

Chapter 6: Transportation



INTRODUCTION

The purpose of the Transportation chapter of the Comprehensive Plan is to provide guidance to the City of North Mankato, as well as existing and future landowners in preparing for future growth and development. As such, whether an existing roadway is proposed for upgrading or a land use change is proposed on a property, this Plan provides the framework for decisions regarding the nature of roadway infrastructure improvements necessary to achieve safety, adequate access, mobility, and performance of the existing and future transportation system. The primary goal of this Plan is to establish local policies, standards, and guidelines to guide major transportation investments and policy decisions.

To accomplish these objectives, the Transportation Plan provides information about:

- Previous planning through the Mankato/North Mankato Planning Organization's (MAPO) 2045 Long Range Transportation Plan (2020) which identified existing and potential deficiencies of the existing arterial-collector street system.
- The functional hierarchy of streets and roads related to access and capacity requirements.
- Access management policies and intersection controls.
- Existing sidewalk facilities and associated potential improvements.
- Freight and transit network information and plans.
- The City's local planning efforts that identify roadway needs to serve new development/redevelopment efforts.

TRANSPORTATION SYSTEM PRINCIPLES AND STANDARDS

The transportation system principles and standards included in this Plan create the foundation for developing the transportation system, evaluating its effectiveness, determining future system needs, and implementing strategies to fulfill the goals and objectives identified.

Functional Classification

MnDOT defines functional classification as the grouping of streets and highways into classes or systems according to the character of service they are intended to provide. Basic to this process is the recognition that most travel involves movement through a network of roads. Functional classification defines the role that any road or street plays in serving the flow of trips through a network. Understanding the function of a roadway is critical in determining its design features such as street widths, speed, and intersection control.

The functional classification system typically consists of five major classes of roadways: Principal Arterials, Minor Arterials, Major Collectors, Minor Collectors and Local Streets. Roadways are classified based on several criteria including (but not limited to) geographic units connected, types of streets connected, length of trip served, distance between streets of the same classification, volume of traffic carried by the facility, speed limit and design (right-of-way width and access provisions).

The existing roadway classifications in North Mankato are described below.

A. Principal Arterials

Principal Arterials typically connect large urban areas to other large urban areas, or they connect metro centers to regional business concentrations via a continuous roadway without stub connections. They are designed to accommodate the longest trips. Their emphasis is focused on mobility rather than access. They connect only with other Principal Arterials, interstate freeways, and select Minor Arterials and Collector Streets. There are two Principal Arterial roadways in the City of North Mankato, HIGHWAY 14 and HIGHWAY 169/MN 60. HIGHWAY 14 provides east-west connectivity across the southern portion of the state of Minnesota. HIGHWAY 169/MN 60 runs north-south with connections into Iowa on the south and to the Twin Cities metropolitan area and beyond on the north. The MAPO 2045 Long-Range Transportation Plan identifies the transition of Highway 14 traveling west and Highway 169/MN 60 traveling north from Principal Arterial to Principal Arterial Freeway/Expressway in the future. However, recommended improvements from the Highway 169 Corridor Study identify at-grade roundabouts or traffic signals at the highway's intersections with Webster Avenue in North Mankato and River Lane in Mankato. Implementation of these traffic controls would prevent this highway section's conversion to a freeway for the long term.

B. Minor Arterials

Minor Arterials typically link urban areas and rural Principal Arterials to larger towns and other major traffic generators capable of attracting trips over similarly long distances. Minor Arterials service medium length trips, and their emphasis is on mobility as opposed to access in urban areas. They connect with Principal Arterials, other Minor Arterials, and Collector Streets. Connections to Local Streets should be avoided if possible. Minor Arterials are responsible for accommodating thru-trips, as well as trips beginning or ending outside the North Mankato area. Minor Arterial roadways are typically spaced approximately ½ to 1 mile in developed areas and approximately 1 to 2 miles in developing areas. All or portions of Lookout Drive, Lor Ray Drive, Lee Boulevard and Belgrade Avenue are identified as Minor Arterial roadways in North Mankato.

C. Major Collectors

Major Collectors typically link neighborhoods together within a city or they link neighborhoods to business concentrations. In highly urban areas, they also provide connectivity between major traffic generators. A trip length of less than 5 miles is most common for Major Collector roadways. A balance between mobility and access is desired. Major Collectors generally connect to Minor Arterials, but they can be connected to any of the other four roadway functional classes. Local access to Major Collectors should be provided via public streets and individual property access should be avoided. Generally, Major Collector streets are predominantly responsible for providing circulation within a city. However, the natural features associated with wetland and drainage complexes and parks, and location of principal arterials through the community results in circulation within North Mankato being reliant on a combination of the Minor Arterial and Major Collector roadways. Major Collectors are typically spaced approximately $\frac{1}{4}$ to $\frac{3}{4}$ mile in developed areas and approximately $\frac{1}{2}$ to 1 mile in developing areas. All or portions of County State Aid Highway (CSAH) 13 (north of Lookout Drive), Rockford Road (CSAH 41), Howard Drive, Commerce Drive, Lee Boulevard, Lor Ray Drive, CSAH 6, and Range Street are functionally classified as Major Collector roadways in the North Mankato area.

D. Minor Collectors

Minor Collectors typically include city streets and rural township roadways, which facilitate the collection of local traffic and convey it to Major Collectors and Minor Arterials. Minor Collector streets serve short trips at relatively low speeds. Their emphasis is focused on access rather than mobility. Minor Collectors are responsible for providing connections between neighborhoods and the Major Collector/Minor Arterial roadways. These roadways should be designed to discourage short-cut trips through the neighborhood by creating jogs in the roadway (i.e. not direct, through routes). All or portions of Rockford Road (CSAH 41), Howard Drive, Pleasant View Drive, Carlson Drive, Timm Road, Lor Ray Drive, Lake Street, Webster Avenue, and Center Street are classified as a Minor Collectors. With the recent improvements to Benson Park, continued residential development north of the park, and development in Northport and NW Growth areas, portions of Timm Road, Carlson Drive, and Lor Ray Drive may become Minor Collector roadways.

E. Local Streets

Roadways in this classification typically include city streets and rural township roadways, which facilitate the collection of local traffic and convey it to Collectors and Minor Arterials. Their function is to provide direct property access.

Legend

 City Limits

 Parcels

Functional Classification

 Principal Arterial - Other Freeways and Expressways

 Principal Arterial - Other

 Minor Arterial

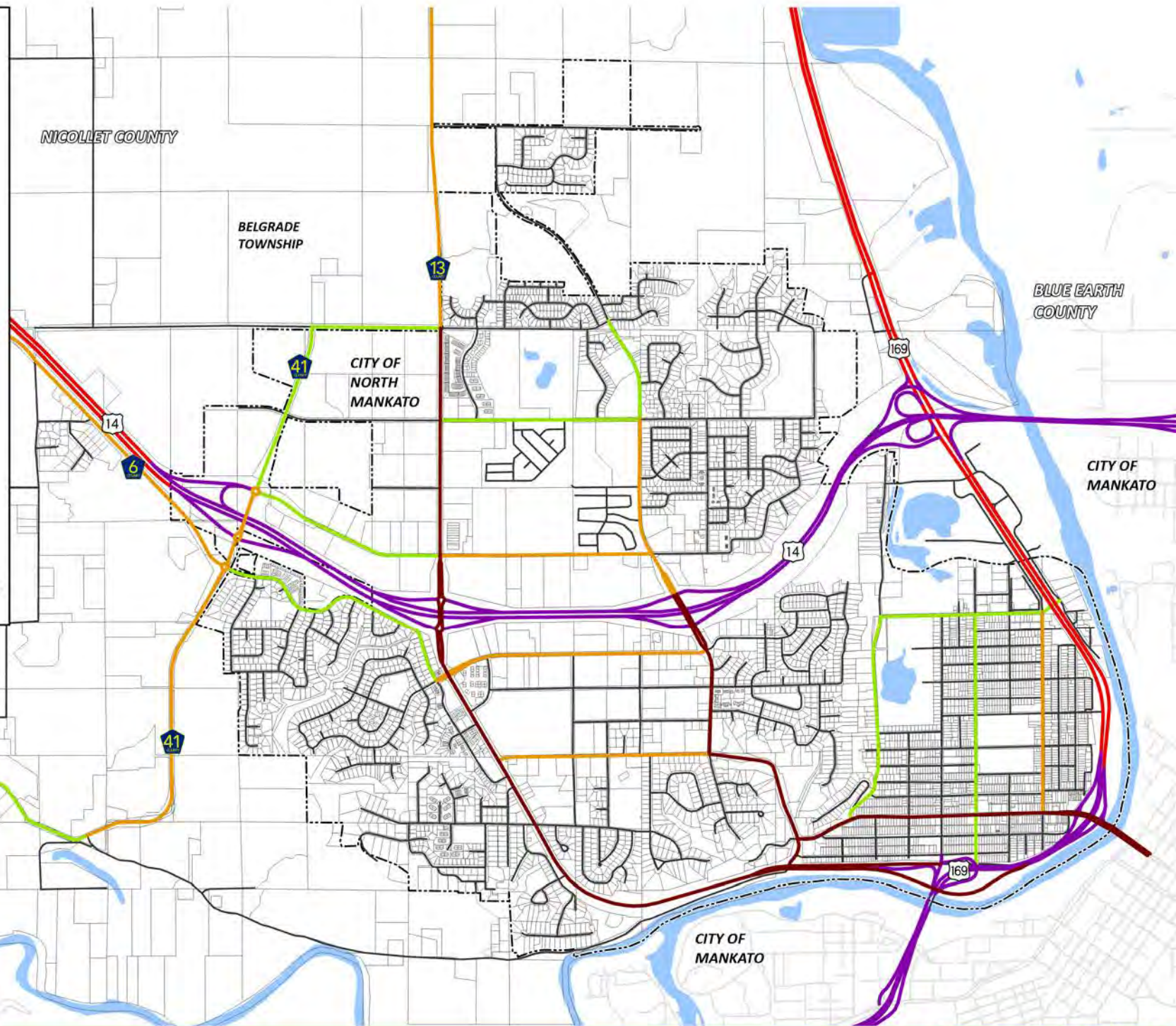
 Major Collector

 Minor Collector

 Local

0 0.4 Miles

N



Roadway Capacity

Capacities of roadway systems vary based on the roadway's functional classification. Based on accepted standards, roadway capacity per lane for divided arterials is 700 to 1,000 vehicles per hour and 600 to 900 vehicles per hour for undivided arterials. These values tend to be around 10% of the daily physical roadway capacity.

A. Principal and Minor Arterials

Based on the per lane capacity figures cited above, a two-lane arterial roadway has a daily capacity of 12,000 to 18,000 vehicles

Table 6-A: Typical Traffic Capacity by Roadway Type/Configuration

Facility Type	Daily Capacities
Minor Collector Street	Up to 1,000
Urban 2-Lane	7,500 - 12,000
Urban 3-Lane or 2-Lane Divided	12,000 - 18,000
Urban 4-Lane Undivided	Up to 20,000
Urban 4-Lane Divided	28,000 - 40,000
4-Lane Freeway	Up to 70,000

per day, a four-lane divided arterial street has a daily capacity of 28,000 to 40,000 vehicles per day, and a four-lane freeway has a daily capacity of approximately 70,000 vehicles per day. The variability in capacities is directly related to many roadway characteristics including access spacing, traffic control, adjacent land uses, as well as traffic flow characteristics, such as percentage of trucks and number of turning vehicles. Therefore, it is important that the peak hour conditions are reviewed to determine the actual volume-to-capacity on roadway segments with average daily traffic volumes approaching these capacity values.

B. Major Collectors and Minor Collector Streets

Major Collector and Minor Collector streets have physical capacities similar to those of a two-lane arterial street, however the acceptable level of traffic on a residential street is typically significantly less than the street's physical capacity. The acceptable level of traffic volumes on Major Collectors and Minor Collector streets vary based on housing densities and setbacks, locations of parks and schools, and overall resident perceptions. Typically, traffic levels on Major Collector streets in residential/educational areas are acceptable when they are at or below 50% of the roadway's physical capacity, resulting in an acceptable capacity of 6,000 to 9,000 vehicles per day. Acceptable traffic levels on Minor Collector streets are considerably less. Typically, a daily traffic volume of 1,000 to 1,500 vehicles per day is acceptable on Minor Collector streets in residential areas.

The capacity of a transportation facility reflects its ability to accommodate a moving stream of people or vehicles. It is a measure of a supply side of transportation facilities. Level of Service (LOS) is a measure of the quality of flow. The concept of LOS uses qualitative measures that characterize operational conditions with a traffic stream and their perception by motorists. Six LOS are defined for roadways. They are LOS A, B, C, D, E, and F. LOS A represents the best

operating conditions and LOS F represents the worst. The LOS of a multilane roadway can be dictated by its volume-to-capacity (v/c) ratio. The LOS of a two-lane roadway is defined in terms of both percent time-spent-following and

Table 6-B: Highway Level of Service

LOS	Multilane	Two-Lane
	v/c Ratio	Avg. Travel Speed (mph)
A	<0.28	>55
B	>0.28 – 0.45	>50-55
C	>0.45 – 0.65	>45-50
D	>0.65 – 0.86	>40-45
E	>0.86 – 1.00	≤
F	> 1.00	v/c >1.00

average travel speed. LOS F is determined when v/c ratio is over 1.00. The criteria for LOS and general v/c ratio for multilane highways and speed for two-lane highways are provided in **Table 6-B**.

For roadways in urban sections, the urban street class and average travel speed determine the LOS. This is generally similar to the LOS for two-lane highways but takes into account the free flow speed of the facility (average speed achieved with no other vehicles present on roadway) and the addition of traffic control. These criteria are established in Table 6-C below:

Table 6-C: Urban Street Level of Service

Range of Free-Flow Speed LOS	55 to 45	45 to 35	35 to 30	35 to 25
	Avg. Travel Speed (mph)			
A	>42	>35	>30	>25
B	>34-42	>28-35	>24-30	>19-25
C	>27-34	>22-28	>18-24	>13-19
D	>21-27	>17-22	>14-18	>9-13
E	>16-21	>13-17	>10-14	>7-9
F	≤	≤	≤	≤

Generally, the City of North Mankato should consider capacity improvements on roadways with a LOS D or worse and volume-to-capacity ratios over 0.75 during the peak hours.

Access Management Guidelines

Access management guidelines are developed to maintain traffic flow on the network so each roadway can provide its functional duties, while providing adequate access for private properties to the transportation network. This harmonization of access and mobility is the keystone to effective access management.

Mobility, as defined for this Transportation Plan, is the ability to move people, goods, and services via a transportation system component from one place to another. The degree of mobility depends on a number of factors, including the ability of the roadway system to perform its functional duty, the capacity of the roadway, and the operational level of service on the roadway system.

Access, as applied to the roadway system in North Mankato, is the relationship between local land use

and the transportation system. There is an inverse relationship between the amount of access provided and the ability to move through traffic on a roadway. As higher levels of access are provided, the ability to move traffic is reduced. The graphic below illustrates the relationship between access and mobility.

Each access location (i.e. driveway and/or intersection) creates a potential point of conflict between vehicles moving through an area and vehicles entering and exiting the roadway. These conflicts can result from the slowing effects of merging and weaving that takes place as vehicles accelerate from a stop turning onto the roadway, or deceleration to make a turn to leave the roadway. At signalized intersections, the potential for conflicts between vehicles is increased, because through-vehicles are required to stop at the signals. If the amount of traffic moving through an area on the roadway is high and/or the speed of traffic on the roadway is high, the number and nature of vehicle conflicts are also increased.

Accordingly, the safe speed of a road, the ability to move traffic on that road, and safe access to cross streets and properties adjacent to the roadway all diminish as the number of access points increase along a specific segment of roadway. Because of these effects, there must be a balance between the level of access provided and the desired function of the roadway.

In North Mankato, access standards and spacing guidelines are recommended as a strategy to effectively manage existing ingress/egress onto City streets and to provide access controls for new development and redevelopment. The proposed access standards (driveway dimensions) are based on MnDOT State-Aid design standards. **Tables 6-D and 6-E** present the proposed access standards and access spacing for the North Mankato roadway network:

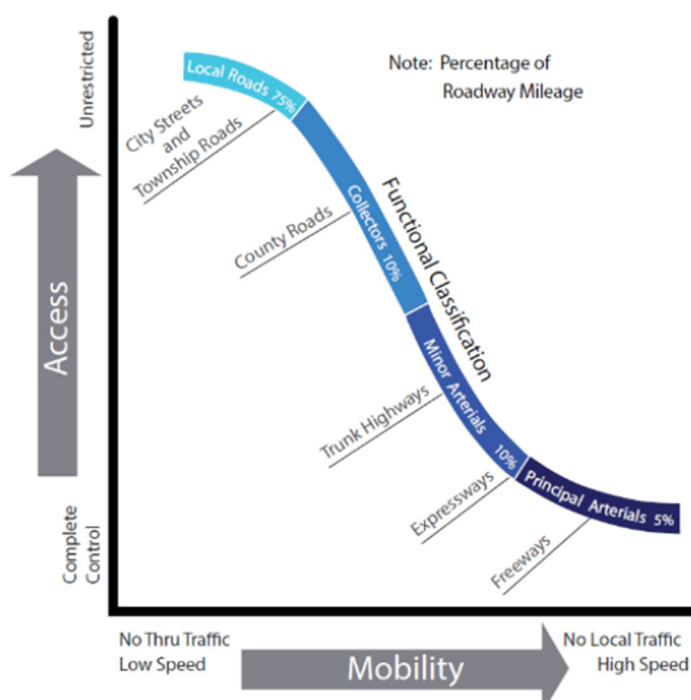


Figure 6-2. Access vs. Mobility Dynamic. Source: Nicollet County Comprehensive Plan.

Table 6-D: Roadway Access Standards

	Maximum Curb Cut (Measured at Property Line)	Maximum Number of Curb Cuts	Minimum Distance Between Curb Cuts	Minimum Side Yard Driveway Setback
Single Family Interior Lot	24 feet	1	20 feet	10 feet
Single Family Corner Lot	24 feet	1	20 feet	10 feet
Single Family Corner Lot utilizing circular drive	14 feet	2	20 feet	10 feet
Single Family Cul-de-Sac Lot	24 feet	1	20 feet	10 feet
Multi-Family (2-8 Units)	24 feet	1	20 feet	10 feet
Multi-Family (Over 8 Units)	24 feet	2	20 feet	10 feet
Commercial/Business	36 feet	2	20 feet	10 feet
Industrial	50 feet	4	20 feet	10 feet

Table 6-E: Access Spacing Guidelines for Collector Roadways in North Mankato (1) (2)

Type of Access by Land Use Type	Minor Arterial/Major Collector	Minor Collector
Low & Medium Density Residential		
Private Access	Not Permitted (3)	As Needed (4)
Minimum Corner Clearance from a Collector Street	660'	300'
Commercial, Industrial or High Density Residential		
Private Access	Not Permitted (3)	As Needed (4)
Minimum Corner Clearance from a Collector Street	660'	660'

(1) Some existing City streets that are currently functionally classified as Minor Arterial, Major Collector, or Minor Collector do not meet these criteria. These guidelines should be used for new streets and roadways that will functionally classify as Minor Arterial, Major Collector, or Minor Collector

(2) These guidelines apply to City streets only. Nicollet County and MnDOT have access authority for roadways under their jurisdiction.

(3) Access to Minor Arterials and Major Collectors should be limited to public street access. Steps should be taken to redirect private accesses on Major Collectors to other local streets. New private access to Major Collectors is not permitted unless deemed necessary.

(4) Private access to Minor Collectors is to be evaluated by other factors. Whenever possible, residential access should be directed to non-continuous streets rather than Minor Collector roadways. Commercial/Industrial properties are encouraged to provide common accesses with adjacent properties when access is located on the Minor Collector system. Cross-traffic between adjacent compatible properties is to be accommodated when feasible. A minimum spacing between accesses of 660' in commercial, industrial, or high-density residential areas is encouraged for the development of turn lanes and driver decision reaction areas.

Right-of-Way Width

Right-of-way width is directly related to the roadway's width and its ability to carry vehicular and pedestrian traffic in a safe and efficient manner. For Minor Collector streets in residential areas, a minimum right-of-way width of 80 feet is recommended for the added roadway width, as well as to provide added setback distance between the roadway and homes along the roadway. Right-of-way widths of 80 feet to greater than 100 feet may be required on Minor Arterials and Major Collector roadways within commercial areas to accommodate the potential for higher traffic volumes and the need for additional lanes.

For the City of North Mankato, geometric design standards for the reconstruction or construction of new Minor Arterial, Major Collector, and Minor Collector Streets will be based on MnDOT State-Aid standards.

A. Geometric Design Standards

Geometric design standards are directly related to a roadway's functional classification and the amount of traffic that the roadway is designed to carry. The following is a discussion of various geometric design elements and how each element relates to a particular roadway's ability to perform its function in the roadway network.

Roadway Width

Roadway and travel lane widths are directly associated with a roadway's ability to carry vehicular traffic. On Minor Arterial roadways, Major Collector roadways, Minor Collector streets and local streets, a 12-foot lane is required for each direction of travel. The 24-foot total travel width is needed to accommodate anticipated two-way traffic volumes without delay. In addition to the travel width, minimum shoulder/parking lane widths are also required to accommodate parked or stalled vehicles. Roadway widths not meeting the Geometric Design Standards will result in decreased performance of the particular roadway and additional travel demand on the adjacent roadway network components. For example, a substandard Major Collector roadway may result in additional travel demand on an adjacent Minor Collector street resulting in an overburden for adjacent landowners. Similarly, additional local circulation may result on an adjacent Minor Arterial resulting in reduced mobility for regional trips.

Sidewalk/Trail

Sidewalks and/or trails are recommended to be adjacent to all Minor Arterial, Major Collector and Minor Collector roadways within North Mankato to accommodate pedestrian, bicycle, and other non-motorized travel in a safe and comfortable manner. These roadways are expected to carry a significant amount of vehicular traffic and separation of travel modes is necessary. In commercial and industrial areas, the requirements for trails and sidewalks may vary to accommodate additional pedestrian and bicycle traffic.

Along Minor Arterials and Major Collector roadways, an 8-foot-wide bituminous or concrete trail and/or 6-foot-wide concrete sidewalk is recommended on either side of the roadway to accommodate local pedestrian and bicycle travel. The pedestrian facilities on both sides of these roadways allow for pedestrian travel within the corridor without introducing excessive crossing demand on Minor Arterials and Major Collectors. A sidewalk and trail will accommodate pedestrian and bicycle travel along the corridor, as well as provide a safe, comfortable link between lower volume residential streets and the other pedestrian and trail facilities within the community. A 10-foot-wide trail would be more desirable as the 10-foot width would better accommodate two-way bicycle traffic. The City of North Mankato's comprehensive trail plan will be utilized to determine where bike trails are required.

Along Minor Collector roadways, a 5-foot-wide concrete sidewalk is recommended on at least one side of the roadway, both sides being preferred. With the anticipated vehicular volumes on Minor Collector streets, pedestrians can safely cross the roadway, however, pedestrian travel along the roadway may become uncomfortable.

Design Speed

The design speed of a roadway is directly related to the roadway's function in the roadway system. The focus of Minor Arterial roadways is mobility; therefore, these roadways should be designed to accommodate higher travel speeds. Likewise, Minor Collector roadways are more focused on accessibility and should be designed to accommodate lower travel speeds. The function of Major

Table 6-F: Roadway Design Speed Guidelines

Functional Classification	Design Speed (1)
Minor Collector Street	30 mph
Major Collector Roadway	35 – 40 mph
Minor Arterial Roadway	45 – 55 mph

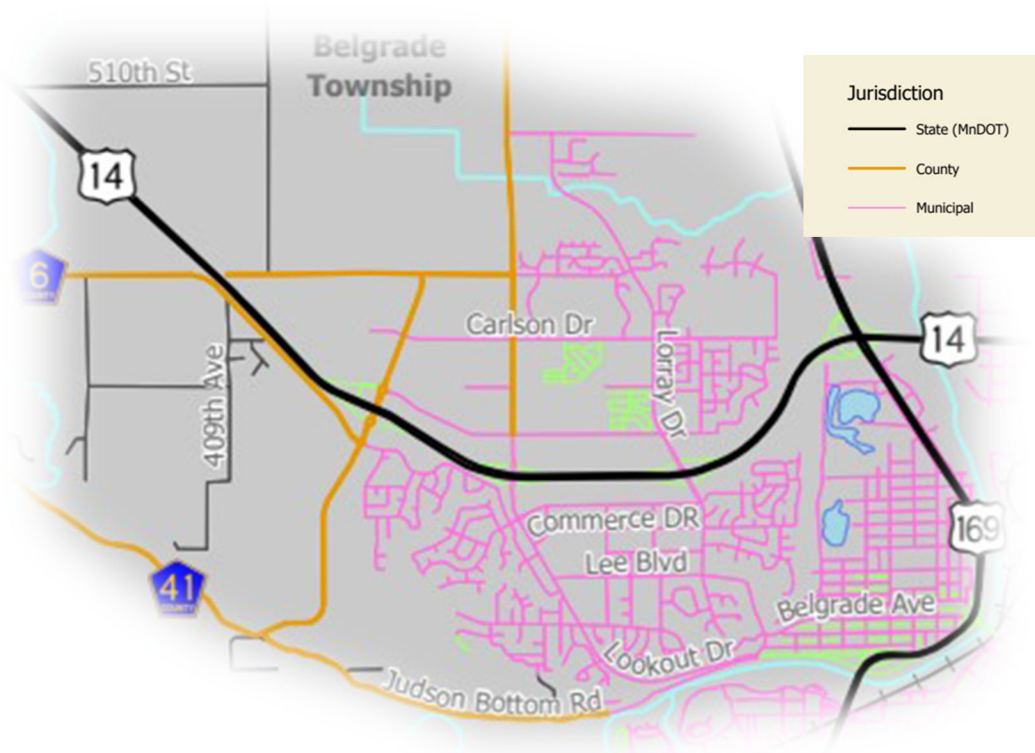
(1) At the discretion of the City Engineer for City roadways, with approval by the City Council

Collectors is balanced between mobility and accessibility; therefore, these roadways should be designed accordingly. **Table 6-F** below presents the recommended design speed for the North Mankato roadway network.

Roadway Jurisdiction

Roadway jurisdiction directly relates to functional classification of roadways. Generally, roadways with higher mobility functions (such as arterials) should fall under the jurisdiction of a regional level of government. Recognizing that these roadways serve greater areas resulting in longer trips and higher volumes, jurisdiction of Principal Arterial and Minor Arterial roadways should fall under the jurisdiction of the state and county, respectively. Similarly, roadways with more emphasis on local circulation and access (such as collectors) should fall under the jurisdiction of the local government unit. These roadways serve more localized areas and result in shorter trip lengths and lower volumes. Major Collector and Minor Collector roadways should fall under the jurisdiction of the City of North Mankato.

As roadway segments are considered for turn-back to the City, efforts will be taken to evaluate the roadway features for conformance to current standards, structural integrity, and safety. This effort will help the City develop short and long-range programs to assume the responsibilities of jurisdictional authority.



EXISTING TRANSPORTATION SYSTEM EVALUATION

Transportation Planning Efforts Since the 2015 North Mankato Comprehensive Plan

Several past and ongoing efforts focused on transportation in North Mankato and the surrounding Metropolitan Statistical Area (MSA) have been reviewed as part of developing this chapter. Some of these efforts are more relevant than others but all have contributed to the transportation network of the City. Planning efforts since 2015 that focus on transportation in the area and guide the recommendations in this chapter include:

A. MAPO 2045 Long Range Transportation Plan (2015; Updated in 2020)

The Mankato/North Mankato Area Planning Organization's (MAPO) Long Range Transportation Plan (LRTP) coordinates and prioritizes improvements to the interconnected regional Transportation network with mobility, safety, freight, and congestion mitigation to accommodate planned growth in the area.

- Advises MAPO policymakers about the metropolitan area's major transportation assets
- Presents key technical findings that inform policy discussion
- Provides data on the multimodal improvements needed to maintain and upgrade the transportation infrastructure
- Provides a fiscally constrained program of projects for future public investments.

MAPO is a Metropolitan Planning Organization (MPO) designated because the Mankato/North Mankato urbanized area is now larger than 50,000 population. It is charged with carrying out the 3-C metropolitan transportation planning process (continuing, cooperative, and comprehensive). MAPO is comprised of Blue Earth and Nicollet counties; the cities of Mankato, North Mankato, Eagle Lake, and Skyline along with the townships of Belgrade, Lime, South Bend, LeRay and Mankato. All Plan elements were coordinated with MAPO member jurisdictions and the Minnesota Department of Transportation (MnDOT).

B. Safe Routes to School Plan (2015)

Safe Routes to School (SRTS) is a national program which assists communities and school districts in enabling and encouraging children to walk and bike to school and making it a safer, healthier, and more appealing transportation option. The program facilitates the planning, development, and implementation of projects and activities that improve safety, and reduce traffic, fuel consumption, and air pollution near schools. The planning process identified various pedestrian and bicycle infrastructure improvements surrounding Monroe, Garfield (now Bridges), and Hoover Elementary Schools and Dakota Meadows Middle School in North Mankato. The City has leveraged the SRTS Plan to obtain federal funding for infrastructure improvements surrounding each school and continues to leverage the plan to identify other needed improvements.

C. Sidewalk Maintenance and Installation Policy (2016)

This policy, in addition to existing provisions in the city code and plans adopted by the city of North Mankato outline the installation, replacement, and maintenance policy for public sidewalks in the City. It includes a map of existing, proposed, and SRTS planned additions to the sidewalk system.

D. Complete Streets Plan and Policy (2016)

Complete Streets are streets and sidewalks that are designed and constructed to accommodate all modes of transportation serving pedestrians, bicyclists, and drivers. They consider the transportation needs of all people, including children, older adults, and people with disabilities or impaired mobility. As state and local governments have worked to improve the road network, they have primarily focused on efficiency, making the flow of traffic better for drivers, to the detriment of pedestrians. The emphasis on improving the efficiency of vehicle traffic has in many cases created streets that are unfriendly to pedestrians and bicyclists creating an increasing need to drive. Complete Streets policies and projects are aimed at changing streets from places where vehicles dominate to places where all users are accommodated.

E. Belgrade Avenue Corridor Study (2017)

MAPO and the City of North Mankato, in partnership with MnDOT, completed this study to identify a long-term vision for multimodal improvements on Belgrade Avenue in North Mankato. The study extent includes Belgrade Avenue from Lee Boulevard on the west to the Veteran's Memorial Bridge on the east. The Belgrade Avenue corridor has served the City of North Mankato as the central corridor of the downtown business district since before the City was incorporated in 1899. It provides the gateway to the City from US Trunk Highway (TH) 169 and the City of Mankato to the east. The City has demonstrated a commitment to enhancing the quality of downtown through planning efforts and public outreach. The most recent effort, the Belgrade Avenue Master Plan, ran concurrently with this effort and is described in the Economic Development chapter of this Comprehensive Plan document.

F. Updated Pavement Management Report (2019)

This report is an update of the Pavement Management System Report (2014). The goal of the earlier report was to assist the City with understanding the condition of the bituminous pavement system and provide recommendations for pavement management going forward. The report update outlined successes in improved condition ratings of the roadway inventory and maps future improvement projects.

G. North Mankato ADA Transition Plan (2019)

The North Mankato ADA Transition Plan is part of the larger MAPO Mankato/North Mankato Area Planning Organization (MAPO) – ADA Transition Plan & Inventory for Public Rights-of-Way completed in 2019 for the cities of Mankato, North Mankato, Eagle Lake, and Skyline, along with the counties of Blue Earth and Nicollet. The Plan fulfills the requirement for all cities in MN evaluate services, policies and practices and the effects thereof that do not meet the requirements set forth in the ADA and provide and implementation plan for remediation. An ADA transition plan is required for a city to obtain funding through various state and federal grant programs.

H. North Mankato Area Transit Study (2020)

The City examined local transit to understand the existing and future needs of transit in the community including busing and dial-a-ride services. The study provides recommendations for shifting the frequency and routing of fixed route service and curb-to-curb dial-a-ride transit services.

I. Nicollet County Comprehensive Plan (2020)

The Nicollet County Comprehensive Plan identifies potential jurisdictional transfers and a potential future roadway extension of CSAH 41, north of the Northport Industrial Park. The Plan also outlines a future Nicollet County Transportation Plan that will provide a comprehensive assessment of highway system characteristics and plan to maintain the highway system in a state of good repair.

J. Northwest Growth Area Plan (2021)

This plan guides residential, commercial, and industrial growth areas surrounding CSAH 41 (Rockford Road)/CSAH 13. The results of this effort helped guide the Future Land Use Map in this Comprehensive Plan and have also assisted with forecasting for future transportation trips in the Lookout Drive Corridor Study.

K. Webster Avenue Area Plan (2021)

This plan examined transportation improvements to the Webster Avenue intersections with US Highway 169/MN 60 and Range Street to ensure future access to the City from the major highway system. This effort informed the development of the US Highway 169 Corridor Study (2022).

L. North Mankato Capital Improvements Plan (2021)

This plan lays out transportation projects planned for completion in the City within the 2023-2026 timeframe.

M. Highway 169 Corridor Study (2022)

This Study examined intersection and roadway improvements along Highway 169/MN 60 from Lake Street (north of the Highway 14 interchange) south to the Highway 169/MN 60 split. The Northern Subarea of the Study identified improvements to the Highway 169/MN 60 intersection with Webster Avenue. Two options were supported by the City including constructing a roundabout at that location or maintaining a signal for traffic control. Options were also identified for intersections north of Webster including the closure of Lind Street and conversion of the River Lane intersection to full access. While these intersections are north of City limits, they have potential to impact North Mankato as well. The study concluded in early 2022.

N. Future Transportation Preparedness Study (2022)

The City collaborated with the Urban and Regional Studies Institute (URSI) at Minnesota State University (MSU), Mankato to research trends in transportation and how the City can be prepared as technology shifts. The study reviewed trends in autonomous vehicles, electric vehicles, e-bikes, and e-scooters to guide City transportation infrastructure and policy planning for these technologies.

O. Lookout Drive Corridor Study (2022)

The Lookout Drive Corridor Study examined Lookout Drive from its southern intersection with Lee Boulevard to its intersection with 512th Street (Somerset Lane). The project identified an ultimate vision for the corridor through public and agency consensus ultimately providing an implementation plan for safety and mobility improvements.

P. Highway 14 Pedestrian Bridge Feasibility Study (2022)

North Mankato has identified the need for better north/south trail connections in Upper North Mankato in several planning documents. The Highway 14 Pedestrian Bridge Feasibility Study examined the feasibility of installing a grade-separated pedestrian/bicycle bridge over Highway 14 spanning from properties on the north side of Commerce Drive to the Caswell Park Sports Complex. A bridge addition at this location would enhance that connection, providing a safe alternative to using the interchanges at Lookout Drive and Lor Ray Drive to cross the highway. This planning initiative was recommended through the MAPO 2045 LRTP process.

Q. HIGHWAY 169 and Belgrade Avenue Study (2022)

MnDOT identified the pending 2025 rehabilitation of the Veteran's Memorial Bridge as an opportunity to further evaluate the ramp intersections of Highway 169 with Belgrade Avenue. The Belgrade Corridor Study and other City efforts identified intersection treatments for the southbound intersection in the past. MnDOT considered findings and recommendations from those efforts to define intersection improvements at the ramps that will best serve existing and future vehicle traffic.

Roadway Projects Completed Since the 2015 North Mankato Comprehensive Plan

Since the development of the 2015 Comprehensive Plan, there have been several roadway infrastructure projects completed. **Table 6-G** outlines these projects.

Table 6-G. Completed Projects: 2015-2022

Year	Project
2015	Lookout Dr Reconstruction
2016	Carlson Dr Extension Roe Crest Dr Reconstruction
2018	Jefferson Ave Reconstruction Marie Ln Reconstruction
2019	Tyler Ave Reconstruction Commerce Dr Reconstruction
2020	Howard Dr (Dakota Meadows Middle School) Safe Routes to School Pedestrian Improvements Monroe Ave Reconstruction Countryside Dr Reconstruction
2021	Harrison Ave Reconstruction Cliff Court Reconstruction
2022	McKinley Ave Reconstruction Lor Ray Drive Reconstruct (Rural to Urban) from White Oak Drive to Somerset Lane

Existing Traffic Conditions

Among the several planning efforts have been completed to inform this chapter, the MAPO 2045 LRTP provides much of the following analysis of the existing transportation system in the City of North Mankato. The City of North Mankato's participation in that effort was substantial. The City will continue to have both technical and policy board representation in iterations of the MAPO Long Range Transportation planning processes.

A. Traffic Operations

Traffic Volumes

Existing traffic volumes were collected through the MAPO 2045 LRTP and are depicted in **Figure 6-3**. As Principal Arterial roadways, Highway 14 and Highway 169 carry significant volumes of vehicle and freight traffic through the City of North Mankato. Other important roadways carrying significant vehicle traffic include Lee Boulevard (hill) from Lookout Drive to Lor Ray Drive (12,600), Commerce Drive from Tower Boulevard to Lor Ray Drive (11,500), and Lor Ray Drive from James Drive to Howard Drive (14,800). Lookout Drive is another roadway carrying significant traffic volumes providing access to the Northport Industrial Area and providing connections between Highway 14 and Highway 169.

Capacity

The MAPO 2045 LRTP found no existing roadway capacity issues within North Mankato meaning there are no congested roadway segments.

B. Traffic Safety

Vehicle Crashes

Figure 6-4 shows crash severity throughout North Mankato using MnDOT data from 2014 through 2018. There were no fatal vehicle crashes during this period in the City. Serious injury crashes did occur on Range Street, Webster Avenue, and James Drive during this period. Various minor injury crashes and

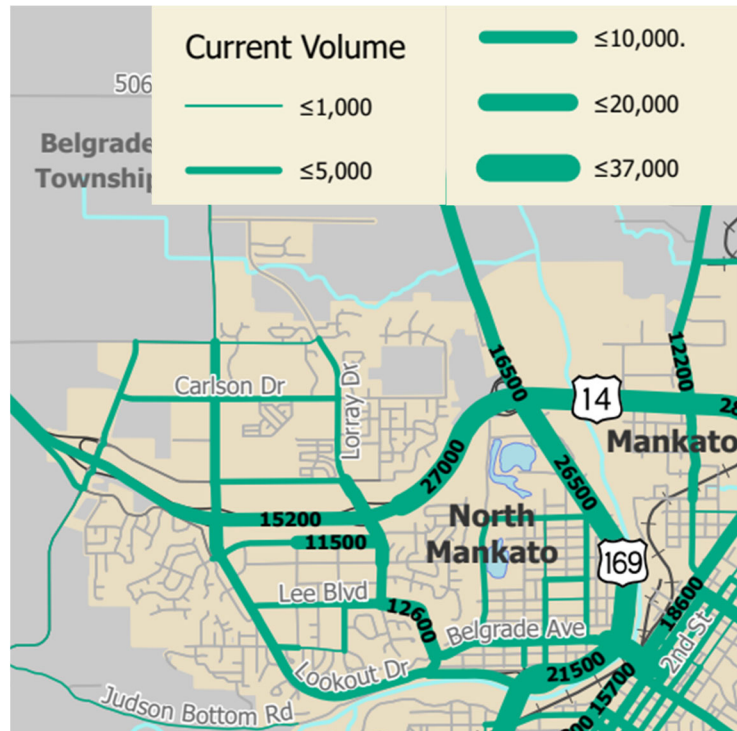


Figure 6-3. Most recent Average Annual Daily Traffic Volumes using MnDOT Data. Source: MAPO 2045 LRTP.

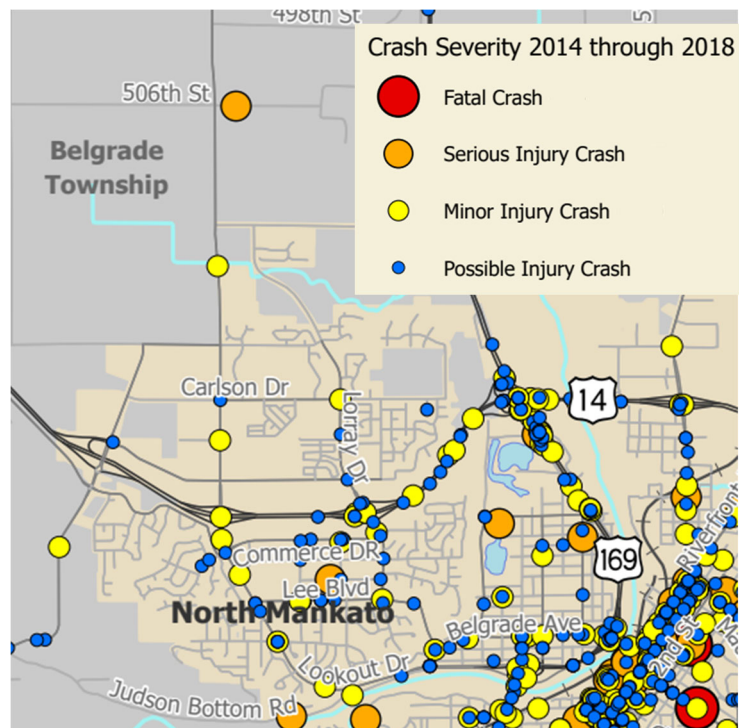


Figure 6-4. Vehicle Crash Severity. Source: MAPO 2045 LRTP

possible injury crashes did occur in several locations throughout the City. There were no locations of high crash occurrence reported in the MAPO 2045 LRTP. However, the following crash concerns were identified through other planning processes as follows:

- *Belgrade Avenue Corridor Study (2017)* – The intersection of Belgrade Avenue and Sherman Street showed serious injury crashes outside of the normal range for similar intersections in the state.
- *Webster Avenue Area Development Plan (2021)* – Webster Avenue/Range Street intersection showed crash frequency above the critical rate for similar type intersections in the state making this a candidate for further study.

Pedestrian & Bicycle Crashes

Figure 6-5 shows crash severity for the period from 2014 to 2018. During this period, there were no fatal pedestrian and bicycle crashes in the City. There was only one serious injury crash reported on Range Street near its approach to Webster Avenue. Some minor injury crashes did occur along Belgrade Avenue. While not identified as a major crash area of concern, Belgrade Ave does show elevated frequency of crashes when compared to other areas in the City (**Figure 6-6**). Minor injury crashes did occur at the junction of Lee Boulevard and Lor Ray Drive and also at the northbound ramp of the Lor Ray Drive/Highway 14 Interchange.

C. Multi-modal

Pedestrian & Bicycle

The North Mankato Sidewalk Maintenance and Installation Policy along with the City's

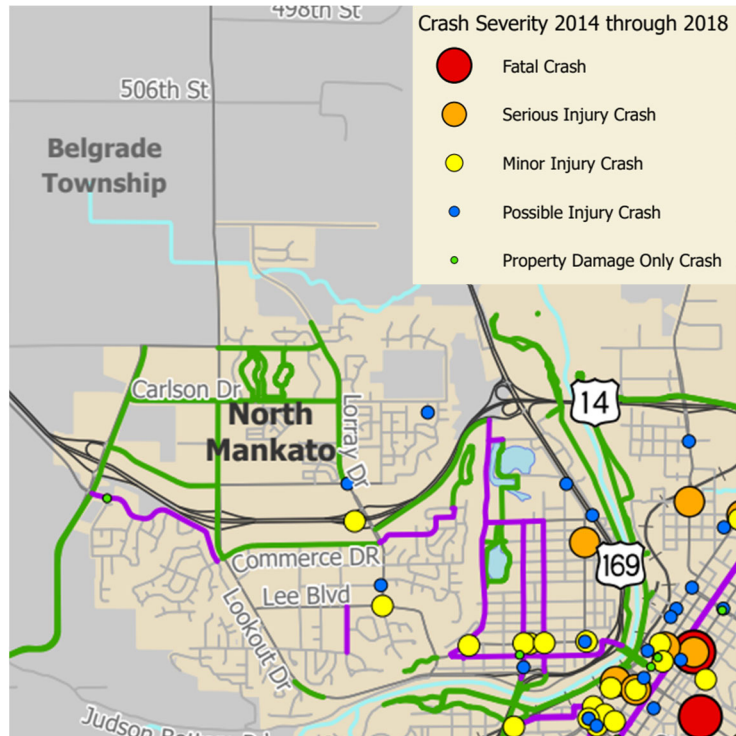


Figure 6-5. Pedestrian/Bicycle Crash Severity. Source: MAPO 2045 LRTP

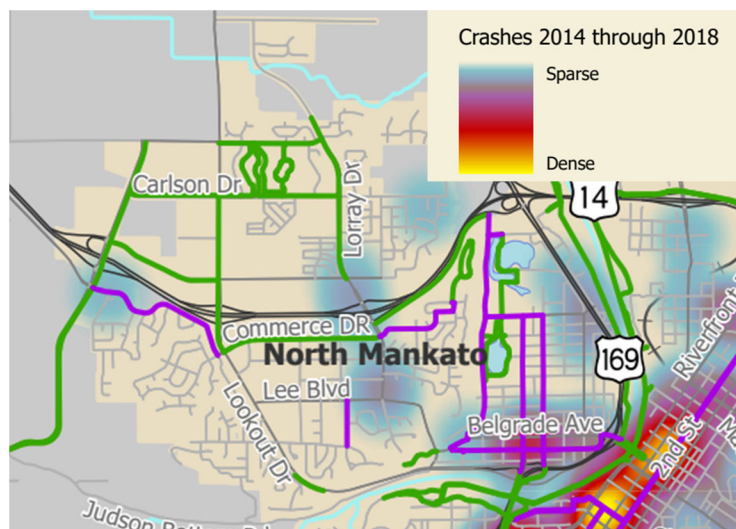


Figure 6-6. High Frequency Pedestrian/Bicycle Crash Locations. Source: MAPO 2045 LRTP.

Complete Streets Plan and Policy both identify various gaps in the City's sidewalk system that will need to be addressed with future infrastructure projects. The Complete Streets policy suggests that, whenever feasible, residential, commercial, and industrial development should accommodate varying modes of transportation.

Some plans take a more granular look at gaps and deficiencies in pedestrian and bicycle facilities in the City. The Belgrade Avenue Corridor Study identifies a gap in connectivity on Belgrade Avenue between its intersections with Lake Street and Nicollet Avenue. The Plan also identifies a lack of safe pedestrian crossings in the 200 Block of Belgrade Avenue where demand exists and pedestrians are crossing four lanes of traffic without safe facilities in place.

The Commerce Drive Area Development Plan identifies the need for a more defined, continuous, north/south pedestrian and bicycle connection in Upper North Mankato including the City's desire to incorporate a grade-separated bridge crossing of Highway 14 to complete this connection.

The Webster Avenue Area Plan identifies perceptions of area residents that on-street bicycle trail facilities along the roadway are unsafe as they conflict with heavy truck traffic. In that same vicinity, the Highway 169 Corridor Study identifies the need for safer pedestrian/bicycle crossings of Highway 169 for trail users accessing the area and trails east of the highway from along Webster Avenue.

Lookout Drive poses another set of issues for pedestrians and bicyclists. Participants in the public engagement process for the Lookout Drive Corridor Study repeatedly stated that pedestrian crossings are unsafe in this location and are generally lacking. Participants also would like to see a dedicated multi-use path along Lookout Drive from Lee Boulevard at the bottom of the hill, northwest to Claire Drive on the hill; a connection the City has examined numerous times in the past.

As with any City, sidewalk and trail infrastructure ages and winter weather cycles take their toll. To meet requirements of the Americans with Disabilities Act (ADA), the City completed the ADA Transition Plan & Inventory for Public Rights-of-Way. This plan identifies significant ADA deficiencies throughout the community and provides an implementation plan to bring existing facilities into ADA compliance within the next 30 years.

Transit

The City of North Mankato examined transit service in 2020 for improvements to the system. This included a review of the fixed route system, mobility service, and general service paratransit. In the past, the City has seen several changes to fixed service routes and continues to have one route available. Fixed transit Route 5 is depicted in **Figure 6-7**. The North Mankato Route 5 operates from 6:05 a.m. to 8:35 a.m. and 3:05 p.m. to 5:05 p.m. Monday through Friday. Kato Flex provides on-demand service in the Mankato Area Monday through Friday and requires a reservation. A paratransit mobility bus operates seven days a week and requires a reservation.

During this Comprehensive Plan Update, the City of Mankato was updating the Mankato Transit Development Plan to guide changes for a more efficient system. North Mankato was a partner in that process to identify existing and future system needs.

The map illustrates the proposed Route 5 in North Mankato. The route is shown as an orange line with arrows indicating the direction of travel. Key features include:

- Route 5 Segments:** Howard Dr, Lor Ray Dr, Commerce Dr, Northway, Lee Blvd, Wheeler Ave, Belgrade Ave, and Nicollet Ave.
- Intersecting Roads:** Carlson Dr, Country Side Dr, Green Oak, James Dr, Northway, Lee Blvd, Tower Blvd, Lookout Dr, Marie Ln, Webster Ave, Sherman St, Center St, Cross St, Range St, Garfield Ave, and Nicollet Ave.
- Landmarks and Institutions:** Taylor Corp, South Central College, and the Center for Innovation & Entrepreneurship.
- Geographical Features:** The Minnesota River is shown at the bottom of the map.
- Other Routes:** Highway 14, Highway 21, Highway 18, Highway 17, Highway 15, and Highway 169 are also marked.

Better scheduling in paratransit and mobility services is also needed.

The following roadways are significant freight corridors within the MAPO area due to their importance to the regional and state economies:

- Specifically, TH 169 is the primary transportation corridor for funneling freight into the Twin Cities from the Mankato/North Mankato region and southern Minnesota. This area produces almost half of Minnesota's corn, soybeans and ethanol, making Minnesota third in the nation for production among all states. Other major commodities moving along this corridor include aggregates, clay and sand, hogs, manufactured goods and food products.

Roadway Jurisdiction

Figure 6-8 depicts existing roadway jurisdiction in North Mankato.

Jurisdiction	Mileage
State	9.5
County	3.5
Municipal	71.7
Private, Ramp, or Other	12.3

F. Pavement Condition

The MAPO 2045 LRTP identifies several roadways exhibiting poor pavement condition. While the City's Pavement Management Plan needs updating, the issues identified in the MAPO 2045 LRTP have been remedied in recent years following projects have occurred:

- Cliff Court: Reconstructed
- Cliff Drive (segment): Overlaid
- Marvin Boulevard: Overlaid
- Garfield Avenue: Overlaid

G. Lane Configuration

Through several past planning efforts, the City has examined the current number of lanes of certain roadways to gauge if configurations are necessary to carry existing and forecasted traffic volumes. A roadway with several lanes of traffic may pose issues to safe and efficient pedestrian and bicycle movement along a corridor or create an environment that encourages higher traffic speeds in roadway segments where safety for all users is jeopardized.

The Belgrade Avenue Corridor Study identifies three-lane options for the current four-lane configuration that would provide two thru-traffic lanes with a center turn-lane with the aim to slow traffic, provide wider sidewalks, and accommodate pedestrians with a mid-block crossing. These options have been examined several times by the City to identify what will work best but nothing has been decided on.

In 2022, MnDOT performed the HIGHWAY 169 and Belgrade Avenue Study to begin planning for the 2025 rehabilitation of Bridge No. 52009 and the Veteran's Memorial Bridge spanning over Highway 169 and the Minnesota River into Mankato. This Study examined options to improve the functionality of the Highway 169 ramp intersection with Belgrade Avenue to solve any deficiencies at that location. Options for the intersection considered three- and four-lane configurations of Belgrade Avenue to keep options open in the event the City pursues lane reduction.

The Lookout Drive Corridor Study (2022) considered alternatives to the five-lane roadway extending from Marie Lane to Highway 14. Pedestrian crossings along this section are perceived as unsafe which prevents pedestrians and bicyclists from choosing to cross the roadway. Also, the current five-lane configuration is unnecessary to accommodate existing and future forecasted traffic volumes. Options included in the plan consider various lane-reduction scenarios.

Existing transportation conditions and observed concerns throughout the system are summarized in **Table 6-I** below.

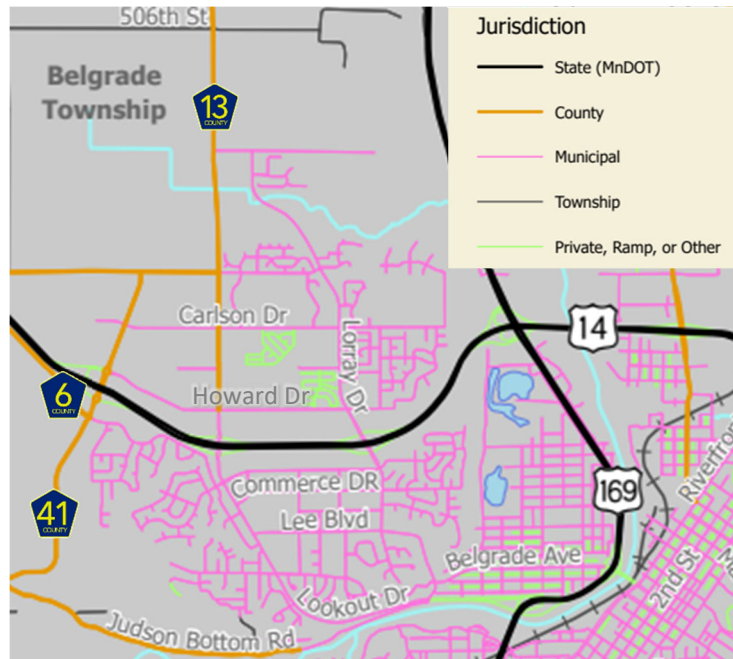


Figure 6-8. Roadway Jurisdiction. Source: MAPO 2045 LRTP

Table 6-1: Summary of Existing Transportation System Conditions & Issues Identification

Topic	Plan Referenced	Existing Conditions/Issues Identification
<i>Traffic Operations</i>	MAPO 2045 LRTP*	<ul style="list-style-type: none"> • No issues with roadway congestion currently exist in North Mankato.
	Webster Ave. Area Devel. Plan	<ul style="list-style-type: none"> • Traffic back-ups identified extending from the Webster Ave/Highway 169 intersection past the Webster Ave/Range St intersection and on Range St approaching Webster Ave. • Property Access between Webster Ave and Highway 169 can be problematic.
	Belgrade Ave. Corridor Study	<ul style="list-style-type: none"> • Identified delay on Belgrade Ave for westbound traffic entering Lee Blvd. • Identified backups at Belgrade Ave/Range Street intersection during PM peak hour. • High traffic speeds concerning on 200 Block of Belgrade Ave.
<i>Safety - Vehicle Crashes**</i>	MAPO 2045 LRTP*	<ul style="list-style-type: none"> • No fatal crashes identified in North Mankato. • Serious injury crashes occurred on Range St, Webster Ave (western), and James Dr. • Various minor injury crashes and possible injury crashes occurred throughout the City. • No locations of high crash occurrence were reported.
	Webster Ave. Area Devel. Plan	<ul style="list-style-type: none"> • Crash concerns identified at the Webster Ave/Range St intersection.
	Belgrade Ave. Corridor Study	<ul style="list-style-type: none"> • Identified serious injury crashes outside normal range at the Belgrade Ave/Sherman St.
<i>Safety - Pedestrian/Bicycle Crashes**</i>	MAPO 2045 LRTP*	<ul style="list-style-type: none"> • No fatal crashes identified in North Mankato. • One serious injury crash reported on Range St approaching Webster Ave. • Minor injury crashes occurred along Belgrade Ave. • Minor injury crashes occurred at the junction of Lee Blvd and Lor Ray Dr and also at a Highway 14 ramp interchange with Lor Ray Dr.
<i>Multi-Modal</i>	Sidewalk Maintenance and Installation Policy	<ul style="list-style-type: none"> • Various locations throughout the City lack sidewalk continuity; Many have been completed since the adoption of this policy but some remain.
	North Mankato Complete Streets Plan and Policy	<ul style="list-style-type: none"> • Residential, commercial, and industrial developments need to accommodate varying modes of transportation.
	North Mankato ADA Transition Plan	<ul style="list-style-type: none"> • Identifies extensive ADA deficiencies throughout the sidewalk and trail system in the City. An implementation plan is provided to bring existing facilities into compliance over a 30-year period working within funding constraints.
	Belgrade Ave. Corridor Study	<ul style="list-style-type: none"> • Identified gap in the bicycle network connecting Lake St to Nicollet Ave. • Identified pedestrian bicycle crashes. • Lack of marked pedestrian crossings on 200 Block of Belgrade Ave where demand exists.
	Commerce Dr Area Devel. Plan	<ul style="list-style-type: none"> • Identifies need for a continuous north/south pedestrian/bicycle connection in Upper North Mankato.
	Webster Ave. Area Devel. Plan	<ul style="list-style-type: none"> • Perceptions of unsafe on-street bicycle facilities with the presence of heavy truck traffic.

Table 6-I Continued

Topic	Plan Referenced	Existing Conditions/Issues Identification Summary
	Highway 169 Corridor Study	<ul style="list-style-type: none"> Identified need for safer pedestrian/bicycle crossings over Highway 169.
	Lookout Dr. Corridor Study	<ul style="list-style-type: none"> Pedestrian crossings perceived as unsafe and generally lacking. Lack of pedestrian facilities on Lookout Dr between Lee Blvd (south intersection) and Claire Ct.
Transit	2020 North Mankato Area Transit Study	<ul style="list-style-type: none"> Existing frequency and routing of the fixed transit route are not aligned with work shift times or customer interest in a travel time competitive option. Same-day and real-time reservations for curb-to-curb pick up are not currently available but would improve transit availability in the future. Better scheduling in paratransit and mobility services is needed.
Freight	MAPO 2045 LRTP	<ul style="list-style-type: none"> Highway 14 and Highway 169 are on the National Truck Network. Highway 14 carries the highest number of heavy commercial vehicles in the MAPO planning area.
	Lookout Drive Corridor Study	<ul style="list-style-type: none"> There is a desire among residents to reroute truck traffic from Lookout to Highway 14 and Highway 169 for safety and reduction in noise complaints from J-breaking. Lookout Drive provides a connection between Highway 14 and Highway 169 used often by heavy commercial vehicles.
Jurisdictional Transfer	Nicollet County Comprehensive Plan	<ul style="list-style-type: none"> Identifies the transfer of the following roadways from Nicollet County to the City of North Mankato: <ul style="list-style-type: none"> CSAH 6 from CSAH 13 to CSAH 41 CSAH 13 from Howard Drive to CSAH 6 CSAH 13 from CSAH 6 to CSAH 41
Pavement Condition	MAPO 2045 LRTP*	<ul style="list-style-type: none"> North Mankato Pavement Management Plan needs to be updated to identify current pavement issues.
Lane Configuration	MnDOT US 169 and Belgrade Ave. Study	<ul style="list-style-type: none"> Bridge No. 52009 (Veteran's Memorial Bridge) in disrepair and planned for rehabilitation project in 2025 spurring redesign of the intersection at Belgrade Ave and Highway 169 Ramp. Options explored for 3- and 4-lane configurations of Belgrade Ave.
	Belgrade Ave. Corridor Study	<ul style="list-style-type: none"> Current 4-lane configuration of Belgrade Ave in 200 Block poses issues for pedestrian crossings and invites speeding traffic.
	Lookout Dr. Corridor Study	<ul style="list-style-type: none"> Current 4-lane configuration unnecessary to accommodate current and future traffic volumes.
New Technologies	2022 Future Transportation Preparedness Study (2022)	<ul style="list-style-type: none"> The City will need to consider private sector infrastructure when considering funding the installation of future public infrastructure. The City will need to understand implications for vehicle storage and usage of electric bicycles and electric scooters on the transportation system. The City will need to understand changes to roadway infrastructure needed to accommodate semi- and fully-autonomous vehicle technologies in the future.

*The MAPO 2045 LRTP examined all arterial and collector roadways and a small subset of local roadways

**The MAPO 2045 LRTP examined crash data from the Minnesota Crash Mapping Analysis Tool (MnCMAT) for the period from 2014 to 2018.

FUTURE TRANSPORTATION SYSTEM

The 2015 North Mankato Comprehensive Plan did not include analysis of the City's future transportation needs. As discussed, several planning efforts have analyzed the transportation system and provide the necessary analysis of future system needs. The primary source of system-wide information is the MAPO 2045 LRTP which leads the following discussion. Other planning efforts are corridor specific and are integrated into the discussion as necessary.

Roadway Projects Planned for North Mankato for the 2023-2026 Timeframe

The City has several projects planned for completion within the 2023-2026 timeframe referenced from the Capital Improvements Plan (CIP). Those projects are listed in **Table 6-J**.

Table 6-J. Planned Projects: 2023-2026

Year	Project
2023	Howard Dr/Lor Ray Drive Intersection Improvements
	Somerset Drive Reconstruct (Rural to Urban) from Lookout Drive to Lexington Lane
2024	Somerset Drive Reconstruct (Rural to Urban) from Lookout Drive to Lexington Lane
2025	Garfield Ave Infrastructure
	Cross St Infrastructure
2026	Sherman Street Infrastructure
	Page Ave Infrastructure
	Wheeler Ave Infrastructure

Future Traffic Operations

A. Forecasted Traffic Volumes

The MAPO 2045 LRTP used the volume data from 2014-2018 to forecast future traffic volumes throughout the MAPO planning area. Updated growth rates were calculated and assessed to identify short-term and long-term trends. More information on how traffic volume forecasts were generated can be found in the MAPO 2045 LRTP at <https://mnmapo.org/lrtp/>.

Traffic volume forecasts developed through the MAPO 2045 LRTP are depicted in **Figure 6-10**. Traffic volumes are forecasted to increase significantly on Highway 14, increasing from 15,200 just north of Commerce Drive and 27,000 east of Lor Ray Drive to 25,000 and 39,000 respectively by 2045. Volumes passing through the Commerce Drive business district are anticipated to grow from 11,500 today to

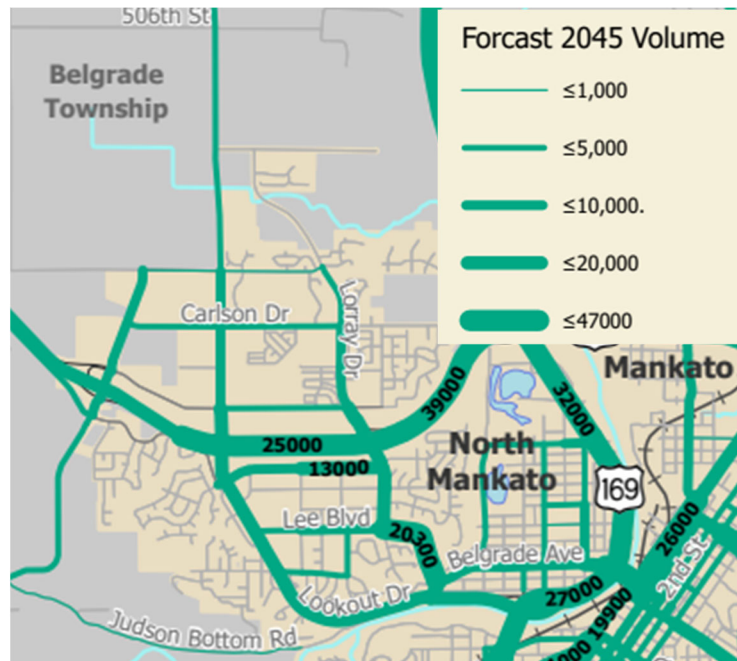


Figure 6-10. Forecast Traffic Volumes. Source: MAPO 2045 LRTP

13,000 in that same timeframe. Lee Boulevard from Lookout Drive to Lor Ray Drive is anticipated to nearly double, from 12,600 currently to 20,300. Highway 169 is anticipated to carry 32,000 in 2045, an increase of 5,500 vehicles per day.

The Lookout Drive Corridor Study forecasts increased volumes throughout the corridor. Just north of Highway 14, traffic is anticipated to increase from 8,800 in 2021 to 14,000 in 2045. Similarly, segments of the corridor south of Highway 14 are anticipated to increase from roughly 8,500 to 13,600+. Directly south of Highway 14, near the ramps, volumes are anticipated to increase from 11,300 to 13,900 by 2045.

Of course, the nature and intensity of industrial, commercial, and residential development surrounding Lookout Drive will ultimately determine traffic growth. The Northport Industrial Park continues to grow North of Highway 14 and there is some opportunity south of the highway for additional residential/commercial/industrial growth as well.

B. Forecasted Capacity: Congested Roadway Segments

Figure 6-11 identifies future roadway congestion. Roadways nearing congestion, operating at LOS D by 2045 include:

- Lor Ray Drive from Lee Boulevard to Highway 14
- Commerce Drive from Tower Boulevard to Lor Ray Drive
- Lookout Drive from Marie Lane to Lee Boulevard (southeast intersection)
- Belgrade Avenue from Lee Boulevard to Range Street.
- Highway 169 from Webster Avenue north to Highway 14 is anticipated to operate at LOS E by 2045.

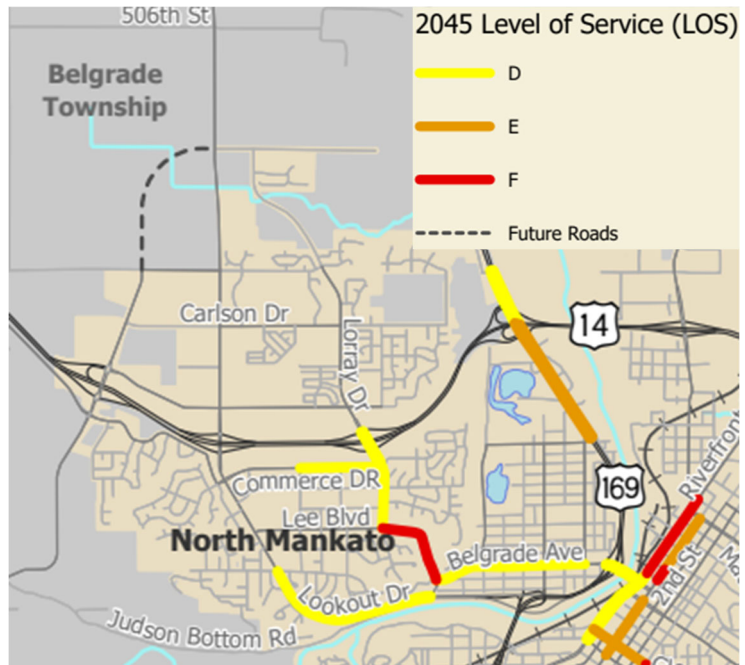


Figure 6-11. Future Roadway Congestion. Source: MAPO 2045 LRTP

Perhaps the most significant forecasted congestion is Lee Boulevard from Belgrade Avenue to Lor Ray Drive, which is forecasted to exceed capacity by 2045, operating at LOS F. This signals that roadway capacity improvements may be needed.

C. Future Roadway Functional Classification

The MAPO 2045 LRTP calls for the following roadway segments to transition functional classification from local roadway to Minor Collector roadway by 2045:

- Carlson Drive (east of CSAH 13 to CSAH 41)
- Timm Road (west of CSAH 13 to Lor Ray Drive)
- Lor Ray Drive (north of Timm Road to 512th Street)
- 512th Street (east of Lor Ray Drive to CSAH 13)
- A potential future extension of CSAH 41 (Rockford Road) would be a Minor Collector if constructed.

- Portions of both Highway 169 and Highway 14 are anticipated to transition from Principal Arterial – Other Freeways and Expressways to Principal Arterials – Other.

These changes are reflected in **Figure 6-12**.

D. Jurisdictional Transfers

Several Nicollet County roadways are located at the periphery of North Mankato and have potential for transfer of ownership from county to city jurisdiction in the future as the City continues to develop. The Nicollet County Comprehensive Plan (2020) identifies recommended jurisdictional transfers to the City as opportunities arise. This includes:

- CSAH 6 from CSAH 13 to CSAH 41
- CSAH 13 from Howard Drive to CSAH 6
- CSAH 13 from CSAH 6 to CSAH 41 (potential future connection)

The MAPO 2045 LRTP identifies these roadways but also includes Judson Bottom Road from North Mankato City Limits to CSAH 41. Future Roadway Jurisdiction can be seen in **Figure 6-13**.

E. Future Pedestrian and Bicycle System

Pedestrian and bicycle system improvements are at the forefront of every plan completed by or for the City of North Mankato. The City consistently looks for state and federal funding opportunities to fund safe routes to school initiatives and additional sidewalk and trail along new roadway construction. Per the City's Complete Streets Plan and Policy, bicycle and pedestrian design will be considered in all



Figure 6-12. Future Functional Classification. Source: MAPO 2045 LRTP

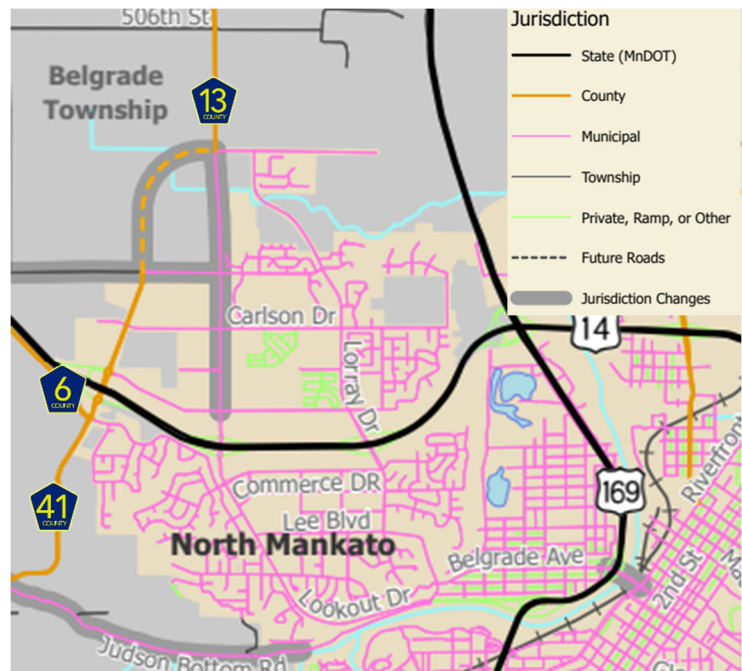


Figure 6-13. Future Roadway Jurisdiction. Source: MAPO 2045 LRTP

street construction, reconstruction, rehabilitation, and pavement maintenance conducted by or on behalf of the City, as appropriate, subject to some exceptions. Also, the City shall plan, design, build and maintain all bicycle and pedestrian facilities in accordance with acceptable federal, state and local standards and guidelines, but will consider innovative and/or non-traditional design options as appropriate. This suggests that any new development will need to incorporate sidewalk and trail on new streets where feasible.

The North Mankato American with Disabilities Act (ADA) Transition Plan and Inventory developed in 2019 identifies improvements to curb ramp and sidewalk locations that are not compliant. Existing facilities are brought into compliance as they are reconstructed during street improvement projects. The City should continue to explore grant funding opportunities to increase implementation of compliant facilities.

Discussed in the *Chapter 8 – Parks and Trails*, the City has enhanced its trail system with wayfinding signage which ties North Mankato trails into the larger Greater Mankato Trail Systems. This system improvement should aid in increased bicycle usage in the community and signal to cyclists that the area is a destination for cycling. It may also strengthen the City's position to obtain state and federal grant funding assistance to make improvements to areas of the system in need.

Consistent with other North Mankato planning documents, the 2045 LRTP identifies a grade-separated north-south trail crossing of Highway 14 at Caswell Park as a key improvement in the Future Pedestrian and Bicycle System Plan. MAPO and the City of North Mankato completed the *Highway 14 Pedestrian Bridge Feasibility Study (2022)* to understand any barriers to bridge construction. A bridge over Highway 14 in this location will add a safer connection for recreation and safe routes to school for all users in the community. The City is planning to pursue grant funding opportunities in the coming years to assist with costs of bridge implementation.

F. New Technologies – Electric and Autonomous Vehicles

Electric and Autonomous Vehicles

A group of students from Minnesota State University, Mankato assisted the City with development of the Future Transportation Preparedness Study. This study not only considered E-bikes and E-scooters, but also electric and autonomous vehicles.

In terms of electric vehicles, the City is preparing for new locations for charging infrastructure and there is uncertainty regarding how the private sector will provide chargers in the future for business vehicle fleets or patrons during business hours. The City has received funding assistance from electric utility companies and private donors to construct E-vehicle chargers at three locations in the City including Caswell North Soccer Complex (top right image), Caswell Park Sports Complex (middle right image), and the MGM Strip Mall on Commerce Drive (bottom right image). The City will need to consider private sector infrastructure investment when considering funding the installation of new public charging infrastructure in the future.

The City will also need to understand changes to roadway infrastructure needed to accommodate



Figure 6-14. Caswell North Soccer Complex Electric Vehicle Charger.

semi- and fully autonomous vehicle technologies in the future.



Figure 6-15. Caswell Park Sports Complex Electric Vehicle Charger.



Figure 6-16. MGM parking lot Electric Vehicle Charger on Commerce Drive.

E-bikes and E-Scooters

E-bikes and E-Scooters are quickly integrating into daily life as an option for short trips in fair weather. An E-Scooter program has operated on the Minnesota State University, Mankato campus for the last couple of years and it is only a matter of time before they make their way down into Mankato and across the river to North Mankato. This may be in the form of share programs where E-bikes and E-scooters are available from various docking stations around the area or are left at random locations where users leave them until another user chooses to ride. E-bike and E-scooter usage will require action on the part of the City to understand implications for vehicle storage and usage of E-bikes and E-scooters on the transportation system.

Future Rehabilitation, Capacity Expansion, and Intersection Safety and Expansion Projects

Several transportation-focused projects resulted from the MAPO 2045 LRTP process that were identified through various local plans. The following tables provide a summary of all projects along with project description, cost, and timeframe. The City should revisit this list when considering which projects to incorporate into the CIP.

Table 6-H. MAPO 2045 LRTP - Major Rehabilitation and Reconstruction Projects

ID	Facility	Location/Termini	Project Description	Plan	Agency	Lead Agency	Distance (Miles)	Y.O.E. Estimated Cost (Based on Timeframe)	2020 LRTP Fiscally Constrained Priority Timeframe	Lead Agency Cost (Y.O.E.)	Partner Agency 1 Cost (Y.O.E.)
R10	Pleasant View Drive	Peregrine Lane (E. int.) to North Ridge Drive	Two-Lane Urban Reconstruct and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.25	\$ 688,000	Short	\$ 688,000	N/A
R14	Somerset Lane (512th Street)	Lookout Drive to Lor Ray Drive	Two-Lane Urban Reconstruct and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.24	\$ 1,101,000	Short	\$ 1,101,000	N/A
R18	Webster Avenue	Lake Street to US 169	Two-Lane Urban Reconstruct and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.64	\$ 2,147,000	Mid 1	\$ 2,147,000	N/A
R21	Lee Boulevard (lower)	Lookout Drive to Belgrade Avenue	Three-Lane Urban Reconstruct and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.10	\$ 679,000	Mid 2	\$ 679,000	N/A
R46	Belgrade Avenue	Lee Boulevard to Range Street	Two-Lane Urban Reconstruct and Multimodal Improvements (improvements per the Belgrade Avenue Corridor Study)	Belgrade Avenue Corridor Study	North Mankato	North Mankato	0.93	\$ 3,396,000	Mid 2	\$ 3,396,000	N/A
R47	Belgrade Avenue	Range Street to Nicollet Avenue	Three-Lane Urban Reconstruct and Multimodal Improvements (improvements per the Belgrade Avenue Corridor Study)	Belgrade Avenue Corridor Study	North Mankato	North Mankato	0.10	\$ 1,342,000	Mid 1	\$ 1,342,000	N/A
R60	Howard Drive	Lookout Drive to Lor Ray Drive	Two-Lane Urban Reconstruct	MAPO 2045 LRTP	North Mankato	North Mankato	0.79	\$ 4,163,000	Long	\$ 4,163,000	N/A
R62	Lake Street	Belgrade Avenue to Webster Avenue	Two-Lane Urban Reconstruct	MAPO 2045 LRTP	North Mankato	North Mankato	0.80	\$ 3,506,000	Long	\$ 3,506,000	N/A
R63	Lee Boulevard (upper)	Lookout Drive to Lor Ray Drive	Two-Lane Urban Reconstruct and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.79	\$ 4,163,000	Long	\$ 4,163,000	N/A
R64	Lor Ray Drive	Howard Drive to Carlson Drive	Three-Lane Urban Reconstruct and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.52	\$ 2,629,000	Long	\$ 2,629,000	N/A
R69	Pleasant View Drive	CSAH 41 to Peregrine Lane (W. int.)	Two-Lane Urban Reconstruct and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.71	\$ 2,887,000	Mid 2	\$ 2,887,000	N/A
R78	Carlson Drive	Lookout Drive to Lor Ray Drive	Three-Lane Urban Reconstruct and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.75	N/A	Illustrative	N/A	N/A
R79	Center Street	US 169 to Webster Avenue	Two-Lane Urban Reconstruct and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.95	N/A	Illustrative	N/A	N/A
R83	Howard Drive	CSAH 41 to Lookout Drive	Two-Lane Urban Reconstruct	MAPO 2045 LRTP	North Mankato	North Mankato	0.74	N/A	Illustrative	N/A	N/A
R84	Lor Ray Drive	Carlson Drive to Timm Road	Three-Lane Urban Reconstruct and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.39	\$ 975,000	Long	\$ 975,000	N/A
R85	Lor Ray Drive	Lee Boulevard to Commerce Drive	Three-Lane Urban Reconstruct and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.39	N/A	Illustrative	N/A	N/A
R87	Lor Ray Drive	Commerce Drive to Howard Drive	Four-Lane Urban Reconstruct and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.45	N/A	Illustrative	N/A	N/A
R88	Range Street	Belgrade Avenue to Webster Avenue	Two-Lane Urban Reconstruct and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.57	N/A	Illustrative	N/A	N/A
R92	CSAH 13 (Lookout Drive)	506th Ave to Howard Drive	Two- and Three- Lane Major Rehabilitation (pavement or concrete overlay), Safety, and Multimodal Improvements	MAPO 2045 LRTP Update	Nicollet Co, North Mankato	Nicollet Co	2.40	\$ 3,681,000	Long	\$ 2,761,000	\$ 920,000
R93	Lookout Drive	Commerce Drive to Marie Lane	Three- and Five- Lane Urban Major Rehabilitation (pavement or concrete overlay), Safety, and Multimodal Improvements	MAPO 2045 LRTP Update	North Mankato	North Mankato	0.60	\$ 4,820,000	Long	\$ 4,820,000	N/A
R95	Lookout Drive	Marie Lane to Lee Boulevard (lower)	Three- and Five- Lane Urban Major Rehabilitation (pavement or concrete overlay), Safety, and Multimodal Improvements	MAPO 2045 LRTP Update	North Mankato	North Mankato	1.20	N/A	Illustrative	N/A	N/A

Table 6-I. MAPO 2045 LRTP - Corridor Capacity Expansion Projects

ID	Facility	Location/Termini	Project Description	Plan	Agency	Lead Agency	Distance (Miles)	Y.O.E. Estimated Cost (Based on Timeframe)	2020 LRTP Fiscally Constrained Priority Timeframe	Lead Agency Cost (Y.O.E.)	Partner Agency 1 Cost (Y.O.E.)
E2	Lor Ray Drive	Timm Road to Somerset Lane	Construct Three-Lane Urban Roadway and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.80	\$ 3,212,000	Short	\$ 3,212,000	N/A
E7	Lee Boulevard (lower)	Lor Ray Drive to Belgrade Avenue	Construct Four-Lane Urban Roadway and Multimodal Improvements	MAPO 2045 LRTP	North Mankato	North Mankato	0.55	N/A	Illustrative	N/A	N/A

Table 6-J. MAPO 2045 LRTP - Intersection Capacity Expansion Projects

ID	Facility	Location/Termini	Project Description	Plan	Agency	Lead Agency	Distance (Miles)	Y.O.E. Estimated Cost (Based on Timeframe)	2020 LRTP Fiscally Constrained Priority Timeframe	Lead Agency Cost (Y.O.E.)	Partner Agency 1 Cost (Y.O.E.)
I3	Lor Ray Drive	Howard Drive	Single-lane Roundabout (ICE Completed)	ICE Report 2018	North Mankato	North Mankato	N/A	\$ 1,950,000	Short	\$ 1,950,000	N/A
I7	Lee Boulevard	Belgrade Avenue	Single-lane Roundabout (ICE Completed)	Belgrade Corridor Study	North Mankato	North Mankato	N/A	\$ 2,547,000	Mid 2	\$ 2,547,000	N/A
I20	Lookout Drive (CSAH 13)	Carlson Drive	Traffic Control Improvement (ICE Needed)	MAPO 2045 LRTP Update	Nicollet Co, North Mankato	Nicollet Co	N/A	N/A	Illustrative	N/A	N/A
I21	Lookout Drive (CSAH 13)	Timm Road	Traffic Control Improvement (ICE Needed)	MAPO 2045 LRTP Update	Nicollet Co, North Mankato	Nicollet Co	N/A	N/A	Illustrative	N/A	N/A

Table 6-K. MAPO 2045 LRTP - Safety Projects

ID	Facility	Location/Termini	Project Description	Plan	Agency	Lead Agency	Distance (Miles)	Y.O.E. Estimated Cost (Based on Timeframe)	2020 LRTP Fiscally Constrained Priority Timeframe	Lead Agency Cost (Y.O.E.)	Partner Agency 1 Cost (Y.O.E.)
S1	Lor Ray Drive	Carlson Drive	Construct Mini-Roundabout (ICE Completed)	ICE Report 2017	North Mankato	North Mankato	N/A	\$ 2,013,000	Mid 1	\$ 2,013,000	N/A
S4	Lor Ray Drive	Carlson Drive	Remove sight distance obstructions near intersection	MAPO 2045 LRTP	North Mankato	North Mankato	N/A	\$ 7,000	Short	\$ 7,000	N/A

Table 6-L. MAPO 2045 LRTP - Pedestrian & Bicycle Projects

ID	Facility	Location/Termini	Project Description	Plan	Agency	Lead Agency	Distance (Miles)	Y.O.E. Estimated Cost (Based on Timeframe)	2020 LRTP Fiscally Constrained Priority Timeframe	Lead Agency Cost (Y.O.E.)	Partner Agency 1 Cost (Y.O.E.)
P 1	CSAH 6 (520th Street)	CSAH 41to 409th Avenue	New Trail	MAPO 2045 LRTP Update	North Mankato, Nicollet Co	North Mankato	100	\$ 6,000	Short	\$ 6,000	N/A
P 2	Judson Bottom Road	Lookout Drive to CSAH 41	New On-Street Route	N. Mankato Proposed Bike Trails/Routes Plan	North Mankato	North Mankato	2.80	\$ 401000	Short	\$ 401000	N/A
P 9	Lookout Drive	Marie Lane to Commerce Drive	SRTS Infrastructure Improvements (New Trail and Improved Crossings)	MAPO 2045 LRTP	North Mankato	North Mankato	0.65	\$ 537,000	Mid 1	\$ 537,000	N/A
P 12	Lor Ray Drive	Lee Boulevard to Howard Drive	New Trail	MAPO 2045 LRTP	North Mankato	North Mankato	0.43	\$ 287,000	Short	\$ 287,000	N/A
P 14	Marie Lane	Lookout Drive to Roe Crest Drive	SRTS Infrastructure Improvements (New Trail and Improved Crossings)	N. Mankato Proposed Bike Trails/Routes Plan	North Mankato	North Mankato	-	\$ 2,000	Short	\$ 2,000	N/A
P 15	Range Street	Nicollet Avenue to Webster Avenue	New On-Street Route	N. Mankato Proposed Bike Trails/Routes Plan	North Mankato	North Mankato	0.82	\$ 2,000	Short	\$ 2,000	N/A
P 16	Tower Boulevard	Commerce Drive to Marie Lane	New On-Street Route	N. Mankato Proposed Bike Trails/Routes Plan	North Mankato	North Mankato	0.64	\$ 1,000	Mid 1	\$ 1,000	N/A
P 17	Webster Ave/N. River Dr/Pauley Way	Center Street to the Rex Macbeth River Trail	New On-Street Route	N. Mankato Proposed Bike Trails/Routes Plan	North Mankato	North Mankato	0.40	\$ 537,000	Mid 1	\$ 537,000	N/A
P 18	Future Carlson Drive	CSAH 41to Timm Road (CSAH 6)	New Trail	N. Mankato Proposed Bike Trails/Routes Plan	North Mankato	North Mankato	0.60	\$ 604,000	Mid 1	\$ 604,000	N/A
P 30	Lookout Drive (CSAH 13)	Carlson Drive to 512th Street	New Trail	North Mankato Trail Plan	North Mankato, Nicollet Co	North Mankato	1.10	\$ 2,684,000	Mid 1	\$ 2,684,000	N/A
P 31	US 14	Howard Drive to Caswell Park	Grade-separated pedestrian and bicycle crossing	MAPO 2045 LRTP Update	North Mankato, MnDOT	North Mankato	-	\$ 701,000	Long	\$ 701,000	N/A
P 32	Timm Road (CSAH 6)	CSAH 41to 405th Avenue	New Trail	North Mankato Trail Plan	North Mankato, Nicollet Co	North Mankato	0.80	N/A	Illustrative	N/A	N/A
P 59	Lee Boulevard	Lookout Drive to Lor Ray Drive (hill segment)	New Trail	MAPO 2045 LRTP	North Mankato	North Mankato	0.63	N/A	Illustrative	N/A	N/A
P 60	Lookout Drive	Lee Boulevard (lower) to Marie Lane	New Trail	MAPO 2045 LRTP	North Mankato	North Mankato	1.10	N/A	Illustrative	N/A	N/A
P 62	W Lind Street	US 169 to existing trail 600' N. of Lind St	New Trail	N. Mankato Proposed Bike Trails/Routes Plan	North Mankato	North Mankato	0.30	N/A	N/A	N/A	N/A

TRANSPORTATION SYSTEM GOALS, OBJECTIVES, AND POLICIES

The following section outlines the primary goals for the transportation system followed by a series of objectives and policies intended to influence future development efforts that align with the community visions in this plan.

GOAL 1: Participate in the preparation of future updates to the Mankato/North Mankato Area Planning Organization (MAPO) Long-Range Transportation Plan (LRTP).

Objective 1.1: Continue to provide representation on behalf of the City of North Mankato throughout the LRTP preparation process.

Policy 1.1.1: The Community Development Director and City Engineer, as MAPO Technical Advisory Committee (TAC) members, will represent the interests of the City of North Mankato throughout the LRTP preparation process.

Policy 1.1.2.: The City Councilperson designated as the MAPO Policy Board member, will represent the interests of the City of North Mankato throughout the LRTP preparation process.

Objective 1.2: Provide information, input and feedback relative to the City of North Mankato's transportation system throughout the LRTP preparation process.

Policy 1.2.1: The MAPO TAC members and Policy Board Representative will promptly provide the technical information requested throughout the preparation of the LRTP, utilizing other City staff members and other resources as required.

Policy 1.2.2: The City's TAC representatives and Policy Board representative will periodically update the City Council on the progress of the LRTP preparation.

Policy 1.2.3: The City's TAC representatives and Policy Board representative will seek input from the City Council on decisions impacting the City of North Mankato's transportation system and communicate such input as appropriate during the LRTP preparation process.

Policy 1.2.4: Continue to support options for the TH 169/TH 14 interchange and adjacent TH 169 corridor to the south that will maintain full access conditions at the TH 169/Webster Avenue intersection.

GOAL 2: Implement and enforce standards for new streets and roadways within identified growth areas.

Objective 2.1: Assign appropriate functional classification to existing and new streets and roadways.

Policy 2.1.1: Community Development Director and City Engineer will provide the MAPO TAC and Policy Board with recommendations regarding functional classification of new streets and roadways.

Policy 2.1.2: Community Development Director and City Engineer will monitor traffic and other transportation characteristics of existing streets and roadways and make

recommendations regarding changes to the functional classification of the existing streets and roadways.

Objective 2.2: Implement and enforce standards for existing and new streets and roadways.

Policy 2.2.1: Incorporate standards related to access management standards and geometric design standards as outlined herein and as developed in the LRTP into the City's zoning ordinances related to new streets and roadways.

Policy 2.2.2: Monitor opportunities to incorporate standards related to access management standards and geometric design standards as outlined herein and as developed in the LRTP into the reconstruction of existing streets and roadways and implement to the extent practical.

GOAL 3: Accommodate new technologies in North Mankato's transportation system.

Objective 3.1: Implement and enforce standards for new transportation technologies as they integrate into the transportation system.

Policy 3.1.1: Incorporate appropriate regulations into the City of North Mankato Code of Ordinances to ensure new technologies such as electric and autonomous vehicles are operating safely and efficiently within the transportation system.

Policy 3.1.2: Encourage private sector installation of electric vehicle charging infrastructure to serve vehicle fleets and patrons visiting businesses.

GOAL 4: Establish Highway 169 Corridor as a major gateway into the Greater Mankato Area.

Objective 4.1: Ensure the reconstruction of Highway 169 from north of Highway 14, south to the Veteran's Memorial Bridge includes elements that make an attractive gateway into the Greater Mankato Area.

Policy 4.1.1: Work with the City of Mankato and MnDOT to incorporate beautification elements such as lighting, structures, signage, and other elements into roadway design.