



## Chapter 5

# Transportation

Roadways provide for an integrated transportation system that will serve the future needs of residents, businesses, and visitors. Maintaining and improving this system is important to the ongoing economic health and quality of life of the county, and to the ability of people to travel easily and safely to work and other destinations, to develop property, and to move goods. Chapter 5 provides a framework for balancing future transportation needs throughout the county.

# Existing Conditions

Benton County has many transportation needs that vary from rural to urban settings. These needs are served by the County, State, and local transportation system. This existing system is documented throughout this section.

## Jurisdictional Classification

Jurisdiction over the roadway system is shared among four levels of government: state, county, city, and township. The Minnesota Department of Transportation (MnDOT) maintains the trunk highway system on behalf of the state. Benton County maintains the County State Aid-Highway (CSAH) and County Road (CR) system. The County's CSAH system is supported by state aid funds, which can be used towards road construction and maintenance. The remaining streets are the responsibility of the cities or townships.



The jurisdiction of roadways is an important element in the Transportation Plan because it affects a number of critical organizational functions and obligations (regulatory, maintenance, construction, and financial). The primary goal of reviewing jurisdiction is to match the roadway function with the organizational level best suited to handle the route function (see next section on functional classification). The existing jurisdiction of roadways in Benton County is illustrated in Figure 5.1 and Table 5.1. Figure 5.1 also depicts the Average Daily Traffic (ADT) volumes for this system.

**Table 5.1. Roadway Mileage by Jurisdiction**

Jurisdiction	Centerline Miles	Percent
US Trunk Highway	20.75	2.13%
State Trunk Highways (TH)	63.51	6.53%
County Roads (CR)	225.59	23.20%
County State Aid Highways (CSAH)	224.42	23.08%
Municipal State-Aid Street	20.66	2.12%
Township Road	307.56	31.36%
Municipal Street	109.99	11.31%
<b>Total</b>	<b>972.48</b>	<b>100%</b>

Figure 5.1. Existing Roadway System by Jurisdiction & 2017 Traffic Volumes

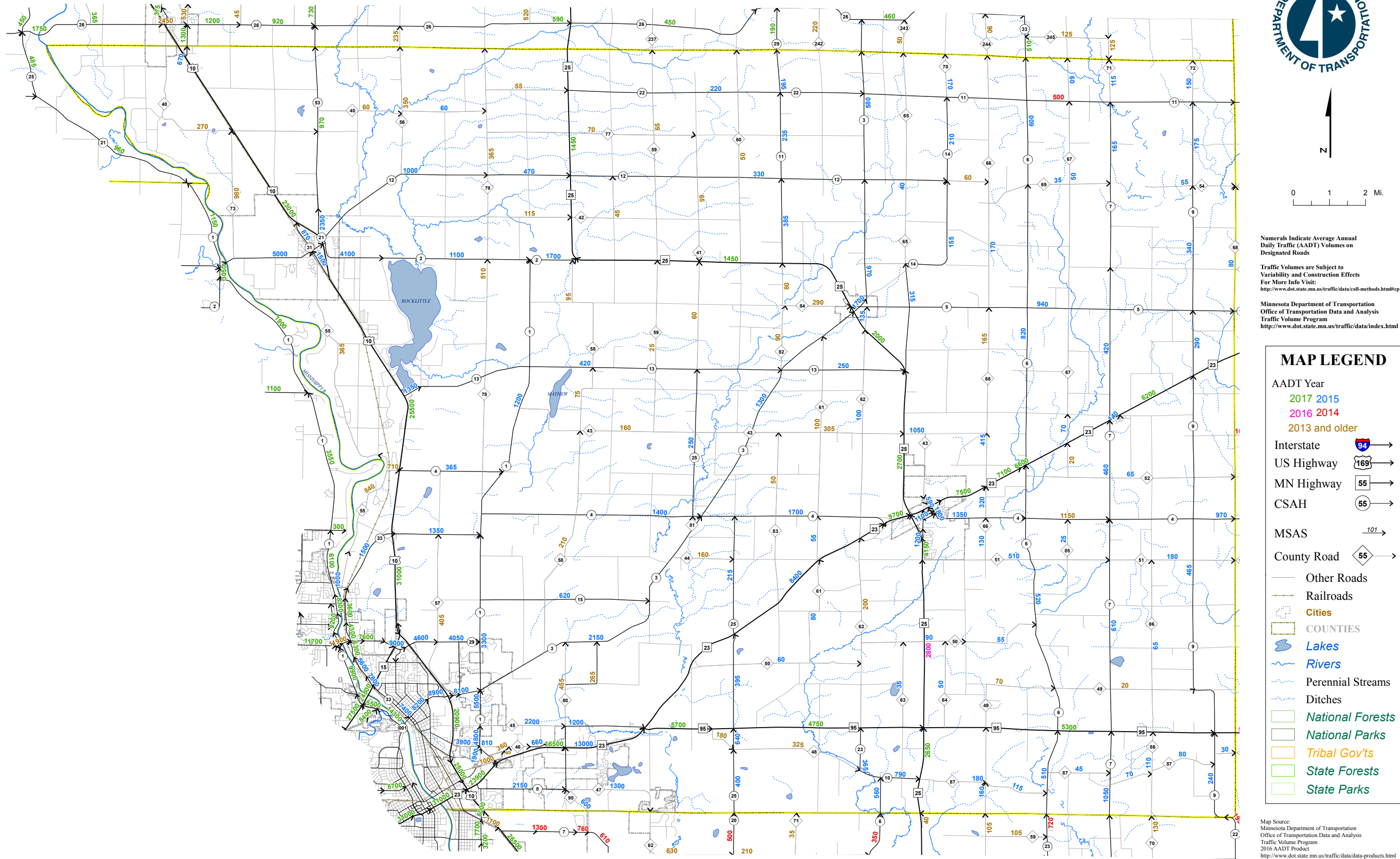
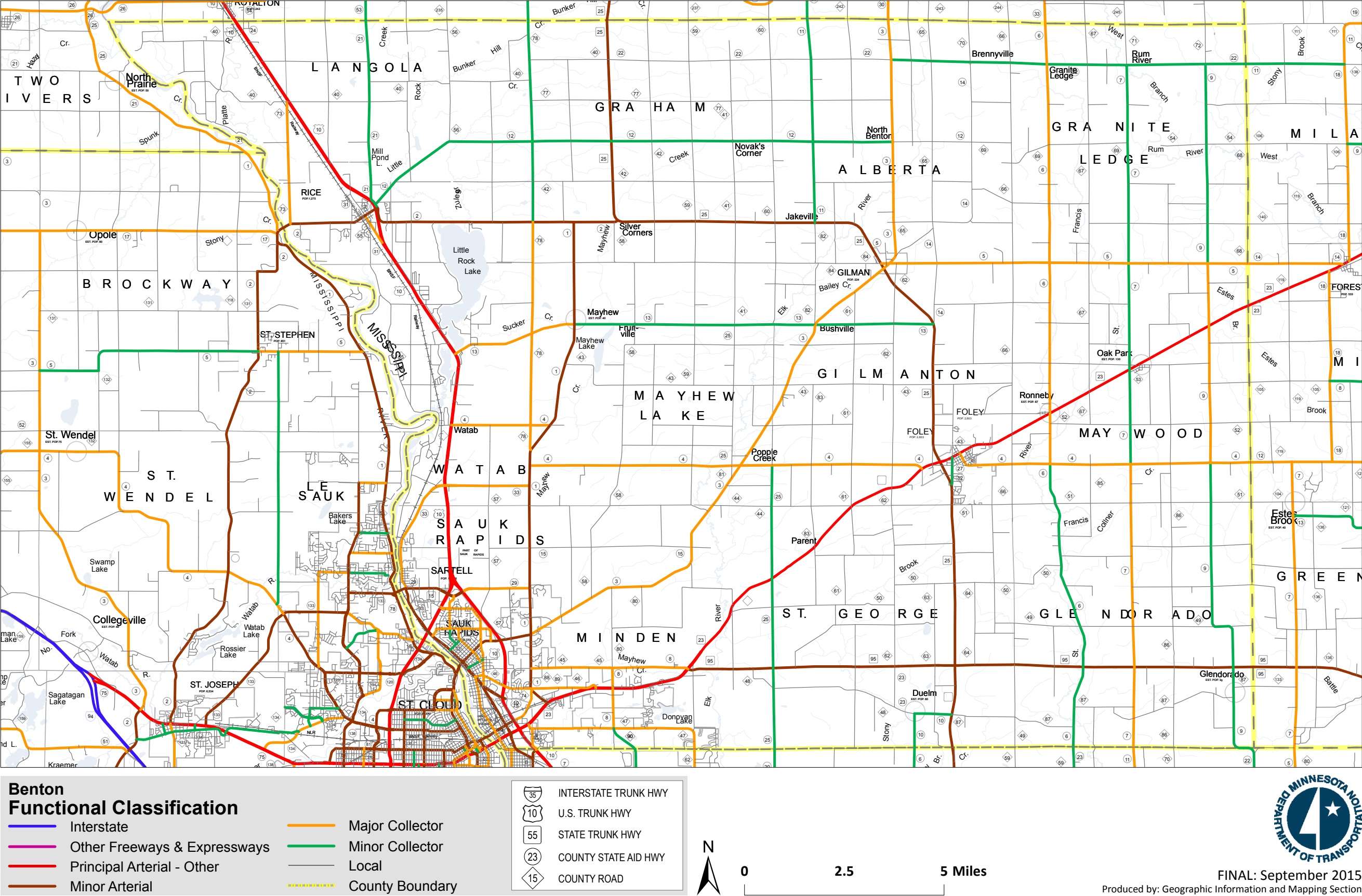




Figure 5.2. Existing Functional Classification System







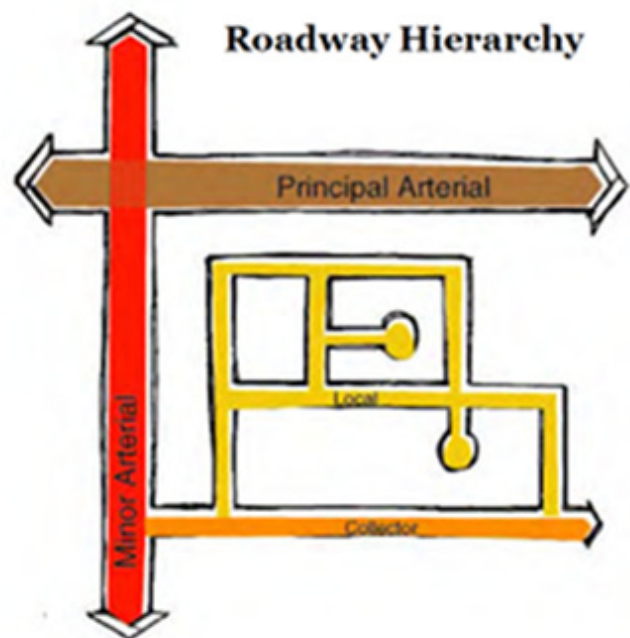
## Functional Classification

Roadway functional classification categories are defined by the role they play in serving the flow of trips through the overall roadway system. The intent of the functional classification system is to also create a hierarchy of roads that collect and distribute traffic from neighborhoods to the county or state system (see Figure 5.3). Roadways with a higher functional classification (arterials) generally provide for longer trips, have more mobility, have limited access and connect larger centers. Roadways with a lower functional classification (collectors and local streets) generally provide for shorter trips, have lower mobility, have more access and provide connection to higher functioning roadways.

The order of classification is from Principal Arterials at the highest capacity and the highest mobility function down to Local roads with the greatest access function. Characteristics considered when preparing a functional classification system include:

- Land uses adjacent to a route
- Route continuity
- Route ability to serve major activity generators
- Trip length characteristics of a route
- Spacing of routes with regard to function of the route

**Figure 5.3. Roadway Hierarchy by Functional Class**



Under Federal Law (Title 23, Statute 470.105), state transportation agencies have the primary responsibility for overseeing functional classification of roadways. MnDOT works in cooperation with Benton County and the St. Cloud Area Planning Organization (APO) to assign the functional classification to roadways and to maintain the classifications within the ranges allowed under federal guidelines. Benton County's system was documented in 2015 by MnDOT (see Figure 5.2). This system includes Principal Arterials, Minor Arterials, Major Collectors, Minor Collectors, and Local Roads.

- **Principal Arterials:** Principal Arterials provide high-speed mobility between the cities and important locations outside Benton County. In Benton County, Principal Arterials are generally constructed with limited access with signalized intersections. Private access is typically prohibited.
- **Collectors:** Collectors are designed to serve shorter trips that occur within the county and to provide access from neighborhoods to other collector roadways and the arterial system. They are expected to carry less traffic than arterial roads and to provide access to some properties. Collectors are designated as either major or minor collectors:
  - **Major Collector:** Major collectors supplement the arterial system by emphasizing mobility over land access.
  - **Minor Collector:** Minor collectors emphasize land access over mobility and provide connections to major collector and minor arterial routes.
- **Local:** Local streets provide access to adjacent properties and neighborhoods. Local streets are generally low speed and designed to discourage through traffic. These types of roads are typically owned and maintained by cities and townships.

Updates to the statewide functional classification is typically conducted every 10 years or on an as needed basis when changes to the system occur. At any given time, Benton County may request a change to a county roadway's functional class. These requests are typically made when a new roadway is added to the system or the attributes/characteristics to a route change (e.g., increase or decrease in traffic volumes).

Benton County should continue to monitor and update the county's functional classification system. This will help ensure the county system is being maintained and operated by the appropriate roadway agency. It is also an opportunity to better align roadway improvement needs with potential funding opportunities. For example, roads classified as a Minor Arterial or higher are typically eligible for federal transportation funds.



## Access Management

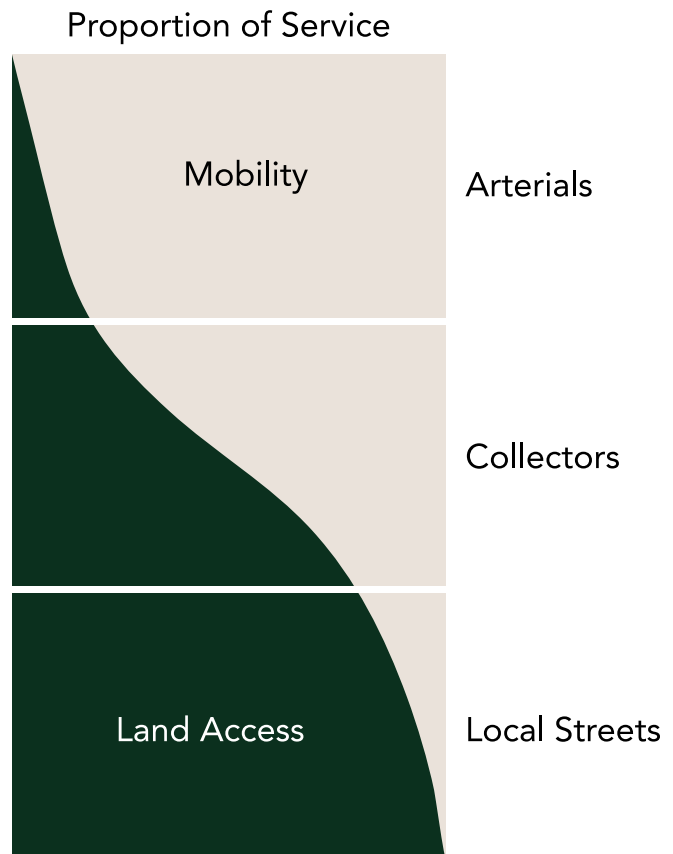
As applied to the roadway system in Benton County, the term “access” is the relationship between local land use and the transportation network or system. There is an inverse relationship between the amount of access provided and the ability to move through traffic on a roadway (see Figure 5.4). Access 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 balance of access and mobility is the focal point to effective access management.

Through access management, Benton County strives to maintain the integrity of the roadway system by preserving the balance between safety and mobility. With limited ability to improve the system, the County strives to adequately and efficiently provide service to through traffic movements while simultaneously providing adequate access to serve development. The County can then stipulate the specific access spacing requirements for various County roads through plat reviews and/or specify the best location and requirements for access through their access permit process.

Key points when reviewing access management include the following:

- Adequate spacing of access points
- Adequate sight distances
- Avoid off-set or dogleg intersections and entrances
- Encourage development of turn lanes
- Encourage proper driveway design including width, radii, and sight angles

**Figure 5.4. Access & Mobility Relationship**



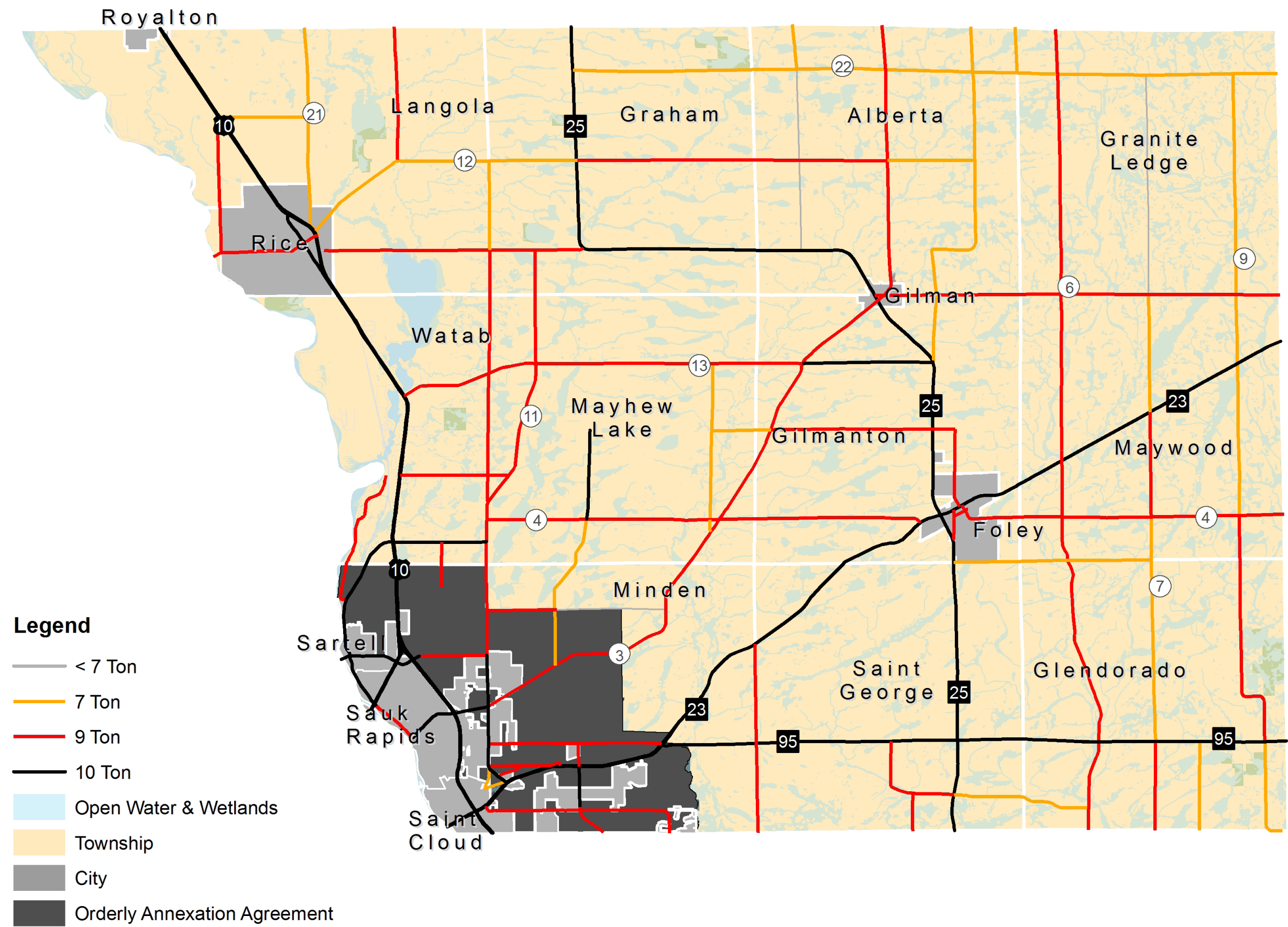
## Freight Movement

Benton County's transportation system plays a major role in helping move goods and products between agricultural hubs and urban centers. Key freight corridors include the State Highways, which provide regional connections to the Twin Cities and beyond. The County's nine- and ten-ton roads (see Figure 5.5) also provide a critical role in moving goods and products. These routes are capable of accommodating the heavier loads placed upon them by trucks and farm equipment. Maintaining and expanding this system helps support the rural economy and farm-to-market routes. Farm-to-market routes are typically county roads that provide access between agricultural hubs and town centers. The County should monitor this system and upgrade roads to ten-ton standards when feasible.





Figure 5.5. Ten-Ton Network



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# Multimodal Planning

As the County grows, so will its transportation needs. These needs will vary across all modes of transportation and in different parts of the county. The popularity of multimodal facilities (e.g., sidewalks, trails and bikeways) has consistently increased over the last few decades as Americans have used them to promote health, fitness, and sustainability. Trails provide opportunities to travel safely within a community, exercise, and enjoy natural areas. However, these amenities must be balanced in the right environment when feasible. Table 5.2 demonstrates this balance by aligning multimodal improvements with the land use patterns in Benton County. Examples of multimodal elements include:

## Bike Lanes

A bike lane is located on the road and designed through pavement marking and optional signage. These type of routes are typically used by “confident riders,” who are sharing the road with vehicular traffic. A striped bike lane is typically six feet in width and found in suburban and urban settings.

## Shared Lane or Shoulder Improvements

Pavement markings are placed in the vehicle travel lane to indicate where people should preferably cycle. These routes are typically used by the “strong and fearless,” who are advanced and confident riders. They take the shortest route possible and are comfortable in sharing the road with vehicles. Shoulder improvements (two to four feet in width) in all settings (rural and urban) can provide enough room for a bicyclist.



## Separated Shared Use Path

A shared use path is separated from vehicular traffic and supports multiple recreation and transportation opportunities, such as walking, bicycling, in-line skating and people in wheelchairs. These types of improvements are typically eight to twelve feet in width.

## Sidewalks

Sidewalks are paved paths (four feet in width) for pedestrians that are separated from vehicular traffic. Sidewalk connections are typically made as part of subdivisions and new developments. Sidewalks can offer a high-quality experience for users of all ages and abilities as compared to on-roadway facilities.

## Fixed Route Transit

Portions of Benton County (i.e., St. Cloud, Sartell and Sauk Rapids) are served by one urban bus operator and two rural bus systems. These operators provide transit services at fixed times at fixed locations. This type of service is located in areas that warrant transit demand, which typically includes suburban and urban settings. The St. Cloud APO has identified future transit needs as part of their Long-Range Transportation Plan and should be referenced for more information.

## On Demand Transit Service

On demand transit is a valuable transportation service for seniors, people with disabilities, and those who can't use the standard fixed route transit systems to travel to medical appointments, employment, school, or even to conduct errands such as buying groceries. This type of service is typically scheduled ahead of time and is offered throughout Benton County through public and private providers. The demand for this service will likely increase as populations age in rural parts of the county.

**Table 5.2. Common Multimodal Treatments by Land Use Type**

Land Use Type	Bike Lanes	Shared Lane or Shoulder	Separated Shared Use Path	Sidewalks	Fixed Route Transit Service	On Demand Transit Service
Rural/Agricultural Areas		●				●
Town Centers/Service Centers	●	●		●		●
Urban Growth & Orderly Annexation Areas	●	●	●	●	●	●
Urbanized Areas	●	●	●	●	●	●
Commercial Corridors			●		●	●



# Balancing Transportation Needs with Land Use

Planning for the future transportation system should account for the effective linkages between urban and rural environments. To help achieve this objective, this section identifies the type of transportation systems and strategies commonly associated with different land use patterns.

## Agricultural & Rural Residential Areas

The Land Use Plan recognizes Benton County's vast amount of rural and agricultural landscapes. These areas have very low-density residential development accessory to agricultural or farm operations of varying sizes. Farmsteads and homes are typically located on local roads with minimum right-of-way widths and generally see lower traffic volumes. Due to the low densities and large separations between land uses within these areas, pedestrian and bicycling accommodations are minimal or non-existent.

Transportation investments in these areas typically focus on low-cost/high-benefit solutions that address safety issues, drainage, and system preservation needs (e.g., crack sealing, mill and overlays, and shoulder repairs) that help maintain the roads and bridges in a "state-of-good" repair. Larger investments over time may include full reconstruction or the upgrading to meet ten-ton standards. A ten-ton road helps support heavier truck loads and farming equipment. More importantly, ten-ton routes serve as important



connectors between freight generators and receiving facilities (e.g., farms, mining operations, grain elevators, agricultural business centers, freight terminals, and distribution centers). Maintaining and managing this system is important to Benton County's quality of life and economy.

The following guidelines should be considered when balancing transportation needs in the Rural Residential/Agricultural areas.

## Transportation Guidelines for Agricultural & Rural Residential Areas

- New housing should preferably be accessed by a township road.
- A driveway should be connected to a county road if there is no other access to the property and County access management guidelines are followed.
- When more than one new housing parcel is created by subdivision and access is directly via a county road, the access management guidelines of Benton County and the Minnesota Department of Transportation (MnDOT) must be followed.
- Prioritize ten-ton route improvements to roads that are designated as major collector or higher.
- Consider adding a two-foot paved shoulder as part of roadway reconstruction projects to accommodate the potential for pedestrian and bicycle needs.

## Town Centers/Rural Service Centers

Town Centers and Rural Service Centers are unincorporated areas located at the crossroads of two major roadways. Historically, these locations have provided rural parts of the county with access to goods and services. The number of businesses today may be relatively small, but can range from implement stores, storage facilities, restaurants/bars, and religious institutions. Smaller subdivisions and single-family residential homes are also common land uses in these areas. Although incorporation is not anticipated, there may be opportunities to allow limited development in and around these centers.

Transportation improvements at these key nodes should be tailored to meet their settings, while preserving their historical nature. Context Sensitive Solutions (CSS) is one approach to evaluating transportation needs that also protects and preserves these areas. CSS is defined by MnDOT “as the art of creating public works projects that meet the needs of the users, the neighboring communities, and the environment. It integrates projects into the context or setting in a sensitive manner through careful planning, consideration of different perspectives, and tailoring designs to particular project circumstances. CSS is a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions.”

A noticeable change in these areas has been an increase in traffic volumes on the roadways, which has caused concern in regards to safety, mobility and access issues. Some of these concerns stem from the higher speeds of traffic when approaching an intersection. A more permanent way to address these concerns is through traffic calming and safety



treatments. These can be low-cost/high-benefit solutions that change the look and feel of the road and communicate to drivers that the function of the roadway is changing. Other safety measures may include flashing beacons, rumble strips, edge treatments, and turn lanes.

The following guidelines should be considered when balancing transportation needs in the Town Centers and Rural Service Centers.

### Transportation Guidelines for Town Centers/Rural Service Centers

- Exercise flexibility and creativity to shape effective transportation solutions, while preserving and enhancing the Town Centers and Rural Service Centers.
- New development should be planned accordingly to respect future right-of-way needs, mobility, access, and safety. Roadway drainage is also a big variable that affects the amount of potential right-of-way needed.
- New development will need to follow the Benton County and MnDOT Access Management Guidelines.
- Monitor safety issues at intersections, and program improvements as needed.
- Collaborate with local agencies and businesses to implement Context Sensitive Solutions as part of future county roadway projects.

## Urban Growth & Orderly Annexation Areas

Urban development within the growth areas typically requires the greatest degree of planning and entitlements. As areas develop, they generally require being rezoned, platted, and having infrastructure extended to serve them with city sewer and water. Key factors that influence the timing of development expansion into planned growth areas include: willing sellers/buyers, market conditions, proximity to and capacity of trunk sanitary sewer and water systems, and collector or arterial roadway capacities.

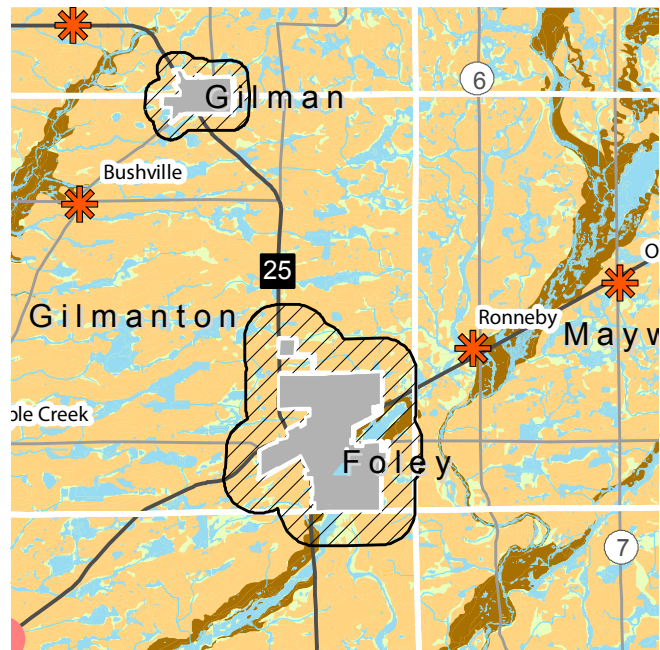
As these areas develop over time, future rights-of-way should be valued as public assets. Therefore, right-of-way needs to be protected and managed in a manner that respects the roadway's intended function, while serving the greatest public good. A common practice used in protecting future right-of-way needs is through the "official mapping" process (see Minnesota State Statutes 462.352 and 462.3). An official map would show affected properties, future right-of-way needs, centerline alignments, setbacks, controlled access locations, and other transportation facilities. This will provide some level of control in protecting the corridor from development. Official mapping provides a basis for restricting development in designated rights-of-way, or between designated setbacks, to allow the government authorities time to purchase or otherwise reserve the land.

Platting and subdivision regulations also give the County authority to consider future roadway alignments during the platting process, because most land must be platted before it is developed. The County may use their authority in the townships to regulate land development to influence plat configuration and the location of proposed roadways. In most instances, planning and engineering staff work with developers to formulate a plat that meets

development objectives and that conforms to a long-term community vision and/or plans.

Planning for future growth in urbanizing areas should also take into consideration other modes of transportation. Pedestrian and bicycle trails play a large role in the overall transportation network by offering an alternative means of transportation to places of employment, primary points of interest, and recreational areas. In that respect, a "Complete Streets" approach is typically applied in developing areas and urban environments. Complete Streets are commonly defined as roadways that accommodate all users (e.g., pedestrians, bicyclist, vehicles, and transit), regardless of age and ability. This is important to consider when recognizing the diversity of people traveling throughout the community.

The following guidelines should be considered when balancing transportation needs in growing parts of the county.



Urban Growth Area Examples (Foley and Gilman)



## Transportation Guidelines for Urban Growth & Orderly Annexation Areas

- Careful planning and design should be done to cluster development in a way that envisions longer term urban development form/patterns with municipal infrastructure, such as roadways.
- New development should be planned accordingly to respect future right-of-way needs, mobility, access, and safety.
- New subdivisions should be able to easily provide public road access in the future to the portions of the tract not adjacent to the County or Township road.
- New development will need to follow the Benton County and MnDOT Access Management Guidelines.
- Evaluate future development areas to establish alignments for future road corridors in order to optimize the widths of these corridors from a “complete streets” perspective.
- Given the potential for larger traffic volumes in these areas, a sidewalk with a substantial buffer between vehicle travel lanes should be developed to ensure the safe access of the roadway by pedestrians.
- Multimodal design of public rights-of-way should utilize innovative and non-traditional design standards in a way that is equitable for all modes/users, inter-modal activities, and is respectful of the surrounding community.

## Urbanized Areas

A portion of Benton County’s roadway system is located in the Cities of Foley, Rice, Sartell, Sauk Rapids, and St. Cloud. It is important to recognize this system as it supports development efforts and complements a portion of the urbanized transportation system that lies within the City’s boundaries. Enhancements to this system are primarily focused on traffic operations, access management, preservation, and the integration of multimodal improvements. The demand for multimodal improvements in the urbanized areas has grown in recent years. As a result, many roadway improvement projects have included trails or sidewalks, providing more connections to neighborhoods and key destinations, while enhancing the local and regional trail network. The urbanized areas should continue to foster a proactive approach to planning the pedestrian network; one that recognizes the needs of vehicle traffic, but does more to meet the unique demands of pedestrians. In some respect, these initiatives need to be driven at the local-level and integrated into their planning efforts.

A multimodal approach will also help mitigate congestion issues in the Sartell, Sauk Rapids, and St. Cloud area. Users consider facilities congested when speeds are reduced significantly below posted speeds and/or long queues are evident at intersections. Congestion can lead to increases in crashes, diversion from desired roadways or use of



local routes for regional movements, and increases in travel times and vehicle emissions. Maintaining and improving this system is important to the ongoing economic health and quality of life of the County by allowing people to travel and move goods easily and safely and also to facilitate property development.

The following guidelines should be considered when balancing transportation needs in the urbanized areas.

### Transportation Guidelines for Urbanized Areas

- Work with the St. Cloud APO to identify transportation priorities and investments.
- The street and public right-of-way network should be used to connect various public realm amenities, so neighborhood residents can use a range of intermodal activities (e.g., walking and biking) to travel to and from destinations such as schools, parks/open space, shops and businesses.
- New development will need to follow the Benton County and MnDOT Access Management Guidelines.
- Municipalities should play an active role when planning improvements to the County Roads in these areas from a planning, engineering, and financial perspective.



## Commercial Corridors

Benton County has excellent access to the regional transportation system, which is served by State Highway 10, 23, 25 and 95. These corridors provide critical connections to the Twin Cities and beyond, while providing relatively high levels of service. The State Highways have significant volumes of traffic and consequently, pedestrians and cyclists do not traverse these roadways.

The Land Use Plan recognizes the commercial and industrial land use patterns that have located along major highways, particularly along Highway 10. Land uses include a wide variety of both established and newer commercial uses, as well as light industrial and manufacturing, and wholesale and warehousing activities. As the primary commercial corridor passing through the heart of Benton County, the success of Highway 10 as a commercial corridor is critical to the local economy. To promote reinvestment in the area, the County will continue to collaborate with MnDOT to improve the corridor's mobility and safety.

The following guidelines should be considered when balancing transportation needs along Commercial Corridors.

### Transportation Guidelines for Commercial Corridors

- Access needs to be limited in order to preserve the ability of the roadway to accommodate high volumes and to maximize safety.
- Access management along these corridors should continue to follow the guidelines established by the Minnesota Department of Transportation (in terms of spacing of cross streets and access points).
- Local agencies should establish a series of parallel streets on either side of State Highways to provide enhanced access to individual businesses and residences along the corridor.



# Implementation

Infrastructure systems such as roadways, bridges, culverts, and sidewalks have become very expensive and difficult to maintain in today's environment with aging infrastructure, rising costs of materials, and stagnant or declining revenue. In fact, many local agencies are being forced to pause and ask questions about the costs and benefits of continuing to maintain assets throughout their entire system, or if other approaches should be explored to better balance needs with available resources. Generally, considerations to include are:

## Performance Standards and Measures

A performance-based approach improves the accountability of local infrastructure investments, assessment of risks related to different performance levels, and monitoring of progress, and also increases transparency.

## Project Prioritization

Project prioritization can help Counties rank infrastructure needs in a manner that is consistent with preservation goals and objectives. This technique can help avoid the typical "worst first" approach to programming preservation projects

that tends to invest limited resources in the most expensive "fixes" such as reconstruction, instead of directing maintenance funds to infrastructure that merely needs rehabilitation and will provide more cost-effective, timely solutions. Project prioritization includes applying the correct "fix" at the right time by performing lower cost maintenance actions sooner in the life of the roadway.

## New Revenue Sources

There are methods to capture new revenue streams to close the financial gap in maintaining assets in a "state of good repair." Exploring new revenue sources will allow the County to expand and accelerate preservation initiatives. Some Counties have used their powers to increase the wheelage tax or implement a local transportation sales tax under State Statute (Minnesota State Statute 297A.993).

## New Maintenance Techniques

There are new maintenance techniques that can extend the lifecycle of an asset. For example, new maintenance techniques for roadway surfaces can provide longer service life and higher traffic volume thresholds, resulting in more stable road maintenance costs. Cost reduction of life cycle



extension strategies which save money, or extend surface life, can directly benefit preservation needs and minimize any identified financial gap.

## **Asset Management**

Tracking assets and their condition will provide a stronger outlook on lifecycle costs and replacement schedules, which will help establish funding plans and identify future funding gaps or shortfalls.

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