

Transportation

Introduction

Transportation plays a vital role in providing for the needs of the general public through moving goods, resources, and people. The transportation system, a critical component of Minnehaha County's development pattern and backbone of the economy, exerts a strong influence on the placement of land uses such as agricultural, residential, commercial and industrial, and institutional facilities.

The transportation system consists of a variety of roadways which serve different functions. These functions include varying degrees of access and mobility, which are further grouped into formal functional classifications.

A functional classification system groups roadways into a logical series of decisions based upon the character of travel by distinguishing between the function and service provide. This classification process is heavily influenced by the intensity and distribution of land development patterns. Thus, the interplay between land use and transportation is symbiotic.

While most roadways offer both "access to property" and "travel mobility" services, it is the roadway's primary purpose that defines the classification category to which a given roadway belongs.

Other important but related factors include efficiency of travel, connectivity, access points, speed limits, route spacing, average annual daily traffic and vehicle miles traveled, number of lanes, and the significance of the route on a regional or statewide basis as well as system continuity.



Minor Arterial - SD Hwy. 19



Major Collector - Co. Hwy. 148



Minor Collector - Co. Hwy. 143



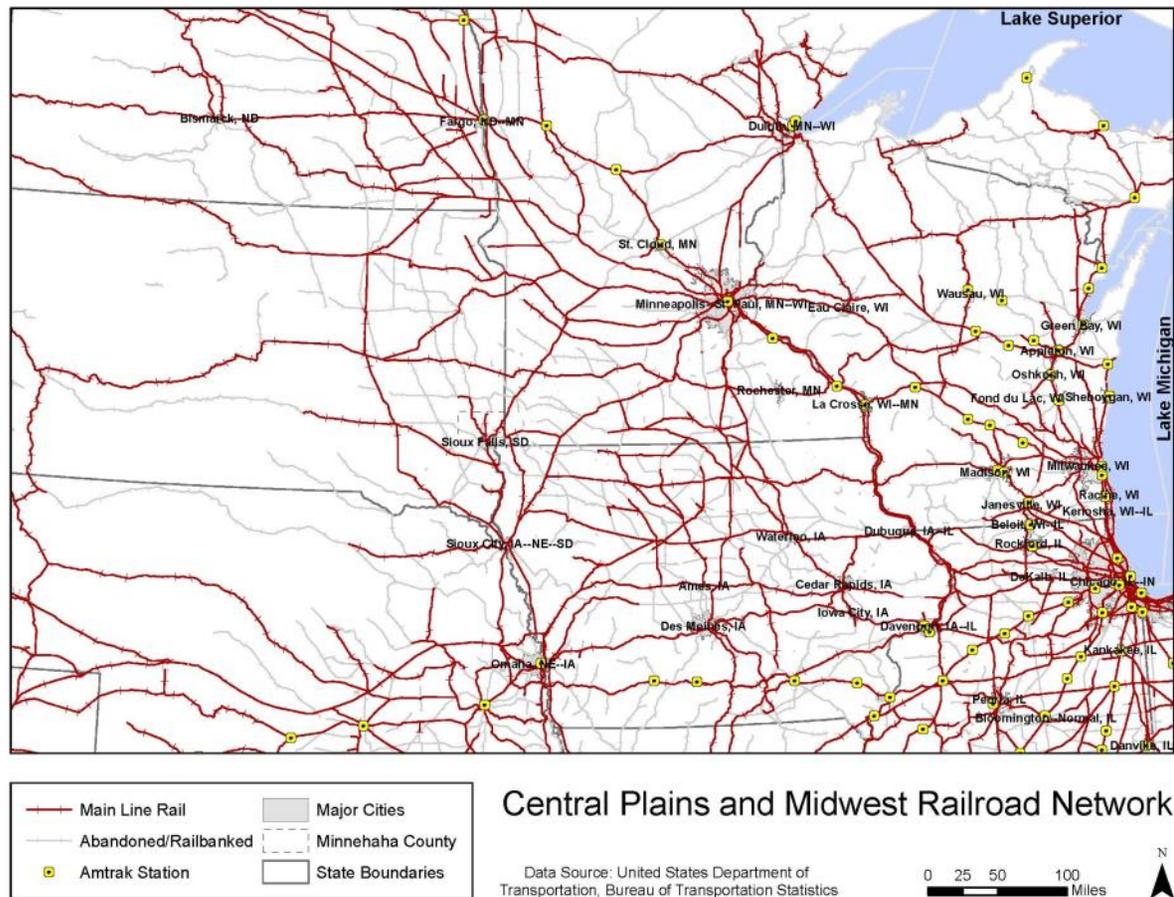
Local Roads - East 264th Street

Rail

Rail transportation has served a variety of industries in delivering shipments of goods, materials, and humans contributing to the livelihood of economic centers in the region. The significance of freight rail transportation within Minnehaha County will remain an integral part of both the regional and national system. According to the South Dakota State Rail Plan, passenger rail service along the Minneapolis-Willmar-Sioux Falls Corridor on the Burlington Northern Santa Fe (BNSF) railroad was proposed by the National Association of Rail Passengers (NARP) in setting a vision for a complete national passenger train network (SD State Rail Plan, 2010).

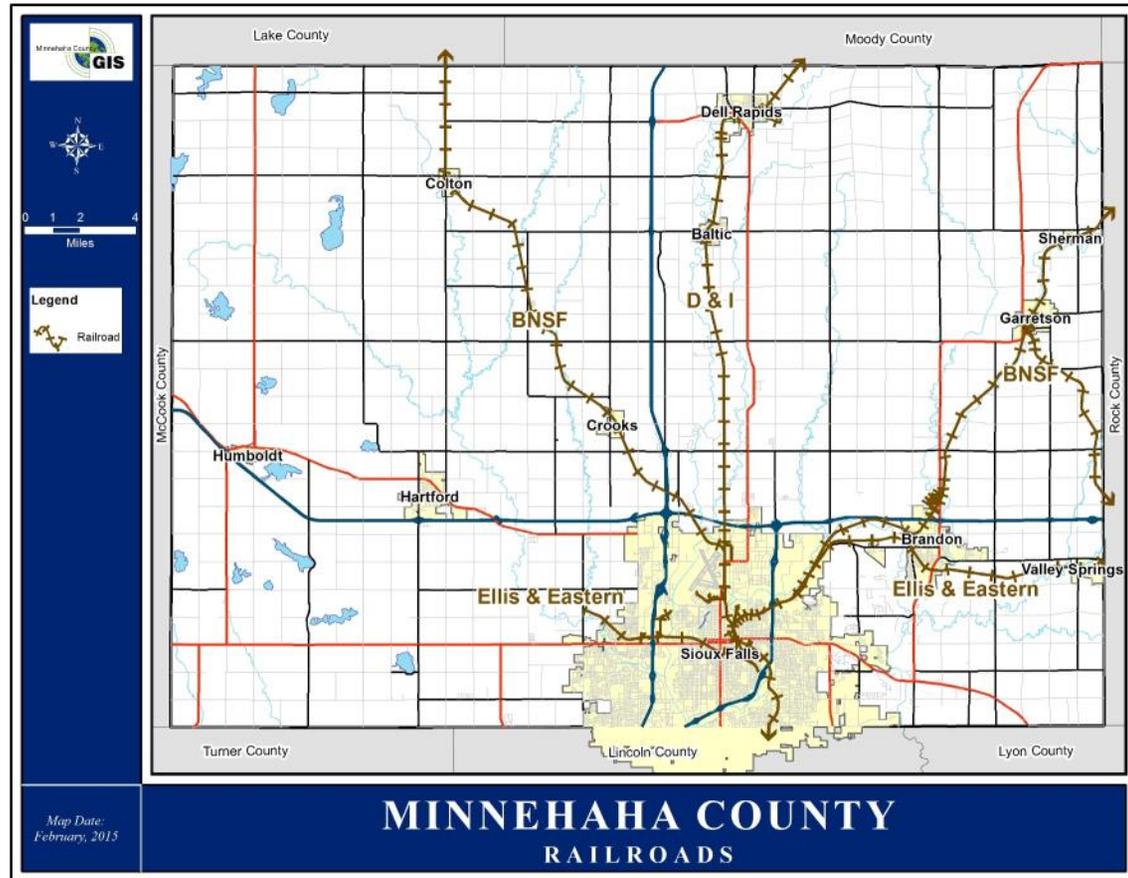
The potential of a passenger rail connection would be costly with significant upgrades projected along the Willmar-Sioux Falls corridor, but should be explored over the long term as the region continues to experience economic growth.

Map 6.1 - Central Plains and Midwest Railroad Network



BNSF operates a majority of the rail lines that run through Minnehaha County with connections to the national freight rail transportation system. In particular, these lines move a variety of agricultural products and industrial materials both domestically as well as abroad. Track extends from downtown Sioux Falls to Garretson for 17.4 miles and continues for 4.6 miles in the County leading to Willmar, Minnesota before connecting with the regional and in some cases, the national system. Track also runs south from Garretson towards Sioux City. There is an approximately 6 mile railroad spur off of the main BNSF track through Garretson that heads southeast towards Manley, MN and travels through Iowa cities such as Sioux Center before traveling to Sioux City. The largest stretch of BNSF track runs out of Sioux Falls for 24 miles towards the northwest through Crooks, Lyons, and Colton along the way to Madison, South Dakota.

Map 6.2 - County Railroads



L.G. Everist, Inc. owns and operates quarries in Minnehaha County as well as operates its' own portion of railroad, D&I Railroad (DAIR). They have 18.8 miles of track that run between Sioux Falls and Dell Rapids and leases two other railroads from the State of South Dakota comprising 89.6 miles of track in the Big Sioux River Valley (South Dakota State Rail Plan, 2010). The DAIR has interchange connections with the BNSF railway and Ellis and Eastern Company in Sioux Falls. In addition to hauling rock, gravel, and quarried stone, the railroad also transports farm products.

The Ellis & Eastern (E&E) railroad was formed as a subsidiary of the Sweetman Construction Company for the primary purpose of transporting aggregate products for Concrete Materials. The railroad has 14.3 miles of track stretching from Brandon, SD through downtown Sioux Falls to North La Mesa Drive. This line not only carries aggregate products and raw materials for the Sweetman Construction Company; it serves several outside customers located on the line. Chemicals and scrap metal are also transported on this railroad.

According to the 2010 South Dakota State Rail Plan 2040 Rail Volumes by Direction chart, at right, a majority of the rail system demand statewide will consist of through movements at

about 84 percent while outbound movements are expected to comprise 12 percent. These estimates represent a growth of about 1.2 and 1.5 percent each year, respectively. Inbound and intrastate movements make up a small percent of total projected demand (2010). The SD State Governor set a major priority for improving rail transportation access in other areas of the state, which will provide numerous benefits for freight movements and businesses in the region.

Rail Volumes by Direction, 2011 & 2040



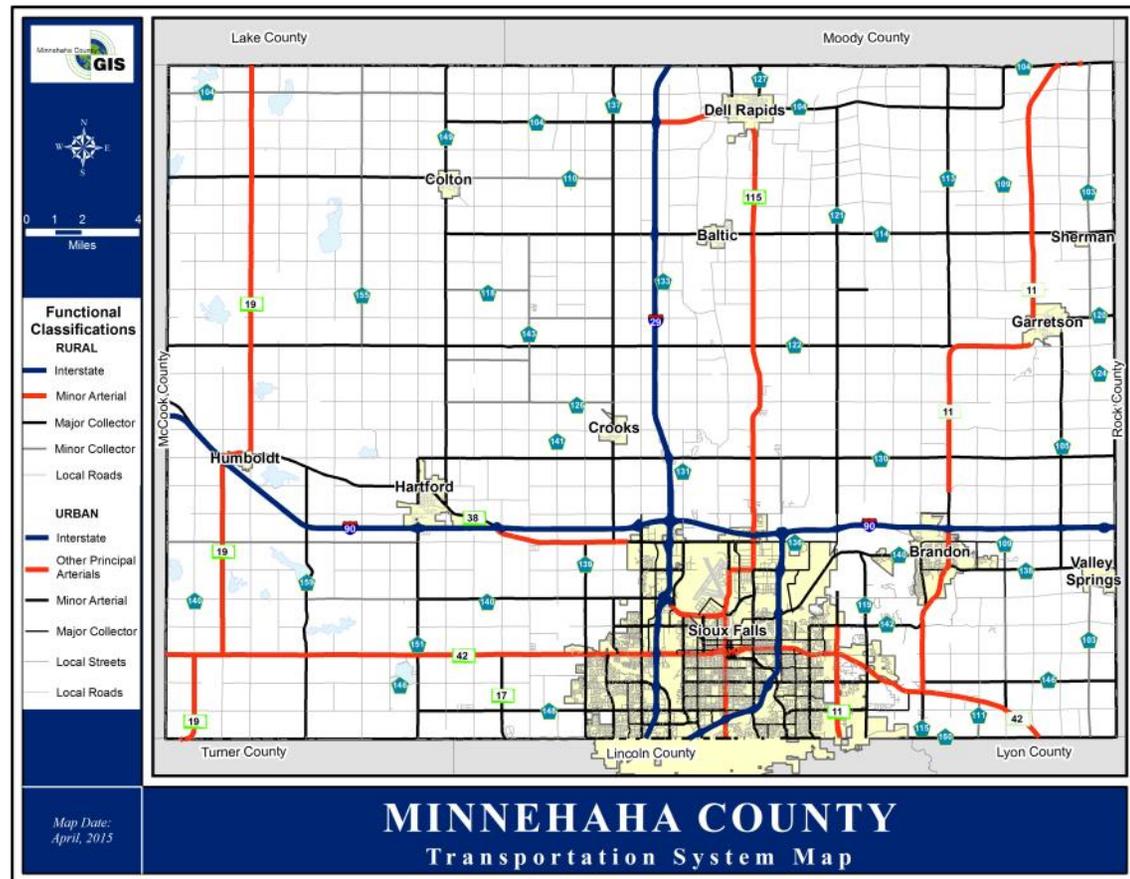
Figure 6.1 - Rail Volumes by Direction, 2011 & 2040

Source: 2010 SD State Rail Plan

Highway

The transportation system is linked to land use patterns in a way that needs to be collaboratively addressed in order to prevent future conflicts and achieve the goals of this plan. Particularly near large economic centers, projected population growth and changes in land use and density will necessitate changes to the highway system. The South Dakota Department of Transportation (SDDOT) and County Highway Department routinely conduct traffic counts to provide helpful information on traffic patterns. According to the SDDOT Long Range Transportation Plan, the projected shipment volumes by weight from 2002 to 2035 on trucks could see a 91% change within the state, 201% from the state, and 125% to the state (SDDOT, 2010). It should be expected that a majority of commercial freight traffic will occur on State Highways, but the collectors will be utilized to reach rural service areas where commercial and industrial land uses are encouraged to locate.

Map 6.3 - Transportation System Functional Classifications



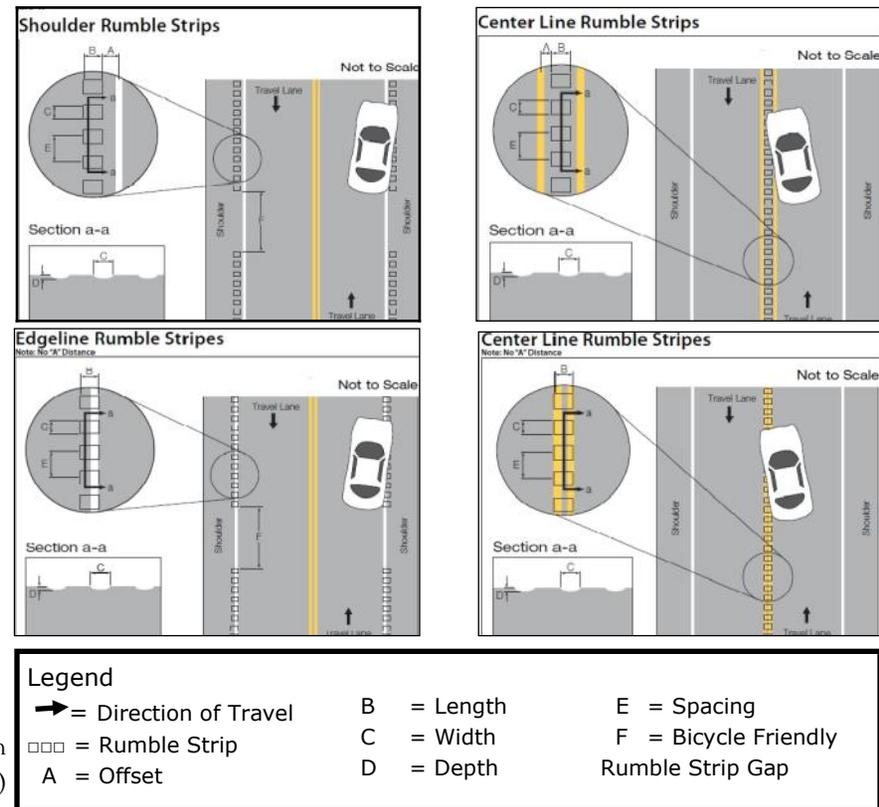
Transportation Improvements

Regional transportation planning is a coordinated effort of the Sioux Falls Metropolitan Planning Organization (MPO), the South Eastern Council of Governments (SECOG), SDDOT, Municipalities, Counties, the Federal Highway Administration (FHWA), and the Federal Transit Administration (FTA). Direction 2035, the Sioux Falls Metropolitan Area Long-Range Transportation Plan, was developed to guide multi-modal transportation planning activities through 2035. Potential corridor projects identified through the transportation planning process within the MPO area include the following:

- Tea-Ellis Road
- SD Highway 115 & 11
- 268th Street
- SD 38/60th Street North
- EROS Rd. Interstate Interchange (Highway 100)

Potential improvements that can be accomplished in the near term and aid in all roadway users' safety could include the strategic design of wide shoulder widths in conjunction with rumble strips. Rumble strips have proven to be a helpful tool in the prevention of traffic fatalities on roadways across the country. The images, at right, provide some examples from the United States Department of Transportation: Federal Highway Administration on designing rumble strips to provide all roadway users

with the comfort of a safe and convenient route to their destination. Implementation of rumble strips should only be installed where data projections can quantitatively show a significant increase in roadway user safety and where there is a four foot minimum shoulder width, not including rumble strip.



Non-motorized

The Sioux Falls MPO Bicycle Plan identifies SD Hwy. 38, 115, and 11 as well as Rice St./Holly Blvd and Madison St. as primary bicycle routes. The secondary routes are County Hwy. 121, 133, 137, and 139/Ellis Rd. These suggestions were made in conjunction with the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, which notes that “adding or improving paved shoulders often can be the best way to accommodate bicyclists” as well as motorists and other road users (Sioux Falls MPO Bicycle Plan, 2009).

The following list is a highlight of a few guidelines for shoulder design in the MPO Bicycle Plan and should be major consideration in road maintenance operations:

- A shoulder below 4 feet should not be designated or marked as a primary bicycle facility.
- Consider 4 foot minimum shoulder widths (not including space treated with rumble strips) to accommodate bicycle travel and other road users.
- Frequent shoulder sweeping of any debris when rumble strips are installed is crucial on all bicycle routes to ensure roadway user safety.

Currently, the Sioux Falls MPO is in the planning process stage of updating its Long Range Transportation Plan. Non-motorized transportation and recreation routes should be planned carefully paired with opportunity for citizen involvement throughout the entire process. Specifically, the routes planned for improvements consist mainly of roads with a combination of low average daily traffic volumes and speed limits. Motorists should be aware that non-motorized transportation and recreation users have the same rules and responsibilities on the public right-of-way, except where prohibited.

On March 11, 2015, Governor Dennis Daugaard signed House Bill 1030 which sets forth certain provisions regarding the passing of a bicyclist. Upon its’ effective date in a few months, H.B. 1030 allows a minimum six foot passing distance on roads with posted speeds of greater than 35 miles per hour and a minimum three foot passing distance on roads with posted speeds of less than 35 mph for motorists overtaking a bicyclist. This represents an opportunity to implement a statewide public awareness campaign for sharing the road amongst all transportation mode users.



The image, above, is for informational purposes only.



Four foot wide shoulder (Six Mile Rd.) - Accommodates all transportation and recreation modes on a minor arterial with a relatively low posted speed limit

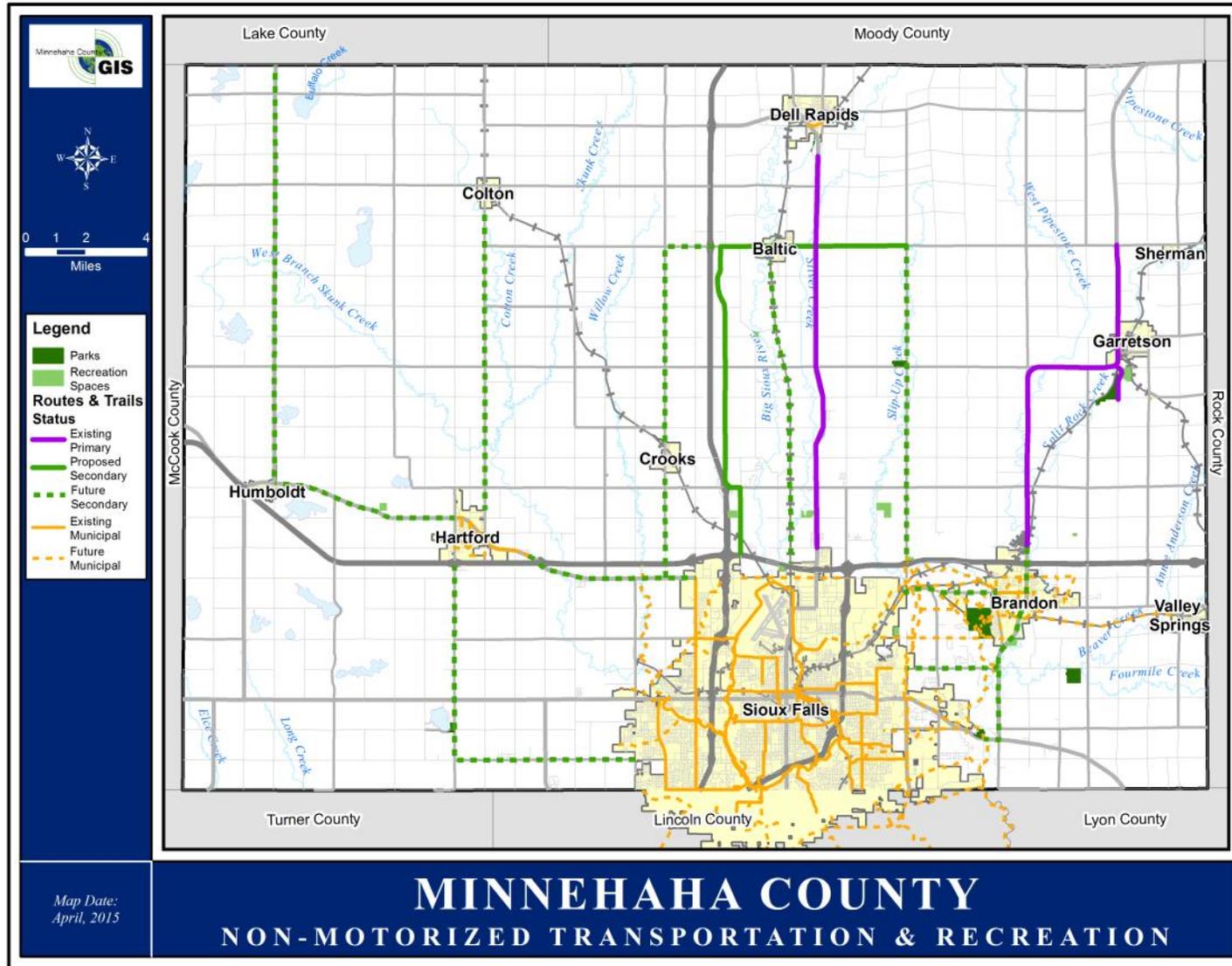


Eight foot wide shoulder with rumble strip (SD 11) - Accommodates all transportation and recreation modes on an other principal arterial, designated bicycle route

There is an emerging trend nationwide casting focus on the importance of maintaining healthy lifestyles, reducing the strain on personal finances, lessening our overall ecological footprint, minimizing traffic accidents, or a desire to spend more time outside on one of the oldest means of transportation. A majority of citizens in the Sioux Falls MPO area have recognized that bicycles should be ridden on county roads and almost the entire percentage of this population feels that paved multi-use trails are the best place for bicyclists. The City of Sioux Falls multi-use trail system provides a safe route for both commuter and recreational bicyclists among other forms of non-motorized transportation linking many destinations. Sioux Falls is currently in the process of expanding this network to include on-street and multi-use pathway facilities to better promote bicycling and walking as a viable means of transportation.

Other cities in the county that have expanded multi-use trail opportunities for residents include Hartford, Brandon, and Dell Rapids. Minnehaha County should explore a multitude of alternatives for safe, convenient, and accessible transportation and recreation. These potential routes should connect to existing and proposed facilities to promote the use of non-motorized transportation. These connections will help create opportunities for more positive lifestyle choices, better economic stability, and overall quality of life in the county. Minnehaha County should identify opportunities to retrofit existing county roads with four-foot minimum shoulder widths or implementation of a share-the-road campaign, see image at left, to accommodate for the safety and convenience of all transportation modes. Although the routes identified on the following page were selected as the most bicycle friendly, it should be recognized that every road within the transportation system will be used by bicyclists, walkers, runners, joggers, motorists, agricultural producers, etc.

Map 6.4 - Existing & Future Trails and Routes



Existing and Future Trails & Routes

While a majority of the multi-use trail and bicycle route planning will be conducted in the Sioux Falls MPO area, it is important to pursue opportunities for safe and convenient access among the small towns in Minnehaha County as well as throughout the region. The routes identified on the map, pg. 75, are based on citizen input collected during the comprehensive planning process, the MPO multi-use trail study, and MPO bicycle plan in a coordinated effort to connect residents to a wide variety of recreation and transportation options.

Most of the routes on this map can be achieved with careful thought and consideration to accommodate motorists, agricultural producers, bicyclists, walkers, runners, etc. The future secondary routes shown on this map will be based on community need and regional coordination to develop safe routes and trails statewide as well as funding availability in connecting the community at large to destinations throughout the county.

It should be clearly pointed out that the Proposed Secondary Routes and Alternative Routes, as indicated on the map on pg. 77, do not meet AASHTO's 4-foot wide shoulder criteria. The purple and green lines have been identified through consultation with Sioux Falls' officials, bicycling organizations, and public citizens throughout the planning process.

Due to funding constraints, it may take 10 to 20 years before the Future Secondary Routes can be improved to the level whereby they may be officially adopted as formal bicycle routes having 4-foot wide shoulders. This is a pragmatic and opportunistic approach over which a non-motorized transportation and recreation plan can be successfully implemented. Improvements and widening will be phased in to accommodate all non-motorized transportation and recreation mode users during the design phase of future projects through major rehabilitation or reconstruction plans.

Access Management

Access Management is the proactive management of vehicular access points to land parcels adjacent to all manner of roadways. Good access management promotes safe and efficient use of the transportation network. Access Management encompasses a set of techniques that state and local governments can use to control access to highways, major arterials, and other roadways. These techniques include:

Access Spacing: increasing the distance between traffic signals improves the flow of traffic on major arterials, reduces congestion, and improves air quality for heavily travelled corridors.

Driveway Spacing: Fewer driveways spaced further apart allows for more orderly merging of traffic and presents fewer challenges to drivers.

Safe Turning Lanes: dedicated left- and right-turn, indirect left-turns and U-turns, and roundabouts keep through-traffic flowing. Roundabouts represent an opportunity to reduce an intersection with many conflict points or a severe crash history (T-bone crashes) to one that operates with fewer conflict points and less severe crashes (sideswipes) if they occur.

Median Treatments: two-way left-turn (TWLTL) and nontraversable, raised medians are examples of some of the most effective means to regulate access and reduce crashes.

Right-of-Way Management: as it pertains to R/W reservation for future widenings, good sight distance, access location, and other access-related issues.

Access Management provides an important means of maintaining mobility. It calls for effective ingress and egress to a facility, efficient spacing and design to preserve the functional integrity, and overall operational viability of street and road systems.

Access Management should address the following areas:

- Facility Hierarchy (Functional Classification)
- Intersection and Interchange Spacing
- Driveway Spacing
- Traffic Signal Spacing
- Median Treatments and Median Openings
- Turning Lanes and Auxiliary Lanes
- Street Connections

Commercial and industrial uses are encouraged to be arranged in or near compact centers, such as Lyons, Rowena, Corson, Ellis, and cities where services can be provided efficiently. Likewise residential growth should be encouraged to cluster development to reduce the number of access approaches along Township, County, and State roads. Scattered residential and commercial developments along roads identified for improvement will result in more difficult and costly right-of-way acquisition as well as design and safety problems with too many driveways along these roadways. Furthermore, land use strategies should be implemented to avoid a continuation of past development patterns such as strip commercial zoning and unrestricted access along major transportation corridors.

In areas of dynamic land development, it is important for jurisdictions to develop access standards that achieve a balance between property access and functional integrity of the road system. Studies show that implementing access management provides three major benefits to transportation systems:

- Increased roadway capacity
- Reduced crashes
- Shortened travel time for motorists

All of the three benefits cited above are essentially the result of minimizing or managing the number of conflict points that exist along a corridor. Imagine the two extremes of the same corridor. In the least intrusive example, no minor-street conflicts exist. Traffic flows freely down an unencumbered corridor “pipe” influenced only by density, weather, and integrity of the roadway. When minor-street conflicts (i.e. “laterals”) in the form of driveways and streets are introduced, the mainline flow must adjust speeds and sometimes lanes to avoid all manner of delay and conflicts introduced by the myriad combination of slowing, turning, merging, entering, and stopped vehicles can even gain opportunity to enter the flow. In short, steady progression is interrupted, and often at uneven intervals.

Air

There are a few private airfields in the rural area operated by individual property owners. It is important to note that the number of private airfields has been increasing and adequate provisions will be set forth to ensure compatibility between all land uses.

Transportation - Goals & Actions

Goal 1. Invest in and maintain existing county highways and bridges.

Action 1.1 Preserve the life and vitality of infrastructure by implementing timely and consistent roadway management practices.

Action 1.2 Maintain drainageways/ditches to ensure a properly functioning system and reduce long-term costs and replacements.

Action 1.3 Pursue opportunities to partner with other agencies to maximize efficiency of maintenance operations.

Action 1.4 Enforce regulations to protect the highway system from overweight/oversize loads.

Goal 2. Maximize roadway system safety and efficiency for travel throughout Minnehaha County.

Action 2.1 Enhance the efficiency and design of intersections where increased traffic exists.

Action 2.2 Develop a plan to design minimum four (4) foot wide shoulders on designated routes.

Action 2.3 Develop and implement a formal access management policy.

Action 2.4 Encourage the use of edgeline and centerline rumble strips upon careful review of traffic safety data and consultation with roadway user groups to justify the costs where there is a minimum clear path of four (4) feet from the rumble strip to the outside edge of the paved shoulder.

Goal 3. Support efforts to improve the rail infrastructure network.

Action 3.1 Coordinate with all private sector rail partners to increase freight handling capacity and capabilities.

Action 3.3 Encourage rail investments that support economic development.

Goal 4. Link transportation decisions to land use impacts.

- Action 4.1 Coordinate with cities and townships to identify and mitigate the impacts caused by development.
- Action 4.2 Encourage all townships to enforce the new driveway or culvert permit requirement.
- Action 4.3 Require shared driveways where possible to reduce the number of direct access points.
- Action 4.4 Monitor changing traffic patterns and conduct traffic studies in response to significant changes.

Goal 5. Encourage non-motorized transportation and recreation within the unincorporated area.

- Action 5.1 Support policies and programs that promote safe, convenient, and accessible recreational and non-motorized transportation use.
- Action 5.2 Coordinate with municipalities and other key entities to identify opportunities for the

expansion of existing non-motorized transportation systems (i.e. wide shoulders, multi-use pathways).

- Action 5.3 Explore the development of citizen work groups to identify non-motorized transportation and recreation in Minnehaha County.
- Action 5.4 Identify opportunities to develop organizational support for ongoing maintenance of parks, open space, and/or trail facilities.

Goal 6. Provide comprehensive transportation planning to encompass future needs.

- Action 6.1 Review and update the Major Street Plan every three years.
- Action 6.2 Work with area governmental authorities to integrate roadway systems.
- Action 6.3 Identify opportunities to incorporate technology in the provision of services.