Tripp County, SD

Master Transportation Plan

Review Draft - Web

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<u>In Cooperation with</u>

Tripp County, South Dakota

South Dakota Department of Transportation

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Acronyms

AASHTO	American Association of State Highway and Transportation Officials
BIG	Bridge Improvement Grant
CEDS	Comprehensive Economic Development Strategy
ETC	Equitable Transportation Community Explorer
FHWA	Federal Highway Administration
LF	Local Federal
LOMS	Level of Maintenance Service
LTPP	Long-Term Pavement Performance
NBIS	National Bridge Inspection Standards
MTP	Master Transportation Plan
PASER	Pavement Surface Evaluation and Rating
PE	Preliminary Engineering
SAT	Study Advisory Team
SDCL	South Dakota Codified Law
SDDOT	South Dakota Department of Transportation
SDLTAP	South Dakota Local Technical Assistance Program
SHRP	Strategic Highway Research Program
STBGP	Surface Transportation Block Grant Program
STIP	State Transportation Improvement Program
USDA	US Department of Agriculture

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Executive Summary

The Tripp County Master Transportation Plan (MTP) is a new document that is accepted by the County Commissioners to help guide the ongoing evaluation and decision making about the County's transportation infrastructure. It is the first for Tripp County, but it is not County's first efforts to used planning processes to organize transportation decisions. The Tripp County Bridge Plan is updated annually to organize information used to seek funding for design, repair, and replacement of aging structures. This MTP begins a similar process of defining standards and applying priorities to help the Country achieve their goals for the transportation network. The study,

- *Compiled a list of transportation issues and needs of the current and projected future traffic conditions facing Tripp County.*
- *Developed alternatives that address those issues and needs with a toolbox of standards, policies, guidelines, and best practices. Where funding levels are inadequate to achieve a recommended alternative, the County must be able to apply a predictable method of prioritization and implementation.*
- *Created final products for use by Tripp County and the SDDOT which will guide implementation of recommended improvements and react to future opportunities and constraints.*

Tripp County Transportation Network Key Issues and Needs

- Standards for Roadway Design and Maintenance
- Priorities for Roadway Projects and Maintenance
- Priorities for Bridge Project
- Funding Levels and Sources
- Local Funding Generated
- Transportation Safety
- Economy and Adaptability to Market Opportunities
- Support of Public Services

The document must reflect the historical context, jurisdictional alignments, existing infrastructure conditions, and the best available forecasts of future needs. With this information, it can provide a framework to use for prioritizing, selecting, and completing projects and maintenance needed to support the transportation network. The goal of the MTP is to address the key issues and needs documented by this study. Tripp County must do all of this within the limits of available financial resources and jurisdictional responsibilities. The MTP will also be expected to react to changing conditions and address future transportation challenges that arise while maintaining a solid foundation centered on meeting acceptable standards of performance.

Typical planning needs were studied by compiling a baseline conditions analysis, discussions with the Study Advisory Team, and stakeholder and public feedback. This input framed the basis to organize strategies including transportation standards, guidelines, and future projects. Before any of these tools could be organized to apply to Tripp County, the primary issue identified by the study needed to be addressed. Existing functional classifications assigned to many roadways did not reflect current or expected level of design and maintenance currenlty applied to County and township roads. The extent of this key issue could not have been anticipated when the study began. Recommendations could not be organized until this issue of functional classifications assigned was understood and resolved. Resolving this key issue would affect other needs including:

- *Jurisdictional Transfers*
- *Tripp County Major Roads Plan*
- *Road Cross Section and Bridge Width Standards*
- *Level of Maintenance Service Standards*

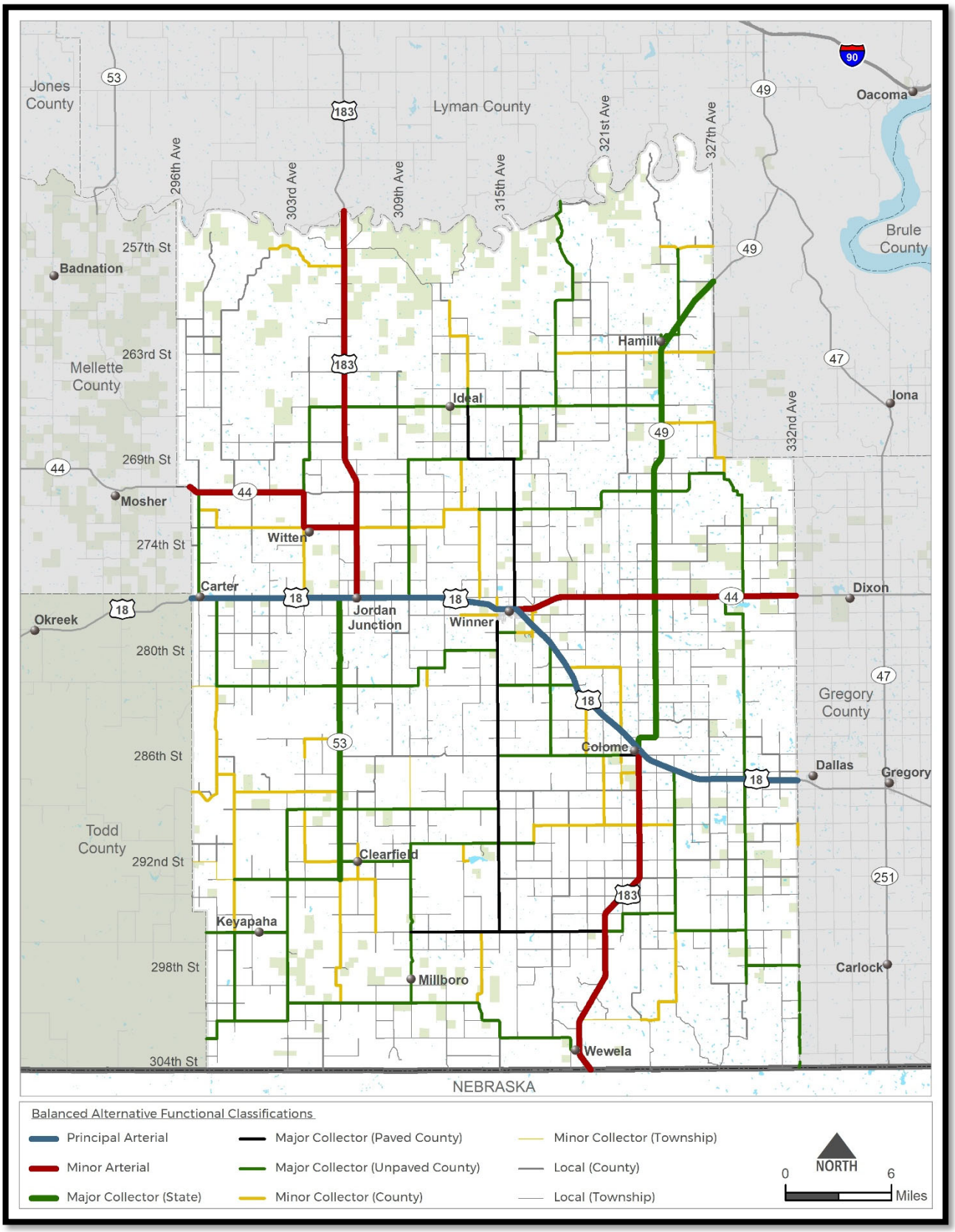
Stakeholder and public input commonly equated a lack of standards for maintenance and design with the expected functions that many roadways serve or were expected to serve. This was primarily related to unpaved roads. It became clear that any definitions established by the Major Roads Plan for design and maintenance would need to closely reflect the assigned functional classification. Table ES.1 *represents the systematic review of existing functional classifications against two alternatives considered by this study. The maintenance preferences of the County stakeholders, Highest Standard Alternative, would greatly exceed the guidelines for Major and Minor Collectors proportion of classifications. Using local input and following state guidelines, a Balanced Standard alternative was developed and submitted to SDDOT. The Major Roads Plan and the Level of Maintenance Service Standard could then be established.*

All reasonable efforts were made to retain a balanced ratio of roads assigned to County and township jurisdictions. The required jurisdictional swap process must be completed before SDDOT will recognize these changes on state maps. Figure ES.1 *was created to represent the combination of Balanced Alternative functional classifications and the recommended jurisdictional assignments recommended by this study. This method of communicating functional classification and jurisdiction on one figure will help clarify future planning updates where the Township form of government is retained.*

Table ES.1. Tripp County MTP Summary of Functional Classification Revisions

	Functional Road Classification	Total Lanes Miles	% of ALL Roads	% of LOCAL Classification
Existing Assignments	Principal Arterials	40	2.1	8.2
	Minor Arterial	69	3.7	
	Major Collectors	245	**23.6**	**33.4**
	Minor Collectors	198		
	Local Roads	1,323	70.6	-
Alt A: Highest Standard Alternative	Principal Arterials	40	2.1	10.6
	Minor Arterial	69	3.7	
	Major Collectors	451	**39.5**	**72.3**
	Minor Collectors	290		
	Local Roads	1,025	54.7	-
Alt B: Balanced Standard Alternative	Principal Arterials	40	2.1	8.4
	Minor Arterial	69	3.7	
	Major Collectors	310	**25**	**36.1**
	Minor Collectors	158		
	Local Roads	1,298	69.2	-

Figure ES.1 Tripp County Proposed Functional Classification and Jurisdictions



With functional classifications reassigned, MTP standards and guidelines will help address issues and needs when it comes to designing projects, planning funding, and assigning priorities. The standards and documents organized as part of this study will help guide the County with future decision-making questions, including the following:

- *Which roads and bridges have the highest priority for funding improvements?*
- *How can the County and townships work together to prioritize road improvements?*
- *What maintenance can be anticipated based on priority and funding?*
- *How wide does a bridge need to be on certain types of roads?*
- *How will road classification changes impact local access and connectivity?*
- *How can township and county coordination ensure that transportation investments are consistent and sustainable across the entire network?*
- *What role should each township play in maintaining roads that are reclassified under the new framework?*
- *When and how should the County plan to transfer jurisdiction to the State, city, or township?*

The work to reclassify functional classifications was followed by future conditions analyses. While high traffic volumes are not anticipated, the County recognizes the need to support low volume rural roads that convey heavy equipment and products to market. Existing analysis of bridge conditions and ratings was incorporated. Desktop assessment of Tripp County paved roadway surfacing condition was also organized to help prioritize road improvements and preservation techniques as flexible pavement ages and needs major repair or replacement.

The terminology used to describe maintenance was also inconsistent or difficult to understand. A method of describing routine, restoration, and reconstruction types of maintenance was organized for unpaved and paved roads. The approach used to determine which roads receive priority maintenance each year was also inconsistent or difficult to understand. A method of organizing maintenance by rotation and consolidating resources was organized. Planning level cost estimates for implementing this strategy were prepared, but it should be updated regularly.

Finally, this study could not have been completed in good faith without input from the Study Advisory Team, stakeholders, and the public. The study did not follow the intended schedule as unanticipated transportation issues were addressed. Timely input throughout the study process validates the purpose, intention, and conclusions of the study. Survey results and direct comments were carefully recorded and considered throughout the study process.

This study uses the year 2045 as the planning horizon. However, needs and priorities are expected to change over time, so this document is considered a "living document." The County does not have a Comprehensive Plan that would help guide the transportation decisions that should reflect land use. A Comprehensive Plan for land use is recommended, but the County is also recommended to maintain this MTP with updates to this study every 5-8 years to keep it current and beneficial to the County.

Chapter 1. Introduction and Background

1.1 INTRODUCTION

Tripp County, located in south-central South Dakota, provides a rural setting where residents enjoy a quality of life that is distinct to this part of the state. Existing transportation infrastructure currently supports Tripp County residents, agricultural demand, and hosts of visitors to the region, many of whom seek out the renowned and rugged hunting opportunities. On-going maintenance and construction of the roads and bridges within Tripp County is important to all of these interests. The work is accomplished by several entities, including the South Dakota Department of Transportation, Tripp County, individual townships (46), and the individual communities.

The Township form of government has played a continuous and significant role in shaping the roads and bridges of Tripp County. Balancing the ongoing challenges of limited resources for maintaining roads and bridges can support and strengthen the local economy. Determining how best to maintain high-quality, safe, and reliable roads that offer efficient routes will remain an inter-related priority for the County and townships, requiring shared goals and priorities to guide decisions.

The County, named after Bartlett Tripp, a distinguished lawyer, judge, and diplomat, was established in 1873 and officially organized according to townships in 1909. According to 2022 US Census, Tripp County has a population of 5,607 distributed across 1,618 square miles representing less than 3.5 residents per square mile. A staggering 56,000 head of beef cattle were produced in 2024 according to the US Department of Agriculture, making Tripp County the 13th largest producing county in the nation and exceeding 10 cattle produced for every resident. Approximately 74,500 acres (7.2% of the County) are native-owned property and/or allotted to the members of Rosebud Sioux Tribe and administered by Bureau of Indian Affairs. This subset of parcels are scattered throughout the County and many of their rangeland acres are leased to support the grassland needs of cattle.

TRIPP COUNTY ROADWAY SURFACES VARY FROM CONCRETE PAVEMENT TO UNPAVED GUMBO (PIERRE SHALE) ROADS IN THE NORTH AND CLAY ROADS IN THE SOUTH. SOURCE: FHU 2024

The rural transportation network provides an interrupted grid system comprised of US and State Highways, County and township roads, and municipal streets. This network must support residential/commercial needs, farming/feedlot operations, and visiting tourists. Each roadway and bridge in Tripp County provides for the individual and collective connections for moving people, goods and services which all benefit from a coordinated transportation plan.

1.2 BACKGROUND

The unique context of Tripp County is characterized by diverse opportunities to live rurally, celebrate agriculture, play in nature, and access rural services and amenities within the region. Longtime and new residents alike emphasize a need for the county's continued efforts to maintain and improve a transportation system that supports reliability, resilience, and redundancy within current financial and administrative constraints. County staff and elected officials have shown tremendous commitment to this infrastructure, implementing steps to maintain roads, replace bridges, and provide a safe transportation system that strives to apply design and maintenance standards consistently for both rural and urban infrastructure. Tripp County's Auditor, Assessor, Register of Deeds, and Treasurer offices handle dual-county services for adjacent Todd County, but this overlap does not include County Highway operations.

The Study Area for the Tripp County Master Transportation Plan (MTP) encompasses all of Tripp County, including the shared boundaries with municipalities within the County. The primary focus is the Tripp County-jurisdiction highways, but US and State highways and township roads within the Study Area are included to provide a comprehensive view of the Tripp County transportation network and the jurisdictional responsibilities. Additionally, the MTP addresses the issues and needs of all transportation users from heavy trucks and equipment to personal vehicles with associated support provided for the context of those who travel by foot or bike. The Study Area and associated roadways are illustrated in **Figure 1**.

Tripp County officials who make the budgeting decisions for the roads and bridges have recognized the need to establish longer-term transportation plans. The primary purpose for developing this plan is to address the challenge of consistently prioritizing funding to maintain the aging transportation infrastructure. The challenges are compounded by variables such as functional designation of roads, an incomplete grid network, vastly different soil conditions, as well as the availability and costs of materials, equipment, and trained labor. Transportation needs of a county inevitably change over time, but the cost of maintenance, the variable condition of unpaved roads, and the rapidly declining condition of paved county highways have risen to an urgent level for the County to address. Alternatives needed to be explored and considered with stakeholders. The impact to the public who use the roadways needed to be better understood and documented. The MTP focuses on current and future transportation infrastructure needs of Tripp County. It considers how and when to address them while acknowledging that funds are limited and priorities are necessary for making the best decisions possible for the County.

Public participation provided necessary and helpful insight to assemble this MTP. The inherent nature and influence of the "Grass-roots" form of government" is shared in **Chapter 3**. In addition to elected officials and staff, stakeholder input was considered with public priorities to guide goals, policies, and priories. The recommendations will have a direct impact on those who depend on the transportation network. The plan is organized to support planning and budgeting that can lead to expanding connectivity, supporting safety, and significantly improving the quality of maintained roadways that support residential, agriculture, and commercial segments of the economy. The planning process was structured to gather and incorporate input while keeping community members informed as issues were identified and strategies developed. Those who participated in the process served a key role in shaping the future of transportation infrastructure decisions of Tripp County.

With this MTP, Tripp County is ensuring that its transportation infrastructure needs are being addressed through transparent planning, policies, and projects. The plan serves as a guide for decision-making and a blueprint for Tripp County's transportation infrastructure for years and decades to come. As the first MTP created by the County, it is an adaptable document and should be periodically updated to reflect emerging challenges and opportunities.

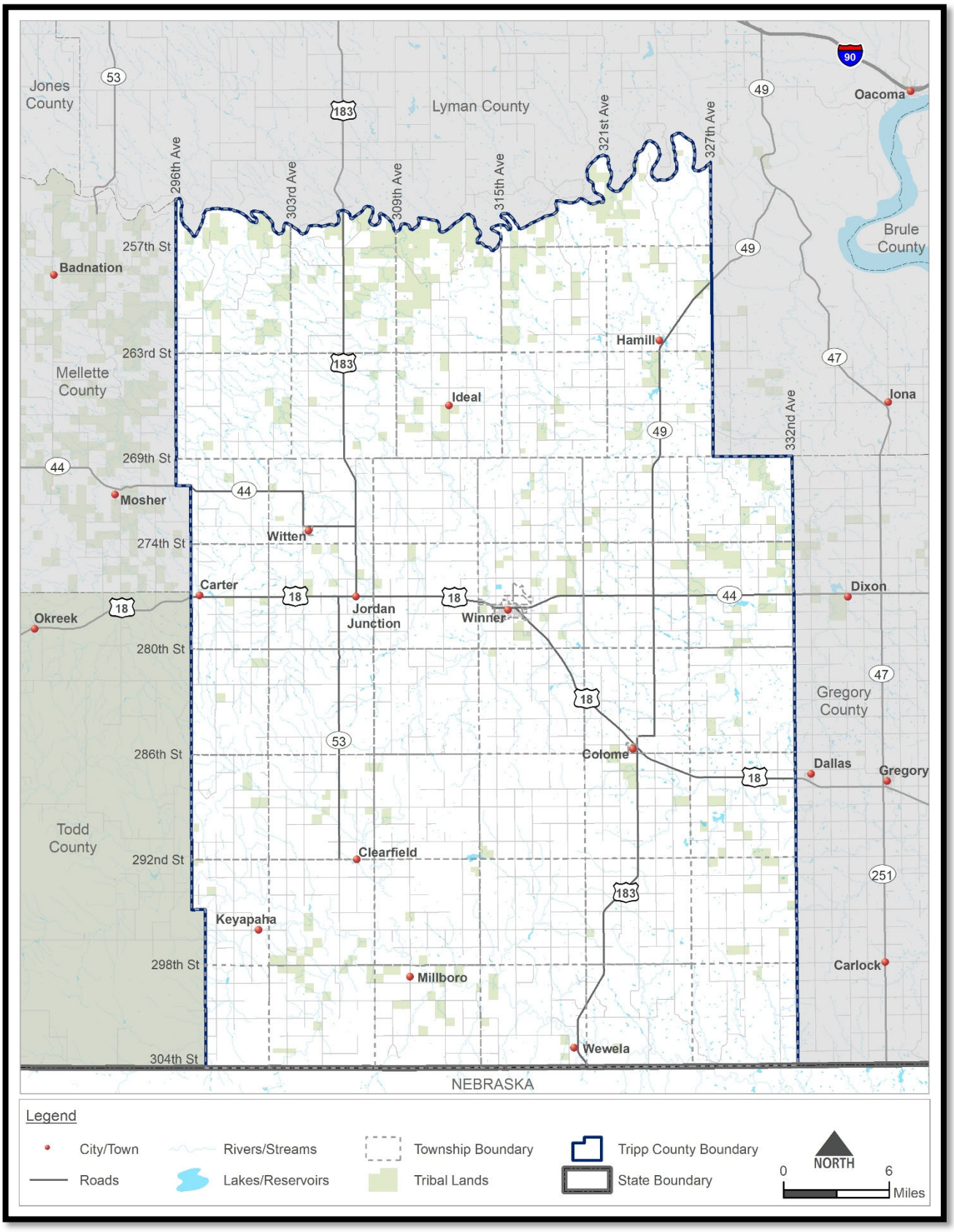
1994 Excerpt from
"Grass-roots Government: South Dakota's Enduring Townships" by J.P. Hendrickson

Township officials were required to enforce a number of traffic laws, as well. In his 1884 township manual for the territory of Dakota., Walter S. Booth included a section entitled "the law of the road," which covered passing, racing, and drunken driving and provided penalties for infractions." in 1899, Medary township in Brookings County passed a bylaw "restricting bicycle riders from going at full speed against teams on the highways and causing runaways."

Perhaps the most important township function was the building of roads to connect farmsteads and provide access to the railroads that were so essential to community and commerce." Territorial government, county commissions, township boards, and district court judges could all establish roads, but their ongoing maintenance was "wholly under the care and superintendence of the supervisors of the township or road supervisors of the counties in which they lie."' According to historian Will G. Robinson, until the turn of the century county officials entered the picture only in the occasional instance when a road went through more than one township.'"

Territorial law specified detailed procedures for constructing all classes of roads in a basic network consisting of a grid of sixty-six-foot rights of way along all section lines.' In practice, however, road building proceeded in a desultory fashion, producing a crazy-quilt pattern across the region.

Figure 1. Study Area Boundary



1.2.1 Purpose and Goal

The purpose of the study was to assess the existing transportation network and formulate a series of prioritized solutions that address design standards, safety needs, functional designations, jurisdictional assignments, and maintenance improvements that would best address future needs. These efforts aimed to maximize the benefit of funds allocated over a 20-year timeline for transportation, support the transportation needs of County residents, and enhance the economic and social well-being of Tripp County. As the first MTP for Tripp County, this document establishes an important baseline for local decision making and on-going financial investments. The Tripp County MTP is designed as a living document that serves as a blueprint or 'road map' to guide elected and appointed officials, developers, and residents of Tripp County.

The MTP goal is an organized framework of County information, decisions, and resources that address the key issues and Needs identified by this study. The key issues and needs include

1. **Population Base and Changes:** Population decline experienced over the past 20 years is a concern for the County and presents ongoing challenges for maintaining a complete roadway network.
2. **Programmatic Funding Levels:** Funding generated by townships and the County does not generate sufficient revenue for all county-wide projects and maintenance needs.
3. **Equitable Funding Sources:** Township and County taxing authority is not organized in a consistent manner to equitably share in transportation investments needed for a thriving economy.
4. **Roadway Classifications, Design, and Maintenance Standards:** Local and County roads have not adopted State Classifications for design standards making decisions about roadway improvements and maintenance difficult for Tripp County.
5. **Availability of Roadbed Materials:** Quality labor and materials needed for constructing and maintaining reliable county roads are limited and require additional cost for the County.
6. **Functional Continuity and Route Connectivity:** The combination of county and township roads that exist in Tripp County support townships, but careful planning is required to provide county-wide continuity and improve connectivity of roadways with important destinations.
7. **Roadway Capital Project Prioritization:** Tripp County needs to establish a sustainable method of prioritizing capital improvement projects for County roads which may reflect needs, condition of the road, cost, source of funding, urgency, and other priorities to be identified.
8. **Supporting Drainage (Bridges and Culverts):** Tripp County roads are crossed by many drainage structures that must be maintained. With limited traffic and funding for maintenance

costs, small drainages that are crossed by roadways are a cost burden on available Tripp County resources.

9. **Bridge Capital Project Prioritization:** Tripp County needs to establish a sustainable method of prioritizing capital improvement projects for County bridges which may reflect needs, condition of the road, cost, source of funding, urgency, and other priorities to be identified.
10. **Economy and Adaptability to Market Opportunities:** Tripp County boasts a strong market for beef production and ag industries but supporting industries and farming practices are challenged by the limited ability to improve roadways that are essential to get products to market.
11. **Freight Demand and Roadway Needs:** Freight traffic accounts for a significant portion of vehicles on the state highway system. Existing county roads do not provide the most supportive transportation network for freight traffic and the movement of goods to the state highway system.
12. **Transportation Safety:** Transportation awareness and safety concerns are major factors for the county. Transportation planning can help the County address safety concerns with speed of travel, traffic management at intersections, standard designs for each roadway type defined by the plan.
13. **Public Services:** Public services provided for school transport, transit, mail, and emergency needs are essential and must be coordinated with a reliable road network throughout the county to support residents of Tripp County.
14. **Rural Fabric of Township Heritage:** Township roads were created to support a rural heritage that is important to the culture of Tripp County. Property owners gained access to local towns and schools that did not always use section lines for county roads. Preserving local township roads is part of
15. **Active Transportation (Pedestrian and Bicycle):** Tripp County roadways do not support infrastructure for active transportation outside of trails and sidewalks inside communities. Underserved communities that are outside of these jurisdictions would benefit from alternative transportation infrastructure to safely reach employment, health care, grocery, family and cultural communities.

1.2.2 Study Process

The Tripp County MTP was completed as a three-phase process. During the first phase, public and stakeholder involvement helped to inform the plan, starting with the identification of issues and needs and concluding with the publication of the draft plan for review and comment. This input was combined with available data organized to understand baseline conditions, such as traffic, pavement ratings, and growth potential to assess the County's current transportation network and future needs. A project website and public outreach activities are used to raise awareness and gather input, with findings summarized by an existing conditions summary.

During the second phase, the study considered jurisdictional and functional classification irregularities as well as potential maintenance management scenarios to understand how policies and strategies could address transportation challenges like safety, deferred maintenance, maintenance standards, and heavy truck and farm equipment impact on county roads. Identified alternatives to consider included roadway design standards, maintenance policies, and project recommendations which were shaped through research, stakeholders, and public response to survey questions.

The final phase compiled the recommendations from all findings into a draft (and final) MTP. Projects were prioritized into short-, mid-, and long-term categories, and updated standards were shared. Throughout the three phases, individual components of MTP were supported with research to support the document assumptions and narrative, with the final phase compiling all contents and organizing the recommended projects and policies for public and stakeholder review. (The process concluded with public review and a final open house, before final adjustments were made for the 20-year vision for the County's transportation system.)

1.2.3 Study Advisory Team

The Study Advisory Team (SAT) for the MTP included representatives from Tripp County, South Dakota Department of Transportation (SDDOT), and the City of Winner. The consultant team met in person and virtually with the SAT on multiple occasions during the study process. The SAT's role was to guide the development of the MTP, organize local sources for information, review progress, provide feedback on study materials, and offer insights throughout the study about questions and findings. Additionally, the SAT ensured that the purpose and goals of developing the plan were achieved upon its completion.

Chapter 2. Existing Conditions

2.1 COUNTY HISTORY AND PROFILE

An inventory of existing transportation conditions for the Tripp County led to identification of multiple, inter-related needs and opportunities. This inventory included a review of the existing roadway network, traffic volumes and operations, crash history, pavement conditions, bridge conditions, roadway maintenance, and perceptions of existing infrastructure. The following sections summarize the existing condition findings.

The history of Tripp County is outlined by the time and manner of its establishment in 1907 as well as the Township form of government that divides resources between County and local jurisdictions. A Township model of governance was predominantly used to provide most highway construction and maintenance services by township officials until the middle of the 20th century. Historic accounts document that residents of each township household would pay a portion of their annual tax obligation in-kind by providing a minimum number of hours maintaining the roads and bridges (as illustrated below); a less formally organized work ethic that is still applied by many township landowners.

This approach to road building and maintenance of township roads served a more local context than what is seen in Tripp County today and resulted in an incomplete roadway grid network as time slowly changed the working landscape. Although land values increased significantly due to wheat demands of World War I, the local market was not sufficiently diverse to weather the severe market drop in 1921 when demands for farm commodities declined. The US

Example Township Maintained Roadway, 1910. Source: South Dakota State Historical Society Quarterly, V24, No. 1 "Grass-roots Government: South Dakota's Enduring Townships"

Department of Agriculture estimated crop value ratio in 1934 had dropped compared to 1921, reaching a debilitating seven-tenths of one per cent. Depreciating land values and depressed crop production in the semi-arid climate, resulted in a land use transition necessary to leverage available rangelands for cattle ranching. County efforts to provide aid to landowners resulted in direct payments for households out of limited County funds. This period left little for capital infrastructure investments and maintenance or to make progress to close roadway network gaps that had never been constructed. Meager payments continued from local, State, and Federal resources leading up to and continuing through the Great Depression.

During the earliest pioneer days, most farmer's activities were confined within a radius of three or four miles, a distance commonly known as a "team haul." By mid-century, improved transportation facilities permitted farm families to reach village centers for goods and services from communities such as Ideal, Winner, Colome, Witten and Jordan located in the northern townships of the County. The remaining County and township roads have remained gravel or dirt through the present day. Since the 1950s and 60s, Township schools have closed, churches have consolidated, and agriculture has become more industrialized with much heavier equipment. Through this transition, the aging roadway network has remained, and the County developed limited paved road miles.

Cross sections of Tripp County and township roadways commonly intersect as shown above, using varied materials, equipment, and roadside management. Source: FHU, 2024

Modern day township voters elect fewer official positions, but their authority and the annual elections remain much the same. The modern township board consists of three supervisors (who serve

overlapping three-year terms), a clerk, a treasurer, and an optional constable (all of whom serve one-year terms). Township boards make decisions about their mill levee, and other tax levee decisions that generate annual revenue for townships to maintain their roads.

Other units of government, however, have preempted many township functions, even those related to road upkeep, the township's traditional stronghold. For example, bridges on secondary (or township) roads and culverts with an opening of more than sixteen square feet are assigned County responsibility. In Tripp County, extra culverts are procured and stored for individual townships for purchase to improve or repair smaller drainages on township jurisdiction roads. South Dakota law also gives counties the ultimate authority to designate any township road, when it is deemed in the public interest, as a "county aid road" and to expend both township and county highway funds for their construction, graveling, and maintenance. Where townships retain responsibility for the county aid roads within their boundaries, they have three options to choose from to carry out their road duties. They may (1) buy and maintain their own equipment and hire their own operators; (2) hire private contractors; or (3) contract for services with the county or a nearby municipality. What exists today reflects the variety of management approaches, variable condition of available rock and gravel, and availability of resources and equipment across township roads of Tripp County.

2.1.1 Population

Tripp County has an aging population, meaning the average age is becoming older when compared to previous years. Considering **Table 1**, the median age is approaching 45 years old. Family sizes are also getting smaller and fewer young people are remaining or returning to raise their family as was more common in previous generations. Tripp County has experienced a net population decline as the statewide population has increased. The combination of both aging residents and shrinking population base is an indicator of fewer opportunities for households to generate income, expand businesses, and grow the economy. The current median household income of Tripp County is $56,758 which is lower than the state median of $69,728. Household incomes are considered very low for a large portion of households as well. With stagnant population and inflationary impacts rapidly increasing the costs of infrastructure and labor, County and township leaders must manage and maintain the same roads and bridges with a net decline in available funds under the existing policies. Transportation infrastructure is essential for all households and supports the health, safety, and general welfare for all people of Tripp County.

Table 1. Population and Household Demographics

Demographic	2000 Population	2010 Population	2022 Population	2022 Median Age	2022 Median Household Income
Tripp County, SD	6,430	5,644	5,607	44.7	$56,758
Statewide, SD	754,844	814,180	909,824	38.5	$69,728

SOURCE: U.S. CENSUS BUREAU

2.1.2 Socio-Economic Variables

Approximately 21% of County residents meet the US Census, low income (poverty) criteria measured for households. As **Table 2** indicates, the rate of Tripp County is approximately 8.5% greater than the Statewide rate. The population that is most vulnerable to the impact of roads not built and maintained to adequate standards includes low-income households and strong correlation to minorities, elderly, and those with limited physical abilities. The minimum expenses of household transportation for low-income populations can place a disproportionally negative impact on mobility which also limits opportunities to access essential services, goods, and family/friends in other communities.

Table 2. Vulnerable Populations

Location	Low income (Poverty)	Minorities by Race	Youth	Elderly	Limited physical abilities
Tripp County, SD	21.0%	20.1%	22.8%	23.0%	5.0%
Statewide, SD	12.5%	19.2%	24.1%	18.2%	5.8%

SOURCE: U.S. CENSUS BUREAU

While Tripp County as a whole is not classified as Underserved Community, 2024 data provided by the US DOT Equitable Transportation Community (ETC) Explorer indicated that transportation challenges exist related to transportation access and transportation safety. Meeting the needs of Underserved Communities remains a national priority and considers historic data for Areas of Persistent Poverty. In Tripp County, this includes the US Census Tract (9717) of and around the City of Winner. The surrounding area (9716) does not meet this criteria. Even so, individual households with the lowest incomes in these areas, such as the residents living in the unincorporated Census Designated Place of Ideal, South Dakota do meet the criteria. Reliable transportation is needed to provide access to safe routes that don't place undue wear and tear on personal vehicles, that enable emergency responders to arrive in a timely manner, and that recognize a portion of residents must walk or bike instead of driving to jobs, services, and other needs in Winner. The underserved community data underscores the need for targeted transportation investments and policies to improve access, reduce cost burdens on households, and address transportation safety within the County. Addressing these transportation-specific challenges ensures all residents have mobility options to foster positive social, health, and economic outcomes.

2.1.3 Employment and Labor Force

An estimated 3,142 jobs (**Table 3**) exist in Tripp County with a diverse mix of employment types. Health Care, Social Assistance, Retail Trade, Accommodation and Food Services, and Education Services account for an robust 48.5% of all jobs, A low unemployment rate is generally positive, but new job creation may not sufficiently stimulate wage growth, recruit new residents, or provide upward mobility to compete with a living wage relative to the rising cost of inflation on consumer goods and

services. Three school districts within Tripp County make up 1.0% of all South Dakota K-12 students as of 2024. These are Winner (59-2) with 827 enrollments, Gregory (26-4) with 442 enrollments, and Colome Consolidated (59-3) with 135 enrollments. Approximately 89.5% of adults have a high school diploma or higher, and 19.9% have achieved a bachelor's degree or higher indicating that many working adults age 25 and older have obtained a technical degree of some kind to support trades and skill labor sectors.

Table 3. Employment

Location	Labor Force	Employment	Unemployment	Rate
Tripp County, SD	3,191	3,142	49	1.5%
Statewide, SD	479,297	469,817	9,480	2.0%

SOURCE: LABOR MARKET INFORMATION CENTER, SD DEPARTMENT OF LABOR AND REGULATION, IN COOPERATION WITH THE US BUREAU OF LABOR STATISTICS (MARCH 2024).

2.1.4 County Economy

The 2019 *Comprehensive Economic Development Strategy* (CEDS) was produced for the 16 counties, including Tripp County, within Planning and Development District III (District III). The CEDS highlighted stable population numbers and a low unemployment rate across the region. It also identified critical strengths, weaknesses, opportunities, and threats to guide future economic growth. A key focus area of the economic strategy was strengthening core infrastructure capacities, particularly transportation systems, to support regional development. Specific statements from the CEDS report emphasize the region's transportation challenges and opportunities:

- Deficient roads and bridges require significant improvements.
- Current project administration practices need enhanced financial management processes.
- Bridge improvement plans demand increased financial assistance to address pressing needs.
- Expanded services through local or regional programs could boost business activity and population growth.

A close look at the 2023 and 2024 sales tax numbers provided by SD Department of Revenue highlights the importance of supporting stable growth in the Agriculture, Forestry, Fishing, and Hunting sectors. These sectors depend on a reliable and well-maintained transportation network. Farm equipment and heavy trucks that carry livestock from rangeland to feedlots or market also place additional wear and tear on unpaved county roads and have significantly degraded the condition of aging pavement, specifically on the paved north county highway (**Appendix F – Existing Pavement Conditions**).

Data summarized in **Table 4** illustrates the strong correlation between a year's decline (2023 to 2024) in Agriculture and Tourism sales and close correlation relative to all taxable sales. Although Tripp County seeks to diversify and expand other industry sectors, the growth and decline of these few sectors have the largest influence on overall sales tax generated by the Tripp County's economy. These sectors provide a significant portion of the county's taxable sales and associated jobs. Taxable sales

from agriculture and tourism decreased 21.8% from $32.16 million to $26.37 million in one year. That decrease almost mirrors the 21.9% decrease for all taxable sales during the same period. This decrease may be attributed to reduced production, lower demand for agricultural and forestry services, or broader market trends affecting the sectors and is variable from year to year based on factors not evaluated further for this study.

Table 4. Taxable Sales for Agriculture and Hunting; Support Industries

TRIPP COUNTY AND WINNER TAXABLE AGRICULTURE AND TOURISM-RELATED CATEGORIES	2024 TAXABLE SALES ($M)	% CHANGE FROM 2023 VALUES	% OF ALL 2024 COMBINED VALUES
1. Farm Supplies	$6.4	(-32.4)	2.1
2. Hotels & Motels	$4.9	(-6.4)	1.6
3. Industry Machinery & Equipment	$4.9	(-67.2)	1.6
4. Vet Services for Livestock and Other	$4.7	2.1	1.5
5. Amusement & Rec Services	$2.1	7.7	0.7
6. Fish, Hunting & Trapping	$1.9	(-31.1)	0.6
7. Ag Production - Livestock	$1.4	15.5	0.5
Ag. and Tourism Category Taxable Sales	**$26.4**	**(-21.8)**	**N/A**
All Tripp County & Winner Taxable Sales	**$253.6**	**(-21.9)**	**10.4**

SOURCE: SOUTH DAKOTA DEPARTMENT OF REVENUE ANNUAL SALES TAX SUMMARIES; TRIPP COUNTY & WINNER, SD

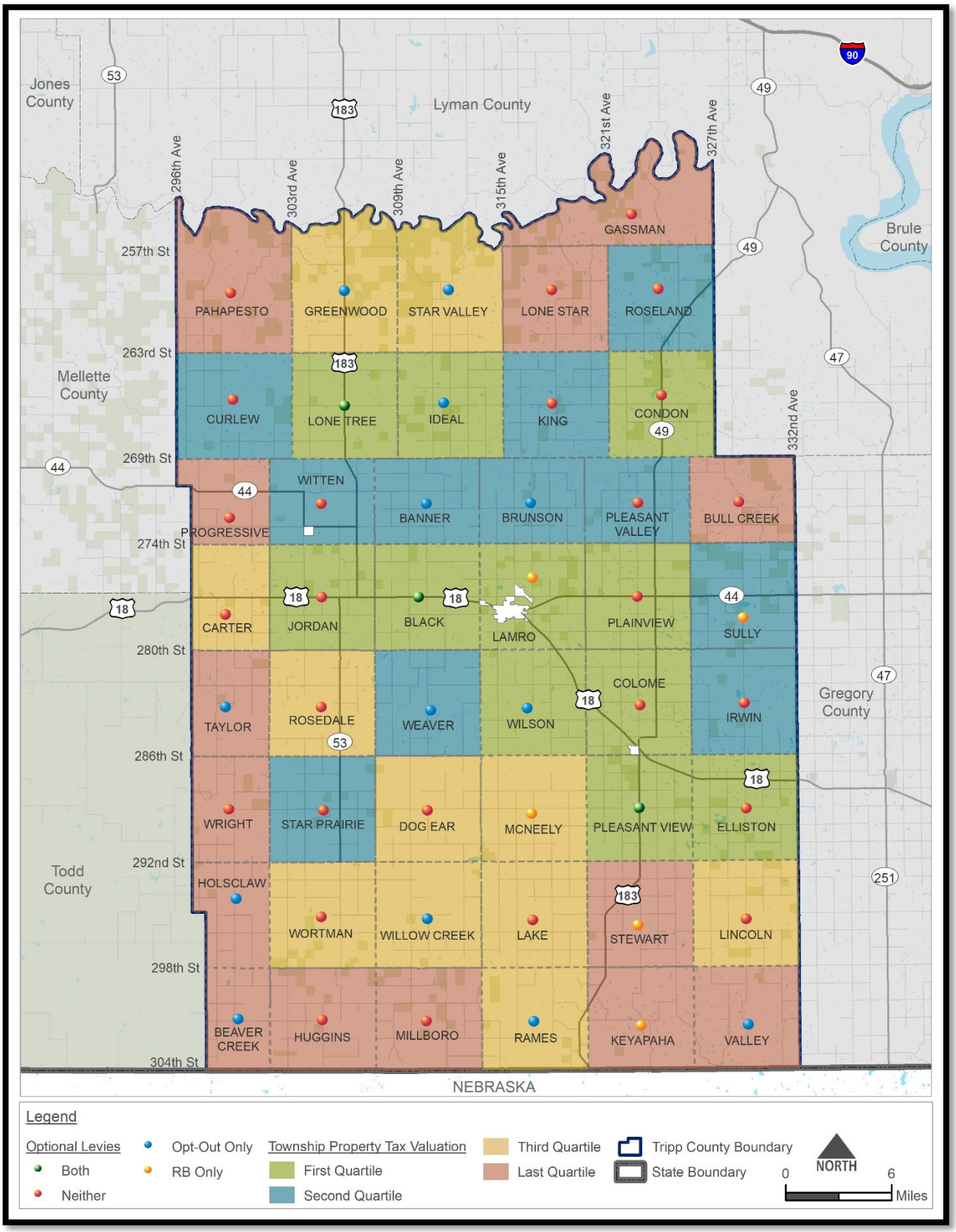
2.1.5 Property Tax Structure

According to State Statute 31-12-6, the county highway system must be, "maintained and repaired at the expense of the whole county." Property value and the assigned property tax rates in Tripp County have substantial influence on transportation infrastructure funding as well as other essential needs of the County. The value of individual property varies across Tripp County as well as collectively by township. Property taxes collected by the County are distributed accordingly to 56% schools, 34% county, 7% cities, and 3% townships. The County and each township must balance their budgets. Each township board establishes property tax levy rates and rate increases must be approved incrementally. They may also approve to opt out of the standard mill levy cap and/or approve a road and bridge levy in addition to their standard mill levy to generate revenue needed to access state aid for bridge design or reconstruction.

This study considered the importance of property valuation for generating revenue used for county highway construction and maintenance. All townships were assigned to a quartile based on total property valuation. The result of this evaluation is displayed on **Figure 2**. The four colors represent quartiles, and colored dots represent townships with additional property tax levies. The resulting information demonstrates how revenue is generated from townships to maintain County roads and bridges. The density of existing primary county highway miles and bridge structures are summarized by **Table 5** to highlight that property values, tax revenue and the expenses of the county highway system maintenance and repair are not directly correlated.

Tripp County property value reflects the variety of rural uses of the land. Wide open rangelands, recreational hunting, commercial sized and small family feedlots intermix with 74,500 acres of federally exempt parcels that have retained ownership by Rosebud Sioux Tribe since the 1887 Indian Allotment Act. Source: FHU, 2024

Figure 2. Property Taxable Valuation Distribution by Township



While townships may use retained township funds for their own needs, Tripp County is required to support the entire county highway system. This study assessed townships according to primary county highway road density (miles per square mile), large and small structures, and four taxing categories. Values between 1-4 were assigned to three tax criteria and one point was assigned if a township rate increase had been made between 2018-2023 for a maximum township score of 13 points: The property tax structure assessment results are summarized in **Table 5.**

- **Criteria 1**: Total Taxable Property Values ($)
- **Criteria 2**: Combined, Mill Levy, Opt Out Levy, and Road and Bridge Levy (%)
- **Criteria 3**: Total Property Tax Revenue Generated by Criteria 1 and 2 ($)
- **Bonus Criteria**: The rate of Mill Levy increased (%) between 2018 and 2023

Table 5. Existing Township Property Tax Assessment by Infrastructure Density

Property Tax Ranking - Primary County Hwy and Bridges		2023 Revenue	Property Tax Ranking - Primary County Hwy and Bridges		2023 Revenue
TWP (Pts)	**Density** (lg/sm)	**Tax ($1K)**	**TWP (Pts)**	**Density** (lg/sm)	**Tax ($1K)**
Black (13)	**0.27** (0/0)	$38.6	Wilson (8)	**0.74** (0/3)	$2.2
Pleasant View (13)	**0.61** (0/0)	$28.5	Lincoln (7)	**0.36** (0/0)	$4.0
Lone Tree (13)	**0.44** (9/1)	$26.5	Rames (7)	**0.38** (2/0)	$2.4
Lamro (12)	**0.46** (1/0)	$21.0	Pleasant Valley (7)	**0.36** (0/0)	$2.4
Sully (12)	**0.25** (0/0)	$15.3	Star Valley (7)	**0.13** (3/0)	$2.0
Ideal (12)	**0.47** (2/6)	$13.8	Condon (7)	**0.57** (0/2)	$1.1
Weaver (12)	**0.52** (2/0)	$13.3	Taylor (6)	**0.39** (0/0)	$5.0
Mcneely (11)	**0.71** (2/0)	$12.8	Lake (6)	**0.63** (0/0)	$3.5
Banner (11)	**0.66** (1/1)	$12.0	Wortman (6)	**0.60** (0/1)	$3.0
Plainview (11)	**0.23** (1/0)	$6.7	Greenwood (6)	**0.15** (3/1)	$2.0
Valley (10)	**0.36** (1/2)	$11.4	Jordan (6)	**0.11** (0/0)	$0.0
Keyapaha (10)	**0.31** (3/0)	$10.8	Bull Creek (5)	**0.40** (1/0)	$2.7
Brunson (10)	**0.39** (0/0)	$9.7	Curlew (5)	**0.17** (4/0)	$1.1
Colome (10)	**0.25** (4/3)	$7.7	Carter (5)	**0.30** (0/0)	$1.0
Elliston (10)	**0.60** (0/0)	$6.6	Witten (5)	**0.36** (1/0)	$1.0
Willow Creek (9)	**0.47** (1/0)	$8.5	King (5)	**0.63** (0/2)	$0.0
Irwin (9)	**0.33** (0/1)	$7.5	Roseland (5)	**0.53** (1/0)	$0.0
Beaver Creek (9)	**0.39** (1/0)	$6.0	Star Prairie (5)	**0.61** (0/0)	$0.0
Stewart (8)	**0.64** (6/0)	$7.1	Rosedale (4)	**0.35** (2/0)	$0.0
Holsclaw (8)	**0.49** (1/0)	$6.0	Dog Ear (4)	**0.45** (4/0)	$0.0
Huggins (8)	**0.36** (0/0)	$5.8	Lone Star (3)	**0.48** (2/0)	$0.0
Millboro (8)	**0.31** (2/1)	$5.2	Wright (3)	**0.45** (2/2)	$0.0

SOURCE: TRIPP COUNTY ASSESSOR PROPERTY TAX RECORDSDESKTOP ASSESSEMENT (2024)

2.2 JURISDICTION

The Tripp County transportation network is planned, constructed, and maintained with continuous coordination between multiple, overlapping jurisdictions. Each jurisdiction is responsible for their individual and shared efforts necessary to maintain an integrated transportation network and each strives to achieve shared goals and expectations associated with their responsibilities. While the US and State highways in Tripp County are easy to identify by their prominent signage, consistent design, and routine maintenance, a visitor to the County may be hard pressed to distinguish between the improved County or township jurisdiction of roads. The evaluation of existing conditions included a review of the County and township jurisdictions currently recognized by the State. In contrast, it also identified what is currently recognized by the County and townships. This section describes the current jurisdiction assignments and responsibilities.

2.2.1 Jurisdictional Assignments

South Dakota Department of Transportation maintains records of all roadways in Tripp County. Each road segment in the database includes only one jurisdiction assignment. The current miles assigned by the State to each jurisdiction and the percent of miles relative to the transportation network in Tripp County are listed in **Table 6** and displayed on **Figure 3**. Data provided by SDDOT for this study was reviewed with the SAT and presented to the public during Townhall Meeting #1. County Commission members and attendees identified multiple road segments of interest and questioned the accuracy of assigned County or township jurisdiction. It was determined that some formal and some informal transfers of responsibility for maintenance have occurred over time and that, in some cases, the jurisdiction of record assigned by the State did not match current oversight. As a result, jurisdictional assignment and responsibilities became a key issue for completing this study.

Table 6. Existing Roadway Jurisdiction Assigned

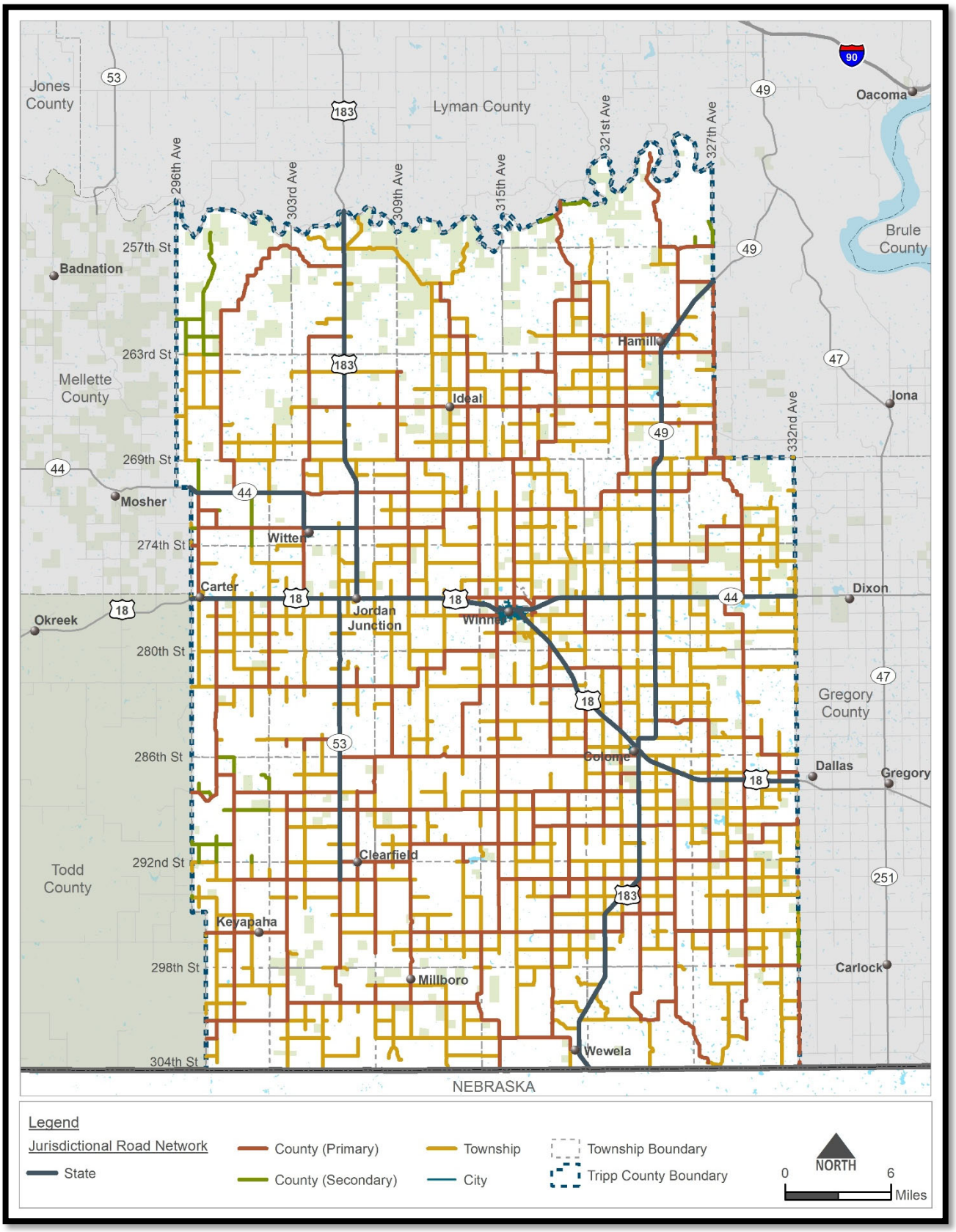
Jurisdictional Road Network	Total Roadway Miles	Percentage %
State	154	8.2
County (Primary designation)	669	35.7
County (Secondary designation)	39	2.1
Township	976	52.1
City	36	1.9

SOURCE: SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION (2024)

The assigned jurisdiction typically conveys a set of associated responsibilities which are discussed in the next section. Transferring responsibility is not equivalent to transferring the assigned jurisdiction because the policy and procedures required for making county highway system jurisdiction revisions are enforced through South Dakota Codified Law (SDCL 31-12-2. All requests for assigned jurisdiction revisions to county highway system miles must follow the standard policy and procedure described in **3.2 Special Study Topics**. The procedure must contain specific documentation before SDDOT

accepts and recognizes changes to jurisdiction assignment for any roadway segment. Although, local coordination with a regional planning district, emergency services, or another administrative body may reflect a modified assignment of jurisdiction responsibility, the MTP only reflects the recognized jurisdiction shown in **Figure 3** until the required procedure for adding or removing miles from the county highway system is completed and accepted by SDDOT. This includes jurisdictional swaps between Tripp County and individual townships.

Figure 3. Existing Roadway Jurisdiction Assigned



2.2.2 Jurisdictional Responsibilities

State Jurisdiction

The State of South Dakota maintains jurisdiction of all US and State highways within Tripp County. US-18 and US-183 cross through Winner and share alignment between Colome and Jordan Junction. State Highways 44 and 49 connect from US highway alignment to Mallette, Lyman, and Gregory Counties while State Highway 53 connects the town of Clearfield south of US 18 before terminating approximately 11 miles north of the Nebraska border. These highways represent 154 miles of the transportation network. The SDDOT plans, maintains, and improves these roadways.

County Jurisdiction

The State of South Dakota currently recognizes 708 miles of roadways assigned to the Tripp County jurisdiction. County jurisdiction roads provide access to the major geographical areas in the County and the relative density of Primary County Highways, large bridges, and small structures were summarized by township in **Table 5**. While 669 miles are recognized as County Primary Highway, 39 miles are County Secondary Highway. The assignment of County Secondary Highways reflects the overlapping jurisdiction where an organized township does not exist to administer transportation network decisions, and the County must. County Secondary Highways may connect to County Highway System roads, or in some cases connect to roads on the State Trunk Highway System. Tripp County is also assigned responsibility for large bridge structures on roads are assigned to township jurisdiction.

Township Jurisdiction

The State of South Dakota recognizes 976 miles of transportation network as assigned to individual township jurisdictions. As described in **Chapter 1**, individual townships played a key role in the establishment of the road and bridge network through Tripp County. The 52.1 percent of all roadway miles through the County and designated as township jurisdiction reflect the grass-roots balance of shared responsibility. Various methods and means of maintenance occur and the variation among diverse township roads do not all follow a current standard for design and construction. A township can request to share costs from Tripp County for culvert material needed to improve smaller drainages on a township jurisdiction roads.

It is also possible for a township to cost share routine maintenance with the County, but these maintenance policies and agreements do not shift the jurisdiction assignment to the Couty. South Dakota State Statute 31-13-1.1 allows additional jurisdictional sub-classification for some Local Roads that may meet minimal maintenance standards. The board of township supervisors may designate a township road within the township as a minimum maintenance road if the board determines that the road or a segment of the road is used only occasionally or intermittently for passenger and commercial travel. A minimum maintenance road may be maintained at a level less than the minimum standards for

full maintenance roads, but it shall be maintained at the level required to serve the occasional or intermittent traffic.

Municipal Jurisdiction

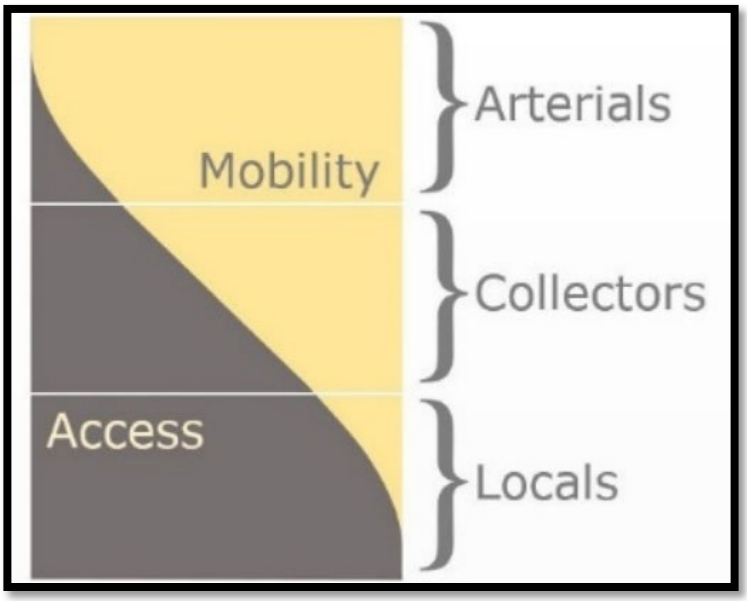
The remaining 36 miles of road segments in Tripp County are assigned to a municipal jurisdiction such as Winner, Colome, Witten, or others. Municipalities maintain city streets and coordinate with County and State where roadways intersect shared boundaries. A municipality that has an adopted comprehensive land use plan and zoning could reference a Master Transportation Plan and reinforce roadway design standards beyond the corporate limits within the planning area boundary that overlaps the County.

2.3 FUNCTIONAL CLASSIFICATIONS

All functional classifications ensure an purposeful order is maintained for the interconnected network of roadways as they serve and cross all jurisdictions. A function supports the rational basis for applying design and maintenance standards to roadway uses based on variations of access and connectivity as shown to the right. Each function is necessary to determine how vehicles are channeled within the network in a logical and efficient manner. Functional classification orders the nature of this process by defining what part of any roadway should serve the flow of trips through the network. This section addresses the functional roadway classifications relevant to Tripp County and summarizes the important overlap between functions and jurisdictions.

2.3.1 Classification Types and Purpose

Functional classification of Tripp County roads is based on the Highway Functional Classification system of the Federal Highway Administration (FHWA). SDDOT Project Development maintains record of the functional classification for all roads in South Dakota. As an integrated system, FHWA's functional classification system ranges from high-speed interstate corridors all the way down to local land access. Each classification serving a particular function. A functional classification assignment also determines the route eligibility for federal funding.



All rural roads classified as Major Collector (Minor Collector for urban roads) or higher are eligible for Federal assistance. These roads are referred to

CLASSIFICATION – HIERARCHY – PRIMARY PURPOSE – SERVICE

MOBILITY function is represented by few opportunities to enter or exit a road to provide low travel friction from vehicle access. It is primarily served by arterials, which are designated to server longer distance travel.

ACCESS function is represented by many opportunities to enter or exit a road resulting in potentially higher friction from vehicle access. It is primarily served by collectors and locals, which connect to the arterial network and serve commercial development

as "Federal-aid Highways." The current total and percent of each Functional Classification is summarized by **Table 7**, and represented by **Figure 4**.

INTERSTATES: Interstates are the highest classification of arterial roadways. They are designed for mobility and long-distance travel. The Interstate System was initiated in the 1950's, and has provided a national network of limited access, divided highways that offer high levels of mobility with minimal access. They link major urban areas of the United States but do not travel through Tripp County. The distance from I-90 to Winner on US 183 is approximately 44 miles.

OTHER FREEWAYS AND EXPRESSWAYS**:** Roadways in this category look similar to interstates, with divided driving lanes that are typically separated by a physical barrier. Their access and egress points are limited to on- and off-ramp locations or a very limited number of at-grade intersections. Tripp County does not have any Freeways/Expressways.

OTHER PRINCIPAL ARTERIALS: All other Principal Arterials serve major centers of metropolitan areas, provide high degree of mobility and can also provide mobility through rural areas. Abutting land uses can be served directly, including driveways to specific parcels and at-grade intersections with other roadways. In the rural setting, they have trip length and travel density characteristics indicative of substantial statewide or interstate travel. US Highway 18 is classified as a Principal Arterial.

MINOR ARTERIALS: Minor Arterials provide service for trips of moderate length. US Highway 183 north and south of US Highway 18 is classified as a Minor Arterial.

COLLECTORS: Collectors serve a critical role in the roadway network by gathering traffic from Local Roads and funneling them to the Rural or Urban arterial network, as defined by two subcategories: Major Collectors and Minor Collectors. The determination of whether a given collector is major or minor is frequently one of the biggest challenges in functionally classifying a roadway network. The decision typically rests on considerations for destinations, travel distance, travel speeds, traffic volumes, and spacing of other classifications. The determination between major and minor collector influences the design of the road and the access spacing and setback permitted from adjacent land uses. The majority of Tripp County roads fall under either the Major Collector or Minor Collector classification.

- Major Collectors in the rural setting provide service to any County seat not on an arterial route, to the larger towns not directly served by the higher systems, and to significant traffic generators of equivalent intra-County importance (e.g., consolidated schools, industrial or agricultural centers with heavy freight access demands). Major Collectors link these places with larger towns or with Arterial routes and serve as significant intra-county travel corridors.
- Minor Collectors in the rural setting are spaced at intervals, consistent with population density, collect traffic from Local Road classification and bring all developed areas within reasonable distance of a Collector. Minor Collectors provide service to smaller communities not served by a higher-class facility and link locally important traffic generators with their historical, rural origins.

- Proportions of all Collectors relative to all roadway miles and relative to Local Road miles are not allowed to exceed the guidelines maintained by SDDOT. The current proportions shown in **Table 7** meet State guidelines.

LOCAL ROADS**:** Local Roads classification is the most common of all roadway classifications in terms of mileage. They are not intended for use in long-distance travel, except at the origin or destination end of the trip. They provide direct access to abutting land and are often designed to discourage continuous through traffic. These public roads should be accessible for public use throughout the year. Often, all roads not classified as other classifications are classified as Local Roads by default. In urban settings, Local Roads provide direct access to adjacent land, provide access to higher systems, and carry no thru-traffic movement. In the rural setting, Local Roads primarily provide access to adjacent land and provide service to travel over short distances as compared to other higher systems. When low volume, rural roads support industrial, commercial, and/or agricultural uses, it can be helpful to establish subcategories of low-volume roads to support decisions that may deviate from typical design and maintenance standards to withstand heavy vehicle impacts on unpaved roads.

Table 7. Existing Functional Classifications Assigned and Proportions

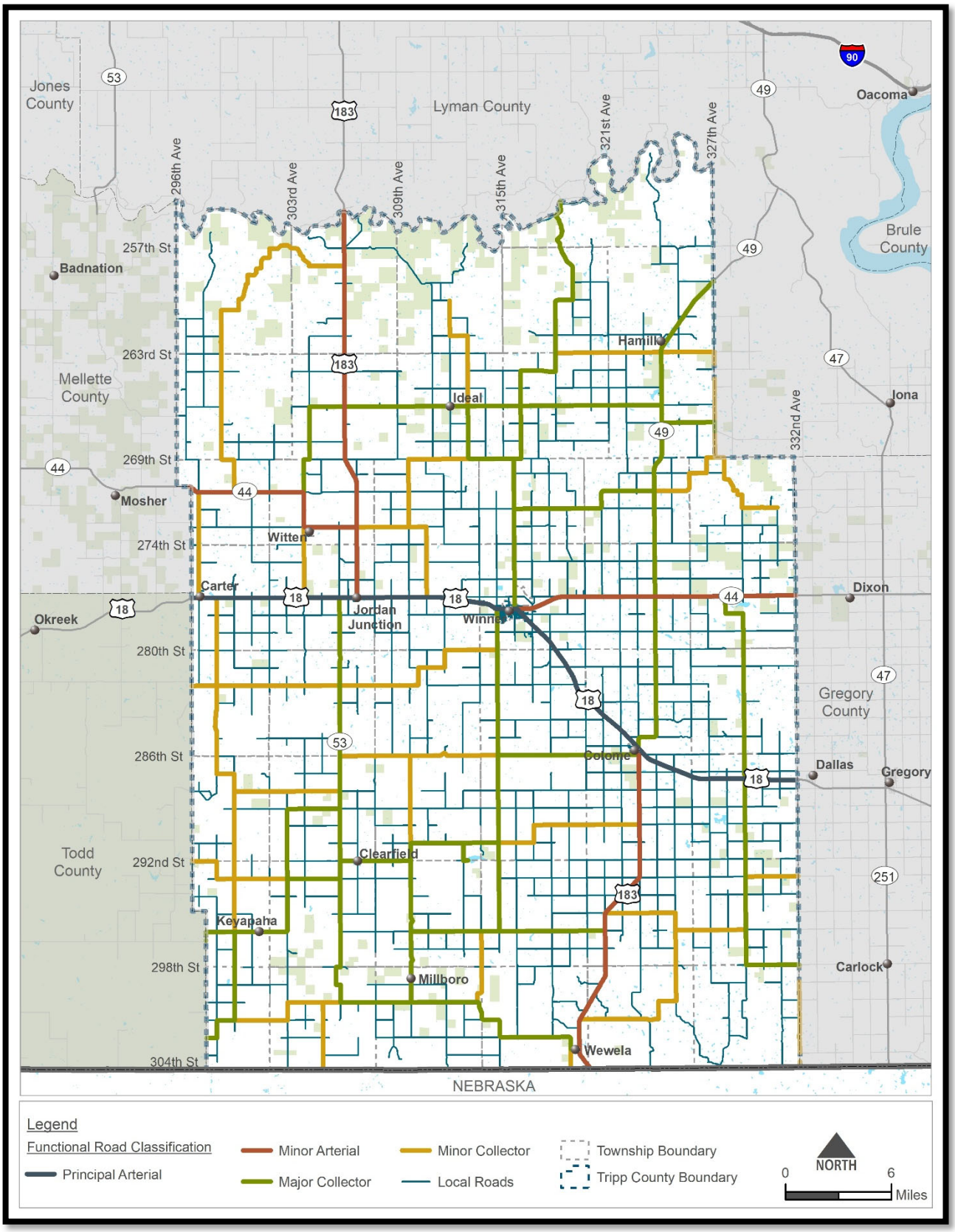
Functional Road Classification	Miles	Proportion Relative to All Roads (%)		Proportion Relative to Local Classification (%)
Principal Arterials	40	2.1		8.2
Minor Arterial	69	3.7		
Major Collectors	245	13.1	**23.6**	**33.4**
Minor Collectors	198	10.5		
Local Roads	1,323	70.6		-

SOURCE: SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION (2024)

2.3.2 Overlap of Jurisdiction Assigned and Functional Classifications

Functional classification and jurisdictional assignment are not the same, but they are two attributes assigned to a road segment that can influence design, operation, and maintenance of roads and bridges. Functional classification of Arterial roads in Tripp County are only assigned state jurisdiction. Major Collectors in Tripp County are assigned to state or county jurisdiction. Minor Collectors are mostly assigned to county jurisdiction with a few segments assigned to township jurisdiction. Local functional classification roads are county or township jurisdiction. A common issue and need expressed by stakeholders and the public is to provide consistent application of design, operation, and maintenance between functional classifications and jurisdictions. The complexity of this topic is described further in **Section 2.7.2** and became a special study focus for the MTP.

Figure 4. Existing Functional Classification System



2.4 ROADWAYS

All roads support the transportation network through a combination of common factors. Roadway surface materials, roadway conditions, source materials available, and commitment to routine and special maintenance significantly influence the roadway surface quality and reliability of the transportation network. These factors are described by this section.

2.4.1 Roadway Surfaces

Roadways in Tripp County consist of various surface materials including concrete, asphalt/bituminous, gravel, and dirt roads. Principal Arterials are concrete while most Local roads are gravel or dirt. Less than 13% of all roads in Tripp County are paved and 65% provide drivers with gravel or crushed rock surface. The selection of surface materials for roads reflect the tradeoffs between construction cost, durability, and ability to provide maintenance. Stakeholders and public input provided during this study pointed toward the stark variation of roadway surfaces shown below**.** The inconsistency of unpaved roads is as a key issue for this study. **Figure 5** illustrates the existing surface types across the county road network.

Example of applied, unpaved county road surface material Variety. Source: FHU, 2024

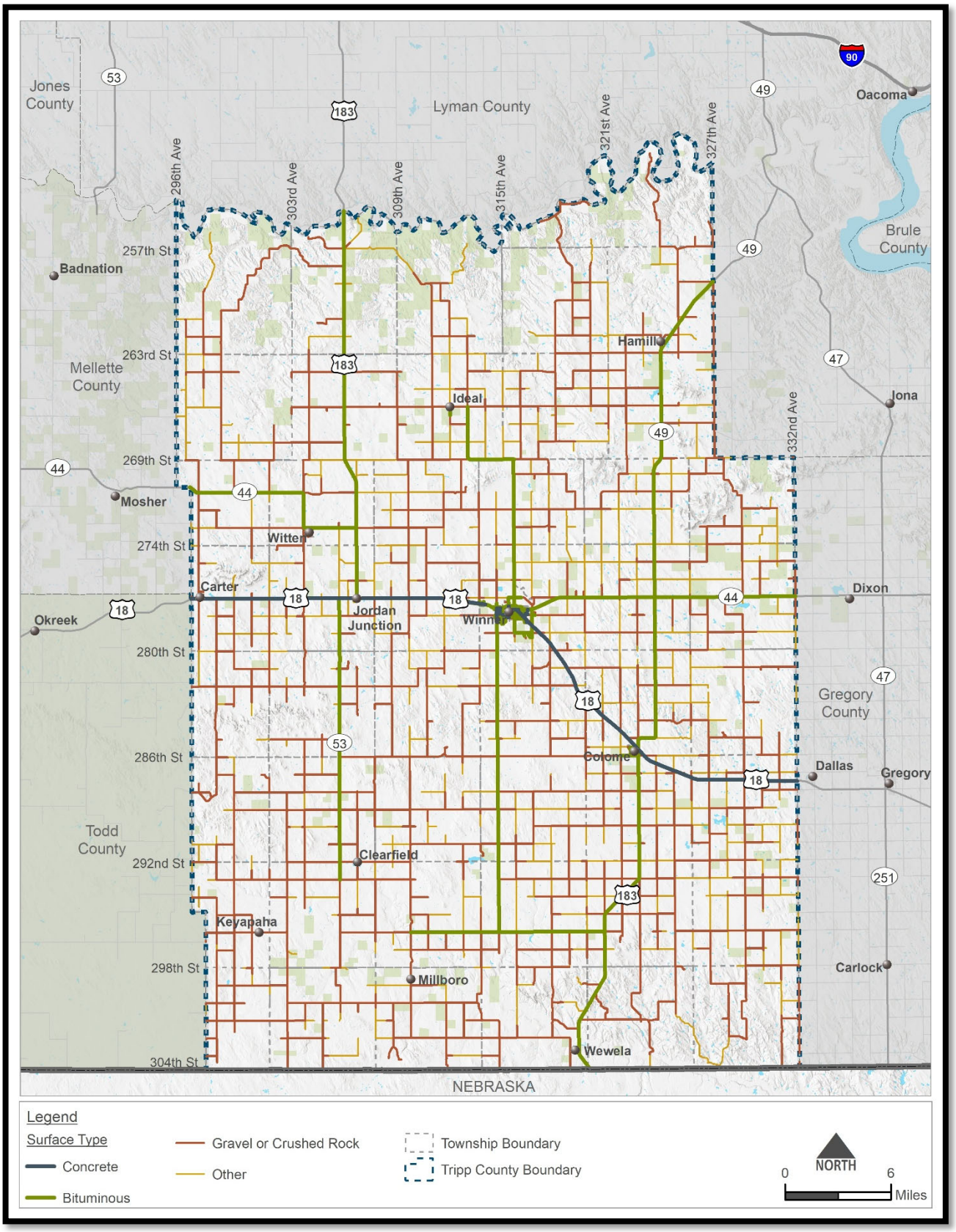
Concrete surfaces are the most expensive surface type to construct, but they provide the most durability and longevity. Bituminous roadways, such as North County Highway, built in the 1970s, are less durable than bituminous roadways constructed more recently. All paved roadways require routine maintenance to preserve the roadway condition for driving. Gravel require more frequent surface maintenance, but partial or full reconstruction may be required to restore the intended roadway cross section, replace substandard base course, and support drainage when it has become unreliable or unsafe to travel. Availability of surface maintenance materials for both routine and restoration types of maintenance influence the cost and durability of these activities. Maintenance level of service standards for unpaved roadways should reflect the functional classification and the management priority of the jurisdiction assigned.

Table 8. Roadway Surface Type

Surface Type	Total Miles	Percentage %
Concrete	41.5	2.2
Bituminous	194.6	10.4
Gravel or Crushed Rock	1,225.7	65.4
Other	413.0	22.0

SOURCE: SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION (2024)

Figure 5. Existing Surface Type



2.4.2 Roadway Widths

Current records indicate that less than 6% of roadways provide a driving surface greater than 24-feet wide. Most wider road segments include paved highway segments with two or more driving lanes. Roadway width is measured as the driving lanes while paved shoulders provide additional outside width. Most roadways (80.8%) in Tripp County provide less than 22-feet of roadway width. Unpaved gravel roads that are classified as Major or Minor Collector in Tripp County have various cross sections summarized by **Table 9**. There are twice as many miles of Minor Collectors compared to Major Collectors that provide 20-feet of roadway width and more than 44 miles of Minor Collectors do not provide 18-feet of roadway width. Records of roadway widths were not confirmed or updated by this study or by SDDOT.

An unpaved roadway surface can be restored to the original cross section, but widening a roadway requires additional design considerations for property impacts, soils, geometry, and drainage. Routine maintenance and periodic reshaping are completed to retain or restore the intended cross section shape and width as well as the adjacent drainage that conveys water from the roadway and adjacent property.

Table 9. Existing Unpaved Roadway Width by Functional Classification

WIDTH (FEET)	MAJOR COLLECTOR (MILES)	MINOR COLLECTOR (MILES)
30 - 26	25.8	NONE
25 - 24	18.0	8.4
22	6.1	5.0
20	52.1	105.3
18	47.6	34.4
16 - 12	6.3	44.5

SOURCE: SOUTH DAKOTA DEPARMENT OF TRANSPORTATION (2024)

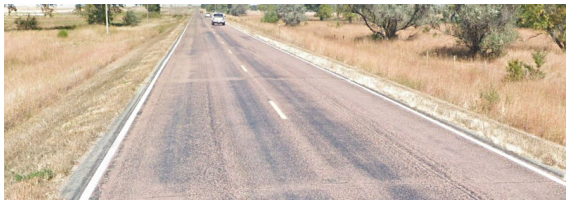
Example of applied, unpaved county road surface material Variety. Source: FHU, 2024

2.4.3 Driving Surface Conditions

Driving surface conditions were provided with data available for the study and Tripp County does not currently maintain database records of roadway surface condition. Stakeholder and public input about driving surface conditions indicated that significant variation exists for both the bituminous roadways and the unpaved gravel roadways. The condition of the driving surface reflects a combination of factors such as the age and integrity of the base material under the driving surface, age of surface, intensity and type of vehicles driven, and the ongoing routine maintenance provided or deferred.

The County currently has 43.3 miles of bituminous paved county highways. To support this study, a simplified desktop screening method of assessment was completed. The SDDOT Office of Research, Rural Road Condition Survey Guide (1995) was used to organize a flexible pavement condition assessment summarized in **Table 10**. Although individual distress type, quantity, and severity are not measured or rated in the desktop procedure, the screening data can be beneficial to understand and distinguish between the distress types and rate the overall pavement condition. This study provides an overview of the rating categories with definitions, taken from the Strategic Highway Research Program's (SHRP) Distress Manual for the Long-Term Pavement Performance (LTPP) Studies.

Table 10. Tripp County Flexible Pavement Rating Summary

Rating Description	Total Miles	Tripp County Segment Example
Excellent: 86-100 Pavement surface is in excellent condition, appears to be very smooth and is generally free of any distress, depressions, or oxidation.	**0 miles**	
Very Good: 71-85 Pavement surface is in very good condition, but surface deterioration is evident such as minor cracking (1/8 in.), spalling, or faulting. Minor rutting may be noticeable in the outer wheel path.	**0.5 miles** **Example: North County Road in Winner**	
Good: 56-70 Pavement surface is in good condition, but surface deterioration is more evident than the Very Good condition. Surface deterioration, cracks (up to 0.5 in.) and pronounced rutting, depressions evident.	**20.1 miles** **Example: See South County Road**	
Fair: 41-55 Pavement surface is in fair condition with more advanced pavement deterioration; reflective cracks present on overlaid pavements. Medium- to high-severity spalls.	**8.0 miles** **Example: Rahn Lake Road**	

Poor: 26-40 Pavement surface is in poor condition with poor rideability. Alligator cracking is severe, potholes, and/or rutting is present. Pavement edges deteriorated. Over 200 ft. of cracking per 1,000 sq ft of pavement.	**14.6 miles** **Example: North County Road**	
Very Poor to Failed: 0-25 Pavement surface is in very poor to failed condition with traffic operations severely affected.	**0 miles**	

SOURCE: DESKTOP ASSESSEMENT. FHU (2024)

Tripp County has four flexible pavement roadways on the Primary County Highway Network. Each segment was evaluated to determine the percentage of mileage by rating category. Most paved miles can be rated in Good condition for Rahn Lake Road and South County Road. Both the North County Highway and the Colome portion of 286th Street were rated as Poor condition. The percentages of each condition are presented in **Table 11**.

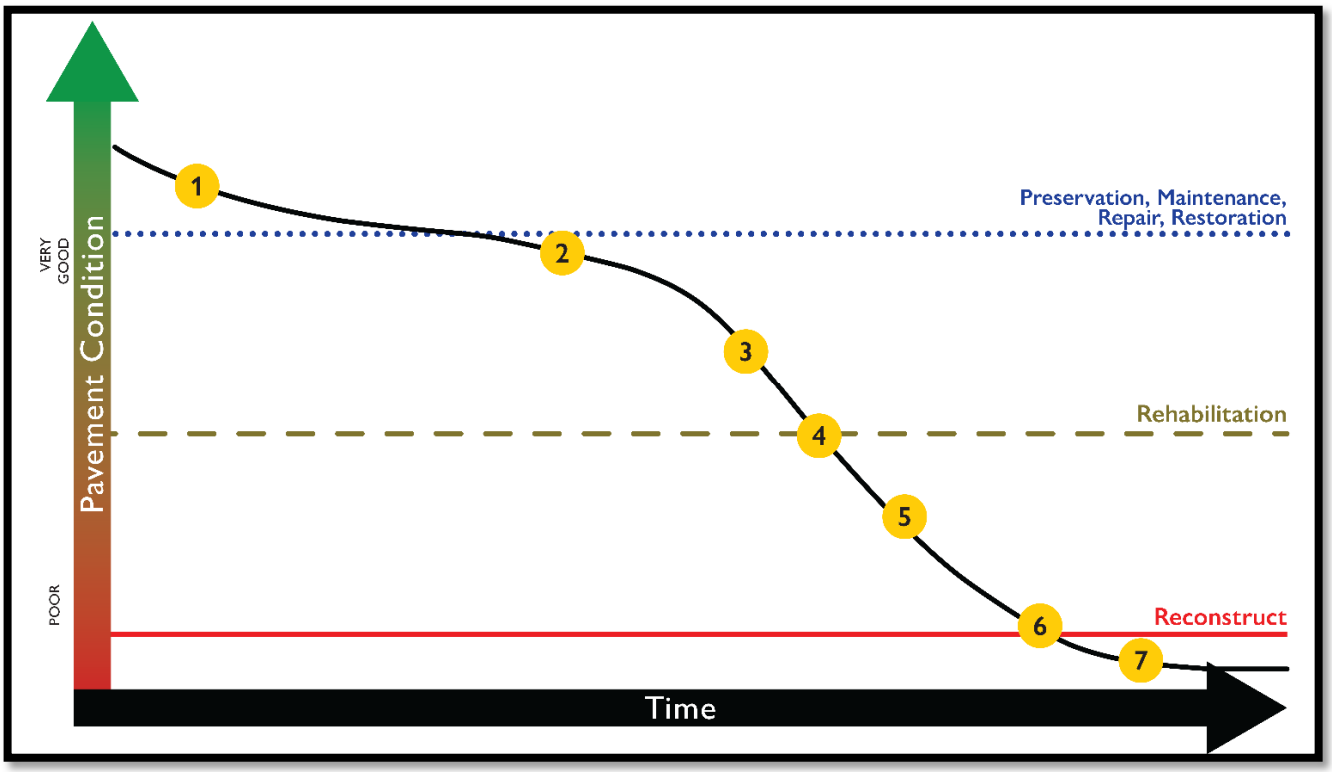
Table 11. Flexible Pavement Rating by Paved County Highway

Rating Description	Miles	Very Good	Good	Fair	Poor	Timeline Point
296th St (Rahn Lake Rd)	**11.0**	**0%**	**73%**	**27%**	**0%**	**2-3**
315th Ave & 316th Ave (South County Road)	**17.6**	**0%**	**69%**	**23%**	**9%**	**2-3**
316th Ave/269th St/313th Ave (North County Road)	**14.0**	**4%**	**0%**	**7%**	**89%**	**6-7**
286th St (Colome)	**0.6**	**0%**	**0%**	**0%**	**100%**	**6-7**
All Paved	**43.3**	**1%**	**47%**	**18%**	**34%**	

SOURCE: DESKTOP ASSESSEMENT. FHU (2024)

Two factors are working against the condition of North County Highway and 286th St in Colome. The roadways were not constructed with subgrades suited to support current demands and they have also fallen into or below Poor condition. Following new construction, shown as Point 1 of **Figure 6**, lower-cost, routine preservation, maintenance, repair, and restoration options are suitable to address declining pavement condition. Rehabilitation of Good condition is possible, but only reconstruction is feasible beyond that point unless the road is converted to gravel. Stakeholder and public input reinforced their intentions to keep paved roads paved and not convert them to gravel. Maintenance efforts applied to the remaining flexible pavements may still be able to prolong the life of the existing roadway and prevent more miles falling below Fair condition.

Figure 6. Pavement Condition Timeline



2.4.4 Source Materials and Availability

The Tripp County Highway Department maintains County gravel roads with material from open mined sources. Local sources are less expensive to transport than sources outside the County. The County holds mining permits for five (5) locations and also maintains contracts to access source materials from two (2) private sources. The open pit mines (illustrated below) provide sufficient amounts of material, and their use of local resources adds value to Tripp County. These local sources may also be available for townships to purchase if needed. Since 2020, Tripp County has moved between 25-75,000 tons of crushed gravel for unpaved roadway maintenance each year. Annual variations occur, but large rain events that wash out many roadways require significantly more material to reconstruct roads. While local source material can provide some benefits, challenges are also well known to Tripp County residents.

In northern parts of Tripp County gravel sources are placed over many miles of roads with subgrades that are underdeveloped and are undriveable under wet conditions. Any gravel added on top of these "gumbo roads" is quickly absorbed into the roadbed with limited benefit to the traveling public and moisture from rain and snowmelt is retained in the gumbo road surface for extended periods. Most personal vehicles and all heavy equipment are unable to drive on these roads under wet conditions. By contrast, gravel roads in the southern part of the County have been constructed with a well-designed subgrade and side drainages are generally well maintained. New gravel added to these road surfaces typically provide the intended benefit for drivers. While surface materials generally support driving

conditions, these materials also drain well and rapidly evaporate remaining moisture. Under dry conditions when driven, stakeholders and public input made frequent comments about how these roads contribute substantial amounts of dust. Where heavy trucks travel on these unpaved southern roads, dust is not only inconvenient to adjacent landowners, but it can also be unsafe for on-coming traffic.

2.4.5 Maintenance Forces and Priorities

The US and State Highway roadways are maintained by SDDOT staff from the Winner Area of the Pierre Region or through maintenance contracts. The Tripp County Highway Department is responsible for the coordination of maintenance, operations, and construction on Primary and Secondary County Highways as well as large drainage structures on township jurisdiction roads. Each township coordinates the responsible maintenance of their township jurisdiction roads.

Example gravel source material mined within Tripp County. Source: FHU, 2024

The Tripp County Highway Department hires and trains staff to provide routine and special maintenance. County budgets are set annually to provide the staff, materials and equipment that will complete this work. While equipment (illustrated below) needed to maintain roadways can be a significant expense, materials and human resources to do the work represent the largest ongoing expenses for the Department budget. Providing competitive wages for staff is a challenge to hire and retain qualified staff. New staff gain on-the-job experience over time and through on-going training that is essential to providing consistent standards of maintenance for the variety of conditions present in Tripp County. Tripp County Commissioners have increased the budget amount assigned for staffing by an average of 1.8% annually since 2016.

The work of the County staff is assigned to meet various needs around the County. The flexible pavement surfaces are maintained for structural and safety repairs. Where pavement conditions have fallen to Poor rating, funds to repair structural deficiencies are not considered effective unless they address an emergency situation on a case-by-case basis. Routine structural maintenance of gravel roads includes replacing and blading gravel to reshape the roadways, cleaning culverts, repairing traffic signs, and coordinating snow removal. County Commissioners provide input to the Highway Department about their priorities for snow removal and for routine maintenance needed. Maintenance forces are generally distributed to provide routine maintenance of similar amounts of gravel roads in each District.

Example Tripp County Highway Maintenance Operations Equipment. Source: FHU, 2024

County Commissioners provided input for this study about the maintenance priorities of their District roadways based on three maintenance priority levels. The highest priority roads were described as Tier 1 because they could benefit from the highest Level of Maintenance Service (LOMS). The next highest priority roads were described as Tier 2 and could receive a LOMS that is at, or slightly less than the Tier 1 roadways. All other County roads were described as Tier 3, the lowest priority for assigning LOMS. This effort by County Commissioners resulted in the discovery that some miles of township jurisdiction roads are actively maintained by County forces and that some County jurisdiction roads are not currently maintained by Tripp County forces. Additionally, roads identified as Tier 1 and Tier 2 priorities varied in functional classification, surface material, and surface width. The assessment significantly altered the focus and schedule of this study. The reviews of maintenance forces, assignment of maintenance priorities, and the lack of consistent relationship between design standards to the desired LOMS was assessed to develop multiple MTP policy and program alternatives.

2.5 TRAFFIC

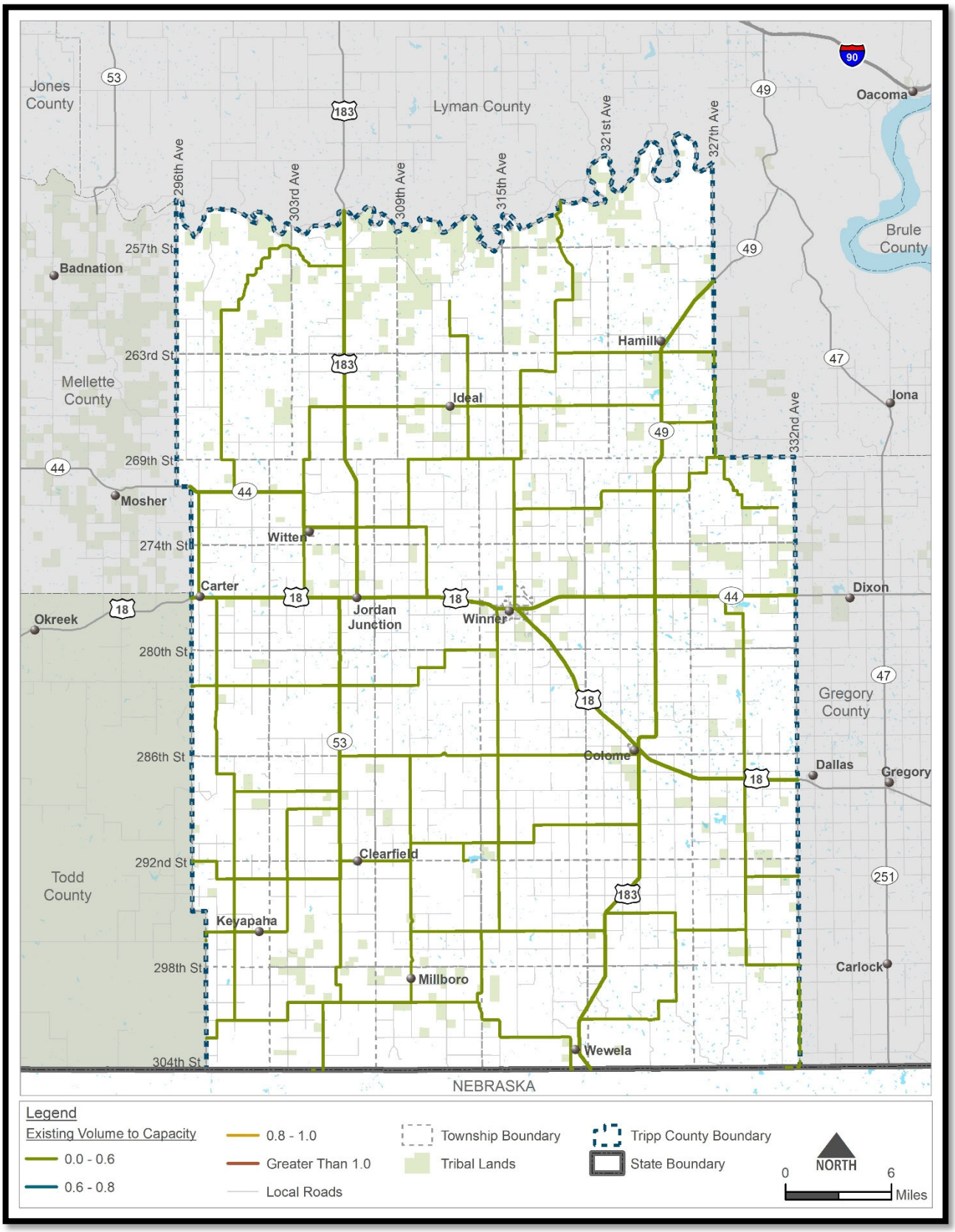
2.5.1 Traffic Volumes

Traffic volumes within Tripp County are considered low relative to the capacity of the roadways to convey vehicles efficiently. Roadway segments that carry the highest volume of daily traffic are State highways that move vehicles into and through the County and support regional connectivity. The traffic counts provided by SDDOT for this study confirm that US Highway 18 in the City of Winner has the highest traffic volumes in the County and carries 8,200 average vehicles per day. Estimated traffic volumes decline significantly off the state highway network. Tripp County jurisdiction roads are considered rural and support low or very low daily volumes. Traffic counts are not widely available for County roads.

Traffic count data between 2021 and 2023 provided by SDDOT indicate traffic volumes on the most heavily traveled County roads are less than 420 vehicles per day. These volumes are approximately 5% of the 8,000 vehicle per day capacity of a 2-lane rural road according to the SDDOT Road Design Manual. **Figure 7** illustrates planning-level capacity of existing Arterial and Collector roads. No roads approach congestion levels greater than 0.6 volume to capacity. Traffic counts for truck and heavy equipment on County roads was not available for the study. Most township roads provide purely local function with traffic count estimates provided by SDDOT to carry less than 50 vehicles per day.

Available capacity to carry traffic is not a concern for any road segment in Tripp County, but the use of roads to move heavy farm equipment and semi-trucks does concern stakeholders, residents, and the public. To address this, Tripp County must define and characterize low-volume rural roads to better support design standards and maintenance needs of industrial and agricultural uses by local operators and their associated equipment.

Figure 7. Planning Level Capacity of Existing Arterial and Collector Roads



2.5.2 Traffic Controls

Traffic controls along US and State highways are managed by SDDOT. Tripp County completed a countywide sign inventory in 2024. Data provided for that inventory includes approximately 6,950 individual signs that are placed within the right of way of existing roads. Of these records, traffic control and advisory signs account for 2,172 sign assets located throughout Tripp County. These are used to post the stop and yield intersections as well as the regulated travel speed, horizontal curve indications, bridge weight limits, special crossings, direction of travel, and travel limitations for minimum maintenance roads. This inventory and the associated maps for each Township exist to maintain consistency for traffic control signs and to support the ongoing maintenance of sign infrastructure. County and township jurisdiction roads both share these assets. Traffic control and advisory signs located on township jurisdiction roads account for 805 (37.1%) of these signs. Reinforcing consistent sign placement and sign information is helpful policy for inter-jurisdictional transportation network that exists in Tripp County.

2.5.3 Truck Traffic on Unpaved County Roads

The agricultural and livestock industries of Tripp County are essential to generating direct economic output, providing jobs, and supporting the tax base needed to provide for the expenses of the County budget. These industries have existed in some form since the creation of Tripp County, but the form and weight of equipment and machinery used to support these industries has changed over time. Modern equipment and trucks that support the local economy also require a transportation network that can support heavy vehicles filled with cattle, grain, and other goods flowing through the County.

Each spring thaw following a winter freeze cycle can reduce the integrity of the roadway surface under to the weight of heavy truck traffic. Since 1969, SDDOT highways have been improved to reduce the number of total Spring Load restricted miles from 4,597 to only 237.5. This has been accomplished by completing roadway improvements with the necessary design and maintenance standards that support these forms of transportation. South Dakota counties are also permitted to add traffic control signs that advise spring-time travel restrictions for vehicles rated six (6) Ton or greater. Under the authority of SDCL 32-22-24, Highway Maintaining Authorities, may restrict vehicle loads anytime from February 15 to April 30 to protect their unpaved highways from break-up during the spring thaw. Spring load restrictions on county roads are not determined or enforced by the State. When applied, Spring Load Restriction signs help preserve the integrity of unpaved roadways that carry heavy truck traffic.

2.5.4 Transportation Safety and Analysis

Transportation-related fatalities and severe injuries pose safety risks for all drivers. Traffic safety is a fundamental element when planning transportation infrastructure and improvements. This study reviewed 641 crash records collected between 2018 and 2022 to consider the roads, intersections, and types of drivers involved where they occurred most. The distribution of crashes by severity is summarized in **Table 12** and locations of crashes are identified on **Figure 8**. Nine records included fatality (1) and severe injury (19) type crashes. The most common (59%) of all crash types was a collision with a wild animal. Overall, a 29.2% downward trend was documented for the 5-year period with 109 crashes in 2022 compared to 154 in 2018.

Table 12. Crashes by Severity (2018-2022)

Count (of 641)	Crash Severity Type	Percentage
9	Fatal Crash	1%
19	Incapacitating Injury	3%
23	Non-Incapacitating Injury	4%
590	All Others (Possible, No Injury, Wild Animal, N/A)	92%

SOURCE: SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION (2024)

Crash data was evaluated to identify common crash trends, locations, types, severity, modes, and traffic conditions. The purpose of the assessment was to identify clear crash trends, patterns and systemic safety issues that could be addressed through crash prevention strategies. The assessment identified 17% of the 641 crashes involved two or more vehicles. Angle type crashes (62) were most common at intersections with State Highways. Several patterns were identified in the crash data. The trends identified below indicated opportunities exist to reduce risks by evaluating intersections and educating drivers about wildlife movements, speeding, impaired/distracted driving.

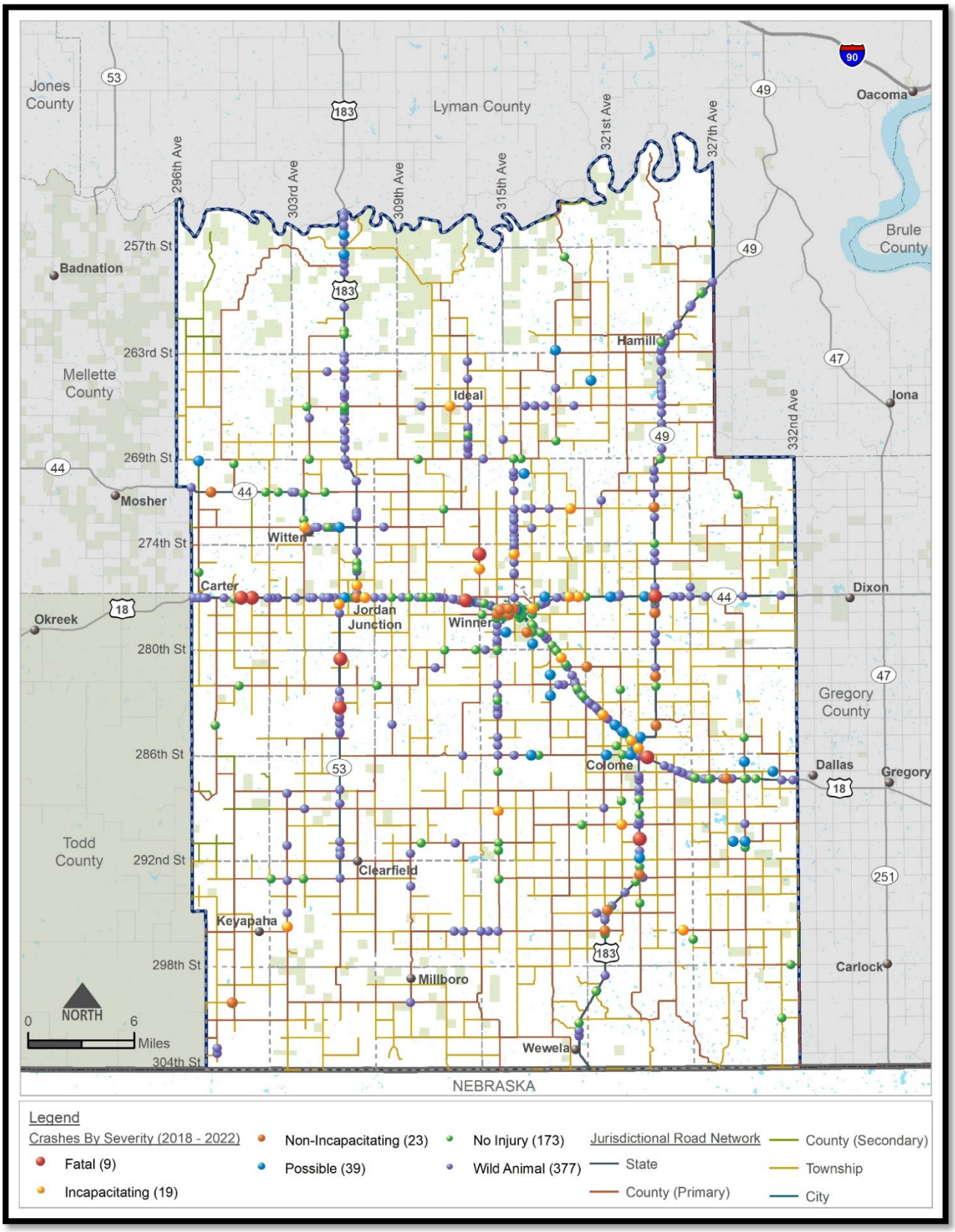
- 2/3 of crashes were on state roads and 1/3 of crashes on a city or county road
- 59% (377) of crashes involved collisions with wildlife that can also be a hazard for driving conditions
- 59% (375) of crashes occurred during non-daylight (dusk to dawn)
- 32% (204) of crashes took place within 250 feet of an intersection
- 17% (112) of crashes took place on unpaved roads
- 15% (94) of all crashes occurred under adverse road conditions (frost, ice, sand, mud, dirt, gravel, slush, snow, and/or wet on road surface)
- 8% (49) of all crashes occurred during adverse weather conditions (rain, blowing snow, blowing sand/soil, severe wind, snow, sleet/hail, fog)
- 8% (51) of crashes involved a vehicle with a speed estimated to exceed the posted speed limit
- 4% (28) of crashes were high severity crashes, resulting in an incapacitating or fatal injury

- 6% (38) of crashes involved a large truck or tractor trailer
- 6% of crashes involved drug use (9) and alcohol use (28)
- <1% (5) crashes involved a motorcycle
- <1% (2) crashes involved a pedestrian

Due to relatively low traffic volumes and low crash counts, the data was reviewed to identify any crash clusters. Any intersection that averaged at least 1 crash per year over the 5-year time period between 2018-2022 was identified as a crash cluster. Only four intersections were identified with crash clusters, all on State highways including:

- US Highway 18 and US Highway 183 / SD Highway 49 (Colome) – 10 total crashes
- US Highway 18 and Main Street (Winner) – 6 total crashes
- US Highway 18 and Washington Street (Winner) – 5 total crashes
- SD Highway 44 and SD Highway 49 (rural, east of Winner) – 5 total crashes with 1 fatality

Figure 8. Crash Location Map (2018-2022)



2.6 BRIDGES

2.6.1 Locations and Types

Tripp County maintains 91 National Bridge Inventory large and small structures shown on **Figure 9**. Data associated with each structure and their periodic inspection information is maintained according to the National Bridge Inspection Standards (NBIS). Bridge structures are defined to a structure, including supports, erected over a depression or an obstruction, as water, highway, or railway, the structure having a length measured along the center of the roadway of more than twenty feet between undercopings of abutments or extreme ends of openings for multiple boxes and pipes where the clear distance between openings is less than half of the smaller contiguous opening. Of these, the subset of small structures are any small bridge or culvert with an opening of sixteen square feet or more located on a township road or county secondary road. The Township summary provided by **Table 5** highlighted the uneven distribution of these large and small structures serving all of Tripp County. Lone Tree Township has the most (9) large structures while 28 Townships have less than two large structures within their boundaries. Of the small structures listed in Tripp County, only 13 townships have any and Ideal Township hosts almost one quarter (6) of them.

2.6.2 Bridge Ratings - Conditions

Bridge conditions are rated according to consistent standards and reported as Good, Fair, or Poor. Bridge inspections are conducted every two years, and the condition is updated according to the inspection data recorded. Most Tripp County bridges are in fair or good condition, but 25 of 91 are currently in poor condition with some type of structural deficiency recorded. Bridges rated in poor condition generally have short or unknown remaining service life, may require adjustment to posted weight allowed, and likely require a higher cost to repair or replace. Bridge age is also a consideration. Currently, 33 bridges were constructed more than 60 years ago and eight were built more than 78 years ago. The County maintains information about bridges in poor condition and the alternatives most suitable for ongoing maintenance and future restoration or replacement. In 2023, 21 bridges were listed with "Critical Repairs Needed" and all structures inventoried are reviewed for the following potential repairs:

- Load Limit Increases
- Preservation and General Maintenance
- Approach and Signing
- Channel and Berms
- Improve Safety and Upgrade to FHWA Standard

2.6.3 Existing Bridge Prioritization and Project Funding

Tripp County evaluates the list of aging structures and completes applications for funding to design, restore or reconstruct the highest priorities. Funding sources match local funds with state and federal aid opportunities which have included Local Federal (LF) Bridge Program and Bridge Improvement Grant (BIG) funding. These awards are competitive, and selection is supported by available bridge condition data. Along with bridge condition, application reviews consider impacts for the use of the bridge, any available countywide planning that prioritizes bridges design, restoration, and replacement. **Table 13** lists the 17 BIG applications submitted by Tripp County that were awarded funds for design, restoration, or reconstruction. Tripp County must provide a local cost match for each project which is also listed in the table. Because funding is constrained, it is important to prioritize bridges in Poor conditions and to consider all feasible alternatives to use available local funds. As an example of the local match requirements, the 20% local match for a large bridge replacement such as 318th Avenue crossing of Keyapaha River exceeded $345,000.

Figure 9. NBIS Bridge Locations and Condition Rating

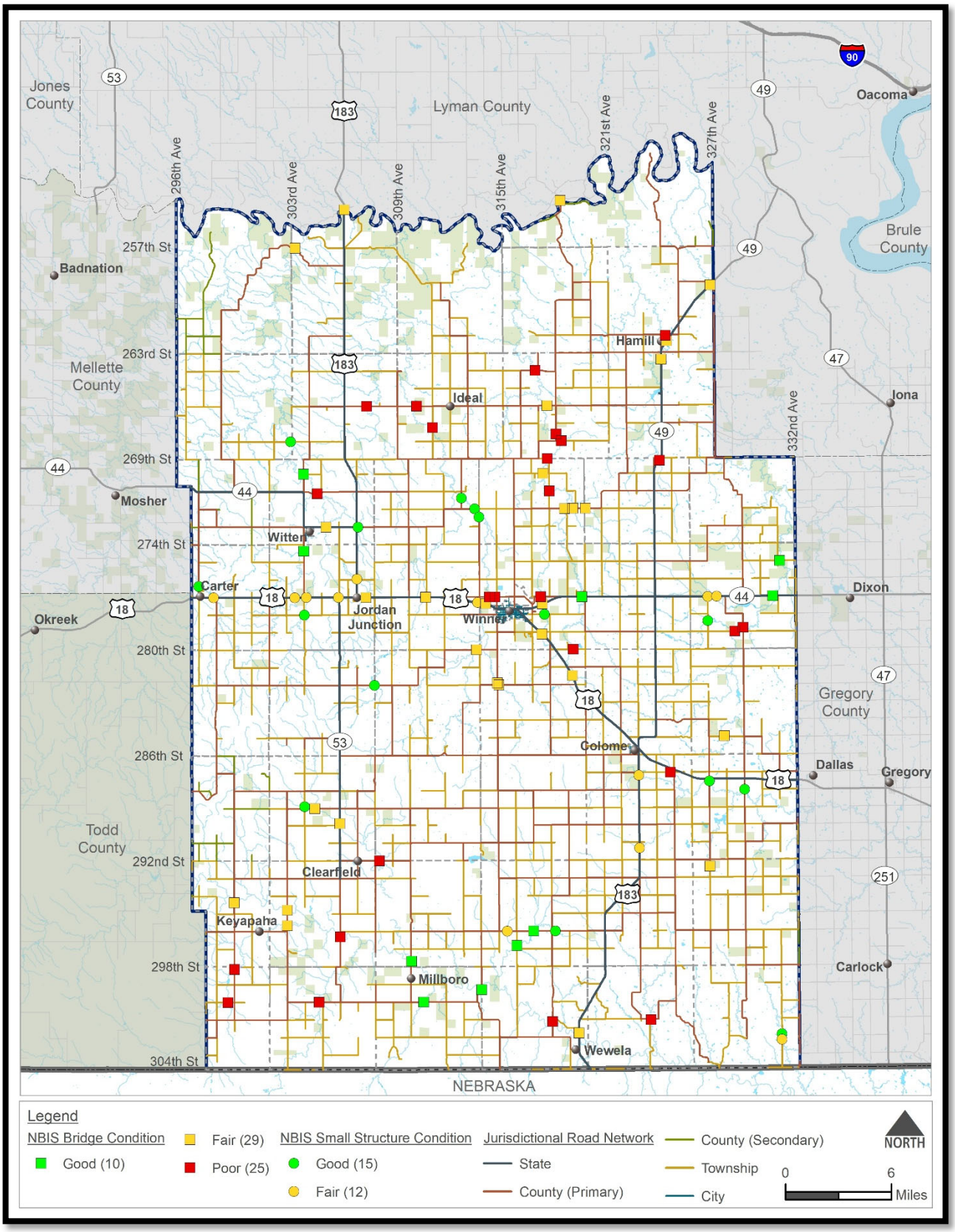


Table 13. Previous Bridge Project Funds Awarded

STRUCTURE/ PROJECT NUMBER: (PCN) LOCATION	GRANT YEAR (TYPE)	AWARDED/ (TOTAL ESTIMATED)
62-185-270/BRO 8062(00)16-1: (05PW) 1N of Winner on 277 St. over Dog Ear Cr. County determined to replace structure with pipe	2016 (PE)	$27,840/ ($34,800)
62-189-270/BRO 8062(00)16-2: (05PX) 1.1W & N of Winner on 277 St. over Dog Ear Cr. County determined to replace structure with pipe	2016 (PE)	$11,088/ ($13,860)
62-191-320/BRO 8062(00)16-3: (05PY) 4S of Winner on 282 St. over Mud Cr. County determined to replace structure with pipe	2016 (PE)	$11,088/ ($13,860)
62-209-460/BRF 6302(00)16-4: (05Q0) 2.5N & 6.9E of Millboro on 296 St. over Rahn Lake	2016 (PE)	$27,840/ ($34,804)
62-217-200/BRO 8062(00)16-5: (05Q1) 1.7E & 8N of Winner on 270 St. over Old Lodge Cr.	2016 (PE)	$27,840/ ($34,800)
62-330-289/BRF 6143(00)16-6 (05Q2) 13E & 0.9S of Winner on 329 Ave. over W. Branch of Bull Cr. County determined to replace structure with pipe	2016 (PE)	$11,088/ ($13,862)
62-085-390/BRF 6231(00)16-7: (05R4) 2.5W & 3N of Clearfield on 289 St. over Willow Creek	2016 (Preservation)	$225,600/ ($300,000)
62-100-463/BRF 6581(00)18-1: (06M7) 4.3S & 1W of Clearfield on 306th Ave. over the Keyapaha River	2018 (PE) & 2022 (Rehab/Replace)	$41,800 ($52,210) & $1,539,871/ ($1,231,897)
62-220-512/BRO 8062(00)18-2: (06M8) 1.5W & 1.5N of Wewela on 318th Ave. over the Keyapaha River	2018 (PE) & 2022 (Rehab/Replace)	$41,800/ ($52,210) & $1,722,650/ ($1,378,120)
62-209-460/BRF 6302(00)19-1: (078F) 2.5N & 6.9E of Millboro on 296th St. over Rahn Lake	2019 (Rehab/Replace)	$27,840/ ($34,804)
62-214-270/BRO 8062(00)23-1: (099K) 1N & 1.4E of Winner on 277th St. over Old Lodge Cr.	2023 (PE)	$58,900/ ($79,100)
62-220-177/BRO 8062(00)23-2: (099L) 3E & 9.3N of Winner on 318th Ave. over Old Lodge Cr.	2023 (PE)	$58,900/ ($79,100)
62-223-180/ BRO 8062(00)24-1: (09MW) 3.3 E & 9 N of Winner on 268 St. over Old Lodge Cr.	2024 (PE)	$62,900/ ($84,100)
62-088-211/ 0.8 E & 1.9 N of Witten on 271st St over Cottonwood Cr.	2025 (PE)	$57,000/ ($71,200)
62-276-510/ 1.8 N & 4 W of Wewela on 301st St over a Cr.	2025 (PE)	$56,500/ ($70,600)

SOURCE: SOUTH DAKOTA DEPARTMENT OF TRANSPORTIATON (2024)

Chapter 3. Needs Assessment

3.1 PUBLIC INPUT – "GRASS-ROOTS GOVERNMENT"

A public survey was provided during the first phase of the Tripp County MTP study. The purpose of the survey was to gather input about the needs and issues related to the existing transportation network. The survey also collected input that can be used for the evaluation of alternative projects and prioritization measures to be considered during the second phase. The survey was open for a period of four weeks, between April 9 and May 7, 2024. Notice of the survey was published in the Winner Advocate newspaper April 10 and 17. Each postal address was also sent a postcard mailer with the website and a QR (Quick Response) code that linked directly to the online survey. The survey was completed by 191 respondents representing individuals from Tripp County and others interested in the plan. The most common (48.1%), and prototypical grass roots answer to the question about how they learned about the survey was, "Word of Mouth."

Tripp County MTP Phase 1 Town Hall held April 23, 2024 was attended by 34 participants.

3.1.1 Households Background

The completed surveys represented a wide cross section of Tripp County residents. Lamro, Ideal, and Star Prairie townships represented 40.3% of all surveys, but only seven (7) townships had no survey responses. The number and geographic distribution of completed surveys indicates response provide a good representation of the County. The most common destinations listed were within Tripp County which highlights a significant focus needed for the quality of roads that serve local trips for residents and farm/ranch operations within Tripp County. While most households have at least two drivers living at their primary residence, almost 35% have three or more. Drivers also cover a substantial amount of miles each week, 20% driving more than 400 miles from their primary residence during an average week. Very limited responses (5) indicated they utilize any type of public transportation, including school bus services which may indicate that households with school age children may be underrepresented in the survey data.

3.1.2 Perception of County Roads and Bridges

The second section of the survey included questions about perceptions of roads and bridges based on their purpose to support two criteria: the County overall and the Township of the respondent's primary residence. Respondents place different importance (1 being highest, 5 being lowest) on road types (**Table 14**). While US Highways and County paved roads are recognized to provide the greatest importance for Tripp County overall, the individual Townships view County unpaved roads to be the most important. This variation of response reflects how individuals value the balance of mobility and access. Most residents that live outside a community must use a county unpaved road to navigate from a primary residence or farm to reach their destination or a paved road. These survey results reinforced that maintaining a reliable county unpaved roadway network is an important outcome of the planning process.

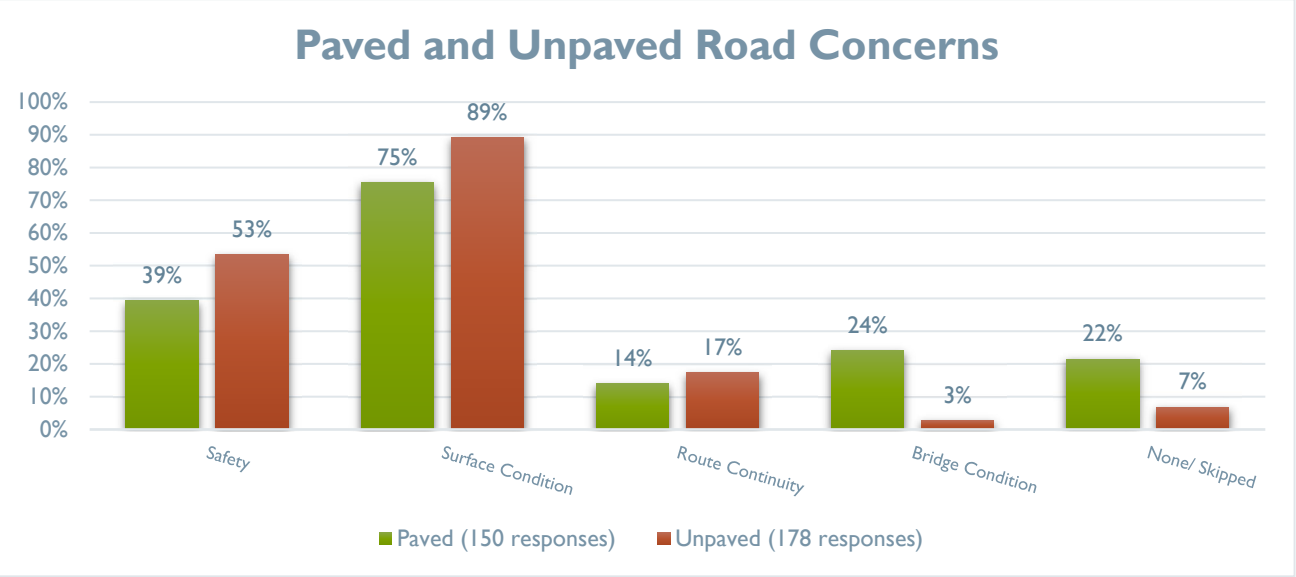
Table 14. Roadway Type Importance to County and Township

Road Type	Tripp County	Township
US Highway 18 & 183	**2.1 (Highest)**	2.5
State Highway 44, 49 & 53	2.5	2.7
County Paved Road	2.3	2.5
County Unpaved Roads	2.6	**2.2 (Highest)**
Township/Local Unpaved Roads	3.2	2.8
Municipal Paved Streets	**3.6 (Lowest)**	**3.6 (Lowest)**

3.1.3 Perception of Road Conditions

The third section of the survey considered the public assessment of the paved and unpaved roads in the County. More than 78% of surveys provided answers to the concerns they have about paved and unpaved roads. The most common concern for paved roads (75.3%) and unpaved roads (89.3%) is surface conditions. While safety followed as a distant concern for paved (39.3%) and unpaved (53.4%) roads, open ended responses clearly linked these two criteria together to summarize that poorly maintained surface conditions for driving are also unsafe. When asked about perceived safety when driving on county roads, sentiment was divided evenly, but 40.2% indicated somewhat unsafe or very unsafe. Other concerns included route continuity and the overall condition of bridges, mostly on paved roads.

Figure 10. Perceived Concerns Related to Paved and Unpaved Roads



For paved roads, many survey comments were critical of the degrading condition of aging asphalt roads, specifically North County Road, South County Road, and Rahn Lake Road (296th St). State Highways presented concerns related to safety based on narrow shoulders and steep drop-offs. The two-way stop-controlled intersection at State Highway 44 with 49 was also a concern. The pavement condition of Highway 49 was listed frequently as a concern. One comment recommended that the State renew the effort to extend Highway 53 to Nebraska border. Bridges on the southern end of State Highway 53 and Hamil Reservoir bridge crossing on Highway 49 were specific locations to consider.

Survey responses regarding unpaved roads in Tripp County highlight various concerns with maintenance standards (70) and materials (17) standing out significantly from the 109 comments received. Responses emphasize the significant and widespread concern about the condition of unpaved roads, grading frequency and methods, as well as the quality of gravel materials used to maintain road quality. Other concerns were far less prominent with five (5) or less comments. These concerns included management of road ditches, management oversight of priorities and decision making, and

hazardous driving conditions caused by improper road grading, washouts, and potholes. Concerns extend to specific locations such as 282nd Street and 291st Street, which are characteristic of difficult travel conditions after rain. Insufficient gravel, management of drainage causing flooding after heavy rains, saturated subgrades, and dangerous conditions during wet weather were identified. Public sentiment is clearly focused on the need for solutions that will ensure unpaved roads are maintained to a standard that is reliable and minimizes the wear and tear on vehicles. Maintenance standards, maintenance plans, maintenance training, and maintenance funding are all part of supporting this need.

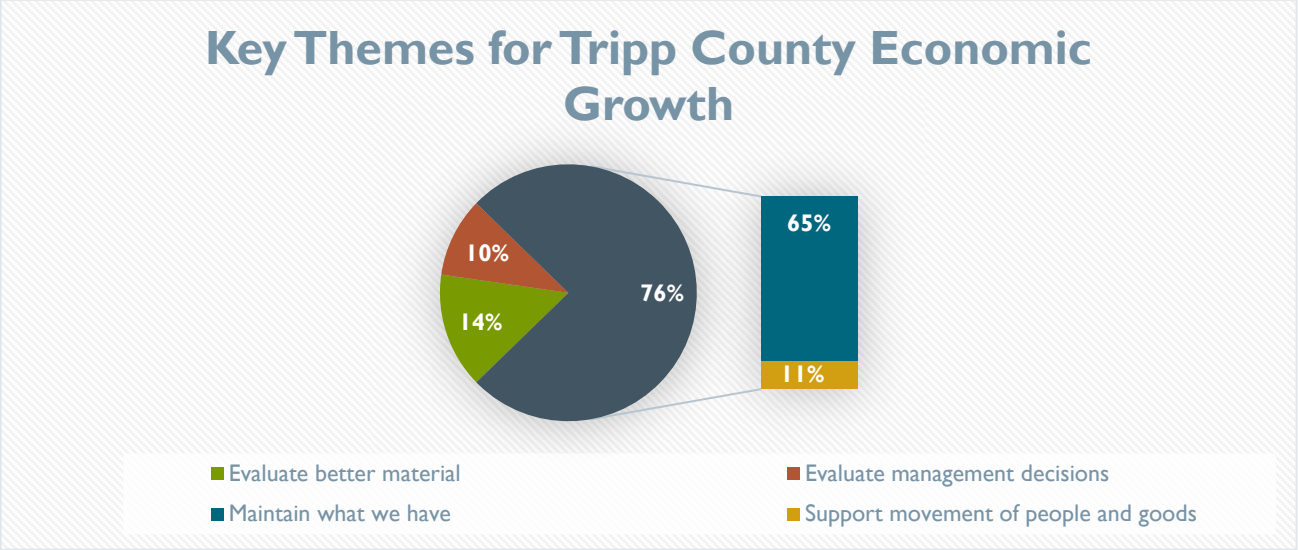
Survey respondents provided ratings on the ability of roadways to support essential needs at both the township level and near their primary residence. Only 3.6% rated township roads as "Great" while 7.3% gave the same rating for roads near their primary residence. Around 45% of respondents rated township roads as "Fair" compared to nearly 39% for primary residence roads. In addition, 20.9% rated township roads as "Poor," with 27.7% giving that rating for roads near their primary residence. These results highlight consistent concerns about the quality of roads across both locations (**Table 15**).

Table 15. Ability of Roadway to Support Essential Needs

Rating Ability	My Township		My Primary Residence	
Great	3.6%	**33.4%**	7.3%	**31.9%**
Good	29.8%		24.6%	
Fair	45.0%	**65.9%**	38.7%	**66.4%**
Poor	20.9%		27.7%	
I'm not Sure	0.00%		0.52%	

Responses to the survey had much to add about the ability of roadways today to support the future economic growth potential of Tripp County. A poor rating was given by 44.5% for surveys submitted and only 14% gave a rating of Good or Great. A qualitative categorization of responses was organized into eight (8) themes. The top four (4) themes (**Figure 11**) represented 86% of responses to this question. Of these, most indicated some type of sentiment that County officials should take every reasonable action to better maintain the infrastructure that exists today. Recommendations offered to this question included increased number and training of qualified staff, supplementing some maintenance efforts with contractors, improving the quality of materials used, keeping paved roads paved, and doing more to provide safe and reliable gravel roads.

Figure 11. Perceived Needs for Transportation and Economic Growth



The survey provided an opportunity to recommend possible approaches to resolve these challenges. The priorities that are perceived to make the greatest impact included design and maintenance standards, roadway project prioritization, and more consideration for safety. From the 133 comments received, ideas varied including

- Focus on staffing levels, management, training, and considerations for contracted support
- Establishing maintenance standards in the plan that staff are accountable to follow
- Address the lifecycle costs of utilizing existing gravel materials sources
- Equitable funding and consistent maintenance of all roads without special accommodation beyond design and maintenance standards

Increasing funding may not be sufficient if different materials, staffing, and training are not provided, but no improvement can be expected without addressing current methods and levels of funding. Other proposals include investing in snow removal equipment, employing experienced contractors for road maintenance, and improving management efficiency.

3.1.4 Perception of Transportation Funding Priorities

The funding available for construction and maintenance budgets will influence the ability of Tripp County to meet the goals included with this MTP. Cost-saving measures for existing practices and new funding sources could be considered to complete more construction and maintenance activities. Survey responses provided some insight into these options. Approximately 25 percent of responses did not share a preference for a particular cost saving measure. More than 30% preferred to prioritize fewer roads if it meant that the highest priority roads could better meet a defined design and maintenance

standard according to State standards. The response to this question resulted in the close analysis of existing functional classifications and jurisdictional assignments.

There is broad awareness and agreement (81.0%), that Tripp County property tax base and mill levy rates set by Townships are necessary to support countywide maintenance of roads and bridges. However, one in five express their disagreement that each Township mill levy should be updated so roads and bridges can meet adopted standards. Consistent, countywide roadway and bridge maintenance largely depends on the shared investment from the properties that generate demand for rural access and mobility. The MTP can provide help to guide budgets (revenue and expenses) for construction and maintenance through 2045. By doing so, the portion that will be funded by local taxes has strong support based on survey responses.

The survey asked about what types of projects are most important to prioritize. Options including active and alternative transportation modes that rated the lowest. The priority transportation project types that were rated highest were improving the existing roads to meet state design standards and the maintenance standards needed to preserve them. Intersection and corridor safety projects were considered moderate priorities. If the MTP can be used to guide progress with guidelines needed to address the immediate concerns of maintenance and design standards, other project types may become a priority in the future and funding priorities adjusted to support them. This was confirmed with the final question that asked what the most important outcomes of the MTP planning process would be. Approximately 62.5% agreed that standardized maintenance of County roadways would be most important.

Table 16. Transportation Project Type Priorities

Highest Priority	Moderate Priority	Lowest Priority
Existing Road Improvement to higher maintenance standard	Intersection Safety project at County Paved Road or State Highway	Consolidating redundant County Unpaved Roadways
Existing Road Improvement to State design standard	Corridor Safety project on County Paved or Unpaved Road	Bus/Transit/ Bicycle/Pedestrian Facilities

3.2 SPECIAL STUDY TOPICS

This study generated multiple topics that required special study to clarify needs, issues, and to guide possible alternatives that resulted from the analysis. These topics were identified during baseline conditions analysis, input provided by the SAT members, and received from the public.

3.2.1 Assessment of Existing Functional Classifications

JUSTIFICATION FOR CHANGING TRIPP COUNTY FUNCTIONAL CLASSIFICATIONS

Changing the functional classification of a roadway does not occur as a common practice, but the state assigned functional classifications can be evaluated with a change to jurisdiction, recommendation of traffic studies, and the development of an MTP. An assessment of the existing functional classification is summarized by **Table 17** and modification of functional classifications appears to be justified. In all such cases, the outcome of any change to existing classifications (**Table 7**) must satisfy two state threshold criteria.

1. Total miles of roads classified as Collectors should not exceed 25% of all county road miles. Collector roads in Tripp County currently represent 23.6% of the network. While the total miles of Major Collectors largely determine annual federal aid for maintenance, Minor Collectors are limited to federal aid for disaster recovery.

2. Total miles of roads classified as Collectors should not exceed approximately 33% relative to the miles of roads classified as Local. Collector roads in Tripp County currently represent 33.4% relative to the miles of all local roads. This guideline supports a balanced distribution of classifications that support mobility and access.

Tripp County has not maintained unpaved county roads according to a consistent roadway design standard that corresponds with the existing functional classifications. Long-term management has not maintained unpaved roadways with consistency relative to Major and Minor Classifications which justifies updating the functional classifications. While state highways are designed and maintained according to state and national highway standards, variations of roadway widths were found among existing Major Collectors, Minor Collectors, and Local roads. Functional classification should be the primary criteria used to determine all appropriate roadway design standards, but Tripp County has not adopted such a management plan that guides the consistent design of unpaved roads. This has led to variations of roadway width, materials used, and maintenance standards applied.

Tripp County stakeholders and public input desire consistency for design standards and maintenance decisions. The current classifications assigned are inconsistent with County priorities for supporting the mobility and access needs of drivers which justifies updating the existing functional classifications. Unpaved county roads have generally been maintained by Tripp County Highway Department according to traffic demands, commissioner priorities, resource availability, and the various roadway uses ranging from private property to agricultural and livestock production. Although a

management plan has not been adopted, the iterative form of prioritization by Tripp County represents local preferences for supporting mobility and access. These are the two primary criteria used for establishing the functional classification of a roadway. Public comments summarized in **Needs Assessment** section noted variations of roadway conditions and inconsistent priorities applied to maintenance.

Table 17. Functional Classification Assessment Summary

EXISTING FUNCTIONAL CLASSIFICATIONS	
PROVIDES	• Satisfies federal and state requirements for the relative distribution of roadway classifications. • Provides the total miles of major collectors that determines annual STIP maintenance funding. • Supports federal coordination and funding necessary for emergency repairs of minor collectors.
ISSUES	• Lacks a consistent design standard that is applied to roadway widths and surface materials. • Limits the ability to recommend consistent maintenance level of service until roadway design is determined by the functional classification. • Insufficient maintenance funds provided to resolve paved roadways rated in poor condition. • Relies on township jurisdiction to maintain some segments classified as minor collectors.
NEEDS	• Updates to existing functional classifications for unpaved county and township roads to reflect current uses, roadway widths, and maintenance priority while retaining the proportional distribution required by state guidelines. • Application of the policy and procedures for county highway system revisions to update the functional classifications as recommended by this master transportation plan. • Low volume, rural road sub-classifications that supplement functional classification assigned by the state to support prioritized design decisions made relative to subclassification assigned. • Updated inventory of current roadway widths and surface condition ratings.
AVAILABLE SOURCES	• SDDOT Local Roads Plan (2011, 2024) – Supportive of: - *A Policy on Geometric Design of Highways and Streets* (AASHTO, 2004, 2011, 2017) - *Guidelines for Geometric Design of Low-Volume Roads* (AASHTO, 2019) - US FHWA "Gravel Roads Construction & Maintenance Guide" - FHWA Manual on Uniform Traffic Control Devices - SDDOT Sign and Delineator Design Guidelines for Local Roads - SDDOT Road Design Manual • NCHRP Report 362 (20) – Crash rates for unpaved roads

Unpaved county roads in Tripp County are considered low volume roads and decisions made about their design standards require additional criteria. Before low-volume design standards can be applied, Major Collectors, Minor Collectors, and Local roads must be accurately classified which justifies updating the existing functional classifications. An unpaved county road that supports 2,000 or fewer vehicles per day is considered low volume. Most unpaved county roads in Tripp County support less than 400 vehicles per day. Low Volume Road Design Guidelines are provided by AASHTO and supported by SDDOT Local Roads Plan. These guidelines may be applied to Tripp County unpaved roads to provide consistency and accommodate greater impacts caused by heavy trucks and equipment.

Low Volume design standards focus on the need for access for fewer adjacent land uses and recognizes that access designed for heavy equipment and vehicles should influence the roadway width. Collectors that carry 400 or fewer vehicles per day may consistently provide a 20-foot roadway width where design speeds of 45-50 mph exist. Where justified by variations in design speed, traffic volumes between 400 and 2,000 vehicles per day, and/or Local classification roads that support Commercial/Industrial, Resource Recovery, or Heavy Agricultural Access, the recommended width may range from 18 to 26-feet.

Alternatives for Modifying Tripp County Functional Classifications

A case was presented to justify some functional classification changes for unpaved Tripp County roadways. Input was required from project stakeholders to clarify a prioritization process for assigning functional classifications. County Commissioners were tasked to use the existing functional classification map (**Figure 4)** and provide a summary of the priorities of roadways within each District without respect to the existing functional classification. A hand drawn map was developed by the County Commissioners that documented the first and second priority roadways. Commissioners perceived their priorities to represent a maintenance standard and for maintaining a roadway to a design standard. This method of prioritization was used to create the **Highest Standard Alternative**. For this alternative, all first priority roadways were assigned to a Major Collector classification, and all second priority roadways were assigned Minor Collector classification. The remaining roadways were assigned to Local classification.

Three concerns resulted from this exercise. First, **Table 18** displays the result of the Highest Standard Alternative, showing 39.5% of roadways would be classified as Collectors and that Collectors would be equal to 72.3% of local roads. Both values exceed the state threshold guidelines. A second concern with the result was that multiple Major Collectors would be reclassified as Minor Collectors, including roads with significant bridge infrastructure that should continue to support the higher mobility needs of the transportation network. The final concern was that county priorities did not accurately reflect the existing jurisdiction assigned in some cases which led to additional evaluations described later. The Highest Standard Alternative could not be recommended for these reasons.

A second effort was made to develop a **Balanced Standard Alternative**. The objective of this alternative was to blend the existing functional classifications with the intended maintenance priorities

communicated by the County Commissioners. Unpaved Major Collectors were retained unless a small route revision could be made to match the priority requested by the District Commissioner. Minor Collectors and Local roads were recommended for change according to the priority of the Commissioners up to, but not to exceed the state threshold guidelines. Following the initial development of the Balanced Standard Alternative, feedback was requested from the SAT members.

Minor adjustments to the **Balanced Standard Alternative** were recommended by the SAT. These changes were completed to develop the results shown in **Table 18**. This alternative would classify exactly 25% of roadway miles as Collectors and recommends that total miles of Collectors reflect 36.1% of Local roads. Although this last proportion is slightly greater than state threshold guidelines, the disconnected grid network of Tripp County results in more corridors serving as Collectors to reach the regional transportation network. The Balanced Standard Alternative represents changes to existing Functional Classifications identified by **Figure 12** recommended by this MTP.

Table 18. Alternatives for Updating Functional Classification Assignments

Functional Road Classification	Total Lanes Miles	% of ALL Roads	% of LOCAL Classification	Total Lanes Miles	% of All Roads	% of Local Classification
	Alt A: Highest Standard Alternative			**Alt B: Balanced Standard Alternative**		
Principal Arterials	40	2.1	10.6	40	2.1	8.4
Minor Arterial	69	3.7		69	3.7	
Major Collectors	451	**39.5**	**72.3**	310	**25.0**	**36.1**
Minor Collectors	290			158		
Local Roads	1,025	54.7	-	1,298	69.2	-

SOURCE: SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION (2024)

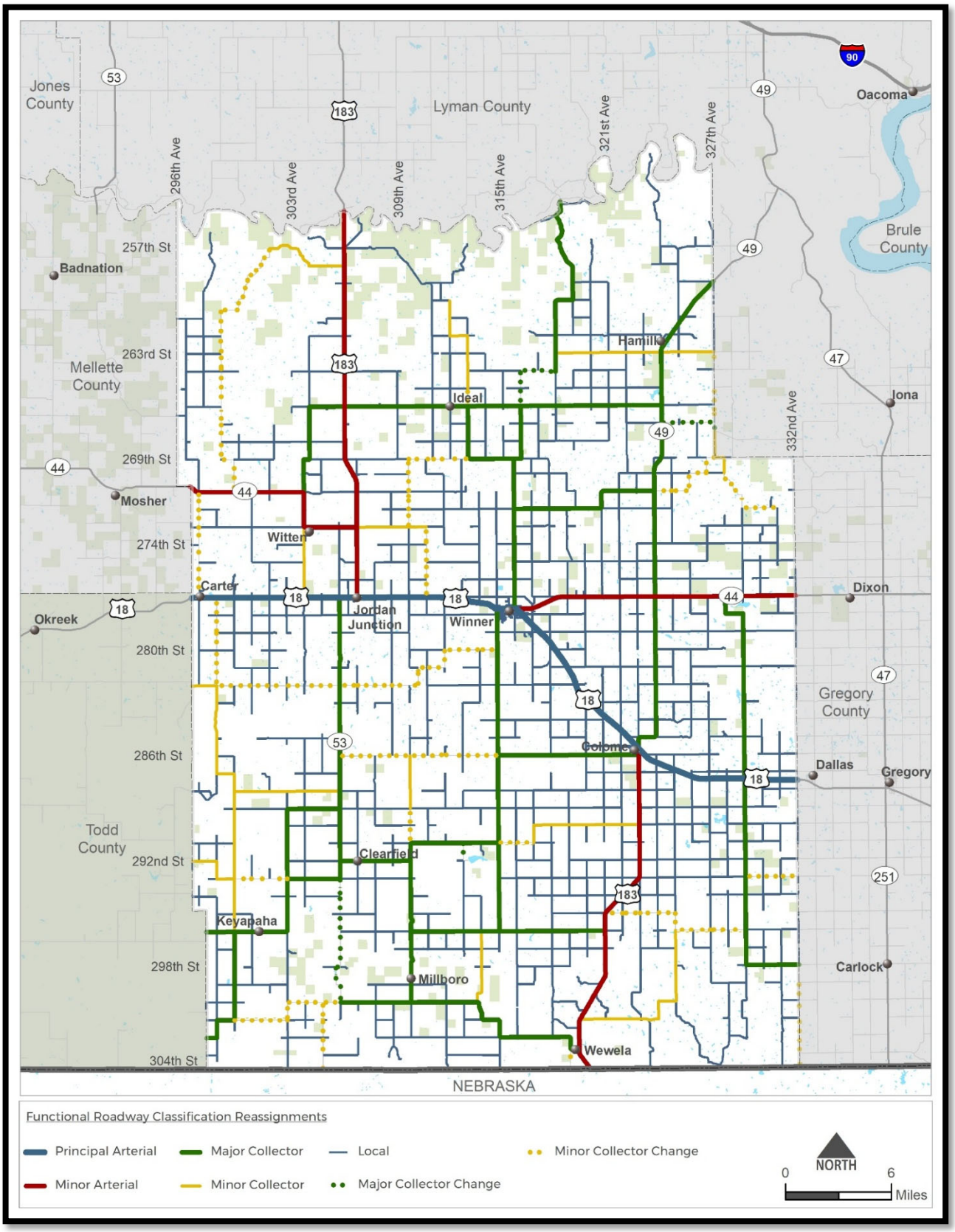
One cost saving benefit would result from the functional classifications recommended by this iterative process. The priorities identified by County Commissioners as major collectors represented significantly more miles of roadways (81.6 miles) that are already 20-feet wide or more. These total miles are summarized in **Table 19.** Approximately half of these recommended roadways are currently classified as Minor Collectors and the other half classified as Local roads. Reclassifying more roadways that are already 20-feet wide as Major Collectors would require less cost for the County to bring roadways up to a minimum design standard than widening existing Major Collectors than are less than 20-feet wide. The recommended reclassifications according to the Balanced Standard Alternative results in more Major Collectors meeting a recommended minimum design width standard which is also summarized by the table below.

Table 19. Balanced Functional Classification Alternative Miles - Unpaved Widths

ROAD WIDTH (FEET)	MILES OF MAJOR COLLECTOR (+/- than existing)	MILES OF MINOR COLLECTOR (+/- than existing)
30 - 26	**25.8** (+0.0)	**5.4** (+5.4)
25 - 24	**22.4** (+4.4)	**8.6** (+0.2)
22	**9.1** (3.0-)	**3.0** (+2.0)
20	**132.3** (+80.2)	**59.8** (-45.5)
18	**66.2** (+18.6)	**30.4** (-4.0)
16 - 12	**10.5** (-4.2)	**51.1** (+6.6)

SOURCE: SOUTH DAKOTA DEPARMENT OF TRANSPORTATION (2024)

Figure 12. Existing Segments Identified to Change Functional Classification



3.2.2 Assessment of Existing Jurisdictional Assignments

Justifications for Changes to Jurisdictional Assignment

Changing the jurisdiction assignment for a roadway does not occur as a common practice, but the assigned jurisdictions can be evaluated with any change to functional classification, recommendation of traffic studies, and the development of an MTP. The assessment completed for functional classification changes described above identified roadway segments that may require the assigned jurisdiction to be modified. No change to assigned jurisdictions are recognized by the State of South Dakota until the standard procedures for initiating and completing a jurisdictional swap are completed according to the Policy and Procedures for County Highway System Revisions. This process must include:

1. The Board of County Commissioners shall forward to the Secretary of Transportation a resolution which correctly states the desired addition to, or deletion from the county highway system. Relocation of a route must be considered as a deletion and addition to the system. The resolution may include any number of additions or deletions.

2. The resolution should state the rationale for the modification. For example, changes in county development patterns or increasing traffic on township roads would be noted on the resolution.

3. The resolution must be accompanied by a county map that shows the existing road system and the proposed additions or deletions marked in contrasting colors.

4. The resolution, if requesting deletions from the county highway system, must be accompanied be evidence that public notice had been given in an official county newspaper(s), such notice correctly describing the section or sections of the county highway being abandoned, and the time and place for action to be taken by the Board of County Commissioners. Public Notice must be published a minimum of ten (10) days prior to the meeting of the Board of County Commissioners when the action will occur. Public notice is not required for resolutions adding road segments to the county highway system.

5. The Secretary of Transportation will wait at least 30 days following the receipt of a resolution requesting deletion to the county highway system to formally act on the request. {The Secretary is not required to wait 30 days to formally act on a resolution for an addition.]

County Commissioners, stakeholders, and the public identified roadway segments that they believed the jurisdiction displayed was incorrect because informal steps had been completed between the County and a township. County and Township officials already recognize the changes of some road segments that can be accepted by the State after completing the required procedures which justifies updating the existing jurisdictional assignments. These roadway segments in question had been communicated to the regional planning district and to emergency management officials, but the process outlined above was not followed. The State of South Dakota does not recognize the informal jurisdiction swaps that may have been previously completed.

If the Balanced Standard Alternative is accepted by the County, functional classification for some roadways currently assigned to County and township jurisdictions would be modified. Design and maintenance standards for roads of countywide importance should apply County standards which justifies updating the existing jurisdictional assignments when functional classifications recommended by the Balanced Standard Alternative are implemented. Design and maintenance standards that are developed from the recommendations of this MTP can be implemented consistently for County jurisdiction roads, but individual townships will retain autonomy to manage roads assigned to their jurisdiction according to their available resources and priorities. To achieve consistent implementation, Major or Minor Collectors roads should defer to County jurisdiction assignment so roadway design and maintenance can be consistently maintained according to their functional classification. Roadways of township importance may not meet the countywide standard and should not be retained with County jurisdiction.

The total number of miles of unpaved roadways can remain balanced and maintain the balanced thresholds for functional classification. The opportunity to swap jurisdictions for identified road segments will not add or remove a significant total number of miles to the County jurisdiction which also justifies updating the existing jurisdictional assignments identified. The Balanced Alternative identified 70.69 miles of road that should be swapped based on these priorities and justifications. The existing and future roadway miles are summarized by functional classification in **Table 20**. Portions of two paved county roads adjacent to the City of Winner, 277th Street and 317th Avenue, represent 1.06 miles of recommended segments to be swapped. Of the 1,641 miles of unpaved roads, the Balanced Standard Alternative recommends 35.11 miles of County and 34.52 miles of township jurisdiction roads be swapped.

Table 20. Existing and Balanced Alternative Miles of Unpaved Roads by Jurisdiction

Functional Classification	Existing County	Existing Township	Balanced County	Balanced Township
Major Collector (unpaved)	155.82	0.13	266.38	0.00
Minor Collector	170.62	27.04	143.05	15.29
Local	337.92	949.77	216.18	962.24
Primary and Secondary Miles	(Primary 299.41) (Secondary 38.51)	n/a	(Primary 216.18) (Secondary 38.15)	n/a
Total (net)	664.36	976.94	663.77 (-0.59)	977.53 (0.59)

SOURCE: SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION (2024)

Design and maintenances standards that reflect functional classification can benefit both County and township jurisdictions. These countywide outcomes will be more difficult to achieve without the shared standards which justifies updating the existing jurisdictional assignments. Tripp County can budget for and apply design and maintenance standards for their Major Collector, Minor Collector, and Local classification roadways. Townships may also apply these design and maintenance standards for their Minor Collector and Local Road classifications. With shared the shared standards, any township roadway that a Township requests to swap with the County may be required to meet the minimum design standard for the functional classification assigned. The County may also enter into agreement with a township to provide limited support for maintenance of Minor Collector roads which represent Countywide importance.

An assessment of the existing jurisdiction assignments is summarized by **Table 21** and modification of jurisdiction classifications appears to be justified. In all such cases, the outcome of any change to existing classifications (**Table 7**) must satisfy state required Policy and Procedures for County Highway System Revisions. The Balanced Standard Alternative represents changes to existing jurisdictions assigned identified by **Figure 13** recommended by this MTP. The integration of functional classification and the future jurisdiction is represented by **Figure 14**.

Table 21. Summary of Jurisdictional Assignment Assessment

EXISTING JURISDICTIONAL ASSIGNMENTS	
PROVIDES	• Reflects historical context of sharing development costs and maintaining a roadway network. • Enables administration by Tripp County to support all major bridge structures on Township roads and to make supplies, materials, equipment accessible to purchase or contract. • Allows ultimate flexibility for local road maintenance based on Townships priorities, resources available, and ability to complete the work.
ISSUES	• Unauthorized swaps can occur when state policy is not followed. • Jurisdiction disproportionately represents the shared cost to support the primary county highways and major structures through townships. • Maintaining jurisdictional assignments and existing functional classifications would result in greater expense compared to alternatives to bring up to design and maintenance standards.
NEEDS	• Initiate the required procedures to modify jurisdictional swap with functional classification changes with all Tripp County townships at one time. • Update functional classification with jurisdictional assignment figures once changes are made. • Amend the MTP and share adopted figures with all regional and state planning agencies. • Adopt shared maintenance policy for all Minor Collectors retained as Township jurisdiction to uphold the design and maintenance standards adopted with this MTP.
AVAILABLE SOURCES	• South Dakota Codified Laws Section 31-12-2 and POLICY AND PROCEDURES FOR COUNTY HIGHWAY SYSTEM REVISIONS • Resolution specifying the modification of jurisdiction. An EXAMPLE RESOLUTION provided by the state should be used. • The recognized jurisdiction assigned to each roadway is available from SDDOT. INTERACTIVE ROAD SYSTEM MAPS.

Figure 13. Existing Roadway Segments Identified to Change Jurisdiction Assigned

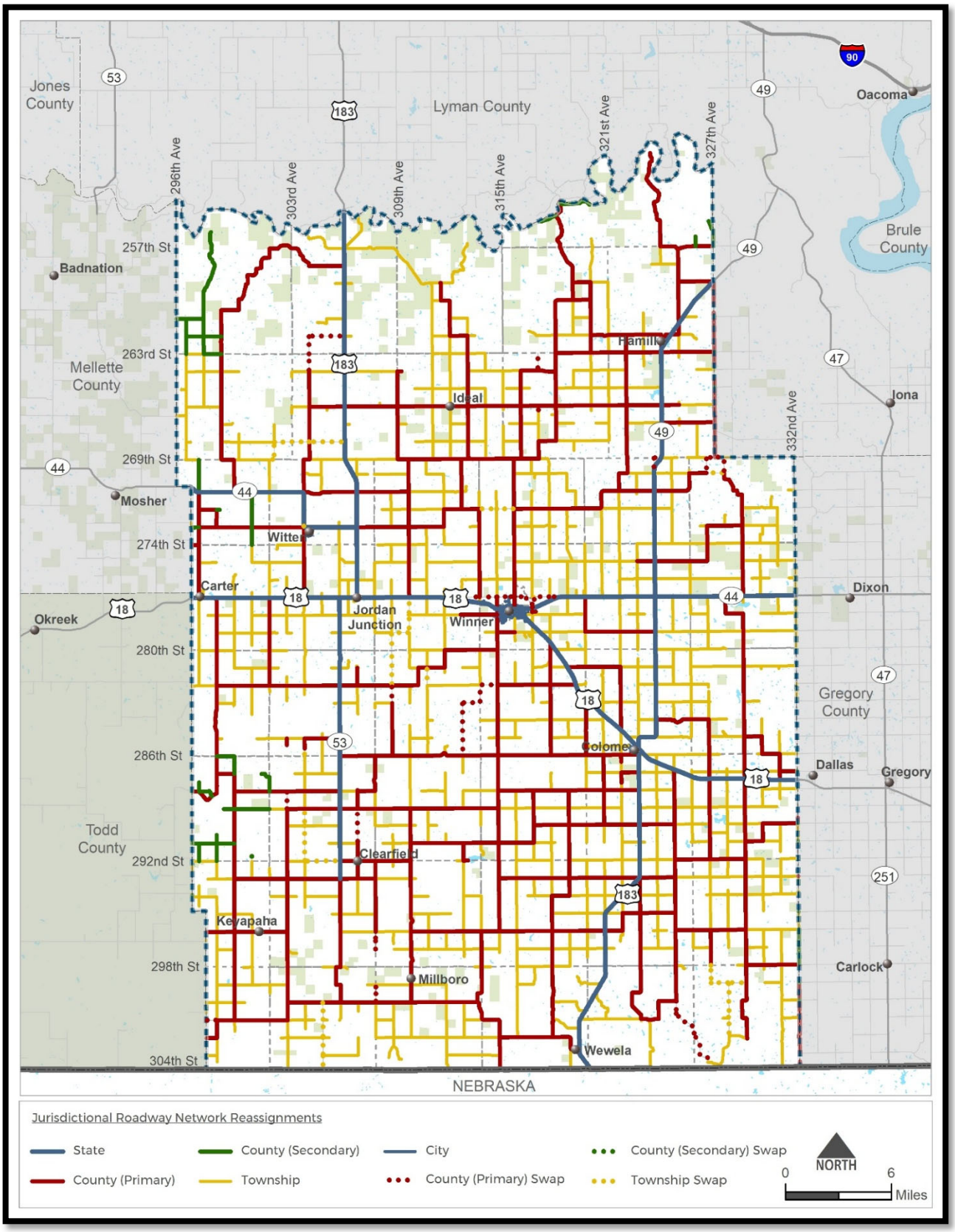
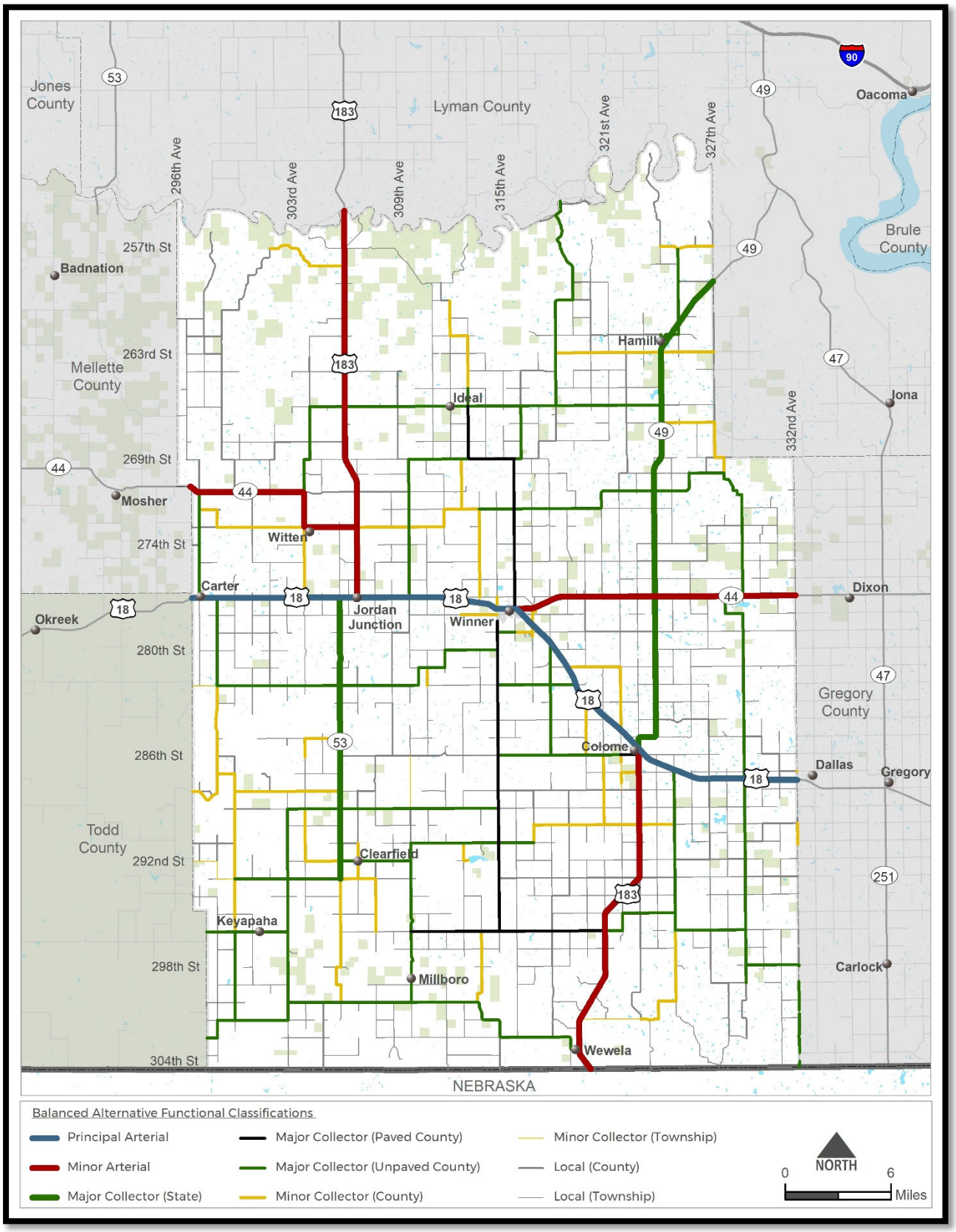


Figure 14. Balanced Alternative - Functional Classifications and Jurisdiction



3.2.3 Assessment of Existing Resources and Maintenance Needs

State Resources for Current Transportation Infrastructure Projects

The financial review for construction and maintenance is essential for ensuring the sustainability and upkeep of both roadways and bridges in Tripp County. This section evaluates various funding sources available to the county, including the State Transportation Improvement Program (STIP), Bridge Improvement Grant (BIG), Surface Transportation Block Grant Program (STBGP), and others. These funding sources are critical for supporting the construction, maintenance, and improvement of both roadways and bridges, contributing to the overall development and safety of Tripp County's transportation infrastructure.

For the FY 2024 allocation, Tripp County received funding under the STBGP (formerly STP) Payout Program, designed to support road and bridge maintenance, repair, and reconstruction. With 50% of the funds matched by the state, the total FY 2024 STBGP allocation amounted to $390,825.15. Additionally, $3,780.79 was allocated for county pavement marking. These funds are essential to the ongoing general maintenance of the unpaved county road maintenance needs and pavement edge striping. The funding levels are not established to provide programmatic reconstruction of paved or unpaved county roads. The SDDOT State Transportation Improvement Program (STIP) also outlined projects listed in **Table 22** to be completed by the state to enhance road and bridge infrastructure. These projects represent significant investments in the transportation infrastructure of Tripp County.

Table 22. Statewide Transportation Improvement Program (STIP)

Project Description	Location(s)	Scope	Fiscal Year	Cost (Millions)
Structure and Approach Grading (0.2 miles)	Tripp County	Preliminary Engineering (PE)	2024	$0.70
Joint & Spall Repair, Joint Seal, AC Surfacing of Shoulders (30 miles)	Three counties including Tripp	Joint and Spall Repair, Joint Seal, AC Surfacing of Shoulders	2024	$15.26
Route & Seal Improvement (64.9 miles)	Four counties including Tripp	Route and Seal Improvement	2024	$0.59
Concrete Overlay on SD44, SD49, & US18	Tripp County	Concrete Overlay	2025	$1.16
Scour Protection on US183	Tripp County	Scour Protection	2025	$1.19
Asphalt Surface Treatment on SD73, US18, US18E, US18W (62.9 miles)	Tripp County	Asphalt Surface Treatment	2025	$2.95
Concrete Overlay on SD53	Tripp County	Concrete Overlay	2026	$0.42
AC Surfacing and Resurfacing of Shoulders on US18 (49.9 miles)	Tripp County	AC Surfacing, Resurfacing of Shoulders	2026	$9.72

SOURCE: SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION (2024)

County Resources for Transportation Infrastructure

Tripp County budgets are updated annually and line items for transportation expenses are one of the programs that County Commissioners must adjust according to the current challenges and needs. Funding levels and the allocation of limited funding were identified as a concern for project stakeholders and the public. A detailed review of the past eight years of County budget for transportation was completed with information provided by the County. The 2023 budget expended shown in **Table 23** provides a starting point for financial resources available to allocate toward transportation infrastructure needs. Line items for staffing, services, equipment repairs, supplies, materials, and equipment organize the annual expenses totaling $3.4 million.

Table 23. Tripp County Budgeting for Roads and Bridges

	2023 Actual Expended	Current Expense Over Net Change:		2016-2023 Average Expended	Current Expense Over Average Change:	
		2016-2023	Average Annual		2016-2023	Average Annual
Total Budget (Final)	**$3,399,012**	**31.7%**	**4.0%**	**$2,815,638**	**20.7%**	**2.6%**
Total Expended	**$3,399,012**	**42.7%**	**5.3%**	**$2,801,743**	**21.3%**	**2.7%**
Staffing and Related Expenses	$874,232	14.1%	1.8%	$740,319	18.1%	2.3%
Services and Fees - Engineering	$150,000	1,611%	201.4%	$83,697	79.2%	9.9%
Repairs and Maintenance	$151,036	-53.5%	-6.7%	$276,704	-45.4%	-5.7
Supplies and Materials	$403,663	13.1%	1.6%	$427,990	-5.7%	-0.7%
Gravel Hauling/ Dirt work	$1,462,437	208%	26.0%	$847,184	72.6%	9.1%
Custom Hauling (2018, '20, '21, '23)	$49,339	N/A	N/A	$199,834	-75.3%	-9.4%
Mining Royalty	$26,269	-80.0%	-10.0%	$59,734	-56.0%	-7.0%
Machinery and Equipment	$229,262	31.7%	4.0%	$165,554	38.5%	4.8%

SOURCE: TRIPP COUNTY BUDGET RECORDS 2016-2023 (2024)

Annual budget amount for these line items shown have increased 2.6% on average between 2016 and 2023. The 8-year review period was used to help understand the variation of the budget since 2016. This period is represented as a net change of 42.7% or 5.3% annually. The rate of change has increased more in the most recent 5-years of evaluation (8.9% annually) compared to the oldest 5-years (2.5%) of the evaluation period. The recent period of budget increases reflects both a need to make up ground on deferred maintenance, use professional services for design and studies, and the buffer the increasing costs of business related to human resources, equipment, and materials. Efforts made to increase funding rapidly to match current funding needs are indicated by calculating the evaluation year of expense (2023) to the average of the evaluation period (2016-2023). Budget

amounts for these line items are expected to reflect countywide revenue and expense changes that are beyond the scope of this assessment. The data does indicate that the County has made a significant commitment to raising funding allocated for transportation infrastructure.

Budget changes and expenses can also be evaluated as an indicator relative to dollars per network mile. In 2016, Tripp County budget reflected approximately $3,364 per mile of the County's 708 primary and secondary highway miles. That amount has grown to exceed $4,800 per mile to maintain the same number of County jurisdiction miles. A few highlights from these changes are summarized below.

- **Staffing Challenges:** The County faces considerable challenges in staffing. Wages and benefits continue to put pressure on available funds and to remain competitive with similar employment opportunities. Unfilled positions, staff retirements, and losing trained employees can strain department resources. Substantial staffing expense increases observed in 2022 highlight the urgent need for continuous investment until minimum staffing levels are achieved, alongside the implementation of comprehensive training programs.
- **Increased Reliance on Contracted Support:** Since 2016, the County has increasingly leaned on engineering contracted support, resulting in significant accomplishments such as meeting stringent state infrastructure inventory requirements and successfully pursuing funding opportunities. Noteworthy achievements include the design of replacement bridges and pursuing discretionary grants for major infrastructure projects. These are strategic investments made to position the County for future funding.
- **Decline in Funding for Maintenance and Supplies:** Allocations for repairs, maintenance, and essential supplies within the County Highway department have demonstrated notable reductions. This decline in investment poses a substantial challenge, hindering the department's ability to effectively coordinate county-wide operations and leading to delays in accessing critical equipment and materials.

These observations underscore the urgent need for long-term planning that supports annual budget decisions that support evolving transportation infrastructure maintenance. A proactive approach is imperative to navigate through complexities and foster sustainable growth and development.

County Resource Allocation for Ongoing Maintenance

Tripp County Highway Department provides ongoing maintenance on a countywide basis. County Commissioners have provided input about maintenance priorities. A general goal of the Highway Department is to provide approximately 10 miles of maintenance to restore the driving condition of unpaved roads for each of the five districts. Records of the total number of miles that receive restoration maintenance each year were not available for this study. Using this input from County Commissioners and the Highway Department staff, a general estimate of 50-55 miles per year is likely to be restored. Other routine maintenance is provided on a countywide basis to include blading, roadside vegetation, snow removal, light grading, and small drainage repairs. Input from stakeholders and the public indicate that noticeable variations exist and the opportunities may be explored to improve the definitions, rotation and quality assurance of unpaved maintenance.

Unpaved gravel surface maintenance can be organized by two types of reshaping that are described by FHWA and South Dkota Local Technical Assistance Program (SDLTAP). The common type of maintenance is completed to reshape the surface and shoulder of the road. Problems with surface and shoulder shape can usually be corrected with the motor grader alone. Spring is the best time for this work as there is minimal vegetative growth and moisture is often present. The reshaping of the driving surface and the road shoulder can be done by cutting material with the motor grader and relaying it to the proper shape and crown.

Surface and subgrade conditions of a gravel road may become sufficiently degraded and require reshaping of the entire cross section. Severe rutting, loss of crown, gravel loss and deep secondary ditches — a combination of any or all of these calls for major reshaping. Often this type of damage occurs after a gravel road has been subjected to unusually heavy hauls, especially if this occurs during wet weather. Water retention throughout the roadway structure will compound the problem. This requires greater effort, equipment, and materials compared to routine maintenance.

Although cross section maintenance is less common, three challenges to planning and budgeting are present for Tripp County. First, the subgrade and source materials of unpaved county roads of Tripp County are underdeveloped compared to other Counties. Second, this study has identified a significant number of road segments that are recommended to change functional classification, jurisdiction, or both. Until that is completed, the priorities for existing unpaved gravel roadways may not match a level of maintenance standards assigned by functional classification. Finally, Tripp County does not currently use an unpaved road condition rating system that could be used to inform what type of maintenance can be expected. Anecdotal public input indicates that a condition rating for unpaved county jurisdiction roads should be developed.

The quality of the unpaved gravel road and the complexity required to provide maintenance is significantly influenced by the integrity of the subgrade. While some counties benefit from durable subgrades that have been well established, soft and weak subgrades are likely more common to Tripp County. It is extremely important that surface and subsurface water flows off of and away from roadways, there are situations where water simply cannot be kept away. These areas will very often have weak subgrades, which cannot support heavy loads. Sometimes it is even hard to maintain the road for light traffic. These roads will rut and potholes will be formed very quickly due to very poor subgrade soil support. A highway department may choose to excavate and remove the weak, wet soil if the area is isolated. Where these conditions persist in Tripp County, they are widespread and a far distance away from suitable replacement material. Another alternative that can be considered is the use of geotextile fabrics that serve as a barrier between poorly drained soils and the minimum depth of gravel driving surface, a method that also requires considerable expense.

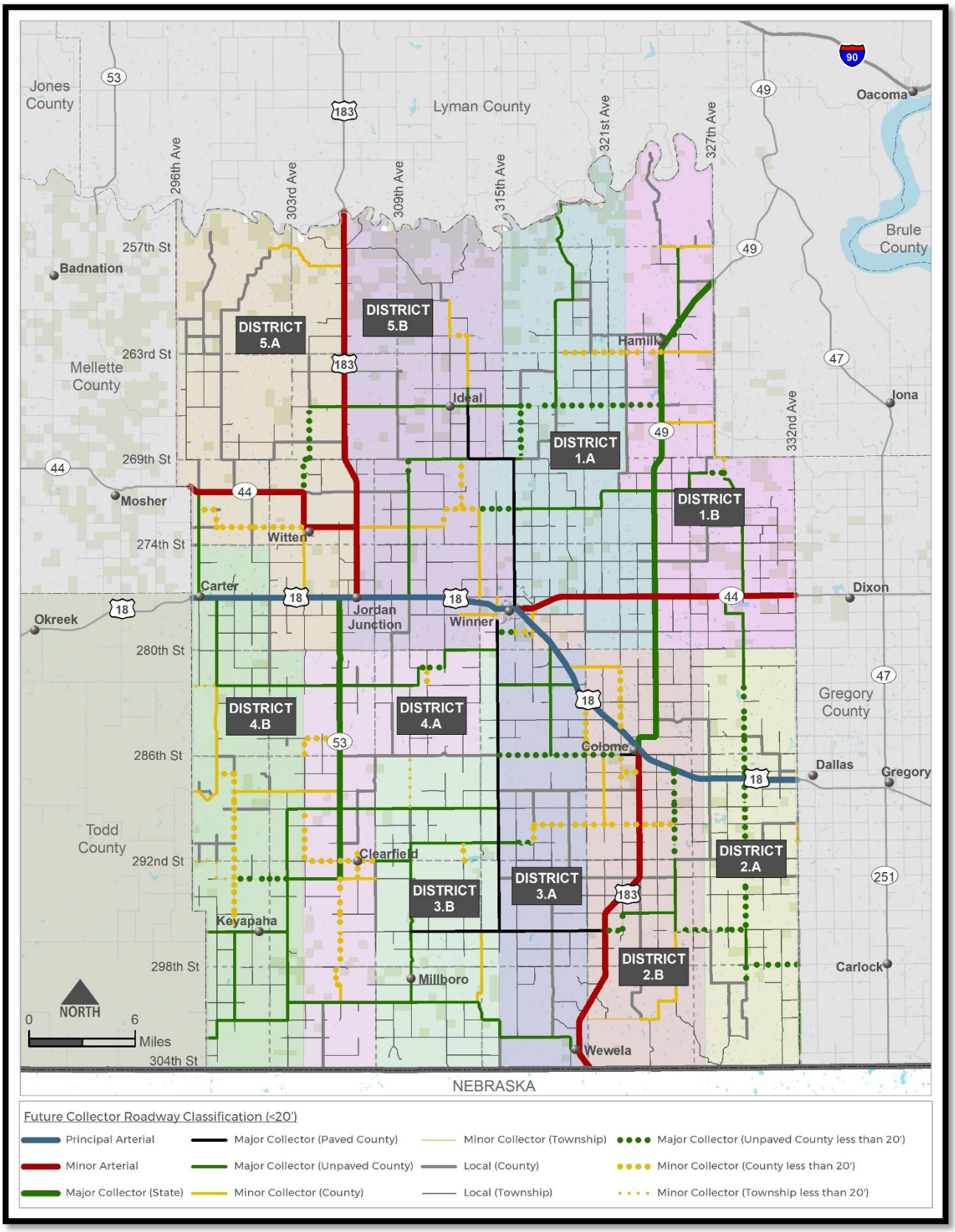
County Unpaved Maintenance Rotation Alternatives

The current process used by Tripp County to prioritize the ongoing maintenance of unpaved county roads can be retained with results that are similar to current conditions. This study considered two alternatives that may improve the organization of resources and the program of work to be completed each year. To explore these alternatives, all recommended functional classification changes and jurisdictional swaps were used as the basis for both maintenance rotation alternatives.

One alternative proposed to bring the highest priority unpaved county roads to the highest possible condition while continuing to maintain the remaining roads to a lower maintenance standard. The second alternative proposed to bring all unpaved county jurisdiction roads up to a consistently good condition. Both alternatives would follow a programmable maintenance rotation to consolidate resources while working around the County systematically rather than providing the same level of maintenance to all five Commission Districts each year.

The Balanced Alternative functional classifications and all swapped jurisdictions are represented on the Commission District boundary map shown in **Figure 15**. Each District has been divided to support the rotation methodology. The primary logic of the rotation method is to consolidate County resources. While routine surface maintenance will be necessary, most equipment, staffing, and material mobilizations would follow a prescribed subdistrict rotation. To accommodate the rotation, districts are subdivided to balance distribution of milage each year and create an equitable order to which District roadways are addressed during a split cycle year.

Figure 15. Maintenance Rotation Alternatives by Subdistrict Areas



Effort to apply ratings for the condition of unpaved roads can be informed by state and national best practices. Two references were considered for this study. The *Rural Road Condition Survey Guide*, 1995 provides a systematic rating of unpaved gravel road conditions relevant to South Dakota. It applies as data intensive ratings (100-0) according to the visible distresses and overall roadway conditions. The inspection and documentation is simplified by *Wisconsin Transportation Information Center*, 2015 using scores (5-1) shown in **Table 24** for standard surface evaluation.

Table 24. PASER Manual for Gravel Roads – Surface Rating Categories

Rating	Visible Distress	General Condition/Treatment Measures
5 Excellent	No distress. Dust controlled. Excellent surface condition and ride.	New construction—or total reconstruction. Excellent drainage. Little or no maintenance needed.
4 Good	Dust under dry conditions. Moderate loose aggregate. Slight washboarding.	Recently regraded. Good crown and drainage throughout. Adequate gravel for traffic. Routine grading and dust control may be needed.
3 Fair	Good crown (3"-6"). Adequate ditches on more than 50% of roadway. Gravel layer mostly adequate but additional aggregate may be needed in some locations to correct washboarding or isolated potholes and ruts. Some culvert cleaning needed. Moderate washboarding (1"-2" deep) over 10%-25% of the area. Moderate dust, partial obstruction of vision. None or slight rutting (less than 1" deep). An occasional small pothole (less than 2" deep). Some loose aggregate (2" deep).	Shows traffic effects. Regrade (reworking) necessary to maintain. Needs some ditch improvement and culvert maintenance. Some areas may need additional gravel.
2 Poor	Little or no roadway crown (less than 3"). Adequate ditches on less than 50% of roadway. Portions of the ditches may be filled, overgrown and/or show erosion. Some areas (25%) with little or no aggregate. Culverts partially full of debris. Moderate to severe washboarding (over 3" deep) over 25% of area. Moderate rutting (1"-3"), over 10%-25% of area. Moderate potholes (2"-4") over 10%-25% of area. Severe loose aggregate (over 4").	Travel at slow speeds (less than 25 mph) is required. Needs additional new aggregate. Major ditch construction and culvert maintenance also required.
1 Failed	No roadway crown or road is bowl shaped with extensive ponding. Little if any ditching. Filled or damaged culverts. Severe rutting (over 3" deep), over 25% of the area. Severe potholes (over 4" deep), over 25% of area. Many areas (over 25%) with little or no aggregate.	Travel is difficult and road may be closed at times. Needs complete rebuilding and/or new culverts.

SOURCE: WISCONSIN TRANSPORTATION INFORMATION CENTER (2015)

Gravel roads naturally wear down over time due to traffic and weather. This rating system helps track their condition and decide when and what kind of maintenance is needed. Roads in good condition may

only need light grading, while more damaged roads could require major repairs or full reconstruction. By regularly assessing key features like crown, drainage, and surface wear, road managers can plan maintenance more effectively and keep roads safe and usable.

The **Excellent-Fair Maintenance Rotation** alternative established two tiers of maintenance with a 5-year cycle to reach all Tier 1 level of maintenance roads and a 10-year cycle to reach all Tier 2 level of maintenance roads. The proposed functional classifications and jurisdictions were used to assign unpaved Major Collectors to Tier 1. These road segments would be prioritized first for unpaved road condition rating. The Excellent-Fair alternative would bring 266.4 miles of Major Collectors to the Best condition rating within two rotations of 5-years. Tier 2 included all Minor Collectors and Local classifications. A road condition rating for Tier 2 segments would not be documented and the County would consolidate efforts to maintain these road segments in Fair conditions. After 5- to 10-years, all Tier 1 (Major Collectors) should meet the Excellent condition rating, become less expensive to maintain, and enable more resources to be directed toward bringing 143.1 miles of Minor Collectors to a Good condition rating in the second 10-year period.

- **Highlights:** Elevates the focus on achieving the Excellent condition rating for an average of 53.25 miles each year. Also, the functional classification changes would result in 40% of the unpaved county roadways maintained to the Excellent condition rating within 10-years.
- **Challenges**: This alternative has the most variation in total milage from year to year. The County resource budget does not anticipate the expenses of staffing levels, equipment, materials, or miles of cross-section rebuilds anticipated to achieve the Excellent condition rating. Also, unpaved Minor Collectors of Tripp County are equally important to mobility as most Major Collectors because of the disconnected grid network and the distribution of agriculture equipment and feedlots. Fair condition rating of Minor Collectors will likely not achieve the reliability goal of the MTP.

The **Good-Good Maintenance Rotation** alternative also established two tiers of maintenance but applied an 8-year cycle to both tiers to reach all roads. The proposed functional classifications and jurisdictions were also used to assign unpaved Major and Minor roads to Tier 1 level of maintenance. These road segments would be prioritized first for unpaved road condition rating. The Good-Good alternative would bring 409.5 or 61.6% of the unpaved county roads up to Good condition rating within 8- to 16-years. Tier 2 level of maintenance would include 216.2 miles of Local classification roads. A road condition rating for Tier 2 segments would not be documented but the County would endeavor to maintain these road segments in Good condition pending resource availability after Tier 1 segments have been addressed during the rotation year.

- **Highlights:** Elevates the focus on achieving a consistent Good condition rating for an average of 51.2. miles each year. Also, the functional classification changes would result in 62% of the unpaved county roadways maintained to the Good condition rating within 16-years. A low-volume rural road classification can be used to determine which Local classification roads that

should be prioritized if resources require further prioritization within a cycle year. Finally, this alternative has minimal annual variation

- **Challenges**: Similar increases to County resource budget may be needed to address the expenses of staffing levels, equipment, materials, or miles of cross-section rehabilitations anticipated to achieve Good condition rating. Even though the alternative extends the rotation cycle, Tripp County may still be unable to improve all Local roads to consistently meet a Good condition could fall short of the access goals for the MTP.

An assessment of the existing maintenance of unpaved County roads is summarized by and **Table 25** and modification of maintenance priorities according to consistent standards following a programmed rotation appears to be justified. Approving a programmed strategy is not considered a permanent solution to resolving the current challenges for unpaved county roads. The Good-Good Maintenance Rotation alternative represents changes to existing maintenance standards currently used by Trip County and will continue to be adjusted with time. Updates to the functional classifications and jurisdictional swaps are fundamental to this assessment.

Table 25. Summary of Unpaved Surface Maintenance Assessment

EXISTING MAINTENANCE STRATEGY	
PROVIDES	• Distributes maintenance resources to all districts annually with routine surface maintenance of approximately 50 to 60 miles per year • Provides adaptive opportunities annually based on importance and conversations with the highway department. • Utilizes available gravel material sources from within or directly adjacent to the County.
ISSUES	• Maintenance priorities lack consistent criteria, functional basis, and existing jurisdiction across all Districts. • Subgrade and surface gravel material durability results in less reliable travel and more frequent maintenance. • Minor Collectors assigned to a township jurisdiction not required to meet a county maintenance standard. • Does not look at projects beyond 1-year or program beyond 5-years to anticipate sustainable maintenance costs needed to achieve consistent maintenance standards.
NEEDS	• Advance the initial efforts made to record paved county road condition index and begin recording unpaved county road condition index. • Store roadway condition records with the SDDOT geographic feature ID of road segments. • Adopt recommendations for level of maintenance service guidelines and practices recommended by the MTP. • Initiate a Good-Good level of maintenance service budget and maintenance distribution procedures recommended by the MTP.
AVAILABLE SOURCES	**Gravel Road Evaluation and Rating** - *Wisconsin Transportation Information Center, PASER Manual for Gravel Roads (2015)* - *SDDOT Rural Road Condition Survey Guide (1995)* **Flexible Pavement Road Evaluation Rating** - Wisconsin Transportation Information Center, PASER Manual for Asphalt Roads (2013) - *SDDOT Rural Road Condition Survey Guide (1995)*

3.2.3 Intersections and Corridors

Intersection of US Hwy 18 and 317th Ave

This highway intersection was identified with two crashes recorded in the previous five years. Since the intersection is located adjacent to the City of Winner, existing traffic patterns are expected to remain consistent or increase at the intersection with this major arterial, Field photos and desktop review highlight a significantly skewed approach angle which has been present for more than 30-years for vehicles turning onto the undivided, 4-lane US 18 which has a posted speed limit of 65 miles per hour. The inside travel lanes of the highway also serve left turning vehicles onto 317th Ave while outside travel lanes serve to provide acceleration for vehicles turning onto the highway. This intersection supports traffic entering and leaving the City of Winner, trucks accessing the local grain elevator, and visitors to the Tripp County Historical Museum. The skew angle for vehicles stopped on 317th Avenue is much less than the minimum design recommendation of 75 degrees and provides a restricted sight triangle for some north and southbound right turn movements. Sun glare may also compound the perception of approach vehicle speeds. Property adjacent to the intersection currently limits options to modify the approach alignment of 317th Ave.

Skewed intersections cross US 18 and SD 44 on 317th Ave east of Winner. Source: Google Streetview

Any future land use changes or redevelopment of the property in the southwest quadrant of the intersection should be coordinated with City, County, and State jurisdictions to gain the easements necessary for realignment of the north and south legs of the intersection. Realignment would provide an opportunity to meet state design standards for the angle of intersection approach and improve safety while impacts to private property should be minimized. The existing traffic control and lane striping for southbound vehicles currently includes one stop sign that is set back from the intersection and a right turn yield sign. A raised median triangle can be constructed to separate the two driving lanes and the existing stop sign can be moved closer to the intersection for thru and left-turning vehicles. Additionally, a southbound traffic control advance warning sign of the stop and yield controls

ahead can be added north of the intersection. Additional study by SDDOT is recommended for the urban approach to Winner to evaluate if a road diet could improve safety and maintain existing access for forecast traffic volumes from the northbound approach to 318th through 7th Street.

Corridor of North County Road – from Winner to 266th St near Ideal

This 15-mile long corridor was identified because of the age and current condition of the roadway pavement, as well as safety concerns. Crashes involving wildlife were most common of the 26 records during the last five years. Two crashes included severe injuries. Degraded surface material results in drivers needing to divert around crumbling pavements and potholes. County estimates indicate approximately $100,000 is spent to provide patch repairs with limited benefit. Emergency response vehicles are unable to drive the posted speed with patients which delays response time to reach critical care. North County Road received the most comments from the public about the need to reconstruct the existing roadway. The roadway is rated in Poor condition and the existing road surface cannot be milled and repaved on top of the substandard base course. The narrow cross section and poor surface condition increase difficulty of passing vehicles and agricultural equipment.

Surface and subsurface of North County Highway are rated as Poor condition. Source: Brosz Engineering

Preliminary engineering has been completed for the reconstruction of the roadway, but funding for reconstruction has not been secured. A preliminary design cost of $23.9 million was prepared prior to the development of this study. The design plan included reconstruction of the roadway to provide two 12-foot-wide drive lanes and 4-foot-wide shoulders along with more than 3,000 linear feet of improved drainages. Review of preliminary engineering plans, the projected benefit cost ratio of 1.06, and public input for this study led to a recommendation to increase the width of the paved shoulders to 8-feet-wide and provide additional safety enhancement along horizontal curves between Winner and Ideal, SD. These revisions to the design would improve safety for all modes of transportation. A revised project estimate of $29.6 million resulted in a benefit cost ratio of 1.29 which is used to evaluate the project for future grant applications.

Public input is strongly opposed to converting the existing roadway from asphalt to gravel. A mile of aging asphalt roadway may be converted to gravel for cost estimates of $35-40,000. Although the conversion of this roadway could be completed with project cost, it may also result in negative impacts to the agriculture and tourism economic drivers of the county. Local funds should be used to match state and/or federal aid to reconstruct the asphalt roadway.

3.3 KEY ISSUES AND NEEDS SUMMARY

The baseline conditions analysis, special study topics, discussions with the SAT, and feedback from the public are summarized as the key issues and needs. This list forms the basis for the plan strategies and recommendations, including new standards, guidelines, and future project implementation.

Functional Classifications and Low Volume Rural Road Subclassifications

Functional classifications assigned to County and Township roads are outdated. County and township jurisdictions have not used functional classification as a basis for maintaining consistent design and maintenance of the primary county highway network. The lack of consistent maintenance of roads according to the existing functional design limits the reliability of mobility of corridors that serve countywide importance. This study developed recommendations for functional classification changes that can best support the County's transportation demands, maximizing the miles of existing roads that provide an existing cross section that is common for low volume Major and Minor Collectors, as well as complying with State guidelines for the relative proportion of each functional classification type. Increasing all Collectors from 23.6% to 25.0% and the percentage of collectors relative to Local classification roads from 33.4% to 36.1%. The subclassification of low-volume rural roads is also needed to support design and maintenance priorities of Local classification and to support the Major Roads Plan for Trip County.

Jurisdictional Assignments

The jurisdictions assigned to some County and Township roads are inconsistent with current maintenance and the recommendation for changing functional classification of some roadways. Substantial effort has been made with this study to balance the total number of miles that should be swapped between the County and township jurisdictions. Approximately 70.7 miles of roadway segments may be swapped with the net result reducing 0.6 miles of unpaved roads assigned to the County and 1.1 miles of paved roads adjacent to the City of Winner. All jurisdictional swaps must follow the State Policy and Procedures to modify the assigned jurisdictions before it is recognized by the State. The County can apply consistent design and maintenance standards to county jurisdiction roads and apply countywide policy to the design and maintenance standards for minor collectors that are assigned to a township jurisdiction.

Infrastructure Funding and Limitations

The Tripp County budget expenses and available funding sources are reviewed each year to support road and bridge maintenance, repair, and construction. The County expended $3.3 million in 2023 which was almost 43% more than expended in 2016. Staffing, materials, and equipment represent the largest portion of the annual expenses. Based on input provided by County Highway Department and Commissioner, this study presumed an average of 55 miles are maintained annually. The 2023 budget expended for Gravel Hauling/Dirtwork, Custom Hauling, and mining Royalties equaled $1.54 million or approximately $28,000 per unpaved mile maintained. The expense of materials required to maintain

roads can be used to develop program estimates related to maintenance alternatives. County transportation funds are supplemented by state and federal programs which allow the County to match local funds with external support for programmed maintenance and high-priority projects, but funding is not sufficient to address all transportation infrastructure needs. Property value and associated taxes generated are applied to meet the statutory requirement to maintain the countywide highway network even though individual township levies are not set equivalent to the miles and number of drainage structures on that county network.

Flexible Paved Roadway Conditions

Tripp County Highway Department maintains approximately 43 miles of bituminous paved county highways. Records of pavement conditions have not been available to organize the priority of maintenance and reconstruction projects. To provide a baseline for this study, a desktop screening was completed using the SDDOT Rural Road Condition Survey Guide from 1995. This process does not measure individual types of pavement distress in detail, but it provides an overview of general roadway conditions using a rating of 0-100. The screening showed that the flexible paved county highways have an average rating of 50, which falls into the "Fair" category. The 14.6 miles of roadway categorized as Poor condition would require complete reconstruction and are no longer viable for preventative maintenance solutions. Information on roadway quality comes mainly from residents and local stakeholders. Public feedback confirmed that surface conditions vary across the county and that driving conditions and safety is in the worst condition along North County Highway.

Unpaved Roadway Conditions and Maintenance Standards

Tripp County has a large network of unpaved gravel roads with significant variations in surface and subgrade conditions. Public input for this study noted that these conditions affect daily travel, farm work, and moving goods, and that road usability can change quickly with the weather. Roads in the northern part often have weak soils and wet subgrades, making them tricky to drive on after rain or snow, while southern roads usually hold up better with stronger foundations and drainage, but generate excessive dust. Tripp County does not keep up to date records of unpaved road widths or inventory all surface conditions, so most information related to concerns or priorities comes from residents and local stakeholders. This input is used by the County Commissioners and the Highway Department to prioritize roads for maintenance annually.

Work required to maintain the driving surface and to rebuild the cross section of the road requires different amounts of time, equipment and materials. This study identified opportunities to reclassify unpaved county roads to minimize the expense of widening existing Collectors that do not meet a desired minimum roadway width. Unpaved roads currently classified as Major and Minor Collectors that are 20-feet wide or more represent 211.7 miles of the existing network. Recommended changes to functional classifications would increase this amount to 266.4 miles with Major Collectors representing 96.6 more miles that would meet a minimum roadway width standard once classifications are updated.

The County maintains these roads using gravel from five county-owned pits and two private sources, moving between 25,000 and 75,000 tons each year depending on weather and road needs. There is not a formal condition rating system for all roads, but factors like road crown, drainage, gravel thickness, and surface wear are often noted when checking conditions. Residents also mentioned dust from gravel roads, especially on routes with heavy truck traffic, which can affect visibility and comfort. Overall, these observations give a snapshot of unpaved road conditions in Tripp County and show how natural conditions, road design, and routine maintenance shape travel for residents, local farms, and businesses.

Roadway Safety

Safety is a key consideration in transportation planning for Tripp County. North County Highway, which is approaching 50 years in service, has substandard subgrade and narrow or deteriorating shoulders that affect personal vehicles, semi trucks, and farm machinery. Public comments and feedback from emergency responders indicate elevated safety concerns along this corridor. Records of crashes that occurred between 2018 and 2022 document information or 641 locations, types, severity, and contributing factors. During this period, crashes decreased from 154 in 2018 to 109 in 2022, a 29.2% reduction. Nine crashes involved serious outcomes, including one fatality and 19 severe injuries. Wildlife collisions were the most common type of crash, and angle-type crashes at intersections accounted for 62 incidents, primarily along State Highways.

Four intersections were identified as higher-risk locations based on crash frequency: US Highway 18 at US Highway 183 / SD Highway 49 near Colome, US Highway 18 at Main Street in Winner, US Highway 18 at Washington Street in Winner, and SD Highway 44 at SD Highway 49 east of Winner, which included the fatality. Coordination with SDDOT is relevant for improvements at these intersections. This information captures the patterns, types, and locations of crashes in Tripp County over the five-year period, providing a clear view of areas where safety issues are more pronounced and where traffic-related incidents have occurred most frequently.

Bridges and Culverts

Tripp County maintains 91 bridges, including large and small structures distributed throughout the County. Although the majority of bridges are rated Fair or Good, 25 structures are classified as Poor, indicating structural deficiencies, limited remaining service life, and potentially high costs for repair or replacement. To address these challenges, the County evaluates aging structures and applies for competitive funding programs such as the Local Federal (LF) Bridge Program and the Bridge Improvement Grant (BIG). Between 2016 and 2025, Tripp County secured 17 BIG awards to support design, restoration, or replacement of high-priority bridges, with local cost matches often significant; for example, the 318th Avenue crossing of the Keyapaha River required over $345,000 in local funding. Given limited budgets and resources, strategic prioritization is essential to maximize the impact of available funds, extend the service life of critical infrastructure, and maintain a safe, reliable, and sustainable transportation network for residents and businesses across the County.

Chapter 4. Transportation Strategies

This section describes strategies and references for planning of the Tripp County road network. All planning strategies are rooted in the work of this study to make substantial changes to Federal functional classifications and jurisdiction transfers. Existing Tripp County roadways have Federal classifications based on the Highway Functional Classification system from the FHWA that are expected to be modified for many road segments. The modifications identified on **Figure 12** have been submitted for consideration to SDDOT. The SDDOT Division of Planning & Engineering Project Development maintains the assignment of functional classification for all roads in South Dakota. As part of this study, it is recommended that review recommended corridors classification changes and confirm changes with Tripp County in 2026. These functional classification changes are implied with the recommendations of the Major Roads Plan. Transportation Strategies described in this Chapter should occur even if the Federal functional classification of a road segment is not changed following the review by SDDOT.

Transportation design and development standards are contained in Tripp County ordinances and policies. Roadway design is also governed by SDDOT standards and AASHTO. In particular, Tripp County relies on the SDDOT Local Roads Plan (2011) as the standard for design of Tripp County roadways.

Tripp County does not have a comprehensive plan to align land use policies with transportation demands. Ordinances are adopted by the County Commissioners. A land use plan for Tripp County would serve as a supporting document for submittal requirements, reviews, and the implementation of standards, guidance, and best practices on County and Township jurisdiction roads.

Major Roads Plan (4.1)

The Major Roads Plan section organizes the County's classification method which is necessary to support future design, preservation, and maintenance standards that require consistent planning and budgeting. Definitions of Major Road Plan Classifications closely align with Federal functional classification assignments recommended by the MTP. The Major Roads Plan reflects the priorities of the County and will guide the major investments in construction and maintenance needed to modernize the rural transportation network.

Roadway, Traffic Safety, and Access Management (4.2)

Design considerations and standards are documented in this section to address the safety and efficiency of roadways relative to existing and propose traffic operations. Standards applied to intersection controls, turn lanes, and level of service (LOS) analysis of intersections and roadways will meet state and federal standards. These standards also include access location criteria that are necessary to support the objectives of Major Roads Plan. Opportunities for rural infrastructure to support bicycles

and pedestrians safely are limited but may expand the mobility options for underserved communities when paved roadways are reconstructed.

JURISDICTIONAL TRANSFERS (4.3)

The process of completing Jurisdictional Transfers is addressed in this section with the purpose and considerations for Tripp County, townships, and cities. A legal agreement template (Memorandum of Understanding) is provided to support this requirement. The MTP recommends jurisdictional swap for roadway segments evaluated for this study. This process may occur as one coordinated effort between all Townships or individually depending on the needs of each Township. Future jurisdiction transfers are also anticipated, but all transfers must follow the State policy and procedures before the transfer is valid.

SURFACE TYPE CHANGES AND MINIMUM MAINTENANCE DESIGNATIONS (4.4)

Presents guidelines and considerations for when to change a Tripp County highway maintenance designation to minimum maintenance, no maintenance, or abandonment (road closure or road vacation). Presents standards for when Tripp County highways should have surface type conversions.

ROADWAY LEVEL OF MAINTENANCE SERVICE (LOMS), ROTATION, AND SPRING LOAD RESTRICTIONS (4.5)

Presents minimum level of maintenance service (LOMS) for paved and unpaved maintenance of Major Roads Plan routes. The LOMS are organized to support recommendations for establishing a countywide maintenance rotation. Cost estimating for budgeting procedures is organized by number of roadway miles and material costs which will guide County officials to assign remaining budget line items not included with these guidelines.

4.1 TRIPP COUNTY MAJOR ROADS PLAN

A Major Roads Plan provides Tripp County with local context for design and maintenance standards recommended by the MTP. The FHWA functional classification system is useful for describing mobility and access, but it does not organize local influence of decision about surface type, design vehicle, order of maintenance priority, or other considerations identified by this study. The Major Roads Plan is provided to aid the future designs and project planning.

The Tripp County Major Roads Plan reflects major changes proposed to functional classifications. Classification changes should be made to align design and maintenance standards with the priorities of the County. The proposed jurisdictional swaps of roadway segments are also recognized within the Major Road Plan. Where the County is not the current or future jurisdiction of record, the Major Road Plan can guide interim decisions made by township and City jurisdictions to support the recommended transportation network design and maintenance standards.

To aid in the development of the Major Roads Plan, the following priorities were established:

1. Increase awareness and support for countywide maintenance by updating functional classifications and aligning route types with consistent maintenance standards.
    - Maintain and improve regional connectivity and route continuity of similar facilities.
    - Assign prioritization of parallel or duplicate routes.
2. Reconstruct existing paved roads in Poor condition that link paved Minor Arterials and Major Collectors.
3. Maximize the benefits and safety of the existing state highway network for intra-and inter-county trips.
4. Support low-volume rural route purposes and other transportation needs, such as:
    - Truck routes, posted load limits, and farm-to-market connectivity.
    - Mobility and land access relationships in recreational rural areas.
    - Connectivity of employment centers, schools, and other traffic generators.
5. Provide appropriate roadway surfacing and load restrictions based on traffic demand.
6. Provide appropriate roadway jurisdiction based on traffic and maintenance demand.
7. Provide ‘all-season’ access between each municipality and a State highway.
8. Minimize out of direction travel to access grain and livestock markets, agricultural and tourism businesses.
9. Improve the rural transportation network to attract new and diverse economic opportunities.

4.1.1 Major Road Plan Classifications

The backbone of the regional transportation network will continue to be the US/State highway network, providing the highest levels of vehicle, freight, and multi-modal mobility in the County. The State roads in Tripp County (US 183, US 18, SD 44, SD 49, SD 53) serve as the primary routes with the most mobility for thru traffic. At the other end of the spectrum, Urban roads provide incorporated jurisdictions with local access and connections to higher-functioning roadways. The remaining Tripp County and township jurisdiction routes balance the relationship of mobility and access with land use characteristics and transportation demands. The Major Road Plan priorities and objectives establish three route types (**Figure 16**) to manage as follows:

- **Rural Major Access Route**
- **Rural Minor Access Route**
- **Local Access**

The Major Roads Plan can be supported by the consistent application of the typical cross section standards shown in

Figure 17**.** Typical cross section standards for Tripp County are based on the Major Roads Plan classification system. No cross sections are included for US/State Highways or Urban Roads. The most recent edition of design standards should always be sourced when designing roads as the SDDOT Local Roads Plan, Road Design Manual, design recommendations and standards from older editions of AASHTO (2004, 2011, 2017) - A Policy on Geometric Design Highway and Streets may be updated. When constructing new roads or reconstructing existing roads, modern design standards and those recommended below as part of the Major Roads Plan will commonly require right-of-way of 100 feet or more, but not less than required to accommodate all elements of the designed cross section (driving lane, shoulders, slough, inslopes, ditch, backslopes, and utilities).

Figure 16. Tripp County Major Roads Plan Classifications

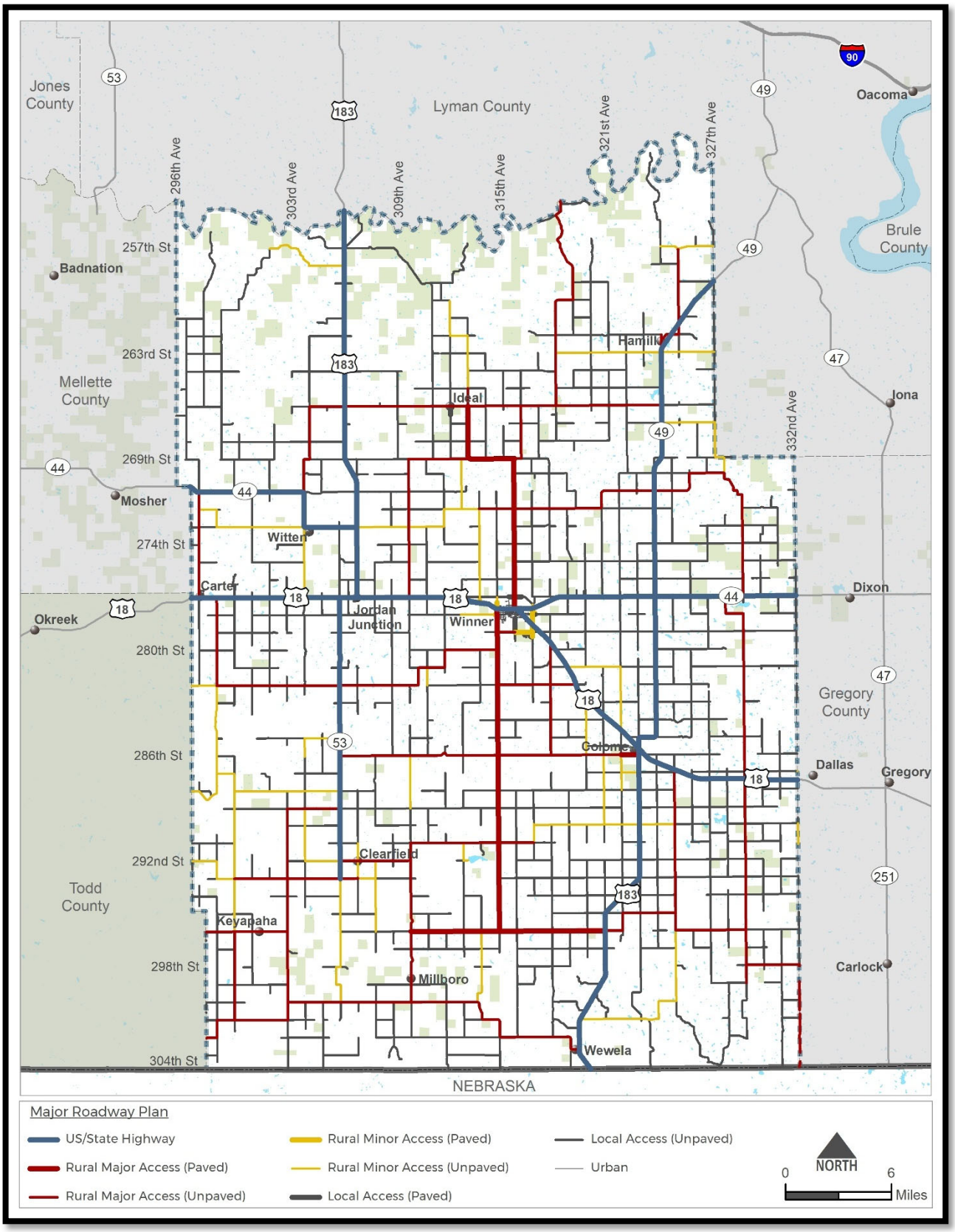
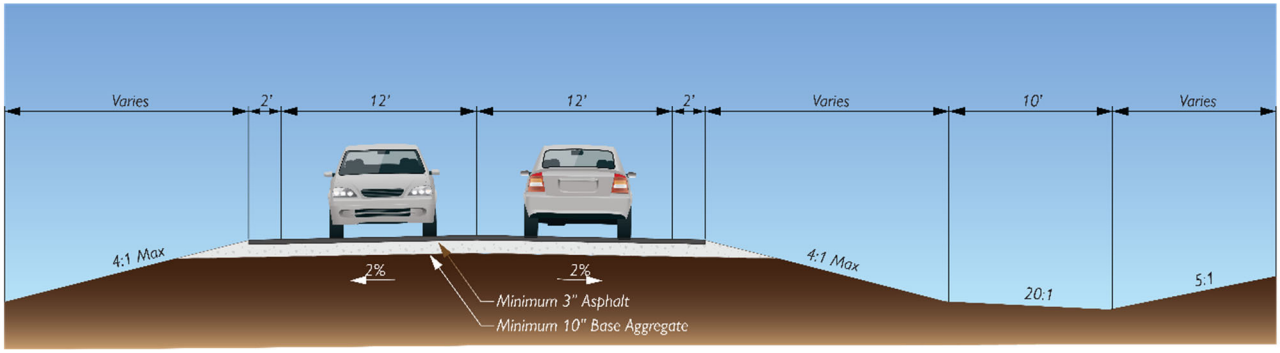
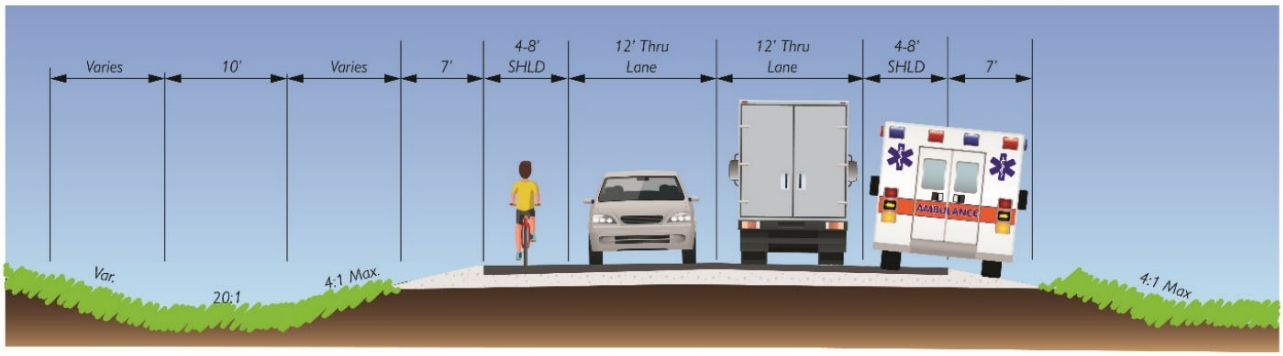


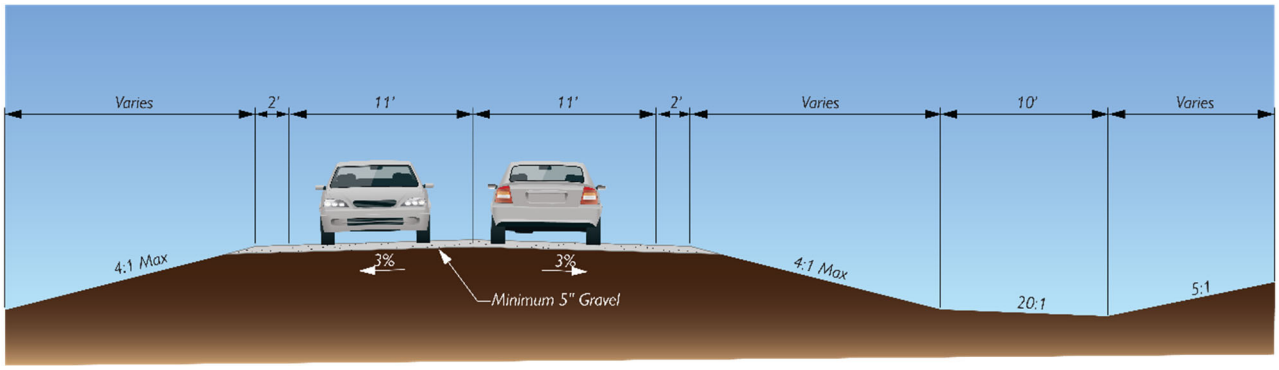
Figure 17. Major Roads Plan Typical Cross Sections



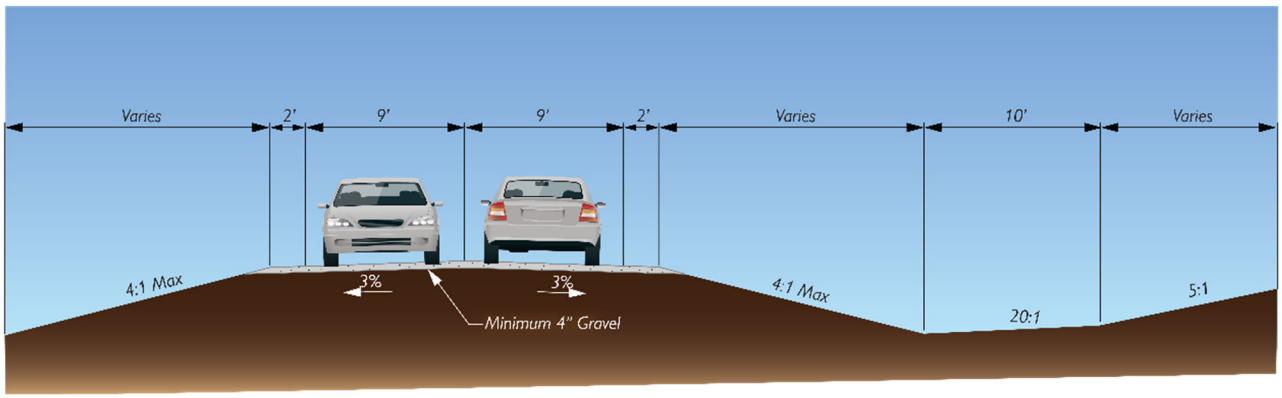
Base Typical Cross Section - Paved



Multimodal Cross Section - Paved



Base Typical Cross Section – Unpaved



Local Typical Cross Section – Unpaved

Rural Major Access Route

Tripp County Rural Major Access Routes support regional connectivity between and to the US/State Highway network, uphold rural economic capacity building, carry greater traffic volumes than other County roads, and should convey the heaviest vehicles. They also serve as emergency routes to reach small towns and unincorporated areas beyond Winner. Rural Major Access routes may be paved or gravel roads that serve as the farm/ranch to market routes for local farmers, ranchers, and feedlot production as well as rural residents driving to work and school. Where a paved route provides mobility benefits for underserved communities, it may be justified to pursue funding necessary to accommodate multimodal design alternatives.

Base Typical Cross Section - Paved

Paved Rural Major Access routes typically carry more than 300 vehicles per day and high percentages of heavy trucks. In Tripp County, these roads are typically high-speed facilities but become unreliable as pavement conditions decline. Paved Rural Major Access routes that have fallen below condition rating of Poor should be reconstructed and all efforts should be applied to preventive maintenance for segments that have not reached that rating level. Portions of 315th Ave and 316th Ave inside the city limits of Winner are recorded as Rural Major Access to connect the County routes with US 183, but design and management of these segments are assigned to the City.

Twelve-foot-wide driving lanes are recommended for Rural Major Access paved roads as shown for the base typical cross section. However, driving lanes may be reduced to 11-foot-wide with minimal reduction to traffic volume capacity. Paved shoulders for new construction should extend at least 2-feet from the driving lane and rumble strips will decrease the likelihood of vehicles running off the roadway. For paved roadways with no rumble strips, no curb, and no vertical obstructions immediately adjacent to the urban roadway, the design of 4-foot-wide paved shoulders on both sides of the road is considered the minimum width to accommodate multi-modal traffic, and 5-foot wide if in the presence of guardrail, curb, or other roadside barriers.

Multimodal Cross Section - Paved

Multimodal transportation accommodations are recommended for North County Road between Winner and Ideal if funding can be secured with State or Federal discretionary funding sources. The recommended shoulder width of 2-feet is replaced for this corridor by 8-feet and may include all paved or partial unpaved shoulders while 4:1 inslopes consistent with the base typical cross section are maintained. This design also affects the hydraulic design of structures and culverts as well as the driving surface.

Base Typical Cross Section - Unpaved

The County can increase the consistency of gravel roadway design and maintenance if the Major Roads Plan closely follows the assigned functional classifications. As such, the MTP includes all roadway segments assigned the functional classification of Major Collector (Unpaved County) as Rural Major

Collectors. These gravel roads support similar levels of mobility as paved Rural Major Collectors, but they may not have the same regional connectivity or traffic volumes. The base typical cross section for these gravel roads includes 22-feet of driving width and a 2-foot-wide gravel shoulder on both sides. However, driving lanes may be reduced to 20-foot-wide with minimal reduction to traffic volume capacity. The width values documented by SDDOT reflect the driving lane width that Tripp County should aspire to maintain.

This study estimates that 76.7 miles of routes classified as Rural Major Access do not currently meet the minimum 10-foot driving lane surface width of this standard. The MTP recommends that narrow cross sections be widened before unpaved Rural Minor Access routes are programmed to be improved to the base typical cross section. Rural Major Access routes should be assigned the highest level of maintenance service.

Rural Minor Access Route

Tripp County Rural Minor Access routes support connectivity to the regional network of higher function roads. Although traffic volumes may not reach 100 vehicles per day, Rural Minor Access routes serve similar rural purposes to uphold rural economic capacity building, link farm/ranch vehicles with the routes to reach market and may also convey the heaviest vehicles. Most miles of Rural Minor Access routes are gravel roads while limited paved roads support traffic in and out of the City of Winner.

Base Typical Cross Section - Paved

Paved Rural Minor Access routes support traffic into and around the City of Winner. Each segment supports access to major economic centers of activity as well as underserved communities that are important to the County. Because of their importance, these paved segments are recommended to change federal functional classification from local to Minor Collector. An estimate of the pavement condition rating has been organized in

Table 27 in **Section 4.3**. Interjurisdictional coordination between Tripp County, Lamro Township, and Winner is necessary to support the maintenance and operation needs for the following segments:

- 279th St (1.0 mile) from 316th Ave to 317th Ave
- 278th St (0.1 mile) from US 18/183 to Leahy St
- 317th Ave (1.6 mile) from Iron Star Rd, crossing US 18/183 to SD 44
- NW County Rd (0.27 mile) 315th Ave from US 18/183 to Dakota St
- 314th St (0.11 mile) north of US 18/183

The base typical cross section should apply to any future improvements to these paved Rural Minor Access route sections. Any modification from the minimum cross section should only be considered in reference to zoning and land use planning conducted by the City of Winner, Lamro Township, and Tripp County. Traffic volumes and heavy trucks should influence design of future improvements on 317th Ave between US 18/183 and SD 44 which is expected to continue serving the commercial/industrial needs of the local and regional economy.

Base Typical Cross Section - Unpaved

Most Rural Minor Access routes are unpaved and include all roadway segments assigned the functional classification of Minor Collector (Unpaved County) and Minor Collector (Township). The Tripp County transportation network represents a disconnected grid that places greater demand on fewer segments to reach higher function roadways. County officials work with State officials to split the proportion of Major and Minor Collectors to meet the State guidelines, but their importance to the County is not as easily distinguished. Traffic volumes for unpaved Rural Minor Access routes are generally below 100 vehicles per day, but the perceived function of routes also support local access and heavy agriculture/livestock truck mobility. They are as important to rural quality of life and local economy as Rural Major Access routes. Adjacent land-owners depend on the access and connectivity they provide to reach the regional transportation network. Farm and feedlot operations are also common users of these routes who depend on consistent, on-going maintenance standards.

The base typical cross section for unpaved roads should also be applied to these routes. This study estimates that 81.5 miles of routes classified as Rural Minor Access do not currently meet a minimum 10-foot driving surface width of this standard. The MTP does not recommend narrow cross sections to be widened until the unpaved Rural Major Access routes have been improved to a base typical cross section. Rural Major Access routes should be assigned the highest level of maintenance service.

Local Access

Tripp County Local Access routes support access with limited mobility. Local Access routes are used to convey vehicles to higher function routes. Individual properties depend on access to these roads and small agricultural and livestock equipment may be associated with some parcels but are not recommended as thru routes for these types of vehicles. Most miles of Local Access routes are gravel or unimproved roads while limited paved roads support traffic around the City of Winner.

Base Typical Cross Section - Paved

Paved Local Access routes support traffic into and around the City of Winner, but their Countywide purpose is currently limited as paved roads. Interjurisdictional coordination between Tripp County, Lamro Township, and Winner is necessary to support the maintenance and operation needs for the following segments:

- 278th St (0.16 mile) east of US 18/183
- 277th St (0.71 mile) portion of old SD 44, east and west of 316th Ave
- County Club Rd (0.78 mile) north of 279th St

Pavement cross section design decision for these segments should be determined by Lamro Township and City of Winner. Maintaining pavement in good condition between 316th Ave and the Winner Regional Airport should be prioritized.

Local Typical Cross Section - Unpaved

Most Local Access routes are unpaved and include all roadway segments assigned the functional classification of Local (County) and Local (Township). The number of miles recommended by this study for Local classification meets the State guidelines. Traffic volumes for unpaved Local Access routes are generally below 50 vehicles per day. They are as important to rural quality of life, but the jurisdiction assigned to each segment creates various quality of maintenance and operation. The existing driving surface width, subgrade, and surface materials also vary considerably. The local typical cross section for these unpaved roads is recommended to provide 18-feet of driving width and minimal shoulders (0- to 2-foot), should include recoverable 4:1 inslopes. Local Access routes often have limited right-of-way and major improvements are rare, so the designs may default to bare minimum lane width, shoulder width, and clear zone accommodating flow line ditch and drainage design.

4.1.2 Bridge Width Standards

According to AASHTO A Policy on Geometric Design of Highways (2018), "the clear width on bridges should preferably be as wide as the approach roadway in order to give drivers a sense of openness and continuity." Poles, walkways, bridge columns, bridge railing, and parapets located close to the traveled way are potential obstructions and cause drivers to shy away from them. Additionally, they are more likely to be struck by vehicles.

When replacing or constructing a new bridge structure, the bridge width design (minimum clear roadway width for bridges) should include the following considerations for existing and future conditions.

- According to AASHTO the minimum clear roadway width for new and reconstructed bridges depends on the design daily traffic volume and functional classification
- Approach roadway width (traveled way plus shoulder width) – shoulders should be no less than 2 feet wide and a least as wide as the approaching roadway shoulder
- Presence of paved shoulders or shared-use paths on approaching roadway
- Traffic volumes, and if there is the potential for widening the approach roadway width in the future for additional travel lanes
- Width of farm equipment using the bridge
- Safety performance of existing bridge

Ranges shown in **Table 26** depend on the approaching roadway width of the future corridor, design daily traffic volume, and functional classification. Design widths greater than the minimum ranges shown below are acceptable.

Table 26. New Bridge Minimum Clear Roadway Widths

Major Road Classification	New and Reconstruction Bridge Minimum Clear Roadway Widths
Rural Major Access Route (Paved)	Approach roadway width (32-40 ft. minimum clear roadway width)
Rural Major Access Route (Unpaved)	Traveled way plus 2-4 feet each side (28-32 ft. minimum clear roadway width)
Rural Minor Access Route (Paved)	Traveled way plus 2-4 feet each side (28-32 ft. minimum clear roadway width)
Rural Minor Access Route (Unpaved)	Traveled way plus 2 feet each side (28 ft. minimum clear roadway width)

4.2 ROADWAY, TRAFFIC SAFETY, AND ACCESS MANAGEMENT

ROADWAY SAFETY IMPROVEMENTS

A programmatic approach will continually improve roadway surface and roadside features is a proactive measure in helping reduce severity of wildlife and run off the road type crashes. This involves a combination of upgrading roadway segments to meet current design standards, spot safety improvements, or safety improvements integrated into larger maintenance, preservation, and reconstruction projects.

Further guidance on safety strategies is available at the following:

- SDDOT Strategic Highway Safety Plan http://sddot.com
- FHWA Office of Safety http://safety.fhwa.dot.gov
    - FHWA Proven Safety Countermeasures http://safety.fhwa.dot.gov/provencountermeasures
    - FHWA Local and Rural Road Safety Program http://safety.fhwa.dot.gov/local_rural
- AASHTO Roadside Design Guide

A review of crash history throughout Tripp County between 2018 and 2022 indicated that nearly 60 percent of the 641 reported crashes involved wildlife crashes. The 28 Fatal and incapacitating injury crashes represent almost 5 percent of all reported crashes. The other 95 percent involved minor injury or property damage only type crashes, which reflects the rural nature of the County and limited exposure of vehicle-vehicle conflicts. The combination of low volume traffic on most rural roads and the limited number of fatal and severe type crashes making trends less reliable than larger data sets provide. Vehicle-animal crashes and roadway departure crashes tended to be higher along the paved county and state highways.

The current South Dakota Strategic Highway Safety Plan provides a comprehensive, statewide approach to addressing roadway and roadside safety. The plan utilizes a data-driven, multi-year framework to reduce fatal and serious injury crashes. Seven safety emphasis areas were identified, regarding respective issues, goals, actions, and priority safety strategies:

- Roadway Departure
- Intersections
- Motorcycles
- Unbelted Vehicle Occupants
- Speeding-Related
- Drug- and Alcohol-Related
- Young Drivers

Transportation planning and design efforts will incorporate best practices new and reconstruction projects to reduce fatal and serious injury crash rates. Tripp County will partner with the SDDOT and South Dakota Department of Public Safety to integrate safety improvement efforts with the process, guidelines, and strategies identified in the latest version of the South Dakota Strategic Highway Safety Plan. In collaboration with other local agencies, these partnerships will assist in providing a comprehensive approach to preventing and reducing the severity of crashes on all roadways throughout Tripp County.

Traffic Control Warrants

The Manual on Uniform Traffic Control Devices (MUTCD) contains the basic principles that govern design and use of traffic control devices for public streets and highways. The MUTCD should be used to evaluate the design and proper traffic control device for each intersection and roadway, using the following guidelines (see MUTCD 2023 Edition for additional guidance). It is not feasible for traffic counts to be collected for most Tripp County roadways and traffic control warrants are unlikely to be justified for most locations without major development.

As a policy, when industrial or commercial developments are proposed, Tripp County should require an engineering study should be conducted to identify appropriate traffic control measures. The study incorporates factors to consider in the establishment of intersection control and includes:

- Vehicular traffic volumes on all approaches
- Design vehicle type and anticipated percentage of heavy trucks
- Number and angle of approaches
- Approach speeds
- Sight distance available on each approach
- Reported crash experience

Conditions have been established in the MUTCD to provide guidance on the use or consideration of YIELD and STOP signs and these have been applied by Tripp County. These conditions are specific to application and are based on the aforementioned factors when evaluating the establishment of intersection control.

In locations where dynamic means of traffic control are requested by County officials, township representatives, or local land owners, the following traffic signal warrants are applied to available data to determine if a traffic signal is recommended. The SDDOT applies these warrants to Major Roads Plan – Highway Routes.

Warrant 1: Eight-Hour Vehicular Volume

Warrant 2: Four-Hour Vehicular Volume

Warrant 3: Peak Hour

Warrant 4: Pedestrian volume

Warrant 5: School Crossing

Warrant 6: Coordinated Signal System

Warrant 7: Crash Experience

Warrant 8: Roadway Network

Warrant 9: Intersection Near a Grade Crossing

It should be noted that the MUTCD states, "The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal". Further information on the traffic control signal needs studies, the standard, guidance, and options is provided in the latest edition of the MUTCD.

Turn Lane Warrants

No signalized intersections were evaluated for this study. Along highway segments with high traffic volumes or a relatively high volume of large turning vehicles, turn lanes at unsignalized intersections can improve intersection operations and safety. The primary benefit of the turn lane is removing turning traffic from the through travel lane and reducing the risk of rear-end crashes. Removing turning traffic from the through lane also improves intersection operations by reducing the amount of delay a vehicle would experience if a turning vehicle slowing or waiting for a gap in traffic blocked the through lane.

The SDDOT Road Design Manual details considerations for the installation of a left- and right-turn lane at unsignalized intersections. These considerations are applicable at all types of roadway or driveway intersections and can support access management policies and County ordinances. The design shall safely accommodate the necessary process of the turning movement and not create new safety issues. The process for application and assessment of turn-lane warrant criteria is outlined in detail within Chapter 15, Traffic, of the SDDOT Road Design Manual. At unsignalized intersections, the following items are recommended for consideration in the determination of whether a left-turn lane is warranted:

- Traffic volume
    - Left-turn volume (vehicles per hour)
    - Opposing and advancing volume (in design hour)
- Crash history
- Special cases, when applicable
    - Railroad crossings
    - Geometric/Safety concerns
    - Presence of non-traversable medians

For the evaluation of right-turn lane warrants, the following items are recommended for consideration:

- Traffic volume
    - Right-turn volume (vehicles per hour
    - Opposing and advancing volume (in design hour)

- Crash history
- Special cases, when applicable
    - Railroad crossings
    - Geometric/Safety concerns

Traffic Volume - Level of Service (LOS) Standards

Tripp County should apply minimum acceptable operational thresholds using the methodology consistent with SDDOT guidelines to analyze existing or planning-year traffic conditions. The Highway Capacity Manual describes quality of service for a highway facility or intersection as a measure called Leel of Service (LOS) which is expressed as a letter grade between A and F. The letter grade reflects a driver's perspective of the quality of service and communicates the results of complex technical analyses. The SDDOT Road Design Manual, Chapter 15 Traffic uses the functional classifications along with terrain (level and rolling) which directly correlate with the Major Roads Plan classifications.

The two most common operational measures applicable to Tripp County include the assessment of rural/urban fringe two-lane highways and intersections. The Highway Capacity Manual 6th Edition (HCM6) calculates the estimated time percentage spent following and average travel speed along an analysis-determined two-lane highway segment and relates it to LOS criteria. The HCM6 measures intersection operations in terms of control delay (average delay per vehicle) for signalized, two-way stop-controlled (TWSC), all-way stop-controlled (AWSC), and roundabout intersections. At signalized intersections, the LOS criteria are based on the overall average delay of the intersection. At stop-controlled and roundabout intersections, the operational threshold is based on the worst-case stop-controlled approach.

For traffic analysis and studies in Tripp County, the recommended minimum operating conditions for existing conditions or a future planning condition should be LOS C for Two-lane highway segments and intersections. The driver's perception at this rating reflects the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. The selection of speed is now affected by the presence of others, and maneuvering within the traffic stream requires substantial vigilance on the part of the user. The general level of comfort and convenience declines noticeably at this level.

Tripp County can accommodate bicycle and pedestrian use when cross sections are changed. North County Road is identified by this study as a corridor to provide rural connectivity between Ideal and Winner, SD. Multi-modal traffic analyses are also applicable to two-lane highway and intersection operational analyses. The latest version of the HCM provides guidance on how to assess bicycle and pedestrian LOS where applicable, helping an analyst or designer gauge multi-modal accommodations at a specific location. Bicycle and pedestrian LOS scores are developed based on traveler perception models developed for the HCM. The design engineer should use the latest LOS guidelines for the analysis and Tripp County can consult the latest guidance provided in the SDDOT Road Design Manual and HCM.

Traffic Impact Studies

A Traffic Impact Study (TIS) is a comprehensive analysis of before and after operational impacts to the surrounding roadway system due to additional traffic volume or shifts in travel patterns from new or modified land development. The State of South Dakota area engineer may require a TIS with any application for access to any property that will generate on hundred or more peak hour trips, but the preparation of a TIS will assist Tripp County in properly assessing local impacts from heavy industrial and commercial vehicles. The TIS may be useful for identifying roadway surface improvements or other mitigation measures needed to continue to provide safe and efficient mobility for all drivers. A TIS report should be completed with any request of Tripp County to exceed the minimum design standards by roadway classification type. A county comprehensive plan or ordinance is necessary to support the requirement to be applied to new development applications that may result in 100 or more new peak-hour vehicle trips or 2,000 or more total daily trips. Simplified Traffic Impact Study procedures for Tripp County should require documentation that validates any of the following purpose that may require a deviation from design standards.

- **Rural Industrial/Commercial Access Road**: Serves developments with heavy vehicle traffic, such as feedlots, typically short and not through-traffic roads.
- **Rural Agricultural Access Road**: Designed for farm equipment, these roads must be wide enough to accommodate large equipment safely, especially during busy seasons.
- **Rural Recreational/Scenic Road**: Serves parks, lakes, and recreational sites for public use like camping or fishing.
- **Rural Resource Recovery Road**: Supports operations like logging and mining, providing access to mining pits for road surface material.

Access Management

Access management is a process that studies and plans for safe and efficient turning movement onto an off public roads and highways. It entails the planning, design, and implementation of land use and transportation strategies to maintain a safe flow of traffic while accommodating the access needs of the adjacent development. Management of roadway access, in terms of cross-street spacing and driveway placement, is a critical means of preserving and enhancing a roadway's intended function and aids efficient operation. Additionally, providing access management in some form – such as minimum setbacks from intersections, frontage and backage roads, or right-in/right-out access – reduces the number of vehicle conflict points and improves safety along the corridor.

Current best practices and standards rely on studies that demonstrate a direct relationship exists between the number of access points and the rate of crashes that occur. A positive correlation exists between access density (access points per mile) and the frequency of crashes (crash rates). Access management supports roadway safety and can add supporting benefits to the corridor, such as:

- Reduce crashes
- Preserve road capacity and postpone the need for roadway widening or other capital improvements
- Improve travel times for the delivery of goods and services
- Ease movement between destinations
- Support local economic development

The MTP can provide the guidance to support Tripp County Ordinances. Access management guidelines also direct land use decisions to maintaining adequate separation between private driveways and the nearest adjacent roadway intersection. The minimum separation, or the 'minimum corner clearance'" defines the distance between the radius return point of the intersection and the first adjacent driveway. The minimum corner clearance concept accounts for a motorist's perception-reaction time of downstream conflicts, which is an integral component to stopping sight distance requirements in roadway design.

Minimum clearance between a cross-street and driveway also helps minimize private access breaks and conflict points within an intersection's functional area. The functional area of an intersection is representative of the area in which vehicle upstream and downstream maneuvers are influenced or impacted by activity within the intersection. This area includes intersection lane channelization and associated storage length and the taper/maneuver area for separate turn lanes. Overall, the functional area is considered much larger than the physical area of the intersection. Maintaining desired corner clearance is of particular importance in developing rural and urban fringe areas, where the County can establish desired access management as the area develops.

The SDDOT Road Design Manual provides recommended minimum upstream corner clearance guidelines. A maximum distance of 425 feet is recommended of design speed of 55 miles per hour. The corner clearance distance for 45 miles per hour, low volume rural road is 280 feet.

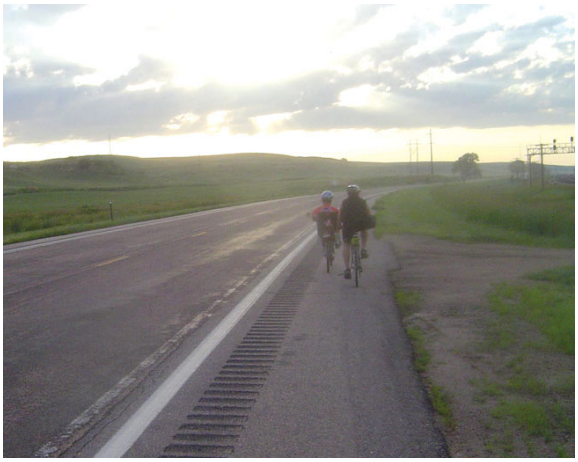
Tripp County may defer to local criteria on any highway facility located within or adjacent to the local jurisdiction if the access-location criteria is more stringent. The County Highway Superintendent or Professional Engineer in the State of South Dakota should review all access permit applications and submit recommendation to the Tripp County Commission. If the proposed access does not meet the minimum acceptable access-location criteria, variance from the access-location criteria may be granted based on the results of an engineering study or proof of unique or special conditions that make strict application of the provisions impractical. In such a case, proof must be provided that meet the following criteria;

1. Reasonably convenient access cannot otherwise be obtained,
2. No feasible engineering or construction solutions can be applied to mitigate the condition, and
3. No alternative access is available from a street other than the primary roadway.

With the recommendation submitted, the County Commission should accept, deny, or request revisions to protect public health, safety, and welfare. This may include altering the minim acceptable access-location criteria, defer to more stringent access location criteria if the County Highway facility is located within a local jurisdiction, and/or attach reasonable and prudent stipulations as a condition of application approval. Considerations include engineering studies of sight distance, corner clearance, safety, operational efficiency, adjacent land use, coordinated access planning, integrity of road system, applicable design standards, etc. For applicants aggrieved by a decision of the County on an access permit application, and appeals process to the Board of County Commissioners within a confined period of time is typical.

Multimodal Facility Design Guidelines

Bicycle and pedestrian modes of transportation were not a focus of the scope for this study. The input provided during the public input process and targeted input for North County Highway reconstruction from Ideal to Winner elevated the need for this plan to address multi-modal facility design guidelines for paved county highways. The plan does not document design guidelines for paved shared use paths. Along paved county highways, Tripp County may utilize guidelines when paved county roads are reconstructed where the facility would expand safe and reliable forms of transportation between two rural population areas. Three options to support bicycle and pedestrian transportation along paved county highways include wide paved shoulder, unpaved aggregate shoulder, unpaved turf shoulder.



The minimum width of paved county highway shoulders that do not support bicycle and pedestrian transportation are typically 2-feet wide. Where reconstruction can be completed within the existing right-of-way, the cross section may be widened to accommodate between 4- and 8-feet wide shoulders illustrated below. A 4-foot-wide paved shoulder would provide a dedicated space for bicycle and pedestrians that use the paved route. The route would still be considered to have a high level of traffic stress for the Vulnerable Road User due to the highway speed limit. An additional benefit that can result from the wider paved shoulder is space for wide implements and pull out space for emergency vehicles.

Small Town and Rural Design Guide: Paved Shoulder on Highway 2, Nebraska

Rumble strips/stripes between the edge of travel lane and shoulder should installed as follows:

- Shoulder width of 4 feet or less
    - 8-inch wide rumble stripes, placed on edge of travel lane
- Shoulder width of greater than 4 feet
    - 12-inch wide rumble strip, placed adjacent to edge of travel lane on shoulder

In all instances, bicycle route signs should be installed according to MUTCD standards and within 250 feet of all major intersections. Rumble strips/stripes on bicycle routes should consist of a 60-foot cycle pattern of 48-feet of rumble strip/stripe and a 12-foot gap. To support pedestrian use, shoulders should maintain less than a two percent cross-slope to meet accessibility requirements.

Widening a paved shoulder may be cost-effective when a roadway is reconstructed. Where cost of widening the paved shoulder cannot be achieved, two alternatives may be considered. The typical cross section can be constructed and the shoulder area grading can be shaped to include the wide bench between the edge of pavement and fore slope. This bench area can be stabilized with aggregated or vegetated surface. This treatment would not be suitable for bicycle routes, but pedestrian benefits could be achieved. Wide implements and emergency vehicles may also gain benefit if the unpaved shoulder is well maintained. Use of the unpaved shoulder during wet conditions would quickly undermine the integrity of the surface material.

Guidance and best practices in the design of shared-use paths and highway shoulder accommodation are provided in the latest versions of the following documents:

- A Policy on Geometric Design of Highways and Streets (AASHTO)
- Guide for Planning, Design, and Operation of Pedestrian Facilities (AASHTO)
- Guide for the Development of Bicycle Facilities (AASHTO)
- SDDOT Road Design Manual

4.3 JURISDICTIONAL TRANSFERS

The development of this MTP identified and recommended multiple changes to functional classifications and/or jurisdiction. Jurisdiction changes were recommended based on current maintenance being provided and route continuity where functional classification changes would be supported with County maintenance. All reasonable efforts were made to retain the current balance of total roadway miles assigned to County and township jurisdictions. Future conditions may justify jurisdictional transfer of public right-of-way. These may result from development projects, future capacity concerns, maintenance related funding restrictions, system continuity, very high or very low traffic volumes, special agreements, etc.

When the City of Winner grows beyond the corporate limits, jurisdiction swaps are anticipated for:

- **South County Road (315th Ave)**, South of W. 11th St in Winner
- **278th St,** West of South County Road (315th Ave) in Winner
- **315th Ave,** North of Dakota St in Winner
- **316th Ave,** North of Tripp Ave in Winner
- **286th St,** South of 286th St in Colome

It is recommended to begin conversations with other agencies as early in the process as possible when these conditions are presented to the County Commission. For all recommended jurisdictional transfers identified by this study and any future jurisdictional transfers that may be justified, the following steps should be followed.

1. Establish clear boundaries on the limits of the transfer. It is recommended that a professional licensed surveyor is used to create a figure that shows the precise area that will be part of the agreement. The proposed roadway segments must be reviewed by the Township Board and County Commission.

2. Once the area is agreed upon, public notice of the proposed jurisdictional transfer must be sent out to all adjacent landowners. One alternative to this method may be to publish the proposed jurisdictional transfer with public notice of the annual Township Board Meeting and indicate that public comments will be heard before the Township Board recommends approval or denial of the proposed transfer.

3. After all public comments are addressed, the Township Board will prepare a legal agreement between all entities. An agreement template is included with this MTP and should include, but may amend, the following items:
    a. Purpose of the jurisdictional transfer
    b. Public notice timeline, and state that all public comments of adjacent landowners have been sufficiently addressed

c. Clearly state that by signing this agreement, the entities agree to transfer ownership, maintenance, and other responsibilities associated with the land.
d. Either a County provided list of roadway segments and/or survey plans showing the area of jurisdictional transfer stamped by a Professional Land Surveyor

4. The final step is to take the final agreement to the governing bodies for final signatures. There should be a signature block in the agreement for the chairman of the Tripp County Board of Commissioners, the mayor (or other similar title) of the municipality, and, if pertinent, any relative entity from the South Dakota Department of Transportation. These signature blocks are flexible and should change based on the context of the jurisdictional transfer. See **Appendix J – Jurisdictional Transfer Template** for a legal agreement template, which is included as an option to guide the jurisdictional transfer process by a Memorandum of Understanding (MOU).

The recommended jurisdiction and functional classifications of seven (7), Local functional classification roads summarized in **Table 28** require interjurisdictional coordination between County, Township, and the City.

Table 27. Pavement Condition Rating of Existing Local Classification Roads

Road	ID	Future Jurisdiction	Functional Class	Future Functional Class	Miles	Condition Rating
279th St (316th Ave to 317th Ave)	1738	Township	Local	Minor Collector	0.55	55
	1955	Township	Local	Minor Collector	0.24	50
	1637	Township	Local	Minor Collector	0.21	50
317th Ave (Iron Star Rd to SD 44)	1451	Township	Local	Minor Collector	0.12	100
	752	Township	Local	Minor Collector	0.08	100
	1111	Township	Local	Minor Collector	0.05	100
	1888	Township	Local	Minor Collector	0.41	100
	1565	Township	Local	Minor Collector	0.28	100
	1370	Township	Local	Minor Collector	0.32	100
	889	County	Local	Minor Collector	0.16	60
	1338	County	Local	Minor Collector	0.19	55
NW County Rd (North of US 18/183)	586	City	Local	Minor Collector	0.07	55
	697	City	Local	Minor Collector	0.04	50
	658	City	Local	Minor Collector	0.07	50
	597	County	Local	Minor Collector	0.19	45
278th St (West of 315th Ave)	2633	Township	Local	Minor Collector	0.10	40
314th Ave (North of US 18/183)	1999	Township	Local	Minor Collector	0.11	50
Country Club Rd (North of 279th St)	2004	Township	Local	Local	0.78	50
278th St (East of US 18/183)	1813	Township	Local	Local	0.16	45
277th St (Winner Regional Airport to Main St)	1394	Township	Local	Local	0.33	40
	2049	Township	Local	Local	0.38	60

SOURCE: DESKTOP ASSESSEMENT. FHU (2025)

4.4 SURFACE TYPE CHANGE POLICY AND MINIMUM MAINTENANCE DESIGNATIONS

Surface Type Changes

County officials and public input that was shared for this study reinforced support for keeping paved roads paved and that existing paved roads need be brought up to current design standards. The County lacks the necessary funds to reconstruct paved county roads that have degraded beyond a Poor condition rating. While the Township form of government remains a stronghold of civic administration for Tripp County, it may also erode some business economy of scale that is needed for modern roadway maintenance. Tripp County also upholds the transportation needs for significant areas of tax exempt property, stretching limited dollars thinner. These combined financial factors will remain a barrier to improving unpaved surfaces. At this time, the County does not intend to convert any paved roads to gravel and will continue to seek funding needed modernize existing paved roads.

The MTP does not recommend any gravel roads be converted to pavement, but those requests may occur after this plan is accepted. Multiple factors may be considered when this question arises, though traffic volume and cost will largely determine a project's feasibility. The Gravel Roads Construction & Maintenance Guide produced in part by the South Dakota Local Technical Assistance Program (SDLTAP), has a 10-part framework to answer the question. Careful consideration of all 10 points will help assure decision-makers that the right decision is being made. County officials should begin consideration for paving a road when traffic volumes exceed 400 vehicles per day. It may be justified at lower traffic volumes if the public favors paving the road and the route serves a popular recreational site or a destination that is economically important to Tripp County.

At that point, the County should conduct an engineering study and preliminary design to evaluate feasibility and cost of paving the road, even if the traffic volumes are less than 400 vehicles per day. The engineering study should include, at a minimum, traffic and truck volumes, evaluation of purpose and need to determine if paving the road meets the goals of Tripp County, and a comparison of short and long term costs. If justified by the County, then the proposed project may seek to secure the funding needed to proceed to final design, funding, and construction.

Minimum Maintenance Designations

The MTP does not recommend any roadways under Tripp County jurisdiction change designation to minimum maintenance, no maintenance, or abandonment (road closure or road vacation). However, these are options for the County to consider when the road segment does support the transportation network and adjacent land use or it becomes a risk to public safety that is not feasible to resolve. Tripp County may pursue resolutions that change road maintenance designation. This ultimately decreases connectivity of the network but may be preferrable to excessive cost and safety

concerns. The primary considerations are daily traffic volume, detour length, road classification, acceptable alternative route, and overall cost benefits. Procedures for these resolutions must follow applicable state laws.

The Major Roads Plan recommends improving the cross section of routes that have significantly deficient widths. For Local Access Routes, the County may elect to assign and post a segment as minimum maintenance instead of completing the reconstruction project. If a jurisdiction swap is completed, a township may reconstruct and maintain the segment to the base typical cross section.

4.5 ROADWAY LEVEL OF MAINTENANCE SERVICE (LOMS), ROTATION, AND SPRING LOAD RESTRICTIONS

A roadway preservation Level of Maintenance Service (LOMS) can provide typical preservation and maintenance activities for asphaltic concrete, blotter, and gravel-surfaced roadways within Tripp County. These guidelines anticipate the typical life cycle of these roadways, including typical preservation and maintenance activities, frequency, and costs applied to the identified needs of the system over the next 20+ years.

The guidelines consider the long-range aspect of incorporating new construction, reconstruction, preservation, and maintenance of roadways to help maximize the long term investment of the Tripp County roadway network. The timeline of reconstruction, resurfacing, preservation and maintenance activities can be projected for each roadway segment, along with the respective frequency and estimated costs, throughout the anticipated design life of each asset. Where applied to Tripp County, a 5-year program budget and 20-year forecast can be prepared. The flexibility of planning level costs included with these guidelines should allow the County to update them as needed.

A 'design life' is associated with each type of investment for planning and design purposes, representing the time from original construction to a state where reconstruction or replacement is needed. The realized design life can vary widely between separate segments consisting of the same element based on location-specific conditions such as traffic and truck volumes, roadway base thickness, subgrade conditions, environmental factors, and quality of construction and materials. The following roadway planning-level design life guides various treatments related to preservation and maintenance activities:

- Bridges and concrete culverts – 75 years
- Asphalt pavement – 20 years
- Concrete pavement – 40 years (jointed)
- Gravel surfacing – 8 years
- Signs – 15 years
- Pavement markings – 1 year for paint; 3 years (sprayable durable, grooved) to 7 years (plastic, grooved) for others

Planning-level preservation and maintenance activities are outlined in **Table 29** for asphaltic concrete, blotter, and gravel-surfaced roadways. The activities follow industry guidance and align with the standard practice for Tripp County roadways. Activity frequencies are based upon industry guidance for recommended treatment under average conditions and may not perfectly align with Tripp County experience. Unit costs reflect typical prices for contractor-performed work near the county, with consideration to historical costs from the SDDOT statewide averages and other local input.

Table 28. Assumptions of Maintenance Costs and Frequency

Type	Activity	Frequency	Units	Low Estimated Cost
New Structural Surfacing	3" Asphaltic Concrete (AC) (structural resurfacing)	n/a	Mile	**$250,000**
	AC Base Improvements (Reclaim, add base, 3" AC)	n/a	Mile	**$350,000**
Surface Conversions	AC to Gravel Conversion	n/a	Mile	**$65,000**
	Gravel to AC Conversion (3" AC structural surfacing)	n/a	Mile	**$240,000**
Asphaltic Concrete Roadway Preservation and Maintenance	Chip Seal	6 Years	Mile	**$40,000**
	Chip Seal with Crack Seal	6 Years	Mile	**$43,000**
	Mill up to 2" and Overlay 2-4"	20 Years	Mile	**$180,000 - $300,000 + structures**
	Pavement Markings	Annual	Mile	**$9,000**
	Patching/ Pavement Maintenance	Annual	Mile	**$5,000**
Blotter Surfacing Preservation and Maintenance	Blotter Maintenance (chip seals)	6 Years	Mile	**$40,000**
	Blotter Re-application	18 Years	Mile	**$40,000**
Gravel Maintenance	Routine Blading and Spot Gravel with Annual Maintenance	Up to Monthly	Mile	**$1,000 - $3,000**
	Dust Control	Varies	Mile	**$18,000**
	Restoration Resurfacing – with 1.5" - 3" Surface Material	8 Years	Mile	**$20,000 - $25,000**
	Reconstruction w/ Spot or Major Subgrade Repairs	25 Years	Mile	**$35,000 – $45,000 + structures**
Miscellaneous Maintenance	Sign Maintenance	Annual	Mile	**$300**
	Sign Replacement	Annual	15-Year	**$30,000**
	General Maintenance	Annual	Mile	**$2,000**

PAVED MTP ROUTES LOMS

Preventive Pavement Maintenance projects demonstrate the value of "the right treatment, to the right pavement, at the right time." Tripp County's maintenance strategy should apply Preventive Maintenance of paved routes by applying chip seal maintenance projects. Chip seals are popular in South Dakota and have good return on investments by extending the service life of pavement without high costs. However, their effectiveness is greatly reduced as overall pavement conditions deteriorate because it does not replace or add strength to the pavement. Existing pavement that lacks sufficient basecourse depth and the surface had degraded to Good Condition (rating 56-70) would return less benefit for this investment. Most County paved roads have deteriorated below this point. A 6-year cycle of assessing and applying chip seal maintenance to improved pavements is recommended. Tripp County has not implemented microsurfacing for existing pavement, but the technique should be evaluated for paved routes following reconstruction. Microsurfacing corrects minor surface irregularities, provides skid resistance, restricts moisture intrusion, protects the structure from further oxidation and raveling, and restores a uniform black appearance.

Rehabilitation Pavement Maintenance projects range from nonstructural to structural enhancement when Preventive Maintenance is insufficient to restore the function of the route. A paved route may require Rehabilitation Maintenance within 20 years depending on numerous factors. A common rehabilitation strategy consists of applying asphalt overlay projects with either a leveling course or a milling operation. The depth of removal and thickness of the overlay needed is determined by engineering study. For planning purposes, Rehabilitation Maintenance is generally assumed to include asphalt milling that leaves a basecourse that is suitable to support the asphalt overlay. These are more expensive than routine maintenance improvements, so it is essential that these project types are planned for best return on investment. This should occur well before reaching a Poor Condition (rating 41-55), but basecourse integrity and depth may be insufficient for older pavements that do not meet Good Condition (rating 56-70). When rehabilitation maintenance is provided, return on investment is maximized for each additional year of the road service life is extended.

Reconstruction Pavement Maintenance is the most expensive form of maintenance, but all roads eventually reach the end of their functional life. Reconstruction of one road can use up most of the annual funding budget. If reconstruction is expected in the future for any county road for any reason, it should be planned years in advance so that local and matching funding can be raised, planned, and applied.

Edge Striping/Painting is influenced by product cost and supply availability to access road paint. Paved roads with crumbling edges limit the effectiveness and longevity of the applied product. Cost of routine edge striping is typically cost shared with SDDOT. Centerlines and edge lines often are applied as a special maintenance activity and require budget for materials and equipment. As edge and center line paint fades, road safety is affected as drivers may have trouble following the driving lane, particularly at night. When funds are limited or products are difficult to obtain, striping should be prioritized for roads with high traffic volumes, narrow driving surfaces, and presence of curves in the roadway geometry.

UNPAVED MTP ROUTES LOMS

The Tripp County MTP recommends that all gravel road construction and maintenance abide by best practices and guidance adopted by the SDDOT Local Roads Plan. For gravel surfacing, the minimum surface thickness shall be 4" to 6". Design shall be in accordance with current SDDOT standards, and the Federal Highway Administration (FHWA) August 2015 *Gravel Roads Construction and Maintenance Guide*, Chapter 3 Appendix 1. Construction Guidelines include the following useful reference charts:

- Thickness Design Guidance for New or Reconstructed Rural Roads
- Surface Aggregate Sample Specifications
- Gradation and Plasticity Index Determination
- Gravel Coverage with Depth of Gravel
- Gravel Spreading Chart in Feet per Truckload

Preventive Gravel Maintenance projects reflect the most routine maintenance needs to preserve the unpaved surface condition with an ideal crown, road shoulder, and gravel thickness while dealing with corrugation (washboards), poor drainage, and vegetation. The most significant factors that affect durability of preventive maintenance of unpaved roads include subgrade quality, source materials, maintenance timing and equipment operator technique. Unpaved roads that do not receive timely and/or adequate preventive maintenance quickly degrade beyond the support needed by vehicles and will require more expensive rehabilitation to restore. Routine blading to restore the cross-section crown and shoulders is combined with spot additions of gravel on top of a sustainable subgrade with adequate drainage. Where the subgrade and drainage are well established, the expense of preventive maintenance is more predictable.

Minor blading and spot treatment of rock and gravel to prevent the severe deterioration of existing or reconstructed cross sections. Common signs of roadway deterioration are expected to be addressed with routine maintenance but may not bring a cross section fully to a Good condition rating as the Restoration year approaches. Segments that have been reconstructed with drainage and subgrade base materials will respond best to Routine maintenance.

- Preventive LOMS - Unpaved Rural Major and Minor Access Routes
    - Routes should be bladed 7-10 times annually with windrows and spot gravel treatment needed. Minor Rural Access routes under township Jurisdiction are encouraged to follow the same Routine Maintenance guidelines.
    - Routes generally carry the most traffic volume and Spring Load Restrictions should be observed by heavy equipment drivers so that routine maintenance will be effective.
    - Major and Minor Rural Access routes are the first priority of unpaved routes for snow removal.

- Preventive LOMS - Unpaved Local Access Routes
    - With traffic volumes that average less than 50 daily vehicles and no Commercial or Industrial zoning to support, routes should be bladed 4-6 times annually.
    - Most Local Access routes under County Jurisdiction will only receive restoration maintenance for the first 16 years and routine maintenance will not likely bring a cross section fully to a Good Condition rating where drainage and subgrade deficiencies have not been resolved.
    - Local Access routes are the are the second priority of unpaved routes for snow removal.
- Preventive LOMS - Unpaved Maintenance Operations
    - Blading operators should receive ongoing training for routine maintenance activities that are common to the north and south roads of Tripp County.
    - Blade operators should not prioritize driving speed and over maintenance quality. Typically, good work is not possible above a top speed of 3 to 5 mph when maintaining shoulders, vegetation, crown, and/or windrows.

Rehabilitation Gravel Maintenance projects range from nonstructural to structural enhancement when Preventive Maintenance is insufficient to restore the function of the route. Staffing, materials, and equipment will be most efficient with limited financial resources by consolidating work efforts geographically. An 8-year clockwise rotation is recommended as the guideline by this MTP for Restoration Gravel Maintenance. A common rehabilitation strategy consists of mobilizing motor graders to reshape the cross section, road surface, shoulder areas, and possibly the foreslope and ditch. Compaction equipment if available is always helpful. If material must be removed from ditches, loaders or excavators and trucks will be needed. Rehabilitation should resolve drainage challenges along shoulders, in ditches, and through structures. Rehabilitation projects require gravel resurfacing of 1.5 to 3.0 inches on top of a sustainable subgrade with adequate drainage.

Restoration maintenance should bring any road segment that has previously met the design standard and a Good Condition rating back up to that standard. Between restoration years, routine maintenance is required to help existing road segments achieve their potential use with respect to design standard. This plan does not expect that unpaved roads will consistently achieve a Good Condition rating until it meets the design standard assigned to it. The rehabilitation maintenance rotation uses County Commission districts to divide the annual number of miles consistently. The recommended 8-year rotation following the recommended Major Roads Plan classification is listed in **Table 29.**

Table 29. Unpaved Route Maintenance Rotation - Rehabilitation Planning

Rotation Period	Rural Major Access by Commission Subdistrict	Rural Minor Access by Commission Subdistrict	Local Access by Commission Subdistrict
Year 1	2 (West), 3 (East)	3 (All)	2 (West)
Year 2	3 (West)	4 (East)	3 (All)
Year 3	4 (East)	4 (West)	4 (All)
Year 4	4 (West)	5 (West)	5 (East)
Year 5	5 (All)	5 (East)	5 (East)
Year 6	1 (West)	1 (All)	1 (West)
Year 7	1 (East)	2 (East)	1 (East)
Year 8	2 (East)	2 (West)	2 (East)

A gravel route should receive Rehabilitation Maintenance within eight (8) years with variations anticipated. Gravel roads are expected to require rehabilitation maintenance and should be programmed as a routine budget expense. Rehabilitation helps prevent more expensive maintenance activities such as reconstructing portions or all of a gravel road segment.

- Rehabilitation LOMS - Unpaved Rural Major and Minor Access Routes
    - Major and Minor Rural Access routes should be restored every eighth year,
    - Because of their countywide purpose, Tripp County should support restoration maintenance of Rural Minor Access routes under a township jurisdiction.
    - Rural Major and Minor segments that have met the base typical cross section and a Good Condition Rating are the priority for Rehabilitation maintenance.
    - Rural Major and Minor segments that have not met the base typical cross section or have not achieved a Good Condition rating are prioritized to restore the existing cross section to the extent feasible without need of compaction equipment and limited drainage reshaping.
- Rehabilitation LOMS - Unpaved Local Access Routes
    - Local Access routes should be restored every eighth years,
    - Local Access segments that have met the base typical cross section and a Good Condition Rating are the priority for Rehabilitation maintenance.
    - Local Access segments that have not met the base typical cross section or have not achieved a Good Condition rating are prioritized to restore the existing cross section to the extent feasible without need of compaction equipment and limited drainage reshaping.
    - Tripp County should not include restoration maintenance of Local Access routes under a township jurisdiction. Unless identified by this study, Local Access routes

of Township jurisdiction should meet Good condition rating prior to converting the segment to County jurisdiction.

- Restoration LOMS - Unpaved Maintenance Operation Planning
    - The restoration year of each roadway segment is recorded with this study. Tripp County or the planning district may provide the Highway Department and County Commission with the Year of Restoration map for current or future years.
    - Six months prior to each budget year's approval, County Commissioners should receive an unpaved roads assessment report from the County Highway Superintendent to include:
        - **Previous Calendar Year Summary**: Total miles by district of **restoration** maintenance planned for and completed. Include cost summary for materials, equipment, and hours of labor. List any segments not restored that are carried forward to Current Calendar Year.
        - **Current Calendar Year Summary**: Total miles by district of **restoration** maintenance planned for. Include miles carried forward from previous year and any miles that may be completed from next calendar year rotation. Include any changes in assumed cost estimated for materials, equipment, and hours of labor.
        - **Next Calendar Year Summary:** Total miles by district of **restoration** maintenance planned for next calendar year and budget request for materials, equipment, and hours of labor.
    - The mid-year County Commission review and approval of past, current, and future restoration maintenance summary should be included with the final budget request submitted by the Highway Department.

Reconstruction Gravel Maintenance is necessary when the existing gravel surface has deteriorated beyond the point when rehabilitation can fix damage such as heavy equipment use during spring thaws, severe weather combined with debris that impacts a drainage, or the existing roadway does not meet the recommended cross section for the recommended MTP function. In some situations, emergency reconstruction may be necessary without the benefit of adequate time to plan. Most reconstruction can be planned as part of a systematic program to bring the Tripp County roadway network into conformance with the base typical cross sections recommended. An annual budget will be needed for reconstruction of gravel roads.

- Reconstruction LOMS – Significantly Deficient Cross Sections
    - Approximately 99 miles of unpaved roads may be considered significantly deficient compared to the proposed base typical cross section. Data available for these segments indicates that the minimum base typical cross section is more than 2-feet wider than the current cross section. This width difference significantly limits the

continuity of the transportation network. Reconstruction of these significantly deficient segments during the first 8-year rotation is prioritized for reconstruction while remaining segments receive preventive and restoration maintenance.

- Reconstruction LOMS – Deficient Rural Major and Minor Access Cross Sections
    - Approximately 102 miles of Rural Major and Minor Access roads may be considered deficient compared to the proposed base typical cross section. Data available for these segments indicates that the minimum base typical cross section is less than 2-feet wider than the current cross section. This width difference may limit the continuity of transportation network. Basecourse suitability and drainage may also be underdeveloped, but data is not available to make the decision at this time. Reconstruction of deficient Rural Major and Minor Access segments during the second 8-year rotation is prioritized for reconstruction while remaining segments receive preventive and restoration maintenance.
- Reconstruction LOMS – Deficient Local Access Cross Sections
    - Approximately 94 miles of Local Access roads may be considered deficient compared to the proposed base typical cross section. Data available for these segments indicates that the minimum base typical cross section is less than 2-feet wider than the current cross section. This width difference may limit the continuity of transportation network. Basecourse suitability and drainage may also be underdeveloped, but data is not available to make the decision at this time. Reconstruction of deficient Local Access segments during the third 8-year rotation is prioritized for reconstruction while remaining segments receive preventive and restoration maintenance.
- Reconstruction LOMS - Unpaved Maintenance Operation Planning
    - A segment that requires reconstruction should be reconstructed in the restoration year of maintenance when feasible.
    - Six months prior to each budget year's approval, County Commissioners should receive an unpaved roads assessment report from the County Highway Superintendent to include:
        - **Previous Calendar Year Summary**: Total miles by district of **reconstruction** maintenance planned for and completed. Include cost summary for materials, equipment, and hours of labor. List any segments not restored that are carried forward to Current Calendar Year.
        - **Current Calendar Year Summary**: Total miles by district of **reconstruction** maintenance planned for. Include miles carried forward from previous year and any miles that may be completed from next calendar year rotation. Include any changes in assumed cost estimated for materials, equipment, and hours of labor.

- **Next Calendar Year Summary:** Total miles by district of **reconstruction** maintenance planned for next calendar year and budget request for materials, equipment, and hours of labor.

- The mid-year County Commission review and approval of past, current, and future reconstruction maintenance summary should be included with the final budget request submitted by the Highway Department.

Spring Load Restrictions

The literal prevention of loading by imposing load limits is a great way to maintain existing road infrastructure, though it must be weighed against the barrier it places on economies of industries that use heavy equipment. With that consideration, South Dakota laws are comparatively lenient on the size of farm and trucking equipment. Because springtime is the most vulnerable time for roads, Tripp County should implement Spring load limit time periods as determined by SDDOT.

Tripp County should consider adoption load limits of 6 tons/axle for paved roads and 7 tons/axle, or as posted for gravel roads. No roads should exceed 80,000-lbs gross vehicle weight (GVW). The period of time that these load limits may be in place can be from February 15 to April 30 as posted by SDDOT. These load restrictions may protect highways during the spring thaw, which is when roads are most susceptible to damage from heavy loads. During Spring, the frozen ground thaws from the top down, and there is a period of time where moisture laden pavement and base material is caught between the heavy loads above it and frozen subgrade beneath it. By protecting the highways during this time, the County is protecting its largest assets and investments.

Dust Control and Blotter-Surface Treatment

A blotter-surfaced roadway is an intermediate step between a gravel and paved-surface roadway where a surface treatment is placed on a granular base. A typical application consists of a layer of bituminous surface treatment less than one-inch thick with a top course of aggregate chips placed over a thick granular base. The bituminous surface treatment can significantly reduce dust, loose material, and washboard issues of a low-volume gravel road. A blotter surface may not be suitable for routes with high traffic volumes or notable truck volumes, as it provides minimal structural stability and may break down relatively quickly.

Chapter 5. Implementation

Tripp County transportation infrastructure priorities begin with the proper classification and jurisdictional assignment of existing roads. The updated classification of roads will support the underlying expectations for design standards and maintenance that this plan recommends. For this reason, the Major Roads Plan classifies road segments consistent with their recommended Federal functional classifications and organizes a rotation of preventive, restoration, and reconstruction efforts that can be taken to bring the transportation network up to the recommended standards.

Funding limitations to maintain an underdeveloped and aging transportation network is the most pressing challenge facing Tripp County. There are no simple solutions to address the expenses required to maintain roads and bridges, but the primary expectation of the public is that the County define and follow design and maintenance standards consistently. With the design and maintenance standards established by this plan, County financial resources can be organized to accomplish this goal with the funding available.

The Tripp County MTP retains a division of responsibility that reflects a township form of government. Changes to functional classifications and jurisdiction assignments proposed by this plan will depend on township jurisdictions to support a significant portion of the Local roadway segments. These segments are often the first and last mile for access. To the extent practical, individual townships should strive to meet or exceed the design and maintenance recommendations applied to County jurisdiction roads. This grassroots partnership represents a shared accountability that will be preserve and continue progress toward improvements needed to the transportation network.

This plan does not include a comprehensive economic impact study of property taxes generated by individual townships. Additional study could organize the financial justification for retaining or centralizing the property tax structure in order to capitalize on greater economy of scale for materials and labor. A Comprehensive Plan that studies Tripp County land use and organizes future development and economic growth potential could also better support transportation investments.

Project implementation focuses on unpaved roads, paved roads, and bridges. This approach has an overall goal of improving the condition of the network as a whole and maximizing limited resources with a long-term maintenance rotation. The programming and projects proposed in this study address the current needs of the network.

5.1 UNPAVED ROADS

Restoration maintenance of unpaved roads will be an ongoing activity that requires County budget inputs to achieve. A restoration maintenance rotation cycle supports the continual expectations for completing this work, incorporating reconstruction maintenance, and consolidating resources to provide the most benefit. The LOMS rotation and prioritization for restoration and reconstruction of unpaved roads is described in the previous section. The estimated number of miles for restoration maintenance and reconstruction maintenance are summarized below.

Tripp County should anticipate a need to provide restoration maintenance for an average of 91.5 miles annually to maintain roads in Good Condition. Estimated miles of each Major Roads Plan classification is shown in **Table 30**. Financial resources may not be available to complete all recommended work effort. Road segments that are not restored during the programmed year may be addressed by two alternatives. The County should always continue to provide preventive maintenance until the next scheduled maintenance. The County may also supplement restoration maintenance work in an later year with contractor support while County Highway Department resources continue to provide restoration maintenance on the proposed rotation schedule.

Table 30. Tripp County Unpaved Roads Restoration Maintenance Rotation

	Rural Major Access Miles	Rural Minor Access Miles	Local Access Miles	Total Estimated Miles
Year 1	43.1	13.7	28.6	**85.4**
Year 2	31.1	23.7	40.1	**94.9**
Year 3	34.0	23.7	38.4	**96.1**
Year 4	47.4	20.3	34.8	**102.5**
Year 5	33.8	20.3	34.8	**88.9**
Year 6	32.3	20.2	30.0	**82.5**
Year 7	28.5	31.8	30.0	**90.3**
Year 8	31.0	31.8	28.6	**91.4**
Average	**35.2**	**23.2**	**33.2**	**91.5**

The 8-year unpaved maintenance rotation schedule also supports the need to reconstruct existing roadway segments that do not meet the recommended design standards. Tripp County cannot reconstruct all existing unpaved roads that do not currently meet design standards. The prioritization for reconstruction maintenance is described in the previous section. Significantly deficient cross sections should be prioritized for reconstruction during the first rotation. Deficient cross sections for Rural Major Access and Rural Minor Access routes should be prioritized for reconstruction during the next rotation. Deficient cross sections for Local Access routes should be prioritized for reconstruction last or during the third rotation.

Tripp County should anticipate a need to provide reconstruction maintenance for an average of 12.4 miles annually during the first 8-years and 12.7 miles annually during the next 8-years. Estimated miles for each year shown in **Table 31**. Financial resources may not be available to complete all recommended work effort. Road segments that are not reconstructed during the programmed year may be addressed by two alternatives. The County should always continue to apply preventive and restoration maintenance until the next scheduled maintenance rotation year. The County may also supplement reconstruction maintenance with contractor support while County Highway Department resources continue to provide reconstruction maintenance on the proposed rotation schedule. All Local Access routes that are identified for reconstruction by the MTP are shown in years 17-20 for an average of 23.5 miles annually. This is only to show all base typical cross section reconstruction within a 20-year period. Actual timing for reconstruction of the deficient Local Access routes will depend on the successful implementation during the first 16-years.

Table 31. Tripp County Unpaved Roads Reconstruction Maintenance Planning

Rotation Period	Reconstruct Significantly Deficient Miles	Rotation Period	Reconstruct Rural Major/Minor Access Deficient Miles	Rotation Period	Reconstruct Local Access Deficient Miles
Year 1	10.5	**Year 9**	16.1	**Year 17**	20.4
Year 2	13.9	**Year 10**	18.5	**Year 18**	25.3
Year 3	16.0	**Year 11**	21.5	**Year 19**	23.0
Year 4	17.2	**Year 12**	3.0	**Year 20**	25.3
Year 5	6.8	**Year 13**	9.3		
Year 6	11.7	**Year 14**	10.9		
Year 7	4.1	**Year 15**	2.1		
Year 8	18.7	**Year 16**	20.2		
Total	**99.1**	**Total**	**101.5**	**Total**	**94.1**
Average	**12.4**	**Average**	**12.7**	**Average**	**23.5**

The MTP forecasts an estimated number of unpaved road miles for restoration and reconstruction (R & R) maintenance each year for 20-years. The Tripp County unpaved roads R & R programming should follow the recommended rotation described in the previous section. Road segments are assigned restoration maintenance planning cost estimates during their program year except when they are recommended to be reconstructed. During the recommended reconstruction year, the restoration maintenance planning cost is excluded from the calculated budget estimates. Although this method is only intended to provide a forecast of work effort and budget projections shown in **Table 32**, organizing R & R maintenance according to a rotation proposed will maximize resource efficiency, increase documented accountability, and limit inconsistency with LOMS applied across the transportation network.

Each maintenance year will include preventive, restoration, and reconstruction maintenance. The annual estimates for R & R maintenance are substantial and are not possible with current funding levels. County budget amounts are known, but line-item values are not organized according to the type of maintenance provided. Tripp County should plan and implement the unpaved road R & R maintenance strategy so that any routine maintenance can be effective. The average annual budget estimated for unpaved road R & R maintenance during the first rotation is $2.6 million. A 2.5 % annual inflation cost has been added to this forecast. The average annual budget estimated for the second rotation is $3.2 million and $62.8 million is the forecasted need to complete R & R recommended by this study.

Table 32. Unpaved Route R & R Programming 20-Year Cost Estimates

Year	Reconstruction Prioritized Rotation Miles	Reconstruction Cost Estimated	Restoration of Miles Not Reconstructed	Restoration Cost Estimated	Total R & R Cost Estimates
1	**10.5**	$367,500	**74.9**	$1,872,500	**$2,240,000**
2	**13.9**	$498,663	**81.0**	$2,075,625	**$2,574,288**
3	**16.0**	$588,350	**80.1**	$2,103,877	**$2,692,227**
4	**17.2**	$648,288	**85.3**	$2,296,469	**$2,944,757**
5	**6.8**	$262,707	**82.1**	$2,265,576	**$2,528,283**
6	**11.7**	$463,312	**70.8**	$2,002,593	**$2,465,904**
7	**4.1**	$166,416	**86.2**	$2,499,139	**$2,665,555**
8	**18.7**	$777,995	**72.7**	$2,160,436	**$2,938,431**
Avg	**12.4**	**$471,654**	**79.1**	**$2,159,527**	**$2,631,181**
9	**16.1**	$686,570	**69.3**	$2,110,883	**$2,797,453**
10	**18.5**	$808,639	**76.4**	$2,385,328	**$3,193,967**
11	**21.5**	$963,264	**74.6**	$2,387,358	**$3,350,621**
12	**3.0**	$137,769	**99.5**	$3,263,816	**$3,401,585**
13	**9.3**	$437,761	**79.6**	$2,676,329	**$3,114,090**
14	**10.9**	$525,902	**71.6**	$2,467,535	**$2,993,437**
15	**2.1**	$103,854	**88.2**	$3,115,607	**$3,219,461**
16	**20.2**	$1,023,947	**71.2**	$2,577,971	**$3,601,918**
Avg	**12.7**	**$585,963**	**78.8**	**$2,623,103**	**$3,209,067**
17	**20.4**	$1,059,937	**65.0**	$2,412,322	**$3,472,259**
18	**25.3**	$1,347,393	**69.6**	$2,647,616	**$3,995,009**
19	**23.0**	$1,255,525	**73.1**	$2,850,276	**$4,105,802**
20	**25.3**	$1,415,605	**77.2**	$3,085,395	**$4,501,000**
Avg	**23.5**	**$1,269,615**	**71.2**	**$2,748,902**	**$4,018,518**
Total	**Reconstruction**	**$13,539,396**	**Restoration**	**$49,256,650**	**$62,796,046**

5.2 PAVED ROADS

Restoration maintenance of paved roads is influenced by the condition of the existing roadway. To the extent practical, a pavement condition has been estimated for each segment to help guide planning efforts. There is strong public sentiment to keep paved roads paved when possible. Tripp County can use the information in this section to prioritize restoration and reconstruction maintenance. Very few paved segments are in a current condition that will support routine maintenance activities described by this study. Paved roads are organized into three groups based on the needs and issues identified by this study. The paved roads included in **Table 33** represent road segments of countywide importance. North County Road and a portion of South County Road are recommended for reconstruction. The remaining useful life of the reaming segments may be extended with mill and overlay projects.

Table 33. Tripp County Priority Projects for Paved Surfaces

Route	From	To	Project Miles	Comments	Planning Estimate	Jurisdictional Lead
316th Ave / 269th St / 313th Ave (North County Road to Ideal)	E. Tripp St	266th St	15.0	**Reconstruction** with Multimodal Cross Section	**$30,000,000**	**Tripp County**
315th Ave (South County Road)	282nd St	W. 11th St	3.75	**Reconstruction** with Base Typical Cross Section	**$6,375,000**	**Tripp County**
	288th St	282nd St	6.0	**Restoration** with Mill and Overlay	**$1,800,000**	**Tripp County**
	296th St	288th St	8.0	**Restoration** with Mill and Overlay	**$2,400,000**	**Tripp County**
279th St	316th Ave	317th Ave	1.0	**Restoration** with Mill and Overlay	**$300,000**	**Tripp County**
317th Ave (with 279th St)	Iron Star Rd	US 18	0.66	**Restoration** with Mill and Overlay	**$198,000**	**Tripp County**
296th St (Rahn Lake Road)	310nd Ave	314th Ave	4.0	**Restoration** with Mill and Overlay	**$1,200,000**	**Tripp County**
	314th Ave	US 183	8.0	**Restoration** with Mill and Overlay	**$2,400,000**	**Tripp County**

Paved roads of the MTP that are adjacent to communities of Tripp County have been included to support interjurisdictional planning and programming. The four paved segments listed in **Table 34** are adjacent to the corporate limits of Winner or Colome. The City of Winner maintains zoning regulations and land adjacent to the corporate limits may be platted for future development. The City limits extend to, but do not include the paved roads along the edge of current City limits. As the community grows beyond the current City limits, the jurisdiction assigned to these roads will change from County to City. Planning and programming for future improvements for these segments should be coordinated by both jurisdictions.

Table 34. Tripp County Priority Projects for City Adjacent Paved Surfaces

Route	From	To	Project Miles	Comments	Planning Estimate	Jurisdictional Lead
278th St	315th Ave	½ Section Line west	0.5	**Reconstruction** with Base Typical Cross Section	$850,000	**Tripp County with City of Winner**
Country Club Rd	279th St	10th St	0.8	**Restoration** with Mill and Overlay	$240,000	**Tripp County with City of Winner**
286th St	West of Colome	SD 49 (323rd Ave)	0.5	**AC to Gravel** Conversion	$33,000	**Tripp County with Colome and Pleasant View TWPs**

The City of Winner Recycling Center is located on 278th Street. The half mile of paved road west of 315th Avenue has deteriorated to Poor Condition. The City of Winner has approved some residential plats for future development north of 278th Street and the unpaved road extends west to 310th Street in the County to support some non-highway traffic to and from the City of Winner. Reconstruction of the road should meet the design standard for the City of Winner.

The condition of 286th Street along the southern edge of Colome has deteriorated to Poor Condition. The road is not paved between US 183 and US 18. The paved surface will continue to deteriorate without reconstruction. This half mile segment has been listed for conversion to gravel. Restoration maintenance for existing paved surfaces should be prioritized over reconstructing this segment. If Colome plans for industrial or commercial growth west to 322nd Avenue, reconstruction may be reconsidered to support economic opportunities not considered during this study.

Economic development is a fundamental need for Tripp County. This study organized limited information to help understand the community, demonstrate financial realities, and help pursue grants, A full economic analysis that could identify market gaps was not the intended outcome. Economic analysis should be updated to help identify the type of development that would vastly improve the injection of capital for infrastructure. Agriculture and tourism are substantial pillars of the economy that require a safe, efficient, and reliable transportation system to sustain and grow. Beyond these two pillars, creating more jobs and diversifying employment options available in Tripp County will also help capture revenue and stabilize budgeting needed to maintain the transportation network. Some development, such as power generation are required to invest significant capital resources into the transportation network. Diverse, feasible options should be explored.

The projects listed in **Table 35** have been included to recognize the economic growth potentially available adjacent to the City of Winner. Tripp County completed a significant restoration of 317th Avenue through a South Dakota Economic Development Grant. The project's purpose and need directly supported the livestock business area directly east of Winner. The City of Winner has approved plats north of the City limits that conform with their industrial and agriculture uses. Without a Comprehensive Plan to coordinate future land use development, reconstruction projects listed below may remain aspirational while limited financial resources are directed to other priorities.

Table 35. Tripp County Priority Projects for Economic Opportunity Paved Surfaces

Route	From	To	Project Miles	Comments	Planning Estimate	Jurisdictional Lead
315th Ave (NW County Rd)	Dakota St	277th St	0.5	**Reconstruction** with Base Typical Cross Section	$850,000	**Tripp County with City of Winner**
314th Ave	US 18	277th St	0.5	**Reconstruction** with Base Typical Cross Section	$850,000	**Tripp County with Lamro TWP**
278th St	US 18	317th Ave	0.6	**Reconstruction** with Base Typical Cross Section	$1,020,000	**Tripp County with City of Winner**
277th St	316 Ave	Airport Dr	0.5	**Reconstruction** with Base Typical Cross Section	$850,000	**Tripp County with City of Winner**
	315th Ave	316th Ave	1.0	**Reconstruction** with Base Typical Cross Section	$1,700,000	**Tripp County with City of Winner**

5.3 BRIDGE STRUCTURES

Tripp County completes an annual update to their 5-year bridge plan. The bridge plan is organized according to state criteria which supports data driven decisions, project prioritization, and application for state aid. The Bridge Replacement Plan will continue to follow the existing Bridge Improvement Grant (BIG) documentation methods of rating and prioritizing structures. A larger BIG score is more likely to be awarded funding from the competitive, SDDOT BIG program. It is important for Tripp County to apply BIG rating methodology and align funding requests that may receive up to 80% of the cost shared for this program.

Most of the structures included in **Table 36** are currently listed with critical repairs needed. The 2025 BIG program scores are included with a status of the design and construction cost estimate. There are eight structures that require funding to complete preliminary engineering (PE) and three that were awarded PE funding in 2025. The hydrology and design for these structures is estimated to cost $825,000 with at least 20% local match ($150,000) needed. State aid is limited, and Tripp County may not receive project design funding each year because of the competitive statewide demand.

Preliminary design is complete or is underway for seven additional structures with an estimated construction cost of $6.1 million. Two structures on 277th Street north of Winner cannot apply for BIG reconstruction funding and a local funding strategy has not been established between Tripp County and the City of Winner. Property owners along this 1-mile segment of 277th St can access US 18 from 314th or 315th Ave and removal without replacement of structure 62-185-270 is currently recommended. Tripp County will continue to submit applications to SDDOT for the competitive funding available with a local match of 20% for bridge construction. Construction estimates total $5.23 million with $1.19 million needed from local sources to reconstruct the structures that have design plans completed.

The bridge prioritization method for Tripp County is subject to change if traffic volumes or condition ratings change. The evaluation process used to score and prioritize bridges in Tripp County follows three steps:

1. The bridge conditions are sorted by order. The lowest National Bridge Inventory (NBI) ratings for Deck, Superstructure, Substructure and Culvert determines the bridge condition. The bridge is classified as Good if the lowest rating is greater than or equal to 7; the classification is Fair if bridges rated 5 or 6; any ratings below or equal 4 is classified as Poor (Structurally Deficient). Bridge structures rated in Poor Condition are evaluated further.
2. Technical criteria including, posted load limits and average condition ratings that combine superstructure, substructure, and deck ratings are used to sort the Poor Condition structures.
3. Finally, bridges are evaluated based on the combination of ADT and detour.

Table 36. Bridge Replacement Plan Summary

STRUCTURE	LOCATION	YEAR BUILT	2025 BIG SCORE	STATUS *(NOT BIG ELIGIBLE)	COST ESTIMATE (LOCAL MATCH)
62-036-500	1.7 W & 4 S Keyapaha	1967	47.20	No PE	$75,000 ($15,000)
62-088-500	14.7 W 2.8 N Wewela	1966	43.48	No PE	$75,000 ($15,000)
62-123-420	1.3 E Clearfield	1950	48.05	No PE	$75,000 ($15,000)
62-141-160	1.9 W Ideal	1955	27.14	No PE	$75,000 ($15,000)
62-195-460	5.5 E & 2.5 N Millboro	1958	14.63	No PE	$75,000 ($15,000)
62-220-211	6.9 N & 2 E Winner	1987	47.55	No PE	$75,000 ($15,000)
62-234-300	3 S & 3.4 E Winner	1962	48.86	No PE	$75,000 ($15,000)
62-283-121	0.3 N & 0.2 E Hamill	1924	45.00	No PE	$75,000 ($15,000)
62-040-481	1.4 W & 2.1 S Keyapaha	1965	46.33	PE Funded	$75,000 ($15,000)
62-150-172	5.8 N & 7 E Witten	1963	47.86	PE Funded	$75,000 ($15,000)
62-214-190	9 N & 2 E Winner	1955	47.40	PE Funded	$75,000 ($15,000)
Preliminary Engineering Estimate				**$825,000 ($165,000)**	
62-088-211	1.9 N & 0.8 E Witten	1945	47.00	PE Funded	$1,400,000 ($280,000)
62-276-510	1.8 N & 4 W Wewela	1958	47.86	PE Funded	$900,000 ($180,000)
62-214-270	1 N & 1.4 E Winner	1950	50.00	PE Completed	$500,000 ($100,000)
62-220-177	9.3 N & 3 E Winner	1958	49.70	PE Completed	$1,400,000 ($280,000)
62-223-180	9 N & 3.3 E Winner	1960	49.10	PE Completed	$900,000 ($180,000)
Construction Estimate				**$5,100,000 ($1,020,000)**	
Preliminary Engineering + Construction Estimate				**$5,925,000 ($1,185,000)**	
62-185-270	*1 N Winner*	*1940*	*44.50*	*PE Completed**	*1,800,000 ($1,800,000)*
62-189-270	*1 N & 1.1 W Winner*	*1930*	*49.75*	*PE Completed**	*$300,000 ($300,000)*
PE Complete – Reconstruction Not Proposed				***$2,100,000 ($2,100,000)***	

SOURCE: TRIPP COUNTY BRIDGE INVENTORY. BROSZ ENGINEERING (2025)

As part of this study, the 18 bridges currently in Poor Condition have been identified as a priority for replacement. However, the list is expected to grow as bridges currently in Fair or Good Condition and may also deteriorate to Poor Condition. Where Tripp County believes that the BIG score does not factor in route impacts of vehicle uses as part of the scoring, this input may be added to the supplemental documentation of bridge scoring. Documenting the economic benefit of a structure may be useful for pursuing other grant opportunities. Tripp County has a significant number of aging rural bridge structures that will require continual efforts to maintain as replacement structures are designed and funded for construction.

Appendix A. Methods and Assumptions

Appendix B. Public Meetings

Appendix C. County Commission Summary

Appendix D. Functional Classification and Jurisdiction Changes Summary

Appendix E. Jurisdictional Transfer Template

Appendix F. Existing Pavement Conditions

Appendix G. Design Standards and Policies