Lawrence County

Multi-modal | Safety | Traffic | Roadway

Master Transportation Plan

December 2024

Project Website QR Code

Lawrence County
South Dakota

Master Transportation Plan

PREPARED FOR:

South Dakota Department of Transportation (SDDOT)
Division of Planning/Engineering
700 E Broadway Avenue
Pierre, SD 57501

PREPARED BY:

KLJ
18 East Main St Suite 229
Rapid City, SD 57701
Project Manager: Ian Butler-Severson

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CHAPTER 1 – INTRODUCTION

Lawrence County is one of the top ten most populated counties in South Dakota. The northern part of the County contains rolling hills, agricultural land for crops and pastures for livestock. Whereas the remainder to the County is forests and mountainous terrains with breathtaking landscapes. Lawrence County contains 800.1 square miles, serving the communities of Spearfish, Lead, Deadwood, Central City, and Whitewood. Tourism, gaming, mining, logging, health care, agriculture, and education are the key economic drivers.

Lawrence County, like many US counties with rural and growing urbanized areas, has seen an increase in vehicular traffic and other modes of travel. Increased travel by walkers, bicyclists, and All Terrain Vehicle (ATV)/Utility Terrain Vehicles (UTV) are putting more pressure to have wider shoulders on roads and improved sidewalks, paths, and trails. This Master Transportation Plan (MTP) considers what types of facilities make the most sense for the County, how costs and implementation can be addressed, and finally, identifies both short- and long-term County project priorities.

Purpose

The South Dakota Department of Transportation (SDDOT), in collaboration with Lawrence County, and the Federal Highway Administration (FHWA) initiated this Master Transportation Plan (MTP) to examine current and projected future traffic conditions while promoting a livable community that will enhance the economic and social well-being of Lawrence County residents.

The ***purpose*** of the MTP is to **correlate growth to future transportation system needs.**

County staff has noted that recent growth and development of residential and other infrastructure has resulted in increasing demands on the County's transportation system and its maintenance.

Spearfish city limits and its periphery has experienced significant development, many of the dormant rural subdivisions are blossoming and business and industry continues to expand as does the need for a skilled workforce. The County is attractive to empty-nesters and retirees as well. The Black Hills are attracting many remote workers, due to the majestic landscape and availability of ample outdoor activities.

Based on these and other factors, the County has requested an updated MTP that addresses current transportation issues and develops a long-range plan than effectively provides guidance for the County's future transportation demands and maintenance responsibilities.

Providing an MTP that is responsive to new development and changing conditions within the County is at the heart of why this MTP is needed. This MTP can effectively place Lawrence County in position to provide sound decisions for County projects, policies, and development proposals that support a strong transportation system.

Objectives

The objectives of the MTP include the following items:

1. **Complete a list** of transportation issues and needs facing Lawrence County.
2. **Develop feasible solutions** to address those issues and needs that meet current design standards and/or traffic level of service expectations under both the current and predicted future traffic conditions while promoting a livable community that will enhance the economic and social wellbeing of Lawrence County residents.
3. **Create final products** for use by Lawrence County and the SDDOT which will provide guidance to implement recommended improvements and react to future development plans within the area.

Planning Process/Approach

The Lawrence County MTP planning process consisted of completing the following tasks:

Task 1, Methods & Assumptions, included preparation of a document that outlined the methods and assumptions to be used in completing the MTP. This document was reviewed with the Study Advisory Team (SAT) at their kickoff meeting. It was signed once all agreed on the items that were included.

Task 2, Data Collection/Baseline Conditions Analysis, began with comprehensive data collection and review of baseline conditions to identify current needs throughout the Lawrence County transportation system. Sixteen intersections were identified for traffic counts and detailed traffic operations and safety analysis. County standards were reviewed, documented, and updated.

Task 3, Future Needs analysis, determined the anticipated influence of growth on the system based on 20-year traffic projections, identifying projects needed to keep people moving into the future.

Task 4, Final Report, included the preparation, submittal, and review of a Lawrence County MTP, including a list of prioritized projects, programming costs, grant funding opportunities, and policy guidelines.

Project coordination began on November 9, 2023, with a face-to-face project kickoff/SAT meeting to confirm project goals and objectives and identify critical concerns for the project. Five more SAT meetings were held throughout the project, along with a meeting that included Lawrence County, SDDOT, and the United States Forestry Service (USFS) representatives to talk about roadway ownership and maintenance challenges.

Two sets of two Public and Stakeholder Meetings were held over the course of the study. The first set of PIMs and Stakeholder Meetings provided all attendees with a forum to express their concerns about the transportation network. The second set of PIMs and Stakeholder Meetings presented the project findings, projects, and draft MTP. Online material was provided to support the public involvement processes. The final MTP incorporated all input received.

Study Advisory Team

The Study Advisory Team (SAT) met on six occasions and provided overall direction and input during the MTP study process. SAT members included the following individuals:

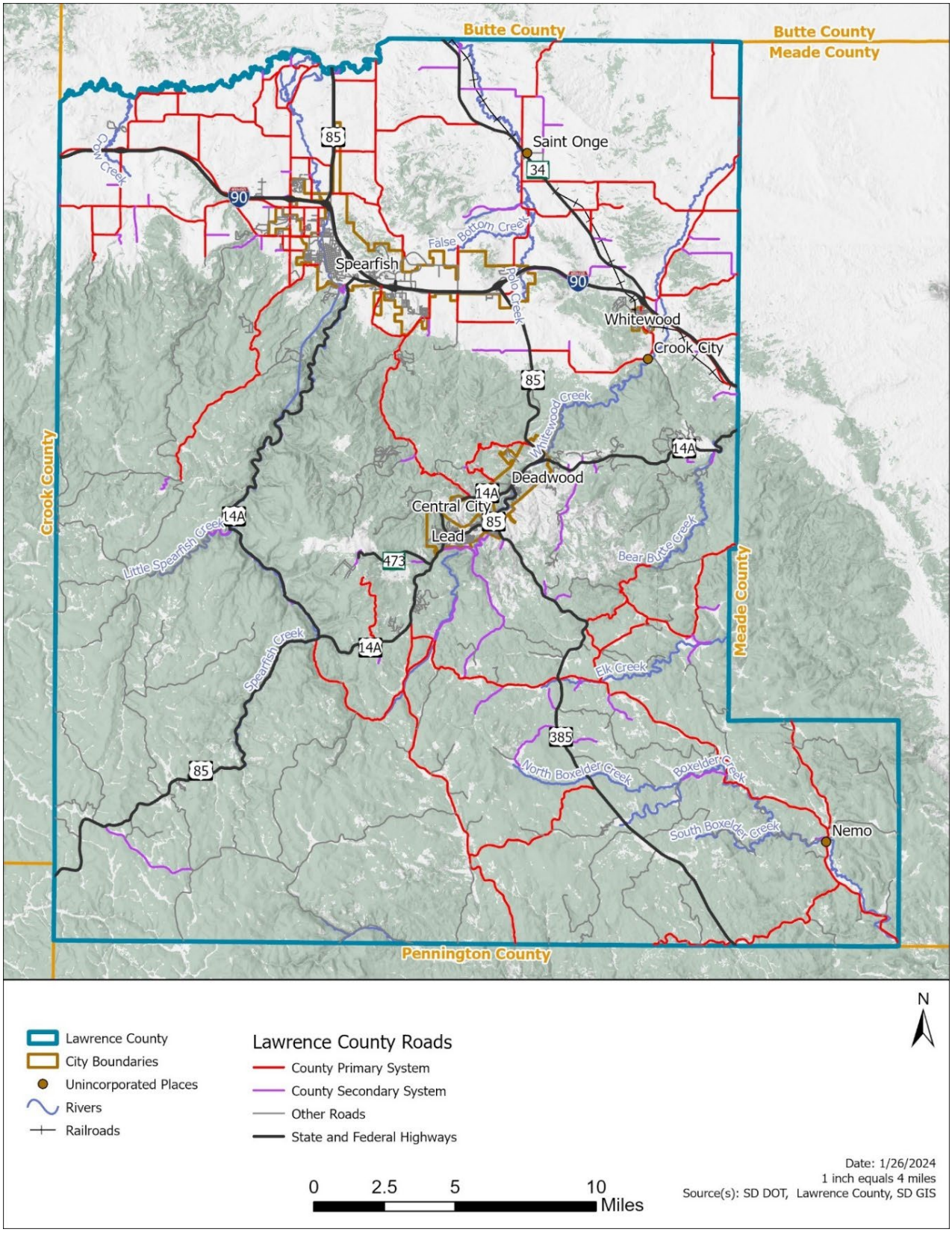
Amber Vogt Lawrence County Planning and Zoning	**John Bey** Lawrence County Highway Department
Rick Tysdal Lawrence County Board of Commissioners	**Richard Sleep** Lawrence County Board of Commissioners
Bruce Outka Lawrence County BOCC Assistant, Deputy States Attorney	**Katrina Burckhard** SD Department of Transportation
Brandon Soulek SD Department of Transportation	**Steve Gramm** SD Department of Transportation
Steve Grabill, PE Project Manager, KLJ Engineering	**Ian Butler-Severson** Lead Planner, KLJ Engineering
Wade Kline, AICP Senior Planner, KLJ Engineering	**Jamie Olson** Public Engagement Specialist, KLJ Engineering

Study Area

The study area encompasses all of Lawrence County, South Dakota indicated in the following map, with emphasis on the County Highway System, indicated in red and purple. The Primary County Highway System is shown in red, and the Secondary County Highway System is shown in purple. The study did not assess the road systems within the city limits of Spearfish, Deadwood, or Lead.

About fifty (50%) of the County is publicly owned by the US Forest Service, US Department of Agriculture, Bureau of Land Management, State of South Dakota, and local governments.

Figure 1. Study Area Map



Policy Framework

The establishment of a vision statement, along with transportation goals and strategies formed the basis for identifying project needs and County priorities within the planning process.

Vision:

- Aspirational statement outlining a desired future.

Goals:

- Broad statements that describe a desired end state
- Represent key priorities.
- Visionary in nature

Strategies

- Specific actions that support the achievement of goals.

Transportation Vision

The transportation vision will anchor future development of the Lawrence County transportation system. The transportation vision is as follows:

Lawrence County will develop a transportation system that supports growth that is balanced with the protection of natural areas and the area's unique culture and history. It will incorporate high network connectivity, supports commerce, and provides efficient, safe, and dependable mobility for people and goods. The transportation system will be a driving force for the County's growth and prosperity, supporting livable and vibrant communities that serve existing residents while creating an attractive environment for investment, tourism, and new residents.

Goals and Strategies

The following goals and strategies were defined by the SAT.

Goal #1: SAFETY

Strategy 1: Incorporate safety and security throughout all modes, for all users.

Strategy 2: Continue to support the activities of the County's emergency services, including fire districts, ambulance services, and law enforcement.

Goal #2: SYSTEM PRESERVATION

Strategy 1: Preserve and maintain natural terrain and existing transportation system infrastructure.

Strategy 2: Support adjacent land uses by addressing dust and noise in planned transportation improvements.

Strategy 3: Maintain close coordination and working relationships with the County's sanitary and road districts.

Goal #3: MOBILITY, RELIABILITY, & ACCESSIBILITY

Strategy 1: Optimize mobility and connectivity for minimal travel times and delays.

Strategy 2: Address ongoing road ownership and maintenance issues through regular meetings with other agencies, such as the US Forest Service, to clarify access, maintenance, and improvement responsibilities.

Goal #4: ECONOMIC VITALITY

Strategy 1: Support industry and commerce through efficient movement of people and goods.

Strategy 2: Plan and program improvements that Lawrence County has the ability to pay for. Recognize that the County's funding is limited and seek grant monies whenever possible.

Goal #5: ENVIRONMENTAL SUSTAINABILITY

Strategy 1: Prioritize environmental stewardship in development and maintenance of the system.

Strategy 2: Continue to assess impacts on the natural environment when reviewing individual transportation project proposals.

Strategy 3: Mitigate the impacts of transportation projects in areas that may affect sensitive resources, such as historic sites, wildlife habitats, aquifer recharge areas, wetlands, and floodplains.

Goal #6: INNOVATIVE TRANSPORTATION TECHNOLOGIES

Strategy 1: Introduce ITT technologies to reduce congestion, improve traffic management, and increase safety.

Goal #7: MULTIMODAL RELIABILITY

Strategy 1: Plan and coordinate future multimodal facilities consistent with Spearfish and other community plans.

Strategy 2: Foster cooperation and partnerships with other entities to address multimodal facility maintenance and other concerns, and to advance multimodal projects and funding.

Strategy 3: Work with local, State, and Federal partners to find new regulatory enforcement and educational approaches to mitigate conflicts that may occur, particularly due to the use of motorized vehicles on recreational trails.

CHAPTER 2 – PUBLIC ENGAGEMENT

Introduction

Two sets of two Public Input Meetings (PIMs) and two Stakeholder Meetings were held over the course of the study. The first set of PIMs and Stakeholder Meetings was held in April of 2024 and provided all attendees with a forum to express their concerns about the transportation network. The second set of PIMs was held in October of 2024 and presented the project findings, possible solutions to transportation issues, and draft MTP. Online material was provided to support the public involvement processes. The final MTP incorporated all input received.

Stakeholders

In person and virtual opportunities were provided for the public to participate in the development of the MTP for the County. The first round of input included understanding issues and needs that exist from stakeholders' point of view and community members.

Stakeholder groups were identified as follows:

Brownsville Fire	City of Central City
City of Deadwood	City of Lead
City of Spearfish	City of Whitewood
Deadwood Fire	Lead Fire
Lead/ Deadwood Eco Dev	Lead/Deadwood School
Mead County School	Nemo Fire
Nieman Trucking	Prairie Hills Transit
Sanford	Spearfish Canyon Fire
Spearfish School	Spearfish Sant District
Lead/ Deadwood Sant District	St. Onge Township
St. Onge Fire	State Wildland
USFS	Whitewood Fire

The second round of input provided an opportunity to review the draft MTP and its recommendations. Summaries of all advertising and input received are provided in Appendix B.

A special Stakeholder Meeting was held between Lawrence County, the SDDOT, and the USFS on July 17, 2024, to discuss road ownership and maintenance issues. Meeting attendance and a summary of discussed items is provided in Appendix A.

Methods and Activities

Meeting and project information was also posted on the Lawrence County website and through paid ads on Facebook. Facebook ads for the first set of meetings were placed from April 23 through

May 31, 2024, targeting Lawrence County. The ad reached 19,452 people. Facebook ads were also placed between October 9 and October 29, 2024. Advertisements reached 21,486 people.

Public Input Meetings (PIMs)

Figure 2. Facebook ad

On April 24 and 25, 2024, two round one PIMs were held to receive early input on issues and needs. Two round two PIMs were held on October 28 and 29, 2024 to receive feedback on the draft MTP Report and its recommendations.

Advertising for each public meeting consisted of public notices in the area newspaper (*Black Hills Pioneer*), targeted social media, and press releases.

Two targeted social media advertising campaigns were run on Facebook/Instagram and were distributed on social media for PIM #1 and PIM #2. An open house meeting format was offered prior to and after the formal presentation at each of the PIM #1 and PIM #2 meeting locations. Board displays of the County were available for viewing and discussion. Staff were available to discuss specific concerns attendees had, both prior to and after the formal presentation.

The PIM #1 presentation covered baseline conditions, including traffic, crash data, road surface conditions, functional classification, transit service, vision, goals, and objectives. The PIM #2 presentation covered a review of the draft MTP and report recommendations. Attendees were directed to provide comments verbally, through a printed comments sheet, via email, and the website.

After each of the PIM #1 and PIM #2 formal presentations were completed, members of the public had the opportunity to join staff for informal open house meeting format discussion.

Overall, feedback addressed the fact that Lawrence County highways are primarily rural sections, meaning that no curb, gutter, or sidewalk are typically provided along County highways. Individuals seeking to travel on foot or bicycle on rural County roads typically walk along the edge of the roadway or if available, within the road shoulder width. This condition was reflected in the survey responses, as a number of individuals requested additional sidewalks or pedestrian/bicycle facilities along County highways. Pedestrian and bicycle improvement projects were rated highest in importance (74%, see FIGURE 3) by survey respondents.

Meeting attendance, discussion items, and comments collected from each meeting are detailed in Appendix A.

Project Website

A project website was developed offering a way for people to participate in the planning process virtually. Feedback was collected in several ways including an interactive comment map, a survey, and an opportunity to provide general comments and feedback to the project team.

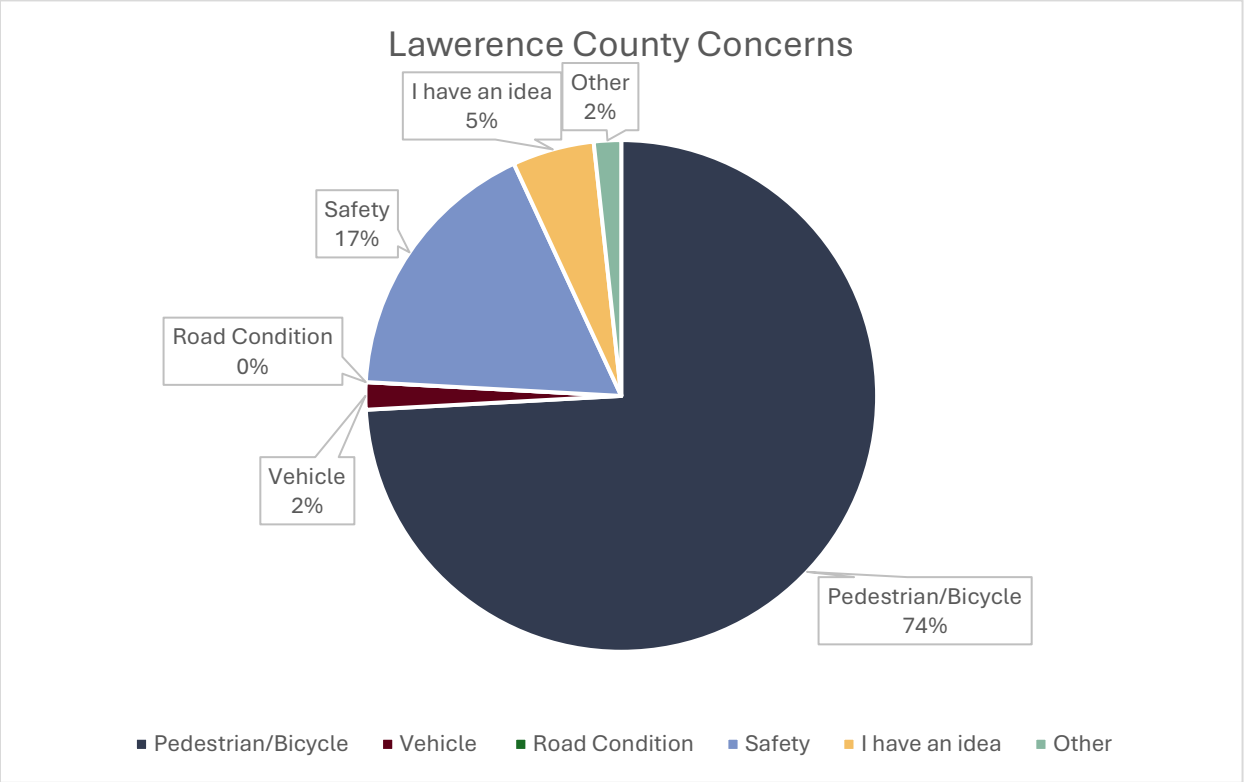
In total, the website had 295 visits to the site with 80 contributions collected from the interactive comment map, seven completed surveys, and four general comments.

A summary of feedback collected from the website is below. All comments are included in the Appendix A.

What We Heard:

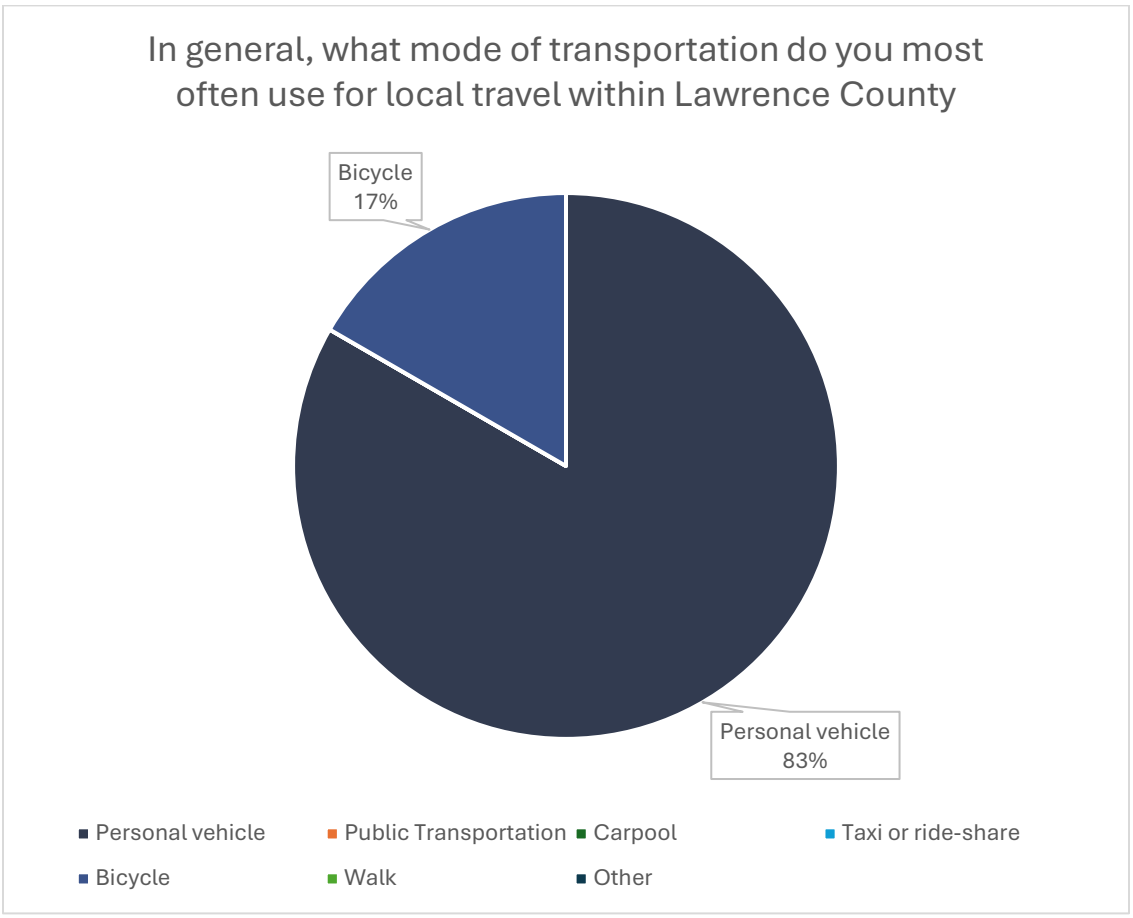
Lawrence County residents expressed Bicycle and Pedestrian issues and needs among their highest concerns as reflected in the interactive map with nearly 75% of comments related to bicycle/pedestrian. The second rated issue was safety with intersection safety and traffic safety concerns among the top comments provided. FIGURE 3 provides comments by topic area from the online interactive map.

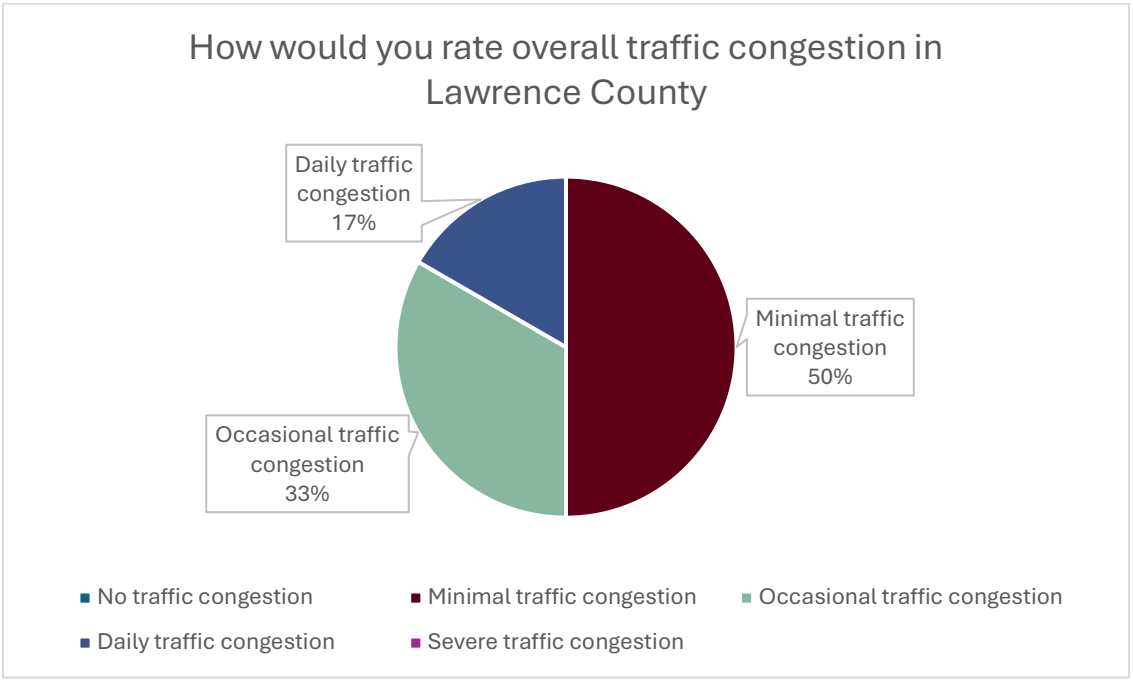
Figure 3. Comments by topic area from online interactive map

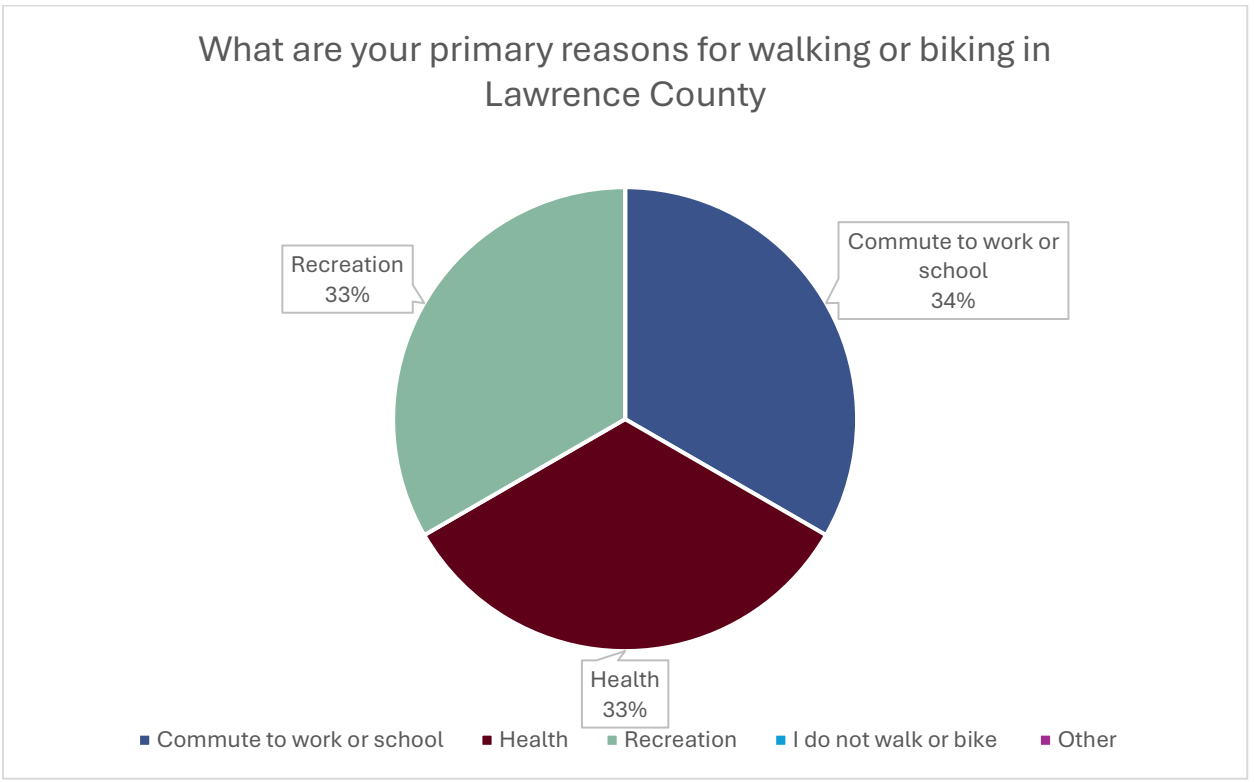


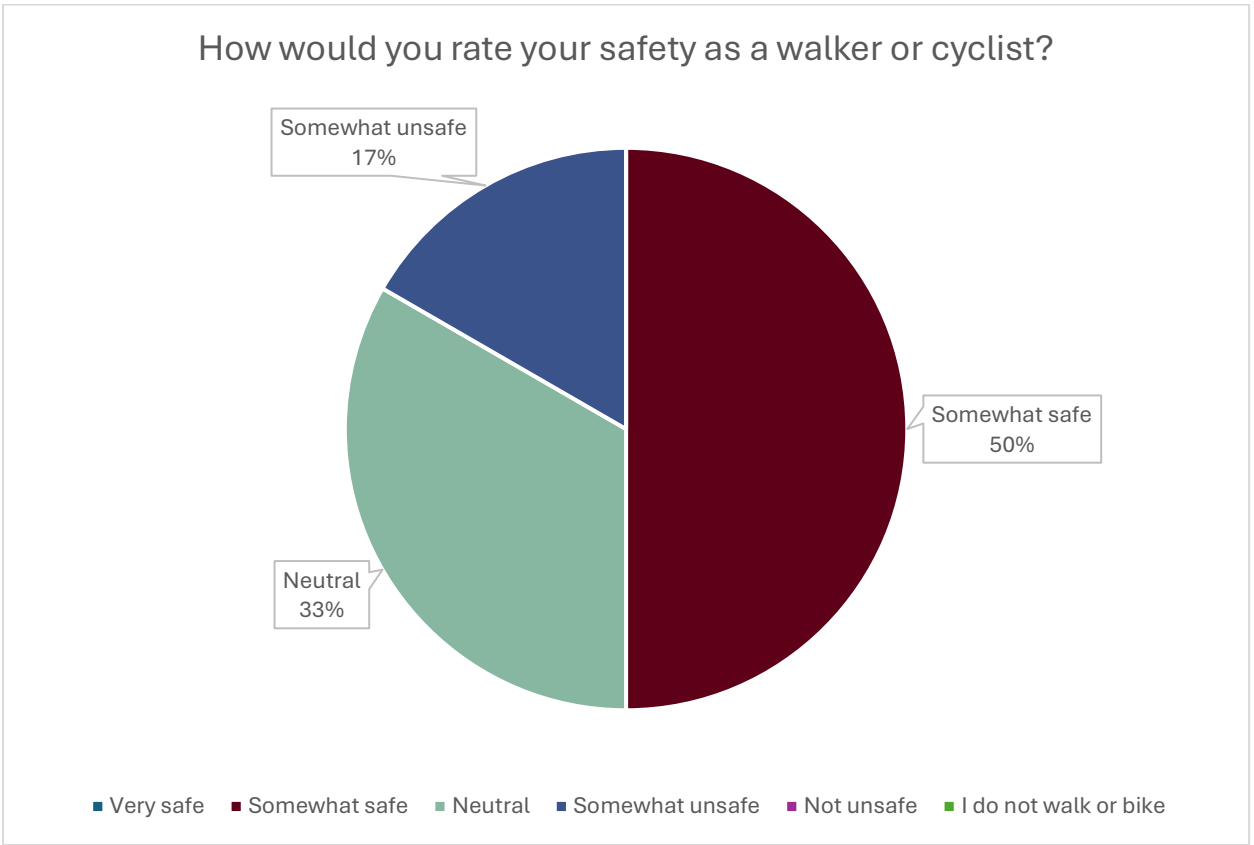
Survey Results

Seven online surveys were completed. All respondents reported they live and work in Lawrence County. Their primary mode of transportation included vehicle and bicycles, with no one reporting to have utilized the transit services in Lawrence County. The pie chart percentages on the following pages represent survey responses.

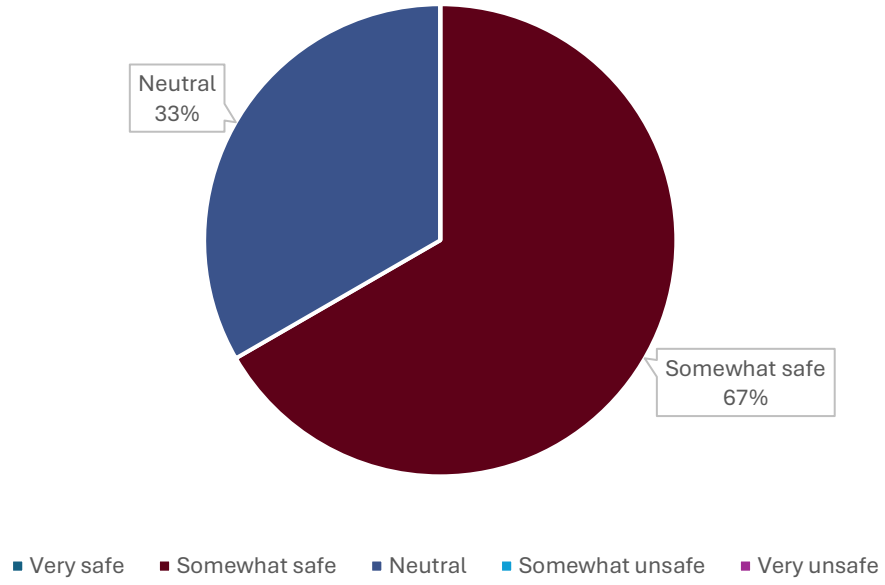

In general, what mode of transportation do you most often use for local travel within Lawrence County
Bicycle 17%
Personal vehicle 83%
Personal vehicle
Public Transportation
Carpool
Taxi or ride-share
Bicycle
Walk
Other


How would you rate overall traffic congestion in Lawrence County
Daily traffic congestion 17%
Minimal traffic congestion 50%
Occasional traffic congestion 33%
No traffic congestion
Minimal traffic congestion
Occasional traffic congestion
Daily traffic congestion
Severe traffic congestion

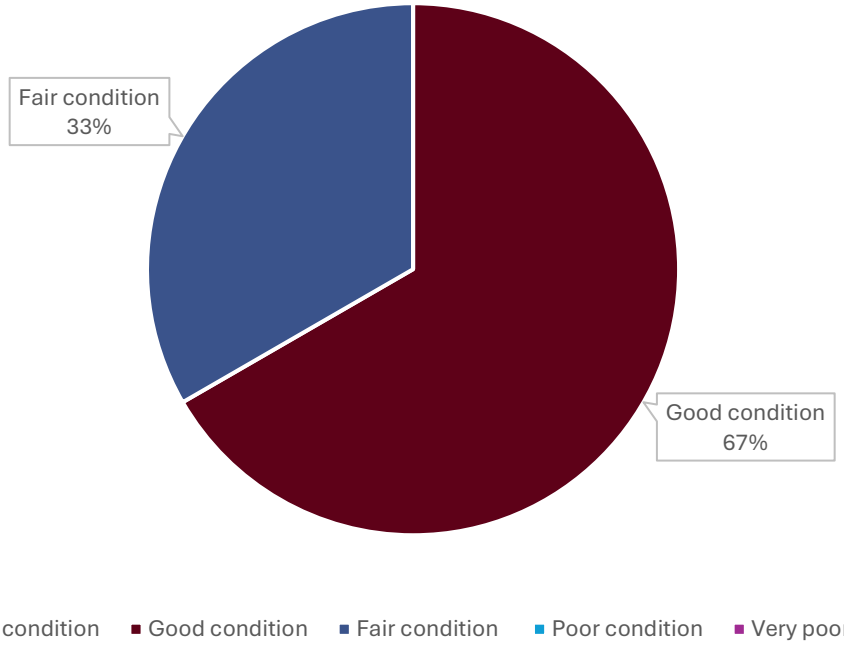

What are your primary reasons for walking or biking in Lawrence County
Recreation 33%
Commute to work or school 34%
Health 33%
Commute to work or school
Health
Recreation
I do not walk or bike
Other

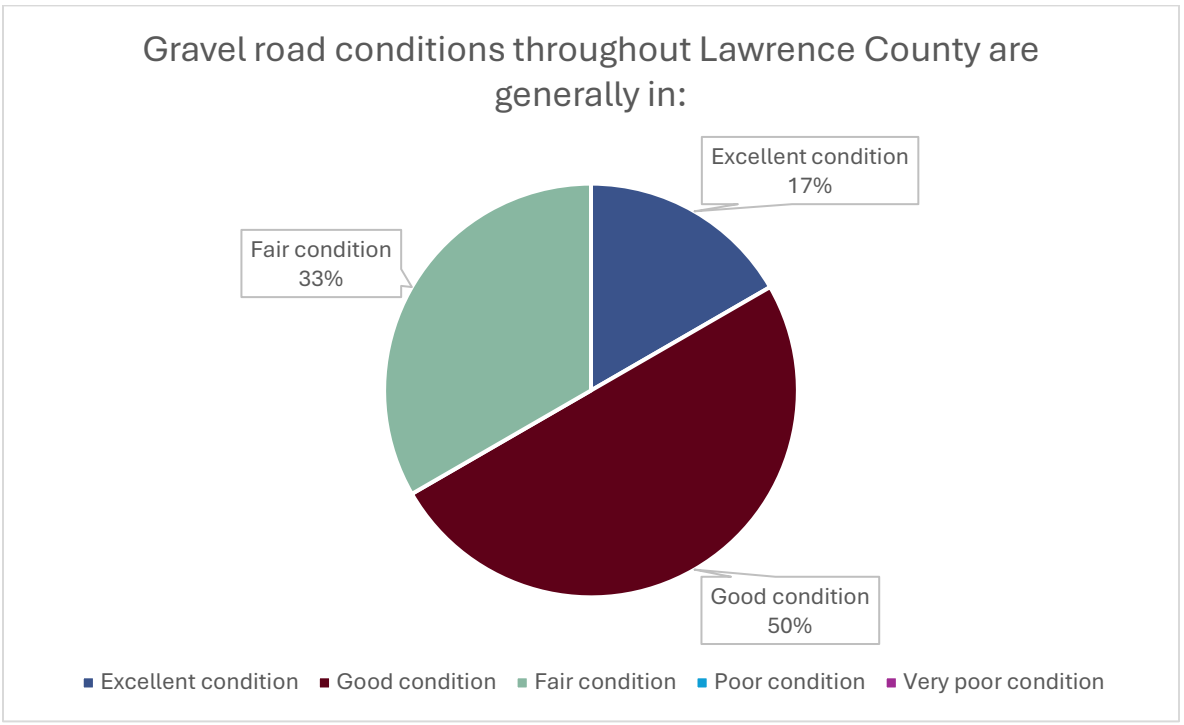

How would you rate your safety as a walker or cyclist?
Somewhat unsafe 17%
Somewhat safe 50%
Neutral 33%
Very safe
Somewhat safe
Neutral
Somewhat unsafe
Not unsafe
I do not walk or bike

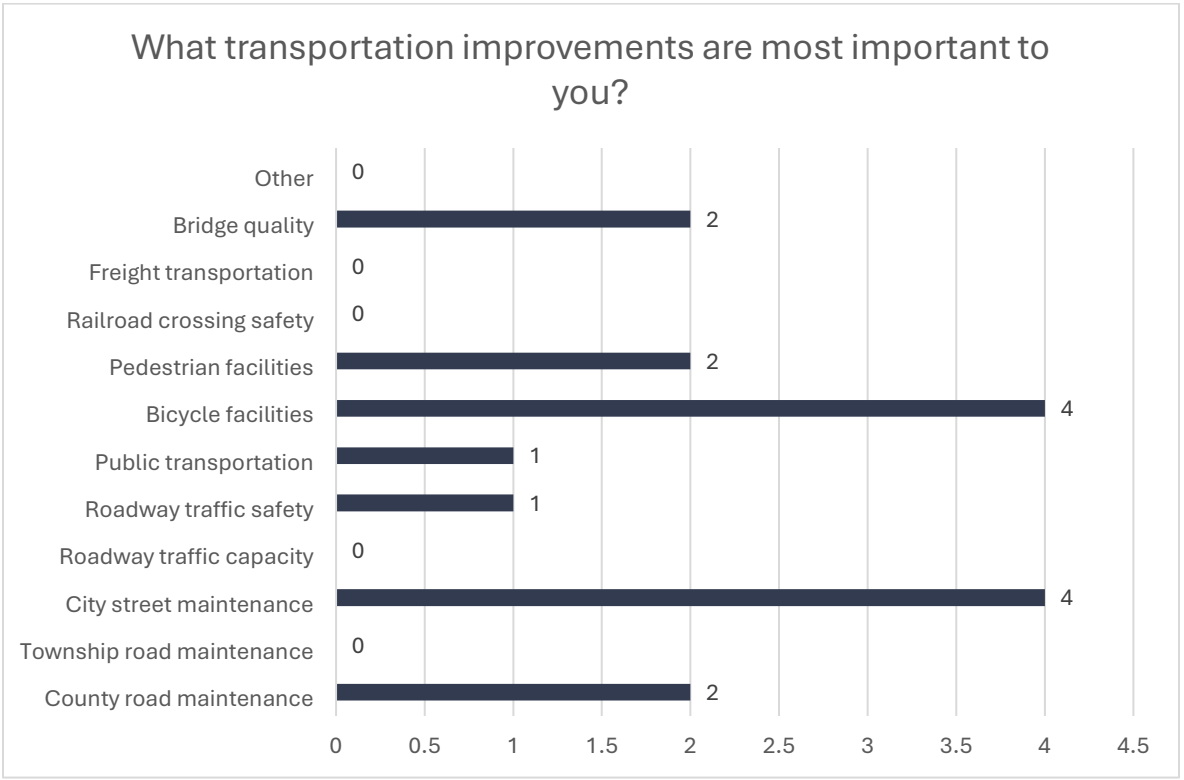
Please rate overall traffic safety in Lawrence County.



Pavement conditions on County roadways throughout Lawrence County are generally in:



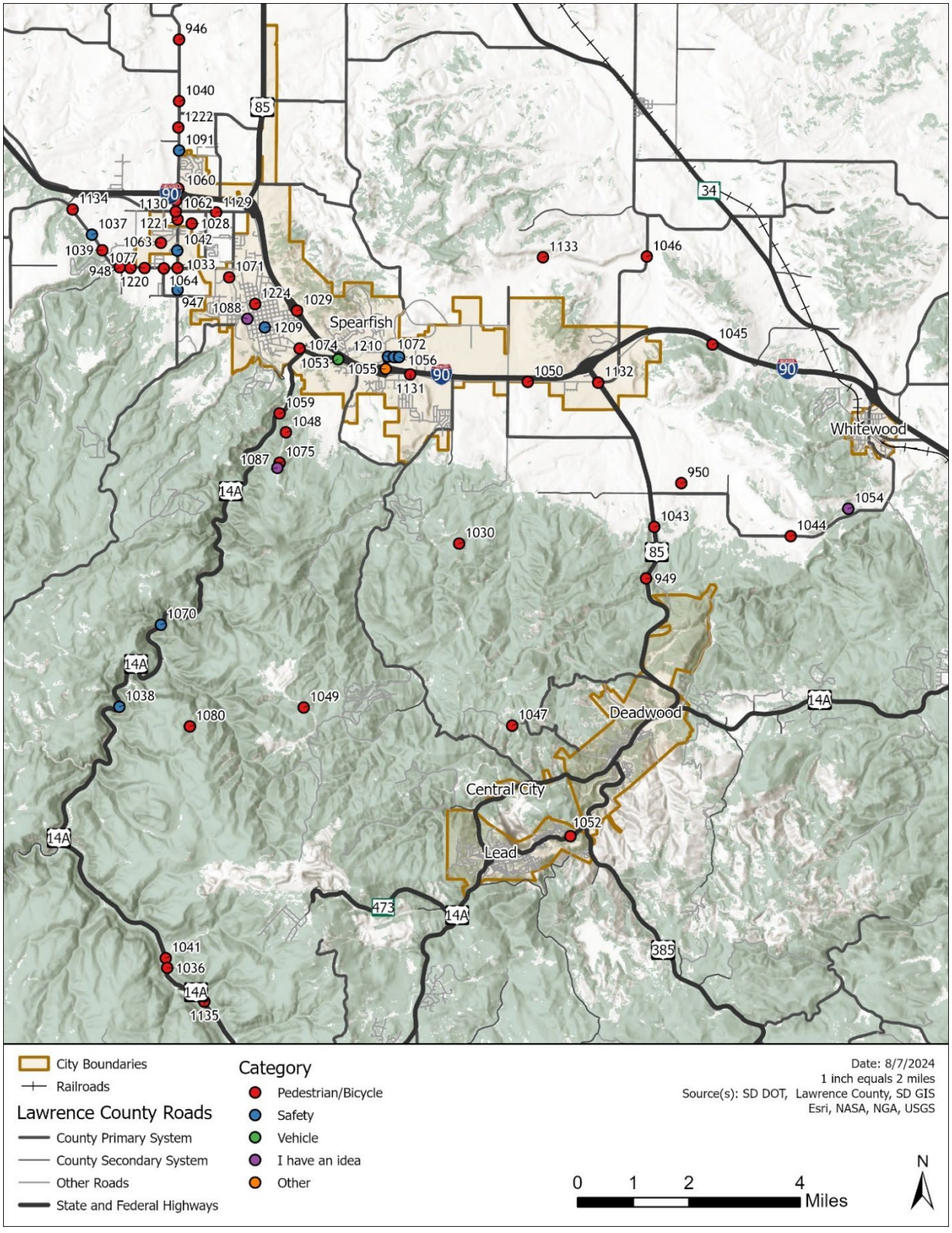




Interactive Issues Map Engagement Results

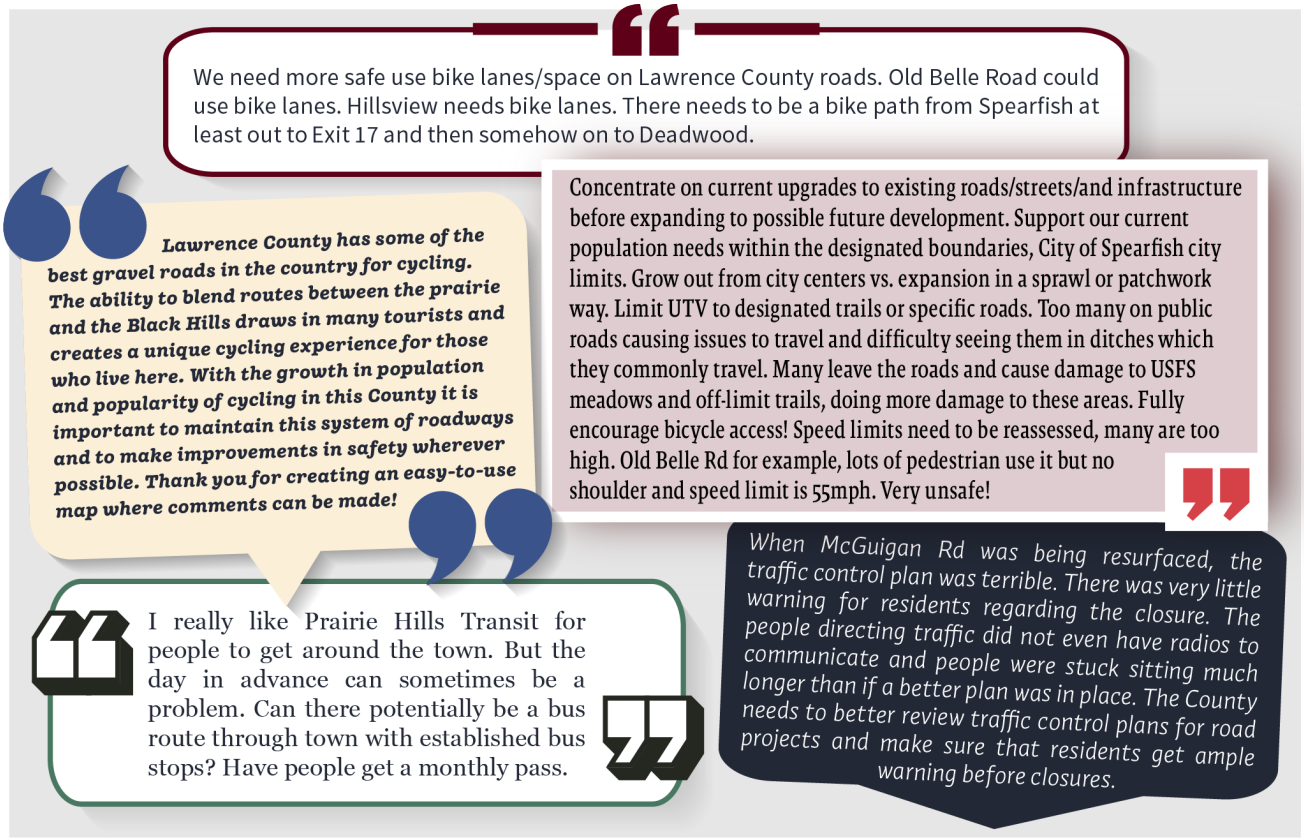
Comments by category are shown in FIGURE 4. Specific comments received from the interactive map are included in Appendix B.

Figure 4. Interactive Map Comments by Category



Comment Clusters and Summary

Open ended comments received online:



Transportation Plan Goals Survey

Please rate satisfaction with various components of Lawrence County's transportation network.

Ease of travel	Adequacy of signing streets	Availability of safe bicycle and pedestrian facilities	Ability to pass stopped or slower moving vehicles	Maintenance of State Highways	Maintenance of rural roads	Maintenance of city streets
Good	Good	Poor	Good	Good	Good	Good
Good		Poor	Adequate	Good	Good	Good
Good	Good	Poor	Adequate	Adequate	Good	Adequate
Good	Good	Adequate	Adequate	Good	Good	Adequate
Adequate	Good	Good	Adequate	Good	Excellent	Poor
Good	Adequate	Poor	Adequate	Good	Poor	Adequate

CHAPTER 3 – BASELINE CONDITIONS

Introduction

The baseline conditions analysis provides a multi-modal comprehensive inventory of the condition of existing transportation facilities within Lawrence County. This analysis of the existing the transportation network will help Lawrence County officials to understand the system's current strengths, weaknesses, and areas for improvement. Additionally, an evaluation of population totals, distributions, and historical growth trends is necessary to anticipate where transportation investment can best support future development and growth.

The Baseline Conditions Chapter presents an array of data related to Lawrence County's existing transportation system and its users. This information in useful in analyzing the physical condition of the roadways and addressing operations and maintenance. The following sections are included in this chapter:

- Population
- Future Growth Areas
- Roadway
- Multi-Modal Transportation

Population

As population within Lawrence County increases, impacts related to traffic and transportation safety also increase.

Existing Population Trends

Lawrence County is the eighth most populated County in South Dakota based on 2022 population estimates. The 2022 estimated population of Lawrence County is 27,214. The official 2010 count was 24,097, representing a 12.9% increase since 2010.

The County includes the incorporated municipalities of Spearfish, Lead, Central City, Deadwood and Whitewood. Crook City, Nemo, and St. Onge are unincorporated communities. Census estimates for the 2022 municipal populations are graphically displayed in the tree map shown on the right. FIGURE 5 shows the trend line of the County's population since 1970.

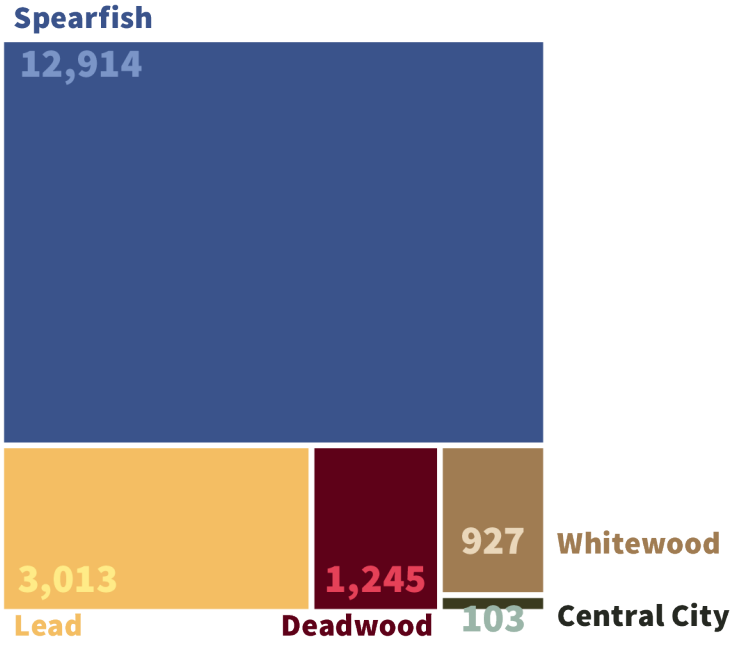
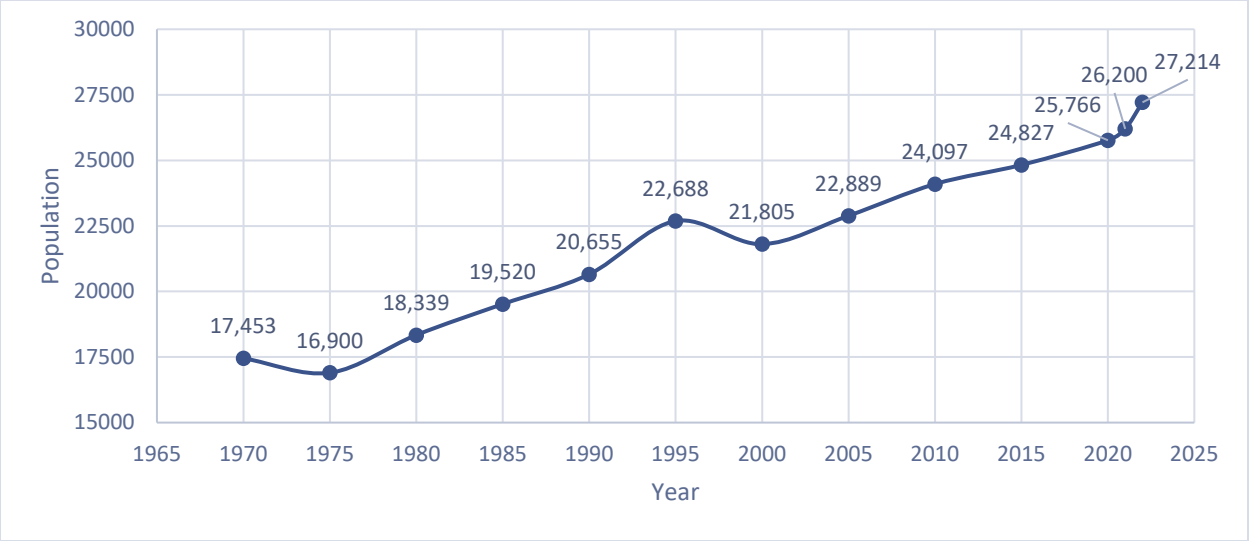


Figure 5. Lawrence County Population Growth 1970–2022

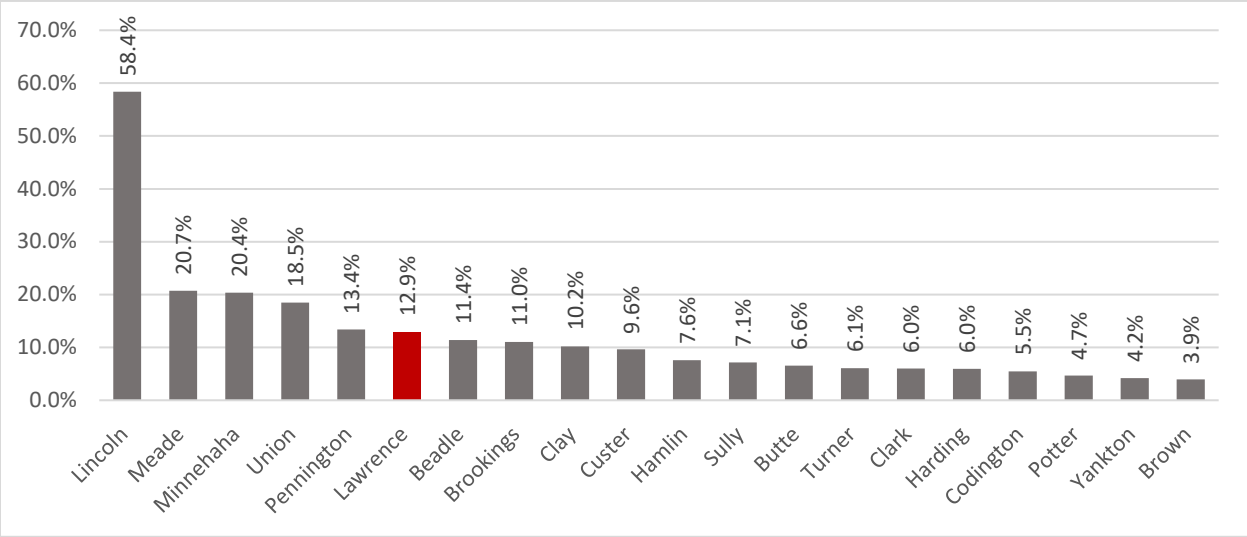


South Dakota's top 20 counties by population growth rate from 2010-2022 are summarized in FIGURE 6 on the following page. Lawrence County has seen significant growth in comparison to most South Dakota counties within the last decade and is now the eighth most populated county in the state as shown in TABLE 1.

Table 1. Most Populated South Dakota Counties – 2022

	2010	2022	GROWTH
South Dakota	814,180	909,824	11.7%
Minnehaha	169,468	203,971	20.4%
Pennington	100,948	114,461	13.4%
Lincoln	44,828	70,987	58.4%
Brown	36,531	37,972	3.9%
Brookings	31,965	35,484	11.0%
Meade	25,434	30,698	20.7%
Codington	27,227	28,721	5.5%
Lawrence	24,097	27,214	12.9%
Yankton	22,438	23,373	4.2%
Davison	19,504	19,973	2.4%

Figure 6. South Dakota's Top 20 Counties by Rate of Population Growth (2010–2022)



The majestic landscapes and the desirable living conditions in beautiful Black Hills along with the plethora of outdoor activities, and a business-friendly economy contribute to the County's growth in new residents and investment. The population growth is significantly attributed to the growth in and around the City of Spearfish. The city's population was estimated to be 13,635 on July 1, 2024, while the 2010 population was 10,494.

Future Growth Areas

Urban Growth

As previously stated, Spearfish has been experiencing growth within its boundaries and along its periphery. This obviously impacts the transportation system with increased traffic, including multi-modal users. Some of the County roads within and outside the municipal boundaries have urban type characteristics such as pavement, curb, and gutter. This creates some jurisdictional responsibilities and concerns from the residents, local government staff, and the governing bodies.

There have been several studies in the Spearfish area which have provided analysis and recommendations to policy makers. They include Black Hills Context Sensitive Corridors Study, May 2020; East Colorado Boulevard Area Study, 2022; Highway 85 Land Use Study - Kerwin Lane to Lawrence/Butte County Line, 2009; and the Old Belle Road Area Study, 2009.

The SAT has also indicated that the Whitewood area is ripe for potential growth. Boulder Canyon, Boulder Heights, Apple Springs, Crook City Road, and Valhalla are additional areas that have organized water and/or sewer districts similar to small, urbanized communities. Spearfish also has developments that are planned but not ready for construction. These developments may not be annexed, but due to the vicinity to Spearfish it is probable they will have urban-like roads.

Rural Development Growth

Approximately 45% of the County's population is outside municipal limits. Growth outside city limits is mostly from existing developments that have been planned, designed, and platted throughout the County and that are filled in with new construction. Lots are sold and built on incrementally, and the infrastructure is installed in phases. Powder House Pass and Deer Mountain are a couple of the larger developments that have consistently filled in over the past few years.

Rural Development Constraints

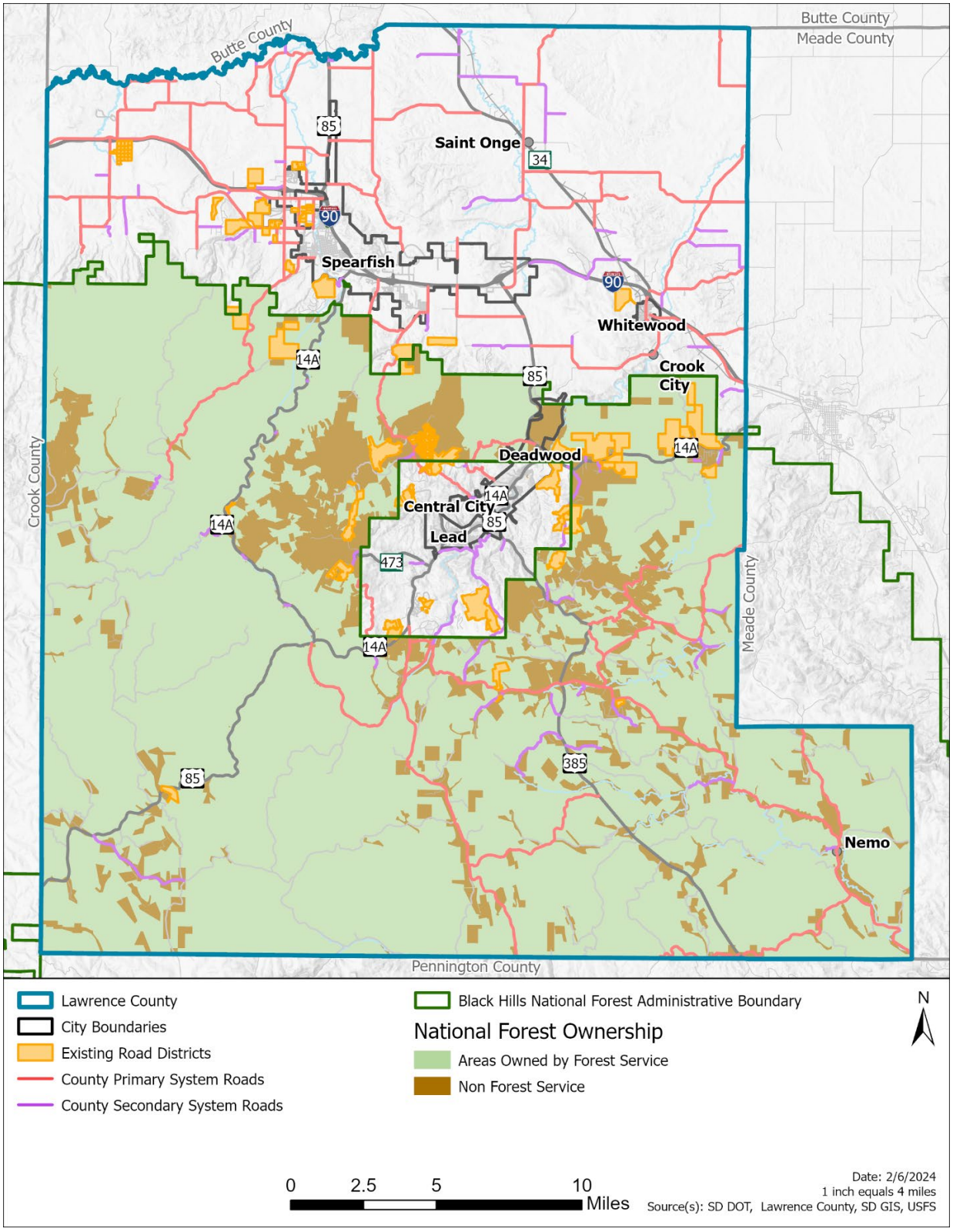
Several constraints limit development in rural parts of the County, especially within the Black Hills. Development may be constrained by lack of access, lack of available land, and the availability of water and sanitary sewer/disposal.

Private Roads and Road Districts. Many of the developments' roads are located within and governed by established road districts. These districts are quasi-governmental entities that have the authority to levy taxes and are responsible for the construction and maintenance of the roads within an established boundary. There are over 50 Road Districts throughout Lawrence County. Many road districts border National Forest land, which limits development activities. The Planning Office and Highway Department have indicated they receive several requests every year to do maintenance or completely take over private roads, including road districts. The County Commission has not been approving these requests. FIGURE 7 shows road districts and National Forest land tenure in Lawrence County.

Other developments may be served by private roads that are maintained by private agreements or homeowner associations. The County is not responsible for any of these roads. Maintenance quality varies significantly, with some entities performing excellent upkeep while others do less. Many homeowners in rural areas of the County have access easements identified and dedicated to the public or neighboring property owners. These easements only provide access to the property, they do not infer any responsibility to the County. Maintenance and installation are the homeowner's responsibility.

The County's subdivision ordinance requires private roads to meet minimum standards to ensure adequate right-of-way and access for emergency response vehicles. The mountainous terrain and varying weather conditions pose significant challenges for emergency response. Many developments and County roads can be difficult to navigate during adverse weather. The subdivision ordinance has been effective in ensuring proper design, layout, and access for emergency response vehicles.

Figure 7. Lawrence County Road Districts and National Forest Ownership



Outside of the Black Hills. The northern part of the County does not have the same physical constraints on development as other parts, because much of the land is flat, open space used for farming and ranching. There is some residential development of large lots often called ranchettes. Access from residences to County roads is by private driveways or private easements.

Railroad Development

The Rapid City, Pierre & Eastern Railroad (RCPE) traverses the northeast corner of the County, passing through Whitewood and St. Onge. This presents opportunities for economic and industrial development, particularly for value-added agricultural activities, rail-dependent industries, and similar ventures.

Future Land Use

Lawrence County's 2020 Comprehensive Plan provides goals, objectives, and recommendations that provide a framework for the County's policy-making that should align with planning documents. If ordinances and procedures put the comprehensive plans into action, then decision making is consistent, transparent, and equally applied. There will be exceptions, but they should have solid justifications and sound rationale in consideration of those rare occasions.

Spearfish, Lead, and Sturgis are currently updating their comprehensive plans. Deadwood's comprehensive plan was completed in 2018. The City of Spearfish's Master Transportation Plan was done in 2011. The cities and the County currently share platting jurisdiction and some land use controls pursuant to intergovernmental agreements and state statute. A Lawrence County *Future Land Use (FLU) Plan* and *Future Land Use Map* (FLUM) was being prepared as of this MTP report writing. The Future Land Use Plan and map cites "*Goal 4: Plan for the development and growth around key highway corridors.*" Goal 4 actions state:

FLU Actions:

- Identify opportunities (in the FLUM) for industrial and commercial activity along the Highway 85 North corridor, aligning with the Highway 85 Land Use Study.
- Allow for a mix of uses and development types on County lands adjacent to E. Colorado Blvd, as appropriate in the Spearfish 3-mile area and update zoning accordingly.
- Allow for higher density, mixed use, and commercial development off Old Belle Road as identified in the FLUM.
- Support road infrastructure improvements that allow for multimodal transportation along major road corridors through lands that are expected to develop at higher densities or be annexed by the city.

Subdivision Growth

The municipalities' annexation to accommodate growth depends on several factors, including the feasibility of installing municipal infrastructure, availability of utilities, physical conditions such as terrain and soil, proximity to public lands, incentives and policy decisions, public financing, and leadership priorities. These conditions may hinder municipal expansion. However, there is demand for development along the periphery of the cities' boundaries, so proposed developments may be presented to the County. In these areas many existing roads are narrow, have gravel surfaces with sharp drop-offs, and lack sufficient clear zones. With increasing ADT counts, many of these roads need improvement.

With the expectation of increased traffic on the County Road system, especially near the municipalities, coordination of jurisdictional transitions between the County, the municipalities, and the SDDOT must be as seamless as possible. The County has been reluctant to use tax incremental financing for developments in the County. The capital costs for infrastructure are the responsibility of the development. However, the County has been open to cost sharing with other entities on mutually beneficial projects. The County planning office indicated that the City of Spearfish has many existing subdivisions being developed and that infrastructure capacity is becoming an issue. The City of Spearfish has made multiple annexations since 2000. The City of Spearfish and its relationship with the County via extraterritorial jurisdiction and joint powers agreements areas are shown in FIGURE 5.

Existing Standards and Ordinances

Website and Ordinance Availability

The Lawrence County website is very navigable and has links to the various permits required from the County and the County's ordinances are readily available. It appears by the citations the ordinances are reviewed and amended periodically. The County has adopted subdivision and zoning ordinances that provide land use controls and design standards.

The Lawrence County website has a link to the County Highway Department and the Planning and Zoning Offices. This provides the public access to the various documents and information required by the highway department for permits and requirements for activities involving the County departments. The County subdivision ordinance and zoning code are also available on the County's website.

Review of Existing Standards and Ordinances

A review of existing roadway standards was completed in June and July 2024, and the results were reviewed with at the SAT 4 meeting held on July 17, 2024. The results of that analysis are summarized as follows:

- General – too much emphasis on arterial road standards
    - County has three miles arterial, 160 miles collector, 159 miles local.
    - Some standards combine collector/local, should separate collector and local.
- ROW – varies by development density & functional class.
    - Suggest simplifying to just functional class and other design criteria.
    - Recognize impact of shoulders, bike/ped facilities, urban/rural on widths
    - Align collector road ROW with arterial instead of local road?
    - Eliminate major arterial references.
- Gravel surfacing and paving is tied to development density – tie instead to traffic volume and truck thresholds (SAT 5 meeting will examine this)
- Sidewalks tied to development density – include only on curb and gutter sections?
- 100 – 200' minimum centerline curve radius is too short – follow SDDOT
- Access Standards – five (5) accesses/side/mile, min. 1000' spacing.
    - Provide clarity on access management standards.
    - Prohibit negative offset intersections (ex. may be grandfathered in)

Proposed revisions to existing standards and ordinances are more clearly described in Chapter 5.

Previous Studies

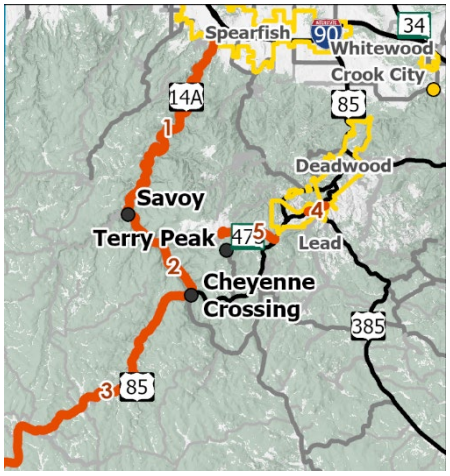
The following is a listing of key studies and a highlight of their findings that address specific areas in Lawrence County. These areas have been identified for future growth or protection from growth. The roads studied are primarily SDDOT roads, but they may intersect with County roads and the SDDOT controls the access, which affects future development activity.

Black Hills Context Sensitive Corridors Study

Existing roadway conditions were evaluated as part of the Black Hills Context Sensitive Corridors Study, May 2020. The study identified five Lawrence County routes as context sensitive corridors that reflect the following unique characteristics relative to other state routes:

- Scenic vistas and protected areas immediately adjacent to the route.
- Geologic features such as tunnels and/or rock outcropping.
- Multiple consecutive combinations of horizontal and/or vertical curves that make motorcycle, bicycle, and auto drives interesting for travelers.
- Narrow (less than 12 foot with minimal or no shoulders) travel lanes reduce the road cross section and the level of impact on the surrounding geological features and/or natural areas.
- These popular sites and events also attract bicyclist and, in select cases, pedestrian travel that must share the road with motor vehicles including, motorcycles, automobiles, recreational vehicles, vehicles towing trailers, tour buses as well as commercial vehicles.
- Associated with improving access to activity areas and accommodating mixed modes are requests.

Figure 8. SDDOT Context-Sensitive Corridor Studies



The five corridors studied in Lawrence County were the following:

US 14A – South of Spearfish to Savoy	US 14A – Savoy to Cheyenne Crossing	US 85 – Wyoming Border to Cheyenne Crossing	US 85 – Lead to Deadwood	SD 473 (Terry Peak Rd) – US 85 to Terry Peak Ski Area
Potential improvements included adding pullouts, parking, improving drainage, better signing and pavement markings, and better motorcycle accommodations.	This corridor was carried forward to Phase 3. Phase 3 recommended wider shoulders (five feet) to match existing shoulder width in Corridor 1 along with improving drainage, signage, and motorcycle accommodations.	Potential improvements included various design and safety elements and adding turn lanes.	This corridor was identified for a potential off-road bike/ped shared use path, wider shoulders and lanes, and safety improvements.	Potential improvements included better drainage, pavement treatments, and road weather cameras and information systems.

Spearfish Studies

Numerous studies have also been done in the Spearfish area since 2009. They include:

Highway 85 (2009): This study was produced after the City of Spearfish annexed approximately 620 acres of land east of US Highway 85, between Kerwin Lane and Kellem Lane. The plan was a joint effort between the city, Lawrence County, and SDDOT to provide for planning for an area that was considered likely to develop. The study identified two main land use distinctions: those areas within 660 ft on either side of the highway, and those beyond 660 ft. The areas within 660 ft were identified as likely to develop as urban mixed use, with areas beyond this delineation identified for likely residential development, with a transition to the rural large lot ranchette style development beyond.

Old Belle Rd (2010): Similar to US 85, Old Belle Road was considered ripe for development. This study was produced to plan for likely growth along the corridor while maintaining a rural or agricultural lifestyle for area residents.

Spearfish Master Transportation Plan (2011): The threefold purpose of the project was to complete a list of transportation issues and needs facing the Spearfish Area, develop feasible solutions to address those issues and needs that meet current design standards and/or traffic level of service expectations under both the current and predicted future traffic conditions, and create final products for use by the City of Spearfish, Lawrence County and the SDDOT. The study provided guidance to implement recommended improvements and anticipate future development plans within the area.

E Colorado Blvd (2022): Development at Elkhorn Ridge and the Sky Ridge neighborhood prompted this study between the City of Spearfish and Lawrence County. The study reviewed the area around East Colorado Boulevard to plan for growth between Maitland Rd and US Highway 85. The study recommended urban and suburban development, with added sewer capacity to be provided by an upgrade at the Elkhorn Ridge lift station.

The study areas from each of the studies are illustrated in FIGURE 9 and FIGURE 10.

Figure 9. Extraterritorial, Joint Powers, and 3-Mile Areas – Spearfish

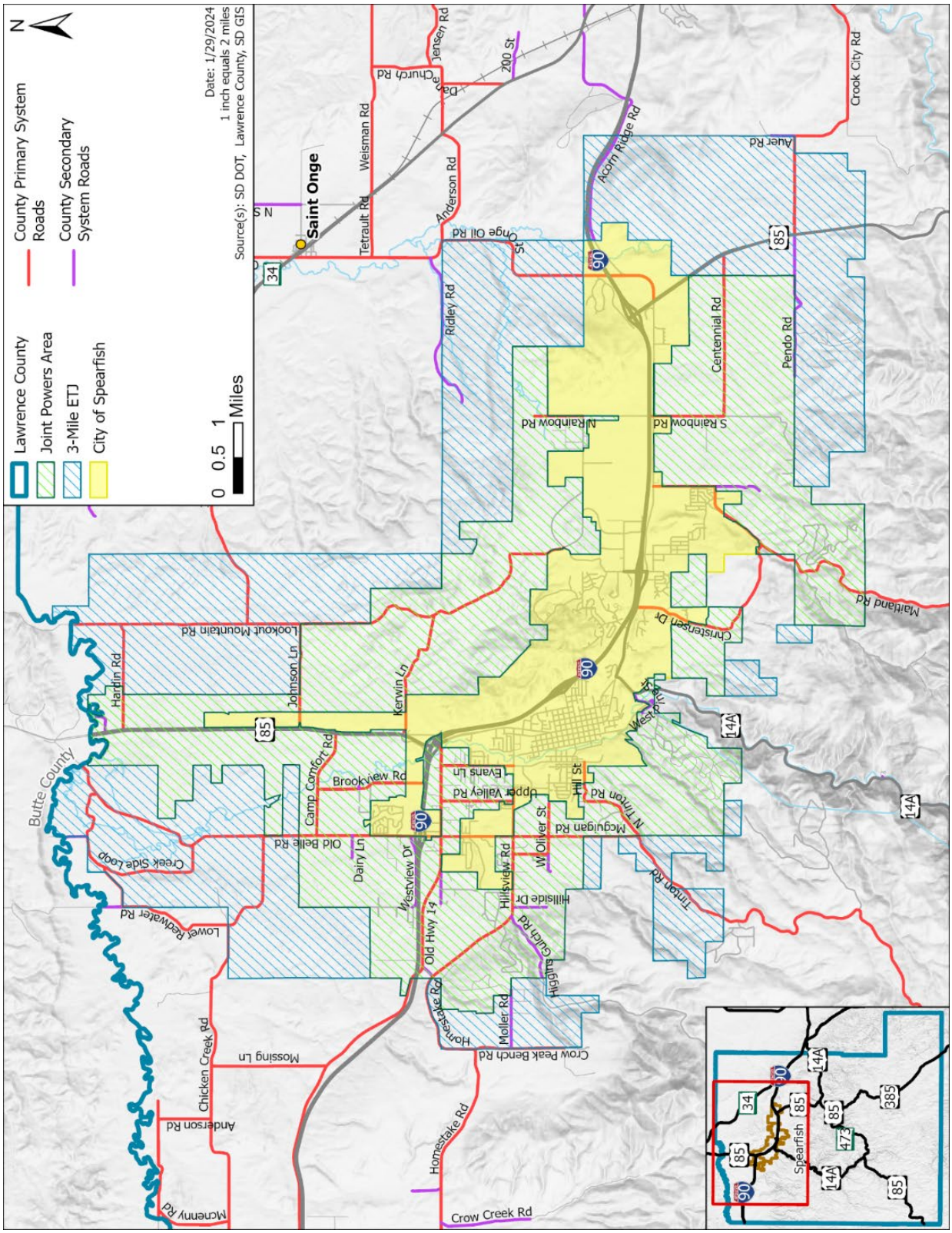
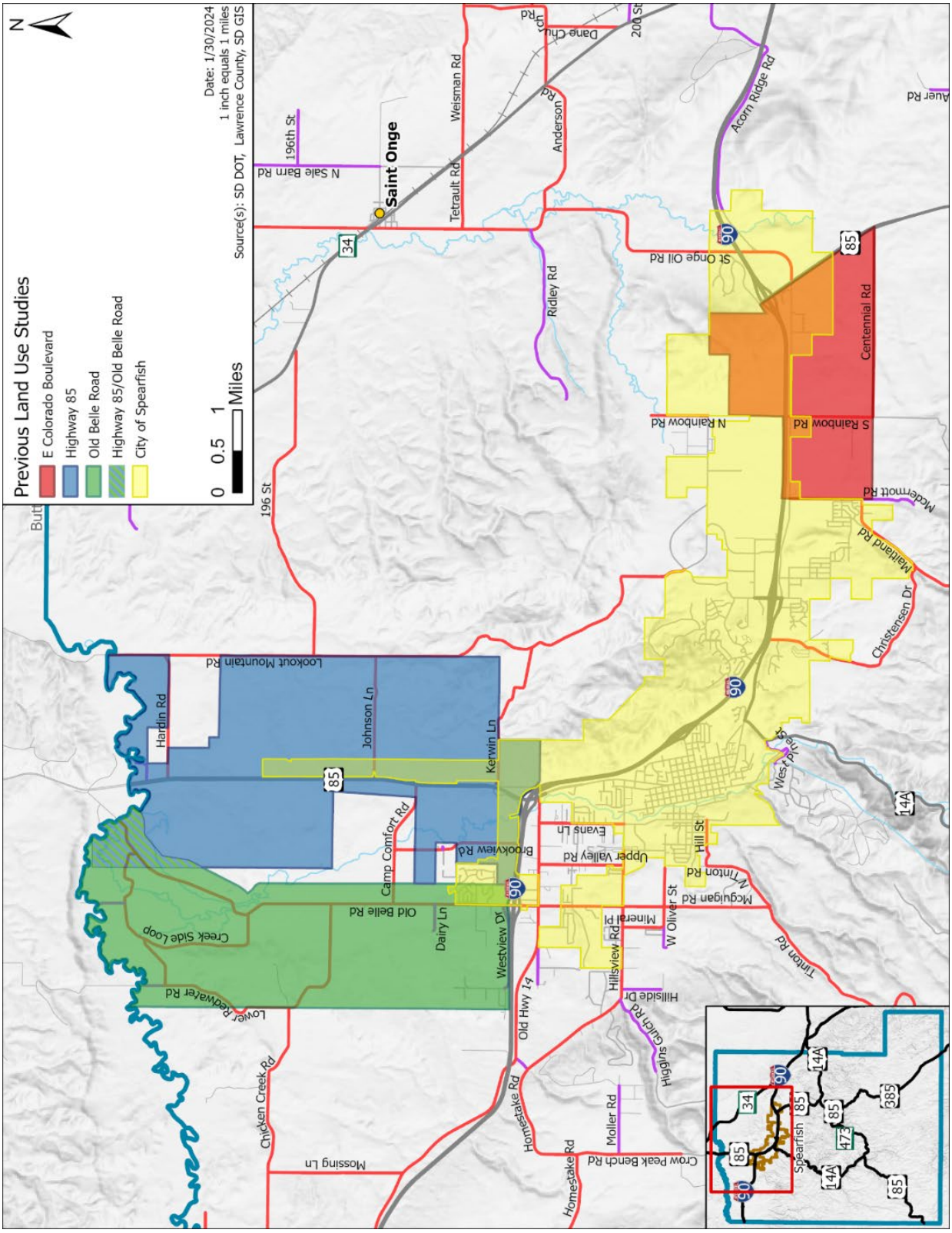


Figure 10. Previous Land Use Studies – Spearfish



Roadway

Roadway Conditions

While a roadway conditions analysis was beyond the scope of this study, roadway conditions were considered a critical element in prioritizing project needs for the future. For this, analysis relied strongly on the County's Five-Year Plan as a guide to where current roadway conditions pose an immediate concern to road mobility. Project priorities to address deficient roadway conditions were established based on visual inspections of 16 key intersections, and input from County staff and public stakeholders.

Jurisdictional Ownership

Within the Lawrence County study area, highways, streets, and roads include numerous jurisdictions. The South Dakota Department of Transportation (SDDOT) is responsible for maintaining the Interstate and State Highway systems, which move people and freight efficiently across the region, state, and country.

County and Township roadways distribute traffic to home, work, and businesses (collectors), and provide rural local roads to private land, farms, and rural residencies. Streets are primarily roadways within municipal boundaries. Within the County's cities, a system of streets composes the traditional grid systems typically found across the Midwest. However, due to the terrain and other physical barriers that makes the installation of straight roads not practical, some areas have street patterns with more curvilinear alignments and dead ends. Depending on the jurisdiction, roadways draw from different funding sources for maintenance and improvements.

Miles by jurisdiction can be seen in Table 2.

On the following pages, maps of roadway by jurisdiction can be seen in Figure 11 and Figure 12. In Figure 12, County jurisdiction roads focus on those within Spearfish city limits.

A comprehensive list of County Jurisdiction Roads is provided on the following page in Table 3.

Table 2. Lawrence County Roadway Miles by Jurisdiction

JURISDICTION	MILES	PERCENT
State and Federal	318.6	34.6%
County Primary System	248.7	27.0%
County Secondary System	73.8	8.0%
Township System	3.5	0.4%
City Streets	126.8	13.8%
Other Administration	148.5	16.1%
TOTAL	919.9	100.0%

Table 3. County Jurisdiction Roads

NUMBER	NAME	PRIMARY OR SECONDARY	ASPHALT OR GRAVEL	SUFFIX ABBREV
4040	Nemo Road	P	A	NEMO RD
2080	Merritt Estes Road	P	G	MERRITT ESTES RD
0260	Vanocker Canyon Road	P	A	VANOCKER CANYON RD
2370	Rochford Road	P	B	ROCHFORD RD
2270	Brownsville Road	P	G	BROWNSVILLE RD
1960	Hanna Creek Road	P	B	HANNA CREEK RD
				HANNA RD
0440	Elk Creek Road	P	G	ELK CREEK RD
1800	Erickson Road	P	G	ERICKSON RD
5340	Galena Road	P	G	GALENA RD
2470	Yellow Creek Road	P	G	YELLOW CREEK RD
1950	Maitland Road	P	B	MAITLAND RD
0200	Christensen Drive	P	B	CHRISTENSEN DR
1342	N. Tinton Road	P	G	N. TINTON RD
				N TINTON RD
1341	McGuigan Road	P	B	MCGUIGAN RD
0121	Hill St	P	G	HILL ST
0100	Homestake Rd	P	G	HOMESTAKE RD
0090	Red Hill Rd	P	G	RED HILL RD
0110	Crow Peak Bench Road	P	G	CROW PEAK BENCH RD
0113	Moeller Road	S	G	MOELLER RD
				MOLLER RD
0214	Lookout Mt Road	P	G	LOOKOUT MT RD
				LOOKOUT MOUNTAIN RD
6642	Johnson Road	P	G	JOHNSON RD
				JOHNSON LN
0010	Hardin Road	P	G	HARDIN RD
5430	McNenny Road	P	G	MCNENNY RD
6640	Chicken Creek Road	P	G	CHICKEN CREEK RD
1050	Old Belle Road	P	A	OLD BELLE RD
0080	Mossing Lane	P	G	MOSSING LN

0143	Whitewood Service Road	P	A	SERVICE RD
1100	Whitewood Valley Road	P	B	WHITEWOOD VALLEY RD
0310	Jackson Road	P	G	JACKSON RD
0262	Weisman Road	P	G	WEISMAN RD
0142	Acorn Ridge Road	S	A	ACORN RIDGE RD
0230	St Onge Road	P	A	ST ONGE RD
				ST ONGE OIL RD
196	196th Street	P	G	196 ST

Figure 11. Road Jurisdiction

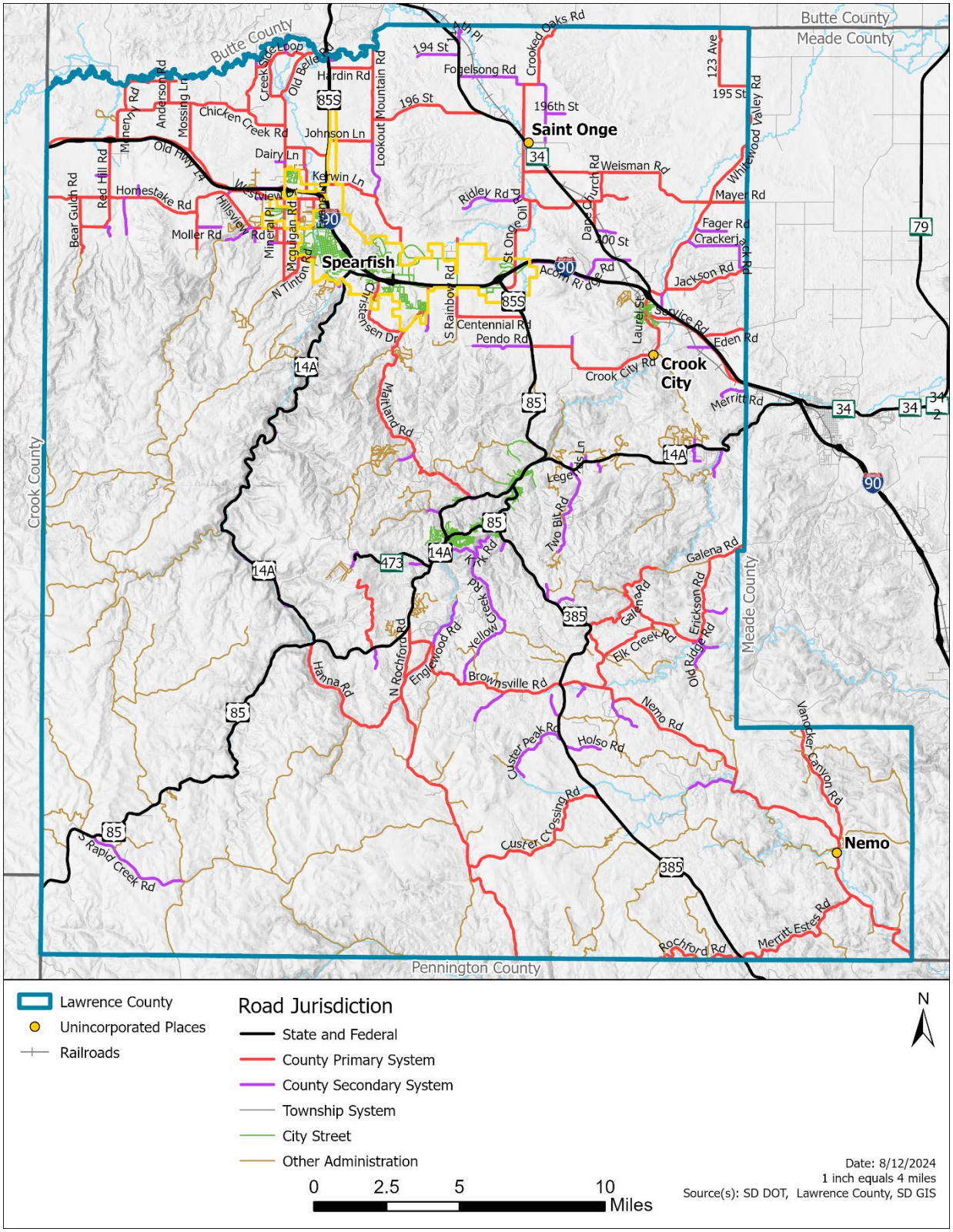
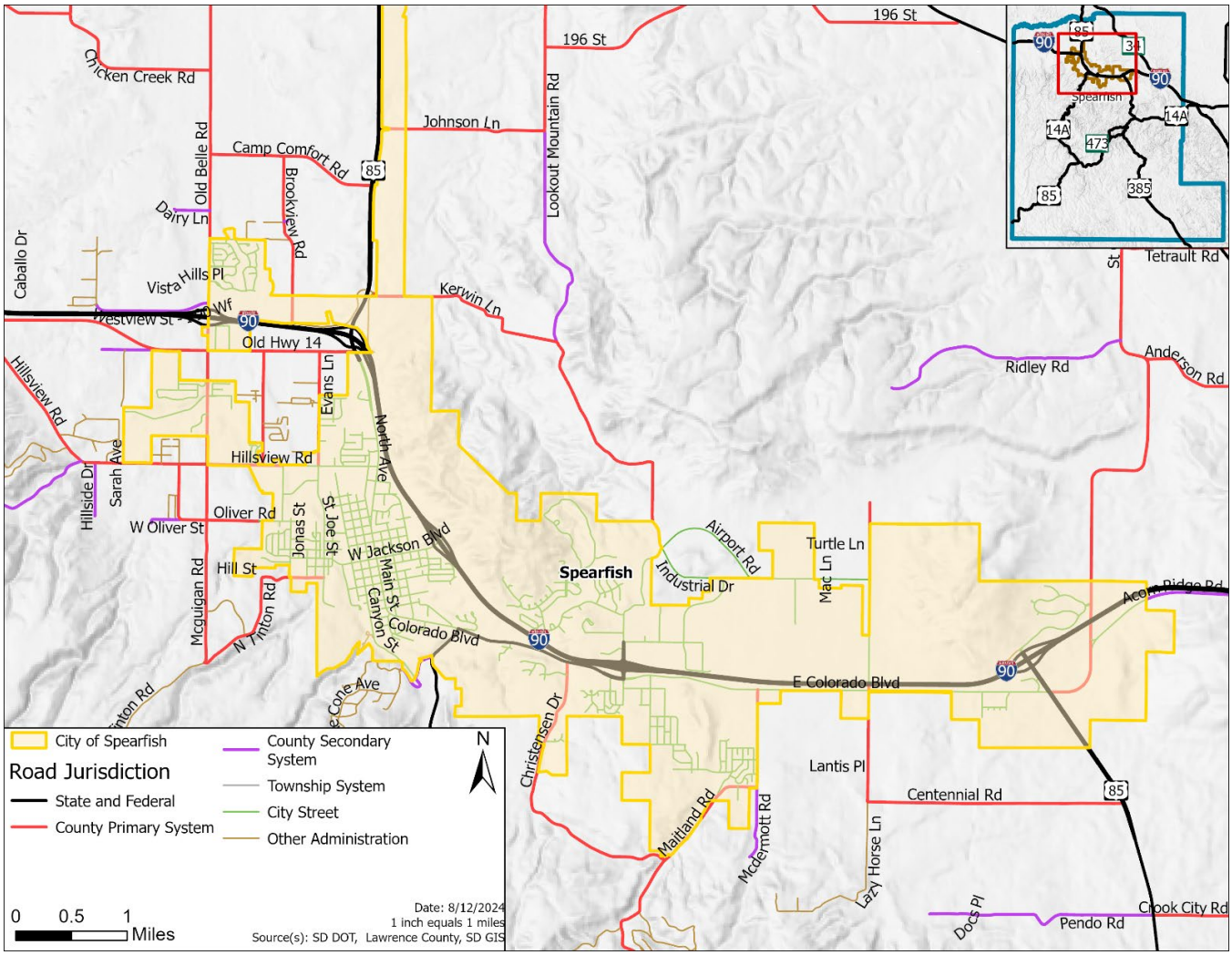


Figure 12. Road Jurisdiction – Spearfish

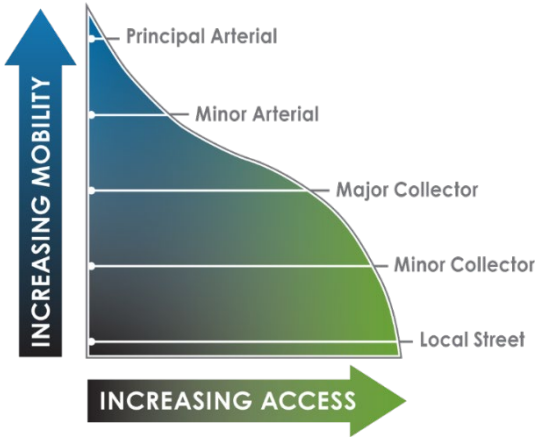


Functional Classification

The operation of a county's transportation network is supported by the functional classification of its roadway system. This classification defines the role each road segment is intended to play in serving traffic flow through the study area. By defining a functional classification system, traffic can be conducted logically and efficiently. The FHWA organizes roadways into a hierarchy of five general functional classifications as shown in FIGURE 13.

Most streets and highways have one of two predominant functions: either they provide the motorist with access to abutting land, or they promote optimum mobility

Figure 13. Functional Classification – Access and Mobility



through an area. Traffic that provides access to abutting land is considered "local," while all other traffic is considered "through." Through traffic neither originates nor terminates within a designated area, but simply traverses it. Conversely, local traffic has origins or destinations within a designated area.

A general definition for each of the FHWA functional classifications is provided below. For the purposes of this MTP, rural functional classifications are roads outside the urban growth boundary, whereas urban functional classifications are within urbanized areas inside the urban growth boundary.

Principal Arterials. Principal Arterials provides regional and interstate transportation of people and goods. This is done by designing facilities to accommodate high speeds and long, uninterrupted trips. In urban areas, principal arterials constitute high-volume corridors with a large portion of regional trips. There are no Principal Arterial roads on the County Road system.

The FHWA specifies three subcategories within the Principal Arterial classification:

- Interstates are the highest classification of Arterials, designed for high-speed, long-distance travel. I-90 is the County's only interstate, running generally east-west through the County and across South Dakota.
- Other Freeways & Expressways, while not included in the Interstate system, operate similarly to Interstate roadways. Roads in this classification generally have directional travel lanes separated by a physical barrier, with access points limited to on- and off-ramp locations or a limited number of at-grade intersections.
- Other Principal Arterials serve major metropolitan areas and can also provide mobility through rural areas. Unlike their access-controlled counterparts, Other Principal Arterials occasionally directly serve abutting land uses. Examples within Lawrence County include US Highway 85 and US Highway 385.

Minor Arterials. Federal legislation continues to use functional classification in determining eligibility for funding under the Federal-aid program. At present, roads functionally classified as a "rural major" or "urban minor" collector or higher are eligible for Federal assistance – these are referred to as "Federal-aid Highways".

Minor Arterial routes within the street system provide connections and support the Principal Arterial system. Trips using these facilities are generally shorter and spread out over a smaller geographic area. Minor Arterials allow more access than their Principal Arterial counterparts. Minor arterials can be further classified into rural and urban minor arterials.

Minor Arterial routes within Lawrence County include SD Highway 34 and US Highway 14A. There are no Minor Arterial roads on the County Road system.

Rural Minor Arterials form a rural network having the following characteristics:

- Link cities, towns, and other traffic generators like major resort areas that attract travel over long distances and form an integrated network to interstates and freeways.

- Spaced at intervals to allow a reasonable distance for all developed areas within an arterial highway.
- Provide relatively high overall travel speeds, with minimal interference to through movements.

Urban Minor Arterials interconnect with the principal arterials to provide trips of moderate length with less travel mobility than principal arterials. The spacings of urban minor arterials are generally not more than one mile in fully developed areas.

Collectors. Roughly half the roads on the County Road system are designated as collector roads. Collectors serve a critical role in the roadway network by gathering traffic from Local Roads and funneling it to the Arterial network. Within the context of functional classification, Collector roads in Lawrence County are broken down into four categories: Rural Major Collectors, Urban Major Collectors, Rural Minor Collectors, and Urban Minor Collectors.

Rural Major Collectors provide service to any county seat not on an Arterial route, to the larger towns not directly served by the higher systems and to other traffic generators of equivalent intra-county importance such as consolidated schools, shipping points, county parks and important mining and agricultural areas.

Urban Major Collectors serve both land access and traffic circulations in high density residential, and commercia/industrial areas. They distribute and channelize trips between Local Roads and Arterials, usually over greater than three-quarters of a mile.

Rural Minor Collectors are spaced at intervals, consistent with population density. Minor Collectors collect traffic from local roads and bring all developed areas within a reasonable distance of a major collector or arterial road. Minor Collector facilities provide service to the remaining smaller communities and link local traffic generators with their rural hinterland. Lawrence County has 16.4 % miles of roadways that are classified as rural minor collector.

Urban Minor Collectors serve both land access and traffic circulation in lower density residential and commercial/industrial areas. Typical operating characteristics of Minor Collectors include lower speeds and fewer signalized intersections. Minor Collectors penetrate residential neighborhoods, but only for a short distance.

Local Roads and Streets. Roughly half the roads on the County Road system are designated as local roads. Local roads and streets provide direct access to residential, commercial, and industrial properties. These streets have slower speeds and can include traffic calming measures. They are not intended for long distance travel. Local streets are the largest element in the public road network in terms of mileage. Local streets can be further classified into rural and urban local streets.

Rural Local Roads provide access to adjacent land and service to travel over relatively short distances as compared to collectors or other highway systems.

Urban Local Streets comprise all roadway facilities that are not on any of the higher systems. They provide direct access to abutting land and access to the higher order systems. It offers the lowest level of mobility.

Mileages of each functional class, on the County system and on all systems, can be seen in TABLE 4. County system functional classification can be seen in FIGURE 14 and FIGURE 15.

Table 4. Lawrence County Roadway Miles by Functional Classification

FUNCTIONAL CLASS	JURISDICTION			
	ALL		LAWRENCE COUNTY	
	MILES	PERCENT	MILES	PERCENT
INTERSTATE				
Urban	16.7	1.8%	0	0.0%
Rural	21.5	2.3%	0	0.0%
EXPRESSWAY				
Urban	0.5	0.1%	0	0.0%
Rural	4.5	0.5%	0	0.0%
PRINCIPAL ARTERIAL				
Urban	1.1	0.1%	0	0.0%
Rural	67.9	7.4%	0	0.0%
MAJOR COLLECTOR				
Urban	24.3	2.6%	10.8	3.3%
Rural	139.5	15.1%	100	31.0%
MINOR COLLECTOR				
Urban	0.0	0.0%	0	0.0%
Rural	74.5	8.1%	52.8	16.4%
LOCAL ROADS				
Urban	77.4	8.4%	5.9	1.8%
Rural	492.2	53.5%	153	47.4%
TOTAL	919.8	100.0%	322.5	100.0%

Figure 14. County System Functional Classification

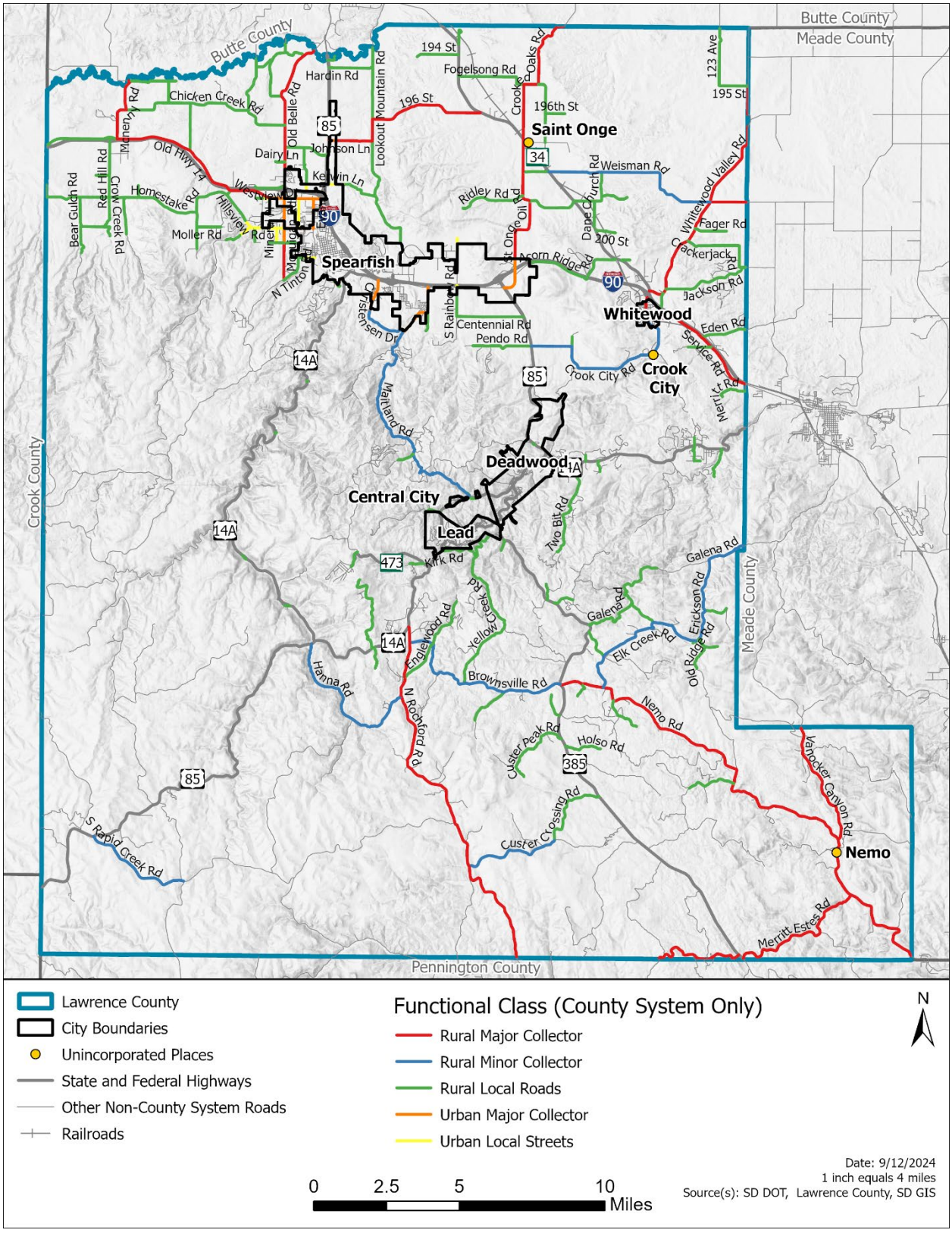
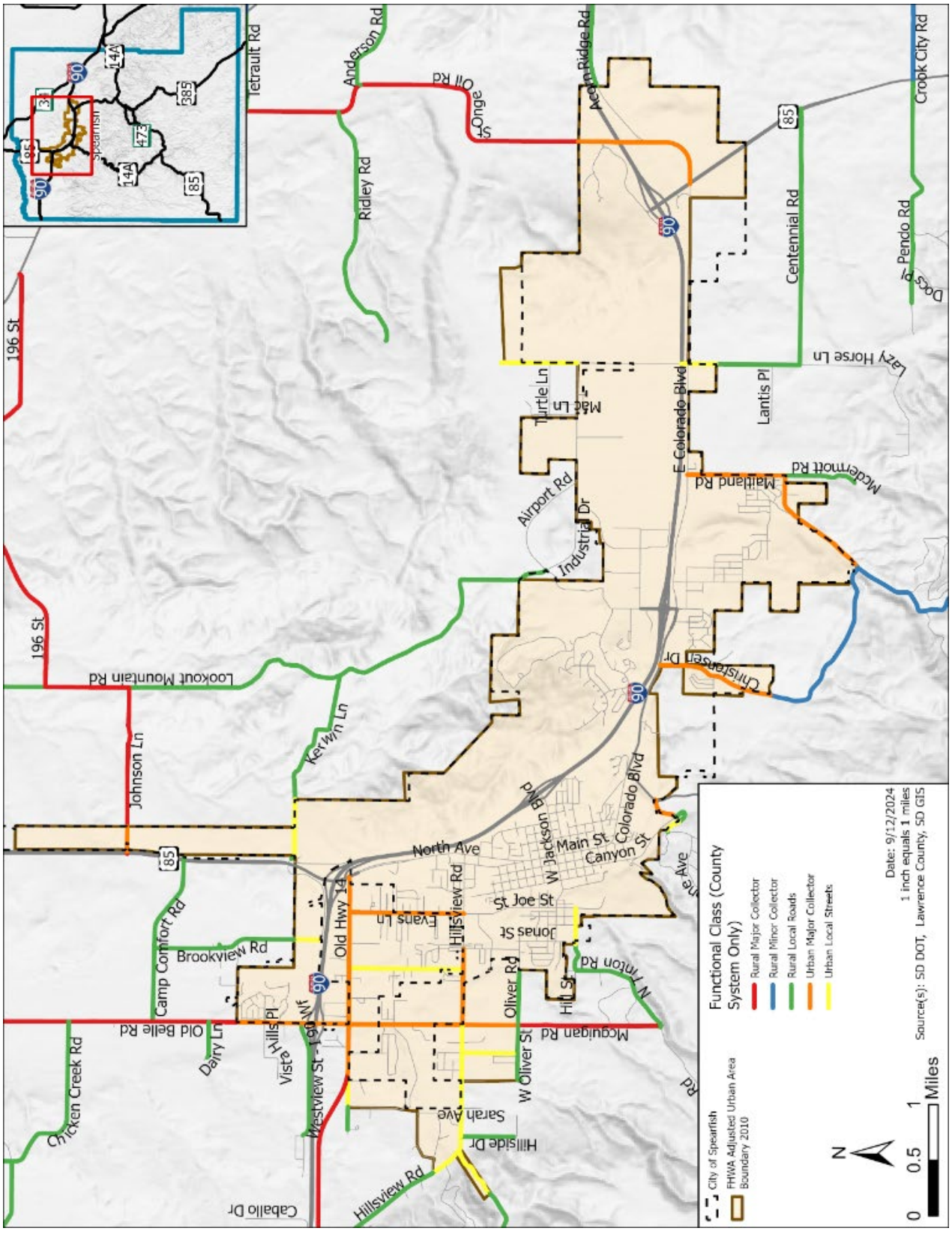


Figure 15. County System Functional Classification – Spearfish



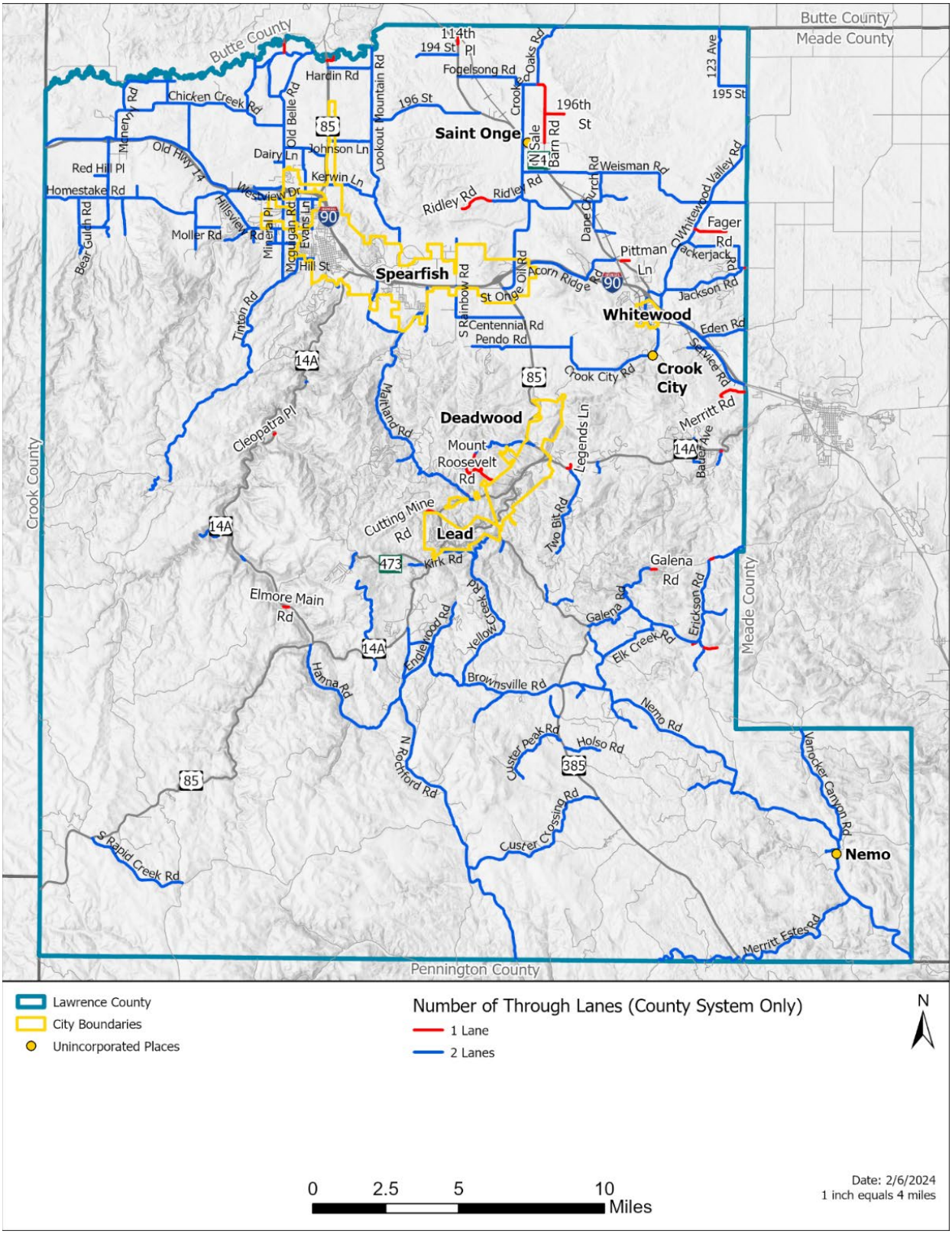
Roadway Number of Lanes Inventory

The roadway functional classification does not define the number of lanes required for each roadway. For instance, a collector street may have two, three, or four lanes, whereas an arterial street may have up to nine lanes. The number of lanes is a function of the expected traffic volume on the roadway and serves as the greatest measure of roadway capacity. Mileages for roads by number of lanes were determined based on GIS data obtained from SDDOT, with median-divided roadways collapsed to a single centerline where feasible.

The County System is largely 2-lane, with 12.6 miles of single lane roads and the balance 2-lane. The SAT has informed KLJ that some of the single lane roads are not maintained and may simply be trails, and some may be considered private driveways. The County has expressed interest in removing some of these roads from the County system. County staff should conduct an analysis and examination of these roads.

The number of lanes for roadways under the jurisdiction of Lawrence County is shown in FIGURE 16.

Figure 16. Number of Lanes on County Roads



Roadway Surface and Pavement Management

South Dakota's transportation network includes over 83,000 miles of roads, of which about 10 percent are state-controlled, and 3 percent are federal routes. This leaves about 72,000 miles of roadway to be maintained by counties, townships, road districts, and municipalities. Most of these are considered low-volume roads, defined by AASHTO as local or minor collector roads carrying a daily traffic volume of 2,000 vehicles or less. These roads are primarily either bituminous- or gravel-surfaced, with the more rural and lower volume roads typically being gravel-surfaced and the more heavily traveled roads being bituminous-surfaced.

In Lawrence County, the most common type of County-owned roadway surface is gravel, which accounts for 68% of the roadway system, while paved roads make 30%. A breakdown of County Road surface type percentages is provided in Table 5, and Figure 17 displays the County road surface types.

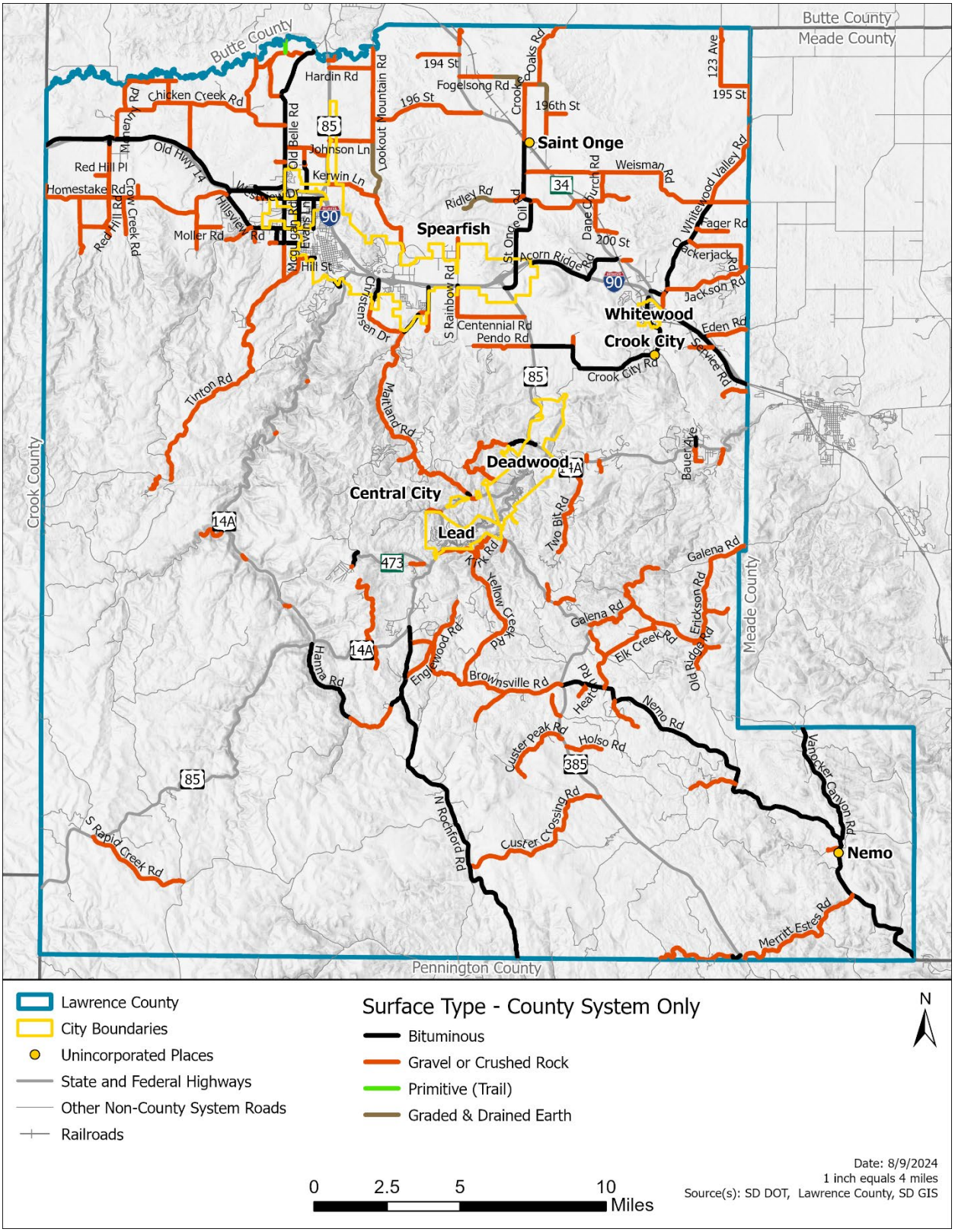
Table 5. Lawrence County Roadway Miles by Surface Type

SURFACE TYPE	MILES	PERCENT
Paved	98.1	30.4%
Gravel	220.2	68.3%
Graded & Drained	3.7	1.1%
Primitive (Trail)	0.5	0.2%
TOTAL	322.5	100%

County Road Pavement Conditions Report

Pavement Condition Index, or PCI, is a rating from 0 to 100 of the severity and extent of distress observed on a pavement surface. Examples of typical pavement surface distresses are spalling, rutting, scaling, and cracking. In general, a PCI rating of 0–50 indicates that future reconstruction or reclamation may be necessary. A rating of 51–70 typically requires rehabilitation in the form of patching or a mill and overlay project, and a rating of 71–100 usually means that only pavement preservation treatments such as crack sealing or seal coating are needed.

Figure 17. County System Roads Surface Type



Roadway Surface Decisions

Paved roads provide several improvements over gravel roads, including more dependable winter surfaces, increased safety from enhanced delineation, higher skid resistance, a smoother surface that increases user satisfaction and reduces vehicle maintenance costs, redistribution of traffic away from gravel roads, and an increased tax base on adjacent property.

Existing County Road Gravelling Plan

Ruts, potholes, and displaced gravel are an eventual concern on even lightly traveled gravel roads. While all gravel roadways require periodic re-grading, a regular maintenance program that supports the strength and integrity of the road can reduce the frequency of grading.

Paved roads provide several improvements over gravel roads, including more dependable winter surfaces, increased safety from enhanced delineation, higher skid resistance, a smoother surface that increases user satisfaction and reduces vehicle maintenance costs, redistribution of traffic away from gravel roads, increased capacity, and potential for travel at higher speeds.

This approach includes the following considerations:

- **Daily traffic volumes and type of traffic along the roadway** – SDDOT data indicates that it is economically viable to provide surface treatment to gravel roads carrying more than 250 to 300 vpd.
- **Continuity and functional classification of the roadway** – Arterial roads should generally be paved before collector or local roads. As another consideration, a local street may be economically sealed or paved while a road with heavy truck usage may best be surfaced with gravel and left unpaved until sufficient funds are available to place a thick load-bearing pavement on the road.
- **Tendency of drivers to divert away from gravel surfaces and onto paved surfaces to make their trip** – If the new paved roadway would provide the first paved surface serving a particular demand pattern within Lawrence County, it should be designed to accommodate higher levels of traffic. Routes leading to it may require some improvement to provide adequate traffic safety.
- **Traffic safety** – Paved roads encourage higher travel speeds. Sight distance, curvature, lane width, surface friction, and super-elevation should be tailored to the anticipated travel speed.
- **Stormwater drainage** – It is important to build up the road base and improve drainage before paving. If water is not drained away from the road, the pavement will fail.
- **Public opinion** – Public opinion should be weighed in the decision process, and leaders should inform the public about the factors considered in the decision process.
- **Accommodation of non-motorized modes** – Consideration of whether non-motorized users, such as bicyclists and pedestrians, would be inclined to use the paved route, and if so, what type of accommodation is appropriate (bicycle- and pedestrian-focused signing and striping, inclusion of bike lanes and shared-use paths, etc.).

Bridges and Culverts

Culverts and bridges are important supporting components of a transportation system. Culverts allow a roadway to cross minor waterways and irrigation ditches, whereas bridges allow a roadway to cross more crucial features such as other roads, railroads, and major waterways.

There are 135 total bridges and culverts in Lawrence County. Forty-two bridges and culverts are listed as County responsibility: 6 culverts and 36 bridges. Minor culverts are not included in this inventory. Condition ratings for the County's bridges and culverts are listed as either "good," "fair," or "poor." The County's bridges are somewhat equally distributed among the three categories, while culverts are either good or fair, with none listed as being in poor condition. There are:

- 16 Bridges in Good Condition
- 10 Bridges in Fair Condition
- 10 Bridges in Poor Condition
- 3 Culverts in Good Condition
- 3 Culverts in Fair Condition

In addition to their condition, bridges and culverts can be compared by their age. Logically, older bridges tend to be in worse condition. Fourteen County bridges (39%) were built in the 1970s. Of these 14, six are listed as poor condition. Having a relatively large share of bridges near the same age may present maintenance difficulties for the County. County bridges and culverts are listed by their condition rating and year built in FIGURE 18. All Lawrence County bridges and culverts are shown on the map in FIGURE 19.

The **National Bridge Inventory (NBI)** condition rating is a measure of the bridge's overall condition based on required bi-annual inspections. The condition ratings are qualified as **GOOD**, **FAIR**, or **POOR** and are based on a scale of 0 to 9 with 9 being a newly built bridge and 0 being a bridge that is closed and out of service.

Ratings of 9 to 7 are considered good, 6 to 5 are fair, and 4 to 0 are poor.

The ratings are used to determine when a bridge should be scheduled for repair, rehabilitation, or replacement. The Federal Highway Administration (FHWA) inspects and assigns bridge condition ratings to all structures that fall within the definition of "bridge," including County bridges and most County box culverts. The inspection of bridges and determination of condition is conducted in accordance with the FHWA national bridge inspection standards.

Figure 18. Lawrence County Bridges and Culverts Condition Rating by Year Built

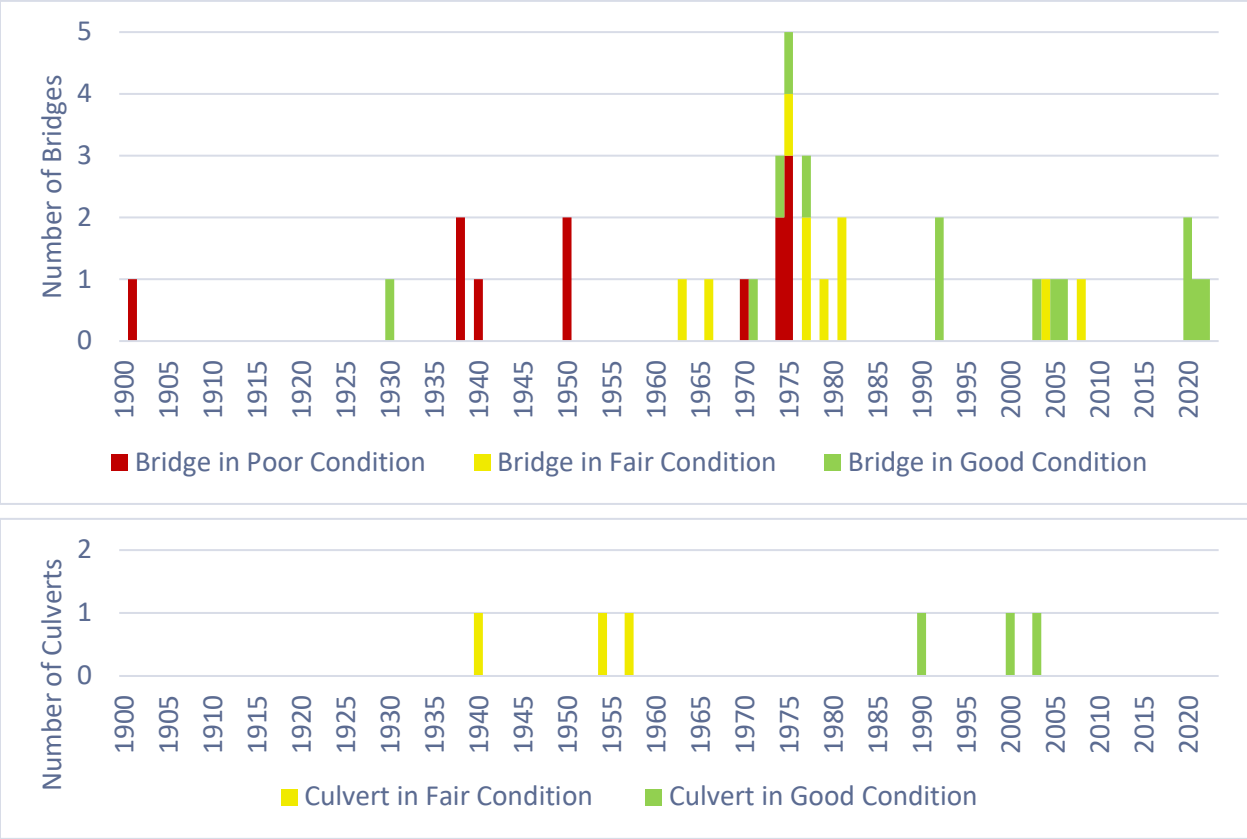
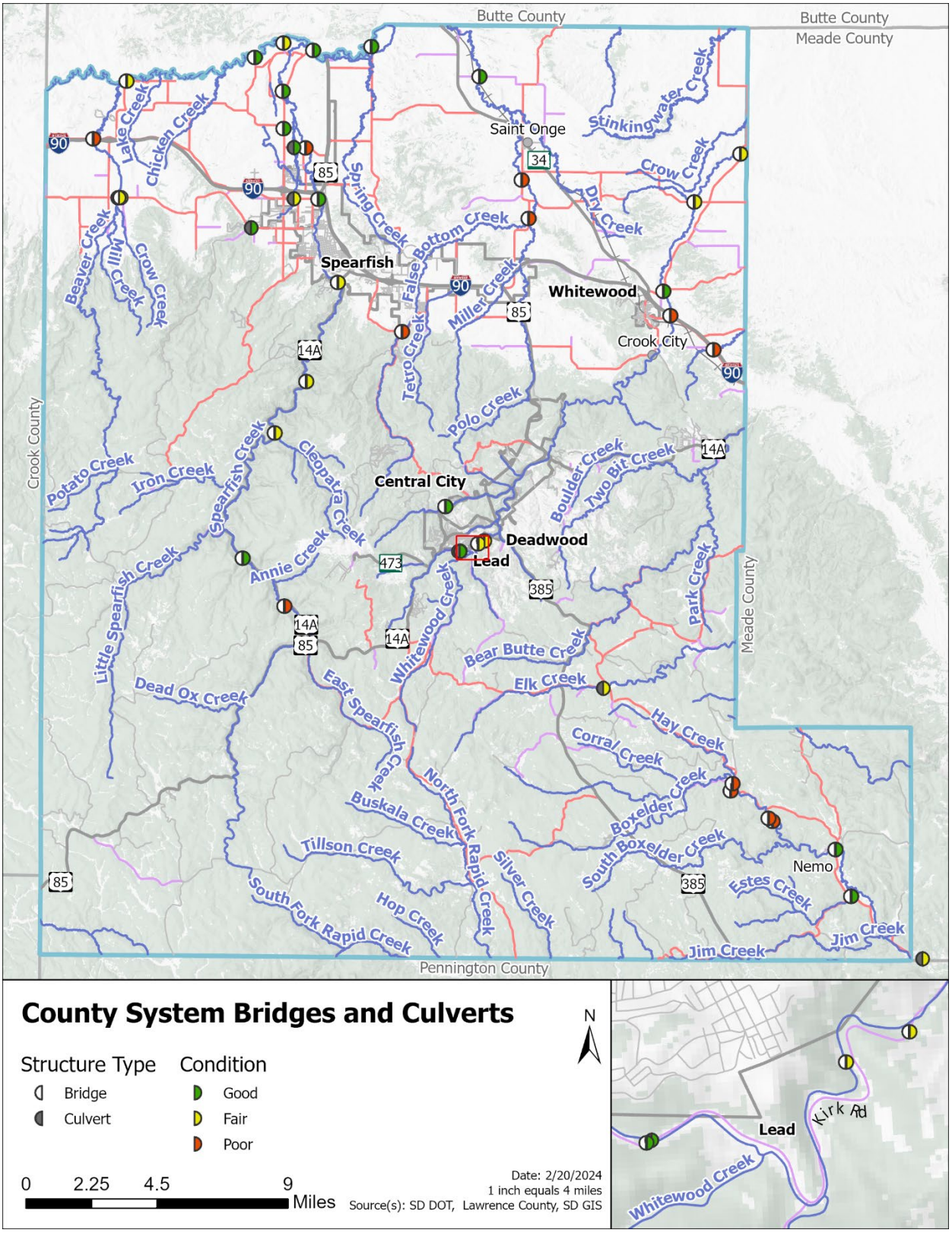


Figure 19. Lawrence County Bridges and Culverts



Multi-Modal Transportation

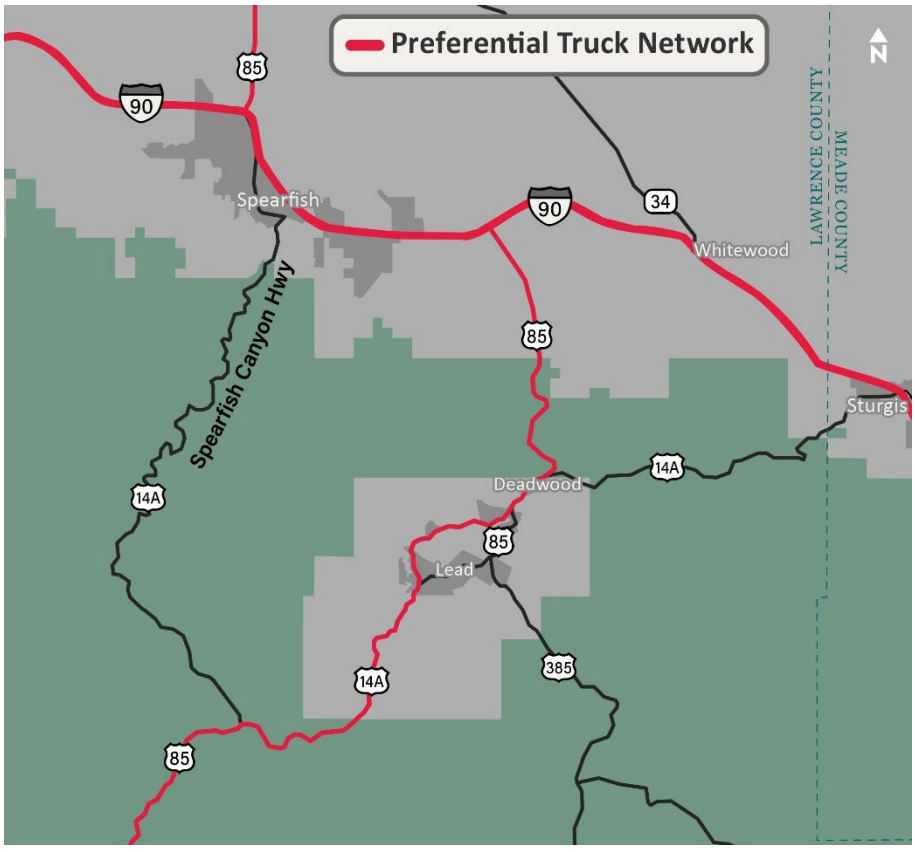
Freight

Movement of freight has taken on increasing focus in recent state and federal transportation policy. New funding opportunities and programs focused on the movement of goods have been created at the federal level, along with requirements that public agencies place greater emphasis on freight. County highways play a key role for circulating freight traffic to and from important destinations within the County. Important freight components are highlighted in the following subsections.

Trucks

The state's preferential truck network is shown in FIGURE 20. Interstate 90, US Highway 85, and a portion of US Highway 14A are the designated freight corridors in Lawrence County. Impacts of e-commerce may influence levels of freight movement as Amazon and other e-commerce distribution operations become active. Traffic from mining and logging are significant industrial activities and their truck traffic is mostly on SDDOT roads. However, trucks sometimes use Spearfish Canyon Highway as a 'short cut' between I-90 and US Highway 85. This canyon road has high tourist activity, many curves, little to no shoulders, and slower traffic, none of which are very compatible with truck traffic.

Figure 20. South Dakota's Preferential Truck Network



Railroad

Genesse, Wyoming Rapid City, Pierre and Eastern (RPC&E) Rail Line; crosses into Lawrence County west of Sturgis and extends through Whitewood and St Onge into Butte County.

Rail Impacts. Rail service is instrumental to South Dakota's economy. In addition to the direct employment benefits, the availability of freight rail transportation service provides cost and logistical advantages that enable businesses in the state to compete effectively in the global marketplace. The presence of freight-rail service is especially important to the state's agricultural industry, which relies on rail to reach overseas markets via coastal seaports. Railroads are nearly

four times more fuel efficient than trucks based on ton-miles transported. Because greenhouse gas emissions are directly related to fuel consumption, every ton-mile of freight moved by rail instead of by truck reduces greenhouse gases by up to 75 percent. The diversion of freight traffic to rail also increases the safety of South Dakota's highway system and reduces wear on highway infrastructure.

Logging Industry Activity

Lawrence County has a thriving regional logging industry. Temporary timber sales in Black Hills Forest locations result in impacts to the County roadway network due to truck traffic, access and heavy truck loads that impact road surface conditions. Because major timber operations and logging companies have an ongoing presence in the Black Hills, it is important to maintain frequent communications with the Lawrence County Highway Department to ensure ongoing maintenance of County highways and construction projects.

ATV/UTV/ROV Facilities

The Black Hills National Forest (Forest) is considered among the best locations for all-terrain vehicles (ATV) Recreational Off-Highway Vehicles (ROV) and utility-terrain vehicle (UTV) use in South Dakota. Many popular trailheads for UTV use lie within the Forest. In all, the Forest has 21 designated motorized trailheads and over 3,600 miles of roads and trails designated as open for UTV travel.

Demand for ATV and UTV facilities has grown in Lawrence County. While ATV and UTV use is primarily recreational, these vehicles are also utilized in farming, ranching, heavy-duty tasks, snow removal, hunting, golf courses, racing, and other activities. In addition to US Forest Service trails, UTVs are allowed on many roads including County roads, logging roads and trails in Lawrence County. While the County does not specifically designate ATV/UTV roadway facilities within the Lawrence County roadway system, these vehicles are increasingly being driven on paved and unpaved roads designated for all vehicle types. The County has expressed concern about the operators not obeying traffic laws, trespassing on private property, and creating dust on gravel roads.

The SD Department of Transportation has initiated a study, *Development of Strategies for Shared Use of Roadways between ROV/ATV and Typical Highway Vehicles*, to address the issues. An example ordinance recommendation is included for review in Appendix B.

Non-Motorized Facilities

The inventory of non-motorized travel conditions was compiled based on a desktop review of current infrastructure. The County has indicated that the Mickelson Trail and Spearfish Canyon are seeing more bikers and walkers. The existing trails are within the County's right of way; however, the County is not responsible for maintenance or installation of the trails.

Pedestrian Facilities

Because the Lawrence County roadway system is primarily rural, non-motorized users often travel within the vehicular travel lanes, which can reduce safety for all travel modes. Some roadways provide wide shoulders, but no continuous network of wide-shouldered roadways or detached paths are currently available in the County. Lawrence County highways are primarily rural

sections, meaning that they have ditches for drainage and that no curb, gutter, or sidewalk is typically provided. Individuals seeking to travel on foot throughout the County typically walk along the edge of the roadway or available shoulder width. Many areas of the County have little or no shoulders and due to the physical conditions, pedestrian traffic is limited.

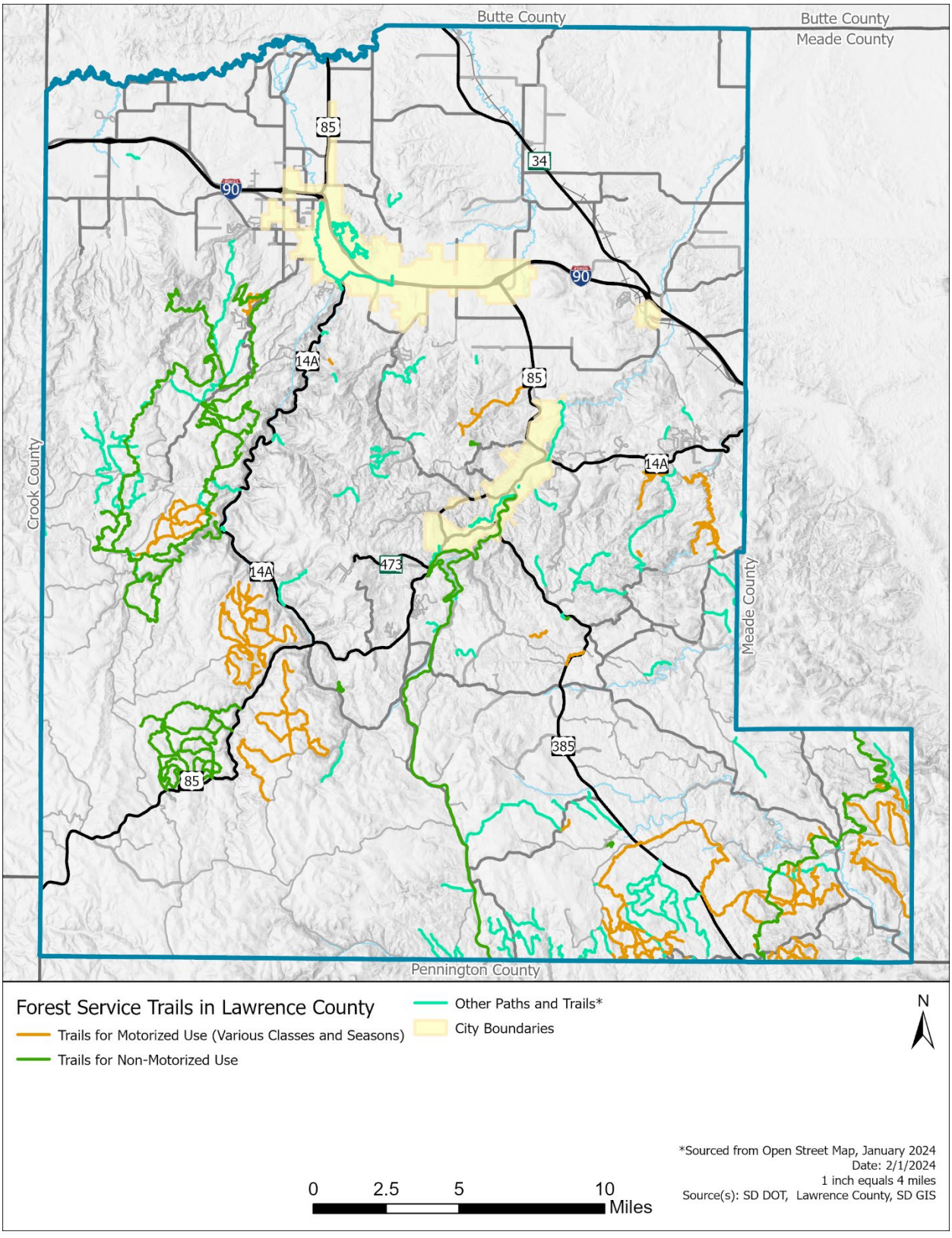
Bicycle Facilities

Bicycle use in Lawrence County has the potential to increase, particularly near towns or tourist destinations. Bicyclists may use roadways and paths for social, recreational, or commuting purposes. Mountain bike trails are becoming a featured attraction in Lawrence County. The emergency manager has shared a concern of mountain bikes using established snow mobile trails, which may be hazardous as the trails are not designed for bikes.

The County highway superintendent indicated the County is getting pressure to install more biking and walking facilities in the County. He said, "There is an ongoing request by the public for biking and walking lanes on urban and rural roads."

A map of bicycle, pedestrian, and off-road vehicle trails is provided in FIGURE 21. The map includes Forest Service Trails both for motorized and non-motorized uses, as well as publicly sourced trail data including Spearfish bike paths and other trails in the County.

Figure 21. Bicycle, Pedestrian, and Off-Road Vehicle Trails in Lawrence County



Air Transportation

Lawrence County is served by air transportation primarily by Black Hills Airport – Clyde Ice Field (SPF) in Spearfish, which is a general aviation airport. In addition, the County is serviced by Rapid City Regional Airport (RAP) in nearby Pennington County for commercial airline service.

RAP is 60 miles southeast of Spearfish by Interstate 90 and has daily flights with four airlines to destinations including Denver, Salt Lake City, Dallas/Fort Worth, Chicago, Minneapolis, Las Vegas, Charlotte, and Phoenix. There are additional destinations served in the summer tourist season.

SPF is a general aviation airport classified in the State System Plan as a Large General Aviation category airport and as a regional category airport by the Federal Aviation Administration (FAA). It is the only West River airport classified as Regional and currently has 67 based aircraft including three multi-engine and 2 helicopters. The airport has three runways with the primary runway 6,401' x 75' and two turf crosswind runways. A new paved crosswind runway is planned as well as a new general aviation terminal.

Several days a week, SPF receives cargo flights from UPS. These flights began in the summer only during the Sturgis Motorcycle Rally for many years. In recent years this has expanded to year-round service now with Beech 1900 aircraft to Sioux Falls.

SPF serves all of Lawrence County and the northern Black Hills dating back to even when President Calvin Coolidge would fly in to enjoy a regular summer retreat to the Black Hills during his presidency. Due to the mountainous terrain in the County, there are no viable locations for an airport to serve Lead or Deadwood, so these communities also rely on SPF for their general aviation airport. Clyde Ice Field flights and connections are shown in TABLE 6.

There is one officially designated heliport at the Spearfish Municipal Airport. Emergency Management has areas designated for emergency uses for air transport by helicopter. There have been many requests from private landowners that the County approve private heliports. This issue is addressed later within this Report.

Table 6. Spearfish Airport (SPF) Instrument Flights

STATE	AIRPORTS	FLIGHTS	STATE	AIRPORTS	FLIGHTS
Arizona	14	161	Nebraska	34	500
Arkansas	5	15	Nevada	6	30
California	26	62	New Mexico	8	17
Colorado	33	463	North Carolina	4	15
Florida	10	21	North Dakota	22	665
Georgia	7	11	Ohio	7	18
Idaho	14	112	Oklahoma	11	54
Illinois	22	55	Oregon	7	30
Indiana	12	48	South Carolina	6	19
Iowa	30	345	South Dakota	30	2625
Kansas	24	118	Tennessee	10	27
Michigan	16	38	Texas	37	173
Minnesota	52	613	Utah	10	41
Mississippi	7	110	Washington	13	49
Missouri	31	143	Wisconsin	23	112
Montana	23	323	Wyoming	23	305

Source: Traffic Flow Management System 2019 to 2022

Transit

Prairie Hills Transit is a non-profit corporation that provides public transit services in the Black Hills area. In-town services within Lawrence County are offered in Deadwood, Lead, Spearfish and Whitewood. The hours are 7am to 7pm Monday through Friday, 9 am to 4 pm on Saturday and 8 am to 12 pm on Sunday. The service area also provides designated trips to Walmart and area stores, and to Rapid City.

CHAPTER 4 – EXISTING AND FUTURE TRAFFIC CONDITIONS: VOLUMES, OPERATIONS, AND SAFETY

Traffic Volumes

Average Daily Traffic (ADT) is a measure of the number of vehicles that travel on a roadway on an average day. The project team assembled traffic volume information provided by SDDOT for County roadway segments within the study area. Traffic count data is current, with count locations providing counts from 2021.

The highest recorded traffic volumes were counted on US 14A through Deadwood, with 2021 ADTs exceeding 10,000 vehicles per day (VPD). Truck and heavy vehicle ADT were also highest on US 14A through Deadwood, as well as I-90 through Whitewood and Spearfish, with truck ADT exceeding 1,000 heavy vehicles per day at these locations.

FIGURES 22 THROUGH 25 on the following pages graphically show existing ADT and Truck ADT.

The following bullet points provide details regarding existing County Road ADT volumes for Gravel and Paved Roads. Note that "McGuigan S. of Tinton" exceeds the County ADT paving threshold of 400 ADT.

GRAVEL ROADS	PAVED ROADS
• Crow Creek Branch – 100 ADT • Homestake Road – 150 ADT • Merritt Estes Road – 200 ADT • Red Hill Road – 173 – 210 ADT • Johnson Lane – 210 ADT • Higgins Gulch Road – 260 ADT • N. Tinton Road – 310 ADT • Brownsville Road – 322 ADT • McGuigan N. of Tinton – 360 ADT • Two-Bit Road – 430 ADT • McGuigan S. of Tinton – 530 ADT	• North Rochford Road – 379 ADT • Maitland Rd. by US85 – 520 ADT • Old Belle Rd N. – 547 ADT • St. Onge Road – 587 ADT • Vanocker Canyon Road – 680 ADT • Nemo Road North of Vanocker – 720 ADT • Maitland Road by Christensen Dr. – 790 ADT • Nemo Road E. of 385 – 810 ADT • Hillsview Road W. of Higgins – 860 ADT • Whitewood Valley Rd – 1014 ADT • Hillsview Rd E. of Higgins: 1000 – 3000 ADT

Figure 22. ADTs on State and Federal Highways

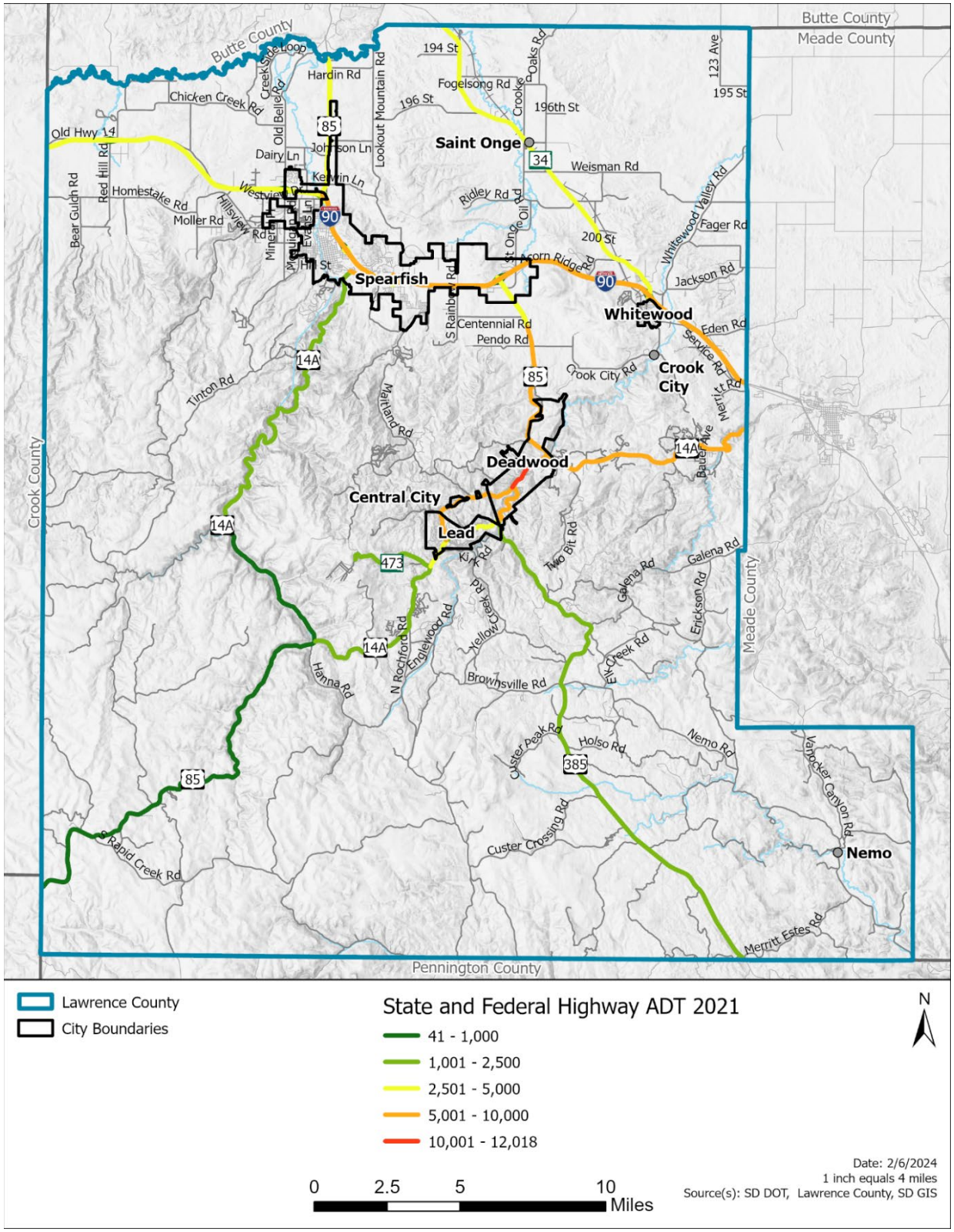


Figure 23. Truck ADTs on State and Federal Highways

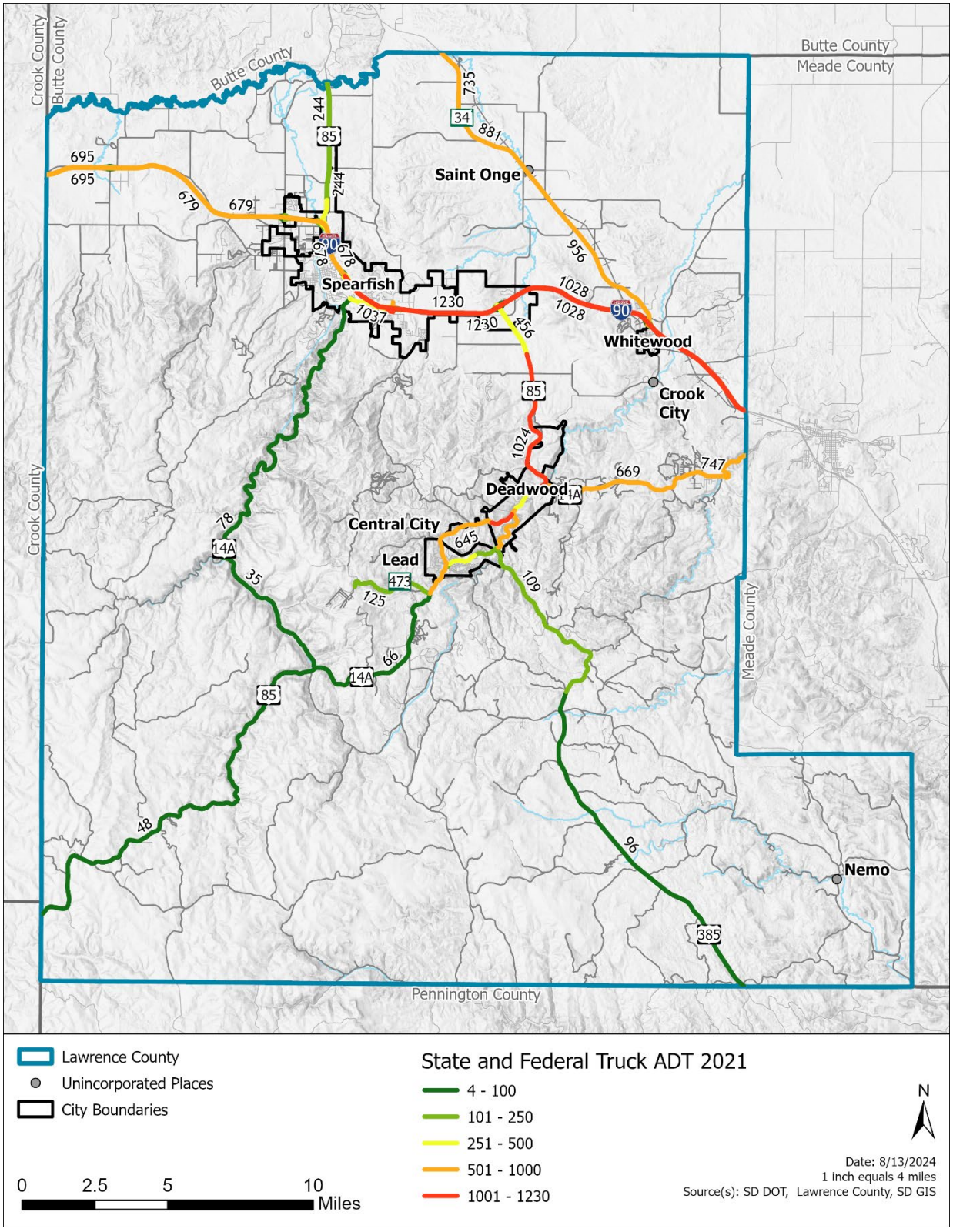


Figure 24. ADTs on County System Roads

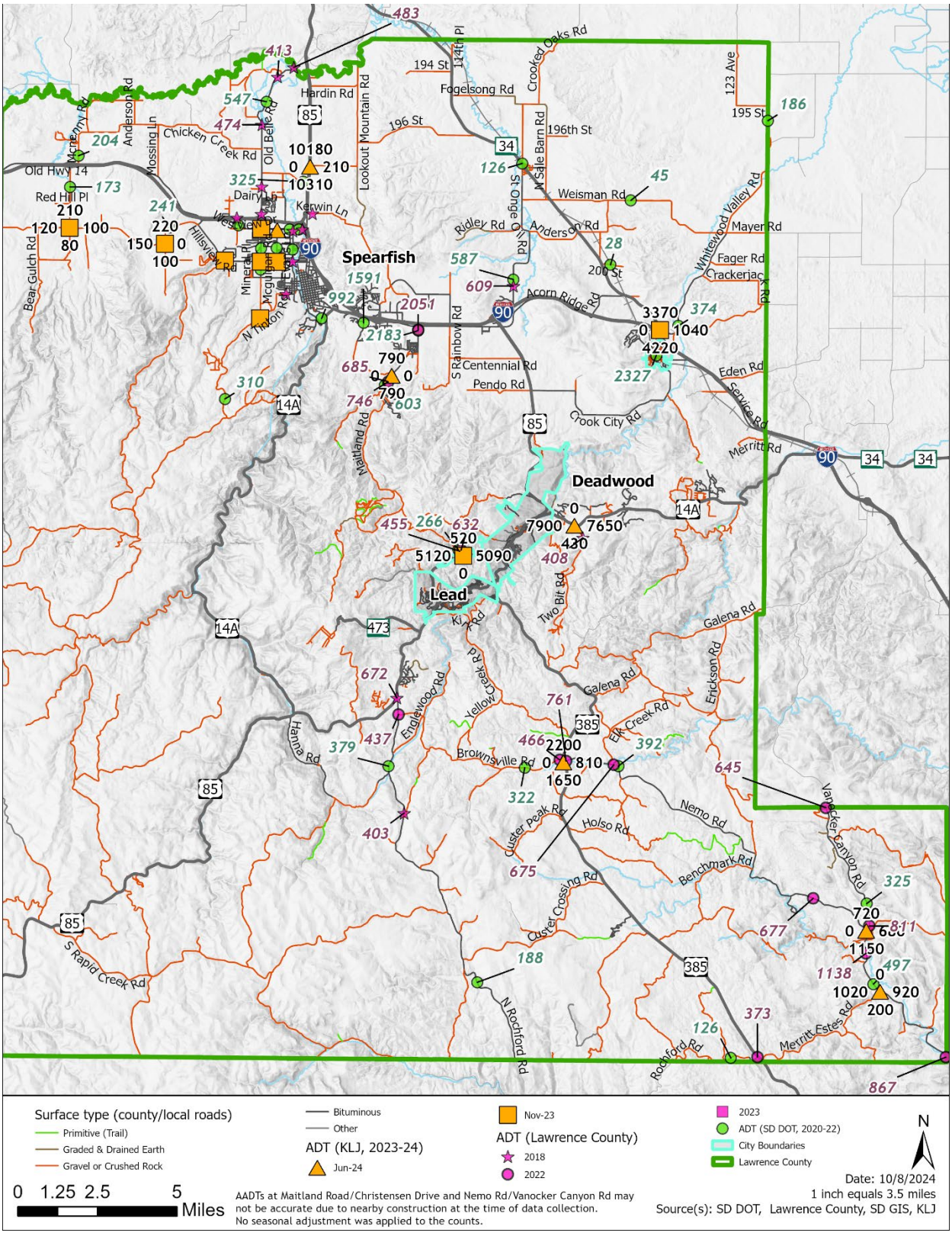
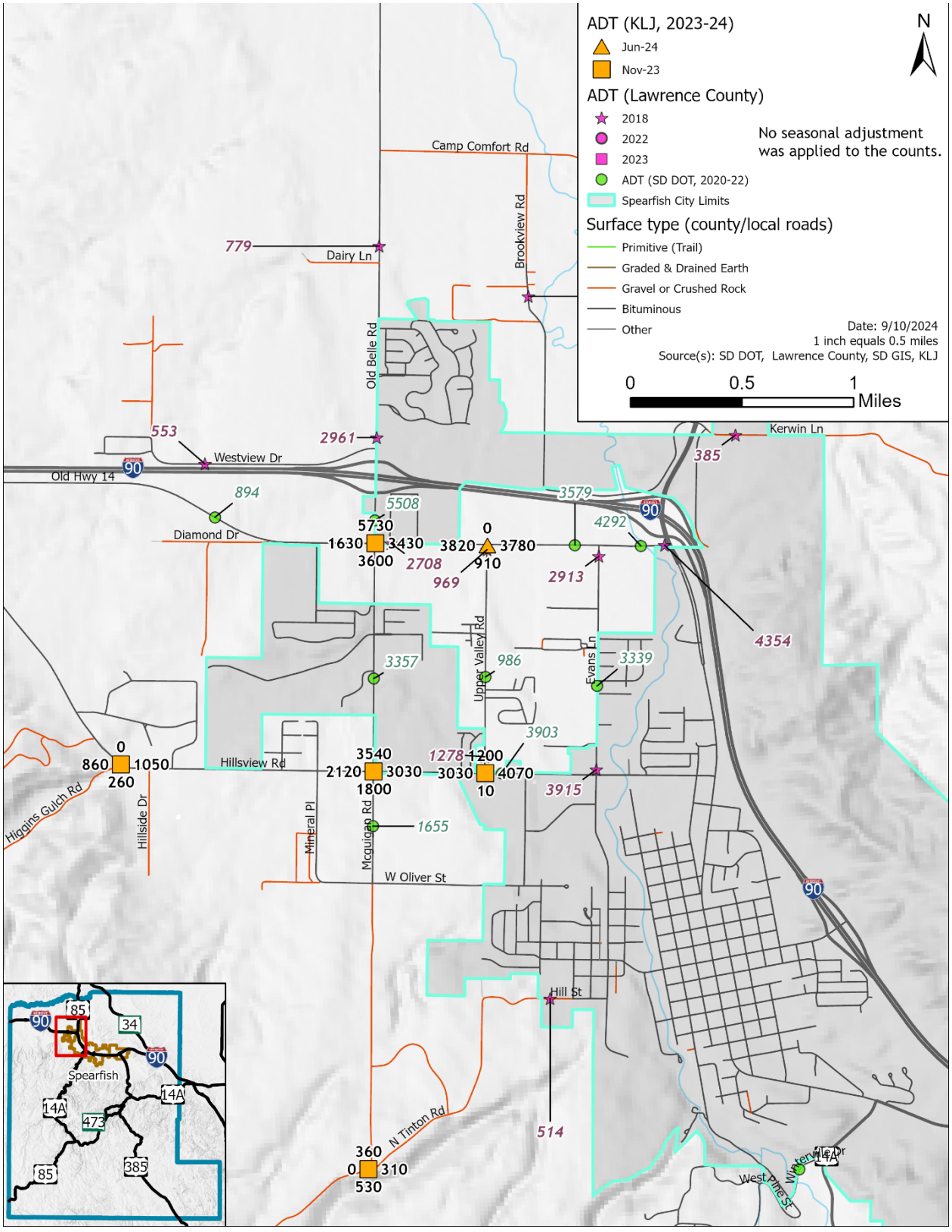


Figure 25. ADTs on County System Roads – Spearfish



Study Intersections

Sixteen study intersections were chosen by Lawrence County for detailed analysis. TABLE 7 below identifies those intersections labeled with Intersection Number. These intersection numbers correspond with those shown graphically in FIGURE 26 and FIGURE 27.

Table 7. Study Intersections

INTERSECTION NUMBER	ROAD #1	ROAD #2
1	Old Belle Rd	Old Hwy 14
2	McGuigan Rd	Hillsview Rd
3	Upper Valley Rd	Old Hwy 14
4	Upper Valley Rd	Hillsview Rd
5	Homestake Rd	Red Hill Rd
6	McGuigan Rd	N Tinton Rd
7	Nemo Rd	Vanocker Canyon Rd
8	Maitland Rd	Christensen Dr
9	Two Bit Rd	US Hwy 14A
10	Crow Peak Bench Rd	Homestake Rd
11	Johnson Ln	US Hwy 85
12	Maitland Rd	US Hwy 14A
13	Whitewood Valley Rd	SD Hwy 34
14	Higgins Gulch Rd	Hillsview Rd
15	Nemo Rd	US Hwy 385
16	Nemo Rd	Merritt Estes

Turning Movement Counts

12-hour turning movement counts were conducted between 7:00 am and 7:00 pm in November 2023 at the study intersections indicated in the following FIGURE 26 and FIGURE 27. Additional intersection counts were completed in late June 2024. Peak hour volumes for all study intersections were determined on a per-intersection basis and representative of the AM and PM peak hours. Following the data collection, Highway Capacity Software (HCS) computer software was used to analyze the existing and forecasted Level of Service (LOS) for the study intersections.

Figure 26. Study Intersections

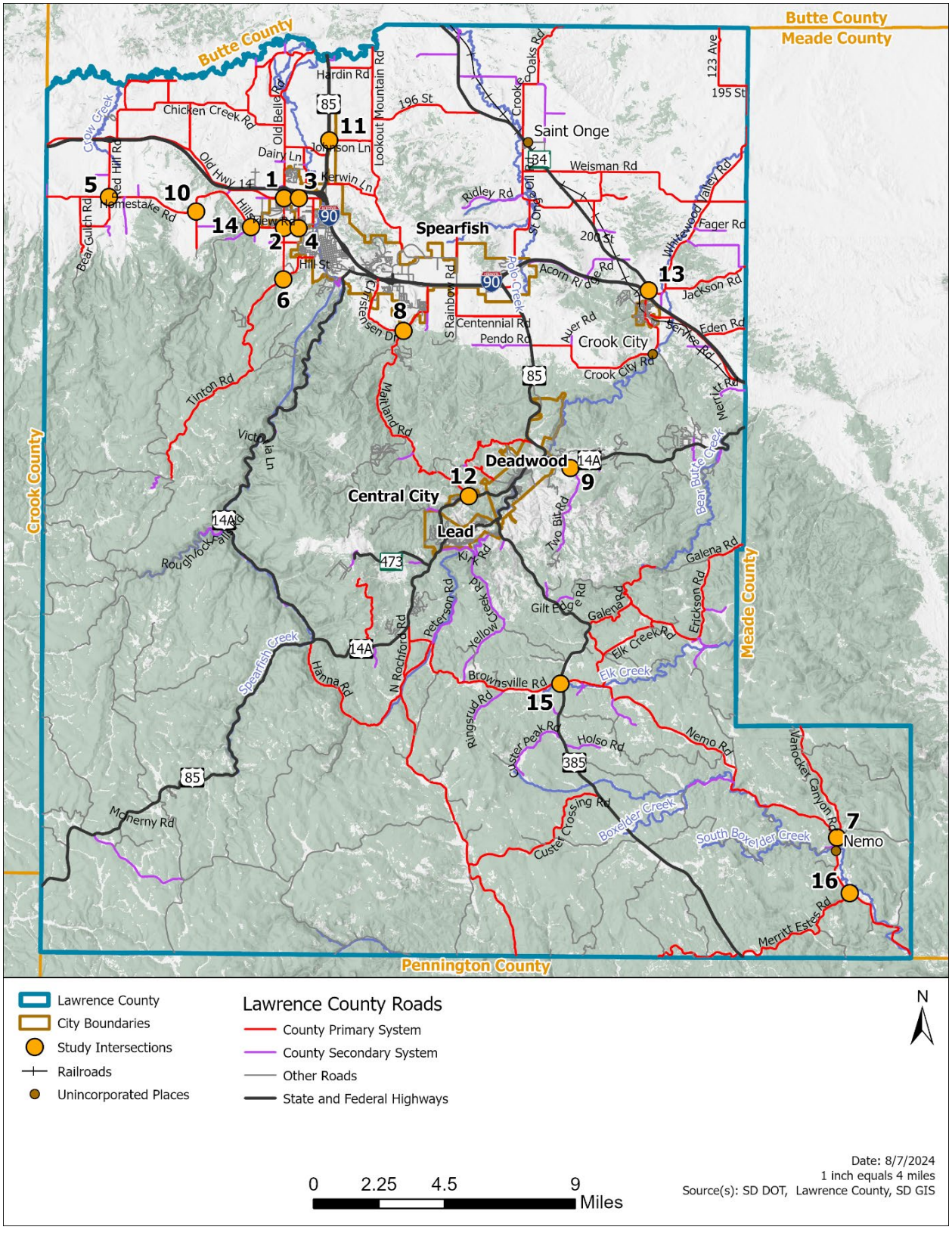
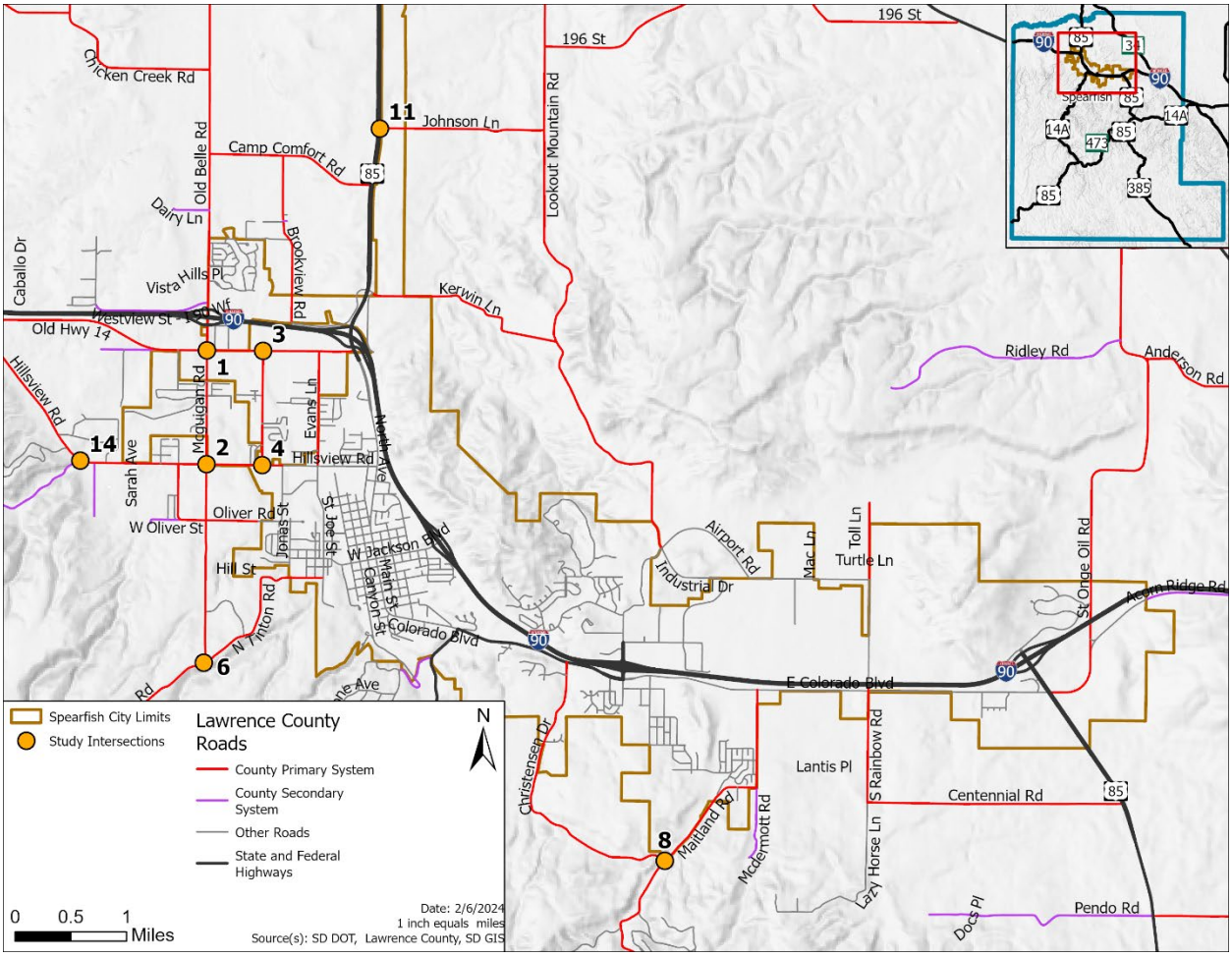


Figure 27. Study Intersections, Spearfish



Projected Future Traffic Volumes/ADT

The results of this analysis provided the basis for future ADT volumes, projected 20 years to 2044. Future Peak hour ADT/traffic volumes with extrapolated daily volumes for the 16 study intersections are shown in FIGURE 28 and FIGURE 29.

Figure 28. Projected Future ADTs (2044) on County System Roads

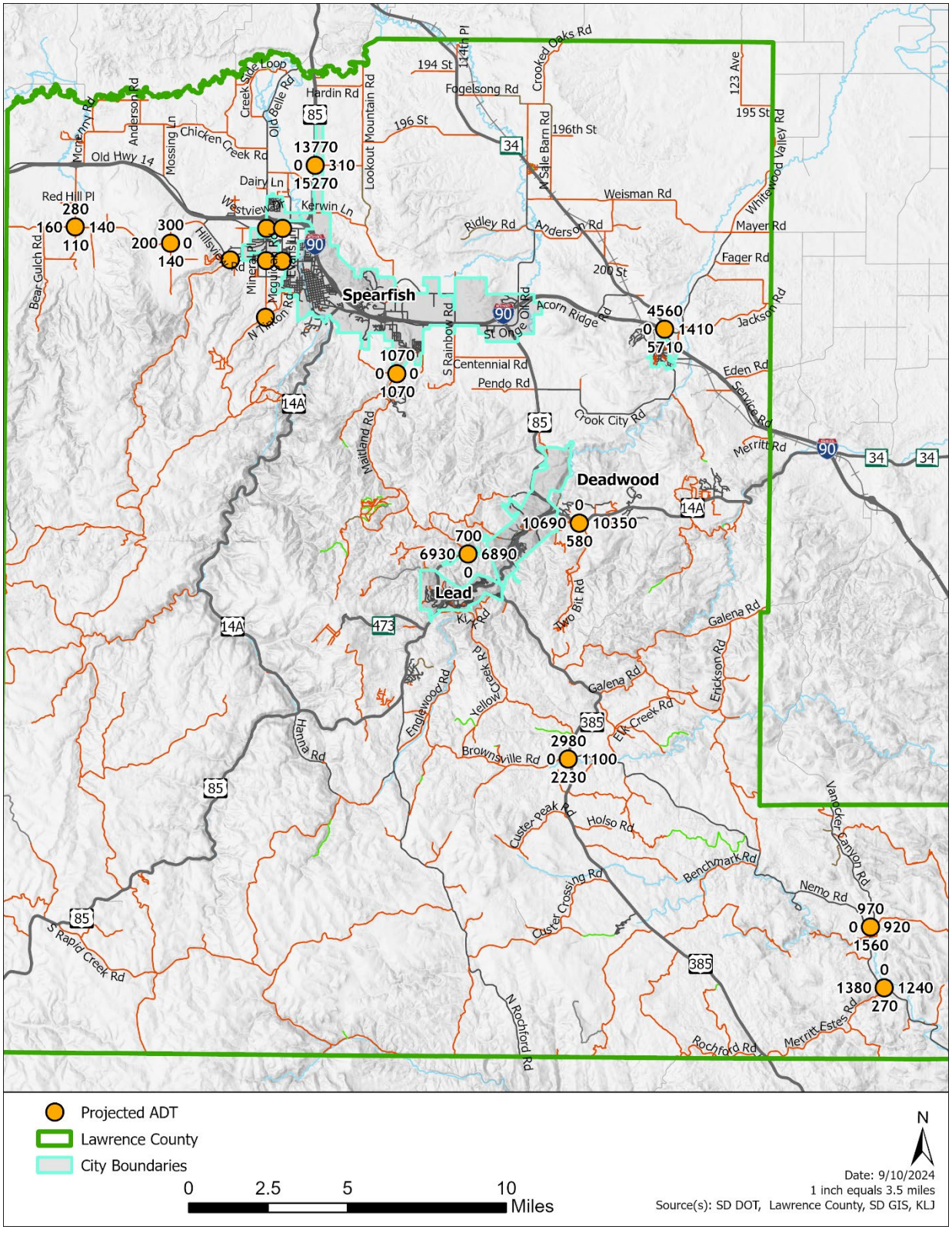
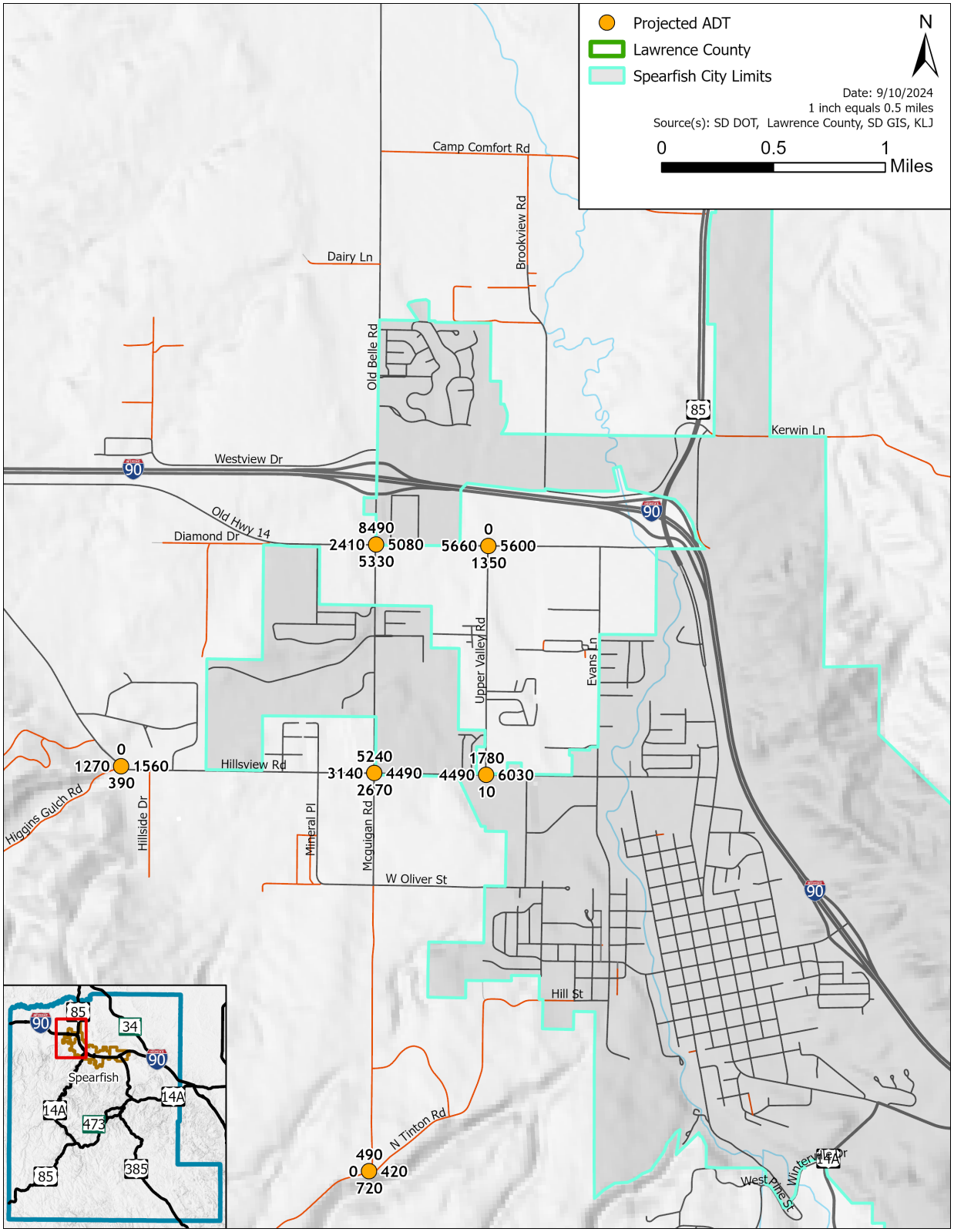


Figure 29. Projected Future ADTs (2044) on County System Roads – Spearfish



Level of Service Standards

Considering the ongoing growth in Lawrence County it is beneficial to address the rising demand for transportation while simultaneously preserving the capacity of County roadways. The following section outlines the criteria for evaluating the Level of Service (LOS) standards, which play a crucial role in assessing the current and future performance of our transportation infrastructure.

Traffic operations are described in terms of level of service (LOS), based on the methodologies described in the Highway Capacity Manual (HCM). Level of service (LOS) is a qualitative measure developed by the transportation profession to quantify traffic operations by incorporating traffic volumes, roadway geometry, and other parameters to estimate the delay per vehicle.

LOS at intersections provides a means for identifying intersections that are experiencing operational difficulties, as well as providing a scale to compare intersections with each other. The scale is based on the ability of an intersection or street segment to accommodate the amount of traffic using it. The LOS scale ranges from "A" to "F." LOS A indicates near free-flow traffic conditions with minor delay and LOS F indicates breakdown of traffic flow with very high amounts of delay.

In summary, the Level of Service for intersections is a valuable tool for transportation professionals to evaluate and manage traffic operations. By assessing and improving LOS, cities and transportation agencies can enhance traffic flow, reduce congestion, and improve the overall quality of transportation networks while ensuring safety for all road users.

LOS for Roadways

A capacity deficiency exists when actual traffic exceeds the vehicular capacity of the roadway. The acceptable capacity of a highway is influenced by numerous factors, encompassing location, route options, roadway geometrics, the positioning of major intersections, access management, peak-hour traffic volumes, and traffic control measures. Each segment of the roadway possesses a finite capacity, representing the maximum number of vehicles it can accommodate across all its lanes. For planning purposes, the level of service for a roadway link is determined by comparing the link's traffic volume to its roadway capacity. For a more comprehensive understanding of *Level of Service* (LOS), please refer to TABLE 8 below.

Table 8. Level of Service Definitions for Roadways

LOS	TRAFFIC FLOW	VEHICLE/ CAPACITY RATIO
A	Free Flow (Below Capacity)	0.20
B	Stable Flow (Below Capacity)	0.40
C	Stable Flow (Below Capacity)	0.60
D	Restricted Flow (Near Capacity)	0.85
E	Unstable Flow (Approaching Capacity)	1.00
F	Forced Flow (Over Capacity)	>1.00

It should be noted that while this methodology is appropriate for a planning-level, regional analysis, several factors such as unique temporal traffic patterns are not well-captured with this methodology. Values are used as a guideline and should not be used for operational analysis purposes or final design.

Within Lawrence County, traffic analysis is confined to rural two-lane highways and intersections. The prevailing practice in the region is to maintain a level of service B for the rural roadway system and a level of service C for urban highways and intersection operations. Consequently, the recommended minimum acceptable LOS for existing or future conditions on Lawrence County roads stands at LOS B for rural two-lane highways and LOS C for urban two-lane highways and intersections. These selected LOS standards align with the guidelines set forth in the SDDOT's Road Design Manual.

LOS for Intersections

Although the planning-level capacity can provide a good barometer of corridor operations, intersection operations often provide a clearer indication of corridor operations. Level of Service (LOS) for intersections is a crucial metric used in transportation planning and engineering to evaluate the operational performance and efficiency of road intersections. Intersections are key points where two or more roadways intersect, and they play a pivotal role in traffic flow and safety. Assessing the level of service helps transportation professionals understand how well an intersection is functioning and whether it meets the needs of road users.

At oversaturated intersections and approaches, the delay may only reflect the vehicles that can be processed in the analysis period and not the total delay for that intersection, thus underreporting the actual delay experienced by drivers. LOS B or better is considered acceptable for roadways classified as Rural Minor Arterials. LOS C or better is considered acceptable for roadways classified as Rural Collectors, and Urban Minor Arterials and Urban Collectors. Additionally, each approach to the intersection should be designed to have the highest LOS practical. The LOS thresholds for intersection delay are shown in TABLE 9 below.

Table 9. Intersection Delay and Level of Service Thresholds

LEVEL OF SERVICE	AVERAGE DELAY (SECONDS PER VEHICLE)		DESCRIPTION
	Unsignalized Intersection	Signalized Intersection	
A	≤ 10	≤ 10	Near free-flow traffic.
B	> 10 and ≤ 15	> 10 and ≤ 20	Minor delays.
C	> 15 and ≤ 25	> 20 and ≤ 35	Some delays, but not resulting in significant traffic congestion.
D	> 25 and ≤ 35	> 35 and ≤ 55	Delays with some traffic congestion.
E	> 35 and ≤ 50	> 55 and ≤ 80	Significant delays with significant traffic congestion, approaching capacity.
F	> 50	> 80	Breakdown of traffic flow, major traffic congestion.

LOS for Signalized Intersections

For signalized intersections, the LOS is based on the average stopped delay per vehicle. The procedures used to evaluate signalized intersections use detailed information on geometry, lane use, signal timing, peak hour volumes, arrival types and other parameters. This information is then used to calculate delays and determine the capacity of each intersection.

LOS for Unsignalized Intersections

Side-Street Stop Controlled Intersection. Overall intersection LOS is undefined for side-street stop-controlled intersections within the HCM. The LOS for the side-street stop-controlled intersections in the analysis is based on the delay experienced by a couple of movements within the intersection, rather than on the overall stopped delay per vehicle at the intersection. This difference from the method used for signalized intersections is necessary since the operating characteristics of side-street stop-controlled intersections are substantially different. Driver expectation and perceptions are entirely different.

For side-street stop-controlled intersections the through traffic on the major (uncontrolled) street experiences minimal to no significant delay at the intersection. Conversely, vehicles turning left and going across the major street from the minor street, or vehicles turning left from major street to minor street experience more delay than other movements and at times can experience significant delay. Vehicles on the minor street which are turning right from the minor street experience less delay than those turning left or going across from the same approach. Due to this situation, the LOS assigned to a side-street stop-controlled intersection is based on the worst approach delay.

All-way Stop Control and/or Roundabout. LOS for all-way stop controlled and or roundabout intersections are also based on delay experienced by the vehicles at the intersection. Since there is no major street, the highest delay could be experienced by any of the approaching streets.

Capacity Analysis

Vehicular Level of Service (LOS) was analyzed for each of the study intersections using Highway Capacity Software (HCS). LOS is based on the *Highway Capacity Manual 7* (HCM 7) methodology and is a function of average delay per vehicle. LOS delay thresholds were presented previously in TABLE 9. LOS "A" represents free-flow traffic, whereas LOS "F" represents unacceptable delay. The roadways of the study intersections are classified as Arterials, Collectors, or Local Roads. Based on SDDOT standards, LOS "B" or better is considered acceptable for Rural Arterials and Collectors, and LOS "C" or better is considered acceptable for Urban Arterials and Collectors. LOS for side-street stop-controlled intersections is currently undefined by HCM 7. For this reason, the worst approach LOS and delay is presented as intersection LOS and delay for two-way stop-controlled intersections.

At the time of data collection in June 2024, a bridge nearby the intersection of Maitland Road and Christensen Drive was closed, thereby removing one leg of the three-legged intersection. For this reason, the intersection effectively operated as a single roadway with through movements only. Thus, capacity analysis could not be completed for the intersection of Maitland Road and Christensen Drive.

During the same time of data collection in June 2024, an overlay roadway project was occurring north of the intersection of Nemo Road and Vanocker Canyon Road. North of the intersection, Nemo Road was operating as a single-lane one-way facility, with construction workers allowing alternating northbound and southbound traffic to travel through the work zone. Several northbound U-turns were completed at the intersection during the time of data collection, and it was assumed that these movements were completed as vehicles chose to avoid the construction traffic when approaching the intersection. For the purposes of analysis, the northbound U-turn volumes (5 vehicles during the AM peak, and six vehicles during the PM peak) were re-assigned to the northbound through and right turn movements, based on the existing through vs. right turn distribution at this approach.

Capacity Analysis Results

LOS capacity results for each of the study intersections are shown on the next page in TABLE 10, for existing and 20-year (2044) projected analysis years. For intersections that are side-street stop-controlled, the worst approach LOS was assumed to represent the intersection LOS.

Table 10. LOS Capacity Analysis Results

ID	INTERSECTION	EXISTING INTERSECTION CONTROL	EXISTING (2024)		FUTURE (2044)	
			AM Peak	*PM Peak*	*AM Peak*	*PM Peak*
1	Old Belle Rd and Old Hwy 14	AWSC	A (9.6)	B (10.3)	B (12.3)	C (15.0)
2	McGuigan Rd and Hillsview Rd	AWSC	A (9.2)	A (8.7)	B (11.3)	B (10.2)
3	Old Hwy 14 and Upper Valley Rd	SSS	A (9.6)	B (10.7)	B (10.5)	B (12.7)
4	Hillsview Rd and Upper Valley Rd	AWSC	A (9.1)	A (8.3)	B (11.4)	A (9.4)
5	Homestake Rd and Red Hill Rd	SSS	A (9.1)	A (8.6)	A (9.2)	A (8.8)
6	McGuigan Rd and Tinton Rd	SSS	A (8.6)	A (8.3)	A (8.8)	A (8.4)
7	Nemo Rd and Vanocker Canyon Rd	SSS	A (8.9)	A (9.1)	A (9.0)	A (9.3)
8	Maitland Rd and Christensen Dr	AWSC	-	-	-	-
9	US Hwy 14A and Two Bit Rd	SSS	B (11.9)	B (12.6)	B (13.8)	C (15.3)
10	Homestake Rd and Crow Peak Bench Rd	SSS	A (8.4)	A (8.4)	A (8.4)	A (8.4)
11	US Hwy 85 and Johnson Ln	SSS	B (10.4)	B (12.8)	B (11.3)	C (15.0)
12	US Hwy 14A and Maitland Rd	SSS	A (9.5)	A (9.3)	B (10.6)	B (10.4)
13	SD Hwy 34 and Whitewood Valley Rd	SSS	B (10.3)	B (10.7)	B (11.5)	B (11.9)
14	Hillsview Rd and Higgins Gulch Rd	SSS	A (8.6)	A (8.7)	A (8.8)	A (8.9)
15	US Hwy 385 and Nemo Rd	SSS	A (8.8)	A (9.0)	A (9.0)	A (9.2)
16	Nemo Rd and Merritt Rd	SSS	A (9.0)	A (8.9)	A (9.2)	A (9.1)

AWSC – All-way stop-control; SSS – Side-street stop-control

Crash and Safety Analysis

An examination of transportation safety is essential in the long-term transportation planning process. The objective of the safety analysis is to identify locations with deficient safety measures, and to improve the safety of all users of the transportation system and network.

Crash History and Trends

Five years of crash records from January 1, 2018, through December 31, 2022, were provided by the SDDOT to aid in the analysis of traffic crash trends within the study area. The crash data presented in this section excludes crashes occurring in Spearfish and Deadwood, in order to focus on County-owned roadways and to avoid data skewing.

There were 2,016 crashes reported during the five-year analysis period (2018 to 2022), including 137 crashes that resulted in an incapacitating injury, and 26 crashes that resulted in a fatality. Approximately 8.3% of crashes were intersection related.

Table 11 and Table 12 provide tabular data for crashes by severity and jurisdiction.

On the following pages, Figure 30 shows crash density at the County level, and Figure 31 shows fatal and incapacitating crash locations.

Table 11. Crashes by Severity

YEAR	FATAL INJURY	INCAPACITATING INJURY	NON-INCAPACITATING INJURY	POSSIBLE INJURY	NO INJURY	WILD ANIMAL HIT	N/A	TOTAL
2018	3	26	30	20	163	171	0	413
2019	3	20	37	20	163	176	0	419
2020	9	33	25	28	145	159	0	399
2021	7	26	36	33	152	167	0	421
2022	4	32	40	18	140	128	2	364
TOTAL	26	137	168	119	763	801	2	2,016

Table 12. Crashes by Roadway Jurisdiction

YEAR	CRASHES BY ROADWAY JURISDICTION				ALL ROADS
	COUNTY	STATE	CITY	OTHERS	
2018	108	282	21	2	413
2019	104	291	22	2	419
2020	104	280	14	1	399
2021	104	299	18	0	421
2022	89	254	20	1	364
TOTAL	509	1,406	95	6	2,016

Figure 30. Crash Density

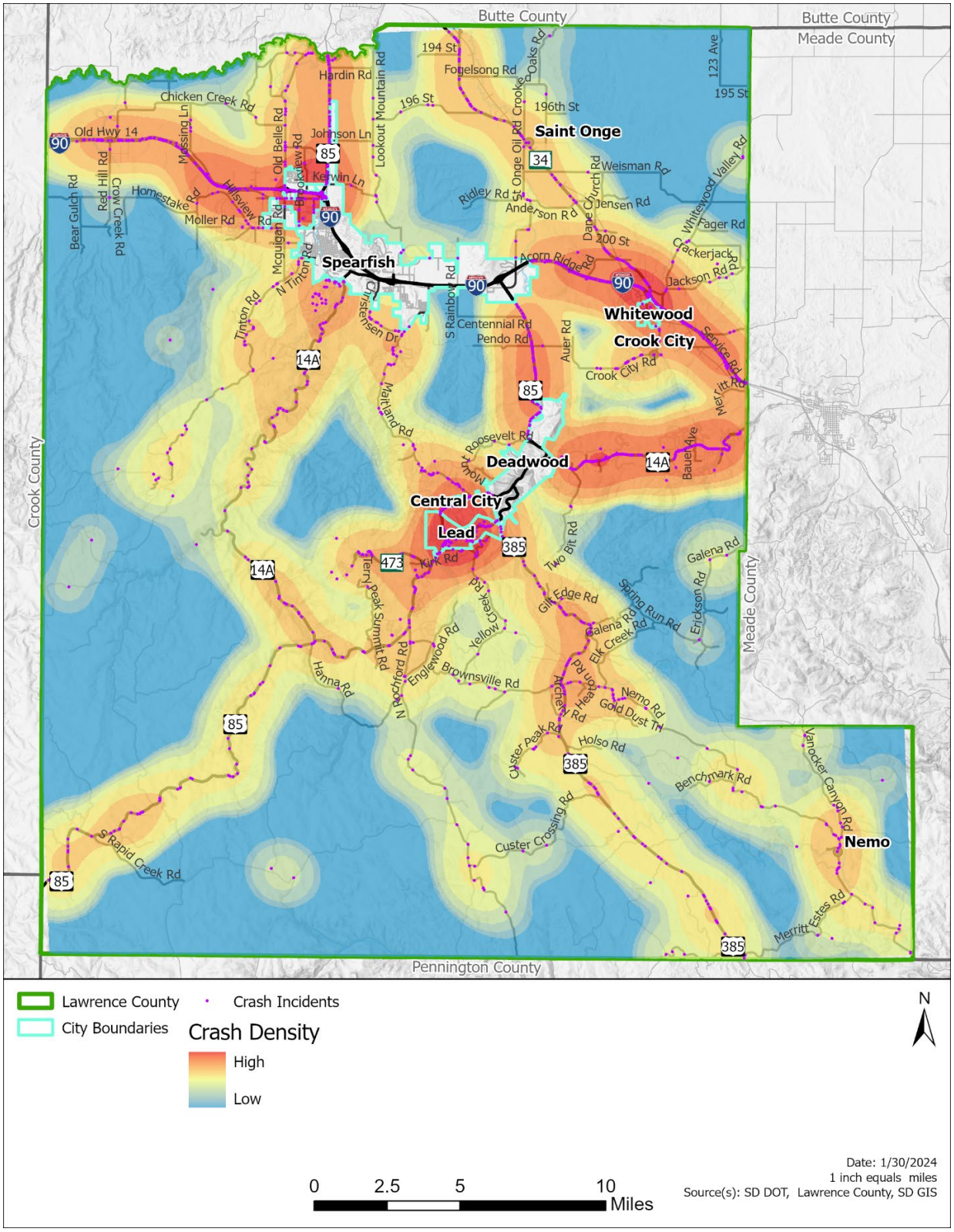
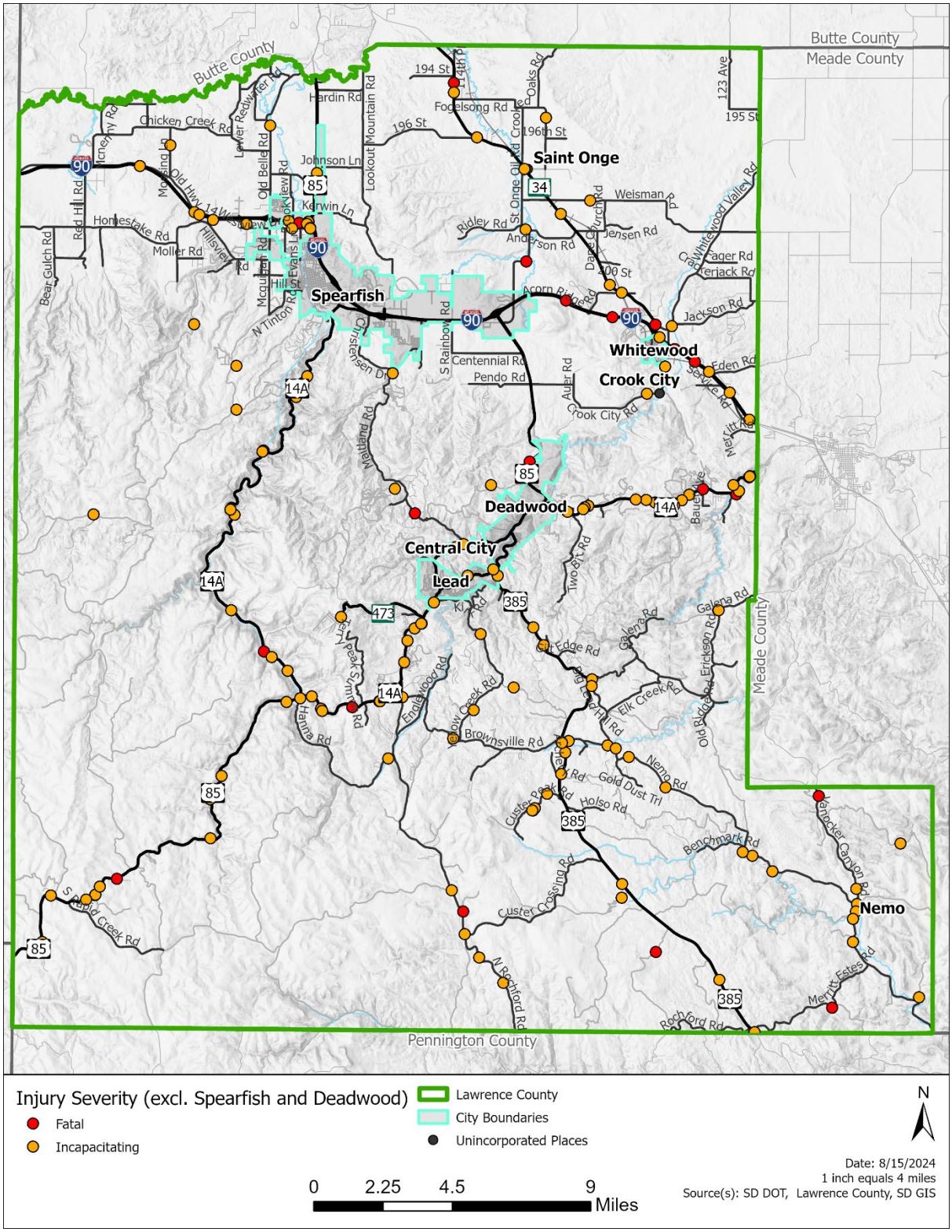


Figure 31. Fatal and Incapacitating Injury Crash Locations



Single Vehicle Crashes

As shown in the TABLE 13 below, there were 1,685 single-vehicle crashes County-wide, accounting for 83.6% of the total crashes. Of the single-vehicle crashes, 1,010 (59.9%) occurred along a roadway segment (non-junction related).

Single-vehicle crashes are occurring most frequently within the Town of Lead, as well as Whitewood, and along Interstate 90, and Highway 14A. These locations are consistent with areas of higher traffic volumes.

Roadway departure is commonly associated with single-vehicle crashes. The following treatments can be applied to rural roadways to reduce the possibility or severity of a single-vehicle roadway departure crash:

- Implement lane delineation measures, such as edge line and centerline markings, delineators, shoulder and centerline rumbles, or guardrail to keep vehicles in lane.
- Implement a centerline buffer area, shoulder widening, slope flatting, or clear zone improvements to reduce crash severity and frequency.

Wild Animal Crashes

Recall from TABLE 11 there were 801 (39.7%) wild animal crashes County-wide within the five-year analysis period. Of single-vehicle crashes, 554 (32.9%) involved a wild animal, with 56 of the wild animal crashes (3%) being "damage only." As with single-vehicle crashes, the high-frequency areas of wild animal crashes are consistent with areas of higher traffic volumes. Wild animal crashes are occurring most frequently along Interstate 90 (west of Spearfish), Highway 14A (east of Deadwood), and Interstate 90 (north of Whitewood). The following treatments can be applied to rural roadways to reduce the possibility of a wild animal crash:

- Implement wildlife fencing to keep animals away from high-volume, high-speed roadways.
- Implement animal detection systems.
- Provide acceptable animal crossing locations with under- and overpasses.

TABLE 13 provides details for crashes by type; FIGURE 32 and FIGURE 33 show crash density for single vehicle and wild animal crashes, respectively.

Table 13. Crashes by Type

YEAR	ANGLE	HEAD-ON	SINGLE VEHICLE	REAR-END	SIDESWIPE, OPPOSITE DIRECTION	SIDESWIPE, SAME DIRECTION	WILD ANIMAL HIT - DAMAGE ONLY	TOTAL
2018	25	2	362	15	7	2	0	413
2019	27	0	359	22	5	6	0	419
2020	23	4	347	16	5	3	1	399
2021	27	4	360	15	6	4	5	421
2022	25	3	257	17	7	5	50	364
TOTAL	127	13	1,685	85	30	20	56	2,016

Figure 32. Single-Vehicle Crash Density

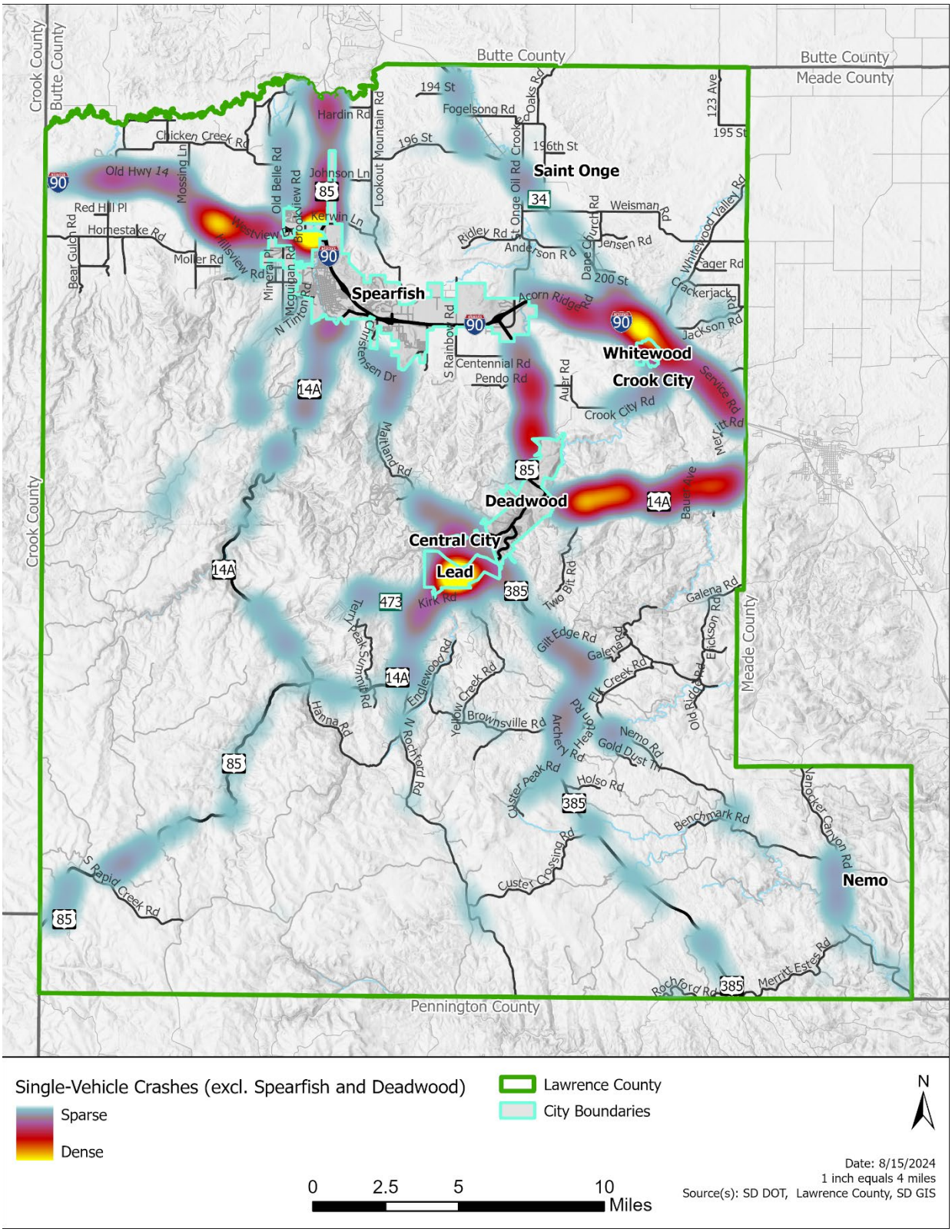
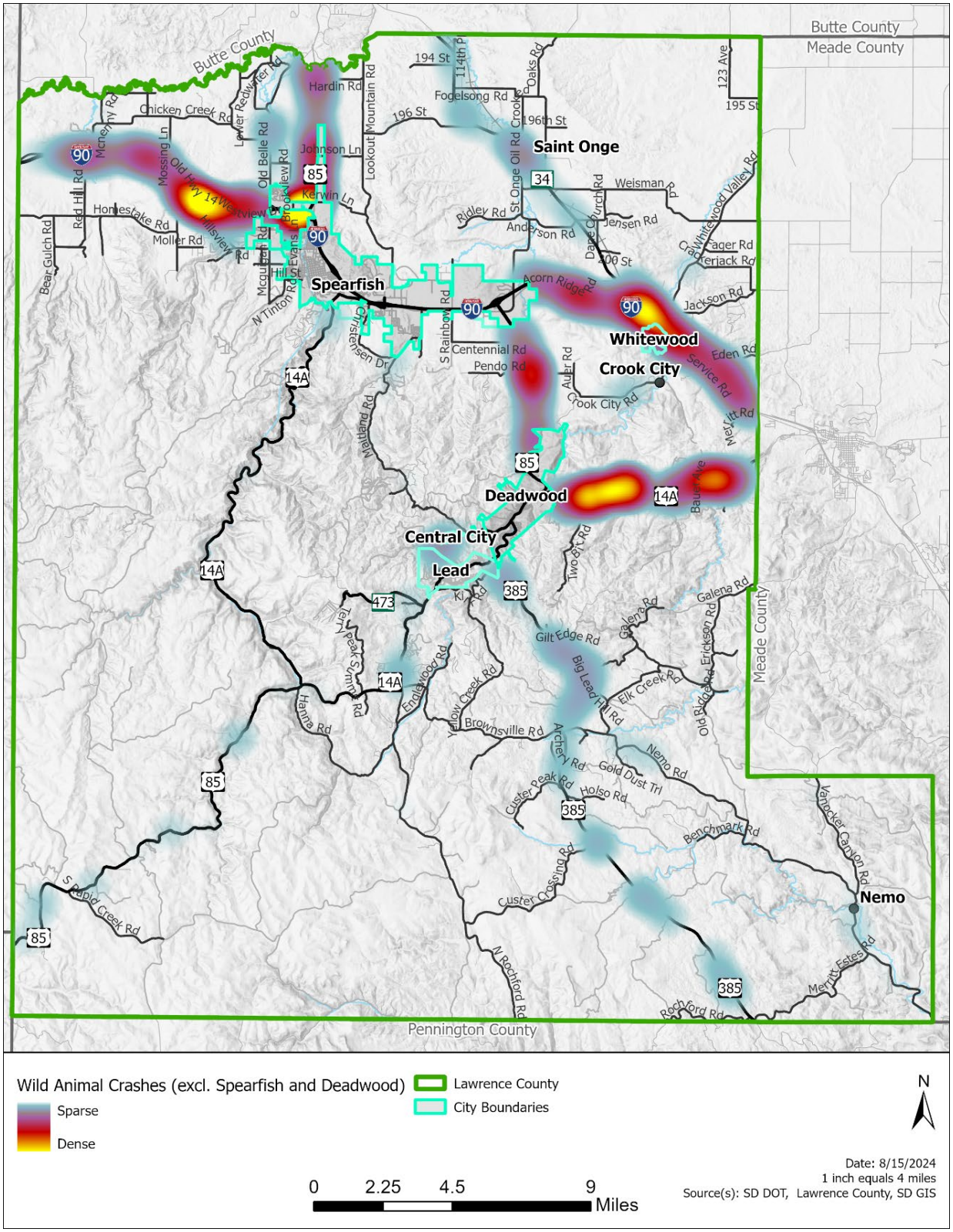


Figure 33. Wild Animal Crash Density



Crash Analysis of Study Intersections

The safety performance of each of the study intersections was analyzed by crash frequency, severity, and crash type. There were 16 crashes occurring at the 16 study intersections between January 1, 2018, and December 31, 2022.

TABLE 14 summarizes the number of crashes for each of the study intersections by severity. The intersection of Old Belle Road and Old Highway 14 experienced the highest number of crashes (4), followed by the intersection of US Highway 385 and Nemo Road. There were no fatal crashes reported at the study intersections within the analysis period. There were three (3) crashes that resulted in an incapacitating injury within the study period, all of which occurred at the intersection of US 385 and Nemo Road.

Table 14. Crash Frequencies at Study Intersections (2018–2022)

ID	INTERSECTION	CRASHES	CRASH SEVERITY TYPE					
			K	A	B	C	PDO	WILD ANIMAL
1	Old Belle Rd and Old Hwy 14	4				1	3	
2	McGuigan Rd and Hillsview Rd	0						
3	Old Hwy 14 and Upper Valley Rd	1					1	
4	Hillsview Rd and Upper Valley Rd	1					1	
5	Homestake Rd and Red Hill Rd	1					1	
6	McGuigan Rd and Tinton Rd	0						
7	Nemo Rd and Vanocker Canyon Rd	2			1	1		
8	Maitland Rd and Christensen Dr	1						1
9	US Hwy 14A and Two Bit Rd	0						
10	Homestake Rd and Crow Peak Bench Rd	0						
11	US Hwy 85 and Johnson Ln	0						
12	US Hwy 14A and Maitland Rd	0						
13	SD Hwy 34 and Whitewood Valley Rd	2					2	
14	Hillsview Rd and Higgins Gulch Rd	0						
15	US Hwy 385 and Nemo Rd	3		3				
16	Nemo Rd and Merritt Rd	1						1

K – Fatal; A – Incapacitating Injury; B – Non-Incapacitating Injury; C – Possible Injury; PDO – Property Damage Only

On the following page, TABLE 15 summarizes the 16 study intersections by their respective number of crashes and crash types. The most frequent crash type that occurred at the study intersections within the analysis period was angle crashes (7), followed by single vehicle crashes (6). All four of the crashes that occurred at the intersection of Old Belle Road and Old Highway 14 were angle crashes. Two of the three crashes that occurred at the intersection of US Highway 385 and Nemo Road were single vehicle crashes, and one was a rear-end crash.

Table 15. Crash Types at Study Intersections (2018–2022)

ID	INTERSECTION	ANGLE	SINGLE VEHICLE	REAR-END	SIDESWIPE, SAME DIRECTION	TOTAL
1	Old Belle Rd and Old Hwy 14	4				4
2	McGuigan Rd and Hillsview Rd					0
3	Old Hwy 14 and Upper Valley Rd			1		1
4	Hillsview Rd and Upper Valley Rd				1	1
5	Homestake Rd and Red Hill Rd	1				1
6	McGuigan Rd and Tinton Rd					0
7	Nemo Rd and Vanocker Canyon Rd	1	1			2
8	Maitland Rd and Christensen Dr		1			1
9	US Hwy 14A and Two Bit Rd					0
10	Homestake Rd and Crow Peak Bench Rd					0
11	US Hwy 85 and Johnson Ln					0
12	US Hwy 14A and Maitland Rd					0
13	SD Hwy 34 and Whitewood Valley Rd	1	1			2
14	Hillsview Rd and Higgins Gulch Rd					0
15	US Hwy 385 and Nemo Rd		2	1		3
16	Nemo Rd and Merritt Rd		1			1
TOTAL		7	6	2	1	16

Improving Traffic Operations and Safety

To improve traffic operations and safety, potential alternatives include either one or a combination of:

- Improve the visibility of the intersection by providing lighting.'
- Clear the sight triangle at the stop-controlled approach of Merrit Estes Road to improve sight distance.

Severity. Consideration of crash severity is important to understand the current safety conditions of the network. The SDDOT crash data categorizes crash data by the following severity levels:

- Fatal
- Incapacitating Injury
- Non-Incapacitating Injury
- Minor Injury (Possible Injury)
- Property Damage Only (PDO) – [No Injury]

Crash severity is categorized based on the most severe injury resulting from the crash. Of the 2,016 crashes reported during the five-year analysis period, there were 26 crashes (1.3%) resulting in a fatality, and 137 crashes (6.8%) resulting in an incapacitating injury. There were 801 crashes (39.7%) that involved a wild animal. Note that the year 2022 has two crashes that are in the N/A category (not applicable). Severity breakdowns by year are shown in the chart in FIGURE 34 and graphically in FIGURE 35 on the following page.

Figure 34. Crashes by Severity

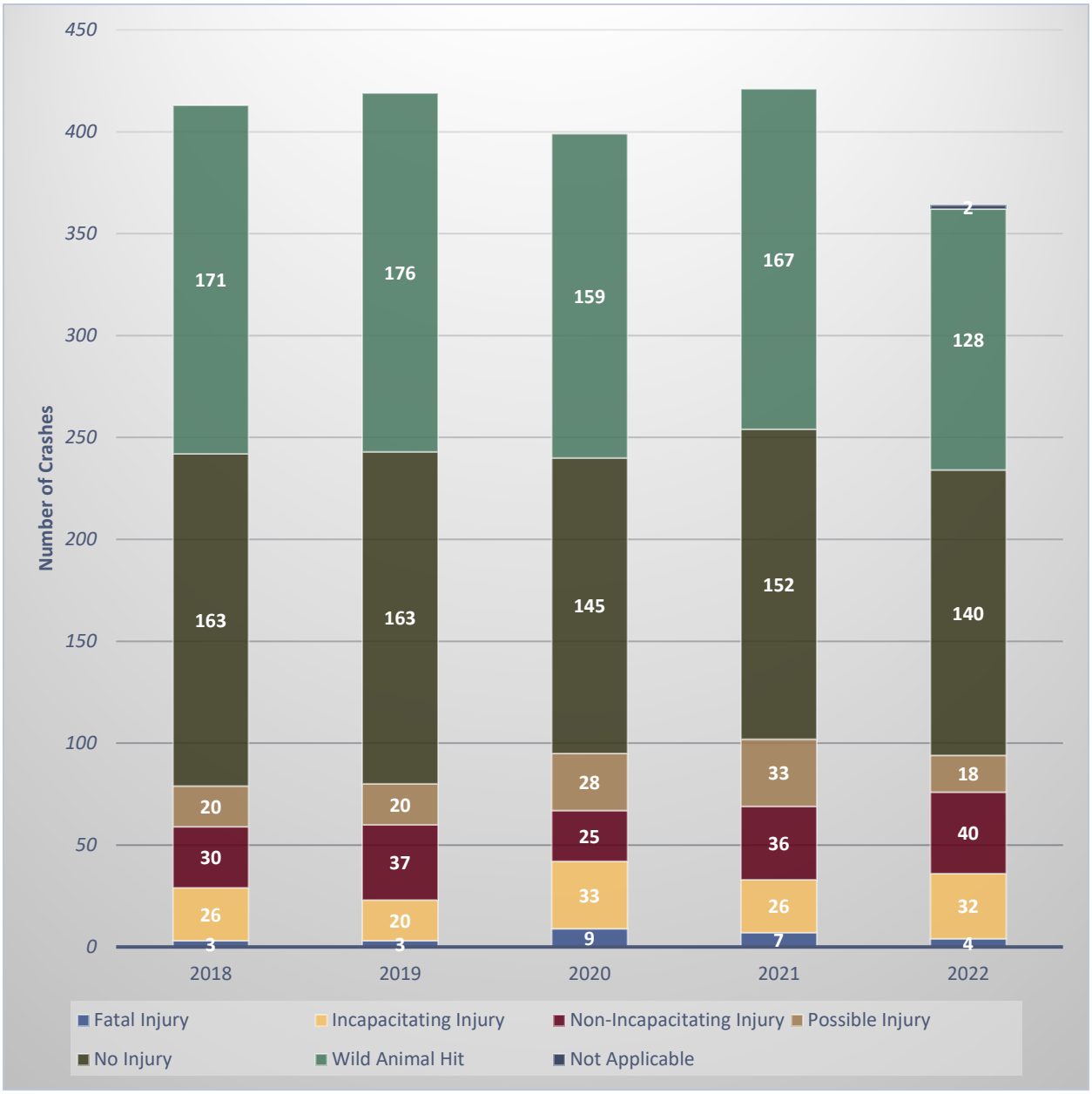
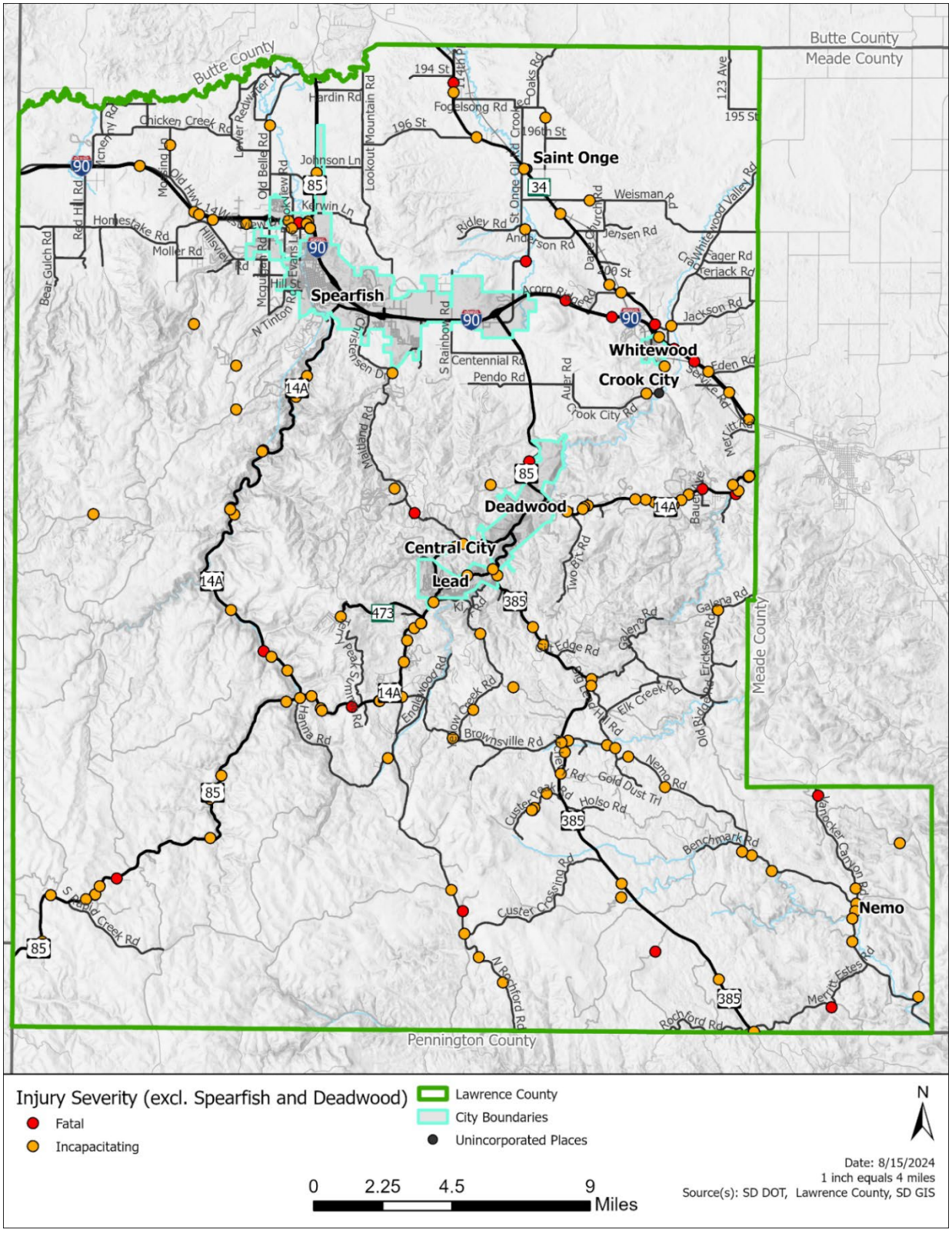
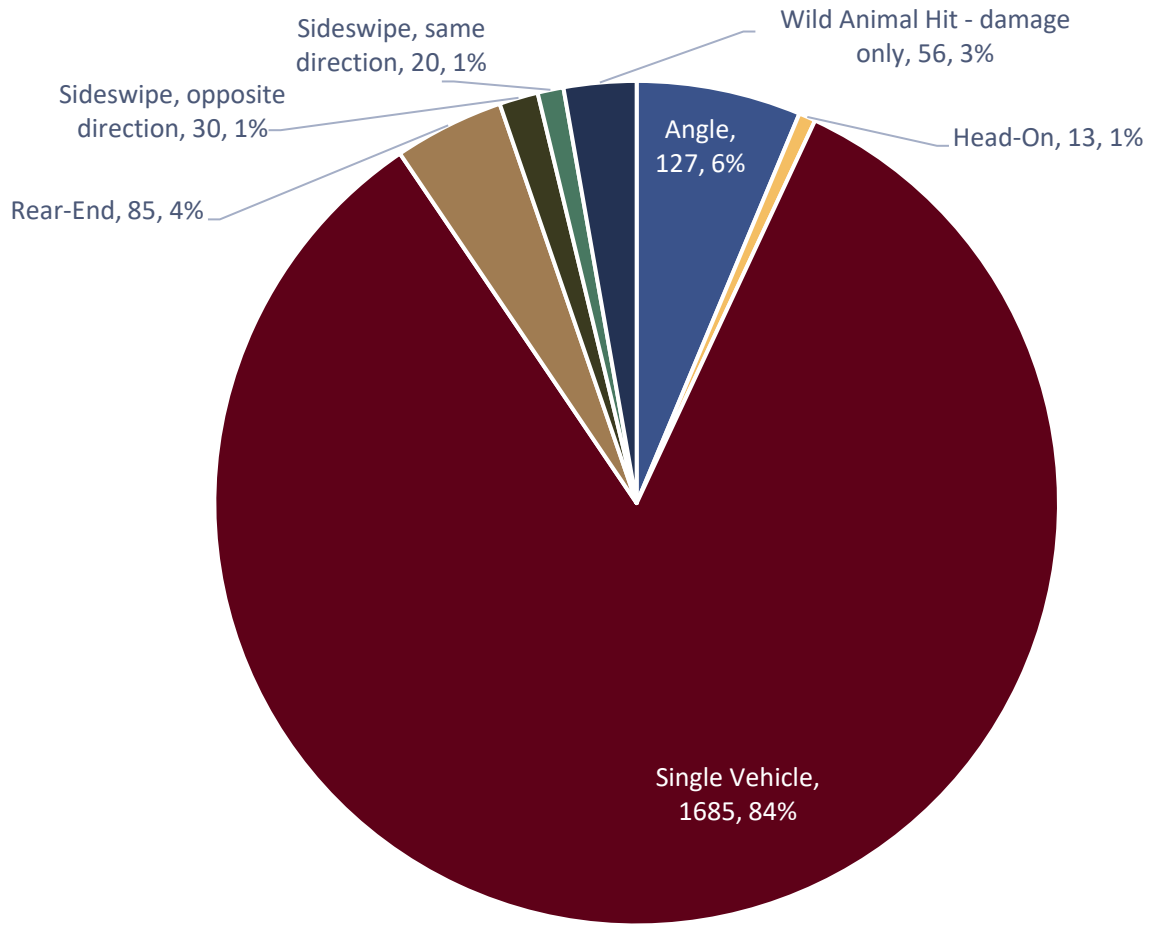


Figure 35. Crash Severity



Type. Crashes by type are shown in FIGURE 36. The vast majority of crashes involved a single vehicle (1,685, 84%). The next most frequent crash type is angle crashes (127, 6%), rear-end crashes (85, 4%), and wild animal hit – damage only (56, 3%).

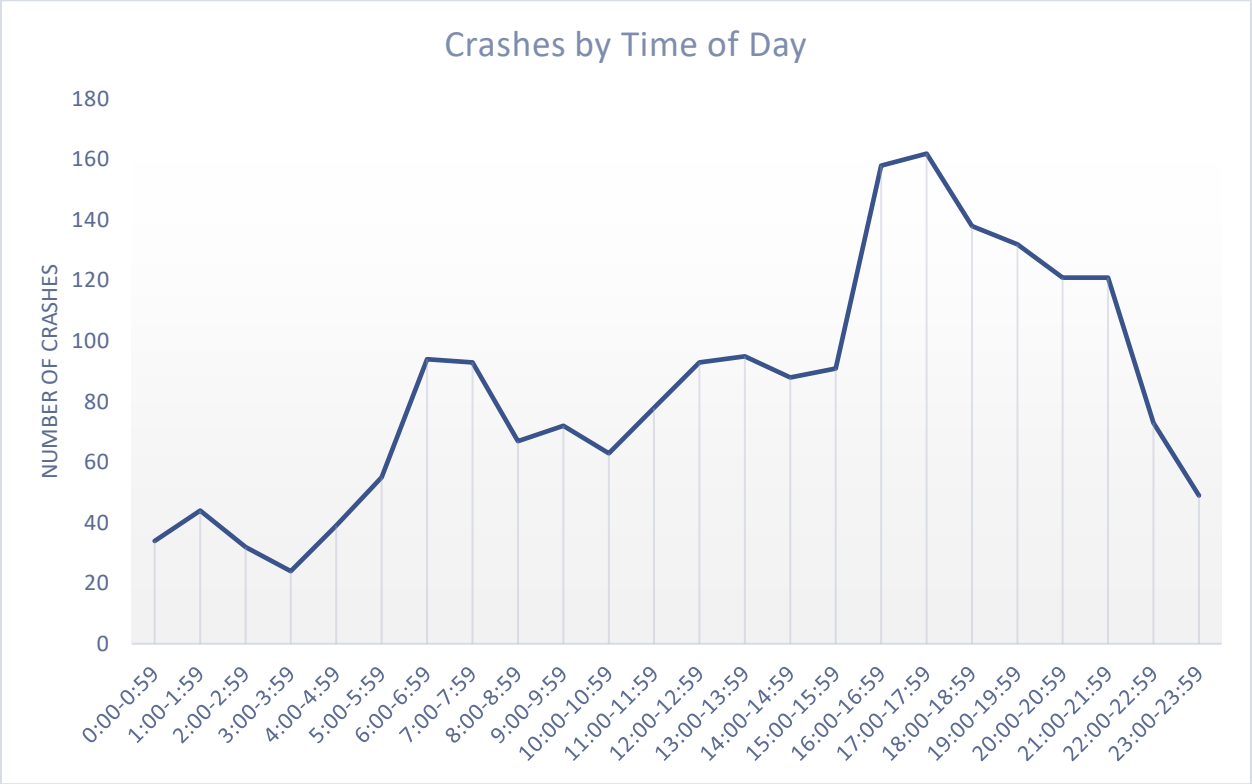
Figure 36. Crashes by Type



Occurrence Period. Crash occurrence statistics assist in refining patrol deployment decisions and other safety implementation decisions that can improve conditions. Typically, traffic varies significantly by time of day and day of week, particularly during weekday AM and PM peak hours. Crash data for the study area of Lawrence County (excluding crashes occurring in Spearfish and Deadwood) was evaluated based on the period of occurrence with respect to time of day, week, and month.

As shown in FIGURE 37, approximately 57.2% of crashes occurred between 6:00 am and 6:00 pm. Crashes typically occur during peak travel periods, with AM peaks between 6:00 am and 8:00 am, and PM peaks between 4:00 pm and 6:00 pm.

Figure 37. Crashes by Time of Day



Approximately 68.3% of crashes occur during weekdays. The most crashes occur on Friday (321, 15.9%) and Saturday (356, 17.7%), and the fewest crashes occur on Tuesday (253, 12.5%) and Wednesday (251, 12.5%).

The highest number of vehicular crashes occurred during the month of August (258, 12.8%), followed by November (230, 11.4%) and June (193, 9.6%). The fewest vehicular crashes occurred during the month of April (92, 4.6%), followed by March (113, 5.6%) and May (125, 6.2%).

See FIGURE 38 and FIGURE 39 for crashes by day of week and month, respectively.

Figure 38. Crashes by Day of Week

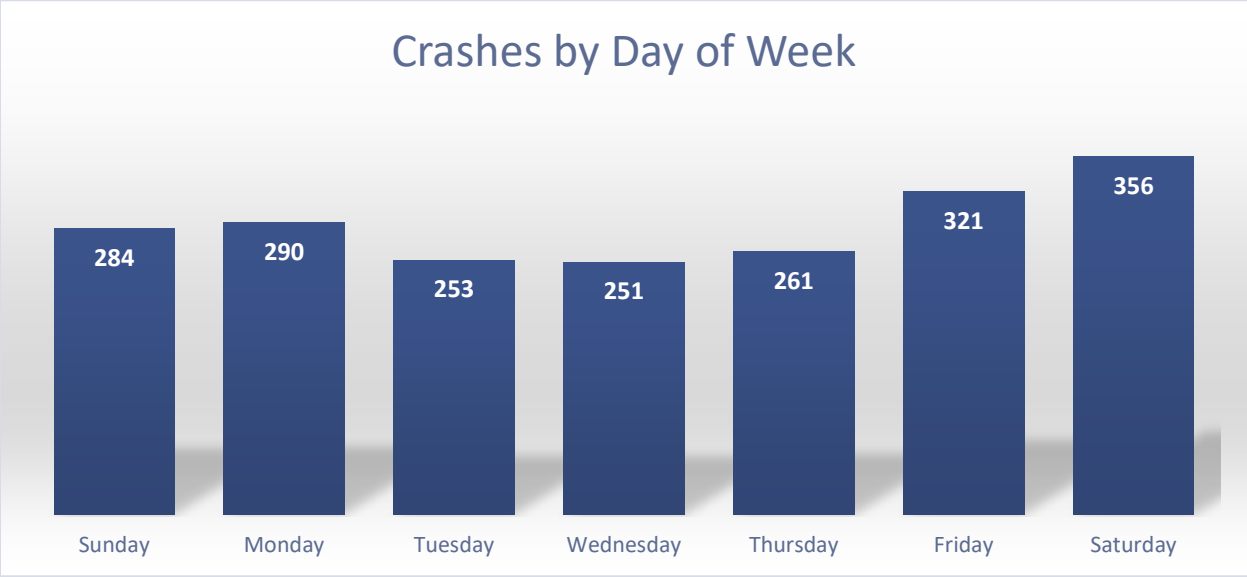
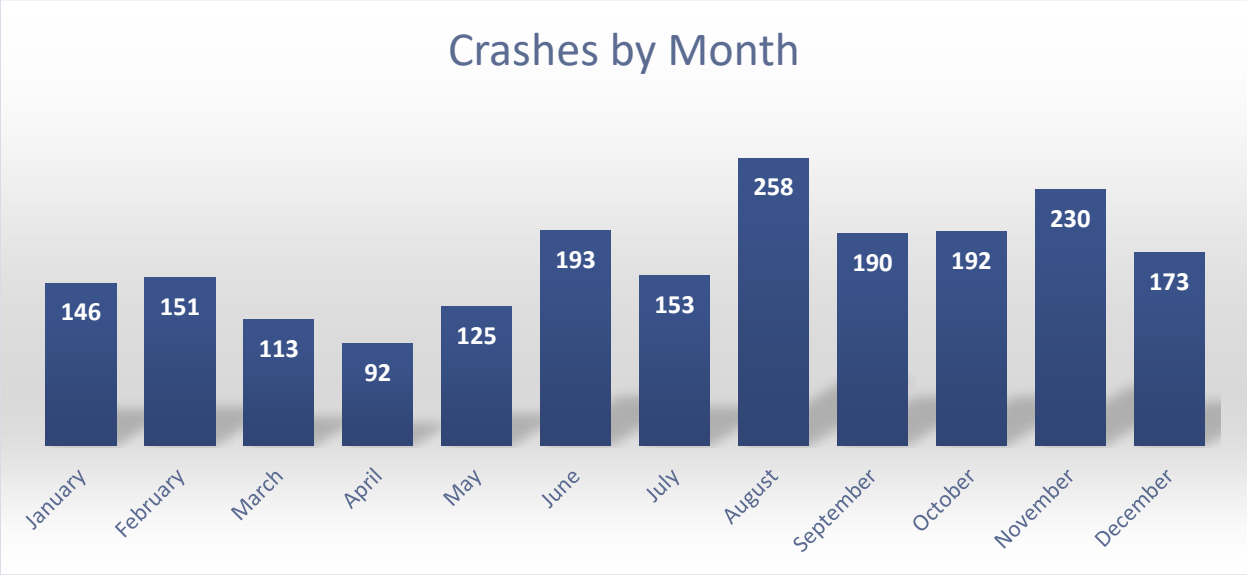


Figure 39. Crashes by Month



Crashes involving Impaired Drivers. During the five-year study period, there were 194 crashes that involved an impaired driver, not including crashes that occurred in Spearfish or Deadwood. Impaired drivers include alcohol and drug use. This corresponds to 9.6% of all the crashes that occurred within the study area. Thirteen (13, 50%) of the fatal crashes involved an impaired driver. Thirty-three (33, 24%) of the crashes resulting in an incapacitating injury also involved an impaired driver.

Crashes involving Wild Animals. During the five-year study period, there were 801 (39.7%) crashes that involved wild animals, which corresponds to an average of 160.4 wild animal crashes per year. This is likely understated, as many vehicle-animal collisions are unreported, particularly if the crash does not involve property damage or injuries. South Dakota is the fourth-ranked state in the United States for insurance claims from a collision with an animal.

RANK	STATE
1	West Virginia
2	Montana
3	Pennsylvania
4	South Dakota
5	Michigan

The highest number of animal crashes occurred during the month of November (138, 17.2%, FIGURE 40), which is in line with the deer breeding season that runs from October to December, peaking mid-November. As shown in FIGURE 41 on the following page, the majority of wild animal crashes occurred on high-volume, high-speed roadways, primarily I-90, US 85, US 385, and US 14A.

Figure 40. Wild Animal Crashes by Month

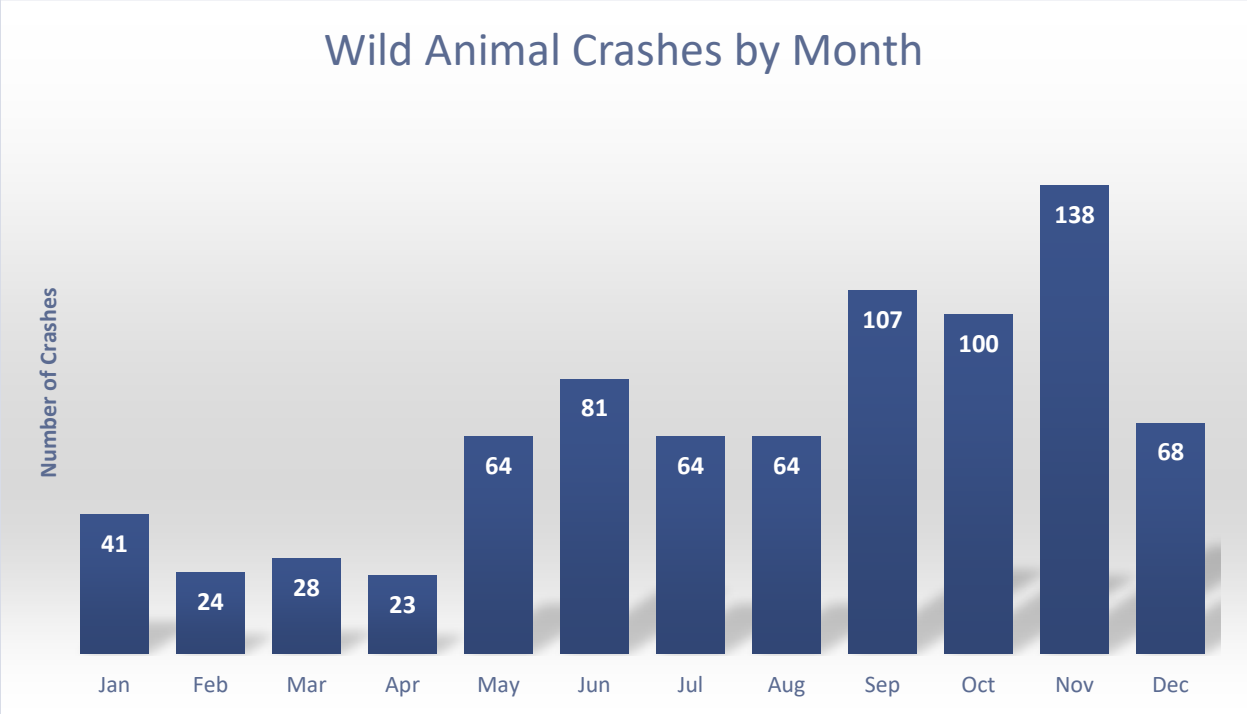
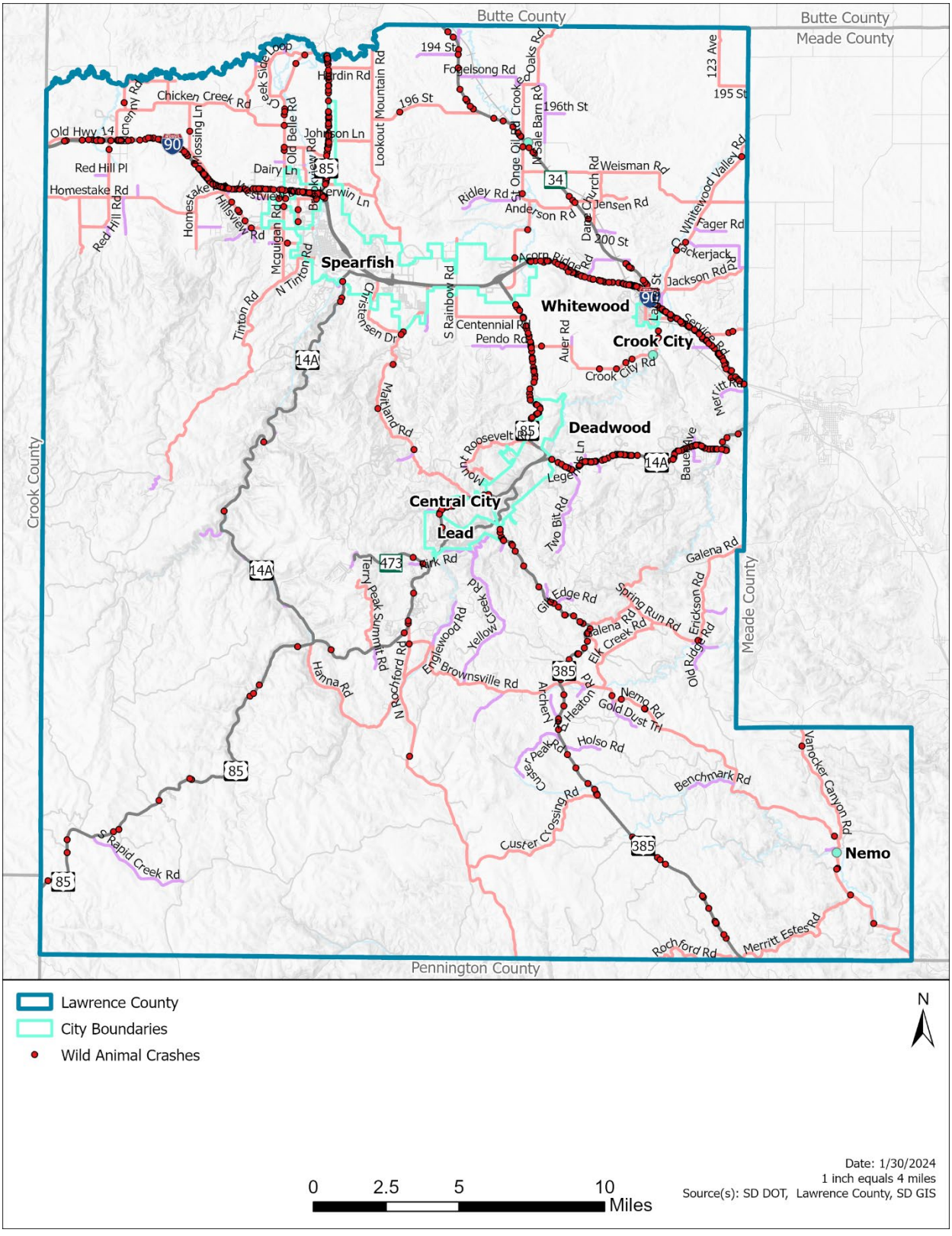


Figure 41. Crash Locations Involving Wild Animals



Crashes involving Bicycles or Pedestrians. For the purposes of analyzing crashes involving pedestrians and bicyclists, crash data from Spearfish and Deadwood was included in the totals. During the five-year analysis period, there were 16 crashes involving pedestrians (4 pedestrian crashes outside Spearfish and Deadwood), and 10 crashes involving bicyclists (4 bicycle crashes outside Spearfish and Deadwood). Three bicycle crashes occurred on the County Road system, as shown in TABLE 16 below.

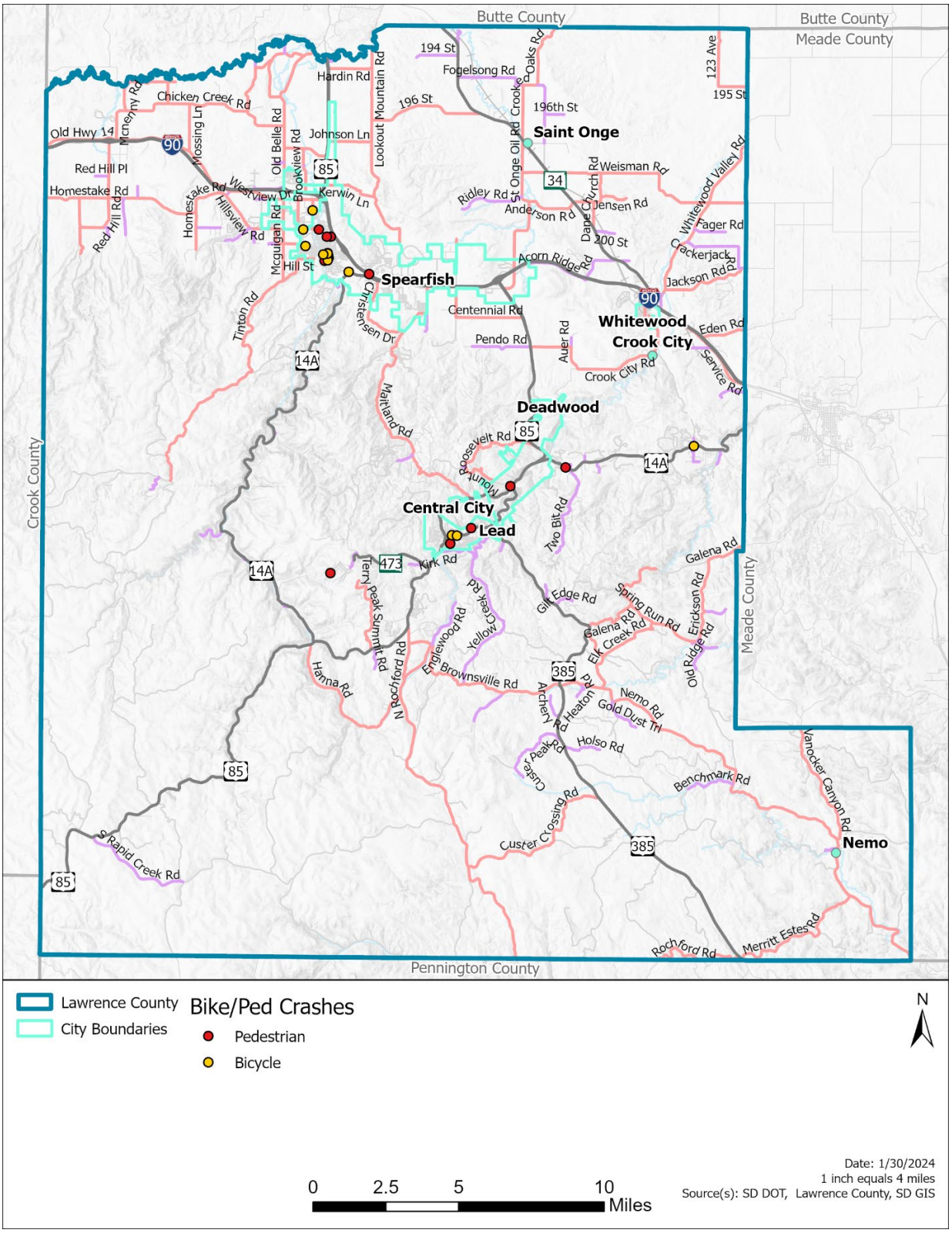
Table 16. Non-Motorist Crashes Occurring on the County Road System

TYPE	LOCATION	INJURY SEVERITY
Bicycle Crash	Hillsview Rd at College Ln	Non-incapacitating Injury
Bicycle Crash	Evans Ln at Tom Ral Dr	Possible Injury
Bicycle Crash	US 14A at Bauer Ave/Wildberger Rd	Possible Injury

There were 296 crashes involving impaired drivers, 8.6 % of all crashes during the analysis period. The statewide average for crashes involving impaired drivers during the same period is 5.5%. 13 of 28 of the fatal crashes involved impaired drivers. 41 of 174 incapacitating crashes involved impaired drivers. Impaired drivers include alcohol use and/or drug use.

There were 3,431 crashes reported during the five-year analysis period. There were 28 crashes that resulted in incapacitating injury. There were 16 crashes that involved a pedestrian, and 10 crashes involved a bicyclist. About 17.8% of the crashes were intersection related. See FIGURE 42.

Figure 42. Crashes Involving Bicycles or Pedestrians



Extensive Intersection Safety and Traffic Operations Evaluation

Site visits were conducted in July 2024 for each of the sixteen study intersections chosen by Lawrence County for detailed analysis. Site visits enabled evaluators to identify operational issues, such as traffic signing or intersection design issues, or issues related to pedestrian and cyclist access. Additionally, evaluators identified potential safety hazards, such as visibility issues or inadequate lighting that may not be apparent from reports or statistical data alone. This firsthand knowledge is crucial for developing effective strategies to address operational and safety challenges. The visits were necessary to assess existing issues and establish a baseline for evaluating future conditions. A summary of observations for each intersection is provided in the following section.

Location # 1: Old Belle Road and Old Highway 14

The Old Belle Road and Old Highway 14 intersection is located on the northwest side of Spearfish. The following photo was taken during the site visit.

Figure 43. Study Intersection 1: Old Belle Road and Old Highway 14

Old Belle Road is classified by SDDOT as an Urban Minor Arterial, and Old Highway 14 is classified as an Urban Major Collector. The intersection of Old Belle Road/McGuigan Road and Old Highway 14 currently operates as an all-way stop. The approaches are paved and there is currently no street lighting. Left turn lanes are present on the north-south approaches. The speed limit is 45 mph north-south and 35 mph east-west. The intersection is expected to operate at LOS B during the AM peak, and LOS C during the PM peak under the projected future 2045 intersection traffic volumes. This delay and LOS are considered acceptable for Urban Arterials and Urban Collectors. Also, approach volumes appear to support continuing the all-way stop control.

There were four crashes (one possible injury, and three non-injury crashes) reported during the five-year analysis period from 2018 to 2022. Each of these crashes were angle crashes. The primary contributing factor (applying to three of the four crashes) was failure to yield/stop at the stop signs.

To address the traffic operations and safety concerns, potential alternatives include either one or a combination of:

- Improve the visibility of the intersection by providing lighting.
- Provide a channelized westbound right turn lane to improve operations, should additional intersection capacity become necessary. Existing AM and PM PHV's = 86 and 122 VPH.

Location # 2: McGuigan Road and Hillsview Road

The McGuigan Road and Hillsview Road intersection is located on the west side of Spearfish. The following photo was taken during the site visit.

Figure 44. Study Intersection 2: McGuigan Road and Hillsview Road

McGuigan Road and Hillsview Road are both classified by SDDOT as Urban Minor Arterial roadways. The intersection of McGuigan Road and Hillsview Road currently operates as an all-way stop. The approaches are paved and there is currently no street lighting. Left turn lanes are present on the north-south approaches. The speed limit is 45 mph north-south and 35 mph east-west. A shared-use path crossing is located across the westbound approach of Hillsview Road, just east of the intersection.

The intersection is expected to operate at LOS B during both the AM and PM peak hours under the projected future 2045 intersection traffic volumes, which is considered acceptable for Urban Arterials, per SDDOT standards. Also, approach volumes appear to support continuing the all-way stop control. There were no crashes at this intersection during the five-year analysis period between 2018 and 2022.

To improve the traffic operations and safety, potential alternatives include either one or a combination of:

- Improve the visibility of the intersection by providing lighting.
- Consider installation of pedestrian and/or bicycle crossing signs

Location # 3: Upper Valley Road and Old Highway 14

The Upper Valley Road and Old Highway 14 intersection is located on the northwest side of Spearfish. The following photo was taken during the site visit.

Figure 45. Study Intersection 3: Upper Valley Road and Old Highway 14

Upper Valley Road is classified as an Urban Local Road by SDDOT, and Old Highway 14 is classified as an Urban Major Collector Road. The intersection of Upper Valley Road and Old Highway 14 is a T-intersection and currently operates with Upper Valley Road stopping for Old Highway 14. The approaches are paved and there is currently street lighting on the north side. No turn lanes are present, and the speed limit is 30 mph north-south and 35 mph east-west.

The intersection is expected to operate at LOS B during both the AM and PM peak hours under the projected future 2045 intersection traffic volumes, which is considered acceptable for Urban Collectors and Local Roads, per SDDOT standards.

There was one crash reported during the five-year analysis period from 2018 to 2022. This crash was classified as a rear-end crash in the eastbound approach and resulted in no injury. The crash occurred due to driver distraction.

To improve the traffic operations and safety, potential alternatives include either one or a combination of:

- Improve the visibility of the intersection by providing additional lighting.
- Clear the sight triangle at the stop-controlled approach of Upper Valley Road by removing foliage to improve sight distance.

Location # 4: Upper Valley Road and Hillsview Road

The Upper Valley Road and Hillsview Road intersection is located on the west side of Spearfish. The following photo was taken during the site visit.

Figure 46. Study Intersection 4: Upper Valley Road and Hillsview Road

Upper Valley Road is classified as an Urban Local Street by SDDOT, and Hillsview Road is classified as an Urban Minor Arterial Road. The intersection of Upper Valley Road and Hillsview Road is a T-intersection and currently operates as an all-way stop. A private driveway exists on the south approach. Excessive access exists east-west in the vicinity of the intersection. The approaches are paved and there is currently no street lighting. No turn lanes are present, and the speed limit is 30 mph north-south and 35 mph east-west. A sidewalk exists along the south side of Hillsview Road.

The intersection is expected to operate at LOS B during the AM peak, and LOS A during the PM peak under the projected future 2045 intersection traffic volume. This delay and LOS are considered acceptable for Urban Arterials and Local Roads, per SDDOT standards. Also, approach volumes appear to support continuing the all-way stop control.

There was one crash reported at this intersection during the five-year analysis period from 2018 2022. This crash was classified as a sideswipe same direction in the eastbound direction and resulted in no injury. The crash occurred due to driver distraction.

To improve the traffic operations and safety concerns, potential alternatives include either one or a combination of:

- Improve the visibility of the intersection by providing additional lighting.
- Clear the sight triangle at the stop-controlled approach of Upper Valley Road by removing foliage to improve sight distance.

Location # 5: Homestake Road and Red Hill Road

The Homestake Road and Red Hill Road intersection is located west of Spearfish. The following photo was taken during the site visit.

Figure 47. Study Intersection 5: Homestake Road and Red Hill Road

Homestake Road and Red Hill Road are both classified by SDDOT as Rural Local Roads. The intersection of Homestake Road and Red Hill Road currently operates with north-south stop signs on Red Hill Road. All approaches are gravel. There is currently no street lighting. No turn lanes are present, and the speed limit is 35 mph on the south approach where there is an immediate hill, and all other approaches are at 45 mph. There is fencing immediately adjacent to the intersection, and it appears that there is limited ROW available.

The intersection is expected to operate at LOS A during the AM and PM peak hours under the projected future 2045 intersection volumes. This delay and LOS are considered acceptable for Rural Local Roads, per SDDOT standards.

There was one crash reported during the five-year analysis period from 2018 to 2022. This crash was classified as an angle crash between an eastbound and northbound vehicle and resulted in no injury. The crash occurred due to driver intoxication and disregarding the northbound stop sign.

To improve the traffic operations and safety, potential alternatives include either one or a combination of:

- Improve the visibility of the intersection by providing lighting.

Location # 6: McGuigan Road and North Tinton Road

The McGuigan Road and North Tinton Road intersection is located on the south edge of Spearfish. The following photo was taken during the site visit.

Figure 48. Study Intersection 6: McGuigan Road and North Tinton Road

McGuigan Road is classified by SDDOT as a Rural Major Collector, and N Tinton Road is classified as a Rural Local Road. The intersection of McGuigan Road and North Tinton Road is a T-intersection with a stop sign on North Tinton Road. McGuigan Road is on a superelevated curve, and North Tinton Road immediately curves left as it leaves the intersection. The result is that there is relatively poor visibility from Tinton Road to the left at the intersection. The approaches are gravel and there is currently no street lighting. No turn lanes are present, and the speed limit is 30 mph on North Tinton Road and 35 mph on McGuigan Road.

The intersection is expected to operate at LOS A during the AM and PM peak hours under the projected future 2045 intersection volumes. This delay and LOS are considered acceptable for Rural Collectors and Local Roads, per SDDOT standards.

There were no crashes reported at this intersection during the five-year analysis period from 2018 to 2022.

To improve traffic operations and safety, potential alternatives include either one or a combination of:

- Improve the visibility of the intersection by providing lighting.
- Realign the east approach of Tinton Road to eliminate the intersection skew.

Location # 7: Nemo Road and Vanocker Canyon Road

The Nemo Road and Vanocker Canyon Road intersection is located a half mile north of Nemo. The following photo was taken during the site visit.

Figure 49. Study Intersection 7: Nemo Road and Vanocker Canyon Road

Nemo Road and Vanocker Canyon Road are both classified by SDDOT as Rural Major Collector roadways. The intersection of Nemo Road and Vanocker Canyon Road is a T-intersection with a stop sign on Vanocker Canyon Road. The approaches are paved and there is currently no street lighting. There is a southbound left turn lane present on Nemo Road, and the speed limit is 25 mph on Nemo Road.

At the time of data collection in June 2024, an overlay roadway project was occurring north of the intersection of Nemo Road and Vanocker Canyon Road. North of the intersection, Nemo Road was operating as a single-lane one-way facility, with construction workers allowing alternating northbound and southbound traffic to travel through the work zone. Several northbound U-turns were completed at the intersection during the time of data collection, and it was assumed that these movements were completed as vehicles chose to avoid the construction traffic when approaching the intersection. For the purposes of analysis, the northbound U-turn volumes were re-assigned to the northbound through and right turn movements, based on the existing through vs. right turn distribution at this approach.

The intersection is expected to operate at LOS A during the AM and PM peak hours under the projected future 2045 intersection volumes. This delay and LOS are considered acceptable for Rural Collectors, per SDDOT standards.

There were two crashes reported during the five-year analysis period from 2018 to 2022. One crash was classified as an angle crash and resulted in a non-capacitating injury. This crash involved a vehicle making an illegal U-turn at the northbound approach. The second crash was classified as a single-vehicle crash that resulted in a possible injury. This crash involved a westbound vehicle that collided with an embankment. To improve traffic operations and safety, potential alternatives include either one or a combination of the following:

- Improve the visibility of the intersection by providing lighting.

Location # 8: Maitland Road and Christensen Drive

The Maitland Road and Christensen Drive intersection is located southeast of Spearfish. The following photos were taken during the site visit.

Figure 50. Study Intersection 8: Maitland Road and Christensen Drive

Both Maitland Road and Christensen Drive are classified by SDDOT as Rural Minor Collector roads. The intersection of Maitland Road and Christensen Drive is a T-intersection that normally operates with an all-way stop condition. The all-way stop control is necessary due to limited sight distances at the intersection.

The approaches are paved and there is currently no street lighting. No turn lanes are present, and the speed limit is 30 mph on Maitland Road. At the time of the analysis, the Christensen Drive bridge was closed. Coming from Christensen Drive, there is very poor visibility to the north. Foliage, fencing, the curving alignment of Maitland Road, and ROW limitations may limit the opportunity to improve sight distance unless the intersection is relocated. There may be potential to do this as part of reconstruction of the Christensen Drive bridge.

At the time of data collection in June 2024, a bridge nearby the intersection of Maitland Road and Christensen Drive was closed, thereby removing one leg of the three-legged intersection. For this reason, the intersection effectively operated as a single roadway with through movements only. Thus, capacity analysis could not be completed for the intersection of Maitland Road and Christensen Drive. However, based on ADT data provided by SDDOT, volumes along the roadways are low and are not expected to result in unacceptable delay or LOS at the intersection.

There was one crash reported at this intersection during the five-year analysis period from 2018 to 2022. This crash was classified as a wild animal crash and resulted in no injury.

To improve the traffic operations and safety, potential alternatives include either one or a combination of:

- Realign the intersection approach of Christensen Drive to reduce or eliminate intersection skew. It appears that realignment and relocation of the intersection is the only viable way to revise intersection traffic control so that Maitland Road stop signs may be removed. Current funding does not account for this change, which would be much more costly. Further, additional right-of-way negotiations would need to be successful for this type of improvement to be advanced.
- Improve the visibility of the intersection by providing lighting.
- Provide additional signage warning drivers of potential wild animal activity in the area.

Figure 51. Study Intersection 8: Maitland Road and Christensen Drive

Location # 9: Two Bit Road and US Highway 14A

The Two Bit Road and US Highway 14A intersection is located on the east side of Deadwood. The following photo was taken during the site visit.

Figure 52. Study Intersection 9: Two Bit Road and US Highway 14A

US Highway 14A is classified by SDDOT as a Principal Arterial at this intersection, and Two Bit Road is classified as a Rural Local Road. The intersection of Two Bit Road and US Highway 14A is a T-intersection with a stop sign on Two Bit Road. The US Highway 14A approaches are paved and Two Bit Road is gravel and there is currently no street lighting. US Highway 14A is an undivided four-lane road that has an eastbound steep incline. Two Bit Road has a steep downgrade leading away from the intersection with excessive access in the vicinity of the intersection. No turn lanes are present.

The intersection is expected to operate at LOS B during the AM peak, and LOS C during the peak under the projected future 2045 intersection traffic volumes. This delay and LOS are considered acceptable for Rural Collectors, per SDDOT standards.

There were no crashes reported at this intersection within the five-year analysis period from 2018 to 2022.

To improve the traffic operations and safety, potential alternatives include either one or a combination of:

- Improve the vertical alignment of the northbound approach of Two Bit Road by flattening the vertical grade line to provide a safer landing at the intersection.
- Realign the northbound approach of Two Bit Road to reduce or eliminate intersection skew.
- Improve the visibility of the intersection by providing lighting.

Location # 10: Crow Peak Bench Road and Homestake Road

The Crow Peak Bench Road and Homestake Road intersection is located on the west side of Spearfish. The following photo was taken during the site visit.

Figure 53. Study Intersection 10: Crow Peak Bench Road and Homestake Road

Both Crow Peak Bench Road and Homestake Road are classified by SDDOT as Rural Local Roads. The intersection of Crow Peak Bench Road and Homestake Road is a channelized T-intersection with stop signs on the northbound and westbound approaches. The approaches are gravel and there is currently no street lighting. The speed limits are 35 mph to the west and south, and 45 mph to the north.

The intersection is expected to operate at LOS A during the AM and PM peak hours under the projected future 2045 intersection volumes. This delay and LOS are considered acceptable for Rural Local Roads, per SDDOT standards.

There were no crashes reported at this intersection during the five-year analysis period from 2018 to 2022.

To improve traffic operations and safety, potential alternatives include either one or a combination of:

- Realign Crow Peak Bench Road to intersect Homestake Road in one location only, located at the center of the curve. This will create a T-intersection with a single stop sign on the south leg approach.
- Improve the visibility of the intersection by providing lighting.

Location # 11: Johnson Lane and US Highway 85

The Johnson Lane and US Highway 85 intersection is located north of Spearfish. The following photo was taken during the site visit.

Figure 54. Study Intersection 11: Johnson Lane and US Highway 85

US Highway 85 is classified by SDDOT as a Rural Expressway, and Johnson Lane is classified as an Urban Major Collector. The intersection of Johnson Lane and US Highway 85 is a T-intersection with double stop signs on Johnson Lane to enter northbound US Highway 85 and yield signs at the median. US Highway 85 is a median divided, paved four lane roadway and Johnson Lane is gravel with a steep downgrade to the intersection. There is currently no street lighting. US Highway 85 has a speed limit of 65 mph. No turn lanes are present.

The intersection is expected to operate at LOS B during the AM peak, and LOS C during the PM peak under the projected future 2045 intersection volumes. LOS C or better is considered acceptable for an Urban Collector, per SDDOT guidelines.

There were no crashes reported at this intersection during the five-year analysis period from 2018 to 2022.

To improve traffic operations and safety, potential alternatives include either one or a combination of:

- Change the vertical alignment of the westbound approach of Johnson Lane to reduce grade.
- Improve the visibility of the intersection by providing lighting.

Location # 12: Maitland Road and US Highway 14A

The Maitland Road and US Highway 14A intersection is located 1.5 miles west of Deadwood. The following photo was taken during the site visit.

Figure 55. Study Intersection 12: Maitland Road and US Highway 14A

US Highway 14A is classified by SDDOT as a Rural Principal Arterial, and Maitland Road is classified as a Rural Minor Collector. The intersection of Maitland Road and US Highway 14A is a T-intersection with double stop signs on Maitland Road to enter US Highway 14A. The right stop sign is shielded by vegetation. US Highway 14A has a left turn lane to access Maitland Road. Maitland Road has a steep downgrade from the intersection with excessive access north and west of the intersection. There is currently no street lighting.

The intersection is expected to operate at LOS B during the AM and PM peak hours under the projected future 2045 intersection volumes. This delay and LOS are considered acceptable for Rural Arterials and Collectors, per SDDOT standards.

There were no crashes reported at this intersection during the five-year analysis period from 2018 to 2022. To improve traffic operations and safety, potential alternatives include either one or a combination of:

- Improve the visibility of the intersection by providing lighting.
- Clear the sight triangle at the stop-controlled approach of Maitland Road by removing foliage to improve sight distance and stop-sign visibility.

Location # 13: Whitewood Valley Road and SD Highway 34

The Whitewood Valley Road and SD Highway 34 intersection is located on the north side of Whitewood and I-90. The following photo was taken during the site visit.

Figure 56. Study Intersection 13: Whitewood Valley Road and SD Highway 34

SD Highway 34 is classified by SDDOT as a Rural Principal Arterial, and Whitewood Valley Road is classified as a Rural Major Collector. The intersection of Whitewood Valley Road and SD Highway 34 is a T-intersection with a stop sign on Whitewood Valley Road to enter SD Highway 34. Both roads have two through lanes and there appears to be adequate sight distance. The speed limit is 45 mph on all approaches. There is currently no street lighting or turn lanes.

The intersection is expected to operate at LOS B during the AM and PM peak hours under the projected future 2045 intersection volumes. This delay and LOS are considered acceptable for Rural Arterials and Collectors, per SDDOT standards.

There were two crashes (both non-injury crashes) reported at this intersection during the five-year analysis period from 2018 to 2022. One of these non-injury crashes was classified as an angle crash involving a vehicle that was following another too closely. The other non-injury crash was classified as a single-vehicle crash, in which a vehicle turning left hit a tree/shrubbery. The single-vehicle crash occurred during rainy nighttime conditions.

To improve traffic operations and safety, potential alternatives include either one or a combination of:

- Improve the visibility of the intersection by providing lighting.

Location # 14: Higgins Gulch Road and Hillsview Road

The Higgins Gulch Road and Hillsview Road intersection is located on the west edge of Spearfish. The following photo was taken during the site visit.

Figure 57. Study Intersection 14: Higgins Gulch Road and Hillsview Road

Both Higgens Gulch Road and Hillsview Road are classified by SDDOT as Urban Local Roads. The intersection of Higgins Gulch Road and Hillsview Road is a T-intersection with a stop sign on Higgins Gulch Road. Both roads are paved and have two through lanes and there appears to be adequate sight distance coming from Higgins Gulch Road. The speed limit is 35 mph on Hillsview Road. There is currently no street lighting or turn lanes. There are two uncontrolled private accesses opposite Higgins Gulch Road that may have sight distance issues.

The intersection is expected to operate at LOS A during the AM and PM peak hours under the projected future 2045 intersection volumes. This delay and LOS are considered acceptable for Urban Local Roads, per SDDOT standards.

There were no crashes reported at this intersection during the five-year analysis period from 2018 to 2022.

To improve traffic operations and safety, potential alternatives include either one or a combination of:

- Realign driveway approaches on the north side to combine to a single access point across from Higgins Gulch Road, which may also need to be realigned to eliminate skew.
- Flatten steep side-slopes along Higgens Gulch Road and widen roadway to improve vehicle stability and safety.
- Improve the visibility of the intersection by providing lighting.

Location # 15: Nemo Road and US Highway 385

The Nemo Road and US Highway 385 intersection is located about midway between Deadwood and Nemo. The following photo was taken during the site visit.

Figure 58. Study Intersection 15: Nemo Road and US Highway 385

US Highway 385 is classified by SDDOT as a Rural Principal Arterial, and both legs of Nemo Road are classified as a Rural Major Collector. The intersection of Nemo Road and US Highway 385 has east-west stop signs on Nemo Road. The speed limit on US Highway 385 is 40 mph around the curve through the intersection. The west approach of Nemo Road has a speed limit of 35 mph, and the east approach has a speed limit of 45 mph. The west approach of Nemo Road is gravel and is skewed. Else, both roads are paved and have two through lanes. There is currently no intersection lighting. There is somewhat restricted sight distance from Nemo Road to see coming from the east to see to the north.

The intersection is expected to operate at LOS A during the AM and PM peak hours under the projected future 2045 intersection volumes. This delay and LOS are considered acceptable for Urban Local Roads, per SDDOT standards.

There were three crashes (all three resulting in an incapacitating injury) that occurred at this intersection during the five-year analysis period from 2018 to 2022. All three crashes involved a motorcycle. Two of these crashes were classified as a single-vehicle crash. One of these single-vehicle crashes involved a motorcycle traveling southbound through the intersection that overturned after an evasive maneuver. Another single-vehicle crash involved a motorcycle traveling westbound and turning right that overturned. One of the crashes at this intersection was classified as a rear-end at the northbound approach. This crash involved an SUV and a motorcycle.

To improve traffic operations and safety, potential alternatives include either one or a combination of:

- Realign the intersection approaches of Nemo Road to eliminate skew and to create a more traditional four-legged intersection.
- Clear the sight triangle in the north quadrants of the stop-controlled approaches of Nemo Road to improve sight distance.
- Improve the visibility of the intersection by providing lighting.

Location # 16: Nemo Road and Merritt Estes Road

The Nemo Road and Merritt Estes Road intersection is located about 1.5 miles south of Nemo. The following photo was taken during the site visit.

Figure 59. Study Intersection 16: Nemo Road and Merritt Estes Road

Both Nemo Road and Merritt Estes Road are classified by SDDOT as Rural Major Collectors. The intersection of Nemo Road and Merritt Estes Road is a T-intersection with a stop sign on Merritt Estes Road. The west approach of Merritt Estes Road is gravel and Nemo Road is paved. There are no turn lanes or streetlights. There is somewhat restricted sight distance from Merritt Estes Road looking right to Nemo Road due to fencing, signs, and a tree. The intersection is expected to operate at LOS A during the AM and PM peak hours under the projected future 2045 intersection volumes. This delay and LOS are considered acceptable for Rural Collectors, per SDDOT standards. There was one crash reported at this intersection during the five-year analysis period from 2018 to 2022. This crash was classified as a wild animal crash and involved a single vehicle. This crash did not result in an injury. To improve traffic operations and safety, potential alternatives include either one or a combination of:

- Realign the westbound approach of Merritt Estes Road to reduce or eliminate intersection skew.
- Improve the visibility of the intersection by providing lighting.

CHAPTER 5 – TRANSPORTATION STANDARDS

Introduction

A review of existing transportation standards was completed in Chapter 3: Baseline Conditions within this report. This Chapter provides a discussion of changes that should be considered to update the transportation standards for Lawrence County.

Functional Classification

The functional classification system for Lawrence County was analyzed to determine how closely their percentages of roadways for each classification falls within the percentages recommended by the FHWA. TABLE 17 below reflects the comparisons:

Table 17. Functional Classification.

FHWA FC	CURRENT SYSTEM %	FHWA RECOMMENDATION %
Interstate	4.1%	1–3%
Principal Arterial	7.5%	2–6%
Minor Arterial	4.5%	2–6%
Major Collector	13.2%	8–19%
Minor Collector	8.1%	3–15%
Local Streets	61.9%	62–74%

Based on this review, it appears that Lawrence County functional classification percentage approximate federal recommendations fairly well. A visual review of functionally classified County roadways indicated that the roads on the system make sense, as they have logical termini and appear to provide good placement according to classification definitions of level of access, trip length and connectivity.

Roadway Surface

This section of the report will assist in future road designs and project planning, taking into consideration the type of road surface used and the routes for heavy vehicles as a main factor. The strategy for selecting the appropriate road surface places emphasis on the expected traffic volumes, operations, safety, access, and freight capacity of the County roads.

Gravel Roads

Although they may not have the same level of regional connectedness as paved County roads, County primary gravel roads facilitate connectivity. They generally carry less traffic than paved highways, which is why they have not previously been paved.

Paved Roads

Paved roads support the greatest degree of interregional connectivity and carry the highest traffic and the heaviest loads. They generally transport over 500 vehicles per day. Since these routes link towns, these can also draw bicyclists. These roadways frequently operate at higher speeds than their gravel counterparts. Wide shoulders, ideally between four and six feet, and recoverable 4:1 inslopes should be included in significant upgrade plans when topography and right-of-way allows. Although they enhance regional connectivity, not all paved roads are as important as the priority routes. When major enhancements are planned, they should have recoverable 4:1 inslopes and may have narrow shoulders (two feet) if daily traffic volumes are less than 400 vehicles per day.

Conversion of Roadway from Gravel to Paved

Over time, components of the transportation system including bridges and road surfaces deteriorate. Replacement eventually becomes the most economical course of action, even with proactive preservation over the course of the transportation system. To maintain the safe and effective flow of people and commodities, standards and practices also evolve, which has an impact on system operation and safety. When a component of the transportation system becomes structurally or operationally outdated, the County will replace it when it becomes a priority and once funding is available.

The number of vehicles on the road and the weight of the vehicles using it are among the contributing factors to the deterioration of the life of a road. The ADT used to justify paving generally is in the range of 200 vehicles to 650 vehicles. When traffic volumes reach this range, serious consideration should be given to upgrade the roadway surface from gravel to paved. Traffic volumes are merely guides. Types of traffic and available funding should also be considered. Different types of traffic result in different demands on roads. Overloaded trucks are most damaging to both gravel and paved roads.

The functional classification of the highway should also be considered. If the roadway is a collector or arterial road, it should be paved. A local road may be sealed or paved while the road with heavy truck usage may be surfaced with gravel and left unpaved until sufficient funds are available to place a thick load-bearing pavement on the road.

Currently, the County has 504.7 miles of gravel roads, or 57.7% of the total County route system. The County will keep focusing its resources on paving gravel routes that are rated as collectors and manage more than 400 cars per day to improve mobility, safety, and maintenance effectiveness.

The County will take other criteria into account in addition to ADT when considering the need for paving. These include:

- A road section that is either urban or rural.
- Cross sectional elements, such as sharp curves, narrow sections, and poor recovery areas that may reduce safety for higher speed travel.
- Typical ease and speed of travel.
- Safety and mobility.
- Consider road with of 22 feet wide.
- Consider sight distance, alignments, and curves.
- Consider adequate base and drainage.
- Prioritize collectors over local roads.
- Maintenance efficiency.
- Funding availability, cost vs. other priorities
- Coordination with partnering agencies.
- Bridge needs; and
- Environmental impacts.

Cross Section Standards

County road design standards should be based on the current editions of the following references:

- American Association of State highway Transportation Officials (AASHTO), and
- SDDOT's Standard Specifications for Roads and Bridges.

SDDOT references often derive their recommendations and design standards from older editions of AASHTO. References are often updated with new editions, and new editions should be used when designing new roads. If new roads are being built or existing roads are being renovated, the current planning standards and recommendations as discussed below should be used:

- Lane width of 11 ft is standard for Lawrence County, especially for new construction, however 10 ft lanes may be considered for roads, including truck roads, where traffic capacity requirements is not a top priority or where topography and right-of-way limits the ability to construct a wider section.
- The crown rates for paved and gravel surfaces should be 0.02 ft/ft to 0.04 ft/ft. The maximum super elevation rate will be 0.06 ft/ft on paved surfaces and 0.08 ft/ft on gravel surfaces.
- Written approval from the County Highway Superintendent or their representative will be required for any road or segment of a road to have a grade exceeding twelve percent (12%).
- The maximum slope allowed is 4 to 1, with a preferred back slope of 3 to 1. The back slope should never exceed 1 to 1 under any circumstances.
- Roads that exceed 400 ADT should be paved. While this is desired, meeting this threshold does not constitute a requirement for the County to do so. Further, consideration of other County priorities and current conditions related to the corridor in question should be reviewed prior to a decision to pave.

TABLE 18 presents the typical cross-section standards for roadways in Lawrence County. On the following pages FIGURE 60 through FIGURE 62 show minimum cross section standards for the County roadway classification plan.

Table 18. County Roads Typical Cross Sections

ROAD CLASSIFICATION ->	COLLECTOR			LOCAL		
TYPE ->	RURAL[A]	RURAL[B]	URBAN	RURAL[A]	RURAL[B]	URBAN
Surface Material	Gravel	Paved	Paved	Gravel	Paved	Paved
Surface Width (feet)	26	26	30	26	26	30
Lane Width (feet)[D]	11	11	11	11	11	11
Shoulder Material	Gravel	Paved	Paved	Gravel	Paved	Paved
Min Shoulder Width (feet)	2	2	4[C]	2	2	4[C]
Crown Rate	4%	2%	2%	4%	2%	2%
Max Super Elevation	6%	6%	6%	6%	6%	6%
In-Slope	4 to 1	4 to 1	-	4 to 1	4 to 1	-
Back Slope	3 to 1	3 to 1	-	3 to 1	3 to 1	-
Walk Width (feet)	-	-	5	-	-	5
Shared Use path (feet)	-	-	-	-	-	-
Minimum ROW (feet)	66	66	66	66	66	66

A - < 250 ADT; B - >250 ADT; C - Consider 6' On-Street Parking; D - Minimum 10 feet

The specifications for new roads within Lawrence County, as outlined in TABLE 18, are shown visually in the following Typical Sections:

Figure 60. Typical Section 1 – Rural Gravel Road

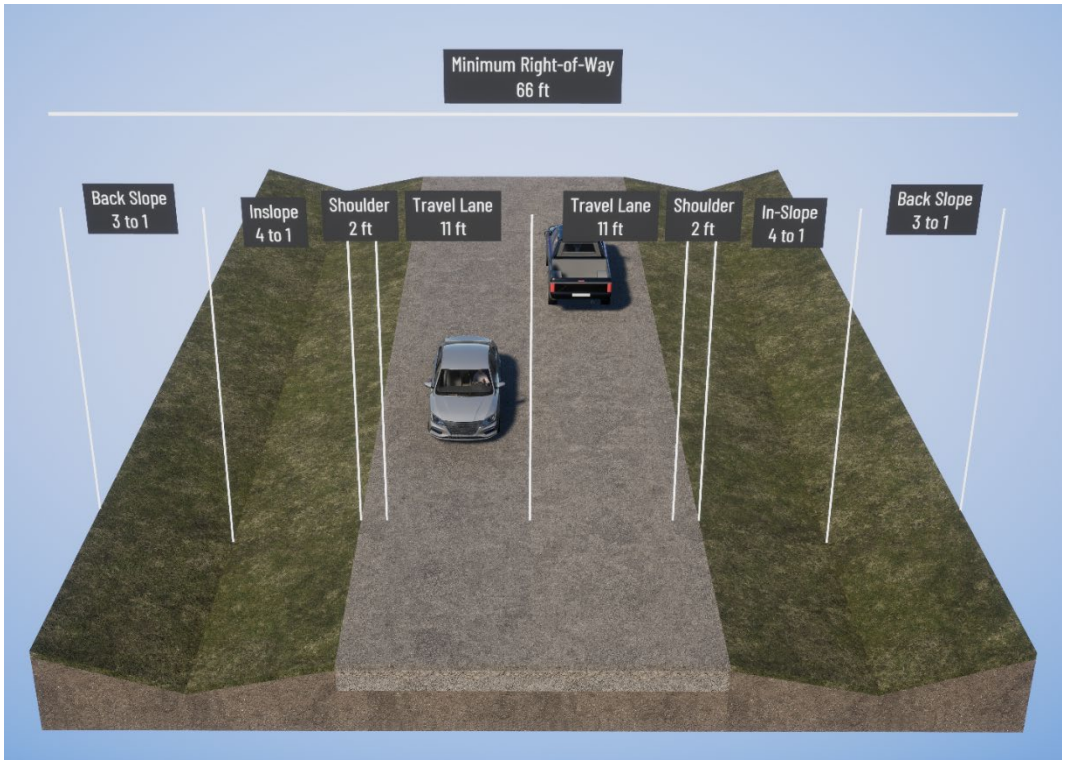


Figure 61. Typical Section 2 – Rural Paved Road

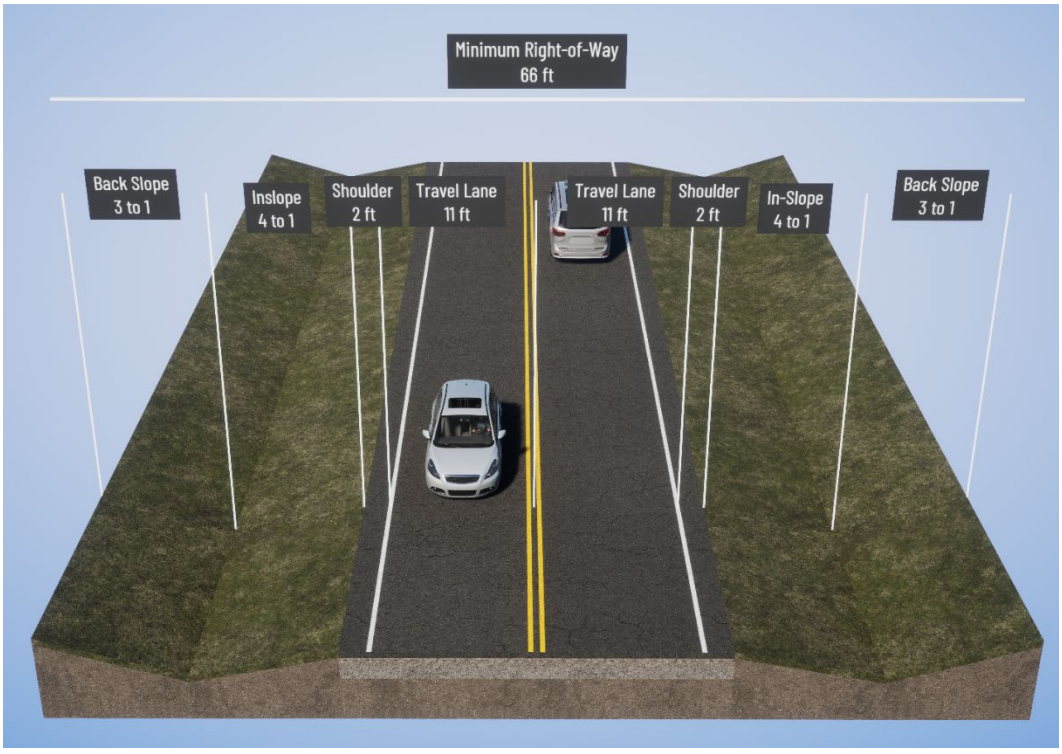


Figure 62. Typical Section 3 – Urban Paved Road

Access Management Guidelines

Selection of allowed access locations can play a key role in establishing a safe and efficient road network. Effective access management encompasses regulating entry and exit points on roadways, including the spacing of intersections and placement of driveways. Access management is essential for preserving or enhancing the smooth operation of the road system and for bolstering safety by reducing the number of potential conflict points and minimizing the risk of crashes.

Access control guidelines serve multiple purposes. These include safeguarding the public's investment in the road infrastructure and providing developers with clear directives for project planning. The guidelines are designed to strike a balance between the broader public interest in unhindered mobility and property owners' rights to access their properties. Access, in this context, pertains to providing convenient entry and exit points along roadways, which are essential at both ends of a journey. Mobility, on the other hand, refers to the ability to move freely and easily between locations. Most roadways fulfill both these functions to varying degrees, contingent upon their functional classification and other roadway characteristics.

Efficient management of driveway access throughout the entire road network necessitates coordinated efforts among County, City, and State authorities, as well as development interests. Lawrence County access guidelines have been prepared to offer direction in making decisions regarding the type and placement of access points across the County's road system. These guidelines are typically employed in situations involving safety or operational concerns,

evaluations of access during permit issuance or plat review processes, and in conjunction with development proposals, planning studies and improvement initiatives.

A primary goal of these access guidelines is to ensure that the County's roadways contribute to a transportation system that minimizes safety hazards while optimizing overall efficiency. Along state highways, SDDOT access standards apply which is authorized by the 2002 South Dakota Legislature to create administrative rules relevant to highway design functions. TABLE 19 summarizes proposed access spacing standards for Lawrence County, including direction for signal spacing, intersection spacing, driveway access density, and direct property access.

Table 19. SDDOT Access Spacing Guidelines

CLASS	SUB CLASS	CROSS STREET (FEET)	SIGNAL (MILE)	ACCESS DENSITY (PER MILE)	DIRECT ACCESS
Collector	Rural	1,000	1/4	5	Yes
	Urban	1,320	1/4	5	Yes
Local	Local	Not applicable			

F – Full Movement; D – Directional Only

The access spacing for private access points is based on Stopping Sight Distance. Stopping sight distance is defined as the minimum distance needed by motorists to see an object on the roadway ahead and bring their vehicles to safe stop before colliding with the object. TABLE 20 is the minimum spacing for unsignalized private access points. Note that this table is based on a level roadway without any horizontal and vertical curvature. In areas with downgrades, vertical or horizontal curves, additional distance may be needed.

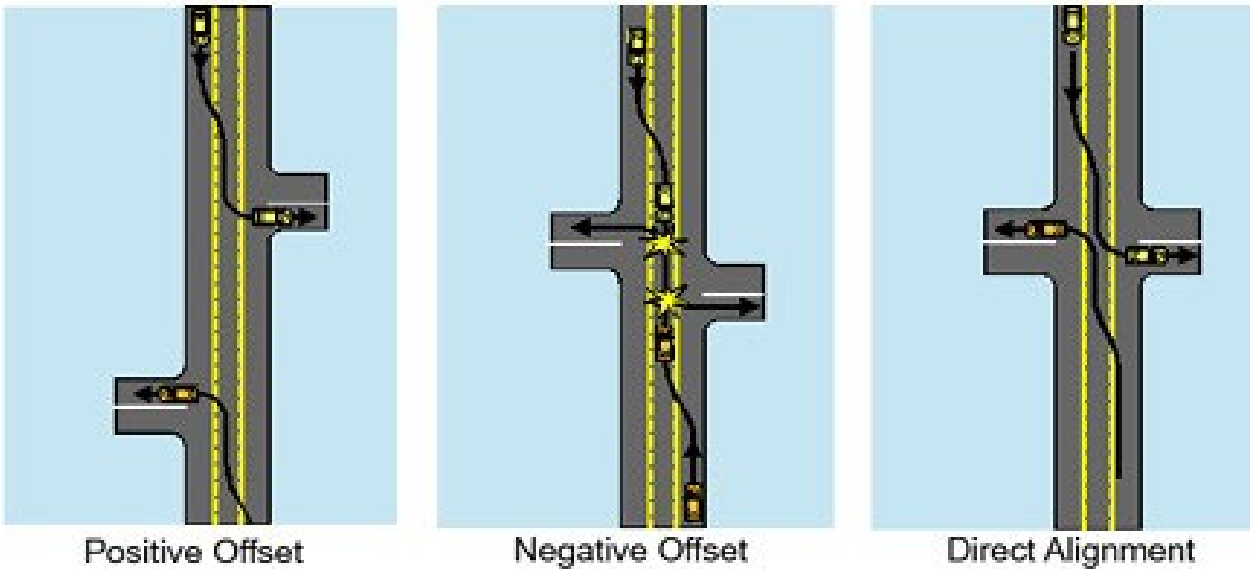
Table 20. Minimum spacing for unsignalized private access points

SPEED LIMIT (MPH)	MINIMUM SEPARATION (FEET)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730

Source: AASHTO Green Book, 2018, Table 9-7

Efforts should also be made to provide positive or direct alignments when addressing multiple accesses in relatively close proximity. These are depicted in FIGURE 63. Negative offset intersections should be prohibited to the degree possible, though existing offset intersections may need to be grandfathered in, especially if those conditions cannot be readily corrected.

Figure 63. Addressing Offset Intersections



Access management guidelines and practices should generally be implemented at the County and local levels (cities and townships with active land use planning programs) as these agencies are typically involved at the planning stages of development proposals. However, effective access management requires mutual support and effective communication at all governmental levels. Therefore, it is important to consider how access management guidelines are implemented as part of County planning and development review procedures.

Intersection Control Warrants

Intersection control evaluations should adhere to the principles outlined in the Manual of Uniform Traffic Control Devices (MUTCD), which is a comprehensive guide that governs the design and use of traffic control devices on roads and highways. In accordance with the MUTCD, the following guidelines are employed for assessing and determining appropriate intersection control measures, with additional insights available in the 2024 11th Edition of the MUTCD.

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, bicycle, and pedestrian traffic volumes on all approaches
- 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. 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 may be desired, the following traffic signal warrants are analyzed to help in the analysis of whether to install a traffic signal.

- 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 2024 11th Edition 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 individual warrant definitions, traffic control signal needs studies, the standard, guidance, and options are provided in the latest edition of the MUTCD.

Need for Turn Lanes

It is often beneficial to install turn lanes at intersections to improve traffic operations and safety, and especially along roadway segments with high traffic volumes or high volumes of turning vehicles. Turn lanes contribute to safer, more efficient intersections by separating turning and through traffic, reducing conflicts, and minimizing delays. This results in an overall improvement in the performance and safety of the transportation system.

Chapter 15 of the SDDOT Road Design Manual provides comprehensive guidance on factors to be taken into consideration when implementing left- and right-turn lanes at intersections. These considerations are pertinent across diverse types of roadway or driveway intersections and are designed to align seamlessly with established access management policies and County ordinances.

The following items are recommended for consideration in the determination of whether a turn lane is warranted:

- Traffic Volume during design hour
    - Turn Volume
    - Opposing and Advancing Volume
- Crash History
- Special Cases such as:
    - Railroad Crossings
    - Safety Concerns
    - Presence of Non-transferable medians (for left turns)

At signalized intersections, it is typically advantageous to install a left-turn lane in terms of traffic operations and safety, while a right-turn lane is generally determined based on signal capacity needs or operational/safety improvements by removing turning vehicles from the through lane.

The process for application and assessment of turn-lane warrant criteria is outlined in detail within Chapter 15 of the SDDOT Road Design Manual. While SDDOT's Road Design Manual should be used as a guide, the Lawrence County Highway Department will take into consideration the context of each situation which includes existing and proposed conditions as well as other factors such as heavy-truck use, proximity to railroad crossings, bridges, percent trucks during peak hour operations, and other factors.

Turn lanes should be at least 12-feet wide plus a minimum shoulder width depending on adjacent roadways, bike use, and other factors. Right-turn lanes constructed with no center or left turn lane may be constructed with a minimum of 6-feet additional width to accommodate a future need for a center turn lane.

Traffic Impact Study Guidelines

A Traffic Impact Study (TIS) is a tool used to manage roadway access and objectively evaluate anticipated safety and operational impacts of proposed development on the surrounding transportation system. The primary responsibility for assessing the traffic impacts associated with a proposed development rests with the developer, with the Lawrence County Highway Department serving in a review and approval capacity.

General

A TIS could be required for any type of development and associated trips being generated to objectively assess the safety and operational impacts of the development or modified land use on the Lawrence County Roadway System. These impacts are typically due to the generation of new traffic volumes or shifts in travel patterns. However, the general rule, unless waived by the Lawrence County Highway Department, should be that a TIS will be required for:

- Any nonresidential development proposal when trip generation during the peak hour is expected to exceed one hundred (100) vehicles, or
- Any residential development with one hundred fifty (150) or more dwelling units.
- Any development that may result in traffic issues in the opinion of the County Highway Superintendent.

If the development does not meet the above trip generation requirements, the developer should be required to submit a short memo to the County Highway Superintendent documenting why a TIS is not required or that the County Highway Superintendent has waived the requirements for a TIS.

When a TIS is required, it is recommended that the developer is responsible for assessing the traffic impacts, prepared, and signed by a registered professional engineer, and licensed in the state of South Dakota. The County should serve in a review and approval capacity. Traffic impact study approvals granted by the County shall be valid for up to two years. If significant work on the

development has not commenced within the approval period, the TIS shall be updated and resubmitted for review. Unless waived by the County Highway Superintendent, studies will be required to be updated within the two-year approval period if the proposed land use(s) are significantly altered, or traffic volumes within the study area are increased by more than 15%.

Prior to starting the study, the developer or the engineer preparing the study is strongly encouraged to schedule a pre-study conference with the County Highway Department. If there are any other potential jurisdiction authorities within the study area, they should also be included in the pre-study conference to determine if there will be additional review agencies and requirements as part of the study. The purpose of a pre-study conference is to discuss the development, definition of the study area, intersections requiring capacity analysis, data collection needs, design standards, traffic and trip analysis parameters, and other methods, requirements, and assumptions. Following the pre-study conference, the developer or the engineer preparing the study shall detail the agreed upon assumptions and requirements in the report.

The boundaries of the TIS should include any roadway on the County roadway system that is impacted or receives an impact that lowers the level of service (LOS) below "C" or causes operational deficiencies. This might include intersections with other County highways, intersections with public streets, or adjacent driveways. The TIS will be reviewed by the Lawrence County highway staff. The review will ensure that the study is acceptable and that all mitigation measures meet Lawrence County standards.

Report Format and Contents

Specific requirements will vary depending on the location of the proposed development and other factors. At the pre-study conference, reductions in complexity or variations from the SDDOT Road Design Manual shall be agreed upon by Lawrence County Highway Department. However, all traffic reports shall contain the following information unless otherwise approved by the Lawrence County Highway Department:

- Introduction
  - Background
  - Location of the proposed project
  - Description of the site
  - Objective of the study
- Study Area
  - Map showing existing and future study roadways and intersections.
  - Lane configurations of the existing and future study roadways and intersections.
  - Site plan including all existing and proposed access points to the County highway system.
  - Internal circulation network including any proposed construction phasing.
  - Discussion of any non-motorized transportation facilities provided at the site.

- Traffic Data
  - Traffic count locations, design hour counts, and type of counts
    - Traffic counts must be collected on Tuesday, Wednesday, or Thursday under non-adverse weather or road conditions.
    - Traffic counts may need to be collected on weekends if proposed traffic generated by the development is expected to be high on weekends.
  - Review of most recent five years of crash records in the study area
  - Other relevant data that may be required by the County Highway Superintendent

- Study/Analysis Years
  - Current year and Build-out year - The year when the construction of the site will be completed and fully operational.
  - 20-year horizon year.
  - Interim-year analysis year if the construction will be built in multiple phases.
  - Analysis should be completed for the design hours (AM and PM peak) for No-Build and Build scenarios.
    - *No-Build* scenario refers to the conditions without the proposed development scenario. This option includes no geometric improvements at the proposed site accesses, and the existing traffic counts projected to the facilities opening year traffic volumes.
    - *Build Scenario* refers to the conditions of the proposed development scenario. This option pertains to geometric improvements, if any, combined projected background and development traffic.

- Trip Generation and Distribution
  - Description of the proposed Land Uses
  - Calculate trips generated based on the land use characteristics found in the most recent edition of the Institute of Transportation Engineer (ITE) Trip Generation Manual or any other relevant studies.
  - Trip Distribution based on prevailing travel patterns, and engineering judgement.

- Traffic Volume
  - Traffic forecast method.
  - Forecasted Pre-development background traffic volumes.
  - Forecasted post development background traffic volumes.

- Traffic Operations Analysis for design hours
  - Mention of the traffic analysis software package used (ex. Highway Capacity Software, Synchro, VISSIM, etc.) that uses the methodologies documented in the most recent version of the *Highway Capacity Manual*.
  - Delay and Level of Service (LOS) of the existing and proposed study intersections.
  - 95th percentile queueing analysis
  - Consideration for heavy vehicles, peak hour factor (PHF), saturation flow rate (use 1750), and other variables

- Warrant Analysis should be completed for No-Build and Build scenarios for the Build-out year.
    - Traffic Signal and/or multi-way-stop-control warrant analysis of unsignalized intersections (can be brief statement if traffic volumes are low)
    - Turn-lane warrant analysis.
    - Access spacing of the proposed accesses from the nearest crossing roadways.
- Discussion of the results.
- Identify issues by comparing the impacted facility with and without the development.
- Mitigation measures if the traffic operational and safety issues are caused by the proposed development.
- Conclusions and Recommendations.

Appendices

All reports should include the following appendices, at minimum:

- Summarized hourly traffic counts.
- Traffic Capacity Analysis output reports showing delay per vehicle, level of service, and 95th-percentile queues.
- Worksheets used in the analysis.

Transportation Policy and Ordinance Recommendations

The following are recommendations for departmental policies, ordinances, or office procedures that may help to implement the goals and objectives of the MTP and other County plans.

UTV/ATV:

- Write a new ordinance to regulate UTV/ATC traffic. A draft sample ordinance is included in Appendix B, detailing components gleaned from Ouray and Montrose Counties in Colorado. These two counties have a similar environment and share concerns about the impact these vehicles have on the condition and traffic on County roads.
- Coordinate with law enforcement, municipalities, and federal agencies, in the drafting of ordinances, policies and the allocation of resources.

Traffic Impact Studies:

- Define Traffic Impact Study in the County code.
- Codify when a Traffic Impact Study is to be required. Establish a criterion and the ability to waive certain elements for unique circumstances. The waiver process should be like the variance process, whereas applicants must justify the reasons why a study is not necessary. The ordinance may provide for a condensed study requirement, or a temporary waiver that includes conditions when the study will be required in the future, an example is a project developed in phases.
- Establish a listing of consultants who are qualified to prepare the studies.
- Require the developer/applicant to pay for the traffic impact study.

Roadway Ownership and Maintenance Responsibilities

Based on discussion from the Ownership meeting held on July 17, 2024, the following action items are recommended by this plan:

- The USFS and Lawrence County will meet annually to discuss coordination and opportunities to advance roadway ownership and maintenance solutions.
- County Transportation staff checked internally on the SDDOT inventory listing for Mount Roosevelt Road and requested it not be listed as a *County Primary* roadway and has redlined SDDOT maps to note that it is not a hard surfaced [paved] road.
- Lawrence County will provide the USFS a list of roads that will never receive winter maintenance or will always be designated as USFS roads.
- At their next annual meeting, Lawrence County and the USFS will determine which roads, if any, should be researched to find ROW or easement/maintenance agreement documents that are currently missing. For all other roads it may be best to develop new documents that will supersede those that may exist elsewhere.
- It is recommended that Lawrence County and the USFS, perhaps at their next annual meeting, prioritize roads that should have a new road agreement prepared. Top priorities will receive attention. Moving forward, once precedent is set with the preparation of new road agreements, it will be easier to provide a new agreement for each road that requires one.

CHAPTER 6 – PROJECTS, PRIORITIZATION, AND PROGRAMMING

A crucial step in the MTP process is identifying and prioritizing projects for future implementation. Projects recommended for implementation were selected from Lawrence County's current 5-year plan (2025-2029) and findings from previous chapters, using metrics such as ADT, LOS, and crash/safety analysis. These projects are categorized into near-term (2025-2029) and long-term (2030+) implementation timeframes. TABLE 21 lists the types and number of projects identified in the MTP, while TABLE 21 provides a detailed project list.

Table 21. Lawrence County 2024 MTP Project Inventory

PROJECT TYPE	PROJECT SOURCE		PROJECT TOTALS
	5-YEAR PLAN (2025–2029) CARRIED FORWARD	NEW IDENTIFIED PROJECTS (2024 MTP)	
SHORT TERM (2025-2029)			
Roadway	35	0	35
Intersection	0	5	5
Bridges	7	1	8
Bike/Pedestrian	0	8	8
		Total Short-Term Projects	56
LONG TERM (2030+)			
Roadway	0	12	12
Intersection	0	11	11
Bridges	0	2	2
Bike/Pedestrian	0	5	5
		Total Long-Term Projects	30
		2024 LAWRENCE COUNTY MASTER TRANSPORTATION PLAN (MTP) TOTAL ROAD, INTERSECTION, BRIDGE, & BIKE/PEDESTRIAN PROJECTS:	86

Project Cost Estimations

Cost estimates for short-term road and bridge projects were carried over from the current County 5-year plan. For other roadway pavement and intersection projects, Rough Order Magnitude (ROM) cost estimates were based on the maintenance and construction costs listed in TABLE 22. For projects not included in the 5-year plan, costs were extrapolated based on the project's mileage, if known. All lighting recommendations were estimated at a base cost of $50,000 per addition to an intersection or roadway project.

Table 22. Roadway Improvement Costs Per Mile by Improvement Type

IMPROVEMENT TYPE	COST PER MILE
Complete Reconstruction (Gravel to Pavement Conversion)	$2,500,000
Reconstruction	$2,200,000
Structural Overlay w/ Dig Outs	$1,200,000
Structural Overlay	$1,000,000
Non-Structural Overlay	$600,000
Crack and Fog Seal	$60,000
Rout and Crack Seal	$9,000

Roadways and Intersections Projects

Roadway Planning Level Capacity

Two-lane roads can typically manage at least 12,000 vehicles per day and depending on the level of access and types of surrounding traffic control, even higher ADT's can be observed on some two-lane roads. The highest existing volume on any Lawrence County Road was found to occur on Old Belle Road, with an existing ADT of 5,730 and a future 2044 ADT of 8,490. Given the existing ADT condition, and after LOS and ADT analysis of projected future ADT volumes, it is not anticipated that any Lawrence County roads will need to be widened to provide additional through lanes within the next 20 years (2044).

ATV/UTV Facilities Projects

It is recommended that the County incorporate the findings of the SDDOT study, *Development of Strategies for Shared Use of Roadways between ROV/ATV and Typical Highway Vehicles, and* update Lawrence County ordinances based on SDDOT study and guidance provided in the MTP. Additionally, an example ROV/ATV ordinance is provided in Appendix B.

Bridge Projects

Currently, of the 14 County bridges rated in poor condition there are eight (8) bridges included in the current 2025-2029 5-year plan in varying states of progress ranging from ID BIG Applications having been filed, pending applications, and/or projects having been awarded with construction pending. The remaining six (6) bridges currently in poor condition, and not currently listed in the current 5-year plan, are recommended for long term projects in years 2030 and beyond.

Freight/Aviation Projects

Lawrence County should continue to support improvements along State and US highway systems to maintain existing and future designated freight routes. Additionally, a new Heliport Ordinance should be incorporated. A report titled "Private Use Heliports/Vertiports in Lawrence County" is included in Appendix B.

Bicycle and Pedestrian Projects

Where feasible, and where there is available ROW, it is recommended that Lawrence County adopt a standard for 4-foot shoulders. Pedestrian and bicycle shoulder widening projects, while not currently programmed in the 2025-2029 5-year short term projects, should be considered where known pedestrian and bicycle safety issues are present. Where safety concerns exist in tandem with non-motorized roadway usage, efforts should be made to consider the addition of widened shoulders to accommodate and improve this mode of transportation.

Transit Projects

Wherever feasible, Lawrence County should continue to support Prairie Hills Transit to improve and maintain primary routes used by the transit agency.

Project Prioritization

A detailed prioritized project list is shown below in TABLE 23 and mapped in FIGURE 64 and FIGURE 65. Project numbers in the table correspond to the numbers on the map.

- Project #
  - Bicycle and pedestrian projects are denoted with a number and the abbreviation “BP” for “bike and pedestrian” – example: “1BP, 2BP, etc.”
- Project source (e.g., 5-Year Plan or New project generated from analysis)
- Bridge # (for bridge and culvert projects)
- Road segments/project extents (“from” and “to”) - *for roadway and bridge projects only, and where information was available
  - Miles of project roadway are quantified, where information was available
- Category (roads and intersections)
- Intersection name - *for intersection projects only
- Recommendation / Improvements
- Total Cost Estimates, subtotals and totals
- Estimated Project Program Year: 2025-2029 (short-term) ***or*** 2030+ (long-term)
- Project Status

Table 23. Lawrence County MTP Short- and Long-Term Projects

BRIDGES: Short- & Long-Term Projects 2025+											
PROJECT #	PROJECT SOURCE: 5-Yr. Plan (or) New Project	BRIDGE #	LOCATION	FROM	TO	MILES	RECOMMENDATION / IMPROVEMENT	TOTAL COST (ESTIMATE)	TIME FRAME (Short or Long Term)	PROJECT PROGRAM YEAR	PROJECT STATUS
NA	5-Yr. Plan	NA	County Wide	NA	NA	NA	Replacement and repairs of culverts and small bridges	$145,000.00	Short	2025	Incomplete
1	5-Yr. Plan	41-079-199	Elmore Rd - Spearfish	12.0 S	1.5 W	-	Construct New Bridge	$400,000.00	Short	2025	FHWA Grant Awarded 6-25-2020
2	5-Yr. Plan	41-228-112	Whitewood Service Rd	2.5 E	1.0 S	-	Construct New Bridge	$400,000.00	Short	2025	FHWA Grant Awarded 4-4-2021
NA	5-Yr. Plan	NA	County Wide	NA	NA	NA	Replacement and repairs of culverts and small bridges	$150,000.00	Short	2026	Incomplete
3	5-Yr. Plan	41-120-105	Christensen Dr - Spearfish	1.0 S	-	-	Construct New Bridge	$500,000.00	Short	2026	BIG Grant awarded 3-30-2023
NA	5-Yr. Plan	NA	County Wide	NA	NA	NA	Replacement and repairs of culverts and small bridges	$155,000.00	Short	2027	Incomplete
NA	5-Yr. Plan	NA	County Wide	NA	NA	NA	Replacement and repairs of culverts and small bridges	$160,000.00	Short	2028	Incomplete
4	5-Yr. Plan	41-249-268	Nemo Rd - Nemo	1.3 N	2.6 W	-	Construct New Bridge	$400,000.00	Short	2028	Apply for BIG-Bridge Replacement Grant
5	5-Yr. Plan	41-250-268	Nemo Rd - Nemo	1.3 N	2.5 W	-	Construct New Bridge	$400,000.00	Short	2028	Apply for BIG-Bridge Replacement Grant
6	5-Yr. Plan	41-118-111	Maintland Rd	NA	NA	NA	Construct new Bridge	$500,000.00	Short	2028	Incomplete
NA	5-Yr. Plan	NA	County Wide	NA	NA	NA	Replacement and repairs of culverts and small bridges	$165,000.00	Short	2029	Incomplete
7	5-Yr. Plan	41-015-040	West Hwy 14 - Spearfish	7.0 W	2.0 N	-	Construct New Bridge	$500,000.00	Short	2029	Pending 2025 BIG Grant Application
8	New	41-087-043	Camp Comfort Rd	1.5 N			Construct New Bridge	$500,000.00	Short	2029	Incomplete
5-YEAR PLAN (2025-2029) SUBTOTAL								$4,375,000.00			
NA	**New**	**NA2**	**County Wide**	**NA3**	**NA4**	**NA5**	**Replacement and repairs of culverts and small bridges**	**$170,000.00**	**Long**	**2030+**	**Incomplete**
9	New	41-214-100	I-90 Service Road	1 E		-	Construct New Bridge	$500,000.00	Long	2030+	Incomplete
10	New	41-239-259	Nemo Rd	2.4 N	3.5 W		Construct New Bridge	$500,000.00	Long	2030+	Incomplete
Long-Term (2030+) SUBTOTAL								$1,000,000.00			
SHORT- AND LONG-TERM BRIDGE PROJECT TOTAL								$5,375,000.00			

ROADS: Short-Term Projects 2025-2026										
PROJECT #	**PROJECT SOURCE: 5-Yr. Plan (or) New Project**	**ROAD SEGMENT**	**CATEGORY**	**FROM**	**TO**	**MILES**	**RECOMMENDATION / IMPROVEMENT**	**TOTAL COST (ESTIMATE)**	**PROJECT PROGRAM YEAR**	**PROJECT STATUS**
1 and **1BP**	5-Yr Plan	Nemo Rd	Partial Reconstruction **& Bike / Ped**	Tomahawk Ranch N	W to Old Ridge Rd	**3.63**	Asphalt mill and overlay. **Increase shoulder width if feasibile.**	$1,600,000.00	2025	Incomplete
2	5-Yr Plan	W. Highway 14	Maintenance			10.28	Chipseal and fogseal	$600,000.00	2025	Incomplete
3	5-Yr Plan	North Rochford Rd	Maintenance			1.79	Chipseal and fogseal	$104,450.00	2025	Incomplete
4	5-Yr Plan	Hanna Rd	Maintenance			0.50	Chipseal and fogseal	$29,000.00	2025	Incomplete
5	5-Yr Plan	Maitland Rd	Maintenance			1.27	Chipseal and fogseal	$74,125.00	2025 / 2026	Incomplete
6	5-Yr Plan	Brookview Rd	Maintenance			1.00	Rout and crackseal	$8,000.00	2025	Incomplete
7	5-Yr Plan	Hillsview Rd	Maintenance			1.40	Rout and crackseal	$11,200.00	2025	Incomplete
8	5-Yr Plan	Oliver St	Maintenance			0.57	Rout and crackseal	$5,000.00	2025	Incomplete
9	5-Yr Plan	Westview Dr	Maintenance			1.04	Rout and crackseal	$8,000.00	2025	Incomplete
10	5-Yr Plan	Whitewood Service Rd	Maintenance			4.46	Rout and crackseal	$35,680.00	2025	Incomplete
11	5-Yr Plan	Whitewood Valley Rd	Maintenance			4.20	Rout and crackseal	$33,600.00	2025	Incomplete
-	5-Yr Plan	Maintenance: Gravel Roads	Maintenance	NA	NA	20.50	Regravel 20.50 miles of gravel roads	$645,750.00	2025	Incomplete
-	5-Yr Plan	Maintenance: Gravel Roads	Maintenance	NA	NA	121.50	Mag Chloride	$801,900.00	2025	Incomplete
-	5-Yr Plan	Maintenance: Paved Roads	Maintenance	NA	NA	85.00	Striping 85 miles of pavements	$78,000.00	2025	Incomplete
					2025 SUBTOTALS	**257.14**		**$4,034,705.00**	**2025**	
12 and **2BP**	5-Yr Plan	Nemo Rd	Partial Reconstruction **& Bike / Ped**	Old Ridge Rd W	N to Hay Creek Ln	3.63	Asphalt mill and overlay. **Increase shoulder width if feasibile.**	$1,660,000.00	2026	Incomplete
13	5-Yr Plan	Brookview Rd	Maintenance			1.00	Chipseal and fogseal	$60,000.00	2026	Incomplete
14	5-Yr Plan	Hillsview Rd	Maintenance			1.40	Chipseal and fogseal	$84,000.00	2026	Incomplete
15	5-Yr Plan	Oliver St	Maintenance			0.57	Chipseal and fogseal	$35,000.00	2026	Incomplete
16	5-Yr Plan	Westview Dr	Maintenance			1.04	Chipseal and fogseal	$62,500.00	2026	Incomplete
17	5-Yr Plan	Whitewood Service Rd	Maintenance			4.46	Chipseal and fogseal	$223,000.00	2026 / 2027	Incomplete
18	5-Yr Plan	Whitewood Valley Rd	Maintenance			4.20	Chipseal and fogseal	$210,000.00	2026 / 2027	Incomplete
19	5-Yr Plan	Nemo Rd	Maintenance			3.88	Rout and crackseal	$29,680.00	2026	Incomplete
-	5-Yr Plan	Maintenance: Gravel Roads	Maintenance	NA	NA	20.50	Regravel 20.50 miles of gravel roads	$660,000.00	2026	Incomplete
-	5-Yr Plan	Maintenance: Gravel Roads	Maintenance	NA	NA	121.50	Mag Chloride 121.50 miles of gravel roads	$801,900.00	2026	Incomplete
-	5-Yr Plan	Maintenance: Paved Roads	Maintenance	NA	NA	85.00	Striping 85 miles of pavements	$79,200.00	2026	Incomplete
					2026 SUBTOTALS	**247.18**		**$3,905,280.00**	**2026**	

ROADS: Short-Term Projects 2027-2029

PROJECT #	PROJECT SOURCE: 5-Yr. Plan (or) New Project	ROAD SEGMENT	CATEGORY	FROM	TO	MILES	RECOMMENDATION / IMPROVEMENT	TOTAL COST (ESTIMATE)	PROJECT PROGRAM YEAR	PROJECT STATUS
21 and **3BP**	5-Yr Plan	Nemo Rd	Partial Reconstruction **& Bike / Ped**	Hay Creek Ln W	N to Jct Hwy 385	3.63	Asphalt mill and overlay. **Increase shoulder width if feasibile.**	$1,725,000.00	2027	Incomplete
22	5-Yr Plan	Nemo Rd	Maintenance			3.88	Chipseal and fogseal	$225,500.00	2027	Incomplete
23	5-Yr Plan	Crook City Rd	Maintenance			1.00	Rout and crackseal	$61,000.00	2027	Incomplete
24	5-Yr Plan	Nemo Rd	Maintenance			3.63	Rout and crackseal	$37,700.00	2027	Incomplete
25	5-Yr Plan	W. Oliver, Mineral Pl, and Winterville	Maintenance			1.25	Rout and crackseal	$12,500.00	2027	Incomplete
-	5-Yr Plan	Maintenance: Gravel Roads	Maintenance	NA	NA	20.50	Regravel 20.50 miles of gravel roads	$674,450.00	2027	Incomplete
-	5-Yr Plan	Maintenance: Gravel Roads	Maintenance	NA	NA	121.50	Mag Chloride 121.50 miles of gravel roads	$801,900.00	2027	Incomplete
-	5-Yr Plan	Maintenance: Paved Roads	Maintenance	NA	NA	85.00	Striping 85 miles of pavements	$80,000.00	2027	Incomplete
					2027 SUBTOTALS	**240.39**		**$3,618,050.00**	**2027**	
20 and **4BP**	5-Yr Plan	Hill St and North Tinton Rd	Construction **& Bike / Ped**	Harvard St	McGuigan Rd	1.44	Pave. **Increase shoulder width if feasibile.**	$576,000.00	2028	Incomplete
27 and **5BP**	5-Yr Plan	Upper Valley Rd	Partial Reconstruction **& Bike / Ped**			1.00	Asphalt Mill and overlay. **Increase shoulder width if feasibile.**	$475,000.00	2028	Incomplete
28 and **6BP**	5-Yr Plan	West Highway 14	Partial Reconstruction **& Bike / Ped**			1.00	Asphalt Mill and overlay. **Increase shoulder width if feasibile.**	$475,000.00	2028	Incomplete
29	5-Yr Plan	Crook City Rd	Maintenance			6.10	Chipseal and fogseal	$353,800.00	2028	Incomplete
30	5-Yr Plan	Nemo Rd	Maintenance			3.63	Chipseal and fogseal	$210,540.00	2028	Incomplete
31	5-Yr Plan	W. Oliver, Mineral Pl, and Winterville	Maintenance			1.25	Chipseal and fogseal	$72,500.00	2028	Incomplete
32	5-Yr Plan	Nemo Rd	Maintenance			3.63	Rout and crackseal	$37,700.00	2028	Incomplete
33 and **7BP**	5-Yr Plan	St. Onge Rd	Maintenance **& Bike / Ped**			4.58	Rout and crackseal **Increase shoulder width if feasibile.**	$47,600.00	2028	Incomplete
-	5-Yr Plan	Maintenance: Gravel Roads	Maintenance	NA	NA	20.50	Regravel 20.50 miles of gravel roads	$689,000.00	2028	Incomplete
-	5-Yr Plan	Maintenance: Gravel Roads	Maintenance	NA	NA	121.50	Mag Chloride 121.50 miles of gravel roads	$801,900.00	2028	Incomplete
-	5-Yr Plan	Maintenance: Paved Roads	Maintenance	NA	NA	85.00	Striping 85 miles of pavements	$85,000.00	2028	Incomplete
					2028 SUBTOTALS	**249.63**		**$3,824,040.00**	**2028**	
26 and **8BP**	5-Yr Plan	McGuigan Rd	Construction **& Bike / Ped**	N. Tinton	Hillsview Rd	1.60	Pave. **Increase shoulder width if feasibile.**	$725,000.00	2029	Incomplete
34	5-Yr Plan	Nemo Rd	Maintenance			3.63	Chipseal and Fogseal	$210,540.00	2029	Incomplete
35	5-Yr Plan	Nemo Rd	Maintenance			3.63	Rout and Crackseal	$801,900.00	2029	Incomplete
-	5-Yr Plan	Maintenance: Gravel Roads	Maintenance	NA	NA	20.50	Regravel 20.50 miles of gravel roads	$689,000.00	2029	Incomplete
-	5-Yr Plan	Maintenance: Gravel Roads	Maintenance	NA	NA	121.50	Mag Chloride 121.50 miles of gravel roads	$801,900.00	2029	Incomplete
-	5-Yr Plan	Maintenance: Paved Roads	Maintenance	NA	NA	85.00	Striping 85 miles of pavements	$90,000.00	2029	Incomplete
					2029 SUBTOTALS	**235.86**		**$3,318,340.00**	**2029**	
							TOTAL SHORT-TERM ROADWAY PROJECT COST	**$18,700,415**		

INTERSECTIONS: Short-Term Projects 2025-2029							
PROJECT #	PROJECT SOURCE: 5-Yr. Plan (or) New Project	INTERSECTION: Location # and Name	CATEGORY	RECOMMENDATION / IMPROVEMENT	TOTAL COST (ESTIMATE)	PROJECT PROGRAM YEAR	PROJECT STATUS
1	New	1. Old Belle Rd & Old Hwy 14	Operations & Safety	WB Channelized Right Turn Lane. Add new Lighting.	$450,000.00	2025	Incomplete
2	New	6. McGuigan Rd & N Tinton Rd	Operations & Safety	Realign the east approach of Tinton Rd. to eliminate skew	$600,000.00	2026	Incomplete
3	New	8. Maitland Road & Christensen Dr	Operations & Safety	Realign the intersection approach of Christensen Drive to reduce or eliminate intersection skew. Add Lighting and Wild Animal Signage	$2,500,000.00	2027	Incomplete
4	New	9. Two-Bit Rd & US Hwy 14A	Operations & Safety	Improve the vertical alignment of two-bit road by flattening the gradeline and realign to reduce or eliminate intersection skew. Add lighting.	$750,000.00	2028	Incomplete
5	New	10. Crow Creek Bench Road & Homestake Road	Operations & Safety	Realign Crow Creek Bench to center of Homestake Rd curve. Add lighting.	$650,000.00	2029	Incomplete
TOTAL SHORT-TERM INTERSECTION PROJECT COST					$4,950,000.00		

ESTIMATED TOTAL SHORT-TERM (2025-2029) PROJECT COST	**$28,025,415.00**

ROADS: Long-Term Projects 2030+										
PROJECT #	**PROJECT SOURCE: 5-Yr. Plan (or) New Project**	**ROAD SEGMENT**	**CATEGORY**	**FROM**	**TO**	**MILES**	**RECOMMENDATION / IMPROVEMENT**	**TOTAL COST (ESTIMATE)**	**PROJECT PROGRAM YEAR**	**PROJECT STATUS**
1 and **1BP**	New	McGuigan Rd	Construction **& Bike / Ped**	S. of Tinton	TBD	1.00	Gravel to Pavement Conversion. **Increase shoulder width if feasibile.**	$2,500,000.00	2030	Incomplete
2 and **2BP**	New	Brownsville Rd	Construction **& Bike / Ped**	N Rochford Rd	Englewood Rd	0.82	Gravel to Pavement Conversion. **Increase shoulder width if feasibile.**	$2,500,000.00	2030	Incomplete
3 and **3BP**	New	Evans Ln	Maintenance	Old US 14	Hillsview Rd	1.03	Chip seal and fog seal. **Add on-street bike facility in coordination with City of Spearfish.**	$13,000.00		
4	New	N Rochford Rd	Maintenance			1.80	Future ADT Thresholds	$110,000.00	2030	Incomplete
5	New	Maitland Rd	Maintenance			1.50	Rout and crackseal	$15,000.00	2030	Incomplete
6	New	Nemo Rd	Maintenance			3.70	Rout and crackseal	$45,000.00	2031	Incomplete
7 and **4BP**	New	Hillsview Rd	Maintenance **& Bike / Ped**			1.40	Rout and crackseal. **Add on-street bike facility in coordination with City of Spearfish.**	$93,000.00	2031	Incomplete
8	New	Kerwin Ln	Maintenance	US 85	Lookout Mt Rd	1.90	Regravel	$65,000.00	2031	Incomplete
9	New	Nemo Rd	Maintenance			3.90	Chip seal and fog seal	$240,000.00	2032	Incomplete
10	New	Higgins Gulch Rd	Maintenance	Hillsview Rd	NA	2.20	Regravel	$74,000.00	2033	Incomplete
11	New	McGuigan Rd	Maintenance	N. Tinton	Hillsview Rd	1.60	Rout and crackseal	$15,000.00	2034 / 2035	
-	5-Yr Plan	Maintenance: Gravel Roads	Maintenance	NA	NA	20.50	Regravel 20.50 miles of gravel roads	$700,000.00	2030+	Incomplete
-	5-Yr Plan	Maintenance: Gravel Roads	Maintenance	NA	NA	121.50	Mag Chloride 121.50 miles of gravel roads	$825,000.00	2030+	Incomplete
-	5-Yr Plan	Maintenance: Paved Roads	Maintenance	NA	NA	85.00	Striping 85 miles of pavements	$100,000.00	2030+	Incomplete
5BP	New	Old Belle Rd	**Bike / Ped**	Brookview Rd	TBD	TBD	Ped and Bike Project: Shoulder Widening to 4' where feasible.	TBD	2030+	Incomplete
12	New	Two-Bit Rd	Gravel to Pavement Conversion	US Hwy 14	TBD	TBD	Future ADT Thresholds	TBD	2030+	Incomplete
TOTAL LONG-TERM ROADWAY PROJECT COST								**$7,295,000.00**		

INTERSECTIONS: Long-Term Projects 2030+							
PROJECT #	PROJECT SOURCE: 5-Yr. Plan (or) New Project	INTERSECTION: Location # and Name	CATEGORY	RECOMMENDATION / IMPROVEMENT	TOTAL COST (ESTIMATE)	PROJECT PROGRAM YEAR	PROJECT STATUS
1	New	2. McGuigan Road & Hillsview Road	Operations & Safety	Consider installation of pedestrian and/or bicycle crossing signs. Add lighting.	$75,000.00	2030 +	Incomplete
2	New	3. Upper Valley Road & Old Highway 14	Operations & Safety	Clear sight triangle at stop-controlled approach of Upper Valley Road by removing foliage to improve sight distance. Add lighting.	$75,000.00	2030 +	Incomplete
3	New	4. Upper Valley Road & Hillsview Road	Operations & Safety	Clear sight triangle at stop-controlled approach of Upper Valley Road by removing foliage to improve sight distance. Add lighting.	$75,000.00	2030 +	Incomplete
4	New	5. Homestake Road & Red Hill Road	Operations & Safety	Add lighting.	$50,000.00	2030 +	Incomplete
5	New	7. Nemo Road & Vanocker Canyon Road	Operations & Safety	Add Lighting.	$50,000.00	2030 +	Incomplete
6	New	11. Johnson Lane & US Highway 85	Operations & Safety	Change the vertical alignment of the westbound approach of Johnson Ln to reduce grade. Add lighting.	$775,000.00	2030 +	Incomplete
7	New	12. Maitland Road & US Highway 14A	Operations & Safety	Clear the sight triangle at the stop-controlled approach of Maitland Road by removing foliage to improve sight distance and stop-sign visibility. Add lighting.	$75,000.00	2031+	Incomplete
8	New	13. Whitewood Valley Road & SD Highway 34	Operations & Safety	Add lighting.	$50,000.00	2032+	Incomplete
9	New	14. Higgins Gulch Road & Hillsview Road	Operations & Safety	Realign driveway approaches on the north side to combine to a single access point across from Higgins Gulch Road, which may also need to be realigned to eliminate skew. Flatten steep side-slopes along Higgens Gulch Road and widen roadway to improve vehicle stability and safety. Add lighting.	$950,000.00	2033+	Incomplete
10	New	15. Nemo Road & US Highway 385	Operations & Safety	Realign the intersection approaches of Nemo Road to eliminate skew and to create a more traditional four-legged intersection. Clear the sight triangle in the north quadrants of the stop-controlled approaches of Nemo Road to improve sight distance. Add lighting.	$950,000.00	2033+	Incomplete
11	New	16. Nemo Road & Merritt Estes Road	Operations & Safety	Realign the westbound approach of Merritt Estes Road to reduce or eliminate intersection skew. Add Lighting.	$200,000.00	2034+	Incomplete
TOTAL LONG-TERM INTERSECTION PROJECT COST					$3,325,000.00		

ESTIMATED TOTAL LONG-TERM (2030+) PROJECT COST	$11,620,000.00

Figure 64. Lawrence County MTP Short- and Long-Term Projects

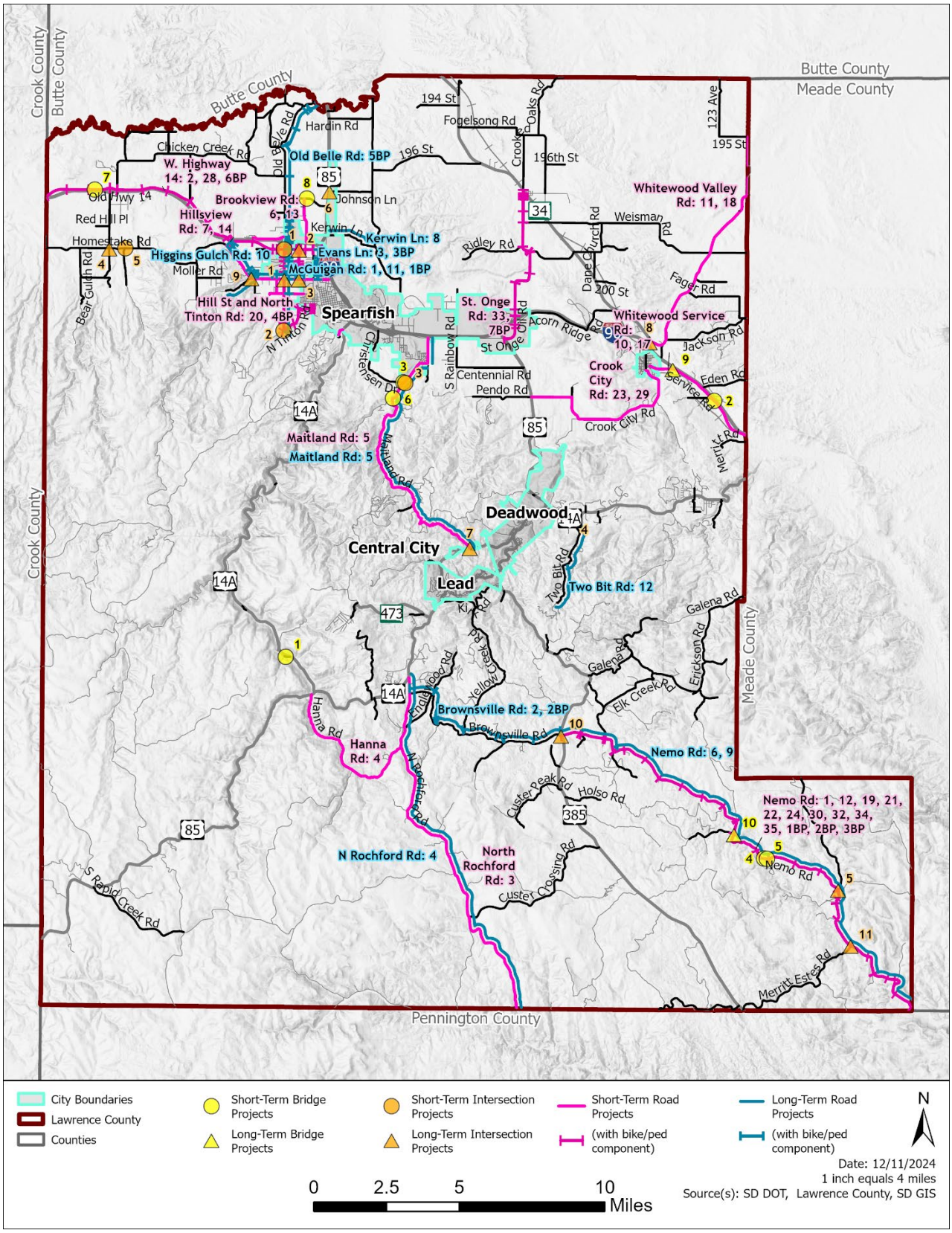
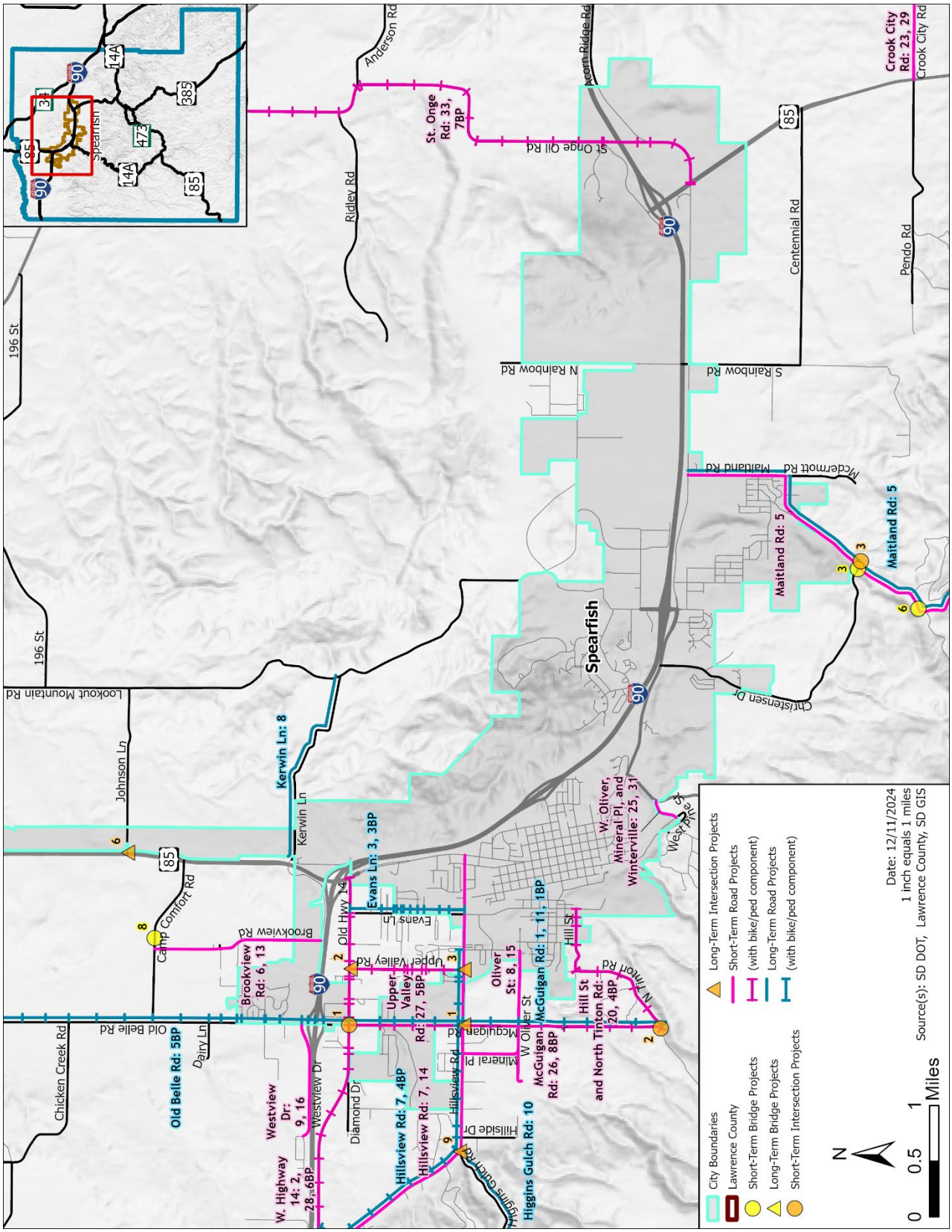


Figure 65. Lawrence County MTP Short- and Long-Term Projects – Spearfish



Grant Funding Programs

The following Federal Discretionary Surface Transportation grant programs may be considered to increase money available for implementation of projects within Lawrence County:

Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

The RAISE program provides supplemental funding for grants to the State and local entities listed above on a competitive basis for projects that will have a significant local/regional impact. Planning and construction awards. Eligible uses include highway or bridge projects, public transportation, passenger or freight rail, a land port-of-entry, certain airport projects, surface transportation facility on Tribal land, culvert projects or prevention of stormwater runoff, or another project the Secretary considers to be necessary. Eligible recipients include States, units of government, public agencies, special purpose district, Tribal government, partnership with Amtrak, or group of entities from above. Minimum 20% match.

Infrastructure for Rebuilding America (INFRA)

INFRA projects will improve safety, generate economic benefits, reduce congestion, enhance resiliency, and hold the greatest promise to eliminate supply chain bottlenecks and improve critical freight movements. Planning and construction awards. Eligible projects include a highway, bridge, or freight project on the National Multimodal Freight Network or the Interstate System; wildlife crossing projects; surface transportation projects within the boundaries of or functionally connected to an international border crossing area; or a project for a marine highway corridor. Eligible recipients include States, MPO that serves a population of more than 200,000 individuals, units of government, public agencies, special purpose district with a transportation function, Tribal government, a multistate corridor organization, or a multistate or multijurisdictional group of entities from above. Minimum 40% match. Smaller project minimum of $5 million, larger project minimum of $100 million.

National Infrastructure Project Assistance (MEGA)

The National Infrastructure Project Assistance Program will support large, complex projects that are difficult to fund by other means and likely to generate national or regional economic, mobility, or safety benefits. Planning and construction awards. Eligible projects include highway, bridge, freight, port, passenger rail, and public transportation projects of national and regional significance. These could be bridges or tunnels connecting two states; new rail and transit lines that improve equity and reduce emissions; and freight hubs integrating ship, train and truck traffic while improving environmental justice. Eligible recipients include States, MPO, units of government, public agencies, special purpose district with a transportation function, Tribal government, partnership with Amtrak, or group of entities from above. Maximum grant award of $500 million. Minimum 40% match.

Rural Surface Transportation Grant Program (RURAL)

The Rural Surface Transportation Grant Program was created to improve and expand the surface transportation infrastructure in rural areas to increase connectivity, improve the safety and reliability of the movement of people and freight, and generate regional economic growth and improve quality of life. Planning and construction awards. Eligible projects include a highway, bridge, or tunnel project that help improve freight, safety or increase access; a highway safety

improvement project; a project on a publicly owned highway or bridge that provides or increases access to an agricultural, commercial, energy, or intermodal facility that supports the economy of a rural area; or a project to develop, establish, or maintain an integrated mobility management system. Eligible recipients include States, regional transportation planning organization, unit of local government, tribal government, or a multijurisdictional group of entities above. Minimum 20% match.

Bridge Investment Program

These funds can be used to improve bridge condition, safety, efficiency, and reliability of bridges on the National Bridge Inventory. Planning and construction awards. Eligible projects include replacement, preservation, reconstruction, rehabilitation, acquisition of real property, environmental mitigation, construction contingencies, acquisition of equipment, and operational improvements related to improving system performance or one or more bridges on the National Bridge Inventory, and expenses related to the protection of a bridge including seismic or scour protection. Eligible recipients include States, MPO that serves a population of more than 200,000 individuals, unit of local government, political subdivision, tribal government, or a multijurisdictional group of entities above. $20 million available for planning grants with no minimum award amount. Construction bridge grant minimum of $2.5 million, 20% match.

Safe Streets and Roads for All (SS4A)

Safe Streets and Roads for All provides funding to support local initiatives to prevent death and serious injury on roads and streets, commonly referred to as "Vision Zero" or "Toward Zero Deaths" initiatives. Planning and construction awards. An Action Plan is a requirement for construction grant funding. Requirements of an Action Plan are available. Eligible projects include those focused on non-roadway modes of transportation, roadway intersections, construction of new roadways used for motor vehicles and non-motorists, creation of additional lanes, maintenance to maintain state of good repair, and development of a transportation safety plan. Eligible applicants include political subdivision of a State, MPO's, Tribal government, and a multijurisdictional group of entities above. States are not eligible, but DOT encourages applicants to partner and/or coordinate with States. Minimum award of five million for political subdivisions and MPO's, minimum award of $3 million for Tribes. Minimum 20% match.

Reconnecting Communities and Neighborhoods Program

Reconnecting Communities (RCP) and Neighborhoods (NAE) Program provides funding to restore community connectivity by removing, retrofitting, or mitigating highways or other transportation facilities that create barriers to community connectivity, including to mobility, access, or economic development. Planning and construction awards. Eligible activities for planning grants include public engagement, planning and feasibility studies, and preliminary engineering. Eligible activities or projects for construction funding include design and environmental studies, predevelopment, and preconstruction, permitting, removal, retrofit, mitigation or replacement of an eligible facility that restores community connectivity. Projects must be consistent with a state or local transportation plan. Eligible recipients include States; a unit of local government; Tribal governments; MPO's; and non-profit organizations. RCP Planning grants may range from $100,000 to $2 million and match is no less than 20 percent from non-federal sources. RCP Capital construction minimum grant award is $5 million and

maximum $100 million with a non-federal match no less than 50 percent. NAE Planning Grants have no minimum or maximum amounts, and the 20 percent match is waived for disadvantaged communities. NAE Construction Grants have no minimum or maximum project amounts and 20 percent match is waived for disadvantaged communities.

Railroad Crossing Elimination

Railroad Crossing Elimination grants will fund highway-rail or pathway-rail grade crossing improvement projects that focus on improving the safety and mobility of people and goods. There is a total of $573 million available with $18 million set-aside for planning and $120 million set-aside for projects in rural and Tribal areas. Eligible activities include planning; design; grade separation or closures, including using a bridge, embankment, or tunnel; track relocation; and improvements or installation of protective devices or other measures that improve safety, including technological solutions. Eligible applicants include states, political subdivisions, a unit of local government, Tribal governments, MPO's, and any group of entities above. No minimum project award for planning grants. Minimum project award of $1 million for construction grants. Planning and construction grants require a 20 percent state, local, or public match. No federal funds can be used for the match requirement.

National Culvert Removal, Replacement, & Restoration Grant

This new program provides funding to improve or restore anadromous fish passage through the replacement, removal, repair, or improvement of culverts or weirs. Grant activities may include preliminary and detailed design activities and associated environmental studies; predevelopment/preconstruction; preliminary engineering; acquisition of ROW; consultation and permitting activities; NEPA; and the replacement, removal, or repair of culverts or weirs, or weir improvements; and replacement of an eligible facility with a new facility that meaningfully restores fish passage. Eligible recipients include States, units of local government and Tribes. There is no specified minimum or maximum award. DOT anticipates awards ranging from $100,000 to $2 million. Minimum 20% match.

Strengthening Mobility and Revolutionizing Transportation (SMART) Grant Program

The purpose of the SMART Grants Program is to conduct demonstration projects focused on advanced smart city or community technologies and systems in a variety of communities to improve transportation efficiency and safety. The program funds projects that are focused on using technology interventions to solve real-world challenges and build data and technology capacity and expertise in the public sector. The program includes Planning and Implementation grants. DOT anticipates awards for planning grants up to $2 million and implementation grants up to $15 million. A SMART grant may be used to conduct a project that demonstrates at least one of the following: coordinated automation, connected vehicles, sensors, systems integration, delivery/logistics, innovative aviation, smart grid, or traffic signals. Eligible applicants include states, political subdivisions, a unit of local government, Tribal governments, MPO's, and any group of entities above. No match required.

Wildlife Crossings Pilot Program

The Wildlife Crossings Pilot program will support projects that seek to reduce the number of wildlife-vehicle collisions, including the causes and impacts of wildlife collisions as well as

solutions and best practices for reducing wildlife collisions and improving habitat connectivity. The program funds both construction and non-construction projects. Construction Projects include engineering through final design as well as construction of infrastructure improvements such as a wildlife crossing overpass or underpass. Non-construction Projects include planning, research, and educational activities that are not directly related to construction of infrastructure improvements, such as a hot spot analysis of WVCs. Eligible applicants include State DOTs, MPOs, a unit of local government, special districts, tribal governments, and federal land management agencies. This program has a total of $350 Million in funding through FY 2026. No minimum or maximum award amount. Twenty percent non-federal match required.

State-level and non-USDOT grant funding programs include the following:

SD Transportation Alternatives (TA)

Transportation Alternatives (TA) is a program that uses federal transportation funds, designated by Congress, for specific activities that enhance the inter-modal transportation system and provide safe alternative transportation options. TA encompasses a variety of smaller-scale non-motorized transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to storm water and habitat connectivity.

Approximately $8 million is available through a competitive project selection process administered by the South Department of Transportation (SDDOT) Office of Project Development. Projects may be limited to $600,000 depending on annual funding allowance. The minimum for infrastructure projects will be $50,000. There is no minimum for non-infrastructure projects. Minimum local match required is 18.05%.

United States Rural Development (USDA) Community Facilities Program Grants/Loans

This program provides affordable funding to develop essential community facilities in rural areas. An essential community facility is defined as a facility that provides an essential service to the local community for the orderly development of the community in a primarily rural area, and does not include private, commercial, or business undertakings. Funds can be used to purchase, construct, and / or improve essential community facilities, purchase equipment, and pay related project expenses.

Examples of essential community facilities include:

- Health care facilities such as hospitals, medical clinics, dental clinics, nursing homes or assisted living facilities
- Public facilities such as town halls, courthouses, airport hangars or street improvements
- Community support services such as childcare centers, community centers, fairgrounds, or transitional housing
- Public safety services such as fire departments, police stations, prisons, police vehicles, fire trucks, public works vehicles or equipment
- Educational services such as museums, libraries, or private schools

- Utility services such as telemedicine or distance learning equipment
- Local food systems such as community gardens, food pantries, community kitchens, food banks, food hubs or greenhouses

Grant details are found on the USDA website, located at: https://www.rd.usda.gov/programs-services/community-facilities/community-facilities-direct-loan-grant-program.

Economic Development Administration (EDA) Public Works Program

EDA's Public Works program helps distressed communities revitalize, expand, and upgrade their physical infrastructure. This program enables communities to attract new industry; encourage business expansion; diversify local economies; and generate or retain long-term, private-sector jobs and investment through the acquisition or development of land and infrastructure improvements needed for the successful establishment or expansion of industrial or commercial enterprises. The criteria used in determining which projects receive planning grants include the following:

- The project's demonstrated alignment with at least one of EDA's current investment priorities as published on EDA's website at www.eda.gov.
- The project's potential to increase the capacity of the community or region to promote job creation and private investment in the regional economy.
- The likelihood that the project will achieve its projected outcomes.
- Ability of the applicant to successfully implement the proposed project, including the applicant's financial and management capacity and the applicant's capacity to secure the support of key public and private sector stakeholders.

APPENDICES

Appendix A: Public Involvement Summary

Meeting attendance, discussion items, and comments collected from each meeting are detailed in Appendix B.

Introduction

Two sets of two Public Input Meetings (PIMs) and two Stakeholder Meetings were held over the course of the study. The first set of PIMs and Stakeholder Meetings was held in April of 2024 and provided all attendees with a forum to express their concerns about the transportation network. The second set of PIMs was held in October of 2024 and presented the project findings, projects, and draft MTP. Online material was provided to support the public involvement processes. The final MTP incorporated all input received.

Stakeholder groups were identified as follows:

- Brownsville Fire
- City of Central City
- City of Deadwood
- City of Lead
- City of Spearfish
- City of Whitewood
- Deadwood Fire
- Lead Fire
- Lead/ Deadwood Eco Dev
- Lead/Deadwood School
- Mead County School
- Nemo Fire
- Nieman Trucking
- Prairie Hills Transit
- Sanford
- Spearfish Canyon Fire
- Spearfish School
- Spearfish Sant District
- Lead/ Deadwood Sant District
- St. Onge Township
- St. Onge Fire
- State Wildland
- USFS
- Whitewood Fire

Methods and Activities

Meeting and project information was also posted on the Lawrence County website and through paid ads on Facebook. Facebook ads for the first set of meetings were placed from April 23 through May 31, 2024, targeting Lawrence County. The ad reached 19,452 people. Facebook ads were also placed between October 9 and October 29, 2024. Advertisements reached 21,486 people.

Public Input Meeting (PIM) #1

Stakeholder Meeting April 24, 2024 Lodge at Deadwood Deadwood, SD 10- 11:30 am	Public Meeting April 24, 2024, Lodge at Deadwood Deadwood, SD 5:30-7:00 P.M.	Stakeholder Meeting April 25, 2024, Nemo Community Center Nemo, SD 2:30-4:00 P.M.	Public Meeting April 25, 2024, Nemo Community Center Nemo, SD 5:30-7:00 P.M.

Meetings were advertised in the Black Hills Pioneer on April 4 and April 11, 2024.

Notice of
Public Open House & Informational Meeting
Lawrence County Master Transportation Plan

Lawrence County, in conjunction with the South Dakota Department of Transportation (SDDOT) and the Federal Highway Administration (FHWA), will hold open house style stakeholder and public meetings to discuss and receive public comment on the development of a Lawrence County Master Transportation Plan (MTP). The purpose of the meetings is to gather information on county and community needs and desires as input into a long-range, multi-modal plan to address future transportation needs of Lawrence County.

Information will be available at each meeting documenting the existing conditions of transportation systems in Lawrence County. Public comment will be solicited from the public and interested persons on transportation issues throughout Lawrence County. The public open house meetings are planned for the following dates and locations:

Stakeholder Meeting **April 24, 2024** Lodge at Deadwood 100 Pine Crest Deadwood, SD 10:00 to 11:30 AM	**Public Meeting** **April 24, 2024** Lodge at Deadwood 100 Pine Crest Deadwood, SD 5:30 to 7:00 PM	**Stakeholder Meeting** **April 25, 2024** Nemo Community Center, 12746 Nemo Road, Nemo, SD 2:30 to 4:00 PM	**Public Meeting** **April 25, 2024** Nemo Community Center, 12746 Nemo Road, Nemo, SD 5:30 to 7:00 PM

Staff from Lawrence County and their consultant will be available to discuss the Lawrence County MTP. All persons interested in transportation issues are invited to attend the meeting to share their views and concerns. Public and written comments will be taken as part of the public input meeting specific to the Lawrence County MTP.

Written comments should be sent to the attention of KLJ Engineering, Attn: Lawrence MTP, 18 E Main Street, Ste 229, Rapid City, SD 57701, or by email to steve.grabill@kljeng.com. Written public comment will be accepted on the Lawrence County MTP through May 31, 2024.

For more information regarding the Lawrence County MTP contact KLJ Project Manager, Steve Grabill at 406.247.2924. Information about the Lawrence County MTP is available online at https://inputcentral.com/lawrence-mtp. Comments may also be provided on the website.

Notice is further given to individuals with disabilities that this public meeting is being held in a physically accessible place. Any individuals with disabilities who will require a reasonable accommodation in order to participate in the public meeting should submit a request to the Highway Department at (605) 394-2166 or 1-800-877-1113 (Telecommunication Relay Service for the Deaf). Please request the accommodation no later than 2 business days prior to the meeting in order to ensure accommodations are available.

Published two times at the total approximate cost of $684.00 and can be viewed free of charge at www.sdpublicnotices.com.

Figure 66 Newspaper advertisement.

Social media for PIM #1

One social media campaign was developed for PIM #1

- Purpose: Advertise for online survey
- Campaign dates: April 23- May 31, 2024
- Audience: Lawrence County
- Cost: $100
- Reach: 19,492 people

Figure 67: Social media advertisement for PIM #1.

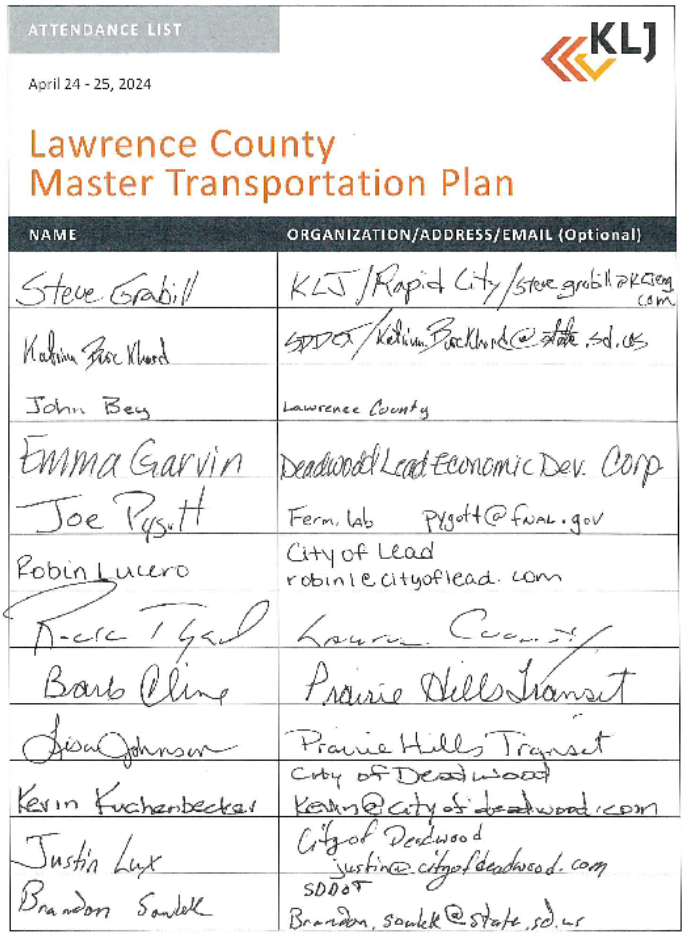
Feedback collected from in person meetings

Stakeholder Meeting April 24, 2024

- Use of ATV's/UTV's throughout the County has increased significantly. The number of permits has increased from 16,000 to 43,000 permits over the last 3 years, allowing them to use the roads and trails. Need more enforcement and more parking facilities for them. Impacts include:
    - Rutting roads
    - Personal property damage
    - Noise
    - Unsafe actions by drivers
    - Groups of ATV's/UTV's cause problems/long queues of slow-moving traffic.

- City of Deadwood adding 5 miles of trails. They noted that a large percentage of their workforce lives outside of town.
- Spearfish Canyon Road is hectic during the summer. Concerns raised regarding safety.
- Prairie Hills Transit stated that a challenge is getting people to their jobs. Not everyone works 8-5. High need to provide rides to get people to Rapid City. They recently started to serve Deadwood again. Ridership is increasing, but we need to do better in getting the word out that we are available for everyone.
- City of Deadwood said having a Park-n-Ride lot would be beneficial, potentially at Exit 17. Busing for events has also been helpful in reducing parking needs. It would be good to have Uber/Lyft in Deadwood in the future.
- Taxi use is heavily used in Lead.
- Will funding sources be addressed? Mr. Grabill said that grant opportunities would be addressed.
- More truck traffic is occurring in Spearfish Canyon.
- Bikes and UTV's need to be addressed by the plan.

Attendance Sheet



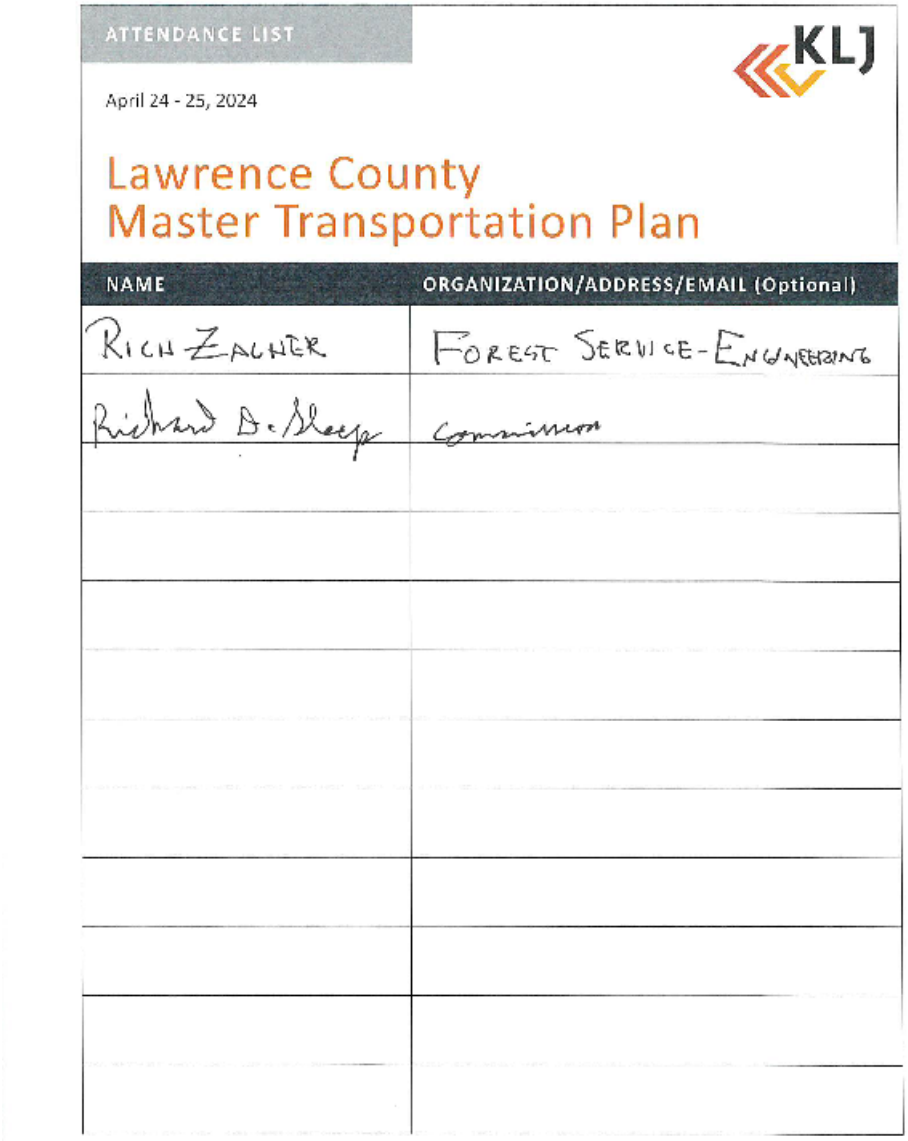
ATTENDANCE LIST

KLJ

April 24 - 25, 2024

Lawrence County
Master Transportation Plan

NAME	ORGANIZATION/ADDRESS/EMAIL (Optional)
Steve Grabill	KLJ / Rapid City / steve.grabill@klj.com
Katlin Backlund	SDDOT / Katlin.Backlund@state.sd.us
John Berg	Lawrence County
Emma Garvin	Deadwood/Lead Economic Dev. Corp
Joe Pygott	Ferm. lab pygott@fnal.gov
Robin Lucero	City of Lead robin1e@cityoflead.com
[illegible]	[illegible]
Barb Cline	Prairie Hills Transit
Jean Johnson	Prairie Hills Transit
Kevin Kuchenbecker	City of Deadwood kevin@cityofdeadwood.com
Justin Lux	City of Deadwood justin@cityofdeadwood.com
Brandon Soulek	SDDOT Brandon.soulek@state.sd.us



ATTENDANCE LIST

April 24 - 25, 2024

Lawrence County
Master Transportation Plan

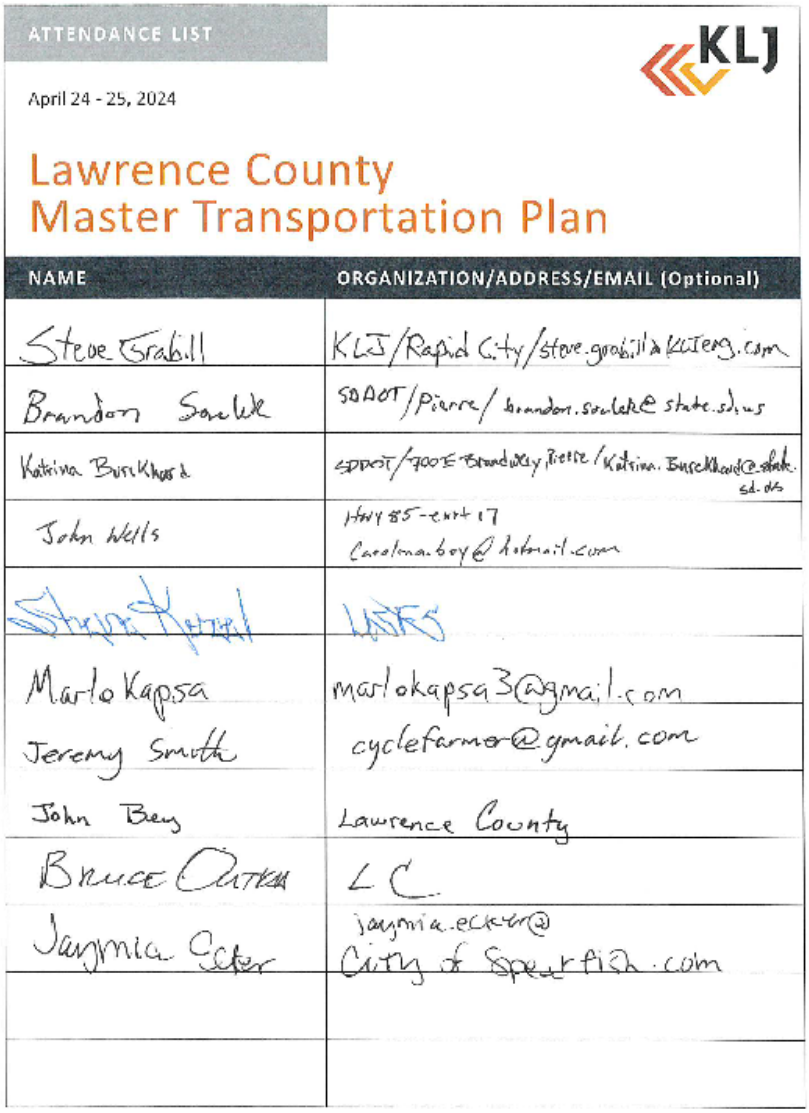
NAME	ORGANIZATION/ADDRESS/EMAIL (Optional)
RICH ZALNER	FOREST SERVICE-ENGINEERING
Richard D. Sharp	Commissioner

Public Meeting April 24, 2024

- Does the MTP address future land use? Mr. Grabill responded that KLJ is aware the future land use map is being updated and has seen a recent version. He said that the intent is to include the most current version in the document and to consider how land use decisions impact transportation issues and needs within the County.
- Will the MTP help Lawrence County identify sources of additional funding? Mr. Grabill responded that once a master project list has been prepared, projects will be reviewed to determine whether some are good candidates for grant applications and include potential grant opportunities within the plan.
- Connectivity for bicyclists and pedestrians between towns and communities and public lands is needed.

- The Forest Service recognizes that there have been issues relative to road ownership and maintenance responsibilities. It would be desirable for the MTP to assist in these issues and to promote better cooperation and communication between the Forest Service and the County moving forward. Mr. Grabill said that while resolution of these issues is beyond the scope of the MTP, an effort is being made to identify routes in question and to bring the expertise of the SDDOT in to help move these issues forward.
- With all the talk of mining in Lawrence County, will the MTP consider impacts, especially related to heavy truck traffic? Mr. Grabill said that he would take the matter up with the Study Advisory Team, but that it made sense that the MTP would address potential impacts.
- St. Onge Road in Spearfish has recently changed from a county road to a city road.

Attendance Sheet



ATTENDANCE LIST

April 24 - 25, 2024

Lawrence County
Master Transportation Plan

NAME	ORGANIZATION/ADDRESS/EMAIL (Optional)
Steve Grabill	KLJ/Rapid City/steve.grabill@kljeng.com
Brandon Soulek	SDDOT/Pierre/ brandon.soulek@state.sd.us
Katrina Burckhard	SDDOT/700 E Broadway/Pierre/Katrina.Burckhard@state.sd.us
John Wells	Hwy 85 - exit 17 Carolman.boy@hotmail.com
[illegible]	LWRS
Marlo Kapsa	marlokapsa3@gmail.com
Jeremy Smith	cyclefarmer@gmail.com
John Berg	Lawrence County
Bruce Cutler	LC
Jaymia Ecker	jaymia.ecker@cityofspearfish.com

Stakeholder Meeting April 25, 2024

- Discussion focused on USFS road and trail maintenance practices and improving coordination with Lawrence County. Steve Grabill said he could try to facilitate a meeting between the County and USFS in advance of the next SAT meeting. USFS Ralph Adam would be a key person to invite.
- The USFS has a variety of maintenance levels:
    - Level 1 – closed facility
    - Level 2 – 2 Track
    - Level 3 – some gravel added
    - Level 4 – wider, more gravel
    - Level 5 – paved
- USFS representatives said they would send more detailed information on trail locations and on maintenance categories. They said that the USFS has no capability to handle winter snow plowing.
- USFS representatives said that it might be difficult to identify the status of active or expired maintenance agreements between the USFS and the County. They agreed that this would be good to track down and update.

Attendance Sheet

ATTENDANCE LIST

KLJ

April 24 - 25, 2024

Lawrence County
Master Transportation Plan

NAME	ORGANIZATION/ADDRESS/EMAIL (Optional)
Steve Grabill	KLJ/Rapid City/Steve.grabill@kljeng.com
Bonnie Jones	Forest Service bonnie.jones@usda.gov
Rich Zacher	Richard Zacher @usda.gov Forest Service -
Katrina Burckhard	SDDOT/Katrina.Burckhard@state.sd.us
John Bey	Lawrence County

Public Meeting April 25, 2024

- No further comments were received.

Attendance Sheet

4

ATTENDANCE LIST

April 24 - 25, 2024

Lawrence County Master Transportation Plan

NAME	ORGANIZATION/ADDRESS/EMAIL (Optional)
Steve Grabill	KLJ/Rapid City/steve.grabill@KLJENG.com
Katrina Burckhard	SDDOT/Pierre/Katrina.Burckhard@state.sd.us
Brandon Soulek	SDDOT/Pierre/brandon.soulek@state.sd.us
John Bey	Lawrence County

Public Input Meeting (PIM) #2

Stakeholder Meeting Oct. 28, 2024 Cadillac Jack's Gaming Resort 360 Main St. Deadwood, SD 57732 10 a.m. to 11:30 a.m.	Public Meeting Oct. 28, 2024 Cadillac Jack's Gaming Resort 360 Main St. Deadwood, SD 57732 5:30 p.m. to 7 p.m.	Stakeholder Meeting Oct. 29, 2024 Whitewood Community Hall 1025 Meade St. Whitewood, SD 57793 3:30 p.m. to 5 p.m.	Public Meeting Oct. 29, 2024 Whitewood Community Hall 1025 Meade St. Whitewood, SD 57793 6 p.m. to 7:30 p.m.

Meetings were advertised in the Black Hill Pioneer on October 9 and 16, 2024.

Publish Oct. 9, 2024, and Oct. 16, 2024
Public Notice (display ad)

Notice of
Public Open House & Informational Meeting
Lawrence County Master Transportation Plan

Lawrence County, in conjunction with the South Dakota Department of Transportation (SDDOT) and the Federal Highway Administration (FHWA), will hold open house style stakeholder and public meetings to discuss and receive public comment on the development of a Lawrence County Master Transportation Plan (MTP). The purpose of the meetings is to gather feedback on the draft plan.

Public comment will be solicited from the public and interested persons on transportation issues throughout Lawrence County. The public open house meetings are planned for the following dates and locations:

Stakeholder Meeting **Oct. 28, 2024** Cadillac Jack's Gaming Resort 360 Main St. Deadwood, SD 57732 10 a.m. to 11:30 a.m.	**Public Meeting** **Oct. 28, 2024** Cadillac Jack's Gaming Resort 360 Main St. Deadwood, SD 57732 5:30 p.m. to 7 p.m.	**Stakeholder Meeting** **Oct. 29, 2024** Whitewood Community Hall 1025 Meade St. Whitewood, SD 57793 3:30 p.m. to 5 p.m.	**Public Meeting** **Oct. 29, 2024** Whitewood Community Hall 1025 Meade St. Whitewood, SD 57793 6 p.m. to 7:30 p.m.

Staff from Lawrence County and their consultant will be available to discuss the Lawrence County MTP. All persons interested in transportation issues are invited to attend the meeting to share their views and concerns. Public and written comments will be taken as part of the public input meeting specific to the Lawrence County MTP.

Written comments should be sent to the attention of KLJ Engineering, Attn: Lawrence MTP, 18 E Main St., Ste 229, Rapid City, SD 57701, or by email to ian.severson@kljeng.com. Written public comment will be accepted on the Lawrence County MTP through Nov. 29, 2024.

For more information regarding the Lawrence County MTP contact KLJ Project Manager, Ian Butler-Severson. Information about the Lawrence County MTP is available online at https://inputcentral.com/lawrence-mtp. Comments may also be provided on the website.

Individuals needing assistance, pursuant to the Americans with Disabilities Act (ADA), should contact the SDDOT ADA Coordinator (605-773-3540) two business days prior to the meeting in order to ensure accommodations are available. For any in-person meeting, notice is further given to individuals with disabilities that the meeting is being held in a physically accessible location.

Notice published twice at the total approximate cost of $###.##.

Social Media PIM #2

One social media campaign was developed for PIM #2

- Purpose: Advertise for public meeting
- Campaign dates: October 21- October 29, 2024
- Audience: Lawrence County
- Cost: $75
- Reach: 21,486 people

Figure 68: Social media ad for PIM #2.

Feedback collected from in person meetings

Stakeholder meeting October 28, 2024

- The meeting took the form of an open house, with open discussion between KLJ, Lawrence County, and SDDOT staff.
- Board displays of the County were available for viewing and discussion, including maps of fatal and incapacitating crashes, wild animal crashes, single-vehicle crashes, ADTs, and identified projects in the county. Staff were available to discuss specific concerns attendees had.
- Ambiguities were clarified in the project list. Two short-term bridge projects were identified by Lawrence County representative as having already been completed. One was redesignated from a long-term to a short-term project. Another was found to be a duplicate with an erroneous bridge number and deleted.
- Discussion of road jurisdiction between the County and the USFS continued.
- The relative costs of various road surface types were discussed, focusing on the differences between different pavement treatments (e.g., chip seal and fog seal vs. rout and crack seal), as well as the tradeoff between upfront investments in pavement and dispersed investments in gravel.

Attendance Sheet

ATTENDANCE LIST

October 28 - 29, 2024 Stakeholder Meeting 10/28

Lawrence County Master Transportation Plan

NAME	ORGANIZATION/ADDRESS/EMAIL (Optional)
John Bey	Lawrence County Highway Jbey@Lawrence.SD.US
Steve Gramm	SDDOT Steve.gramm@state.sd.us
Ian Severson	KLJ
Greg Olberding	KLJ

Public Meeting October 28, 2024

- Ian Butler-Severson and Greg Olberding gave a presentation on the MTP process, the status and schedule of the current MTP project, and the policies and projects that have been identified. This was an informal presentation with frequent pauses for questions, comments, and feedback.
- Tinton Rd south of Spearfish was flagged as a gravel road in a particularly poor condition. Potential to eventually pave was discussed; projected ADTs exceed the threshold of 400.
- Concerns were raised about ATVs degrading the quality of the pavement and causing noise pollution on certain roads.
- Concerns were raised about cyclists being difficult to see and pass. St. Onge Rd was flagged as a particular road where bicycle volumes are high. Discussion around bike/ped infrastructure focused on the safety and utility of widened shoulders as opposed to separated bike lanes or shared use paths.
- An automated traffic counter was noted as having been seen on Custer Crossing Rd west of N. Rochford Rd. The party responsible for this traffic count was undetermined, but KLJ, Lawrence County, and SDDOT were all ruled out.

Attendance Sheet

ATTENDANCE LIST

October 28 - 29, 2024

Public Meeting

Lawrence County Master Transportation Plan

NAME	ORGANIZATION/ADDRESS/EMAIL (Optional)
Jamie Westberg	chevey24@icloud.com
Steve Gramm	SDDOT - steve.gramm@state.sd.us
John Bey	LCH - Jbey@lawerence.SD.US
Brad Eisma	eismar@frontiernet.net
Connie Eisma	" "
Eric Jennings	Law Co
Ian Severson	ian.severson@kljeng.com
Greg Oberding	greg.oberding@kljeng.com

Stakeholder Meeting October 29, 2024

- Ian Butler-Severson gave a presentation on the MTP process, the status and schedule of the current MTP project, and the policies and projects that have been identified. This was an informal presentation with frequent pauses for questions, comments, and feedback.
- During and following the presentation, Ian Butler-Severson opened discussion of transportation needs and issues within Lawrence County.
- Questions arose from municipal staff about whether any of the Lawrence County projects were occurring within city limits or on city rights-of-way. These projects are all under county jurisdiction, but some coordination with the local municipalities can be anticipated. A portion of the discussion focused on the lack of an overarching inventory of state, county, and municipal plans and projects, and the need to therefore coordinate closely with cross-jurisdictional partners.
- Attendees inquired about the ATV ordinance recommended in the plan, and the associated enforcement mechanisms.
- Discussion focused on the ways that e-bikes and e-scooters are changing the transportation environment within Lawrence County and may introduce the need for different approaches to active transportation infrastructure, street safety plans, and policy. An e-bike ordinance was suggested as a potential addition to the MTP.
- N. Maitland and N. Tinton Rds. were flagged as roads where increased traffic may drive a need for gravel-to-pavement conversions.
- One suggestion was a memorandum of understanding (MOU) specifying that the business generated by heavy truck traffic would share in the increased cost of road maintenance due to said traffic.

Attendance Sheet

ATTENDANCE LIST

KLJ

October 28 - 29, 2024

10/29 Stakeholders

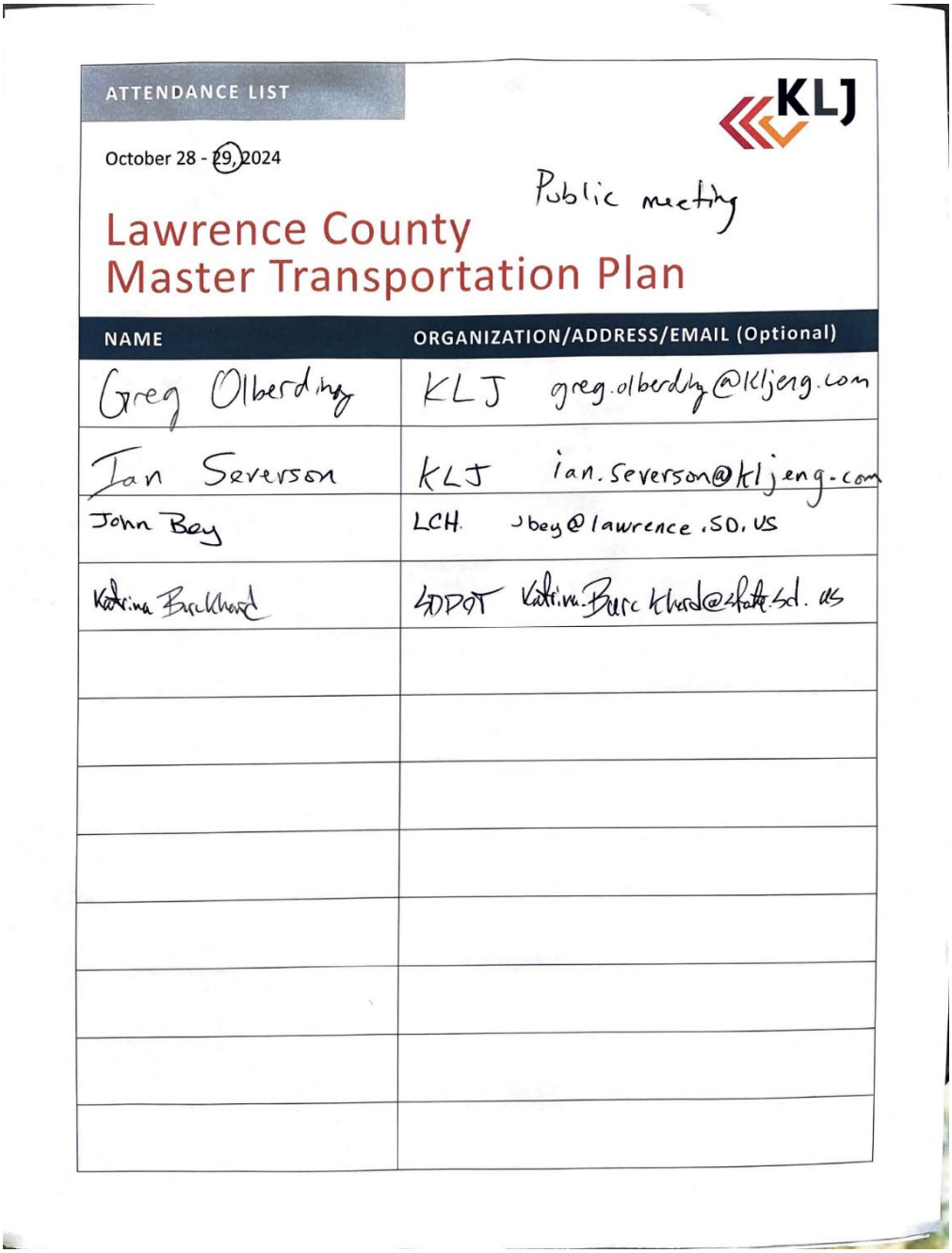
Lawrence County Master Transportation Plan

NAME	ORGANIZATION/ADDRESS/EMAIL (Optional)
Katrina Burckhard	SDDOT 8700 E. Broadway Ave., Pierre, SD Katrina.Burckhard@state.sd.us
John Bey	LCH [redacted] Jbey@lawrence.SD.us
Greg Olberding	KLJ greg.olberding@kljeng.com
Justin Lux	City of Deadwood justin@cityofdeadwood.com
Robin Lucero	City of Lead robin@cityoflead.com

Public Meeting October 29, 2024

- An open house opportunity was offered prior to and after the formal presentation. Board displays of the County were available for viewing and discussion. Staff were available to discuss specific concerns attendees had.
- Since there were no attendees who were not present at the previous public meeting, no presentation was given.
- No further comments were received.

Attendance sheet



ATTENDANCE LIST

KLJ

October 28 - 29, 2024

Public meeting

Lawrence County
Master Transportation Plan

NAME	ORGANIZATION/ADDRESS/EMAIL (Optional)
Greg Olberding	KLJ greg.olberding@kljeng.com
Ian Severson	KLJ ian.severson@kljeng.com
John Bey	LCH. Jbey@lawrence.SD.US
Katrina Burkhard	SDDOT Katrina.Burkhard@state.sd.us

Interactive Mapping Comments

Comment	Pedestrian /Bicycle	Vehicle	Road Condition	Safety	I have an idea	Other
Work with City of Spearfish to make the town more bike friendly. There are very few designated bike lanes as you move through town, increasing opportunities for collisions with vehicles and discouraging bike use. This is important for main routes such as Main, North Ave, Hillsview, etc.	X					
Add bike lanes to Old Belle Rd	X					
Add bike lanes to McGuigan for safety. This is a main road for cyclists and many use it to connect to Spearfish and it's recreation path.	X					
Add designated lanes for cyclists/pedestrians or a separate path for access along Hillsview. I see people walking and biking on this road constantly. It provides access to and from Spearfish, to the National Forest, and to several popular gravel/road bike routes and loops. When vehicles move into the other lane to go around pedestrians and cyclists, there are safety concerns due to the limited vertical sight distance of the road.	X					
This left turn lane gets backed up a full block or more during busy shopping times at Walmart. Does this intersection need multiple turn lanes?				X		
I have witness multiple accidents working by this intersection: two cars, car vs motorcycle, car vs bicycle. Perhaps this intersection needs a stoplight for safety.				X		
We need a bike lane on this road for community members to safely walk and ride their bikes	X					

Comment	Pedestrian /Bicycle	Vehicle	Road Condition	Safety	I have an idea	Other
We need a bike lane on this road for community members to safely walk and ride their bikes	X					
Open this road for bicycle use!	X					
Bike lane/path from Spearfish to Deadwood please!	X					
We need a bike lane on this road for community members to safely walk and ride their bikes.	X					
We need a bike lane on this road for community members to safely walk and ride their bikes.	X					
We need a bike lane on this road for community members to safely walk and ride their bikes.	X					
General comment for most roads - add "3 ft to pass" or "6 ft to pass" (depending on speed limit based on codified law 32-26-26.1) signs indicating what the passing law is for safely passing vulnerable roadway users. At least add these signs to high-traffic paved roads.				X		
Convert any flood-zone properties to park space					X	
Adding to the prior comment - allow recreational MTB and Hiking trails to be built on spearfish peak.					X	
Add a multi function path along Spearfish Canyon. This path could follow the entire electric company easement and much of it has a path. Walking, biking, running, wheel chairs should all be off of the road it's dangerous and the better phones get the more dangerous it is. I know people are worried about trash but for the most part people looking for this kind of adventure is also conscious of their garbage.	X					
A trail around or access through the Jeffery Ranch would help increase access to outdoor recreation from Spearfish. Also having trails on	X					

Comment	Pedestrian /Bicycle	Vehicle	Road Condition	Safety	I have an idea	Other
Spearfish Mtn. would be incredible and help to distribute trail users as Tinton and Lookout mtn. trails get used very heavily.						
Transition from Rec path to Dahl road Bike route is hard to manage traveling down hill via bike (very hard right turn). Consider a more direct transition and connection to and from Dahl Road	X					
Easily the most dangerous intersection in Spearfish. Consider an ingress only option to Walmart at this intersection. Other lot intersection could be ingress and egress				X		
"Bike lanes with signage to alert cars as well as signs to state the distance the cars need to give the bikes. I've been very close to being hit while riding close to the edge. These areas: old Belle Rd, hills view, Colorado to exit 17 would be great."	X					
More law enforcement patrolling in Spearfish Canyon - speeding and reckless driving is out of control. It does not feel safe on foot or a bike.				X		
Please add sidewalks to 1st Ave	X					
Bike path along Hillsview Rd ideally to town and to wrap all the way out to old 14.	X					
Connect Tumbleweed trail to Saphire with a bike path along city easement. Easy fix that connects so many!	X					
Add bike path along Old 14 all the way to town	X					
Please add bike paths to the Reserve and beyond along Old Belle Rd	X					
Convert old railway line up spearfish Canyon to multi-use path. Connect to Lead/ Deadwood. Expands e-bike and bike tourism.	X					

Comment	Pedestrian /Bicycle	Vehicle	Road Condition	Safety	I have an idea	Other
Consider a lower speed limit of 25mph and redoing the first Walmart entrance. People often don't anticipate cars/bike going past the entrance and pull out in front of oncoming traffic				X		
The cameras on the lights are the bridge seem to inconsistently apply logic of when to change the lights and they frequently change order even when traffic is waiting which makes things less safe as people can not anticipate what traffic will move. People also frequently miss the stop line and pull much further forward than they should.						X
Create a new Rail-Trail from Whitewood to Deadwood on the old rail line.					X	
Better inform motorists how to handle mopeds which can't maintain the 45mph speed limit between downtown and exit 14 along Colorado since there is not another way between downtown and neighborhoods like Green Acres and even further along Colorado like the new sportsplex.		X				
paved Walking/Bike/Rec path connecting Lead to Pluma/Michelson trail	X					
Bike path along Colorado to connect to existing path that ends at exit 14 all the way to exit 17	X					
Grant cyclists and pedestrians access through Richmond Hill Rd from Lead to Spearfish Peak.	X					
Grant Cyclists and pedestrians access through Jeffrey Ranch.	X					
Grant cyclists and pedestrians access through Tetro Rock Rd.	X					
Widen shoulders or add bike lanes along St. Onge Rd. This is a popular road for cyclists.	X					

Comment	Pedestrian /Bicycle	Vehicle	Road Condition	Safety	I have an idea	Other
Widen shoulders or add bike lanes along Acorn Ridge Rd. This is a popular road for cyclists.	X					
Widen shoulders or add bike lanes along Crook City Rd. This is a popular road for cyclists and pedestrians.	X					
Bike path from Spearfish to Deadwood to connect to the Mickelson would be great.	X					
Reduce speed limit of McGuigan from 45 to 35.				X		
Widen shoulders or add bike lanes along 14A from Savoy to Cheyenne Crossing. This is a popular road for cyclists and pedestrians. The existing road edge is deteriorating badly. The existing bike lanes from Spearfish to Savoy are great and get a lot of use.	X					
Widen shoulders or add bike lanes along Old Belle Rd. This is a popular road for cyclists and pedestrians.	X					
Widen shoulders or add bike lanes along Hillsview. This is a popular road for cyclists and pedestrians.	X					
More frequent patrols are needed in Spearfish Canyon - Speeding is out of control and feels unsafe on foot and cycling.				X		
Reduce Speed limit from 45 to 35. With the growth in this area there are more turning vehicles.				X		
Add shoulders to roadway - currently no shoulders to utilize for cycling so you're forced to ride in the lane which feels unsafe.	X					
Please add a bike lane. As a new cyclist getting into gravel biking, it's difficult to access great gravel rides without taking these major highways and I feel dangerous/at risk of being hit by a car on these narrow roads where motorists drive quite fast.	X					
Bike path from Deadwood to Spearfish	X					

Comment	Pedestrian /Bicycle	Vehicle	Road Condition	Safety	I have an idea	Other
Bike lanes on Hillsview- all the way to Homestake	X					
Bike lanes on Old Belle Road	X					
Bike connector between Spearfish and Whitewood	X					
Bicycle connector between Spearfish and Deadwood	X					
Add bike lane	X					
lower speed limit				X		
Bike lane on Old Belle Road	X					

Open ended comments received online:

- When McGuigan Rd was being resurfaced, the traffic control plan was terrible. There was very little warning for residents regarding the closure. The people directing traffic didn't even have radios to communicate and people were stuck sitting much longer than if a better plan was in place. The county needs to better review traffic control plans for road projects and make sure that residents get ample warning before closures.
- Lawrence County has some of the best gravel roads in the country for cycling. The ability to blend routes between the prairie and the Black Hills draws in many tourists and creates a unique cycling experience for those who live here. With the growth in population and popularity of cycling in this county it is important to maintain this system of roadways and to make improvements in safety wherever possible. Thank you for creating an easy-to-use map where comments can be made!
- We need more safe use bike lanes/space on Lawrence County roads. Old Belle Road could use bike lanes. Hillsview needs bike lanes. There needs to be a bike path from Spearfish at least out to Exit 17 and then somehow on to Deadwood.
- I really like Prairie Hills Transit for people to get around the town. But the day in advance can sometimes be a problem. Can there potentially be a bus route through town with established bus stops? Have people get a monthly pass.
- Concentrate on current upgrades to existing roads/streets/and infrastructure before expanding to possible future development. Support our current population needs within the designated boundaries, City of Spearfish city limits. Grow out from city centers vs. expansion in a sprawl or patchwork way.
  Limit UTV to designated trails or specific roads. Too many on public roads causing issues to travel and difficulty seeing them in ditches which they commonly travel. Many leave the roads and cause damage to USFS meadows and off-limit trails, doing more damage to these areas.
  Fully encourage bicycle access!
  Speed limits need to be reassessed, many are too high. Old Belle Rd for example, lots of pedestrian use it but no shoulder and speed limit is 55mph. Very unsafe!

Appendix B: Ordinance Recommendations

HELIPORTS / VERTIPORTS

Private Use Heliports/Vertiports in Lawrence County

Introduction

Lawrence County has received numerous requests from property owners to allow for a private use heliport on their property. The Planning & Zoning Office has determined it would be prudent to be proactive to determine when, where, and how these facilities are placed on properties.

Background

Helicopters (rotary wing aircraft) have been in operation for decades and there are newer aircraft which are multi-rotor electric aircraft (Electric Vertical Takeoff and Landing EVTOL) which are anticipated to enter the market. It is unknown how successful the EVTOL will be in the market, but regardless each of these require similar landing facilities as outlined by the Federal Aviation Administration (FAA). The current guidance is Advisory Circular (AC) **150/5390-2D Heliport Design** and **FAA Engineering Brief 105 Vertiport Design**. It is especially important to point out that these are 'vertical' takeoff and landing aircraft. There are some of these VTOL aircraft that operate in a Short Takeoff and Landing (STOL) mode as well. The information provided by the FAA, noted above, is only for Helicopters and VTOL. STOL aircraft require forward motion to operate in STOL mode and therefore STOL aircraft cannot operate from heliports or vertiports. VTOL aircraft include an approach and departure surface from the landing site but those surfaces, and the landing surface itself, would be longer for a STOL aircraft.

Vertiports can be operated with little noticeable impact on the surrounding area as exhibited by the existing vertiports in the Keystone, Custer and Badlands areas which are used for aerial tours. The intent of this guidance is for private use vertiports which would not be used for commercial activity so their impact on the surrounding area would be infrequent.

There are a few key components of a Heliport/Vertiport (stated as Vertiport further in the report) which are as follows (see FIGURE 1. VERTIPORT COMPONENTS):

TLOF – Touchdown and Liftoff Area – a load bearing area for the purposes of a private use vertiport which is centered in the FATO. For a private use vertiport this is a minimum 40-foot square or the rotor diameter of the aircraft whichever is greater.

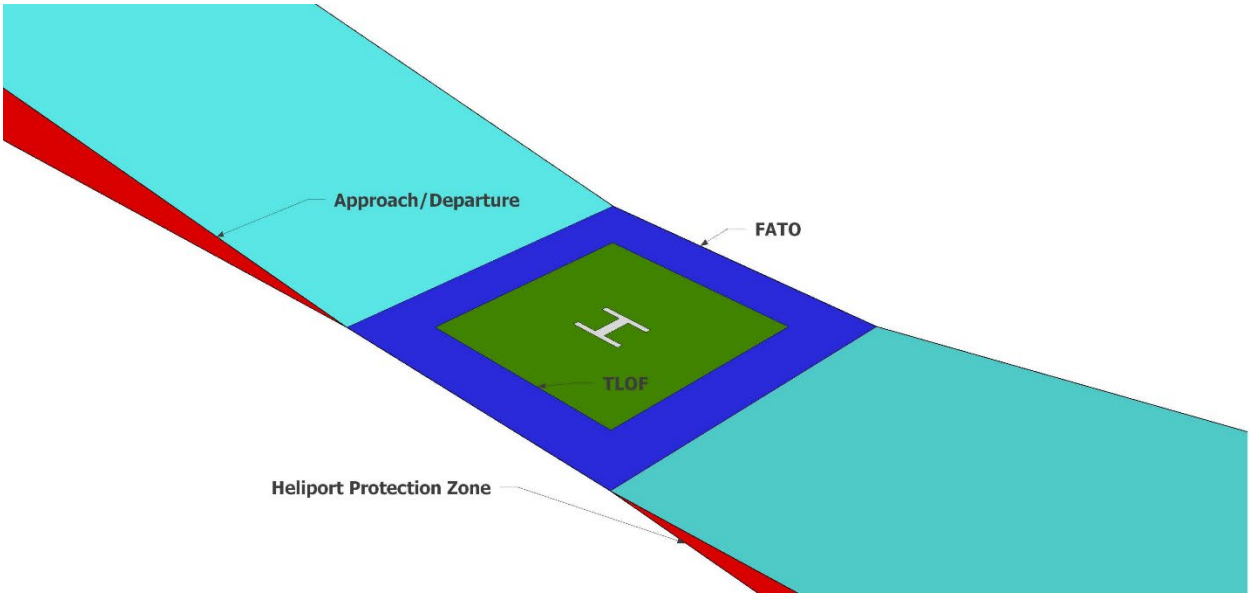
FATO – Final Approach and Takeoff Area – the defined area over which the pilot completes the final phase of the approach to hover for a landing or to initiate a takeoff. For purposes of a private use vertiport the FATO surrounds the TLOF. For a private use vertiport this is a minimum 60-foot square or 1.5 times the rotor diameter of the aircraft whichever is greater.

Approach/Departure – a surface sloping at a rate of 8:1 (8 feet horizontal for every one foot vertical) which is aligned with the corridor used by aircraft to approach and depart a TLOF. Each

vertiport will have at least one Approach/Departure corridor. The approach/departure surface is a trapezoid which is the width of the FATO and is 4000 feet long, widening to 500 feet at the end. For purposes of private vertiports within the County, no objects may penetrate this surface for the first 800 feet of the surface which is the point where the surface is 100 feet above the vertiport elevation.

Heliport Protection Zone (HPZ) – the ground surface below the Approach/Departure surface which for a private use vertiport extends 280 feet from the FATO.

Figure 1. Vertiport Components



Source: AC 150/5390-2D Figure 2-2, Figure 2-15, and Figure 2-20

A search of zoning codes identified zoning in Portland Oregon which is Chapter 33.243 Helicopter Landing Facilities (see attached). This code is clear on the key components related to Vertiports which are safety of the site, safety of the surrounding area and the consideration of potential noise impacts.

Recommended Procedures

Persons interested in establishing a private use vertiport in Lawrence County must present to the Planning & Zoning department a request to establish the vertiport. The request must include the following:

Complete a draft of FAA Form 7480-1 Notice for Construction, Alteration and Deactivation of Airports for the proposed vertiport. The proposed facility shall be noted as private use, private owner heliport. The proposed heliport shall indicate all ingress/egress directions for the vertiport. It is important that all ingress/egress directions are included with the draft FAA Form because no additional ingress/egress directions may be used unless they are later evaluated and accepted. Each ingress/egress direction will need to meet applicable safety guidelines as they impact the subject property and the surrounding properties.

The request must also include a plan for marking the vertiport to identify the FATO, TLOF, and Ingress/egress directions. Please note the orientation of the 'H' is the standard indication of the ingress/egress direction. Reference **AC 150/5390-2D Figures 2-19** and **4-1** for marking guidance. The referenced figures are often used for marking public use vertiports and something similar can be used for the private use vertiports with the emphasis on portraying the FATO which dictates the beginning of the approach/departure surface and the ingress/egress directions with either arrows or an oriented letter 'H' or other letter/number chosen by the vertiport owner.

The FATO shall be capable of managing the full weight of the planned helicopters/VTOL aircraft but is not required to be paved. The FATO, TLOF, and Heliport Protection Zones shall contain no loose materials which can become airborne and cause a hazard. The Heliport Protection Zones, established based on the ingress/egress directions, shall not include any buildings used for overnight lodging or any residences.

The request shall includee a drawing to scale that depicts all items noted for FAA Form 7480-1 including the FATO, TLOF, ingress/egress directions, HPZs, and surrounding buildings/structures and vegetation. The approach/departure surface(s) shall be depicted in a scale drawing which includes the calculation of the 8:1 approach/departure surface and the elevation above mean sea level (AMSL) of any buildings, structures, or vegetation in relation to the approach/departure surface(s).

The vertiport shall only be used for personal use in accordance with Federal Aviation Regulation Part 91 "General Operating and Flight Rules" and shall not be used to conduct a commercial activity allowed by other Federal Aviation Regulations including but not limited to Parts 121, 133, 135, 136, 137, 141, or 145.

Please note that pursuant to South Dakota Administrative Rules Chapter 70:02:04:02, no private use heliport may be established within two miles of the boundary of a public use airport without the approval of the South Dakota Aeronautics Commission. The request to the County shall include the distance from the proposed vertiport to the nearest public use airport.

If the vertiport is approved by Lawrence County and the FAA, the vertiport owner shall maintain records current with the FAA 5010 Database of Airport Master Records and continually indicate the vertiport as a privately owned, private use facility. If at any point in time the property owner changes or the vertiport is closed, the County and FAA shall be notified within sixty days.

Links

AC 150/5390-2D Heliport Design
https://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentnumber/150_5390-2

Engineering Brief 105 Vertiport Design
https://www.faa.gov/airports/engineering/engineering_briefs/engineering_brief_105_vertiport_design

FAA Form 7480-1 Notice for Construction, Alteration and Deactivation of Airports

https://www.faa.gov/documentLibrary/media/Form/faa-form-7480-1-notice-for-construction-2020.pdf

Contacts

FAA Flight Standards District Office in Rapid City – (605) 737-3050, email: 7-agl-rap-fsdo@faa.gov
Address: 3501 5th Street, Rapid City, SD 57701

Source: City of Portland Oregon Zoning Code: Chapter 33.243 Helicopter Landing Facilities

ROV/ATV/UTV – EXAMPLE ORDINANCE

THE FOLLOWING IS A POSSIBLE DRAFT ORDINANCE THAT ADDRESSES UTV/ATV REGULATIONS WITHIN THE COUNTY. IT IS MODELED FROM A COUNTY IN COLORADO.

Some of the items may not be appropriate for Lawrence County. We strongly recommend consultation with local law enforcement and the state's attorney office.

Definitions

1. *All-Terrain Vehicle* (ATV) means a three or four wheeled vehicle that travels on low-pressure tires with a seat that is straddled by the rider and with handlebars for steering control.

2. *Child Restraint System,* also known as a car seat, means a specially designed seating system that is designed to protect, hold, or restrain a child in a motor vehicle in such a way as to prevent or minimize injury to the child in the event of a motor vehicle accident that is either permanently affixed to a motor vehicle or is affixed to such vehicle by a safety belt or a universal attachment system, and that meets the federal motor vehicle safety standards.

3. *Defacing Property* means any method of defacement, including but not limited to painting, drawing, writing, or otherwise marring the surface of public or private property by use of paint, spray paint, ink, or any other substance or object, without consent of the owner.

4. *Litter* means all rubbish, waste material, refuse, garbage, trash, debris, or other foreign substances, solid or liquid, of every form, size, kind, and description.

5. *Marring Property* means impairing the appearance of public or private property, including, but is not limited to, driving off the traveled way and leaving tire tracks, skid marks, or otherwise disturbing tundra, wetlands, and any vegetation or natural or manufactured surfaces of any kind.

6. *Motorcycle* means an autocycle or a motor vehicle that uses handlebars or any other device connected to the front wheel to steer and that is designed to travel on not more than three wheels in contact with the ground including any dirt bike or other motorcycle primarily used for off road use.

7. *Occupant* is a passenger or rider of a vehicle regulated by this ordinance.

8. *Recreational Off-Highway Vehicles (ROV)* is any self-propelled vehicle that is designed to travel on wheels or tracks in contact with the ground, designed primarily of use off of the public highways, and generally and commonly used to transport persons for recreational purposes, but not (1) a vehicle designed and used primarily for travel on, over, or in the water, (2) snowmobiles, (3) golf carts, (4) vehicles designed and used to carry individuals with disabilities, (5) vehicles designed and used specifically for agricultural, logging, or mining purposes, and other uses exempt under state law.

9. *Operator* means the driver of a vehicle regulated by this ordinance.

10. *Lawrence County Public Right-of-Ways* means those roads designated as primary and secondary roads set forth on the official Lawrence County Road map and are open to such use by official designation.

Regulations

11. It is unlawful to operate an unlicensed ROV, ATV, or unlicensed/ unregistered motorcycle on Lawrence County Public Rights-of-Ways where such use is prohibited by Resolution, Ordinance, or Official Designation, unless:

a. It is registered/ permitted with the State of South Dakota and the registration / permit is displayed.

b. It has at least one lighted head and tail lamp, each having the minimum candlepower prescribed by the State of South Dakota between the hours of sunset and sunrise.

c. The driver has a valid driver's license.

d. The driver has the required minimum liability insurance required under South Dakota law.

e. Each occupant wears a safety belt if the ROV is installed with one by the manufacturer.

f. Any child under the age of eight years old who is transported by an ROV or ATV is properly restrained in a child restraint system as required under state law and installed according to the manufacturer's instructions.

g. Each occupant uses eye protection consisting of (1) goggles or eyeglasses with lenses made of safety glass or plastic, (2) a helmet containing eye protection made of safety glass or plastic, or (3) a full windshield.

h. All occupants under the age of eighteen (18) years old, wear a helmet of the type and design manufactured for use by operators of motorcycles, including a properly secured chin strap when the ROV is in motion. The helmet must meet or exceed the federal Department of Transportation helmet standards set forth under 49 C.F.R. § 571.218 Standard No. 218.

i. The ROV /ATV/ motorcycle contains no more occupants than it is designed to hold when in motion.

j. the operator obeys all applicable traffic laws state law and County ordinances.

12. It is unlawful for any person owning an ROV, ATV, or motorcycle, to allow, authorize, suffer, or permit another person to operate such ROV in violation of this Ordinance.

13. This Ordinance shall be enforced by any law enforcement officer.

14. It is unlawful for any person to deposit, throw, or leave any litter on any public or private property or to deface public or private property.

15. Any person who violates any provision of this Ordinance, except for litter, defacing, or marring property violations, shall be guilty of a _____ offense which the fine shall be $_____.

16. Any person, operator, or occupant who deposits, throws, or leaves any litter on any public or private property shall be subject to the penalty assessments.

17. Any person, operator, or occupant who defaces, mars, or causes, aids-in, or permits the defacing or marring of any public or private property shall be subject to the penalty assessments set forth under ____.

18. The penalty assessment procedure concerning the issuance of a summons and complaint under ____shall be followed when issuing a ticket for any violation of this Ordinance.

19. All fines, penalties, or forfeitures for the violation of this Ordinance, but not any surcharge imposed by the Court upon conviction pursuant to ____shall be paid to the County Treasurer of Lawrence County.

20. Reckless driving as provided by _____ and careless driving as provided by ____apply to the operation of ROVs hereunder and are prohibited. A violation is subject to punishment.

pursuant to _____.