

2025 LONG RANGE TRANSPORTATION PLAN

Developed by the
Rosebud Sioux Tribe Transportation Program

Prepared by

KLJ

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Table of Contents

TRIBAL RESOLUTION OF APPROVAL 1

CHAPTER 1 - INTRODUCTION 2

Plan Purpose 2
Recent and Concurrent Studies 3
Study Area 5

CHAPTER 2 - INVENTORY ANALYSIS 38

Road Inventory And Ownership 38

CHAPTER 3 - TRAFFIC AND CRASH ANALYSIS 44

Existing Traffic 44
Truck Traffic 44
Roadway Capacity and Traffic Operations 45
Crash And Safety Analysis 45
Previous Transportation Safety Studies 48
Existing Safety Programs 49
Safety Implementation Strategies 49

CHAPTER 4 - PUBLIC INVOLVEMENT 53

Public Input 53

CHAPTER 5 - FACILITY CONDITIONS AND RECOMMENDATIONS 55

Roadside Elements 55
Paved Roads 59
Non-Paved Roads 65
Freight And Trucking 73
Bridges 73
Pedestrians And Bicycles 76
Airports 81
Transit System 83
Utilities 83

CHAPTER 6 - POLICY RECOMMENDATIONS 84

System Management 84
Roadway Cross-Section Standards 87
Development Review 89
Transportation Needs Review Meetings 89
Jurisdictional Transfers for Roadways 90
Yield to Pedestrians in Cross Walk 90
Speeding Ticket Cameras 90
Energy conservation Considerations 90

CHAPTER 7 - PROJECT FUNDING 91
Tribal Transportation Program Funds 91
Tribal Transportation Program Safety Funds (TTPSF) 91
Tribal Bridge Program Funds 92
Nationally Significant Federal Lands and Tribal Projects (NSFLTP) 93
South Dakota Transportation Grants 93
Tribal Transit Competitive Program 94
Recreational Trails Program: 95
Consolidated Rail Infrastructure & Safety Improvements (CRISI) 96
Rural and Tribal Assistance Pilot Program 96
Safe Streets and Roads for All (SS4A) 96
Active Transportation Infrastructure Investment Program (ATIIP) 97
Multimodal Project Discretionary Grant (MPDG) (MEGA/INFRA/RURAL) 97
Wildlife Crossing Pilot Program 98
Reconnecting Communities 98
National Culvert Removal, Replacement & Restoration 98
Federal Aviation Administration Airport Improvement Program 99
Local Fees and Taxes 99
Recommended Funding Strategy 99

CHAPTER 8 - PROJECT PRIORITIZATION 101
Short-Range Project Recommendations 101
Long-Range Project Recommendations 128

APPENDICES 143

APPENDIX A: LRTP FOLDOUT MAPS 144

APPENDIX B: LRTP PUBLIC INVOLVEMENT 149

APPENDIX C: PASER STUDY (2024)

APPENDIX D: TRIBAL TRANSPORTATION SAFETY PLAN (2021)

APPENDIX E: ROAD SAFETY AUDIT (2020)

List of Figures

Figure 1: Study Area (West) 6
Figure 2: Study Area (East) 7
Figure 3: Antelope (NTTFI #0010) / White Horse (NTTFI #0039) Overview 8
Figure 4: Mission Overview (NTTIF #0016) 9
Figure 5: Ring Thunder overview (NTTfi #0038) 10
Figure 6: Spring Creek overview (NTTFI #0022) 11
Figure 7: Winner overview (NTTFI #0040) 12
Figure 8: Sigangu Village overview (pathway NTTFI #0043) 13
Figure 9: He Dog overview NTTFI #0037) 14
Figure 10: Horse Creek overview NTTFI #0029) 15
Figure 11: Ideal overview (NTTFI #0041) 16
Figure 12: Milks Camp overview (NTTFI #0042) 17
Figure 13: Black Pipe Community overview 18
Figure 14: Okreek overview (NTTFI #0026) 19
Figure 15: Parmelee overview (NTTFI #0021) 20
Figure 16: Rosebud (North) overview (NTTFI #0903, 1105, 1106, 1107) 21
Figure 17: Rosebud (South) overview (NTTFI #1100 & #1103) 22
Figure 18: St. Francis overview (NTTFI #0015) 23
Figure 19: Two Strike overview (NTTFI #0035) 24
Figure 20: Upper Cut Meat overview (White NTTFI #0036) 25
Figure 21: Upper and Lower Swift Bear overview (NTTFI #0014) 26
Figure 22: Butte Creek Community overview (NTTFI #0027) 27
Figure 23: Rosebud BIA Major Route Map 29
Figure 24: Truck AADT 45
Figure 25: Number of Crashes Reported Per Year (2013-2020) 46
Figure 26: Crash Severity per County (2013-2020) 47
Figure 27: Crash Types (2013-2020) 47
Figure 28: Buckle up poster 50
Figure 29: Rosebud Tribal Law Enforcement Vehicle 51
Figure 30: Collision Reduction with Roundabouts 57
Figure 31: BIA/TRIBAL Paved Highways – paser score 60
Figure 32: Paved Road Conditions 61
Figure 33: Preventive Maintenance 63
Figure 34: Pavement Condition Over Time 63
Figure 35: Road Maintenance Types Over Time 64
Figure 36: Examples of Non-Paved Roadway Types and Conditions 65
Figure 37: BIA/Tribal Non-Paved Roads West 69
Figure 38: BIA/Tribal Non-Paved Roads East 70
Figure 39: Bridge Locations and Ownership 75
Figure 40: Rosebud Reservation Airport Facilities Map 82
Figure 41: Standard High-Speed BIA Paved Road Typical Section 87

Figure 42: Standard High-Speed Gravel Road Typical Section 87
Figure 43: Standard Low Speed Gravel Road Typical Section 88
Figure 44: Standard Tribal Residential Street Typical Section - Rural 88
Figure 45: Standard Tribal Residential Street Typical Section – Urban 88
Figure 46: Standard Separated Shared Use Path Typical Section 89
Figure 47: Standard Sidewalk Typical Section 89
Figure 48: Lambert Bridge, Structure #A031, BIA Route 7 104
Figure 49: Yellow Cloud Bridge – Structure #A030, BIA Route 9 105
Figure 50: Church Hill Bridge – Structure #A071, BIA Route 30 106
Figure 51: North BIA Route 1 107
Figure 52: BIA Route 1 Safety Shoulder Project.....108
Figure 53: BIA Route 7 Regional Improvement Project Planned Improvements West of Rosebud 109
Figure 54: BIA Route 7 Regional Improvement Project Planned Improvements East of Rosebud 110
Figure 55: BIA Route 7 Regional Improvement Project Planned Improvements In Rosebud 111
Figure 56: BIA Route 1 Pedestrian Connectivity and Safety Improvements Project Area 112
Figure 57: BIA Route 5 and BIA Route 501 Intersection Project Area 114
Figure 58: BIA Route 5 and Tutle Rd Intersection Project Area 114
Figure 59: BIA Route 1 and BIA Route 9 Intersection Project Area – Existing Condition 116
Figure 60: BIA Route 1 and BIA Route 9 Intersection Roundabout Recommendation.....117
Figure 61: South BIA Route 1 / Kilgore Rd Regional Improvement Project Location Map 118
Figure 62: BIA Route 5 Map 120
Figure 63: BIA Route 5 (Right) at the skewed intersection of Tutle Road (Left) 121
Figure 64: Antelope & White Horse Pedestrian Connectivity.....122
Figure 65: Turtle Creek Pathway.....124
Figure 66: Two Strike Community Pathway 126
Figure 78: Winner Community Tribal Housing Pathway 127
Figure 79: Corn creek community pathway 128
Figure 67: BIA Route 501.....131
Figure 68: BIA Route 30 Deteriorated Pavement Surface.....132
Figure 69: Overgrown Trees on BIA Route 30 132
Figure 70: BIA Route 16 (Omaha Street near BIA Rosebud Agency) 133
Figure 71: BIA Route 3016 (Arcoren Rd) 134
Figure 72: JDC access road Drainage Issues (Route 45).....135
Figure 73: JDC access road Non-Paved Section (Route 45).....135
Figure 74: BIA Route 903 - IHS road entrance to Hospital from BIA 9 136
Figure 75: Gravel Section of BIA 9 Looking West.....137
Figure 76: BIA Route 12 Looking Southwest 138
Figure 77: Heavy Rutting on BIA Route 37 gravel Section 138
Figure 80: Kilgore Road South to Saint Francis Pathway.....142
Figure 81: Existing Traffic Volumes, Reservation-Wide.....145
Figure 82: Future (2048) Traffic Volumes, Reservation-Wide 146
Figure 83: Bridge Inventory / Reservation Wide Location Map 147
Figure 84: Planned Short- and Long-Range Transportation Projects 148

List of Tables

Table 1: Population Change of Area Communities – 2010-2020 31
Table 2: Rosebud Sioux Tribe Facilities 34
Table 3: RIFDS Road Inventory - Surface Type by Jurisdiction – 2025 39
Table 4: RIFDS Road Inventory - Functional Class by Jurisdiction (Ownership) - 2025 40
Table 5: RIFDS Road Inventory - Surface Type and Functional Class – 2024 40
Table 6: NTTFI Route Updates 41
Table 7: NTTFI ROUTE Additions 42
Table 8: PASER Score and Recommended Maintenance Strategy 62
Table 9: Pavement Improvement Type & Cost Per Mile (2025) 62
Table 10: Treatment Cost Per Year 64
Table 11: BIA/Tribal Non-Paved Roads 66
Table 12: Gravel Road Improvement Type & Cost Per Mile (2025) 72
Table 13: BIA/Tribal Bridge Inventory and Conditions 74
Table 14: Short-Range Pedestrian/Bicycle Projects 78
Table 15: Long-Range Pedestrian/Bicycle Projects 80
Table 16: RST Transportation Program Maintenance Equipment List 84
Table 17: TTPSF Grant Awards to Rosebud Sioux Tribe – 2003 to 2024 92
Table 18: Funding Mechanisms by Project Type 99
Table 19: Short-Range Projects 101
Table 20: Long-Range Road Projects 129
Table 21: Long-Range Community Streets Projects 139
Table 22: Long-Range Shared Use Pathway Projects 141

Definition of Acronyms

AADT – Average Annual Daily Traffic
AADTT – Average Annual Daily Truck Traffic
ADA – Americans with Disabilities Act
ARPA – American Rescue Plan Act
BIA – Bureau of Indian Affairs
BUILD – Better Utilizing Investments to Leverage Development
CFR - Code of Federal Regulations
DEMD – Division of Energy and Mineral Development
FAA – Federal Aviation Administration
FAST Act – Fixing America's Surface Transportation Act
FHWA – Federal Highway Administration
GIS – Geographic Information System
IIJA – Infrastructure Investment and Jobs Act
IRR – Indian Reservation Roads
LED – Light-Emitting Diode
LRTP – Long Range Transportation Plan
LTAP –Local Transportation Assistance Program
MOA – Memorandum of Agreement
MOU – Memorandum of Understanding
MUTCD – Manual on Uniform Traffic Control Devices
NTTFI- National Tribal Transportation Facility Inventory
PASER – Pavement Surface Evaluation and Rating
PM – Particulate Matter
PMP – Pavement Management Program
RAISE – Rebuilding American Infrastructure with Sustainability and Equity
RIFDS – Road Inventory Field Data System
RSA – Road Safety Audit
SDDOT – South Dakota Department of Transportation
TA – Transportation Alternatives
TraCS – Traffic and Criminal Software
THPO – Tribal Historic Preservation Office
TTIP – Tribal Transportation Improvement Program
TTP – Tribal Transportation Program
TTSP - Tribal Transportation Safety Plan
USDOT – United States Department of Transportation

TRIBAL RESOLUTION OF APPROVAL

CHAPTER 1 - INTRODUCTION

The Rosebud Sioux Tribe, also known as Sicangu Lakota Oyate, counts roughly 21,245 enrolled Tribal members while the Bureau of Indian Affairs (BIA) estimates closer to 33,210 enrolled members. The Rosebud Indian Reservation is in south central South Dakota. The recognized federal reservation boundary is Todd County with off-reservation trust land located within the original reservation boundary that included Gregory, Mellette, Lyman, and Tripp Counties. The reservation and off reservation trust land boundary is bordered by the White River to the north, the Missouri River to the east, Cherry County, Nebraska to the south and to the west, Pine Ridge Indian Reservation. The reservation has an area of approximately 1,970 square miles, with an additional 585 square miles of off-reservation trust land. The Rosebud Sioux live among 20 communities across this large geographic area.

US Census 2020 population figures place the total Tribal and Non-Tribal population of the reservation at 10,570, this includes the population living on off-reservation trust land. The 2020 population is about a three percent decrease from 10,869 in 2010. Most residents (88%) live on the reservation proper, with remaining residents living on off-reservation trust land, including the towns of Norris, White River, Ideal, Winner, and others.

The Long-Range Transportation Plan (LRTP) is a master transportation plan that addresses all modes of travel and examines needs and alternatives from maintenance to new facility construction. This LRTP assists the Tribe in establishing a transportation system that safely and efficiently moves people and goods and provides quality access to Tribal housing, services, employment, and resources.

The LRTP provides guidance for new policies and project decisions related to funding, providing a framework around which to construct the Tribal Transportation Improvement Program (TTIP). This Plan is comprehensive on a system level rather than a project level of detailed analysis. Where additional analyses or studies are needed, the LRTP provides direction regarding the types of analysis or studies that should be undertaken in the future.

The previous LRTP was completed in 2007. More recently, a Road Safety Audit (RS) was conducted on all BIA highways in 2020, and a Tribal Transportation Safety Plan (TTSP) was completed in November 2021. This 2025 LRTP will supersede the 2007 LRTP and serve as the Long-Range Transportation Plan to guide all transportation safety, maintenance, and development moving forward.

This LRTP fulfills the requirements outlined in the November 7, 2016, Federal Register, 25 CFR Part 170, Tribal Transportation Program (TTP); Final Rule. In compliance with those directives, this LRTP is a 20+ year strategy and capital improvements program developed to guide the effective investment of TTP funds and other funding programs, and to identify strong candidates for grant funding applications submitted for multimodal transportation facilities.

The LRTP is split into short-range and long-range elements. The short-range element applies to the five years from 2025 through 2029. The long-range element applies to the years 2030 through 2045. The Federal Register suggests that this plan be updated every 5 years.

PLAN PURPOSE

Per the CFR, the purpose of a Tribal LRTP is to clearly demonstrate a Tribe's transportation needs and to fulfill Tribal goals by developing strategies to meet those goals. These strategies should address future land use, economic development, traffic demand, public safety, and health and social needs.

Rosebud Sioux Tribe officials needed a strategic approach to respond to existing and anticipated future transportation issues. It is the goal of the Tribe to efficiently use available funding to provide a safe

transportation system for Tribal members, tourists, and visitors. Therefore, the Tribe has undertaken this effort to develop a master plan for transportation infrastructure. The purposes of this plan are:

- To collect and examine information on current and future transportation improvement needs.
- To consider the needs of all modes of travel (vehicular, pedestrian, bicycle, aviation, and transit) and develop strategies and recommend projects to accommodate them. This Plan examines the existing system of roads, sidewalks, bridges, airports, and transit facilities and considers opportunities for future improvements.
- To review the current transportation system maintenance strategy and consider opportunities to improve it.
- To provide a basis for future transportation improvement programming that is resilient and sustainable. The ability of the Tribe to sustain the transportation system is strongly tied to project costs and available funding. This Plan considers existing and potential funding sources, the costs of maintenance, rehabilitation, and new construction, and provides guidance on effective use of limited funding.

Significant consideration was given in formatting this plan in a manner that is straightforward and clear to the reader. Following this introduction, the plan will present an inventory and data analysis of Reservation roads and traffic conditions, proceeded by a discussion of transportation needs and issues identified by technical analysis and public input. Existing conditions and recommendations will then be introduced, followed by policy recommendations, project funding alternatives, and a project prioritization plan.

RECENT AND CONCURRENT STUDIES

The Rosebud Sioux Tribal Transportation Safety Plan (TTSP) was last updated in November 2021. It provided strategies to address transportation-related safety issues across the Reservation. The strategies and recommendations of the updated TTSP are being incorporated into this LRTP. Other tribal management plans provided are summarized in the sections below.

Rosebud Sioux Tribe Road Safety Audit (2020)

This report summarizes 1,005 crashes on public roads in Gregory, Mellette, Todd, and Tripp Counties which were submitted to the South Dakota Department of Public Safety (SDDPS) between 2014 and 2018; however, it notes that this data is only a small portion of the overall number of crashes that occurred, since Tribal Law Enforcement does not report crashes to SDDPS, and generally speaking crash data from Tribal Law Enforcement is not publicly available. This analysis found that fatal and incapacitating injury crashes were about twice as common on the reservation as throughout South Dakota, with Overturn Rollover crashes being the most common cause of these severe crashes. Recommendations for addressing these safety issues include improvements to shoulders, an intersection redesign at BIA 1 and BIA 9, and addressing signage and pavement marking issues.

In addition, an analysis of pedestrian safety issues in the reservation communities found that there was no standard for when to provide sidewalks. The report recommended that the LRTP establish such standards, with an emphasis on pedestrian connectivity to and from schools and community centers, as well as shared use paths between communities.

Tribal Transportation Safety Plan (2021)

This plan updates the data analyzed in the 2020 Road Safety Audit, reaffirming the findings on the causes of safety issues on the reservation. The plan makes recommendations organized by the 4 E's:

education, enforcement, emergency response, and engineering. Educational activities suggested by the plan have to do with the Tribal Motor Vehicle Injury Prevention Program (TMVIPP), which educates tribal members on seatbelt usage. Enforcement activities mostly concern cross-jurisdictional coordination and the establishment of codes and ordinances concerning traffic laws and livestock regulations. Engineering solutions involve pavement and mileage markers, designated school crosswalks and bus stops, and intersection improvements. The plan also lays out several potential shared use pathway and pedestrian connectivity projects.

BIA 1 and BIA 9 Intersection Study

This study was conducted to assess traffic conditions, operations, and safety at the intersection of BIA 1 and BIA 9 in the town of Rosebud, and to determine whether traffic control and/or geometric improvements would be required to provide acceptable operational performance and enhanced safety. Issues identified included limited sightlines on the westbound approach of BIA 9 and a high potential for speeding along BIA 1. The study recommended the following improvements to the intersection: installation of intersection lighting to enhance nighttime visibility, upgrades to pedestrian crossing ramps to achieve ADA compliance, reducing the setback of the stop sign and stop bar on the BIA 9 approach (through realignment of the sidewalk), and/or converting the intersection to a single-lane roundabout. The planning-level cost of this improvement was estimated at $2.88 million in 2024 dollars.

BIA 1 Pedestrian Connectivity and Safety Improvements Study

The Rosebud Sioux Tribe was awarded $100,000 in TTPSF grant assistance for completion of a pedestrian connectivity and safety improvement study specifically related to BIA 1 from the intersection with BIA 7 to 0.3 miles north of the intersection with BIA 9. This 2.2-mile corridor project is currently underway with a completion date of approximately April 2026. The study seeks to address pedestrian and other non-motorized traveler by conducting an engineering study and preliminary environmental review prior to determining the best safety countermeasures and moving to construction of selected alternatives.

BIA 5 Intersections Study

Bureau of Indian Affairs (BIA) 5 is a north-south asphalt-paved rural local road that runs along the Little White River, carrying approximately 2,225 vehicles daily. Locally signed as a scenic byway, the route has a posted speed limit of 55mph, and there are no advance warning signs for the intersection configurations for both BIA 501 and Tutle Road. Additionally, pavement markings along the route are significantly worn and provide poor visibility. KLJ will explore potential geometric improvements, such as realigning the intersections to reduce skew and enhance sight distance, and will propose installing appropriate traffic control devices, including advanced warning signs and speed reduction notifications. The study will also assess roadway conditions and pavement markings, recommending improvements to boost visibility, especially in adverse weather.

KLJ's approach will includes thorough data collection, encompassing traffic volumes, speed data, and safety performance evaluations, to provide a detailed understanding of current conditions. Drawing on insights from the 2020 RSA and 2021 TTSP, KLJ will analyze alternatives aimed at reducing collision risks, improving intersection visibility, and enhancing traffic control.

By conducting alternatives analysis and engaging with stakeholders, KLJ will develop solutions that address existing safety deficiencies and offer long-term benefits. These improvements will not only enhance traffic control and visibility but also ensure the safety of all road users, including pedestrians and cyclists, while preserving the scenic character of BIA 5. The study will lay the groundwork for future infrastructure upgrades along the corridor.

Pavement Preservation Plan (2024)

A Pavement Surface Evaluation and Rating (PASER) study of paved roads on the reservation was completed as a part of this LRTP. This study focused on 68.2 miles of rural highways and 17.3 miles of asphalt streets in communities and rural housing developments throughout the reservation, totaling 85.5 miles of assessed pavement. Each one-mile segment of highway and each block of community street was given a PASER score from 1 to 9, denoting the overall quality of the pavement and by extension the necessary improvements, ranging from minor maintenance to full reconstruction. Based on these conditions, potential projects were identified and prioritized. Short-term (5-year) projects were identified to be included in the Tribal Transportation Improvement Program (TTIP) and a handful of longer-term projects were identified as well. The full study can be found in **Appendix B**.

Winter Operation Plan

Purpose

The Winter Operation Plan was developed by Rosebud Tribal agencies including the Emergency Management, Rural Water, Road Department, Motor Fuel, and Sicangu Wicoti Awayankapi Corporation (SWA). The goal is to create policy to enable a coordinated multi-department response to excessive snowfall – winter storms – blizzards – and to describe the minimum service expected to be provided by the Tribe and its private-sector partners and to provide services under this policy which exceed the minimum standard herein.

Scope

The WOP is an annex to Emergency Support Function (ESF) #1, Transportation, and ESF #3 Public Works and Engineering; and is applicable to all Tribal Departments as it addresses the potential challenges posed by winter weather systems affecting the Rosebud Sioux Indian Reservation.

Emergency Support Function

Development and Maintenance

The Emergency Support Function is an Annex developed in support of the Rosebud Sioux Tribe Emergency Operations Plan to facilitate response activities during incidents in need of transportation commodities with the cooperation and input of the Rosebud Sioux Road Department, Motor Fuel/Sand and Gravel, and Transportation Department.

STUDY AREA

The Rosebud Indian Reservation, located in south central South Dakota, is home to the Rosebud Sioux Tribe. The Tribe has over 36,416 enrolled members on and off the reservation. The Reservation is located across portions of Tripp, Lyman, Mellette, and Gregory counties. All of Todd County – an unorganized county of South Dakota – is within the reservation borders. The study area is shown in **Figures 1 and 2**. Other significant communities in the study area are shown in **Figure 3** through **Figure 22.**

FIGURE 1: STUDY AREA (WEST)

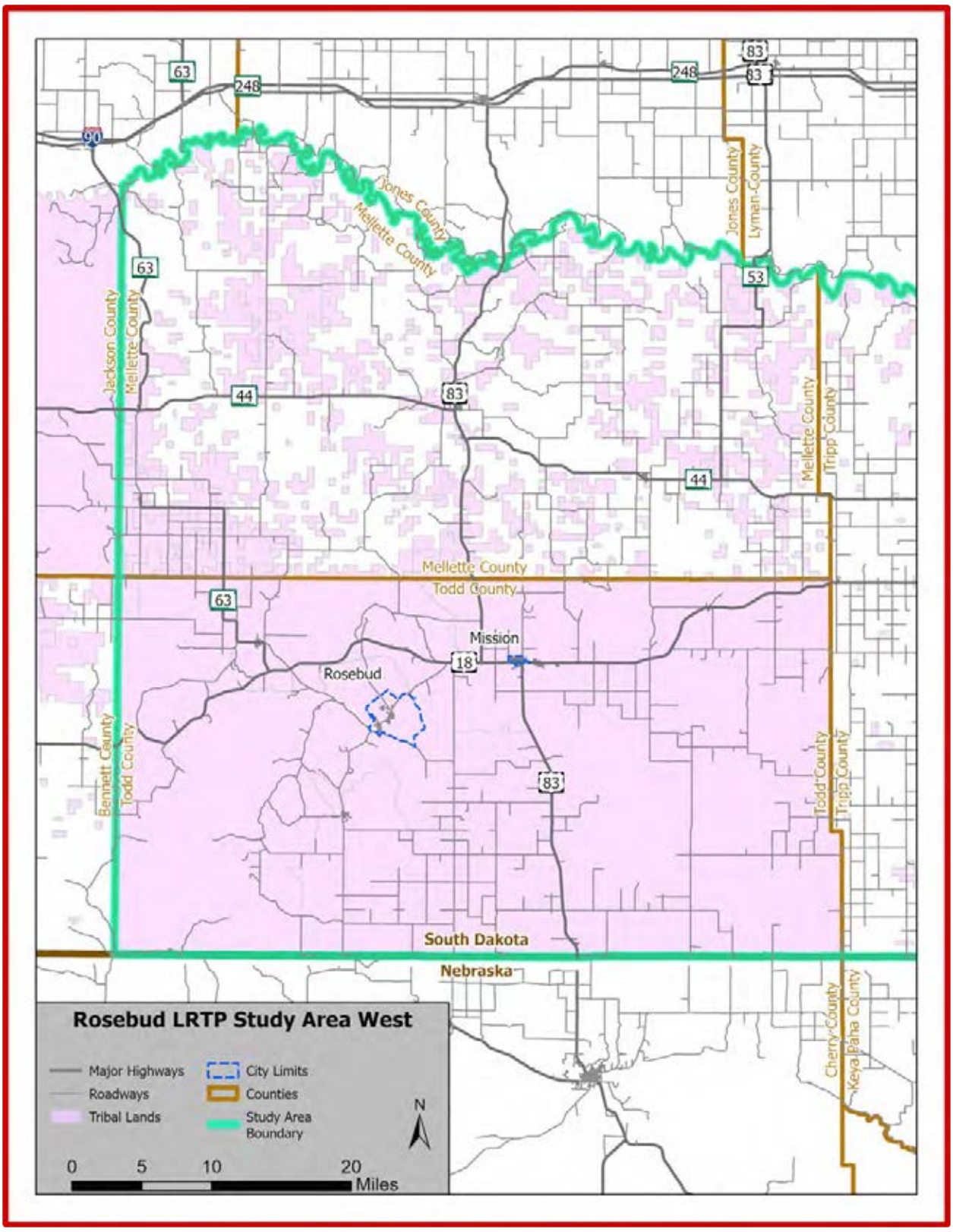


FIGURE 2: STUDY AREA (EAST)

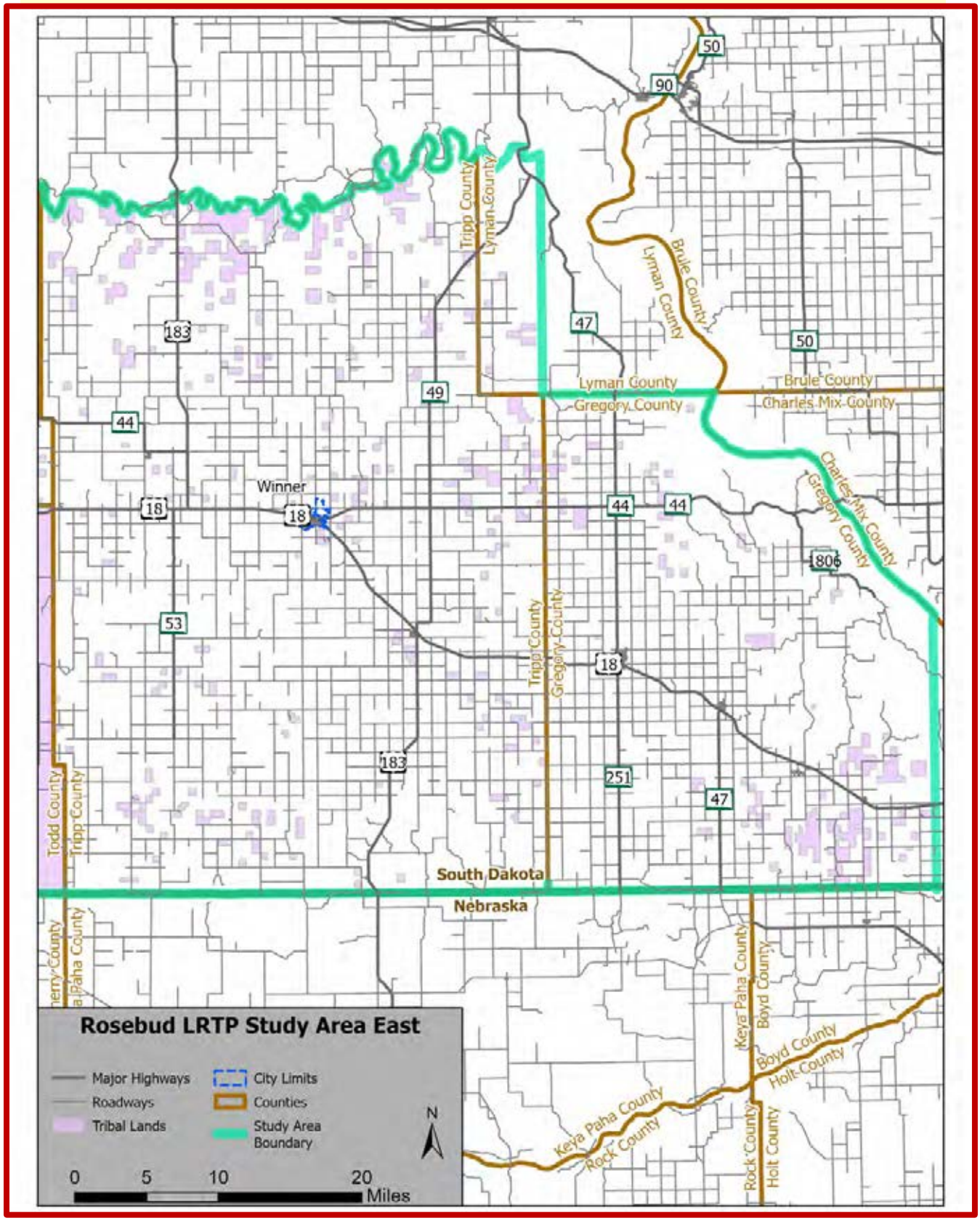


FIGURE 3: ANTELOPE (NTTFI #0010) / WHITE HORSE (NTTFI #0039) OVERVIEW



FIGURE 4: MISSION OVERVIEW (NTTIF #0016)

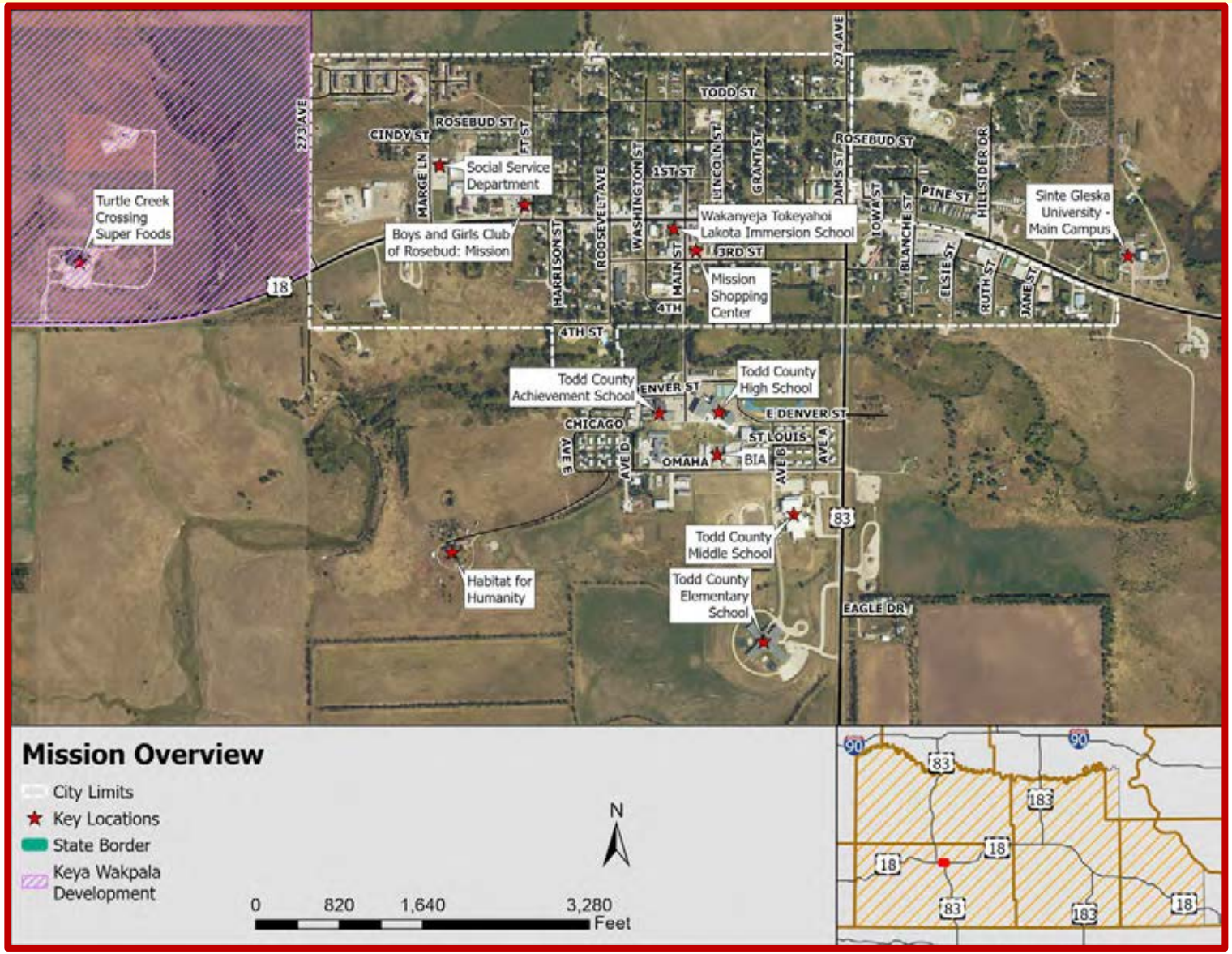


FIGURE 5: RING THUNDER OVERVIEW (NTTFI #0038)

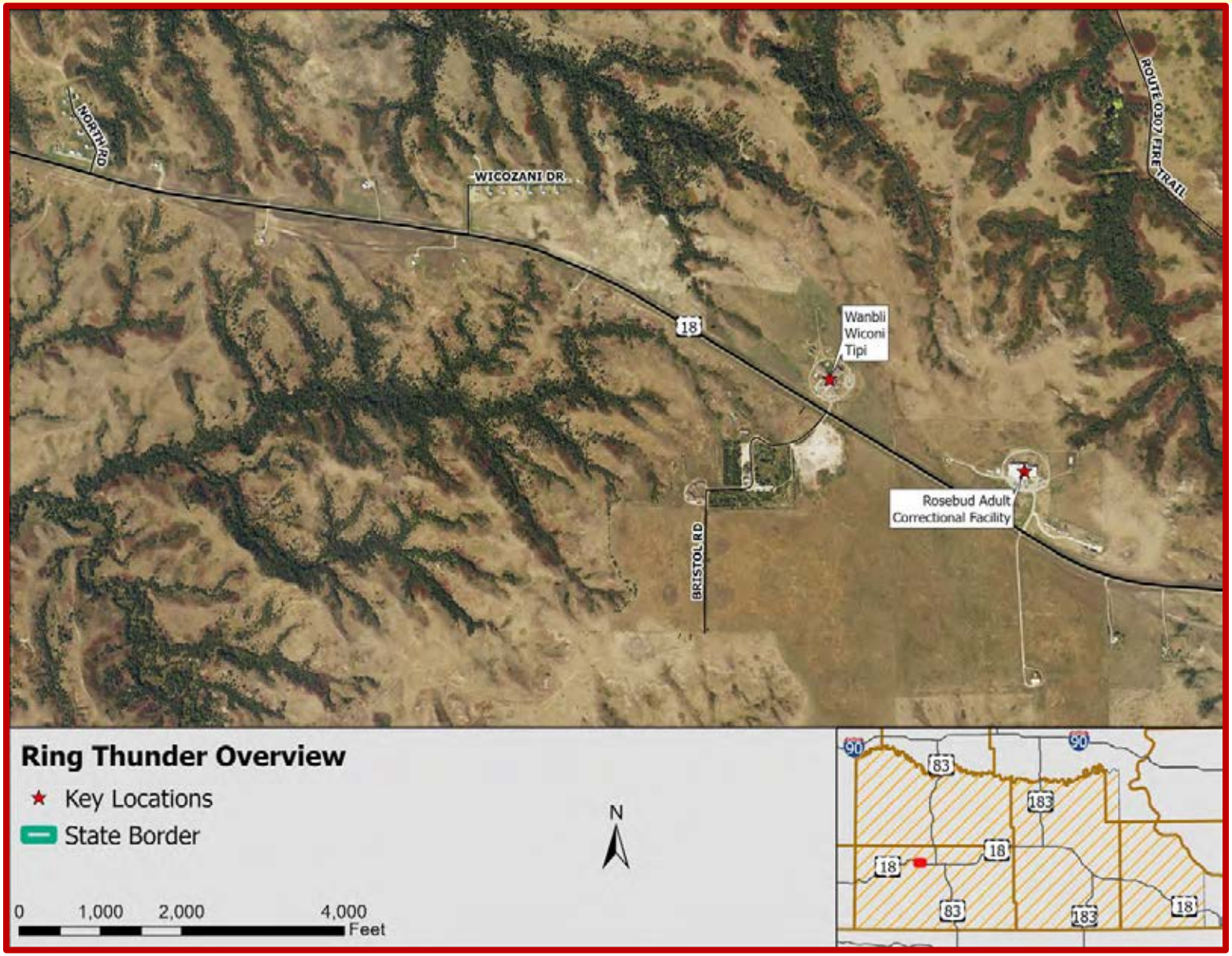


FIGURE 6: SPRING CREEK OVERVIEW (NTTFI #0022)



FIGURE 7: WINNER OVERVIEW (NTTFI #0040)

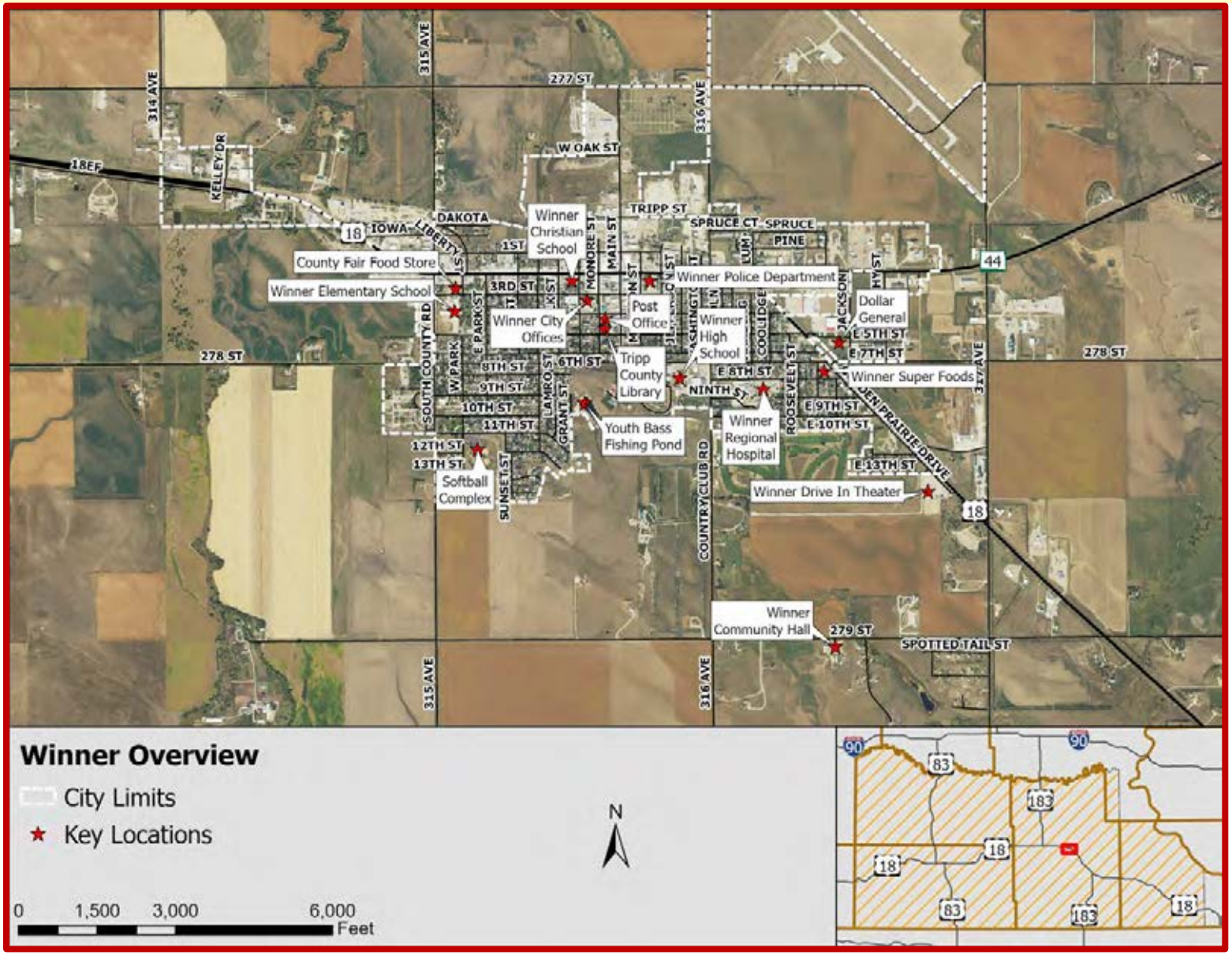


FIGURE 8: SIGANGU VILLAGE OVERVIEW (PATHWAY NTTFI #0043)

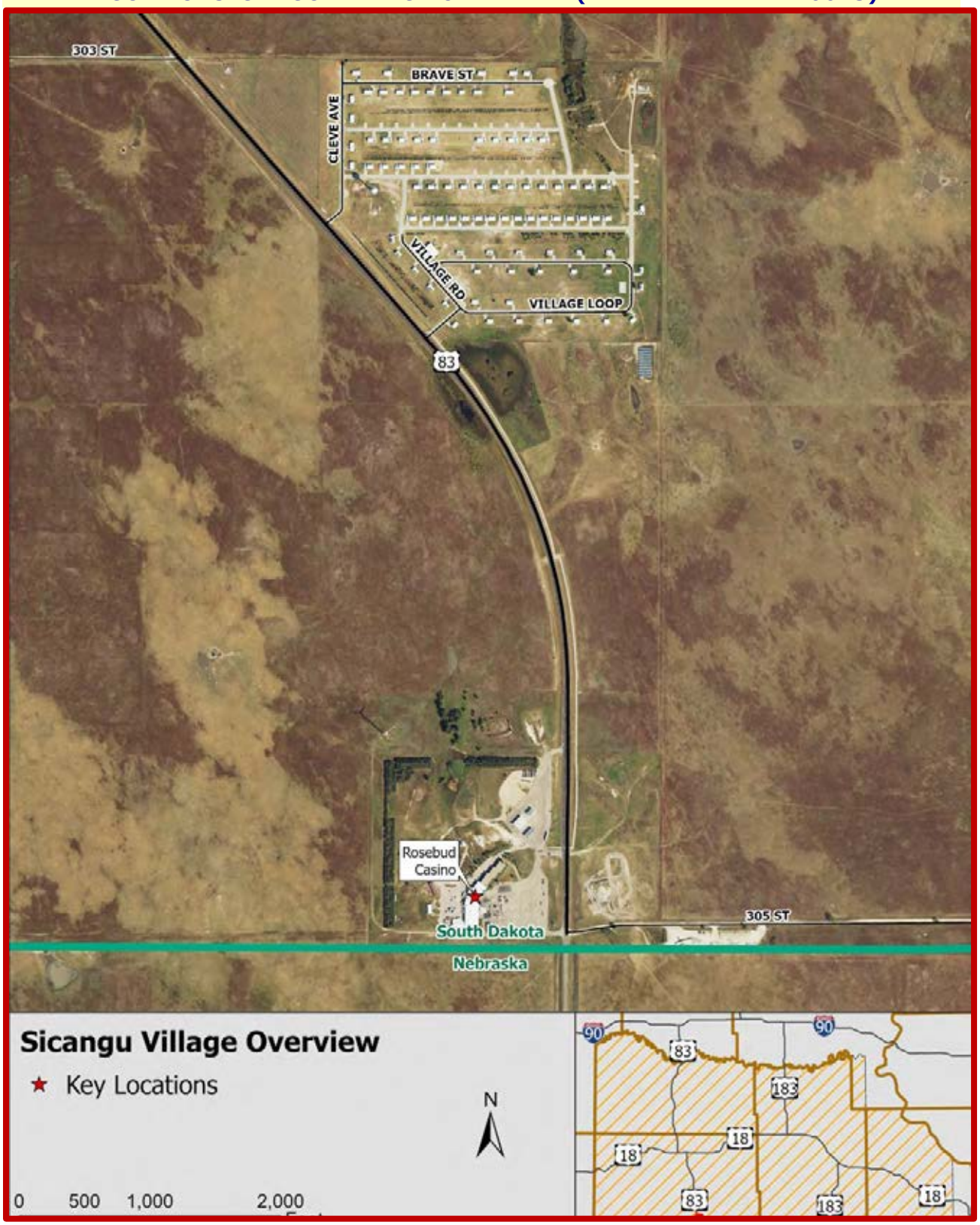


FIGURE 9: HE DOG OVERVIEW NTTFI #0037)



FIGURE 10: HORSE CREEK OVERVIEW NTTFI #0029)

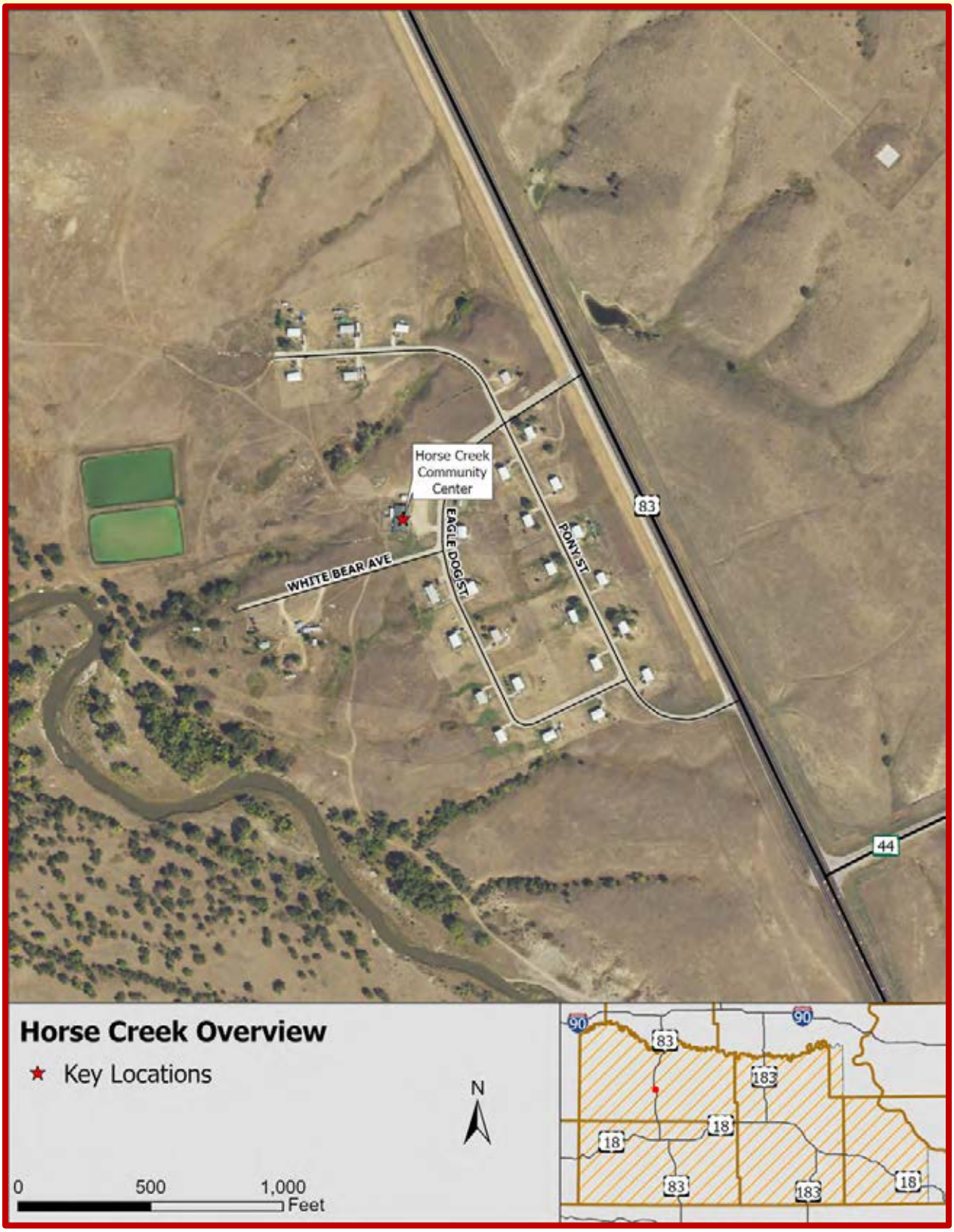


FIGURE 11: IDEAL OVERVIEW (NTTFI #0041)

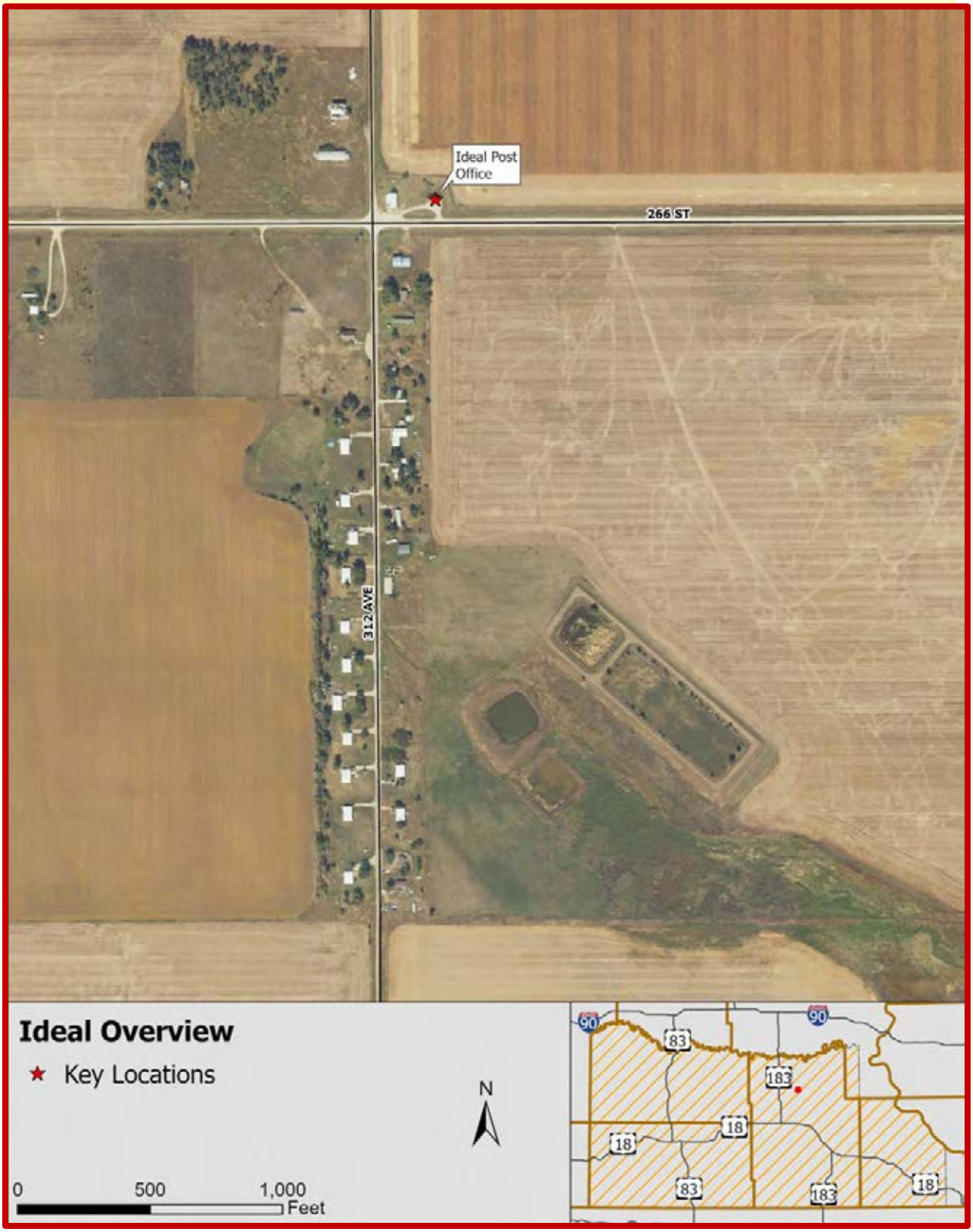


FIGURE 12: MILKS CAMP OVERVIEW (NTTFI #0042)



FIGURE 13: BLACK PIPE COMMUNITY OVERVIEW



FIGURE 14: OKREEK OVERVIEW (NTTFI #0026)



FIGURE 15: PARMELEE OVERVIEW (NTTFI #0021)

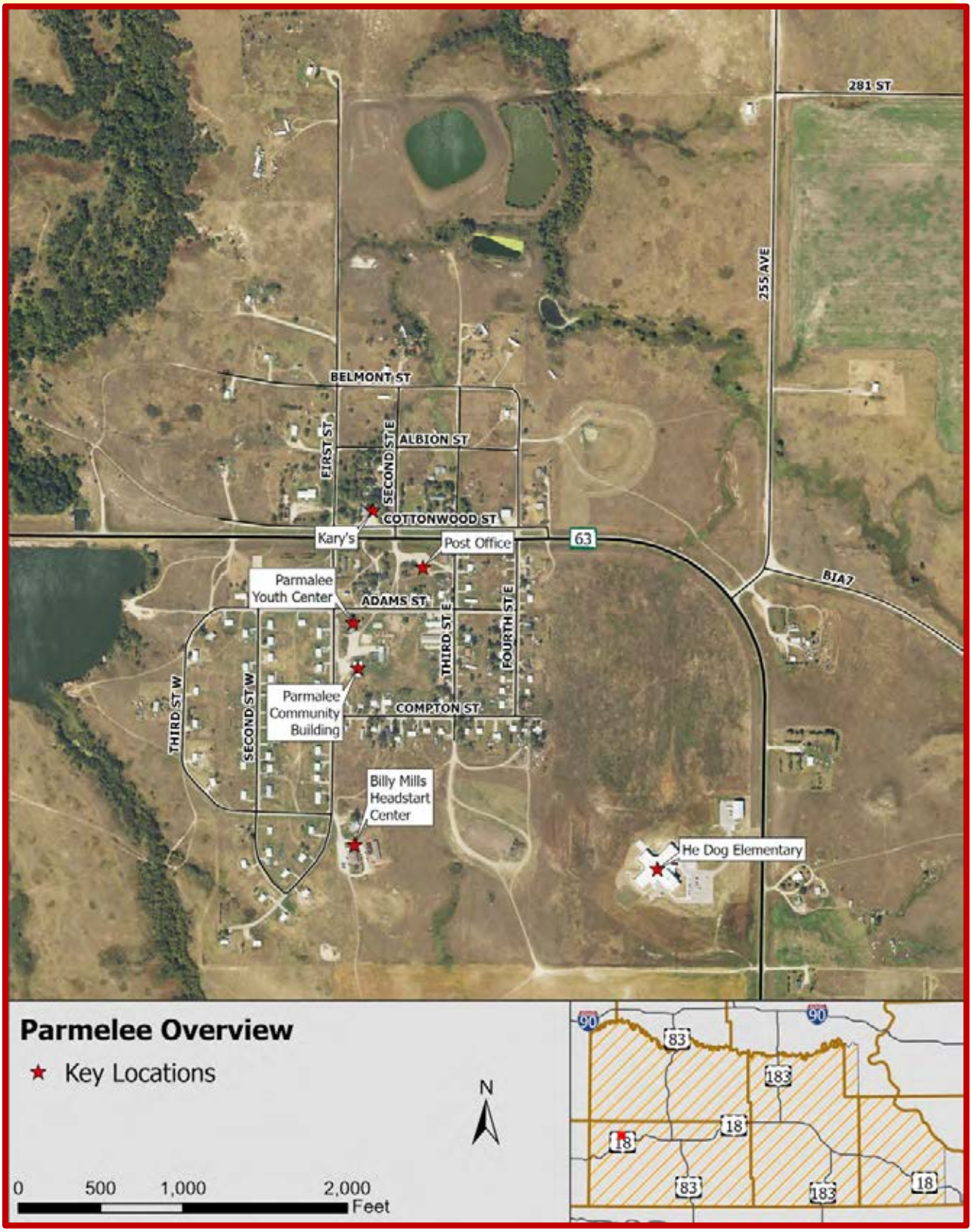


FIGURE 16: ROSEBUD (NORTH) OVERVIEW (NTTFI #0903, 1105, 1106, 1107)

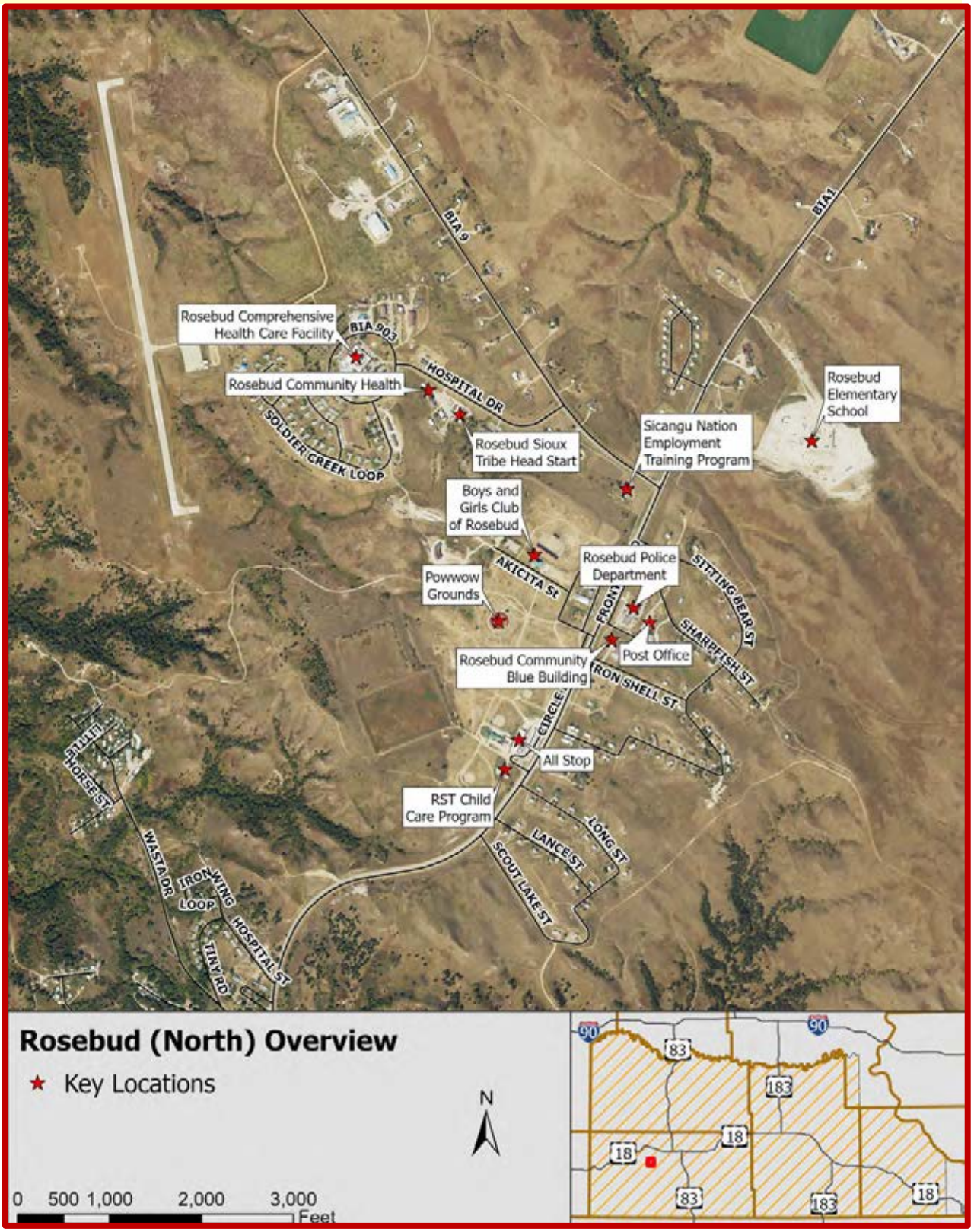


FIGURE 17: ROSEBUD (SOUTH) OVERVIEW (NTTFI #1100 & #1103)

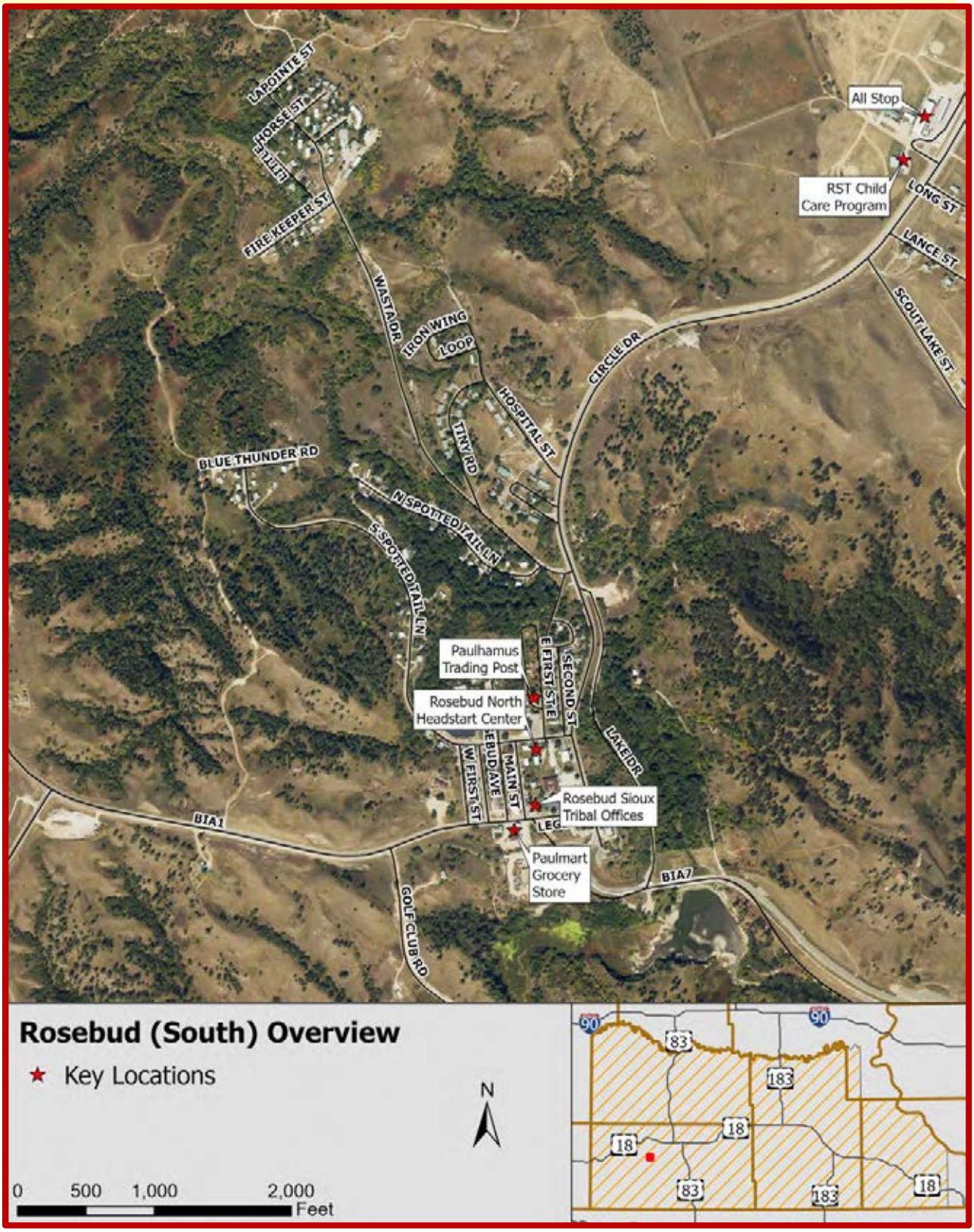


FIGURE 18: ST. FRANCIS OVERVIEW (NTTFI #0015)

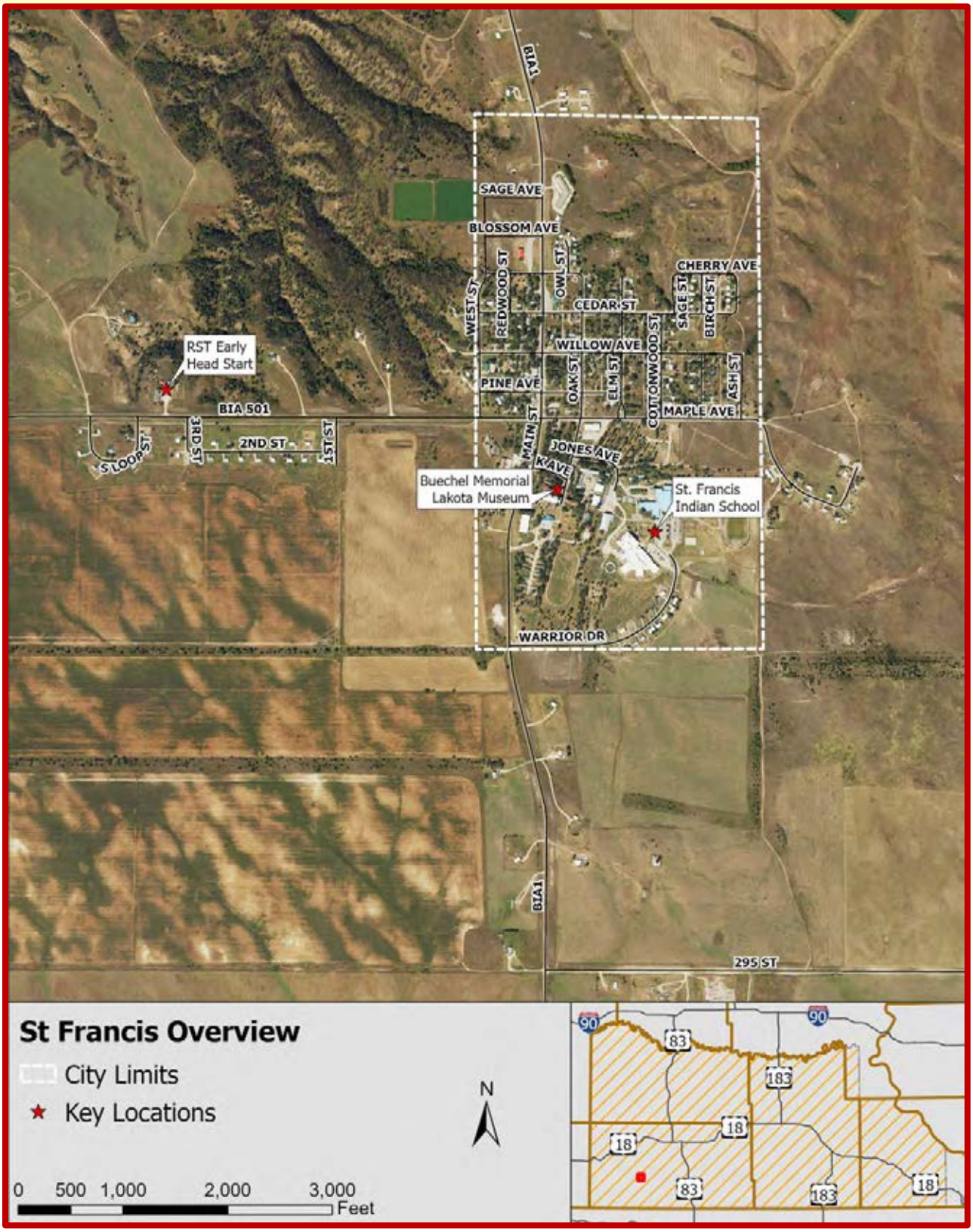


FIGURE 19: TWO STRIKE OVERVIEW (NTTFI #0035)



FIGURE 20: UPPER CUT MEAT OVERVIEW (WHITE NTTFI #0036)

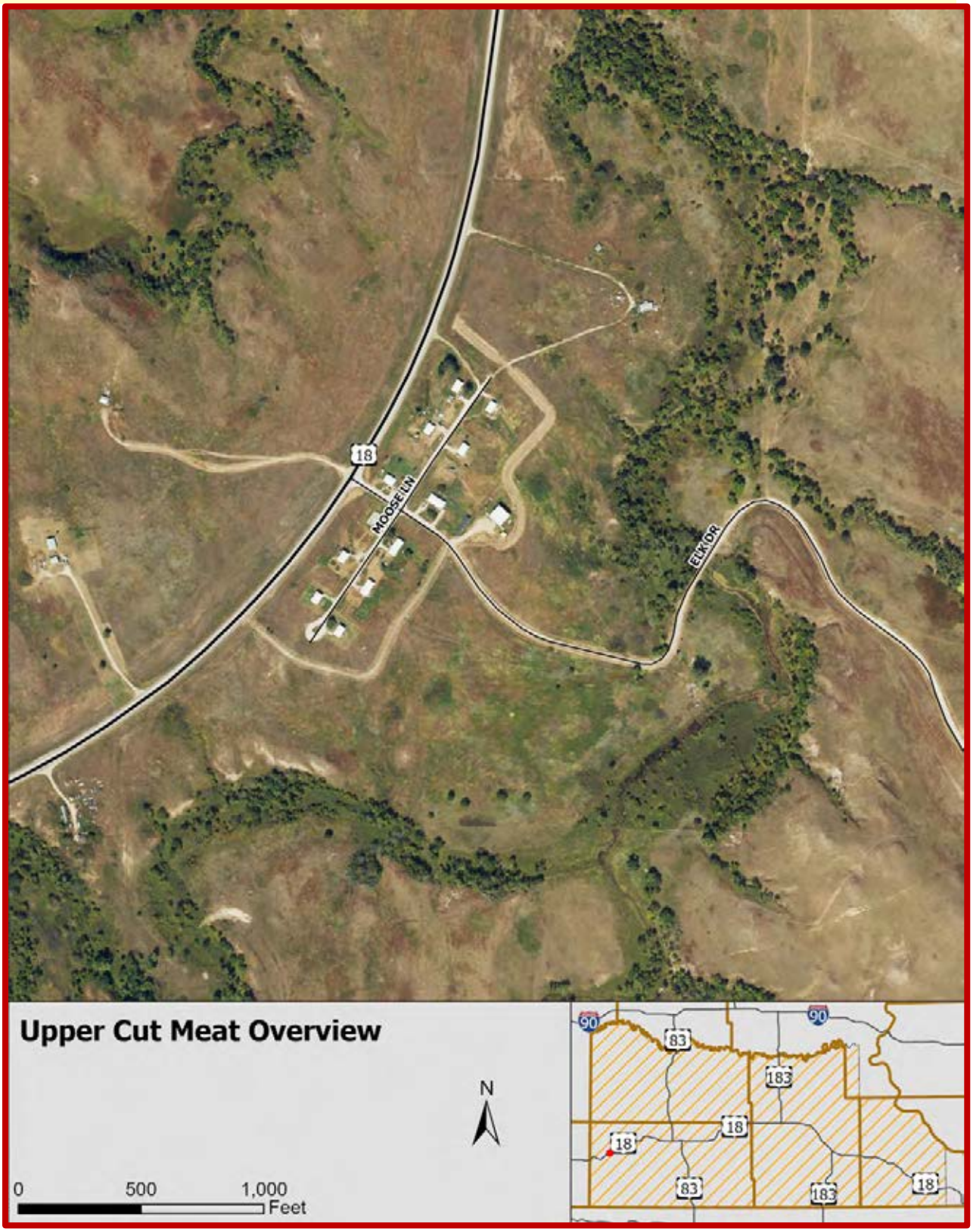
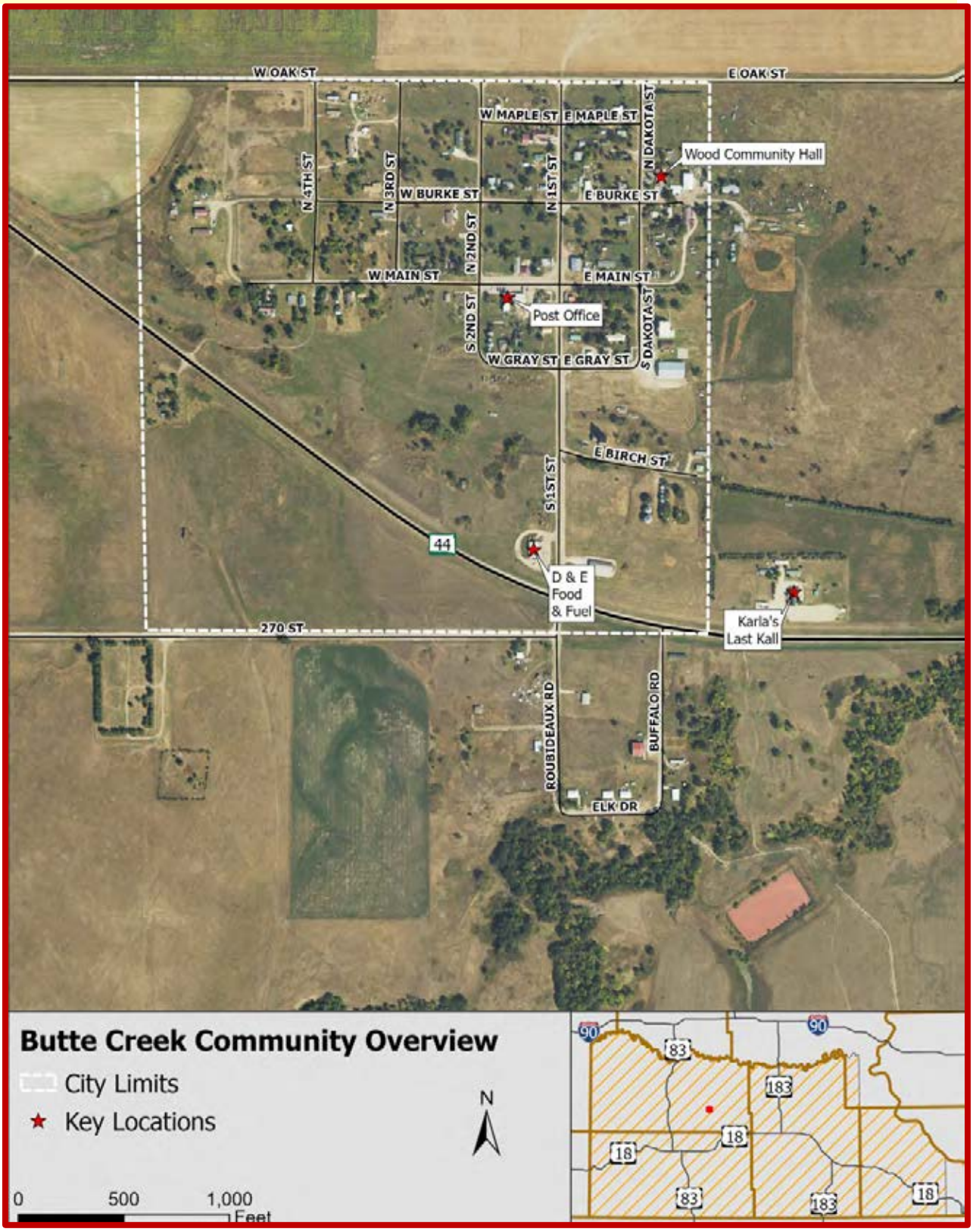


FIGURE 21: UPPER AND LOWER SWIFT BEAR OVERVIEW (NTTFI #0014)



FIGURE 22: BUTTE CREEK COMMUNITY OVERVIEW (NTTFI #0027)



The Rosebud Reservation and associated trust lands have approximately 1,976 square miles of land area. The reservation itself occupies 1,391 square miles, while the off-reservation trust land is 585 square miles (as of 2020). The off-reservation trust lands form a checkerboard pattern, occupying approximately one third of Mellette County and smaller portions of Tripp, Gregory, and Lyman counties.

The reservation lies mostly in the Great Plains although it contains large areas of pine forest scattered throughout the grasslands. The reservation is north of the Nebraska Sandhills and has steep ravines and valleys, with some scattered lakes.

Tribal headquarters are in Rosebud, SD, which is the most populous community on the Reservation with a 2020 Census population of 1,455. Other significant communities in the study area include Antelope, Mission, Parmelee, Spring Creek, St. Francis, Two Strike, White Horse, White River, Winner, Wood, and rural tribal housing subdivisions. There are nine public schools operating throughout the Reservation as part of the Todd County School District; 7 elementary schools, 1 Middle School and 1 High School. Students in western portions of the reservation attend Crazy Horse School in Wanblee, SD and schools in the White River School District. Students in off-reservation trust land attend local schools in Gregory, Lyman, Mellette, and Tripp counties. The tribe also operates St. Francis Indian school and Sicangu Owayawa Oti, a dormitory facility for at-risk students.

The Reservation's air transport is served primarily by Rosebud Airport, a general aviation airport constructed in 2010, located just west of the hospital in the community of Rosebud.

Farming and cattle ranching is a prime economic driver on the Reservation. Leading employers include the Tribe itself, the White River Health Care Center, RST Head Start & Early Head Start, Todd County School District, Indian Health Service, and the Bureau of Indian Affairs (BIA). Revenue is supplemented by operations at Rosebud Casino on US Highway 83 along the Nebraska border.

The Tribe is organized into two entities, the Permanent Fund, providing government services to the membership, and the Growth Fund, which operates economic interests, including energy, utilities, the casino and other investment and economic interests.

The Rosebud Sioux Tribe transportation system serves many functions. Primarily among these are access for residents and business establishments, freight movement, and transportation within and across the region.

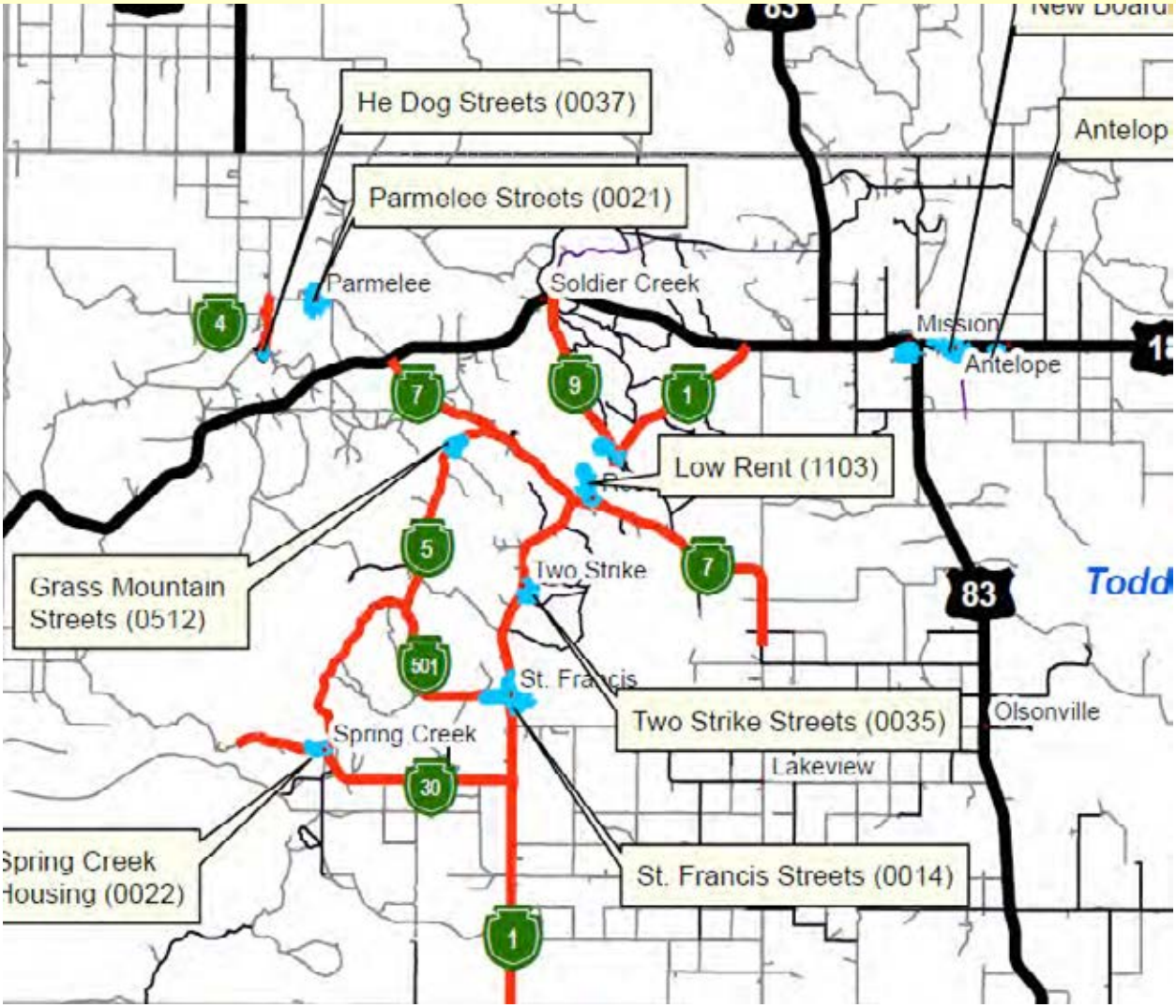
The Rosebud Sioux Tribe is responsible for maintaining around 322.8 miles of BIA and Tribal roads. County and state roads are maintained by the county highway departments and South Dakota Department of Transportation. The study area includes the following federal and state highways. The current state-specified functional classifications are noted for each highway. The study area includes the following major paved road travel routes:

- US Highway 18 – Principal Arterial, providing east-west access across South Dakota through Gregory, Tripp, and Todd counties to Pine Ridge and beyond
- US Highway 83 – Principal Arterial, providing north-south access across South Dakota through Mellette and Todd counties and into Nebraska
- US Highway 183 – Minor Arterial, providing north-south access from I90 through Tripp County and into Nebraska
- State Highway 44 – Minor Arterial, providing east-west access across South Dakota including a bridge over the Missouri River through Mellette, Tripp, and Gregory counties

- State Highway 47 – Minor Arterial, providing north-south access across South Dakota through Lyman and Gregory counties
- State Highway 63 – Major Collector, providing north-south access across South Dakota through Todd, Mellette, Jackson, Haakon, Stanley, Ziebach, Dewey, and Corson counties
- BIA Route 1 – Rural Minor Arterial
- BIA Route 4 –Rural Major Collector
- BIA Route 5 –Rural Major Collector
- BIA Route 7 –Rural Minor Arterial
- BIA Route 9 – Rural Minor Arterial
- BIA Route 30 –Rural Major Collector
- BIA Route 501 –Rural Major Collector

Maps of the non-paved (gravel) BIA and Tribal routes are shown in Chapter 5 in the "Non-Paved Roads" subsection.

FIGURE 23: ROSEBUD BIA MAJOR ROUTE MAP



Culture and History

The following sections provide valuable background and information pertaining to the Rosebud Sioux Tribe.

The Rosebud Indian Reservation was established in 1889 and is composed of the Sicangu, one of seven bands of the Oceti Sakowin' (Seven Council Fires). The Tribe is governed by a twenty-four-member elected Tribal Council, including the President, Vice-President, Treasurer, Secretary and Representatives from the 20 Communities of Antelope, Black Pipe, Bull Creek, Butte Creek, Corn Creek, Grass Mountain, He Dog, Horse Creek, Milk's Camp, Okreek, Parmelee, Ring Thunder, Rosebud, St. Francis, Soldier Creek, Spring Creek, Swift Bear, Two Strike, Upper Cut Meat, and Ideal.

The Lakota ancestors of the Rosebud Sioux Tribe were once in present-day Minnesota. When Europeans began to explore and settle the area beginning in the 1600s, pressures from peoples, including the Ojibwe, forced the Lakota to move west onto the plains. In the 1800s, wars between the United States and the Lakota resulted in several treaties, which were later broken, to establish reservation areas.

A major treaty between the United States and the Sioux came in 1851 with the Treaty of Fort Laramie and the following Treaty of Fort Laramie in 1868. These treaties established a large reserve of land known as the Great Sioux Reservation west of the Missouri River. However, these treaties were not upheld by the United States. Successive treaties between the United States and representatives of the Sioux partitioned and greatly reduced lands among the various bands, including the federally recognized Rosebud Sioux Tribe.

The Rosebud Indian Reservation originally occupied all of Todd, Mellette, Tripp, and Gregory counties. The 1887 Dawes Act allotted lands to Tribal Members, and the surplus lands were homesteaded and sold to non-Indians. The Rosebud Sioux Tribe has a rich cultural tradition and holds several events throughout the year to practice these traditions, such as the Rosebud Fair, Wacipi, and Rodeo in August.

The Rosebud Sioux Tribe shares a close relationship with the neighboring Pine Ridge Indian Reservation – Oglala band. The two reservations, along with the Lower Brule Reservation – Kul Wicasa to the north, are home to the Sicangu, Oglala, and Kul Wicasa, three of the seven bands of the Lakota people. The two reservations also share a newspaper, the *Lakota Country Times*. Additionally, the Rosebud Sioux Tribe Transportation Program maintains close relationships with tribes located within the BIA's Great Plains Region, located in North Dakota, South Dakota, and Nebraska.

Government

The Rosebud Sioux Tribe is a federally recognized Tribe. The Rosebud Sioux Tribal Council is the governing body of the Tribal Government as established by the passage of the Indian Reorganization Act by Congress (commonly called the Wheeler-Howard Act). The Constitution of the Rosebud Sioux Tribe, which was initially approved on November 23rd, 1935, and subsequently amended in 1962, 1966, 1973, 1985, and 2007, authorizes and defines the Tribe's governing body as the Rosebud Sioux Tribal Council, which is composed of 24 members (a president, vice-president, treasurer, secretary, and 20 council members). The four officers are elected at-large and serve staggered terms, the president and vice-president for three years, and the treasurer and secretary for two years. Each of the 20 council members are elected to represent one of the 20 recognized communities, including Antelope, Black Pipe, Bull Creek, Butte Creek, Corn Creek, Grass Mountain, He Dog, Horse Creek, Milk's Camp, Okreek, Parmelee, Ring Thunder, Rosebud, St. Francis, Soldier Creek, Spring Creek, Swift Bear, Two Strike, Upper Cut Meat, and Ideal.

Demographics

The Rosebud Indian Reservation occupies all of Todd County with off-reservation trust land in Mellette, Tripp, Lyman, and Gregory counties. While the population of South Dakota has grown since 2010, the Rosebud Indian Reservation has declined. The Reservation includes 10,570 residents and experienced an annual loss rate of 0.3 percent between 2010 and 2020. Approximately 91 percent of Todd County residents are American Indian or Alaska Native followed by Mellette, Lyman[1], Tripp, and Gregory counties at 64, 47, 22, and 10 percent, respectively. The Rosebud Indian Reservation has a relatively high proportion of young people. Just over 40 percent of the reservation is under 18 years of age, a greater proportion than any other reservation in South Dakota. The median age on the reservation is 25.0 compared to 37.7 statewide. The nearest large city to the reservation boundaries with a population over 50,000 is Rapid City. Tribal Council is located in the community of Rosebud. Rosebud is the largest community on the reservation, with a 2020 population of 1,455, down from 1,587 in 2010. Other area communities' population change is listed in **Table 1**.

TABLE 1: POPULATION CHANGE OF AREA COMMUNITIES – 2010-2020

City, Town, or CDP	Population 2010	Population 2020	Total Change 2010-2020	Annual Rate of Change
Antelope	826	830	4	0.0%
Corn Creek	105	113	8	0.7%
Horse Creek	152	187	35	2.1%
Okreek	269	190	-79	-3.4%
Parmelee	562	606	44	0.8%
Rosebud	1,587	1,455	-132	-0.9%
Soldier Creek	227	205	-22	-1.0%
Spring Creek	268	236	-32	-1.3%
St. Francis	709	469	-240	-4.0%
Two Strike	209	282	73	3.0%
White Horse	276	234	-42	-1.6%

American Community Survey (ACS) estimates data for 2018-2022 gives a median household income on the Rosebud Indian Reservation of $30,284, with 54% of the population below the poverty level.

The Tribal enrollment office reports 36,419 living tribal members; with 30,956 residing on the trust lands and 5,463 residing off the trust lands. According to the U.S. Census Bureau, of members living within the Reservation and Off-Reservation Trust Lands, approximately 32 percent (3,377) of Tribal

[1] *Includes American Indian Population of Lower Brule Reservation in Lyman County*

Members are youth 15 years of age or younger, and nine percent (874) of members are 65 years or older[2].

Economy and Employment

Major employers on the reservation include the Rosebud Sioux Tribe, Health Care Industry employment, the Bureau of Indian Affairs, and the Todd County School District.

The economy of Rosebud, SD employs 468 people. In 2023, the largest industries in Rosebud, SD were Health Care & Social Assistance (99 people), Retail Trade (82 people), and Public Administration (64 people), and the highest paying industries were Other Services Except Public Administration ($83,375), Health Care & Social Assistance ($74,271), and Public Administration ($55,125).

The economy of Todd County, SD employs 2.33k people. In 2023, the largest industries in Todd County, SD were Educational Services (700 people), Health Care & Social Assistance (393 people), and Retail Trade (267 people), and the highest paying industries were Utilities ($62,143), Transportation & Warehousing, & Utilities ($61,786), and Public Administration ($51,335)[3].

Median Earnings by Industry in Rosebud, SD

The industries with the best median earnings for men in 2023 are Educational Services, & Health Care & Social Assistance ($34,891), Public Administration ($N/A), and Other Services Except Public Administration ($N/A).

The industries with the best median earnings for women in 2023 are Educational Services, & Health Care & Social Assistance ($73,854), Professional, Scientific, & Management, & Administrative & Waste Management Services ($9,539), and Retail Trade ($2,499).

Median Earnings by Industry in Todd County, SD

The industries with the best median earnings for men in 2023 are Transportation & Warehousing, & Utilities ($62,143), Public Administration ($50,972), and Finance & Insurance, & Real Estate & Rental & Leasing ($48,333).

The industries with the best median earnings for women in 2023 are Public Administration ($51,587), Educational Services, & Health Care & Social Assistance ($40,182), and Finance & Insurance, & Real Estate & Rental & Leasing ($39,545)[4].

From 2022 to 2023, employment in Todd County, SD grew at a rate of 1.39%, from 2.3k employees to 2.33k employees.

The most common employment sectors for those who live in Todd County, SD, are Educational Services (700 people), Health Care & Social Assistance (393 people), and Retail Trade (267 people). This chart shows the share breakdown of the primary industries for residents of Todd County, SD, though some

[2] *United States Census: "My Tribal Area."* https://www.census.gov/tribal/?st=46&aianihh=3235
[3] https://datausa.io/profile/geo/rosebud-sd?compare=todd-county-sd
[4] https://datausa.io/profile/geo/rosebud-sd?compare=todd-county-sd#median_earnings

of these residents may live in Todd County, SD and work somewhere else. Census data is tagged to a residential address, not a work address[5].

However, with few job opportunities and limited educational attainment on the reservation, unemployment and diabetes rates are high, while incomes and average life expectancies are low. And of the limited income residents do take in, 80 percent leaves the reservation because it lacks so many basic amenities, depriving the Tribe of a major source of revenue.

Weaving Lakota values into all aspects of economic development planning is critical to the Rosebud Sioux Tribe. With the help of an ongoing planning partnership with EDA, the Rosebud Economic Development Corporation (REDCO, now known as Sicangu Co), the Tribe's economic development arm, is leveraging the reservation's wealth of resources—in both people and land—to revitalize the local economy and help Tribal members reconnect with their culture.

REDCO is trying to tackle those challenges and bring an economic resurgence to the reservation. With its partner organization Sicangu CDC, REDCO has created a Food Sovereignty Initiative and farmers' markets to promote healthy eating, an immersion school to teach kids the Lakota language and values, a community development financial institution to offer homeownership and small-business loans and classes, and plans for the future Keya Wakpala multiuse development that will offer new homes and business space.

During the COVID-19 pandemic, REDCO's economic development efforts, and its partnership with EDA, became even more critical. In 2020, the Rosebud Sioux Tribe was one of a couple dozen tribes to receive a CARES Act Recovery Assistance Grant from EDA to help their community respond to the pandemic. Through the grant, REDCO aims to develop an agriculture plan that maps out how the Tribe could become more self-sufficient during crises and how to take advantage of their land to build toward food independence.

Physical Characteristics and Climate

The Rosebud Indian Reservation consists of rolling prairies of mixed grass, irrigated and dry-land agriculture, river breaks, ravines lined with Ponderosa Pine, eastern reaches of the South Dakota badlands, and the northernmost extent of the Nebraska Sandhills. The reservation generally slopes upward from the northeast to the southwest, with a low point at the Missouri River of around 1,355 feet to the highest point of 3,310 feet near where US Highway 18 crosses into Bennett County.

Climate conditions are typical of the northern plains, with high variability day to day and large temperature ranges from season to season. Average high temperatures remain just above freezing during winter to the high 80s during the summer. July is typically the warmest month of the year. Most precipitation falls in April through July, with June being the wettest month.

Land Ownership

The current-day Reservation includes Tribal trust lands, Indian allotments, homestead fee tracts, and tribally owned or Indian-owned fee land. This patchwork pattern of land ownership is commonly referred

[5] *https://datausa.io/profile/geo/rosebud-sd?compare=todd-county-sd#employment_by_industries*

to as a "checkerboard" reservation. The Rosebud Sioux Tribe currently has title interest in nearly 890,000 acres of the land within the original boundary of the Reservation.

Jurisdiction on the Reservation is complex. A common misconception is that the Reservation includes only Tribal trust land and allotments. In fact, all land within the Reservation's exterior boundary is "Indian Country," and is considered to be "on the Reservation," regardless of the land's ownership status. "Indian Country" status is a key factor in determining the relative jurisdiction of the United States, the State, and Tribe over activities conducted on those lands.

Existing Land Use/Facilities

The Reservation includes a variety of Tribally operated facilities that serve community members. The locations of these facilities are listed in the **Table 2** below.

TABLE 2: ROSEBUD SIOUX TRIBE FACILITIES

Facility	Address	
Antelope Senior Citizens Program	N Washakie Rd	Antelope, SD 57555
Antelope Community Building	2012 E Two Arrows Ave	Antelope, SD 57555
Antelope Skate Park	2020 Wowinape St	Antelope, SD 57555
Rosebud Commodity Program	2350 E Industrial St	Antelope, SD 57555
Antelope Headstart Program	1004 Omaha St	Antelope, SD 57555
Milks Creek Community Center	176 Fox Ln	Bonesteel, SD 57317
Social Service Department	671 Marge Ln	Mission, SD 57555
Wakanyeja Tokeyahoi Lakota Immersion School	120 S Main St	Mission, SD 57555
Bureau of Indian Affairs	1004 Omaha St	Mission, SD 57555
Sinte Gleska University	101 Antelope Lk Cir	Mission, SD 57555
RST Corrections	26628 US Hwy 18	Mission, SD 57555
Boys & Girls Club of Rosebud: Mission	435 2nd St	Mission, SD 57555
Soldier Creek Community Building	26207 N Iron Rd	Mission, SD 57555
Wanbli Wiconi Tipi	26628 US Highway 18	Mission SD 57555
Black Pipe Community Building	27113 SD-63	Norris, SD 57560
Boys & Girls Club of Rosebud: Parmalee	215 1st St	Parmelee, SD 57566
Billy Mills HeadStart Center	401 1st St	Parmelee, SD 57566
Rosebud Comprehensive Health Care Facility	400 Soldier Creek Rd	Rosebud, SD 57570
Rosebud Community Health	Hospital Rd	Rosebud, SD 57570
Rosebud Sioux Tribe Head Start	725 Hospital Dr	Rosebud, SD 57572
Boys and Girls Club of Rosebud: Rosebud	100 Akicita St	Rosebud, SD 57570

Facility	Address	
Rosebud Police Department	101 E Frontage Rd	Rosebud, SD 57570
Rosebud Community Blue Building	110 Iron Shell St	Rosebud, SD 57570
Sicangu Nation Employment Training Program	131 BIA Hwy 9	Rosebud, SD 57570
RST Child Care Program	233 Buffalo Path Ln	Rosebud, SD 57570
Rosebud Sioux Tribal Offices	11 Legion Ave	Rosebud, SD 57570
Rosebud Elementary School	100 East BIA 1	Rosebud, SD 57570
Rosebud Fire Department	2500 Circle Dr	Rosebud, SD 57570
Grass Mountain Community Building	Grassmountain Rd	Spring Creek, SD 57572
Spring Creek Community Building	BIA 1201	Spring Creek, SD 57572
KINI Radio Station	100 Main St	St Francis, SD 57572
St Francis Indian School	379 Oak St	St Francis, SD 57572
Buechel Memorial Lakota Museum	350 Oak St	St Francis, SD 57572
St. Francis Community Center	1 Main St	St Francis, SD 57572
St. Francis Headstart	S Soft Rd	St Francis, SD 57572
Rosebud Casino	30421 US-83	Valentine, NE 69201
Sicangu Village Community Center	Sicangu Village Dr	Valentine, NE 69201
Corn Creek Community Building	311 Wooden Knife Cir	White River, SD 57579
White River Health Care Center	515 8th St	White River, SD 57579
Swift Bear Community Hall	523 N Main St	White River, SD 57579
Upper Swift Bear (White River) Head Start	124 W 6th St	White River, SD 57579
Butte Creek Community Center	Buffalo Rd	Wood, SD 57585

Residential: The Tribe's residential areas are spread throughout the reservation and off-reservation trust lands.

Commercial: Commercial and business activities are primarily concentrated along major highways going through the reservation. The Rosebud Casino provides gaming, lodging, dining, events, and an RV Park.

The Rosebud Economic Development Corporation (REDCO) also promotes commercial development on the reservation. REDCO provides services in facilities management, propane distribution, financial services, office supply services, and construction. REDCO also promotes land and food sovereignty initiatives.

Institutional/Governmental: The Tribe's administrative facilities are located in Rosebud, Mission, and Antelope.

Cultural: The Buechel Memorial Lakota Museum was established in 1947. It currently houses a collection of over 2,000 ethnographic artifacts from around the Rosebud Reservation and an assortment of 42,000 photographic items honoring the culture, traditions, and history of the Lakota people.

The Sicangu Heritage Center was established in the 1980s. It provides an overview of the Sicangu Sioux using a small collection of artifacts. Here you can learn how the Sicangu are related to other Lakota peoples and how they coined the name "Burnt Thigh People." The Heritage Center also provides archives dedicated to genealogical research and other technical services to the community.

Public Safety: The Tribe operates a Police Department, Tribal Court, and volunteer fire department.

Recreational: The Rosebud Sioux Reservation has many recreational facilities. The fairgrounds in Rosebud host the annual Rosebud Fair, Wacipi, and Rodeo. This event draws visitors from beyond the reservation and is a key community event each year.

Other recreational facilities include community centers in Antelope, Parmelee, Rosebud, St Francis, and White River. There are also Boys and Girls clubs in Rosebud, Mission, and Parmelee. There is a skatepark in Antelope and playgrounds at various schools throughout the reservation.

US Highway 18, designated as Oyate Trail, was established to promote the cultural, scenic, historic, and artistic resources. The Tribe has considered a scenic byway along BIA Route 5, but the deteriorated road condition of BIA Route 5 has delayed the Tribe in moving forward with designation.

Education: Rosebud Sioux Tribe youth attend K-12 schools in Todd County School District, White River School District, the St. Francis Indian School, Sapa Un Jesuit Academy, and Wakanyeja Tokeyahoi Lakota Immersion School. In addition, the Winner School District 59-2 operates both an elementary school and a high school.

Higher education is provided by Sinte Gleska University in Mission and Antelope. The university has approximately 1,000 full and part time students and offers master's, bachelor's, and associate degrees in a variety of fields.

Health and Social Services: The Tribe operates a number of health and social programs, housed in various facilities. The Rosebud Sioux Tribe Health Administration operates a social detox program housed in Rosebud, as well as an HIV/HCV prevention program. For housing, the tribe is served by the Ojinjinkta Housing Development Corporation and the Sicangu Wicoti Awanyakapi. The RST Caregivers Program provides nutrition, caregiving, and other services to the tribe's elderly members. Family social services include the Sicangu Child & Family Services foster agency, the Commodity Food Distribution Program, the Low-Income Home Energy Assistance Program, and the Protector of the Sacred, a cultural immersion program meant to teach the Sicangu Lakota culture to younger generations.

Respect for Cultural Resources

The Rosebud Sioux Tribe ensures that Tribal lands are preserved, occupied, or developed in a manner which always considers and adheres to the best interests of the Tribe. The Transportation Program implements transportation and roads development projects and coordinates with the Rosebud Sioux Tribe's Tribal Historic Preservation Office (THPO) to protect culturally sensitive areas.

Rosebud Sioux Tribe's Transportation Program staff was involved throughout the development of this LRTP. The Transportation Program works alongside agencies, such as the Federal Highway

Administration, SDDOT, and county highway departments, on safety issues with state or county roads. The Transportation Program involves the BIA Realty Office to obtain recorded right-of-way documents and trust land ownership information for project-related permissions to survey, appraisal review, and acquisition of right-of-way or easements. The Transportation Program provides updates and recommendations to the Rosebud Sioux Tribe's Transportation Committee on proposed development projects and land acquisitions. The Transportation Program was represented at the project kick-off meeting. Planning staff had the opportunity to review the interim draft of the LRTP and provided comments for implementation.

Tourism

The main tourist attraction for the Rosebud Sioux Tribe is the Sicangu Heritage Center, which offers free admission for visitors to learn about the Sicangu Lakota people. Other attractions include the Rosebud Casino, the Annual Wacipi (powwow), which are public events, and nearby sites in the Black Hills region.

Sicangu Heritage Center: This center serves as a repository for Sicangu history and culture, preserves personal photographs, and is open to the public year-round for educational purposes.

Rosebud Casino: A popular entertainment venue with slot machines and table games, according to its website.

Annual Wacipi (Powwow): The tribe hosts a multi-day powwow that is open to both tribal members and visitors to celebrate community, culture, and tradition.

Scenic Byway: US Highway 18, designated as Oyate Trail, was established to promote the cultural, scenic, historic, and artistic resources on the Reservation. The Tribe is also considering a scenic byway along BIA Route 5.

CHAPTER 2 - INVENTORY ANALYSIS

An evaluation of the Rosebud Sioux Tribe transportation system was performed to establish the scope of transportation deficiencies and goals within the study area. The existing network and traffic conditions were assessed to determine potential issues and improvement opportunities, which provided a basis for transportation network needs and improvement strategies.

Geographic Information System (GIS) technology was used to map aerial photography and for data compilations. Mapping is intended to assist Tribal planners, staff, and officials gain a more complete understanding of the strengths and weaknesses of the Rosebud Sioux Tribe transportation system.

Many factors influence the traffic safety and mobility of a transportation system. These include the levels of existing and projected traffic, roadway capacity and intersection control, traffic operations, access management and on-street parking among others. This chapter will present the data that was analyzed during the LRTP process and how it was used to formulate transportation system recommendations.

ROAD INVENTORY AND OWNERSHIP

This section of the report discusses the existing BIA road inventory. Strip maps and the full roadway inventory are available for review upon request. Per the Code of Federal Regulations (CFR), the National Tribal Transportation Facility Inventory (NTTFI) is a comprehensive database of all transportation facilities eligible for TPP funding. Other specific information collected and maintained under the IRR Program includes classification, route number, bridge number, current and future traffic volumes, maintenance responsibility, and ownership.

The National Tribal Transportation Facility Inventory (NTTFI) means at a minimum, transportation facilities that are eligible for assistance under the Tribal transportation program that an Indian Tribe has requested, including facilities that meet at least one of the following criteria:

(1) Were included in the Bureau of Indian Affairs system inventory prior to October 1, 2004.

(2) Are owned by an Indian Tribal government ("owned" means having the authority to finance, build, operate, or maintain the facility.

(3) Are owned by the Bureau of Indian Affairs ("owned" means having the authority to finance, build, operate, or maintain the facility.

(4) Were constructed or reconstructed with funds from the Highway Trust Fund under the Indian reservation roads program since 1983.

(5) Are public roads or bridges within the exterior boundary of Indian reservations, Alaska Native villages, and other recognized Indian communities in which the majority of residents are American Indians or Alaska Natives.

(6) Are public roads within or providing access to either:

(i) An Indian reservation or Tribal trust land or restricted Tribal land that is not subject to fee title alienation without the approval of the Federal Government; or

(ii) Indian or Alaska Native villages, groups, or communities whose residents include Indians and Alaska Natives whom the Secretary has determined are eligible for services generally available to Indians under Federal laws applicable to Indians.

(7) Are primary access routes requested by Tribal governments for inclusion in the NTTFI, including roads between villages, roads to landfills, roads to drinking water sources, roads to natural resources identified for economic development, and roads that provide access to intermodal terminals, such as airports, harbors, or boat landings.

Roadway Ownership

There are approximately 3162.8 roadway miles within the Rosebud Sioux Tribe Reservation. Of these, 363 miles are US and State highways, 2477.0 miles are county roads, and 322.8miles are designated as BIA and Rosebud Sioux Tribe roads. It is anticipated that more miles will be added to the inventory once the inventory is updated.

Maintenance on the County Road system is handled predominantly by the counties. The Rosebud Sioux Tribe works with the BIA, internal departments, and other jurisdictions on the reservation to coordinate snow removal.

Inventory and Functional Classification

Table 3 shows the road surface type by jurisdiction that was retrieved from the 2025 Road Inventory Field Data System (RIFDS) through the BIA's ITIMS (Integrated Transportation Information Management System) software. Routes that appear in RIFDS are considered public roads that are accessible year-round through Tribal land and non-Tribal land.

TABLE 3: RIFDS ROAD INVENTORY - SURFACE TYPE BY JURISDICTION – 2025

	Road Mileage by Surface Type								
Jurisdiction	**Proposed**	**Earth**	**Gravel**	**Bituminous <2"**	**Bituminous >2"**	**Concrete**	**Trail**	**None**	**Total**
BIA Roads		20.8	32.7		95.5	8.3	4.3		161.6
County		546.1	1,757.1	27.4	146.3	0.1			2,477.0
State			33.0	0.9	266.7	62.4			363.0
Tribe	1.1	152.3	0.8	0.7	0.2		4.9	1.2	161.2
TOTAL	1.1	719.2	1,823.6	29.0	508.7	70.8	9.2	1.2	3,162.8
BIA Roads as % of Total	0.0%	2.9%	1.8%	0.0%	18.8%	11.7%	46.7 %	0.0%	5.1%

Table 4 lists miles by surface type and functional class, respectively. The Inventory as of 2024 has many miles that have not been formally approved. Additional miles likely need to be added to the inventory to account for the low numbers of Tribal Road miles.

TABLE 4: RIFDS ROAD INVENTORY - FUNCTIONAL CLASS BY JURISDICTION (OWNERSHIP) - 2025

	Functional Class by Jurisdiction								
Ownership	**Rural Minor Arterial (2)**	**City Local (3)**	**Rural Major Collector (4)**	**Rural Local (5)**	**City Minor Arterial (6)**	**City Collector (7)**	**Trail (8)**	**None (null)**	**Total Mileage**
1-BIA	26.4	47.3	72.9	4.1	1.6			9.3	161.6
2-Tribe		0.6	19.2	116.9	0.2		24.3		161.2
3-State	163.4		199.0			0.6			363.0
5-County/ Township			508.1	1,889.9			3.3	75.7	2,477.0
Totals	189.8	47.9	799.2	2,010.9	1.8	0.6	27.6	85.0	3,162.8

**Classes with 0 mileage omitted*

Table 5 shows the road inventory by surface type and functional classification. Those miles listed in the row labeled, No Class Specified, were input into RIFDS at some point in the past with no functional classification listed. These could be field verified and corrected in RIFDS in the future to properly fit the mileages within the appropriate functional classification. The 116 bridges include 9 with BIA, 1 Tribal, 35 State, and 71 bridges with County/Township ownership.

TABLE 5: RIFDS ROAD INVENTORY - SURFACE TYPE AND FUNCTIONAL CLASS – 2024

	Mileage (mi) Existing Roads and Trails							Total Miles	Bridges	
	Surface Type									
	Proposed	**Earth**	**Gravel**	**< 2 inch**	**> 2 inch**	**Concrete**	**Trail**		**Count**	**Length (ft)**
Functional Class	**0**	**1**	**3**	**4**	**5**	**6**	**9**			
2-Rural Minor Arterial			0.9	0.9	124.6	63.4		189.8	14	7,811
3-City Local		3.0	8.0	0.5	29.8	6.6		47.9	2	132
4-Rural Major Collector		92.1	443.4	0.1	263.4	0.2		799.2	40	5,225
5-Rural Local	1.1	560.8	1,354.3	6.5	88.2			2,010.9	60	5,121
6-City Minor Arterial					1.8			1.8		
7-City Collector						0.6		0.6		
8-Trails		21.5					4.9	26.4		
No Class Specified		41.8	17.0	21.0	0.9		4.3	85.0		
Total:	**1.1**	**720.2**	**1,826.6**	**33.0**	**513.7**	**76.8**	**18.2**	**3,189.6**	**116**	**18,289**

**Classes with 0 mileage omitted*

Road Inventory Modifications

The current inventory includes numerous routes that are in various stages of approval, or "in-Progress", within RIFDS. These routes must be resubmitted and approved in RIFDS before they are officially recognized and eligible for TTP funding. **Table 6 (Route Updates) and Table 7** (**Route Additions**) identify the In-Progress routes and sections that will require ***updates*** or ***additions*** in RIFDS prior to becoming eligible for TTP funding. Before an In-Progress section is resubmitted to RIFDS, the uploaded data needs to be reviewed for accuracy and to make sure all required elements are submitted. This would include all routes having an Acknowledgement of Public Authority, Strip Map accuracy, photos of each section, annual average daily traffic (AADT) data (minimum can be used), surface type, etc.

TABLE 6: NTTFI ROUTE UPDATES

ROUTE NUMBER	SECTION NUMBER	ROAD NAME
43	10	SICANGU VILLAGE & CASINO PATHWAY
2000	10	ROUTE 200 CULTURAL ACCRESS ROAD
2090	20	ROUTE 209 CULTURAL ACCESS ROAD
2100	10	ROUTE 210 CULTURAL ACCESS ROAD
2110	10	ROUTE 211 CULTURAL ACCESS ROAD
2120	10	ROUTE 212 CULTURAL ACCESS ROAD
2130	10	ROUTE 213 CULTURAL ACCESS ROAD
4119	20-150	275TH STREET
4122	90-180	278TH STREET
4123	80-170	279TH STREET
4125	80-140	281ST STREET
4129	90-130	285TH STREET
4297	20-80	297TH AVENUE
4299	110	299TH AVENUE
4311	50-80	311TH AVENUE
4313	70-120	313TH AVENUE
4327	110-200	327TH AVENUE
4329	80-130	329TH AVENUE
4331	120-150	331ST AVENUE
4332	50-80	332ND AVENUE
6022	40-80	291ST STREET
6333	70-170	333RD AVENUE
6335	90-180	335TH AVENUE
6337	10-50	ROUTE 6337
6385	810	ROUTE 6385
6423	810-820	ROUTE 6423
6444	810	ROUTE 6444
6466	810	ROUTE 6466
6497	810	ROUTE 6497
7005	10	CULTURAL ACCESS ROAD
7006	20	CULTURAL ACCESS ROAD
7007	10	CULTURAL ACCESS ROAD
7013	10	CULTURAL ACCESS ROAD
7014	10	CULTURAL ACCESS ROAD

ROUTE NUMBER	SECTION NUMBER	ROAD NAME
7015	10	CULTURAL ACCESS ROAD
7023	10	CULTURAL ACCESS ROAD
7039	10	CULTURAL ACCESS ROAD
7046	10	CULTURAL ACCESS ROAD
7048	20	CULTURAL ACCESS ROAD
7049	10	CULTURAL ACCESS ROAD
7050	10	CULTURAL ACCESS ROAD
7051	10	CULTURAL ACCESS ROAD
7052	10	CULTURAL ACCESS ROAD
7053	10	CULTURAL ACCESS ROAD
7055	20	CULTURAL ACCESS ROAD
7057	10	CULTURAL ACCESS ROAD
7058	10	CULTURAL ACCESS ROAD
7059	10	CULTURAL ACCESS ROAD
7060	10	CULTURAL ACCESS ROAD
7061	10	CULTURAL ACCESS ROAD
7065	10	CULTURAL ACCESS ROAD
7072	10	CULTURAL ACCESS ROAD
7078	10	CULTURAL ACCESS ROAD
7079	20	CULTURAL ACCESS ROAD

TABLE 7: NTTFI ROUTE ADDITIONS

ROUTE NUMBER	SECTION NUMBER	ROAD NAME
1806	10-60	STATE HWY #1806
4106	10-110	262ND STREET
4112	10-100	268TH STREET
4113	10-100	269TH STREET
4115	10-60	271ST STREET
4116	10-130	272ND STREET
4117	10-80	273RD STREET
4121	10-150	277TH STREET
6001	10-30	270TH STREET
6010	10-70	279TH STREET
6012	10-40	281ST STREET
6035	10-20	ROUTE 6035
TBD	TBD	Bull Creek Community Streets

Summary of In-Progress routes in RIFDS:

- 54 official routes have in-progress section updates to the inventory.
- 13 new routes have in-progress sections which are new additions to the inventory.

KLJ has recently mapped the entire inventory in GIS for the RST Transportation Department which will benefit planning as well as future changes to the NTTFI and RIFDS.

Parking Lot Additions

The Rosebud Sioux Tribe desires to both maintain and upgrade many of their parking lots. In addition, all their parking lots will require future maintenance to address any locations exhibiting adverse surface conditions, vegetative overgrowth, or similar parking area issues. These parking lot locations must be included or be added to the RIFDS inventory to be eligible for TTP funding.

CHAPTER 3 - TRAFFIC AND CRASH ANALYSIS

This chapter of the report includes relevant safety analysis and information taken from the 2021 Tribal Transportation Safety Plan, 2020 Road Safety Audit, and additional crash data gathered.

EXISTING TRAFFIC

Much of the existing traffic within the Reservation is generated by key land uses, subdivisions, and Tribal facilities in and around the Oyate capital, Rosebud. Traffic conditions related to these land uses were a key factor in selection of traffic count locations selected for this plan. As part of this plan, traffic counts were taken in 60 locations. These locations supplemented traffic counts obtained from the SDDOT. These counts were performed in one of two ways: using tube counters or using cameras as part of the study of BIA 1 & 9.

Combining Sources

For the purposes of this plan, Streetlight 2019 traffic counts and 2022 tube counts were used and considered as "existing" traffic volumes. Although the counts were taken in different years, differences were considered marginal. All counts can be seen in **Appendix A, Figure 81.**

Projected traffic volumes were generated based on one percent annual growth over 20+ years. Projected 2048 traffic volumes are shown in **Appendix A, Figure 82.**

TRUCK TRAFFIC



South Dakota DOT has released truck traffic data for major highways in the state as of 2022, including US-18, US-83, and SD-63 within the Rosebud Indian Reservation. The highest-volume corridor of these three is US-83 spanning north-south, with an average of 317 trucks per day south of Mission and 262 north of Mission; trucks make up approximately 15-20% of traffic on this highway. US-18 has higher volumes west of Mission (224) than east of Mission (ranging from 73 to 194 depending on the segment). The single highest truck traffic volumes on the reservation are found where these two highways are coterminous in Mission; here there are as many as 787 trucks per day. SD-63 sees daily truck traffic of less than 100 vehicles. A screenshot of the South Dakota DOT site can be found in **Figure 24**. Truck traffic AADT was retrieved from the SDDOT traffic data website: https://experience.arcgis.com/experience/cb089bc673df486a8708f2d22b1e740b

FIGURE 24: TRUCK AADT



Source – South Dakota DOT: https://experience.arcgis.com/experience/cb089bc673df486a8708f2d22b1e740b

ROADWAY CAPACITY AND TRAFFIC OPERATIONS

It was beyond the scope of this report to provide an in-depth analysis of intersection capacity at any location within the Reservation. However, based on a review of existing daily traffic volumes on the major corridors, and considering projected growth, few traffic capacity issues exist or are expected to occur within the foreseeable future.

If at some point in the future this scenario changes, the Tribe is encouraged to conduct intersection or corridor studies along any affected roads. It is possible that increased development and traffic in the communities of Mission and Rosebud will warrant consideration of additional roundabouts or traffic signals. The recent study of the intersection of BIA Routes 1 and 9 recommended a roundabout, primarily for safety reasons.

CRASH AND SAFETY ANALYSIS

The tribe has in the past completed several safety analyses, including a Road Safety Audit (RSA) in 2020 and a Tribal Transportation Safety Plan (TTSP) in 2021. The latter includes the most detailed and most recent analysis of crashes and safety along roads on the Rosebud Sioux Reservation. This study looked at crashes in Todd, Lyman, Mellette, Gregory, and Tripp Counties in order to account for crashes not only within the reservation itself, but throughout the area inhabited by Rosebud Sioux Tribe members and held in trust by the tribe.

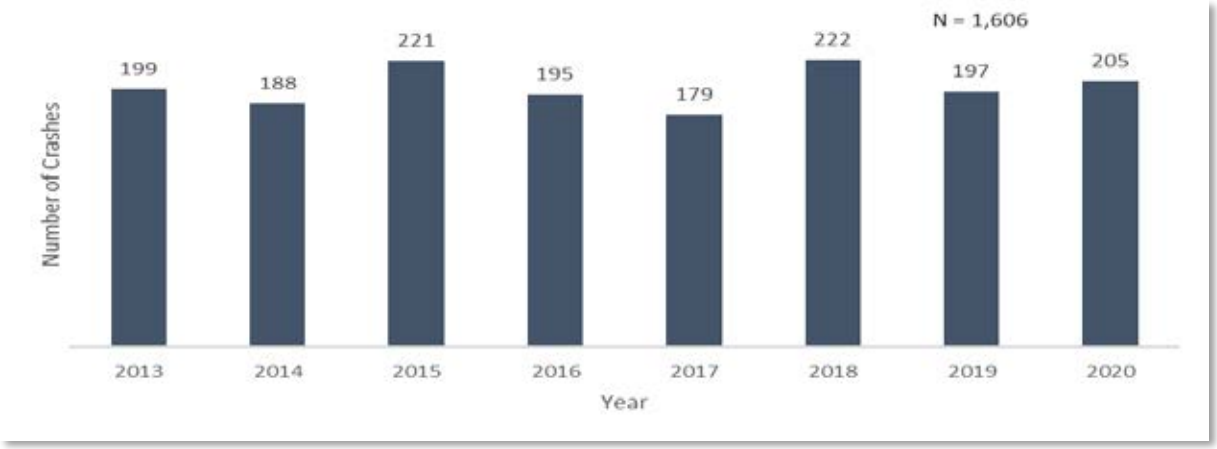
Historical crash data contained in the South Dakota Office of Highway Safety and South Dakota Department of Public Safety (SDDPS) Crash Database, occurring on the Rosebud Indian Reservation on all public roads was obtained through their website for the eight-year time interval covering January 1, 2013, through December 31, 2020. The crash data that was collected where crashes were occurring in Gregory, Mellette, Todd, and Tripp County. Crash data from Lyman County was excluded from this analysis as majority of the crashes reported occurred on Interstate 90. This dataset does have certain

limitations, including incomplete data about crashes responded to by Tribal Law Enforcement, since these are not necessarily reported to SDDPS.

During the studied eight-year time interval, there were a reported 1,606 crashes or approximately 201 crashes per year within the four-county area. Of the reported 1,606 crashes, 66 crashes occurred in Todd County, 142 crashes occurred in Mellette County, 273 crashes occurred in Gregory County and 1,125 crashes occurred in Tripp County. The number of reported crashes has remained relatively consistent per-year over the eight-year time interval, but due to reporting discrepancies with Tribal Law Enforcement is understood to be a significant undercount of the true number of crashes that occurred.

With crash data only being limited to what was reported to the SDDPS Crash Database, the data only shows a small portion of crashes that occur throughout the Rosebud Indian Reservation. The 1,606 crashes that were reported could be higher if crash information was available through Tribal Law Enforcement. As current crash data shows crashes are primarily occurring on State and U.S. routes. **Figure 25** shows the number of crashes reported per year in the four-county area.

FIGURE 25: NUMBER OF CRASHES REPORTED PER YEAR (2013-2020)



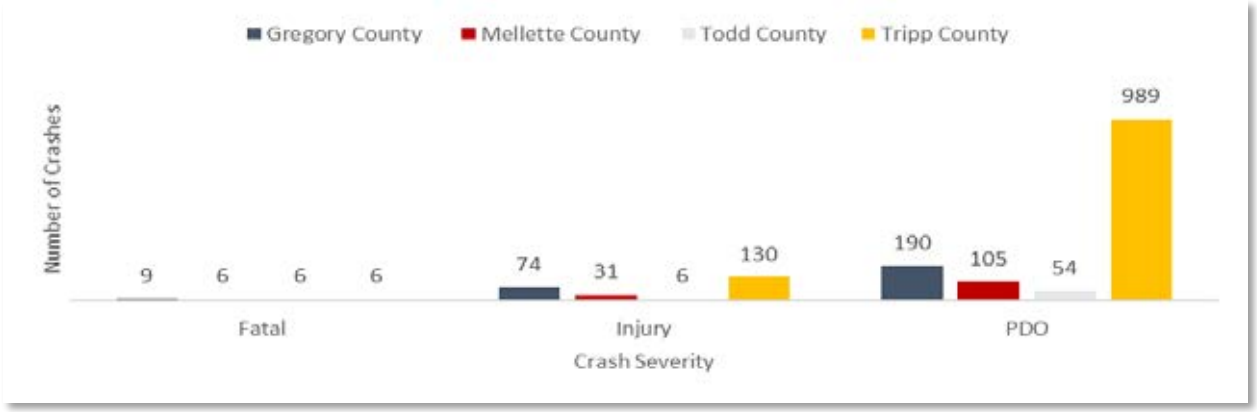
During the studied eight-year time interval, there were 27 fatal accidents, 241 injury accidents and 1,338 property damage only accidents for a total of 1,606 accidents within the four-county area. The SDDPS[6] further analyzes crash injury severity into five different categories. These categories are:

- Fatal Injury – An injury results in death. An injury caused death that occurs within 30 days of an accident
- Incapacitating Injury – Any injury, other than a fatal injury, which prevents the injured person from walking, driving, or normally continuing the activities the person was capable of performing before the injury occurred
- Non-Incapacitating Injury – Any injury, other than a fatal injury or an incapacitating injury, which is evident to observers at the accident scene
- Possible Injury – Any injury reported or claimed which is not a fatal injury, incapacitating injury, or non-incapacitating injury
- No Injury

[6] https://safety.fhwa.dot.gov/hsip/spm/conversion_tbl/pdfs/kabco_ctable_by_state.pdf

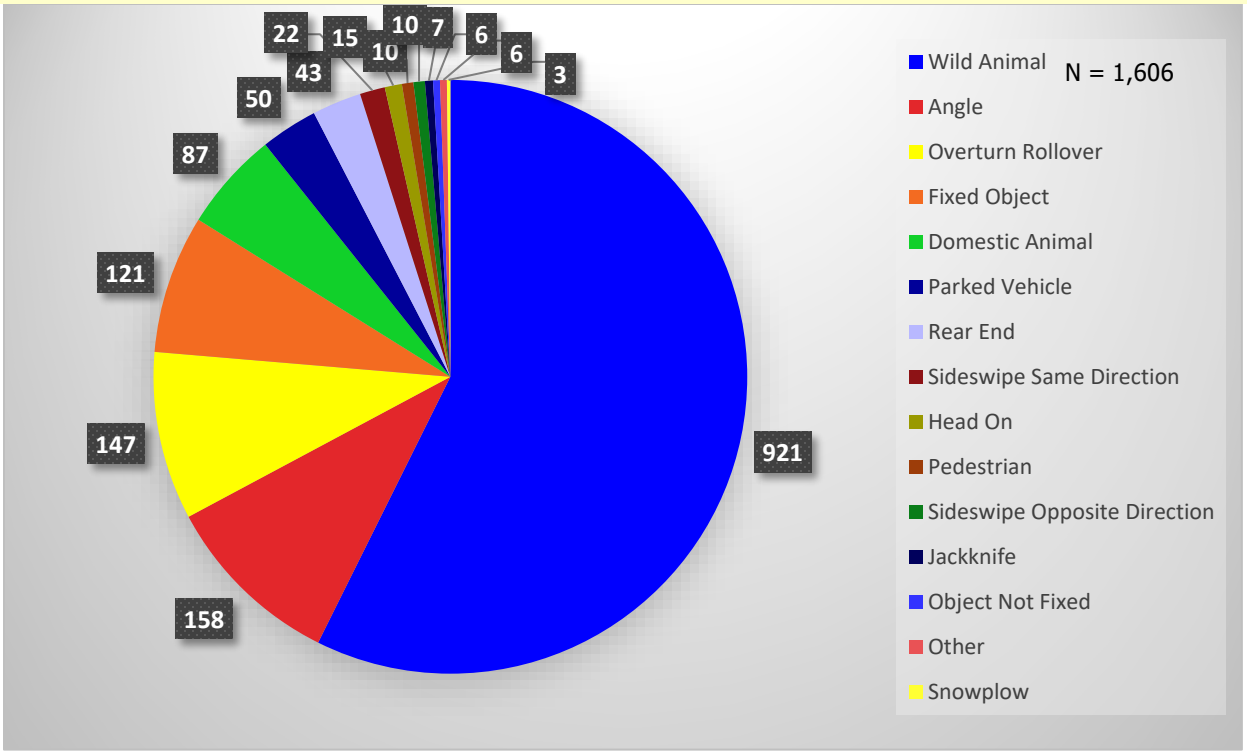
Figure 26 shows a break down the crash severity per County for the years 2013 to 2020.

FIGURE 26: CRASH SEVERITY PER COUNTY (2013-2020)



Wild Animal crashes were the most common reoccurring event throughout the eight-year time interval, accounting for 921 of the 1,606 crashes or 57.3% of all reported crashes. The other three top leading crash types observed are Angle crashes accounting for 158 crashes or 9.8% of all reported crashes, Overturn Rollover crashes accounting for 147 crashes or 9.2% of all reported crashes and Fixed Object crashes accounting for 121 crashes or 7.5% of all reported crashes. These top crash trends are consistent when comparing them to the leading crash types from the 2014 Tribal Transportation Safety Plan. Gregory and Winner, SD account for approximately 49% of angle crashes or 78 crashes. **Figure 27** shows the different crash types that occurred within the four-counties from 2013-2020.

FIGURE 27: CRASH TYPES (2013-2020)



Fatal and Incapacity Injury crashes stand out due to their impact on lives. Of the 27 fatal injuries, the largest portion were Overturn Rollover crashes, which were also the most common type of Incapacitating Injury crash. An analysis of safety restraint usage found that just over a quarter of occupants in these crashes reported using a seatbelt or other safety restraint, although a large portion of crashes had no data on the matter. The analysis also found that occupants in fatal crashes were more likely to be young and male.

Additional Safety Data

Additional safety data provided between 2021 and 2023 corroborates these findings. 1,044 additional crashes were reported over this period, or 348 per year on average, signaling a significant increase in the rate of crashes on and around the reservation. Of these, 17 (1.6%) were fatal and 76 (7.2%, or 25.3 per year) featured incapacitating injuries. These severe crashes therefore made up a lower proportion of all crashes compared to the eight-year period studied before, and there were fewer incapacitating injury crashes per year (25.3 per year, compared to 30.1 during 2013-2020), which could indicate an uptick in reporting of wild animal and property damage only crashes. However, there were more fatal crashes per year on average in 2021-2023 (5.7) compared to 2013-2020 (3.4).

Detailed geospatial data on the locations of these crashes is lacking, but public sentiment among the Rosebud Sioux Tribe indicates that crashes are viewed as more common along BIA highways than other road jurisdictions.

PREVIOUS TRANSPORTATION SAFETY STUDIES

The Tribe's first Tribal Transportation Safety Plan (TTSP) was first published in 2014 and updated in 2021. This plan makes recommendations organized by the 4 E's: education, enforcement, emergency response, and engineering. Educational activities suggested by the plan have to do with the Tribal Motor Vehicle Injury Prevention Program (TMVIPP), which educates tribal members on seatbelt usage. Enforcement activities mostly concern cross-jurisdictional coordination and the establishment of codes and ordinances concerning traffic laws and livestock regulations. Engineering solutions involve pavement and mileage markers, designated school crosswalks and bus stops, and intersection improvements. The plan also lays out several potential shared use pathway and pedestrian connectivity projects.

A Road Safety Audit was conducted in 2020. This report summarizes 1,005 crashes on public roads in Gregory, Mellette, Todd, and Tripp Counties which were submitted to the South Dakota Department of Public Safety (SDDPS) between 2014 and 201, finding that fatal and incapacitating injury crashes were about twice as common on the reservation as throughout South Dakota, with Overturn Rollover crashes being the most common cause of these severe crashes. Recommendations for addressing these safety issues include improvements to shoulders, an intersection redesign at BIA 1 and BIA 9, and addressing signage and pavement marking issues. In addition, an analysis of pedestrian safety issues in the reservation communities found that there was no standard for when to provide sidewalks. The report recommended that the LRTP establish such standards, with an emphasis on pedestrian connectivity to and from schools and community centers, as well as shared use paths between communities.

A study of safety along the intersection of BIA Routes 1 and 9 was completed in 2024. Due to the geometric attributes of the intersection and the potential for a considerable safety hazard, this study recommended that a roundabout be established at the intersection, as well as other interventions such as intersection lighting and improved pedestrian crossing ramps.

The Transportation Program has applied for funding for another safety plan update using FY2025 funding through the Tribal Transportation Program Safety Fund (TTPSF). In addition, two safety plans for specific corridors are underway. A Pedestrian Connectivity and Safety Improvements Study is underway for BIA Route 1 using TTPSF funding, focusing on a 2.2-mile corridor between the intersection with BIA 7 and north of the intersection with BIA 9. Also underway is a study of the intersections along BIA Route 5, including pavement markings, sight distance, and potential geometric improvements. The results and recommendations from these studies are yet to be finalized.

EXISTING SAFETY PROGRAMS

The Tribe has implemented or is working on several safety projects and programs to address transportation safety issues on the Reservation. The list is not all inclusive, but documents programs that the group participating in the development of the safety plan were aware of.

- School District has installed strobe lights on school buses to increase visibility.
- Advance Warning Signs have been installed at school bus stop locations.
- The Rosebud Sioux Tribal Transportation Program has completed a Road Safety Audit (RSA) to identify safety deficiencies on BIA roadways within the reservation.
- Indian Health Service (IHS) has completed a Severe Injury Surveillance Profiles
- Implemented a Primary Seat Belt Law on the reservation.
- Rosebud Sioux Tribe Law Enforcement and IHS make community presentations on transportation safety.
- Community Health Representatives provide car seat inspection stations.
- Tribal Motor Vehicle Injury Prevention Program (TMVIPP) encourages seatbelt usage.

SAFETY IMPLEMENTATION STRATEGIES

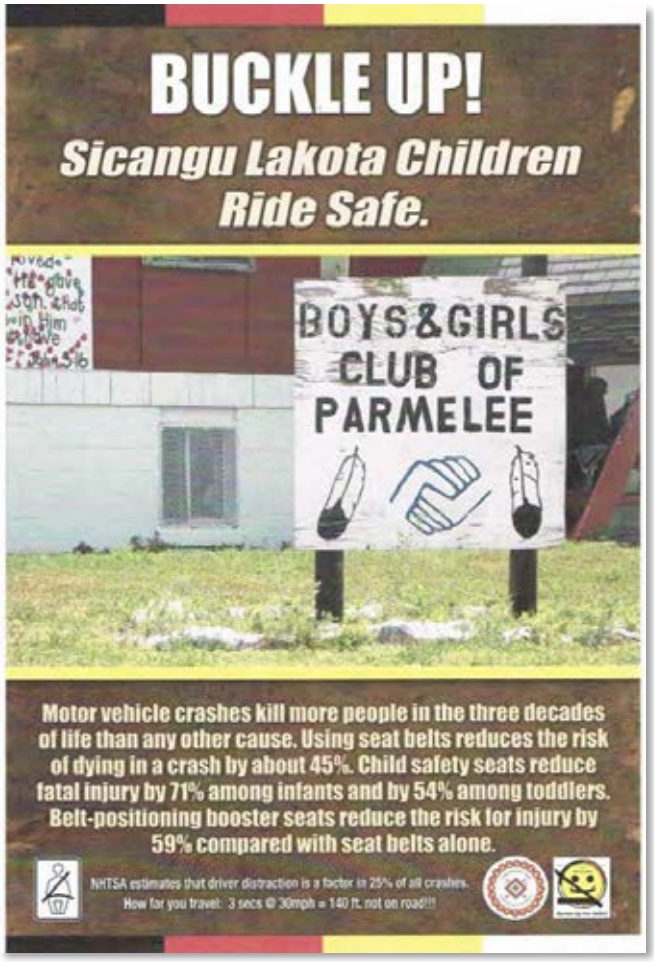
The plan's main goal is to use a multi-disciplinary approach to identify safety strategies for implementation that can address the transportation safety issues on the RST Reservation. The strategies are intended to be implemented over the next several years and each have a Strategy Champion and Funding Opportunities identified. The strategies were developed as a comprehensive approach to safety, including engineering, enforcement, education, and emergency management opportunities.

Education Strategies

Continue the Tribal Motor Vehicle Injury Prevention Program (TMVIPP)

One of the leading transportation safety successes on the Rosebud Reservation in recent years has been the establishment of the TMVIPP. This program has been successful in increasing seat belt use through education, enforcement activities, and community outreach. With the lack of seat belt use cited as being a factor in over 90% of the fatalities and a low seat belt use rate compared to the statewide average, the continuation of this program is the cornerstone to reducing fatalities and serious injuries on the reservation. It is recommended that the data shown in this plan should be utilized and education, enforcement activities, and community outreach be continued throughout the reservation.

FIGURE 28: BUCKLE UP POSTER



Strategy Champion: Rosebud TMVIPP Coordinator and Rosebud Sioux Tribe Transportation Program.

Funding Opportunity & Estimate: TTP Safety Funding, National Highway Traffic Safety Administration (NHTSA) 402 funds through the BIA Indian Highway Safety Program (IHSP) or SDDOT.

Enforcement Strategies

Develop Stronger Partnership Between Rosebud Tribal Law Enforcement, Tribal Council, and Tribal Transportation Program

According to the available safety restraint data listed in this plan, enforcement activities have a significant impact on transportation safety. The Rosebud Sioux Tribe Law Enforcement Services were unable to attend the safety planning session that was held to develop this plan. An active, robust relationship between law enforcement, tribal leadership and tribal transportation is essential to a comprehensive safety program. Without enforcement action, transportation education activities have a much lower impact on driver behavior. During the planning meeting there was considerable discussion regarding the need for increased enforcement presence. Issues such as passing school buses, lack of car seat and seat belt use, speeding and impaired driving exist in the community, and a strong traffic enforcement presence could reduce crashes, injuries and fatalities.

FIGURE 29: ROSEBUD TRIBAL LAW ENFORCEMENT VEHICLE



Strategy Champion: Rosebud Tribal Council and Rosebud Sioux Tribe Law Enforcement Services.

Funding Opportunity & Estimate: None needed.

Initiate Discussions on Possible use of Cross Jurisdictional Agreements for Law Enforcement

With over 4,000 miles of road in the four-county area, adequate staffing to provide traffic enforcement is a challenge on the reservation. Other Tribes, such as Crow Creek in South Dakota have entered into cross jurisdictional agreements with the SDDPS to expand their enforcement abilities. This has allowed for increased traffic enforcement during key times such as pow wow events. Currently there is no such agreement in place on the Rosebud Indian Reservation. The increased traffic enforcement benefits and effects on Tribal Sovereignty of such an agreement should be presented to the Tribal Council. This may be best done by Tribal Council and/or tribal law enforcement from other reservations such as Crow Creek, where cross-jurisdictional agreements are in place.

Strategy Champion: Rosebud Sioux Tribe Law Enforcement, SDDPS, and Rosebud Sioux Tribal Council.

Funding Opportunity & Estimate: None Required.

Develop a Comprehensive Tribal Traffic Code

Title 6 of the Rosebud Sioux Tribe's Law and Order Code outlines a Traffic Code for enforcement on the Reservation. While it includes five chapters: driving under the influence, reckless driving, exhibition driving, driving while suspended and portions of the South Dakota motor vehicle and traffic law. To ensure that the code covers all areas that could improve transportation safety and has an adequate fine structure, the Traffic Code should be reviewed and revised accordingly. Title 32 of the South Dakota Codified Laws includes a comprehensive section on motor vehicles that could be used for reference to determine what changes and updates would be beneficial and proposed to the Rosebud Sioux Tribal Council.

Strategy Champion: Rosebud Sioux Tribal Transportation Program, Rosebud Sioux Tribe Attorney General, Rosebud Sioux Tribe Judiciary Committee and Rosebud Sioux Tribal Council.

Funding Opportunity & Estimate: None Required.

Establish a Motor Carrier Safety (MCS) Program

With the presence of US 83 and US 18 both bisecting the Rosebud Reservation and the agricultural activity in the area, there is a substantial presence of large trucks. According to SDDOT data, there were over 32 million vehicle miles travelled by heavy trucks in the four-county area in 2020[7]. Currently there are no weigh stations within the reservation and the Tribe is concerned with overweight and/or unsafe trucks operating on the roadways. Other tribes, such as Fort Berthold and Blackfeet have established motor carrier enforcement programs that have the ability to regulate trucking activities and use portable scales to check vehicle weights. With this presence of heavy trucks, the Rosebud Sioux Tribe should implement ordinances that could be used to regulate trucks, obtain funding for MCS Officer(s), and acquire portable scales that could be used on the reservation. To assist with training and calibration, when portable scales are purchased, consideration should be given to obtaining similar equipment to what the State of South Dakota uses.

Strategy Champion: Rosebud Sioux Tribal Transportation Program, Rosebud Sioux Tribe Law Enforcement Services, Rosebud Sioux Tribe Road Department and SDDOT.

Funding Opportunity & Estimate: TTPSF, BIA IHSP.

Develop a Livestock Ordinance

With the rural nature of much of the land on the Rosebud Indian Reservation and the large amount of open range crashes with domestic livestock are in the top five leading causes of crashes. Many of the animals, including horses that get loose, wander along the roadway corridors grazing or moving from field to field. Other tribes have had similar issues and have implemented tribal ordinances that allow the tribal government to remove the animals and hold them until the proper owner comes to retrieve them. Animals not clamed are then auctioned off by the tribe. It is recommended that the Tribe develop a comprehensive approach including an ordinance, an aggressive removal program, and roadway fencing program that collectively could be utilized to address the issue.

Strategy Champion: Rosebud Sioux Tribal Transportation Program, Rosebud Sioux Tribe Law Enforcement and Rosebud Sioux Tribal Council.

Funding Opportunity & Estimate: TTP or TTPSF for fencing

Incorporate the use of Speed Radar Trailers as a Deterrent

Other Tribal Law Enforcement agencies have been using Speed Trailers that use radar to provide feedback on vehicle speeds to help reduce speeds in tribal communities and around schools. These trailers can also collect and store the speed data for use in determining areas for targeted enforcement due to high speeds. With speeding being a major cause of crashes on the Rosebud Indian Reservation and the concerns that have been expressed about speeds and safety around schools, the Tribe should purchase several sets of speed trailers. These could be used by law enforcement in the various tribal communities as part of a targeted education and enforcement campaign to help reduce speeds.

[7] https://dot.sd.gov/media/documents/traffic/VMTTrucks.pdf

CHAPTER 4 - PUBLIC INVOLVEMENT

A kickoff meeting was held on November 7, 2023, to discuss the LRTP process, TTP Program, various project efforts and for leadership education. Tribal and KLJ representatives were present. In addition, numerous conversations with many of the Rosebud Sioux Tribe department heads were held to receive further input throughout the planning process.

PUBLIC INPUT

The first of two open house public input meetings (PIM) for this Plan was held April 23, 2024. The agenda included the following discussion items:

- Review of LRTP Purpose and Processes
- Existing Conditions and Transportation Deficiencies
- Receive Public Comments on Transportation Facility Issues and Needs
- LRTP Tentative Schedule
- Adjourn

Steve Grabill from KLJ facilitated the kickoff and first public meeting with an introduction and background regarding the LRTP process as well as a presentation. There was then a discussion held regarding the projects to include in the Plan which touched on the topics of existing issues, locations, and possible funding opportunities.

A second public open house meeting was held Wednesday, October 29, 2025. The meeting was facilitated by KLJ staff members Tonya Huber and Ian Butler-Severson. The agenda included the following discussion items:

- Describe Plan Purposes and Uses
- Review Draft Final Plan
- Provide Opportunities for Input
- Adjourn

Input was solicited throughout the course of this plan via public input meetings, RST transportation committee review meetings, and feedback was encouraged to be provided via mail, email, or phone, however limited public input was received by community members at large. Copies of the draft plan were made available for review. Copies of the two public meeting notices and ads placed in the Todd County Tribune newspaper are shown on the next page.

The LRTP was sent to the RST Transportation Program and following staff review, the final draft of the LRTP was submitted to representatives of the Division of Transportation, FHWA Office of Tribal Transportation, and BIA, on January 30, 2026. The review outlined the completed tasks as of that date and provided an anticipated LRTP report completion date in February of 2026.

Overall, throughout this plan's process, comments received by email pertained largely to needed edits to improve clarity in the report. Comments were received from the RST Transportation Program leadership, BIA, and various Tribal staff members, who provided valuable insight into the project needs and considerations for future transportation system maintenance. These comments were all incorporated into the content and recommendations of this Report.



6 Todd County Tribune Wednesday, April 17, 2024

Legal Notices

Request for Bids: Hay to be put up on shares

Rosebud Farm Company (RFC) is accepting bids for haying to be done on a share agreement for summer 2024 at Turtle Creek Crossing West of Mission, S.D.

Approximately 345 acres of grass and alfalfa in T93S-R28W-S31. Hay ground is on the south half of the section and is accessed from Highway 18.

2023 yield: First cutting alfalfa was: 141 round bales with an average weight of 1,340 lbs. Thirty percent grass: 78 round bales with an average weight of 1,480 lbs. Second cutting alfalfa 125 round bales with an average weight 1,460 lbs.

Interested parties should send an e-mail of interest to: Rod@cienega.co by 5:00 p.m. on May 1, 2024. In this e-mail, please include:

1) Percentage of hay crop to lease (bidder) and to lessor (RFC)
2) Any specific proposals for haying
3) Tribal enrollment number and documentation if claiming Indian Preference

For more information contact Chance 'Rod' Columbe at rod@cienega.co OR Cell: 605-525-7473 Office 605-856-8400

Published three times at the total approximate cost of $49.14 and can be viewed free of charge at www.sdpublicnotices.com.

Published: April 10, 17, 24, 2024

Summons

Rosebud Sioux Tribal Court | In Children's Court
Rosebud Indian Reservation | ss
Rosebud, South Dakota |

The People of the Rosebud Sioux Tribe in the Interest of | Docket #CC 22-31
J.M. | Summons
Minor child(ren) and concerning,

To: Mandy Fleming,

PLEASE TAKE NOTICE that the Hearing on the Petition for a PRELIMINARY HEARING and concerning the above named minor(s) has been set for the 10th day of April, 2024, at 3:30 p.m. in the Rosebud Sioux Children's Court House at the Tiwahe Wicozani Tipi Wellness and Renewal Center (CDC) at Ring Thunder, South Dakota. This is your official notice of said hearing.

Dated this 11th day of March, 2024

By the Court:
Diana Bear
Tribal Court Judge

Attest:
Lynn Kinsey
Clerk of Courts

Published three times at the total approximate cost of $66.81 and can be viewed free of charge at www.sdpublicnotices.com

Published: April 3, 10, 17, 2024

Requests For Bids: Corner Haying On 12 Pivot Fields On Shares

Rosebud Farm Company will be accepting bids: pivot corners are in Todd County South of Highway 18 on Creekview Road. Total acres 334 acres.

2023 hay yield: 482 round bales with an average weight of 1460 lbs.

Interested parties should send an e-mail of interest to: Rod@cienega.co by 5:00 p.m. on May 1, 2024. In this e-mail, please include:

1) Percentage of hay crop to lessee (bidder) and to lessor (RFC)
2) Any specific proposals for haying
3) Tribal enrollment number and documentation if claiming Indian Preference

For more information contact Chance 'Rod' Columbe at rod@cienega.co; Cell: 605-525-7473; Office: 605-856-8400

Published three times at the total approximate cost of $45.36 and can be viewed free of charge at www.sdpublicnotices.com.

Published: April 10, 17, 24, 2024

Notice of Public Open House & Informational Meeting

Rosebud Sioux Tribe
Long Range Transportation Plan

Date: April 23, 2024
5:00 to 7:00 p.m. CST
Location: BIA Conference Room
1004 Oneida Street
Mission, SD

The Rosebud Sioux Tribe (RST) will hold a public open house and informational meeting to discuss and receive public input on the Long Range Transportation Plan (LRTP). The LRTP is a 20-year plan that addresses the full range of transportation issues and needs for all modes of travel within the RST Indian Reservation and trust lands outside serving the Rosebud Sioux Tribe.

The purpose of this public meeting is to gather comments on issues and needs that should be addressed by the plan. Staff from the RST and their consultant will be available to present initial information and analysis of the RST transportation system and to respond to comments or questions. Beverages and snacks will be provided.

All persons interested in commenting on RST transportation issues or needs are invited to attend the meeting to share your views. Oral and written comments will be taken during the meeting. Written comments can also be sent to ELJ, Attn: RST LRTP, at the email address below, or mailed to 18 E Main Street, Ste 220, Rapid City, SD, 57701. Written public comments will be accepted through May 16, 2024.

For more information regarding the RST LRTP contact ELJ Project Manager, Steve Grabill at (406) 247-2924, e-mail: Steve.Grabill@eljeng.com.

Published twice at the total approximate cost of $48.47 and can be viewed free of charge at www.sdpublicnotices.com.

Published: April 3, 17, 2024

Notice to Voters For Absentee voting

By decision of the Todd County Commissioners, absentee voting will be open at the Todd County Building in Mission, S.D., Monday through Friday from 9 a.m. to 5 p.m. starting on Friday April 19, 2024 and ending on June 3, 2024.

You can also request an absentee ballot by written request with a copy of your Driver's License or a signed picture ID and mail the request to the Todd County Auditor, 200 East 3rd Street Winner, SD 57580. You may also vote absentee in the Tripp County Auditor's office M-F from 8 a.m. to 5 p.m.

Please call 842-2727 with any questions.

/s/ Barbara DeDecca,
Todd County Auditor

Published twice at the total approximate cost of $28.20 and can be viewed free of charge at www.sdpublicnotices.com.

Published: April 17, 24, 2024

Todd County Fairgrounds Accepting Bids for Haying Lease

The Todd County Auditor is accepting bids for a Haying lease on approximately 53 acres of hay ground two miles south of Mission, S.D. at the Todd County fairgrounds.

Bids will be accepted on a per acre cash bid or a percentage of the hay harvest bid.

In 2023 the hay harvested was 53 bales weighing an average of 1840 lbs. for total tonnage of 23.4 tons.

Sealed bids should be sent to the Todd County Auditors office at the following address:

Barb Devers
Todd County Auditor Office
200 E. 3rd. Street
Winner, SD 57580

Bids close on May 10, 2024.

Bids should be postmarked no later than May 1, 2024.

Sealed bids will be opened at the May 13th Todd County Commissioner's meeting and the successful bidder will be notified.

Hay must be harvested and removed before July 15.

Published twice at the total approximate cost of $34.08 and can be viewed free of charge at www.sdpublicnotices.com.

Published: April 17, 24, 2024

Dusty Johnson
U.S. Representative of South Dakota

Rerouting

BIG Update
The United States Postal Service (USPS) recently announced plans to move mail processing centers from Sioux Falls to Omaha, Nebraska, and from Huron to Fargo, North



CHAPTER 5 - FACILITY CONDITIONS AND RECOMMENDATIONS

Chapter 2 of the report provided an analysis of the inventory. This chapter discusses the existing and future conditions of the transportation facilities found on the Reservation. This includes roadside elements, paved and non-paved roads, freight and trucking, bridges and culverts, pedestrian and bicycle facilities, airports, transit system, and utilities, along with recommendations based on conditions analysis.

The existing and proposed transportation systems were reviewed to identify relationships between transportation and the environment. The need for improved energy efficient lighting is an example of how transportation modifications can be responsive to environmental preservation. Similarly, energy efficient cars can reduce emissions and improve air quality. Enhanced pedestrian facilities can further benefit health, safety, and air quality.

ROADSIDE ELEMENTS

Facility Conditions

– *TRAFFIC CONTROL*

Road traffic control devices are signs, markers, or signaling devices utilized to control the flow of traffic, including pedestrians, bicyclists, and motor vehicles.

The following list outlines common traffic control methods from the FHWA's Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways, 2023 11th Edition. Each of these types of traffic control may be considered to address future traffic control issues within the Reservation, or to provide ideal traffic control for new developments.

- Traffic Signals - The MUTCD traffic signal standards include warrants for varying data thresholds ranging from pedestrian and vehicular volumes to crash frequency. Based on a review of the highest traffic volumes within the Reservation, no unsignalized intersections meet traffic signal warrants.

- All-Way Stop Control - The MUTCD includes All-Way Stop Control (AWSC) warrants based upon traffic volumes, motorist delay and crash frequency. The AWSC signs increase delay on major approaches by forcing vehicles to stop on the primary streets regardless of whether a vehicle is present on the minor approaches. Studies have found AWSC sites with great disparities between major and minor approach volumes typically experience high levels of traffic control noncompliance.

- Pedestrian Hybrid Beacons - A pedestrian hybrid beacon (PHB) is a special type of beacon used to warn and control traffic at an unsignalized location to assist pedestrians in crossing a street or highway at a marked crosswalk. This type of beacon is activated by pedestrians when needed. MUTCD standards for this type of traffic control require consideration of vehicular traffic volumes, pedestrian crossing volumes and crosswalk lengths.

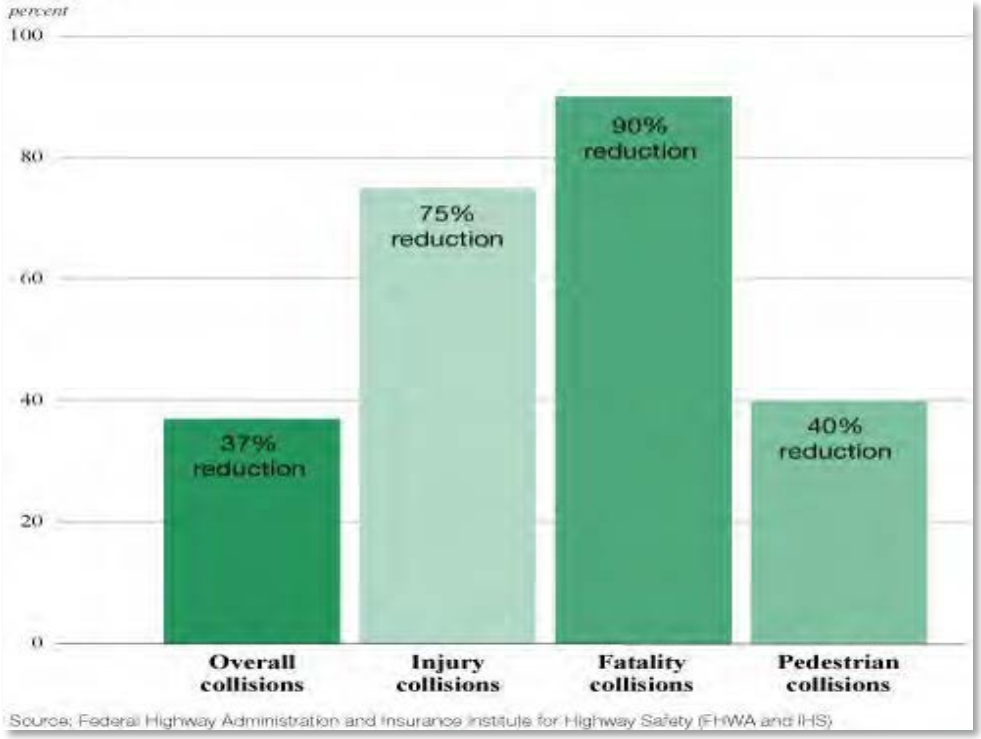
- Pedestrian Flashing Beacons - Flashing beacons may be used at pedestrian crosswalks to enhance pedestrian visibility and induce vehicle stoppages.

- Two-Way Stop Control - The MUTCD guidance for Two-Way Stop Control (TWSC) installation is based upon either traffic volume thresholds, sight distance limitations or crash frequency thresholds.

- Roundabouts are a traffic control measure that offers potential traffic operational benefits when implemented at the proper location. Roundabouts offer the following safety benefits:
  - Roundabouts have fewer vehicular conflict points in comparison to conventional intersections. The potential for high-severity conflicts, such as right angle and left-turn head-on crashes, is greatly reduced with roundabout use.
  - Low speeds generally associated with roundabouts allow drivers more time to react to potential conflicts, also helping to improve the safety performance of roundabouts. Low vehicle speeds help reduce crash severity, making fatalities and serious injuries for vehicles and pedestrians uncommon at roundabouts.
  - Pedestrians need only cross one direction of traffic at a time at each approach as they traverse roundabouts (i.e., crossing in two stages) as compared with the existing intersections, reducing exposure and delay by reducing vehicular gap requirements.

  Roundabouts can substantially reduce the number and severity of crashes at an intersection in comparison to traffic signal use. The expected reductions are shown in **Figure 30.** Future roundabouts should be considered for larger developments and to resolve identified issues susceptible to correction by a roundabout. They may also serve as a focal point for economic development through use of Native design in the center circle. Other than the previously mentioned roundabout at BIA Routes 1 and 9, no specific locations for new roundabouts were identified as part of this plan. However, use of roundabouts is supported due to the safety and mobility benefits they provide.

FIGURE 30: COLLISION REDUCTION WITH ROUNDABOUTS



ACCESS CONDITIONS

High levels of access exist along various road segments within the Rosebud Sioux Tribe Reservation. Studies have shown that this increases the potential for crashes. Land access can also be limited due to poor road conditions. Better access for hunting, fishing, tourism, and development should be considered in many locations throughout the Reservation.

OFF-STREET PARKING

Parking is an essential complement to transportation systems and land development. Although many locations within the RST Reservation have off-street parking, some may be used to greater capacity and higher frequency of use than others. RST's Tribal Administration building parking lot is pictured to the right.



Paved off-street parking facilities need to be maintained, similar to paved roadways, and it is important to identify which parking lots are necessary to avoid heavy maintenance costs on underused parking lots.

Additionally, any unneeded islands within parking lots should be removed whenever deemed appropriate. Consideration should be given to preserving islands that perform an important function to discourage cut-through traffic through the parking lot which could increase the potential for additional conflicts and crashes. A comprehensive parking analysis and design program is recommended to provide detailed solutions to the many parking issues to balance aesthetics, function, maintenance impact, and provision of low impact designs.

STREET LIGHTING

A review of existing lighting was not undertaken as part of the LRTP. However, there is a need for a needs assessment and design of improved lighting in towns and subdivisions, at busy intersections, and along existing and future sidewalks and shared use paths. In many cases, design and construction of new pathways is incorporating pathway lighting or roadway lighting. Where adjacent power poles are present, lights could be added as needed to add street and/or pathway lighting.

Recommendations

TRAFFIC CONTROL

A formal engineering study of traffic control conditions was not conducted as part of the LRTP. The following recommendations are based on traffic and crash data obtained from the SDDOT website, observations made during the LRTP process, and information available from the Rosebud Sioux Tribe's TTSP, updated in 2021.

- Pedestrian Flashing Beacons – This type of beacon is popularly requested due to the belief that it will motivate vehicle drivers to slow down. Due to construction, maintenance, and operating costs, installation of this control should only be completed after a traffic study has been conducted. It is recommended that this type of beacon be assessed and designed and installed as needed near schools and high pedestrian activity locations, such as with the BIA 1 and BIA 5 studies which will be completed in 2026.
- Roundabouts - There are currently no functioning roundabouts in the study area. Because of the reduced collisions and safety benefits offered by roundabouts, and the high pedestrian traffic generated on the Reservation, it is recommended that the Tribe considers this measure for future construction at any location having a high level of traffic and identified safety concerns.
    - The BIA 1 and BIA 9 intersection study has developed a preliminary design and recommendation for a roundabout at that study intersection. A final recommendation will be made at the conclusion of the BIA 1 Pedestrian Connectivity and Safey Improvements Study, based on the findings from the BIA 1 and 9 intersection study.

ACCESS CONDITIONS

Where high levels of access exist, or where undesirable access conditions are located, access management strategies can be implemented. Access management refers to a set of techniques that can be used to control access on streets and highways. It is typically focused on functionally classified collector and arterial roads. Access management techniques generally reduce the number of accesses or increase the spacing between accesses onto major thoroughfares. They can also include aligning offset intersections.

Access points introduce conflicts and friction into the traffic stream. The benefits of access management include improved traffic movement, reduced crashes, and fewer vehicular conflicts. When access

management strategies are implemented, traffic flow is made more efficient, the roadway can manage more traffic and congestion levels decrease, resulting in fewer crashes.

Efforts to reduce access (private driveways or small subdivision access such as the picture to the right) along collector or arterial roads where access is excessive should be undertaken when possible. The planning phase of a new road project is the best time to consider how access can efficiently and safely be provided. New development plans should also be carefully reviewed to determine whether planned access will interfere with safety or mobility along an adjacent highway.

Where undesirable access conditions exist, access management strategies can be implemented. Access management is a set of techniques that can be used to control access on streets and highways. It is typically focused on functionally classified collectors and arterial roads. Access management techniques generally reduce the number of accesses or increase the spacing between accesses onto major thoroughfares. These techniques can also include aligning offset intersections.

OFF-STREET PARKING

Provision of off-street parking within the Reservation should be evaluated on a case-by-case basis. Off-street parking is expensive to build and maintain. The Tribe should consider undertaking a parking lot use study to determine average and peak utilization rates, and parking LOS.

ON-STREET PARKING

Although many businesses and residents have off-street parking, some of them rely on abutting on-street parking. On-street parking increases the width of a street, potentially reducing the safety for pedestrian crossings. A high volume of on-street parking maneuvers can impede traffic progression as parking vehicles block through traffic. On-street parking also reduces the space available for sidewalks, landscaping, and other amenities.

STREET LIGHTING CONDITIONS

It is recommended that the Rosebud Sioux Tribe conduct an updated study to inventory and identify the types and locations for street lighting needed throughout the Reservation, and that lighting improvements be prioritized and completed as funding becomes available. It is recommended to implement solar or LED lighting wherever feasible as these types of lighting options are more efficient than traditional lighting options.

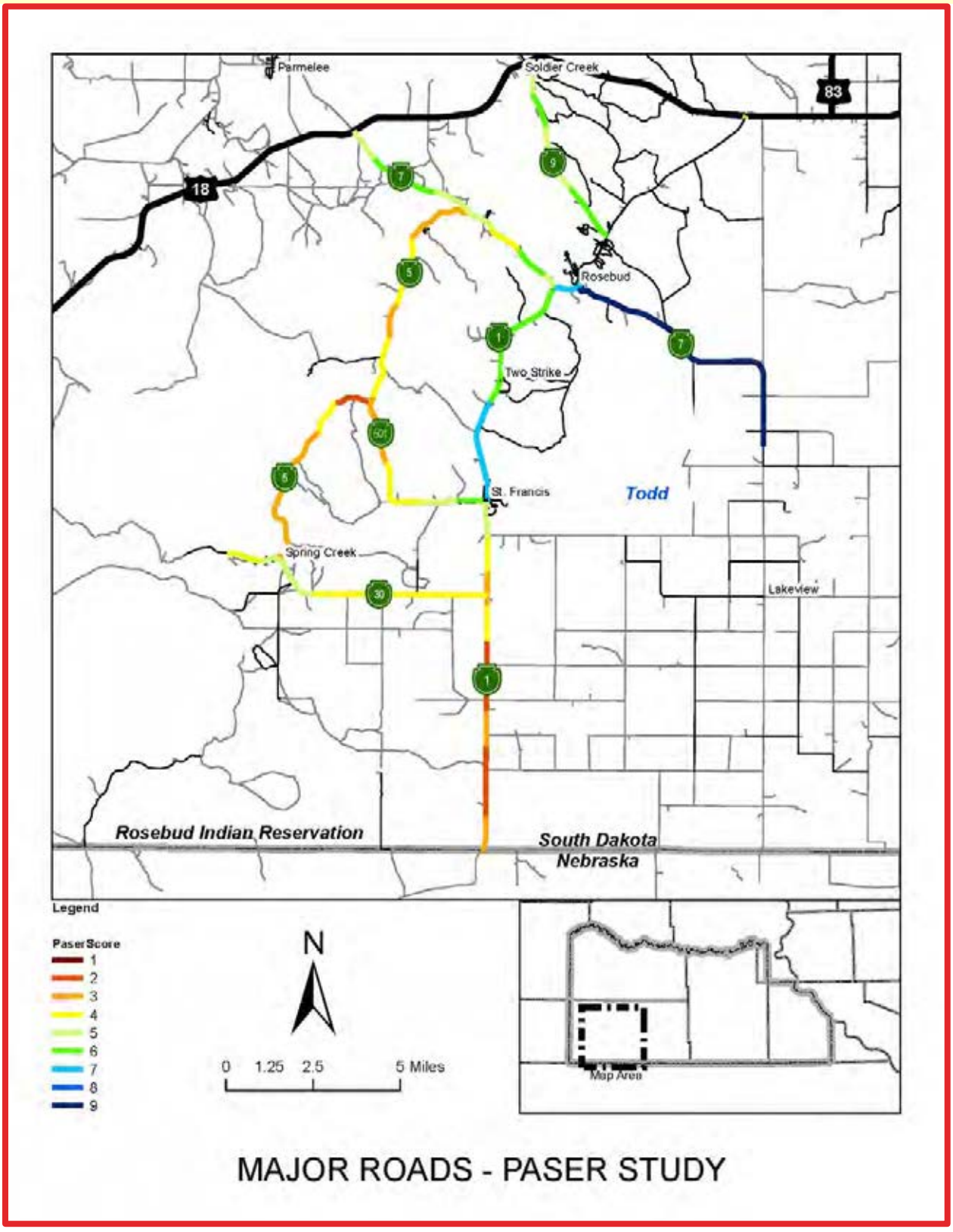
PAVED ROADS

Facility Conditions

The Rosebud Sioux Tribe is responsible for maintaining over 390 miles of roadway, 108 miles of which are paved roads. These consist largely of 2-lane asphalt roads, with several miles of newer concrete paving. Funding levels have not allowed for extensive regular overlays, reconstruction, seal coats, and other maintenance.

A PASER study of paved roads on the reservation was completed as a part of this plan. This study focused on 68.2 miles of rural highways and 17.3 miles of asphalt streets in communities and rural housing developments throughout the reservation, totaling 85.5 miles of assessed pavement. Each one-mile segment of highway and each block of community street was given a PASER score from 1 to 9, denoting the overall quality of the pavement and by extension the necessary improvements, ranging from minor maintenance to full reconstruction. Inventoried highways on the reservation can be found in **Figure 31.**

FIGURE 31: BIA/TRIBAL PAVED HIGHWAYS – PASER SCORE



Funding levels have not allowed for extensive regular overlays, reconstruction, seal coats, and other maintenance. Having a proactive strategy plan in place will maximize design life and help prevent the necessity of higher-cost reconstruction versus more moderately priced repairs. Images of example paved roadway conditions are shown in **Figure 32**.

FIGURE 32: PAVED ROAD CONDITIONS



RECOMMENDATIONS

This section focuses on the strategies and projects needed to maintain and improve upon the existing paved roads for which the Rosebud Sioux Tribe is responsible. The primary source for information in this chapter came from the FHWA's Pavement Preservation Compendium, Strategic Planning for Pavement Preventive Maintenance, documenting the Michigan Department of Transportation's "Mix of Fixes" Program.

- Initiate a Pavement Management Program (PMP)
- Establish a Schedule for Pavement Preservation and Maintenance
- Undertake Short- and Long-Range Paving Projects

PAVEMENT MANAGEMENT & PRESERVATION

The timing for pavement treatments is particularly important to maintain an effective pavement management budget. Example: Crack sealing is best performed when temperatures are moderately cool, such as the spring or fall months. Cooler temperatures are generally when the cracks are fully open, allowing for the entire crack to be sealed. More in-depth maintenance (minor overlays, chip seals, etc.) can be done in the summer months.

Crack sealing can also be performed with less labor involved, so a smaller crew can manage these in the fall and spring, whereas the more intensive maintenance plans can be done in the summer when maintenance departments typically have seasonally higher workforce as well. Higher temperatures also lessen the cure time required, thus allowing the roadway to be opened in a shorter time frame. Full reconstruction and structural overlays are generally more labor and equipment intensive and are much more expensive. Sealing does need to be performed in moderation. Extensive sealing operations can result in a loss of pavement friction, which would then lead to a chip seal for the roadway to function properly in winter months. It is also extremely important to keep weather factors in mind, as excessive moisture can prohibit the sealant from bonding properly.

It is known that costs can vary quite a bit in the study area. Approximate contracted-out costs per mile for major maintenance tasks associated with work within the Rosebud Sioux Tribe's Reservation boundary are listed in **Table 8** and **Table 9**.

It is extremely important to keep track of all associated maintenance costs (crack sealing, seal coating, etc.). No matter how minor the task that is being performed, accurate and concise cost tracking will enable more accurate programming, scheduling, and budgeting. Costs vary by region, so by tracking these costs it enables an accurate pavement management plan to be applied for each specific region.

TABLE 8: PASER SCORE AND RECOMMENDED MAINTENANCE STRATEGY

PASER Score	Required Rehabilitation
1	Complete Reconstruction
2	Reconstruction
3	Structural Overlay w/ Dig Outs
4	Structural Overlay
5	Non-structural Overlay
6	Crack and Chip Seal
7	Crack Seal
8	No Action Needed
9	No Action Needed
10	No Action Needed

TABLE 9: PAVEMENT IMPROVEMENT TYPE & COST PER MILE (2025)

Improvement Type	Cost per Mile*
Complete Reconstruction	$2,700,000
Reconstruction	$2,250,000
Structural Overlay w/ Dig Outs	$1,700,000
Structural Overlay	$1,200,000
Non-Structural Overlay	$700,000
Crack and Chip Seal	$62,000
Chip Seal	$52,000
Crack Seal	$28,000

**Costs include engineering design and construction observation. Crack seals should be performed the year before chip seals and non-structural overlay projects. Overlay assumptions include structural (>2") & non-structural overlay (2" and less). Almost all seal coat techniques are anticipated to be in the $60K to $70k per mile range, though local costs could vary significantly.*

The estimated costs are assumptions in 2025 US Dollars for contracting purposes. These are estimates based on recent similar projects and SDDOT Average Bid Prices. For planning and budgeting purposes and under normal economic circumstances, construction costs should be expected to increase at a five to six percent annual inflation rate.

MAINTENANCE STRATEGIES

There is a saying that you "*shouldn't improve the worst roads first.*" This saying is proven through research. It is more cost efficient to keep a good road in operating condition than to replace an aging road. Therefore, by putting money upfront into seal coating, crack sealing, etc., the roadway's life can be extended far more efficiently than waiting until structural improvements are required (overlays, milling, reconstruction, etc.). Preventive maintenance, as indicated in **Figure 33** (and **Figure 34 –** Pavement Condition Over Time) below, is far less expensive than corrective maintenance. Corrective and emergency repairs occur when the roads are more deteriorated or have lower PASER ratings and require costly structural improvements or reconstruction (See **Figure 35**).

FIGURE 33: PREVENTIVE MAINTENANCE

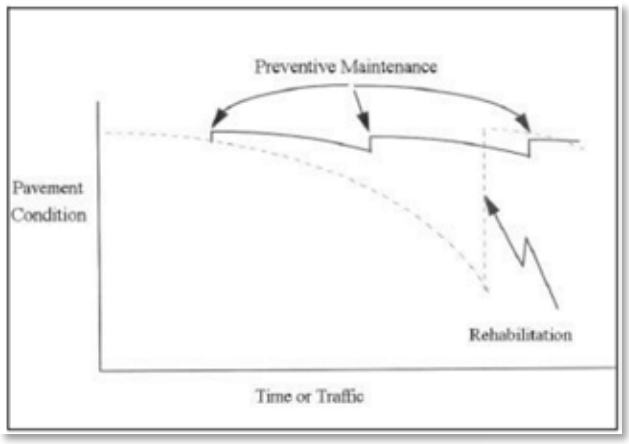
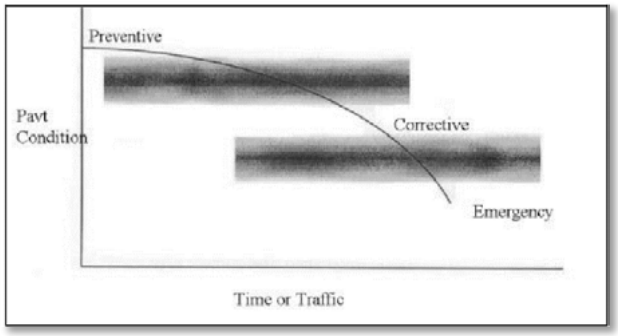


FIGURE 34: PAVEMENT CONDITION OVER TIME



As a last resort, but also an option that may be desirable under certain circumstances, Rosebud Sioux Tribe may consider reverting certain low priority roads back to unpaved / natural surface surfaces if they have deteriorated to such poor condition that regular maintenance activities will not effectively improve the road condition.

Funding levels have not always allowed for extensive regular overlays, reconstruction, seal coats, and other maintenance. Having a proactive strategy plan in place will maximize design life and help prevent the necessity of higher-cost reconstruction versus more moderately priced repairs.

It is recommended that the Rosebud Sioux Tribe uses all these strategies or interventions to maintain their paved roads. Our cost estimates are based on contracting prices. The Tribe can typically expect to complete the work at a lower cost by utilizing their staff and equipment to the greatest extent possible.

Understanding how road pavements age and deteriorate over time, both by environmental conditions and traffic loading, is critical in developing a sustainable roadway rehabilitation and maintenance program. Maintaining and rehabilitating infrastructure at appropriate times saves public dollars in the long term. Studies have shown (**Figure 35**) that maintaining pavement through rehabilitation techniques has the potential to be 6 to 14 times more cost effective than rebuilding a deteriorated road.

FIGURE 35: ROAD MAINTENANCE TYPES OVER TIME

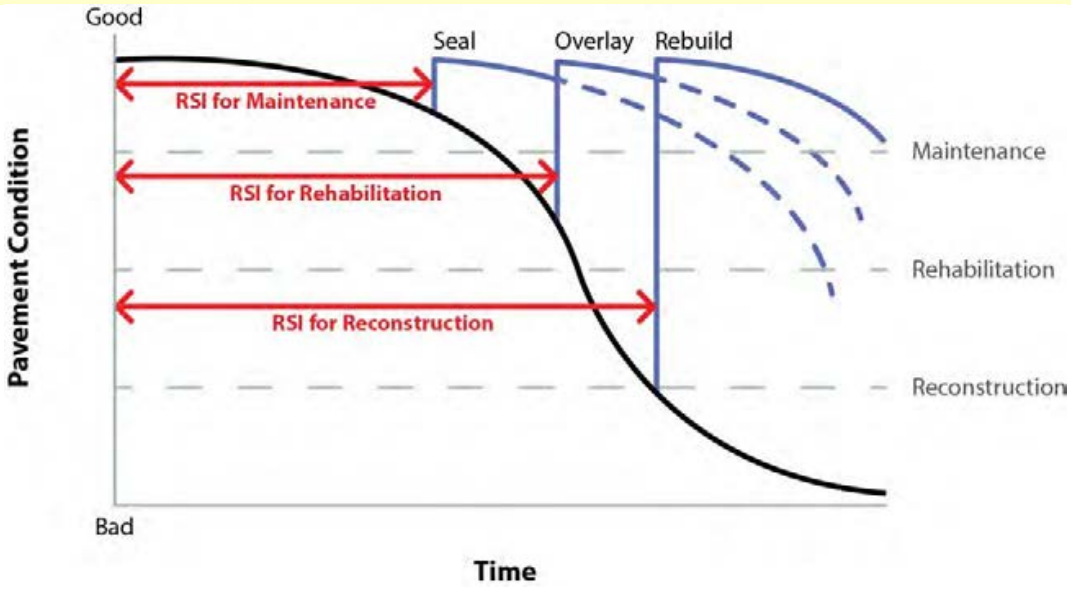


Figure 35 above graphically shows why it is favorable and cost effective to maintain good roads than it is to wait and reconstruct bad ones. Overlays or reconstruction projects have a longer Return Service Interval (RSI) and are performed less often than chip seals. However, as the road condition deteriorates, the costs associated with restoring the road to good condition increase exponentially. See **Table 10** for a comparison of several routine roadway treatments and their cost per year, based on RSI.

TABLE 10: TREATMENT COST PER YEAR

Treatment Type	RSI (years)	Cost per Mile*	Cost per Year
Crack + Chip Seal	3	$80,000	$26,667
Overlay (Non-Structural)	12	$700,000	$58,333
Reconstruction	25	$2,700,000	$108,000
** Based on 2024 SDDOT average bid prices*			

Techniques such as *Pavement Surface Evaluation and Rating* (PASER) can allow a department to produce an effective treatment plan based on the conditions of the surrounding roadways. PASER is a visual method, based on engineering principles, for evaluating paved roads in a time efficient and consistent manner. The PASER method outputs a simple 1 through 10 rating for each section of roadway studied. This provides an understandable way for an agency to communicate pavement conditions to elected officials and the public, and it also allows more time to be put towards scheduling and budgeting. The ability to know the condition of all roadways under Tribal jurisdiction is an extremely useful tool to schedule all preventative maintenance to keep all roadways functioning at their current condition, instead of degrading to the point where more costly corrective and emergency maintenance treatments are required.

NON-PAVED ROADS

EXISTING CONDITIONS

There is limited documentation available regarding the condition of non-paved roadway surfaces within the Reservation. The condition of non-paved Reservation roadways varies significantly. The latest RIFDS dataset indicates that approximately 36 miles of gravel roads and 183 miles of primitive roads are maintained by the Tribe, with the majority of the gravel roads being BIA and majority of primitive roads being Tribal. Even though the gravel roads are BIA, the Tribe is contracted with BIA to maintain the BIA roads.

Issues with non-paved roadways can include them being too narrow, limited or no surface aggregate, poor cross section, lack of proper ditches and drainage, rutting, and dust. Pictures of non-paved roadway surface conditions on the Rosebud Sioux Tribe's reservation roads are shown in **Figure 36**, but most roads are not maintained to this level.

FIGURE 36: EXAMPLES OF NON-PAVED ROADWAY TYPES AND CONDITIONS



A list of BIA/Tribal non-paved roads is available in **Table 11**. These are shown graphically in **Figure 37** and **Figure 38.**

TABLE 11: BIA/TRIBAL NON-PAVED ROADS

NTTFI Route #	BIA / Tribe	Name	Gravel (Miles)	Primitive (Miles)
3	BIA	BIA Route 3	2.6	2.6
9	BIA	BIA Route 9	15.7	
10	BIA	Antelope Housing Streets	0.7	
12	BIA	BIA Route 12	3.6	
14	BIA	Swift Bear Streets Nursing Home	0.2	
15	BIA	St. Francis Streets	0.2	
19	BIA	Ghost Hawk Park Area		0.7
20	BIA	Golf Course Rd-Menard Rd		5.4
21	BIA	Parmelee Streets	0.8	0.2
22	BIA	Spring Creek Streets		1.2
24	BIA	Black Pipe Housing Streets	0.3	
26	BIA	O'Kreek Streets	0.4	0.3
28	BIA	Corn Creek Housing Streets	0.7	
29	BIA	Horse Creek Housing Streets	0.6	
30	BIA	BIA Route 30	2.3	
36	BIA	Upper Cut Meat Streets	0.4	0.2
37	BIA	He Dog Streets	0.8	
38	BIA	Ring Thunder Streets	0.3	
40	BIA	Winner Housing Streets	0.4	
113	BIA			2.5
512	BIA	Grass Mountain Streets	0.3	0.4
701	BIA			1.4
712	BIA			2.2
901	BIA	BIA Route 901	2.5	
902	BIA			1.4
903	BIA	Hospital and Access Road	0.9	
905	BIA			0.3
909	BIA			0.9
1100	BIA	Rosebud Old Town Streets		0.1
1100	BIA	Rosebud Old Town Streets	0.8	
1107	BIA	Church, Court, School Housing Streets	0.2	
1201	BIA	BIA Route 1201 Spring Creek Lake		2
1202	BIA	BIA Route 1202	0.6	0.9
3016	BIA	BIA Route 3016		1
3203	BIA			1.4
2	Tribe			1.8
4	Tribe			2
23	Tribe	Soldier Creek Streets		0.1

NTTFI Route #	BIA / Tribe	Name	Gravel (Miles)	Primitive (Miles)
32	Tribe			9.2
45	Tribe	Rosebud JDC Road	0.1	
105	Tribe			1.5
112	Tribe	Tribal Route 112 Tribal Ranch Road		1.4
502	Tribe			0.7
711	Tribe			0.2
713	Tribe	Tribal Route 713		1.3
1001	Tribe	Heifer Lake Access Road	0.6	0.8
2000	Tribe	Route 200 Fire Trail		0.8
2090	Tribe	Route 209 Cultural Access Road		1.6
2100	Tribe	Route 210 Fire Trail		2
2110	Tribe	Route 211 Fire Trail		0.9
2120	Tribe	Route 212 Fire Trail		5.3
2130	Tribe	Route 213 Fire Trail		2.4
2140	Tribe	Route 214 Fire Trail		0.8
2150	Tribe	Route 215 Fire Trail	0.1	2.6
2160	Tribe	Route 216 Fire Trail		1.2
2170	Tribe	Route 217 Fire Trail		1.2
2190	Tribe	Route 219 Fire Trail		3.2
2200	Tribe	Route 220 Fire Trail		0.7
2240	Tribe	Route 224 Fire Trail		4.7
2250	Tribe	Route 225 Fire Trail		3
2260	Tribe	Route 226 Fire Trail		5.2
2280	Tribe	Route 228 Fire Trail		2.5
2290	Tribe	Route 229 Fire Trail		2
2300	Tribe	Route 230 Fire Trail		2.6
2350	Tribe	Route 235 Fire Trail		1.3
2360	Tribe	Route 236 Fire Trail		1.9
3060	Tribe	Route 306 Fire Trail		3.6
3070	Tribe	Route 307 Fire Trail		3.8
3140	Tribe	Route 314 Fire Trail		2.7
3150	Tribe	Route 315 Fire Trail		1
3160	Tribe	Route 316 Fire Trail		1.1
3190	Tribe	Route 319 Fire Trail		1.1
4050	Tribe	Route 405 Fire Trail		1.1
7004	Tribe	Cultural Access Road		1.7
7005	Tribe	Route 5 Fire Trail		2.6
7006	Tribe	Cultural Access Road		6.1
7007	Tribe	Route 7 Fire Trail		1.7

NTTFI Route #	BIA / Tribe	Name	Gravel (Miles)	Primitive (Miles)
7013	Tribe	Route 13 Fire Trail		0.3
7014	Tribe	Route 14 Fire Trail		7.6
7015	Tribe	Route 15 Fire Trail		0.8
7023	Tribe	Route 23 Fire Trail		1.6
7039	Tribe	Route 39 Fire Trail		5
7046	Tribe	Route 46 Fire Trail		2.9
7048	Tribe	Cultural Access Road		4.1
7049	Tribe	Route 49 Fire Trail		1.5
7050	Tribe	Route 50 Fire Trail		3.6
7051	Tribe	Cultural Access Road		1.6
7052	Tribe	Route 52 Fire Trail		1.2
7053	Tribe	Route 53 Fire Trail		1.8
7055	Tribe	Route 55 Fire Trail		4.1
7056	Tribe	Cultural Access Road		3
7057	Tribe	Route 57 Fire Trail		3.9
7058	Tribe	Route 58 Fire Trail		2.5
7059	Tribe	Route 59 Fire Trail		2.5
7060	Tribe	Route 60 Fire Trail		1.5
7061	Tribe	Route 61 Fire Trail		1.1
7063	Tribe	Cultural Access Road		2.3
7064	Tribe	Cultural Access Road		4.2
7065	Tribe	Route 65 Fire Trail		3.6
7072	Tribe	Route 72 Fire Trail		2.2
7078	Tribe	Route 78 Fire Trail		1.3
7079	Tribe	Route 79 Fire Trail		1.6
		Totals =	**36.1**	**182.3**

FIGURE 37: BIA/TRIBAL NON-PAVED ROADS WEST

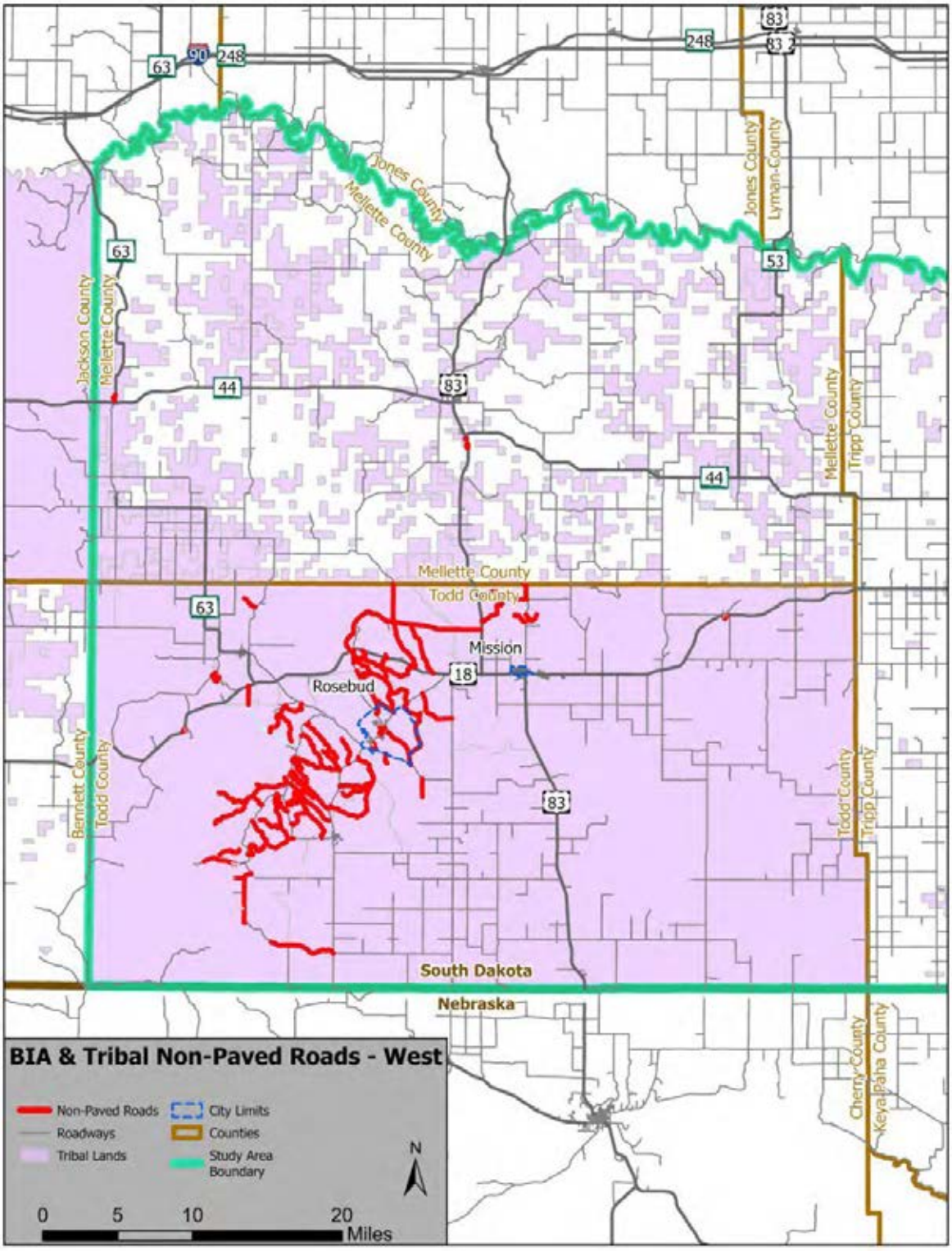
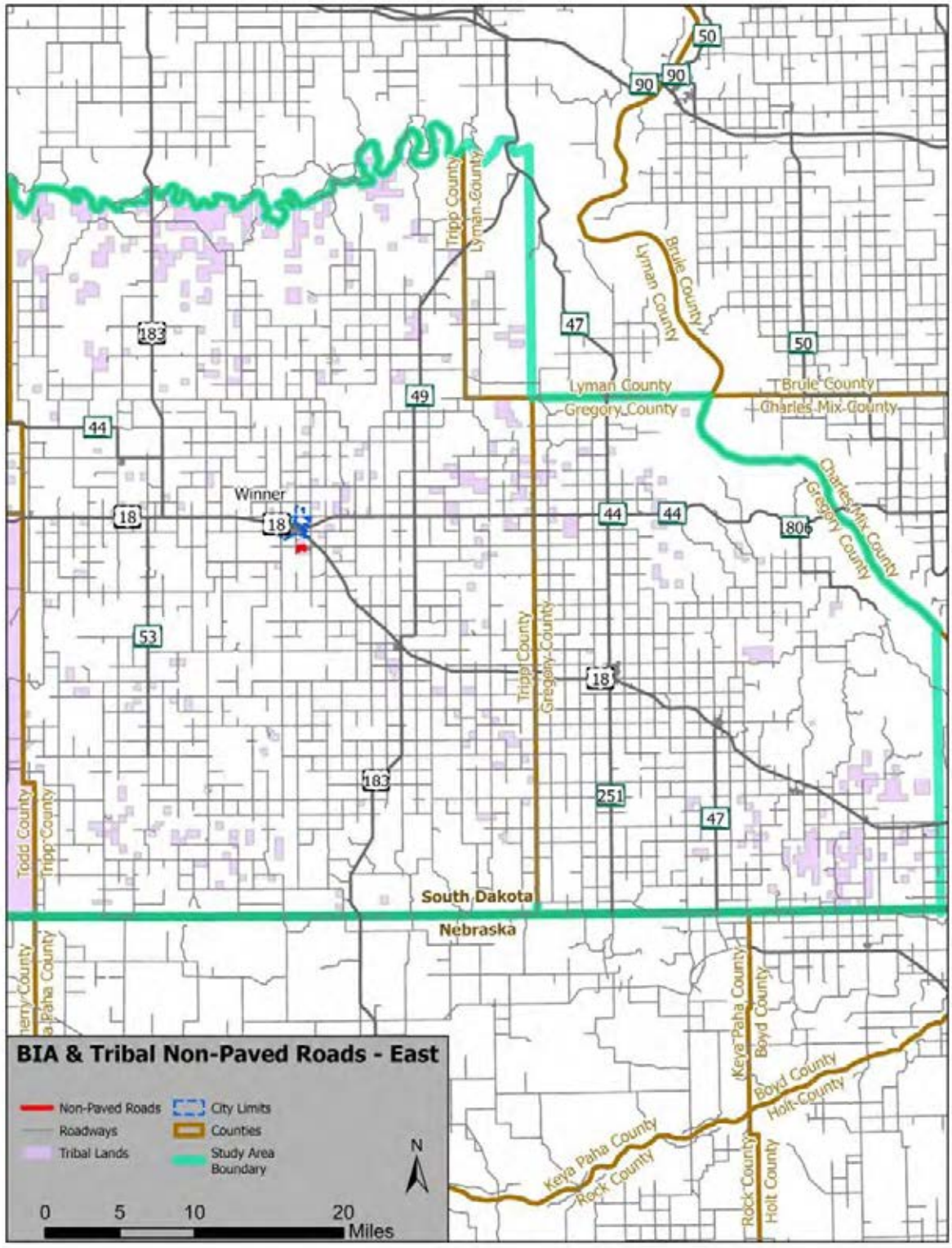


FIGURE 38: BIA/TRIBAL NON-PAVED ROADS EAST



Only 8.5 percent of the total non-paved roads within the study area are BIA and Tribal roads. Included in the Tribe's NTTFI are a total of 2,546 miles of non-paved roads within the study area of Gregory, Lyman, Mellette, Todd, and Tripp counties. Gregory County has jurisdiction of 613 miles, Mellette has jurisdiction of 336 miles, Todd County has jurisdiction of 265 miles, and Tripp County has jurisdiction of 1,081 miles. Non-paved roads are not included in the Tribe's NTTFI for Lyman County. Additionally, there are 33 miles of state highway within the study area which are not paved including SD Highway 53 and 63.

RECOMMENDATIONS

Non-paved roadways recommendations address the need for use of good roadway materials, proper drainage, and surface treatments, as well as the implementation of improvements through gravel rehabilitation and maintenance programs.

There are many resources available that provide guidance on good maintenance practices for gravel roads. This report referred to the FHWA Gravel Roads Construction & Maintenance Guide published August 2015, the SD LTAP Gravel Roads Maintenance and Design Manual published November 2000, and the PASER Gravel Roads Manual published in 2002.

SURFACE AND BASE MATERIALS

Roadway surface conditions can be dramatically improved when better materials are used. Gravel performs well when the right gradation is used, and it can perform nearly as well as pavement. Currently, the Rosebud Sioux Tribe *does* own gravel pits within the Reservation, however the quality of the gravel may not be exemplary. It may be beneficial for the Tribe to investigate the potential for developing new gravel resources to reduce costs and to improve road maintenance within the Reservation.

SURFACE TREATMENTS

Surface treatments can be applied to reduce dust and to stabilize loose surface gravel. Magnesium chloride (MgCl) is a chemical (hygroscopic salt) effective in dust control. It costs about $8,000 per mile for the first treatment and $5,000 per mile for additional treatments. These treatments need to be applied once or twice a year depending on conditions to be effective. Dust control may be included in the Rosebud Sioux Tribe road maintenance program if deemed a priority. MgCl should not be applied across bridges and box culverts due to its corrosive properties. Hot mix asphalt can be applied at these isolated locations to avoid structure degradation while also providing dust suppression where MgCl is not applied.

CULVERTS AND DITCHES

Many of the gravel or primitive surface roads also have drainage challenges. Culverts and ditches are necessary to remove storm water from the road surface and subgrade. Storm water not removed from the roadway will cause soft spots, scouring and complete roadway failure. A culvert and drainage inventory is recommended to identify areas of roadway vulnerabilities and assist the RST Transportation Program in prioritizing culvert and ditch improvements. Large drainage areas crossing gravel/primitive roads which are listed in the NTTFI may be eligible for TTP Bridge Funding for planning and construction if the required culvert size meets eligible criteria.

GRAVEL REHABILITATION

Some existing gravel roads need significant effort to improve them to function as a quality gravel road. When the gravel surfacing needs to be removed and the subgrade needs to be improved, and changes to the ditch cross section are needed, a gravel rehabilitation project should be planned.

This type of work falls well beyond the typical gravel maintenance project and is therefore more expensive. However, without proper drainage and a good cross section, addition of gravel will often have less than the desired impacts on fixing the problem. Gravel rehabilitation may also be used as an interim step towards future gravel to pavement conversion projects.

MAINTENANCE

Effective roadway maintenance techniques are outlined in the manuals discussed on the previous page. Non-paved roadways will perform better if they are maintained with a 4 percent crown. Improper grading can remove valuable surface materials and grading must account for intersecting roads and driveways, as well as other site conditions.

Fines content (material passing a 200 sieve) of 8%-15% in the gravel surfacing matrix and maintaining that content is key to gravel road longevity and ride comfort. Training is recommended for road grader operators and material handling from pit source to laydown, which will to improve their ability to maintain various non-paved road surfaces, prevent matrix segregation, and to respond to varying conditions. This training may be available through the SDLTP or NDLTP.

The ability for roadway shoulders and ditches to keep the surface and subgrade free from water and ice is also important. Mowing operations should be included in the annual maintenance budget. Ditch in-slopes should be mowed. This will also improve visibility, resulting in improved safety. Whenever possible, ditches should be provided to allow good drainage to occur and to provide additional snow storage. KLJ observed that numerous roads lack a crown or proper drainage, so they are severely impacted during even minimal rainfall events.

Ditch improvements and culvert jetting should be considered along roadways where drainage issues exist. Conversion of primitive roads to gravel roads is desirable wherever practical and as funding allows. Priorities should be roads with higher usage. Funding can also be set aside annually to upgrade equipment to bolster the gravel maintenance program.

UNPAVED ROAD PROJECT PRIORITIES

The Tribe has not identified any priority short-range unpaved roadway projects at the time of writing this LRTP update. However, for long-range unpaved projects have been identified by the Tribe and will need to receive funding before work can begin. If funding becomes available or priorities change, long-range projects may be moved up into the short-range element of the plan. For unpaved and/or gravel improvement types, **Table 12**: Gravel Road Improvement Type & Cost Per Mile (2025) provides cost estimations on a per mile basis for unpaved road projects ranging from complete reconstruction, reshaping, dust reduction treatments, and general grading and maintenance.

TABLE 12: GRAVEL ROAD IMPROVEMENT TYPE & COST PER MILE (2025)

Improvement Type	Cost per Mile*
Complete Reconstruction to Add Culverts and Ditches	**$1,700,000**
Reshaping Road Top and Adding Gravel	**$250,000**
Surface Treatments for Dust Reduction	**$8,000**
Maintenance	**$15,000**

** Costs include engineering design, construction and construction observation.*

FREIGHT AND TRUCKING

EXISTING CONDITIONS

Freight is defined as the movement of goods. The efficient movement of goods is a fundamental prerequisite for growth in jobs and a strong economy. Trucking is the only means of freight movement within the Reservation since there are no railway or airport freight movement facilities within the Reservation. The Rosebud Economic Development Corporation (REDCO) primarily focuses on creating businesses like retail stores, auto services, and agricultural projects to address economic challenges on the reservation. While these projects have transportation needs, they do not include the operation of a general freight facility. See the previous chapter for an inventory of existing truck traffic on the reservation.

RECOMMENDATIONS

Heavy loads carried by trucks cause much greater damage to roads than passenger vehicles, and the heavier the load, the more the damage increases exponentially. Heavy loads exacerbate rutting and accelerate fatigue cracking, which can lead to potholes. This impact can be minimized if load limits are established and enforced. Scales can be set up to monitor travel by trucks exceeding the load limits, and to assist in levying fines. It would be beneficial for the Rosebud Sioux Tribe to consider development of ordinances, policies and procedures aimed to reduce the activity of heavy trucks on Reservation roads. Ideally, contractors and major businesses would be held responsible for damage to any haul roads on the Reservation. The hauling of hazardous materials is a potential issue associated with hauling of freight. Emergency planning should address the potential for hazardous spills and their impacts on access and safety. Future policies could include requiring hauling permits and levying fines for all overweight vehicles that use BIA and Tribal roads. Ideally, contractors and major businesses would be held responsible for damage to any haul roads on the Reservation.

BRIDGES

EXISTING CONDITIONS

There are currently ten bridges identified on the BIA or Tribal Road systems on the reservation. The remainder of bridges on the Reservation are either state or county owned. Six of the ten bridges have a bridge condition of "good", one bridge that is "fair," and three others are rated as "poor" condition. A picture of Bridge A031 on BIA 7 is pictured below.

An inventory of existing bridges with ownership and length is shown in **Table 13**. A map showing locations of bridges and culverts is presented in **Figure 39** as well an 11x17 map size version in Appendix A.

TABLE 13: BIA/TRIBAL BRIDGE INVENTORY AND CONDITIONS

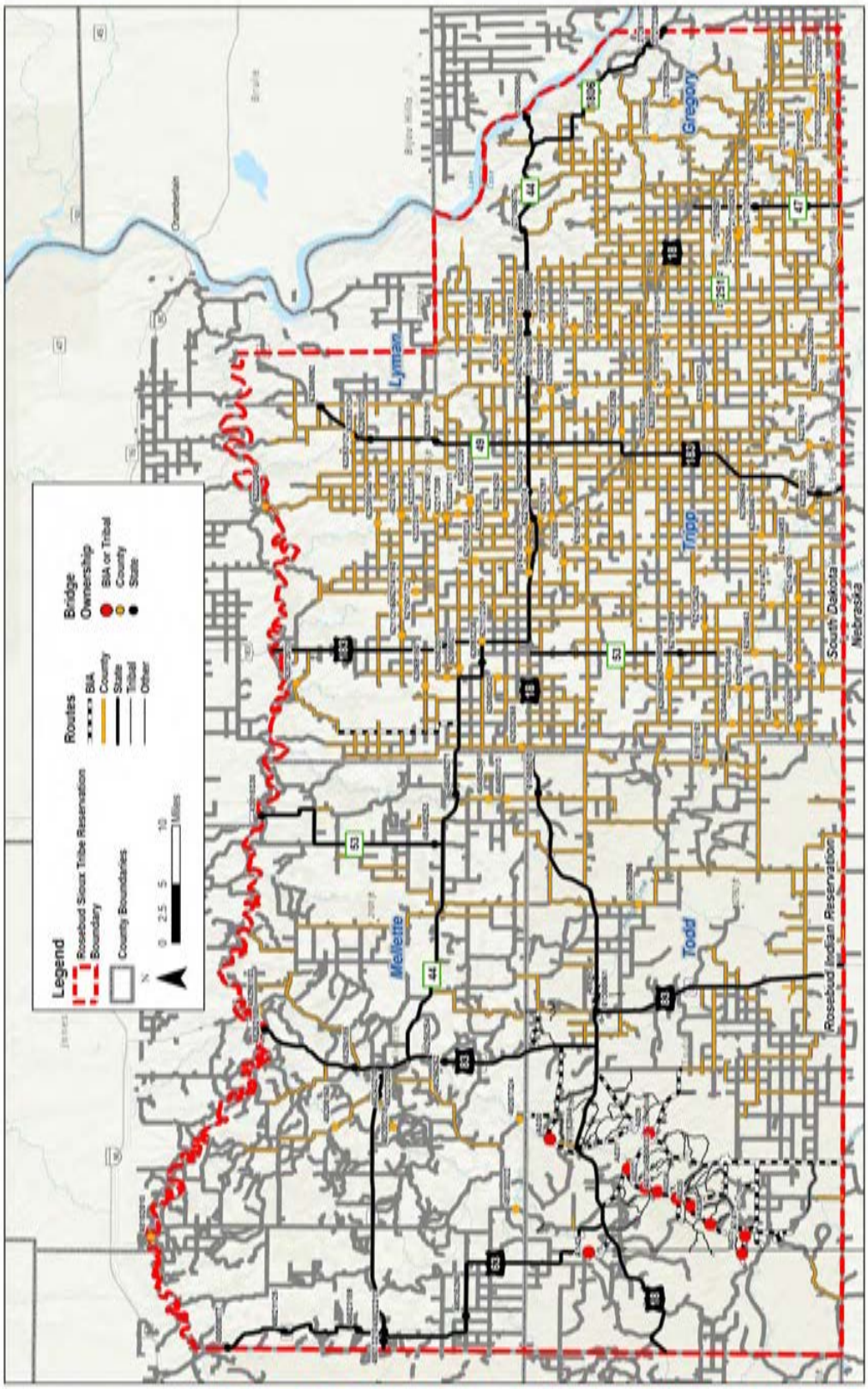
Structure Number	NTTIF Route	Route Name	Feature Intersected	Length (feet)	Owner-ship	Bridge Condition	Inspection Date	Year Built
A034	3	BIA 3	Little White River	99	BIA	Poor	Aug 2022	1964
A036	5	BIA 5	Little White River	99	BIA	Good	2024	2024
A035	5	BIA 5	Little White River	99	BIA	Good	2024	2024
A033	5	BIA 5	Little White River	99	BIA	Good	2024	2024
A032	5	BIA 5	Little White River	99	BIA	Good	2024	2024
A031	7	BIA 7	Little White River	110	BIA	Poor	Aug 2022	1972
A030	9	BIA 9	Little White River	109	BIA	Fair	Aug 2022	1970
A071	30	BIA 30	Little White River	76	BIA	Good	Aug 2022	1994
A141	101	Tribal 101	Little White River	96	Tribe	Good	Aug 2022	2003
A039	1102	BIA 1102	Rosebud Creek	36	BIA	Poor	Aug 2022	1971
A142	4	BIA 4	Upper Cut Meat Creek	76	BIA	Good	2024	2004

*Currently mislabeled in NTTFI/RIFDS as A056 – additional information unknown

The picture below shows Bridge A031 (poor condition) on BIA 1 crossing the Little White River.



FIGURE 39: BRIDGE LOCATIONS AND OWNERSHIP



RECOMMENDATIONS

Regular inspections and maintenance are recommended to keep these bridges in good operating condition. The three bridges rated as poor are all slated to be replaced by the end of the 2026 construction season; efforts should be made to ensure that bridges continue to be replaced as they deteriorate to poor condition. Channel scour prevention and bridge/box culvert cleaning should be programed for regular evaluation and maintenance.

Because the TTP Bridge Program has recently changed to include "New Bridges", it is recommended to evaluate existing BIA and Tribal roads for large drainage crossings that could be eligible for a bridge structure which consists of a culvert at least twenty feet in width. These crossings may be evident on roads which flood frequently or are near creeks where large drainages cross the road to the creek. The RST Transportation Program can submit the evaluated (typically by an engineer) drainage crossing with a recommended culvert size at least twenty feet wide for TTP Bridge Program planning funds. Following PS&E of the bridge/culvert, a TTP Bridge Program construction application can be submitted for funds.

Although the Tribe is not responsible for state or county owned bridges or culverts within the Reservation, it is further recommended that the Tribe coordinate with state and county representatives as needed.

PEDESTRIANS AND BICYCLES

EXISTING CONDITIONS

Sidewalks and shared use paths are important pedestrian and bicycle transportation facilities and serve a variety of functions. They are essential to health and safety for many Tribal travelers. Sidewalks and shared use paths differ with sidewalks typically about 5 feet wide and are designed to handle pedestrian traffic only.

Shared use paths are typically 8-10 feet wide and are designed to serve both pedestrians and bicyclists. They provide critical access to a variety of destinations, recreation, and shortcuts or additional safety versus walking or biking on the shoulder of a roadway. It is assumed that in most cases, proposed sidewalk improvements will meet the design criteria for a shared use path.

No comprehensive inventory of sidewalks has been conducted for the Rosebud Sioux Tribe, however it is estimated that there are less than 10 miles of sidewalks throughout the reservation. Most rural areas of the reservation have no sidewalks, even in areas with rural subdivisions and schools. Sidewalks can be found along major roads in the reservation's largest towns, such as along BIA-1 and BIA-7 in Rosebud and US-83/US-18 in Mission. The older neighborhoods in these towns lack a consistent sidewalk network, although newer developments tend to include them. The few sidewalks in smaller communities such as Parmelee and St. Francis are generally narrow and overgrown.

There are few existing shared use paths on the reservation, with the exception being a 0.8-mile path along US-83 between the Rosebud Casino and the nearby casino housing at Sicangu Village (which itself lacks sidewalks). This plan proposes an additional 12.8 miles of shared use paths, as well as other high-level recommendations for pathway additions as part of larger projects throughout the reservation.

RECOMMENDATIONS

Walking and biking are important modes of transportation for many of the Rosebud Sioux Tribe inhabitants, but the existing infrastructure is lacking. There are significant corridors within the

Reservation that have no facilities, limited facilities, gaps in the system, or facilities that are compromised due to maintenance issues.

Sidewalks and shared use paths were proposed using the following methods:

- Fill areas where there are gaps
- To provide sidewalks within housing areas
- To connect Rosebud Sioux housing areas and Tribe subdivisions.
- To connect schools to area housing
- To create a more complete network in the Rosebud and Mission areas

Going forward, designing roadways to accommodate all users would improve walking and biking conditions on the Reservation. This practice is commonly referred to as "complete streets" and offers the following benefits:

- Safety: A FHWA safety review found that streets designed with sidewalks, raised medians, traffic-calming measures, and treatments for travelers with disabilities improve pedestrian safety.
- Health: Multiple studies have found a direct correlation between the availability of walking and biking options and obesity rates. In fact, the Centers for Disease Control and Prevention recently named adoption of complete streets policies as a recommended strategy to prevent obesity.
- Reduced User Costs: Complete streets offer inexpensive transportation alternatives to roadway users. A recent study found that most families spend far more on transportation than on food.
- Foster Strong Communities: A recent study found that people who live in walkable communities are more likely to be socially engaged and trusting than residents living in less walkable communities.

Shared use facilities may use either a paved, gravel, or dirt surfacing, and can also include path lighting, and bike racks. Bike racks at populous destinations add a level of security and establishes the locations where people may park their bikes. Locations where bike racks would be beneficial are schools, Tribal offices, convenience stores, transit stops, and transit shelters. It is recommended that the Rosebud Sioux Tribe provide bike racks and benches in high activity locations where funding is available.

In general, the Rosebud Sioux Tribe should work to maintain existing sidewalks which have become overgrown with vegetation. Several sidewalks in and around the Rosebud community have trees and shrubs blocking the way. Whenever possible, the Tribe should trim trees within the right-of-way and where they have overtaken sidewalks.

SHORT- AND LONG-RANGE PEDESTRIAN-BICYCLE PATH PROJECTS

Several short and long-range multimodal projects are planned for the Rosebud Tribe. Some are part of larger roadway redesign and reconstruction projects, while some are specific to shared-use facilities. A full list of short- and long-range projects can be found in **Chapter 8**, along with more detailed descriptions and maps of all projects. A map of all planned projects reservation-wide can be found in **Appendix A, Figure 83**.

The six projects in **Table 14** are top priority locations for improvements and are recommended to be started prior to 2029. Grant monies should be pursued to cover most of the costs for these projects. Should grants be obtained, matching funds should be provided using TTP funding.

TABLE 14: SHORT-RANGE PEDESTRIAN/BICYCLE PROJECTS

Project Name and Description	Route(s)	Length (mi)	Estimated Project Cost
BIA Route 7 Regional Improvement Project - Rural grant to reconstruct & pave 269th Ave and 293rd St, mill and overlay BIA 7 west of Rosebud, asphalt pave shoulders of BIA 7 east of Rosebud, plus safety improvements and pathways	BIA 7 and Todd County's 269th St, & 293rd Ave	24	$ 32,750,000
BIA Route 1 Pedestrian Connectivity & Safety Study - TTPSF grant to study pedestrian connectivity and safety with recommendations for improvements to BIA 1 from BIA 1 & 9 intersection to BIA 7 in Rosebud	BIA 1	2.2	$ 100,000
South BIA Route 1 / Kilgore Rd Regional Improvement Project Design, Including St. Francis Pathway - Planning and preconstruction (except right-of-way acquisition) to reconstruct BIA 1, Warrior Rd, and Kilgore Rd from St. Francis, SD to Kilgore, NE	10.3 miles of BIA 1, 0.5 miles of Warrior Rd, and 6.2 miles of Kilgore Rd, NE	17	$ 2,050,000
Antelope and White Horse Community Pedestrian Connectivity, Phase I Design and Construction - New pathway from end of existing sidewalk on US18 into Antelope Community	0.25 miles along south side of US18, and 0.45 miles along BIA 10 east of Mission, SD	0.70	$ 1,043,923
Turtle Creek Pathway, Phase I Design and Construction - New pathway from end of existing sidewalk on US18 to Turtle Creek Crossing Super Foods entrance	North side of US18 west Mission, SD	0.75	$ 1,249,895
Two Strike Community Pathway Design - New pathway along east side of BIA Route 1 from St. Francis to Two Strike north entrance	East side of BIA 1	3.4	$ 570,000

SHORT-RANGE PEDESTRIAN / BICYCLE PROJECT DESCRIPTIONS

BIA Route 7 Regional Improvement Project

BIA Route 7 is a rural major collector 13.6-mile northwest/southeast route beginning at the intersection of U.S. Highway 18 and heading southeast intersecting local roads including BIA Routes 1 and 5 ends 6-miles east of Rosebud at the intersection of Lakeview Road. In addition to significant roadway and intersection improvements, the project will construct two new pathways along BIA Route 7 from US Hwy 18 to 2.5 miles east and from the end of existing sidewalk in Rosebud to approximately 3 miles west, improve safety at the BIA Routes 1 and 7 intersection, improve sidewalks in Rosebud, and add lighting along the pathways and in Rosebud near Tribal Headquarters.

BIA Route 1 Pedestrian Connectivity & Safety Study and Improvements

The identified project area begins at the intersection of BIA Routes 1 and 7 in Rosebud and extends approximately 0.3 miles north of the intersection of BIA Routes 1 and 9. Total length of the project area is 2.2 miles. Due to several concerns within the project area, the RST Transportation Program has contracted with a consultant engineering firm to conduct a study of pedestrian connectivity and safety. Following the study, the RST Transportation Program will apply for design and construction funds to make improvements recommended as approved by the RST Transportation Committee and Tribal Council. The Study is scheduled in the Short-Range Projects, and design and construction are included in the Long-Range Projects however may be completed sooner if funding is available. The improvements may include, but are not limited to, the addition of pedestrian refuge islands, additional multi-use pathways, lighting, high-performance pavement markings and cross walks, and other FHWA proven countermeasures that address both motorized and non-motorized traveler safety concerns.

South BIA Route 1 / Kilgore Rd Regional Improvement Project Design, Including St. Francis Pathway

RST Transportation Program has submitted a USDOT BUILD grant application to complete the planning and preconstruction activities for the BIA Route 1/Kilgore Road to US-20 Regional Improvement Project. This rural project connects the communities of St. Francis, South Dakota on the Rosebud Indian Reservation to Kilgore, Nebraska located along US Highway 20. The Project includes 10.3 miles of BIA Route 1, 6.2 miles of Cherry County's Kilgore Road, 0.5 miles of Warrior Road (BIA 15), and approximately 3.5 miles of pedestrian infrastructure. In addition to addressing considerable pavement quality and transportation safety issues, this project will include improvements to pedestrian infrastructure. The project begins at the north edge of St. Francis where the existing road will be transformed to a traffic calming 24-foot-wide paved 2-lane roadway top with curb and gutter, storm sewer, and ADA compliant sidewalks on both sides, which will connect to existing sidewalks at BIA Route 501 to 0.7-miles south where it connects to Warrior Road and continues 0.3 miles to the St. Francis Indian School. A 1-mile pedestrian pathway will extend south from sidewalks at Warrior Rd connecting numerous home sites to the community and school.

Antelope and White Horse Communities Pedestrian Connectivity

The Antelope and White Horse Communities pathway is planned for at least three phases; the first phase shown is planned for completion in the Short-Range. Phases following the first phase would be completed in the Long-Range. This area has high pedestrian traffic and is in proximity of the Sinte Gleska University. A pathway is needed along US Highway 18, connecting from Antelope going east towards White Horse, as well as a pathway connecting from the highway going south towards the university to connect into the community. Pedestrian lighting could be included in each phase for the proposed phases depending on the available funding. Coordination with SDDOT will be needed if a project were to come fruition for the Pathway along US Highway 18.

Turtle Creek Pathway

The construction of the new grocery store west of Mission and future development of Keya Wakpala by Siċaŋġu Co has increased pedestrian traffic and will continue to increase pedestrian traffic along US Hwy 18. The increase in traffic has created a need for a separated shared-use pathway. This pathway would connect existing pedestrian facilities and users from the town of Mission (phase I) and the high-density tribal housing north of the highway (phase II) with the new grocery store entrance west of town. The pathway will be constructed in phases with the first phase being completed in the Short-Range and future phases in the Long-Range. Depending on the availability of funding, lighting will be included. Coordination with SDDOT and Siċaŋġu Co is necessary for phase I and the City of Mission for phase II.

Two Strike Community Pathway

Five miles south of Rosebud on BIA Route 1 is the tribal housing community of Two Strike. The housing complex is U-shaped with two approaches off the highway. Pedestrians and bicycles use the roadway between the two approach roads rather than the longer route around on the residential street, demonstrating a need to connect them. St. Francis is located approximately 3.5-miles south of the Two Strike Community. Additional needs have been identified to provide for a safe and efficient alternative to remove pedestrians walking along the BIA Route 1 as many pedestrians commute back and forth between Two Strike and St. Francis for goods and services. The pathway would be 10-feet wide and begin in St. Francis at the intersection of Cherry Road, follow BIA Route 1 north and parallel to the roadway terminating at the furthest north approach of the Two Strike Community.

In addition to the short-range projects, there are 11 additional shared use path projects which were identified during the LRTP process and designated as long-range projects. These 11 projects include both design and construction activities for 7 different shared use paths. These should be completed as funding becomes available. **Table 15** lists the long-range projects and estimated costs. It should be noted that several are extensions of short-range projects, either because they are additional phases of projects beginning in the short-term (Antelope and White Horse Communities Pedestrian Connectivity, Turtle Creek Pathway), or the result of recommendations made in short term study projects (BIA Route 1 Pedestrian Connectivity & Safety).

TABLE 15: LONG-RANGE PEDESTRIAN/BICYCLE PROJECTS

Project Priority	Pathway Project Description	Length (Miles)	Estimated Project Cost
1	Winner Community Tribal Housing – Design	1.0	$ 250,000
2	Corn Creek Community – Design	0.3	$ 150,000
3	Antelope and White Horse Community Pedestrian Connectivity, Phase II & III – Design	2.7	$ 350,000
4	Turtle Creek, Phase II – Design	0.3	$ 140,000
5	St. Francis Community – Construction	1.0	$ 2,050,000
6	Two Strike Community – Construction	3.5	$ 5,300,000
7	Winner Community Tribal Housing – Construction	1.0	$ 2,050,000
8	Corn Creek Community - Construction	0.3	$ 600,000
9	Antelope and White Horse Community Pedestrian Connectivity, Phase II & III - Construction	1.8	$ 2,050,000
10	Turtle Creek, Phase II – Construction	0.3	$ 800,000
11	BIA Route 1 Pedestrian Connectivity & Safety – Design and Construction	2.2	$ 400,000

LONG-RANGE PEDESTRIAN & BICYCLE PROJECTS DESCRIPTIONS

Winner Community Tribal Housing Pathway

Southeast of Winner, South Dakota on east 279th Street is a tribal housing complex. This complex includes a community building west of the houses on 279th Street and a Head Start Program. Currently there are no existing bike or pedestrian facilities in the area, residents including children have to walk on the roadway or in the adjacent ditches to travel to the community center or Head Start Program.

A pathway is needed to connect the housing development to both the community center and the head start program. Pedestrian lighting could be included in each option depending on the available funding and/or if desired all three options could be constructed in different phases.

Corn Creek Community Pathway

Corn Creek is located approximately 0.2-miles north of the intersection of South Dakota State Highway 63 and South Dakota State Highway 44 in Mellette County. The community utilizes two main approaches along South Dakota State Highway 63. Pedestrians and bicycles use the roadway between the two approach roads rather than the longer route around on the residential street, demonstrating a need to connect them. The pathway would total approximately 0.3-miles in length and cost an estimated $388,000 for construction.

Saint Francis Pathway

Kilgore Road, also known as BIA Route 1, is the main road that connects into Saint Francis from the south near Saint Francis School. Many community members, primarily school age children utilize this route and walk along the road to get to and from the school. A need has been identified to provide for a safe and efficient alternative to remove pedestrians walking along the road. A pathway is needed to connect from Warrior Drive 295th Street along the east side of BIA Route 1, then continuing south another 0.4 miles along the west side to connect to tribal member home sites. Additionally, sidewalks in St. Francis are needed from the school to the north edge of St Francis. These sidewalks, along with the pathway are included in the South BIA Route 1 / Kilgore Rd project

AIRPORTS

EXISTING CONDITIONS

There are four airports in the reservation, which can be found in **Figure 40**, as well as one heliport.

ROSEBUD SIOUX TRIBE AIRPORT

Rosebud Sioux Tribe Airport (SUO) is a medium general aviation owned by the Rosebud Sioux Tribe located along BIA Route 9 (Soldier Creek Road) in Rosebud, Todd County, South Dakota. Services provided include air ambulance, charter, instruction, and aerial survey. The airport has one paved concrete runway with a length of 4,800 ft. Air ambulance services are provided from major hospitals. Classification: A & B II. [8]

WINNER REGIONAL AIRPORT

Winner Regional Airport (ICR) is a medium general aviation airport owned by the City of Winner. The airport is located along 277th Street southeast of Winner, Tripp County, South Dakota. The airport has two runways; the main runway is 5,500 feet long and is concrete pavement. Total load bearing capacity for the main runway is 68,000 pounds. The other runway is 2,751 feet and a turf surface. The airport has one-hundred (100) octane aircraft fuel and jet fuel available along with maintenance services. Air ambulance services are provided from major hospitals. Classification: A & B II.

GREGORY MUNICIPAL AIRPORT/FLYNN FIELD

Gregory Municipal Airport/Flynn (9D1) field is a medium general aviation airport owned by the City of Gregory. It is located north of US Highway 18 in Gregory, Gregroy County, South Dakota. The airport

[8] South Dakota Department of Transportation Aviation System Plan

has a 3,800-foot-long asphalt runway. The airport offers one-hundred (100) octane aircraft fuel and jet fuel. Air ambulance services are provided from major hospitals. Classification: A & B I.

WHITE RIVER MUNICIPAL AIRPORT

White River Municipal Airport (7Q7) is a basic service airport owned by the City of White River, located along SD Highway 44 southeast of White River, Mellette County, South Dakota. The airport has one runway that is 3,000 feet long with a turf surface. Classification: A & B I.

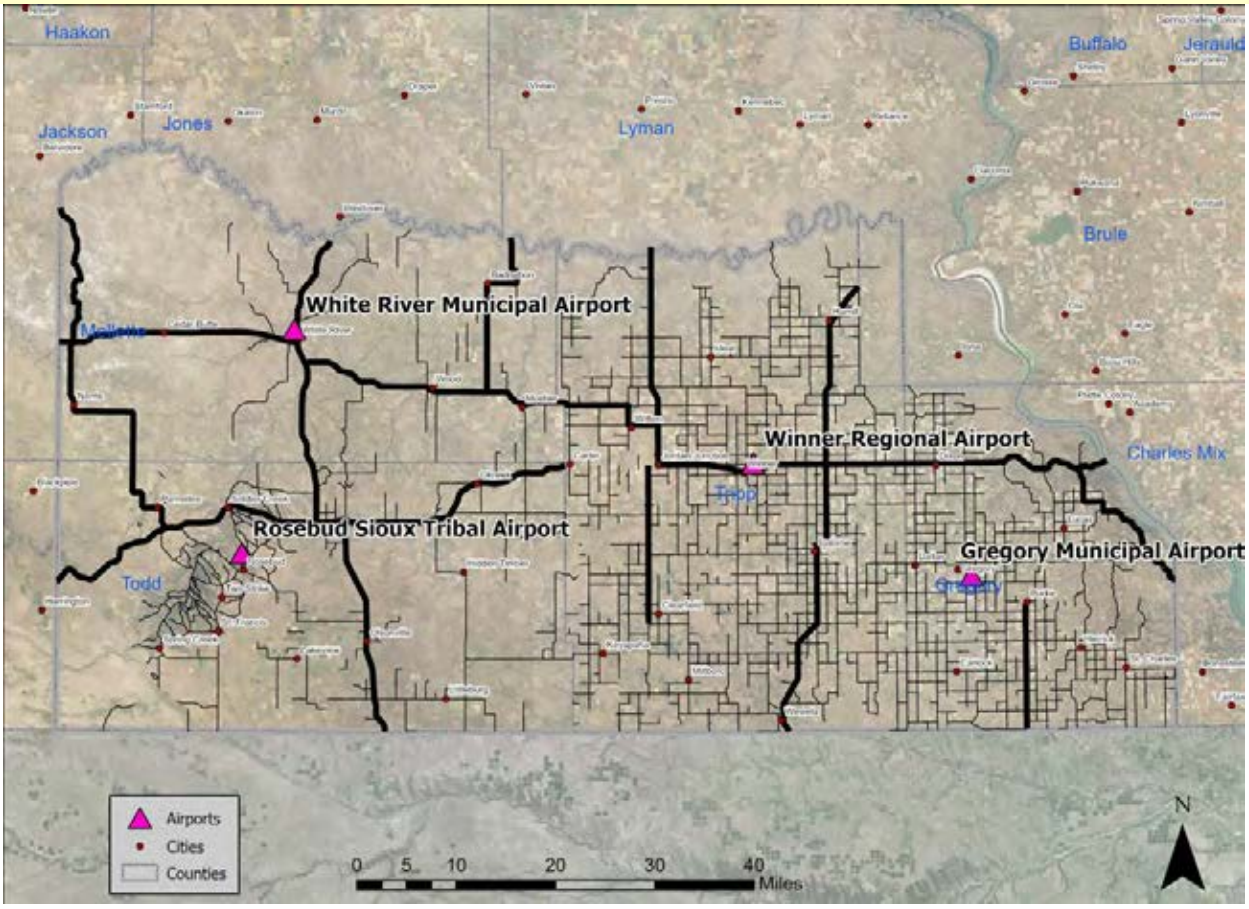
ROSEBUD COMPREHENSIVE HEALTH CARE FACILITY HELIPORT

The Rosebud Comprehensive Health Care Facility Heliport (1SD7) owned by Rosebud PHS, HIS Hospital and is located along West BIA-1, directly east of the Rosebud Sioux Tribe Airport in Rosebud, Todd County, South Dakota. It is a private for medical use heliport that has a single 50 foot by 50 foot concrete pad.

RECOMMENDATIONS

All the airports listed above, except for Rosebud Sioux Tribe Airport and heliport, operate independently of the Rosebud Sioux Tribe. Regarding airport maintenance costs for the Rosebud Sioux Tribe Airport and heliport, funding assistance exists with the Federal Aviation Administration Airport Improvement Program, discussing later in Chapter 7 – Project Funding. It is recommended RST coordinate with the other airport owners as needed.

FIGURE 40: ROSEBUD RESERVATION AIRPORT FACILITIES MAP



TRANSIT SYSTEM

EXISTING CONDITIONS



The Rosebud Sioux Tribe Transit Services is an independent agency that provides on-demand service on and off the reservation. A shuttle for Rosebud Casino occurs Monday - Thursday, three times per day. The primary purpose of the RST on-demand transit services is to provide transportation for Tribal members in Todd County and from Tribal Housing areas off reservation. This is a valuable service to the Rosebud Sioux Tribe and those who have no access to personal transportation rely on it to get to work, school, medical appointments, etc. In recent years, RST has received grants for transit projects which include work on developing electric bus routes and installing EV charging stations, partly funded by a grant from the U.S. Environmental Protection Agency.

RECOMMENDATIONS

It is recommended that RST Transit continues to solicit feedback from the community on a regular basis to monitor the needs of residents as well as monitor new funding sources as they may become available to assist with financing transit opportunities.

UTILITIES

EXISTING CONDITIONS

Utility conditions can have a strong impact on the maintenance of roads and in the cost of construction or reconstruction. When undertaking roadway improvements, it is essential that the age, condition, and capacity of utilities under the road be considered and addressed. Future planning should gather information on the types, locations, and conditions of utilities within the Reservation. Much of this information may be unknown or has never been documented and mapped. Like roads, good utilities planning and a program for maintenance can help Tribal leaders to prepare for costly utility projects, be alerted to utility costs that will accompany roadway improvement projects, and plan ahead to pursue grant funding opportunities that become available.

RECOMMENDATIONS

A review of existing lighting was not undertaken as part of the LRTP. However, there is a need for improved lighting in towns and subdivisions, at busy intersections, and along existing and future sidewalks and trails. This provides an added level of safety and security for travelers. It is recommended that the Rosebud Sioux Tribe conduct a future study to identify the types and locations for needed street lighting throughout the Reservation, and that lighting improvements be prioritized and completed as funding becomes available. It is also recommended that the Rosebud Sioux Tribe conduct a utilities study and map the locations of utilities, particularly underground utility mains. This information is imperative when planning transportation improvements in communities where utilities are more likely to be impacted. This will also allow for planning utility repairs and upgrades to be performed concurrently or ahead of road projects.

CHAPTER 6 - POLICY RECOMMENDATIONS

This chapter of the LRTP provides recommendations on a policy level that should be considered in the development and maintenance of the Rosebud Sioux Tribe transportation system.

SYSTEM MANAGEMENT

Management of the Rosebud Sioux Tribe transportation system is shared by various departments within the Rosebud Sioux Tribe, as well as the BIA. This structure of system management presents unique challenges, as the BIA does not have adequate resources to address the ongoing maintenance needs of the BIA road system, such as grading and snow removal. Likewise, the various departments within the Rosebud Sioux Tribe are limited in staffing and equipment to perform all that is needed.

Many Tribes manage their transportation through a Tribal Department of Transportation that oversees the personnel, equipment, and daily operations required to manage the transportation system within the Reservation. Having these activities coordinated by one department enables Tribal priorities to be addressed in a more focused manner. It is recommended that the Rosebud Sioux Tribe consider development of a Department of Transportation. Until such time as this can be done, it would be prudent for the Rosebud Sioux Tribe to consider use of contracted services for as many of their maintenance needs as is practical.

To explore this possibility, departments currently active in assisting with transportation system maintenance and equipment operations should be included in discussions regarding possible reorganization or expansion within existing departments. For many essential program functions, contracting (construction and equipment repair) and consulting (planning and engineering) with outside entities is often vital to many Tribes to supplement their limited staff and to move the program forward.

As part of a Tribal department of transportation, many Tribes choose to incorporate the BIA road maintenance program by assuming control of it through a Pub. L. 93-638 Self Determination contract. In addition to the Tribe assuming control and responsibility for the BIA agency road maintenance allocation, the Tribe can negotiate a lump sum startup cost with the BIA made available to the Tribe at the beginning of the contract for startup costs for facilities and equipment purchase or repair. A typical Tribal transportation department owns and operates a variety of heavy equipment. **Table 16** below lists RST's road maintenance and associated equipment.

TABLE 16: RST TRANSPORTATION PROGRAM MAINTENANCE EQUIPMENT LIST

EQUIPMENT ITEM / CONDITION STATUS	
Equipment Item Condition Status Key	
0 - BROKE DOWN	*3 - OPERATES/MINOR REPAIRS*
1 - POSSIBLE REPAIRS OR MOVABLE	*4 - OPERATES/LOW OR NO REPAIRS*
2 - NEEDS REPAIRS	*5 - New*
VOLVO END DUMP / 0	GREY DODGE 1500 RST 1012 / 3
INGRAM PACKER / 0	TEREX SCRAPER #1 / 3
DODGE DAKOTA / 0	STERLING #8 RST 863 / 4
FORD MOWER 6640 / 0	STERLING #6 RST 1076 / 4
BROCE BROOM / 0	BROWN PETE RST 556 / 4

EQUIPMENT ITEM / CONDITION STATUS	
SHEEP FOOT COMPACTOR / 0	GREY PETE RST 1229 / 4
BOBCAT 6428 / 0	KOMATSU WA270 / 4
FERGUSON PACKER / 0	WHITE FREIGHTLINER RST 990 / 4
SCHWARZE PATCHER / 0	JD MOWER 6330 / 4
TEREX SCRAPER #2 / 0 (PARTS)	RED Oil TRUCK RST 1094 / 4
82-40 DOZER / 0	JD Z925M MOWER / 4
RST 517 / 0	POLARIS 4x4 / 4
RST 518 / 0	ASPHALT ZIPPER / 4
RST 991 / 0	JD 644K LOADER / 4
RST 724 / 0	JD 772GP BLADE (RENTAL) / 4
RST 960 ORANGE / 1	RAM 3500 WHITE #2 RST 133 / 4
TOPKICK RST 642 / 1	RAM 3500 WHITE #1 RST 121 / 4
772CH SERIES 11-1 ENGINE / 1	DODGE RAM 1500 WHITE RST 1013 / 4
BOMAG PACKER / 1	FORD RANGER RST 1111 / 4
BOMAG MOWER / 1	CHEVY SILVERADO RST 177 / 4
RST 1046 CHEVY DUALLY / 1 REAR AXLE	STERLING #9 RST 122 / 4
OSHKOSH SNOW BLOWER / 1	JD SKIDSTEER 333G (RENTAL) / 4
BLUE FLATBED RST 542 / 1	CASE BACKHOE / 4
WESTERN STAR RST 996 / 2	KOMATSU LOADER WA320 / 4
GMC DIESEL 7000 RST 574 / 2	KOMATSU DOZER D51EX / 4
BLUE MARMON RST 931 / 2	KOMATSU DOZER D65 EX / 4
CHIP SPREADER / 2	JD LOADER 644P / 5
REX ROLLER / 2	JCB BACKHOE / 5
KOMATSU WA250 / 3	SNOW CRETE BLOWER / 5
GMC END DUMP RST 575 / 3	RPM BLOWER / 5
FREIGHTLINER #10 RST 153 / 3	JD BLADE 772 GP / 5
JD BLADE 772G / 3	

For some pieces of equipment, a maintenance agreement may be purchased from the vendor. This may be ideal especially in the short term as the Tribes' ability to maintain this type of equipment does not currently exist. The Tribe could use companies like Wagner or Honan to provide and service the equipment. Equipment needs should be prioritized and TTP dollars banked to pay for top equipment priorities over time. Equipment purchases count against the maximum maintenance transfer allowed for the Tribe.

Staffing can also be challenging for Tribal Transportation Programs. In general, staffing may be paid for using TTP funding and the 2% Planning set-aside. If the Tribe assumes control of the BIA road maintenance program, the maintenance staff can be paid with those funds or with the allowable amount of TTP funding that can be expended on road maintenance. To avoid road maintenance staffing challenges, there are arrangements (Interagency Personnel agreements, or IP agreements) available

to the existing BIA employees allowing them to retain their federal benefits after becoming Tribal employees because of the Pub. L. 93-638 transition.

The Rosebud Sioux Tribe should initially direct much of its funds to maintaining the asphalt pavements with the purpose of getting all paved roads on a low-cost rotational schedule of crack sealing and seal coat maintenance. Roads that are already in good condition will need to be properly maintained and roads requiring structural overlays or full reconstruction will need to be completed as funding allows so they can be placed within this rotational schedule.

This LRTP recommends that pavement maintenance performed by the Rosebud Sioux Tribe be limited to plowing, grading, signing, mowing and vegetation removal, and culvert and guardrail repair or replacement. Road maintenance projects such as crack sealing, seal coats and overlays should be contracted out, leaving more time available for the Rosebud Sioux Tribe to focus on vegetation removal, primitive and gravel road maintenance.

There are many roads within Reservation boundaries which need to be added to RIFDS or modified within RIFDS to be eligible to receive funding for improvements. Adding a new route to RIFDS may not always be advisable as routes that appear in RIFDS are considered public roads accessible year-round through Tribal land. There are many dirt and earthen roads that are in bad condition due to drainage issues and others with safety issues that are good candidates for graveling.

It is recommended that the Rosebud Sioux Tribe develop project priorities based on the following:

1. Schedule crack seal, seal coat, and overlay projects based on Industry standards for pavement maintenance cycles
2. Conduct Road Safety Audits (RSAs) as needed to document safety issues on the entire road system.
3. Continue and expand upon snow plowing, grading, and mowing/vegetation removal capabilities as high-priority maintenance activities.
4. Update or Add roads within the NTTFI so they meet the requirements for BIA approval within RIFDS.
5. Conduct a paved road conditions survey through ground penetrating radar or core samples to compile necessary data for prioritizing paved road needs.
6. Conduct a gravel road conditions survey to compile necessary data for prioritizing road needs.
7. Prioritize gravel road projects.
8. Develop County Memorandums of Agreements (MOA's) if or when needed.
9. Complete gravel road projects on primary roads, focusing first on gravel road surface and cross section/drainage deficiencies.
10. Complete reconstruction along paved routes experiencing significant pavement distress.
11. Correct road surface and cross section/drainage deficiencies on secondary and primitive roads.

It is recommended that crack sealing and seal coats on paved BIA and Tribal facilities be given top priority over the rest of the transportation system. Since existing paved roads are in generally good condition, many of them may wait for 4-5 years before receiving this type of maintenance treatment. This will enable the Tribe to keep as much of their existing system in good condition as possible, delaying the conditions that may result in expensive reconstruction.

Primary BIA gravel roads on the Reservation have not been receiving maintenance. Many of the earth, dirt, primitive, and secondary gravel roads are only responded to after an emergency. A study is recommended to identify secondary routes that should receive maintenance and critical issues that can be fixed before they become emergencies.

Ideally, any new routes or pavements completed as part of economic development or new housing should leave maintenance responsibility with the development or agency undertaking the project.

ROADWAY CROSS-SECTION STANDARDS

Roadway, path, and sidewalk cross-section standards have been used, though no clear standards have been adopted. The Tribe and their design consultant must follow design guideline set forth by American Association of State Highway and Transportation Officials (AASHTO), Public Right-of-Way Accessibility Guidelines (PROWAG), and SDDOT design guidelines in some cases such as a TA grant. Also, a clear zone will be applied to all typical sections except shared use paths and sidewalks. These typical sections should be adopted for future projects and should serve as guidance for future housing and development projects. It is recommended that these standards be used on all future projects. The proposed cross-sections are shown in **Figure 41** through **Figure 47**.

FIGURE 41: STANDARD HIGH-SPEED BIA PAVED ROAD TYPICAL SECTION

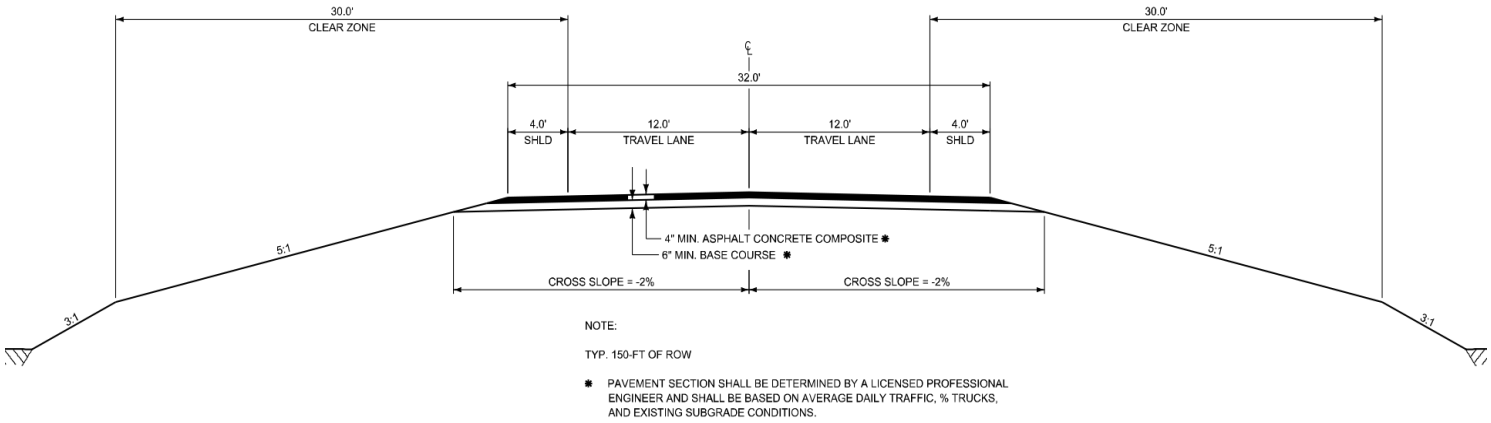


FIGURE 42: STANDARD HIGH-SPEED GRAVEL ROAD TYPICAL SECTION

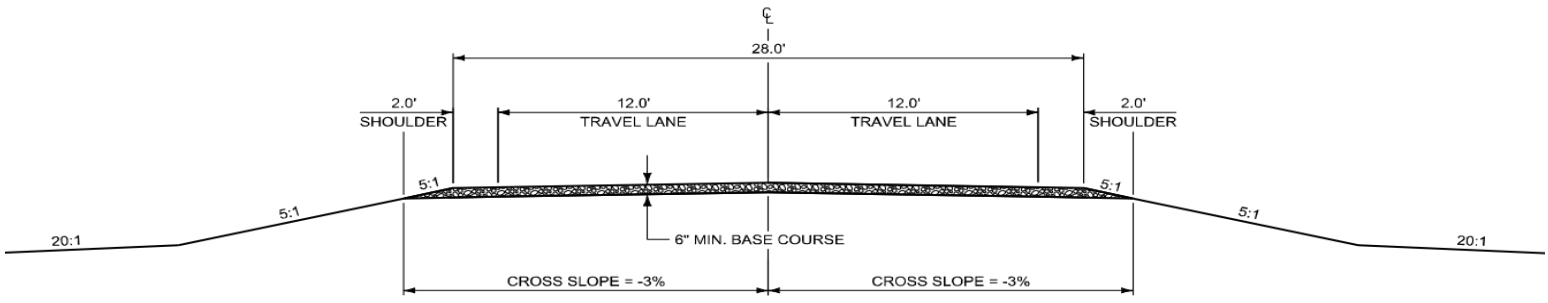


FIGURE 43: STANDARD LOW SPEED GRAVEL ROAD TYPICAL SECTION

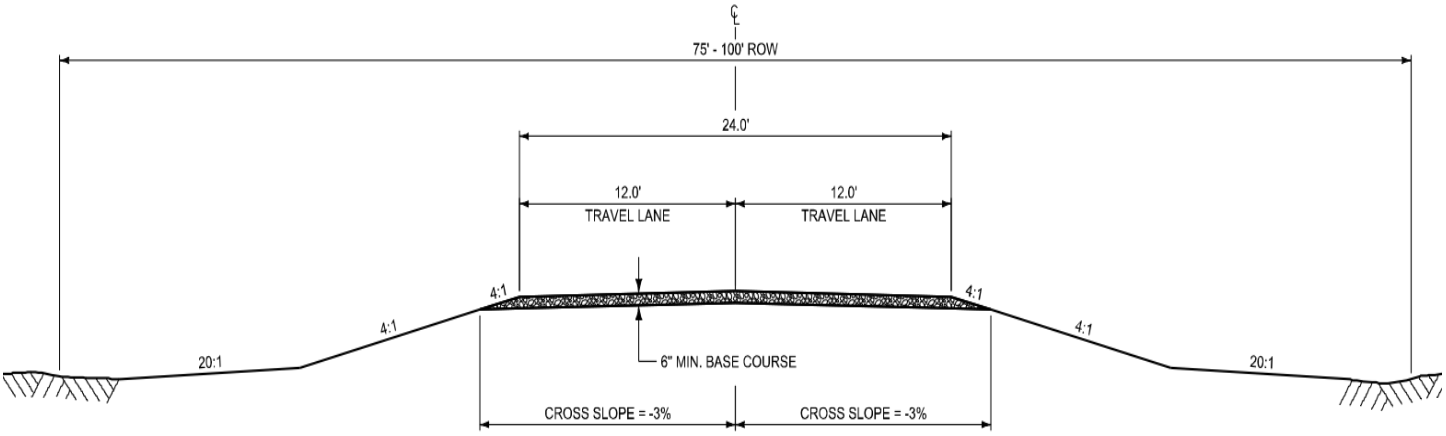
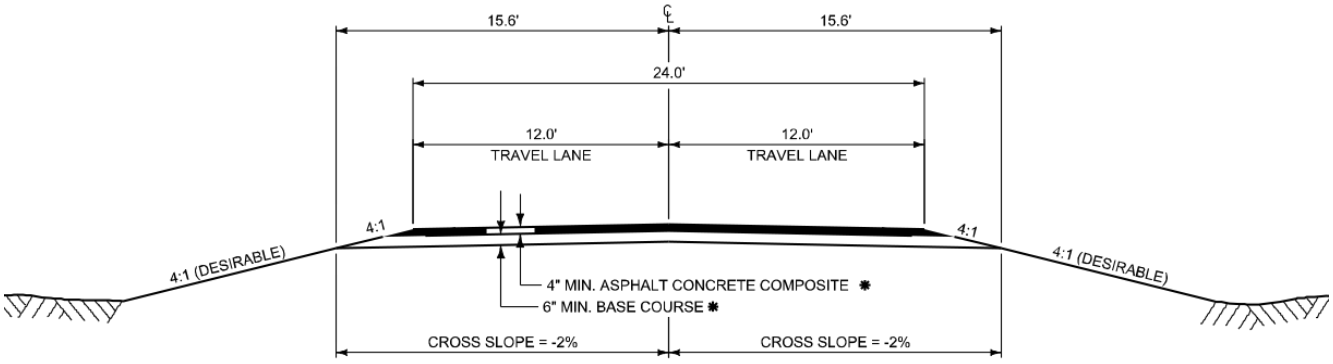


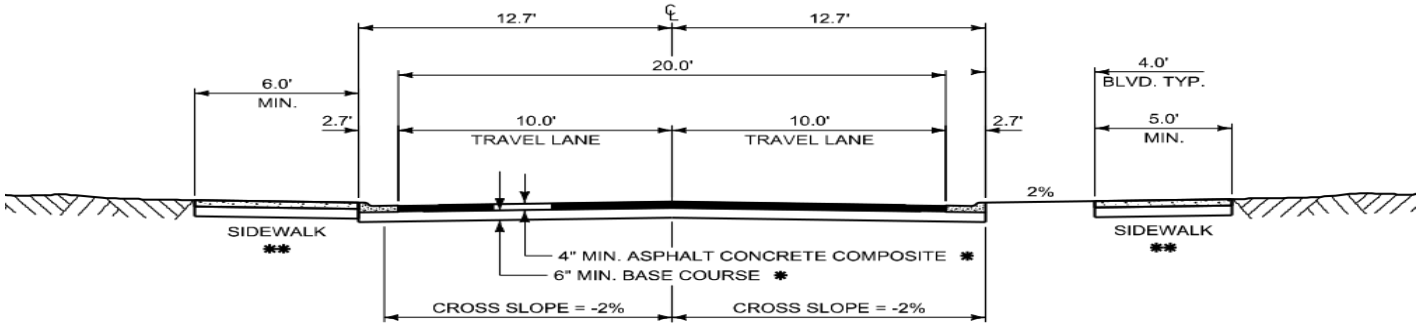
FIGURE 44: STANDARD TRIBAL RESIDENTIAL STREET TYPICAL SECTION - RURAL



NOTE:

✱ PAVEMENT SECTION SHALL BE DETERMINED BY A LICENSED PROFESSIONAL ENGINEER AND SHALL BE BASED ON AVERAGE DAILY TRAFFIC, % TRUCKS, AND EXISTING SUBGRADE CONDITIONS.

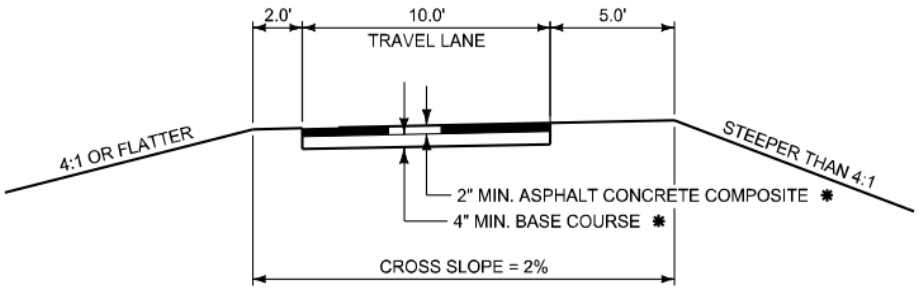
FIGURE 45: STANDARD TRIBAL RESIDENTIAL STREET TYPICAL SECTION – URBAN



NOTE:

✱ PAVEMENT SECTION SHALL BE DETERMINED BY A LICENSED PROFESSIONAL ENGINEER AND SHALL BE BASED ON AVERAGE DAILY TRAFFIC, % TRUCKS, AND EXISTING SUBGRADE CONDITIONS.

FIGURE 46: STANDARD SEPARATED SHARED USE PATH TYPICAL SECTION



NOTE:

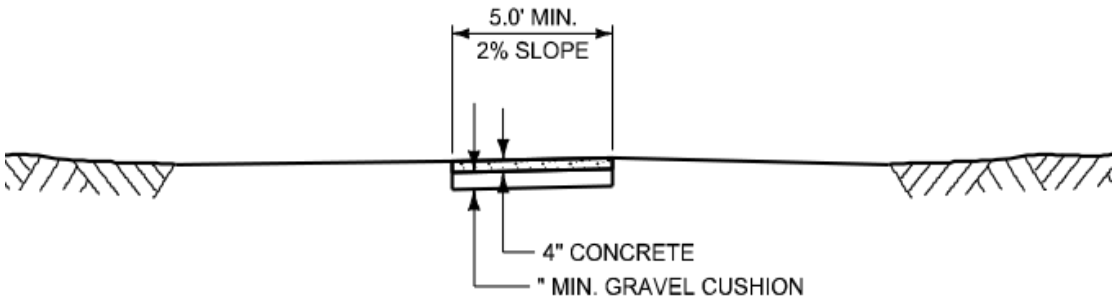
2" MIN. ASPHALT CONCRETE COMPOSITE OVER 4" MIN. BASE COARSE

OR

4" MIN. CONCRETE OVER 2" MIN. GRAVEL CUSHION

✱ PAVEMENT SECTION SHALL BE DETERMINED BY A LICENSED PROFESSIONAL ENGINEER

FIGURE 47: STANDARD SIDEWALK TYPICAL SECTION



DEVELOPMENT REVIEW

Future development proposals have the potential for impacts on the Rosebud Sioux Tribe transportation system. Approach access points can cause a dangerous condition when located where there is short sight distance or can cause a problem with traffic flow. Housing roads and developments with inadequate drainage can damage the road surface and become a challenge for Tribal maintenance crews. It is recommended that future development proposals be submitted to the Rosebud Sioux Tribe Transportation Program and their engineer, for review and comment before approval. This will increase Tribal leaders' information and their ability to make the best decisions pertaining to the development and potential impacts to the transportation system.

TRANSPORTATION NEEDS REVIEW MEETINGS

As part of an ongoing public involvement effort and to maintain an updated understanding of local transportation needs, the RST Transportation Program should complete reviews at a two-year cycle to discuss current needs and to ensure that this plan is still valid.

JURISDICTIONAL TRANSFERS FOR ROADWAYS

It is recommended that the Tribe establish an administrative action / process based upon current federal regulations for executing jurisdictional transfer of roadways or roadway sections, from County or township within the larger 5-county region of the original Rosebud Reservation, to Tribal/BIA jurisdiction. This would be contingent upon an event whereby if Rosebud Sioux Tribal Council makes a resolution to transfer a road or section of roadway into Tribal or BIA ownership because it is in the best interest of the Tribe and County, and a transfer of jurisdiction is mutually agreed upon by the County, township, or other agency.

Specific examples of this scenario are the potential for adding 6 miles of Highway 63, located between the Blackpipe Community and the Corn Creek Community in the northwest section of Rosebud's Trust lands, currently owned by Mellette County, and portions of Todd County's 269th Ave and 293rd St, which are currently being reconstructed by the Rosebud Sioux Tribe and the right-of-way was written to be transferable. Both locations have been in discussion for many years.

YIELD TO PEDESTRIANS IN CROSS WALK

It is South Dakota state law to yield to pedestrians in a crosswalk, specifically within a business or residence district. Drivers are required by law to yield to pedestrians in marked and unmarked crosswalks in business and residential areas.

It is illegal to pass a vehicle from behind that has stopped at a crosswalk to allow a pedestrian to cross. A violation of this law is a Class 2 misdemeanor, and being involved in a collision with a pedestrian in a crosswalk is considered evidence of failure to yield.

It is recommended that the Rosebud Sioux Tribe adopt policy that requires motor vehicles to yield to pedestrians in crosswalks, reservation wide.

SPEEDING TICKET CAMERAS

Reservation-wide, speeding is an ongoing and problematic driver behavior issue. Police are understaffed to effectively enforce speeding. The RST Transportation Program is interested in the installation of speeding ticket cameras on BIA and Tribal roads. Speed Camera Pilot programs are available, and it is recommended that RST explore options for speed camera installation for locations known to have recurring speeding and resulting accident issues, such as the intersection of BIA 7 and BIA 1, along the BIA 1 corridor, and other locations known to exhibit driver speeds in excess of posted speed limits.

ENERGY CONSERVATION CONSIDERATIONS

It is recommended that the Rosebud Sioux Tribe use Light-Emitting Diode (LED) lighting for locations accessible to electric utilities, and solar lighting for locations not accessible to utilities. The reason for LED preference has been that the maintenance cost for solar batteries is high, and the performance of solar batteries is impacted by the colder weather.

It is recommended that this energy conserving practice be continued until the cost and performance of solar batteries outweighs that for LED lighting. Energy conservation can also be realized through improvements to roads that can serve as effective short cuts to other, longer routes. Energy is conserved when people choose non-motorized transportation as their mode of travel. This plan provides alternatives to improve facilities for walking, biking, and transit. It is anticipated that as these facilities are improved, use of alternative transportation modes will increase over time.

CHAPTER 7 - PROJECT FUNDING

US and State highways on the Reservation are currently funded and maintained by the SDDOT. There are multiple funding sources available for roads, bridges, sidewalks, trails, and transit which are not on the state highway system. It is possible that more of these funding sources can be tapped if a greater emphasis is placed on applying for these funds. These funding source alternatives are discussed in the following sections. It is also important to note that the H.R. 3684 Infrastructure Investment and Jobs Act (IIJA) is the current through 2026 and a new highway bill is anticipated to replace it.

TRIBAL TRANSPORTATION PROGRAM FUNDS

The Tribal Transportation Program (TTP) is the primary source of Tribal transportation funding. It is estimated that these funds will total about $3.5 million annually, or roughly 85-90% of total Tribal transportation funding over the next several years. The purpose of the TTP is to provide access to basic community services that enhance the quality of life in Indian country. The TTP replaces the former IRR program. Prior to distribution to Tribes, the following amounts may be deducted from the overall federal program:

- Up to 6% for program administration, including funding for Tribal Technical Assistance Centers (TTAPs). These funds may be used by the Secretary or the Secretary of the Interior for program management and oversight and project-related administrative expenses.
- Up to 2% per year for transportation planning, to be allocated among Indian Tribal governments that apply for transportation planning.
- Up to 2% per year for a nationwide priority program for improving eligible deficient bridges.
- Up to 2% per year for safety projects, to be allocated to applicant Tribal governments for eligible projects.

TRIBAL TRANSPORTATION PROGRAM SAFETY FUNDS (TTPSF)

These dollars have established funding goals: Development of Transportation Safety Plans and safety data assessment, improvement and analysis; Systematic Roadway Departure Countermeasures, and Infrastructure Improvements Funds are available to federally recognized Indian Tribes through a competitive, discretionary grant program. Awarded annually, projects are chosen based on their ability to address the prevention and reduction of death or serious injuries in transportation related crashes. Safety funds support safety projects, studies, roadside safety audits, and other Title 23-eligible safety activities. Applications are typically due in January of each year. Grant amounts are typically no larger than $1.5 million. There is no match requirement.

The Rosebud Sioux Tribe Transportation Program has successfully applied for studies, design and construction of several projects as shown in the following **Table 17**.

TABLE 17: TTPSF GRANT AWARDS TO ROSEBUD SIOUX TRIBE – 2003 TO 2024

AWARD YEAR	GRANT AWARD NAME	AMOUNT AWARDED
2013	Develop Tribe's First Transportation Safety Plan	$ 9,600
2015	Road Safety Audits	$ 40,000
2019	Update Existing Transportation Safety Plan	$ 7,500
2020	Roadway Departure Countermeasures on BIA Route 1: Rumble Strips and Striping	$ 568,891
2021	BIA Route 1 Shoulder Improvements, Phase II	$ 959,600
2022	Speed Radar Trailers	$ 45,000
2022	Antelope and White Horse Communities Pedestrian Connectivity Project, Phase I	$ 697,963
2022	Turtle Creek Pathway, Phase I - Design	$ 54,581
2023	Turtle Creek Pathway, Phase I - Construction	$ 832,278.42
2023	BIA 1 and BIA 9 Intersection Improvement Study	$ 30,000
2024	BIA 1 Pedestrian Connectivity and Safety Improvements Study	$ 100,000
2024	BIA 5 Intersections Study	$ 250,000

It is recommended that the RST Transportation Program update the Tribe's Transportation Safety Plan every five years to identify needed projects and continue to apply for TTPSF funding to address transportation safety issues on the Reservation as identified in the Transportation Safety Plan. Transportation Program staff has worked with the Indian Highway Safety Program to obtain crash data along BIA and Tribal routes which increasing the success of these data-driven applications.

TRIBAL BRIDGE PROGRAM FUNDS

Applications for bridge project funding can be submitted under the Tribal Transportation Bridge Program (TTBP). All projects are ranked and prioritized based on the following criteria:

- Bridge sufficiency rating (SR).
- Bridge status with structurally deficient (SD) having precedence over functionally obsolete (FO).
- Bridges on school bus routes.
- Detour length.
- Average daily traffic
- Truck average daily traffic.

TTBP funds may be used for planning, design, engineering, preconstruction, construction, and inspection of a project to replace, rehabilitate, seismically retrofit, paint, or for anti-icing and deicing, or to implement any countermeasures (including multiple-pipe culverts) for eligible Tribal transportation facility bridges.

National Bridge Inspection Standards (NBIS) require the inspection of all public bridges including Tribal bridges be performed at least every 2 years, and the reporting of data into the FHWA National Bridge Inventory. To be eligible for funding, a bridge must have an opening of at least 20 feet, be classified as a Tribal transportation facility, and be structurally deficient or functionally obsolete. On a national level, the annual Tribal bridge program funding that the Rosebud Sioux Tribe can compete for can be found on the Federal Highway Administration's TTP Bridge Program website here: https://highways.dot.gov/federal-lands/tribal/bridge.

NATIONALLY SIGNIFICANT FEDERAL LANDS AND TRIBAL PROJECTS (NSFLTP)

Administered by the USDOT and FHWA, this grant provides funding for construction, reconstruction, or rehabilitation of nationally significant projects within, adjacent to, or accessing Federal or Tribal lands. Criteria were revised as part of the IIJA legislation, resulting in an increase of $1.775 billion in funding over the next five years (through 2026). The grant requires 50 percent of the funds to be utilized for Tribal projects, eliminating the federal cost share for Tribes (providing 100 percent of funding), and reducing the minimum cost of construction to $10 million. Projects must be a single, continuous project, meet the definition of transportation facilities, and have all NEPA activities complete to qualify. Due to the amount of money available and the size of the projects submitted for consideration; there are typically only 3-4 projects awarded annually.

SOUTH DAKOTA TRANSPORTATION GRANTS

The SDDOT administers the Transportation Alternatives (TA) Program which 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.

Project grant awards may be limited to $600,000 depending on annual funding allowance. The minimum for infrastructure projects is $50,000. There is no minimum for non-infrastructure projects, such as planning and design. The local required match for these projects is 18.05 percent.

Eligible categories include bicycle/pedestrian, and other non-motorized forms of transportation activities (both planning and construction), environmental mitigation transportation activities, historic/scenic transportation activities (such as turnouts, overlooks and viewing areas) and planning, designing, or construction boulevards and other roadways largely in the ROW of former Interstate System routes or other divided highways. For more information see:
https://dot.sd.gov/programs-services/programs/transportation-alternatives.

SDDOT provides three grant programs to foster economic development and enhance community access. The three grant opportunities are for Industrial Parks, Agri-Business, and Community Access. The programs provide for 80 percent of the construction costs not including engineering design or utility work. The maximum grant amount is $500,000 for Industrial Park grants and $600,000 for Agri-Business and Community Access grants. For more information on these grant opportunities see https://dot.sd.gov/doing-business/local-governments/transportation-economic-development-grants

The South Dakota Legislature created the Rural Access Infrastructure Fund, administered by the SDDOT, to help townships and counties repair and replace culverts and bridges on township and county secondary roads. While the Tribe would not be eligible for funding for BIA and Tribal roads, they could

encourage and direct the local counties towards this funding for improvements on county roads impacting Tribal members. For more information on this program see: https://dot.sd.gov/doing-business/local-governments/rural-access-infrastructure-fund-program.

The Bridge Improvement Grant (BIG) program, administered by the SDDOT, was created by the 2015 legislative session in Senate Bill 1 (SB 1). SB 1 states that in order to be eligible for a BIG grant, a county must impose a wheel tax. In addition, a county must have a County Highway and Bridge Improvement Plan. The plan should detail proposed county highway and bridge improvement projects in the county for the next five years. This program is intended for County because Tribe's are eligible for Tribal Transportation Program Bridge Funding at 100 percent. Because many of the county roads affect Tribal members, this is an option for county governments to pursue bridge/large culvert funding. For more information on this program see: https://dot.sd.gov/doing-business/local-governments/bridge-improvement-grants.

The South Dakota Game Fish and Parks administers the Recreational Trails Program. Recreational Trails Program (RTP) is a federal aid assistance program to help states provide and maintain recreational trails for both motorized and non-motorized trail use. The program provides up to 80 percent reimbursement funds for all kinds of recreational trail uses including, but not limited to: pedestrian use, biking, in-line skating, equestrian use, cross-country skiing, off road motorcycles, OHV and UTV riding, four wheeling, and snowmobiling. Tribal governments are eligible for this grant. For more information see: https://gfp.sd.gov/partnerships/#:~:text=Recreational%20Trails%20Program&text=The%20program%20provides%20up%20to,%2C%20four%20wheeling%2C%20and%20snowmobiling.

South Dakota offers an opportunity for state designation through the Scenic Byways Program which recognizes those roadways which exhibit the State's unique character and beauty. Individuals, organizations and local governments, including Tribal governments, may identify roadways with truly distinctive qualities and nominate them for State Scenic Byway designation. Routes which display scenic, archaeological, cultural, historic, natural, and/or recreational features are eligible for consideration. An application requesting the designation must be prepared with the approval of the affected local government(s). Applications are to be submitted to the Scenic Byways Coordinator at the SDDOT. Decisions on the applications are made by the South Dakota Transportation Commission. For more information see: https://dot.sd.gov/programs-services/programs/scenic-byways.

TRIBAL TRANSIT COMPETITIVE PROGRAM

The Federal Transit Administration (FTA) Section 5311 Program authorizes a set-aside from the Formula Grants for Rural Areas Program for competitive grants to address capital, operating, planning and administrative expenses for public transit projects that meet the growing needs of rural tribal communities.

All projects must benefit a federally recognized Tribe with less than 50,000 population. There is between $5-$10 million total dollars available each year and grants typically require a 20 percent match.

Bus and Bus Facilities Program

This program offers competitive grant funding to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities. Funding is available for states, local government entities that operate fixed route bus services, and federally recognized Tribes. Grants require a 20 percent match.

RECREATIONAL TRAILS PROGRAM:

Provides funding to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized uses. Projects must benefit recreationists who enjoy hiking, bicycling, in-line skating, equestrianism, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, and off-road four-wheel driving. Better Utilizing Investments to Leverage Development (BUILD)

BUILD funds are awarded on a competitive basis for planning and capital investments in transportation projects that will have a significant local or regional impact. In 2025, both planning and construction applications were accepted. The maximum award for construction was $25 million and for planning was $2 million.

Construction applications require a benefit-cost analysis (BCA). Merit criteria under which 2025 applications were ranked and scored were Safety, Environmental Sustainability, Quality of Life, Mobility and Community Connectivity, Economic Competitiveness and Opportunity, State of Good Repair, Partnership and Collaboration, and Innovation. While earlier rounds of this grant waived match for rural or historically disadvantaged communities, it is anticipated that will not be the case moving forward and a minimum 20 percent match will be required of all applicants. Grant deadlines change but have been due in January of each year.

Federal Lands Access Program (FLAP)

This program, facilitated by FHWA, was established to improve transportation facilities that provide access to, are adjacent to, or are located within federal lands. The program provides funding for projects that enhance access to federal lands and supports state and local resources for public roads and transit systems, aiming to facilitate better transportation infrastructure for areas surrounding federal lands. It is funded through the Highway Trust fund and is subject to obligation limitations. Funds are allocated to states using a statutory formula based on road mileage, number of bridges, land area, and visitation.

Applications require a detailed engineer's estimate, an endorsement form (from the Central Federal Lands Highway Division [CFLHD] transportation planner), support forms, a cost estimate, and a project map along with the application. Total amount typically available in New Mexico is between $16.8 and $33.6 million annually. Grants are typically due in the summer (June) of each year.

National Scenic Byways Program

Grants support funding to help recognize, preserve, and enhance selected roads throughout the US. Eligible projects include those that provide access to recreation, byway facilities, construction, corridor management plans, highway improvements, interpretive information, marketing programs, resource protection, and/or safety improvements. There is no minimum or maximum grant amount and in 2024, there was $26.95 million available. This grant requires a 20 percent match and is typically due in November/December of each year.

Tribal High Priority Projects

The intent of the Tribal HPP Program is to assist in high priority transportation projects that cannot be funded with TTP annual allocations OR to provide emergency relief for Tribal transportation facilities that, due to natural disaster or catastrophic failure, are rendered impassable or unusable. Funds are for activities as defined by federal law and TTP regulations as "construction," including preliminary and construction engineering. Funds may NOT be used for planning, research, routine maintenance activities, or purchase of equipment UNLESS FHWA or BIA provides written approval, and the equipment is required specifically for the requested construction project. Applications are ranked and scored based

on: Accident and fatality rate on the candidate route, years since the last TTP construction project was completed, readiness to proceed to construction or TTP design need, percent of match contribution, amount of funds, geographic isolation, and all-weather access. To be eligible, Tribes must have an annual TTP allocation of less than $1 million. The maximum award is $1 million. There is no match requirement, but applications are ranked higher with a match of 20 percent or more. There is no hard deadline, and funds are available until they are fully spent. There is a $39 million set-aside between 2022-2026.

CONSOLIDATED RAIL INFRASTRUCTURE & SAFETY IMPROVEMENTS (CRISI)

CRISI funds projects to improve railroad safety, efficiency, and reliability; mitigate congestion at intercity passenger and freight rail chokepoints to support more efficient travel and good movement; enhance multi-modal connections; and lead to new or improved Intercity Passenger Rail Transportation corridors. There is a significant list of eligible projects, however, most applicable to Tribes and rural areas are typically highway-rail grade crossing improvement projects, rail line relocation or improvements, capital projects to improve short-line or regional rail infrastructure, and preparation of regional rail and corridor service development plans and corresponding Environmental analyses. There are no minimum/maximum grant amounts. For FY23-24, $2.478 billion was available. There is a required 20 percent match.

The following "new" grant programs were authorized as part of the Bipartisan Infrastructure Law (BIL)/Infrastructure Investment and Jobs Act (IIJA) during the Biden administration. While these programs are currently authorized through 2026, the new administration is not required to appropriate funding to them at the levels outlined by the prior administration or at all. While it is anticipated that several of these programs will remain in some form through 2026, it is unknown what changes to funding levels or merit criteria might be made moving forward.

RURAL AND TRIBAL ASSISTANCE PILOT PROGRAM

This resource provides support for planning and design activities for rural & tribal transportation infrastructure projects. The program will award grants for either the hiring of staff or the procurement of firms to provide financial, technical, and legal assistance. Eligible activities include revenue forecasting, project planning, economic assessments and benefit-cost-analysis, feasibility studies, value for money analysis and procurement options, environmental review/permitting, evaluation of private financing or project bundling, preliminary engineering or preliminary architecture design, funding application assistance, evaluation of the costs of project sustainability, public engagement, property development and land use feasibility analysis, public benefit studies, and cost estimates.

This is a first-come-first-served grant, and applications are submitted as soon as the portal opens each year (typically in March). The minimum grant award is $200,000 and the maximum is $750,000. There is no match requirement. There was $10 million available in 2024.

SAFE STREETS AND ROADS FOR ALL (SS4A)

The purpose of this funding is to improve roadway safety by reducing or eliminating fatalities and serious injuries through safety action plans and project implementation. Funds support planning, infrastructure, and behavioral and operational initiatives to prevent fatalities and serious injuries on roads and streets involving all roadway users, including pedestrians, bicyclists, public transportation, motorists, and commercial vehicle operators. Planning and Implementation funds are available. Eligible

activities include the development of a comprehensive safety action plan, conduct supplemental safety planning to enhance an action plan, conduct demonstration activities, perform planning, design, and development activities, and implement projects as identified in an Action Plan. An SS4A approved Safety Action Plan is required prior to requesting implementation funds. A 20 percent match is required.

ACTIVE TRANSPORTATION INFRASTRUCTURE INVESTMENT PROGRAM (ATIIP)

This program provides competitive grant funds for 1) planning and design or 2) construction of projects that provide safe and connected active transportation infrastructure in an active transportation network or active transportation spine. An active transportation network can include a sidewalk network, bike lane network, or shared-use path network within a community and must connect between destinations within a community or metropolitan region, (such as connecting neighborhoods and residences to high-demand destinations like schools, workplaces, commercial centers, recreation areas, medical centers, or other community areas). An active transportation spine can include a rail trail or rail-with-trail, walking path, or bike route and must connect two or more communities, metropolitan regions, or states. In 2024, grants ranged from $100,000 to $2 million for planning and at least $15 million total cost for construction. A 20 percent match was required unless the project served a disadvantaged community with a poverty rate over 40 percent. It is not anticipated that matching funds will be waived moving forward.

MULTIMODAL PROJECT DISCRETIONARY GRANT (MPDG) (MEGA/INFRA/RURAL)

This has been a combined solicitation of three discretionary grant opportunities: The National Infrastructure Project Assistance Grant Program (MEGA), the Nationally Significant Freight & Highway Projects Grant (INFRA), and the Rural Surface Transportation Grant (RURAL).

MEGA: Created to fund major projects that are too large or complex for traditional funding programs. The program provides grants on a competitive basis to support projects with regional or national significance that may also cut across multiple modes of transportation.

Eligible projects include highway or bridge projects, freight, and railway highway grade separation/elimination projects in which the minimum project cost is $100 million. There is a 20 percent local match requirement.

INFRA: Provides grants for projects that advance the Administration's priorities of rebuilding America's infrastructure and creating jobs by funding highway, multimodal freight, and rail projects. Projects must improve safety, generate economic benefits, reduce congestion, enhance resiliency, and eliminate supply chain bottlenecks and improve critical freight movements. In 2024, there was a small project minimum of $5 million and a large project minimum of $100 million. There is a 40 percent match requirement (which also allows for up to 20 percent of that match to be additional federal money)

RURAL: The Rural Surface Transportation Grant Program (RURAL) provides competitive grant funds for projects that 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, generate regional economic growth, and improve quality of life. This is a small pot of money, with only $675 million available in FY24, 90 percent of which was appropriated for projects over $25 million. There is a 20 percent match requirement.

WILDLIFE CROSSING PILOT PROGRAM

The Wildlife Crossings Pilot Program (WCPP) is a competitive grant program with the goal to save lives, prevent serious injuries, and protect motorists and wildlife by reducing Wildlife Vehicle Collisions (WVCs) while also improving habitat connectivity for terrestrial and aquatic species. Funding is available for planning and construction projects. There is no minimum or maximum grant request. The FY23 total available was $112 million. There is a 20 percent required match.

RECONNECTING COMMUNITIES

The Reconnecting Communities Pilot (RCP) Grant Program is a competitive program designed to help reconnect communities previously cut off from economic opportunities by transportation infrastructure. The program aims to advance community-centered transportation connection projects that improve access to daily needs such as jobs, education, healthcare, food, nature, and recreation and foster equitable development and restoration. The primary goal focuses on reconnecting communities harmed by past transportation infrastructure decisions through community-supported planning activities and capital construction projects championed by those communities.

Eligible facilities include highway or other surface transportation facilities that create a barrier to community connectivity, including barriers to mobility, access, or economic development due to high speeds, grade separations, or other design factors. Eligible facilities also included limited access highways, viaducts, principal arterial facilities, and other facilities such as transit lines and rail lines.

In 2024, both planning and construction grants were available. Construction grants require a BCA. Planning grants had no minimum request but a $2 million maximum. Construction grant applications require a minimum project of $5 million and a maximum of $100 million. Planning required a 20 percent match, and construction required a 50 percent match.

NATIONAL CULVERT REMOVAL, REPLACEMENT & RESTORATION

The primary objective of the Program is to meaningfully improve or restore anadromous fish passage through the replacement, removal, or repair of culverts or weirs, which may include infrastructure to facilitate fish passage around or over the weir and weir improvements. The program prioritizes projects that would improve fish passage for: (A) anadromous fish stocks listed as an endangered species or a threatened species (B) anadromous fish stocks identified by the National Marine Fisheries Service (NMFS) or USFWS (C) anadromous fish stocks identified by NMFS or USFWS as prey for endangered species, threatened species, or protected species, or (D) anadromous fish stocks identified by NMFS or USFWS as climate resilient stocks. The project also prioritizes projects that would open more than 200 meters of upstream (anadromous) habitat before the end of the natural habitat.

Requirements:

Projects must (1) meaningfully improve or restore fish passage for anadromous (migrating up rivers to spawn) fish. (2) involve replacing, removing, or repairing culverts or weirs. 3) have a transportation network (e.g., involve, relate to, or be situated near a road/rail crossing, pipeline, highway, or other transportation infrastructure).

$196 million was available in FY24 and grant requests were between $200,000 and $50 million. There was no required match in FY24 for Tribes, however, this is not anticipated to be the case if the program

moves forward. It is anticipated that Tribes will be required to provide the 20 percent match required for all other communities/government entities.

FEDERAL AVIATION ADMINISTRATION AIRPORT IMPROVEMENT PROGRAM

The Airport Improvement Program (AIP) provides grants to public agencies and, in some cases, to private owners and entities for the planning and development of public-use airports that are included in the National Plan of Integrated Airport Systems (NPIAS). For large and medium-sized primary hub airports, the grant covers 75 percent of eligible costs (or 80 percent for noise-program implementation). For small primary, reliever, and general aviation airports, the grant covers a range of 90-95 percent of eligible costs, based on statutory requirements.

- Eligible projects include those improvements related to enhancing airport safety, capacity, security, and environmental concerns. In general, sponsors can get AIP funds for most airfield capital improvements or rehabilitation projects and in some specific situations, for terminals, hangars, and nonaviation development. Certain professional services that are necessary for eligible projects (such as planning, surveying, and design) can also be eligible.

LOCAL FEES AND TAXES

The Rosebud Sioux Tribe has limited resources for raising local funds. Some items that may be considered include assessing wheel tax on vendors, fines for overweight vehicles, and fees associated with haul road agreements. The success of any of these options is contingent on Tribal lawyers drafting the regulations and laws required and Tribal courts providing needed enforcement.

RECOMMENDED FUNDING STRATEGY

Table 18 provides a general guide for project types and funding mechanisms. Especially given the ever-changing federal funding landscape, it should be consulted frequently to determine potential projects that best meet the merit criteria within available, competitive programs. Once projects are identified, the Tribe should determine the appropriate timing to initiate funding applications.

TABLE 18: FUNDING MECHANISMS BY PROJECT TYPE

Funding Program	Abbreviation	Funding Mechanism	Typical Project Type
Tribal Transportation Program Fund	TTP	Allocation	Roads
Tribal Safety Funds	TTPSF	Application	Transportation plans, studies, Guard Rails, Hazard Reduction such as signage, rumble strips, etc., non-motorized infrastructure planning and improvements
Tribal Bridge Program Funds	TTBP	Application	Bridges and Culverts
Transportation Alternatives Funding	TA	Application	Sidewalks and Bike Paths. Non-motorized traveler improvements
Better Utilizing Investments for Infrastructure Development	BUILD	Application	Large, regionally significant transportation safety/accessibility projects

Funding Program	Abbreviation	Funding Mechanism	Typical Project Type
Tribal Transit	-	Application	Transit Buses and Shelters
Federal Lands Access Program	FLAP	Application	Infrastructure improvements that provide tourism/recreational access
Nationally Significant Federal and Tribal Lands Program	NSFTLP	Application	Large, regionally significant roadway projects that connect communities and address safety
Bus & Bus Facilities Program	N/A	Application	Bus or transit equipment replacement or construction of new transit facilities
National Scenic Byways	N/A	Application	Scenic Byway reconstruction/enhancements supporting tourism
Tribal High Priority Projects	HP	Application	Highest priority projects that address reduction of high accident/fatality rates
Consolidated Rail and Safety Infrastructure	CRISI	Application	Rail grade and other rail improvement planning and construction projects
Rural and Tribal Pilot Program	N/A	Non-Competitive/First-come-first-served	Small (less than $1 million) transportation planning projects
Promoting Resilient Operations for Transformative, Efficient, and Cost Saving Transportation	PROTECT	Application	Planning/Constructing disaster/climate resilient transportation infrastructure
Safe Streets & Roads for All	SS4A	Application	Creation of a Comprehensive Transportation Safety Action Plan & implementation of goals in that plan
Active Transportation Infrastructure Investment	ATII	Application	Non-motorized transportation infrastructure planning/construction
Multimodal Project Discretionary Grant	MPDG	Application	Exceptionally large ($30 million-$100 million minimum) transportation and freight construction projects
Wildlife Crossing Pilot Program	N/A	Application	Wildlife crossing projects that address both wildlife/vehicle collisions and wildlife habitat/migration
Reconnecting Communities	RCP	Application	Transportation projects that “connect” communities, areas of the communities previously disconnected
National Culvert Removal, Replacement and Restoration	N/A	Application	Projects that meaningfully improve or restore anadromous fish passage through the replacement, removal, or repair of culverts or weirs
Federal Aviation Administration Airport Improvement Program	AIP	Application	Aviation projects that enhance airport safety, capacity, security, and environmental concerns.

CHAPTER 8 - PROJECT PRIORITIZATION

Projects were prioritized in line with available funding, anticipated success in applying for competitive funding, Tribal Council policies and identified project needs. The following Short Term and Long-Term Project Listing has been developed from the Rosebud Sioux Tribe Resolution 2019-201, amended June 26, 2024 Tribal Priority List for bridges, roads, community streets and shared use pathways.

State and County highway improvements will be implemented based upon state, county, and federal funding availability and based upon their own prioritization methodology. Project prioritization may vary based upon other infrastructure needs. For example, if a major water main is to be installed under a roadway, it is more cost effective to improve this roadway in combination with the underground utility improvements rather than restoring the road in subsequent years. At the time this report was completed, a utility implementation strategy was unavailable.

SHORT-RANGE PROJECT RECOMMENDATIONS

Short-range projects are those anticipated to be started by the end of the year 2026. For projects to use TTP funding, they must be included in the TTIP. Therefore, at the completion of this LRTP, the Rosebud Sioux Tribe should update the TTIP to include identified short-range projects.

The short-range projects listed in the Tribe's TTIP must be financially constrained to fit within the amount of TTP funds allocated to the Tribe each fiscal year. The TTIP should include grant funds awarded or reasonably expected to be awarded. It is expected that the Tribe will receive about $3,570,000 annually from which the general Tribal maintenance fund is proposed to use up to $700,000 for road maintenance, $800,000 for project management and oversight, and $64,000 for transit, leaving about $2,000,000 annually for construction. These monies may be banked for more expensive projects or banked as needed to wait for project development and design to be completed.

To maintain the Tribe's economic sustainability, funding must be carefully distributed to the most critical projects. Proposed short-range projects are listed in **Table 19.** When additional funding is received, the Tribe will be able to prioritize a long-range project to move into the short-range element of the LRTP. The project estimates that have been prepared include a 10% contingency added to the construction cost. Road maintenance projects, such as striping and pavement crack and chip seals are not included but are completed within the road maintenance budget of $700,000 annually.

TABLE 19: SHORT-RANGE PROJECTS

Map ID #	Project Name and Description	Route(s)	Length (Miles)	Estimated Cost
Bridges				
SB1	Lambert Bridge, A031 – Bridge Replacement	BIA 7	NA	$ 4,600,000
SB2	Yellow Cloud Bridge, A030 – Bridge Replacement	BIA 9	NA	$ 4,200,000
SB3	Church Hill Bridge, A141 – Bridge Replacement	BIA 30	NA	$ 2,700,000

Map ID #	Project Name and Description	Route(s)	Length (Miles)	Estimated Cost
Roads				
SR1	North BIA Route 1 Safety Shoulder Improvement Project - TTPSF grant awarded to add asphalt paved shoulders & striping	BIA 1	5.2	$ 1,550,000
SR2	BIA Route 7 Regional Improvement Project - Rural grant to reconstruct & pave 269th Ave and 293rd St, mill and overlay BIA 7 west of Rosebud, asphalt pave shoulders of BIA 7 east of Rosebud, plus safety improvements and pathways	BIA 7 and Todd County's 269th St, & 293rd Ave	24	$ 32,750,000
SR3	BIA Route 1 Pedestrian Connectivity & Safety Study - TTPSF grant to study pedestrian connectivity and safety with recommendations for improvements to BIA 1 from BIA 1 & 9 intersection to BIA 7 in Rosebud	BIA 1	2.2	$ 100,000
SI1	BIA Route 5 Intersections (BIA 501 & Tutle Rd) Study - TTPSF grant to study two dangerous intersections on BIA 5 and recommend improvements	BIA 5, BIA 501, & Tutle Rd (BIA 512)	NA	$ 250,000
NA	Speed Feedback Signs - Design and installation of speed feedback signs for 10 locations	To Be Determined	NA	$ 300,000
SI2	BIA Route 1 and 9 Intersection Improvements Design - Design improvements to BIA 1 and 9 intersection, potential roundabout	BIA 1 & BIA 9	NA	$ 300,000
SR4	South BIA Route 1 / Kilgore Rd Regional Improvement Project Design, Including St. Francis Pathway - Planning and preconstruction (except right-of-way acquisition) to reconstruct BIA 1, Warrior Rd, and Kilgore Rd from St. Francis, SD to Kilgore, NE	10.3 miles of BIA 1, 0.5 miles of Warrior Rd, and 6.2 miles of Kilgore Rd, NE	17	$ 2,050,000
SR5	BIA Route 5 Grant Application & Design (If Awarded Grant Funds) - Planning to reconstruct BIA 5 from BIA 7 to BIA 30	BIA 5	13.5	$2,500,000

Map ID #	Project Name and Description	Route(s)	Length (Miles)	Estimated Cost
Shared Use Pathway				
SP1	Antelope and White Horse Community Pedestrian Connectivity, Phase I Design and Construction - New pathway from end of existing sidewalk on US18 into Antelope Community, crossing improvements along US18	0.25 miles along south side of US18, and 0.45 miles along BIA 10 east of Mission, SD	0.70	$ 1,400,000
SP2	Turtle Creek Pathway, Phase I Design and Construction - New pathway from end of existing sidewalk on US18 to Turtle Creek Crossing Super Foods entrance	North side of US18 west Mission, SD	0.75	$ 1,249,895
SP3	Two Strike Community Pathway Design - New pathway along east side of BIA Route 1 from St. Francis to Two Strike north entrance	East side of BIA 1	3.4	$ 570,000
SP4	Winner Community Tribal Housing – Design	Various	1.0	$ 250,000
SP5	Corn Creek Community – Design	West side of SD63	0.3	$ 150,000

Following is a description of each project listed in **Table 19.** In addition to the short-range projects, there are additional plans and safety-related studies and efforts which are recommended to be undertaken during the next 5 years. Included in these is an updated to the Tribal Transportation Safety Plan and Surface Transportation Vulnerability Assessment including a culvert inventory to Supplement the FHWA Building Tribal Transportation Resilience to Climate Change and the Technical summary of the Rosebud Sioux Tribe climate change vulnerability assessment of the transportation network.

SHORT-RANGE BRIDGE PROJECTS

Lambert Bridge – Structure #A031, BIA Route 7

The existing bridge, built in 1972, is considered in poor condition, it is load posted and does not meet acceptable safety standards. The 110-foot three-span bridge provides a crossing over the Little White River near Ghost Hawk Park approximately 0.10 mile west of the BIA Route 5 and BIA Route 7 intersection. The bridge consists of prestressed concrete tee-beams supported by concrete abutments

and piers. The tops of the prestressed beams are covered with a bituminous overlay and provide the driving surface for the bridge. The bridge is currently posted at 23 Tons.

The deficiencies of primary concern are:

- Scaling and delamination of exterior prestressed concrete girders
- Erosion and settlement of channel embankment at abutments
- Lack of rock riprap or other erosion control measures along channel banks
- Asphalt cracking and deterioration at bridge joints
- Settlement of roadway approaches at bridge ends
- Bridge and guardrails do not meet current safety standards

BIA Route 7 is vital paved route carrying nearly 1,900 vehicles per day. The project is eligible for 100-percent TTP Bridge Program funding. The project is in the design phase in 2025 and planning for construction beginning in 2026.

FIGURE 48: LAMBERT BRIDGE, STRUCTURE #A031, BIA ROUTE 7



Funding Opportunity & Estimate: TTP Bridge Funding

- Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 300,000
- Construction & Construction Engineering: $ 4,300,000

Yellow Cloud Bridge – Structure #A030, BIA Route 9

The existing bridge, built in 1970, is considered in fair condition, it is load posted and does not meet acceptable safety standards. The 109-foot three-span bridge provides a crossing over the Little White River. The bridge consists of concrete channel beams supported by timber abutments and piers. The tops of the channel beams provide the driving surface for the bridge. The bridge is currently posted at 30 Tons.

The deficiencies of primary concern are:

- Load carrying capacity of existing concrete channel beams
- Damaged timber bracing at pile bent piers
- Age of timber substructures and loss of timber preservative
- Deterioration and debris build-up at bridge joints
- Bridge and guardrails do not meet current safety standards

BIA Route 9 is a vital gravel surfaced route carrying nearly 550 vehicles per day. The project is eligible for 100-percent TTP Bridge Program funding. The project is in the design phase in 2025 and planning for construction beginning in 2026.

FIGURE 49: YELLOW CLOUD BRIDGE – STRUCTURE #A030, BIA ROUTE 9



Funding Opportunity & Estimate: TTP Bridge Funding

- Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 300,000
- Construction & Construction Engineering: $ 3,900,000

Church Hill Bridge – Structure #A071, BIA Route 30

The existing bridge, built in 1994, is considered in good condition, but has some scour and erosion issues. The 78-foot single-span bridge provides a crossing over the Little White River approximately 1 mile west of Spring Creek community. The restoration project is eligible for 100-percent TTP Bridge Program funding. The project is planned to begin design in 2026 with construction in 2028.

FIGURE 50: CHURCH HILL BRIDGE – STRUCTURE #A071, BIA ROUTE 30



Funding Opportunity & Estimate: TTP Bridge Funding

- Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 200,000
- Construction & Construction Engineering: $2,500,000

SHORT-RANGE ROAD PROJECTS

North BIA Route 1 Safety Shoulder Improvement Project

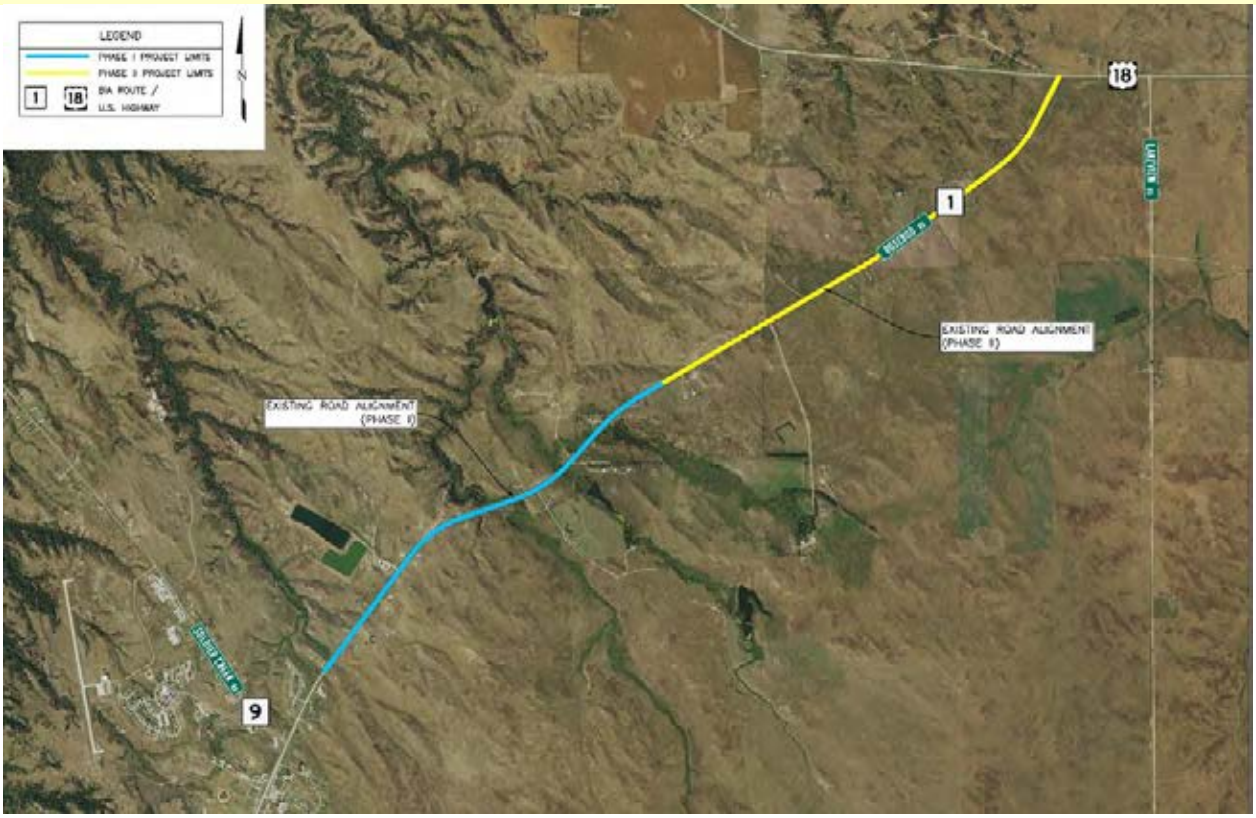
BIA Route 1 in its entirety constitutes approximately 24.9 miles of paved north/south rural major collector roadway. It begins at the junction of US Highway 18 and goes south, passing through the town of Rosebud and St. Francis, where it then terminates approximately 10-miles south of St. Francis at the South Dakota/Nebraska state line. The northern 5.2 miles of BIA Route 1 from the north edge of Rosebud to US Highway 18 has a concrete pavement top with gravel shoulders that have settled creating a large grade difference between the concreate edge and top of gravel shoulder. With a posted speed of 65 mph and heavy traffic volume of approximately 3,400 ADT it is critical the highway have wider shoulders. The North BIA Route 1 Safety Shoulder Improvement Project (Phases I and II) has been designed and is planned for construction in 2025-2026. See **Figure 51** for project location map.

FIGURE 51: NORTH BIA ROUTE 1



The project will construct 4-foot-wide asphalt paved shoulders that increase safety for vehicles needing to pullover in case of an emergency and where pedestrians can walk safely. The project will also install rumble strips and striping. This project was identified in the 2020 RSA and was awarded TTP safety funds in two rounds. Phase I was awarded $568,891 TTPSF and Phase II was awarded $959,600 TTPSF.

FIGURE 52: BIA ROUTE 1 SAFETY SHOULDER PROJECT



Funding Opportunity & Estimate: TTP Safety Program Funding totaling $ 1,528,491

- Engineering Design, NEPA, & PS&E: $ 106,750
- Construction & Construction Engineering: $ 1,421,741

BIA Route 7 Regional Improvement Project

BIA Route 7 is a rural major collector 13.6-mile northwest/southeast route with the western section having an average top width of 36-feet and eastern section having a top width of 32-feet. The route begins at the intersection of U.S. Highway 18 and heads southeast intersecting local roads including BIA Routes 1 and 5 and ends 6-miles east of Rosebud at the intersection of Lakeview Road. The roadway has a wide section throughout the western section of the route with good shoulder width and the slopes are relatively 4:1 or flatter but the asphalt pavement surface has deteriorated and needs replacement. The eastern 6-mile section was recently reconstructed with 12-foot lanes and 4-foot shoulders of asphalt and granular surfacing and 5:1 side slopes with the BIA Route 7 – Rosebud to US Hwy 83 Improvement Project, Phase I – Rosebud to 8.4 Miles East. The project was funded partially with TTP funds and TIGER Grant funds.

The BIA Route 7 Regional Improvement Project will complete Phase II of the BIA Route 7 – Rosebud to US Hwy 83 Improvement Project which starts at the end of Phase I to 7.6 Miles to US Hwy 83. The Project will also add asphalt shoulders to Phase I, add a hard-surface top to the Rosebud Dam Pathway, mill and overlay existing asphalt pavement from US Hwy 18 to Rosebud, pavement striping and rumble strips, guardrail improvements, construct two new pathways along BIA Route 7 from US Hwy 18 to 2.5 miles east and from the end of existing sidewalk in Rosebud to approximately 3 miles west, improve safety at the BIA Routes 1 and 7 intersection, improve sidewalk in Rosebud, and add lighting along the

pathways and in Rosebud near Tribal Headquarters. **Figure 53** through **Figure 55** shows planned improvements. The project is funded through a USDOT Rural Grant and TTP funds.

Funding Opportunity & Estimate: USDOT Rural Grant ($26,200,400) & TTP Funding ($6,550,100 Match)

- Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 503,000
- Construction & Construction Engineering: $ 32,247,500

FIGURE 53: BIA ROUTE 7 REGIONAL IMPROVEMENT PROJECT PLANNED IMPROVEMENTS WEST OF ROSEBUD

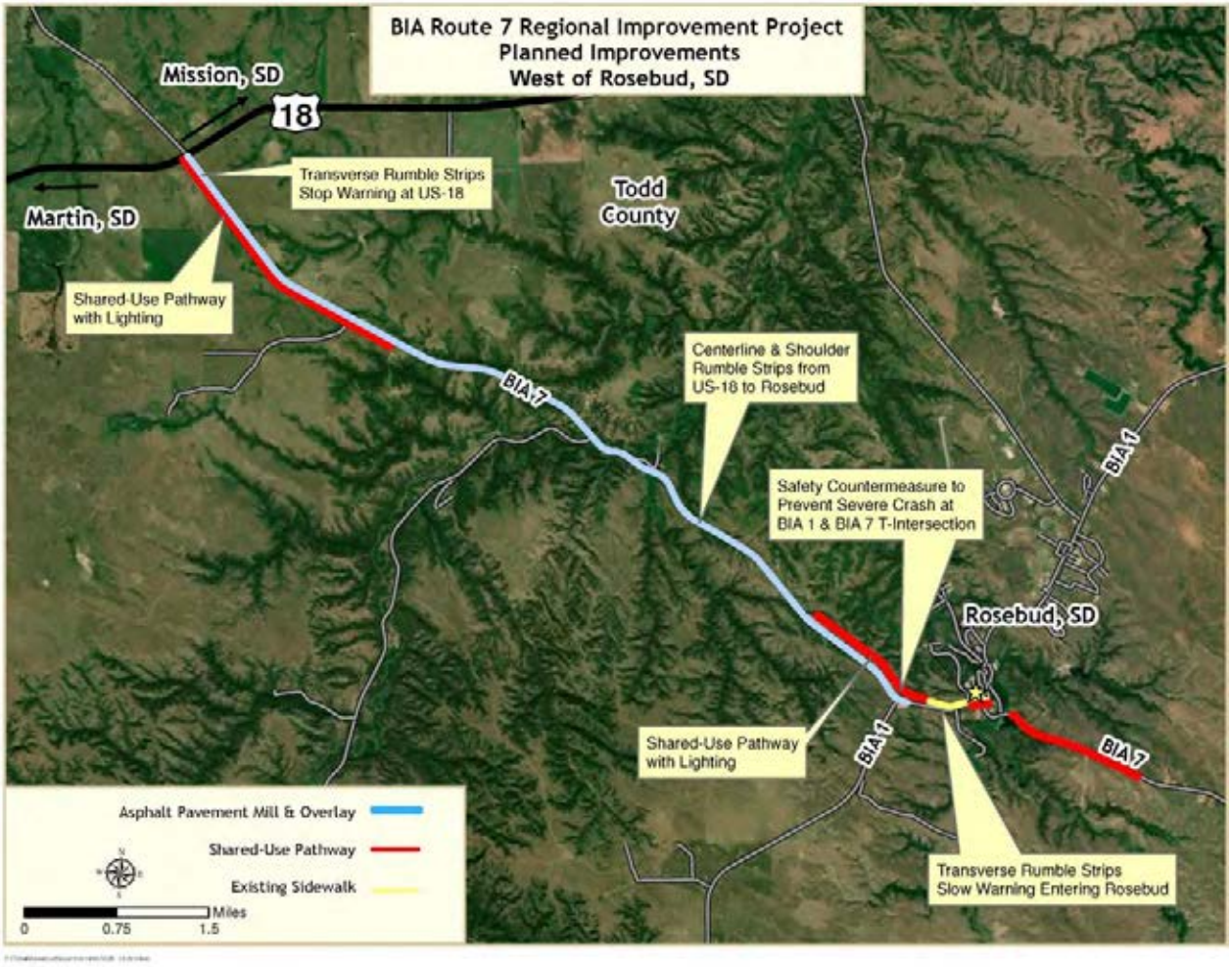


FIGURE 54: BIA ROUTE 7 REGIONAL IMPROVEMENT PROJECT PLANNED IMPROVEMENTS EAST OF ROSEBUD

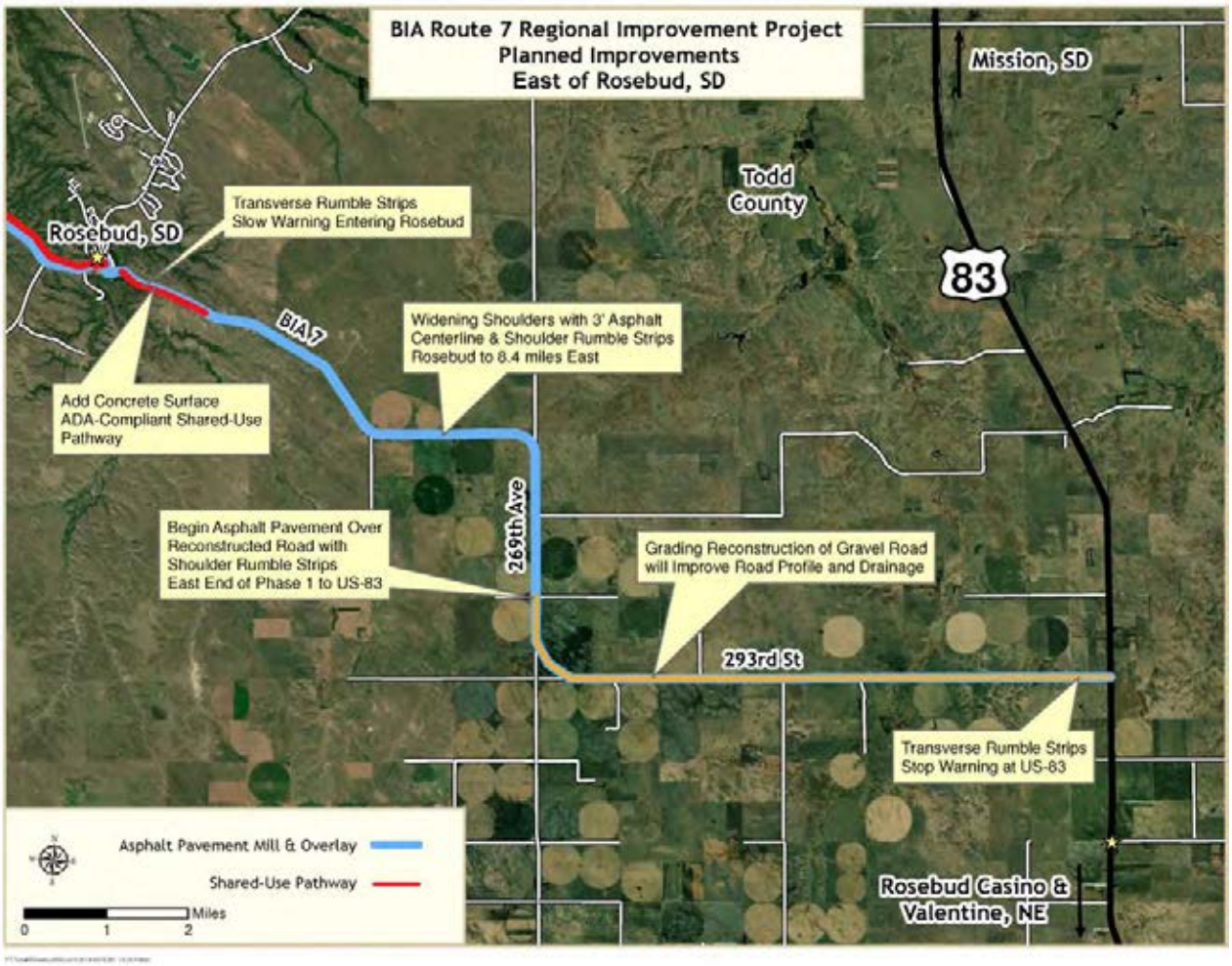
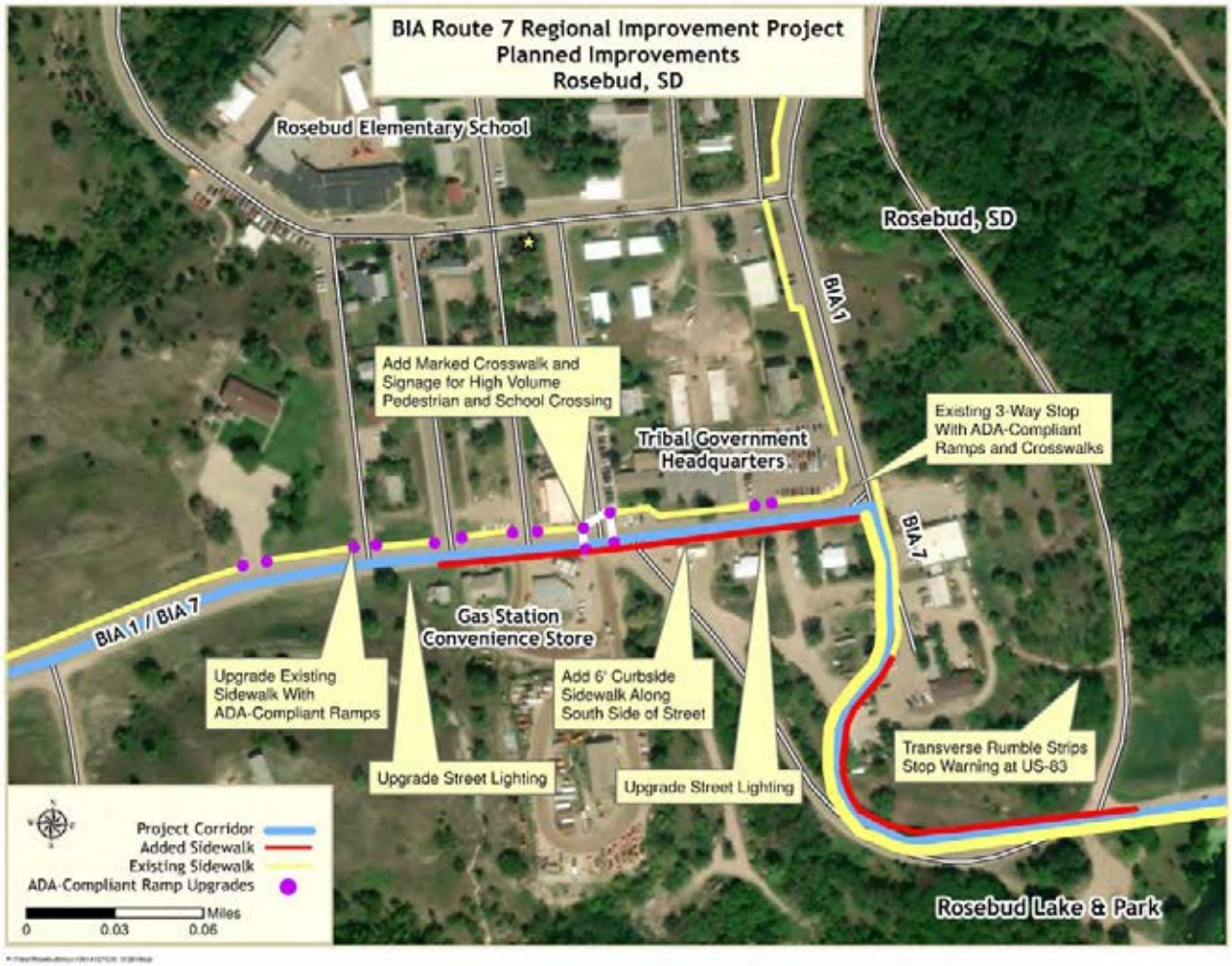


FIGURE 55: BIA ROUTE 7 REGIONAL IMPROVEMENT PROJECT PLANNED IMPROVEMENTS IN ROSEBUD



BIA Route 1 Pedestrian Connectivity & Safety Study and Improvements

BIA Route 1 in its entirety constitutes just under 25 miles of paved north/south rural major collector roadway. It begins at the junction of US Hwy 18, and goes south, passing through the towns of Rosebud and St. Francis, where it terminates approximately 10-miles south of St. Francis at the South Dakota/Nebraska state line.

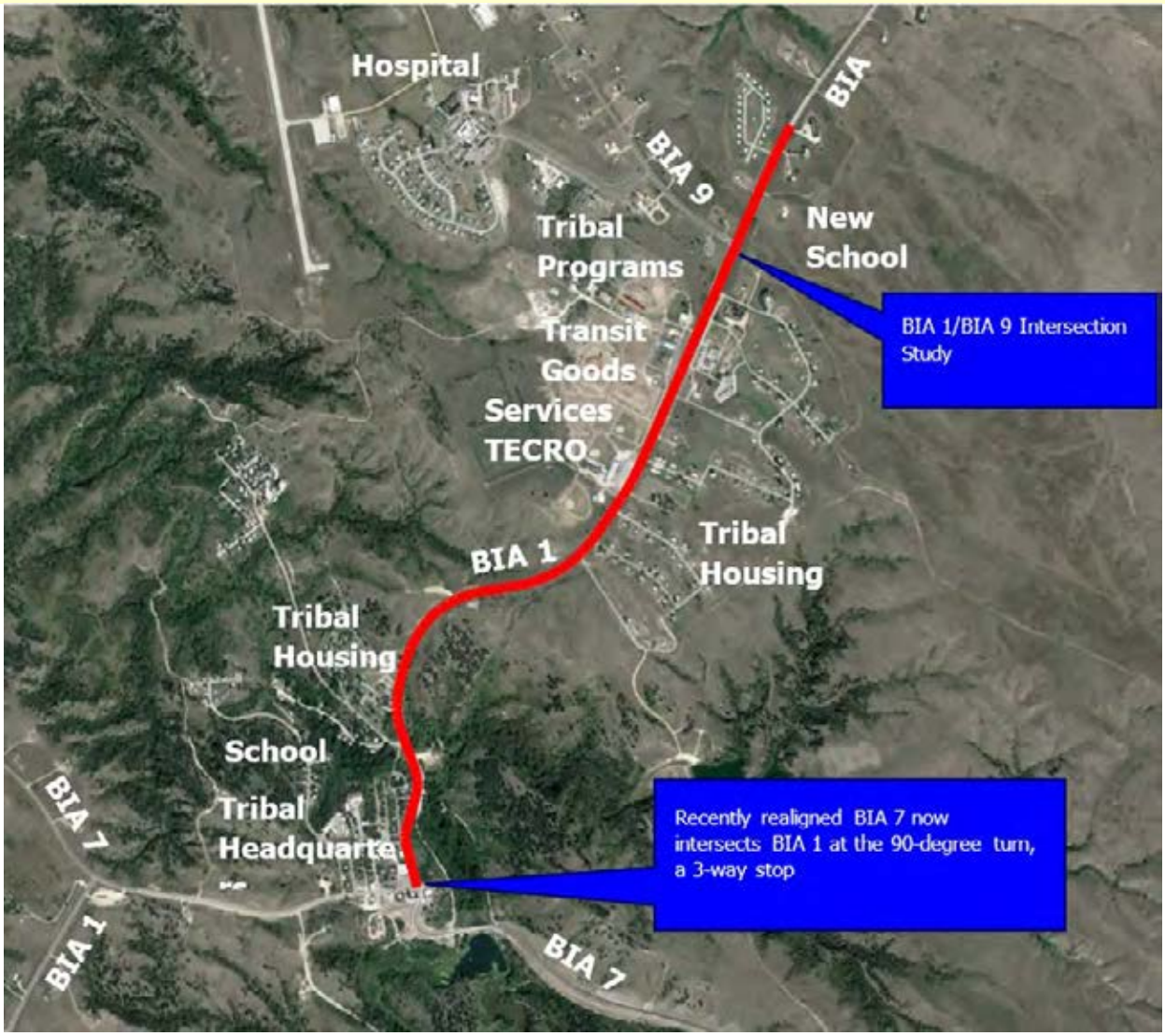
The identified project area begins at the intersection of BIA Routes 1 and 7 in the community of Rosebud and extends approximately 0.3 miles north of the intersection of BIA Routes 1 and 9. Total length of the project area is 2.2 miles and shown in **Figure 56.** Due to several concerns within the project area, the RST Transportation Program has contracted with a consultant engineering firm to conduct a study of pedestrian connectivity and safety. The concerns include varying speed limits and speeding vehicles, pedestrians crossing the road at varying and unmarked locations, limited sight distance at some intersections, wide pavement increasing pedestrian crossing time, multiple intersecting roads and approaches, and lack of pedestrian refuge areas. The study will coordinate with the recommendations of the recently completed BIA Routes 1 and 9 Intersection Safety Study.

Following the study, the RST Transportation Program will apply for design and construction funds to make improvements recommended as approved by the RST Transportation Committee and Tribal Council. The Study is scheduled in the Short-Range Projects and design and construction are included in the Long-Range Projects however may be completed sooner if funding is available. The improvements may include, but are not limited to, the addition of pedestrian refuge islands, additional multi-use pathways, lighting, high-performance pavement markings and cross walks, and other FHWA proven countermeasures that address both motorized and non-motorized traveler safety concerns. Costs for planning and construction will be determined in the Study.

Funding Opportunity & Estimate: TTP Safety Funds

- Study: $ 100,000
- Engineering Design, NEPA, Temporary Construction Easements, & PS&E: TBD
- Construction & Construction Engineering: TBD

FIGURE 56: BIA ROUTE 1 PEDESTRIAN CONNECTIVITY AND SAFETY IMPROVEMENTS PROJECT AREA



BIA Route 5 Intersections (BIA 501 & Tutle Rd) Study and Improvements

BIA Route 5 is a 13.7-mile asphalt paved north/south rural local road that follows along the Little White River. The route has a pavement top width of 24-feet and no shoulders. It begins at the intersection of BIA Routes 5 and 7 west of the community of Ghost Hawk, then heads south intersecting several local roads. The 2021 TTSP and the 2020 RSA both identify the intersections of BIA Routes 5 and 501 and BIA Routes 5 and Tutle Road (BIA 512) as having lack of proper intersection sight distance, intersection skew, no advance warning for stop ahead, lack of proper roadway signage, traffic control, low visibility during adverse weather, and insufficient pedestrian infrastructure.

The skew/shape of both intersections pose significant safety concerns with motor vehicles joining traffic in a 55-mph zone from a skewed roadway with little or no visibility. Total length/area of the project is less than 1 mile at both locations and less than 1 mile when combined. **Figure 57** and **Figure 58** are location maps of the two intersections on BIA Route 5.

The RST Transportation Program has contracted with a consultant engineering firm to conduct an intersection improvements studies for the two skewed intersections on BIA Route 5. The Study will review crash and ADT data, survey, investigate environmental conditions, and provide conceptual engineering design countermeasures to address those concerns at both intersections.

Following the study, the RST Transportation Program will apply for design and construction funds to make improvements recommended as approved by the RST Transportation Committee and Tribal Council. The Study is scheduled in the Short-Range Projects and design and construction are included in the Long-Range Projects however may be completed sooner if funding is available. The study is anticipated to provide alternatives which may include realignment of the intersecting roads, updated traffic control signs and pavement marking. Costs for planning and construction will be determined in the Study.

Funding Opportunity & Estimate: TTP Safety Funds

- Study: $ 250,000
- Engineering Design, NEPA, Temporary Construction Easements, & PS&E: TBD
- Construction & Construction Engineering: TBD

FIGURE 57: BIA ROUTE 5 AND BIA ROUTE 501 INTERSECTION PROJECT AREA



FIGURE 58: BIA ROUTE 5 AND TUTLE RD INTERSECTION PROJECT AREA



Speed Feedback Signs

Speeding has been identified as a major cause of crashes on the Rosebud Reservation. The 2021 TTSP identified the importance of incorporating Speed Radar Trailers as a deterrent.



The RST Transportation Program applied for TTP Safety Grant Funds for planning and installation of ten (10) permanent speed feedback signs that will be utilized to provide feedback on vehicle speeds on identified high-speed areas and in school zones across the Rosebud Reservation. These will be installed permanently to provide a more durable, cost-effective option than temporary, portable signs. The installation of this equipment will assist the Tribe in collecting data, assessing areas of high speed, and targeted education and enforcement moving forward, ultimately reducing speed related crashes.

Funding Opportunity & Estimate: TTP Safety Funds

- Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 100,000
- Construction & Construction Engineering: $ 200,000

BIA Routes 1 and 9 Intersection Improvements

A study was recently completed for the BIA Routes 1 and 9 intersection in Rosebud, SD, which evaluated the traffic conditions, operations, and current and future safety. The intersection of BIA Routes 1 and 9 is fairly unique in the aspect that BIA Route 1 has a southbound right turn lane terminating at the intersection. However, the south leg of the intersection on BIA Route 1 has four lanes of travel and the outside southbound lane is only stripped as a median for vehicles not to use for approximately 275-feet where it opens for vehicles to use the travel lane. Community members have shared that some vehicles using the right turn lane have treated it as a through lane going through the intersection. This creates a conflict for vehicles wanting to turn right from BIA Route 9 onto BIA Route 1 and could potentially increase angle crashes at the intersection.

The 60-foot section continues to Long Street were BIA Route 1 then transitions back down to 48-foot concrete pavement section with four travel lanes. The 48-foot section continues to Wasta Drive where the roadway then transitions to a varying 24 to 36-foot concrete or asphalt pavement section to the western edge of Rosebud.

The study recommendations are to install intersection lighting, upgrade the sidewalk and ramps to achieve ADA compliance and remark the stop bar and crosswalk, reduce setback of stop sign and stop bar on BIA 9 approach, and convert the intersection to a single-lane roundabout. A map of the study area can be found in **Figure 59**, and a recommended roundabout improvement can be found in **Figure 60**.

Following the study, the RST Transportation Program will apply for design and construction funds to make improvements recommended as approved by the RST Transportation Committee and Tribal Council. The design is scheduled in the Short-Range Projects and construction is included in the Long-Range Projects however may be completed sooner if funding is available.

Funding Opportunity & Estimate: TTP Safety Funds

- Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 290,000
- Construction & Construction Engineering: $ 3,410,000

FIGURE 59: BIA ROUTE 1 AND BIA ROUTE 9 INTERSECTION PROJECT AREA – EXISTING CONDITION



FIGURE 60: BIA ROUTE 1 AND BIA ROUTE 9 INTERSECTION ROUNDABOUT RECOMMENDATION

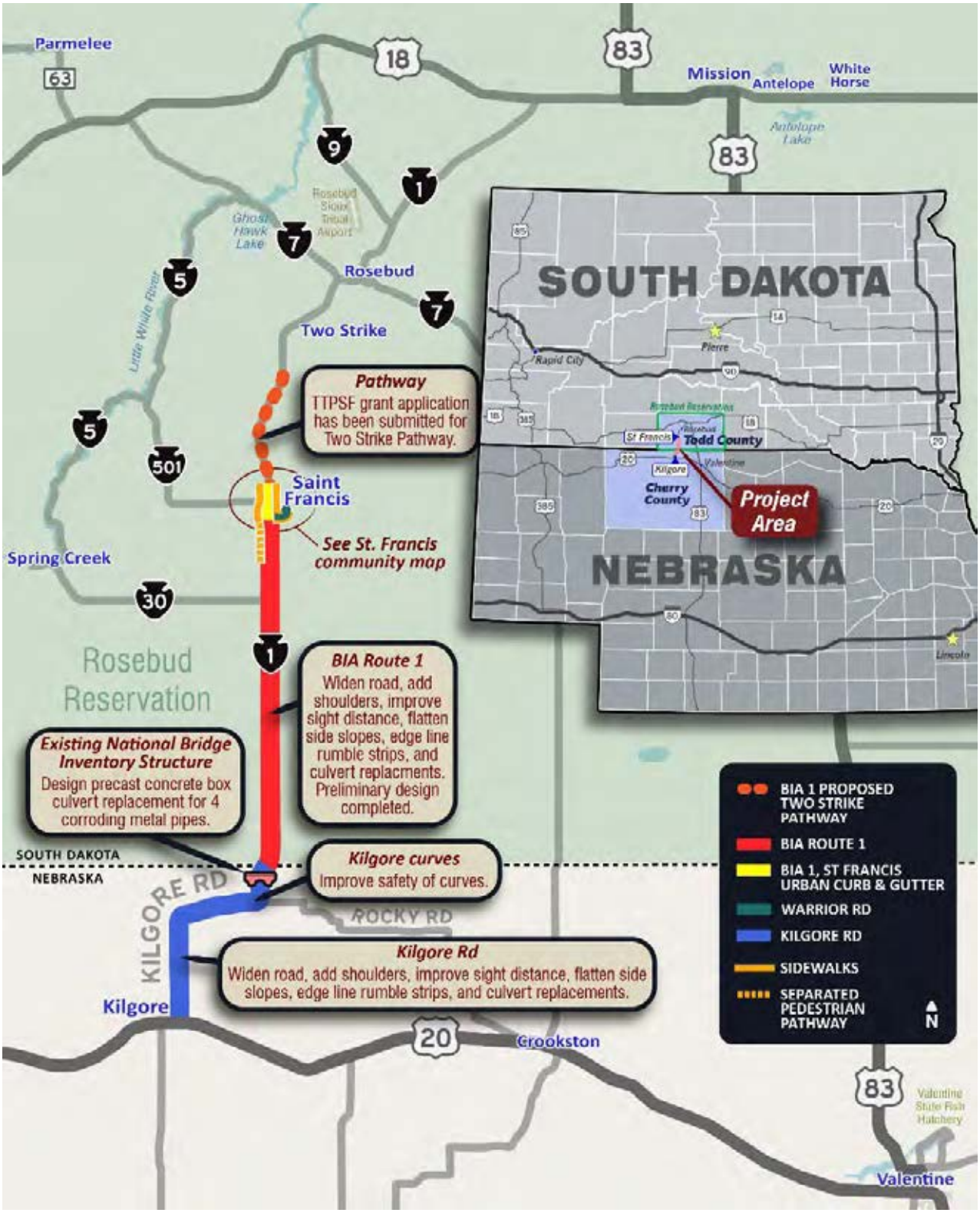


South BIA Route 1 / Kilgore Rd Regional Improvement Project Design, Including St. Francis Pathway

BIA Route 1 in its entirety constitutes approximately 24.9 miles of paved north/south rural major collector roadway. It begins at the junction of US Highway 18 and goes south, passing through the town of Rosebud and St. Francis, where it then terminates approximately 10-miles south of St. Francis at the South Dakota/Nebraska state line. The southern 10.3 miles is connected to 6.2 miles of Cherry County, Nebraska's Kilgore Road which terminates at US Hwy 20 in Nebraska.

RST Transportation Program has submitted a USDOT BUILD grant application to complete the planning and preconstruction activities for the BIA Route 1/Kilgore Road to US-20 Regional Improvement Project (the Project). This rural project connects the communities of St. Francis, South Dakota on the Rosebud Indian Reservation to Kilgore, Nebraska located along US Highway 20. The Project includes 10.3 miles of BIA Route 1, 6.2 miles of Cherry County's Kilgore Road, 0.5 miles of Warrior Road (BIA 15), and approximately 3.5 miles of pedestrian infrastructure as shown in **Figure 61**.

FIGURE 61: SOUTH BIA ROUTE 1 / KILGORE RD REGIONAL IMPROVEMENT PROJECT LOCATION MAP



BIA Route 1 has severely deteriorated asphalt pavement which is heavily cracked and requires constant maintenance. Due to the cost of maintenance, the Tribe is considering grinding up the existing asphalt pavement. The posted speed limit for the southern section is 55 mph with exception within the town of St. Francis the speed limit drops to 25 mph. Kilgore Rd and Warrior Rd also have deteriorated asphalt pavement. Hills are severe and block sight distance, horizontal curves are sharp, the roads are narrow with steep side slopes and have fixed objects within the clear zone including culverts not having flared or sloped end sections, trees, and vegetation. Numerous crashes have occurred along the project route proving the need for safety improvements. Additional project improvements include pedestrian infrastructure.



The 16.2-mile Project will improve vehicular and pedestrian safety and connectivity for Tribal and non-Tribal members traveling between South Dakota and Nebraska and in and around the towns of St Francis, SD and Kilgore, NE. The project begins at the north edge of St. Francis where the existing road will be transformed to a traffic calming 24-foot-wide paved 2-lane roadway top with curb and gutter, storm sewer, and ADA compliant sidewalks on both sides, which will connect to existing sidewalks at BIA Route 501 to 0.7-miles south where it connects to Warrior Road and continues 0.3 miles to the St. Francis Indian School. At the intersection of BIA Route 1 and Warrior Road to US Highway 20 in the community of Kilgore, NE, BIA Route 1 (9.6 miles) and Kilgore Rd (6.2 miles) will be a rural section with 12-foot lanes, 4-foot shoulders, recoverable side slopes, and roadside ditches large enough to carry stormwater and hold snow. A 1-mile pedestrian pathway will extend south from sidewalks at Warrior Rd connecting numerous home sites to the community and school.

Planning and preconstruction activities, if awarded BUILD grant funds, would be completed in the Short-Range with future application(s) for construction grant funds to complete reconstruction in the Long-Range.

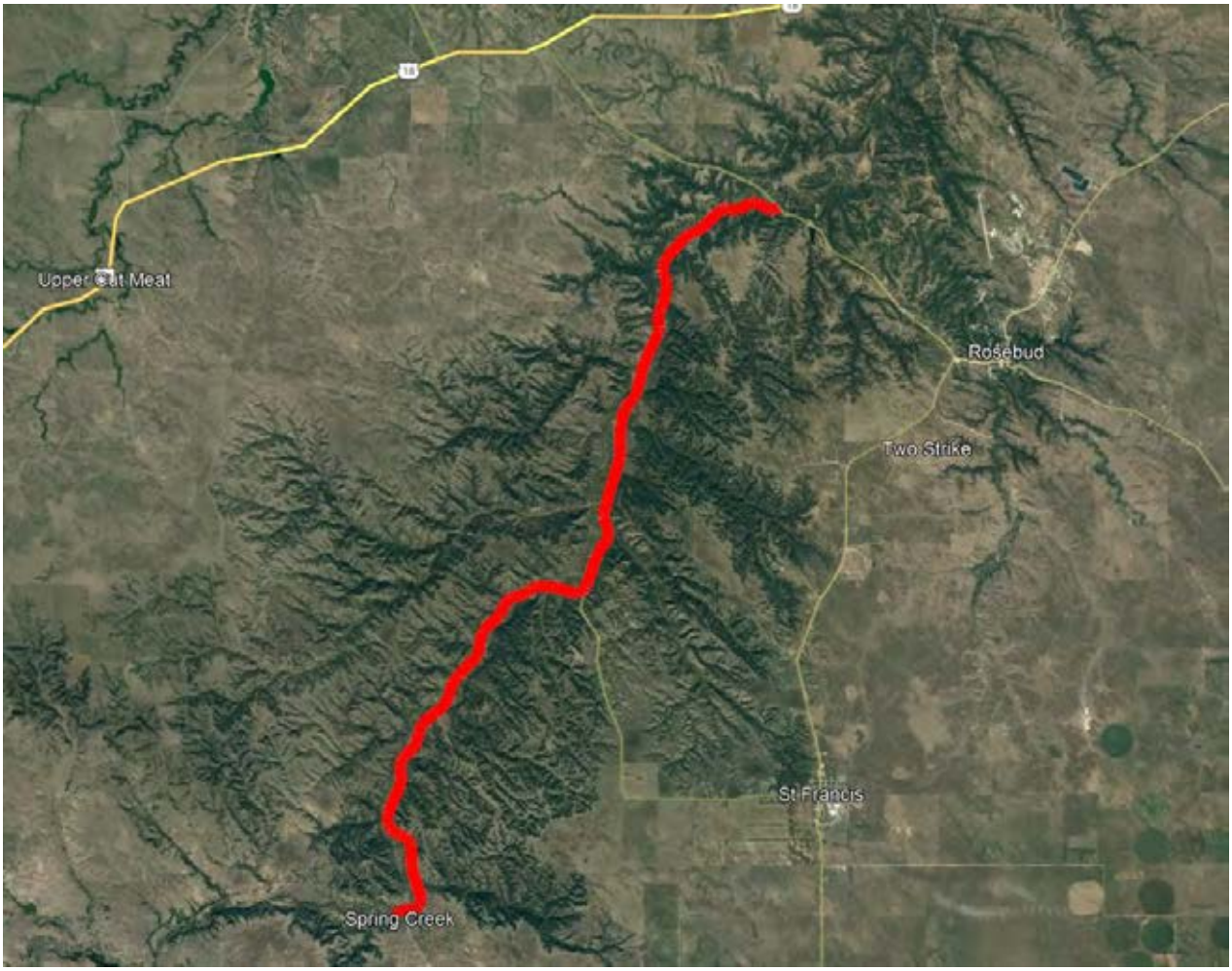
Funding Opportunity & Estimate: BUILD Grant Funding

- Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 1,862,000
- Construction & Construction Engineering (: $ 54,500,000

BIA Route 5

BIA 5 is a 13.7-mile asphalt paved north/south rural local road that follows along the Little White River. The route has a pavement top width of 24-feet and no shoulders. It begins at the intersection of BIA Routes 5 and 7 west of the community of Ghost Hawk then heads south intersecting local roads including BIA Route 501, where it jogs west for approximately 1 mile then heads south again for approximately 5.4-miles where it terminates at the intersection of BIA Route 30 within the community of Spring Creek.

FIGURE 62: BIA ROUTE 5 MAP



BIA Route 5 is locally signed as a scenic byway. The existing highway is narrow, with steep side-slopes and located adjacent to the Little White River. The highway has been identified vulnerable to damage due to creek flooding and scour. The asphalt pavement is severely deteriorated, and markings are heavily worn and have low visibility. The roadside safety clear zone contains many obstructions including trees and vegetation that are overgrown and cover many of the roadway signs. This creates a hazard as roadway signs are intended to communicate with roadway users for potential conflicts ahead such as intersection ahead signs or horizontal curve ahead signs. Many of the horizontal curves are sharp. The route has a posted speed limit of 55 mph which reduces to 25 mph near the community of Spring Creek. There are no advance warning signs warning vehicles of the speed reduction or posted speed limit sign notifying vehicle of the increase in speed.

The Little White River flows parallel to BIA Route 5 winding and running into the embankment of BIA Route 5 causing areas of erosion. At these high-risk areas, the embankments are not properly covered with riprap, gabions, or other means to prevent scour. Instead, road maintenance staff is constantly fighting the erosion of BIA Route 5's embankment. There are four bridges which cross the river that have recently been replaced. Intersection sight distance issues were also observed along the route at two different locations where a secondary road intersects BIA Route 5 at a large skew. These two intersecting roads are BIA Route 501 and Tutle Road.

FIGURE 63: BIA ROUTE 5 (RIGHT) AT THE SKEWED INTERSECTION OF TUTLE ROAD (LEFT)



The route needs to be reconstructed to current highway safety standards to the degree possible and still remain a scenic byway. The RST Transportation Program is planning to apply for PROTECT Grant funds, or similar, for the necessary planning and preconstruction activities to prepare "shovel-ready" construction documents. Planning and preconstruction activities, if awarded grant funds, would be completed in the Short-Range with future application(s) for construction grant funds to complete reconstruction in the Long-Range.

Funding Opportunity & Estimate: PROTECT Grant Funding or Similar

- Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 2,500,000
- Construction & Construction Engineering: $ 36,000,000

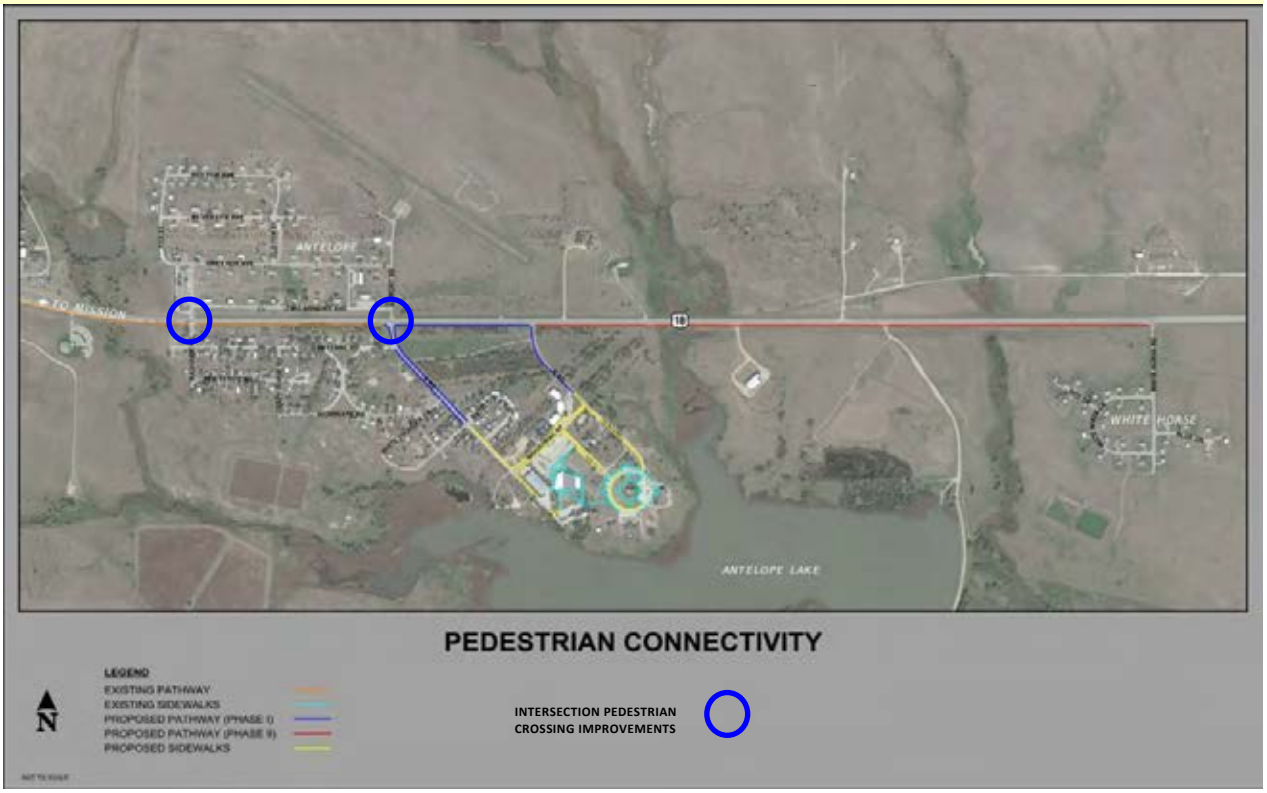
SHORT-RANGE SHARED USE PATHWAY PROJECTS

The 2021 TTSP lists locations within the Rosebud Reservation where there is pedestrian/bike traffic, and the Tribe has identified specific need for pathways. The locations included in the Short-Range are first phase of Antelope and White Horse, Turtle Creek, and Two Strike Community. The locations included in the Long-Range are future phases of Antelope and White Horse, Turtle Creek, and Two Strike Community as well as Corn Creek, Mission, Saint Francis, and Winner. The 2021 TTSP crash data identifies pedestrian a major crash cause, being in the top 10 of crash types occurring and accounting for approximately 6% of all serious and fatal injuries between 2013-2020. It further recommends that lighting should be considered along all pathways as appropriate to increase pedestrian visibility, provide for traffic calming and potentially increase security.

Antelope and White Horse Communities Pedestrian Connectivity

The Antelope and White Horse Communities pathway is planned for at least three phases, the first phase shown in blue in **Figure 64** is planned for completion in the Short-Range. Phases following the first phase would be completed in the Long-Range. This area has high pedestrian traffic and is in proximity of the Sinte Gleska University. A pathway is needed along US Highway 18, connecting from Antelope going east towards White Horse, as well as a pathway connecting from the highway going south towards the university. Additionally, due to high traffic volumes (2,500+ AADT) and the presence of housing on the north and south sides of US 18 in Antelope, the intersections Washakie St. and Cheyenne/Airport Rd with Highway 18 are in need of pedestrian crossing infrastructure such as marked crosswalks, bi-directional pedestrian crossing signage, and potentially RRFBs to improve pedestrian safety. Consideration of a midblock pedestrian crossing should also be considered between Washakie St. and Cheyenne/Airport Rd.

FIGURE 64: ANTELOPE & WHITE HORSE PEDESTRIAN CONNECTIVITY



Pedestrian lighting could be included in each phase for the proposed phases depending on the available funding. Coordination with SDDOT will be needed if a project were to come fruition for the Pathway along US Highway 18.

The approximate project construction cost for each phase and lighting and pedestrian crossing infrastructure improvements are shown below:

Strategy Champion: Rosebud Sioux Tribal Transportation Program

Funding Opportunity & Estimate: TTP Safety Funding, TTP Funding or SDDOT Transportation Alternatives Funding

Phase I (0.90 miles)
Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 60,000
Construction & Construction Engineering: $ 1,400,000

Phase II (1.10 miles)
Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 150,000
Construction & Construction Engineering: $ 1,800,000

Phase III (0.70 miles)
Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 200,000
Construction & Construction Engineering: $ 1,000,000

Turtle Creek Pathway

The construction of the new grocery store west of Mission and future development of Keya Wakpala by Siċaŋġu Co has increased pedestrian traffic and will continue to increase pedestrian traffic along US Hwy 18. The increase in traffic has created a need for a separated shared-use pathway. This pathway would connect existing pedestrian facilities and users from the town of Mission (phase I) and the high-density tribal housing north of the highway (phase II) with the new grocery store entrance west of town.

FIGURE 65: TURTLE CREEK PATHWAY



The pathway will be constructed in phases with the first phase being completed in the Short-Range and future phases in the Long-Range. Depending on the availability of funding, lighting will be included. Coordination with SDDOT and Sicaŋgu Co is necessary for phase I and the City of Mission for phase II. The approximate project construction cost for the pathway and lighting are shown below:

Funding Opportunity & Estimate: TTP Safety Funding, TTP Funding or SDDOT Transportation Alternatives Funding

Phase I (0.9 miles)	
Engineering Design, NEPA, Temporary Construction Easements, & PS&E:	$ 70,000
Construction & Construction Engineering:	$ 1,400,000
Phase II (0.3 miles)	
Engineering Design, NEPA, Temporary Construction Easements, & PS&E:	$ 140,000
Construction & Construction Engineering:	$ 800,000

Two Strike Community Pathway

Five miles south of Rosebud on BIA Route 1 is the tribal housing community of Two Strike. The housing complex is U-shaped with two approaches off the highway. Pedestrians and bicycles use the roadway between the two approach roads rather than the longer route around on the residential street, demonstrating a need to connect them. St. Francis is located approximately 3.5-miles south of the Two Strike Community. Additional needs have been identified to provide for a safe and efficient alternative to remove pedestrians walking along the BIA Route 1 as many pedestrians commute back and forth between Two Strike and St. Francis for goods and services. The pathway would be 10-feet wide and begin in St. Francis at the intersection of Cherry Road, follow BIA Route 1 north and parallel to the roadway terminating at the furthest north approach of the Two Strike Community. The pathway would be approximately 3.4-miles in length and the cost is broken down

Funding Opportunity & Estimate: TTP Safety Funding, TTP Funding or SDDOT Transportation Alternatives Funding

Phase I (Design Only)
Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 530,000

Phase II (Construction Only)
Construction & Construction Engineering: $ 5,300,000

FIGURE 66: TWO STRIKE COMMUNITY PATHWAY



Winner Community Tribal Housing Pathway

Southeast of Winner, South Dakota on east 279th Street is a tribal housing complex. This complex includes a community building west of the houses on 279th Street and a Head Start Program. Currently there are no existing bike or pedestrian facilities in the area, residents, including children have to walk on the roadway or in the adjacent ditches to travel to the community center or Head Start Program. A pathway is needed to connect the housing development to both the community center, and the head start program.

FIGURE 67: WINNER COMMUNITY TRIBAL HOUSING PATHWAY



Pedestrian lighting could be included in each option depending on the available funding and/or if desired all three options could be constructed in different phases. The approximate project construction cost for each pathway option and lighting are shown below:

Option 1 (0.60 miles)
- Separated Pathway: $ 840,000
- Pedestrian Lighting: $ 240,000
- Total Construction Cost: $ 1,080,000

Option 2 (0.80 miles)
- Separated Pathway: $ 1,120,000
- Pedestrian Lighting: $ 320,000
- Total Construction Cost: $ 1,360,000

Option 3 (1.0 mile)
- Planning for All: $ 250,000
- Separated Pathway: $ 1,400,000
- Pedestrian Lighting: $ 400,000
- Total Construction Cost: $ 2,050,000

Corn Creek Community Pathway

Corn Creek is located approximately 0.2-miles north of the intersection of South Dakota State Highway 63 and South Dakota State Highway 44 in Mellette County. The community utilizes two main approaches along South Dakota State Highway 63. Pedestrians and bicycles use the roadway between the two approach roads rather than the longer route around on the residential street, demonstrating a need to connect them. The pathway would total approximately 0.3-miles in length and cost an estimated $388,000 for construction.

Engineering Design, NEPA, Temporary Construction Easements, & PS&E:	$ 150,000
Construction & Construction Engineering:	$ 600,000

FIGURE 68: CORN CREEK COMMUNITY PATHWAY



LONG-RANGE PROJECT RECOMMENDATIONS

Long-range projects are projects that are anticipated to be started after the year 2029. While many of these projects are desired sooner, funding limitations indicate that it may not be possible to complete them during the short-range element of the plan. Some of these projects may become short-range projects if the Tribe is able to pull from alternative funding sources described earlier. Long-range projects are shown in **Table** 20 through **Table** 22.

TABLE 20: LONG-RANGE ROAD PROJECTS

Map ID #	Project Name and Description	Route(s)	Length (Miles)	Estimated Cost Range
Bridges				
NA	New Culverts 20' Wide or Greater	Road Inventory Routes	NA	$500,000 to $1,500,000
Roads				
LR1	South BIA Route 1 / Kilgore Rd / Warrior Rd Construction - Road Reconstruction	BIA 5, BIA 501, & Tutle Rd (BIA 512)	10.0	$50,000,000 to $55,000,000
LI1	BIA Routes 1 and 9 Intersection Improvements Project Construction - Roundabout or Traffic Control Improvements	BIA 5, BIA 501, & Tutle Rd (BIA 512)	0.1	$3,000,000 to $5,000,000
LI2	BIA Route 5 Intersections (BIA 501 & Tutle Rd) Design & Construction - Intersection Reconfiguration Reconstruction	BIA 5, BIA 501, & Tutle Rd (BIA 512)	0.2	$3,000,000 to $6,000,000
LR2	BIA Route 5 Design & Construction - From BIA 7 to BIA 30 Road Reconstruction	BIA Route 5	13.5	$34,000,000 to $37,000,000
LR3	BIA Route 501 Design and Construction - From South BIA 1 to BIA 5 Reconstruction or Resurfacing	BIA Route 501	5.9	$16,000,000 to $20,000,000
LR4	BIA Route 30 Design and Construction - From South BIA 1 to BIA 5 at Spring Creek Community	BIA Route 30	9.3	$25,000,000 to $30,000,000
LR5	BIA Route 16 (Denver Drive, Omaha St, Avenue B in Mission) - Road Resurfacing, Drainage Improvements and Sidewalks	BIA Route 16	1.0	$1,000,000 to $1,500,000
LR6	BIA Route 3016 (Arcoren Road) - S. W. St Francis From BIA 501 to BIA 30	BIA Route 3016	2.7	$8,000,000 to $10,000,000
LS1	JDC Entrance and Parking Area - Road Surfacing and Drainage Improvements	BIA Route 45	0.4	$500,000 to $1,000,000
LR7	IHS Road Around Hospital - Road Resurfacing	BIA Route 903	1.0	$1,000,000 to $1,500,000

LONG-RANGE BRIDGE PROJECTS

There are no specific bridge projects planned in the Long-range; however Tribal Transportation Program Bridge Funding is now available to Tribe's for new bridges. Eligible new bridges are for roads in the NTTFI that have drainage flows crossing the road large enough to require a structure with a minimum opening of 20-foot-wide. TTP Bridge Funds should be applied for box culverts meeting that criteria to improve drainage conditions on roads with noticeable flooding issues.

LONG-RANGE ROAD PROJECTS

South BIA Route 1 / Kilgore Rd Regional Improvement Project Design, Including St. Francis Pathway

The planning and preconstruction activities as well as grant applications for project including BIA Route 1, Warrior Rd, and Kilgore Rd in Nebraska are described in the Short-Range Project Recommendations section. Construction of these roads included in this project would be completed in the Long-range after construction grant funding is secured. See **Figure 61** for the project maps.

BIA Routes 1 and 9 Intersection Improvements

See the Short-Range Project Recommendations for a description of the project. The design is scheduled in the Short-Range Projects and construction is included in the Long-Range Projects however may be completed sooner if funding is available. See **Figure 59 and Figure 60** for the project maps.

BIA Route 5 Intersections (BIA 501 & Tutle Rd) Study and Improvements

See the Short-Range Project Recommendations for a description of the project. The study is scheduled in the Short-Range Projects and design and construction are included in the Long-Range Projects however may be completed sooner if funding is available. See **Figure 57 and Figure 58** for the project maps.

BIA Route 5

See the Short-Range Project Recommendations for a description of the project. Planning activities including scoping the project and applying for grant funds is scheduled in the Short-Range Projects and design and construction are included in the Long-Range Projects however may be completed sooner if funding is available. See **Figure 62** for the project map.

BIA Route 501

BIA Route 501 is an approximately 5.9-mile asphalt paved local roadway with a width of 24-feet and no shoulders. The route begins at the intersection of BIA Routes 5 and 501 then heads south for approximately three miles. BIA Route 501 then heads east for approximately 2.9-miles where it terminates in the town of St. Francis. The route has a posted speed limit of 55 mph then transitions to 35 mph as the route enters St. Francis. The pavement surface is severely deteriorated with transverse and longitudinal cracking along with many potholes and areas that needed large asphalt patches, pooling of water along the roadside, and pavement markings are worn and have low visibility. There are areas where side slopes exceed the recommended 4:1 slope and trees within the clear zone. These locations need guardrail to protect from run off road crashes.

FIGURE 69: BIA ROUTE 501



The route needs at a minimum the asphalt pavement restoration as recommended in the PASER Study. The route should be updated to current highway safety standards as soon as financially feasible. Reconstruction would add shoulders and provide flatter side slopes. If reconstruction cannot be completed, guardrail should be added where there are steep side slopes and obstructions within the clear zone.

Funding Opportunity & Estimate: RAISE, Rural, PROTECT Grant Funding or Similar and TTP

- Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 1,200,000
- Construction & Construction Engineering: $ 20,000,000

BIA Route 30

BIA Route 30 is approximately 9.3-mile rural major collector from approximately 2.7-miles west of the intersection of BIA Routes 30 and 5 and south of the community of Spring Creek to the intersection of BIA Routes 30 and 1 south of the St Francis community. The route is comprised of 7 miles of asphalt paved roadway with a width of 24-feet and no shoulders on the east end and 2.3 miles of dirt with some gravel surfacing on the west end.

The pavement surface is showing signs of aging with transverse and longitudinal cracking and pavement markings are worn and have low visibility. The road surface is narrow and does not have shoulders, the side slopes are relatively 4:1 or flatter but there are sections of the roadway where vegetation has overgrown, and some trees are covering roadway signs. This creates a hazard as roadway signs are intended to communicate with roadway users for potential conflicts ahead such as intersection ahead signs or horizontal curve ahead signs.

FIGURE 70: BIA ROUTE 30 DETERIORATED PAVEMENT SURFACE



FIGURE 71: OVERGROWN TREES ON BIA ROUTE 30



The route needs at a minimum the asphalt pavement restoration as recommended in the PASER Study. Trees should be trimmed to the clear zone and the route should be updated to current highway safety standards as soon as financially feasible. Reconstruction would add shoulders and provide flatter side slopes. If reconstruction cannot be completed, guardrail should be added where there are steep side slopes and obstructions within the clear zone.

Funding Opportunity & Estimate: RAISE, Rural, PROTECT Grant Funding or Similar and TTP

- Engineering Design, NEPA, Temporary Construction Easements, & PS&E: $ 2,200,000
- Construction & Construction Engineering: $ 30,000,000

BIA Route 16

BIA Route 16 is located on the south edge of Mission, SD and west of US Hwy 83. The roads access the Todd County High School, BIA Rosebud Agency, and housing. The route is classified as city local with a total length of 1.7-miles. The roads are of varying widths primarily asphalt paved with curb and gutter, and storm sewer. It is recommended to crack and chip seal until asphalt pavement mill and overly and curb and gutter repairs are financially feasible. Storm sewers should be maintained and cleaned as needed. When the road is reconstructed, drainage should be reevaluated and updates should be considered where storm water ponds and floods the roads. Sidewalks should be added to both sides of the streets due to the high volume of pedestrian traffic.

FIGURE 72: BIA ROUTE 16 (OMAHA STREET NEAR BIA ROSEBUD AGENCY)



BIA Route 3016

BIA Route 3016 is located southwest of St. Francis between BIA 30 and BIA 501. The south 1-mile is listed in the NTTFI. It is recommended to reconstruct and extend the route to the north where it would intersect BIA Route 501 and provide better access to home sites. There is currently a primitive trail and road near BIA Route 501 but it is not currently in the Tribe's NTTFI. The 24-foot-wide gravel road has surface and drainage issues. It is recommended to reconstruct the road with grading to create a wider road base for shoulders and ditches and culverts for proper drainage. The reconstructed road could be gravel surfaced or paved depending on availability of funds.

FIGURE 73: BIA ROUTE 3016 (ARCOREN RD)



JDC Entrance and Parking Area (BIA Route 45)

The Juvenile Detention Center Entrance, Parking Area, and Access Road is listed on the Tribal Priority List to improve drainage and pave the entrance, parking area, and access road. **Figure 72** and **Figure 73** show the existing drainage conditions and exterior access road.

FIGURE 74: JDC ACCESS ROAD DRAINAGE ISSUES (ROUTE 45)



FIGURE 75: JDC ACCESS ROAD NON-PAVED SECTION (ROUTE 45)



Indian Health Service (IHS) Road Around Hospital (BIA Route 903)

BIA Route 903 is located in Rosebud south from BIA Route 9, providing access to the hospital and housing near the hospital. The route totals 3.2 miles and consists of concrete-paved, asphalt-paved, gravel and dirt surfacing. Recommended improvements include reconstructing gravel and dirt roads to LRTP standard that can be found in Chapter 6 – Policy Recommendations, Roadway Cross-Section Standards, crack and chip seal paved sections in good condition, and mill and overlay pavements in poor condition.

FIGURE 76: BIA ROUTE 903 - IHS ROAD ENTRANCE TO HOSPITAL FROM BIA 9



ADDITIONAL LONG-RANGE ROAD PROJECTS NOT LISTED IN THE TRIBAL PRIORITY LIST

BIA Route 4

BIA Route 4 is a north/south route that is approximately 4.4-miles long with a 24-foot asphalt pavement roadway width with no shoulders. The route begins at the intersection of South Dakota State Route 63 and BIA 4 just west of the community of Parmelee. The route heads south then west for approximately 0.5-miles before meeting with 282nd Street at a T-Intersection.

The pavement surface is showing signs of deterioration with transverse and longitudinal cracking and pavement markings are worn and have low visibility. The road surface is narrow and does not have shoulders, the side slopes are relatively 4:1 or flatter but there are areas of vegetation and trees within the clear zone which need mowing maintenance. It is recommended at a minimum to restore pavement surfacing with a mill and overlay and if funds are available to reconstruct the road with grading to create a wider road base for shoulders and increase horizontal curves.

BIA Route 9

BIA Route 9 is a 20.6-mile-long roadway. The section of roadway named Soldier Creek Rd is paved for approximately 5.8-miles with an average top width of 36-feet from BIA Route 1 in Rosebud northwest to US 18. The remaining 14.8-miles of roadway named Ring Thunder Rd is gravel with an average top width of 20-feet from US 18 to the north 3.3 miles and then east 8 miles to US 83 where it jogs to the north and continues east for another 3.5 miles ending at 274th Avenue.

The paved section of BIA Route 9 has a one mile separated shared-use pathway with pedestrian lighting that begins approximately 1.5-miles south of the intersection of BIA 9 and U.S. 18 that heads north connecting pedestrians to the various tribal housing communities in the area.

The asphalt pavement has deteriorated, and a thin overlay is recommended. Pavement markings are worn with low visibility. There are currently no shoulder rumble strips throughout this section, and the current shoulders are adequate to accommodate them. The slopes of the roadway are relatively 4:1 or flatter and no objects within the clear zone of the roadway.

BIA 9 has one bridge named Yellow Cloud Bridge (Structure A030), on the route approximately three miles north/northeast of where the gravel section begins. The guardrail on the bridge is lower the standard practice and there are no bridge end treatments. This bridge is in the short-range plan for replacement.

The gravel in this section is in good condition however the road section is narrow. The slopes are relatively 4:1 or flatter. The Rosebud Sioux Tribe Road Maintenance Department has done a great job with vegetation control along this section of roadway, and no objects were seen within the clear zone of the roadway. It is recommended that their practices be continued and be carried over to other gravel routes within the Reservation.

FIGURE 77: GRAVEL SECTION OF BIA 9 LOOKING WEST



BIA Route 12

BIA Route 12 is approximately a 3.6-mile gravel rural local road with a roadway width of 22-feet. The route is located east of Spring Creek Community from BIA Route 30 to the south ending at Two Eagle Road. The gravel is washboard and rutting and side slopes are relatively 4:1 or flatter. Water is pooling on the roadway as there are sections of the roadway that are lower than the roadside ditches.

At a minimum the gravel should be regraded to correct the wash boarding and rutting. The Gravel Roads Construction & Maintenance Guide by the U.S. Department of Transportation provides guidance on how to prevent and maintain wash boarding and should be referred to. Should funding become available the road should be reconstructed with grading to create a wider road base for shoulders and ditches and culverts for proper drainage.

FIGURE 78: BIA ROUTE 12 LOOKING SOUTHWEST



BIA Route 37

BIA Route 37 is approximately 4.2 miles of 20-foot-wide gravel streets with no shoulders in the He Dog Community. One section of BIA Route 37 also extends south from BIA Route 4 to US 18. There is heavy rutting in some locations and berms have formed along the edges of the roadway due to erosion creating the roadway slopes and ditches to be a higher grade compared to the top of the roadway surface. This can create pools of water on the roadway as water cannot properly drain off the road. The gravel section is currently showing signs of wash boarding and rutting. There are many soft spots throughout BIA Route 37 where the gravel has not been maintained and only dirt is present on the roadway which is creating an unsafe driving surface for drivers. It is recommended that the road top be regraded to correct soft spots and new gravel surfacing be installed.

FIGURE 79: HEAVY RUTTING ON BIA ROUTE 37 GRAVEL SECTION



LONG-RANGE COMMUNITY STREET PROJECTS

All community street projects are listed in the long-range due to lack of available TTP funding and difficulty in securing grant funds. There are limited grant resources for community streets as they tend to not be very competitive in most grant opportunities. Potential sources of funding could come from USDA which is grant/loan program. Following is a list of community streets in order of priority matching the Tribal Priority List.

TABLE 21: LONG-RANGE COMMUNITY STREETS PROJECTS

Community	NTTFI Route #	Surface Type	Surface Condition	Length (Miles)	Cost
Ideal	0041	Asphalt Paved	Poor	0.5	$1,350,000
Winner	0040	Concrete Paved Asphalt Paved Gravel	Fair Fair Fair	0.3 0.5 0.4	$1,000,000
O'Kreek	0026	Asphalt Paved Gravel	Poor Fair	0.5 0.7	$2,500,000
Black Pipe/Norris	0024	Asphalt Paved Gravel	Poor Fair	0.4 0.3	$1,400,000
Butte (Wood)	0027	Asphalt Paved	Poor	0.5	$1,350,000
Spring Creek	0022	Asphalt Paved Gravel	Fair Poor	0.6 1.2	$2,200,000
Grass Mountain	0512	Asphalt Gravel	Poor Poor	0.7 0.3	$3,000,000
Corn Creek	0028	Gravel	Fair	0.7	$1,000,000
Parmelee	0021	Asphalt Paved Gravel	Fair Fair	2.4 1.0	$4,200,000
Milks Camp	0042	Asphalt Paved	Fair	0.5	$100,000
Upper Cut Meat	0036	Gravel	Fair	0.5	$1,200,000
He Dog	0037	Asphalt Paved Gravel	Fair Poor	0.1 0.8	$4,000,000
Antelope	0010	Concrete Paved Asphalt Paved	Good Fair	1.1 4.7	$350,000

Community	NTTFI Route #	Surface Type	Surface Condition	Length (Miles)	Cost
St Francis	0015	Asphalt Paved Gravel	Fair Fair	5.8 0.2	$2,300,000
Horse Creek	0029	Concrete Paved Gravel	Fair Fair	1.0 0.6	$1,700,000
White River/Swift Bear	0014	Asphalt Paved Gravel	Fair Fair	0.4 0.2	$900,000
Rosebud North	903, 1104, 1105, 1106, 1107	Concrete Paved Asphalt Paved Gravel	Good Fair Good	3.8 1.2 1.2	$1,350,000
Rosebud South	0011, 1100, 1103	Asphalt Paved Gravel	Fair Good	3.6 0.9	$1,500,000
Two Strike	0035	Asphalt Paved	Fair	1.2	$100,000
Soldier Creek	0023	Asphalt Paved Gravel	Fair Fair	0.5 0.1	$100,000
Ring Thunder	0038	Asphalt Paved	Good	0.3	$100,000
Bull Creek	Add to NTTFI	Gravel	Fair	0.3	$200,000

Throughout the inventory of the communities, it appeared that there was no standard for when to provide sidewalks within the community or the surfacing section for the roadway to use. These standards are usually adopted with an LRTP. Approximately 75 percent of community streets have a paved section with curb and gutter. Depending on the condition of pavement whether concrete or asphalt, the roads should be cleared of vegetation, concrete crack sealed, asphalt crack and chip sealed, or asphalt overlay. A few asphalt paved roads in poor condition need an asphalt surface replacement. See the PASER Study for specific recommendations.

Depending on community needs, gravel roads may need to be upgraded to paved/curb and gutter, reshaped and added surfacing, or continue to be maintained with routinely adding gravel surfacing.

There are limited sidewalks in these communities and where there are existing curb and gutter, sidewalks should be added. Sidewalks provide pedestrian connectivity and prevent vegetation from entering and damaging the road. With street reconstruction projects, sidewalks should always be included.

LONG-RANGE SHARED USE PATHWAY PROJECTS

Along with sidewalk connectivity within communities, shared use paths were considered between certain communities where high pedestrian traffic has been observed by the RST Transportation Program. The following list of shared use pathway projects are listed in the Tribal Priority List.

TABLE 22: LONG-RANGE SHARED USE PATHWAY PROJECTS

Map ID #	Project Priority	Pathway Project Description	Length (Miles)	Estimated Project Cost
SP1	3	Antelope and White Horse Community Pedestrian Connectivity, Phase II & III – Design	2.7	$ 350,000
SP2	4	Turtle Creek, Phase II – Design	0.3	$ 140,000
LP1	5	St. Francis Community – Construction	1.0	$ 2,050,000
SP3	6	Two Strike Community – Construction	3.5	$ 5,300,000
SP4	7	Winner Community Tribal Housing – Construction	1.0	$ 2,050,000
SP5	8	Corn Creek Community - Construction	0.3	$ 600,000
SP1	9	Antelope and White Horse Community Pedestrian Connectivity, Phase II & III - Construction	1.8	$ 2,050,000
SP2	10	Turtle Creek, Phase II – Construction	0.3	$ 800,000
SR4	11	BIA Route 1 Pedestrian Connectivity & Safety – Design and Construction	2.2	$ 1,000,000

Note (1) Project priority may change due to funding availability and Tribal Council's direction.

Antelope and White Horse Communities Pedestrian Connectivity, Phases II and III

Phases II and III are described along with Phase I in the Short-Range Project Recommendations section. See **Figure 64** for the map of Phases II and III.

Turtle Creek Pathway, Phase II

Phase II is described along with Phase I in the Short-Range Project Recommendations section. See **Figure 65** for the map of Phase II.

Saint Francis Pathway

Kilgore Road, also known as BIA Route 1, is the main road that connects into Saint Francis from the south near Saint Francis School. Many community members, primarily school age children utilize this

route and walk along the road to get to and from the school. A need has been identified to provide for a safe and efficient alternative to remove pedestrians walking along the road. A pathway is needed to connect from Warrior Drive 295th Street along the east side of BIA Route 1, then continuing south another 0.4 miles along the west side to connect to tribal member home sites.

Additionally, sidewalks in St. Francis are needed from the school to the north edge of St Francis. These sidewalks, along with the pathway are included in the South BIA Route 1 / Kilgore Rd project.

FIGURE 80: KILGORE ROAD SOUTH TO SAINT FRANCIS PATHWAY



Two Strike Community Pathway, Construction

The construction phase of the Two Strike Community Pathway is described along the design phase in the Short-Range Project Recommendations section. See **Figure 66** for the map of the pathway.

BIA Route 1 Pedestrian Connectivity & Safety, Design and Construction

Following the Study described in the Short-Range Project Recommendations section, design and construction of improvements is planned to move forward based on recommendations of the Study. See **Figure 56** for the map of the study area.

APPENDICES

APPENDIX A: LRTP FOLDOUT MAPS

This appendix includes several maps which have been printed in 11x17 foldout format in order to show greater detail within the reservation boundaries. The maps are as follows:

- **Figure 81: Existing Traffic Volumes, Reservation-Wide**
- **Figure 82: Future (2048) Traffic Volumes, Reservation-Wide**
- **Figure 83: Bridge Inventory / Reservation Wide Location Map**
- **Figure 84: Planned Transportation Projects**

FIGURE 81: EXISTING TRAFFIC VOLUMES, RESERVATION-WIDE

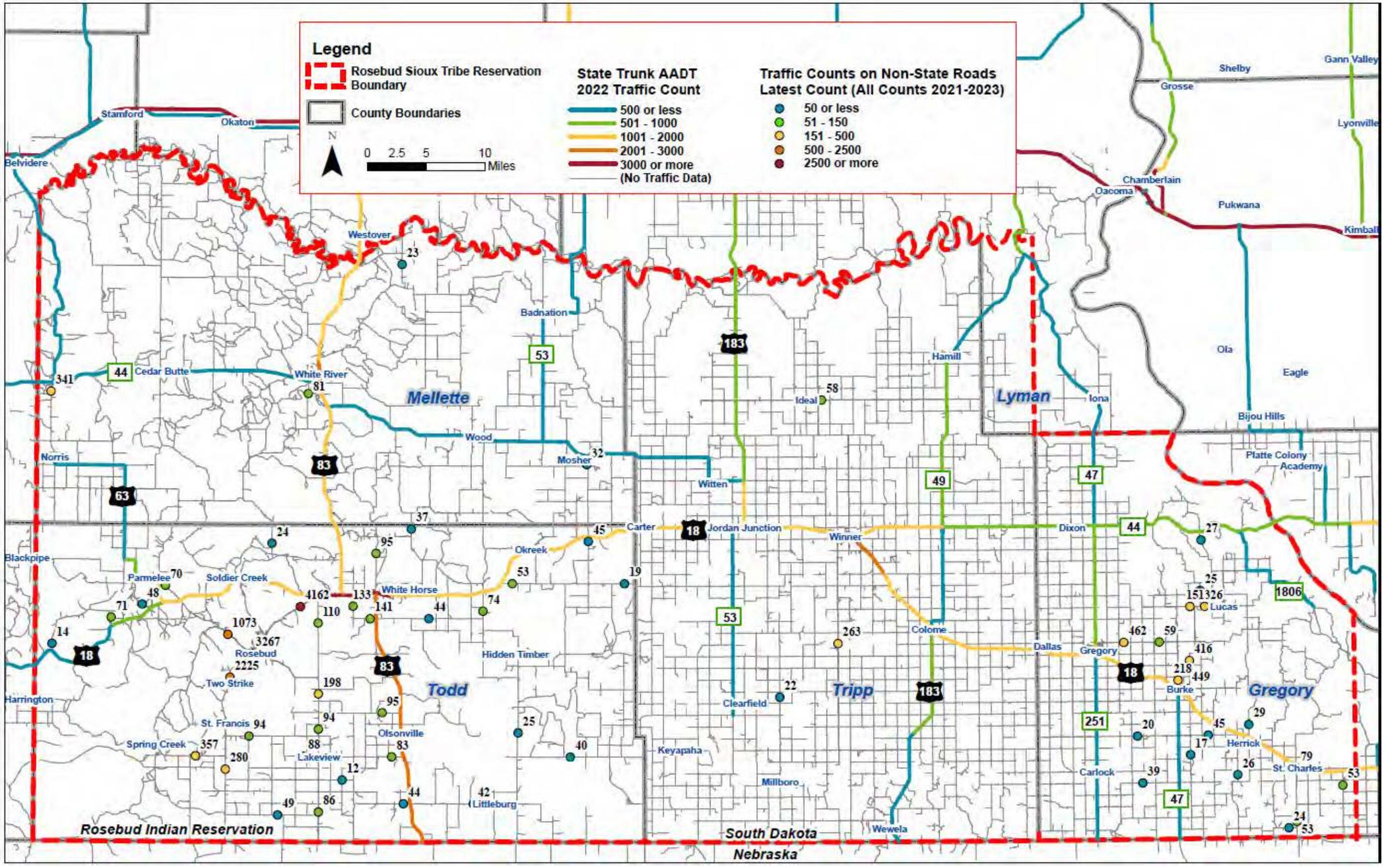


FIGURE 82: FUTURE (2048) TRAFFIC VOLUMES, RESERVATION-WIDE

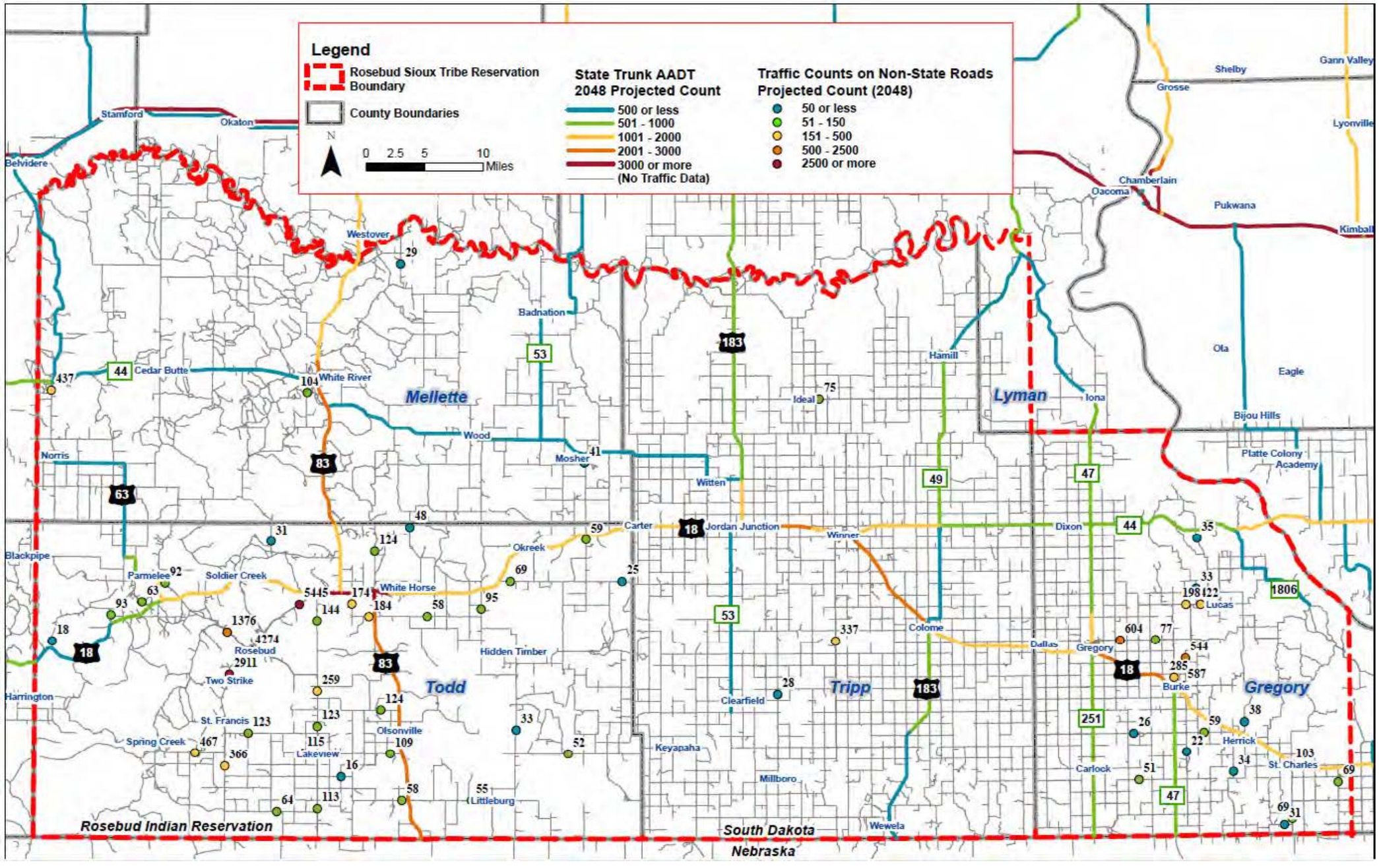


FIGURE 83: BRIDGE INVENTORY / RESERVATION WIDE LOCATION MAP

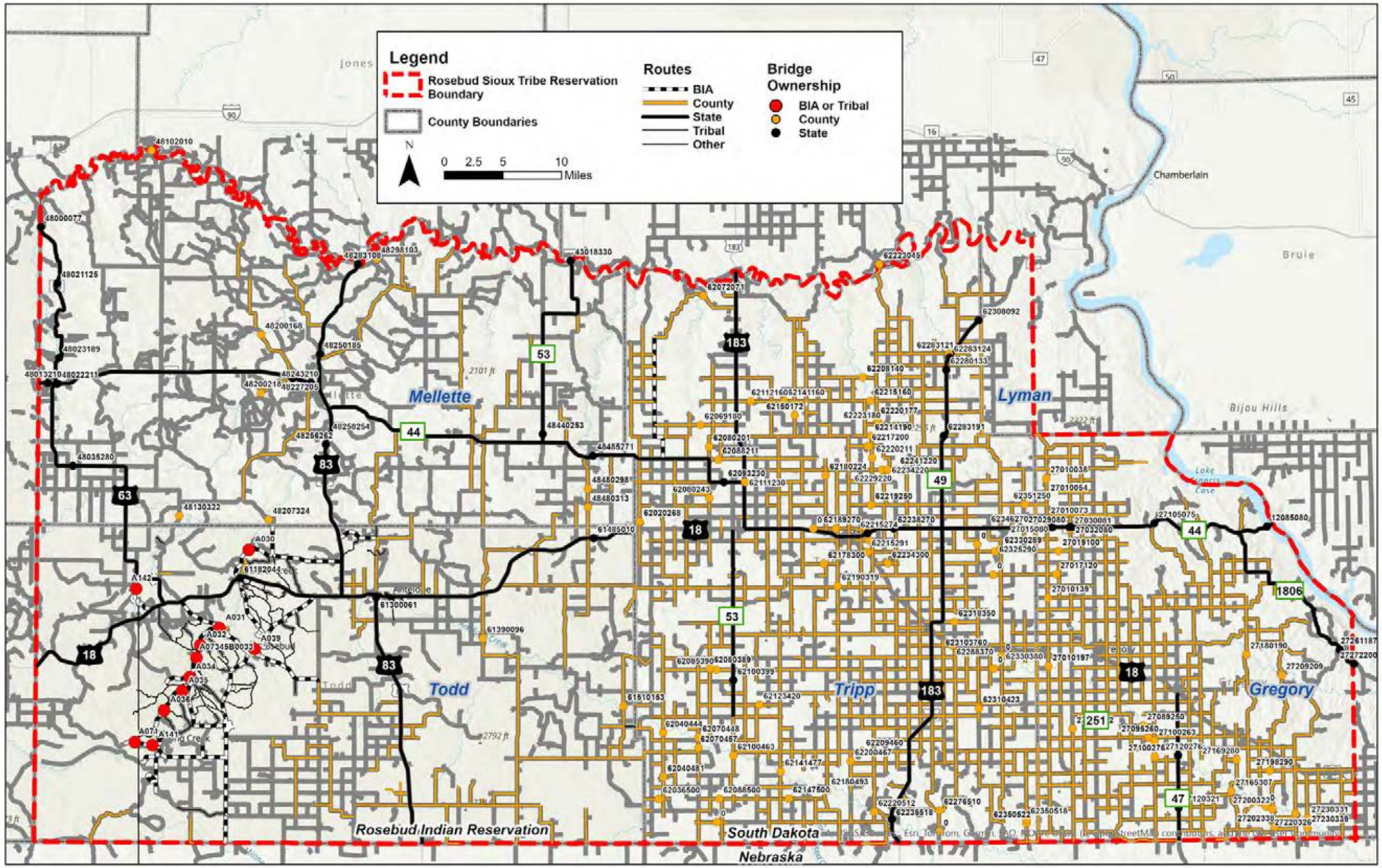
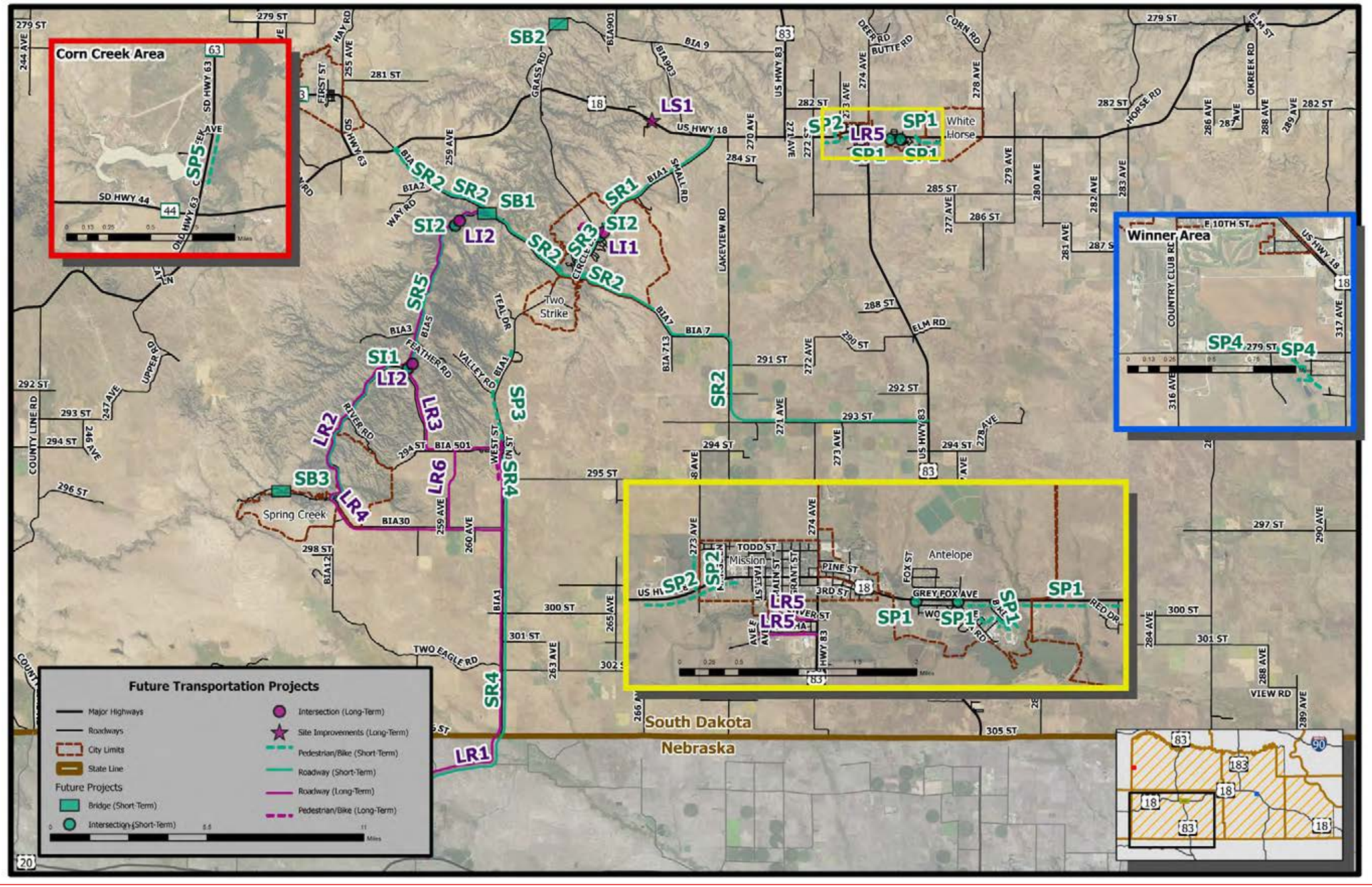


FIGURE 84: PLANNED SHORT- AND LONG-RANGE TRANSPORTATION PROJECTS



APPENDIX B: LRTP PUBLIC INVOLVEMENT

ATTENDANCE LIST

KLJ

Rosebud Long Range Transportation Plan

Tuesday, November 7, 2023 Kickoff Meeting

Name	Representing/Phone Number
Lynda Dorrille	RST- Transportation Program 605-856-2944/Cell 605-838-1178
LaJuanda Stands and Looks Back	RST Transportation 605-856-2301 ext 3 LaJuanda.SALB@RST-NSN.gov
Jerome Eagle Bear jr	jerome.eaglebearjr@rst-nsn.gov office 605-747-2251 RST Road Maintenance cell- 605-319-8633
Tonya Huber	KLJ - Project Manager 605-721-5553 tonya.huber@kljeng.com
Neil Putnam	KLJ Planner neil.putnam@kljeng.com 605 550-8081
Anna One Star	RST-Trans. Prog. 605-856-2944 Ext 101 Anna.OneStar@rst-nsn.gov
Shawn Boyd	RST Road Maintenance RSTroads@[redacted]Hotmail.com 605-828-3662 605-747-2251
Roxanne Heureger	Highway Safety RSTLES 605-319-1868
Andrea Hacker	RST Office of Emergency Management 682-862-6109

Rosebud Sioux Tribe Long Range Transportation Plan
Kick-Off Meeting
November 7, 2023
10:00 – 12:00 P.M. CST
BIA Headquarters, Mission, SD

Meeting Summary

Meeting Attendees:

- Lynda Douville, RST Transportation
- LaJuanda Stands and Looks Back, RST Transportation
- Anna One Star, RST Transportation
- Jerome Eagle Bear Jr., RST Transportation – Road Maintenance
- Shawn Dugel, RST Transportation – Road Maintenance
- Andrea Hacker, RST Office of Emergency Management
- Roxanne Hunger, RST Highway Safety
- Steve Grabill, KLJ
- Neil Putnam, KLJ
- Tonya Huber, KLJ

1. Welcome & Introductions

- Steve Grabill welcomed attendees to the meeting and self-introductions were made.
- Steve Grabill gave an overview of the agenda.
- Main points of contact were established.

2. Review LRTP Process and Outline

- Steve Grabill described what a Long-Range Transportation Plan (LRTP) is and why it was needed.
    - It provides a basis for the wise use of the limited funds and identifies short range projects to be used in preparing the TTIP, and long-range projects that highlight needed improvements for at least a 20-year horizon.
    - Short-range projects are typically constrained by available funding, whereas the long-range project lists have uncertain funding and undetermined ranking from a priority's standpoint.
    - Tribal priorities are subject to change, especially considering long-range needs.
    - LRTP provides analysis and recommendations for all modes of travel. Steve explained the typical topics, elements, and data in a LRTP.
    - The plan may recommend additional studies, provide high-level planning estimates, and departmental suggestions.

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- The public input and process was discussed. Public Engagement includes social media, websites, local radio public service announcements (PSA's), newspaper (Todd County Tribune), public meetings. Possible meeting sites were discussed:
    - Use the Rosebud Community Center, if available, or the BIA Conference Room.
    - 1st public meeting is typically about a 20-minute presentation plus questions and answers
    - Involve the Transportation Committee for the 1st public meeting. May present to Tribal Council if wanted or asked by Transportation Committee
    - Key stakeholders to be interviewed or contacted may include the municipalities, counties, Todd County School District, airport, transit, Rosebud Economic Development Corporation (REDCO), BIA, SDDOT, FHWA.
    - Should talk to Mellette County
- The timeline of the project was presented, and the consensus was that it is acceptable.

3. Existing Conditions

- Steve said the plan is the Tribe's and KLJ wanted to hear what the Tribe would like in the plan. He also asked what the Tribe's expectations are, along with vision and goals.
- The RST Vision Statement includes:
    - Better community streets in and around outlying communities
    - Good maintenance plan for all BIA roads (to also address drainage)
    - All transportation system brought up to engineering standards
- General Goals were stated as follows:
    - Better coordination with counties regarding roads on the reservation
    - Add needed roads and update the current inventory.
    - Prioritize and fund Tribal and Community streets for reconstruction.
    - Upgrade poor roads to make accessible for emergency services.
- LaJuanda said maintenance is a big issue, as well as the high amount of through-traffic and truck traffic. She provided additional input on what are the most helpful parts of the plan and how the Tribe uses the information and recommendations.
- The plan can help in short-term and long-term planning for future projects, maintenance priorities, assessment of roads, policy recommendations, addressing development and growth, budgeting, forecasting, traffic volumes, and grant funding.
- An Emergency Operations Plan is being worked on; staff will send existing materials. Their Hazard Mitigation Plan is about to expire.
- Law Enforcement is working on coordinating and documenting crash/accident reports.
- Key Roads are S BIA 1, 501, 5. BIA 1 south of St. Francis needs to be reconstructed. A couple intersections in Mission have visibility issues. BIA 9, HWYs 44 & 63 (4-way stop), roundabout near the new Rosebud Elementary School? Other areas may be identified later.
- Lighting conditions assessment will be conducted.
- Transit services will be reviewed.

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- This study will only deal with BIA roads, not DOT or roads within the cities.
- Pedestrian, bicycle, air, transit, and freight transportation issues and provide recommendations.
- The plan will also review the bridges and trails.
- The plan will include reviewing current standards and/or recommend changes to standards.
- The Tribe uses a motor fuel tax to pay for roads to home sites and those roads not in inventory.

4. Discuss Transportation Deficiencies

- Steve Grabill sought input and discussion from the group on transportation issues and needs within the Reservation. Items discussed include the following.
    - Maintenance of the roads.
    - Cooperation with the counties, municipalities, and the school district.
    - Jurisdictional enforcement for traffic violations, such as speed control, Jake-Brake, weight limits, texting, and other public safety ordinances.
    - There is significant pedestrian traffic on the roads and streets.
    - A new public elementary school in Rosebud is being constructed, there was little advance notice to the Tribe. An impact study should be used for future impacts.
    - Anticipate some growth in the Rosebud area (Casino and new veteran housing complex).
    - Safe and accessible routes to sun dances, cultural/historic sites and activities.
    - Mutual assistance, especially during emergency and major weather events and possible 'closing' the reservation during bad weather and type of public notification, installation of gates, signage (incl. changeable message signing), and support from the SDDOT during Interstate closures.
    - Snow removal has been a problem and RST needs more support from SDDOT. RST may map drifting locations for possible future action.
    - Traffic counts would be beneficial, wherever conducted. SDDOT can do traffic counts, KLJ to assist LaJuanda with request.
    - Hwy 44/63 intersection needs lighting, decrease in speed limit, and possibly all way stop.
    - Equipment needs and funding are a challenge. RST will provide a list of equipment to be upgraded.
    - Availability of gravel and related equipment was discussed. RST subcontracts with Flat Creek Construction for crushing. RST has two gravel pits. That is enough but RST would like their own crushing equipment.
    - Orthophotography would be beneficial.

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6. LRTP Content Discussion:

- TRACS will be implemented in 2024.
- PASER Analysis will be conducted.
- Limited traffic counts may be conducted. SDDOT may have some.
- Aid in updating the TTIP and inventorying the road system.
- A review of the 2007 LRTP and the recent Road Safety Audit.
- There was discussion on the organization and process on providing updates, reports, and approvals for the project. The key staff, the role of the Transportation Committee and the Tribal Council in providing updates, invoices, and reports.
- The Tribe will provide studies, reports, and data to KLJ specially equipment information, draft EOP, existing inventory of roads, bridges, culverts, and other features.
- LRTP action items for other jurisdictions/entities are desired (MOU's for snow plowing support and winter road closures)
- Incorporate results from Transportation Climate Assessment completed by WSP.
- KLJ will start mapping, organizing data collection, and the public engagement processes and tools.
- KLJ will review and provide recommendations on possible ordinances or policies. Mission has no noise ordinance (Jake-Brake). Need a no texting ordinance and a traffic impact study ordinance.
- The Tribe will identify areas that drift significantly, flood, and has a difficult terrain. The Tribe was asked to share photos.

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ATTENDANCE LIST

KLJ

Rosebud (RST) Long Range Transportation Plan

Wednesday, October 29, 2025 (11:30am to 2:00pm) Public Open House Meeting

Name	Representing/Email (Not Required)
Whitney Meek	Whitney.Meek@rst-nsn.gov
Anthony L. Long, Sr.	Anthony.Long Sr@rst-nsn.gov
Dolores Barron	Dolores.Barron@rst-nsn.gov
Erstine Wright	RSTC
Marion Little Thunder	RST Council
Pamela Kill d Water	pkillsinwater@msn.com

COMMENTS

Wednesday, October 29, 2025

Rosebud, SD

Rosebud Sioux Tribe – Long Range Transportation Plan

Please Print

NAME (OPTIONAL)

ADDRESS (OPTIONAL)

Please use the space below to provide comments regarding the **Rosebud Sioux Tribe Long Range Transportation Plan.**

Pathway on Hwy 63 - Parmelee

Mowing ditches

Fix Please Hwy One - Kilgore Road

Please Fix Lakeview Road

Please leave comments with meeting facilitators or mail or EMAIL comments by

November 14, 2025, to:

Ian Severson, KLJ Project Manager
18 E Main Street, Ste 229
Rapid City, SD 57701

PHONE 651-726-5032
EMAIL ian.severson@kljeng.com
USE EMAIL SUBJECT Rosebud LRTP

COMMENTS

Wednesday, October 29, 2025
Rosebud, SD

Rosebud Sioux Tribe – Long Range Transportation Plan

Please Print

NAME (OPTIONAL)

ADDRESS (OPTIONAL)

Please use the space below to provide comments regarding the **Rosebud Sioux Tribe Long Range Transportation Plan.**

In My Area an Outlying Community Transportation is Really Important as Most of the Community don't own cars. Nearest Town to Shop for Groceries is 26 miles, To Check Their mail is 6 miles - For Busta Unit is 45 miles Away - Shuttle Service would be A Plus - We have Members who ARE willing to work but No Ride

Please leave comments with meeting facilitators or mail or EMAIL comments by

November 14, 2025, to:

Ian Severson, KLJ Project Manager
18 E Main Street, Ste 229
Rapid City, SD 57701

PHONE 651-726-5032
EMAIL ian.severson@kljeng.com
USE EMAIL SUBJECT Rosebud LRTP

COMMENTS

KLJ

Wednesday, October 29, 2025
Rosebud, SD

Rosebud Sioux Tribe – Long Range Transportation Plan

Please Print
NAME (OPTIONAL)

ADDRESS (OPTIONAL)

Please use the space below to provide comments regarding the **Rosebud Sioux Tribe Long Range Transportation Plan.**

Most of the outlaying communities have transportation problems getting to Rosebud for Business. - transportation could be provided for our tribal members, like on Wednesdays every week. communities - Corn Creek, Howes - Butte Creek, Ideal.

Please leave comments with meeting facilitators or mail or EMAIL comments by

November 14, 2025, to:

Ian Severson, KLJ Project Manager
18 E Main Street, Ste 229
Rapid City, SD 57701

PHONE 651-726-5032
EMAIL ian.severson@kljeng.com
USE EMAIL SUBJECT Rosebud LRTP

APPENDIX C: PASER STUDY (2024)

Rosebud Sioux Tribal Transportation 2024 Pavement Preservation Plan

MAY 2024



ROSEBUD SIOUX TRIBE
ROSEBUD, SOUTH DAKOTA

Prepared by:

KLJ

ENGINEERING, REIMAGINED

Table of Contents

Chapter 1 – Introduction 1
Chapter 2 – Existing Roadway Surface Conditions 3
Methodology 3
Pavement Surface Evaluation and Rating (PASER) 6
Process 6
Description of PASER Ratings 7
PASER Rating 1: 7
PASER Rating 2: 7
PASER Rating 3: 8
PASER Rating 4: 8
PASER Rating 5: 9
PASER Rating 6: 9
PASER Rating 7: 10
PASER Rating 8: 10
PASER Rating 9: 11
PASER Rating 10: 11
Map of Road Conditions 12
CHAPTER 3 NEEDS ASSESSMENT 15
Methodology 15
Description of Pavement Preservation Strategies 15
PASER Rating of 1: 15
PASER Rating of 2: 15
PASER Rating of 3: 15
PASER Rating of 4: 16
PASER Rating of 5: 16
PASER Rating of 6: 16
PASER Rating of 7: 16
PASER Rating of 8 and 9: 16
PASER Rating of 10: 16
Feasible Strategies 17
CHAPTER 4 RECOMMENDATIONS 19
Short Term Priority Projects 19

2025 20
2026 20
2027 ..... Error! Bookmark not defined.
2028 ..... Error! Bookmark not defined.
2029 21
Recommended Paving TTIP 21
Long Term Project List 22
Beyond the TTIP 22
Appendix A: Community Streets Study Routes 23
Appendix B: Community Streets PASER Scores ..... Error! Bookmark not defined.

List of Figures and Tables

Figure 1 - Road Maintenance Types Over Time 1
Table 1 - Treatment Cost Per Year 1
Example Photo of Pavement Condition on Rosebud Sioux Reservation 2
Figure 2 - Area Roads, West 4
Figure 3 –Study Area Roads, East 5
Example of Road Maintenance Activities 6
Example Photo of PASER Rating 1 Road on the Rosebud Sioux Reservation 7
Example Photo of a PASER Rating 2 Road on the Rosebud Sioux Reservation 7
Example Photo of a PASER Rating 3 Road on the Rosebud Sioux Reservation 8
Example Photo of a PASER Rating 4 Road on the Rosebud Sioux Reservation 8
Photo of a PASER Rating 5 Road on the Rosebud Sioux Reservation 9
Photo of a PASER Rating 6 Road on the Rosebud Sioux Reservation 9
Photo of a PASER Rating 7 Road on the Rosebud Sioux Reservation 10
Photo of a PASER Rating 8 Road on the Rosebud Sioux Reservation 10
Photo of a PASER Rating 9 Road 11
Example Photo of a PASER Rating 10 Road 11
Figure 4 - Existing Rural Highway Pavement Conditions, 2024 13
Figure 5 – PASER Score Distribution Summary 14
Figure 6 - Treatment Cost Per Mile 17
Table 2 - Five Year Project List 19
Table 3 – Sample Paving TTIP (thousands of dollars) 21
Table 4 – Paving Projects Beyond the TTIP 22

Chapter 1 – Introduction

The Rosebud Sioux Tribe is responsible for maintaining over 323 miles of roadway, 86 miles of which are asphalt-paved roads. These consist largely of 2-lane asphalt roads, with several miles of newer concrete paving. Funding levels have not allowed for extensive regular overlays, reconstruction, seal coats, and other maintenance. Without a proactive strategy in place, roads will deteriorate faster than they can be maintained.

Understanding how road pavements age and deteriorate over time, both by environmental conditions and traffic loading, is critical in developing a sustainable roadway rehabilitation and maintenance program. Maintaining and rehabilitating infrastructure at appropriate times saves public dollars in the long term. Studies have found maintaining pavement through rehabilitation techniques has the potential to be 6 to 14 times more cost effective than rebuilding a deteriorated road.

Figure 1 - Road Maintenance Types Over Time

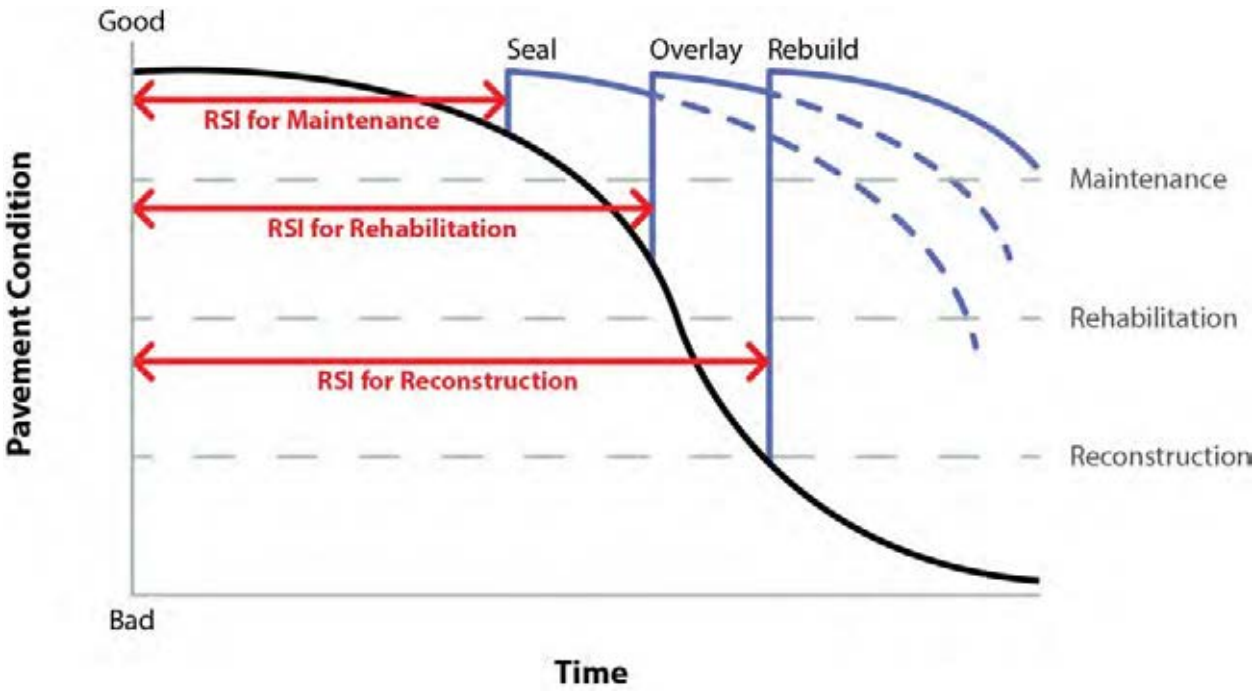


Figure 1 shows that it is easier and more cost effective to maintain good roads than it is to wait and reconstruct bad ones. Overlays or reconstruction projects have a longer return service interval (RSI) and are performed less often than chip seal projects. However, as the road condition deteriorates, the costs associated with restoring the road to good condition increases exponentially. See Table 1 for a comparison of cost-per-year based on RSI.

Table 1 - Treatment Cost Per Year

Treatment Type	RSI (years)	Cost per Mile*	Cost per Year
Seal	3-5	$62,000	$12,400
Overlay	12	$700,000	$58,300
Pavement Reconstruction	25	$2,250,000	$90,000

Techniques such as Pavement Surface Evaluation and Rating (PASER) can allow a department to come up with an effective treatment plan based on the conditions of the surrounding roadways. PASER is a visual method, based on

engineering principles, for evaluating paved roads in a time efficient and consistent manner. The PASER method outputs a simple 1 through 10 rating for each section of roadway studied. This provides an understandable way for an agency to communicate pavement condition to elected officials and the public, and it also allows more time to be put towards scheduling and budgeting. The ability to know the condition of all roadways under Tribal jurisdiction is an extremely useful tool in order to schedule all preventative maintenance to keep all roadways functioning at their current condition, instead of degrading to the point where more costly corrective and emergency maintenance treatments are required.

Example Photo of Pavement Condition on Rosebud Reservation



In 2024, a PASER study was requested of the asphalt BIA highways and community streets on the reservation on the Rosebud Reservation. The purpose of this study is to evaluate the relative condition of the tribal and BIA owned rural highways and Rosebud Sioux Tribe community streets; this information was used to determine and recommend what roads should receive maintenance, to decide what maintenance strategies should be utilized by the Tribe on each route, and to provide a list of near-term projects and long-term strategies the Tribe should adopt. This will help the Tribe effectively manage their roadways with their existing funding levels while working to minimize roadway maintenance costs over time.

Chapter 2 – Existing Roadway Surface Conditions

Methodology

The 2024 study was focused on assessing the current condition of the asphalt roadways around the reservation and developing a maintenance strategy to improve and repair the roadways. The study initially intended to focus on rural highways but later input from the Rosebud Sioux Tribe Transportation Program expanded the study to include asphalt-paved community streets across the tribal lands that are owned and maintained by either the Tribe or the BIA. The rural highway mileage studied consists of the seven routes, BIA Routes 1, 4, 5, 7, 9, 30, and 501, totaling approximately 68.2 miles of 2-lane paved highway as well as some small sections of 3-lane highway on BIA 7. The remaining study mileage, approximately 17.3 miles, was spread through many communities and rural housing developments across the reservation. Figures 2 and 3 show the highways that were studied and the locations of the community streets studied. Appendix A contains maps of each community illustrating the studied routes in detail.

Figure 2 - Area Roads, West

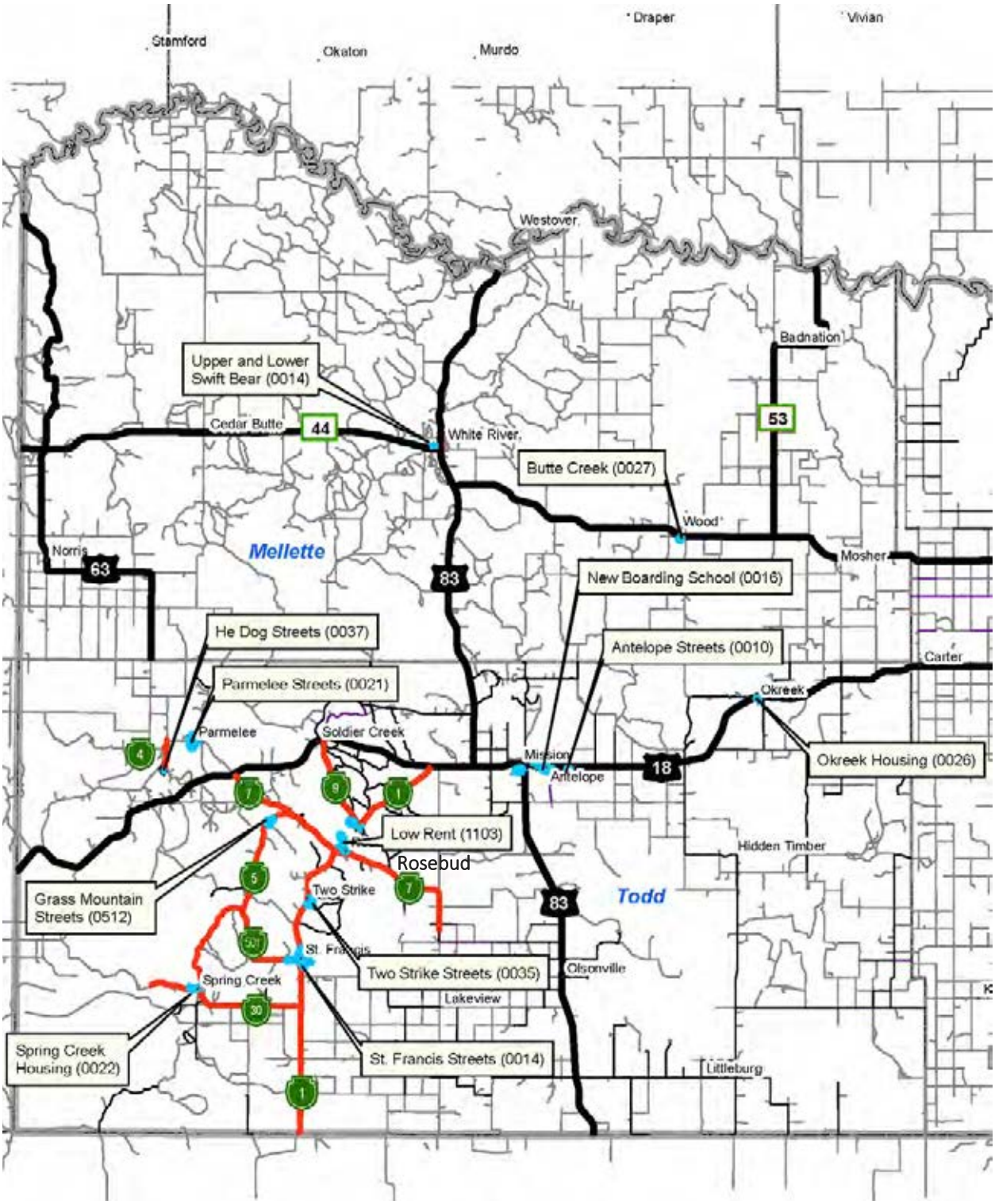
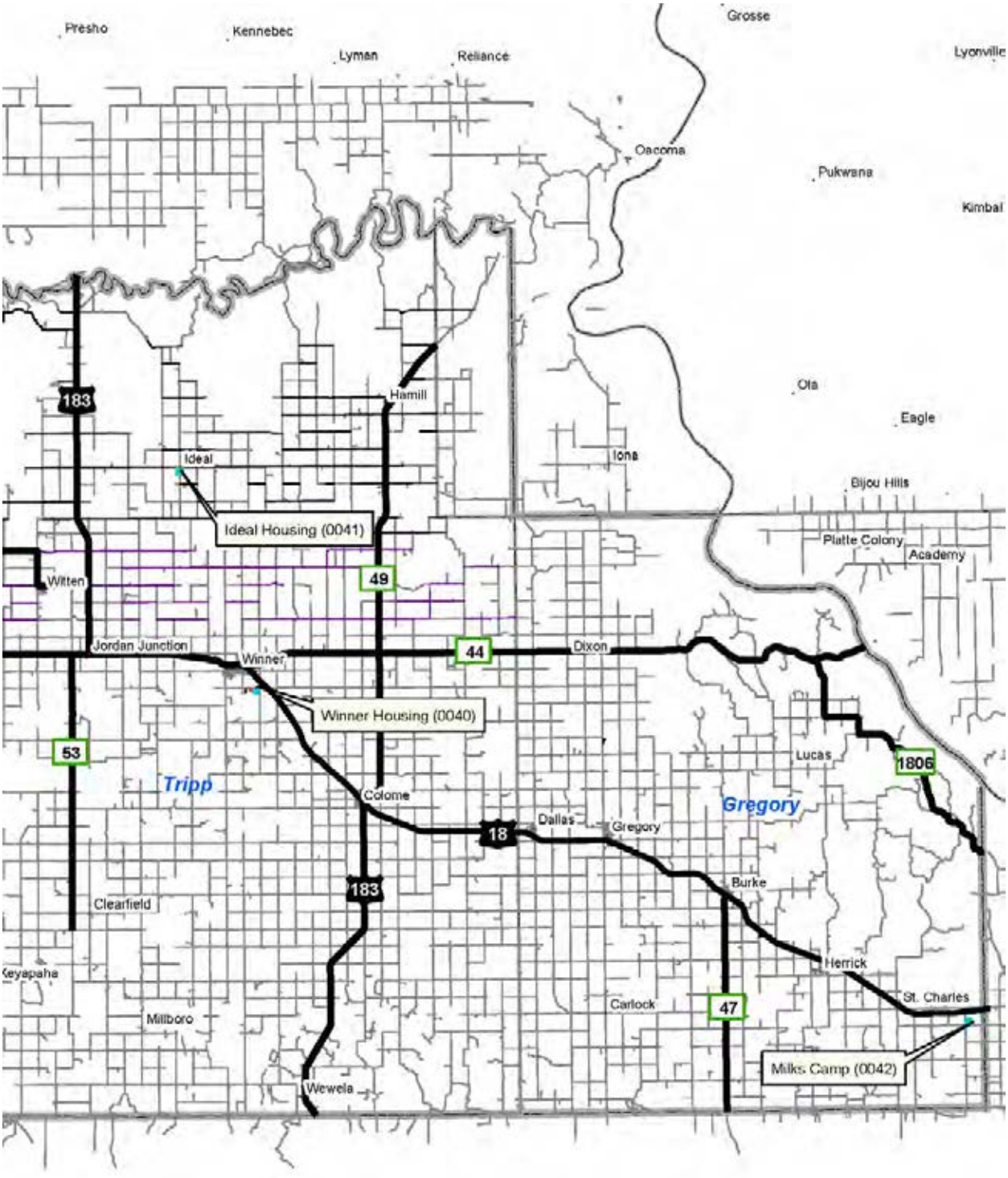


Figure 3 –Study Area Roads, East



PAVEMENT SURFACE EVALUATION AND RATING (PASER)

PASER ratings are performed in order to assist agencies in identifying roadway conditions and prioritizing improvements based on a range of factors including roughness (ride), surface distress (condition), surface skid characteristics (wear), and structural characteristics (potholes, cracking, etc.). Based on the PASER rating, different maintenance tasks are required to maintain or raise the rating for a particular section of roadway. By continuing to ensure that a good roadway remains a good roadway, the life of a roadway can be extended for a far lower upfront cost than by waiting until a more intensive maintenance method is required.

Example of Road Maintenance Activities



PROCESS

In order to determine the 1 to 10 PASER rating of each segment of BIA and tribal roadway, each mile of rural highway and block of community streets in the study area roads were mapped and driven. As each route was driven, a windshield survey of the road condition was noted and pictures were taken and geolocated in order to help document where and why each PASER rating was given. Factors such as the amount of cracking, potholes, rutting, shoulder condition, ability to drive at full speed, and the presence of gravel were all considered in rating the road segments. The process always included two people, a driver and passenger marking the ratings. Rating values were conferred by both parties. The roadways were segmented every mile, measuring the properties of the first one hundred feet of each mile. Instances of shorter segments were also noted if conditions differed suddenly. For the community streets divided by block, the entirety of each block was analyzed and rated, rather than just a representative portion being analyzed as was done on the rural highways.

Consistency was important in the rating. Each of the rating values was defined and kept consistent throughout the PASER rating process. For example, if severe cracking on a roadway rated it as a five, then each instance of severe cracking was rated as a five consistently. Each mile of the 85.5 miles in the study area was driven and rated in May 2024.

Description of PASER Ratings

The paved study area roads were all given a PASER rating between 1 and 10 based on existing conditions. None of the roads in the study area were observed to be a 10. The individual PASER ratings values are described below and an example photo of each is provided.

PASER RATING 1:

No pavement remaining. A PASER rating of 1 indicates a gravel road section with virtually no visible pavement. Example: Buffalo Road in Butte Creek.

Example Photo of PASER Rating 1 Road on the Rosebud Reservation



PASER RATING 2:

Terrible. Heavy patching with gravel patches on failed asphalt. Limited pavement intact. No striping. Shoulders are deteriorated. You cannot drive this road at the posted speed limit. Drivers need to slow down. Example: 312th Avenue at Ideal Housing.

Example Photo of a PASER Rating 2 Road on the Rosebud Reservation



PASER RATING 3:

Very poor. Severe cracking and rutting with moderate visible potholes. Heavy patching with some patches on old patches. Limited striping. Shoulders are deteriorated. Areas are marked with flags. You cannot drive this road at the posted speed limit. Drivers need to slow down. Example: BIA Route 1, near Nebraska border.

Example Photo of a PASER Rating 3 Road on the Rosebud Reservation



PASER RATING 4:

Poor. Heavy cracking and rutting with moderate visible potholes. Heavy patching with some patches on old patches. Limited striping. Shoulders are deteriorated. Cracks are not sealed. You cannot drive this entire road at the posted speed limit. Drivers need to slow down in areas. Example: BIA Route 5, three miles south of BIA Route 7.

Example Photo of a PASER Rating 4 Road on the Rosebud Reservation



PASER RATING 5:

Fair. Moderate to heavy cracking with moderate rutting. Moderate patching with some patches on old patches. Limited striping. Cracks are mostly not sealed. You can still drive this road at the posted speed limit. Example: BIA Route 7 at US Hwy 18.

Photo of a PASER Rating 5 Road on the Rosebud Reservation



PASER RATING 6:

Fair. Moderate to heavy cracking or some raveling and rutting exists. Moderate polishing with occasional patches visible. Cracks are mostly sealed. Example: BIA Route 1 near Two Strike Housing north of St. Francis.

Photo of a PASER Rating 6 Road on the Rosebud Reservation



PASER RATING 7:

Good. Some cracking, no raveling and little rutting. No patches are visible. Cracks are sealed. This roadway is not in need of immediate repair. Example: Two Strike Housing street.

Photo of a PASER Rating 7 Road on the Rosebud Reservation



PASER RATING 8:

Great. No cracking, raveling or rutting present. No patches or sealed cracks are visible. This roadway is not in need of repair. Example: Upper Swift Bear street in White River.

Photo of a PASER Rating 8 Road on the Rosebud Reservation



PASER RATING 9:

Excellent. A relatively new road with new striping. This is usually a roadway that was reconstructed or overlaid recently. Example: BIA 7 east of Rosebud.

Photo of a PASER Rating 9 Road



PASER RATING 10:

Perfect. A brand new road with appropriate striping and shoulders. This is a roadway that was most likely reconstructed or overlaid in the last year. Example: None in the study area.

Example Photo of a PASER Rating 10 Road

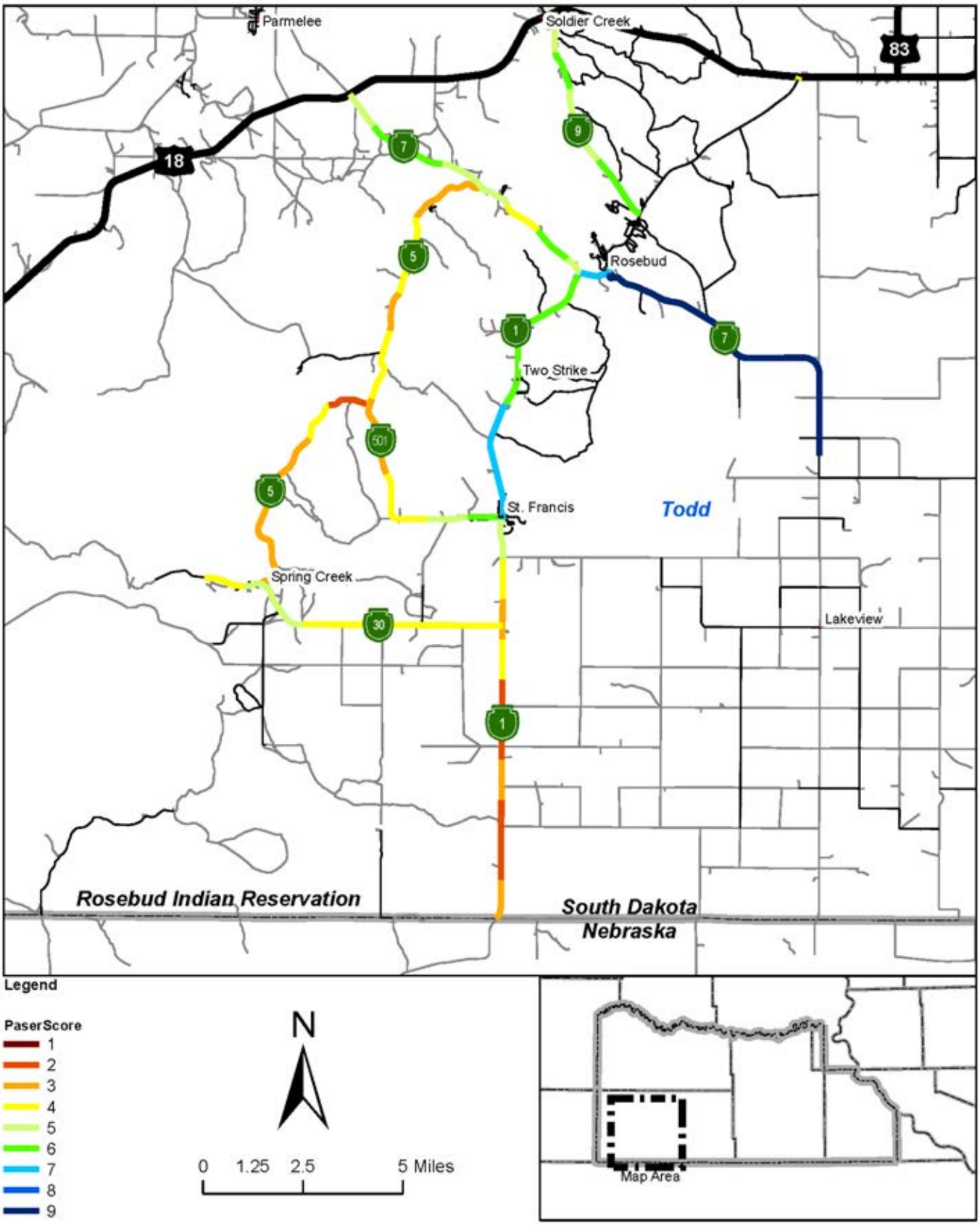


Map of Road Conditions

Every one-mile segment of highway and each block of community street was given a PASER score, and the results were mapped. Appendix B contains all maps that display the PASER ratings in a color-coded system. Blue being the highest values, or best road surface conditions, going down through the rainbow with red and black being the lowest values or worst conditions observed in the study area.

PASER scores for the rural highways are shown graphically in Figure 4 below. PASER scores for all community streets in the study are shown graphically in Appendix B.

Figure 4 - Existing Rural Highway Pavement Conditions, 2024

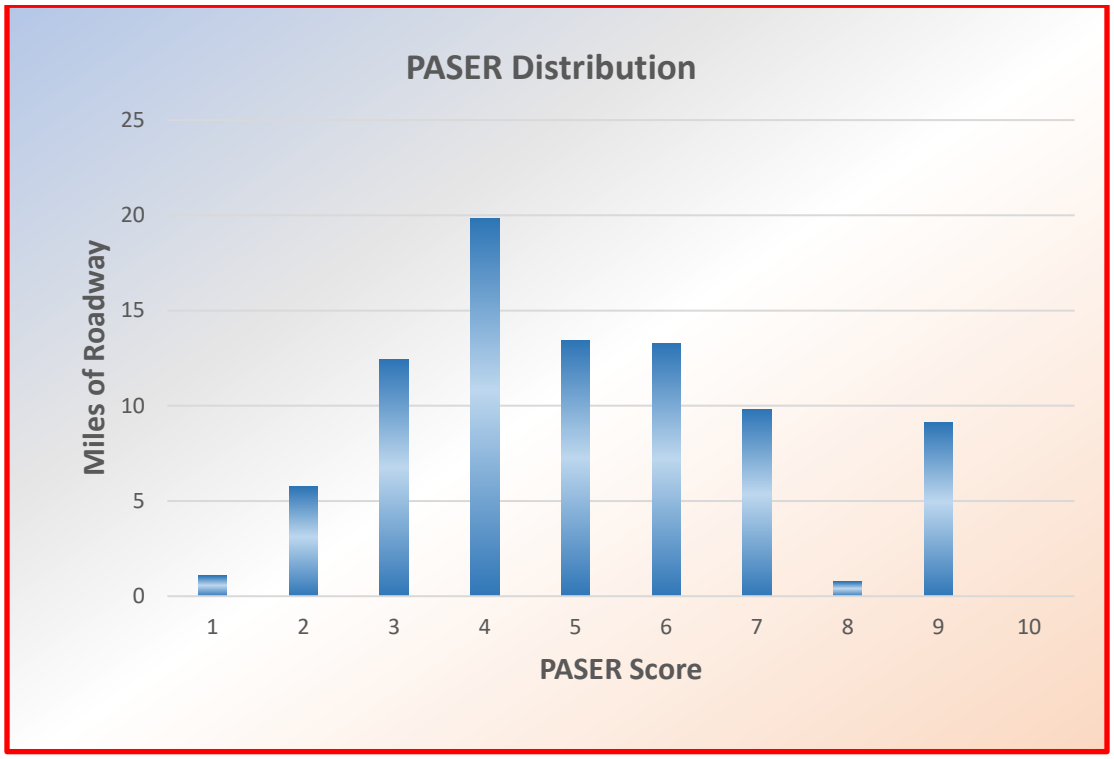


Approximately 85.5 miles of tribal/BIA roadway were assigned PASER ratings throughout the course of the study. The overall average (mean) rating for the studied roadways was 4.86. That number may not signify much, but it does indicate that the Rosebud Reservation highways tend to be in fair to somewhat poor condition overall. In fact, if a rating of five is to be considered the minimum acceptable pavement condition, (able to drive at posted speed limit) barely more than half, only 54%, of scored roads meet that standard today. This is visualized in the Figures 4 and Appendix B by the presence of more miles of yellow, red, and orange than there are of green and blue.

Other recent tribal studies performed by KLJ have an average score of around 5.3 to 5.5, so the Rosebud Reservation roads are generally in worse condition than those studied on other reservations in the Great Plains and Rocky Mountain regions.

The ratings per mile are broken down in Figure 5 below.

Figure 5 – PASER Score Distribution Summary



CHAPTER 3 NEEDS ASSESSMENT

Methodology

In conducting the Needs Assessment, it is not as easy as simply looking at the lower scoring roads and saying that they are in the worst condition; therefore have the most need. Other factors such as traffic volume, truck traffic, roadway safety, maintenance history, level of service needed, connections, fiscal constraints, and other factors should be considered.

Traffic volume and roadway level of service are something to be considered when developing a pavement management plan. In the case of the roadways studied on the Rosebud Reservation, traffic volumes vary greatly from very high in and around the community of Rosebud (BIA 1, BIA 7, BIA 9) to lower volumes on more remote but no less important roads such as South BIA 1, BIA 5, BIA 30, and BIA 501. While traffic volumes should still be considered, because there is a difference between a road that has 1,200 ADT and one that has 80 ADT, level of service is not a factor that can help determine need in this case. KLJ did not conduct traffic counts at this time but used traffic counts made available on the South Dakota Department of Transportation website (280 and 2225 vehicles per day on different portions of BIA 1; 1073, 3267, and 574 vehicles per day on different portions of BIA 7; and 357 vehicles per day on BIA 30).

Description of Pavement Preservation Strategies

Timing on treatments is particularly important in order to maintain an effective pavement management budget. Example: Crack sealing is best performed when temperatures are moderately cool, such as the spring or fall months. Cooler temperatures are generally when the cracks are fully open, allowing for the entire crack to be sealed. More in depth maintenance (minor overlays, chip seals, etc.) can be done in the summer months; generally, the South Dakota Department of Transportation prohibits chip sealing operations before May 15th and after September 1st so that minimum temperature guidelines can be followed for quality purposes. Crack sealing can also be performed with less labor involved, so a smaller crew can handle these in the fall and spring, whereas the more intensive maintenance plans can be done in the summer when maintenance departments typically have seasonally higher manpower as well. Higher temperatures also lessen the cure time required, thus allowing the roadway to be opened in a shorter time frame. Full reconstruction and structural overlays are generally more labor and equipment intensive and are much more expensive. Sealing does need to be performed in moderation. Extensive sealing operations can result in a loss of pavement friction, which would then lead to a chip seal in order for the roadway to function properly in winter months. It is also extremely important to keep weather factors in mind, as excessive moisture can prohibit the sealant from bonding properly.

PASER RATING OF 1:

There a few community streets in Butte Creek, Grass Mountain, Okreek, and St. Francis with a PASER rating 1. These are now essentially a gravel road, and the Tribe would have to determine if a full reconstruction is needed or if the remaining asphalt should be reclaimed to a granular road surface that is more maintainable by the Tribe.

PASER RATING OF 2:

Due to severe deterioration, the roadway needs reconstruction with extensive base repair; or the decision can be made to pulverize any remaining asphalt and maintain it as a gravel road. A large portion of South BIA 1 and small section of BIA 5 are in this severe condition. Additionally, a few streets within the communities of Butte Creek, Ideal, Okreek, and St. Francis Community are at this level of deterioration.

PASER RATING OF 3:

Patching and repair will need to be done prior to a major structural overlay (greater than 2”). Milling and removing the deteriorated area will extend the life of the overlay. Community streets with this rating are in Antelope, He Dog,

Okreek, Parmelee, Rosebud, Spring Creek, and St Francis. Highways with this rating include South BIA 1, BIA 5, and BIA 501.

PASER RATING OF 4:

Due to significant signs of aging, a structural overlay is required (greater than 2”). Community streets with this rating are in Antelope, Grass Mountain, Parmelee, Rosebud, Spring Creek, St Francis, and Winner. Highways with this rating include South BIA 1, BIA 4 (He Dog), BIA 5, BIA 7, BIA 30, and BIA 501.

PASER RATING OF 5:

Primarily consists of aging asphalt, but with sound structural conditions. The roadway can benefit from patching and some small areas of base dugout and replaced where necessary, followed by a non-structural overlay (less than 2”). Community streets with this rating are in Antelope, Milks Camp, Boarding School in Mission, Parmelee, Rosebud, and St Francis. Highways with this rating include BIA 1 (St Francis), BIA 4 (He Dog), BIA 7, BIA 9, BIA 30, and BIA 501.

PASER RATING OF 6:

Light signs of aging. The roadway life can be extended with routine crack sealing and a sealcoat. Community streets with this rating are in Antelope, Boarding School in Mission, Parmelee, Two Strike, St Francis, and Lower Swift Bear in White River. Highways with this rating include BIA 1 North of St Francis, BIA 7, BIA 9, and BIA 501 (St Francis).

PASER RATING OF 7:

Roadway shows very few signs of aging and can be maintained with routine crack filling. Community streets with this rating are in Antelope, He Dog, Two Strike, Spring Creek, and St Francis. Only BIA 1 North of St Francis and in Rosebud had this rating.

PASER RATING OF 8 AND 9:

No immediate maintenance is required on these roadways. In the future, routine crack filling and maintenance should be performed to continue to extend the life of the roadway. BIA 7 east of Rosebud was recently reconstructed and has this rating.

PASER RATING OF 10:

This is a roadway that was recently completed and no maintenance is required.

These are strategies or interventions that the Rosebud Sioux Tribe uses already to maintain their paved roads. It is known that costs can vary quite a bit in the study area. Approximate contracted out costs per mile for major maintenance tasks associated with work on the Rosebud Sioux Reservation (computed using SDDOT’s average bid prices for 2023) are listed in Figure 6 below. It is extremely important to keep track of all associated maintenance costs (crack sealing, seal coating, etc.). No matter how minor the task being performed, accurate and concise cost tracking will enable more accurate programming, scheduling and budgeting. Costs vary by region, so by tracking these costs it enables an accurate pavement management plan to be applied for each specific region.

Figure 6 - Treatment Cost Per Mile

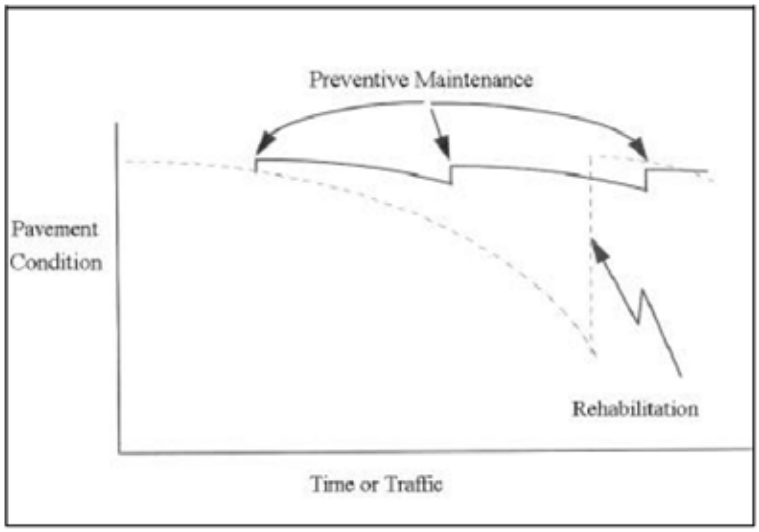
Improvement Type	Cost per Mile*
Reconstruction	$ 1,850,000.00
Structural Overlay	$ 663,000.00
Non-Structural Overlay	$ 305,000.00
Chip Seal	$ 46,000.00

*Note: Projected costs do not include fees for engineering, design, or construction observation; nor do they account for excessive additional costs for regrading, culverts, shoulder widening, adding curb & gutter, etc. that each project may also need.

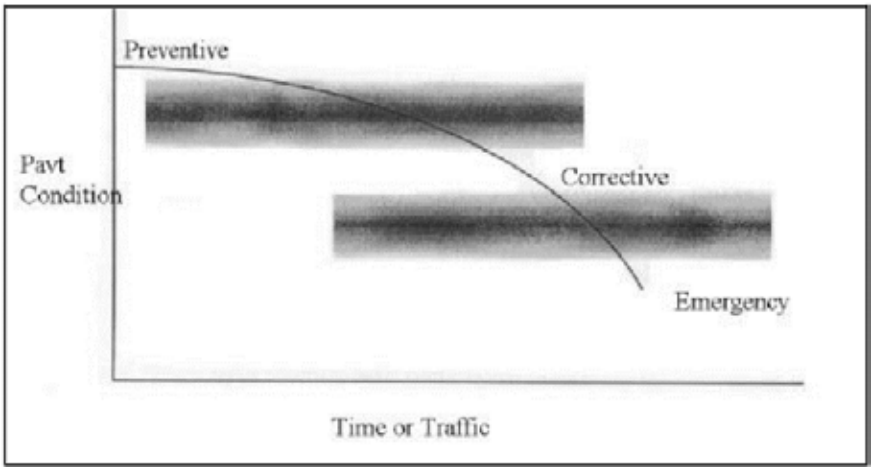
The estimated costs are assumptions in 2024 US Dollars for contracting purposes. These are estimates based on recent similar projects and SDDOT Average Bid Prices. For planning and budgeting purposes and under normal economic circumstances, construction costs should be expected to increase at a 5 to 8 percent annual inflation rate.

Feasible Strategies

There is a saying that you don't want to improve the worst roads first. This is backed up by research. It is more cost efficient to keep a good road in operating condition than to replace an aging road. By putting money upfront into seal coating, crack sealing, etc., the roadway's life can be extended far more efficiently than waiting until structural improvements are required (overlays, milling, reconstruction, etc.). Preventative maintenance, as indicated in the chart below, is much more economical than corrective maintenance.



Corrective and emergency repairs occur when the roads are more deteriorated or have lower PASER ratings and require costly structural improvements or reconstruction.



As a last resort, but also an option that may be desirable under certain circumstances, the Tribe may consider reverting certain low priority roads back to gravel if they have deteriorated to such poor condition that regular maintenance activities will not effectively improve the road condition.

CHAPTER 4 RECOMMENDATIONS

The Rosebud Sioux Tribe operate their Tribal Transportation Program through an agreement directly with FHWA. The annual tribal share in 2024 was approximately $3.6 million, not including any safety grants or special appropriations, and after obligation reductions. The RST Transportation Program transfers a large portion of Tribal Transportation Program funding to the Road Maintenance Program which also has funds through a 638 contract with BIA. The Road Maintenance Program is responsible for maintenance of BIA roads whereas the RST Transportation Program provides for major reconstruction projects.

Short Term Priority Projects

The focus for recommendations in this Pavement Management Plan is on pavement overlays and chip seals. Below is the priority paving list. It is a 10-year (2026-2034) plan for all pavement preservation projects throughout the reservation. Annual funding recommendations herein will try to remain at or under $1.5 million per year.

Table 2 - Ten Year+ Project List

Number	Year	Route	Project Name	Avg. PASER Rating	Treatment Type	Length (mi.)	Estimated Cost
1	2026	1	BIA 1 Crack & Chip Seal, St Francis to Rosebud	6.5	Crack & Chip Seal	8.0	$700,000
2	2026	16	Denver Drive in Mission	5.5	Thin Overlay	0.4	$300,000
3	2027	7	Overlay, US 18 to Rosebud (1)	5.3	Thin Overlay	8	(1)
4	2027	512	Grass Mountain Streets (2)	3.0	Reconstruction	0.7	$2,000,000
5	2028-2029	9	BIA 9 Overlay	5.5	Thin Overlay	5.7	$3,000,000
6	2030	7	BIA 7 to 6-Mile Corner	9	Crack & Chip Seal	6	$400,000
7	2031-2032	4	BIA 4 & He Dog Street Pavement Overlay	4.7	Overlay	2.0	$2,400,000
8	2033	Multi	St Francis Rehab; Overlay, Crack & Chip Seal	5.7	Overlay, Crack & Chip Seal	5.8	$1,800,000
9	2033	Multi	Parmelee Streets Rehab	4.6	Patch & Overlay	2.4	$3,900,000
10	2034		Butte Creek Reconstruction	1.3	Reconstruction	0.5	$1,350,000
11	2035	Multi	Multi Community Streets Rehab	5.7	Overlay, Chip Seal	6.4	$2,500,000
12	2036-2037	30	BIA 30 Rehab	4.2	Overlay	6.8	$8,200,000

(1) To be completed by the RST Transportation Program with a current project, BIA Route 7 Regional Improvement Project, which is funded 80% with USDOT Rural grant.

(2) An intersection safety study is being conducted to review the conditions of BIA 5 and Tutle Rd (BIA 512). A future reconstruction project to realign Tutle Rd may be completed if recommended.

Tables 2 and 3 outline a priority paving plan to focus efforts on maintaining the best tribal highway system possible, for the highest volume of users.

The priority paving plan focuses on the next ten to twelve years.

2026

Chip Seals: BIA 1 – St Francis to Rosebud, Two Strike housing, Swift Bear housing

Roads that are in good condition today may start showing signs of aging by the end of the current TTIP period. Before a chip seal is applied, all cracks should be routed and sealed.

BIA 16, Denver Drive, Mission

A thin overlay would extend the life of this heavily travelled route. Some milling at the curb edge prior to the overlay would be needed to match the existing curb lip elevation

2027

BIA 7 Thin Overlay

In terms of less-than-ideal pavement and average vehicles per day, a thin overlay on BIA 7 from US-18 to Rosebud would impact a good share of the Tribe's travelling public. A thin milling to remove surface imperfections and prepare the surface for an overlay of less than two inches (<2") would be an economical way to extend the pavement life. This work will be completed with the BIA Route 7 Regional Improvement Project with 80 percent of funds from the USDOT Rural Grant.

Grass Mountain Streets Reconstruction

This project is suggested to be performed in conjunction with the above-mentioned BIA 7 overlay, if possible, in order to save on mobilization and material hauling costs.

2028-2029

BIA 9 Thin Overlay

A thin overlay on this route would return it to a like-new condition. Sections with heavier amounts of cracking should receive a thin mill and leveling course so that imperfections in the existing surface don't reflect through to the top of the new overlay.

2030

Chip Seal: BIA 7 – Rosebud to 6-Mile Corner

This road was reconstructed in 2024 and to remain in good condition should be crack and chip sealed by 2030.

2031-2032

BIA 4 and He Dog Overlay

These routes are aging and in need of a structural overlay. A small area of the He Dog streets that has failed should be dugout and replaced with well-graded and well-compacted road base.

2033

Multi Community Street Rehabilitation

The streets in St. Francis are largely in good condition, but there are several that have failed, and a growing share of the streets are starting to show some aging. A mix of overlays, thin overlays, and crack and chip seal treatments as needed could rejuvenate the streets in the entire community.

The streets in Parmelee are starting to show some extreme cracking and rutting. Some targeted dig outs of the road base should be done before overlays and sealing are completed.

2034

Butte Creek Streets

Very little asphalt remains in Butte Creek, but the curb and gutter remain fairly intact. The base should be rehabilitated before the streets are repaved.

2035

Multi Community Street Rehabilitation

With available funding, many communities could be positively impacted by rehabilitation of their streets. Several treatments would be used on each street on a case-by-case basis depending on the condition at the time of design. The anticipated mix of structural overlays, thin overlays, and chip seals has been accounted for in the expected project cost. Communities involved would include Winner, Milks Camp, Antelope, Spring Creek, Ideal, Two Strike, and Swift Bear.

2036-2037

BIA 30 Rehabilitation

The road is beginning to show signs of wear and aging beyond what a rejuvenating chip seal can address. This road should be overlaid with more than 2" of asphalt.

Recommended Paving TTIP

Fiscal constraint is always a concern when trying to program projects into existing funding. Below in Table 3 is a sample recommended paving TTIP including the short term recommended projects. The carryover line at the bottom of the table assumes an annual allocation of $1.5 million of regular annual TTP funding combined with BIA 638 funding toward pavement preservation projects. For clarity, all costs have been abbreviated and expressed in thousands of dollars.

Table 3 – Sample Paving TTIP (thousands of dollars)

Number	Route	Project Name	2026	2027	2028	2029	2030	2031	2032
1	1	BIA 1 Crack & Chip Seal, St Francis to Rosebud	$700						
2	16	Denver Drive in Mission	$300						
4	5	Grass Mountain Streets Overlay		$2,000					
5	9	BIA 9 Overlay			$1,500	$1,500			
6	1	BIA 7 Rosebud to 6-Mile Corner Crack & Chip Seal					$400		
7	4	BIA 4 & He Dog Street Overlay						$2,000	$400
		Total Cost	$1,000	$2,000	$1,500	$1,500	$400	$2,000	$400
		TTP & BIA 638	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
		Carryover	$500	$0	$0	$0	$1,100	$600	$1,700

Long Term Project List

There are several large projects that were not included in the short-term project list for several reasons. These projects were either: too costly to include within the recommended TTIP's fiscal constraint; too remote to affect larger volumes of traffic, or in such poor shape (e.g. Okreek) that reversion to a stable, dust-controlled gravel surface might be a more pragmatic option for the Tribe to consider. Although these projects have been de-prioritized for construction purposes, regular maintenance should still be performed to keep a drivable surface to the extent possible.

Table 4 – Paving Projects Beyond the TTIP

Number	Year	Route	Project Name	Avg. PASER Rating	Treatment Type	Length (mi.)
13	2030+	1	BIA 1 Rehab – NE to St Francis (1)	2.9	Reconstruction	11.0
14	2030+	5	BIA 5 Reconstruction (2)	3.3	Structural Overlay	12.4
15	2030+	501	BIA 501 Rehabilitation (2)	4.2	Structural Overlay, Thin Overlay	5.8
16	2040+		Okreek Streets Rehabilitation	2.0	Reconstruction, Structural Overlay	0.49
17	2040+		Rosebud Streets Rehabilitation (Low Rent)	3.8	Overlay	1.30

(1) The RST Transportation Program is currently designing the reconstruction of this road with wider shoulders, improved culverts and better sight distance. The Tribe is seeking grant funding for this project.

(2) RST Transportation Program is seeking grant funding for the planning and reconstruction of this route.

This list is important to keep in mind when discretional funding opportunities present themselves. Infrastructure, safety, or other-purposed grant programs may become available for which one of these projects might be well qualified, and preparation of a grant application would be advisable. Additionally, grant programs may fund other projects that are listed in the ten-year plan or projects that are in the TTIP. Funding those short-term projects with grants would then de-obligate existing program funding and would allow the timeline of projects in the long-term project list to be accelerated.

Beyond the TTIP

Beyond fifteen years, it is difficult to list project priorities. As stated previously, the road conditions change with age and use, and the 2024 PASER ratings will offer little value that far into the future. Corridors that are planned to have new seal coats or pavement overlays in the coming years would likely need further maintenance treatment again beyond the ten-year time frame, and it is difficult to project which routes will need treatments and when.

The PASER rating values were collected in early 2024. The values of the road conditions will change over time and focusing on a ten-year paving plan allows us to address known needs. By the year 2030 it may be necessary to re-score the road conditions and reevaluate further paving and maintenance priorities.

APPENDIX D: TRIBAL TRANSPORTATION SAFETY PLAN (2021)

Rosebud Sioux Tribe
2021 Tribal Transportation Safety Plan

NOVEMBER 2021



Prepared by:

KLJ

ENGINEERING, REIMAGINED

Table of Contents

Executive Summary 1
- Education 2
- Enforcement/EMS 2
- Engineering 2
- Safety Planning/Other 2

Background 3

Historical Crash Data 4
- Location of Crash 4
- Crash Types 5
- Crash Injury Severity 6
- Safety Restraint Use 7
- Age and Gender of Occupants 8

2021 Tribal Transportation Safety Management Plan 8
- Issues Causing Crashes on Rosebud Sioux Indian Reservation 8

Existing Safety Programs 9

Implementation Strategies 9
- Education Strategies 9
- Enforcement Strategies 10
- Engineering Strategies 13
- Safety Planning and Other Strategies 21

List of Figures and Tables

Figure 1: Fatal and Incapacitating Injuries (2013-2020) 1
Figure 2: Fatal Injuries by Age and Gender (2013-2020) 1
Figure 3: Rosebud Indian Reservation Location 3
Figure 4: Number of Crashes Reported Per Year (2013-2020) 5
Figure 5: Crash Types (2013-2020) 5
Figure 6: Crash Severity per County (2013-2020) 6
Table 1: Crash Injury Severity Per Number of Occupants (2013-2020) 6
Figure 7: Fatal and Incapacitating Injuries (2013-2020) 7
Table 2: Safety Restraint Used for Crashes per Occupants (2013-2020) 7
Figure 8: Fatal Injuries by Age and Gender (2013-2020) 8
Figure 9: Buckle Up Poster 10
Figure 10: Rosebud Tribal Law Enforcement Vehicle 11
Figure 11: Example of a Speed Radar Trailer 13
Figure 12: Separated Pathway with Pedestrian Lighting 15
Figure 13: Solar Pedestrian Lighting Example 15
Figure 14: Corn Creek Community Pathway 16
Figure 15: Kilgore Road South to Saint Francis Pathway 17
Figure 16: Turtle Creek Pathway 18
Figure 17: Two Strike Community Pathway 19
Figure 18: Winner Community Tribal Housing Pathway 20
Figure 19: Antelope and White Horse Communities Pedestrian Connectivity 22

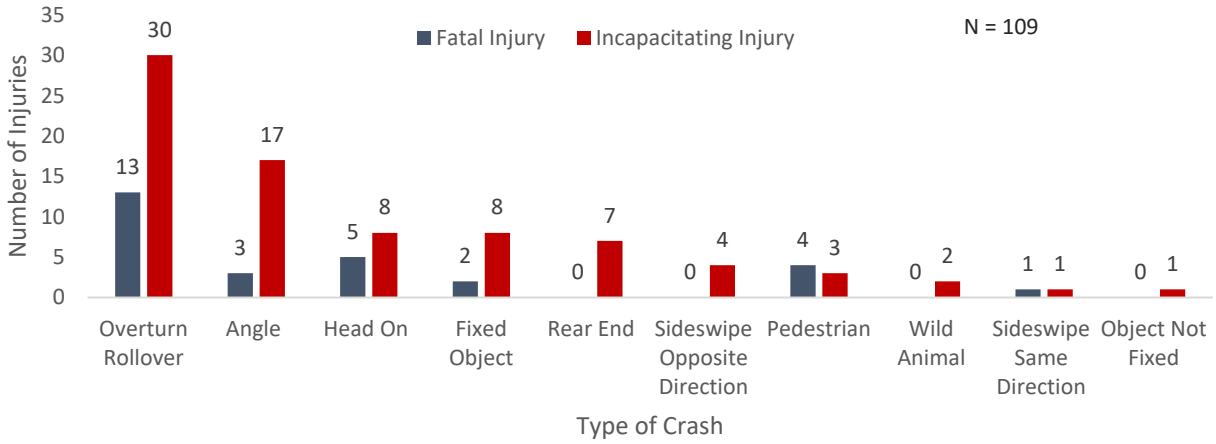
Appendices

Appendix A: Meeting Agenda
Appendix B: Meeting Participants
Appendix C: 2021 Tribal Transportation Safety Plan Presentation

EXECUTIVE SUMMARY

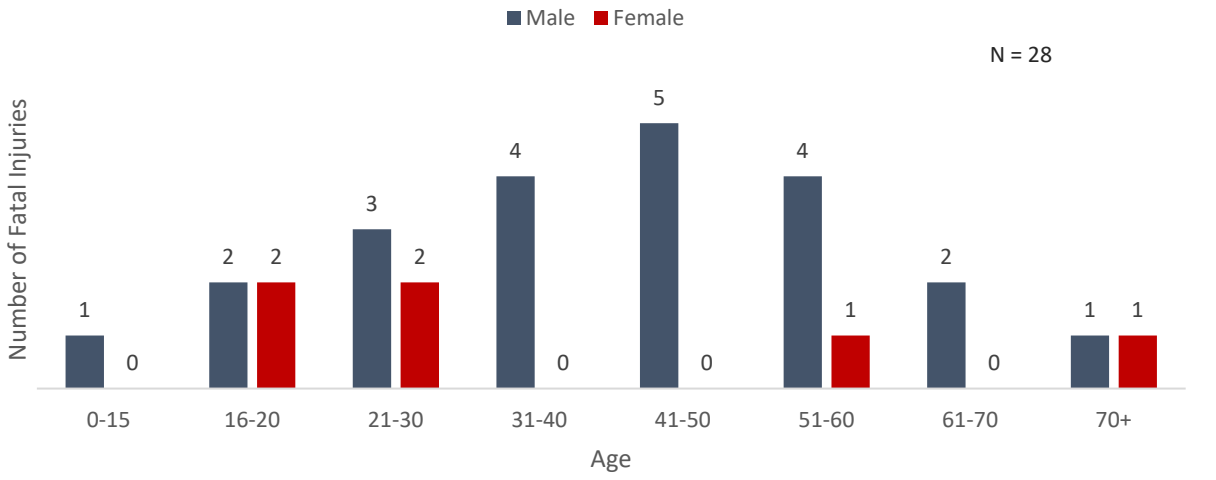
From 2013 to 2020, there were 1,606 reported crashes occurring in Gregory, Mellette, Todd, and Tripp Counties. These 1,606 reported crashes involved 2,037 occupants, resulting in 28 fatal injuries and 81 incapacitating injuries. The leading crash type resulting in fatal and incapacitating injuries occurred from overturn rollover crashes, accounting for approximately 39% of all fatal and incapacitating injuries. Below summarizes the top crash types resulting in fatal and incapacitating injures.

Figure 1: Fatal and Incapacitating Injuries (2013-2020)



The causes of these severe crashes are varied but can be tied to a number of significant factors, including a high rate of impairment, low seat belt use and a significant number or younger drivers. Of the reported 28 fatal injuries occurring within the study area, approximately 36% of the occupants are under the age of 30. The figure below summarizes the age range for number of fatal injuries occurring within the study area.

Figure 2: Fatal Injuries by Age and Gender (2013-2020)



In 2021 the Rosebud Sioux Tribe undertook efforts to develop a Tribal Transportation Safety Plan that would identify existing safety efforts, transportation safety issues and then identify strategies for implementation that would address these issues. As part of the safety plan development, Tribal, and interested parties came together to review existing data, ongoing safety efforts and to identify new or continuing strategies to improve transportation safety in tribal communities. The strategies were prioritized around the 4Es (Education, Enforcement, Emergency response and Engineering) of safety. The 4Es are outlined below. Note that enforcement and emergency response have been combined and safety planning/other strategy have been included.

Education

- Continue the Tribal Motor Vehicle Injury Prevention Program (TMVIPP)

Enforcement/EMS

- Develop Stronger Partnership Between Rosebud Tribal Law Enforcement, Tribal Council, and Tribal Transportation Program
- Initiate Discussion on Possible use of Cross Jurisdictional Agreements for Law Enforcement
- Develop a Comprehensive Tribal Traffic Code
- Establish a Motor Carrier Safety (MCS) Program
- Develop a Livestock Ordinance
- Incorporate the use of Speed Radar Trailers as a Deterrent

Engineering

- Designate School Crosswalks and School Bus Stop Locations
- Mileage Reference Markers and Delineation Along Routes
- High-Performance Pavement Marking Tape on BIA 1 within the Community of Rosebud
- Roadway Intersection Improvements
- Develop Multi-Use Paths and Pathway Lighting Projects

Safety Planning/Other

- No other strategies were prioritized for implementation

BACKGROUND

The Rosebud Indian Reservation encompasses nearly one million acres in south central South Dakota and is home to the Sicangu Oyate Nation. The Reservation was established in 1889 and includes all of Todd County, South Dakota. The Tribe also has communities and extensive lands and population in Lyman, Mellette, Gregory and Tripp Counties. Mellette County in particular has large Tribal Trust Lands and a significant portion of the nearly 32,505 enrolled members live there.

Figure 3: Rosebud Indian Reservation Location[1]



The Oyate capital is the town of Rosebud, established when the Spotted Tail Indian Agency was moved from northwestern Nebraska to the banks of Rosebud Creek near its confluence with the Little White River. The largest town on the Reservation is Mission, located at the intersections of US Highways 18 and 83. Mission's nearby neighbor of Antelope is one of the many tribal communities established in the late 1870's and has been growing ever since. Another major town on the Reservation is Saint Francis, located southwest of Rosebud and home of the Saint Francis Indian School. Saint Francis, with a current population of about 2,000, is the largest incorporated town in South Dakota without a state highway for access. While much of the traffic volume is from agriculture operations, there is a considerable amount of tourist and truck traffic that cross the Reservation each year, with the Black Hills to the west and two US highways traversing the Reservation. With approximately 3,500 miles of Indian Reservation roads, the safety of the tribal transportation system is an important factor for these visitors and residents.

Available data has indicated that injury and fatality crash rates on reservations are higher than the rest of the United States. Federal programs are available to help resolve traffic related crashes and provide safer reservation transportation routes for Tribal members and the traveling public. The Federal Highway Administration (FHWA) created the Tribal Transportation Program Safety Funds (TTPSF) aimed at addressing safety issues and needs of Tribal governments for transportation and access on reservations. Each year, two percent of the total available Tribal Transportation Program (TTP) funds are awarded for safety improvements through a competitive application program.

FHWA has emphasized the development of a Tribal Transportation Safety Management Plan (TSMP) as a first step in implementing a comprehensive safety program. This is clearly seen in the funding emphasis on safety planning and the ranking criteria that requires any safety project application be linked to a transportation safety plan.

A Tribal TSMP is a community based, multi-disciplinary approach to identify transportation safety issues and potential implementation strategies with the goal of improving transportation safety on Tribal Lands. The FHWA describes them as:

[1] https://sdtribalrelations.sd.gov/images/rst.jpg

"Tribal Transportation Safety Plans are a tool used to identify and address transportation risk factors that have a potential of leading to serious injury or death. Safety Plans also organize the efforts of a variety of entities to more effectively reduce risk and can cover multiple transportation modes (roads, maritime, trails, air travel, and others). Safety plans may lead to implementation of a project or program, renewed efforts in an existing program, or further study of a roadway section (using an engineering study or Road Safety Audit).

A Tribal Safety Plan should not be developed with a focus on any one funding source. Instead, a Tribal Safety Plan should demonstrate the safety concerns in a community and the strategies that will be explored to implement the plan. To the greatest extent possible, the concerns demonstrated by a safety plan should be selected based on incident history (data). Data allows funding entities to understand the needs and may even compel the funding of the community's needs. Safety Plans can provide a forum for utilizing data sets that are not otherwise considered by funding agencies such as public testimony when formal crash data does not exist".

Benefits of developing safety plans have been well documented and include the opportunity to leverage resources, work toward a common goal and consider all road users resulting in reduced deaths and injuries in Tribal and other communities.

HISTORICAL CRASH DATA

Historical crash data contained in the South Dakota Office of Highway Safety and South Dakota Department of Public Safety (SDDPS) Crash Database, occurring on the Rosebud Indian Reservation on all public roads was obtained through their website for the eight-year time interval covering January 1, 2013 through December 31, 2020[2]. The crash data that was collected where crashes were occurring in Gregory, Mellette, Todd, and Tripp County. Crash data from Lyman County was excluded from this analysis as majority of the crashes reported occurred on Interstate 90. Crash data is submitted to SDDPS Crash Database by law enforcement using the South Dakota Accident Records System (SDARS) or Traffic and Criminal Software (TraCS). Historical crash data was not available from Tribal Law Enforcement. Crashes this agency respond to do not get reported to the SDDPS. Obtaining information from Tribal Law Enforcement can be a lengthy process due to the Freedom of Information Act (FOIA), as tribal members must submit a request to release the information. Once a request is submitted the information released to the applicant can take years with redacted information. Thus, resulting in a long process to obtain the information.

One of the important factors in the development of a Tribal Safety Management Plan is the available crash data analyzed and utilized in the identification of issues and development of strategies. Adequate crash information plays a crucial role for the Tribe as this information can be used to assist in applying and securing federal and state funding and TTPSF funds for safety improvements on roadways throughout the Reservation, as many request data to support the grant application. Available crash data shown in this plan was analyzed to reflect contributing factors to traffic-related deaths and injuries on the Reservation.

Location of Crash

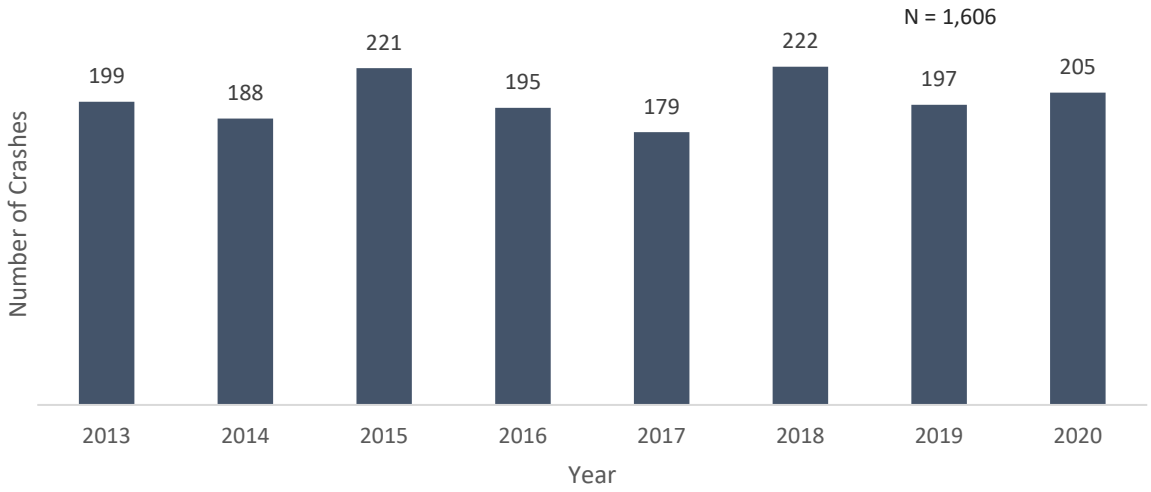
During the studied eight-year time interval between 2013-2020, there were a reported 1,606 crashes or approximately 201 crashes per year within the four-county area. Of the reported 1,606 crashes, 66 crashes occurred in Todd County, 142 crashes occurred in Mellette County, 273 crashes occurred in Gregory County and 1,125 crashes occurred in Tripp County. The number of reported crashes has remained relatively consistent per-year over the eight-year time interval.

With crash data only being limited to what was reported to the SDDPS Crash Database, the data only shows a small portion of crashes that occur throughout the Rosebud Indian Reservation. The 1,606 crashes that were reported

[2] http://safesd.gov/raw-data.html

could be higher if crash information was available through Tribal Law Enforcement. As current crash data shows crashes are primarily occurring on State and U.S. routes. **Figure 4** shows the number of crashes reported per year in the four-county area.

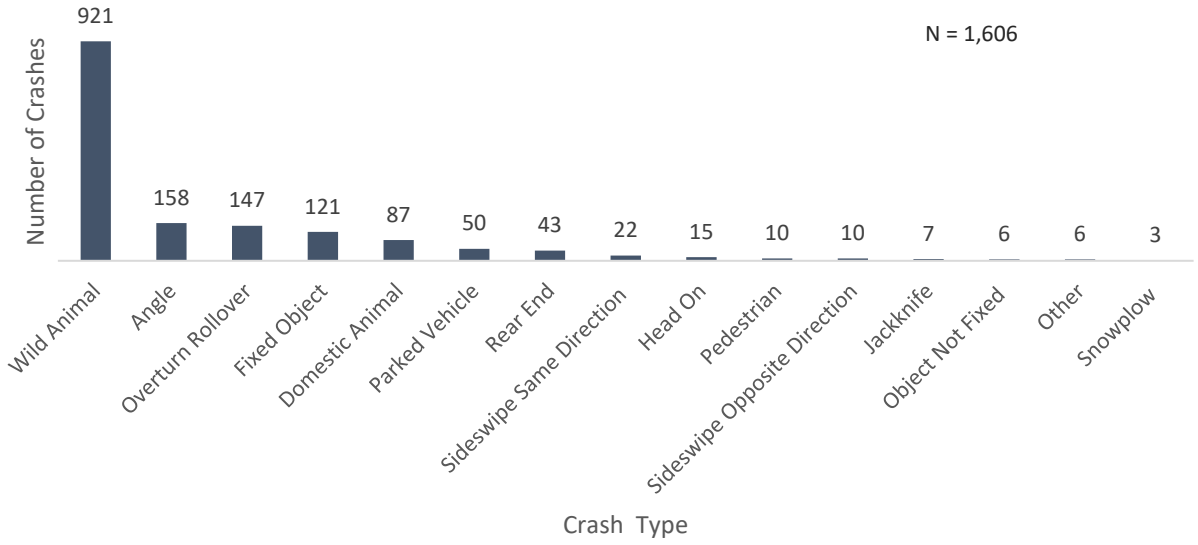
Figure 4: Number of Crashes Reported Per Year (2013-2020)



Crash Types

Wild Animal crashes were the most common reoccurring event throughout the eight-year time interval, accounting for 921 of the 1,606 crashes or 57.3% of all reported crashes. The other three top leading crash types observed are Angle crashes accounting for 158 crashes or 9.8% of all reported crashes, Overturn Rollover crashes accounting for 147 crashes or 9.2% of all reported crashes and Fixed Object crashes accounting for 121 crashes or 7.5% of all reported crashes. These top crash trends are consistent when comparing them to the leading crash types from the 2014 Tribal Transportation Safety Plan. Gregory and Winner, SD account for approximately 49% of angle crashes or 78 crashes. **Figure 5** shows the different crash types that occurred within the four-counties from 2013-2020.

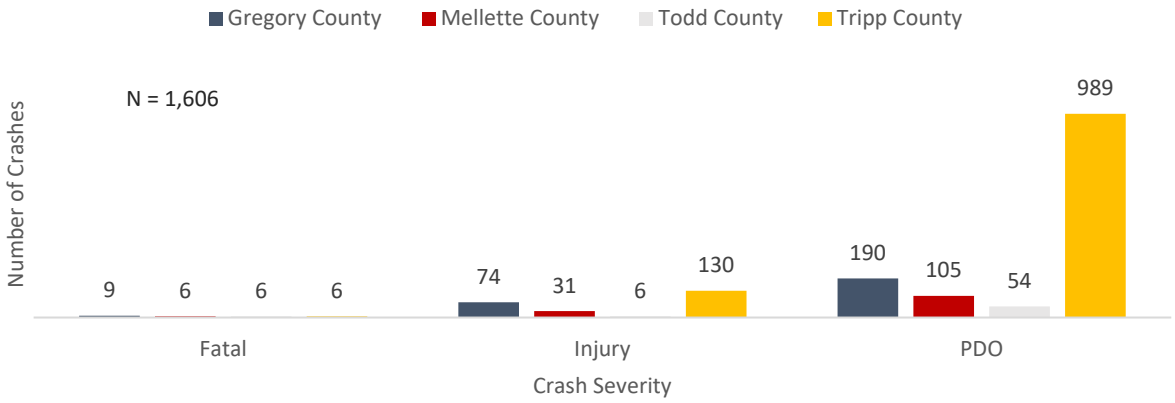
Figure 5: Crash Types (2013-2020)



Crash Injury Severity

During the studied eight-year time interval, there were 27 fatal accidents, 241 injury accidents and 1,338 property damage only accidents for a total of 1,606 accidents within the four-county area. **Figure 7** shows the crash severity for each county.

Figure 6: Crash Severity per County (2013-2020)



The 1,606 accidents reported involved 2,037 occupants. The SDDPS[3] further analyzes crash injury severity into five different categories. These categories are:

- Fatal Injury – An injury results in death. An injury caused death that occurs within 30 days of an accident
- Incapacitating Injury – Any injury, other than a fatal injury, which prevents the injured person from walking, driving, or normally continuing the activities the person was capable of performing before the injury occurred
- Non-Incapacitating Injury – Any injury, other than a fatal injury or an incapacitating injury, which is evident to observers at the accident scene
- Possible Injury – Any injury reported or claimed which is not a fatal injury, incapacitating injury, or non-incapacitating injury
- No Injury

Of the 2,037 occupants involved in crashes, 28 resulted in a Fatal Injury and 81 resulted in an Incapacitating Injury. **Table 1** summarizes the different crash injury severities for each occupant involved in a crash within the four-county area.

Crash Injury Severity	Number of Injuries	Percentage
Fatal injury	28	1.4%
Incapacitating Injury	81	4.0%
No injury	852	41.8%
Non-incapacitating Injury	117	5.7%
Not applicable	3	0.1%
Possible Injury	168	8.2%
*Not Reported	788	38.7%
Total	**2,037**	**100.0%**

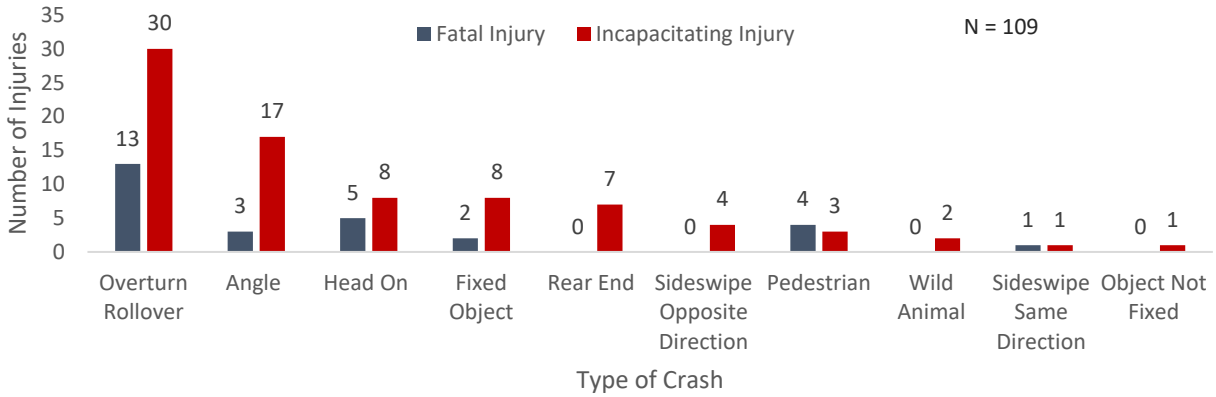
* - Not Reported, Injuries Listed as Wild Animal Crashes

Table 1: Crash Injury Severity Per Number of Occupants (2013-2020)

[3] https://safety.fhwa.dot.gov/hsip/spm/conversion_tbl/pdfs/kabco_ctable_by_state.pdf

Fatal and Incapacity injury crashes stand out due to their impact on lives. Of the 28 fatal injuries, 13 were from the result of Overturn Rollover crashes, five were Head On crashes, four were Pedestrian crashes, three were Angle crashes, two Fixed Object crashes, and one Sideswipe Same Direction crash. Of the 81 incapacitating injuries, 30 were from the result of Overturn Rollover crashes, 17 from Angle crashes, eight each of Head On and Fixed Object Crashes, seven from Rear End crashes, four from Sideswipe Opposite Direction crashes, three from Pedestrian crashes, two from Wild Animal crashes and one each from Object Not Fixed and Sideswipe Same Direction crashes. **Figure 7** summarizes the different crash types for Fatal and Incapacitating Injuries.

Figure 7: Fatal and Incapacitating Injuries (2013-2020)



Safety Restraint Use

The use of proper safety restraints in a moving vehicle helps reduce the severity of injuries for occupants in the event of a crash. Approximately 27% of occupants within the four-county area used a proper safety restraint. This percentage maybe higher as the type of safety restraint used information for Wild Animal crashes was not reported and account for approximately 45% of the total reported safety restraint use. This data could be used to support increased education and seat belt initiatives. **Table 2** summarizes the frequency of safety restraints being used in the four-county area.

Type of Safety Equipment Used	Number of Occupants	Percentage
Child/Youth restraint system used properly	2	0.1%
Helmet and eye protection	7	0.3%
Helmet only	2	0.1%
Lap belt and shoulder harness used	544	26.7%
Lap belt only used	21	1.0%
None used	198	9.7%
Not applicable	69	3.4%
Shoulder harness only used	12	0.6%
Unknown	273	13.4%
*Not Reported	909	44.6%
Total	**2,037**	**100.0%**

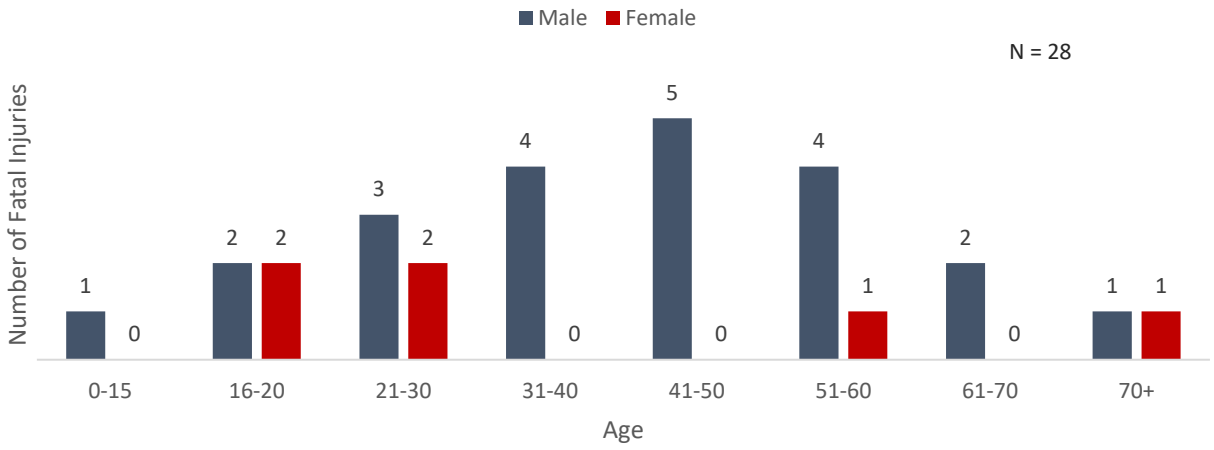
* - Not Reported, Injuries Listed as Wild Animal Crashes

Table 2: Safety Restraint Used for Crashes per Occupants (2013-2020)

Age and Gender of Occupants

Young drivers are consistently overrepresented in fatal crashes in all states and tribal communities in the region. This is also true for the Rosebud Indian Reservation, 35.7% of all fatalities within the four-county area were under the age of 30. What is significant is that the data for the area shows that approximately 18% are under the age of 20. This high rate of young inexperienced drivers, education, enforcement, and outreach programs may be needed. **Figure 8** summarizes fatal injures by age group and gender.

Figure 8: Fatal Injuries by Age and Gender (2013-2020)



2021 TRIBAL TRANSPORTATION SAFETY MANAGEMENT PLAN

This 2021 plan was developed using available data and the personal knowledge and expertise of the planning meeting participants. The group included Tribal safety representatives from engineering and planning. A list of participants is included in the appendices.

The planning group reviewed the available crash data to develop a list of issues that are currently affecting transportation safety on the reservation. The group then identified the existing programs on the reservation and identified additional strategies that need to be implemented to address safety issues. The following sections document these discussions and the outcomes.

Issues Causing Crashes on Rosebud Sioux Indian Reservation

The crash data analysis, identify several transportation safety issues that are causing crashes, increasing crash severity, or restricting complete data analysis. Those that are supported by the data included:

- Wild and domestic animal crashes
- Crashes with fixed objects
- Overturn Rollover crashes
- Alcohol impaired driving
- Lack of seat belt use
- Lack of car seat use
- Departure from roadway
- Lack of sharing crash data

The group identified several other transportation safety issues based upon personal experience that are causing crashes, increasing crash severity, or are otherwise creating transportation safety concerns in the local communities. These include:

- Establish School Crosswalks and School Bus Stop Locations
- Need for intersection improvements (sight distance, lighting, advance warnings)
- Speeding
- Separated Pathways
- Improve Pavement Markings
- No mile reference markers and delineation along routes

EXISTING SAFETY PROGRAMS

The Tribe has implemented or is working on a number of safety projects and programs to address transportation safety issues on the Reservation. The list is not all inclusive, but documents programs that the group participating in the development of the safety plan were aware of.

- School District has installed strobe lights on school buses to increase visibility
- Advance Warning Signs have been installed at school bus stop locations
- The Rosebud Sioux Tribal Transportation Program has completed a Road Safety Audit (RSA) to identify safety deficiencies on BIA roadways within the reservation
- Indian Health Service (IHS) has completed a Severe Injury Surveillance Profiles
- Implemented a Primary Seat Belt Law on the reservation
- Rosebud Sioux Tribe Law Enforcement and IHS make community presentations on transportation safety
- Community Health Representatives provide car seat inspection stations

IMPLEMENTATION STRATEGIES

The plan's main goal is to use a multi-disciplinary approach to identify safety strategies for implementation that can address the transportation safety issues on the Rosebud Sioux Indian Reservation. The strategies are intended to be implemented over the next several years and each have a Strategy Champion and Funding Opportunities identified. The strategies were developed as a comprehensive approach to safety, including engineering, enforcement, education, and emergency management opportunities.

Education Strategies

Continue the Tribal Motor Vehicle Injury Prevention Program (TMVIPP)

One of the leading transportation safety successes on the Rosebud Reservation in recent years has been the establishment of the TMVIPP. This program has been successful increasing seat belt use through education, enforcement activities, and community outreach. With the lack of seat belt use being cited in over 90% of the fatalities and a low seat belt use rates compared to the statewide average, the continuation of this program is the cornerstone to reducing fatalities and serious injuries on the reservation. It is recommended that the data shown in this plan should be utilized and education, enforcement activities, and community outreach be continued throughout the reservation.

Figure 9: Buckle Up Poster



Strategy Champion: Rosebud TMVIPP Coordinator and Rosebud Sioux Tribe Transportation Program.

Funding Opportunity: TTP Safety Funding, National Highway Traffic Safety Administration (NHTSA) 402 funds through the BIA Indian Highway Safety Program (IHSP) or SDDOT.

Enforcement Strategies

Develop Stronger Partnership Between Rosebud Tribal Law Enforcement, Tribal Council, and Tribal Transportation Program

According to the available safety restraint data listed in this plan, enforcement activities have a significant impact on transportation safety. The Rosebud Sioux Tribe Law Enforcement Services were unable to attend the safety planning session that was held to develop this plan. An active, robust relationship between law enforcement, tribal leadership and tribal transportation is essential to a comprehensive safety program. Without enforcement action, transportation education activities have a much lower impact on driver behavior. During the planning meeting there was considerable discussion regarding the need for increased enforcement presence. Issues such as passing school buses, lack of car seat and seat belt use, speeding and impaired driving exist in the community, and a strong traffic enforcement presence could reduce crashes, injuries and fatalities.

Figure 10: Rosebud Tribal Law Enforcement Vehicle



Strategy Champion: Rosebud Tribal Council and Rosebud Sioux Tribe Law Enforcement Services.

Funding Opportunity: None needed.

Initiate Discussions on Possible use of Cross Jurisdictional Agreements for Law Enforcement

With over 4,000 miles of road in the four-county area, adequate staffing to provide traffic enforcement is a challenge on the reservation. Other Tribes, such as Crow Creek in South Dakota have entered into cross jurisdictional agreements with the SDDPS to expand their enforcement abilities. This has allowed for increased traffic enforcement during key times such as pow wow events. Currently there is no such agreement in place on the Rosebud Indian Reservation. The increased traffic enforcement benefits and effects on Tribal Sovereignty of such an agreement should be presented to the Tribal Council. This may be best done by Tribal Council and/or tribal law enforcement from other reservations such as Crow Creek, where cross jurisdictional agreements are in place.

Strategy Champion: Rosebud Sioux Tribe Law Enforcement, SDDPS, and Rosebud Sioux Tribal Council.

Funding Opportunity: None Required.

Develop a Comprehensive Tribal Traffic Code

Title 6 of the Rosebud Sioux Tribe's Law and Order Code outlines a Traffic Code for enforcement on the Reservation. While it includes five chapters: driving under the influence, reckless driving, exhibition driving, driving while suspended and portions of the South Dakota motor vehicle and traffic law. To ensure that the code covers all areas that could improve transportation safety and has an adequate fine structure, the Traffic Code should be reviewed and revised accordingly. Title 32 of the South Dakota Codified Laws includes a comprehensive section on motor vehicles that could be used for reference to determine what changes and updates would be beneficial and proposed to the Rosebud Sioux Tribal Council.

Strategy Champion: Rosebud Sioux Tribal Transportation Program, Rosebud Sioux Tribe Attorney General, Rosebud Sioux Tribe Judiciary Committee and Rosebud Sioux Tribal Council.

Funding Opportunity: None Required.

Establish a Motor Carrier Safety (MCS) Program

With the presence of US 83 and US 18 both bisecting the Rosebud Reservation and the agricultural activity in the area, there is a substantial presence of large trucks. According to SDDOT data, there were over 32 million vehicle

miles travelled by heavy trucks in the four-county area in 2020[4]. Currently there are no weigh stations within the reservation and the Tribe is concerned with overweight and/or unsafe trucks operating on the roadways. Other tribes, such as Fort Berthold and Blackfeet have established motor carrier enforcement programs that have the ability to regulate trucking activities and use portable scales to check vehicle weights. With this presence of heavy trucks, the Rosebud Sioux Tribe should implement ordinances that could be used to regulate trucks, obtain funding for MCS Officer(s), and acquire portable scales that could be used on the reservation. To assist with training and calibration, when portable scales are purchased, consideration should be given to obtaining similar equipment to what the State of South Dakota uses.

Strategy Champion: Rosebud Sioux Tribal Transportation Program, Rosebud Sioux Tribe Law Enforcement Services, Rosebud Sioux Tribe Road Department and SDDOT.

Funding Opportunity: TTPSF, BIA IHSP.

Develop a Livestock Ordinance

With the rural nature of much of the land on the Rosebud Indian Reservation and the large amount of open range, crashes with domestic livestock are in the top five leading causes of crashes. Many of the animals, including horses that get loose, wander along the roadway corridors grazing or moving from field to field. Other tribes have had similar issues and have implemented tribal ordinances that allow the tribal government to remove the animals and hold them until the proper owner comes to retrieve them. Animals not claimed are then auctioned off by the tribe. It is recommended that the Tribe develop a comprehensive approach including such an ordinance, an aggressive removal program and a roadway fencing program that collectively could be utilized to address the issue.

Strategy Champion: Rosebud Sioux Tribal Transportation Program, Rosebud Sioux Tribe Law Enforcement and Rosebud Sioux Tribal Council.

Funding Opportunity: TTP or TTPSF for fencing

Incorporate the use of Speed Radar Trailers as a Deterrent

Other Tribal Law Enforcement agencies have been using Speed Trailers that use radar to provide feedback on vehicle speeds to help reduce speeds in tribal communities and around schools. These trailers can also collect and store the speed data for use in determining areas for targeted enforcement due to high speeds. With speeding being a major cause of crashes on the Rosebud Indian Reservation and the concerns that have been expressed about speeds and safety around schools, the Tribe should purchase several sets of speed trailers. These could be used by law enforcement in the various tribal communities as part of a targeted education and enforcement campaign to help reduce speeds.

[4] https://dot.sd.gov/media/documents/traffic/VMTTrucks.pdf

Figure 11: Example of a Speed Radar Trailer[5]



Strategy Champion: Rosebud Sioux Tribal Transportation Program and Rosebud Sioux Tribe Law Enforcement

Funding Opportunity: TTP, TTPSF or BIA IHSP

Engineering Strategies

Designate School Crosswalks and School Bus Stop Locations

One area where there was an identified need was establishing designated school crosswalks and school bus stop locations. Designated school crosswalks will allow school age children to cross the street at safer locations that are visibly marked. This can be accomplished by adding flashing beacons, crosswalks, and other traffic control.

Designated school bus stop locations will allow for a safer place for children to wait for the school bus by properly signing these locations along the road. In addition, shelters could be provided in these areas to provide protection from adverse weather while waiting for the school bus. Communities that were identified in the greatest need for both school crosswalks and bus stop locations were the following:

- Rosebud
- Saint Francis
- Spring Creek
- Parmelee
- Mission
- White River

An engineering study should be completed to identify areas for potential school crossing within the communities along with potential bus stop locations.

Strategy Champion: Rosebud Sioux Tribal Transportation Program.

Funding Opportunity: TTP Safety Funding, TTP Funding.

Mileage Reference Markers and Delineation Along Routes

Currently within the reservation all the routes that are paved, no mileage reference markers (MRM) and delineators are present. MRM's assist motorist in letting them know how far they have traveled on a particular route, let them know the distance to their destination and most importantly in the event of an accident or roadside emergency it will allow them to give a more precise location to first responders.

[5] https://www.fdlsheriff.com/patrol/radar-trailer

Delineators along the roadway are used for motorist guidance at night and during adverse weather. Delineators are also beneficial at locations where roadway alignment changes and are considered as guidance devices rather than warning devices. They come in various sizes and designs to address varying applications. Delineators are typically used on rural roadways with no street lighting and marking approaches.

It is recommended that MRM's and delineators installed on paved BIA routes within the reservation.

Strategy Champion: Rosebud Sioux Tribal Transportation Program.

Funding Opportunity: TTP Safety Funding, TTP Funding.

High-Performance Pavement Marking Tape on BIA 1 within the Community of Rosebud

Rosebud is one of the larger populated communities within the reservation and BIA 1 serves as the main road. Pavement markings throughout this area are heavily worn and have low visibility. It is recommended that the pavement markings be replaced with high-performance pavement marking tape. A high-performance pavement marking tape can be used as a replacement to either waterborne or epoxy pavement markings. This option provides a more durable pavement marking and can be beneficial in areas with higher traffic volumes and high pedestrian traffic. An engineering study and design should be completed prior to applying the new high-performance pavement marking tape. This will allow to identify all pedestrian crossings and final lane configurations throughout the corridor.

Strategy Champion: Rosebud Sioux Tribal Transportation Program.

Funding Opportunity: TTP Safety Funding, TTP Funding.

Roadway Intersection Improvements

Many intersections throughout the reservation were identified of having safety concerns. The safety concerns identified were lack of proper intersection sight distance, intersection skew, no advance warning for stop ahead, lack of proper roadway signage, traffic control and low visibility during adverse weather. The following are the intersection that were identified:

- BIA 1 and BIA 9
- BIA1 and BIA 7
- BIA 5 and BIA 501
- BIA 5 and Tutle Road
- South Dakota State Highway 83 and US Highway 18
- South Dakota State Highway 44 and South Dakota State Highway 63

It is recommended that an engineering study be completed for each of these intersections to identify any safety deficiencies and recommended improvements. Coordination will need to be done with SDDOT for the intersections located on the state highway system.

Strategy Champion: Rosebud Sioux Tribal Transportation Program.

Funding Opportunity: TTP Safety Funding, TTP Funding, SDDOT.

Develop Multi-Use Pathways and Pathway Lighting Projects

There are locations within the Rosebud Indian Reservation where there is pedestrian/bike traffic, and the Tribe has identified specific need for pathways. The locations included Antelope, Corn Creek, Mission, Saint Francis, Two Strike and Winner. SDDPS crash data identifies pedestrian a major crash cause, being in the top 10 of crash types occurring and accounting for approximately 6% of all serious and fatal injuries between 2013-2020. Pathways should be considered to separate pedestrians from vehicle traffic. The need for these pathways has been present for some time and has increased as there is a need for access to Tribal communities and schools.

Figure 12: Separated Pathway with Pedestrian Lighting



Lighting should be considered along urban or other pathways as appropriate to increase pedestrian visibility, provide for traffic calming and potentially increase security. Solar powered and/or LED lighting could be used to reduce the cost for providing power and the need for continual power usage. An example of a solar powered lighting system is shown, and several companies produce such systems.

Figure 13: Solar Pedestrian Lighting Example[6]



Corn Creek Community Pathway

Corn Creek is located approximately 0.2-miles north of the intersection of South Dakota State Highway 63 and South Dakota State Highway 44 in Mellette County. The community utilizes two main approaches along South Dakota State Highway 63. Pedestrians and bicycles use the roadway between the two approach roads rather than the longer route around on the residential street, demonstrating a need to connect them. The pathway would total approximately 0.3-miles in length and cost an estimated $388,000.00 for construction.

[6] https://www.sepco-solarlighting.com/solar-pathway-landscape-lighting

Figure 14: Corn Creek Community Pathway



Strategy Champion: Rosebud Sioux Tribal Transportation Program

Funding Opportunity: TTP Safety Funding, TTP Funding or SDDOT Transportation Alternatives Funding

Kilgore Road South to Saint Francis Pathway

Kilgore Road, also known as BIA 1, is the main road that connects into Saint Francis from the south near Saint Francis School. Many community members, primarily school age children utilize this route and walk along the road to get to and from the school. A need has been identified to provide for a safe and efficient alternative to remove pedestrians walking along the road. A pathway is needed to connect from 295th Street to Warrior Drive.

The pathway would be approximately 0.6-miles and could include pedestrian lighting depending on the available funding or broken into two different phases to accommodate both the pathway and pedestrian lighting. The approximate project construction cost for the pathway and lighting are shown below:

- Separated Pathway: $763,000.00
- Pedestrian Lighting: $180,000.00
- Construction Total: $943,000.00

Figure 15: Kilgore Road South to Saint Francis Pathway



Strategy Champion: Rosebud Sioux Tribal Transportation Program

Funding Opportunity: TTP Safety Funding, TTP Funding or SDDOT Transportation Alternatives Funding

Turtle Creek Pathway

The construction of the new grocery store west of Mission has increased pedestrian traffic along US 18 and created a need for a separated multi-use pathway. This pathway would connect existing pedestrian facilities and users from

the town of Mission and the high-density tribal housing north of the highway with the new grocery store west of town.

Figure 16: Turtle Creek Pathway



The pathway could be constructed in multiple phases depending on the available funding and could include pedestrian lighting. Phase I would connect pedestrians along US Highway 18 between the supermarket and the town of Mission. Phase II would connect pedestrians along 273rd Ave from the apartment buildings with predominant tribal members to US Highway 18. The approximate length of Phase I is 0.9-miles and Phase II is 0.3-miles. The approximate project construction cost for the pathway and lighting are shown below:

Phase I

- Separated Pathway: $1,163,000.00
- Pedestrian Lighting: $274,000.00
- Total Construction Cost: $1,437,000.00

Phase II

- Separated Pathway: $388,000.00
- Pedestrian Lighting: $91,000.00
- Total Construction Cost: $479,000.00

Strategy Champion: Rosebud Sioux Tribal Transportation Program

Funding Opportunity: TTP Safety Funding, TTP Funding or SDDOT Transportation Alternatives Funding

Two Strike Community Pathway

Five miles south of Rosebud on BIA Route 1 is the tribal housing community of Two Strike. The housing complex is U-shaped with two approaches off the highway. Pedestrians and bicycles use the roadway between the two approach roads rather than the longer route around on the residential street, demonstrating a need to connect

them. St. Francis is located approximately 3.5-miles south of the Two Strike Community. Additional needs have been identified to provide for a safe and efficient alternative to remove pedestrians walking along the BIA 1 as many pedestrians commute back and forth between Two Strike and St. Francis for goods and services. The pathway would 10-feet wide and begin in St. Francis at the intersection of Cherry Road and BIA 1. It would the follow BIA 1 north, parallel to the roadway terminating at the furthers north approach of the Two Strike Community. The pathway would be approximately 3.4-miles in length and the cost is broken down below:

- Construction Total: $4,637,920.00
- Construction Engineering: $461,715.00
- Design Engineering: $570,000.00
- Project Total: $5,669,635.00

Figure 17: Two Strike Community Pathway



Strategy Champion: Rosebud Sioux Tribal Transportation Program

Funding Opportunity: TTP Safety Funding, TTP Funding or SDDOT Transportation Alternatives Funding

Winner Community Tribal Housing Pathway

Southeast of Winner, South Dakota on east 279th Street is a tribal housing complex. This complex includes a community building west of the houses on 279th Street and a Head Start Program. Currently there are no existing bike or pedestrian facilities in the area, residents, including children having to walk on the roadway or in the adjacent ditches to travel to the community center or Head Start Program. A pathway is needed to connect the housing development to both the community center and the head start program. Different options have been discussed with the community and it is recommended that community input for the proposed location for a pathway be considered. These three different options are shown in the **Figure 18**.

Figure 18: Winner Community Tribal Housing Pathway



Pedestrian lighting could be included in each option depending on the available funding and/or if desired all three options could be constructed in different phases. The approximate project construction cost for each pathway option and lighting are shown below:

Option 1 (0.62-miles)
- Separated Pathway: $801,000.00
- Pedestrian Lighting: $189,000.00
- Total Construction Cost: $990,000.00

Option 2 (0.69-miles)
- Separated Pathway: $892,000.00
- Pedestrian Lighting: $210,000.00
- Total Construction Cost: $1,102,000.00

Option 3 (0.81-miles)
- Separated Pathway: $1,100,000.00
- Pedestrian Lighting: $246,000.00
- Total Construction Cost: $1,346,000.00

All Combined Options (0.98-miles)
- Separated Pathway: $1,267,000.00
- Pedestrian Lighting: $298,000.00
- Total Construction Cost: $1,565,000.00

Strategy Champion: Rosebud Sioux Tribal Transportation Program

Funding Opportunity: TTP Safety Funding, TTP Funding or SDDOT Transportation Alternatives Funding

Antelope and White Horse Communities Pedestrian Connectivity

One area for consideration for pathways and additional sidewalk was between the South Antelope Community and White Horse Community. This area has high pedestrian traffic and is in close proximity of the Sinte Gleska University. A pathway is needed along US Highway 18, connecting from Antelope going east towards White Horse, as well as a pathway connecting from the highway going south towards the university to connect into the community.

Figure 19 shows the proposed recommended improvements for pedestrian connectivity. It is anticipated this project will need to be completed in multiple phases. Pedestrian lighting could be included in each phase for the proposed pathways depending on the available funding. Coordination with SDDOT will be needed if a project were to come fruition for the Pathway along US Highway 18. The approximate project construction cost for each phase and lighting are shown below:

Phase I (0.82-miles)

- Separated Pathway: $1,060,000.00
- Pedestrian Lighting: $248,000.00
- Total Construction Cost: $1,308,000.00

Phase II (1.08-miles)

- Separated Pathway: $1,400,000.00
- Pedestrian Lighting: $329,000.00
- Total Construction Cost: $1,729,000.00

Phase III (5,370 linear feet)

- Proposed Sidewalks: $550,000.00
- Total Construction Cost: $550,000.00

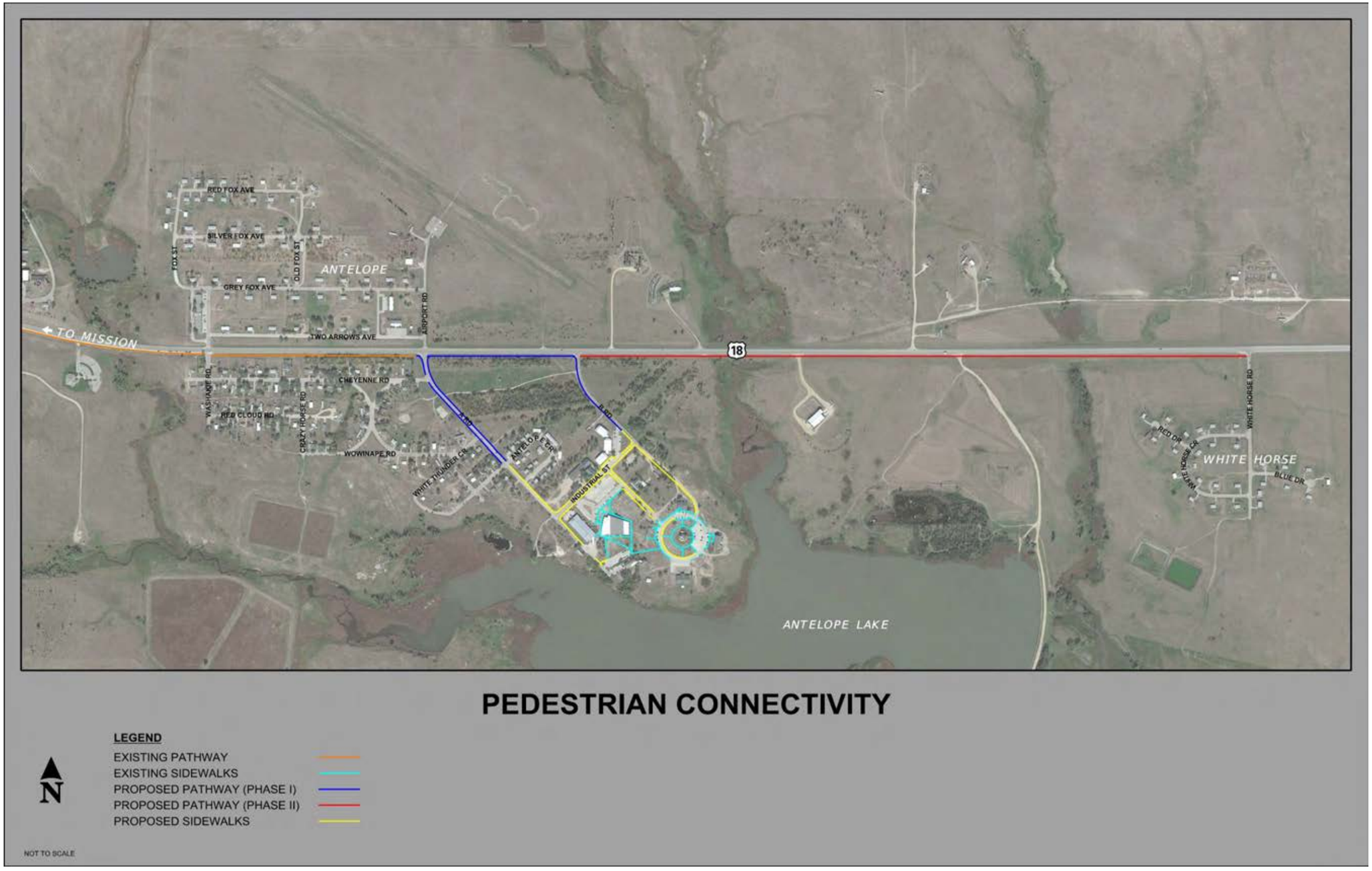
Strategy Champion: Rosebud Sioux Tribal Transportation Program

Funding Opportunity: TTP Safety Funding, TTP Funding or SDDOT Transportation Alternatives Funding

Safety Planning and Other Strategies

No other strategies were prioritized for implementation.

Figure 19: Antelope and White Horse Communities Pedestrian Connectivity



APPENDIX A: MEETING AGENDA

Rosebud Sioux Tribal Safety Plan 2021 Update

Agenda

September 15, 2021

VIA WebEx Video Call

10:00 a.m.	Welcome and Introductions
10:15 a.m.	Background and Overview
	Review of Previous Safety Plan
	Crash and Safety Data Update
	Review Road Safety Audits Completed
	Questions and Discussion of Data
11:00 a.m.	Development of Activities for updated Oglala Tribal Transportation Safety Plan:
	Identification/Discussion of new safety issues and concerns
	Identify Safety Strategies completed
	Identify New Strategies to Include.
12:00	Break for Lunch
1:00 p.m.	Finalize Development of Safety Activities to include in Plan
	Sort by 4E's
	Identification of Implementation Steps
	Identification of Champions for Specific Elements
	Identification of Potential Funding Sources
	Identify Grant Opportunities
2:15 p.m.	Questions/Discussion of Process or other Items

APPENDIX B: MEETING PARTICIPANTS

Rosebud Sioux Tribal Transportation Safety Plan		
Attendance List		
Name:	Organization:	Email:
LaJuanda Stands And Looks Back	MAP-21	lajuanda.salb@rst-nsn.gov
Lynda Douville	MAP-21	lynda.douville@rst-nsn.gov
Todd Brockmann	Federal Highway Tribal Liaison	todd.brockmann@dot.gov
George Guerue Sr.	RST Roads	rstroads@hotmail.com
Craig Genzlinger	KLJ	craig.genzlinger@kljeng.com
Tonya Huber	KLJ	tonya.huber@kljeng.com
Chad Fischer	KLJ	chad.fischer@kljeng.com

APPENDIX C: 2021 TRIBAL TRANSPORTATION SAFETY PLAN PRESENTATION

TRIBAL TRANSPORTATION SAFETY PLAN
September 2021

Rosebud Sioux Tribe



KLJ
ENGINEERING, REIMAGINED

1

Goals of Safety Planning

- Reduce the frequency of fatal and serious injury transportation incidents through coordination of efforts by:
  - Elected officials / Council
  - Public
  - Administrators
  - Educators
  - Enforcement
  - Engineers
  - Emergency Medical Responders
  - And others…

2

Safety Plan Focus

- Not focused on any one funding source or program
- Focused on the modes that are most significant to the Community

Its your plan!

  - Roads
  - Trails
  - Winter Trails
  - Air
  - ATV

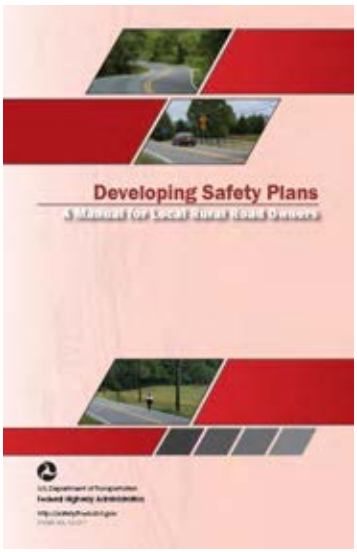
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Benefits of Safety Planning

- Opportunity for coordinated efforts & shared resources within a community toward common goal
- Establish communication & form partnerships with local, State, and Federal
- Tool to leverage funding and resources
- Action Plan

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Safety Planning Process





5

Previous Crash Data (2005 – 2012)

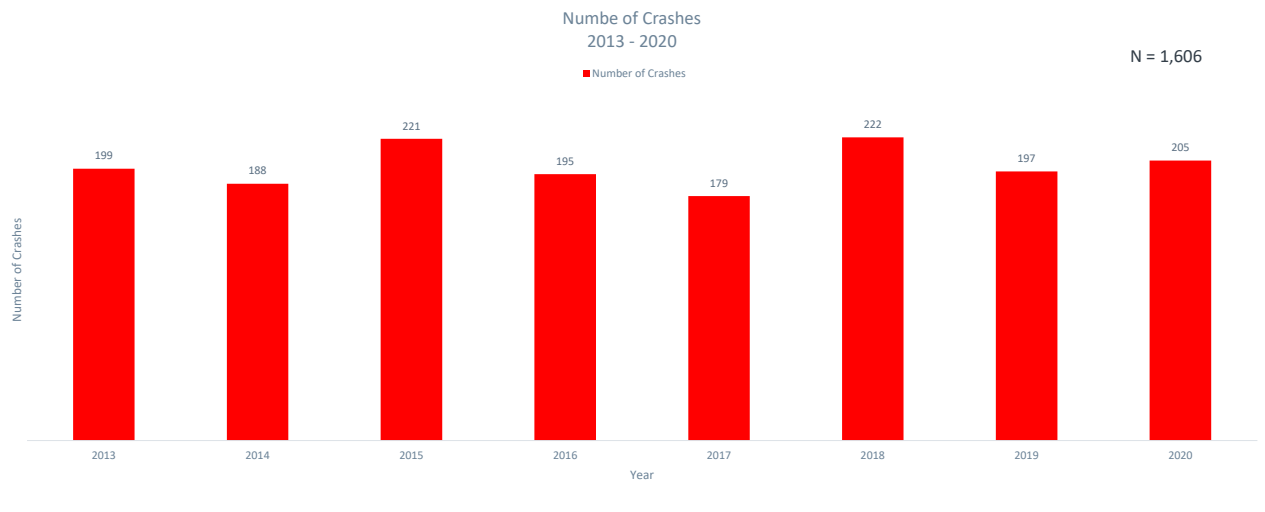
- 2014 Tribal Transportation Safety Plan
  - 1,537 Reported Crashes (2005 – 2012)
  - Top Three Crash Types
    - Wild Animal (Approximately 58%)
    - Overturn Rollover (Approximately 11%)
    - Fixed Object (Approximately 8%)
  - Fatal Crashes (63 crashes)
    - Gregory County (8 crashes or 12.7%)
    - Mellette County (16 crashes or 25.4%)
    - Todd County (31 crashes or 49.2%)
    - Tripp County (8 crashes or 12.7%)

6

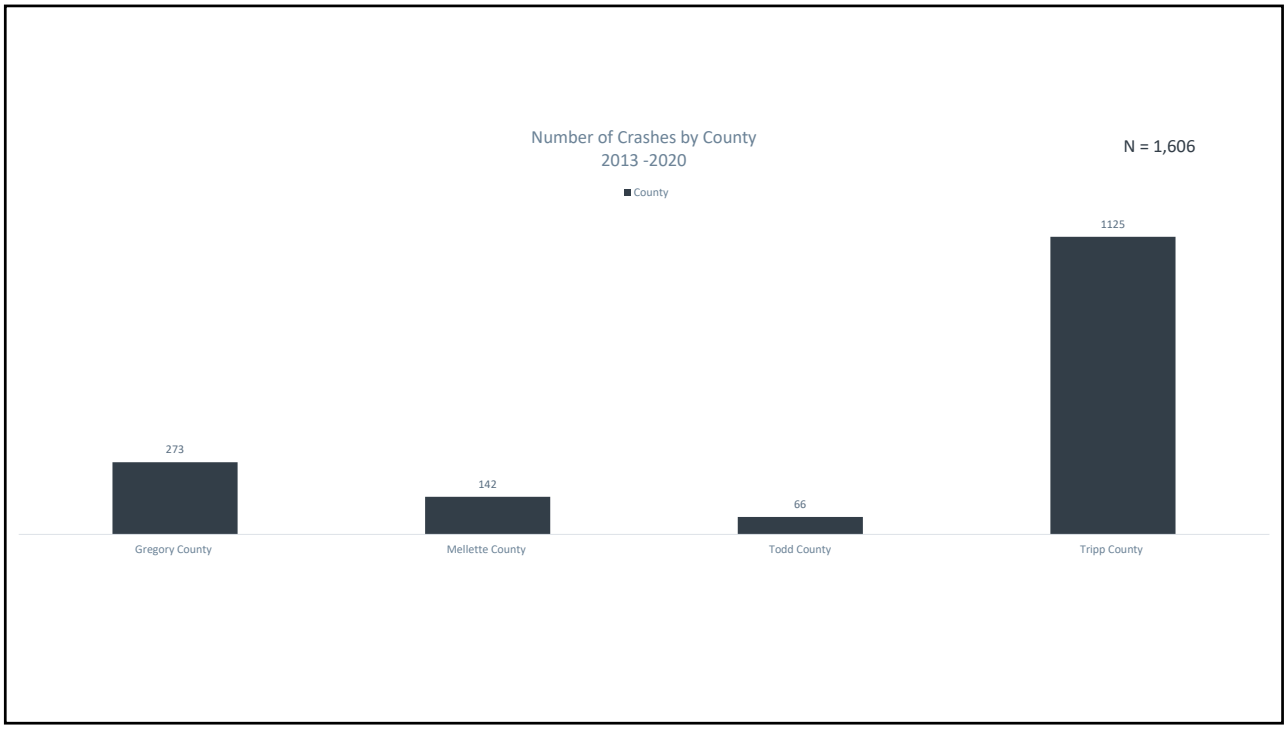
Crash Data (2013 – 2020)

- Data Based Plan
  - SD DPS Data (2013 – 2020)
    - Gregory County
    - Mellette County
    - Todd County
    - Tripp County
  - Tribal Enforcement
  - Personal Knowledge

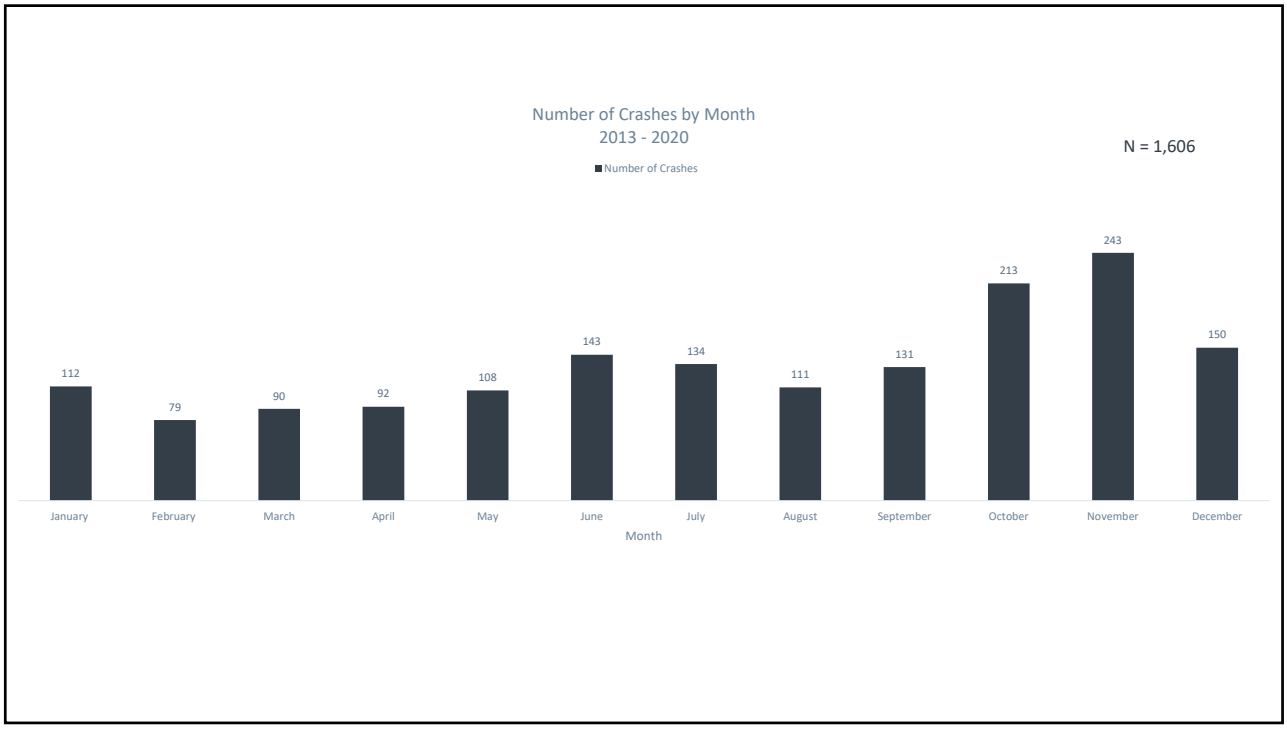
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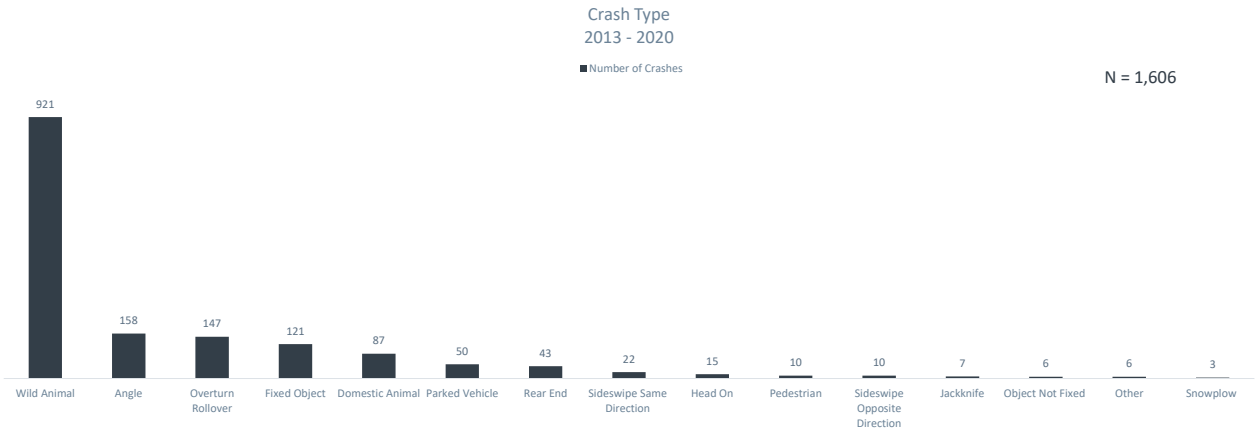
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Number of Crashes by County
2013 -2020
N = 1,606
County
1125
273
142
66
Gregory County
Mellette County
Todd County
Tripp County

9


Number of Crashes by Month
2013 - 2020
N = 1,606
Number of Crashes
243
213
150
143
134
131
112
111
108
92
90
79
January
February
March
April
May
June
July
August
September
October
November
December
Month

10



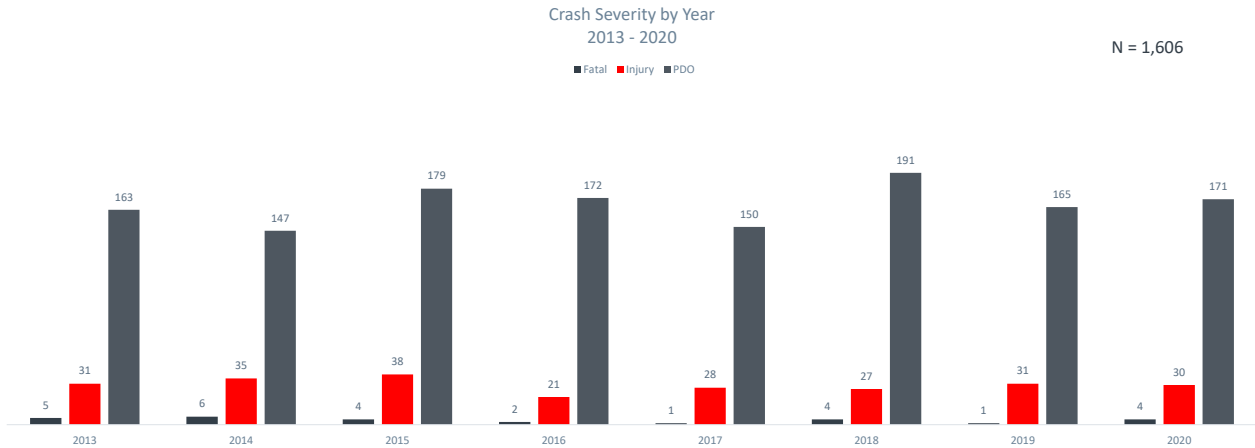
- Gregory and Winner, SD account for approximate 49% of angle crashes or 78 crashes
- Populations are greater then 1,000

11



PDO = Property Damage Only

12



PDO = Property Damage Only

13

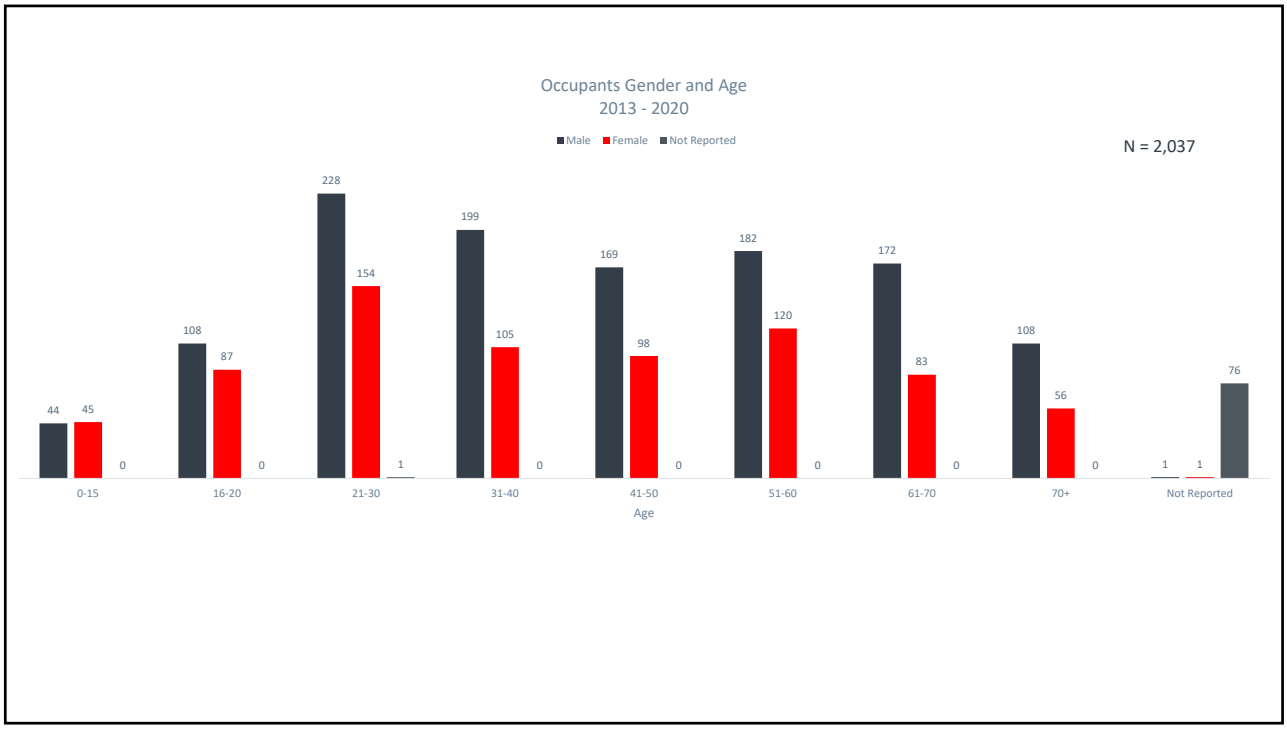
Crash Injury Severity	Number of Injuries	Percentage
Fatal injury	28	1.4%
Incapacitating	81	4.0%
No injury	852	41.8%
Non-incapacitating	117	5.7%
Not applicable	3	0.1%
Possible	168	8.2%
*Not Reported	788	38.7%
Total	**2037**	**100.0%**

* - Not Reported, Injuries Listed as Wild Animal Crashes

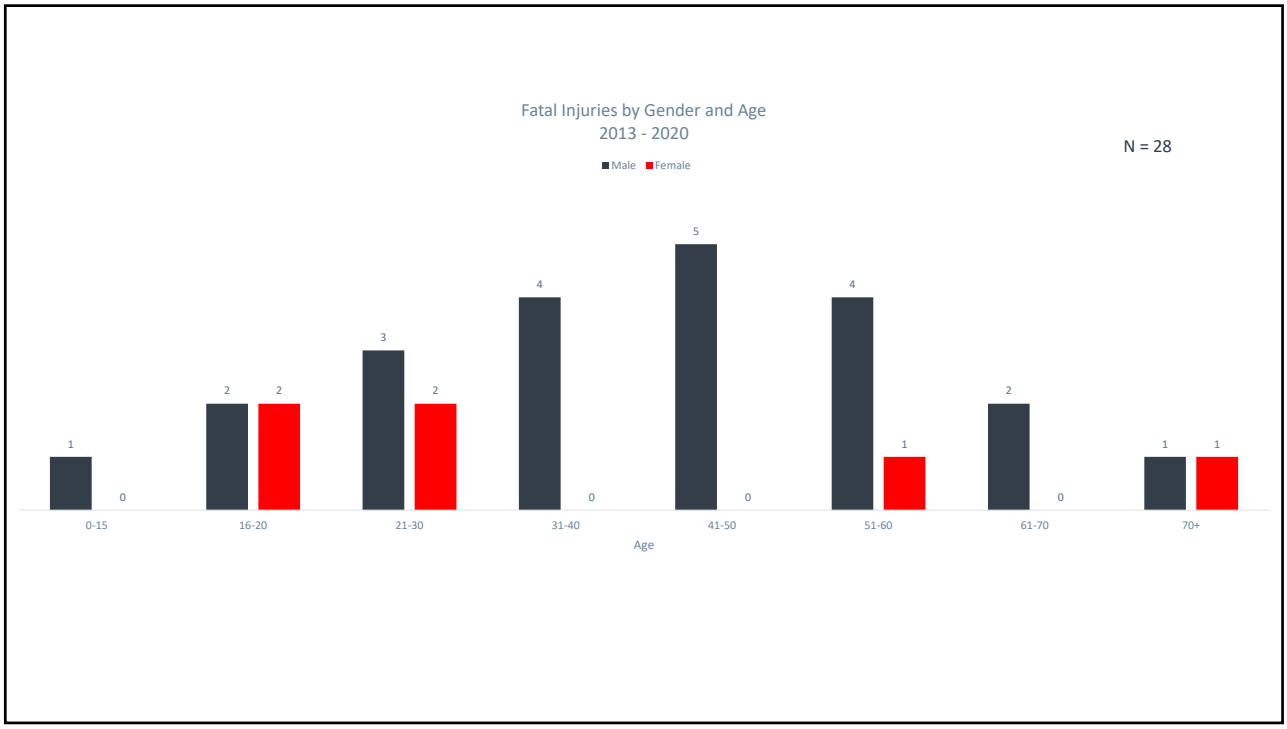
Type of Safety Equipment Used	Number of Occupants	Percentage
Child/Youth restraint system used properly	2	0.1%
Helmet and eye protection	7	0.3%
Helmet only	2	0.1%
Lap belt and shoulder harness used	544	26.7%
Lap belt only used	21	1.0%
None used	198	9.7%
Not applicable	69	3.4%
Shoulder harness only used	12	0.6%
Unknown	273	13.4%
*Not Reported	909	44.6%
Total	**2037**	**100.0%**

* - Not Reported, Injuries Listed as Wild Animal Crashes

14


Occupants Gender and Age
2013 - 2020
Male
Female
Not Reported
N = 2,037
44
45
0
108
87
0
228
154
1
199
105
0
169
98
0
182
120
0
172
83
0
108
56
0
1
1
76
0-15
16-20
21-30
31-40
41-50
51-60
61-70
70+
Not Reported
Age

15


Fatal Injuries by Gender and Age
2013 - 2020
Male
Female
N = 28
1
0
2
2
3
2
4
0
5
0
4
1
2
0
1
1
0-15
16-20
21-30
31-40
41-50
51-60
61-70
70+
Age

16

Pedestrian Crash Locations

Route	Severity Type	Approximate Location
BIA 1	Fatal	1.4-miles South of BIA 1 & BIA 5
BIA 1	Fatal	0.5-miles North of BIA 1 & BIA 9
US Highway 18	Fatal	5.5-miles West SD State Highway 53 & US Highway 18
US Highway 83	Fatal	0.6-miles North of White River
US Highway 18	Injury	2.6-miles West of Bonesteel
US Highway 18	Injury	Within Winner
US Highway 18	Injury	Within Winner
US Highway 18	Injury	Within Winner
US Highway 83	Injury	Within White River
US Highway 18	Injury	1.5-miles West of Winner

17

Existing Safety Programs

- Existing Safety Programs from 2014 Safety Plan
  - Rosebud Sioux Tribe Law Enforcement Services uses CISCO electronic crash record system and continues to enter data from crashes that they investigate
  - School District has installed strobe lights on school buses to increase visibility
  - Advance Warning Signs have been installed at school bus stop locations
  - The Map-21 Program conducts Road Safety Audits (RSA's) to identify safety deficiencies on BIA roadways within the reservation
  - Tribe has received a Center for Disease Control grant to establish a Tribal Motor Vehicle Injury Prevention Program
  - Tribe has an Injury Prevention Coalition that is tasked with identifying the causes of severe injuries and deaths on the reservation and reducing them

18

Existing Safety Programs Continued

- Indian Health Service has completed a Severe Injury Surveillance Profile
- Implemented a Primary Seat Belt Law on the reservation
- Rosebud Sioux Tribe Law Enforcement Services and IHS make community presentations on transportation safety
- 2014 the Tribe was awarded funding for Traffic Safety Officers to exclusively provide traffic law enforcement
- Tribal Motor Vehicle Injury Prevention Program provides car seat inspection stations

19

2014 Implementation Strategies

- Education Strategies
  - Continue the Tribal Motor Vehicle Injury Prevention Program (TMVIPP)
- Enforcement/EMS Strategies
  - Develop Stronger Partnership between Rosebud Tribal Law Enforcement, Tribal Council and Tribal Transportation Safety Programs
  - Share Electronic Crash Records Data among Agencies
  - Initiate Discussions on Possible use of Cross Jurisdictional Agreements for Law Enforcements
  - Incorporate Indian Law Training at the South Dakota Law Enforcement Academy
  - Develop a Comprehensive Tribal Traffic Code
  - Establish a Motor Carrier Safety (MCS) Program

20

2014 Implementation Strategies Continued

- Engineering Strategies
  - Continue Utilizing Road Safety Audits on BIA and Other Routes
  - Develop Multi-Use Separated Paths
    - Sicangu Village Pathway
    - Turtle Creek Pathway
    - Winner Community Tribal Housing Pathway
    - White Horse to Antelope Pathway
    - Horse Creek Pathway
    - Two Strike Community Pathway
  - Complete a Comprehensive Engineering Study for Access to the New School
  - BIA Route 7 and Todd County's Lakeview Road and 293rd Street Rosebud to US 83 Roadway Improvements (16 miles)

21

2020 Road Safety Audit

- Field inventory was completed in September 2019 with the report finalized in May 2020
  - Routes Inventoried Included:
    - BIA 1
    - BIA 4
    - BIA 5
    - BIA 7
    - BIA 9
    - BIA 12
    - BIA 30
    - BIA 37
    - BIA 501
- Enforcement/EMS Strategies

22

Safety Issues

- Problem Locations?
- Problem Driver Behavior?
- Resource Issues?

23

Safety Countermeasures

- Strategies to Improve Safety

24

2019 Road Safety Audit

Questions?

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25

APPENDIX E: ROAD SAFETY AUDIT (2020)

Rosebud Sioux Tribe
Road Safety Audit

MAY 2020



Prepared by:

KLJ

ENGINEERING, REIMAGINED

Table of Contents

1.0 Executive Summary 1
2.0 Introduction 4
Plan Purpose 5
Study Area 5
3.0 Existing Conditions 8
Sign and Roadside Elements Field Inventory 8
BIA 1 8
BIA 4 12
BIA 5 13
BIA 7 14
BIA 9 16
BIA 12 17
BIA 30 17
BIA 37 18
BIA 501 19
Tribal Communities 20
4.0 Historical Crash Data 21
Location of Crash 21
Crash Type 23
Crash Injury Severity 25
Road Surface Conditions 29
Road Grade and Horizontal Alignment 29
Light Conditions 30
Safety Restraint Use 30
Tribal Law Enforcement Reported Crashes 31
5.0 Countermeasures 32
Add Shoulders and Flatten Side Slopes 33
Improve Shoulder Surface 33
Guardrail 34
Vegetation Control Along the Roadside 34

Centerline and Shoulder Rumble Strips 35
Delineators 35
Transverse Rumble Strips 36
Flatten Inslopes 36
Pavement Markings 36
Retroreflective Signs 37
Horizontal Alignment Signs 38
Chevrons 38
Roadway Drainage, Ditch Drainage and Culverts 40
Roadway Surface 40
Intersection Sight Distance 42
Remove Fixed Objects from the Clear Zone 43
Separated Shared Use Pathway 43
Attached Sidewalks 44
Marked Crosswalks 44
Pedestrian Rapid Flashing Beacon 45
Pedestrian Refuge Island 45
6.0 Recommend Improvements 46
Reservation Wide Improvements 46
Delineators 46
Vegetation Control Along the Roadside 46
Roadway Drainage, Ditch Drainage and Culverts 47
Guardrail 47
Flatten Inslopes 47
Bridge End Treatments 48
Improve Roadway Surface 49
Route Specific Improvements 49
BIA 1 49
BIA 4 53
BIA 5 54
BIA 7 56

BIA 7 Realignment 57
BIA 9 59
BIA 12 60
BIA 30 60
BIA 37 61
BIA 501 62
Tribal Communities 62
Saint Francis Community 63
Parmelee Community 64
Antelope and White Horse Communities 64

List of Figures and Tables

Figure 1.1: BIA 1 and BIA 9 Recommended Safety Improvements 3
Figure 2.1: Rosebud Indian Reservation Location 4
Figure 2.2: Road Safety Audit Study Area and Inventoried Routes 6
Figure 2.3 Average Daily Traffic Volumes on Inventoried BIA Routes 7
Figure 3.1: Northern Section of BIA 1 Looking North 8
Figure 3.2: Intersection of BIA 1 and BIA 9 Looking North 9
Figure 3.3: Intersection of BIA 1 and Circle Drive 10
Figure 3.4: Intersection of BIA 1 and BIA 7 10
Figure 3.5: Intersection of BIA 1 and BIA 7 Looking North 11
Figure 3.6: Southern Section of BIA 1 Looking South 12
Figure 3.7: Existing Bridge on BIA 4 13
Figure 3.8: Intersection of BIA 5 and Tutle Road 14
Figure 3.9: Cable Guardrail on BIA 7 15
Figure 3.10: Eastern Section of BIA 7 Looking West 15
Figure 3.11: Gravel Section of BIA 9 Looking West 16
Figure 3.12: BIA 12 Looking Southwest 17
Figure 3.13: Overgrown Trees on BIA 30 18
Figure 3.14: Heavy Rutting on BIA 37 19
Figure 3.15: BIA 501 Looking South 19
Table 4.1: Roadway Functional Classification (2014-2018) 22
Table 4.2: Roadway Junction Relation Crashes (2014-2018) 22
Figure 4.1 Crash Totals (2014-2018) 23
Figure 4.2 Crash Types All Counties (2014-2018) 24
Table 4.3 Crash Injury Severity (2014-2018) 25
Table 4.4: South Dakota Crash Injury Severity (2014-2018) 25

Figure 4.3 Fatal and Incapacitating Injuries (2014-2018) 26
Figure 4.4 Crash Type Locations (2014-2018) 27
Figure 4.5 Crash Severity Injury Location (2014-2018) 28
Table 4.5: Road Surface Condition (2014-2018) 29
Table 4.6: Road Alignment Description (2014-2018) 29
Table 4.7: Safety Restraint Used for Crashes (2014-2018) 30
Figure 4.6: Reported Crashes in Todd County by Tribal Law Enforcement 31
Table 5.1: Crash Reduction Factors for Recommended Countermeasures 33
Figure 5.1: Grade Separation Between Roadway Travel Way and Gravel Shoulder 34
Figure 5.2: Guardrail Installed for Steep Side Slopes 34
Figure 5.3: Overgrown Vegetation Along the Roadside on BIA 5 35
Figure 5.4: Shoulder Rumble Strips 35
Figure 5.5: Roadside Delineators Example 36
Figure 5.6: High-Performance Pavement Marking Tape 37
Figure 5.7: Different Types of Reflective Sheeting for Roadway signs 37
Figure 5.8: Horizontal Alignment Sign with Supplemental Advisory Speed Plaque 38
Figure 5.9: Curve Warning Signs Example 39
Figure 5.10: Water Pooling on Roadway 40
Figure 5.12: Washboarding on Gravel Surface 41
Figure 5.13: Poor Asphalt Pavement Conditions 42
Figure 5.14: Intersection with Limited Intersection Sight Distance 42
Figure 5.15: Example Fixed Objects within the Clear Zone 43
Figure 5.16: Separated Pathway 44
Figure 5.17: Marked Crosswalk 44
Figure 5.18: Pedestrian Rapid Flashing Beacon 45
Figure 5.19: Pedestrian Refuge Island 45
Figure 6.1: Maintained Vegetation Along the Roadside on BIA 9 46
Figure 6.2: Culvert with Flared End Section Example 47
Figure 6.4: Existing Conditions and Safety Improvements 48
Figure 6.5: BIA 1 and BIA 9 Recommended Safety Improvements 51
Figure 6.6: BIA 1 and BIA 7 Recommended Safety Improvements 52
Figure 6.7: BIA 5 and BIA 501 Recommended Improvements 55
Figure 6.8: BIA 5 and Tutle Road Recommended Improvements 56
Figure 6.9: BIA 7 Realignment 58
Figure 6.10: Proposed Typical Section Through Saint Francis on BIA 1 63
Figure 6.11: Proposed Typical Section Through Parmelee 64
Figure 6.12: Proposed Pedestrian Connectivity 65

1.0 EXECUTIVE SUMMARY

During the studied five-year time interval (2014-2018), there were 1,005 crashes reported or approximately 201 crashes per year in Gregory, Mellette, Todd and Tripp Counties for the Rosebud Sioux Tribe Study Area. Wild Animal Crashes were the most common reoccurring event throughout the four-county area, accounting for 603 of the 1,005 crashes or 60.0% of all reported crashes. The second leading crash type is Angle Crashes, accounting for 96 of the 1,005 crashes or 9.6% of all reported crashes. Approximately 60.4% of the reported Angle crashes occurred in Tripp county and are heavily concentrated with in the urban limits of Winner, SD. The two other top leading crash types included Overturn Rollover Crashes accounting for 93 of the 1,005 crash or 9.3% of all reported crashes and Fixed Object Crashes accounting for 93 of the 1,005 crashes or 7.4% of all reported crashes. There were 17 fatal accidents, 149 injury accidents and 839 property damage only accidents for a total of 1,005 accidents reported, where 1,240 occupants were involved. Fatal and Incapacitating injuries account for 5.3% of the injuries that occurred within the four counties which is approximately two times higher when comparing to the state-wide percentages for South Dakota of 2.7%.

Fatal and incapacitating injury crashes stand out due to their impact on lives. Gregory and Todd County account for approximately 70.6% of the Fatal Injuries for the four counties. Of the 17 fatal injuries, ten were from result of Overturn Rollover crashes, three were Angle crashes, and two were Pedestrians and Head On crashes. Of the 48 incapacitating injuries, 17 were from the result of Overturn Rollover crashes, 15 were from Angle crashes, seven from Head On crashes, five from Fixed Objects, two were Pedestrian crashes and one Rear End and Wild Animal crash. Countermeasures that address Overturn Rollover crashes could be effective in addressing approximately 56.3% of the fatal and incapacitating injury crashes.

Tribal Law Enforcement was able to provide crash data from January 1, 2019 – March 31, 2019 within Todd County. The three months of provided data show a reported 54 crashes or 18 crashes per month. The reported 54 crashes are much higher than the 42 reported crashes in Todd County by the South Dakota Department of Transportation (SDDOT) database over a five-year period showing how under reported crashes are from the Tribal Law Enforcement. Extrapolating the average monthly reported crashes by Tribal Law Enforcement, Todd County could have seen a potential 216 crashes for the current year. The data provided is very vague and does not provide complete information about the crash. Adequate crash information plays a crucial role for the Tribe as this information can be used to assist in applying and securing TTPSF funds for safety improvements on roadways throughout the Reservation.

The roads included in this RSA were Bureau of Indian Affairs (BIA) routes listed below:

- BIA 1
- BIA 4
- BIA 5
- BIA 7
- BIA 9
- BIA 12
- BIA 30
- BIA 37
- BIA 501

Safety issues along the studied corridors were assigned specific countermeasures to address each issue location based on the available crash data. Recommended countermeasures includes the following:

- Add Shoulders and Flatten Side Slopes
- Install Guardrail
- Remove Guardrail
- Maintain Vegetation Control Along Roadside
- Install Centerline and Shoulder Rumble Strips
- Install Chevron Alignment Signs
- Improve Roadway and Ditch Drainage
- Improve Culverts
- Improve Roadway Surface
- Improve Intersection Sight Distance

- Install Delineators
- Install Pedestrian Refuge Island
- Flatten Inslopes
- Install Retroreflective Pavement Marking
- Install Retroreflective Signs
- Install Horizontal Alignment Signs
- Install Advisory Speed Plaque with Horizontal Alignment Signs
- Remove/Relocate Fixed Objects outside Clear Zone
- Improve Bridge Ends
- Install Separated Shared Use Pathway
- Install Sidewalks
- Install Signed, Marked Cross walks
- Install Pedestrian Rectangle Rapid Flashing Beacon
- Install Transverse Rumble Strips on Stop Controlled Approaches

Safety issues prevalent along the rural and urban roadways include poor road surfaces, poor road cross section, fixed objects and wild animals, and sign and pavement marking issues. Discretion was used in deciding whether a safety issue should be addressed with countermeasures. Although this Road Safety Audit is only limited to nine routes throughout the Study Area, these countermeasures can be used on other routes that the Tribe maybe experiencing similar issues.

The SDDOT will be replacing all the roadway signs in Todd County on paved routes including BIA Route's in 2020. The SDDOT plans to upgrade all signing on gravel roadways in Todd County in 2022. These signs will be upgraded to meet current design standards. In addition to upgrading the signs, the SDDOT is planning intersection improvements for the intersection of BIA 7 and BIA 1. SDDOT is a great source with providing safety improvements as they have plans to install rumble strips for the Tribe as a safety project within the next year or two on the western section of BIA 7 between the US Highway 18 and just west of Rosebud. The Tribe should consider working with SDDOT to help identify any potential safety projects and any safety funding.

The Rosebud Sioux Tribe Road Maintenance Department has done a great job with vegetation control overall on most of the BIA routes. This practice should be carried forward along on all other routes that are in need of vegetation control.

One area that improvements are recommended is on BIA Route 1. The route provides a concrete pavement travel way with a wide gravel shoulder. In some areas the gravel shoulder was approximately four to six inches in difference creating a drop off between the travel roadway and the shoulder north of Rosebud. The drop off can potentially create a hazard for vehicles that may depart the roadway or pulling over for an emergency situation. It is recommended that the MAP-21 Program consider using a more rigid material for the shoulder such as asphalt pavement or concrete pavement to potentially eliminate the grade separation between the road travel way and the shoulder. Using the more rigid material would allow the Tribe to install shoulder rumble strips, this which could decrease the number of road departure crashes by alerting motorist through vibration and noise that alert the motorist they are leaving the travel way.

There is intersection sight distances issues at the intersection of BIA 1 and BIA 9 due the shared-use path and its separation from BIA 1. The path crosses the approach at a large offset, causing vehicles having to stop approximately 15-20 feet back from the intersection to allow pedestrians to cross. This causes vehicles having to creep forward and wait within the crosswalk in order to see if there is any oncoming traffic. It is recommended that realignment of the pathway be considered by bringing the pathway closer to the intersection. This will allow vehicles to stop closer to the intersection. Along with moving the pathway closer to the intersection, it is recommended that a raised median with a pedestrian refuge island be installed to create a physical barrier at the intersection. This would allow a free right turn from BIA 9 onto BIA 1 where traffic would only need to yield to pedestrians and prevent vehicles using the terminating right turn lane

on BIA 1 continuing through the intersection. **Figure 1.1** shows the recommended improvements to the intersection of BIA 1 and BIA 9.

Figure 1.1: BIA 1 and BIA 9 Recommended Safety Improvements



Along with the inventory of the BIA routes, the following communities were analyzed for pedestrian safety issues and pedestrian connectivity throughout the community.

- Antelope
- Corn Creek
- Horse Creek
- Ideal
- Milks Camp
- Norris
- Okreek
- Parmelle
- Sicangu Village
- White Horse
- White River
- Winner
- Wood
- Saint Francis

Throughout the inventory of the communities, it appeared that there was no standard for when to provide sidewalks within the community or the surfacing section for the roadway to use. These standards are usually adopted with a LRTP and is beyond the scope of this RSA. It is recommended that the Rosebud Sioux Tribe update their current LRTP and have it adopted by the tribal council. The LRTP should consider pedestrian connectivity to/from schools and tribal community centers.

Along with sidewalk connectivity, shared use paths were considered between certain communities where high pedestrian traffic has been observed by tribal members. Like sidewalk standards, shared-use pathway locations are typically defined in the LRTP and it is recommended locations for shared-use pathways be considered when updating the LRTP.

For specific recommendations for improvements by route, refer to the rest of the report.

2.0 INTRODUCTION

The Rosebud Indian Reservation encompasses nearly one million acres in south central South Dakota and is home to the Sicangu Oyate Nation. The Reservation was established in 1889 and includes all of Todd County, South Dakota. The Tribe also has communities and extensive lands and population in Lyman, Mellette, Gregory and Tripp Counties. Mellette County in particular has large Tribal Trust Lands and a significant portion of the nearly 32,505 enrolled members live there.

Figure 2.1: Rosebud Indian Reservation Location[1]



The Oyate capital is the town of Rosebud, established when the Spotted Tail Indian Agency was moved from northwestern Nebraska to the banks of Rosebud Creek near its confluence with the Little White River. The largest town on the Reservation is Mission, located at the intersections of US Highways 18 and 83. Mission's nearby neighbor of Antelope is one of the many tribal communities established in the late 1870's and has been growing ever since. Another major town on the Reservation is Saint Francis, located southwest of Rosebud and home of the Saint Francis Indian School. Saint Francis, with a current population of about 2,000, is the largest incorporated town in South Dakota without a state highway for access. While much of the traffic volume is from agriculture operations, there is a considerable amount of tourist and truck traffic that cross the Reservation each year, with the Black Hills to the west and two US highways traversing the Reservation. With approximately 3,500 miles of Indian Reservation roads, the safety of the tribal transportation system is an important factor for these visitors and residents.

Past planning efforts undertaken by the Rosebud Sioux Tribe have typically addressed transportation safety concerns on a case by case basis. In August 2014, a Tribal Transportation Safety Management Plan was implemented to address transportation safety with engineering, enforcement, education and emergency disaster services. The safety plan identified existing programs on the Reservation and identified additional strategies that needed to be implemented to address safety issues.

The Rosebud Sioux Tribe's Long-Range Transportation Plan (LRTP) was last updated in 2007. This document assists the Tribe in responding to existing and anticipated future transportation issues. Federal regulations allow for this document be updated every five years. It is recommended that the Tribe update their LRTP and the plan should undertake efforts to develop a master plan for transportation infrastructure with a purpose of:

- Collect and examine information on current and future transportation improvement needs

[1] https://sdtribalrelations.sd.gov/images/rst.jpg

- Consider the needs of all modes of travel and develop strategies and recommend projects to accommodate them
- Develop a strategy to maintain the transportation system
- Provide a basis for future transportation improvement programming this sustainable and is tied to project cost and potential funding

The Rosebud Sioux Tribe MAP-21 Program determined an inventory of safety-related transportation conditions was merited and applied for and received TTPSF Funding in 2018. Further a detailed description of corridor level safety concerns and potential opportunities to improve safety would enable the Rosebud Sioux Tribe to use a systemic approach to better prioritize future safety improvement projects. As a result, this Road Safety Audit (RSA) was undertaken.

Plan Purpose

According to the Federal Highway Administrations' website, *a Road Safety Audit (RSA) is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users*[2].

The purpose of this RSA is to inventory and assess the safety attributes of roads and intersections within the Rosebud Sioux Tribe Study Area. Specific, low cost policies and countermeasure improvements are to be recommended to address identified safety deficiencies.

A systemic approach was used for analysis on roadways throughout the Rosebud Indian Reservation. *A systemic approach to safety involves widely implemented improvements based on high-risk roadway features correlated with specific severe crash types. The approach helps agencies broaden their traffic safety efforts at little extra cost,* according to the Federal Highway Administration[3].

Further analysis and design detail will be required as projects proceed to fruition.

Study Area

The Rosebud Sioux Tribe is located in south central South Dakota and includes the communities of Antelope, Corn Creek, Ghost Hawk, He Dog, Horse Creek, Ideal, Mission, Norris, Ok Reek, Parmelee, Rosebud, Spring Creek, St. Francis, White Horse, White River, Winner and Wood. The Study Area is primarily located in Todd County within the Rosebud Indian Reservation boundary and extends into the counties of Gregory, Mellette, and Tripp where there are Tribal communities.

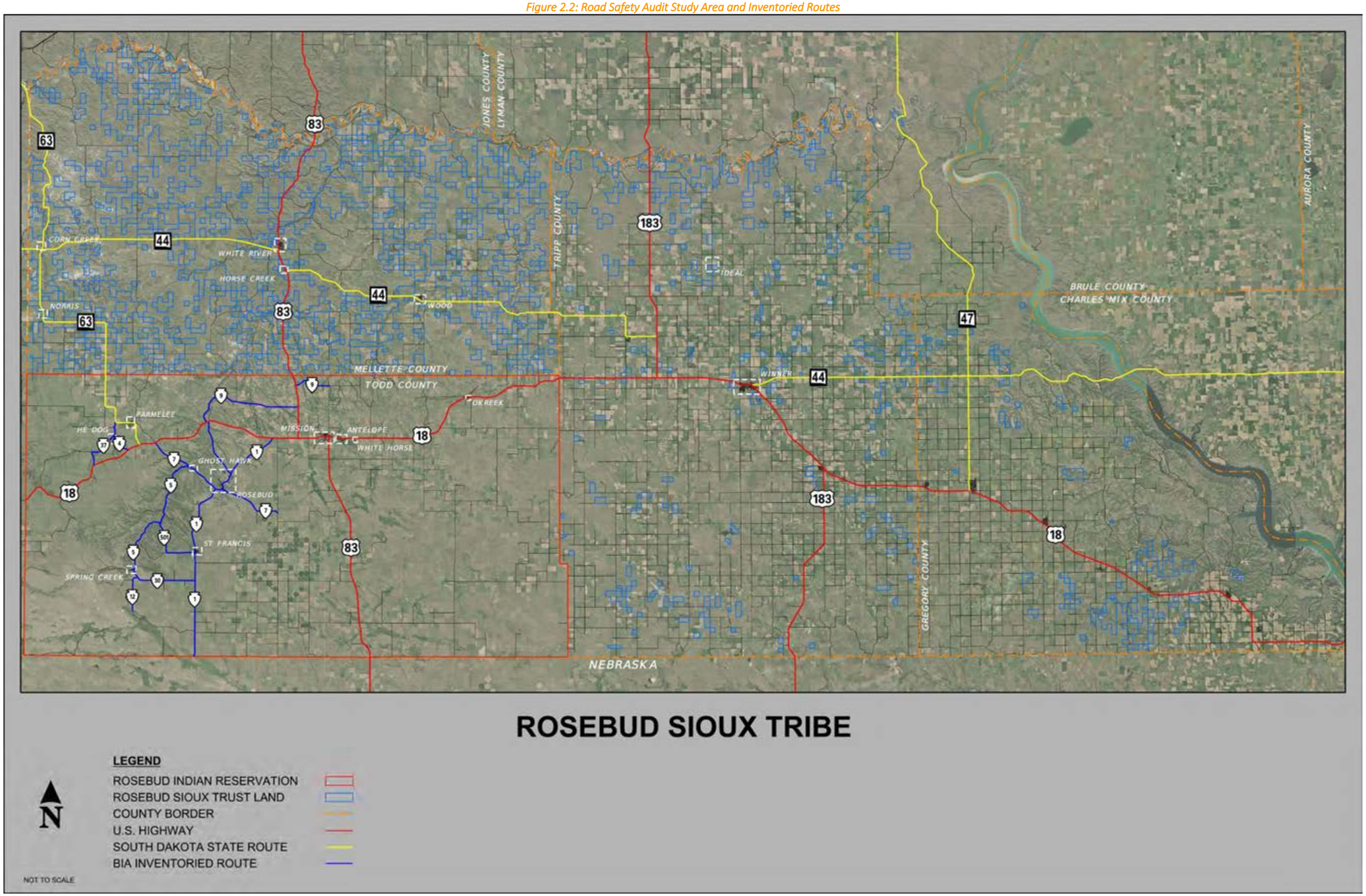
The roads included in this report included the following BIA routes:

- BIA 1
- BIA 4
- BIA 5
- BIA 7
- BIA 9
- BIA 12
- BIA 30
- BIA 37
- BIA 501

Approximately 100-miles of roadway was inventoried where approximately 65% of the road surface is paved asphalt, 9% of the road surface is paved concrete and the remaining 27% of road surface is gravel/dirt. **Figure 2.2** shows the study area and inventoried routes.

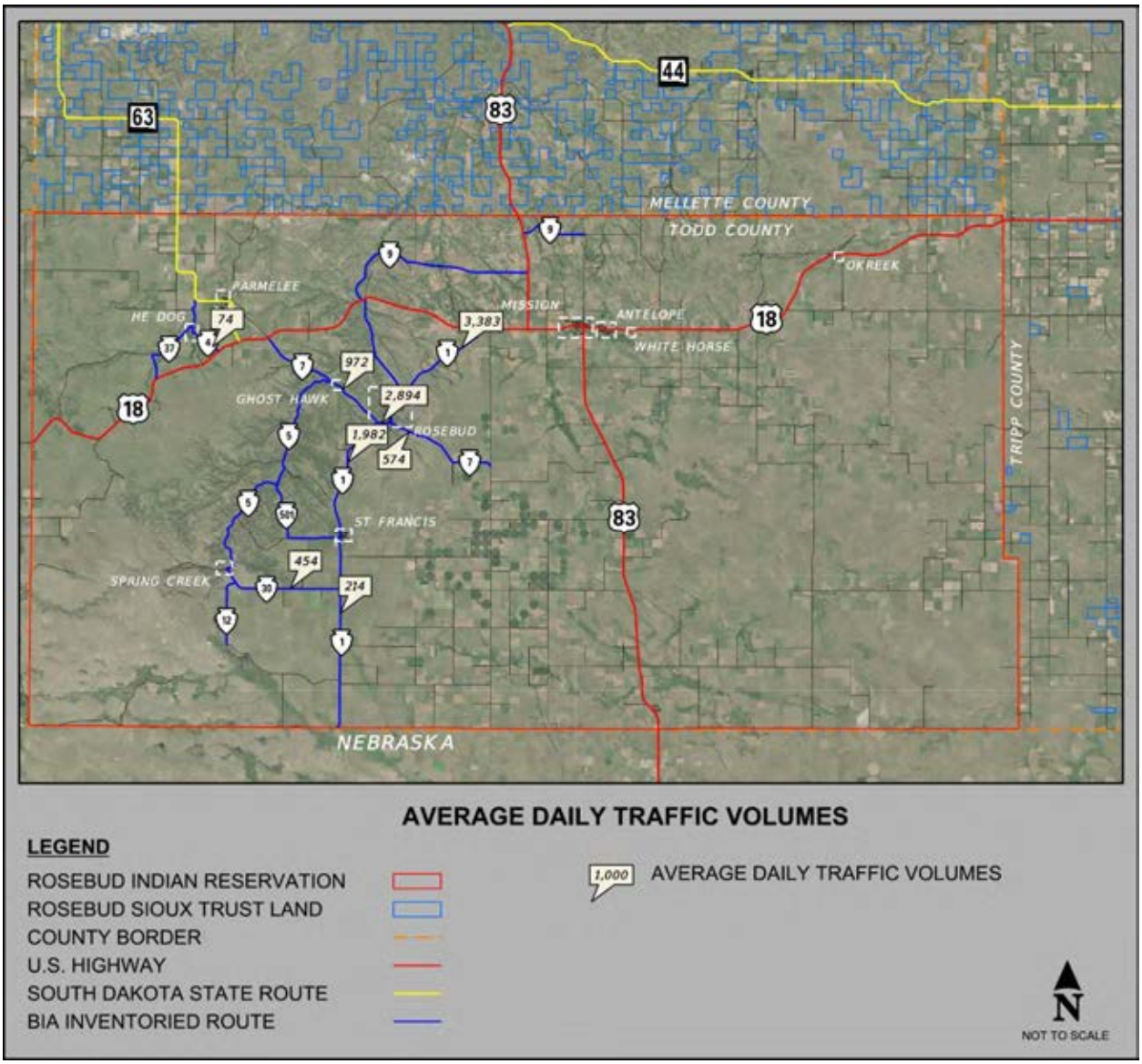
[2] https://safety.fhwa.dot.gov/rsa/
[3] https://safety.fhwa.dot.gov/systemic/

Figure 2.2: Road Safety Audit Study Area and Inventoried Routes



Roads that were addressed by this RSA are rural in nature and carry low traffic volumes (less than or equal to 500 Average Daily Traffic (ADT) with exception to BIA 1 carrying close to 2,000 - 3,400 ADT near Rosebud, SD. **Figure 2.3** shows ADT traffic volumes that was obtained from the South Dakota Department of Transportation (SDDOT) GIS website[4].

Figure 2.3 Average Daily Traffic Volumes on Inventoried BIA Routes



Along with the inventory of the BIA routes, the following communities were analyzed for pedestrian safety issues and pedestrian connectivity throughout the community.

- Antelope
- Corn Creek
- Horse Creek
- Ideal
- Milks Camp
- Norris
- Okreek
- Parmelle
- Sicangu Village
- White Horse
- White River
- Winner
- Wood
- Saint Francis

[4] http://sdbit.maps.arcgis.com/apps/webappviewer/index.html?id=93bd565a70a94f138f90ceed29ce1b12

3.0 EXISTING CONDITIONS

The existing conditions inventory was initiated and completed in September 2019. It included a field inventory of sign and roadway elements covering the 9 inventoried RSA routes within the Study Area that serves the tribal community. It also included a review and analysis of historical crash data over a five-year period from January 1, 2014 to December 31, 2018 throughout Gregory, Mellette, Todd, and Tripp Counties with a focus of the 9 studied routes. The SDDOT will be replacing all the signs in Todd County on paved routes including BIA Route's in 2020. The SDDOT plans to upgrade all signing on gravel roadways in Todd County in 2022. These signs will be upgraded to meet current design standards.

Sign and Roadside Elements Field Inventory

The sign and roadside elements were field inventoried for analysis. The purpose of conducting this inventory was so that a systematic review and correction of substandard conditions could be addressed by tribal representatives in the future.

BIA 1

BIA 1 is approximately 24.9-mile paved north/south rural major collector roadway. It begins at the junction of U.S. Highway 18 and heads south passing through the towns of Rosebud and St. Francis where it then terminates approximately 10-miles south of St. Francis at the South Dakota/Nebraska state line.

BIA 1 Northern Section

The northern section of BIA 1 begins at the intersection of U.S. Highway 18 that heads south for approximately 5.2-miles intersecting few local roads before terminating near the beginning of the urban section of BIA 1 in Rosebud north of the intersection of BIA 1 and BIA 9 near Marshmallow Street. The northern section of BIA 1 has a concrete pavement top width of 24-feet with gravel shoulders. The posted speed is 65 mph and this section carries the largest amount of traffic of approximately 3,400 ADT. Pavement marking are heavily worn with low visibility and there is no roadside delineation. The gravel shoulder has settled creating a large grade difference between the edge of the concrete roadway and the gravel shoulder. The slopes are relatively 4:1 or flatter and had no fixed objects within the clear zone.

Figure 3.1: Northern Section of BIA 1 Looking North



BIA 1 Urban Section

The urban section of BIA 1 begins near Marshmallow Street then heads south for approximately 2.9-miles intersecting many local roads including BIA 9 and BIA 7, where the urban section ends near First Street at the western edge of Rosebud. The speed limit varies from 20 mph within school zones, 45 mph in the northern part of the urban section, and 15 mph from the Tribal Council Headquarters to the western edge of Rosebud. The roadway transitions from a 24-foot wide asphalt or concrete pavement section with two travel lanes in the southern section to a five-lane concrete roadway with four travel lanes and a two-way left turn lane (TWLTL) 60-foot concrete pavement section in the northern section.

Along the northern section there is a shared-used path with pedestrian lights along the westside of BIA 1. There is intersection sight distances issues at the intersection of BIA 1 and BIA 9 due the shared-use path and its separation from BIA 1. The path crosses the approach at a large offset, causing vehicles having to stop approximately 15-20 feet back from the intersection to allow pedestrians to cross. This causes vehicles having to creep forward and wait within the crosswalk in order to see if there is any oncoming traffic. Figure 3.2 shows an example of this large offset at the intersection of BIA 1 and BIA 9.

Figure 3.2: Intersection of BIA 1 and BIA 9 Looking North



The intersection of BIA 1 and BIA 9 is fairly unique in the aspect that BIA 1 has a southbound right turn lane terminates at the intersection. However, the south leg of the intersection on BIA 1 has four lanes of travel and the outside southbound lane is only stripped as a median for vehicles not to use for approximately 275-feet where it opens for vehicles to use the travel lane. Community members have shared that some vehicles using the right turn lane have treated it as a through lane going through the intersection. This creates a conflict for vehicles wanting to turn right from BIA 9 onto BIA 1 and could potentially increase angle crashes at the intersection.

The 60-foot section continues to Long Street were BIA 1 then transitions back down to 48-foot concrete pavement section with four travel lanes. The 48-foot section continues to Wasta Drive where the roadway then transitions to a varying 24 to 36-foot concrete or asphalt pavement section to the western edge of Rosebud.

At the Tribal Headquarters, BIA 1 turns at greater than 90-degree angle and intersects Circle Dr. At this intersection, BIA 1 is a through street with traffic stopping on Circle Dr. Even though the speed limit in this section is 15 mph, tribal members have expressed concern there have been several crashes entering the residence lot adjacent to the intersection, prompting the BIA to install a guardrail in front of the residence. The existing guardrail does not have terminal safety ends.

Figure 3.3: Intersection of BIA 1 and Circle Drive



The intersection of BIA 1 and BIA 7 in Rosebud is a dangerous intersection and currently signed as such. The adjacent gas station has an unrestricted access onto BIA 1 for approximately 175 feet. BIA 7 intersects BIA 1 at a skew and opposite to this intersection is a parking area which backs into BIA 1. Additionally, BIA 7 is not offset the existing Main St intersection and combined with the nearby gas station, opposite streets, and parking, there is approximately 265 feet of unrestricted traffic entering BIA 1. Finally, there is a high volume of pedestrians which cross BIA 1 between the Tribal offices and gas station.

Figure 3.4: Intersection of BIA 1 and BIA 7



BIA 1 Southern Section

The southern section of BIA 1 begins at the western edge of Rosebud and travels approximately 0.6-miles west of Rosebud to the intersection of BIA 1 and BIA 7. Tribal members have expressed concern of this intersection as many vehicles have passed through the stop sign on BIA 1 and have departed the roadway on the northside resulting in some serious injuries and fatal crashes. SDDOT has implemented a safety project for this intersection and is discussed later in the report under the recommendation section.

Figure 3.5: Intersection of BIA 1 and BIA 7 Looking North



The roadway is asphalt pavement with a pavement top width of 40-feet including shoulders and shoulder rumble strips between the intersection of BIA 1 and BIA 7 and the community of St. Francis, intersecting many local roads including BIA 501 and terminating at the intersection of BIA 1 and BIA 30. The roadway then transitions to a 24-foot section with no shoulders and heads south where it terminates at the South Dakota/Nebraska State line approximately 10-miles south of St. Francis.

The shoulders and rumble strips were installed in 2018 by SDDOT for the 40-foot section. Overall the southern section the pavement markings are heavily worn with low visibility and there is no roadside delineation. The pavement for BIA 1 from the intersection of BIA 1 and BIA 7 to the intersection of BIA 1 and BIA 30 is heavily cracked with transverse and longitudinal cracking. The pavement section going south of the intersection of BIA 1 and BIA 30 is showing signs of distress with potholes, pavement heaving, cracking and rutting to name a few. This is creating a road surface that is undesirable to drive on and could lead to loss of vehicle control when traveling at high speeds. The posted speed limit for the southern section is 55 mph with exception within the town of St. Francis the speed limit drops to 25 mph. The slopes are relatively 4:1 or flatter and has fixed objects within the clear zone including culverts not having flared or sloped end sections, trees, and vegetation.

Figure 3.6: Southern Section of BIA 1 Looking South



BIA 4

BIA 4 is a north/south route that is approximately 4.4-miles long with a 24-foot asphalt pavement roadway width with no shoulders. The route begins at the intersection of South Dakota State Route 63 and BIA 4 just west of the community of Parmelle. The route heads south then west for approximately 0.5-miles before meeting with 282nd Street at a T-Intersection. Stop control should be considered for 282nd Street versus the yield control on the south leg of BIA 4, the predominant traffic movement use both the south and east leg of BIA 4 to travel to the school in He Dog. This section of BIA 4 is functionally classified as a rural minor collector.

The route then continues south for approximately 1.5-miles to the community of He Dog where the pavement section of BIA 4 ends at the school then turns a low maintenance gravel roadway for the last 2.4-mile where BIA 4 terminates at the intersection of U.S. Highway 18 and BIA 4. The roadway between 282nd Street and the school in He Dog is functionally classified as rural major collector. The only posted speed limit for the route is near the school where it is posted 20 mph. Pavement markings for the asphalt pavement section are heavily worn and have low visibility. There is limited roadside delineation along the roadway. There is one bridge on BIA 4 that is approximately 0.5-miles south of 282nd Street. The bridge does have bridge end treatments on all four sides of the bridge. However, portions of the guardrail have been detached from their supports. The slopes throughout the entire route are relatively 4:1 or flatter with majority of the clear zone having no obstacles within it. Closer towards He Dog there is a large tree and some wood bollards with metal cable within the clear zone.

Figure 3.7: Existing Bridge on BIA 4



BIA 5

BIA 5 is a 13.7-mile asphalt paved north/south rural local road that follows along the Little White River. The route has a pavement top width of 24-feet and no shoulders. It begins at the intersection of BIA 5 and BIA 7 west of the community of Ghost Hawk then heads south intersecting local roads including BIA 501, where it jogs west for approximately 1 mile then heads south again for approximately 5.4-miles where it terminates at the intersection of BIA 5 and BIA 30 within the community of Spring Creek.

BIA 5 is locally signed as a scenic byway. The route has a posted speed limit of 55 mph which reduces to 25 mph near the community of Spring Creek. There are no advance warning signs warning vehicles of the speed reduction or posted speed limit sign notifying vehicle of the increase in speed. The pavement markings are heavily worn and have low visibility. There is no delineation along the roadside. Trees and vegetation are overgrown in many locations throughout the route and cover many of the roadway signs. This creates a hazard as roadway signs are intended to communicate with roadway users for potential conflicts ahead such as intersection ahead signs or horizontal curve ahead signs. The asphalt pavement is showing signs of aging with many transverse and longitudinal cracking throughout the route. Many of the horizontal curve have no advance warning signs or proper signing going through the curve.

BIA 5 has four bridges that cross over the Little White River. One of the bridges has recently been replaced and include bridge end treatments on all four sides of the bridge. The remaining three bridges on BIA 5 have no bridge end treatments. Intersection sight distance issues were also observed along the route at two different locations where a secondary road intersect BIA 5 at a large skew. These two intersections are BIA 5 and BIA 501, and BIA 5 and Tutle Road.

Figure 3.8: Intersection of BIA 5 and Tutle Road



BIA 7

BIA 7 is a rural major collector 13.6-mile northwest/southeast route with the western section having an average top width of 36-feet and eastern section having a top width of 24-feet. The route begins at the intersection of U.S. Highway 18 and heads southeast intersecting local roads including BIA 5 and ending at BIA 1 approximately 0.6-miles west of Rosebud. The route then begins again in the town of Rosebud at the intersection of BIA 1 and BIA 7 and continues southeast over Rosebud Dam and ends 6-miles east of Rosebud at the intersection of Lakeview Road. The roadway has a very wide section throughout the western section of the route with good shoulder width and the slopes are relatively 4:1 or flatter. The eastern 6-mile section is narrow, without shoulders, steep side slopes, and sharp curves. There are currently no shoulder rumble strips for the entire route but the SDDOT plans to install them for the Tribe as a safety project within the next year or two on the western section. The eastern section is planned for reconstruction and needs rumble strips following the reconstructed section.

There is no delineation along the roadway and the pavement markings are worn and have low visibility. The asphalt surface is showing signs of aging with many transverse and longitudinal cracking. There is one bridge on the route that is approximately 350-feet west of the intersection of BIA 7 and BIA 5. The bridge utilizes bridge end treatments only for the direction of travel side and none for the opposing traffic.

Near Ghost Hawk Lake on BIA 7, outdated cable guardrail is installed on both sides of the roadway. The slopes where the guardrail is installed are relatively flat and there is adequate clear zone space between the roadway and the lake on the south. The use of guardrail in this area becomes more of safety hazard versus more of a safety benefit.

Figure 3.9: Cable Guardrail on BIA 7



The intersection of BIA 7 and BIA 1 in Rosebud is a dangerous intersection as described previously with BIA 1. The alignment of BIA 7 should be realigned to intersect BIA 1 directly across from Main St at a 90-degree angle, however reconstructing the intersection may negatively impact the gas station's access and need for fuel truck movement. Another option for BIA 7 to intersect BIA 1 is at the existing Circle Dr intersection.

Pedestrians walk along BIA 7 to the Rosebud Dam, across the Dam, and some run on the roadway to the top of hill approximately 1 mile for exercise. Pedestrians are forced to use the road top since there are no available shoulders or adjacent sidewalk.

Figure 3.10: Eastern Section of BIA 7 Looking West



BIA 9

BIA 9 is a 20.6-mile-long roadway. The roadway is paved for approximately 5.8-miles with an average top width of 36-feet. The remaining 14.8-miles of roadway is gravel with an average top width of 20-feet.

BIA 9 Paved Section

The paved section of BIA 9 is functionally classified as a rural local road and begins in Rosebud at the intersection BIA 1 and BIA 9. The roadway then heads north/northwest for approximately 5.8-miles where it terminates at the intersection of BIA 9 and U.S. Highway 18. The posted speed limit on this section of the route is 55 mph and has a one mile separated shared-use pathway with pedestrian lighting that begins approximately 1.5-miles south of the intersection of BIA 9 and U.S. Highway 18 that heads north connecting pedestrians to the various tribal housing communities in the area.

There is no delineation along the roadway and the pavement markings are worn with low visibility. There are currently no shoulder rumble strips throughout this section and the current shoulders are adequate to accommodate them. The slopes of the roadway are relatively 4:1 or flatter and no objects within the clear zone of the roadway.

BIA 9 Gravel Section

The gravel section of BIA is functionally classified as rural major collector and begins approximately 1,200 feet west of where the pavement section ends on U.S. Highway 18. The route then heads north/northeast for approximately 3.3-miles before jogging east for 8-miles ending at the intersection of BIA 9 and U.S. Highway 83. BIA 9 then begins again from U.S. Highway 83 approximately two miles north, where it heads east for an additional 3.5-miles terminating at the intersection of BIA 9/278th Street and 274th Avenue.

BIA 9 has one bridge on the route that crosses over Dry Creek approximately three miles north/northeast of where the gravel section begins. The guardrail on the bridge is lower the standard practice and there are no bridge end treatments.

The gravel in this section is in exceptional condition and the slopes a relatively 4:1 or flatter. The Rosebud Sioux Tribe Road Maintenance Departmenthas done a tremendous job with vegetation control along this section of roadway and no objects were seen within the clear zone of the roadway.

Figure 3.11: Gravel Section of BIA 9 Looking West



BIA 12

BIA 12 is approximately a 3.6-mile gravel rural local road with a roadway width of 22-feet. The route begins at the intersection of BIA 30 and BIA 12 then heads southwest for 0.4-miles before heading south for 3.2 mile and terminates at the intersection of BIA 12 and Two Eagle Road. The posted speed limit on BIA 12 is 35 mph.

Figure 3.12: BIA 12 Looking Southwest



The gravel is washboard and rutting, curves are not properly signed with advance warnings and/or chevrons and there is no delineation along the roadway. The slopes are relatively 4:1 or flatter. Water is pooling on the roadway as there are sections of the roadway the are lower than the roadside ditches.

BIA 30

BIA 30 is approximately 9.3-mile asphalt paved rural major collector roadway with a width of 24-feet and no shoulders. It begins in the community of Spring Creek approximately 2.7-miles west of the intersection of BIA 30 and BIA 5. Then heads through a series of curve before heading east for five miles where it terminates at the intersection of BIA 30 and BIA 1. The posted speed limit is 25 mph within the community of Spring Creek then increases to 65 mph. Going into Spring Creek from the east there is no advance warning signs for vehicles notify them of the change in speed from 65 mph to 25 mph.

Pavement markings are worn and have low visibility and the there are no delineation along the roadside. The slopes of the roadway are relatively 4:1 or flatter but there are sections of the roadway where vegetation has overgrown, and some trees are covering roadway signs. This creates a hazard as roadway signs are intended to communicate with roadway users for potential conflicts ahead such as intersection ahead signs or horizontal curve ahead signs.

Figure 3.13: Overgrown Trees on BIA 30



Within the community of Spring Creek there is no school zone signing near the school off Yellow Cloud Road. Along with the no school zone signing there is no designated area for school aged children to easily walk to and from school to the tribal housing areas. This creates hazards as children may then walk on the road to get to their destinations.

BIA 37

BIA 37 is approximately 4.2-mile gravel rural local roadway. The route begins at the intersection of BIA 37 and BIA 4 and head southwest for approximately 2.9-miles. This section of BIA 37 has a roadway top width of 24-feet with no shoulders. The route then heads south at the intersection of BIA 37 and He Dog Road for approximately 1.3-miles where it then terminates at the intersection of BIA 37 and U.S. Highway 18. The north/south section of the roadway has a roadway top width of 20-feet with no shoulders.

BIA 37 has a posted speed limit of 35 mph. There are many soft spots throughout BIA 37 where the gravel has not been maintained and only dirt is present on the roadway. There is heavy rutting in some locations and berms have formed along the edges of the roadway due to erosion creating the roadway slopes and ditches to be a higher grade compared to the top of the roadway surface. This can create pools of water on the roadway as water can not properly drain off the road. There is no delineation along the roadway and the slopes are relatively 4:1 or flatter and had no fixed objects within the clear zone.

Figure 3.14: Heavy Rutting on BIA 37



BIA 501

BIA 501 is approximately 5.9-mile asphalt paved local roadway with a width of 24-feet and no shoulders. The route begins at the intersection of BIA 5 and BIA 501 the heads south for approximately three miles. BIA 501 then heads east for approximately 2.9-miles where it terminates at the intersection of West Street and BIA 501/Maple Avenue within the town of St. Francis.

BIA 501 has a posted speed limit of 55 mph then transitions to 35 mph as the route enters St. Francis. There are no advance warning signs alerting vehicles of the speed reduction. Pavement markings are worn and have low visibility. The pavement surface is showing signs of aging with many transverse and longitudinal cracking along with many areas have large asphalt patches. There is no delineation along the roadway and there are areas where slopes exceed the recommended 4:1 slope. There are no advance warning signs for horizontal cures or chevrons within the curves. There are many areas along BIA 501 that have trees within the clear zone and pooing of water along the roadside.

Figure 3.15: BIA 501 Looking South



Tribal Communities

Along with the inventory of the BIA routes, the following communities were analyzed for pedestrian safety issues and pedestrian connectivity throughout the community.

- Antelope
- Corn Creek
- Horse Creek
- Ideal
- Milks Camp
- Norris
- Okreek
- Parmelle
- Sicangu Village
- White Horse
- White River
- Winner
- Wood
- Saint Francis

Throughout the inventory of the communities, it appeared that there was no standard for when to provide sidewalks within the community or the surfacing section for the roadway to use. These standards are usually adopted with a LRTP and is beyond the scope of this RSA. It is recommended that the Rosebud Sioux Tribe update their current LRTP and have it adopted by the tribal council. The LRTP should consider pedestrian connectivity to/from schools and tribal community centers.

Along with sidewalk connectivity, shared use paths were considered between certain communities where high pedestrian traffic has been observed by tribal members. One area for consideration was between the South Antelope Community and White Horse Community. Like sidewalk standards, shared-use pathway locations are typically defined in the LRTP and it is recommended locations for shared-use pathways be considered when updating their LRTP.

4.0 HISTORICAL CRASH DATA

Historical crash data contained in the South Dakota Office of Highway Safety and South Dakota Department of Public Safety (SDDPS) Crash Database, occurring on the Rosebud Indian Reservation on all public roads was obtained through their website for the five-year time interval covering January 1, 2014 through December 31, 2018[5]. The crash data that was collected were crashing occurring in Gregory, Mellette, Todd and Tripp County. Crash data from Lyman County was excluded from this analysis as majority of the crashes reported occurred on Interstate 90. Crash data is submitted to SDDPS Crash Database by law enforcement using the South Dakota Accident Records System (SDARS) or Traffic and Criminal Software (TraCS). Limited historical crash data was provided by Tribal Law Enforcement for the first three months of 2019. Crashes this agency respond to do not get reported to the SDDPS. Although it is a start for the Tribal Law Enforcement to share crash data with the Rosebud Sioux Tribe MAP-21 Program, the information is very limited and does not show a complete picture of the number of collisions and types of collisions that maybe occurring within the Reservation. Obtaining information from Tribal Law Enforcement can be a lengthy process due to the Freedom of Information Act (FOIA), as tribal members must submit a request to release the information. Once a request is submitted the information released to the applicant can take years with redacted information. Thus, resulting in a long process to obtain the information. The crash data that was available from Tribal Law Enforcement is discussed later in the report under its own section.

With crash data only being limited to what was reported to the SDDPS Crash Database, the data only shows a small portion of crashes that occur throughout the Rosebud Indian Reservation. The 1,005 crashes that were reported could be higher if more crash information was available through Tribal Law Enforcement. As current crash data shows crashes are primarily occurring on State and U.S. routes. A systemic approach was used for analysis on roadways throughout the Rosebud Indian Reservation where crashes were not reported.

The 2014 Tribal Transportation Safety Plan provided an in-depth analysis of available crash data and trends from 2005 through 2012. The Safety Plan provides strategies and recommendations to improve education, enforcement/EMS, engineering and safety planning/other provisions to address safety needs within the Reservation. Please refer to that document for additional recommendations to improve safety on the Rosebud Indian Reservation.

Location of Crash

During the studied five-year time interval, there was a reported 1,005 or approximately 201 crashes per year within the four-counties that Rosebud Sioux Tribe resides in. This is slightly higher than what was reported from the 2014 Safety Plan, where there were 1,537 crashes or 153.7 crashes per year over the 10-year time interval. Of the reported 1,005 crashes reported within the four-county area from 2014-2018, 680 crashes occurred on U.S. or State system roadways, only 5 crashes reported occurred on BIA routes and 320 crashes occurred on county and local roads. Table 4.1 shows crashes on roadway classification.

[5] http://safesd.gov/raw-data.html

Roadway Functional Classification	Number of Crashes					Percentage
	Gregory County	Mellette County	Todd County	Tripp County	Total	
Rural Principal Other Arterial	43	32	25	166	266	26.5%
Rural Local Road	33	11	1	135	180	17.9%
Rural Major Collector	25	9	5	162	201	20.0%
Rural Minor Arterial	31	26	0	178	235	23.4%
Rural Minor Collector	2	1	1	31	35	3.5%
Rural Other Expressways	12	13	10	53	88	8.8%
Rural Principal Other Arterial	43	32	25	166	266	26.5%
Total	**146**	**92**	**42**	**725**	**1005**	**100.0%**

Table 4.1: Roadway Functional Classification (2014-2018)

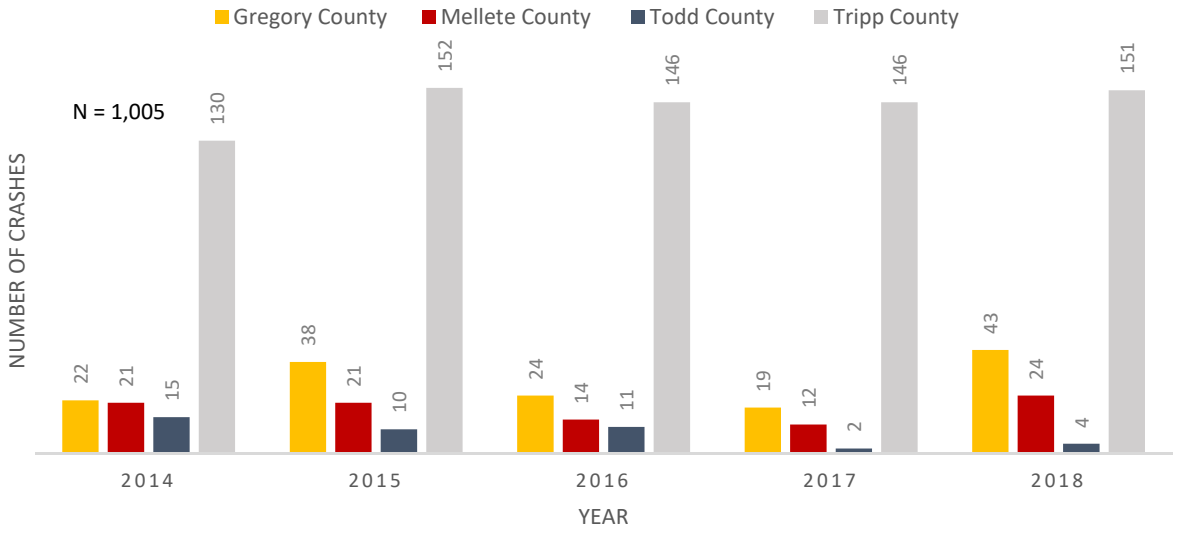
Of the 1,005 crashes reported, 839 crashes occurred as non-junction related. Table 4.2 shows crashes and relations to junctions throughout the Study Area.

Roadway Junction Relation	Number of Crashes					Percentage
	Gregory County	Mellette County	Todd County	Tripp County	Total	
Alley Intersection Related	0	1	0	0	1	0.1%
Driveway Access	3	1	1	12	17	1.7%
Driveway Access Related	0	2	0	0	2	0.2%
Four-Way Intersection	19	2	1	36	58	5.8%
Intersection Related	4	2	0	22	28	2.8%
Non-Junction	114	82	40	603	839	83.5%
Not Reported	2	1	0	41	44	4.4%
T- Intersection	4	1	0	11	16	1.6%
Total	**146**	**92**	**42**	**725**	**1005**	**100.0%**

Table 4.2: Roadway Junction Relation Crashes (2014-2018)

Of the 1,005 reported crashes, 725 crashes or 72.1% of the reported crashes occurred in Tripp County over the five-year period. Todd County had the lowest reported crashes of the four counties with 42 crashes or 4.2% of all reported crashes. Gregory County had a reported 146 crashes or 14.5% of all reported crashes and Mellette County has a reported 92 crashes or 9.2% of all reported crashes over the five-year period. Figure 4.1 shows the number of reported crashes per year for the four counties.

Figure 4.1 Crash Totals (2014-2018)

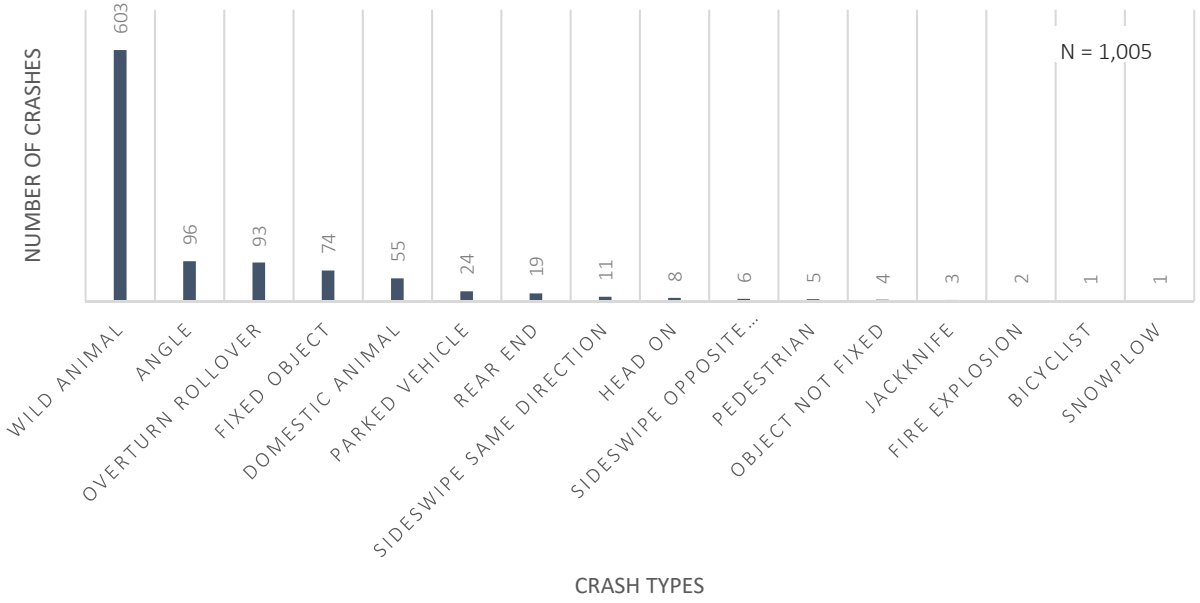


Tripp County's higher reported crashes are primarily due to the large geographic area, higher number of road miles, and higher population, including the city of Winner. However, the total crashes reported in Todd County are lower than the other counties in the four-county area. Todd County includes the towns of Mission and Rosebud which are the population centers for the county, and it is expected that a significant number of crashes would occur there. However, the reported crashes do not support this expectation, therefore, it could be an indication of unreported tribal crashes.

Crash Type

Wild Animal crashes were the most common reoccurring event throughout the Study Area, accounting for 603 of the 1,005 crashes or 60.0% of all reported crashes. Tripp County had the highest number of Wild Animal crashes with 489 crashes or 81.1% of all reported crashes in all four counties. The other three top crash types observed are Angle crashes accounting for 96 crashes or 9.6% of all reported crashes, Overturn Rollover crashes accounting for 93 crashes or 9.3% of all reported crashes and Fixed Object crashes accounting for 74 crashes or 7.4% of all reported crashes. These top crash types reported in the four counties for the analysis years from 2014 – 2018 are consistent when comparing them to the leading crash types from the 2014 Rosebud Sioux Tribal Transportation Safety Plan. Figure 4.2 shows the different crash types that occurred in the four counties from 2014 – 2018.

Figure 4.2 Crash Types All Counties (2014-2018)



Key Observation: Given that the three of the four top crash types, wild animal, overturn rollover and fixed object, account for approximately 77% of crashes occurring in the four counties on the Rosebud Indian Reservation, it appears the greatest impact on crash reduction could be from the following:

- Provide wildlife friendly fencing in areas showing a high concentration of wild animal collisions
- Maintaining vegetation along the roadway
- Improve inslope flattening inside the clear zone along roadway corridors
- Where inslopes cannot be flatten, install guardrail in areas where the inslope exceeds the recommended 4:1 slope.
- Remove fixed objects from the clear zone
- Objects that cannot be removed from clear zone (e.g. utility poles or large trees) provide a protective barrier or place objects on a crash worthy breakaway device (e.g. roadway signs and mailboxes)
- Proper signing of horizontal curves may reduce rollover crashes by given guidance to motorist of the change in the alignment of the roadway.
- Proper delineation along the roadway, used for motorist guidance at night and during adverse weather.
- Centerline and shoulder rumble strips, alert motorist as they cross the center or edge line of the roadway through creating noise and vibration inside the vehicle. This allows them to take corrective countermeasures to return to the travel lane safely.
- Add shoulders along routes to increase the recoverable area for vehicles

Approximately 60.4% of the reported Angle crashes occurred in Tripp county and are heavily concentrated with in the urban limits of Winner, SD. Angle crashes typically occur in urban settings at intersections that are either controlled or uncontrolled. There are low cost countermeasures and safety improvements that can address this crash trend. The nature of this Road Safety Audit primarily looks at rural highway, where

angle crashes are not typically seen. If the Rosebud Sioux Tribe begins to experience more of this crash type on BIA routes especially in the more urban areas, it is recommended that the MAP-21 Program review FHWA's *"Low-Cost Safety Enhancements for Stop-Controlled and Signalized Intersections"* manual (FHWA-SA-09-020) for recommended low cost countermeasure to use to address crashes.

Crash Injury Severity

During the studied five-year time interval, there were 17 fatal accidents, 149 injury accidents and 839 property damage only accidents for a total of 1,005 accidents within the four-county Study Area. The 1,005 accidents involved 1,240 occupants. Table 4.3 breaks down the injury type for the occupants involved in the crashes in the four counties.

Study Area						
Crash Injury Severity	Number of Injuries					Percentage
	Gregory County	Mellette County	Todd County	Tripp County	Total	
Fatal injury	7	3	5	2	17	1.4%
Incapacitating	21	6	4	17	48	3.9%
No injury	95	43	17	278	433	34.9%
Non-incapacitating	21	18	1	32	72	5.8%
Not applicable	0	0	0	3	3	0.2%
*Not Reported	46	40	19	464	569	45.9%
Possible	29	6	5	58	98	7.9%
Total	**219**	**116**	**51**	**854**	**1,240**	**100.0%**

* - Not Reported, Injuries were listed as Wild Animal Crashes

Table 4.3 Crash Injury Severity (2014-2018)

Fatal and Incapacitating injuries account for 5.3% of the injuries that occurred within the four counties which is approximately two times higher when comparing to the state-wide percentages for South Dakota of 2.7%. Table 4.4 shows the different types of injuries that have occurred throughout the entire state of South Dakota.

South Dakota - Statewide		
Crash Injury Severity	Number of Injuries	Percentage
Fatal injury	644	0.4%
Incapacitating	3,451	2.3%
No injury	98,309	66.8%
Non-incapacitating	9,452	6.4%
Not applicable	204	0.1%
*Not Reported	21,990	14.9%
Possible	13,206	9.0%
Total	**147,256**	**100.0%**

* - Not Reported, Injuries were listed as Wild Animal Crashes

Table 4.4: South Dakota Crash Injury Severity (2014-2018)

Key Observation: Fatal and incapacitating injury crashes stand out due to their impact on lives. Gregory and Todd County account for approximately 70.6% of the Fatal Injuries for the four counties. Of the 17 fatal injuries, ten were from result of Overturn Rollover crashes, three were Angle crashes, and two were Pedestrians and Head On crashes. Of the 48 incapacitating injuries, 17 were from the result of Overturn Rollover crashes, 15 were from Angle crashes, seven from Head On crashes, five from Fixed Objects, two

were Pedestrian crashes and one Rear End and Wild Animal crashes. Countermeasures that address Overturn Rollover crashes could be effective in addressing approximately 56.3% of the fatal and incapacitating injury crashes. **Figure 4.3** summarizes different crash types for Fatal and Incapacitating Injuries.

Figure 4.3 Fatal and Incapacitating Injuries (2014-2018)

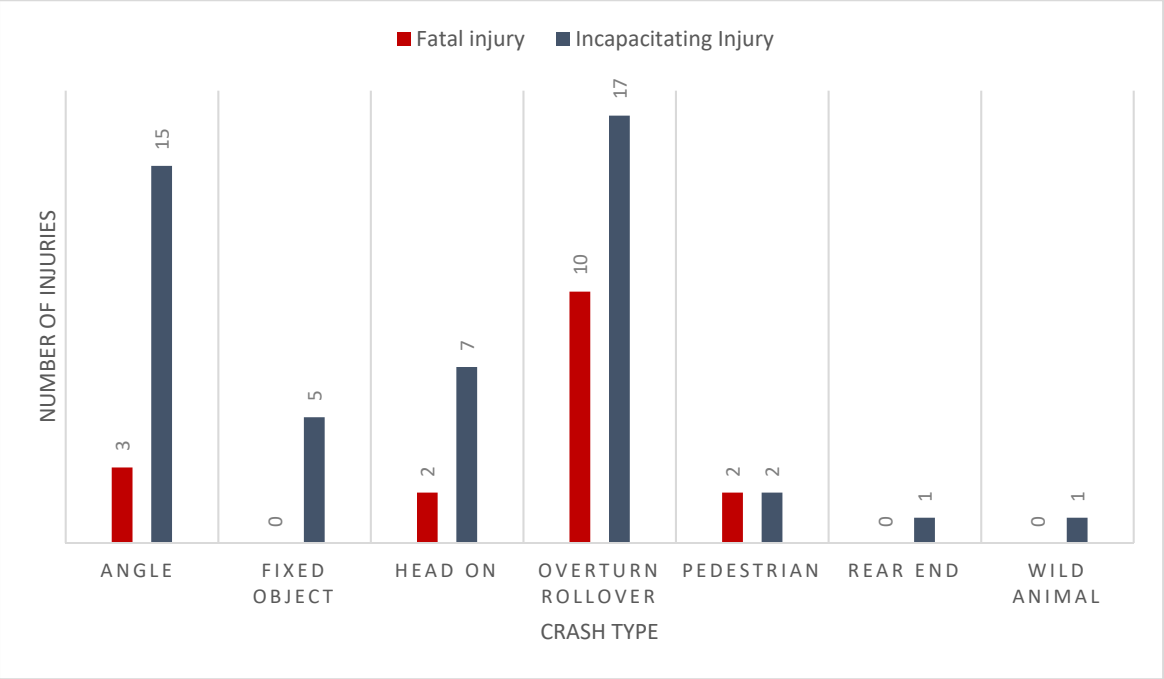


Figure 4.4 shows the locations of collision types and **Figure 4.5** shows the crash severities within the four-county area.

Figure 4.4 Crash Type Locations (2014-2018)

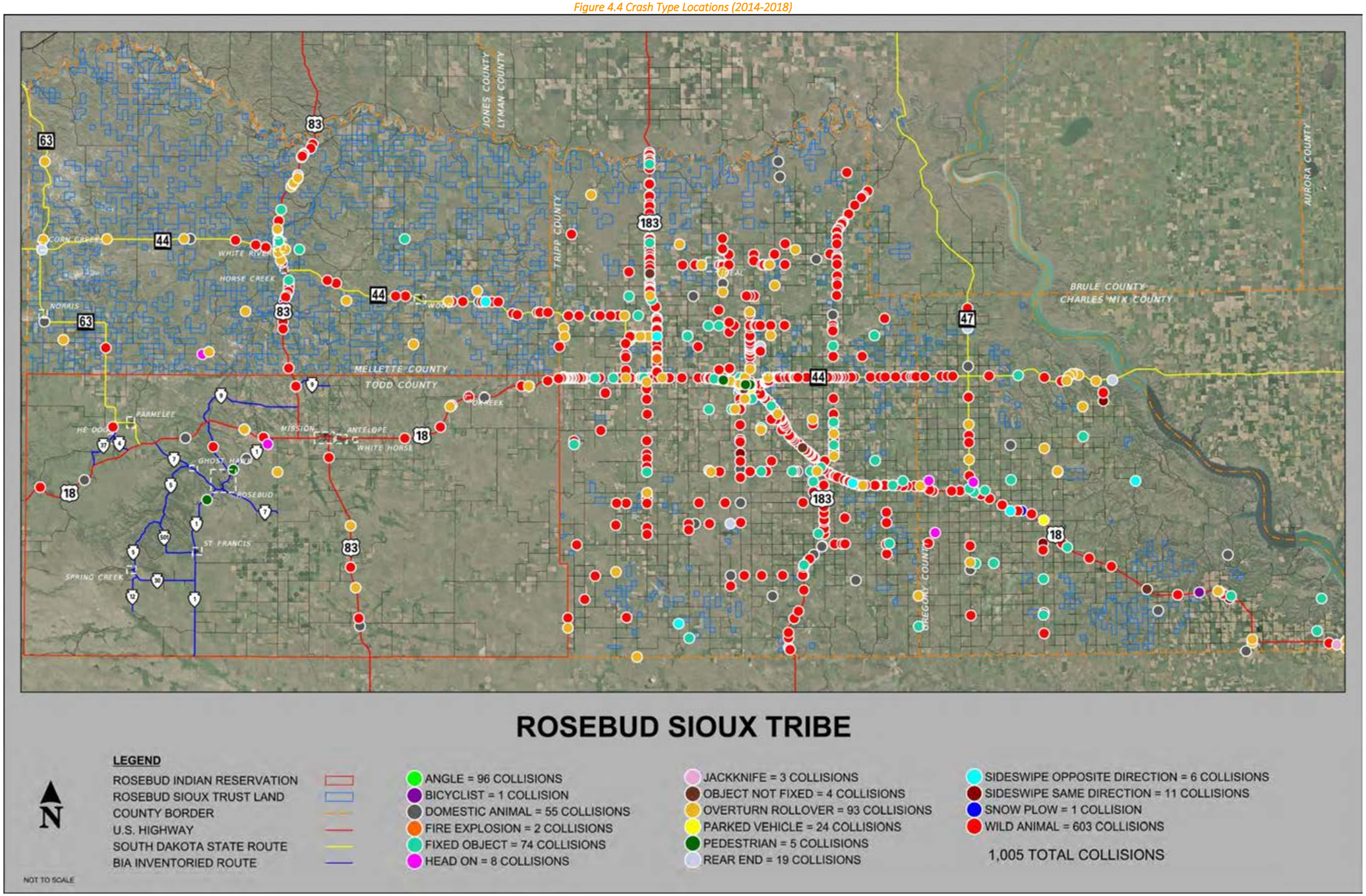
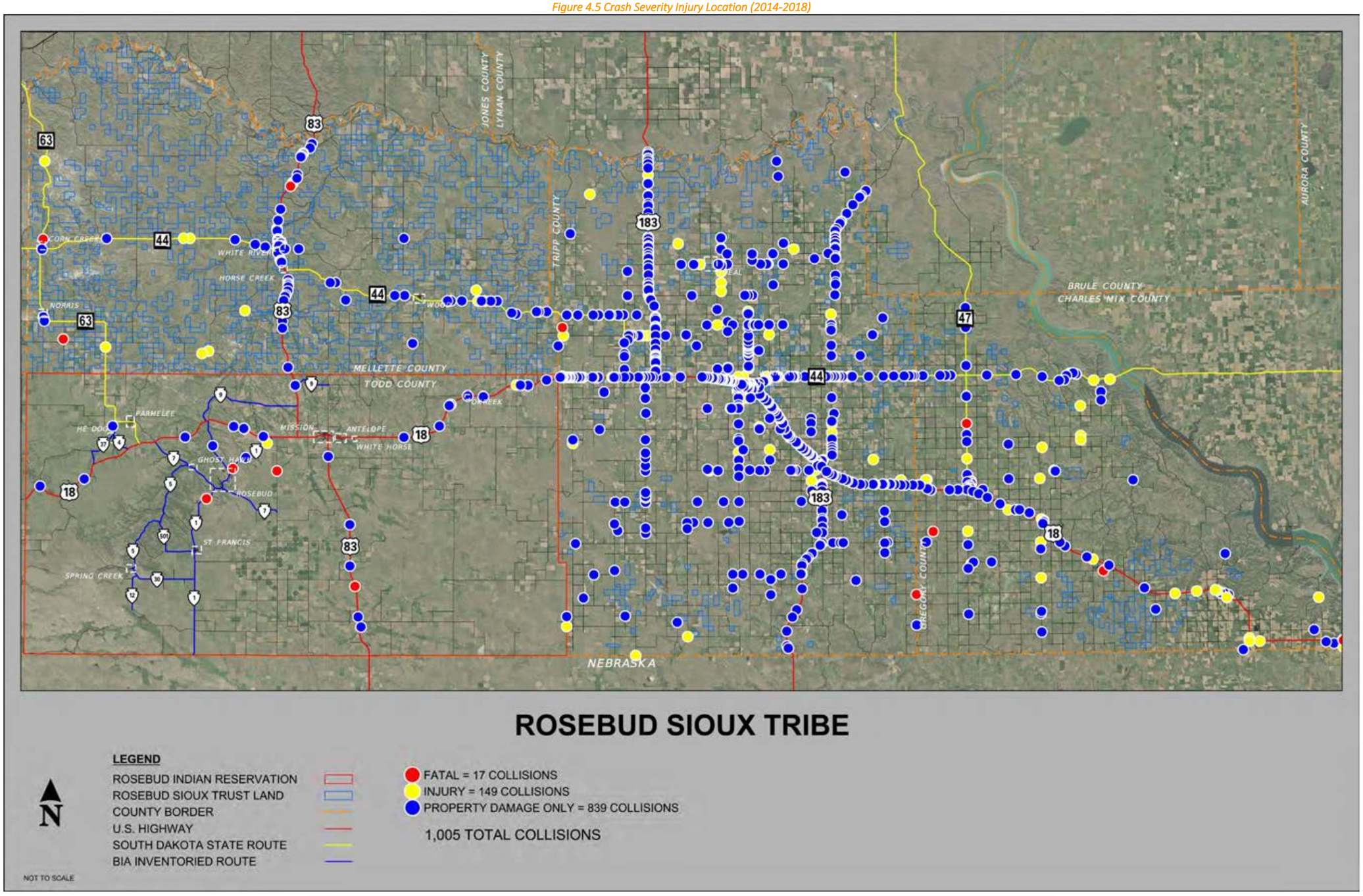


Figure 4.5 Crash Severity Injury Location (2014-2018)



Road Surface Conditions

Crash records indicate that of the 1.005 crashes that occurred, 305 crashes were reported on a paved surface (asphalt or concrete), 103 crashes were reported on dirt, gravel or other type of surface, one crash was reported as unknown and 596 crashes, a surface type was not reported as they were coded as Wild Animal Crashes.

When considering the influence of road surface on crashes, approximately 30.4% of the reported crashes occurred on a paved surface. This number maybe higher if the road surface was reported with the Wild Animal Crashes. 133 of the crashes were reported with the road surface being wet, ice, snow covered or slush. Table 4.5 shows the number of crashes in the four-county area based on the condition of the roadway.

Road Surface Condition	Number of Crashes					Percentage
	Gregory County	Mellette County	Todd County	Tripp County	Total	
Dry	115	68	36	612	831	82.7%
Ice	6	3	0	16	25	2.5%
Not Reported	1	0	0	0	1	0.1%
Sand, Mud, Dirt, Gravel	3	6	0	7	16	1.6%
Slush	5	1	0	1	7	0.7%
Snow	5	7	3	18	33	3.3%
Unknown	1	0	0	21	22	2.2%
Water (Standing, Moving)	0	2	0	0	2	0.2%
Wet	10	5	3	50	68	6.8%
Total	**146**	**92**	**42**	**725**	**1005**	**100.0%**

Table 4.5: Road Surface Condition (2014-2018)

Road Grade and Horizontal Alignment

Roadways within the four-county area are primarily straight and level. Approximately 29.2% of the reported crashes occurred on straight and level roadway segments. This percentage maybe higher as the road grade and alignment information for Wild Animal crashes was not reported and account for approximately 59.4% of the reported crashes. Table 4.6 shows the number of reported crashes in relation to the road grade and horizontal alignment of the roadway.

Road Alignment Description	Number of Collisions					Percentage
	Gregory County	Mellette County	Todd County	Tripp County	Total	
Curve and hill crest	1	2	0	3	6	0.6%
Curve and level	12	3	4	11	30	3.0%
Curve on grade	8	2	0	6	16	1.6%
Not Reported	47	43	22	485	597	59.4%
Straight and hill crest	15	8	0	16	39	3.9%
Straight and level	60	29	12	192	293	29.2%
Straight on grade	3	5	4	11	23	2.3%
Unknown	0	0	0	1	1	0.1%
Total	**146**	**92**	**42**	**725**	**1005**	**100.0%**

Table 4.6: Road Alignment Description (2014-2018)

Key Observation: Proper signing of horizontal curves may reduce crashes by given guidance to motorist of the change in the alignment of the roadway and proper delineation along the roadway gives motorist guidance at night and during adverse weather.

Light Conditions

There were 390 of 1,005 crashes that occurred in daylight. There were 16 crashes that occurred on lighted roadways when dark, 477 crashes on non-lighted roadways when dark, 64 crashes during dawn and 48 crashes occurring at dusk, ten crashes were reported as unknown. The number of crashes that occurred in the dark is significant from the standpoint that efforts to improve nighttime visibility could have a positive impact on reducing nighttime crashes.

Key Observation: An analysis of corridors where there were a higher number of crashes after dark was not conducted. It was assumed that a street lighting project was not applicable for rural corridors. However, recommendations for countermeasures to reduce the potential for after dark crashes or crash severity would be beneficial by the following:

- Proper signing of horizontal curves may reduce non-daylight hours by given guidance to motorist of the change in the alignment of the roadway.
- Proper delineation along the roadway, used for motorist guidance at night and during adverse weather.
- Centerline and shoulder rumble strips, alert motorist as they cross the center or edge line of the roadway through creating noise and vibration inside the vehicle. This allows them to take corrective countermeasures to return to the travel lane safely.

Street lighting projects for urban areas could be beneficial especially along existing and future shared use pathways.

Safety Restraint Use

The use of proper safety restraints in a moving vehicle helps reduce the severity of injuries for occupants in the event of a crash. Of the 17 reported Fatal crashes, 14 of the occupants were not using proper safety restraints. The three remaining fatalities, one occupant was only using a lap belt and two occupants used a lap belt and shoulder harness. Table 4.7 shows the frequency safety restraints being used.

Type of Safety Restraint Used	Number of Occupants					Percentage
	Gregory County	Mellette County	Todd County	Tripp County	Total	
Child/Youth restraint system used properly	1	0	1	0	2	0.2%
Helmet and eye protection	3	1	0	1	5	0.4%
Helmet only	1	0	0	0	1	0.1%
Lap belt and shoulder harness used	73	35	10	179	297	24.0%
Lap belt only used	3	4	0	4	11	0.9%
None used	38	20	6	43	107	8.6%
Not applicable	5	2	0	23	30	2.4%
Not Reported	47	43	22	492	604	48.7%
Shoulder harness only used	3	0	0	3	6	0.5%
Unknown	45	11	12	109	177	14.3%
Total	**219**	**116**	**51**	**854**	**1240**	**100.0%**

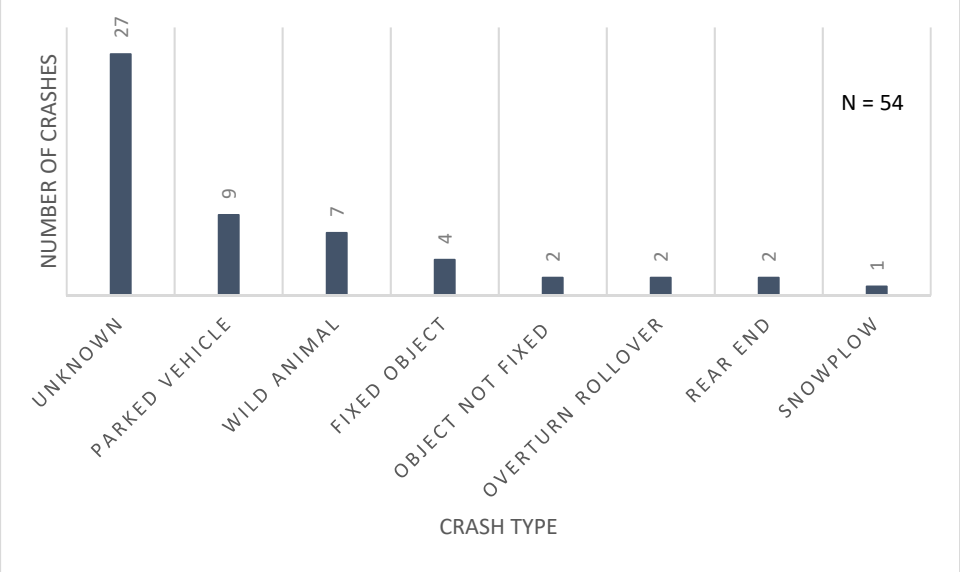
Table 4.7: Safety Restraint Used for Crashes (2014-2018)

Key Observation: Approximately 24% of occupants within the four-county area used a proper safety restraint. This percentage maybe higher as type of safety restraint used information for Wild Animal crashes was not reported and account for approximately 48.7% of the reported crashes. Recommendations to address increase use of safety restraints are contained in the 2014 Tribal Transportation Safety Plan and is recommended to reviewed for implementation.

Tribal Law Enforcement Reported Crashes

Tribal Law Enforcement was able to provide crash data from January 1, 2019 – March 31, 2019 in Todd County. The three months of provided data show a reported 54 crashes or 18 crashes per month. The reported 54 crashes are much higher than the 42 reported crashes in Todd County by the SDDOT database over a five-year period. Showing how under reported crashes are from the Tribal Law Enforcement. Extrapolating the average monthly reported crashes by Tribal Law Enforcement, Todd county could have seen a potential 216 crashes for the current year. The data provided is very vague and does not provide complete information about the crash. **Figure 4.6** shows the different types of crashes reported by the Tribal Law Enforcement.

Figure 4.6: Reported Crashes in Todd County by Tribal Law Enforcement



Unknown crashes are the leading crash type reported by Tribal Law Enforcement, crash descriptions provided for these crashes include medical, diver error, or weather related for some examples. These descriptions provide a contributing circumstance to the crash but does not provide adequate information for the crash type. Locations of these reported crashes are given but the descriptions are very limited as they only provide either a roadway route name or a community name and not the exact physical location. Thus, making it difficult for one to identify if there are any crash patterns or clusters occurring in a particular area that needs to be address with possible safety improvements or other countermeasures. There were no reported fatalities by the Tribal Law Enforcement, 15 of the reported crashes resulted in an injury and 39 of the reported crashes resulted in property damage only.

Adequate crash information plays a crucial role for the Tribe as this information can be used to assist in applying and securing TTPSF funds for safety improvements on roadways throughout the Reservation.

5.0 COUNTERMEASURES

Safety issues along the studied corridors were assigned specific countermeasure to address each issue location based on the available crash data. Recommended countermeasure includes the following:

- Add Shoulders and Flatten Slopes
- Install Guardrail
- Remove Guardrail
- Maintain vegetation along roadway
- Install Centerline and Shoulder Rumble Strips on paved routes
- Install Delineators
- Improve Horizontal Alignment
- Flatten Inslopes
- Install Retroreflective Pavement Marking
- Install Retroreflective Signs
- Install Horizontal Alignment Signs
- Install Advisory Speed Plaque with Horizontal Alignment Signs
- Install Chevron Alignment Signs
- Improve Road Ditch Drainage
- Improve Culverts
- Improve Roadway Surface
- Improve Intersection Sight Distance
- Improve Intersection Alignment
- Remove/Relocate Fixed Objects outside Clear Zone
- Improve Bridge Ends
- Install Separated Shared Use Pathway
- Install Sidewalks
- Install Signed, Marked Crosswalks
- Install Pedestrian Rectangle Rapid Flashing Beacon
- Install Pedestrian Refuge Islands

Safety issues prevalent along the Rosebud Sioux Reservation rural and urban roadways include poor road surfaces, poor road cross section, fixed objects and wild animal, grade or curve issues, and sign and pavement marking issues. Discretion was used in deciding whether a safety issue should be addressed with countermeasures. Although this Road Safety Audit is only limited to nine routes throughout the Reservation, these countermeasures can be used on other routes that the Tribe maybe experiencing similar issues.

Where applicable, Crash Reduction Factors (CRF) were listed for each countermeasure. These CRF's were taken from the FHWA's Crash Modification Factors Clearinghouse located at https://safety.fhwa.dot.gov/tools/crf/resources/. A CRF is an estimate of the percentage reduction in crashes due to a particular countermeasure. The CRF's gives the Rosebud Sioux Tribe staff additional information on the expected benefit of implementing a particular countermeasure. The intent is to support the process used by the Rosebud Sioux Tribe to prioritize future projects. Table 5.1 summarizes the CRF's for the recommended countermeasures.

Recommended Countermeasure	CRF (%)
Add Shoulders and Flatten Side Slopes	42
Install Guardrail	26
Remove Guardrail	N/A
Maintain Vegetation Control Along Roadside	N/A
Install Centerline and Shoulder Rumble Strips	23
Install Delineators	15
Install Transverse Rumble Strips on Stop Controlled Approaches	25.5
Flatten Inslopes	42
Install Retroreflective Pavement Markings	24
Install Retroreflective Signs	18
Install Horizontal Alignment Signs	18
Install Advisory Speed Plaque with Horizontal Alignment Signs	18
Install Chevron Alignment Signs	18
Improve Roadway and Ditch Drainage	N/A
Improve Culverts	N/A
Improve Roadway Surface	N/A
Improve Intersection Sight Distance	F(x)*
Improve Intersection Alignment	N/A
Remove/Relocate Fixed Objects outside Clear Zone	38
Improve Bridge Ends	N/A
Install Separated Shared Use Pathway	N/A
Install Sidewalks	N/A
Install Signed, Marked Crosswalks	15
Install Pedestrian Rectangle Rapid Flashing Beacon	28
Install Pedestrian Refuge Island	25.8

* - CRF% based off a function relating AADT, existing available intersection sight distance and condition of interest

Table 5.1: Crash Reduction Factors for Recommended Countermeasures

Guidance for application of these countermeasures is contained in the Manual on Uniform Traffic Control Devices (MUTCD) and American Association of State highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets. It is strongly recommended that these manuals be consulted and adhered to prior to application of these countermeasures.

The sections below summarize how the CFR's can be applied.

Add Shoulders and Flatten Side Slopes

Many older two-lane roadways were constructed with little to no shoulder width and slopes that were extremely steep causing vehicles to roll over if they leave the roadway. As design standards have advanced, they now require wider surfaces and flattened slopes for safety reasons. Guidance on minimum widths and slopes can be found in the AASHTO A Policy on Geometric Design of Highways and Streets and the AASHTO Roadside Design Guide.

IMPROVE SHOULDER SURFACE

Few of the routes that were inventoried provided shoulders along the roadway. One route in particular, BIA 1, provided a concrete pavement travel way with a wide gravel shoulder. In some areas the gravel should was approximately four to six inches in difference creating a drop off between the travel roadway and the shoulder as showing in Figure 5.1. The drop off can potentially create a hazard for vehicles that

may depart the roadway or pulling over for an emergency situation. It is recommended that the MAP-21 Program consider using a more rigid material for the shoulder such as asphalt pavement or concrete pavement to potentially eliminate the grade separation between the road travel way and the shoulder. Using the more rigid material would allow the Tribe to install shoulder rumble strips as well, which could decrease the number of road departure crashes by alerting motorist through vibration and noise that they are leaving the travel way.

Figure 5.1: Grade Separation Between Roadway Travel Way and Gravel Shoulder



Guardrail

Guardrail is a safety barrier that is intended to prevent vehicles leaving the roadway in areas that have objects inside of the clear zone that cannot be removed, steep embankments or side slopes. Given the high cost of guardrail, significant discretion was used in selecting the locations where the greatest need appeared to exist. Decisions regarding the extent and type of guardrail to serve the needs of given location will need to be addressed as projects are programmed for implementation. Figure 5.2 shows an example of guardrail used on the roadway that has steep side slopes.

Figure 5.2: Guardrail Installed for Steep Side Slopes



Vegetation Control Along the Roadside

Vegetation along the roadside has the potential to become a hazard if not properly maintained. Trees close to the roadside can create fixed object within the clear zone and become hazard if a vehicle were to depart the roadway. Overgrown grass, weeds, brush and tree limbs can obscure or limit motorist's view of roadway

signs, oncoming traffic, wildlife and livestock, and pedestrian and bicycles. Figure 5.3 show an example of overgrown vegetation observed on the studied routes. Overall the Rosebud Sioux Tribe Road Maintenance Departmenthas done well maintaining vegetation along the roadside on other routes. FHWA does have a guide, "Vegetation Control for Safety *A Guide for Local Highway and Street Maintenance Personnel*" and should be reviewed if any maintenance issues may arise in the future.

Figure 5.3: Overgrown Vegetation Along the Roadside on BIA 5



Centerline and Shoulder Rumble Strips

Centerline rumble strips are at the centerline of the paved roadway intended to alert motorist crossing over to the opposing driving lane. Shoulder rumble strips are placed on the edge of the driving lane to warn drivers that they are departing the roadway not intended for routine traffic use. They are an effective countermeasure for reducing roadway departure crashes and head on crashes. Rumble strips are used on highspeed rural roads. Figure 5.4 shows an example of shoulder rumble strips.

Figure 5.4: Shoulder Rumble Strips



Delineators

Proper delineation along the roadway is used for motorist guidance at night and during adverse weather. Delineators are also beneficial at locations where roadway alignment changes and are considered as guidance devices rather than warning devices. They come in various sizes and designs to address varying

applications. Delineators are typically used on rural roadways with no street lighting and marking approaches. Figure 5.5 shows various examples of delineators. The MUTCD and the SDDOT Sign and Delineator Design Guidelines for Local Roads gives recommendations and guidance for placement of delineators.

Figure 5.5: Roadside Delineators Example



Transverse Rumble Strips

Transverse Rumble Strips alert motorist in rural areas that they are approaching a stop sign at an intersection. The transverse strips typically consist of grooves crossing the roadway surface in a single travel lane that provides a tactile and audible warning for drivers.

Flatten Inslopes

It is desirable to have inslopes be 4:1 or flatter if site conditions allow for it. This allows for a greater recovery area if a vehicle departs the roadway. Where slopes exceed a 4:1, flatting (regrading) them could significantly reduce crashes and severity and is a cheaper alternative to roadside barriers. Information on desirable side slopes can be found in the AASHTO Roadside Design Guide.

Pavement Markings

Pavement markings communicate to motorist the intended travel path on roadways and roadway alignment for long-range delineation. The delineation of pavement markings improves nighttime highway visibility and guide the motorist of the intended travel path. Pavement markings are typically either a waterborne traffic paint or epoxy traffic paint with glass beads mixed into the paint to provide retroreflectivity. A high-performance pavement marking tape can be used as a replacement to either waterborne or epoxy traffic paint. This option provides a more durable pavement marking and can be

beneficial in areas with higher traffic volumes and high pedestrian traffic such as BIA 1. Figure 5.6 shows an example of high-performance pavement marking tape for a marked school crossing.

Figure 5.6: High-Performance Pavement Marking Tape



Retroreflective Signs

Roadway signs provide valuable information to motorist. For these signs to be effective, traffic sign visibility must be maintained during daytime and nighttime conditions. The reflective sheeting used on roadway signs allows better visibility for motorist at nighttime. The SDDOT is in the process of updating all the signing on paved route in Todd County in 2020 to meet current standards of the MUTCD. In 2023, SDDOT plans to do the same upgrade on signs on all other routes in Todd County. Many of the signs on the routes are showing signs of deteriorating and have little to no reflectivity. It is recommended that signs be checked and replaced if needed every five years to maintain proper reflective sheeting. It is also recommended that an inventory of signs be completed using GPS and photos to give MAP-21 program staff a list of signs that need to be maintained. Current practices use Type IV reflective sheeting or XI high intensity reflective sheeting for signs. Fluorescent yellow type XI-high intensity reflective sheeting should be used for horizontal alignment warning signs. Fluorescent yellow green type XI-high intensity reflective sheeting should be used for roadway signs used for school areas. Figure 5.7 shows examples of the different types of reflective sheeting for roadway signs.

Figure 5.7: Different Types of Reflective Sheeting for Roadway signs



Type IV Reflective Sheeting



Type XI Fluorescent Yellow Reflective Sheeting



Type XI Fluorescent Yellow Green Reflective Sheeting

Horizontal Alignment Signs

Advance horizontal alignment signs provide a warning to motorist of the presence of a curve ahead and of the need to possible slow down to safely navigate a curve. If the difference of the speed to safely navigate a curve differs by 10-miles per hour or greater from the posted speed limit on the roadway, a supplemental advisory speed plaque is required to alert motorist to slow down. The advisory speed is determined by an engineering study that follows established engineering practices. Traditionally a ball-bank indicator is used to establish an advisory speed and should be determined based on free-flowing traffic conditions. Figure 5.8 shows an example of the use of a horizontal alignment sign with a supplemental advisory speed plaque.

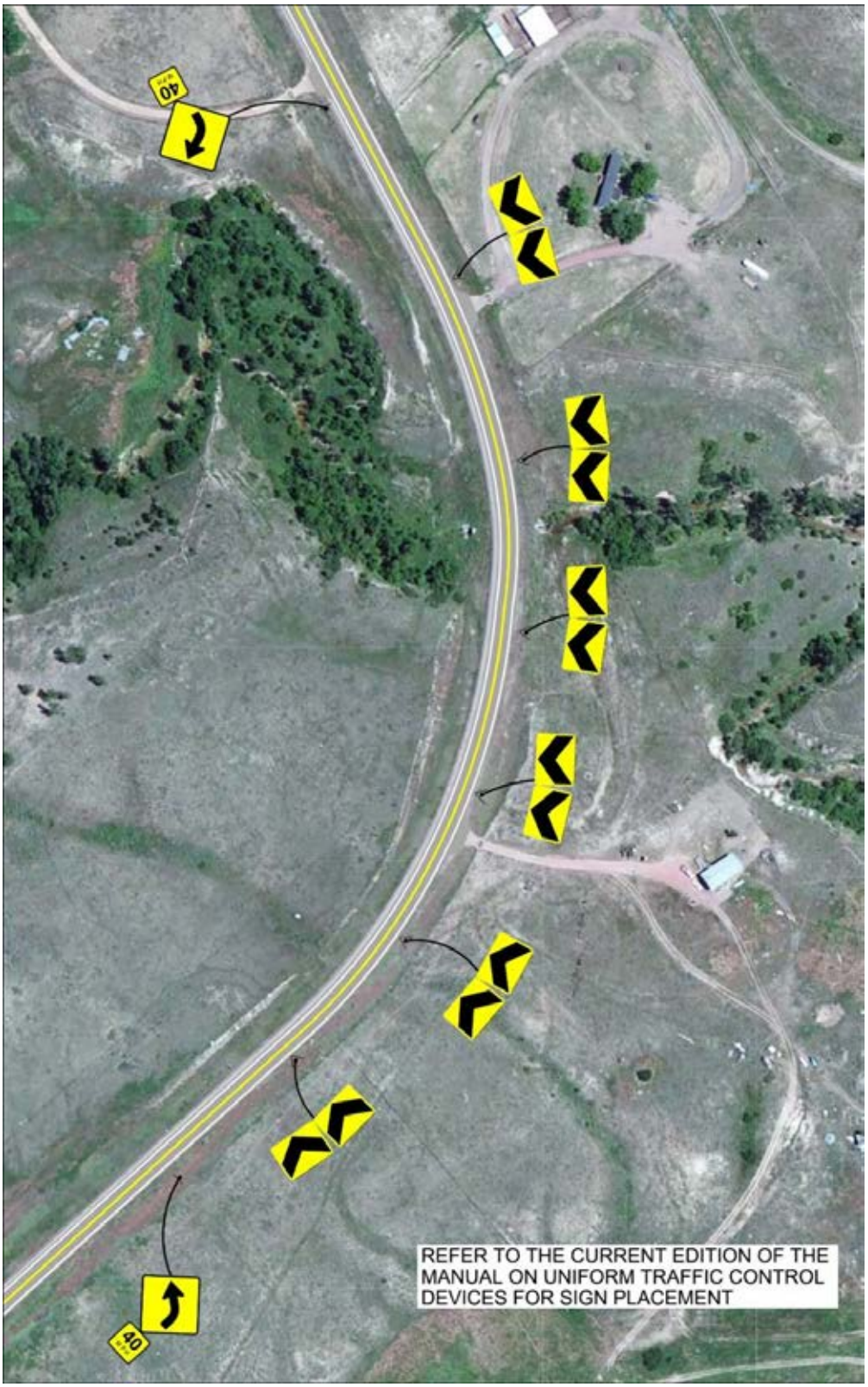
Figure 5.8: Horizontal Alignment Sign with Supplemental Advisory Speed Plaque



Chevrons

A chevron is a type of horizontal alignment warning sign used instead of or in addition to standard delineators to highlight the presence of a change in the roadway alignment. In some locations, chevrons were missing and/or the spacing between the signs were not consistent. The MUTCD provides guidance for the placement of chevrons and spacing requirements depending on the radius of the curve. Figure 5.9 shows an example of chevron spacing.

Figure 5.9: Curve Warning Signs Example



Roadway Drainage, Ditch Drainage and Culverts

Drainage plays an important part on the roadway system as it allows to move water off and away from the roadway. Many areas along the studied routes were showing buildup of water in the ditches or roadway surface as shown in Figure 5.10, creating a hazard for vehicles. It is important to maintain the roadway surface by maintaining a proper crown for the roadway if the surface is gravel/dirt so water can drain off the roadway into the ditches. Additionally, it is necessary to maintain these ditches by regrading them over to time to allow water to flow and properly drain. Culverts help maintain the drainage by allowing water to flow under the roadway without damaging the road subbase. Many of the culverts in the study area do not have flared end sections on them and create an obstacle for drivers to hit along with steeper slopes near the culvert ends. Flared end sections suitable to be within the clear zone should be added to theses culverts and the slope be regraded. The SDDOT Roadway Design Manual and standard plates for culverts shows examples of different flared end sections to use with different types of culverts. It is recommended to refer to these standard plates when replacing culvert ends.

Figure 5.10: Water Pooling on Roadway



Roadway Surface

Many of the gravel roads within the Rosebud Indian Reservation are showing signs of washboarding and rutting as shown in Figure 5.11, creating an undesirable surface to drive on. Washboarding can lead to loss of vehicle control when traveling at high speeds. The four primary causes of washboarding are:

1. The driving habits of people
2. Lack of Moisture
3. Poor quality of gravel
4. Lack of crown on the surface[6]

The Gravel Roads Construction & Maintenance Guide by the U.S. Department of Transportation provides guidance on how to prevent and maintain washboarding and should be referred to.

[6] Gravel Roads Construction & Maintenance Guide, U.S. Department of Transportation, August 2015

Figure 5.12: Washboarding on Gravel Surface



Many of the asphalt paved routes on the Rosebud Indian Reservation are showing signs of distress with potholes, pavement heaving, cracking and rutting to name a few. This is creating a road surface that is undesirable to drive on and could lead to loss of vehicle control when traveling at high speeds. It is recommended that the Rosebud Sioux Tribe MAP-21 Program consider establishing a Pavement Management Plan (PMP) and conduct a Pavement Surface Evaluation and Rating (PASER). A PASER Study method is a method developed by the Federal Highway Administration (FHWA). This method is based on visual assessment of the current roadway conditions and provides recommended roadway treatments based on the current pavement condition. PASER is based on engineering principles, for evaluating paved roads in a time-efficient and consistent manner. The PASER method outputs a simple 1-through-10 rating for each section of roadway studied. One being the roadway has failed and ten being the roadway is in excellent condition. This provides a simple and understandable way to communicate pavement conditions to elected officials and the public and allows more time for scheduling and budgeting. The ability to know and understand roadway conditions is an extremely useful tool in scheduling preventative maintenance, instead of waiting until roads are degraded to the point where costlier corrective and emergency maintenance treatments are required. PASER ratings assist in identifying roadway conditions and prioritizing improvements based on a range of factors including roughness (ride), surface distress (condition), surface skid characteristics, and structural characteristics (potholes, cracking, etc.). Based on the PASER rating, different maintenance tasks are required to maintain or raise the rating for a section of roadway. By continuing to ensure that a good roadway remains in good condition, the life of a roadway can be extended for a far-lower upfront cost than by waiting until a more-intensive and expensive maintenance method is required. The PASER study would allow the Tribe to establish a PMP, allowing the Tribe to prioritize which roadways require immediate attention for maintenance needs and fiscally plan for future maintenance needs. Figure 5.13 shows poor asphalt pavement conditions observed during the roadway inventory.

Figure 5.13: Poor Asphalt Pavement Conditions



Intersection Sight Distance

Crashes and crash severity can potentially increase at intersections if there is insufficient sight distance. Multiple intersections throughout the studied routes had intersection sight distance issues for both controlled and uncontrolled intersections due to skewed intersections, overgrown vegetation and trees, and setback stopping location resulting from shared-use paths crossing an intersection. Removal of overgrown vegetation or trees within a driver's sight triangles will allow them to anticipate and avoid potential collisions. Information for required intersection sight distance and calculations can be found in the AASHTO Roadside Design Guide. Figure 5.14 shows an example of an intersection with limited sight distance because of overgrown vegetation and trees.

Figure 5.14: Intersection with Limited Intersection Sight Distance



Remove Fixed Objects from the Clear Zone

Fixed objects such as trees and dense vegetation, utility poles, guy wire anchors, mailboxes and rocks, such as shown in Figure 5.15, that are within the designated clear zone near the roadway have been found to be a significant cause of crashes, particularly injuries and fatalities in rural areas. Removal of these hazards can significantly reduce crashes and severity. Information on clear zone limits and calculation can be found in the AASHTO Roadside Design Guide.

Figure 5.15: Example Fixed Objects within the Clear Zone



Separated Shared Use Pathway

Shared use paths are facilities that are separated from a roadway and occupy an exclusive right-of-way. Intended users are non-motorized and may include bicyclists, in-line skaters, roller skaters, wheelchair users (both non-motorized and motorized) and pedestrians, including walkers, runners, people with baby strollers, people walking dogs, etc. These facilities are most commonly designed for two-way travel. An example is shown in Figure 5.16.

Figure 5.16: Separated Pathway



Attached Sidewalks

An attached sidewalk in urban areas is intended to remove pedestrians from the travelled way and reduce or eliminate interaction with vehicles. There may be additional separation provided if on street parking is allowed. Generally, these are used behind a curb and gutter section and may include a buffer area for trees or grass.

Marked Crosswalks

Providing marked crosswalks traditionally has been one measure used in an attempt to facilitate pedestrian crossings. Such crosswalks commonly are used at uncontrolled locations (i.e., sites not controlled by a traffic signal or stop sign) and sometimes at midblock locations. The use of these marked crosswalks such as shown in Figure 5.17 have been shown to be an effective countermeasure in the reduction of pedestrian injuries and fatalities.

Figure 5.17: Marked Crosswalk



Pedestrian Rapid Flashing Beacon

Rectangular rapid-flash beacons are devices that are placed on both sides of a crosswalk below the pedestrian crossing sign and above the arrow indication pointing at the crossing, see Figure 5.18. These devices should not be used if the crossing is controlled by a YIELD sign, STOP sign or traffic signal. If there is a pedestrian refuge or other type of median, a beacon can be installed in the median rather than the far-side of the roadway. The pedestrian activation can be with pushbuttons or automated through pedestrian detection and should be unlit when not activated.

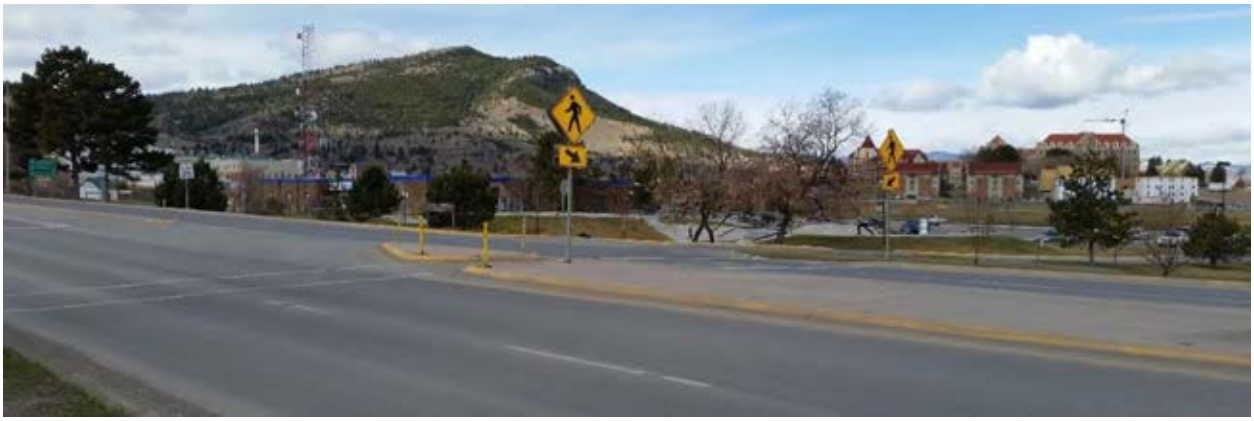
Figure 5.18: Pedestrian Rapid Flashing Beacon



Pedestrian Refuge Island

Pedestrian Refuge Islands are channelized raised medians between opposing lanes of traffic that allow pedestrians cross one direction of traffic at time. This helps reduce the delay for pedestrian trying to wait for an acceptable gap clearance in traffic to cross the roadway. Pedestrian Refuge Islands are ideal for multilane urban roadway such as BIA 1 in Rosebud, as they have been known to significantly reduce pedestrian related crashes. Figure 5.19 shows an example of a Pedestrian Refuge Island.

Figure 5.19: Pedestrian Refuge Island



6.0 RECOMMEND IMPROVEMENTS

Although this Road Safety Audit is only limited to nine routes throughout the Reservation, recommendations for each route can be used on other routes that the Tribe maybe experiencing similar issues.

Reservation Wide Improvements

The following are recommendations for improvements throughout the entire Rosebud Indian Reservation.

Delineators

During the inventory process it was noted that a vast majority of the routes do not have or have very limited delineation along the roadway. Delineation is used for motorist guidance at night and during adverse weather. It is beneficial at locations where roadway alignment changes and are considered as guidance devices rather than warning devices. They come in various sizes and designs to address varying applications. Delineators are typically used on rural roadways with no street lighting and marking approaches. It is recommended that all routes within the Rosebud Indian Reservation be delineated using proper spacing for tangent and horizontal sections of the roadway. The MUTCD and the SDDOT Sign and Delineator Design Guidelines for Local Roads gives recommendations and guidance for placement of delineators and should be referred to when placing delineators.

Vegetation Control Along the Roadside

Vegetation along the roadside has the potential to become a hazard if not properly maintained. Trees close to the roadside can create fixed object within the clear zone and become hazard if a vehicle were to depart the roadway. Overgrown grass, weeds, brush and tree limbs can obscure or limit motorist's view of roadway signs, oncoming traffic, wildlife and livestock, and pedestrian and bicycles. The Rosebud Sioux Tribe Road Maintenance Departmentis currently doing very well maintaining vegetation along the roadside as shown in Figure 6.1 below on majority of the BIA routes that were inventoried with exception to a few. It is recommended that overgrown vegetation be addressed and referral to FHWA guide, "Vegetation Control for Safety *A Guide for Local Highway and Street Maintenance Personnel*" and should be reviewed if any maintenance issues may arise in the future.

Figure 6.1: Maintained Vegetation Along the Roadside on BIA 9



Roadway Drainage, Ditch Drainage and Culverts

Drainage plays an important part on the roadway system as it allows to move water away from the roadway. Many areas along the studied routes were showing buildup of water in the ditches and on the roadway, primarily on gravel/dirt roads, creating another hazard for vehicles if they were to depart the roadway. It is recommended that gravel/dirt roads be maintained to ensure a proper crown is on the road through grading the roadway, allowing the roadway to properly drain. Along with maintaining the roadway, ditches should be maintained and be part of a normal maintenance schedule by regrading them over time to allow water to flow and properly drain. Culverts help maintain the drainage by allowing water to flow under the roadway without damaging the road subbase. Many of the culverts in the study area do not have flared end sections on them and create an obstacle for drivers to hit along with steeper slopes near the culvert ends. It is recommended that flared end sections suitable to be within the clear zone be added to theses culverts and the slope be regraded during normal maintenance activities or as projects transpire. The SDDOT standard plates for culverts show examples of different flared end sections to use with different types of culverts. It is recommended to refer to these standard plates when replacing culvert ends. Figure 6.2 shows an example of a culvert with a flared end section. The Gravel Roads Construction & Maintenance Guide by the U.S. Department of Transportation provides guidance on maintaining gravel roads.

Figure 6.2: Culvert with Flared End Section Example



Guardrail

Guardrail is a safety barrier that is intended to prevent vehicles leaving the roadway in areas that have objects inside of the clear zone that cannot be removed, steep embankments or side slopes. Given the high cost of guardrail, significant discretion was used in selecting the locations where the greatest need appeared to exist. Decisions regarding the extent and type of guardrail to serve the needs of given location will need to be addressed as projects are programmed for implementation. Figure 6.4 shows areas were guardrail or slope flattening is recommended along the inventoried routes.

Flatten Inslopes

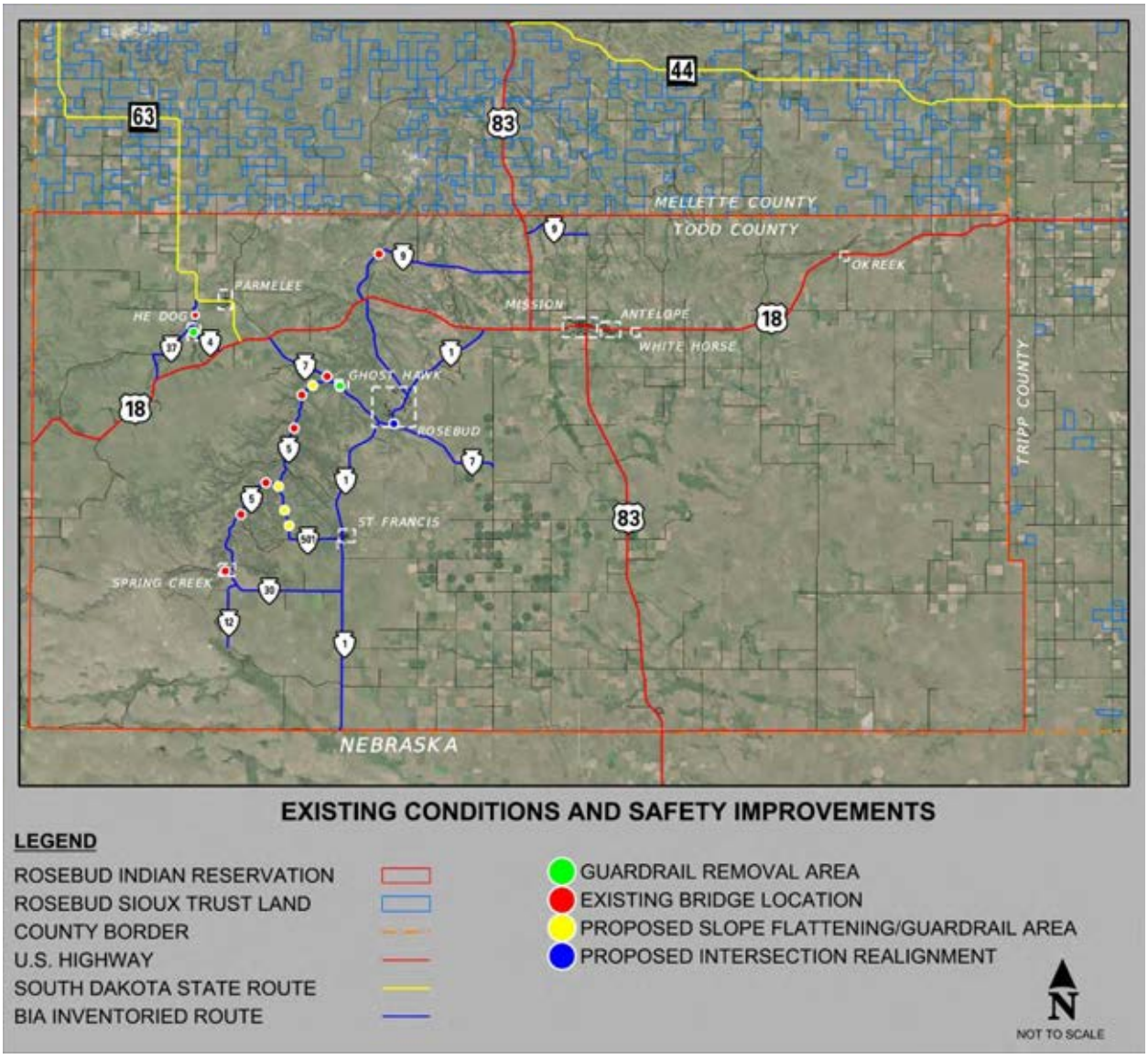
It is desirable to have inslopes be 4:1 or flatter if site conditions allow for it. This allows for a greater recovery area if a vehicle departs the roadway. Where slopes exceed a 4:1, flatting (regrading) them could significantly reduce crashes and severity and is a cheaper alternative to roadside barriers. Information on desirable side slopes can be found in the AASHTO Roadside Design Guide. Figure 6.4 shows areas were slope flattening is recommended if site conditions allow for it (e.g. limits of right-of-way). If site conditions

do not allow for slope flattening, guardrail is recommended. This would need to be decided during the engineering design process. Along with slope flattening, slopes of private and public approaches should be regraded to meet a desirable 4:1 slope of flatter.

Bridge End Treatments

There was a total of eight bridges along the inventoried routes. Five of the eight ridges had no end treatments and were only marked with object markers, one bridge utilizes bridge end treatments only for the direction of travel side and none for the opposing traffic. The remaining two bridges, one on BIA 4 and one on BIA 5, bridge end treatments on all four bridge ends. It is recommended that proper bridge end treatments be installed for these bridges including any bridge that was not inventoried during the RSA field review. The SDDOT Design Manual and Standard Plates provides guidance on proper bridge end treatments and should be referred to when selecting end treatments. Figure 6.4 shows the locations of existing bridges that were inventoried during the field visit.

Figure 6.4: Existing Conditions and Safety Improvements



Improve Roadway Surface

Many of the asphalt paved routes on the Rosebud Indian Reservation are showing signs of distress with potholes, pavement heaving, cracking and rutting to name a few. This is creating a road surface that is undesirable to drive on and could lead to loss of vehicle control when traveling at high speeds. It is recommended that the Rosebud Sioux Tribe MAP-21 Program consider establishing a PMP and conduct a PASER study. Establishing a PMP will allow the Tribe to prioritize which roadways require immediate attention for maintenance needs and fiscally plan for future maintenance needs.

Route Specific Improvements

The following are recommendations for improvements that are route specific within the Rosebud Indian Reservation.

BIA 1

BIA 1 is approximately 24.9-mile paved north/south rural major collector roadway. It begins at the junction of U.S. Highway 18 and heads south passing through the towns of Rosebud and St. Francis where it then terminates approximately 10-miles south of St. Francis at the South Dakota/Nebraska state line.

BIA 1 Northern Section

The northern section of BIA 1 begins at the intersection of U.S. Highway 18 that heads south for approximately 5.2-miles intersecting few local roads before terminating near the beginning of the urban section of BIA 1 in Rosebud north of the intersection of BIA 1 and BIA 9 near Marshmallow Street.

Due to the crash history throughout the four-county area and the crash countermeasures discussed in section 5.0, the recommended improvements for this route include the following:

- Maintain vegetation along roadway
- Improve Shoulder Surface
- Install Centerline and Shoulder Rumble Strips
- Install Delineators
- Install Retroreflective Pavement Marking

Roadway signs should be inspected every five years to check the condition and reflectivity of them at night and replaced as needed using retroreflective sheeting and background colors meeting current designs standards.

Pavement marking throughout this route are worn and have low visibility. It is recommended that the pavement marking be restriped using either waterborne or epoxy traffic paint with glass beads mixed into them. Inspection of the pavement markings should occur every other year to identify any places where they have deteriorated and be restriped.

BIA 1 provides a concrete pavement travel way with a wide gravel shoulder. In some areas the gravel shoulder was approximately four to six inches in difference creating a drop off between the travel roadway and the shoulder north of Rosebud. The drop off can potentially create a hazard for vehicles that may depart the roadway or pulling over for an emergency situation. It is recommended that the MAP-21 Program consider using a more rigid material for the shoulder such as asphalt pavement or concrete pavement to potentially eliminate the grade separation between the road travel way and the shoulder. Using the more rigid material would allow the Tribe to install shoulder rumble strips as well, which could

decrease the number of road departure crashes by alerting motorist through vibration and noise that alert the motorist they are leaving the travel way.

BIA 1 Urban Section

The urban section of BIA 1 begins near Marshmallow Street that head south for approximately 2.9-miles intersecting many local roads including BIA 9 were it terminates at the western edge of Rosebud. The speed limit varies from 20 mph within school zones, 45 mph in the northern part of the urban section, and 15 mph near the Tribal Headquarters. The roadway transitions from a 24-foot wide concrete and asphalt pavement sections with two travel lanes in the southern section to a five-lane concrete roadway with four travel lanes and a two-way left turn lane (TWLTL) 60-foot concrete pavement section in the northern section.

Due to the crash history throughout the four-county area, crashes at the 90-degree corner near Tribal Headquarters, and the crash countermeasures discussed in section 5.0, the recommended improvements for this route include the following:

- Install Retroreflective Pavement Marking
- Improve Intersection Sight Distance
- Manage access to BIA 1 at the Gas Station and BIA 7 Intersection
- Install 3-way Stop at BIA 1 and Circle Drive Intersection
- Install Signed, Marked Crosswalks
- Install Pedestrian Rectangle Rapid Flashing Beacon
- Install Pedestrian Refuge Islands

Roadway signs should be inspected every five years to check the condition and reflectivity of them at night and replaced as needed using retroreflective sheeting and background colors meeting current designs standards.

Pavement marking throughout this route are worn and have low visibility. It is recommended that the pavement marking be restriped using either waterborne or epoxy traffic paint with glass beads mixed into them. Inspection of the pavement markings should occur every other year to identify any places where they have deteriorated and be restriped.

The large 60-foot section within Rosebud creates a large distance for pedestrians to cover when crosses the street. It is recommended that a Pedestrian Crossing Study be completed in the area to identify known pedestrian crossing areas throughout the urban section. By identifying these locations, a raised pedestrian refuge island is recommended to helps reduce the delay for pedestrian trying to wait for an acceptable gap clearance in traffic to cross the roadway and increase pedestrian safety.

There is intersection sight distances issues at the intersection of BIA 1 and BIA 9 due the shared-use path and its separation from BIA 1. The path crosses the approach at a large offset, causing vehicles having to stop approximately 15-20 feet back from the intersection to allow pedestrians to cross. This causes vehicles having to creep forward and wait within the crosswalk in order to see if there is any oncoming traffic. It is recommended that realignment of the pathway be considered by bringing the pathway closer to the intersection. This will allow vehicles to stop closer to the intersection. Along with moving the pathway closer to the intersection, it is recommended that a raised median with a pedestrian refuge island be installed to create a physical barrier at the intersection. This would allow a free right turn from BIA 9 onto BIA 1 where

traffic would only need to yield to pedestrians and prevent vehicles using terminating right turn lane on BIA 1 continuing through the intersection. Figure 6.5 shows the recommended improvements to the intersection of BIA 1 and BIA 9.

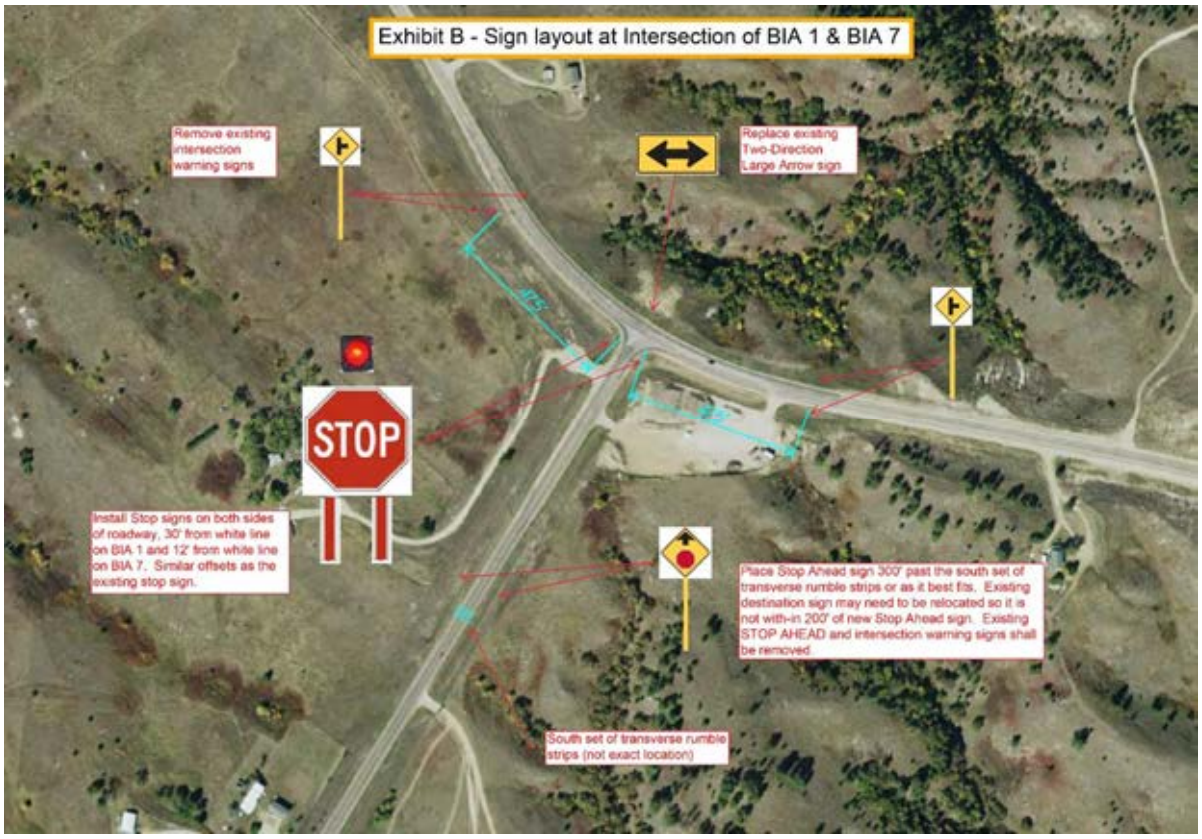
Figure 6.5: BIA 1 and BIA 9 Recommended Safety Improvements



BIA 1 Southern Section

The southern section of BIA 1 begins at the western edge of Rosebud, travels approximately 0.6-miles west to the intersection of BIA 1 and BIA 7. Tribal members have expressed concern of this intersection as many vehicles have passed through the stop sign on BIA 1 and have departed the roadway on the northside resulting in some serious injuries and fatal crashes. SDDOT has implemented a safety project for this intersection and is showing in Figure 6.6. By installing transverse rumble strips on BIA 1 along with the flashing beacons on the stop signs which will alert vehicles of the approaching intersection and the need for them to stop.

Figure 6.6: BIA 1 and BIA 7 Recommended Safety Improvements[7]



Due to the crash history throughout the four-county area and the crash countermeasures discussed in section 5.0, the recommended improvements for this route include the following:

- Add Shoulders
- Install Centerline and Shoulder Rumble Strips
- Install Delineators
- Install Retroreflective Pavement Marking
- Improve Culverts
- Improve Roadway Surface
- Remove/Relocate Fixed Objects outside Clear Zone

There currently are no shoulders south of the intersection of BIA 30 and BIA 1 to the South Dakota/Nebraska State line. It is recommended that shoulders be installed with shoulder rumble strips. This would provide increase safety benefits and would align with the remainder of the route north of the intersection of BIA 30 and BIA 1.

Roadway signs should be inspected every five years to check the condition and reflectivity of them at night and replaced as needed using retroreflective sheeting and background colors meeting current designs standards.

[7] Layout design Provided by the South Dakota Department of Transportation

Flared end sections are recommended to be added to culverts throughout the route and regrading of the slope around the culverts to meet desirable recovery slopes.

Pavement marking throughout this route are worn and have low visibility. It is recommended that the pavement marking be restriped using either waterborne or epoxy traffic paint with glass beads mixed into them. Inspection of the pavement markings should occur every other year to identify any places where they have deteriorated and be restriped.

BIA 4

BIA 4 is a north/south route that is approximately 4.4-miles long with a 24-foot asphalt pavement roadway width with no shoulders. The route begins at the intersection of South Dakota State Route 63 and BIA 4 just west of the community of Parmelle. The route heads south then west for approximately 0.5-miles before meeting with 282nd Street at a T-Intersection. Stop control should be considered for 282nd Street versus the yield control on the south leg of BIA 4, the predominant traffic movement use both the south and east leg of BIA 4 to travel to the school in He Dog.

Due to the crash history throughout the four-county area and the crash countermeasures discussed in section 5.0, the recommended improvements for this route include the following:

- Add Shoulders
- Remove Guardrail
- Install Centerline and Shoulder Rumble Strips
- Install Delineators
- Install Retroreflective Pavement Marking
- Install Horizontal Alignment Signs
- Install Advisory Speed Plaque with Horizontal Alignment Signs
- Install Chevron Alignment Signs
- Remove/Relocate Fixed Objects outside Clear Zone
- Improve Bridge Ends

Roadway signs should be inspected every five years to check the condition and reflectivity of them at night and replaced as needed using retroreflective sheeting and background colors meeting current designs standards.

Pavement marking throughout this route are worn and have low visibility. It is recommended that the pavement marking be restriped using either waterborne or epoxy traffic paint with glass beads mixed into them. Inspection of the pavement markings should occur every other year to identify any places where they have deteriorated and be restriped.

Horizontal alignment signs, advisory speed plaques and chevron signs are needed for placement, suggested advisory speed and chevron spacing along horizontal curves using current standards are outlined in the MUTCD. It is recommended that the suggested advisory speed be determined using a ball-bank indicator and should be determined based on free-flowing traffic conditions.

There currently there is no advance warning signs alerting drivers of the speed change going into He Dog. It is recommended that an advance warning signs be installed to alert drivers of the change in the posted speed limit as outlined in the MUTCD.

BIA 5

BIA 5 is a 13.7-mile asphalt paved north/south rural local road that follows along the Little White River. The route has a pavement top width of 24-feet and no shoulders. It begins at the intersection of BIA 5 and BIA 7 west of the community of Ghost Hawk then heads south intersecting local roads including BIA 501, where it jogs west for approximately 1 mile then heads south again for approximately 5.4-miles where it terminates at the intersection of BIA 5 and BIA 30 within the community of Spring Creek.

Due to the crash history throughout the four-county area and the crash countermeasures discussed in section 5.0, the recommended improvements for this route include the following:

- Maintain vegetation along roadway
- Install Delineators
- Install Retroreflective Pavement Marking
- Install Horizontal Alignment Signs
- Install Advisory Speed Plaque with Horizontal Alignment Signs
- Install Chevron Alignment Signs
- Improve Intersection Sight Distance
- Improve Roadway Surface
- Remove/Relocate Fixed Objects outside Clear Zone
- Improve Bridge Ends

BIA 5 is considered by many tribal members as a scenic byway. The nature of the roadway and following the Little White River it is anticipated that the route would be traveled at lower speeds. Shoulders, guardrail and rumble strips are not recommended for this route.

Roadway signs should be inspected every five years to check the condition and reflectivity of them at night and replaced as needed using retroreflective sheeting and background colors meeting current designs standards.

Pavement marking throughout this route are worn and have low visibility. It is recommended that the pavement marking be restriped using either waterborne or epoxy traffic paint with glass beads mixed into them. Inspection of the pavement markings should occur every other year to identify any places where they have deteriorated and be restriped.

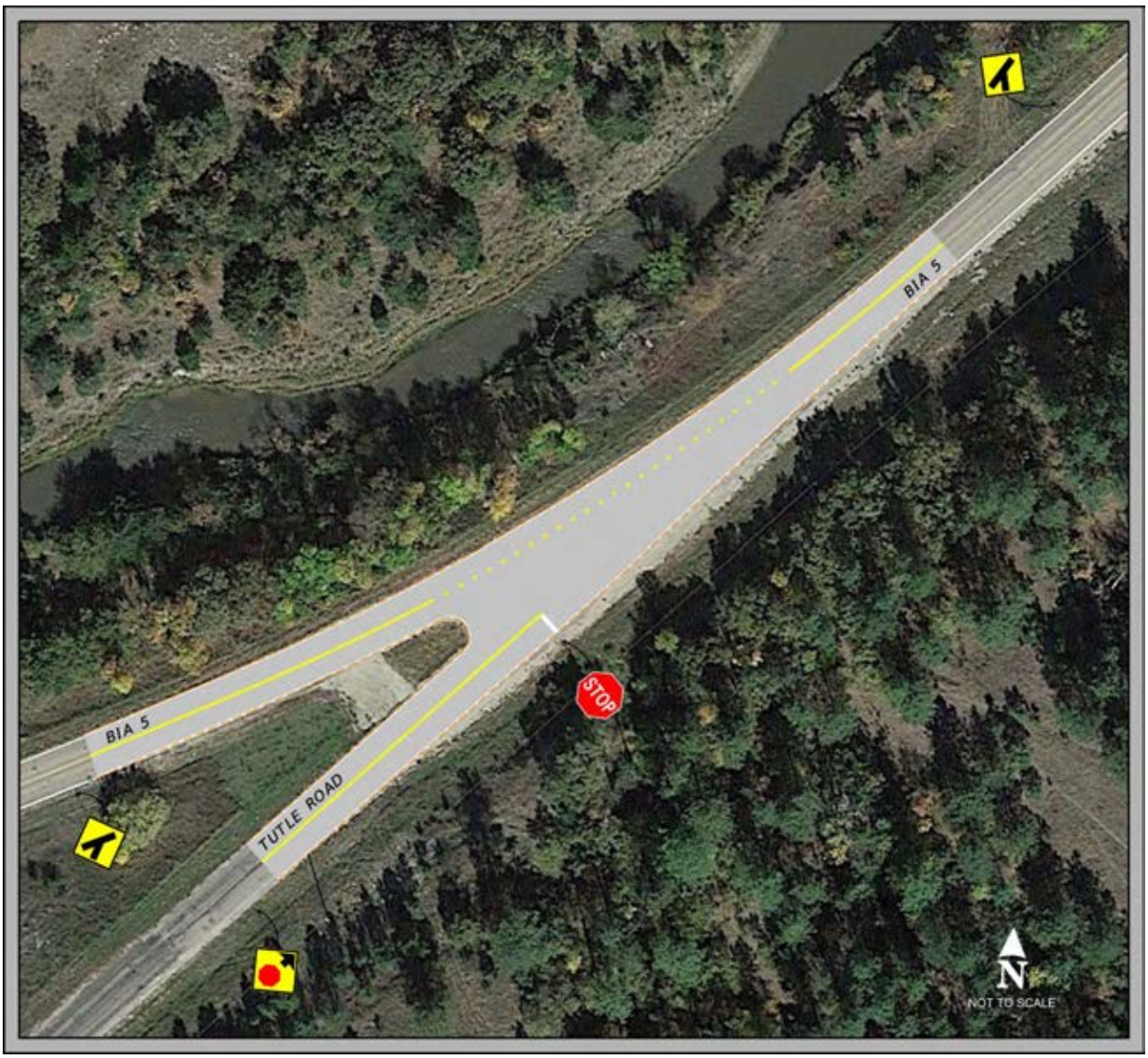
There currently are no advance warning signs alerting drivers of the speed changes throughout the route. It is recommended that an advance warning signs be installed to alert drivers of the change in the posted speed limit as outlined in the MUTCD.

Intersection sight distance issues were also observed along the route at two different locations where a secondary road intersect BIA 5 at a large skew. These two intersections are BIA 5 and BIA 501, and BIA 5 and Tutle Road. Figure 6.7 and Figure 6.8 shows low cost recommended improvements for the two intersection.

Figure 6.7: BIA 5 and BIA 501 Recommended Improvements



Figure 6.8: BIA 5 and Tutle Road Recommended Improvements



BIA 7

BIA 7 is a rural major collector 13.6-mile northwest/southeast route with an average top width of 36-feet for the western section and 24-feet for the eastern section. The route begins at the intersection of U.S. Highway 18 and heads southeast intersecting local roads including BIA 5 and BIA 1 approximately 0.6-miles west of Rosebud. The route then continues from BIA 1 in the town of Rosebud to 6-miles where it terminates at the intersection of Lakeview Road.

Due to the crash history throughout the four-county area and the crash countermeasures discussed in section 5.0, the recommended improvements for this route include the following:

- Improve Intersection with BIA 1 in Rosebud
- Maintain Vegetation Along Roadway
- Remove Guardrail at Ghost Hawk Lake

- Improve Guardrail at Rosebud Dam
- Install Delineators
- Improve Intersection Alignment
- Install Retroreflective Pavement Marking
- Remove/Relocate Fixed Objects outside Clear Zone

The SDDOT is currently planning on installing shoulder rumble strips on the western section of the route for the Tribe as a safety project within the next year or two. Rumble strips should also be added to the western section of BIA 7 after reconstruction.

Roadway signs should be inspected every five years to check the condition and reflectivity of them at night and replaced as needed using retroreflective sheeting and background colors meeting current designs standards.

Pavement marking throughout this route are worn and have low visibility. It is recommended that the pavement marking be restriped using either waterborne or epoxy traffic paint with glass beads mixed into them. Inspection of the pavement markings should occur every other year to identify any places where they have deteriorated and be restriped.

There currently are no advance warning signs alerting drivers of the speed changes going into Rosebud. It is recommended that an advance warning signs be installed to alert drivers of the change in the posted speed limit as outlined in the MUTCD.

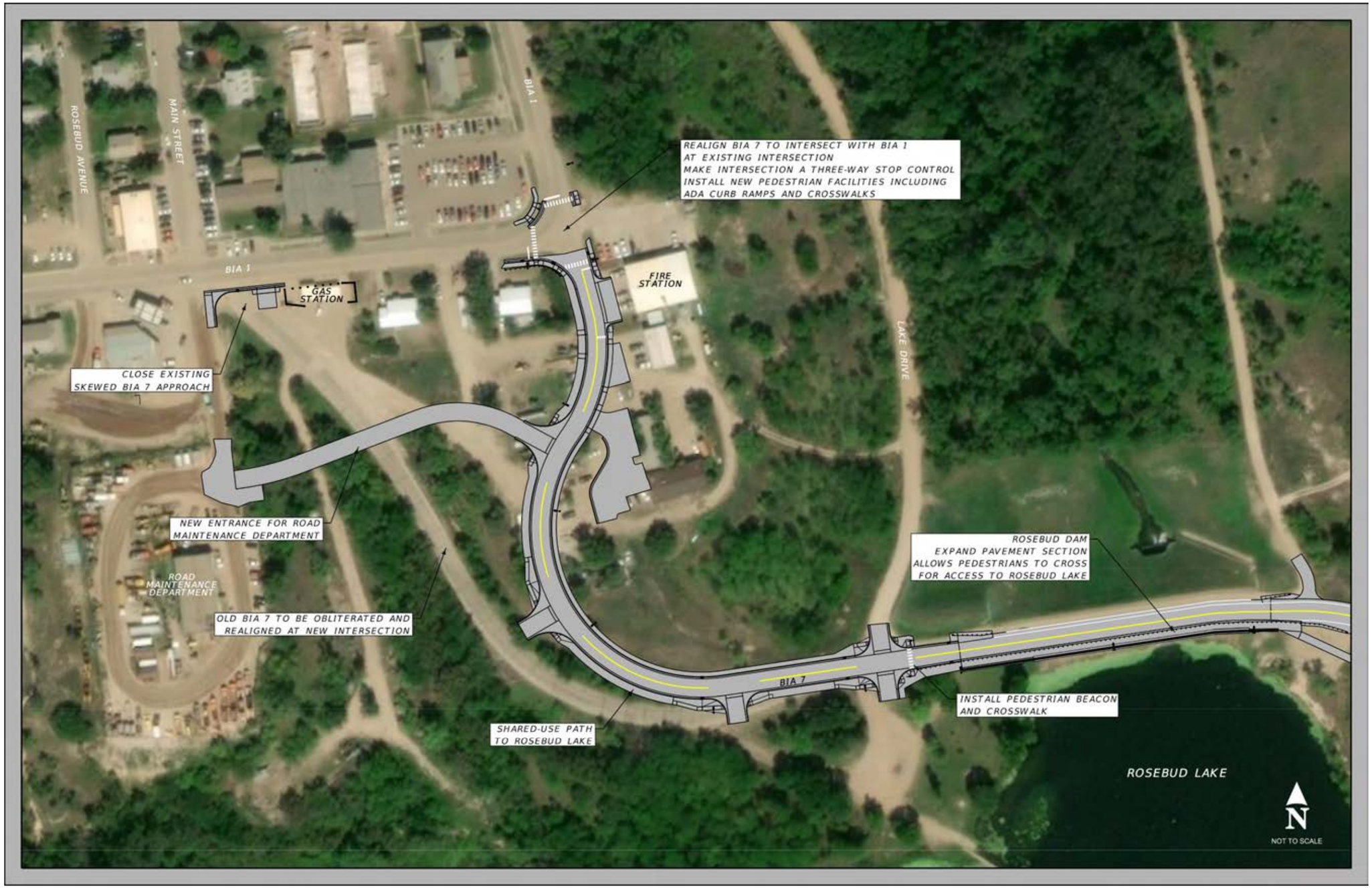
As guardrail can be used as a safety improvement along the roadway when deemed as a necessary safety improvement, it can also become a roadside hazard by creating a fixed object within the clear zone when there is no added benefit for the guardrail. During the inventory process it was observed on BIA 7 near Ghost Hawk Lake, outdated cable guardrail is present and served more as a safety hazard versus a safety benefit. Where the guardrail is installed the slopes are relatively flat on both sides of the roadway and there is adequate clear zone space between the roadway and the lake on the south side of the roadway. It is recommended that this guardrail be removed from the areas along with additional wood post that are within the clear zone of the roadway.

BIA 7 REALIGNMENT

The intersecting angle of BIA 7 to BIA 1 in Rosebud is at an acute angle and results in reduced sight distance. The intersection is further complicated by uncontrolled access to the adjacent gas station, parking on north side of BIA 1 and opposite street intersections in close proximity. Since realigning BIA 7 to intersect BIA 1 at 90 degrees and placing directly across from Main St reduces access to the gas station, an alternate placement of BIA 7 is recommended. See **Figure 6.9** for recommended location of BIA 7 and BIA 1 intersection. A 3-way stop, pedestrian pathways, ADA ramps, and crosswalks are also recommended. The gas station access should be better managed and truck traffic from road maintenance shop rerouted.

Since pedestrians are currently using BIA 7 to approximately 1 mile east of Rosebud, a lighted pathway should be incorporated with reconstruction to provide a safe, separated location for pedestrians.

Figure 6.9: BIA 7 Realignment



BIA 9

BIA 9 is a 20.6-mile-long roadway. The roadway is paved for approximately 5.8-miles with an average top width of 36-feet. The remaining 14.8-miles of roadway is gravel with an average top width of 20-feet.

BIA 9 Paved Section

The paved section of BIA 9 is functionally classified as a rural local road and begins in Rosebud at the intersection BIA 1 and BIA 9. The roadway then heads north/northwest for approximately 5.8-miles where it terminates at the intersection of BIA 9 and U.S. Highway 18.

Due to the crash history throughout the four-county area and the crash countermeasures discussed in section 5.0, the recommended improvements for this route include the following:

- Maintain vegetation along roadway
- Install Delineators
- Install Retroreflective Pavement Marking
- Install Centerline and Shoulder Rumble Strips

Roadway signs should be inspected every five years to check the condition and reflectivity of them at night and replaced as needed using retroreflective sheeting and background colors meeting current designs standards.

Pavement marking throughout this route are worn and have low visibility. It is recommended that the pavement marking be restriped using either waterborne or epoxy traffic paint with glass beads mixed into them. Inspection of the pavement markings should occur every other year to identify any places where they have deteriorated and be restriped.

BIA 9 Gravel Section

The gravel section of BIA is functionally classified as rural major collector and begins approximately 1,200 feet west of where the pavement section ends on U.S. Highway 18. The route then heads north/northeast for approximately 3.3-miles before jogging east for 8-miles ending at the intersection of BIA 9 and U.S. Highway 83. BIA 9 then begins again off U.S. Highway 83 approximately two miles north where it heads east for an additional 3.5 terminating at the intersection of BIA 9/278th Street and 274th Avenue.

Due to the crash history throughout the four-county area and the crash countermeasures discussed in section 5.0, the recommended improvements for this route include the following:

- Maintain vegetation along roadway
- Install Delineators
- Improve Bridge Ends

Roadway signs should be inspected every five years to check the condition and reflectivity of them at night and replaced as needed using retroreflective sheeting and background colors meeting current designs standards.

The gravel section on BIA 9 has been well maintained by the Rosebud Sioux Tribe Road Maintenance Department. It is recommended that their practices be continued and be carried over to other gravel routes within the Reservation.

BIA 12

BIA 12 is approximately a 3.6-mile gravel rural local road with a roadway width of 22-feet. The route begins at the intersection of BIA 30 and BIA 12 then heads southwest for 0.4-miles before heading south for 3.2 mile and terminates at the intersection of BIA 12 and Two Eagle Road.

Due to the crash history throughout the four-county area and the crash countermeasures discussed in section 5.0, the recommended improvements for this route include the following:

- Maintain vegetation along roadway
- Install Delineators
- Install Retroreflective Pavement Marking
- Install Horizontal Alignment Signs
- Install Advisory Speed Plaque with Horizontal Alignment Signs
- Install Chevron Alignment Signs
- Improve Road Drainage and Ditch Drainage
- Remove/Relocate Fixed Objects outside Clear Zone

Roadway signs should be inspected every five years to check the condition and reflectivity of them at night and replaced as needed using retroreflective sheeting and background colors meeting current designs standards.

The gravel section is currently showing signs of washboarding and rutting creating an unsafe driving surface for drivers. It is recommended that the gravel be regraded to correct the washboarding and rutting. The Gravel Roads Construction & Maintenance Guide by the U.S. Department of Transportation provides guidance on how to prevent and maintain washboarding and should be referred to.

BIA 30

BIA 30 is approximately 9.7-mile asphalt paved rural major collector roadway with a width of 24-feet and no shoulders. It begins in the community of Spring Creek approximately 2.7-miles west of the intersection of BIA 30 and BIA 5. The head through a series of curve before heading east for five miles where it terminates at the intersection of BIA 30 and BIA 1.

Due to the crash history throughout the four-county area and the crash countermeasures discussed in section 5.0, the recommended improvements for this route include the following:

- Maintain vegetation along roadway
- Install Delineators
- Install Centerline Rumble Strips
- Install Retroreflective Pavement Marking
- Install Horizontal Alignment Signs
- Install Advisory Speed Plaque with Horizontal Alignment Signs
- Install Chevron Alignment Signs
- Remove/Relocate Fixed Objects outside Clear Zone
- Install Sidewalks
- Install Signed, Marked Crosswalks

Within the community of Spring Creek there is no school zone signing near the school off Yellow Cloud Road. Along with the no school zone signing there is no designated area for school aged children to easily

walk to and from school to the tribal housing areas. This creates hazards as children may then walk on the road to get to their destinations. It is recommended that sidewalk and proper signing and crosswalks be installed for the school zone following the guidelines from the MUTCD.

There currently are no advance warning signs alerting drivers of the speed changes going into Spring Creek and near the school. It is recommended that an advance warning signs be installed to alert drivers of the change in the posted speed limit as outlined in the MUTCD.

There are currently no shoulders throughout the entire route. Due to the absence of shoulders, shoulder rumble strips are not recommended but a centerline rumble strip is recommended. It is recommended that thicker white edge line be striped on the roadway to provide more emphasis on the edge of the travel way.

Roadway signs should be inspected every five years to check the condition and reflectivity of them at night and replaced as needed using retroreflective sheeting and background colors meeting current designs standards.

Pavement marking throughout this route are worn and have low visibility. It is recommended that the pavement marking be restriped using either waterborne or epoxy traffic paint with glass beads mixed into them. Inspection of the pavement markings should occur every other year to identify any places where they have deteriorated and be restriped.

BIA 37

BIA 37 is approximately 4.2-mile gravel rural local roadway. The route begins at the intersection of BIA 37 and BIA 4 and head southwest for approximately 2.9-miles. This section of BIA 37 has a roadway top width of 24-feet with no shoulders. The route then heads south at the intersection of BIA 37 and He Dog Road for approximately 1.3-miles where it then terminates at the intersection of BIA 37 and U.S. Highway 18.

Due to the crash history throughout the four-county area and the crash countermeasures discussed in section 5.0, the recommended improvements for this route include the following:

- Maintain vegetation along roadway
- Install Delineators
- Install Horizontal Alignment Signs
- Install Advisory Speed Plaque with Horizontal Alignment Signs
- Install Chevron Alignment Signs
- Improve Road Drainage and Ditch Drainage
- Remove/Relocate Fixed Objects outside Clear Zone

The gravel section is currently showing signs of washboarding and rutting. There are many soft spots throughout BIA 37 where the gravel has not been maintained and only dirt is present on the roadway. creating an unsafe driving surface for drivers. It is recommended that the gravel be regraded to correct the washboarding, soft spots, rutting and road drainage issues. The Gravel Roads Construction & Maintenance Guide by the U.S. Department of Transportation provides guidance on how to prevent and maintain washboarding and should be referred to.

Roadway signs should be inspected every five years to check the condition and reflectivity of them at night and replaced as needed using retroreflective sheeting and background colors meeting current designs standards.

BIA 501

BIA 501 is approximately 5.9-mile asphalt paved local roadway with a width of 24-feet and no shoulders. The route begins at the intersection of BIA 5 and BIA 501 the heads south for approximately three miles. BIA 501 then heads east for approximately 2.9-miles where it terminates at the intersection of West Street and BIA 501/Maple Avenue within the town of St. Francis.

Due to the crash history throughout the four-county area and the crash countermeasures discussed in section 5.0, the recommended improvements for this route include the following:

- Install Guardrail
- Maintain vegetation along roadway
- Install Centerline and Shoulder Rumble Strips on paved routes
- Install Delineators
- Install Retroreflective Pavement Marking
- Install Horizontal Alignment Signs
- Install Advisory Speed Plaque with Horizontal Alignment Signs
- Install Chevron Alignment Signs
- Improve Roadway Surface
- Remove/Relocate Fixed Objects outside Clear Zone

There is no guardrail present were the slope exceeds a 4:1. It is recommended that guardrail be installed, and some slope flattening be done along the route if found feasible during the design phase. Refer to **Figure 6.4** for the locations of these recommendations.

Roadway signs should be inspected every five years to check the condition and reflectivity of them at night and replaced as needed using retroreflective sheeting and background colors meeting current designs standards.

There currently are no advance warning signs alerting drivers of the speed changes going into St. Francis. It is recommended that an advance warning signs be installed to alert drivers of the change in the posted speed limit as outlined in the MUTCD.

Pavement marking throughout this route are worn and have low visibility. It is recommended that the pavement marking be restriped using either waterborne or epoxy traffic paint with glass beads mixed into them. Inspection of the pavement markings should occur every other year to identify any places where they have deteriorated and be restriped.

Tribal Communities

Along with the inventory of the BIA routes, the following communities were analyzed for pedestrian safety issues and pedestrian connectivity throughout the community.

- Antelope
- Corn Creek
- Horse Creek
- Ideal
- Milks Camp
- Norris
- Okreek
- Parmelle
- Sicangu Village
- White Horse
- White River
- Winner
- Wood
- Saint Francis

Throughout the inventory of the communities, it appeared that there was no standard for when to provide sidewalks within the community or the surfacing section for the roadway to use. These standards are usually adopted with a LRTP and is beyond the scope of this RSA. It is recommended that the Rosebud Sioux Tribe update their current LRTP and have it adopted by the tribal council. The LRTP should consider pedestrian connectivity to/from schools and tribal community centers.

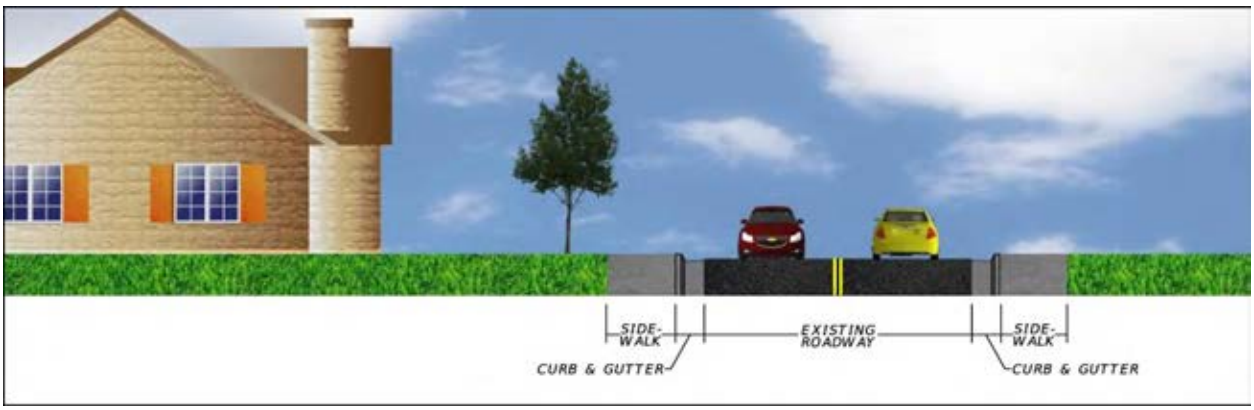
Along with sidewalk connectivity, shared use paths were considered between certain communities where high pedestrian traffic has been observed by tribal members. Like sidewalk standards, shared-use pathway locations are typically defined in the LRTP and it is recommended locations for shared-use pathways be considered when updating the LRTP.

The following are recommendations for areas within the Rosebud Indian Reservations.

SAINT FRANCIS COMMUNITY

The community of Saint Francis has BIA 1 passing through it and BIA 501 terminates inside Saint Francis. There currently are no advance warning signs alerting drivers of the speed changes going into St. Francis. It is recommended that an advance warning signs be installed to alert drivers of the change in the posted speed limit as outlined in the MUTCD. There are no pedestrian facilities along BIA 1 going through Saint Francis. The Tribe should consider an urban roadway section that would allow the addition of curb and gutter and attached sidewalks along both sides of the route to allow pedestrians to safely walk along the BIA 1 without having to walk on the roadway. Figure 6.10 shows a recommended urban roadway typical section the Tribe should consider for BIA 1. This typical section should be considered beginning approximately 800-feet north of the intersection of Cherry Street and BIA 1 then head south for approximately 0.9-miles, terminating at the approach to the school housing for the Saint Francis Indian School.

Figure 6.10: Proposed Typical Section Through Saint Francis on BIA 1



PARMELEE COMMUNITY

The community of Parmelee has South Dakota State Highway 63 passing through it. The posted speed limit through the community 30 mph and there are currently no pedestrian facilities along the route. It is recommended that the Tribe consider the addition of detached sidewalks with boulevards and roadway lighting to allow pedestrians to safely walk along the state highway without having to walk on the roadway. Figure 6.11 shows a recommended roadway typical section the tribe should consider. Coordination with SDDOT will be need if a project were to come fruition.

Figure 6.11: Proposed Typical Section Through Parmelee



ANTELOPE AND WHITE HORSE COMMUNITIES

One area for consideration for pathways and additional sidewalk was between the South Antelope Community and White Horse Community. Figure 6.12 shows the proposed recommended improvements for pedestrian connectivity to consideration when updating the LRTP. Coordination with SDDOT will be needed if a project were to come fruition for the Pathway along US Highway 18.

Figure 6.12: Proposed Pedestrian Connectivity

