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

2026 20
2027 20
2028-2029 20
2030 20
2031-2032 20
2033 20
2034 21
2035 21
2036-2037 21
Recommended Paving TTIP 21
Long Term Project List 22
Beyond the TTIP 22
Appendix A: Community Streets PASER Scores 23

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

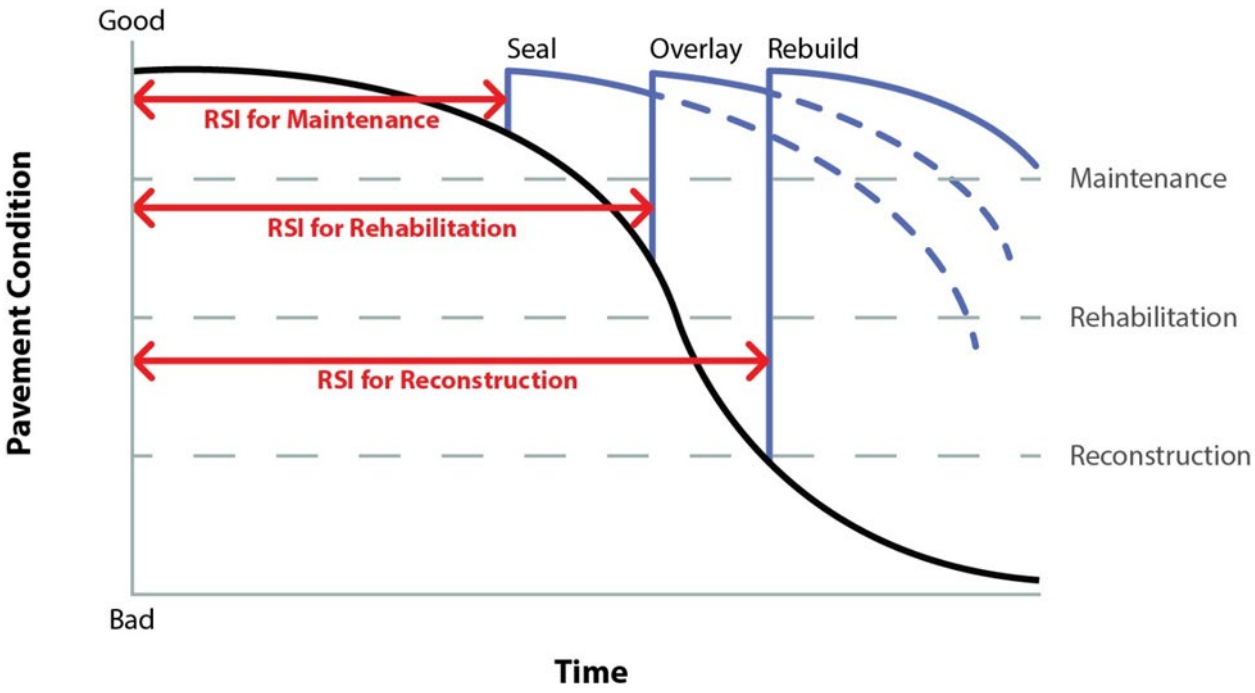


Figure 1 shows that it is easier and more cost effective to maintain good roads than it is to wait and reconstruct bad ones. Overlays or reconstruction projects have a longer return service interval (RSI) and are performed less often than chip seal projects. However, as the road condition deteriorates, 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

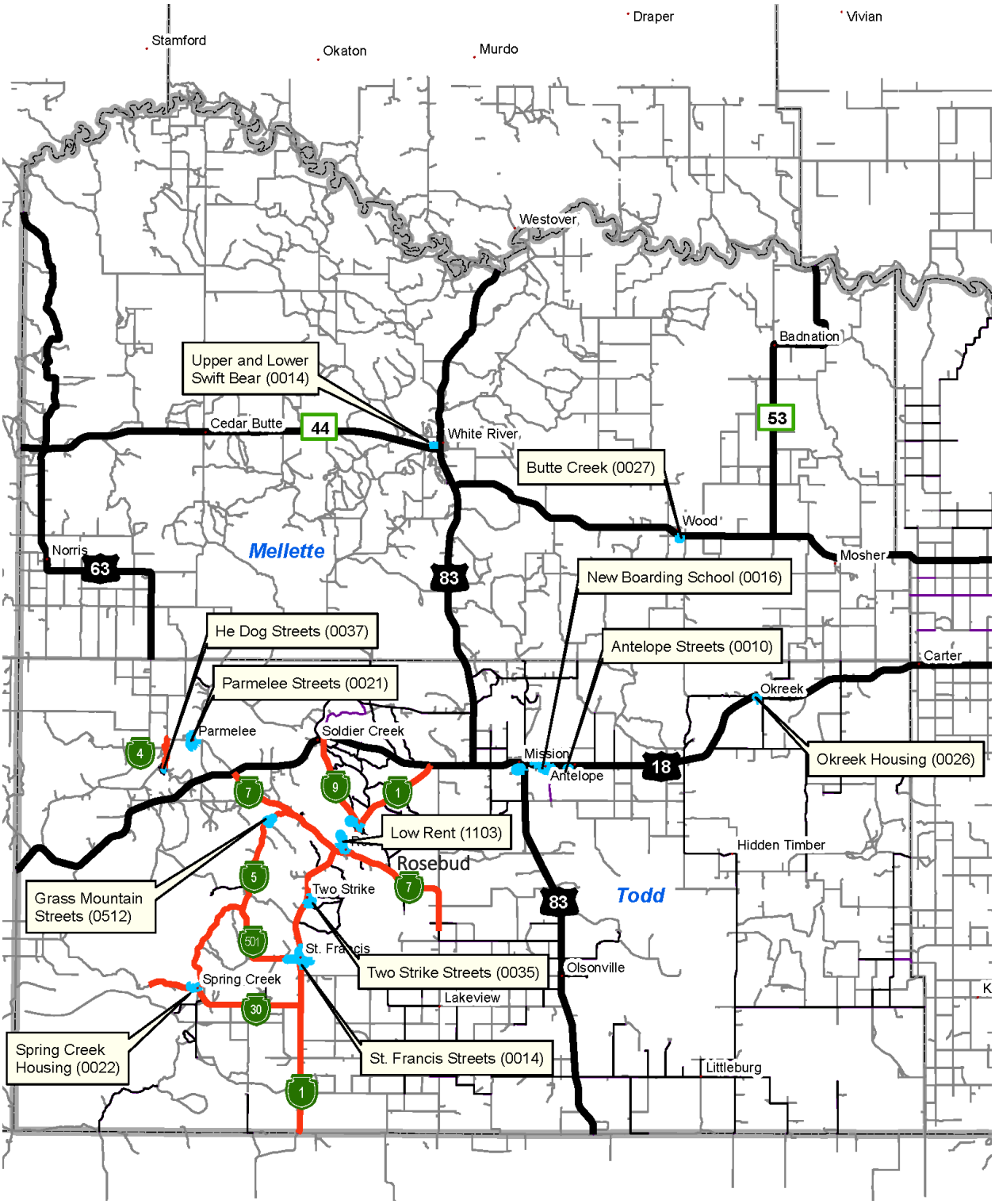
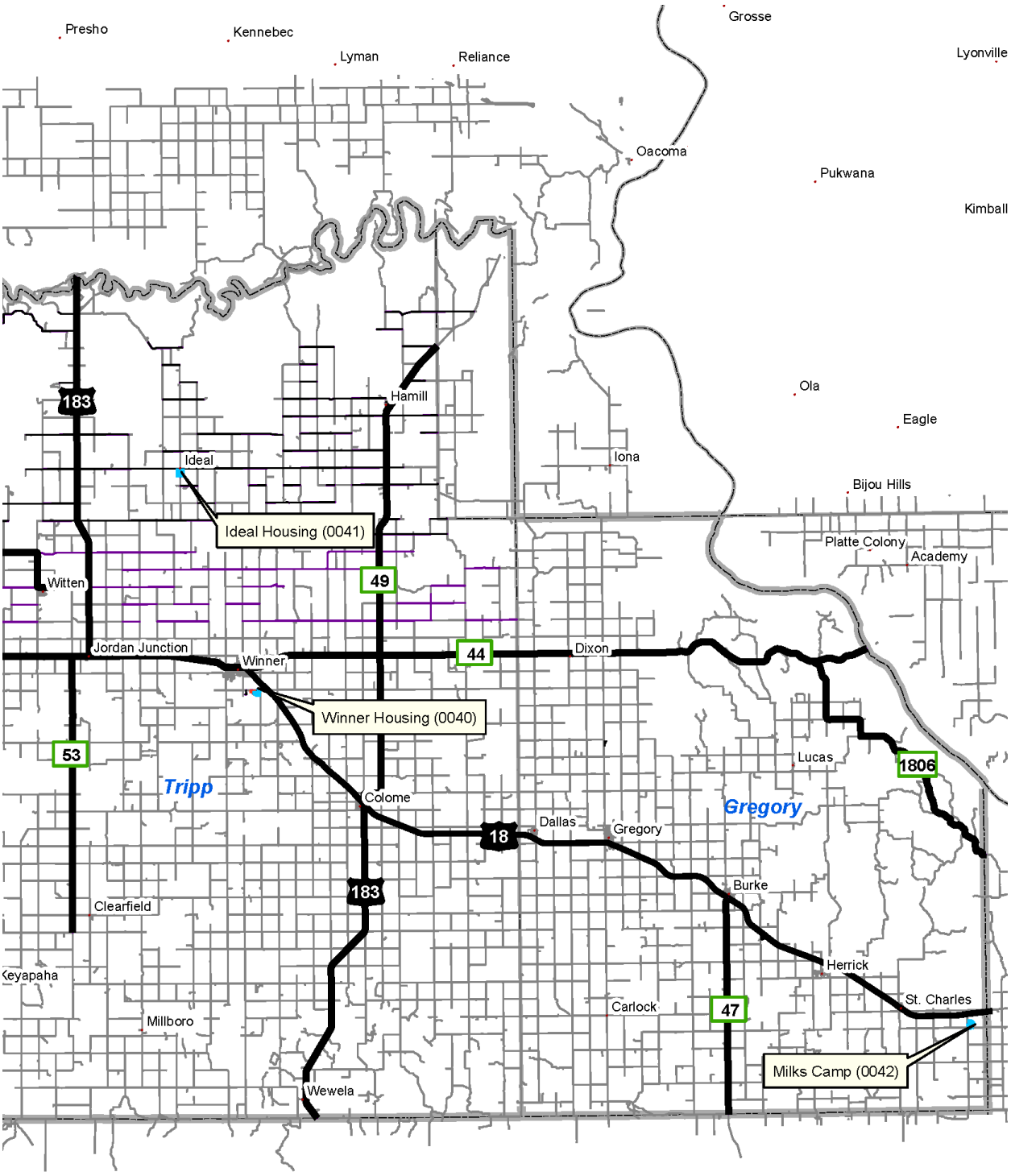


Figure 3 –Study Area Roads, East



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

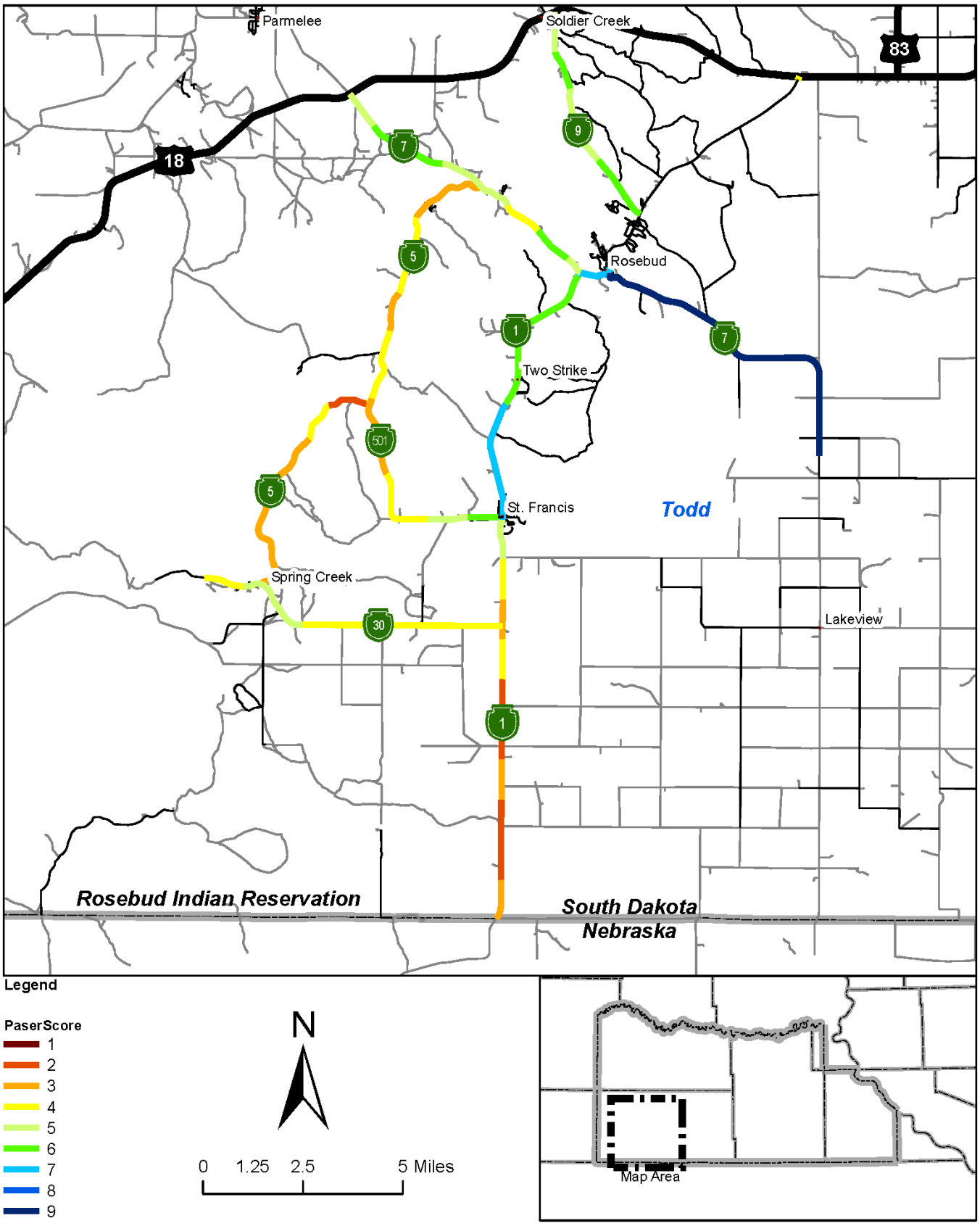


Map of Road Conditions

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

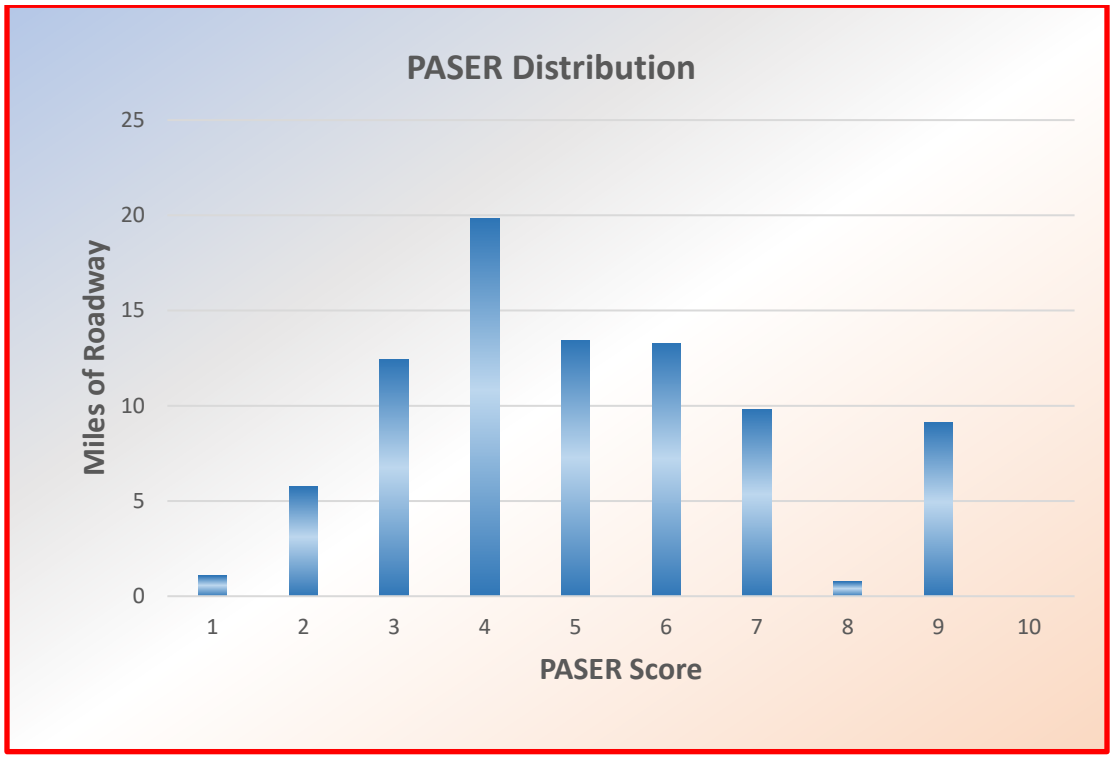


Approximately 85.5 miles of tribal/BIA roadway were assigned PASER ratings throughout the course of the study. The overall average (mean) rating for the studied roadways was 4.86. That number may not signify much, but it does indicate that the Rosebud Reservation highways tend to be in fair to somewhat 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

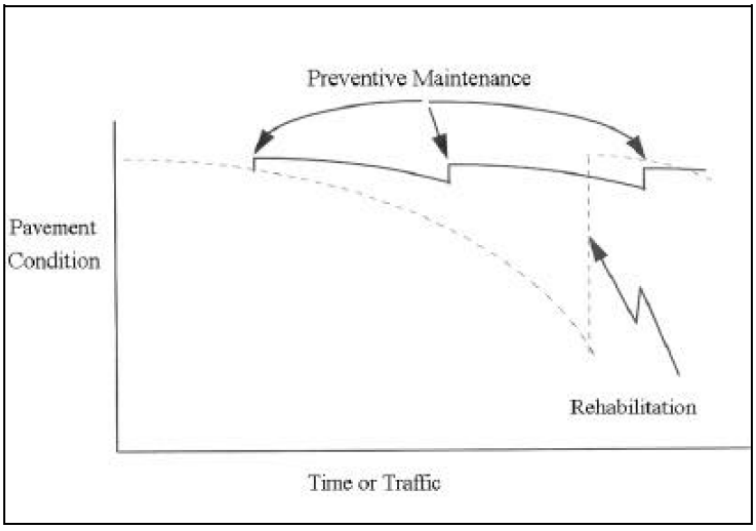
Improvement Type	Cost per Mile*
Reconstruction	$ 1,850,000.00
Structural Overlay	$ 663,000.00
Non-Structural Overlay	$ 305,000.00
Chip Seal	$ 46,000.00

*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.

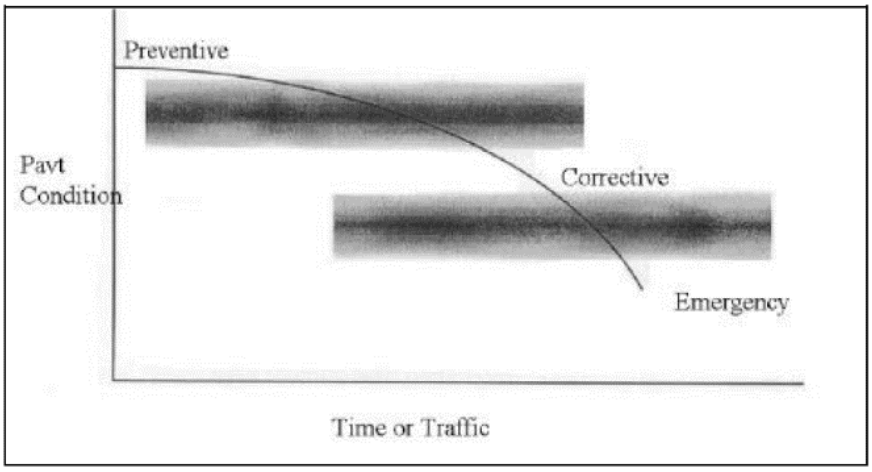
The estimated costs are assumptions in 2024 US Dollars for contracting purposes. These are estimates based on recent similar projects and SDDOT Average Bid Prices. For planning and budgeting purposes and under normal economic circumstances, construction costs should be expected to increase at a 5 to 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 A: Community Streets PASER Scores