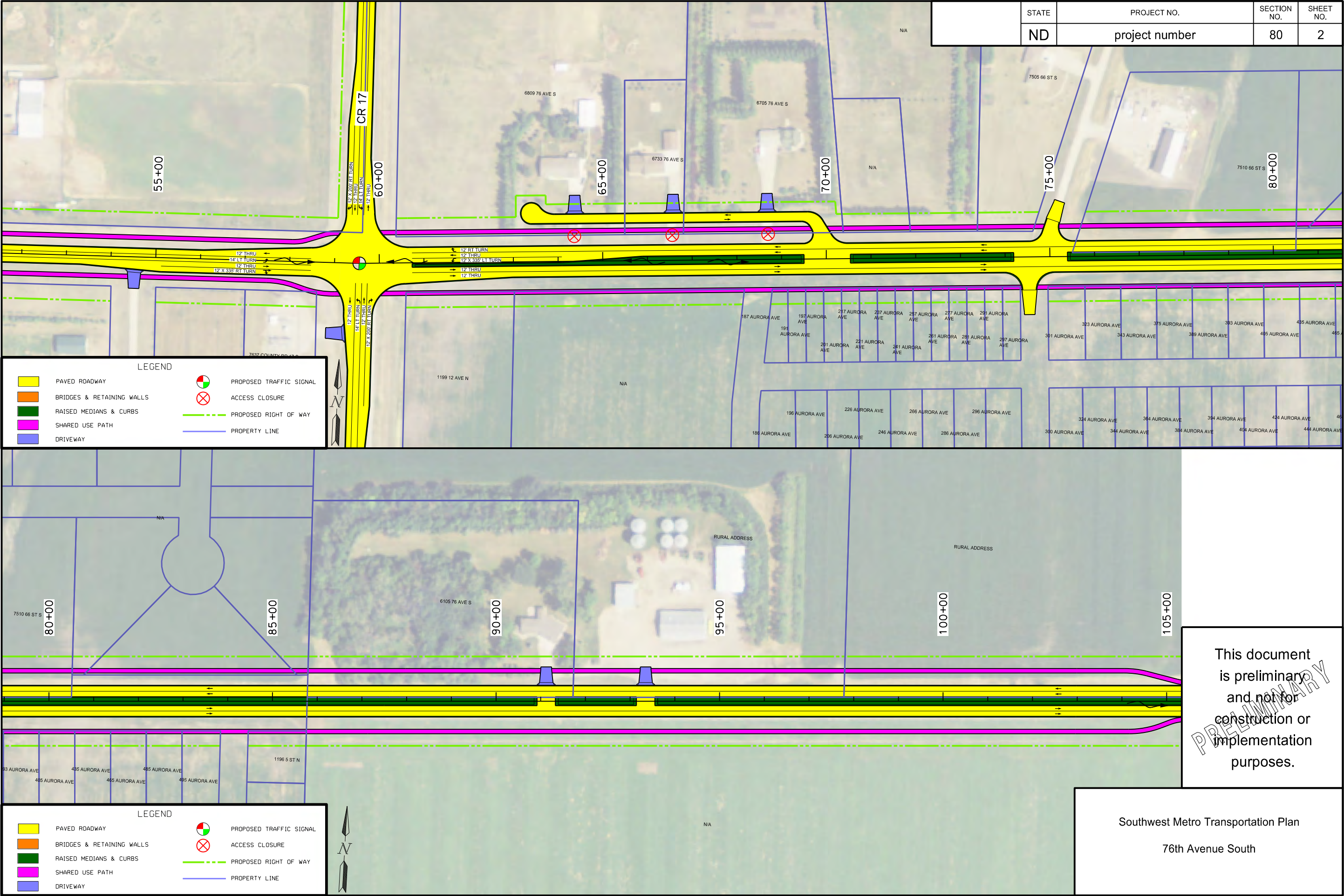
Southwest Metro Transportation Plan

76th Avenue South

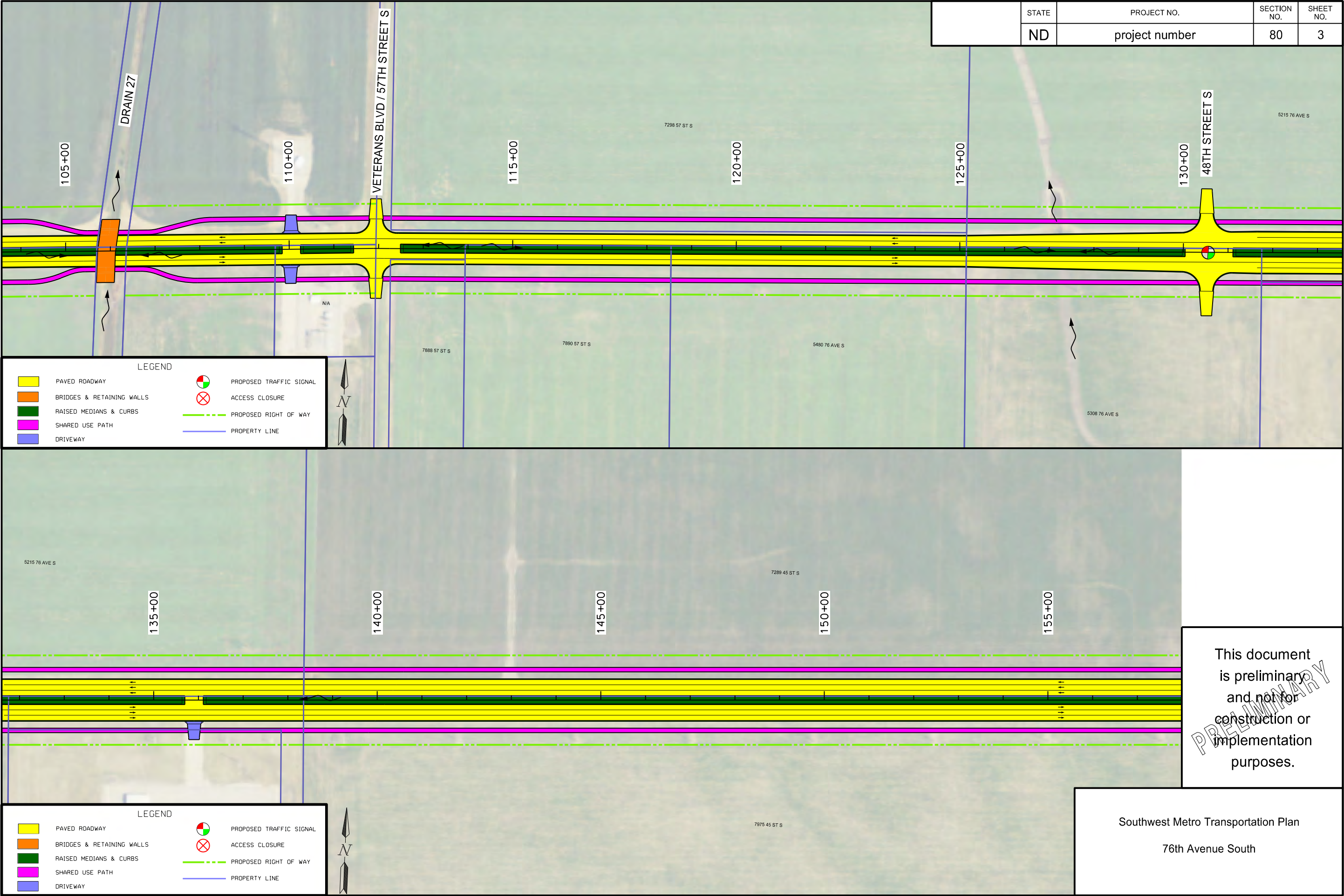






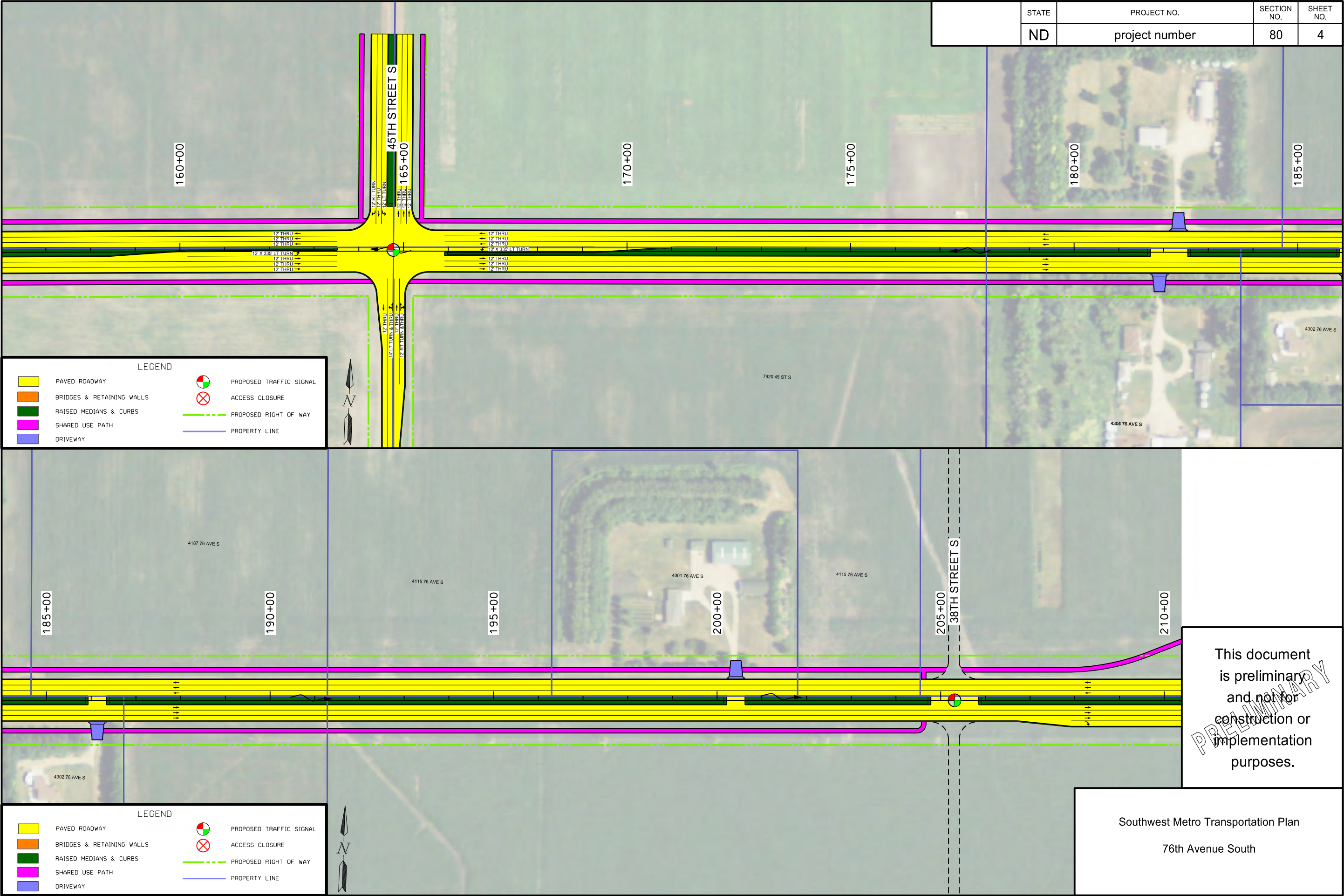




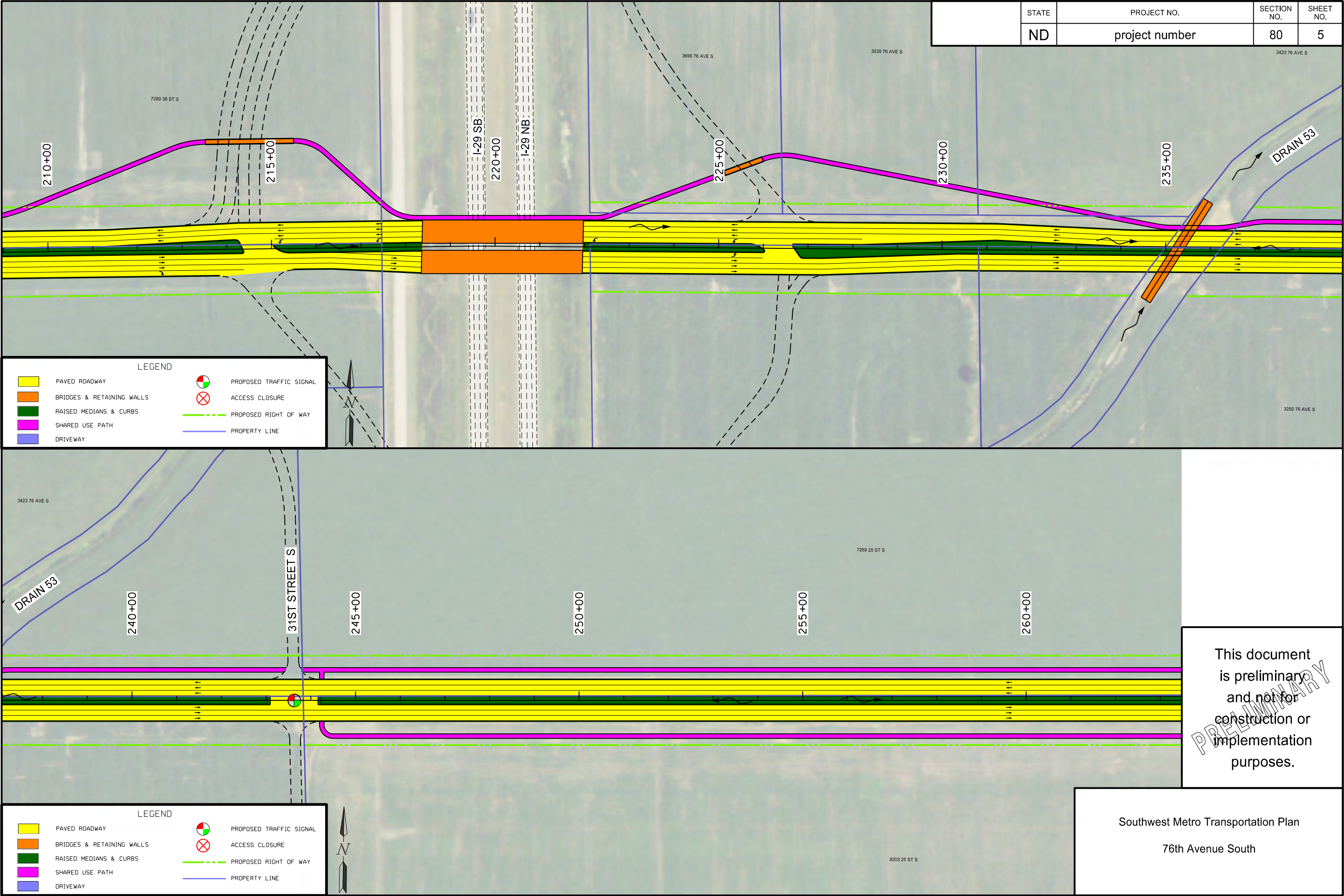


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	project number	80	3





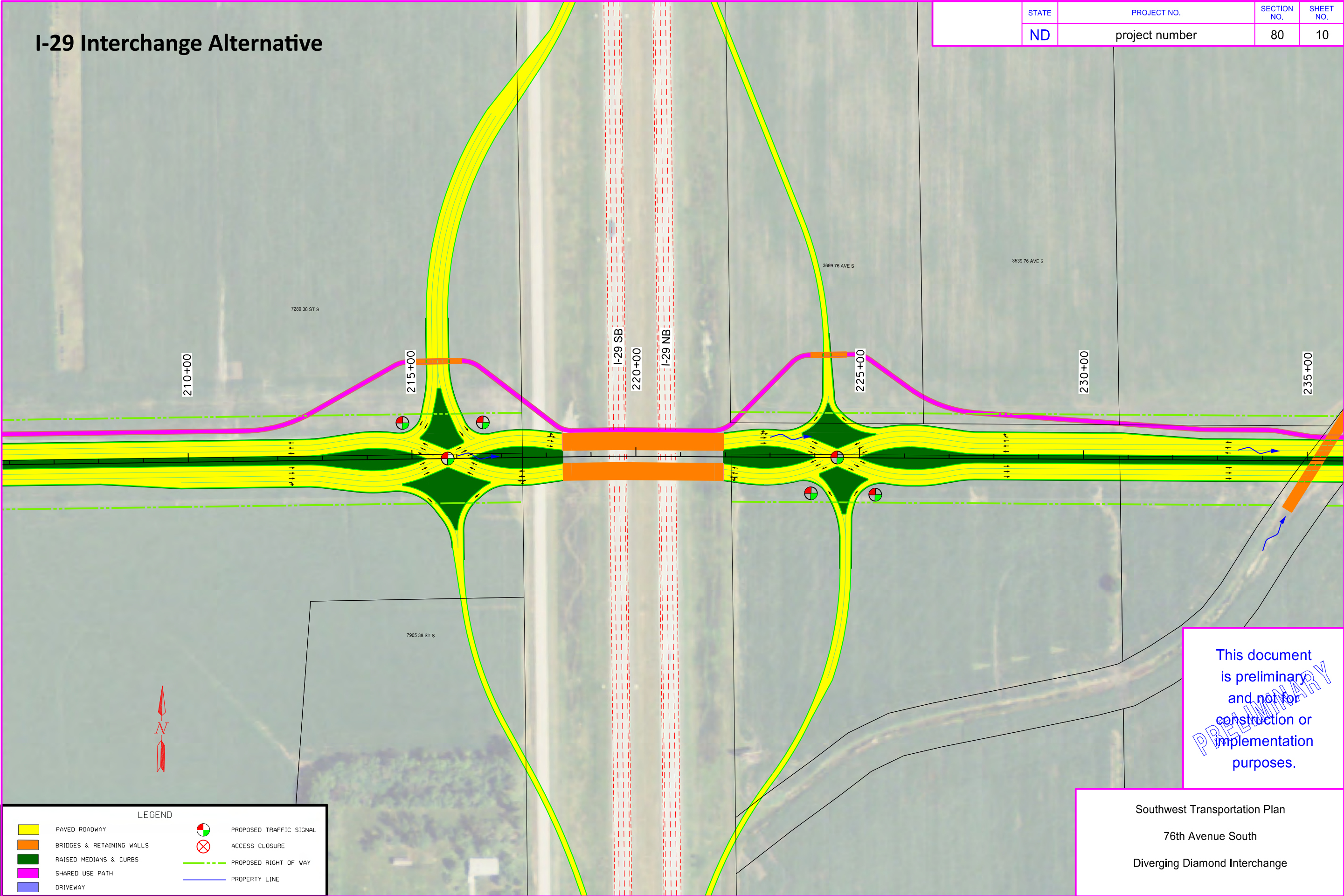




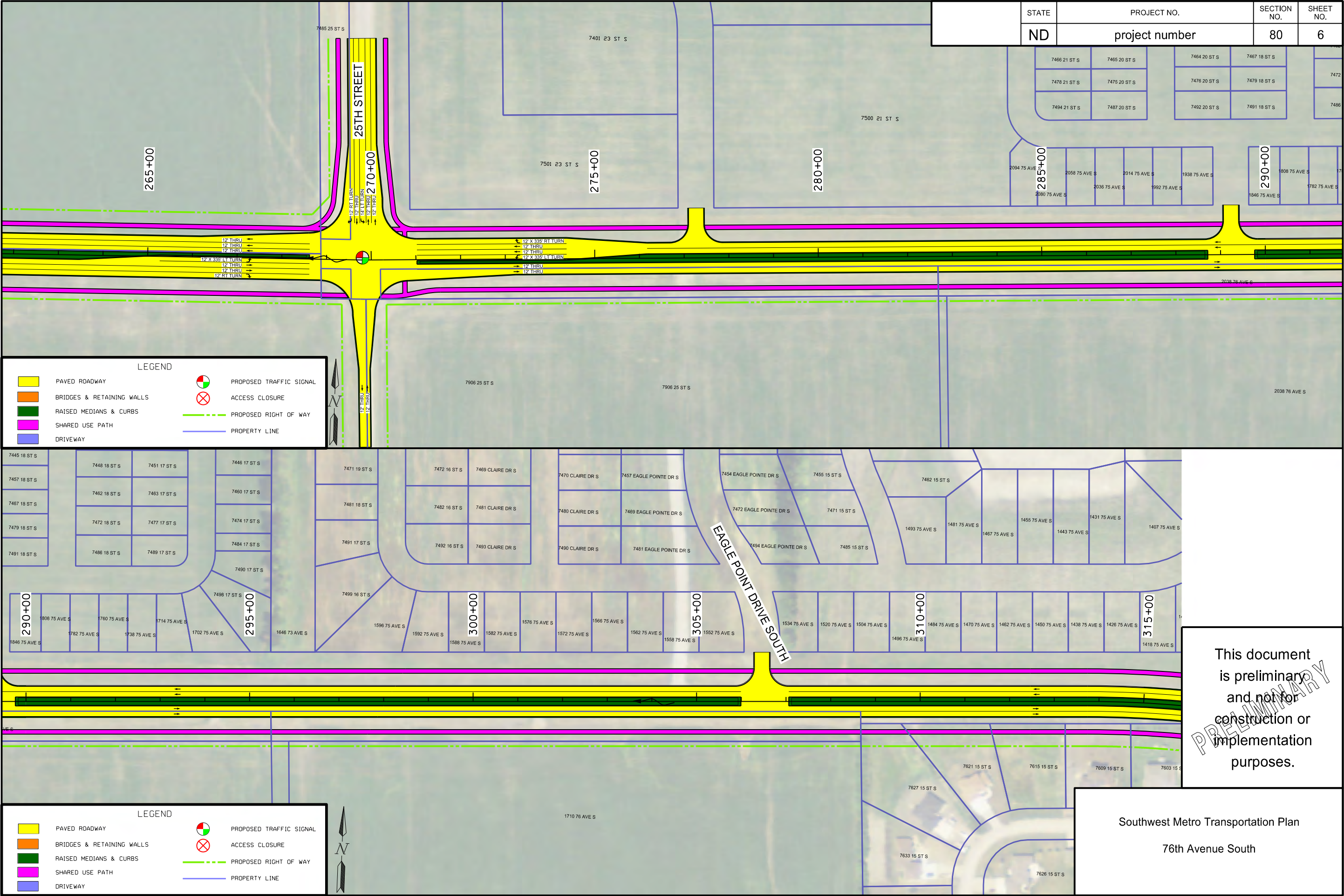


I-29 Interchange Alternative

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	project number	80	10







STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	project number	80	6

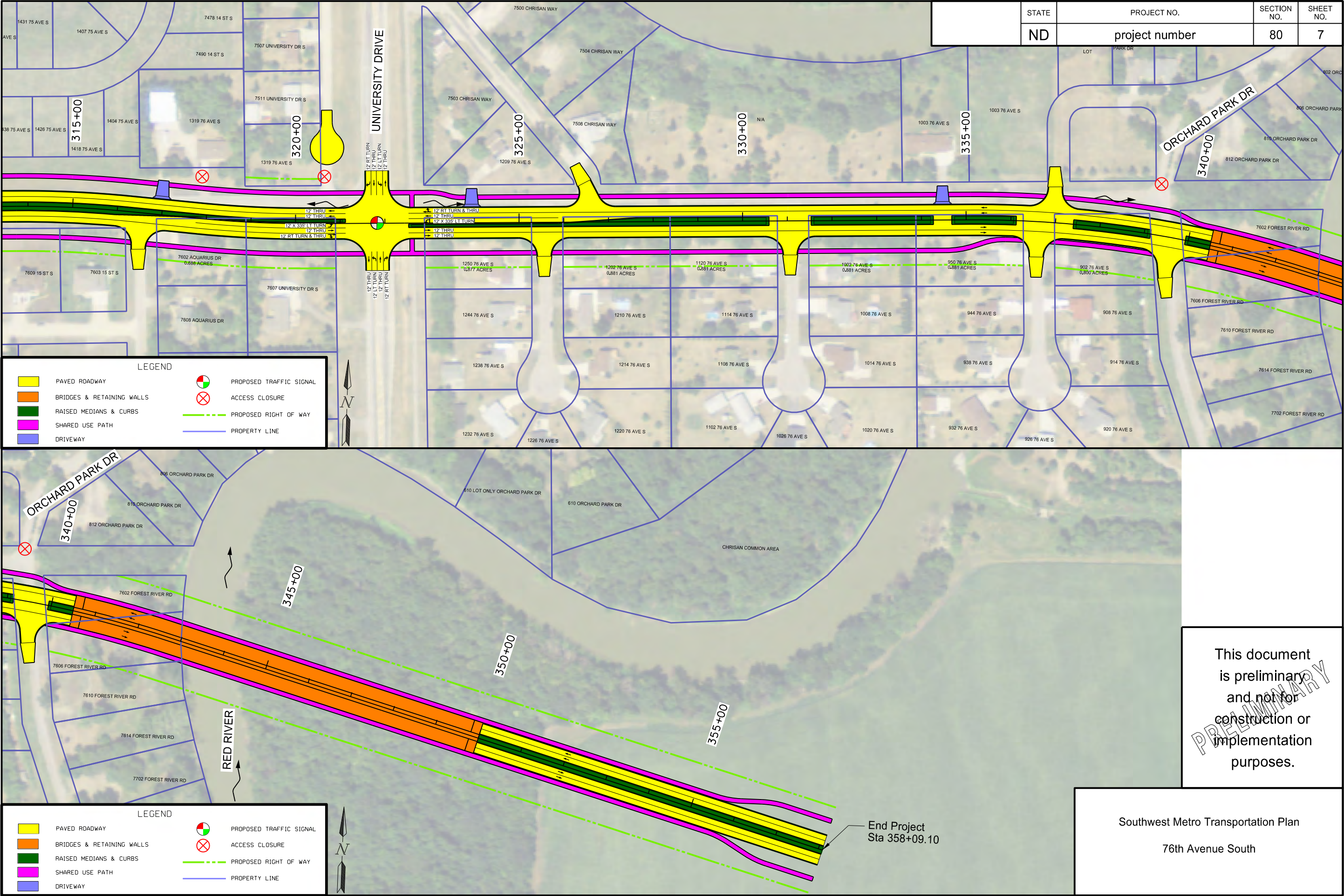
7466 21 ST S	7465 20 ST S	7464 20 ST S	7467 18 ST S	
7478 21 ST S	7475 20 ST S	7476 20 ST S	7479 18 ST S	7472
7494 21 ST S	7487 20 ST S	7492 20 ST S	7491 18 ST S	7488

2094 75 AVE S	2058 75 AVE S	2014 75 AVE S	1938 75 AVE S	
2080 75 AVE S	2036 75 AVE S	1992 75 AVE S	1846 75 AVE S	1808 75 AVE S
				1782 75 AVE S

This document is preliminary and not for construction or implementation purposes.

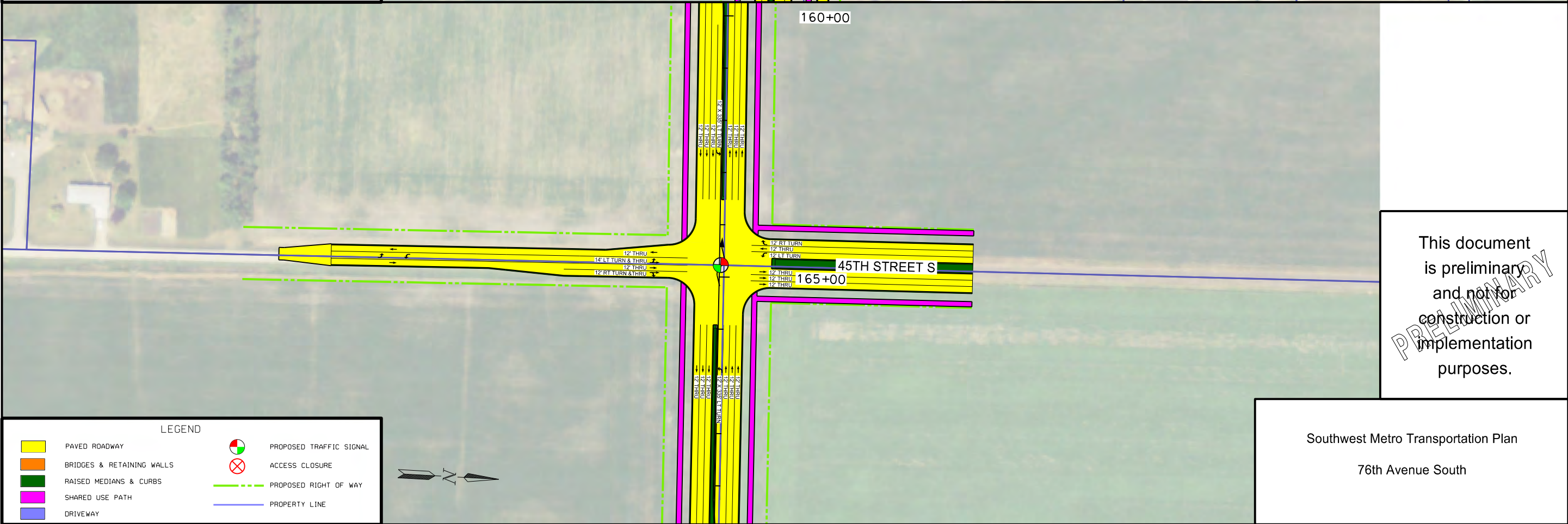
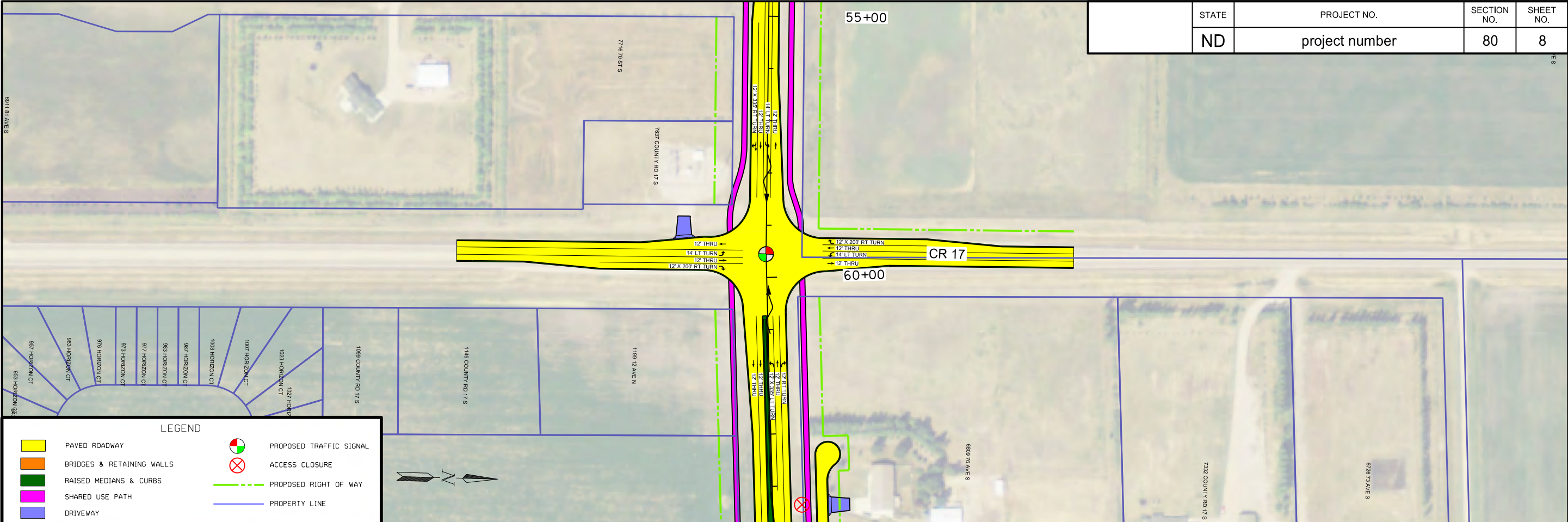
Southwest Metro Transportation Plan  
76th Avenue South







STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	project number	80	8



This document is preliminary and not for construction or implementation purposes.

Southwest Metro Transportation Plan

76th Avenue South





