CROW TRIBE

2023 Long Range Transportation Plan

Developed by the Crow Tribe Transportation Department

PREPARED BY

KLJ

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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
MDT – Montana Department of Transportation
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
MAP-21 – Moving Ahead for Progress in the 21st Century Act
MOA – Memorandum of Agreement
MOU – Memorandum of Understanding
MUTCD – Manual on Uniform Traffic Control Devices
PASER – Pavement Surface Evaluation and Rating
PMP – Pavement Management Program
RAISE – Rebuilding American Infrastructure with Sustainability and Equity
RIFDS – Road Inventory Field Data System
RSA – Road Safety Audit
TA – Transportation Alternatives
TraCS – Traffic and Criminal Software
TTIP – Tribal Transportation Improvement Program
TTP – Tribal Transportation Program
TTSP - Tribal Transportation Safety Plan
USDOT – United States Department of Transportation

CHAPTER 1 – INTRODUCTION

The Crow Tribe Reservation is located in south central Montana within parts of Big Horn, and Yellowstone counties. The Crow Tribe Reservation is approximately 10 miles southeast of Billings, MT and bordered by the state of Wyoming to the south and the Northern Cheyenne Indian Reservation to the east.

The Crow Tribe of Montana has more than 13,000 enrolled Tribal Members, of which approximately 75% (9,750) reside on the Reservation, where 85% speak Crow as their first language. US 2020 Decennial Census population figures place the total *Tribal and non-Tribal population* of the *Crow Reservation and Off-Reservation Trust Land* at 6,974; a decrease of 487 people, down from 7,461 based on the last 2016-2020 American Community Survey (ACS) 5-Year Estimates. Additionally, the 2020 Decennial Census total for *Crow Reservation and Off-Reservation Trust Land* for *"American Indian and Alaska Native alone population"* is 5,452; a decrease of 271 people, down from 5,723 based on the last 2016-2020 ACS 5-Year Estimates. Many Tribal Members and other residents of the Reservation live in or around the Towns along the I-90 corridor including Hardin, Dunmore, Crow Agency, Garryowen, Lodge Grass and Wyola. Other towns within the central and western parts of the Reservation include St. Xavier, Fort Smith, and Pryor.

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.

Previous to this plan, the Crow Tribe has not completed an LRTP. However, a Tribal Transportation Safety Plan (TTSP) was recently completed in February 2022. This 2023 LRTP will 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 short-range element applies to the five years from 2023 through 2027. The long-range element applies to the years 2028 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.

Crow Indian 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 tourists, visitors, and Tribal Members. 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, rail, and transit) and develop strategies and recommend projects to accommodate them. This Plan examines the existing system of roads, sidewalks, bridges, rail crossings, 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.

Great 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

There are recent studies conducted by the Tribe which are described in the following bulleted list:

- 2022: The Crow Indian Tribe *Tribal Transportation Safety Plan* (TTSP) was updated in February 2022 (Previously updated in 2015). It provides strategies to address transportation-related safety issues across the Reservation. This plan has been updated preceding the forthcoming 2023 LRTP. The strategies and recommendations of the updated TTSP were incorporated into this LRTP.
- 2022: A *Pavement Surface Evaluation and Rating* (PASER) study was conducted in October 2022 and incorporated into the 2023 LRTP. The PASER evaluation assists in documenting existing pavement conditions and in prioritizing pavement improvements.
- 2022: Project Scoping and Prioritization
- 2021: BIA 91 Corridor Study
- 2020: Blue Creek Road Corridor Study
- 2019: BIA 73 Assessment Report

STUDY AREA

Home to the Crow Nation, the Crow Indian Reservation is located in south central Montana. The Crow Nation has approximately 13,000 enrolled members, of which approximately 75% (9,750) reside on the Reservation. The Crow Reservation is approximately 10 miles southeast of Billings, MT and bordered by the state of Wyoming in the south and the Northern Cheyenne Indian Reservation to the east.

The Reservation encompasses approximately 2.3 million acres (3,566 square miles) of land area. Most Reservation lands are located within Big Horn County, with additional territory located in adjacent southeastern Yellowstone County. Due to the checkerboard nature of ceded land (other federal lands – e.g., USFS, BOR, and National Parks) as well as Off-Reservation Trust Land, the Tribe also lays claim to lands located in adjacent Treasure County, MT, as well as acreage dotting parts of Rosebud, and Carbon Counties, MT.

The Reservation lies within the high plains and mountainous areas of south-central Montana. Much of the mountainous terrain lies in the southwestern area of the Reservation and within Big Horn County. The area consists of the Wolf Mountains to the east and the Big Horn and Pryor Mountains to the south. The Reservation's tallest peak at 9,257 ft, is located at the Big Horn County High Point on the Montana/Wyoming border. Sloping down to the north from the Big Horn mountains in the southwest are rolling upland plains. This terrain comprises most of the Reservation and varies in altitude from 3,000 to 4,500 feet. The alluvial lowlands are located along the three major rivers within the Reservation: The Big Horn River, Little Big Horn River, and Pryor Creek drainage systems.

Tribal headquarters are in the town of Crow Agency, MT, which is the most populous community on the Reservation with a 2020 Census population of 1,657, a slight increase from the 2010 Census of 1,616 residents. Other communities in the study area include Hardin (part), Dunmore, Garryowen, Lodge Grass, Wyola, St. Xavier, Fort Smith (part), and Pryor.

The Reservation study area is shown in Figure 1**.** Details maps of Crow Agency, Lodge Grass, Wyola, St. Xavier, and Pryor are shown in Figures 2 through 6, respectively.

FIGURE 1: STUDY AREA - CROW RESERVATION

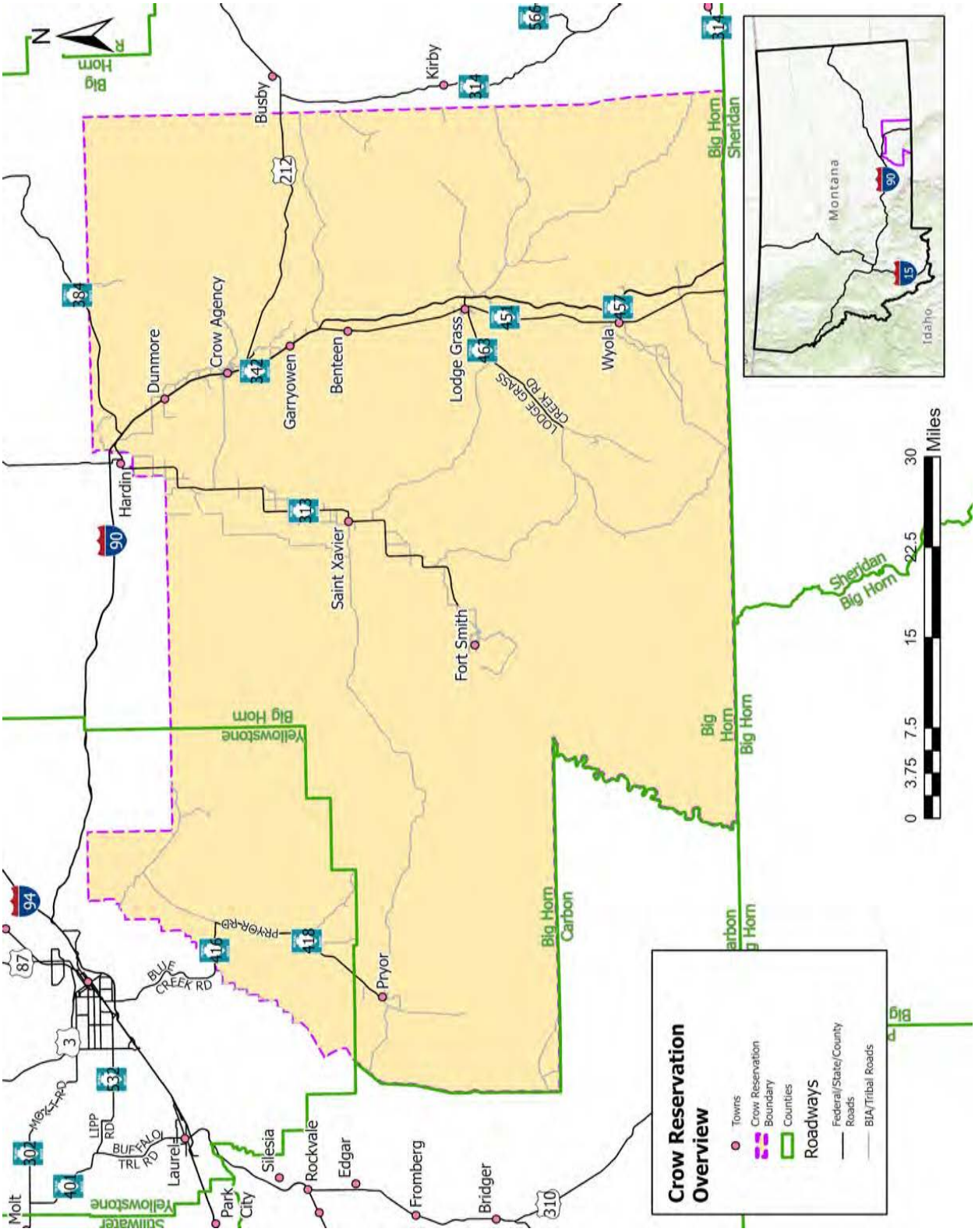


FIGURE 2: STUDY AREA - CROW AGENCY

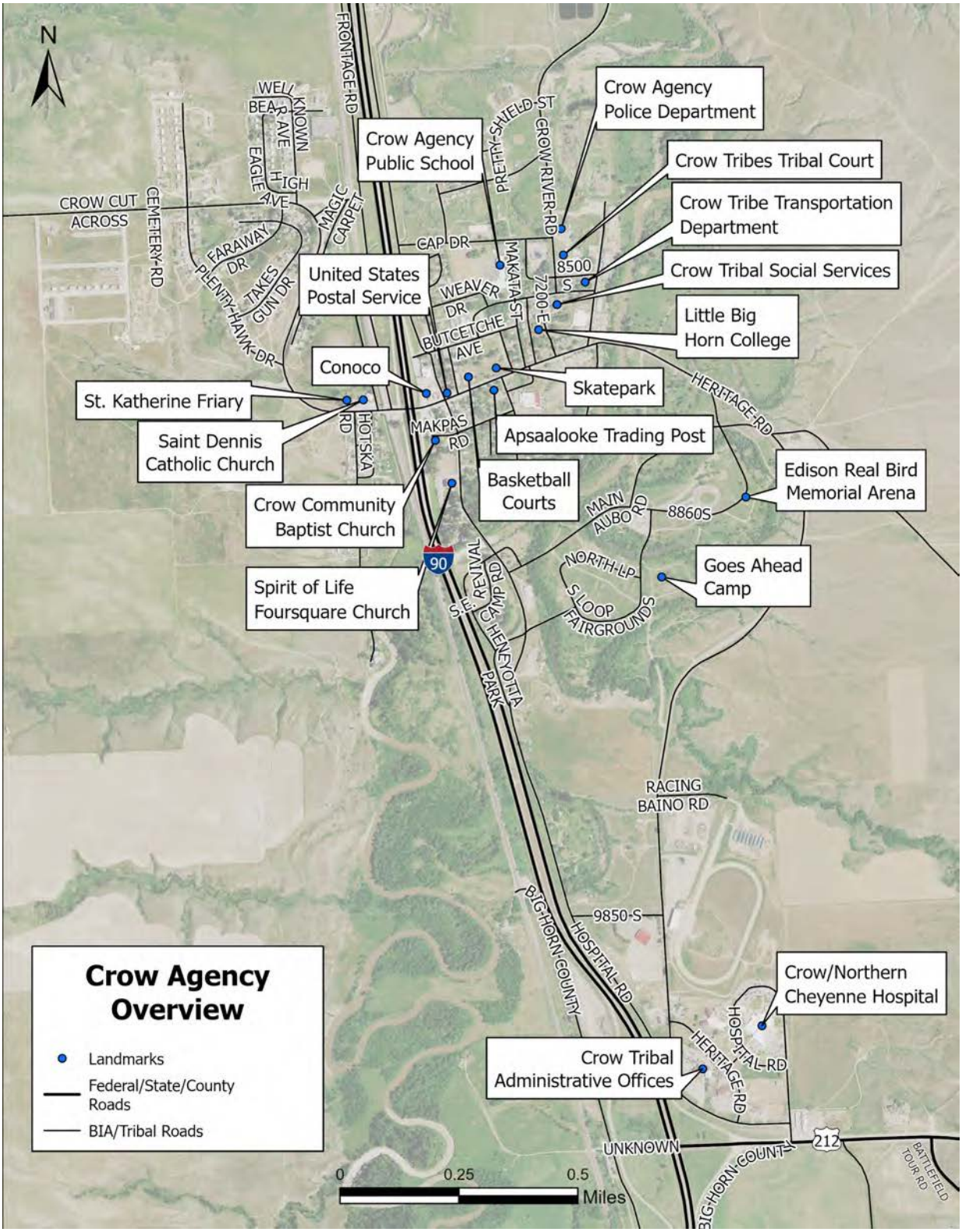


FIGURE 3: STUDY AREA – LODGE GRASS

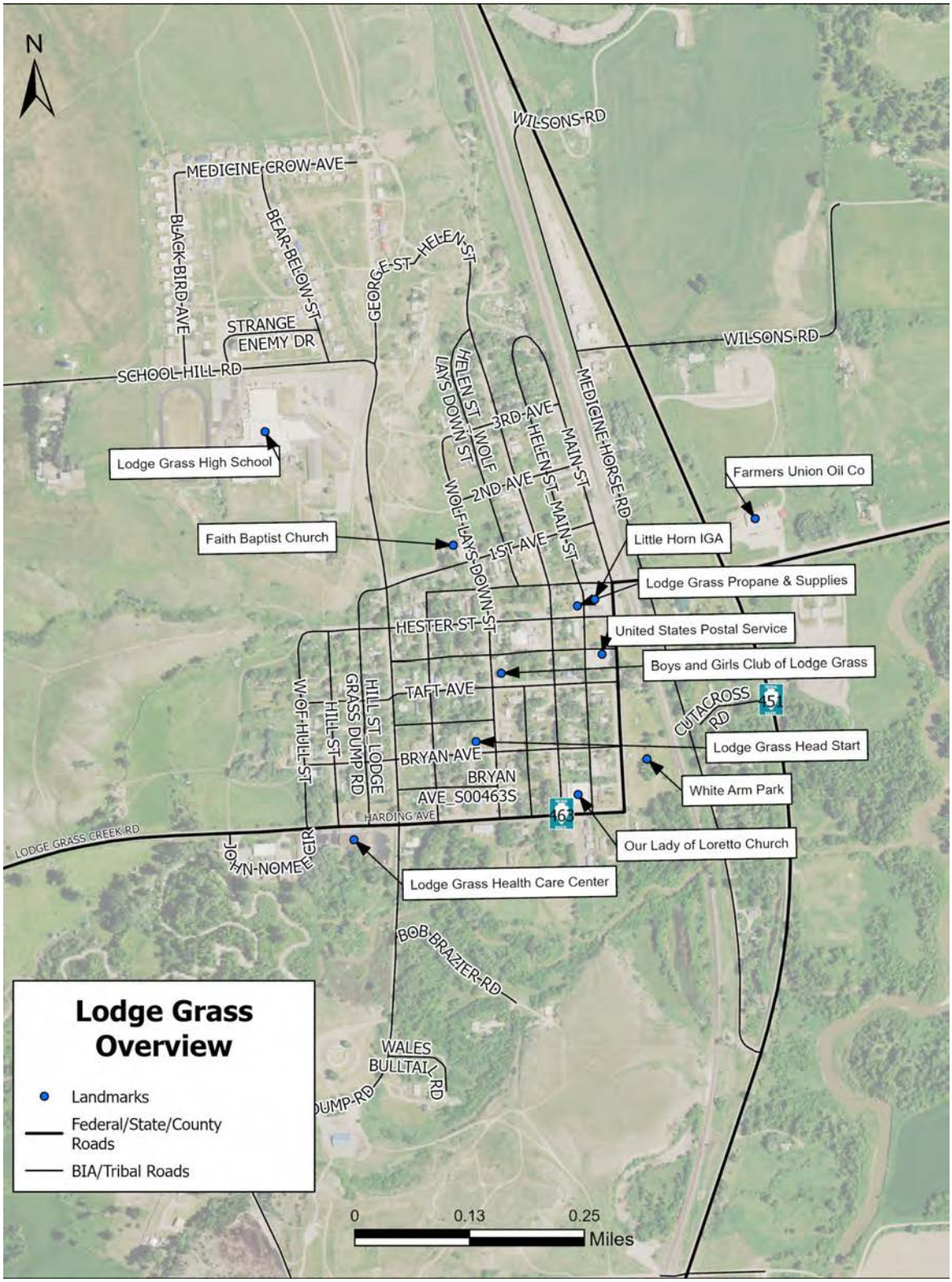


FIGURE 4: STUDY AREA – WYOLA

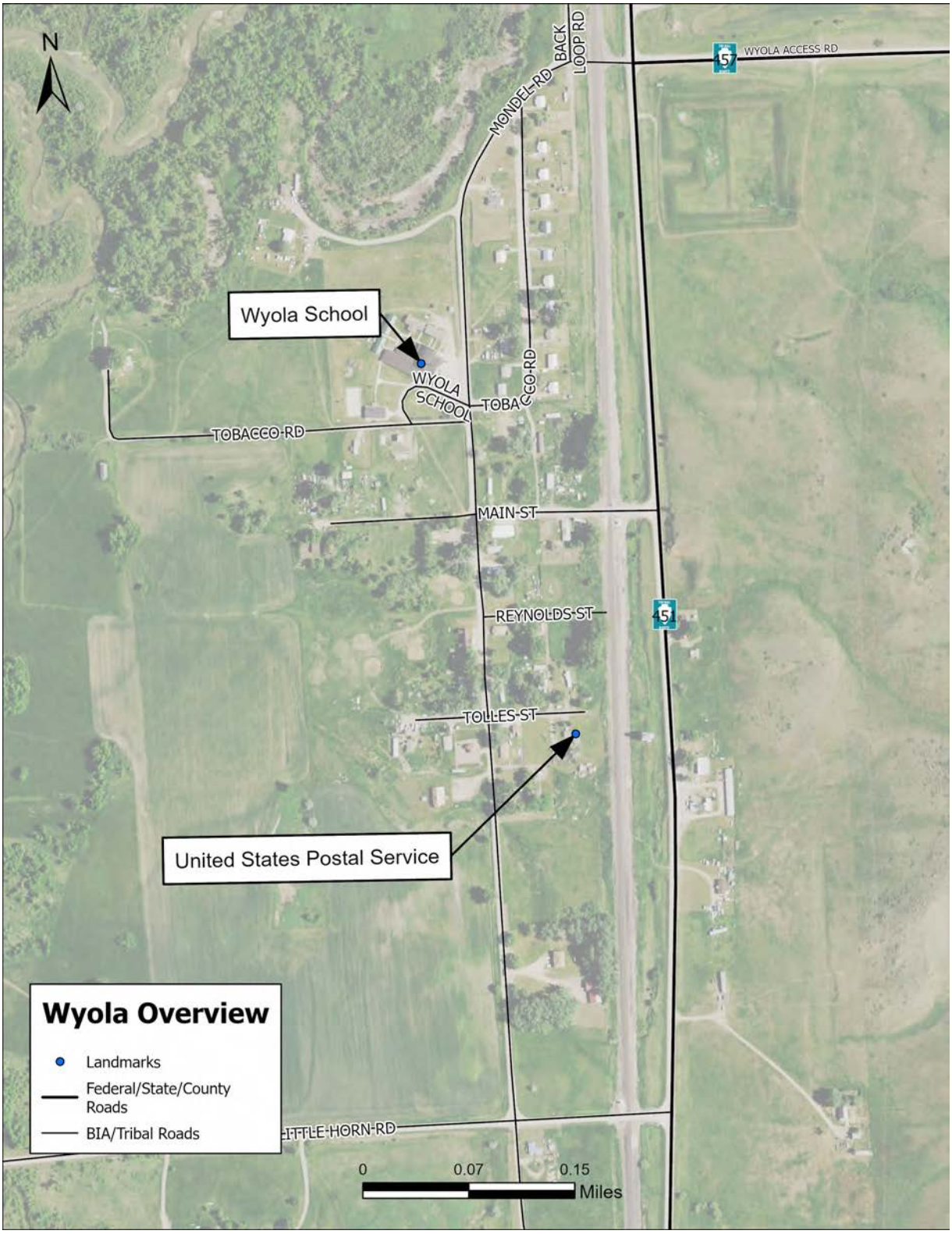


FIGURE 5: STUDY AREA – ST. XAVIER

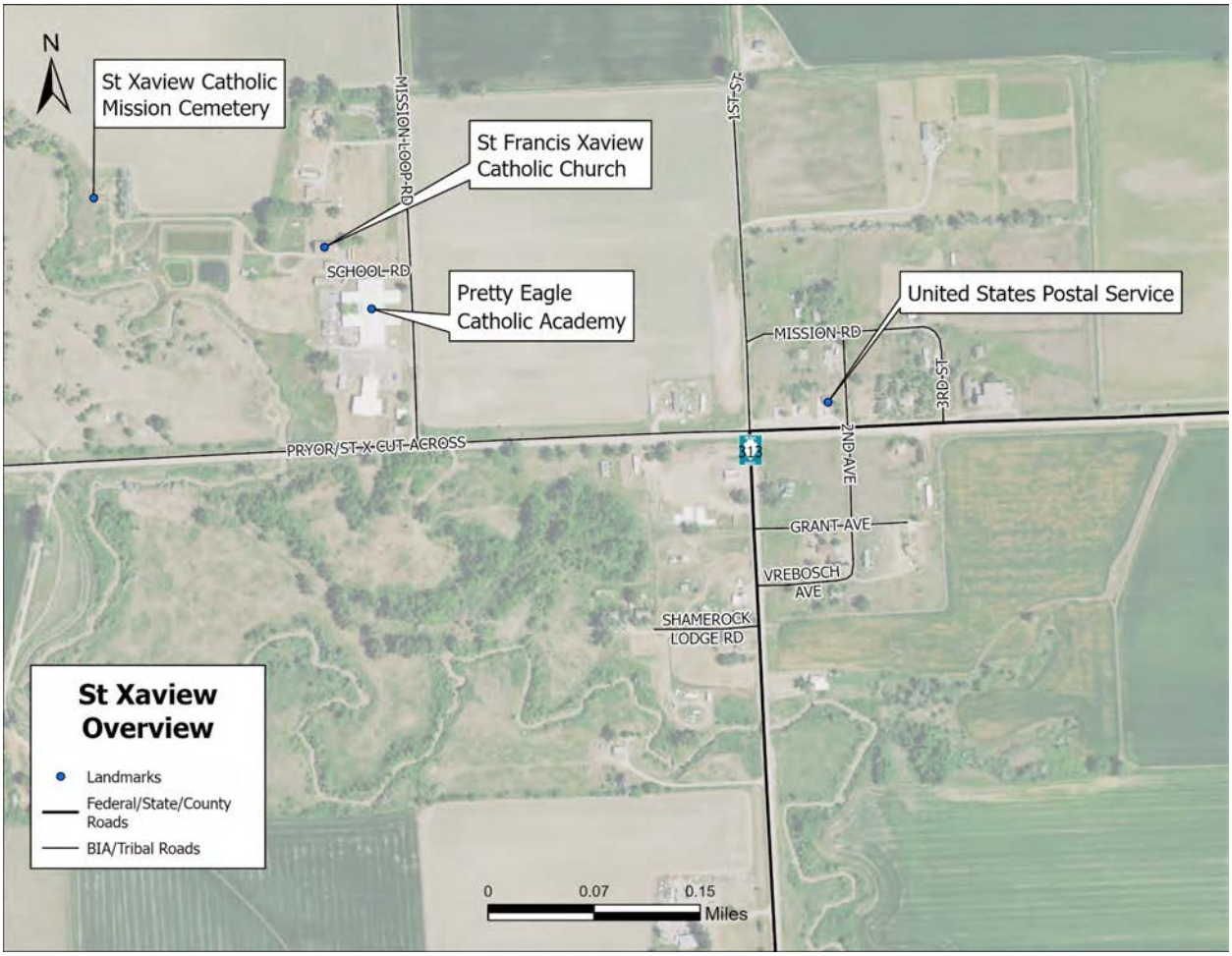
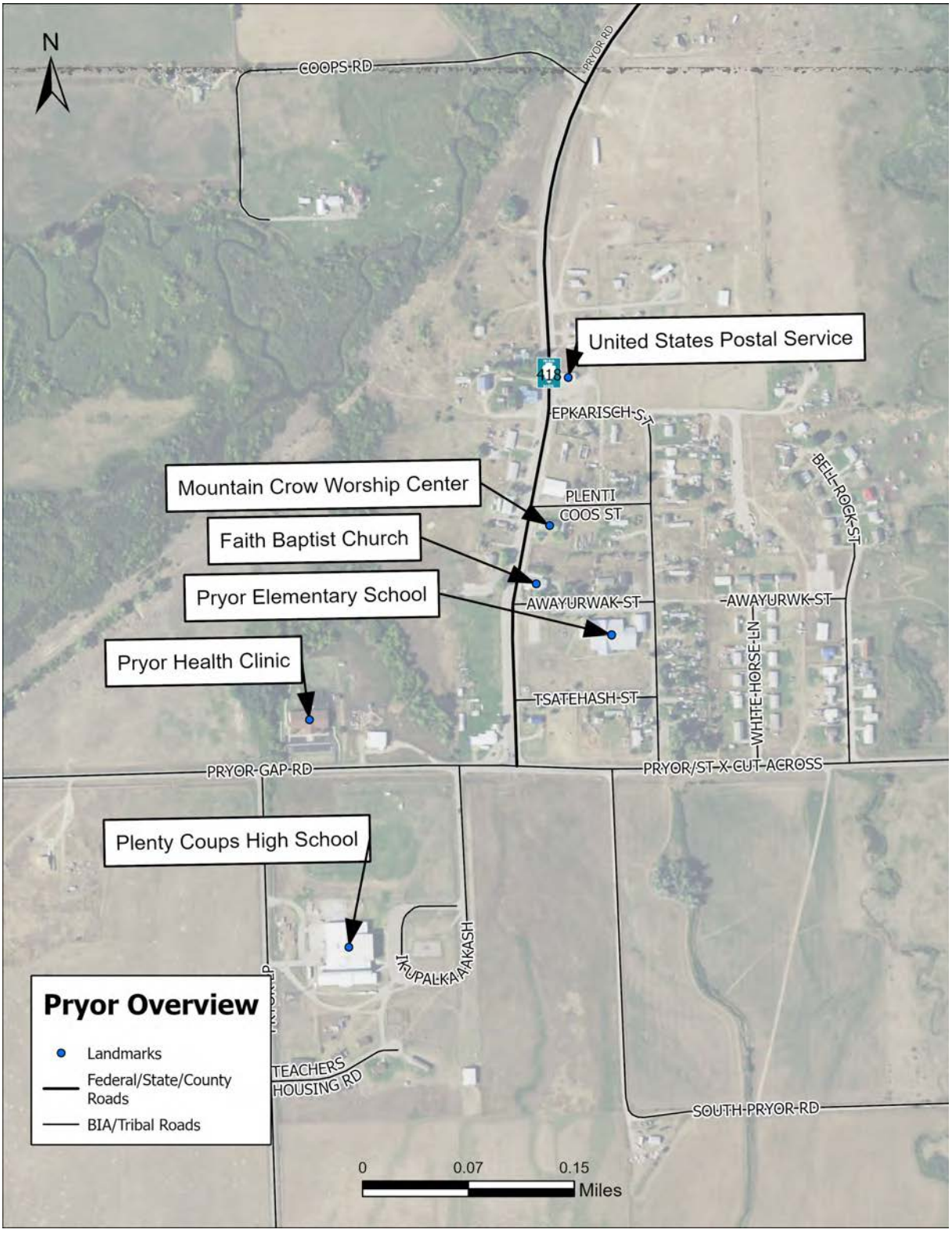


FIGURE 6: STUDY AREA – PRYOR



Physical Characteristics and Climate

The Reservation lies both within high plains and mountainous areas with elevations ranging from approximately 2,900 ft in the high plains to its highest point of 9,257 ft located at the Big Horn County High Point on the Montana/Wyoming border. Much of the most mountainous terrain lies in the southwestern area of the Reservation and within Big Horn County. The mountainous lands consist of the Wolf Mountains to the east and the Big Horn and Pryor Mountains to the south. Sloping down to the north from the mountains are rolling upland plains, which make up most of the Reservation and vary in altitude from roughly 3,000 to 4,500 feet. The alluvial lowlands are located along the three major rivers within the Reservation: The Big Horn River, Little Big Horn River, and Pryor Creek drainage systems.

The climate conditions within the Reservation range in type and temperature. Climate types in the more mountainous region include cold semi-arid, subarctic, and tundra. While the high plains predominantly exhibit hot and warm-summer humid continental climates. Average daily maximum and minimum temperatures range from 89 during the day and 54 at night during the warmest months, and typically reach a daytime average of 32 and nighttime average of 15 during winter months. Temperature can vary widely though based on region. July is typically the warmest month of the year.

In Crow Agency, the summers are hot, dry, and mostly clear and the winters are freezing, snowy, windy, and partly cloudy. Over the course of the year, the temperature typically varies from 16°F to 91°F and is rarely below -5°F or above 100°F. The hot season lasts for three months from June to September, with an average daily high temperature above 79°F. The hottest month of the year in Crow Agency is July, with an average high of 90°F and low of 61°F.

The cold season lasts for approximately 3.2 months, from the end of November to March, with an average daily high temperature below 45°F. The coldest month of the year in Crow Agency is December, with an average low of 18°F and high of 35°F.

Average annual precipitation for Montana is 15 inches, but great variations are seen regionally. The mountain ranges block the moist Pacific air, holding moisture in the western valleys, and creating rain shadows to the east, creating a semi-arid climate for the south-central region of Montana.

These wide-ranging annual temperature and climate fluctuations impact road and sidewalk maintenance. Temperature change and freeze-thaw cycles impact road longevity. Snow maintenance is also challenge, especially with multiple jurisdictions involved. Some complaints have been received by Tribal and BIA agencies that snow maintenance is sometimes slow to respond. Maintenance on the County Road system is overseen predominantly by the counties. The Crow Indian Tribe works with the BIA, internal departments, and other jurisdictions on the Reservation to coordinate snow removal. Crow Reservation annual snow fall varies from the mountainous region to the high plains. In Crow Agency, snow is the most common form of

precipitation for 2.8 months, from December to March. The month with the most days of snow alone in Crow Agency is December, with an average of 1.1 days.

A wet day in Crow Agency is one with at least 0.04 inches of precipitation. The chance of wet days in Crow Agency varies throughout the year. The wet season lasts approximately 5.8 months from April to October, with a 17% chance or greater of any given day being a "wet day." The month with the most wet days in Crow Agency is May, with an average of 8.3 days with at least 0.04 inches of precipitation.

The drier season lasts roughly 6.2 months, from October to April. The month with the fewest wet days in Crow Agency is January, with an average of 1.5 days with at least 0.04 inches of precipitation.

Among wet days, we distinguish between those that experience rain alone, snow alone, or a mixture of the two. Based on this categorization, the most common form of precipitation in Crow Agency changes throughout the year. Rain alone is the most common for 9.2 months, from February to December. The month with the most days of rain alone in Crow Agency is May, with an average of 8.0 days. Snow alone is the most common for 2.8 months, from December to March. The month with the most days of snow alone in Crow Agency is December, with an average of 1.1 days.

Culture and History

The following sections were obtained and updated from various sources including the Crow Tribe official website, 2022 TTSP, as well as Wikipedia and associated references and footnotes. They provide valuable background and information pertaining to the Crow Tribe.

In August 1805, fur trader Francois-Antoine Larocque camped at the Little Bighorn River and traveled with a Crow group through the area which is now a part of the modern-day Crow Reservation. As time passed from that initial cultural exchange, pressure from Europeans north of the Yellowstone River, and a Lakota (Sioux) invasion into Crow treaty-guaranteed-land from the east, made the 19th century a trying time for the Crow.

On May 7, 1868, the Crow sold around 30 million acres of their 1851 territory and agreed to live in a Reservation. The border to the south was the 45th degree of north latitude, while the 107th degree of longitude west was the eastern border. Both borderlines met the Yellowstone River at a point. The connection of these two points followed the course of the river and made up the last border of the 1868 Reservation. It comprised about eight million acres. Land cessions to the United States approved in 1882, 1892 and 1906 cut the western and northernmost part of the 1868 Reservation. The Reservation got its present shape after moderate land cuts in 1937 and in connection with the construction of the Bighorn Canyon Dam in the 1960s. Today, the contemporary Reservation lies at the center of the Crow Indian territory described in the 1851 Fort Laramie treaty.

Historically, the main food source for the Crow was the American bison which was hunted in a variety of ways. Before the use of horses, bison were hunted on foot and required hunters to stalk close to the bison. The horse allowed the Crow to hunt bison more efficiently. In addition to bison the Crow also hunted bighorn sheep, mountain goats, deer, elk, bear, and other game. Buffalo meat was often roasted or boiled in a stew with prairie turnips. The rump, tongue, liver, heart, and kidneys all were considered delicacies. Dried bison meat was ground with fat and berries to make pemmican. In addition to meat, wild edibles were gathered and eaten such as elderberries, wild turnip, and Saskatoon berries.

The traditional Crow shelter is the tipi or skin lodge made with bison hides stretched over wooden poles. The Crow are historically known to construct some of the largest tipis. The annual Crow Fair has been described as the largest gathering of tipis in the world.

The most widely used form of transportation used by the Crow was the horse. The Crow had large horse herds which were among the largest owned by Plains Indians. In, 1914 the Crow had more than thirty thousand head. By 1921 the number had dwindled to just one thousand. Like other plains people the horse was central to the Crow economy and were a highly valuable trade item and were frequently stolen from other tribes to gain wealth and prestige as a warrior. They also had many dogs; Dogs were used as guards and pack animals to carry belongings and pull travois, especially prior to acquiring horses.

The Crow had a matrilineal system. After marriage, the couple was matrilocal (the husband moved to the wife's mother's house upon marriage). Women held a significant role within the tribe. Crow kinship is a system used to describe and define family members.

Demographics

The Crow Indian Reservation primarily falls within Big Horn County, Montana and extends into Yellowstone and Treasure Counties. The Crow Indian Tribal Council reports approximately 13,000 Tribal Members. The 2022 U.S. Census population estimate for the Crow Reservation and Off-Reservation Trust Land is 6,974 people. This data provides an approximation that 6,026 tribal members live outside of Reservation lands. According to 2020 Census data of the Tribal Members living on-Reservation, almost 37 percent are youth under 18 years of age and eleven percent are 65 years old and older.

The median household income in the Crow Indian Tribe CDP is $46,836 and there is a poverty rate of approximately 32.4% according to the 2020 U.S. Census Bureau’s American Community Survey. In the Crow Indian Tribe Reservation and Off-Reservation Trust Land, approximately 36.5% of youth under the age of 18, and 24.4% of adults aged 65 and older, were estimated to live below the poverty level.

Tribal Council headquarters are located in the Town of Crow Agency. Crow Agency has a population of approximately 1,657 residents. The city includes approximately 410 housing units, with a homeownership rate of 64.8%.

The population of the State of Montana is projected to grow by about 15% (161,669 people) from 2020 through 2040. Big Horn County includes 13,124 residents and experienced a growth rate of two percent (up from 12,865 resident) between the 2010 and 2020 census. However, from 2020-2021, Big Horn County experienced a -0.6 to -1.5% decrease, possibly attributable to the pandemic (https://www.census.gov/library/visualizations/2022/comm/where-counties-are-growing.html). As of the 2020 census, approximately 67 percent of Big Horn County residents are American Indian or Alaska Native. Billings is the closest city to the Reservation's external boundary and is located approximately 10 miles northwest of the Reservation with a population of 117,116.

Government

The Crow Tribe is a federally recognized Tribe. The Crow Indian 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 Crow Indian Tribe was initially approved in 1948 and until 2001, was governed by its original 1948 constitution. The original constitution organized the tribe as a general council (tribal council). The general council held the executive, legislative, and judicial powers of the government and included all enrolled, adult members of the Crow Tribe, provided that women were 18 years or older and men were 21 or older. The general council was a direct democracy, comparable to that of the Haudenosaunee Confederacy.

In 2001, the Crow Tribe of Montana established a three-branch government and economic structure organized by Executive, Legislative, and Judicial branches, and is governed by a constitution and bylaws overseen by the general council made up of all eligible Tribal members 18 years old and older. The Constitution and Bylaws of the Crow Tribal Council that established the Tribal Council (General Council) and Executive Officials were adopted in 1948. The constitution and bylaws were repealed and replaced with the 2001 Constitution and Bylaws of the Crow Tribe of Indians.

The Crow Tribal General Council makes decisions on behalf of the Crow Nation when convened at a duly called meeting or through the election process. In theory, the general council is still the governing body of the Crow Tribe, however, the general council has not convened since the establishment of the 2001 constitution.

The executive branch has four officials. These officials are known as the Chairperson, Vice-Chairperson, Secretary, and Vice-Secretary. The Executive Branch officials are also the officials within the Crow Tribal General Council.

The current administration of the Crow Tribe Executive Branch is as follows:

- Chairman: Frank White Clay

- Vice-Chairman: Lawrence DeCrane
- Secretary: Levi Black Eagle
- Vice-Secretary: Channis D. Whiteman

The Legislative Branch consists of three members from each district on the Crow Indian Reservation. The Crow Indian Reservation is divided into six districts known as The Valley of the Chiefs, Reno, Black Lodge, Mighty Few, Big Horn, and Pryor Districts. The Valley of the Chiefs District is the largest district by population.

The Judicial Branch consists of all courts established by the Crow Law and Order Code and in accordance with the 2001 Constitution. The Judicial Branch has jurisdiction over all matters defined in the Crow Law and Order Code. The Judicial Branch attempts to be a separate and distinct branch of government from the Legislative and Executive Branches of Crow Tribal Government. The Judicial Branch consists of an elected Chief Judge and two Associate Judges. The Crow Court of Appeals, like State Court of Appeals, receives all appeals from the lower courts. The Chief Judge of the Crow Tribe is Julie Yarlott.

The General Council retains the enrollment and/or membership rights of and to the Crow Nation. Elections are held for committees, initiatives, referendums, recalls, and removals - a paramount power to elect the Executive Officials, Legislators, and Judges. Elections are also held to decide on amendments to the Constitution and Bylaws.

The Crow Nation has other sub governmental executive branch departments such as the Crow Tribe Transportation Department, Education, Enrollment, Human Resources, Sex Offender Registration and Notification Act (SORNA), and Crow Tribal Historic Preservation Office (CTHPO). Additionally, other boards, committees and commissions are created or chartered by legislation, and some with appointment by the Chairman, to act in the best interest of the Crow Nation and tribal members in various areas such as higher education, housing, head start, 107th settlement funds, nursing home, gaming oversight, and more.

Economy and Employment

The Crow Indian Tribe is a significant contributor to the local economy. Of the approximate 13,000 total Tribal Members enrolled, approximately 45 percent of tribal members between the ages of 16-64 comprise the on-Reservation Tribal workforce. Of the on-Reservation workforce, 45.2% are employed in local, state, and federal government; 35.4% are employed as private company workers; 7.9% are employed as not-for-profit wage and salary workers; 7.9% are self-employed (not incorporated business); and 4.4% self-employed in incorporated businesses.

Since 2015, the employment rate has decreased from 51.1% to 44.5%. The top five employment industries on the Crow Reservation are: Education services and health care/social assistance (31.4%); Public Administration (17.6%); Agriculture, Forestry, Fishing and Hunting, and Mining (16.9%); Retail Trade (9.2%); and Arts, entertainment, recreation, and accommodation and food services (7.3%). Employment data for the Crow Indian Reservation was collected from 2020 U.S. Census data.

Leading employers include the Crow Tribal Government Entities (e.g., Education, Enrollment, Human Resources, Transportation, Historic Preservation, and Health Departments – Crow/Northern Cheyenne Hospital), the Bureau of Indian Affairs (BIA), and Big Horn College. Notable Crow Tribe businesses and employers include Yellowtail Market, Crow Nation Express, Crow Hop Restaurant, Apsaalooke Tours, Okebeh Marina, Crow Construction Co., Apsaalooke Bison Company, and Crow Tribe of Indians News. Tourism also plays a role in generating revenue for the local economy with the presence of the Little Bighorn National Battlefield and Visitor Center, Custer Battlefield Trading Post and Café, Apsalooke Nights Casino (Temporarily Closed), Yellowtail Damn Visitor Center, and Bighorn Canyon National Recreation Area.

The Reservation's economy is historically derived from the rich resources of the Tribe's land, which is used directly to support agricultural, livestock, tourism (boating, hiking, fishing, hunting), and other operations. The Crow operate only a small portion of their irrigated or dry farm acreage and about 30 percent of their grazing land. They also maintain a buffalo herd of 300 head.

Over 1.4 billion tons of coal exists on the Crow Reservation since being located in the 1970's. The value of the enormous amount of coal under the surface in the old tribal territory became clear to the Reservation Crows after the 1970's Arab Oil Embargo. For a time, the Reservation's Absaloka coal mine provided half of the tribe's nonfederal budget. The single-pit mine opened in 1974 and employed 170 people. However, the decline of coal mining in the United States forced the tribe to lay off the majority of its original 1,300 mining related employees. When coal mining was an active industry, all tribal citizens received $225 coal payments every four months.

Currently, land use in the area is primarily utilized for agriculture and ranching. While coal has been developed since the 1970's, the Crow Tribe does not have the capacity to generate the same revenue generated by the coal industry. The Tribe recognizes its need to steer away from its reliance on coal revenue.

In 2013, the tribe and Cloud Peak Energy agreed to open the Big Metal mine, which would have brought the company $10 million in revenue over the first five years. President Barack Obama blocked the mine and then imposed a moratorium on any new coal leasing on public lands. In March 2017, the Northern Cheyenne Indian Reservation sued Interior Secretary Ryan Zinke to stop his attempt to lift the moratorium.

According to 2020 US Census Employment and Labor Force Status, approximately half (49%) of the Tribe's population age 16 and older are employed in public sector government-based jobs. Finding new ways to use existing Reservation assets and stimulate growth of Reservation-based employment will improve the long-term socioeconomic status of Tribal Members. The Tribe is making efforts to create and operate new businesses both on and off Reservation in the areas of real estate development, housing construction, tourism, and gaming.

Education

There are a total of thirteen schools and early childhood education centers used by Crow Reservation tribal members: Eight public (including off-reservation Hardin High School), one parochial primary school, and one post-secondary school are operating on the Reservation. Additionally, there are three head start programs located in Crow Agency, Lodge Grass, and Wyola.

Crow Reservation school facilities include the following:

Tribal

- Crow Agency Public School
- Lodge Grass
- Wyola School District 29
- Fort Smith Elementary School
- Morin Elementary School
- Pryor Elementary School
- Plenty Coups High School (Pryor)
- Pretty Eagle Catholic Academy (St. Xavier)
- Head Start Programs (x3)
- Little Big Horn College (post-secondary)

Non-Tribal

- Hardin High School (grades 9-12, public non-tribal)

Land Ownership

The following data regarding Tribal land ownership was collected from the Crow Indian Tribe's associated website and Wikipedia pages.

The current-day Reservation includes Tribal trust lands, Indian allotments, homestead fee tracts, Tribally owned or Indian-owned fee land, and Bureau of Reclamation lands and National Forest lands. This patchwork pattern of land ownership is commonly referred to as a "checkerboard" Reservation. The Crow Indian Tribe currently has title interest in approximately 2.3 million acres (3,566 square miles) of the surface estate within the exterior boundary of the Reservation as well as title to much of the mineral estate.

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

Currently, the main uses of land in the area are for agriculture and ranching. Coal and coal-bed methane deposits can be found on the Reservation but for the most part, have not been developed. For years, the plentiful coal deposits under the eastern portion of the Reservation remained unmined. However, one mine is currently in operation and providing mineral rights royalty income and employment to tribal members.

Crow Agency serves as the Tribe's economic and governmental headquarters. The company's business ventures include energy, real estate, and private equity. Red Cedar Gathering Company, a natural gas gathering and treating company owned by the Growth Fund, has most of its operations on the Crow Indian Reservation.

Institutional/Governmental: The Tribe's administrative facilities are clustered in Crow Agency, mainly on the east side of I-90, and north and south of Makawasha Ave.

Cultural: The Little Bighorn Visitor Center and Battlefield National Monument provides interactive exhibits and informational displays depicting Crow Indian history and modern life.

Residential: The Tribe's residential areas are mainly clustered into the nine towns: Crow Agency, Hardin (part), Dunmore, Garryowen, Lodge Grass, Wyola, St. Xavier, Fort Smith (part), and Pryor. Crow Agency, the largest town, has approximately six primary residential subdivisions, with additional housing planned for development between Piegan Ave and Greasy Mouth Ave.

Commercial: Commercial and business activities are primarily concentrated within Crow Agency city limits and include the following: Crow Tribal Government Entities (e.g., Education, Enrollment, Human Resources, Transportation, Historic Preservation, and Health Departments – Crow/Northern Cheyenne Hospital), the Bureau of Indian Affairs (BIA), and Big Horn College. Crow Agency businesses include Apsaalooke Trading Post and Tours. Tourism also plays a role in generating revenue for the local economy with the presence of the Little Bighorn National Battlefield and Visitor Center.

Additional notable Crow Tribe businesses and employers include United States Postal Service; Yellowtail Damn Visitor Center and Yellowtail Market, Crow Nation Express, Crow Hop Restaurant, Okebeh Marina, Crow Construction Co., Apsaalooke Bison Company, Wellknown Buffalo Coffee House and Grits; 7th Ranch RV Camp; Lodge Grass City Hall; Crow Tribe of Indians News.; Big Horn County Electric Coop; Little Horn IGA; Farmers Union Oil; Pass Creek Angus Guest Ranch; Royal Big Horn Lodge; Bighorn River Lodge; Big Horn Valley Ranch; Big Horn Club; Kingfisher Lodge; Bighorn Angler View at Split Island; Bighorn River View Lodge and Cabins; Riverbend Angler Resort; Forrester's Bighorn River Resort; and Bighorn Angler Fly Shop & Lodge.

Public Safety: The Tribe operates a Police Department and a Tribal Court and is served by the Crow Fire and Aviation Government Department, all located in Crow Agency. Detailed information on public safety can be found by contacting the Crow Agency Police Department. The town of Pryor also operates a Fire Hall.

Recreational: The Crow Reservation and community offers tourism and recreational opportunities consisting of the following: Crow Agency Apsaalooke Trading Post and Tours; the Little Bighorn National Battlefield and Visitor Center; Yellowtail Damn Visitor Center and Yellowtail Market; Okebeh Marina; Arapooish Recreation Park; Hardin Community Activity Center and Community Center Bowl; Crow Tribal Senior Citizens centers in Crow Agency and Lodge Grass; Chief Plenty Coups State Park; Afterbay North Campground and Afterbay South Campground; Three Mile Access Trail; Cottonwood Camp; Medicine Creek Campground; Barry's Landing Campground; Upper Layout Creek Trailhead; Ewing Snell Historic Ranch Site; Bighorn Canyon National Recreation Area; Sullivan's Knob Trail; Natural Corrals Overlook; State Line Trail.

Health and Social Services: The Tribe operates a number of health and social programs, housed in various facilities. These include The Crow Tribal Health Department; Crow/Northern Cheyenne Hospital; Dr. Barbara S. Cohn Optometry; Crow Tribal Social Services; Messengers for Health; Crow Tribal Housing Authority; The Bureau of Indian Affairs; Center Pole Foundation – Food Distribution Center (Garryowen).

The Reservation includes a variety of Tribally operated facilities that serve community members. Many of the locations of these facilities are shown earlier in the report in Figures 1 through 6.

Respect for Cultural Resources and Historic Preservation

The Crow Indian Tribe, along with CTHPO, ensures that Tribal lands and historic sites and facilities are preserved, occupied, or developed in a manner which always considers and adheres to the best interests of the Tribe. The Transportation Department generally implements transportation and roads development projects.

Crow's Transportation Department was involved throughout the LRTP project. The Crow Transportation Department works with outside agencies (e.g., MDT) on right-of-way issues and provides updates and recommendations to Tribal Council on proposed development projects and land acquisitions. The Transportation Department was represented at the project kick-off meeting. Planning staff had the opportunity to review the LRTP and provided comments for implementation.

Scenic Byways

The only scenic byways that traverse the Reservation are Devil's Canyon Overlook and the Little Bighorn Battlefield National Monument area.

Tourism

The biggest attraction in the Reservation is the Little Bighorn National Monument. On June 25, 1876, combined forces from the Lakota, Northern Cheyenne, and Arapaho tribes defeated the Seventh Cavalry Regiment commanded by George Armstrong Custer. Local Crow scouts defending their Reservation guided Custer.

Chief Plenty Coups (Alek-Chea-Ahoosh) State Park and Home is located near the town of Pryor. It has a small museum dedicated to Chief Plenty Coups and the Crow Tribe. The Chief's two-floor lodge house and grocery store are preserved.

Fishing, camping, and recreational boating (e.g., Okebeh Marina) are also all big attractions along the Big Horn River near Fort Smith. These areas in particular draw in seasonal guests.

CHAPTER 2 – INVENTORY ANALYSIS

An evaluation of the Crow Indian 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 Crow Indian 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 Indian Reservation Roads (IRR) Inventory is a comprehensive database of all transportation facilities eligible for IRR 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, include 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.

Department of Transportation

In conjunction with the BIA, the Crow Indian Tribe's Department of Transportation is responsible for maintaining approximately 1,742 miles of BIA and Tribal roads. The Crow Indian Tribe transportation system serves many functions. Primary among these is access for residents and business establishments, movement of freight, and transportation within and across the region.

The Crow Reservation includes federal, state, county, and Tribal/BIA highways. The study area includes the following major travel routes which are state-specified functional classification roadways:

- US Interstate 90 – Principal Arterial Interstate, providing north-south access in the easterly portion of the Reservation, connecting to Billings, MT, and I-90/I-94 in the northwest, and to I-90/I-25 in Buffalo, Wyoming to the southeast.
- US Highway 212 – Principal Arterial Non-Interstate, providing east-west access to and from Crow Agency for the northeast portion of the Reservation, and connecting to western South Dakota.
- County Highway S-451 (Old US Hwy 87) – Major Collector, providing north-south access parallel to I-90 from Hardin to the Wyoming border.
- Crow Cut Across/BIA 1 – Major Collector departing west from Crow Agency and connecting to BIA Hwy S-313 (County Hwy 313 - Major Collector) which leads southwest to St. Xavier and north to Hardin.
- State Secondary Hwy 418 (BIA 4) – Major Collector/Hwy providing north-south access between Pryor and connectivity to the northwestern extent of the Crow Reservation.
- Blue Creek Road (Montana State Secondary Route 416)
- Little Horn Road / Back Loop Road (Hwy S-418) – Major Collector, providing primary access to lands west from the Town of Wyola along the Little Big Horn River.
- Lodge Grass Creek Road/County Hwy S-463 (BIA 463) – Major Collector, providing access from the Town of Lodge Grass, west to Good Luck Road/BIA 73 (Major Collector), which

connects north to St. Xavier via County Hwy S-313 (BIA 313). County Hwy 313 also provides a north-south connection to Hardin.

- BIA 91/ Pryor Gap Road – Major Collector for east-west travel across the middle of the Crow Reservation connecting St. Xavier to Pryor.
- Pryor Gap Road/BIA 5 and Pryor Loop Road /BIA 105 – provide access to rural areas to the southwest of Pryor.

Roadway and Bridge Ownership

There are approximately 2,234 roadway miles within the Crow Reservation. Of these, 144.8 miles are US and State highways with 347.5 miles designated as County roads. Additionally, 573.4 miles are designated as BIA with 1,168.4 miles of Crow Indian Tribal roads, for a total BIA and Tribal road mileage of 1,741.8 miles. The majority of Roads in Fort Smith are under the jurisdiction of the US Forestry Service. It is anticipated that more miles will be added to the inventory as the inventory is routinely updated. Refer to the following Tables 1-3 for detailed RIFDS road inventory for the Crow Reservation.

There are a total of 68 bridges within Crow Reservation and include the following jurisdictions: 33 bridges with BIA ownership; 6 bridges with Tribal ownership; 4 bridges with State ownership; and 25 bridges with County/Township ownership. (Refer to Table 2 on the following page).

Inventory and Functional Classification

Table 1 displays the *road surface type by jurisdiction* that was retrieved from the 2023 Road Inventory Field Data System (RIFDS) through the BIA's Integrated Transportation Information Management System (ITIMS) software. Routes that appear in RIFDS are considered public roads that are accessible year-round through both Tribal and non-Tribal land.

TABLE 1: RIFDS ROAD INVENTORY - SURFACE TYPE BY JURISDICTION - 2023

JURISDICTION	Road Mileage (mi) by Surface Type						
	Earth (1)	Gravel (3)	Bituminous <2" (4)	Bituminous >2" (5)	Concrete (6)	Trail (9)	TOTAL (Miles)
1 - BIA	130.9	84.3	4.0	176.4	0.8	176.7	573.4
2 - Tribe	195.2	28.7	9.0	14.6	0	920.4	1168.4
3 - State	0	0	0.7	144.1	0	0	144.8
5 -County / Township	106.7	107.6	14.5	78.8	0	39.9	347.5
TOTALS	432.8	220.6	28.2	413.9	0.8	1137.0	2,234.1
BIA Roads as % of Total	30.2%	38.2%	14.2%	42.6%	100%	15.5%	25.7%

**Jurisdictions with 0 mileage omitted.*

Table 2 shows the Reservation's road mileage by functional class and jurisdiction. The Inventory as of 2023 has many miles that have not been formally approved. The inventory should be updated to obtain formal approval of eligible Tribal roads, and to add new mileage as applicable.

Additionally, Table 2 contains the Reservation's bridge count and lengths by jurisdiction. For a comprehensive bridge inventory, refer to Chapter 5, subsection "Bridges and Culverts."

TABLE 2: RIFDS ROAD INVENTORY - FUNCTIONAL CLASS BY JURISDICTION - 2023

JURISDICTION	Road Mileage (mi) by Functional Classification					BRIDGES	
	Rural Minor Arterial (2)	City Local (3)	Rural Major Collector (4)	Rural Local (5)	TOTAL (mi)	Count Total	Length (ft)
1 - BIA	139.1	12.4	404.3	17.6	573.4	33	2,874
2 - Tribe	0	2.6	331.3	834.5	1168.4	6	473
3 - State	0	130.6	14.2	0	144.8	4	600
5 - County / Township	58.9	8.9	274.1	5.6	347.5	25	2,276
TOTALS	198.0	154.5	1023.9	857.7	2234.1	68	6,223

**Jurisdictions with 0 mileage omitted*

Table 3 shows the Reservation's road inventory by surface type and functional classification, as well as an inventory of bridges and total bridge lengths by their associated roadway's functional classification.

TABLE 3: RIFDS ROAD INVENTORY - SURFACE TYPE BY FUNCTIONAL CLASSIFICATION - 2023

FUNCTIONAL CLASS	Road Mileage (mi) by Surface Type						Total Mileage (mi)	BRIDGES	
	Earth	Gravel	< 2 inch	> 2 inch	Concrete	Trail		Count	Length (ft)
	(1)	(3)	(4)	(5)	(6)	(9)			
2 - Rural Minor Arterial	0	4.9	0	323.7	0	0	**328.6**	29	3,165
3 - City Local	0.5	5.8	0.1	15.9	0.8	0	**23.9**	0	0
4 - Rural Major Collector	275.2	203.4	27.8	74.1	0	443.4	**1023.9**	37	3,002
5 - Rural Local	157.1	6.5	0.3	0.2	0	693.6	**857.7**	2	56
TOTALS	**432.8**	**220.6**	**28.2**	**413.9**	**0.8**	**1137.0**	**2234.1**	**68**	**6,223**

**Functional Classes with 0 mileage omitted.*

Parking Lot Additions

The Crow Indian Tribe desires to assess parking needs within its towns and upgrade deficient pavement and/or pave gravel parking lots where appropriate. One location that has been identified for adding paved parking facilities is the Pow Wow Grounds (Goes Ahead Camp) in Crow Agency. In addition, all their parking lots will require future maintenance to address vegetation overgrowth and adverse surface conditions. These parking lot locations must be included or be added to the RIFDS inventory to be eligible for TTP funding.

Road Inventory Modifications

The current inventory includes many roads in various stages of approval within RIFDS. Modifications to the data for many of these routes within RIFDS will be needed for these routes to be eligible for TTP funding. The Crow Tribe has requested that several subdivision/community roads and paved/parking areas in Fort Smith be added to the Tribal RIFDS inventory which include 1st St. East (at Yellowtail Market), Fort Smith Elementary School parking lot (as well as all Tribal School parking facilities throughout Crow Reservation), and Grapevine Rd, which has noted ROW issues.

CHAPTER 3 – TRAFFIC AND CRASH ANALYSIS

This chapter of the report includes relevant safety analysis and information taken from the 2022 Tribal Transportation Safety Plan that was prepared prior to the LRTP plan preparation process.

EXISTING AND PROJECTED TRAFFIC

Much of the existing traffic within the Reservation is generated by key land uses, subdivisions, and Tribal facilities in and around Crow Agency and Lodge Grass. Traffic counts via traditional tube counters were last executed in 2008. Currently, Annual Average Daily Traffic (AADT) count statistics and locations are only available for Federal/US, State and County Road classifications as provided by MDT for the year 2021.

Traffic conditions related to the aforementioned land uses will be a key factor in selection of future traffic count locations for Tribal and BIA roads. As part of this LRTP, up to date traffic counts have not yet been performed for Tribal/BIA roads. However, when future count locations are determined and counts are performed, the locations can be re-used to inform future LRTP updates, as well as the addition of any new locations deemed important by the BIA or Tribal transportation officials.

Tube Counters

Traditional counter tubes or cameras can be used to perform traffic counts at appropriate locations. Counters can be placed in areas that have experienced land use changes or growth or are thought to have been underserved in the previous 2008 counts. Note however that technical difficulties during the counting process (often due to poor internet connection in the most rural parts of the Reservation) can result in some count locations producing inaccurate traffic count data. In addition to difficulties with internet connectivity, errors in counts can also occur if tubes are tampered with or dislodged during counts.

MDT AADT (2020) AND PROJECTED (2045) COUNT LOCATIONS

For the purposes of this plan, no new traffic counts were conducted. At present time, all AADT counts for this LRTP were retrieved from MDT's GIS Data Portal. Maps of the existing 2020 MDT AADT counts and locations are graphically depicted in Figures 7 and 9-13 respectively.

Projected Year 2045 AADT volumes were generated using 2020 AADT as a baseline, with one-percent annual growth over 20+ years. Year 2045 projected traffic volumes are represented graphically in Figures 8-13 .

FIGURE 7: MDT AADT 2020 COUNT LOCATIONS - CROW RESERVATION

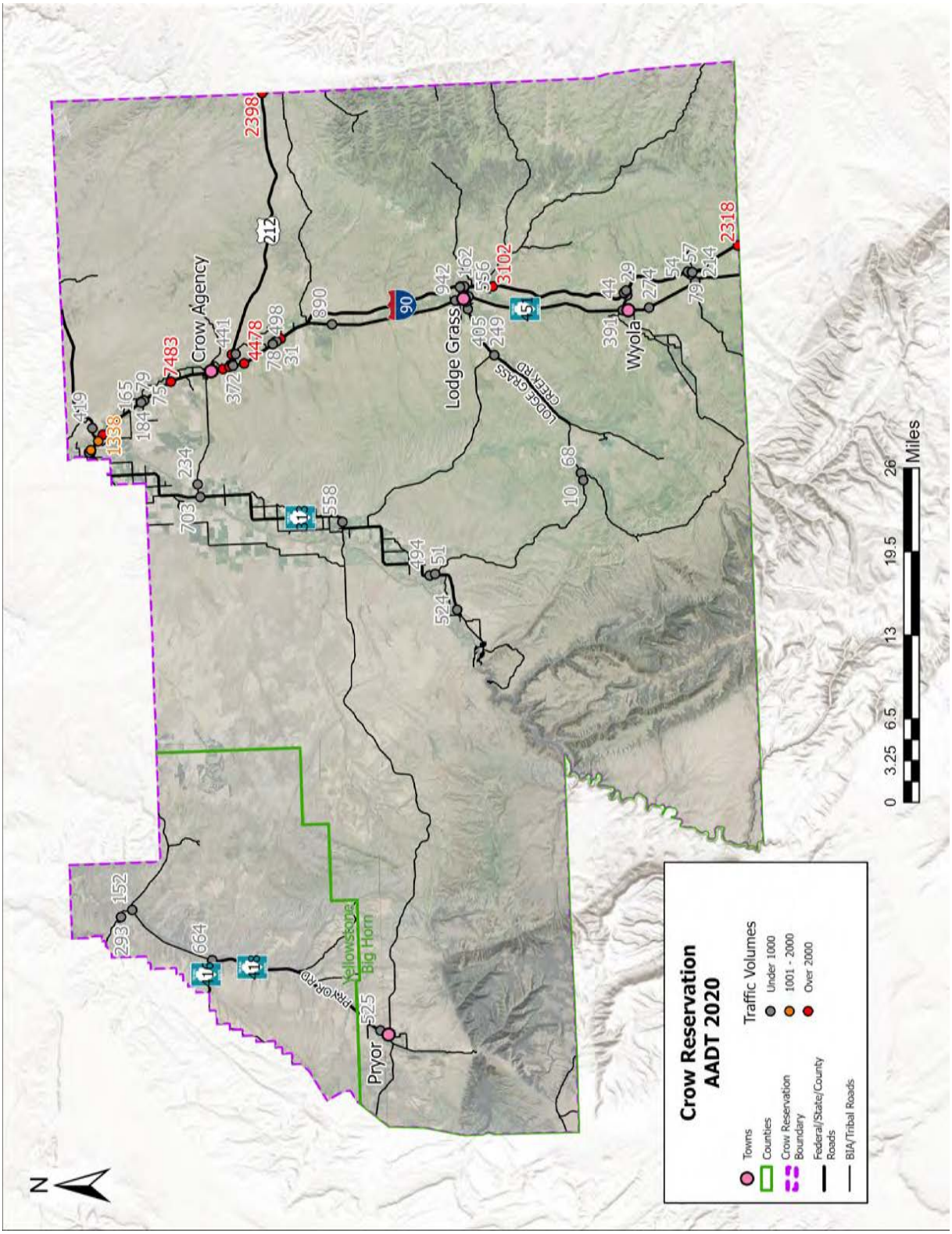


FIGURE 8: MDT AADT 2045 PROJECTED - CROW RESERVATION

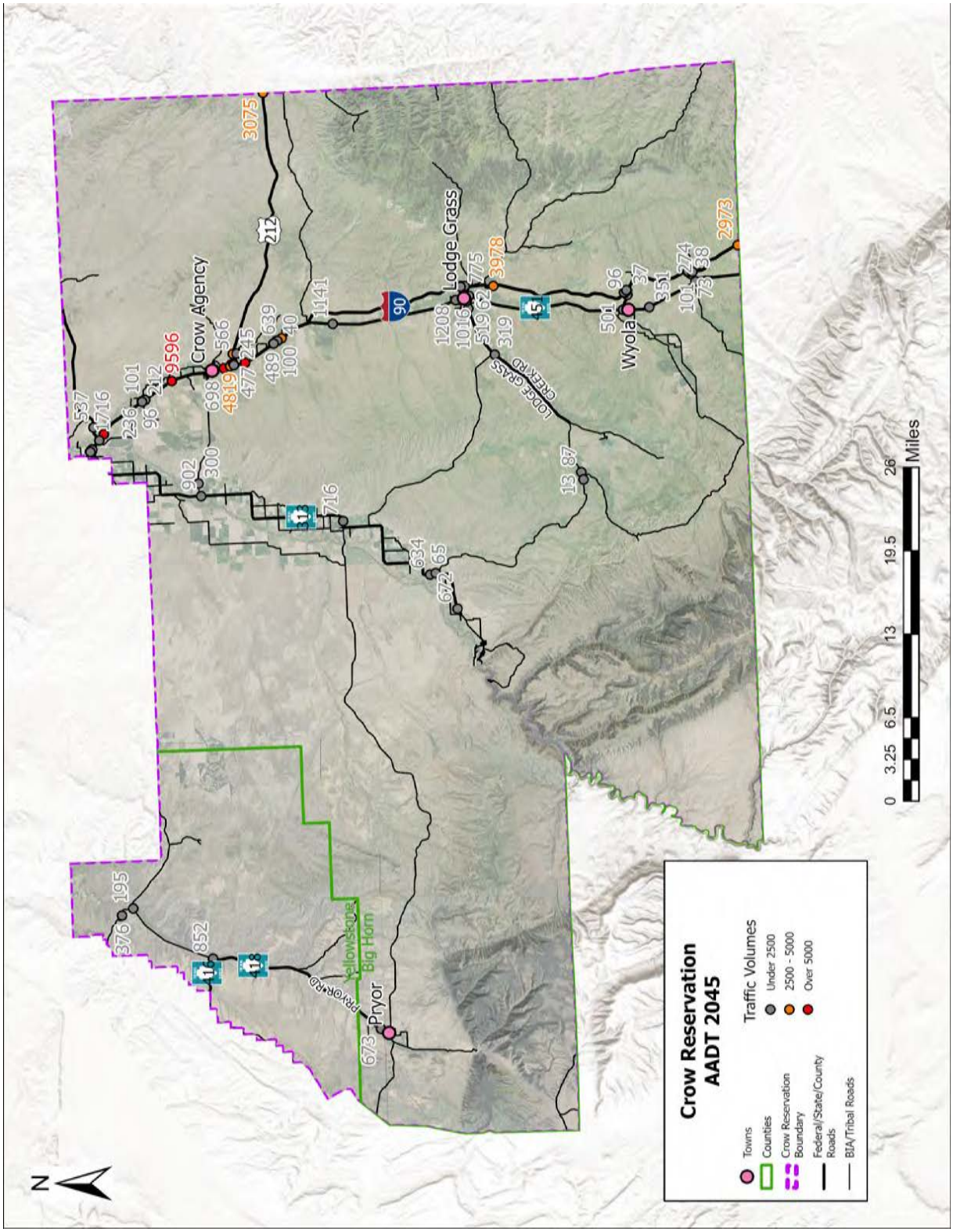


FIGURE 9: MDT AADT 2020/2045 COUNT LOCATIONS – CROW AGENCY

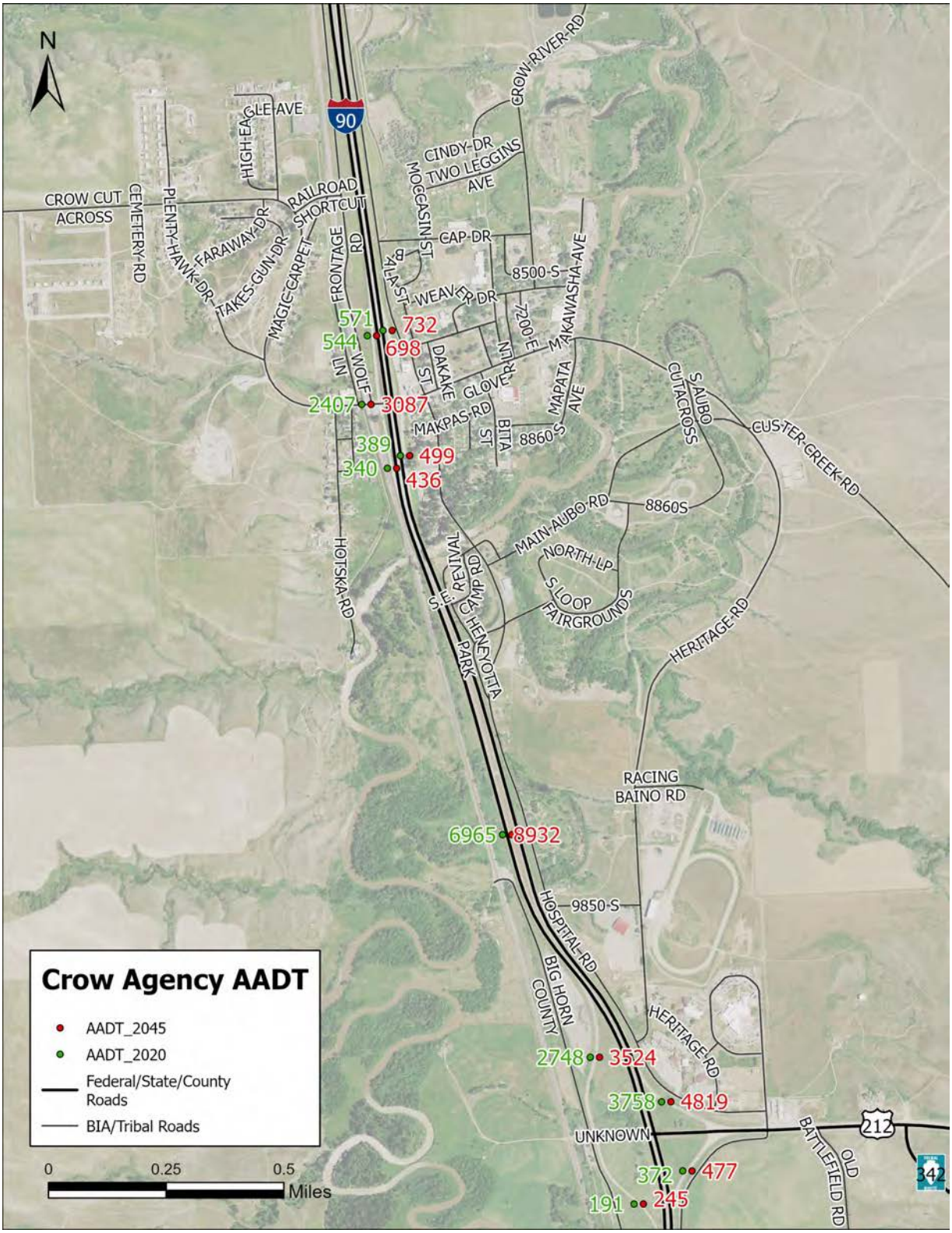


FIGURE 10: MDT AADT 2020/2045 COUNT LOCATIONS - LODGE GRASS

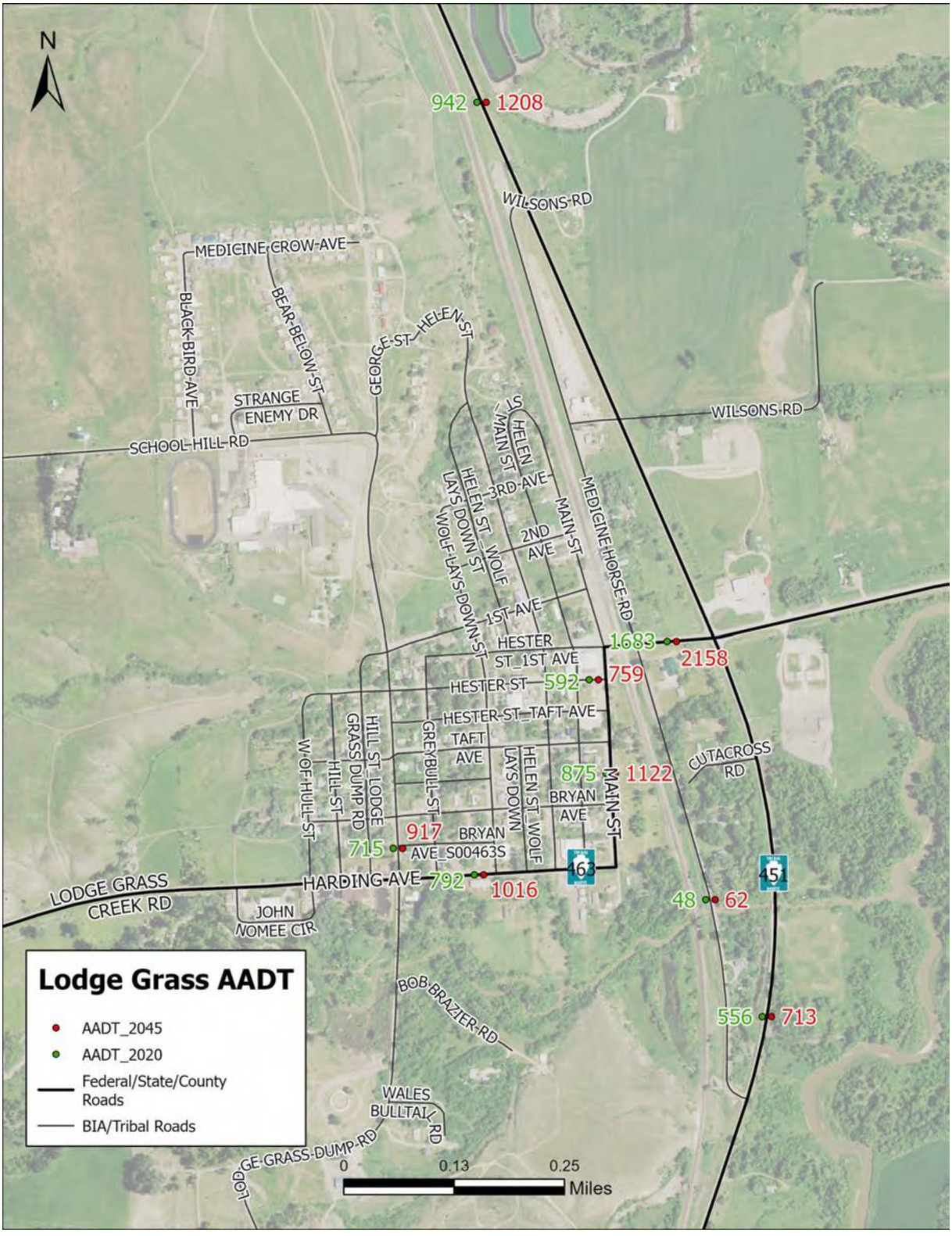


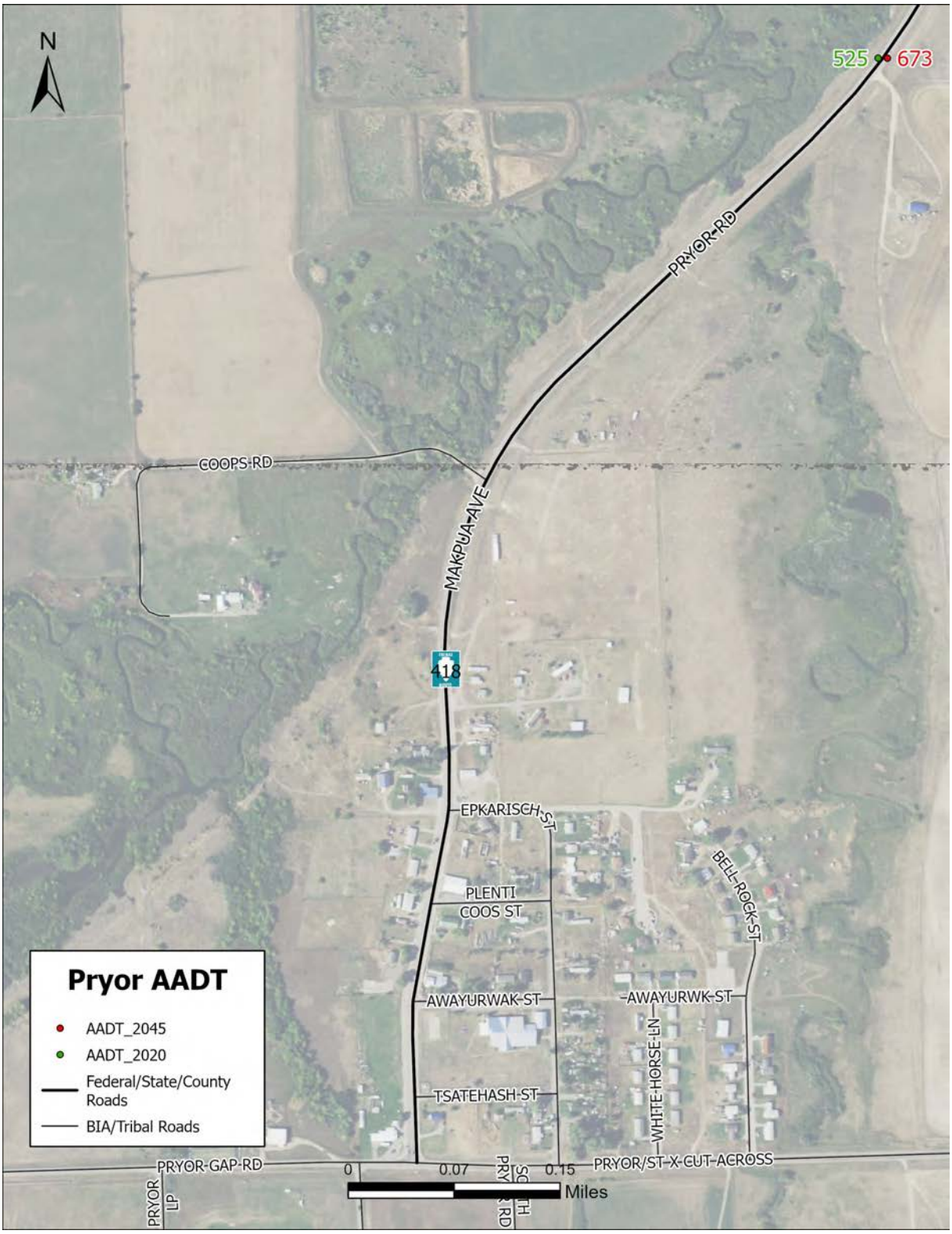
FIGURE 11: MDT AADT 2020/2045 COUNT LOCATIONS – WYOLA



FIGURE 12: MDT AADT 2020/2045 COUNT LOCATIONS – ST. XAVIER



FIGURE 13: MDT AADT 2020/2045 COUNT LOCATIONS – PRYOR



PROPOSED TRIBAL/BIA ROADS AADT COUNT LOCATIONS

It would be beneficial for new traffic counts to be collected at additional locations, specifically for Tribal/BIA roads that are not included in the MDT traffic counts and locations. Proposed future Tribal/BIA road traffic count locations and a timeline for the counts, remain to be determined at the discretion of the Crow Tribe Department of Transportation.

EXISTING TRUCK TRAFFIC (AADTT 2020)

Truck traffic data was pulled from the MDT GIS Data Portal. On primary highways, truck traffic on the Reservation ranged from an *Annual Average Daily Truck Traffic* (AADTT) of 39 on Pryor Rd on the western side of the Reservation, to 1,718 on I-90 between Crow Agency and Hardin. Less traveled, rural roadway areas had much less truck traffic; for example, Lodge Grass Creek Rd saw an AADTT of only four trucks per day, on average. Data for truck traffic volumes on the greater Tribal/BIA road system is limited at the present time. Figure 14 shows the ranges of current 2020 MDT AADTT on the Crow Indian Reservation and select Crow Reservation Towns in Figures 15 and 16.



FIGURE 14: MDT AADTT 2020 (TRUCK) COUNT LOCATIONS - CROW RESERVATION

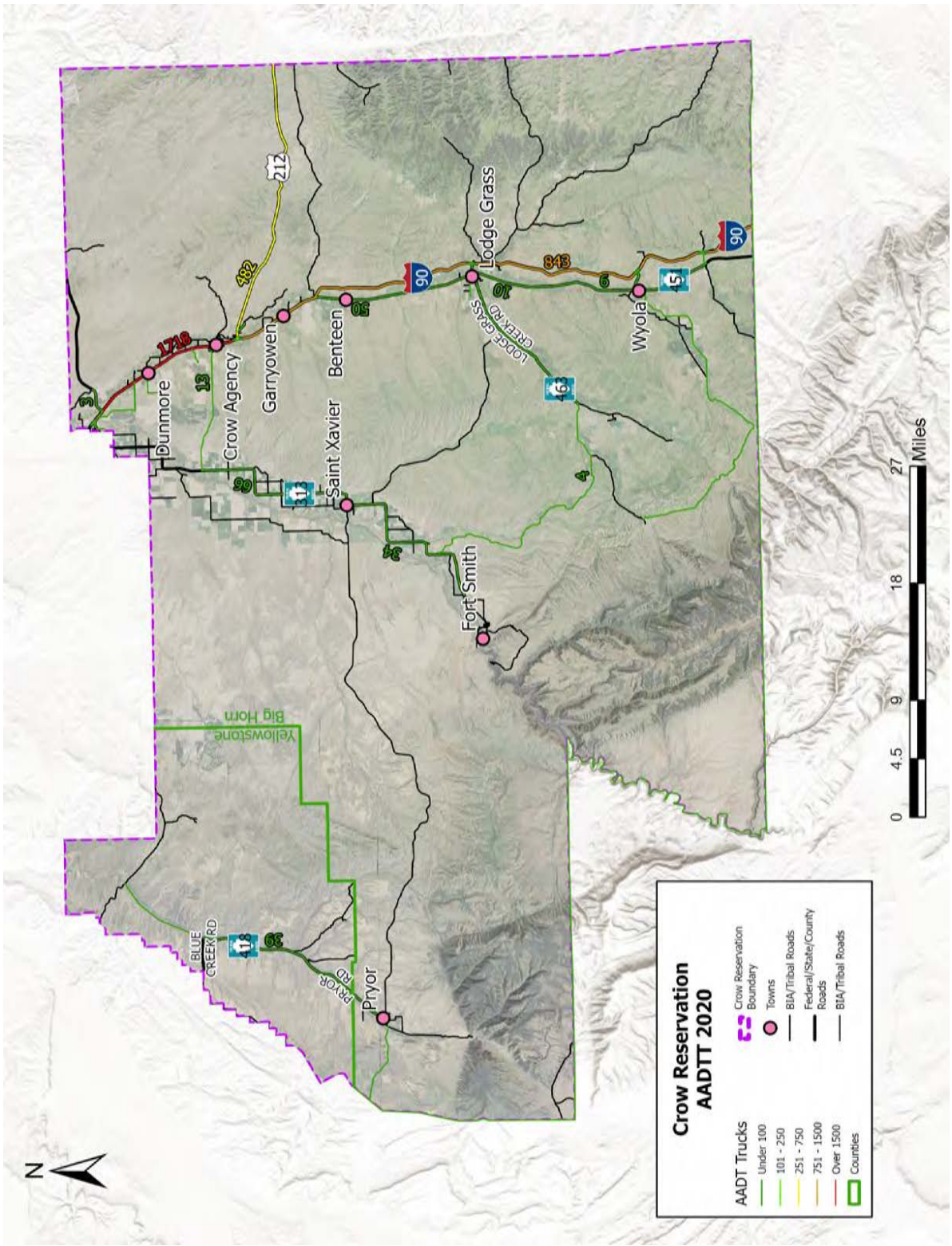


FIGURE 15: MDT AADTT 2020 (TRUCK) COUNT LOCATIONS - CROW AGENCY

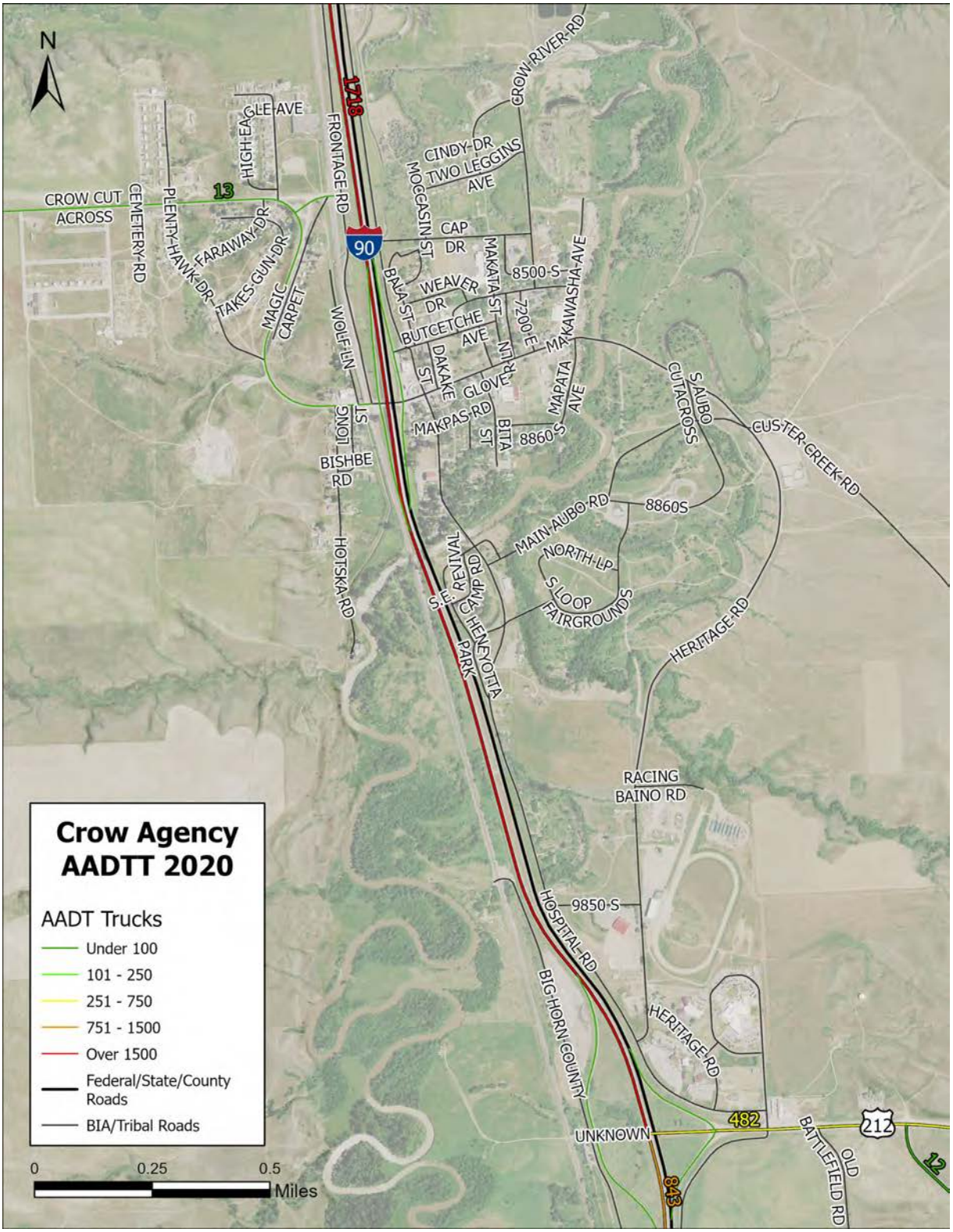
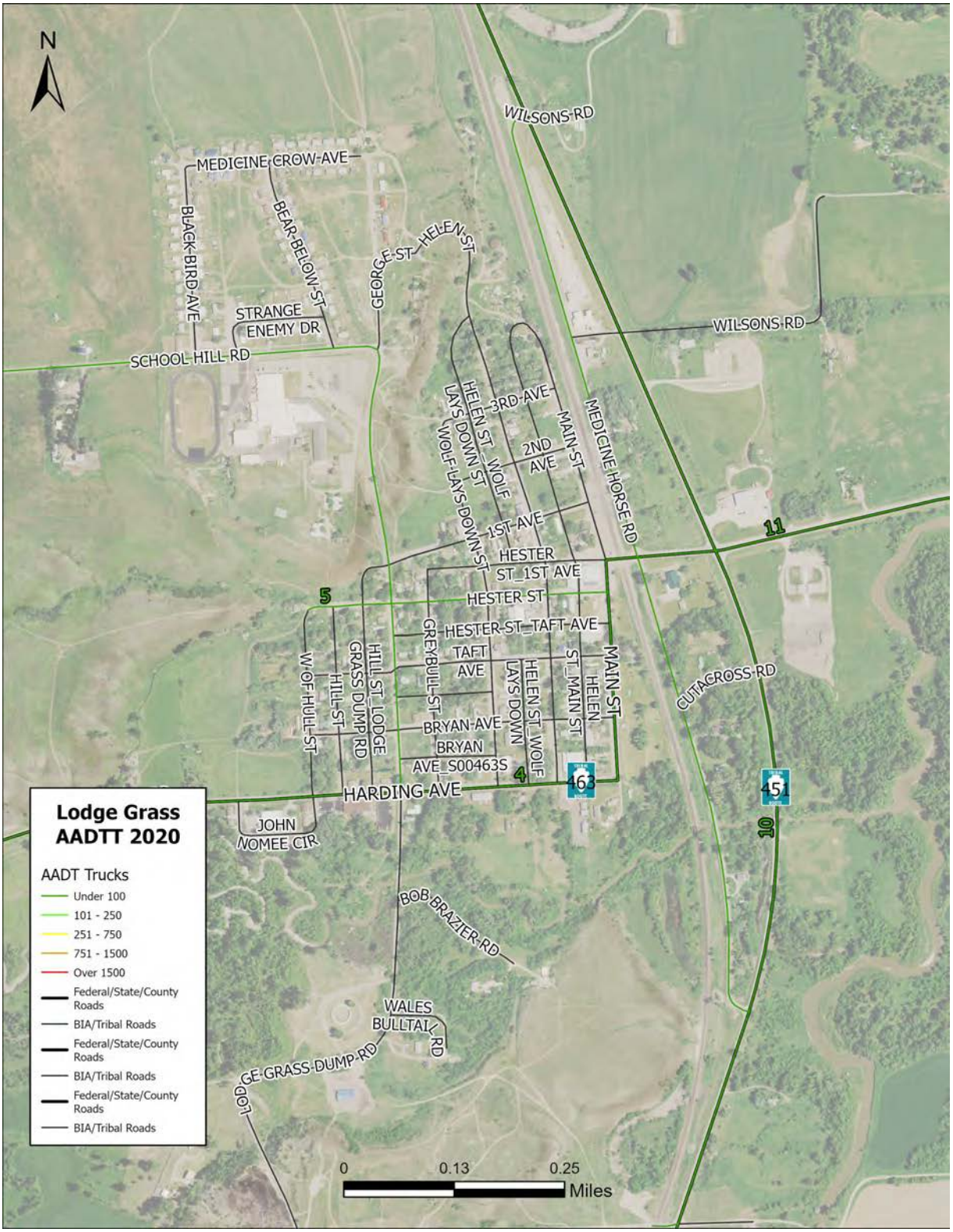


FIGURE 16: MDT AADTT 2020 (TRUCK) COUNT LOCATIONS - LODGE GRASS



PROJECTED TRUCK TRAFFIC (AADTT 2045)

Similar to the projected AADT traffic volumes for 2045, AADTT (truck) traffic volumes were generated based on one-percent annual growth over 20+ years. Projected 2045 AADTT traffic volumes are shown in Figure 17 (Reservation); Figure 18 (Crow Agency); Figure 19 (Lodge Grass).

FIGURE 17: PROJECTED TRUCK TRAFFIC (AADTT 2045) - CROW RESERVATION

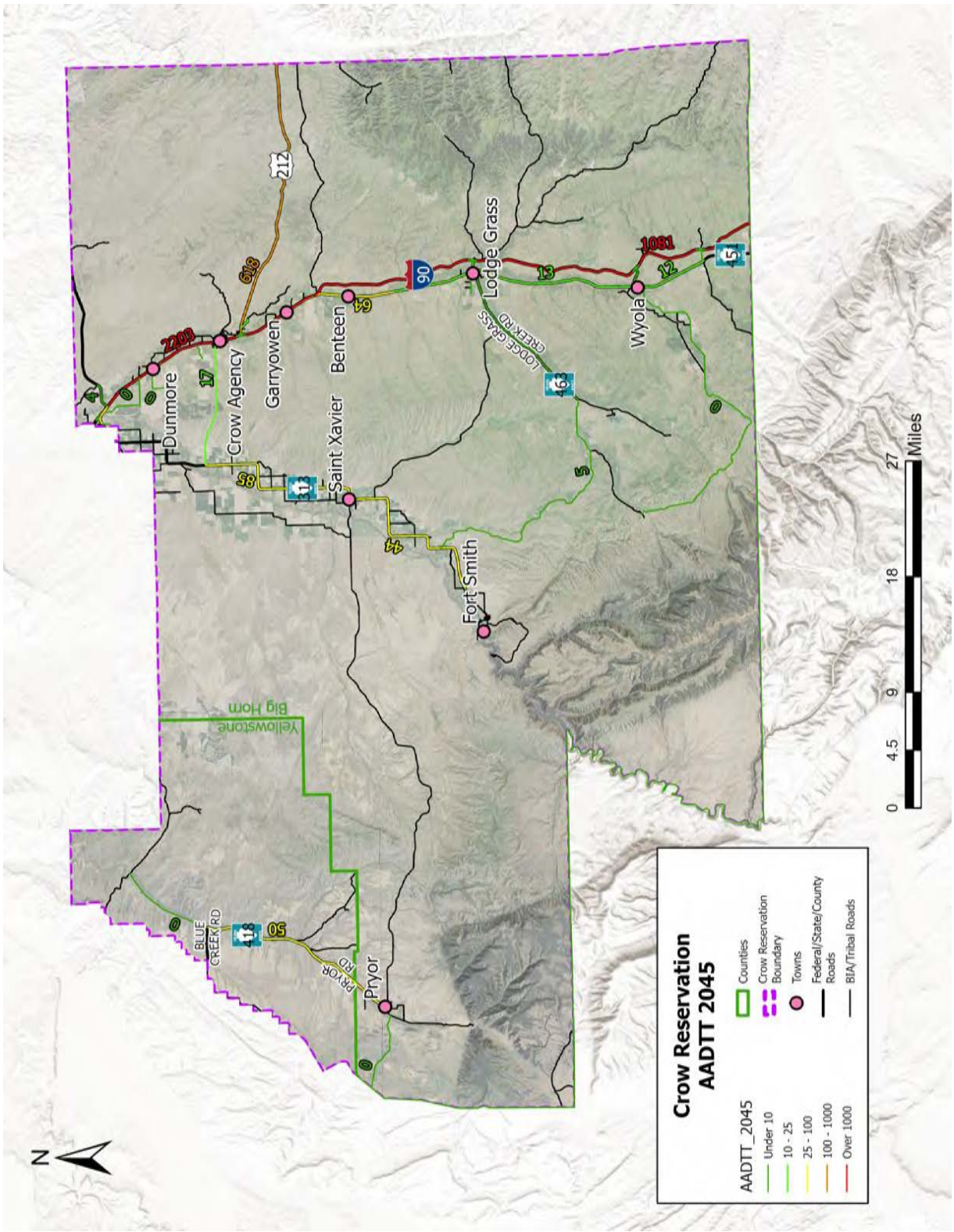


FIGURE 18: PROJECTED TRUCK TRAFFIC (AADTT 2045) - CROW AGENCY

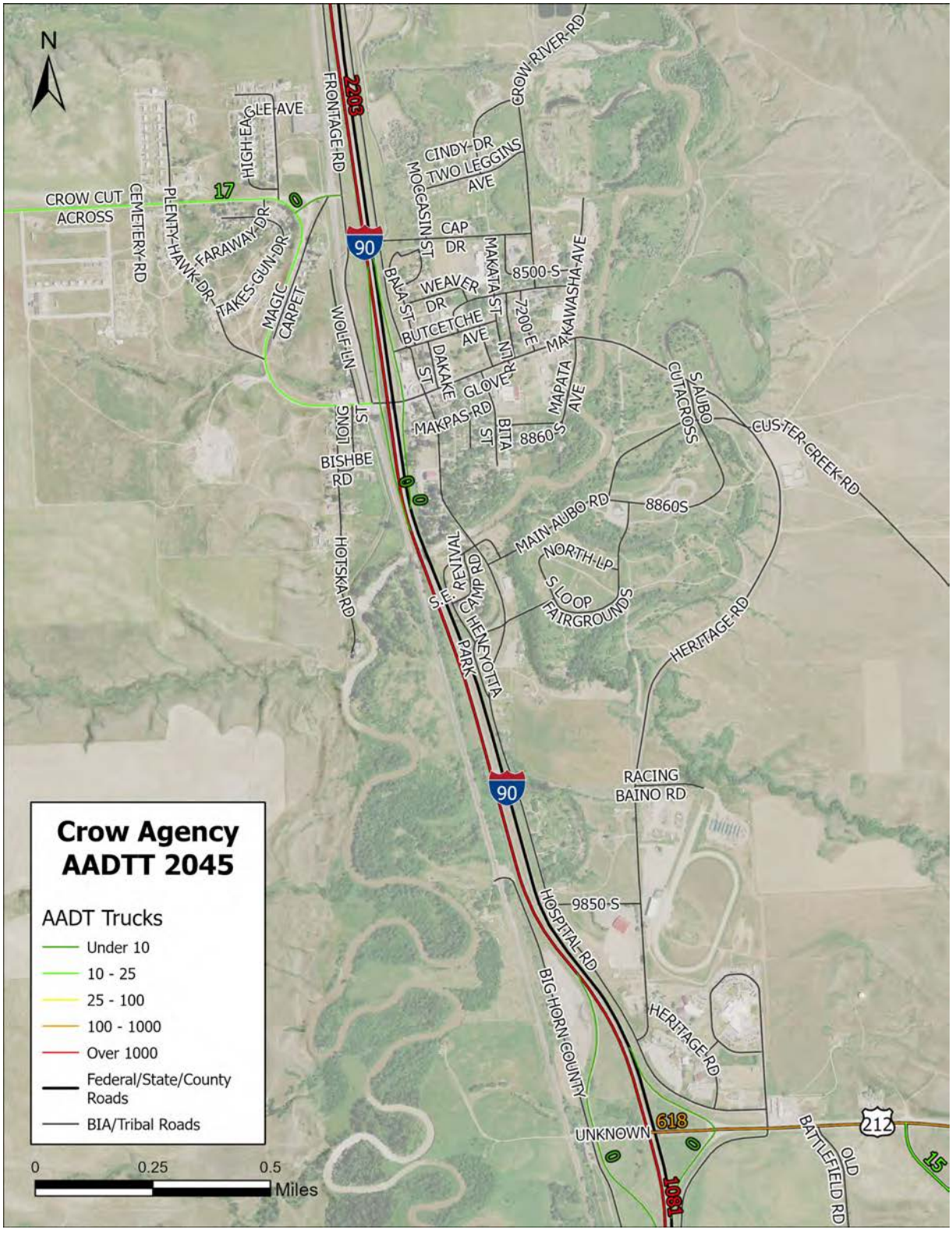
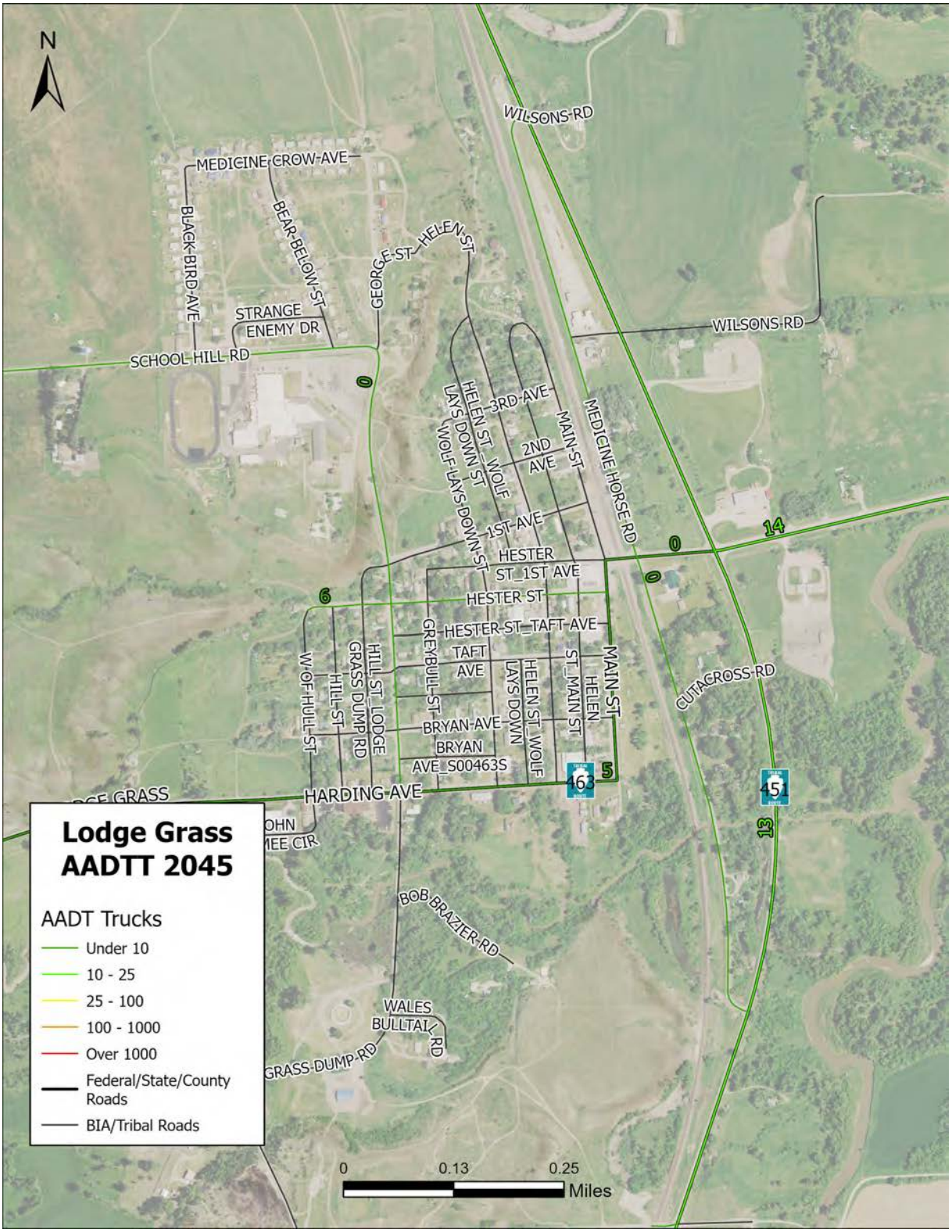


FIGURE 19: PROJECTED TRUCK TRAFFIC (AADTT 2045) – LODGE GRASS



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 ADT volumes on the major corridors, and considering projected growth, few traffic capacity issues exist or are expected to occur within the near future. An exception to this exists during Crow Fair, when significant traffic congestion can occur in Crow Agency. Alternatives in the LRTP address potential seasonal traffic congestion for this event.

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 Crow Agency could warrant consideration of traffic signals at I-90 and US 212/Makawasha Ave. This would need to be confirmed by MDT.

CRASH AND SAFETY ANALYSIS

Existing Conditions: Historical Crash Data

Historical crash data contained in the MDT Crash Database, occurring on the Crow Reservation, was provided by the MDT Traffic and Safety Bureau for a ten-year time interval covering January 1, 2011, through December 31, 2020. Crash data is submitted to the MDT Crash Database by the Montana Highway Patrol (MHP). Historical crash data is not available from the Bureau of Indian Affairs (BIA) Law Enforcement. The crashes, which they respond to and the crash information collected are not reported to the MHP.

The accuracy of reported crash data to the MDT Crash Database is only limited to one source, the Montana Highway Patrol. The Montana Highway Patrol response may be limited to Montana State roadways within the Reservation, such as State Route 313 from Hardin to Fort Smith, Interstate I-90 and State Routes 416 and 418, from Pryor to Billings. If the MHP responds to crashes on BIA and tribally owned roads, then it is discretionary.

Obtaining information from BIA 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, it can result in a long process to obtain the information.

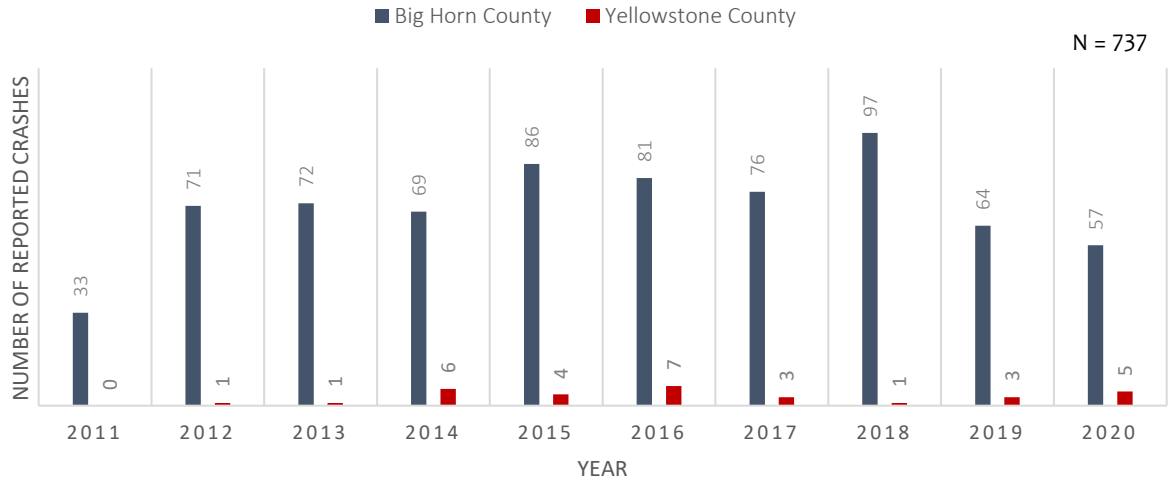
One of the important factors in the development of a Tribal Transportation Safety Plan is the available crash data analyzed and utilized in the identification of issues and development of strategies. Adequate crash information plays a crucial role for the Tribe as this information can be used to assist 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.

With crash data only being limited to what was reported to the MDT Crash Database, the data only shows a small portion of actual crashes that may have occurred throughout the Reservation.

– LOCATION OF CRASH

During the ten-year time interval between 2011-2020, there were a reported 737 crashes or approximately 74 crashes per year within the Crow Reservation. Of the reported 737 crashes, 706 crashes were reported in Big Horn County and the remaining 31 crashes were reported in Yellowstone County. The number of reported crashes has remained relatively consistent per-year of the ten-year time interval with exception to 2011. Figure 20 shows the number of reported crashes per year on the Crow Reservation within the two-county area.

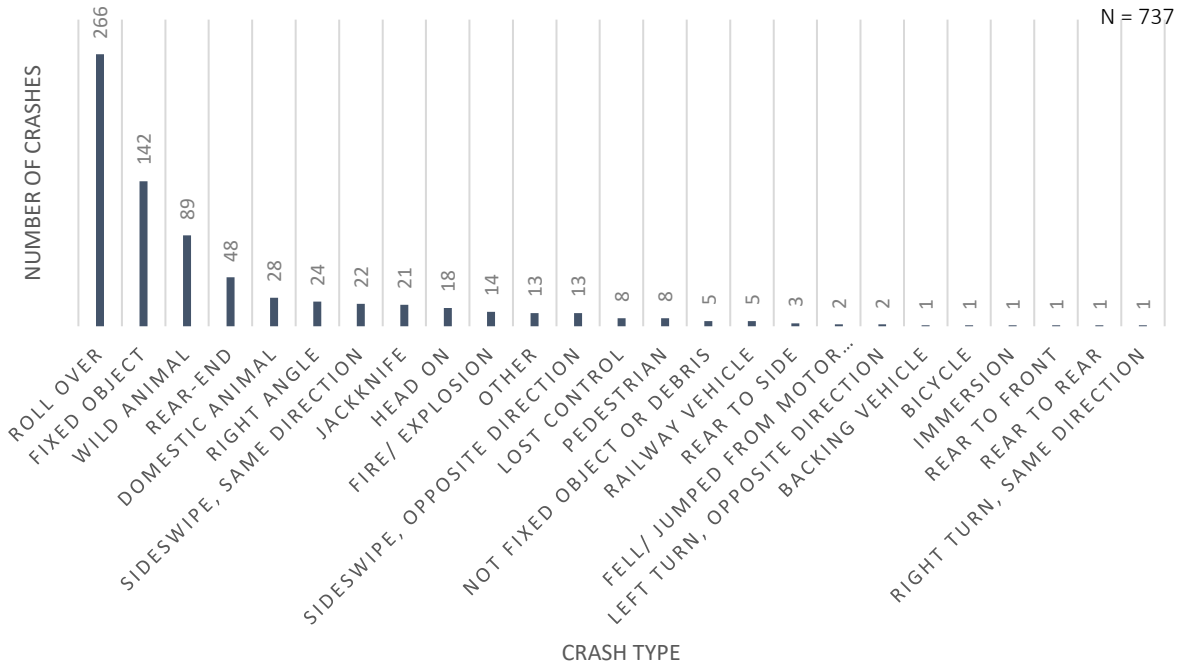
FIGURE 20: NUMBER OF REPORTED CRASHES PER YEAR (2011-2020)



– CRASH TYPES

Roll Over crashes were the most common reoccurring event throughout the ten-year time interval, accounting for 266 of the 737 crashes or 36.1% of all reported crashes, The other three top leading crash types observed are Fixed Object crashes accounting for 142 crashes or 19.3% of all reported crashes, Wild Animal crashes accounting for 89 crashes or 12.1% of all reported crashes and Rear-End crashes accounting for 48 crashes or 6.5% of all reported crashes. Figure 21 shows the different crash types that occurred within the Crow Reservation from 2011-2020.

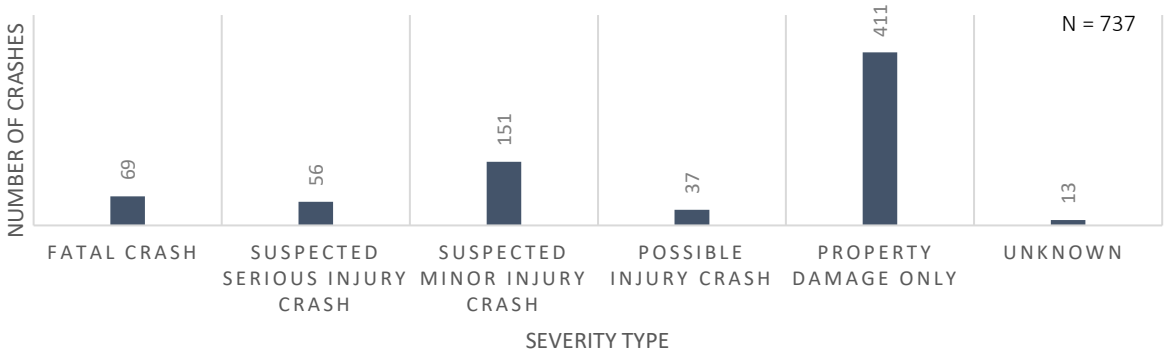
FIGURE 21: CRASH TYPES (2011-2020)



– CRASH INJURY SEVERITY

During the studied ten-year time interval, there were a reported 69 fatal crashes, 56 suspected serious injury crashes, 151 suspected minor injury crashes, 37 possible injury crashes, 411 property damage only crashes and 13 crashes were reported as unknown injuries. The reported 69 fatal crashes resulted in 83 fatalities or approximately 8 fatalities per year over the ten-year time interval within the Crow Reservation. Figure 22 shows the different crash severities reported on the Crow Reservation.

FIGURE 22: CRASH INJURY SEVERITY (2011-2020)



Fatal and Serious injury crashes stand out due to their impact on lives. Of the 69 fatal injuries reported, 36 were from the result of Roll Over crashes, nine (9) were from the result of Fixed Object Crashes, seven (7) were from the result of Head On crashes, six (6) were from the result of Pedestrian crashes, three (3) were from the result of Right Angle crashes, two (2) were from the result of both Rear End and Domestic Animal crashes, and one (1) was from the result of each, Railway Vehicle, Left turn Opposite Direction, Immersion and Falling or Jumping from a Moving Vehicle crash.

Of the 56 reported suspected serious injury crashes, 35 were from the result of Roll Over crashes, seven (7) were from the result of Fixed Object Crashes, five (5) were from the result of Head On crashes, three (3) were from the result of both Right Angle and Rear End crashes, and one (1) was the result of each, Falling or Jumping from a Moving Vehicle, a Bicycle and listed as other. Figure 23 and Figure 24 summarize the different crash types for Fatal and Serious Injuries, and Fatal and Incapacitating Injuries per Number of Occupants (2010-2019).

FIGURE 23: FATAL AND SERIOUS INJURY CRASH TYPES (2010-2019)

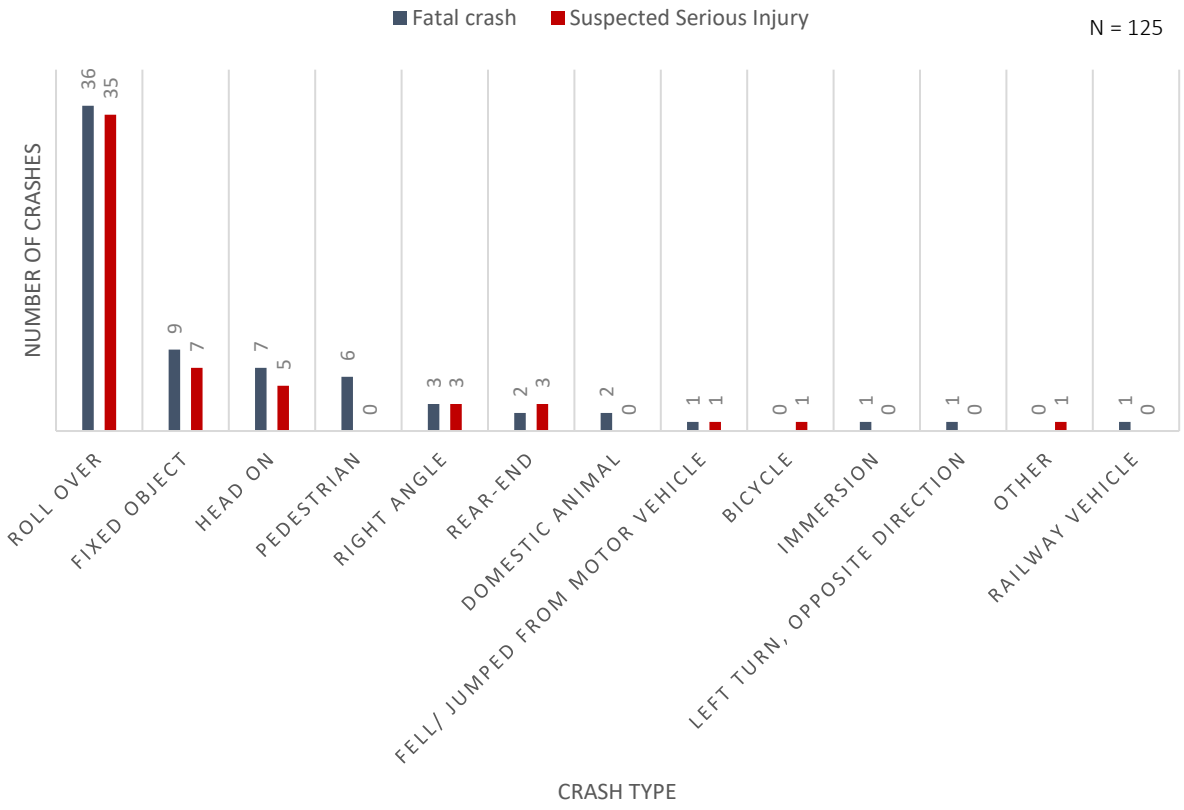
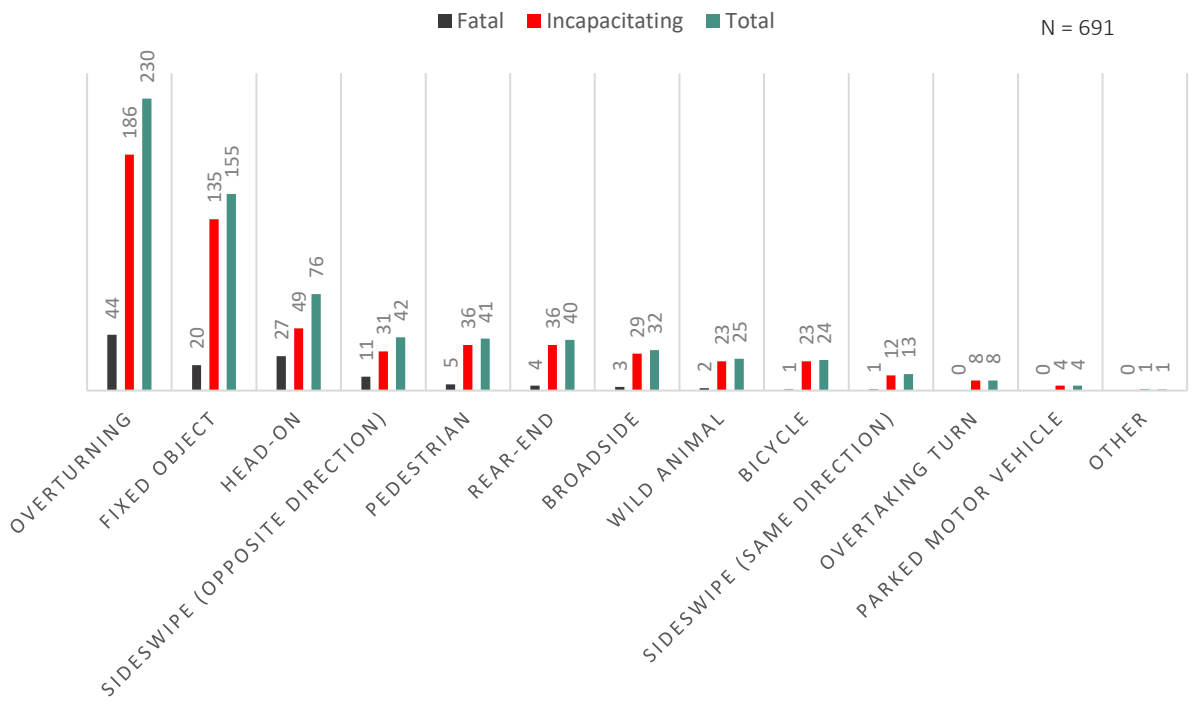


FIGURE 24: FATAL AND INCAPACITATING INJURIES PER NUMBER OF OCCUPANTS (2010-2019)



– 2022 TRIBAL TRANSPORTATION SAFETY PLAN

This 2022 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, EMS, education, 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 the Crow Reservation

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

- The Occurrence of Roll Over Crashes
- Presence of Fixed Objects
- Presence of Wild Animals
- Lack of Driver Experience

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:

- Lack of Cellular Coverage for EMS Response
- Need for Tribal Traffic Safety Officer
- Upgrading School Zones with Vehicle Speed Feedback Signs
- Improved Roadway and Pedestrian Lighting

– 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 Crow 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.

Educations Strategies

DEVELOP A RESERVATION-WIDE TRANSPORTATION EDUCATION PROGRAM

The Crow Tribe currently does not have an established SOAR (Safe on All Roads) Coordinator through MDT. The program through MDT is committed to reducing crash deaths and injuries on the Reservations in Montana. The coordinator works with law enforcement, schools, and other interested parties on the Reservation to provide education on transportation safety, particularly to younger drivers on behavioral issues such as seat belt use, texting and driving, impaired driving, and child restraint. With Alcohol, Careless Driving, Speeding, and Inattentive driving being the top contributing circumstances for fatal crashes, this program can be extremely important in reducing injuries and deaths.

This project would use and build on national safety campaign themes on impaired driving, seat belt use, texting and driving and other transportation safety issues, by using local leaders, or other easily recognizable individuals from the Tribal Community to promote these safety themes. Many safety campaigns across the country have shown a greater rate of success when they are made culturally relevant to the Tribal audience and utilize local talent to deliver the safety message.

The SOAR Program has received funding for items in the past, but funding is not sufficient for larger items such as PSAs, Arrive Alive Programs, billboards using local artistry, banners, videos, Tribal safety posters and other safety education and promotional materials that would be used in education programs, during Pow Wows and at other community events.

Strategy Champion: Crow Tribal Transportation Program and Tribal SOAR Coordinator.

Funding Opportunity: TTP Safety Funding, BIA Indian Highway Safety Program (IHSP) Funding.

ESTABLISH A YOUTH DRIVERS EDUCATION PROGRAM

During development of the Crow Tribal Safety Plan, there was discussion about driver education programs for younger drivers. These programs have changed over the years from one that was provided through the school systems to one where participants are required to pay for the classes and behind the wheel training. This has resulted in many youths in the community not taking classes due to the inability to pay for this service.

The group identified that many of the crashes occurring on the Reservation are contributed by a significant number of younger drivers ages under the age of 30. This has been an issue with other Tribes in Montana as well where they have discussed requiring completion of a driver's education program as a graduation requirement. Coordination needs to occur with the Montana Office of Public Instruction and the Tribal Schools to see that a program can be established to meet the needs of the Tribal community.

Strategy Champion: Tribal SOAR Coordinator, MDT SOAR Coordinator.

Funding Opportunity: MT OPI Funds, TTP Safety Funding and BIA IHSP Funding.

Enforcement Strategies

OBTAIN AND UPGRADE COMMUNICATIONS EQUIPMENT

One key aspect to good, coordinated emergency response is having the ability for good communications among responders. While police vehicles have radios and the BIA has recently upgraded the base station, other Tribal programs such as Transportation and Disaster and Emergency Services do not have communications equipment that allow them to respond accordingly to crashes, road closures or other events.

Additionally, with the rural nature and inaccessible areas there is a significant need for all agencies to have hand-held communications equipment. The BIA is upgrading the base station at the new law enforcement building; however, proper protection for the location was not included. This site, while fenced is immediately adjacent to the roadway and needs positive separation to make sure that communications are not interrupted either intentionally or accidentally.

Strategy Champion: Crow Tribal Transportation Program.

Funding Opportunity: TTP Safety Funding or BIA IHSP Funding.

DEVELOP ROAD CLOSURE PROCEDURES WITH MDT AND MONTANA HIGHWAY PATROL

During adverse weather conditions, it is common for I-90 to become impassible south of Crow Agency for travelers heading south. Currently there has been little coordination and at times, the roadway has not been closed timely, resulting in through traffic and Tribal members being stranded in the rural location. Additionally, when the road is closed, there is no advanced warning provided to allow drivers to exit at Billings, MT. This results in significant traffic and heavy truck traffic stacking up in both Hardin and Crow Agency.

Neither of these communities have sufficient services to provide for this influx of travelers. The Crow Tribe would like to work with state authorities to develop a plan so that timelier and coordinated closures of the road can occur. This plan should also identify strategic points where notifications can be placed to allow drivers to make appropriate route and stopping point decisions.

Strategy Champion: Crow Tribal Transportation Program, MDT, and Montana Highway Patrol

Funding Opportunity: TTP Safety Funding or MDT Safety Funds

IMPROVE CELLULAR COVERAGE ON RESERVATION FOR 911 RESPONSE AND PROVIDE RESERVATION-WIDE STREET SIGNING AND HOUSE NUMBERING

The Crow Reservation is the largest Indian Reservation in the State of Montana with limited cell phone towers providing coverage throughout the Reservation. An area of concern for EMS and Law Enforcement responding to emergencies in rural areas of the Reservation is the lack of cellular coverage and their GPS equipment losing a cellular signal to provide them the exact location to where they need to respond for an emergency.

This relies on individuals within the EMS and Law Enforcement groups to have a vast knowledge of locations on the Reservation that are referred to by local community members or dispatchers needing to collect more detailed information for the location information prior to being able to dispatch an emergency vehicle. Further complication is also seen that many of the roads are not signed, and houses do not display a number and may be known by a local name or nickname that is not easily identifiable by either the dispatcher or responders.

To remedy this situation, a Reservation-wide street signing, and house numbering project should be initiated. This could then be updated with the 911 system within the Reservation to include location information for quicker response times. In addition, by providing additional cell phone towers to provide increase cell phone coverage would allow for the GPS units to receive a continuous signal to a location of an emergency.

Strategy Champion: Crow Tribal Transportation Program and EMS

Funding Opportunity: ReConnect and Other Telecom Funding

DEVELOP AN MOA FOR FIRE RESPONSE

There currently are multiple volunteer fire departments within communities on the Crow Reservation and at times it is unclear as to who are the first responders or service areas. To clarify service areas, first responders, protocols to request assistance and other procedures for emergency and fire response, a MOA should be developed amongst the key departments.

Strategy Champion: Crow Tribal Transportation Program, Volunteer Fire Departments and DES Coordinator

Funding Opportunity: None Required.

PROVIDE TRIBAL TRAFFIC SAFETY OFFICERS

Currently the Tribe does not have a dedicated highway safety officer to provide traffic enforcement services and was identified as a priority need for the Reservation do to the large number of fatalities and severe crashes on the Reservation. To assist in education and enforcement within the Reservation, it was felt that the need for an officer were needed, throughout the year and particularly during events. The demand on time that criminal activities require, highway safety enforcement by necessity becomes a lower priority. To elevate the level of highway safety enforcement throughout the year and during events, the Tribe should pursue obtaining at least one or possibly two highway safety enforcement officers.

Strategy Champion: Crow Tribal Transportation Department

Funding Opportunity: BIA Indian Highway Safety Program Funding.

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 Crow 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. Figure 25 shows an example of a speed radar trailer.

FIGURE 25: EXAMPLE OF A SPEED RADAR TRAILER[1]



Strategy Champion: Crow Tribal Transportation Program and BIA Law Enforcement
Funding Opportunity: TTP, TTPSF or BIA IHSP

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

Engineering Strategies

DEVELOP A RESERVATION-WIDE SIGNING AND PAVEMENT MARKING PROJECT

There are many roadways on the Crow Reservation that do not currently have adequate highway signing or pavement markings installed. The absence or deteriorated nature of these highway signs and markings can significantly impact transportation safety. With the predominant crash for injuries and fatalities being a single vehicle running off the road and then overturning, the addition of improved signing and markings could help to reduce these types of crashes. Figure 26 shows an example of worn pavement markings.

FIGURE 26: WORN PAVEMENT MARKINGS ON BIA 91 NEAR PRYOR, MT



Installation of signing and markings has long been identified by the FHWA as proven low-cost safety improvements. Additionally, the road safety audits (RSA) performed on the Crow Reservation in the past have identified the improvement and installation of signing and markings for implementation. A project should be developed to design and install these features in compliance with the Manual on Uniform Traffic Control Devices (MUTCD).

Strategy Champion: Crow Tribal Transportation Program.
Funding Opportunity: TTP Funding, TTP Safety Funding.

ESTABLISH A HIGHWAY FENCING PROGRAM

The data for the Crow Reservation shows that crashes with both domestic animals and wild animals rank in the top five for total crashes. These crashes show the need to install, repair and improve fencing along roadways on the Reservation. Since many of these roadways are state routes, any fencing program would need to be coordinated with MDT.

On other Reservation programs such as these have been coordinated with Tribal Ordinances that empower Tribal Programs with the ability to gather and hold livestock that is running loose on highway rights-of-way. For a successful program, it is recommended that similar coordinated efforts be developed. Figure 27 shows an example of highway fencing.

FIGURE 27: EXAMPLE OF HIGHWAY FENCING[2]



Strategy Champion: Crow Tribal Council, Crow Tribal Transportation Program and MDT.
Funding Opportunity: TTP Funding, TTP Safety Funding and MDT Funding.

PERFORM ROAD SAFETY AUDIT ON BIA, TRIBAL AND COUNTY ROADWAYS AND ALL RAILROAD CROSSINGS

Road Safety Audits (RSAs) have been an important tool for many Tribes and one that the Crow Tribal Transportation Program could utilize. RSAs provide an opportunity to bring traffic and safety expertise to assess safety concerns of routes where there are high numbers of crashes or where they have specific concerns. The goal of these RSAs is to identify safety issues and then develop specific transportation safety improvements that may include signing, lighting, striping, pathways, intersection improvement and other activities to rectify shortcomings.

To continue to build on the safety improvement and the use of RSAs, the Tribe should pursue funding to accomplish RSAs on the BIA, Tribal and county roadways including all railroad crossings within the Reservation. Any railroad crossing improvements would need to be coordinated with the county and the railroad companies to make sure that recommendations are implementable.

Strategy Champion: Crow Tribal Transportation Program.
Funding Opportunity: TTP Safety Funding.

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2 https://westerntransportationinstitute.org/publication/2018/new-publication-on-the-effects-of-wildlife-fencing/

DEVELOP MULTI-USE PATHWAYS AND PATHWAY LIGHTING PROJECTS

There are locations within the Crow Reservation where there is pedestrian/bike traffic, and the Tribe has identified specific need for pathways. Crash data identifies pedestrians and bicyclists as having significant incident rates resulting in fatal and serious injury. They account for approximately 9% of all fatal crashes occurring on the Reservation. Multi-Use 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 schools and other community amenities. Figure 28 shows an example of multi-use pathway with pedestrian lighting.

FIGURE 28: MULTI-USE 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 29 shows an example of solar pedestrian lighting.

FIGURE 29: SOLAR PEDESTRIAN LIGHTING EXAMPLE[3]



Several multi-use pathway projects have been identified by Tribal stakeholders for inclusion in this LRTP. The locations are primarily within Crow Agency and included access to the Pow Wow Grounds, Pedestrian Rail Crossing, I-90 Pedestrian Structure, pathway along BIA 1 and Tribal Housing, and a

[3] https://www.sepco-solarlighting.com/solar-pathway-landscape-lighting

pathway along Bala Street heading north ending at CAP Drive. Identified multi-use pathway projects include the following:

- Crow Agency Pedestrian Railroad Crossing Multi-Use Pathway (Project ID 1)
- Pow Wow Ground Multi-Use Pathway - Phases I-III (Project ID 2)
- I-90 Pedestrian Structure (Project ID 3)
- BIA 1 to Plenty Hawk Drive Multi-Use Pathway – Phases I-II (Project ID 4)
- Crow Agency Multi-use Walking Pathway (Project ID 5)
- Crow Agency Head Start Pathway Project (Project ID 6)

Multi-use pathway project details including maps, locations and proposed routes, project descriptions, rough cost estimates, and funding sources are provided in Chapter 5 - Facility Conditions and Recommendations, in the subsection titled "Pedestrians and Bicycles."

Strategy Champion: Crow Tribal Transportation Program.
Funding Opportunity: TTP Funding, TTP Safety Funding.

INCORPORATE SPEED FEEDBACK SIGNS WITHIN SCHOOL ZONES

An issue that was identified as a concern was the prevalence of speeding within school zones. Speed Feedback Signs (SFS) provide drivers with feedback about their speed in relationship to the posted speed limit. They can be an effective method to help reduce speeds at desired locations when professionally installed at certain distances upstream in both directions to maintain the desired speed reductions. It is recommended that an engineering study be completed to identify desired school zone locations, desired speeds within the school zone, and proper locations for the SFS to be placed. Figure 30 shows an example of a Speed Feed-back sign within a school zone.

FIGURE 30: EXAMPLE OF A SPEED FEED BACK SIGN WITHIN A SCHOOL ZONE



Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding

IMPROVE ROADWAY AND PEDESTRIAN LIGHTING THROUGHOUT THE RESERVATION

An area of concern that was discussed was the lack of roadway and pedestrian lighting throughout the many communities within the Crow Reservation. Roadway lighting provides a visual performance and visual comfort to assist in keeping a driver alert while on the roadway. Pedestrian lighting, as previously discussed, increases pedestrian visibility, and could provide for traffic calming and potentially increase security.

Due to the high cost that can be associated with roadway and pedestrian lighting it is recommended that an engineering study be completed to identify all existing functioning and non-functioning lighting throughout the communities. After the inventory of all existing lighting, a community outreach should be completed to identify areas of concern that tribal members may have. Once these areas have been identified, a complete engineering lighting analysis should be completed. This will allow for multiple projects to come to fruition and be prioritized by the Tribe.

Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding

Safety Planning and Other Strategies

No other strategies were prioritized for implementation.

CHAPTER 4 – PUBLIC INVOLVEMENT

In late 2021, the Crow Tribal Transportation Department held a series of open house public comment meetings for this Plan on October 27 (Pryor Community Center), November 3 (Black Lodge Community Center), November 10 (Wyola Community Center), November 17 (Lodge Grass City Hall), December 1 (St. Xavier Community Hall), and December 13 (Reno Community Hall). The agenda included the following discussion items:

- Overview Plan Purposes and Processes
  - Long Range Transportation Plan (LRTP)
  - Tribal Transportation Improvement Plan (TTIP)
- Present Existing Conditions Information
- Upcoming Projects for 2022 Construction Season from the TTSP and TTIP
- Public Comment

CROW TRIBE TRANSPORTATION

183 Forestry Lane
P.O. Box 610
Crow Agency (Baaxuwuaashe), Montana 59022
Phone: (406) 679-3326
Fax: (406) 638-2113

Frank White Clay
CHAIRMAN
Lawrence DeCrane
VICE-CHAIRMAN
Levi Black Eagle
SECRETARY
Channis D. Whiteman
VICE-SECRETARY

PUBLIC NOTICE

The following are a list of dates when the Crow Tribal Transportation Department will be holding community meetings in each district.
Informational meetings are for giving notice of all up and coming projects that will be taking place, Input and questions are welcome.

Pryor Community Center
10/27/2021
6:00 – 8:00pm

Black Lodge Community Center
11/03/2021
6:00 – 8:00pm

Wyola Community Center
11/10/2021
6:00 – 8:00pm

Lodge Grass City Hall
11/17/2021
6:00 – 8:00pm

St. Xavier Community Hall
12/01/2021
6:00 – 8:00pm

Reno Community Hall
12/13/2021
6:00 – 8:00pm

The Great Apsáalooke Nation: "Teepee Capital of the World"

An LRTP kickoff meeting was held on March 30, 2022, to discuss the LRTP process, TTIP Program, various project efforts, and for leadership education. Tribal and KLJ representatives were present. Steve Grabill and Craig Genzlinger from KLJ conducted the 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. In addition, numerous conversations with many of the Crow Indian Tribe department heads were held to receive further input throughout the planning process. The meeting's agenda was as follows:

Introductions 9:00 a.m.

Non LRTP Items:

- BIA 638 Contracts
- Project Status
    - BIA 73 Phase III
    - Makawasha
    - Lodge Grass Streets
    - BIA 91 Phase 6
    - BIA 91 Phase 7
    - Blue Creek Road
- SPP
- Safety Plan

Consider LRTP Process and Outline 9:10 a.m.

- Discussion of LRTP's, why needed?
    - What is your vision and goals?
    - Public/staff Involvement, when and where?
- Schedule

Review Existing Conditions 9:40 a.m.

- What updates to the inventory are needed?
- Where does most pedestrian activity occur?
- Does Crow have an Emergency Operations Plan?
- Where is growth occurring?
- Data needs: Traffic counts, crash data, bridge, transit, GIS maps

Discuss Transportation Deficiencies 10:00 a.m.

- Safety
- Connectivity & accessibility
- Surface conditions
- Capacity
- Dust
- Issues by town?

Discuss Transportation Facility Needs 10:30 a.m.

- Roadway, Housing Streets
- Trucking/Freight
- Bridge
- Airport
- Pedestrian/Bicycle
- Transit

Questions/Discussion of Process/other Items 10:45 a.m.

Wrap up and/or Site Visit to any Locations 11:00 a.m.

- Schedule next meeting

A second Tribal Leadership/KLJ staff meeting was held at the Billings MT KLJ offices on August 30th, 2022. The meeting's agenda was as follows:

I. **Introductions** 9:30 a.m.

Crow Tribal members informed KLJ Staff they could no longer attend the meeting At approximately 11am, Jason arrived at the meeting where KLJ staff went over road and bridge inventory and collected/verified information regarding accuracy of existing data.

II. Non LRTP Items:

- Grant Pursuits

III. LRTP Progress

- PASER Analysis
    - Pavement Management Plan (will be derived from PASER mid to late September)
- Project Scoping (scoping forms will be provided to Tribal leaders and asked to be completed to identify projects).
- LRTP Report
    - Inventory, Traffic and Crash Analysis Chapters Completed
    - Base Mapping Completed
        - Study Area
        - Traffic Volume
        - Truck Volume
        - Pedestrian Facilities (Ex. & Proposed)
        - Road Surface Types + Bridges
            - Add maps for:
                - St. Xavier
                - Southeast Crow Agency
    - Questions
        - Road names on maps, correct? (Overview and corrections provided by Jason)
            - Lodge Grass Roads are non-Tribal/BIA

        - Jason noted that Northeast side of Crow Agency has leaky sanitary sewer/water lines.
        - Desired locations for additional traffic counts? TBD – will be based on projects and annual events like Crow Fair
        - Public involvement documentation?
        - Potential for a roundabout? (not likely)
        - Prioritize currently identified projects.

- LRTP Document – Outstanding Client questions / info needs.
    - Schools – complete list?
    - Is there an operational Casino on Crow Reservation?
    - Main economic drivers / employment – verify sources.
    - Tourism / Attractions – verify sources.
    - Roads
        - Paved
        - Unpaved/Earthen – is there existing GIS data?
    - Projects (Short Range)
        - Pryor; Pryor Loop,
        - Lodge Grass.

A third in person meeting with the Tribal Transportation Department and KLJ staff was held the week of October 17-21, 2022, to inventory project needs and onsite project scoping of identified paved and unpaved roadway projects was conducted for the purposes of completing project scoping and PASER study.

A fourth meeting was held with Tribal leadership and KLJ at the Billing's KLJ office on Friday December 9th, 2022, where an update on the progress of the LRTP was provided.

An LRTP review meeting for the final draft of the LRTP was held on January 25, 2023, and delivered to representatives of the Transportation Department and BIA. Three hard copies plus a digital pdf of the draft final plan were made available for review and comment.

PUBLIC INPUT

Public input was received during all public input meetings. All comments came in the form of individual discussions and documented in meeting minutes. Questions received by the Crow Transportation Department pertained primarily to what the study was for and how long it would take to see improvements made. People were told that the length of time was tied to Tribal priorities and the time needed for project development and acquisition of funds, which can take years to implement due to funding availability and application processes for securing Federal grants and/or State and County funding.

Comments received pertained largely to needed edits to improve clarity in the report. Some comments were also received from BIA, Crow Nation Transit, Tribal staff, and department heads, 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.

On May 15th, 2023, Crow Tribe Chairman Frank White Clay submitted the LRTP letter of approval to Richard Tappto, the BIA's Transportation Supervisory Highway Engineer, to formally submit this 2023 Crow Tribe Long Range Transportation Plan (LRTP) and Executive Summary.

The FINAL LRTP document was posted to the Crow Tribe's website for public comment on May 16th, 2023, and remained there available for public comment until June 20, 202. No significant comments were received by Crow Tribe Transportation Department leadership.

On May 23rd, 2023, the resolution from the Crow Tribe chairman was provided to KLJ, and on June 20th, 2023, that letter was added to the LRTP along with JAR-04-05 for final formal submission to BIA and RIFDS.

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

EXISTING 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, 2009 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.

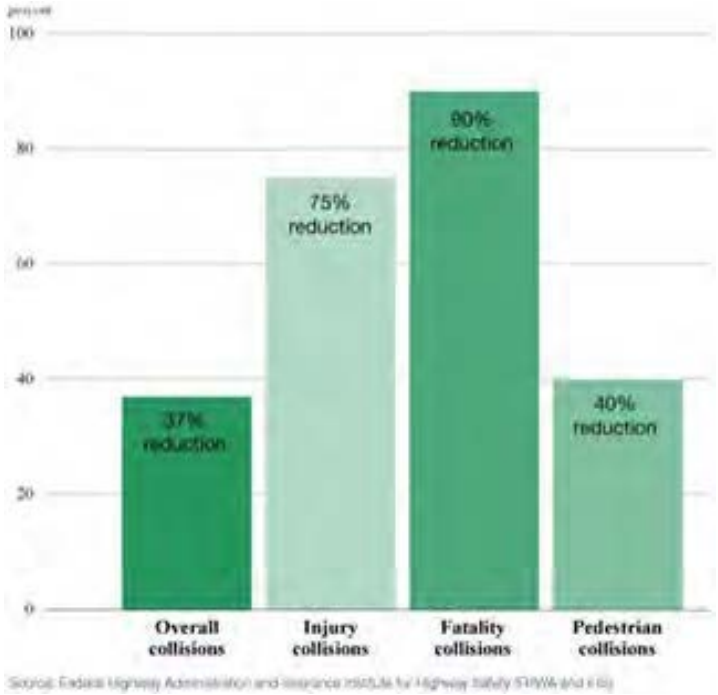
- Traffic Signals - The MUTCD traffic signal standards include warrants for varying data thresholds ranging from pedestrian and vehicular volumes to crash frequency. Based on a review of the highest traffic volumes within the Reservation, no unsignalized intersections meet traffic signal warrants. It is possible that increased development and traffic, combined with bike and pedestrian crossings of I-90 in Crow Agency, could warrant future consideration for traffic signals at the I-90 and Makawasha Avenue intersection.
- 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 - There are currently no functioning roundabouts in the study area. Roundabouts are a traffic control measure that offer potential traffic operational benefits when implemented at the proper location. Roundabouts also 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 31. Future roundabouts should be considered for larger developments and to resolve identified issues susceptible to correction by a roundabout.

Roundabouts may also serve as a focal point for economic development through use of Native design in the center circle of a roundabout. No specific locations for new roundabouts were identified as part of this plan. However, use of roundabouts is supported when/if determined to be appropriate, due to the safety and mobility benefits they provide.

FIGURE 31: COLLISION REDUCTION WITH ROUNDABOUTS



– ACCESS CONDITIONS

High levels of access exist along various road segments within the Crow Indian 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. One example of high levels of access is the Conoco gas station located NE of the I-90 underpass picture below.



– OFF-STREET PARKING



Parking is an essential complement to transportation systems and land development. Although many locations on the Crow Indian Reservation have off-street parking, some may not be used to capacity.

Under further visual assessment of parking lots, parking deficiencies should also be considered. There may exist the desire/need for new parking facilities at highly utilized locations such as at Goes Ahead Camp, where the Crow Tribe holds its Pow-Wows and other high-capacity community gatherings that require parking facilities. Currently, there is an existing gravel area used for parking along the east side of Goes Ahead Camp along Heritage Rd. and Custer Creek Rd., however pavement might be a future consideration at this location.

Worth consideration is the fact that large paved off-street parking facilities need to be maintained and it is important to identify which parking lots are necessary to avoid heavy maintenance costs on underused parking lots.

Tribal officials have identified unnecessary islands within existing parking lots that could be removed to reduce maintenance challenges and to perhaps increase total parking spaces. Unneeded islands should be removed whenever deemed appropriate. Consideration should be given to preserve 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, a needs assessment is recommended for design and future implementation of improved lighting in towns and subdivisions, at busy intersections, and along existing and future sidewalks and shared use paths.

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 MDT website, observations made during the LRTP process, and information available from the Crow Indian Tribe's TTSP that was completed in February 2022, preceding this LRTP.

- 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 beacons be assessed, designed, and installed as needed around the schools and high pedestrian activity locations to be identified at a later date.

- Because of the reduced collisions and safety benefits offered by roundabouts, and the relatively high pedestrian traffic generated on the Reservation, particularly in Crow Agency, 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.

– ACCESS CONDITIONS

Efforts to reduce access (private driveways or small subdivision accesses) 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 collector 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 which lots are used and how full they are.

– STREET LIGHTING

It is recommended that the Crow Indian Tribe conduct a study to identify the types and locations for street lighting needed throughout the Reservation, and that lighting improvements be prioritized and completed as funding becomes available.

PAVED ROADS

In this chapter, a comprehensive strategy for paved roadway improvements is established. 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.

EXISTING CONDITIONS

According to the official current RIFDS inventory, Reservation wide there is a total of 204.8 miles of BIA and Tribal paved roads. These are identified in Table 8 and Figures 32 through 37. GIS data

was compiled from multiple sources including from the Crow Indian Tribe GIS database and existing map products, MDT, and Bighorn, Yellowstone, and Treasure counties. These disparate databases were combined, using a previous hard copy map of Crow/BIA jurisdictional roads which was georeferenced in GIS and manually updated, to create one comprehensive database of all BIA and Tribal roads. Where necessary, overlapping/redundant entries in GIS were eliminated.

A list of major highways, secondary roads, and town roads with their respective surface type (asphalt or concrete) is available in Table 4. Most of the paved, subdivision roads are in fair to good condition, however some of the most notable locations where pavements were in poor condition also include segments of subdivision/town streets within Crow Agency, St. Xavier, Wyola, Pryor, and some additional Lodge Grass roads. The majority of Lodge Grass town grid streets are county owned and fall outside of BIA/Tribal jurisdiction for the purposes of this LRTP report and PASER analysis.

TABLE 4: BIA/TRIBAL PAVED ROADS – CROW RESERVATION

Road Name (* Identified as needed paved road project)	Surface Type	Feet	Miles
BIA/Tribal Highways & Major Collector Roadways			
*BIA 1 (Crow Cut Across)	Asphalt	54,912	10.4
BIA 4 (Pryor Rd. / Mak Pua Ave. / State Secondary 418)	Asphalt	124,608	23.6
*BIA 5 (Pryor Gap Road curve)	Asphalt	1,500	0.284
*BIA 5 (Pryor Gap Road)	Asphalt	22,176	4.2
*BIA 14 (Whistling Water Loop)	Asphalt	9,791	1.9
*BIA 73 (Good Luck Road)	Asphalt	100,848	19.1
BIA 74	Asphalt	27,456	5.2
BIA 76 (I-90 Frontage / Mountain Crow Rd.)	Asphalt	61,248	11.6
BIA 87	Asphalt	184,800	35
*BIA 91	Asphalt	232,848	44.1
*BIA 105 (Pryor Loop Road)	Asphalt	14,066	2.7
BIA 313	Asphalt	191,664	36.3
BIA 384 (Sarpy Creek Rd.)	Asphalt	59,664	11.3
*BIA 416 (Blue Creek Road [In-Design])	Asphalt	21,648	4.1
BIA 418 (Little Horn Road)	Asphalt	83,424	15.8
BIA 463 (Lodge Grass Creek Rd/Rotten Grass Creek Rd)	Asphalt	97,152	18.4
BIA 502 (Baptist Church Rd. / Medicine Horse Rd.)	Asphalt	5,280	1.0
BIA 600 (2nd Bridge Rd.)	Asphalt	39,600	7.5
BIA 612 (Garryowen Rd.)	Asphalt	35,376	6.7
BIA 9000 (Warman Loop)	Asphalt	22,176	4.2
Crow Agency Streets (BIA/Tribal)			
*BIA 1001 (Pretty Shield St.)	Asphalt	1,139	0.2
*BIA 1002 (Two Leggins Ave)	Asphalt	1,276	0.2
BIA 1003 (Moccasin St)	Asphalt	1,587	0.3
*BIA 1004 (Cap Drive)	Asphalt	1,713	0.3
*BIA 1006 (Makawasha Ave)	Asphalt	2,087	0.4

Road Name (* Identified as needed paved road project)	Surface Type	Feet	Miles
Crow Agency Streets (BIA/Tribal)...continued			
BIA 1008 (Weaver St.)	Asphalt	1,330	0.25
BIA 1009 (Butchetche Ave)	Asphalt	1,168	0.22
*BIA 1010 (Makata St.)	Asphalt	725	0.15
BIA 1011 (Street Name Unknown)	Asphalt	200	0.04
BIA 1012 (Dakake St.)	Asphalt	543	0.1
BIA 1013 (Watxauu Ln.)	Asphalt	1,220	0.23
BIA 1014 (Bala St.)	Asphalt	532	0.1
BIA 1015 (Cottonwood Ln.)	Asphalt	597	0.11
BIA 1016 (Cindy Drive)	Asphalt	375	0.07
BIA 1017 (3rd. St.)	Asphalt	1,375	0.26
BIA 1018 (Mapata Ave.)	Asphalt	721	0.15
BIA 1019 (Bita St.)	Asphalt	1,000	0.2
BIA 1020 (Makapas Ave.)	Asphalt	955	0.18
BIA 1021 (Long St.)	Asphalt	697	0.13
BIA 1022 (Bishbe Ave.)	Asphalt	335	0.06
BIA 1023 (W. Mapata Ave.)	Asphalt	715	0.14
BIA 1024 (Hotska St.)	Asphalt	2,470	0.47
*BIA XX (N. Plenty Hawk Dr.)	Asphalt	2,727	0.5
*BIA XX (High Eagle Ave.)	Asphalt	696	0.1
*BIA XX (Well Known Bear Ave.)	Asphalt	1,568	0.3
*BIA XX (Buffalo Trail)	Asphalt	663	0.1
*BIA 7001 (Crow River Rd.)	Asphalt	2,120	0.4
*BIA 7777 (Heritage Road)	Asphalt	10,032	1.9
*BIA XX (Mason Hill Road [Designed – not built])	Asphalt	4,167	0.8
Lodge Grass Streets (BIA/Tribal)			
*BIA 16 (Route 503 / Rodeo Rd.)	Asphalt	4,752	0.9
*Bear Below St.	Asphalt	1,191	0.2
*George St.	Asphalt	551	0.1
*Medicine Crow Loop	Asphalt	2,828	0.5
*Red Bird Ln.	Asphalt	328	0.1
*Strong Enemy Dr.	Asphalt	554	0.1
Wyola Streets (BIA/Tribal)			
*S. Mondel Ave.	Asphalt	4,118	0.8
*Main St.	Asphalt	1,198	0.2
*Rail St.	Asphalt	1,601	0.3
*Reynolds St.	Asphalt	459	0.1
*Tobacco Rd.	Asphalt	1,362	0.3
*Tolles St.	Asphalt	630	0.1
St. Xavier Streets (BIA/Tribal)			
*BIA XX (Mission Loop)	Asphalt	1,142	0.2

Road Name (* Identified as needed paved road project)	Surface Type	Feet	Miles
Pryor Streets (BIA/Tribal)			
*Epkarisch Street	Asphalt	996	0.18
*Plenticoos St.	Asphalt	522	0.1
*Away Kurwak Street	Asphalt	532	0.1
*Tsatehash Street	Asphalt	532	0.1
*Perista Ave	Asphalt	1,335	0.3
*Shirleen Blvd.	Asphalt	444	0.08
*Swan Ave.	Concrete	469	0.1
*White Horse Ln.	Concrete	620	0.1
*Bell Rock St.	Concrete	1,198	0.2

FIGURE 32: BIA/TRIBAL PAVED ROADS – CROW RESERVATION

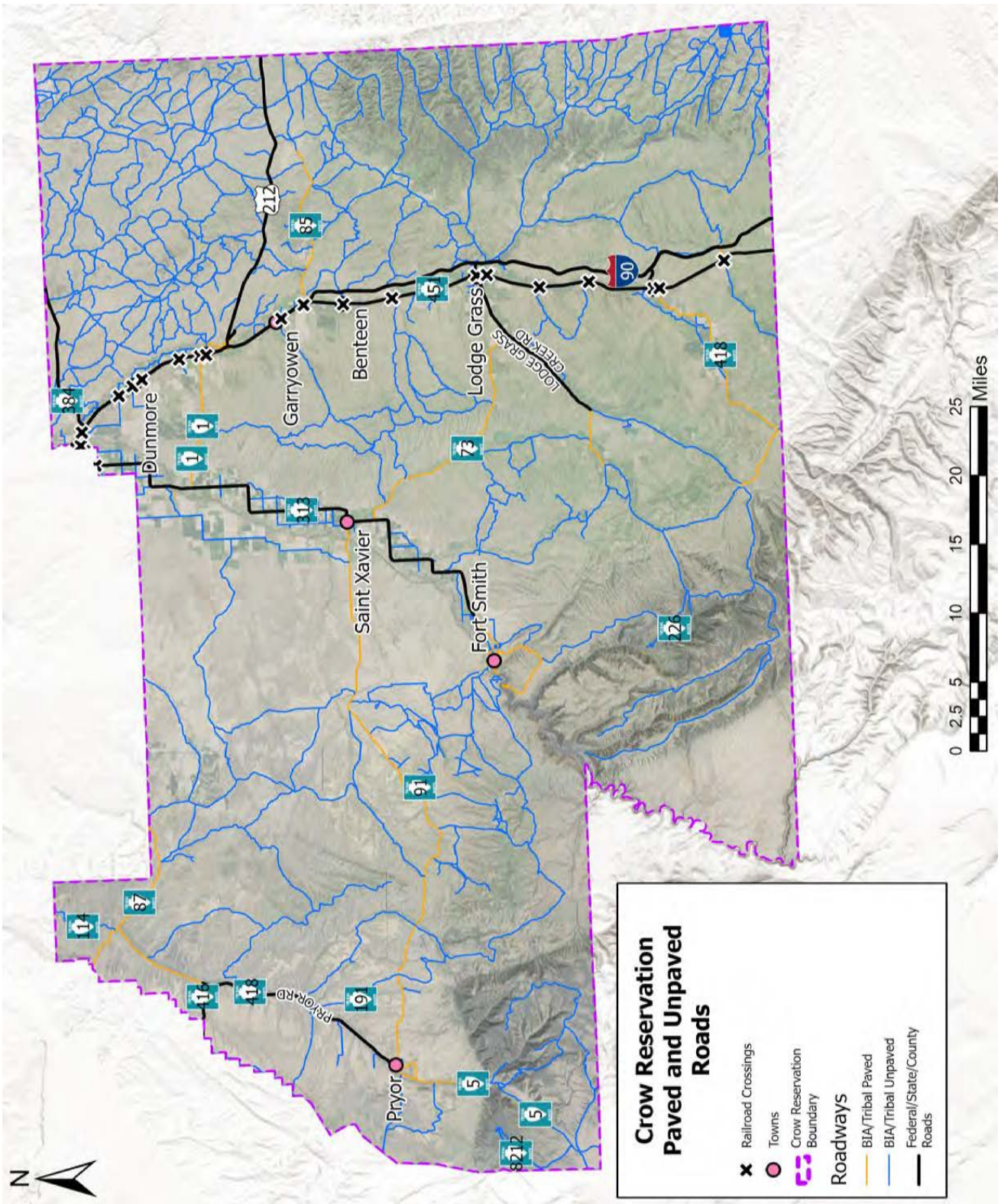


FIGURE 33: BIA/TRIBAL PAVED ROADS – CROW AGENCY

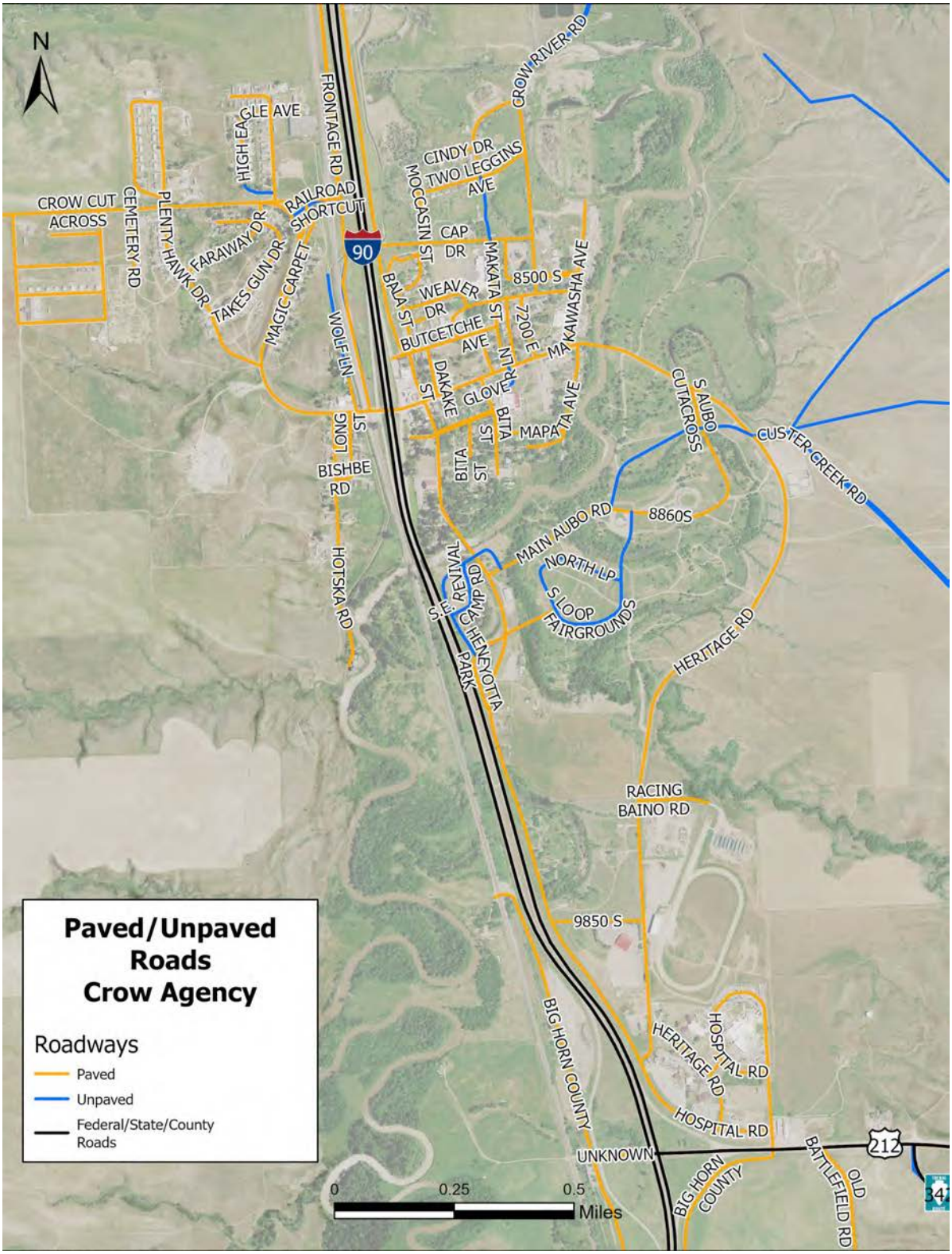


FIGURE 34: BIA/TRIBAL PAVED ROADS – LODGE GRASS

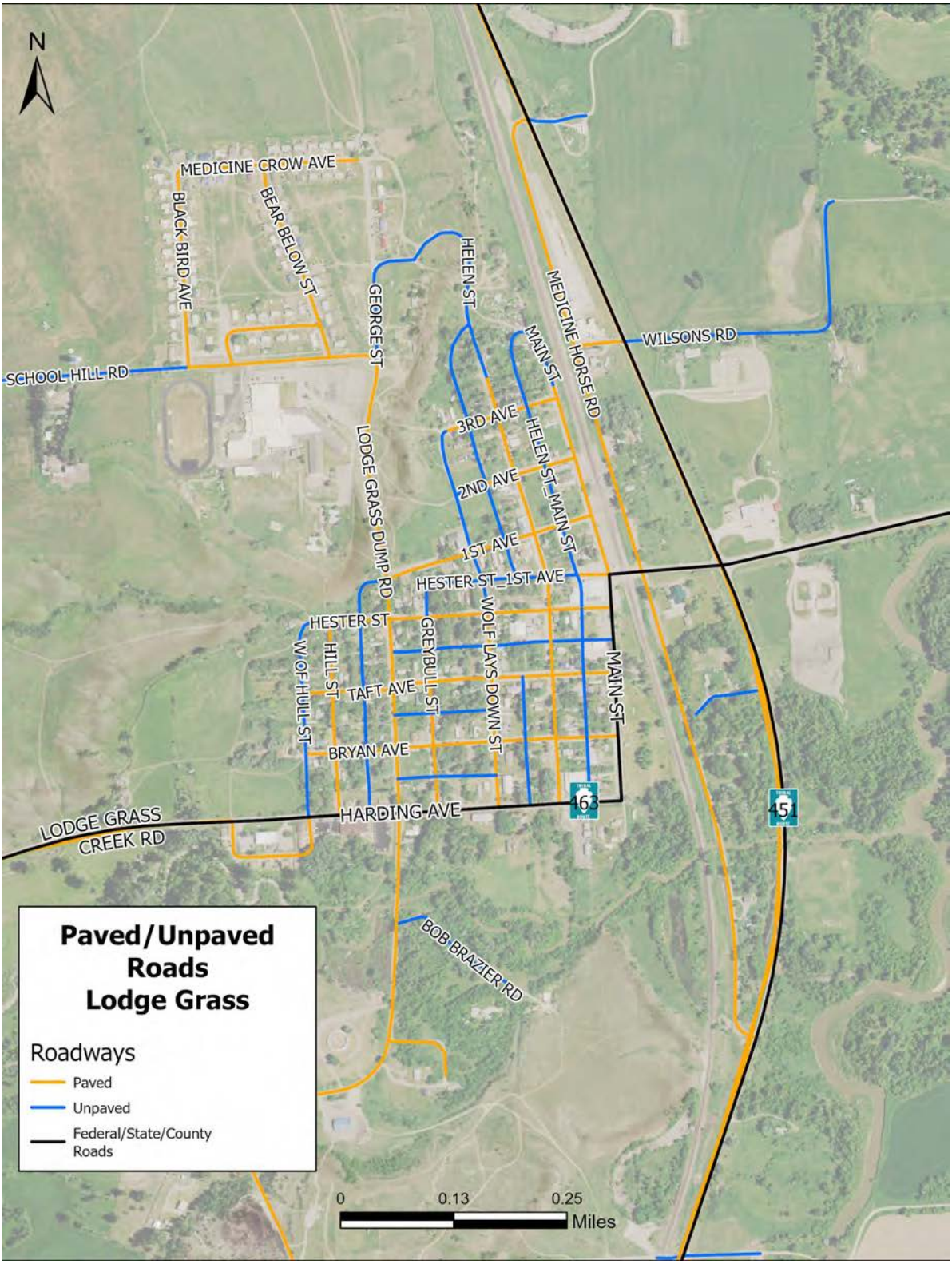


FIGURE 35: BIA/TRIBAL PAVED ROADS – WYOLA

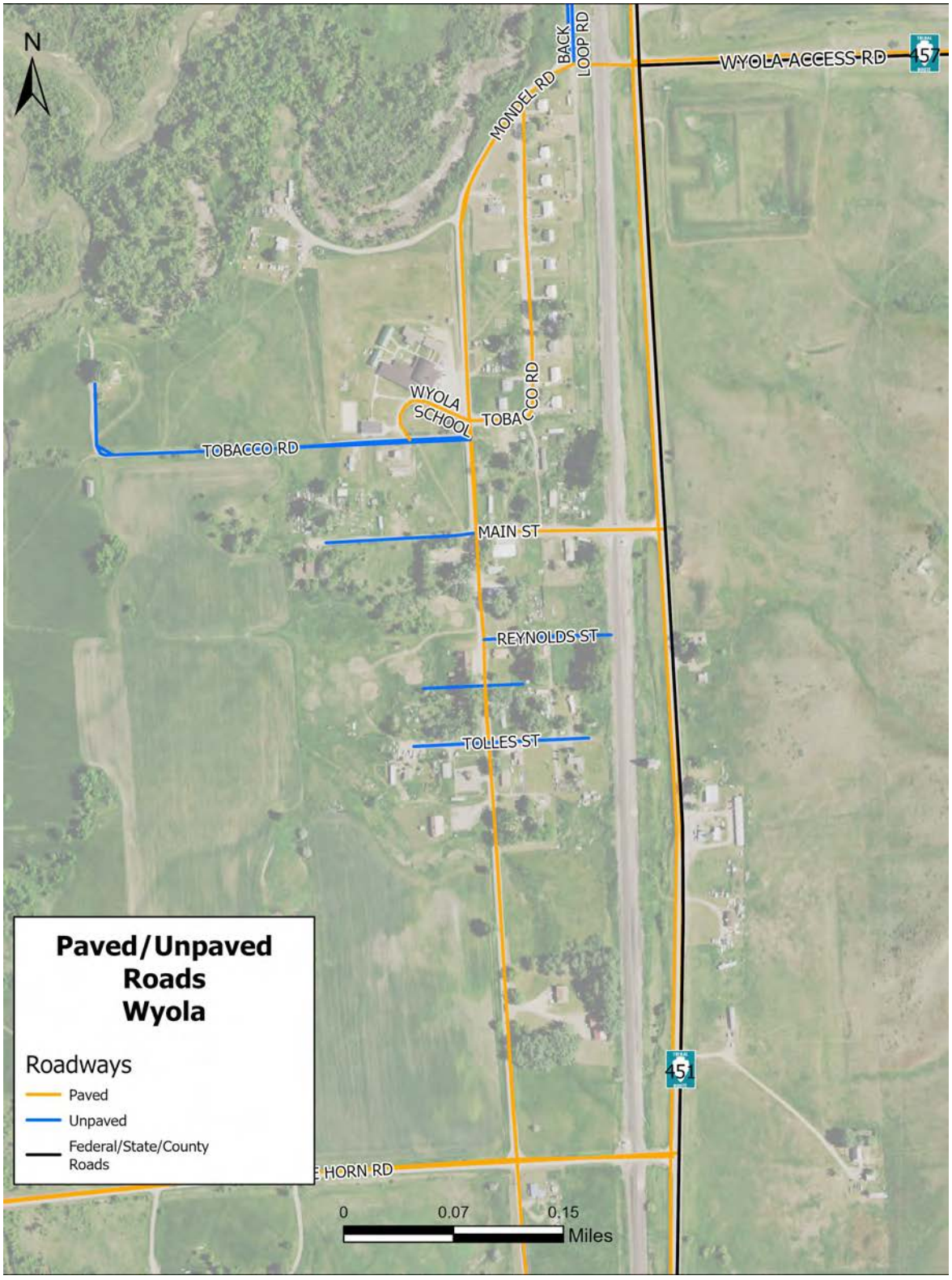


FIGURE 36: BIA/TRIBAL PAVED ROADS – ST. XAVIER

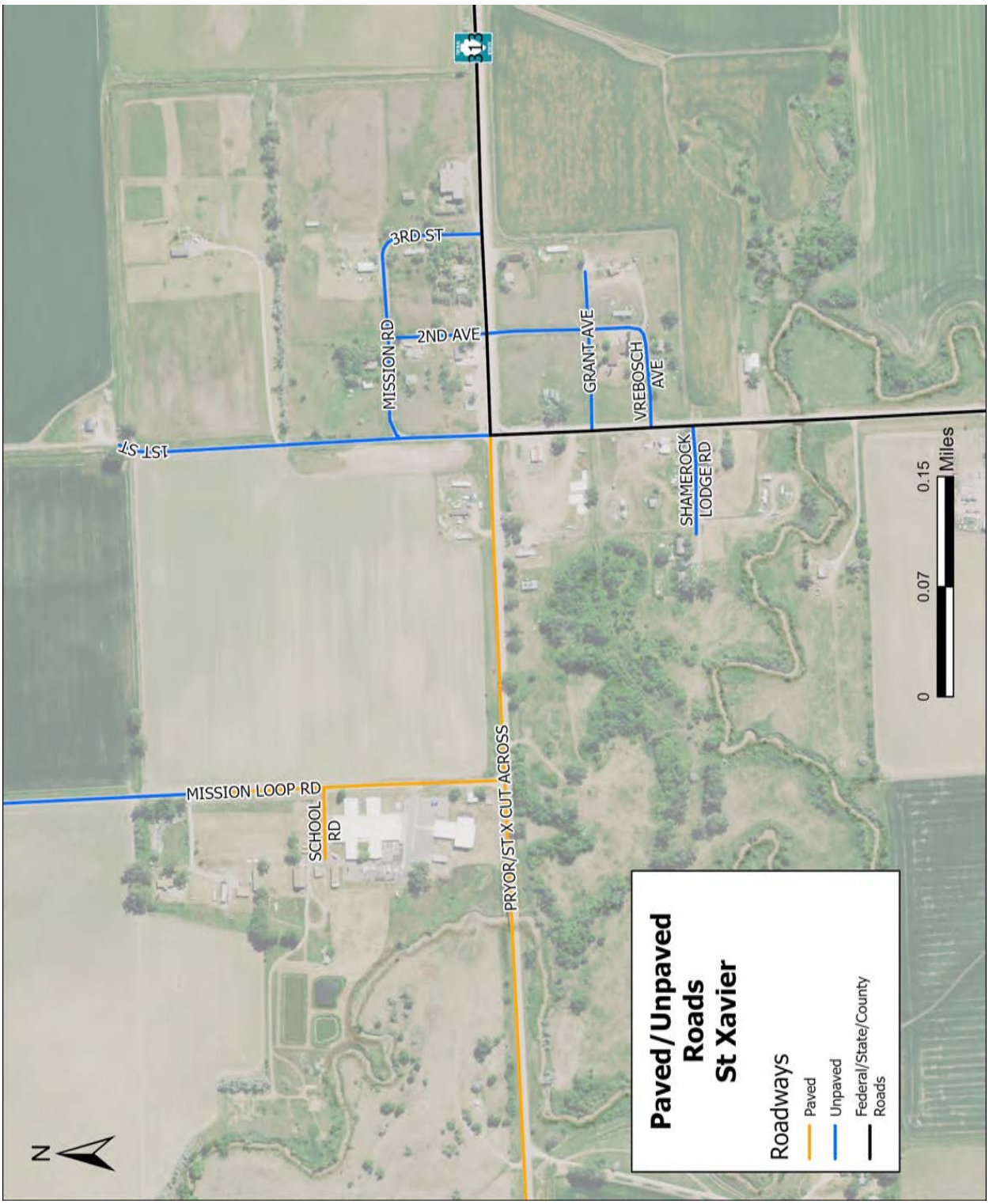
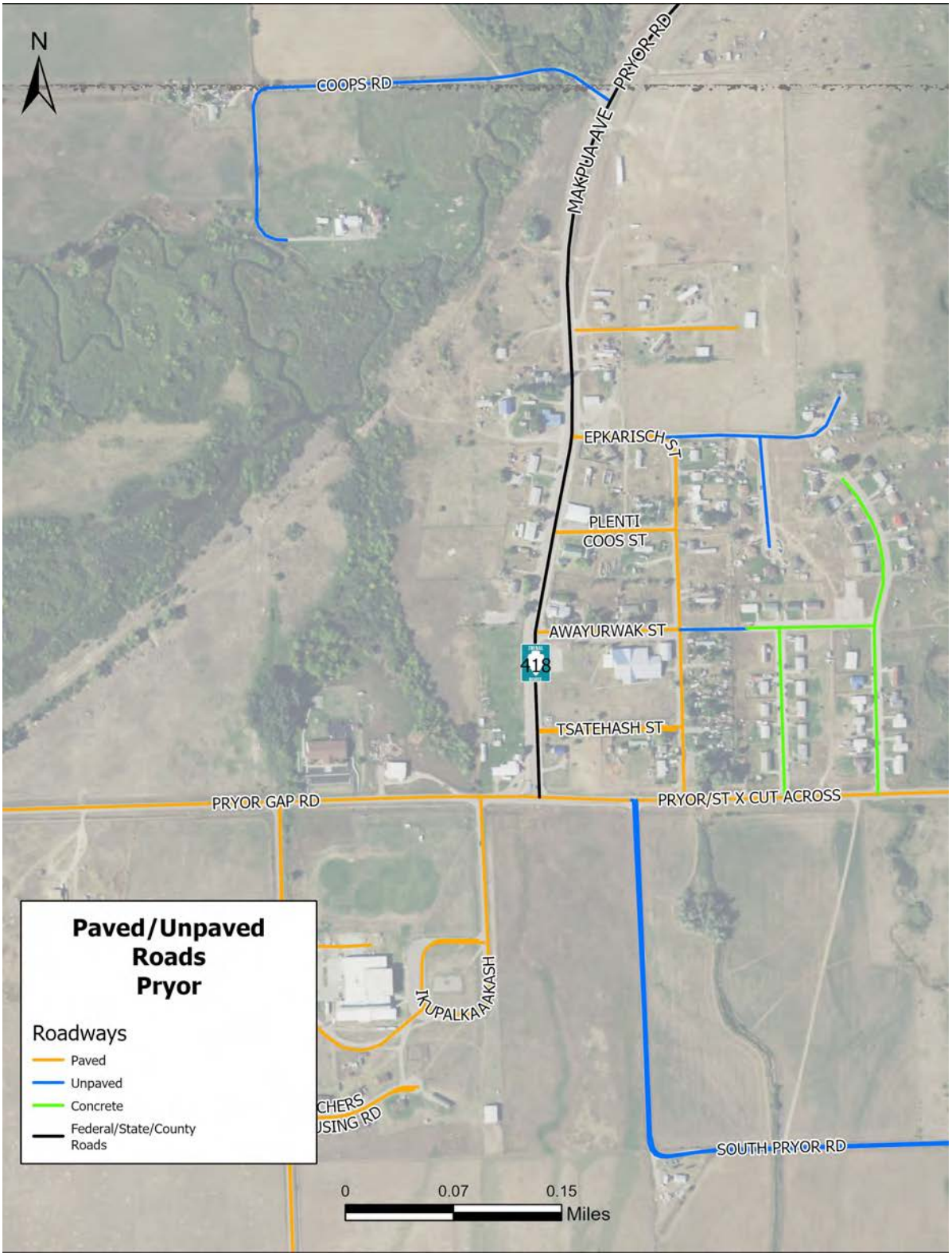


FIGURE 37: BIA/TRIBAL PAVED ROADS – PRYOR



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.

Preventive maintenance can extend pavement life by using short-term treatments. Benefits can be maximized by applying treatments to roads while they are still mostly in good condition. Figure 38 demonstrates that a longer asphalt life over time can be expected when preventative measures are utilized appropriately. The black curved line represents pavement condition over time. The Remaining Service Interval (RSI) relates to the amount of time before an improvement is made. It demonstrates that if a road is maintained before the pavement surface deteriorates too far, costly rehabilitation or reconstruction can be avoided.

FIGURE 38 - ROAD MAINTENANCE TYPES OVER TIME

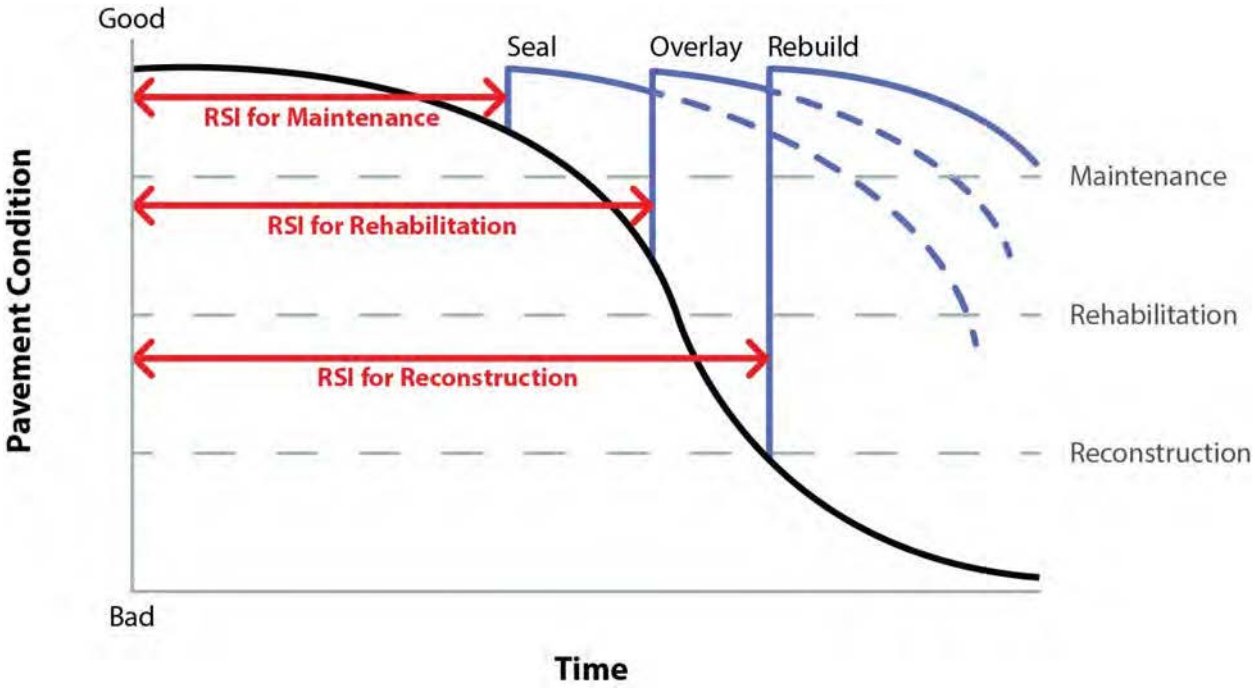


Figure 38 (above) shows that it is easier and more cost effective to maintain good roads than it is to wait and reconstruct bad ones. Overlays or reconstruction projects have a longer RSI and are performed less often than a chip seals. However, as the road condition deteriorates, the costs associated with restoring the road to good condition increases exponentially. See Table 5 on the next page for a comparison of cost-per-year based on RSI.

TABLE 5 - TREATMENT COST PER YEAR

Treatment Type	RSI (years)	Cost per Mile*	Cost per Year
Crack & Chip Seal	3	$55,000	$18,333
Structural Overlay	12	$1,000,000	$83,333
Reconstruction	25	$2,000,000	$80,000

* based on 2022 MT DOT 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 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.

PHOTO OF PAVEMENT CONDITION (BIA 91) ON CROW RESERVATION



The purpose of the 2022 PASER study was to evaluate the rural highways and also include a PASER study on the Tribal community streets; this information will be used to determine what roads should receive maintenance and what maintenance strategies should be utilized by the Tribe on each route and provide a list of near-term projects and long-term strategies the Tribe should adopt.

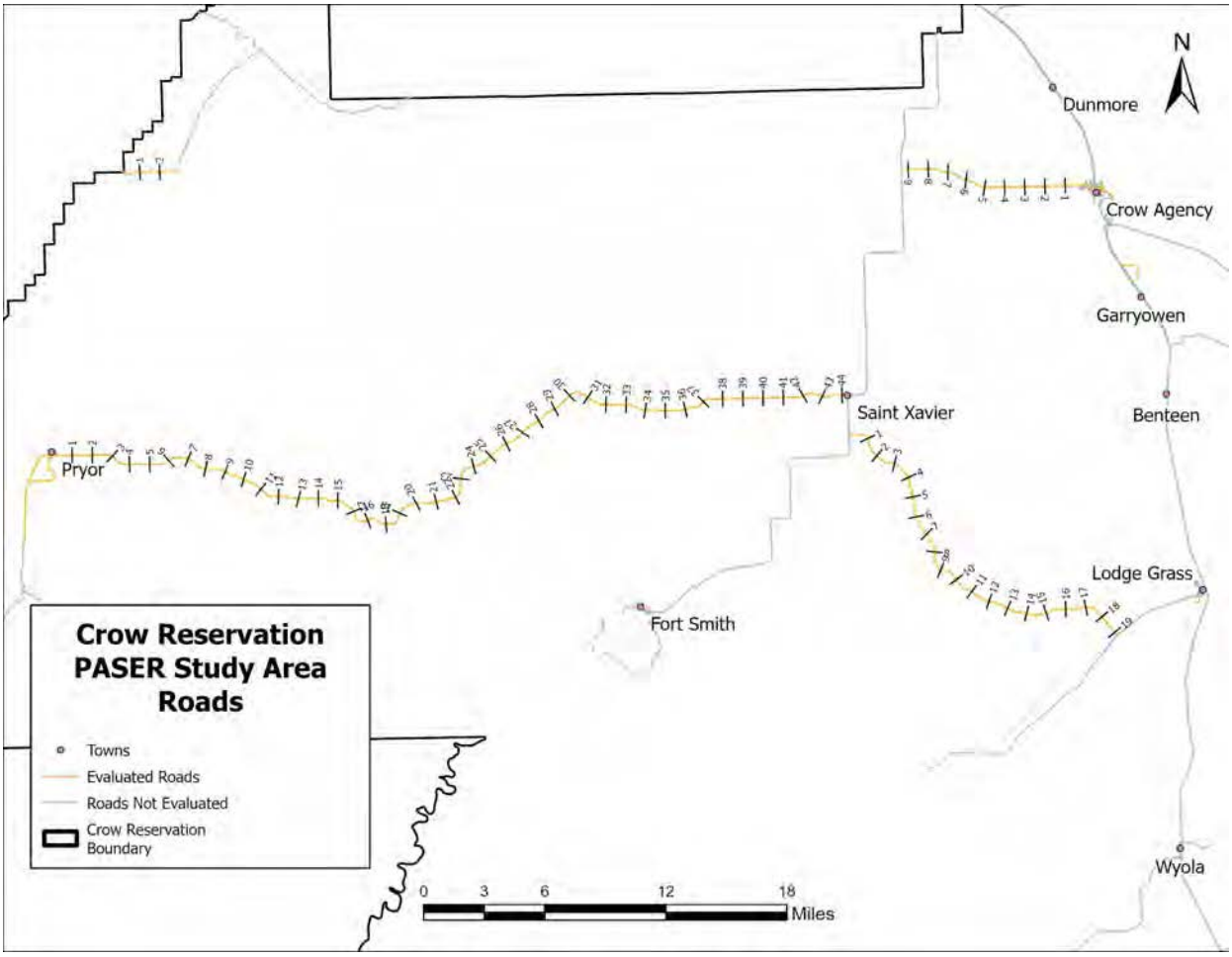
This will help the Tribe effectively manage their roadways with their existing funding levels while working to minimize roadway maintenance costs over time.

– METHODOLOGY

The 2022 PASER study was focused on assessing the current condition of the main highways within the reservation and developing a maintenance strategy to improve and repair the roadways. The 2022 PASER study was expanded to include community town streets that are owned and maintained by either the Tribe or the BIA.

The rural highway mileage studied consists of three main BIA/Tribal highway routes, totaling approximately 72.4 miles of 2-lane paved highway. The remaining mileage, approximately 61.2 miles, was spread through several secondary/connector rural roadways (Blue Creek Road/BIA 416, and community streets across the reservation including Crow Agency, Lodge Grass, Wyola, St. Xavier, and Pryor. Figure 39 displays the Crow Reservation Tribal/BIA jurisdictional roadways evaluated, shown in orange.

FIGURE 39 – CROW RESERVATION – PASER STUDY AREA ROADS



PAVEMENT SURFACE EVALUTATION 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 PHOTO 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 example, while driving down BIA Route 4 the pavement

condition was much worse for the first several miles near Lame Deer than it was at the south end near Birney. 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, severe cracking on a roadway rated it as a six and each instance of severe cracking was rated as a six consistently. Each mile of the 88 miles in the study area was driven and rated in April 2022.

– 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 1, 2, or 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: BIA 5, South of Pryor.

EXAMPLE PHOTO OF A PASER RATING 1 ROAD



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. South Mondel Ave. in Wyola.

EXAMPLE PHOTO OF A PASER RATING 2 ROAD



PASER Rating 3:

Extremely 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. Pryor Community Streets.

EXAMPLE PHOTO OF A PASER RATING 3 ROAD ON THE CROW 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: Community street in Pryor.

EXAMPLE PHOTO OF A PASER RATING 4 ROAD ON THE CROW 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 91.

PHOTO OF A PASER RATING 5 ROAD ON THE CROW 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 73.

PHOTO OF A PASER RATING 6 ROAD ON THE CROW 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: BIA Route 1.

PHOTO OF A PASER RATING 7 ROAD ON THE CROW 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: BIA 87.

PHOTO OF A PASER RATING 8 ROAD ON THE CROW 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 4 North of Pryor.

PHOTO OF A PASER RATING 9 ROAD ON THE CROW RESERVATION



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: BIA 73 Phases I and II.

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. Figures 40 through 45 are 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.

FIGURE 40 – CROW RESERVATION PASER STUDY AREA RATINGS 2022

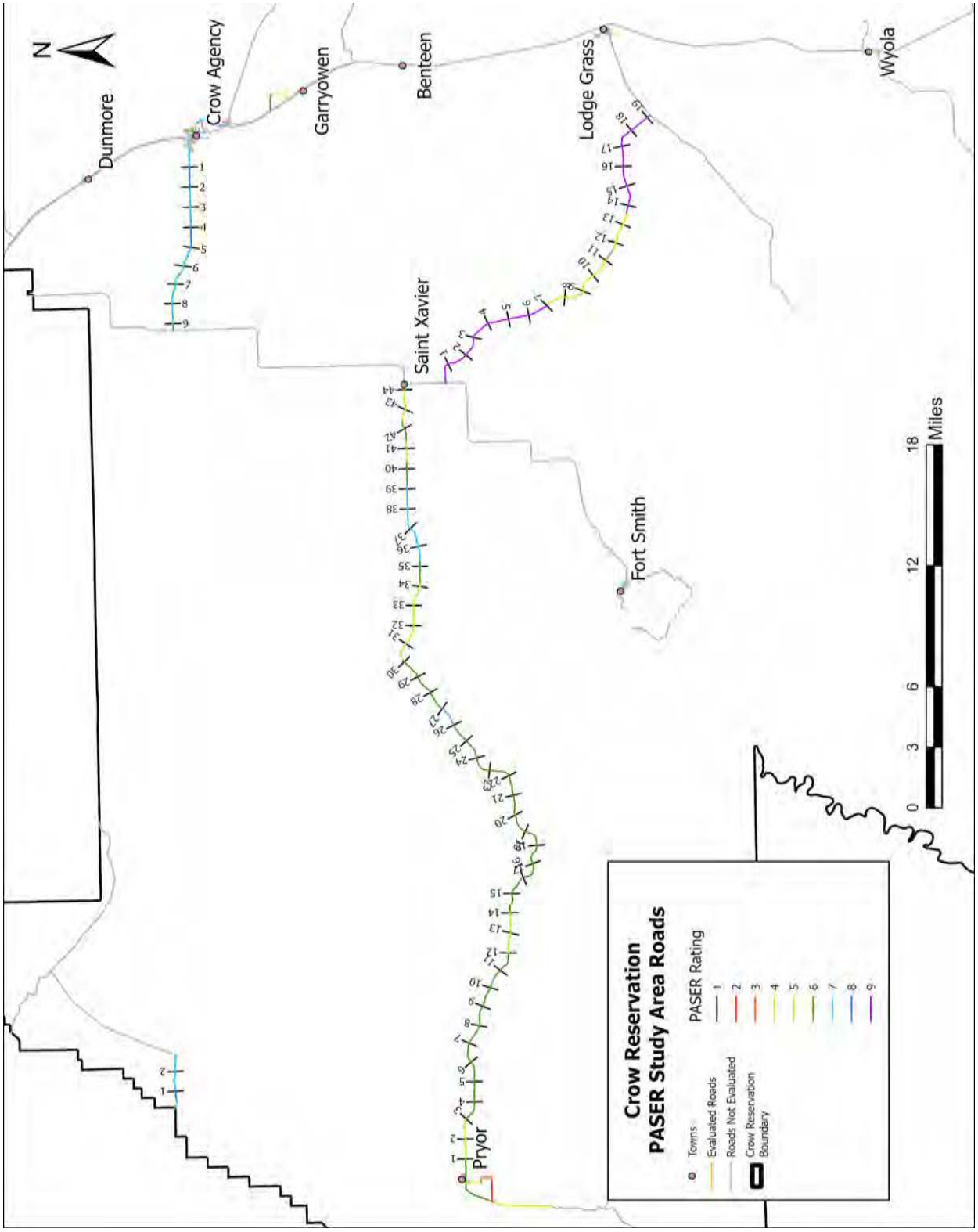


FIGURE 41 – CROW AGENCY - TOWN STREET PASER RATINGS (2022)

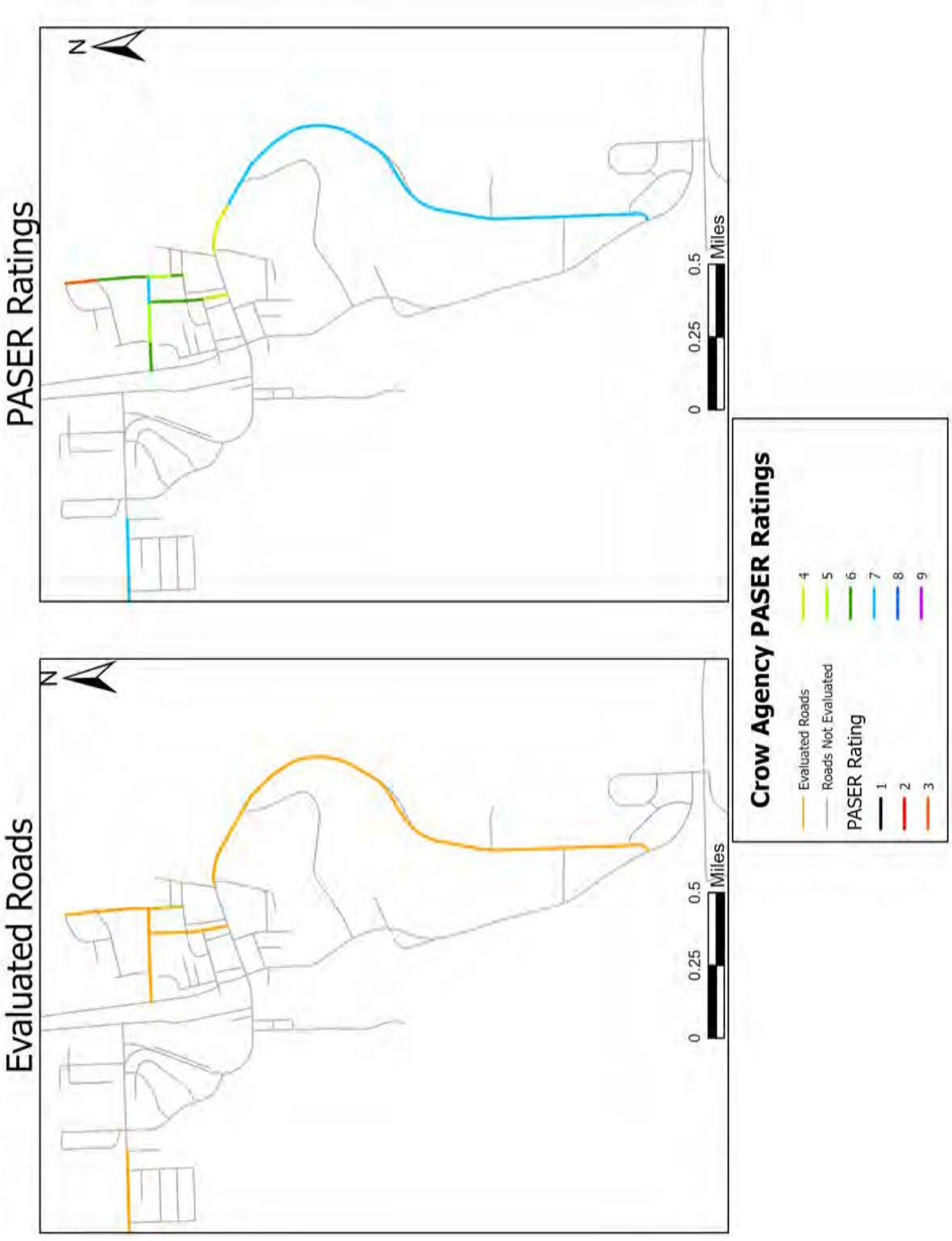


FIGURE 42 – LODGE GRASS - TOWN STREET PASER RATINGS (2022)

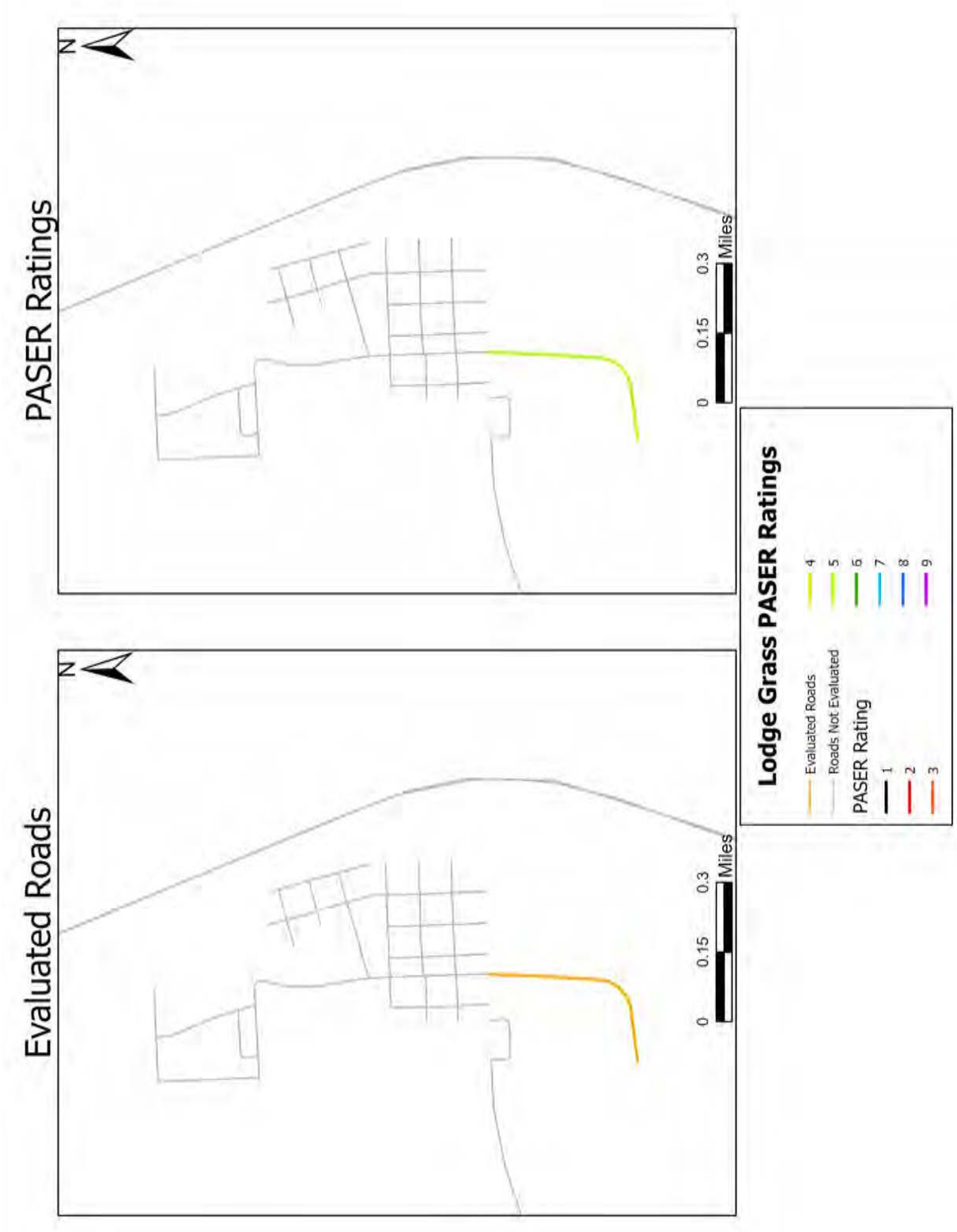


FIGURE 43 – WYOLA - TOWN STREET PASER RATINGS (2022)

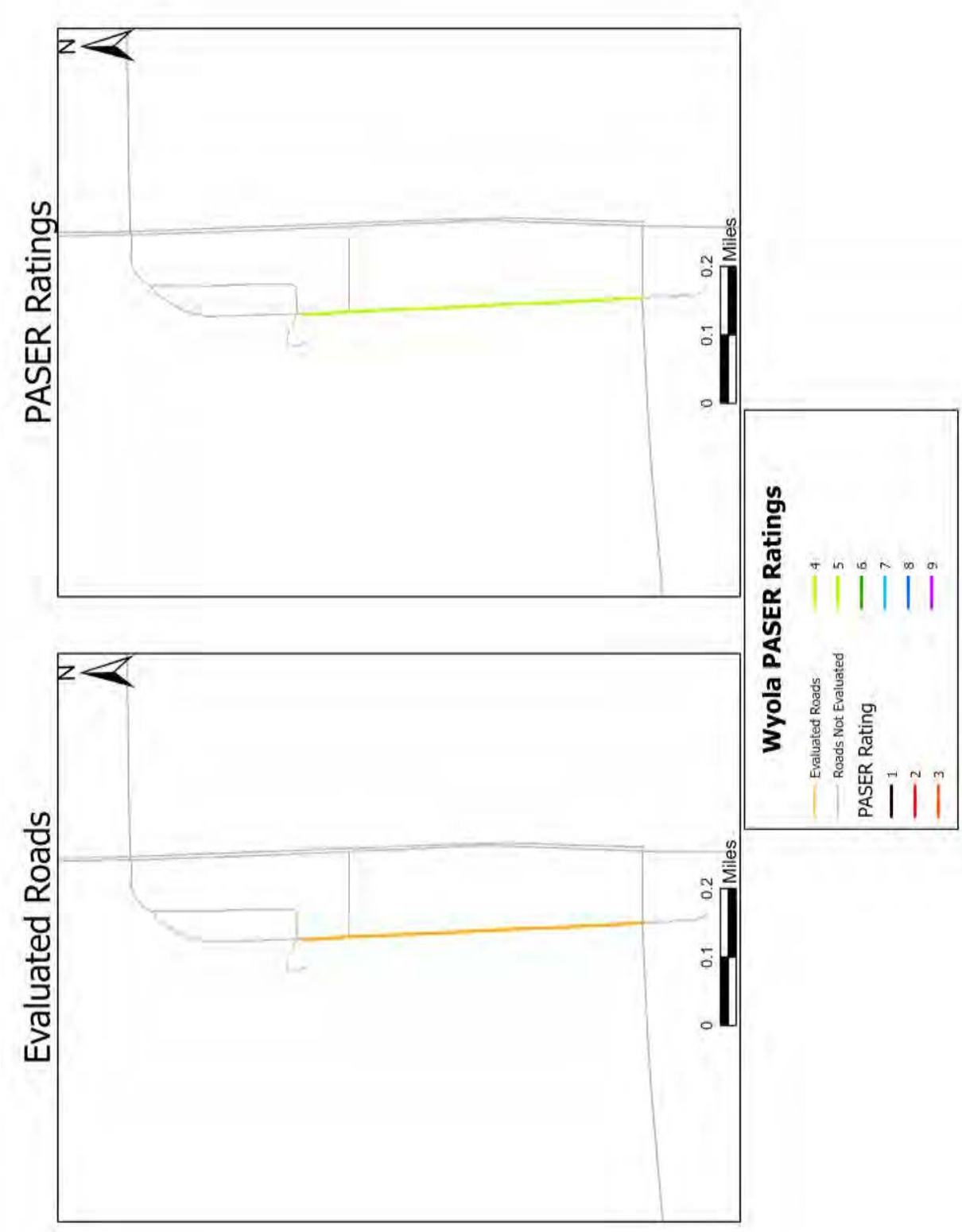


FIGURE 44 – ST. XAVIER - TOWN STREET PASER RATINGS (2022)

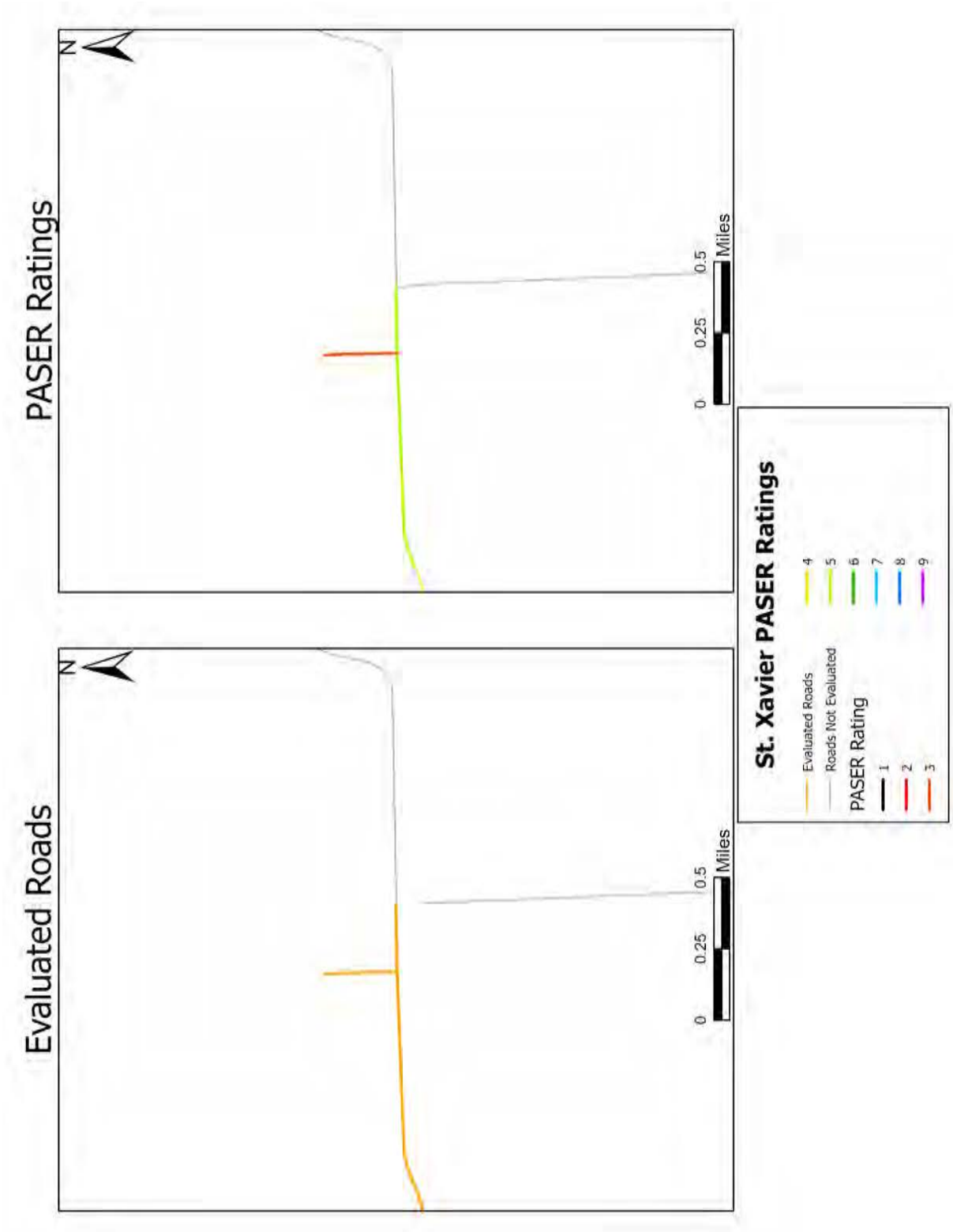
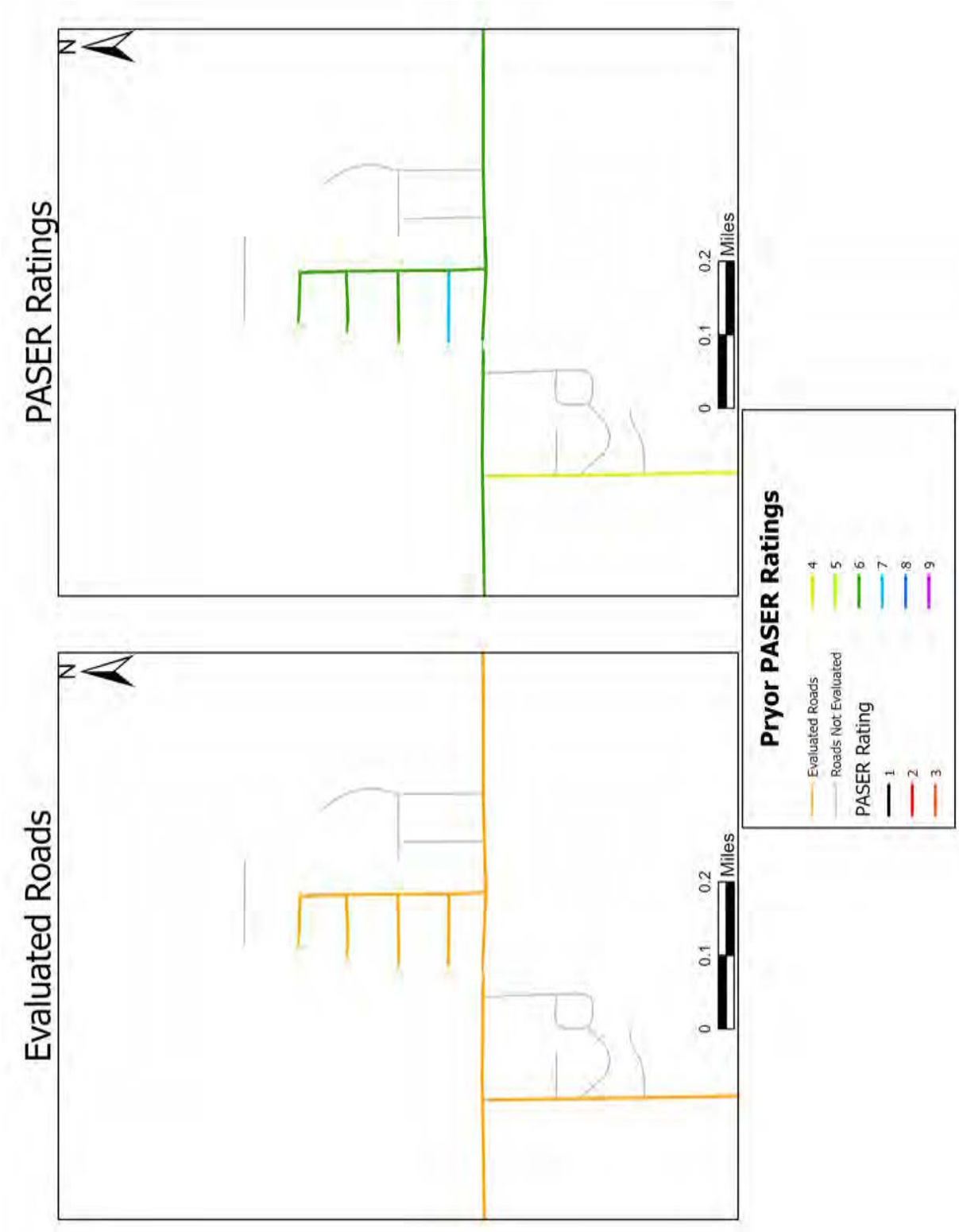


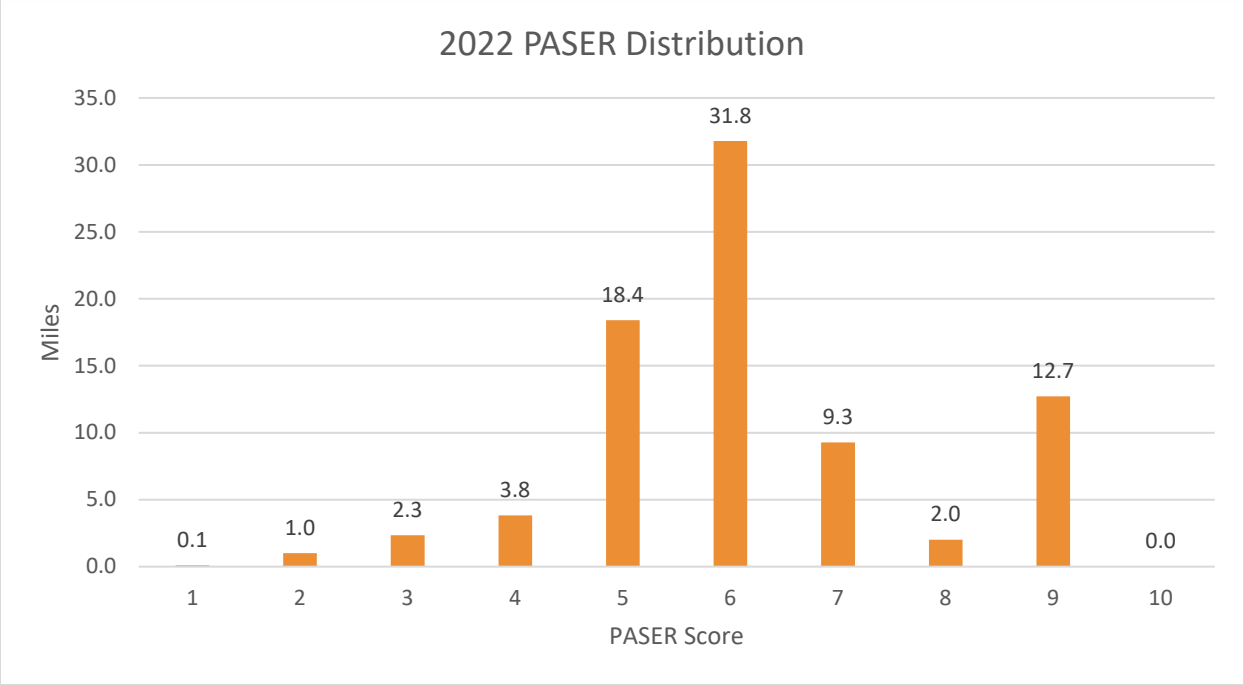
FIGURE 45 – PRYOR - TOWN STREET PASER RATINGS (2022)



Approximately 80 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 5.5. That number may not signify much, but it does indicate that the Crow highways evaluated, tend to be in fair to good condition. In fact, if a rating of five is to be considered the minimum acceptable pavement condition, (able to drive at posted speed limit) then at present time, 90% of evaluated and scored roads meet that standard today.

This is visualized previously in Figure 46 by the presence of more miles of green and blue road segments than there are of orange, red, and black. There were 12.7 miles of roads rated a nine (9); these miles in great or excellent condition were along the entire segment of BIA 1 between Crow Agency and BIA 13, and the segments of newly re-constructed BIA 73. The ratings per mile are broken down in Figure 46 below.

FIGURE 46 - PASER SCORE DISTRIBUTION SUMMARY



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 conditions, 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 (LOS) are something to be considered when developing a pavement management plan. However, in the case of the roadways studied on the Crow Reservation, depending on location and roadway hierarchy, from the available MDT AADT data, Crow Reservation roads AADT range anywhere from as low a volume as 10 vehicles per day on non-primary rural roads, to as many as nearly 8,000 vehicles per day on I-90.

In all cases, nearly 100% of roads within Crow Reservation do not experience a daily LOS other than A (which indicates free flowing traffic with no congestion). While traffic volumes should still be considered because there is a difference between a road with 1,200 ADT and one with 80 ADT, LOS is not a factor that can help determine need in this case. KLJ did not conduct traffic counts during this study and relied solely on existing MDT traffic counts and locations from the latest 2021 MDT traffic count data.

– DESCRIPTION OF PAVEMENT PRESERVATION STRATEGIES

Pavement maintenance programs fall under Road Maintenance for funding. The use of TTP funds must follow 25 CFR Part 170 Subpart G-Maintenance as well 82 IAM for BIA Road Maintenance Program. A Pavement Management Program should be initiated to examine the conditions of all Tribal and BIA paved roads within the Reservation.

The beginning of this program would include assessing the conditions of your paved road system. This should be done through a project to either take core samples along each mile of paved road, or ground penetrating radar to determine the existing thicknesses of asphalt and base materials. In areas where pavements are distressed, this will give valuable insight into the best approaches for repairs.

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 MDT prohibits chip sealing operations before May 1st and after August 31st 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 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 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 were no roadways in the study area with a PASER rating 1. If there were, however, it would essentially be a gravel road, and the Tribe would have to determine if a full reconstruction is needed or if it is to remain gravel and the Tribe can provide maintenance as such.

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. Pryor Loop Road is severely deteriorated enough to receive a PASER rating of 2.

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.

PASER Rating of 4:
Due to significant signs of aging, a structural overlay is required (greater than 2"). A review of Exhibits 1 through 3 shows that areas where PASER ratings of 3 or 4 occur are where the asphalt and base are the thinnest.

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").

PASER Rating of 6:
Light signs of aging. The roadway life can be extended with routine crack sealing and a sealcoat.

PASER Rating of 7:
Roadway shows very few signs of aging and can be maintained with routine crack filling.

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.

PASER Rating of 10:
This is a roadway that was recently completed, and no maintenance is required.

The Crow Tribe uses all these strategies or interventions to maintain their paved roads. Little of this work is conducted in-house, using their equipment and materials. However, there is a desire for the Tribe to enhance their ability to complete crack seal and chip seal projects in the future. Most of this work is currently contracted out to paving companies. Our cost estimates are based on contracting prices. The Tribe can typically expect to complete the work for a lower cost by utilizing their staff and equipment to the greatest extent possible.

– ESTIMATED COSTS

Figure 47 shows PASER scores and the corresponding recommended pavement maintenance strategy. Because 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 Crow Reservation (computed using MDT's average bid prices for 2022) are listed in Figure 48 below. It is extremely important to keep track of all associated maintenance costs (crack sealing, seal coating, etc.).

The estimated costs are assumptions in 2022 US Dollars for contracting purposes. These are estimates based on recent similar projects and MDT Average Bid Prices. For planning and budgeting purposes and under normal economic circumstances, construction costs should be expected to increase at a 5 to 6 percent annual inflation rate.

FIGURE 47 – PASER SCORE AND RECOMMENDED MAINTENANCE STRATEGY

PASER Score	Rehabilitation Required
1	Complete Reconstruction
2	Reconstruction
3	Structural Overlay w/digouts
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

FIGURE 48 - IMPROVEMENT TYPE & COST PER MILE (2022)

Improvement Type	Cost per Mile*
Complete Reconstruction	$2,200,000
Reconstruction	$2,000,000
Structural Overlay w/ Dig Outs	$1,200,000
Structural Overlay	$1,000,000
Non-Structural Overlay	$600,000
Crack and Chip Seal	$55,000
Chip Seal	$46,000
Crack Seal	$22,000

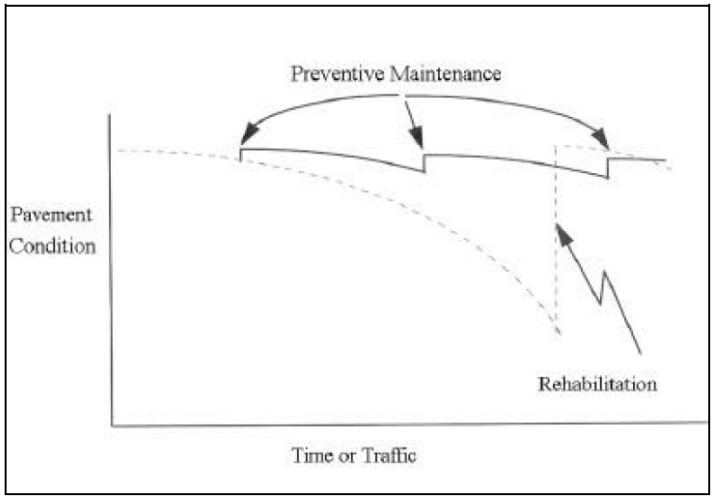
* Costs include TERO fees, engineering design and construction observation.

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 $22K to $55k per mile range, though local costs could vary significantly.

– FEASIBLE STRATEGIES

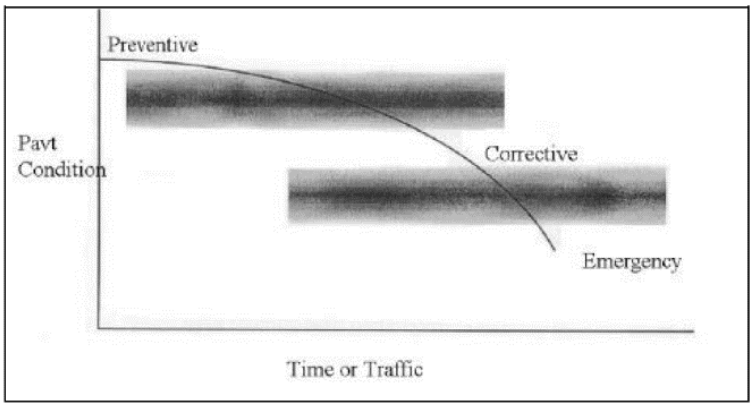
There is a saying that you do not want to improve the worst roads first. This is backed up by research. It is more cost efficient to keep a good road in operating condition than to replace an aging road. By putting money upfront into seal coating, crack sealing, etc., the roadway's life can be extended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

FIGURE 49 – PREVENTATIVE MAINTEANCE



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

FIGURE 50 – CORRECTIVE & EMERGENCY MAINTEANCE



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.

Roadway surface types and conditions are perhaps the most frequently cited area of concern by motorists and the traveling public. They vary significantly throughout the reservation, ranging from unimproved trails to gravel roads to paved highways.

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.

– EXAMPLES OF PAVED ROAD CONDITIONS

Images of example paved roadway conditions are shown in the Figure 51.

There is limited documentation available regarding the condition of roadway surfaces within the reservation. For the most part, the paved highways within the reservation are in good condition. The condition of paved streets, both in towns and in subdivisions vary from good to poor condition.

FIGURE 51 – PAVED ROADWAY TYPES AND CONDITIONS









RECOMMENDATIONS: SHORT & LONG-RANGE PAVED ROAD PROJECTS

There are a total of 195 miles of asphalt and 0.8 miles of concrete BIA and Tribal roads on the Crow Reservation. At a current estimated cost of $55,000/mile for crack and chip sealing, the entire paved system would cost approximately $24.3 million to conduct crack and chip seal treatments over the entire reservation paved road system. This equates to roughly *16 years* of annual Crow Indian Tribal TTP funds (the funds set aside annually for paving projects). This big picture long-term maintenance effort does not account for the costs of inflation over time.

Ideally, each paved road should be crack sealed and receive a seal coat every 10 years, and a nonstructural overlay every 20 years. However, the Crow Tribe may not be able to afford overlays every 20 years, so the cycle for doing overlays may need to be extended to 30 years.

By following a schedule of improvements, the Crow Indian Tribe will prolong roadway life and reduce premature failure and reduce maintenance costs. This will be economically beneficial to the Tribe, who may then decide to allocate more of their transportation budget to maintaining and improving the gravel road system. Any paved roads that may be constructed or added to RIFDS inventory during this 20–30-year cycle will need to be added to the rotation as applicable.

Currently, Crow Reservation pavement improvements are in various stages of planning, design, and construction by the Crow Indian Tribe Department of Transportation and the BIA. As of October 2022, BIA 73 was completing the second of three phases of a full reconstruction, with the third phase reaching completion near the end of October 2022.

The following is a list of identified short- and long-range Reservation area road ***Paving Projects*** Identified by the Tribal Transportation Department and are graphically depicted in Figures 52 through 60, as well as detailed in Tables 6 and 7, respectively. It is recommended that the appropriate planning, design, entity coordination, and construction be undertaken to advance these improvements as funding allows.

Projects designed but not yet constructed (Short Range):

- BIA 73 (Good Luck Road) Phase 3
- BIA 1006 (Makawasha Ave)
- Mason Hill Road
- Lodge Grass Town Streets
    - Rodeo Road

Projects in design (Mid to Long Range):

- BIA 91 Phase 6
- BIA 91 Phase 7
- BIA 91 / Pryor Gap Curve
- MDT State Secondary Route 416 (Blue Creek Road)

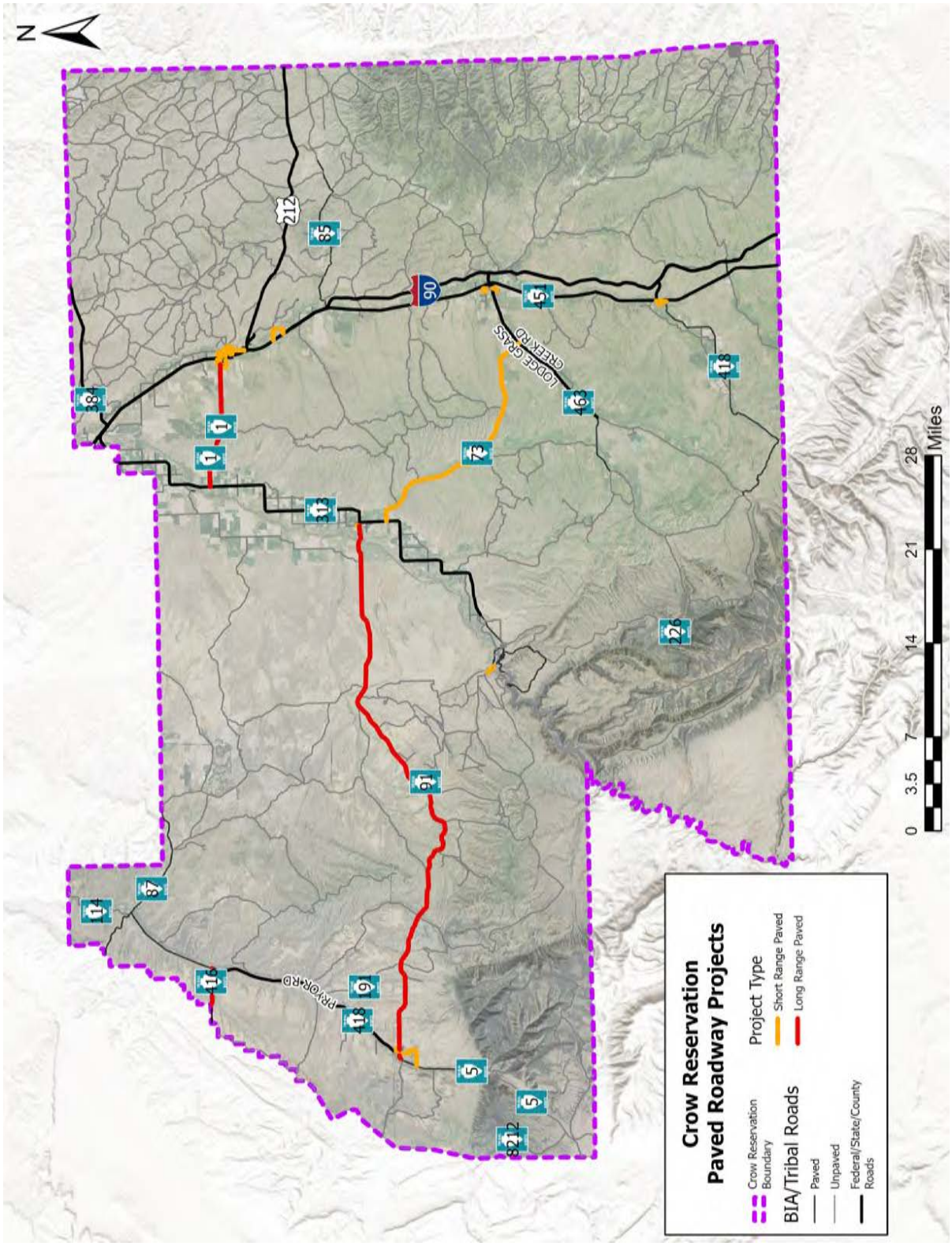
Projects that have had planning but not started design (Long Range):

- BIA 91 Phases 1 – 5

Other Identified Paved Project Needs – (Short- Mid- and Long-Range)

- BIA 1 (Crow Agency/St. Xavier Cut Across)
- BIA 14 (Whistling Water Loop)
- BIA 105 (Pryor Loop Road)
- BIA 192 (Grapevine Road, west from Fort Smith)
- Crow Agency Town Streets
    - BIA 1001 (Pretty Shield St.), BIA 1002 (2 Leggins Ave), BIA 1004 (Cap Dr.), BIA 1006 (Makawasha Ave.), BIA 7001 (Crow River Rd.), BIA 1010 (Makata St. / 3rd St.), Subdivision Streets (North of BIA 1 & West of I-90: N. Plenty Hawk Dr., High Eagle Ave., Well Known Bear Ave, Buffalo Trail), BIA 7777 (Heritage Rd.), Pow Wow Grounds (Fair Drive/Main - Crow Agency)
- Lodge Grass Town Streets
    - George St, Medicine Crow Loop, Bear Below St., Strong Enemy Dr., Red Bird Ln.
- Wyola Town Streets
    - S. Mondel Ave, Rail St., Main St, Reynolds St, Tolles St.
- St. Xavier Town Streets
    - (Mission Loop Road)
- Pryor Town Streets
    - Mak Pua Ave, Away Kurwak, Tsatehash St, Peritsa Ave, Epkarisch St., White Horse Lane, Bell Rock Street, Swan Ave.

FIGURE 52: CROW RESERVATION SHORT- & LONG-RANGE PAVED ROAD PROJECTS



– SHORT RANGE PAVED ROAD PROJECTS

Undertake PMP Paving Projects

Short range projects were identified during the project scoping process of this plan. They will need to be incorporated into the TTIP and cover projects to be completed through the year 2027. A detailed list of the identified short-range and PMP paving projects, providing project name, affected routes, PASER rating, project description, project length, and estimated project cost, is available in Table 6.

TABLE 6: SHORT RANGE PMP AND PAVED ROAD PROJECTS

Project Name	Route	PASER Ratings	Description	Area	Length (Miles)	Estimated Cost
Good Luck Road - Phase 3	BIA 73	4 / 5	Phase 3 RP 7.2 – RP 13.2 Full Depth Structural Overlay / Reclamation with Chip Seal, Rumble Strips, Pavement Markings, Bridge End Subgrade stabilization, Culverts.	Connecting route between Lodge Grass & St. Xavier	6	$4,862,300
BIA 91 Phase 1	BIA 91	5 to 6	PHASE 1: RP 0.0 – RP 7.0	BIA 91 between St. Xavier and Pryor	7	$3,251,820
BIA 91 Phase 2	BIA 91	5 to 7	Phase 2: RP 7.0 – RP 13.0	BIA 91 between St. Xavier and Pryor	6	$5,811,426
BIA 91 Phase 3	BIA 91	5.5 and 6	Phase 3: RP 13.0 – RP 18.1	BIA 91 between St. Xavier and Pryor	5	$4,787,209
BIA 91 Phase 4	BIA 91	6 to 7	Phase 4: RP 18.1 – RP 28.0	BIA 91 between St. Xavier and Pryor	10	$1,840,939
BIA 91 Phase 5	BIA 91	1 and 4.5 to 6.5	Phase 5: RP 28.0 – RP 34.0	BIA 91 between St. Xavier and Pryor	6	$5,213,440

Project Name	Route	PASER Ratings	Description	Area	Length (Miles)	Estimated Cost
BIA 91 Phase 6	BIA 91	5 to 6.5	Phase 6: RP 34.0 – RP 40.5	BIA 91 between St. Xavier and Pryor	6.5	$1,132,700
BIA 91 Phase 7	BIA 91	4.5 to 6	Phase 7: RP 40.5 – RP 44.8	BIA 91 between St. Xavier and Pryor	4.3	$4,515,389
Pryor Gap Road Curve	Pryor Gap Road curve	6	Realignment of Pryor Gap Road curve	Pryor Gap Road curve west of Pryor	.284 (1,500 ft)	$340,922
State Secondary Route 416 / Blue Creek Road	Blue Creek Rd	6, 7, and 8	Install guardrail/Slope flattening, Widen shoulder to 6 ft., Rumble strips, Improve roadside delineation, Install speed limit signs	Western Crow Indian Reservation Boundary at RP 9.26, east to Blue Creek Road and Pryor Road (State Secondary 418)	4.1	$5,239,300 *Option 3: Six-foot shoulder
Whistling Water Loop	BIA 14	5 / 6	Non-structural Overlay w/ Crack and Chip Seal	Off Old 87 south of Crow Agency	1.9	$1,244,500
Crow Agency Streets	BIA 1001 (Pretty Shield St)	TBD	Non-structural Overlay w/ Crack and Chip Seal	Crow Agency	0.2	$131,000
Crow Agency Streets	BIA 1002 (Two Leggings Ave)	TBD	Non-structural Overlay w/ Crack and Chip Seal	Crow Agency	0.2	$131,000
Crow Agency Streets	BIA 1004 (Cap Drive)	5, 6, 7	Nonstructural overlay w/ Crack and Chip Seal	Crow Agency	0.3	$196,500
Crow Agency Streets	BIA 1006 (Makawasha Ave.)	TBD	Nonstructural overlay w/ Crack and Chip Seal (Start: Bala Dr. for 0.4-0.5 mi.)	Crow Agency	0.5	$2,003,100

Project Name	Route	PASER Ratings	Description	Area	Length (Miles)	Estimated Cost
Crow Agency Streets	BIA 1010 (Makata St. / 3rd St)	5 and 6	Nonstructural overlay w/ Crack and Chip Seal	Crow Agency	0.3	$196,500
Crow Agency Streets	BIA 7001 (Crow River Rd.)	3, 5 and 6	Structural Overlay w/ Dig outs, Nonstructural overlay w/ Crack and Chip Seal	Crow Agency	0.4	$321,950
Mason Hill Road	BIA (TBD) Mason Hill Road	N/A	New Construction	Crow Agency	0.8	$4,441,516
Heritage Road	BIA 7777	4 and 7	Structural Overlay / Crack Seal	Crow Agency	1.9	$207,400
Pow Wow Grounds - Internal Roads	Fair Drive / Main + North Loop and South Loop	TBD	Crack and Chip Seal (+) w/ Nonstructural overlay	Crow Agency	2.0	$110,000 (+) $1,310,000
Crow Agency Subdivision Streets	N. Plenty Hawk Dr., High Eagle Ave., Well Known Bear Ave, Buffalo Trail	TBD	Crack and Chip Seal (or) w/ Nonstructural overlay	Crow Agency	1.2	$66,000 (or) $786,000
Lodge Grass Community Streets	Rodeo Road / George St, Medicine Crow Loop, Bear Below St., Strong Enemy Dr., Red Bird Ln.	Rodeo Rd. (5) Sub-division TBD (NA)	Rodeo Road - Nonstructural overlay w/ Crack and Chip Seal (+) Full Reconstruction of Subdivision Streets	Lodge Grass	Rodeo Rd. = 0.45 (+) Subdiv = 1.05	Rodeo Rd. $294,750 (+) Subdivision $3,989,580
Wyola Community Streets	S. Mondel Ave. (+) Tobacco Rd., Rail St., Main St, Reynolds St, Tolles St.	S. Mondel Ave (5) Others: TBD	Nonstructural overlay w/ Crack and Chip Seal (+) Structural Overlay w/ Dig outs for added existing town gravel streets.	Wyola	0.78 Mondel (+) 0.74 mi. Added Streets	$510,900 (+) $888,000

Project Name	Route	PASER Ratings	Description	Area	Length (Miles)	Estimated Cost
St. Xavier Community Streets	Mission Loop	3	Structural Overlay w/ Dig outs	St. Xavier	0.2	$240,000
Pryor Community Streets (Asphalt)	BIA Routes NA	Away Kurwak (6), Tsate-hash St (7), Plenty Coups (6), Peritsa Ave (6), Epkarisc h St. (6)	Crack and Chip Seals for existing pavements at $55,000/mi. (+) Structural Overlay w/ Dig outs of gravel road segments at $1.2 million/mile	Pryor	0.65 mi. crack/ chip seal (+) 0.3 mi. Structu ral Overlay	$395,750
Pryor Community Streets (Concrete)	Shirleen Bl., White Horse Ln., Bell Rock St., Swan Ave.	TBD	Structural Overlay w/ Dig outs and new curb and gutter (convert to asphalt)	Pryor	0.4	$2,200,000
Pryor Loop Road	BIA 105	2, 3, 4	Reconstruction plus Structural Overlay w/ Dig outs	Pryor	2.7	$3,860,000

Short Range Paved Road Project Descriptions

BIA 73 (Good Luck Road) Phase 3: RP 7.2 – RP 13.2



BIA Route 73 is a two-lane rural minor collector highway with a posted speed limit of 50 miles per hour (mph) that connects Lodge Grass to St. Xavier. It is approximately 19.2 miles long, and generally the pavement condition is fair. Phase 3 addresses a 6-mile segment from RP 7.2 to RP 13.2.

Generally, the pavement is in fair condition based on the average PASER Rating of 4.5. This indicates that currently the pavement is in fair condition but is need of rehabilitation through a mill and overlay to extend the life of the pavement. The average pavement top width is 28-feet and the in slopes are generally within current design standards, however there are sections that will need to be flattened or need guardrail installed depending on the limits of right-of-way for the corridor.

During the field inventory, locations where potholes, low points, heaving, and pavement patches were observed. These locations were inventoried throughout the corridor. Between Reference Post (RP) 0.5 and approximately RP 9 a significant amount of transverse cracking is present.

Recommendations for improvements to this highway are comprehensive in nature. They will improve the structural capabilities of the highway, improve ride quality, and improve highway safety. We recommend beginning with full depth pavement repairs throughout the corridor, milling the existing roadway, a minimum 3.5" hot mix asphalt overlay, guardrail improvements, new highway signs throughout corridor, and finally new pavement markings.

Approximately 2-5 years after these improvements are completed, KLJ and the Crow Tribal Transportation Department should evaluate the condition of the asphalt cracks and program a crack seal and chip seal for the entire corridor. The Crow Tribal Transportation Department BIA Route 0073 Assessment Report provides a detailed strategy to improve this road.

These proposed improvements will still need final plans and specifications, survey, right-of-way, and an approved environmental document prior to beginning construction. It is also recommended that a geotechnical engineer perform soil borings throughout the corridor to provide the final full depth pavement repair recommendations and a pavement design for the mill and hot mix asphalt overlay of BIA Route 0073.
The estimated cost for this project is $4,862,300.

BIA 91 - Phases 1-7 and Pryor Gap Road Curve

BIA 91 is a 44.8-mile-long, two lane, rural major collector highway in Big Horn County with a posted speed limit of 50 mph between Pryor and St. Xavier and a posted speed of 35 mph within the two communities. The route begins at the intersection of Montana Secondary Highway 418 in Pryor and heads east transitioning between many horizontal curves and tangent stretches of roadway to the intersection of Montana Secondary Highway 313 and BIA 91 in St. Xavier.

An additional 0.8-mile roadway section was evaluated for this report, Pryor Gap Road Curve. This roadway is a two lane, rural major collector highway with a posted speed limit of 35 mph. The route begins at the intersection of Montana State Highway 418 and BIA 91 and heads west through a horizontal curve and terminates at the intersection Pryor Road and Pryor Gap Road near Chief Plenty Coups State Park.

The BIA 91 project phases 1-7 do not need to be designed and constructed in the order in which they are given below. Crow Tribal Transportation may choose which phase to begin first depending on preference and available funds. However, it is recommended if starting with Phase 1, remaining projects go to design and construction from west to east and if starting with phase 7, remaining projects go to design and construction from east to west.

Note that as of this LRTP, the current TTIP identifies BIA 91 Phases 1 through 7, and Pryor Gap Road Curve as projects currently in preliminary engineering design stages. Based on respective progress of each project/phase regarding planning, design, and available funding, it could be most efficient to begin with Phase 7 and proceed from east to west with the remaining projects.

Prior to completing the work for all Phases 1-7 and Pryor Gap Curve, the following should be completed:

- A full geotechnical investigation
- Engineering plans and specifications
- Incorporate recommendations per Chapter 6 of the BIA 91 Corridor Study

By completing a geotechnical investigation and taking roadway borings, this will assist in determining the existing depth of the asphalt pavement and the depth of the gravel base existing underneath the asphalt. Any deficiencies or anomalies of the depth of pavement or base course might suggest a different treatment needed than what the PASER rating alone might suggest.

Refer to Table 7 for the specific costs associated with each phase of BIA 91, as well as the Pryor Gap Road Curve project.

BIA 91 - PHASE 1: RP 0.0 - RP 7.0



This section of roadway has an approximate roadway width of 29-feet. The average PASER score is 5.6. The roadway is showing signs of minor rutting (1/2-inch-deep or less), transverse and longitudinal cracking, bleeding, and potholes in various locations throughout the suggested project limits. There are locations that would benefit from either slope flattening or guardrail. This section of roadway would benefit with crack sealing, patching and subgrade stabilization, a non-structural overlay (less than 2 inches), course leveling for the minor rutting and a seal and cover to help extend the life of the pavement.

The estimated cost for this project is $3,251,820.

BIA 91 - PHASE 2: RP 7.0 - RP 13.0



This section of roadway has an approximate roadway width of 28.3-feet. The average PASER score is 5.9. The roadway is showing signs of longitudinal and transverse cracking, minor rutting (1/2-inch-deep or less) alligator cracking, minor bleeding, and potholes in various locations throughout the suggested project limits. There are locations that would benefit from either slope flattening or guardrail. This section of roadway would benefit with crack sealing, patching and subgrade stabilization, a non-structural overlay (less than 2 inches), course leveling for the minor rutting and a seal and cover to help extend the life of the pavement.
The estimated cost for this project is $5,811,426.

BIA 91 - PHASE 3: RP 13.0 - RP 18.1



This section of roadway has an approximate roadway width of 26.8-feet. The average PASER score is 5.4. The roadway is showing signs of raveling, longitudinal and transverse cracking, alligator cracking, minor bleeding, and potholes in various locations throughout the suggested project limits. There are locations that would benefit from either slope flattening or guardrail. This section of roadway would benefit with Full Depth Reclamation (pulverization) of the existing asphalt surface to mix with the existing base course.

The pulverization will blend the materials uniformly and provide an upgraded homogeneous material. It is recommended that either additional virgin crushed coarse aggregate and/or a chemical stabilization material be added to the pulverization mix. A structural overlay of 4-inch asphalt is recommended to be paved over the newly pulverized material. Prior to the pulverization, subgrade should be completed. A seal and cover to help extend the life of the pavement after all other paving operations are completed is also recommended.
The estimated cost for this project is $4,787,209.

BIA 91 - PHASE 4: RP 18.1 – RP 28.0



This section of roadway has an approximate roadway width of 27.4-feet. The average PASER score is 6.0. The roadway is showing signs transverse and longitudinal cracking (up to a ½-inch wide), heaving and potholes in various locations throughout the suggested project limits. There are locations that would benefit from either slope flattening or guardrail. This section of roadway would benefit with crack sealing, patching and subgrade stabilization, and a seal and cover to help extend the life of the pavement.

It also should be noted that there were various locations between RP 18.5 to RP 20.5 that had damaged snow fence along the roadway and snow drifting was seen along the roadway during a field visit in early March 2021. It is recommended that these snow fences be repaired or replace in their existing locations. If snow drifting is experienced in other locations throughout the corridor, it is recommended that the Crow Tribal Maintenance Program install snow fence in those locations experiencing snow drifting along the roadway. If desired, the Crow Tribal Transportation Program could split this phase into two separate projects, depending on available funding.
The estimated cost for this project is $1,840,939.

BIA 91 - PHASE 5: RP 28.0 - RP 34.0



This section of roadway has an approximate roadway width of 27.4-feet. The average PASER score is 4.9. The roadway is showing signs of heaving, block cracking, longitudinal and transverse cracking, alligator cracking, rutting and potholes in various locations throughout the suggested project limits. There are locations that would benefit from either slope flattening or guardrail. This section of roadway would benefit with Full Depth Reclamation (pulverization) of the existing asphalt surface to mix with the existing base course.

The pulverization will blend the materials uniformly and provide an upgraded homogeneous material. It is recommended that either additional virgin crushed coarse aggregate and/or a chemical stabilization material be added to the pulverization mix. A structural overlay of 4-inch asphalt is recommended to be paved over the newly pulverized material. Prior to the pulverization, subgrade stabilization should be completed. A seal and cover to help extend the life of the pavement after all other paving operations are completed is also recommended.
The estimated cost for this project is $5,213,440.

BIA 91 - PHASE 6: RP 34.0 - RP 40.5



This section of roadway has an approximate roadway width of 27.9-feet. The average PASER score is 6.3. The roadway is showing signs transverse and longitudinal cracking, bleeding, minor rutting, and potholes in various locations throughout the suggested project limits.

Some minor crack sealing was observed throughout the suggested project limits. Only one location was noted where possible guardrail would be recommended, RP 35.70. In this location a large tree was within the existing clear zone and acts as a fix object. Removal of the tree would be a cost benefit versus installing guardrail new guardrail and is the recommended countermeasure. This section of roadway would benefit with crack sealing, patching and subgrade, and a seal and cover to help extend the life of the pavement.
The estimated cost for this project is $1,132,700.

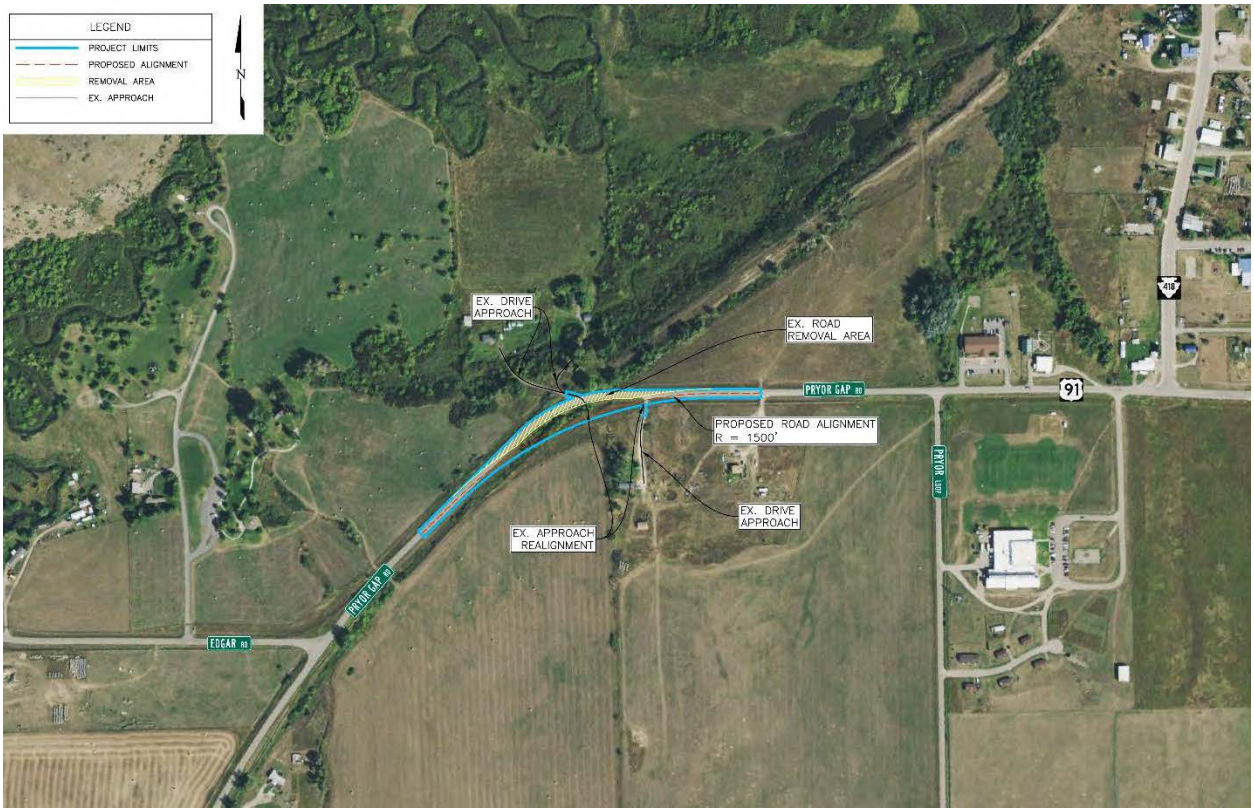
BIA 91 - PHASE 7: RP 40.5 - RP 44.8



This section of roadway has an approximate roadway width of 29-feet. The average PASER score is 5.0. The roadway is showing signs of bleeding, block cracking, longitudinal and transverse cracking, rutting and potholes in various locations throughout the suggested project limits. There are locations that would benefit from either slope flattening or guardrail. There are two bridges located within these project limits one located near RP 43.3 and the other located at RP 44.4. It is recommended that the bridge end be upgraded to current guardrail practices and bridge dig outs on each end of each bridge be completed to stabilize the surface.

This section of roadway would benefit with Full Depth Reclamation (pulverization) of the existing asphalt surface to mix with the existing base course. The pulverization will blend the materials uniformly and provide an upgraded homogeneous material. It is recommended that either additional virgin crushed coarse aggregate and/or a chemical stabilization material be added to the pulverization mix. A structural overlay of 4-inch asphalt is recommended to be paved over the newly pulverized material. Prior to the pulverization, subgrade stabilization should be completed. A seal and cover to help extend the life of the pavement after all other paving operations are completed is also recommended.
The estimated cost for this project is $4,515,389.

PRYOR GAP ROAD CURVE (BIA 91)



Pryor Gap Curve is a .284-mile (1,500 ft) length two-lane road that connects the town of Pryor, the primary community on the western side of the Crow Indian Reservation, with Chief Plenty Coup State Park, St. Charles Mission School, and several homesteads to the south along BIA 5 (Pryor Gap Road). Currently, the road has only a minimal shoulder, steep slopes and a sharp curve with no rumble strips, and minimal signage to assist drivers in preparing for that curve.

The project proposes to finalize design and complete construction to flatten the curve, improve side slopes, widen shoulders to 4-foot, install shoulder and centerline rumble strips, and provide appropriate curve delineation signs. The Crow Tribal Transportation Program was recently awarded TTPSF money for the project in the amount of $272,794 with the tribe contributing an additional 20 percent ($68,198) resulting in a total of $340,992 for the project.
The estimated cost for this project is $340,992.

Blue Creek Road (Montana State Secondary Route 416)



The Study Area section of Blue Creek Road (Montana State Secondary Route 416) is a 4.1-mile-long, two lane, secondary highway in Yellowstone County. It is classified as a rural major collector and has a posted speed limit of 70 mph. The Study Area begins at the western Crow Indian Reservation boundary at RP 9.26, southeast of Billings and runs east where it terminates at the intersection of Blue Creek Road and Pryor Road (Montana State Secondary 418).

Blue Creek Road falls under the jurisdiction of MDT who is responsible for maintaining this route. Coordination with MDT will be required before any work is authorized to commence. Suggested improvements for Blue Creek Road were developed based on a review of the safety conditions and countermeasures. It should be noted that all these improvements will need survey, a geotechnical investigation, construction plans and specifications, an approved Environmental document, and right-of-way prior to construction starting.

Results of the PASER study show that the pavement along the corridor is generally in good condition with an average PASER score of 7.1.

Signs on Blue Creek Road were replaced in 2018 and are in good condition. Pavement markings are in good condition only showing some wear.

Currently there are no shoulders along the Study Area, and sections with steep inslopes. The following are recommendations to consider:

- Install guardrail or slope flattening near RP 9.6 and RP 11.7 to RP 11.8 depending on roadway slope catch limits and existing right-of-way that is established. These two locations are near existing culverts that cross under Blue Creek Road. The inslopes vary between a 2:1 or 3:1 inslope on both sides of the roadway near RP 9.6 and only on the north side of the roadway near RP 11.7 to RP 11.8.
- Install at minimum a two-foot shoulder throughout the Study Area with a six-foot shoulder being the preferred alternative. The six-foot shoulder option would provide a more consistent corridor typical section and added safety benefits.

- Install shoulder rumble strips following the guidelines set forth in the MDT Road Design manual.
- Improve roadside delineation.
- Install speed limit signs at the beginning and end of the Study Area near RP 9.3 and RP 13.2

With the added shoulders, inslopes should follow the guidelines set forth in the MDT Geometric Design Standards and MDT Road Design Manual with exception of flat bottom ditches. It is recommended that a v-ditch be utilized because of right-of-way constraints.

The bulleted points below summarize the approximate project cost for the three proposed safety improvements alternatives. Right-of-Way costs are not included in the project cost as these will need to be determined during final design and right-of-way negotiations.

The estimated cost for this project is:

- Two-Foot Shoulder Option: $2,867,800.00
- Four-Foot Shoulder Option: $4,306,900.00
- ***Six-Foot Shoulder Option: $5,239,300.00** (**Preferred option*)

FIGURE 53: CROW RESERVATION PAVED ROAD PROJECTS: BLUE CREEK ROAD

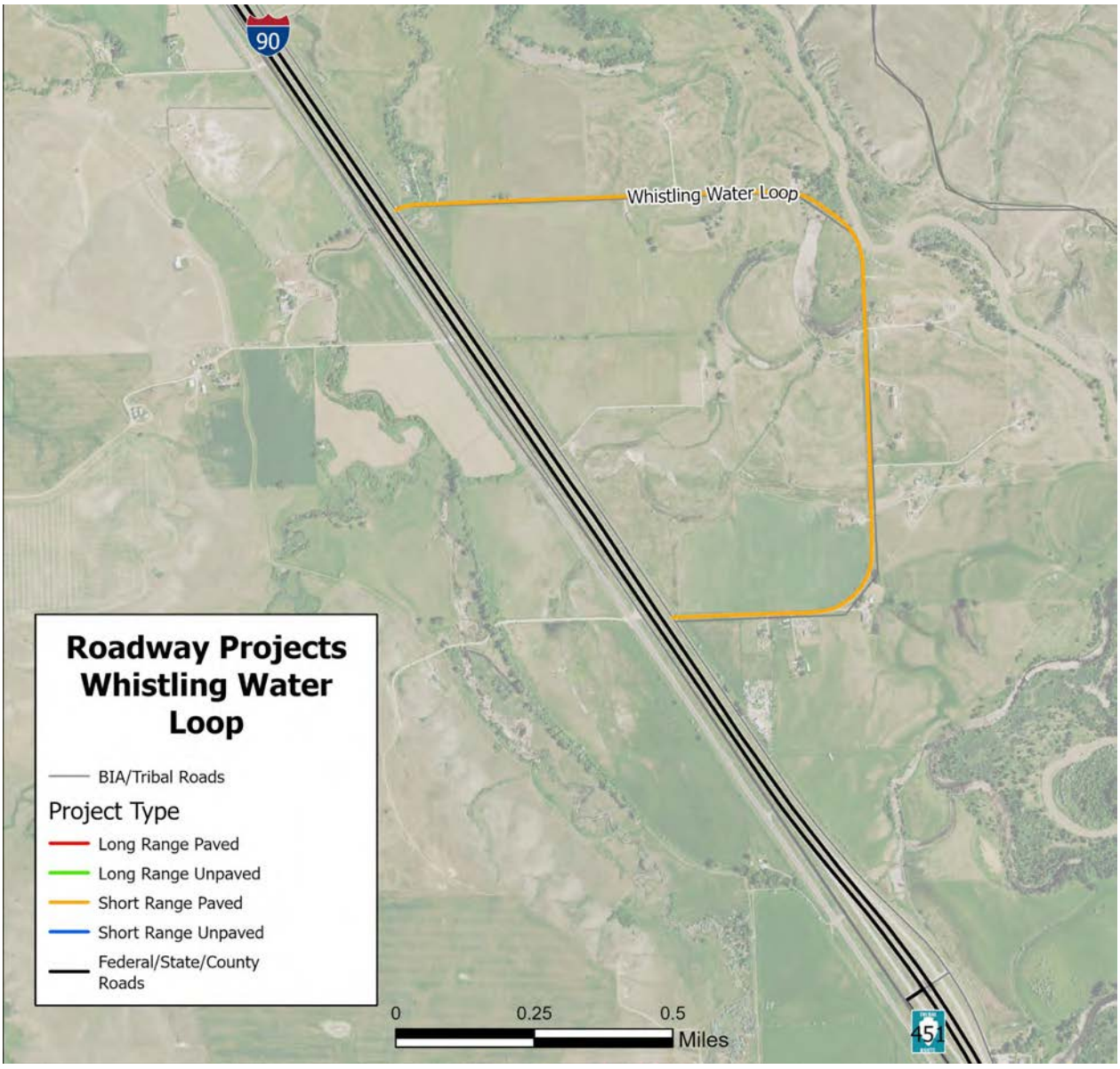


BIA 14 (Whistling Water Loop)

BIA 14 is a 1.9-mile segment of collector roadway located south from Crow Agency on the east side of I-90 on route to Lodge Grass. The Crow Cultural Heritage site of the Real Bird Reenactment is located here. The recent PASER study rated the road 5/6 with the roadway showing signs 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") with routine crack sealing and a sealcoat.

The estimated cost for this project is $1,244,500.

FIGURE 54: CROW RESERVATION PAVED ROAD PROJECTS: WHISTLING WATER LP.



Crow Agency Community Streets

A number of Crow Agency community streets have been identified as needing pavement improvements. The following list provides descriptions and cost estimates for the streets identified for short-term pavement projects found in the current TTIP.

BIA 1001 (PRETTY SHIELD ST.)

Located in Crow Agency north of Makawasha and east of I-90, this 0.2-mile segment of community road has not yet been PASER rated. However, the roadway is showing signs 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") with routine crack sealing and a sealcoat.
The estimated cost for this project is $131,000.

BIA 1002 (TWO LEGGINGS AVE.)

Located in Crow Agency north of Makawasha and east of I-90, this 0.2-mile segment of community road has not yet been PASER rated. However, the roadway is showing signs 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") with routine crack sealing and a sealcoat.
The estimated cost for this project is $131,000.

BIA 1004 (CAP DRIVE)

Located in Crow Agency north of Makawasha and east of I-90, this 0.3-mile segment of community road was given a PASER study rating of 5, 6, and 7. The roadway is showing signs 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") with routine crack sealing and a sealcoat.
The estimated cost for this project is $196,500.

BIA 1006 (MAKAWASHA AVE.)

Located in Crow Agency and spanning both the east and west sides of the main I-90 exit, this project is an approximately 0.4 to 0.5-mile easterly segment of the community road, spanning from approximately Bala Drive and 0.5 miles east and then north along Makawasha Ave. It has not yet been PASER rated. However, the roadway is showing signs of aging asphalt, but with sound structural conditions. The roadway can benefit from patching and subbase digouts and replaced where necessary, followed by a non-structural mill and overlay (less than 3") with routine crack sealing and a sealcoat. Also included in the project are sections of new 5 ft. wide sidewalk that meet current ADA standards.
The estimated cost for this project is $2,003,100.00.

BIA 1010 (MAKATA ST. / 3RD ST.)

Located in Crow Agency north of Makawasha and east of I-90, this 0.3-mile segment of community road was given a PASER study rating of 5 and 6. The roadway is showing signs 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") with routine crack sealing and a sealcoat.
The estimated cost for this project is $196,500.

BIA 7001 (CROW RIVER RD. / 13A)

Located in Crow Agency north of Makawasha and east of I-90, this 0.4-mile segment of community road was given a PASER study rating of 3, 5, and 6. The roadway is showing signs of aging asphalt. 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. 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") with routine crack sealing and a sealcoat.
The estimated cost for this project is $321,950.

BIA 7777 (HERITAGE RD.)

Located in Crow Agency south of Makawasha and east the Pow Wow Grounds, this 1.9-mile segment of community road was given a PASER study rating of 4 (.17-mi.) and 7 (1.7-mi). Due to significant signs of aging, a structural overlay is required (greater than 2") for the smaller segment. For the longer segment, the roadway shows very few signs of aging and can be maintained with routine crack filling.
The estimated cost for this project is $207,400.

POW WOW GROUNDS

These Crow Agency Pow Wow Grounds community streets include the following roads:

- Fair Drive (external access)
- North Loop (internal circulation)
- South Loop (internal circulation)

These Pow Wow Grounds access and circulation roads total 2-miles and have not yet been PASER rated. However, the roadway is showing signs 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") with routine crack sealing and a sealcoat.
The estimated cost for this project with crack and chip seal only is $$110,000.
The estimated cost for this project with adding a non-structural overlay is an additional $1,310,00.

SUBDIVISION STREETS

These Crow Agency subdivision streets are located west of I90 and north of BIA 1/ Makawasha Ave and include the following roads:

- N Plenty Hawk Dr.
- High Eagle Ave.
- Well Known Bear Ave
- Buffalo trail

These roads total 1.2-miles of community roads and have not yet been PASER rated. However, the roadway is showing signs 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") with routine crack sealing and a sealcoat.

The estimated cost for this project with crack and chip seal only is $66,000.

The estimated cost for this project with adding a non-structural overlay is an additional $786,000.

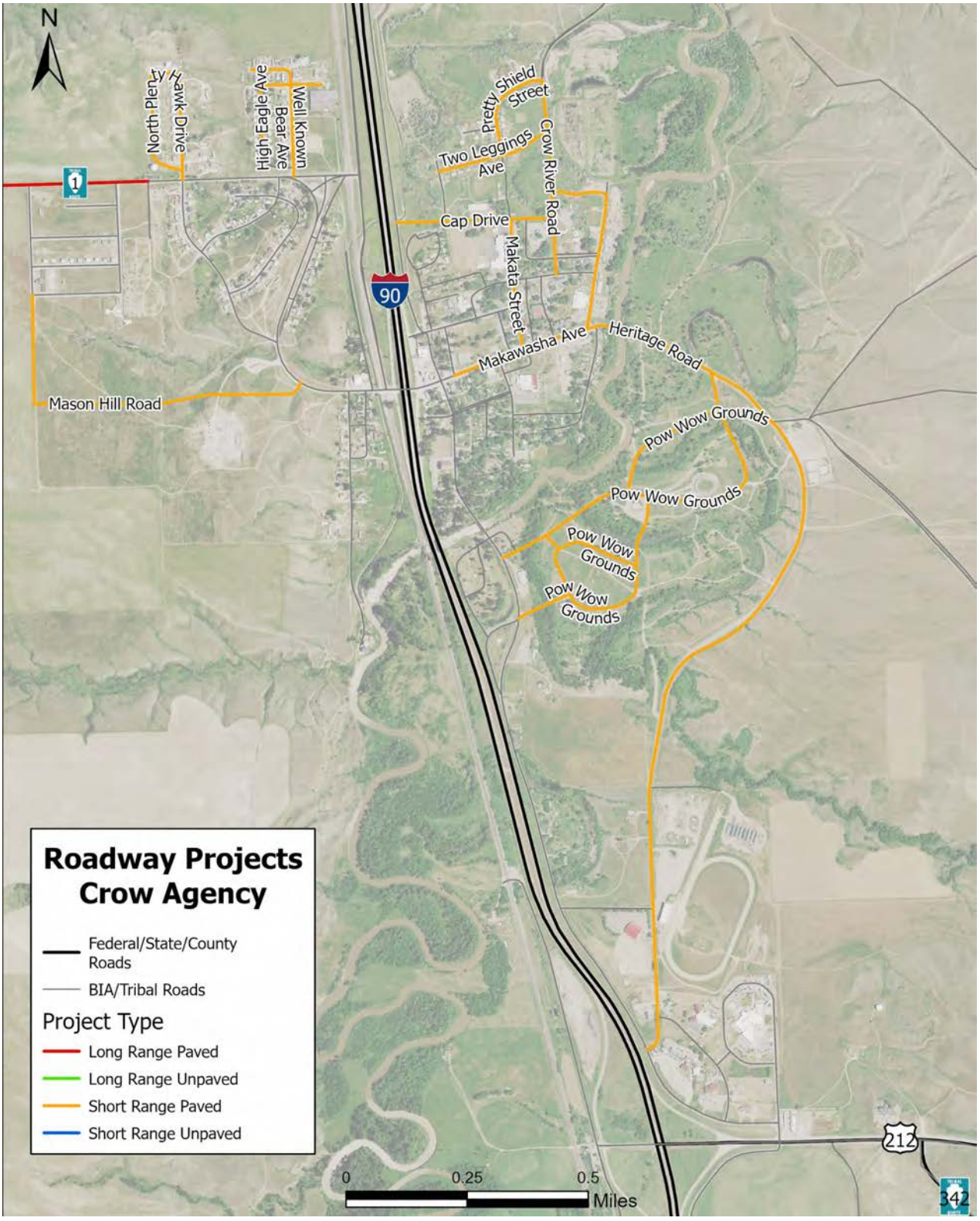
Mason Hill Road (BIA TBD)

Located in Crow Agency, west of I-90 and south of BIA 1, Mason Hill Road is a new road construction project to connect Makawasha/BIA 1 with Pretty Eagle St. to allow for development of new housing and better connectivity to existing housing subdivisions. Preliminary engineering and design have been completed.

The estimated cost for this project (adjusted for inflation from 2020 estimate) is $4,441,516.

Figure 55 on the following page provides graphic details and locations for the Crow Agency paved road projects.

FIGURE 55: CROW AGENCY COMMUNITY PAVED ROAD PROJECTS



Lodge Grass Community Streets

These Lodge Grass subdivision streets are located north of the main town grid with Rodeo Road located to the south, and include the following roads:

- Rodeo Road

Rodeo Road received a PASER rating of 5 and primarily consists of .45 miles 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”).
The estimated cost for the Rodeo Road project is $294,750.

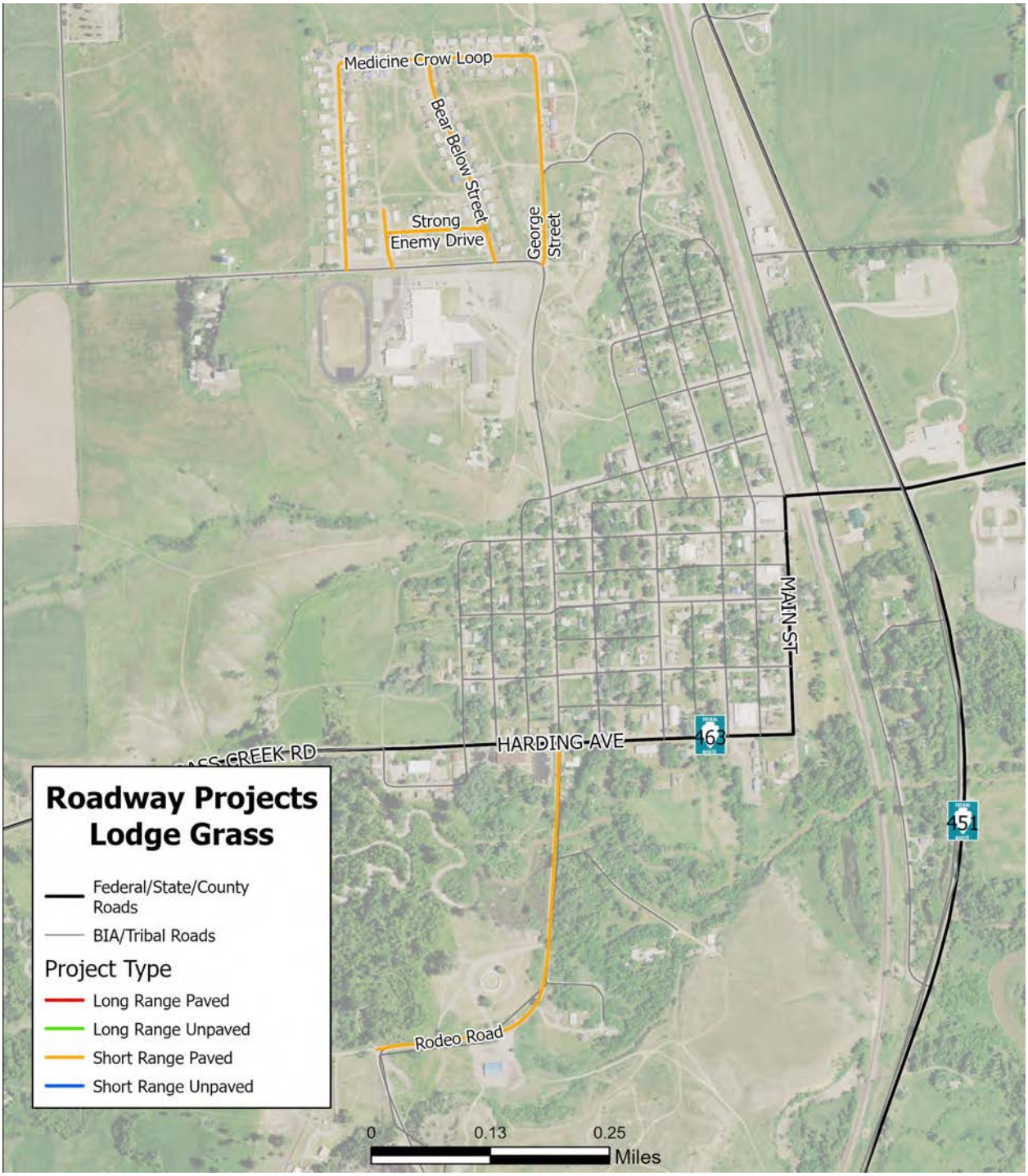
The subdivision streets have not been PASER rated but include the following roads, totaling 1.05 miles of asphalt:

- George Street
- Medicine Crow Loop
- Bear Below St.
- Strong Enemy Drive

Full engineering and cost estimates have been completed for this project which is shovel ready. Improving the roads will entail a full reconstruction. Also included in the project are sections of new 5 ft. wide sidewalk that meet current ADA standards.
The estimated cost for the subdivision streets project is $3,989,580.

Figure 56 on the following page provides graphic details and locations for the Lodge Grass paved road projects.

FIGURE 56: LODGE GRASS COMMUNITY PAVED ROAD PROJECTS



Wyola Community Streets

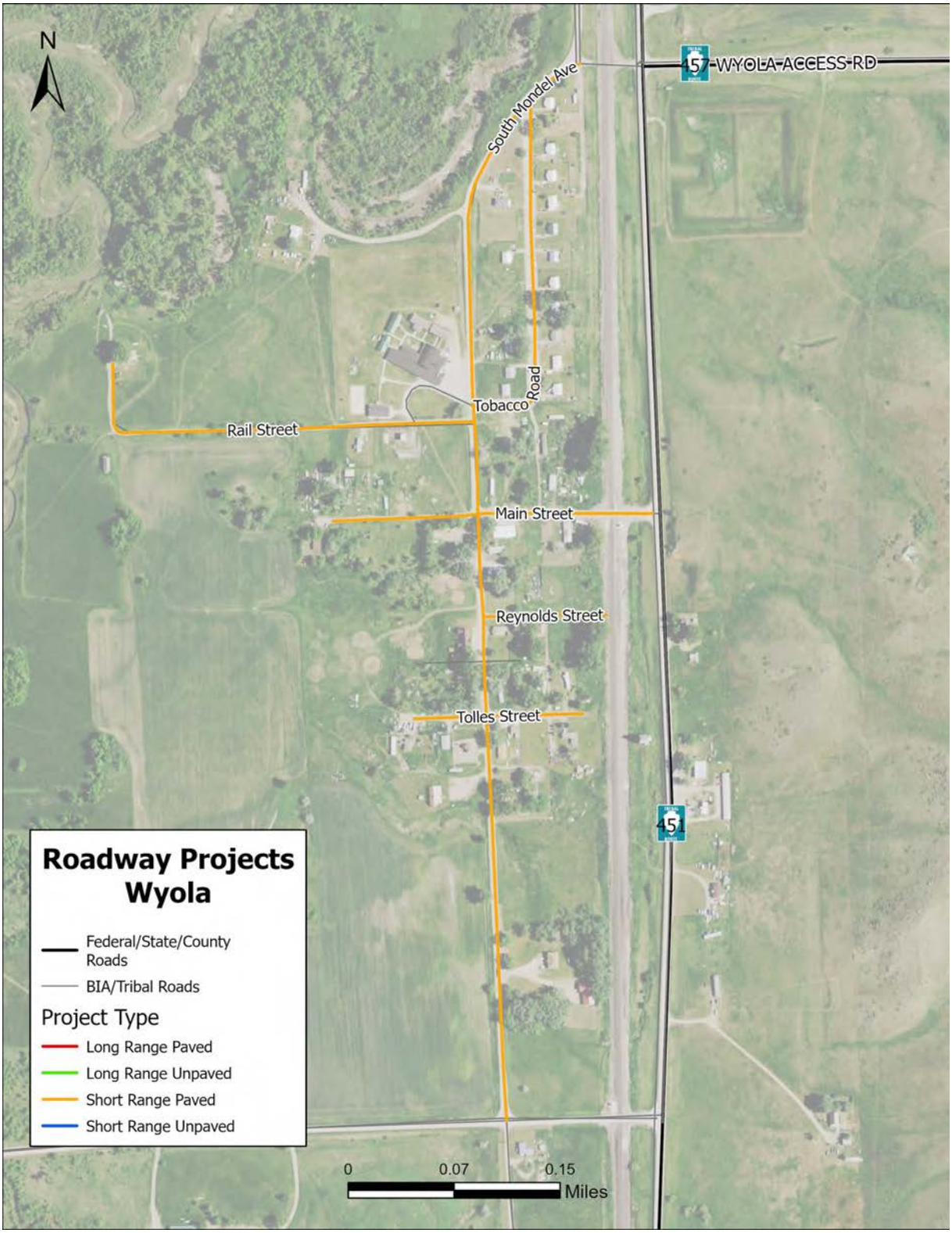
Scoping for the 0.78-mile segment of South Mondel Ave (PASER rated 5) showed signs of transverse cracking, lots of bleeding, raveling, and cracks, aging asphalt, but with sound structural conditions. The roadway can benefit from patching and some small areas of base dugout and replaced where necessary, followed by a non-structural overlay (less than 2").

It was also noted that the rail crossing at the junction of the frontage road and Mondel Ave. has been blocked off. Also, while there are steep sloped ditches south of Tolles St. along Mondel Ave., there is still potential room for a sidewalk along the east side of Mondel Ave., from the school to Little Horn Rd.
The estimated cost to rehab S. Mondel Ave is $510,900.

Additionally, to include the rest of the Wyola community streets which include Tobacco St. (paved, approximate PASER rating of 4-5), and the currently unpaved roads including Rail St., Main St, Reynolds St, Tolles St., the total 0.74-miles of streets would require a structural overlay w/ dig outs. **The estimated cost to include the additional road upgrades/work would total approximately $888,000.**

Figure 57 on the following page provides graphic details and locations for the Wyola paved road projects.

FIGURE 57: WYOLA COMMUNITY PAVED ROAD PROJECTS

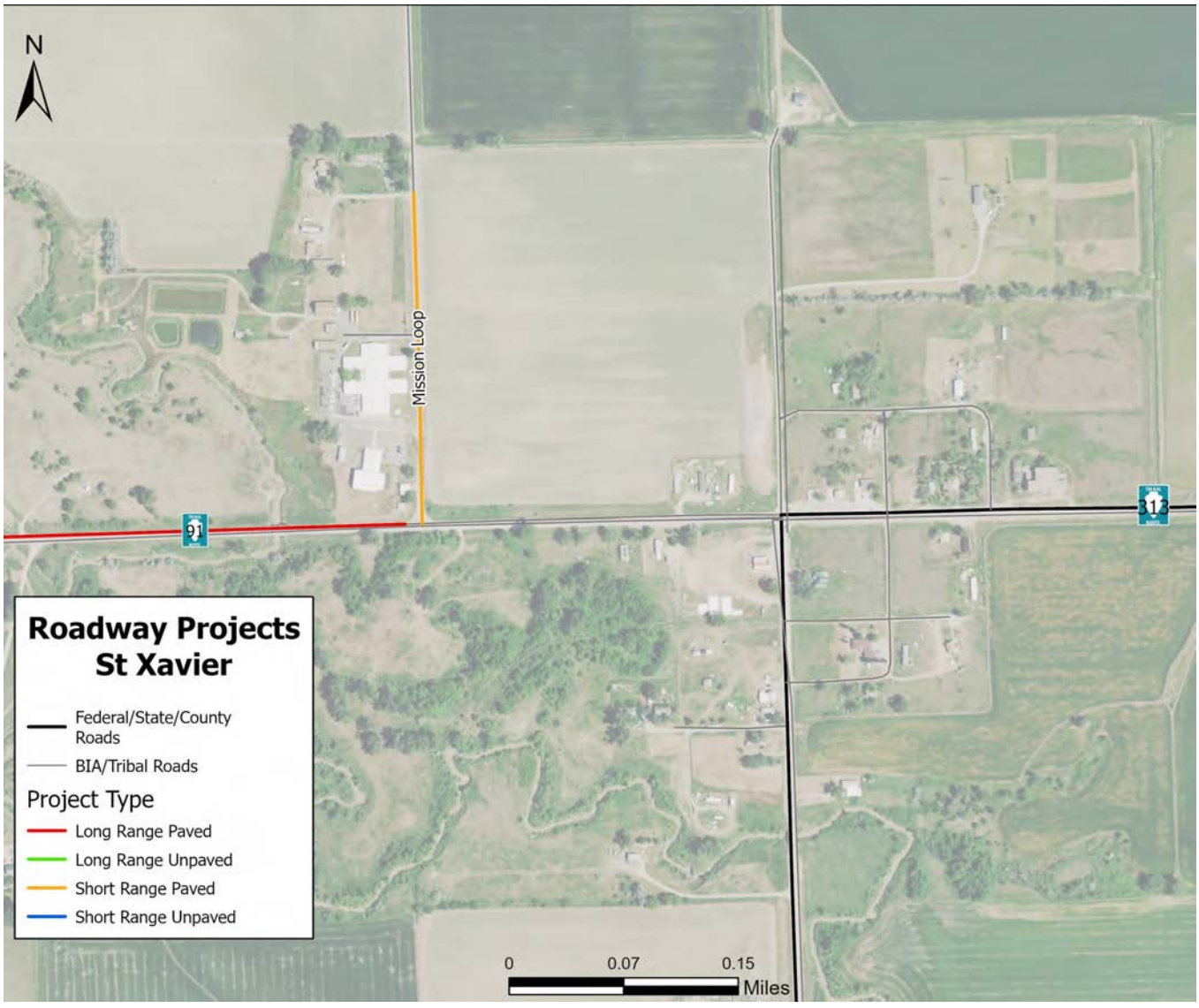


St. Xavier Community Streets (Mission Loop)

Located in St. Xavier north of BIA 91 and west of the existing all gravel road St. Xavier street grid, Mission Loop is a 0.2-mile, 20-foot-wide segment of community road serving access to Pretty Eagle Catholic Academy and was given a PASER study rating of 3. Existing conditions exhibit patching, alligator cracking, raveling, trans-cracking, and block cracking. 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.

The estimated cost for this project is $240,000.

FIGURE 58: ST. XAVIER COMMUNITY PAVED ROAD PROJECTS



Pryor Community Streets

The existing Pryor community streets consist of the following asphalt and gravel streets and vary in width between 18 and 24 feet. Figures 59 and 60 graphically display Pryor Community paving projects.

- Tsate Hash St. (asphalt, runs east/west); PASER rating 7; 18' width.
- Awaykurwak St. (asphalt east to Perista Ave.); PASER rating 6; 22' width.
- Plenticoos St. (asphalt); PASER rating 6; 22' width.
- Epkarisch St. (asphalt to Perista Ave., gravel east to Shirleen Blvd.) PASER rating 6; 22' width.
- Perista Ave. (asphalt, runs north/south); PASER rating 6; 24' width.

Recommended road rehabilitation for the existing asphalt street segments would consist of .65-miles of Crack and Chip Seals at $55,000/mi and adding paving to the existing .3-miles of gravel segments would entail structural overlay w/ dig outs at $1.2 million/mile.
The estimated total cost for the existing asphalt and gravel-based Pryor streets is estimated at $395,750.

Existing Pryor concrete streets include the following:

- Shirleen Blvd (deteriorated concrete, gravel, ends in cul-de-sac).
- White Horse Ln. (concrete)
- Bell Rock St. (concrete, ends in cul-de-sac)
- Swan Ave. (gravel extension of Awaykurwak St., east from Perista Ave. to White Horse Ln, then concrete to Bell Rock St.)

Recommended road rehabilitation would consist of .4-miles of structural overlay w/ dig outs (convert to asphalt) at a cost estimate of $1.2 million/mile.
The estimated cost for the conversion of Pryor concrete streets to asphalt is estimated at $480,000.

Total cost for all Pryor community streets rehabilitation and maintenance is estimated at $875,750.

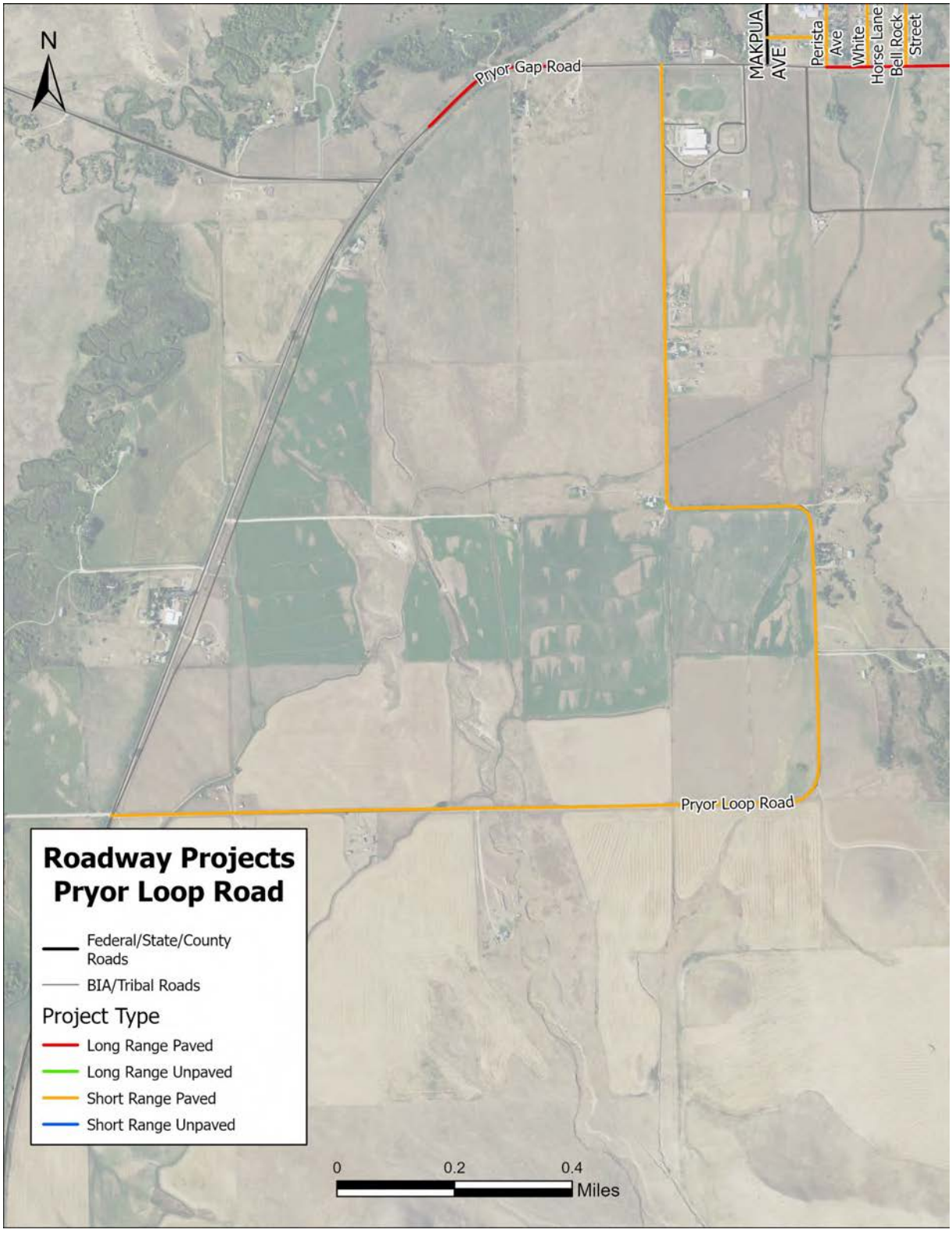
BIA 105 (Pryor Loop Road)

Located south and west of Pryor, BIA 105 / Pryor Loop Road is a 2.7-mile segment of community road. PASER study ratings of 2, 3, and 4 were given. 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. In several segments, Pryor Loop Road is severely deteriorated enough to receive a PASER rating of 2. 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. Due to significant signs of aging, a structural overlay is required (greater than 2"). A field review shows that areas where PASER ratings of 3 or 4 occur are where the asphalt and base are the thinnest.
The estimated cost for this project is $3,860,000.

FIGURE 59: PRYOR COMMUNITY PAVED ROAD PROJECTS



FIGURE 60: PRYOR COMMUNITY PAVED ROAD PROJECTS – PRYOR LOOP ROAD



– LONG RANGE PAVED ROAD PROJECTS

The Crow Indian Tribe has recognized the need to update roads and parking lots within the campus area for some time. Poor roadway geometrics, overdue maintenance needs, and several poorly functioning facilities all point to the need for improvements. A list of identified long-range projects is available in Table 7.

Outside the scope of the existing long-range project planning and design, further detailed preliminary and final designs were beyond the scope of the LRTP. However, it is likely that as improvement options are explored, new projects will be identified and further ideas to improve Tribal roads and other paved/non-paved areas will become evident.

TABLE 7: LONG RANGE PAVED ROAD AND OTHER PROJECTES

Project Name	Route(s)	PASER Rating(s)	Description	Area/ Location	Length (Miles)	Cost
Pryor Gap Road	BIA 5	5	Non-structural Overlay w/ Crack and Chip Seal	Pryor Gap Rd., southwest out of Pryor	4.2	$2,751,000
BIA 1	BIA 1	6 to 8	Crack and Chip Seal	Lodge Grass/Crow Agency to St. Xavier	9.4	$517,000

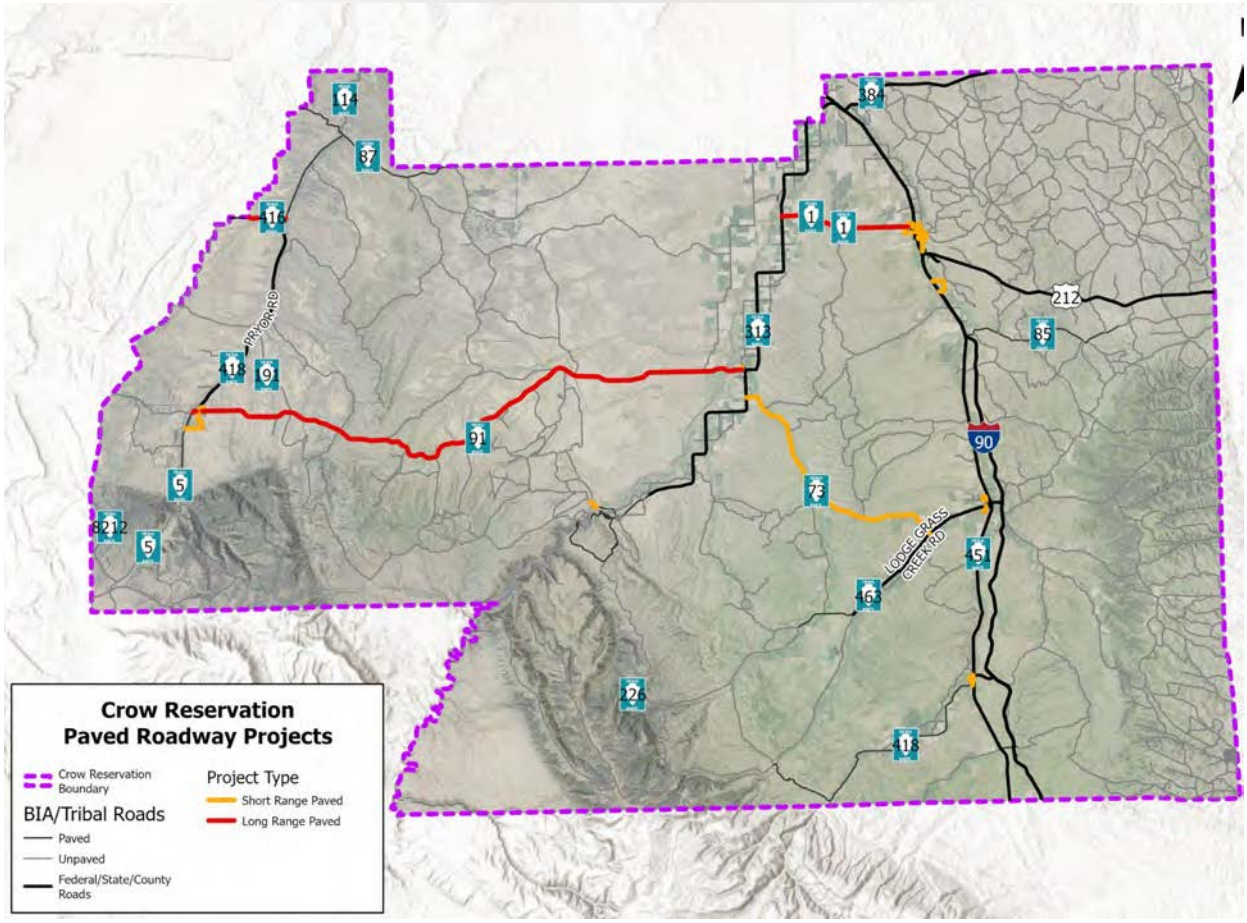
Long Range Paved Road Project Descriptions

BIA 1 (Crow/St. Xavier Cut Across)

Leading out of Crow Agency heading west to BIA 313, Crow Cut Across is a 9.4-mile segment of highway which was given a PASER study rating of 6, 7, and 8. The road exhibits light signs of aging. The roadway life can be extended with routine crack sealing and a sealcoat. BIA 1 shows very few signs of aging and can be maintained with routine crack filling. In the segments given a PASER rating of 8, no immediate maintenance is required. In the future, routine crack filling and maintenance should be performed to continue to extend the life of the roadway.
The estimated cost for this project is $517,000.

BIA 5 (Pryor Gap Road)

Pryor Gap Road leads south out of Pryor after passing west through Pryor Gap Curve Road. The pavement is showing signs of cracking, raveling, and deficiencies in the integrity of the pavement. Recommended work will include a non-structural overlay w/ crack and chip seal for the 4.2 miles of roadway extending south beyond the project limits of Pryor Gap Curve Road.
The estimated cost for this project is $2,751,000.


Crow Reservation
Paved Roadway Projects
Crow Reservation Boundary
BIA/Tribal Roads
Paved
Unpaved
Federal/State/County Roads
Project Type
Short Range Paved
Long Range Paved
PRYOR RD
LODGE GRASS CREEK RD
212
90
14
37
416
418
91
5
13
1
384
85
73
51
463
26

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.

According to the 2022 RIFDS inventory, BIA and Tribal non-paved *Gravel* surface type roads total approximately 113 miles; *Earthen* roads total 326.1 miles; and BIA/Tribal *Trail* surface type roads total approximately 1,097.1 miles.

GIS data was compiled from multiple sources including from the Crow Indian Tribe, MDT, and Bighorn, Yellowstone, and Treasure counties. These disparate databases were combined to create one comprehensive database of all strictly BIA and Tribal roads. Where necessary, overlapping/redundant entries in GIS were eliminated.

As noted previously, approximately 1,423.2 miles of BIA/Tribal roads (non-gravel/unpaved roads) have received little or no surfacing and are classified in RFIDS as either earthen or primitive "Trail" type roads. However, visual analysis of select roads found that some of the earthen roads are adequate for their current uses. 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. Example pictures of non-paved roadway surface conditions on the Crow Indian Reservation roads are shown in Figure 61, but many miles of unpaved roads are not maintained to this level.

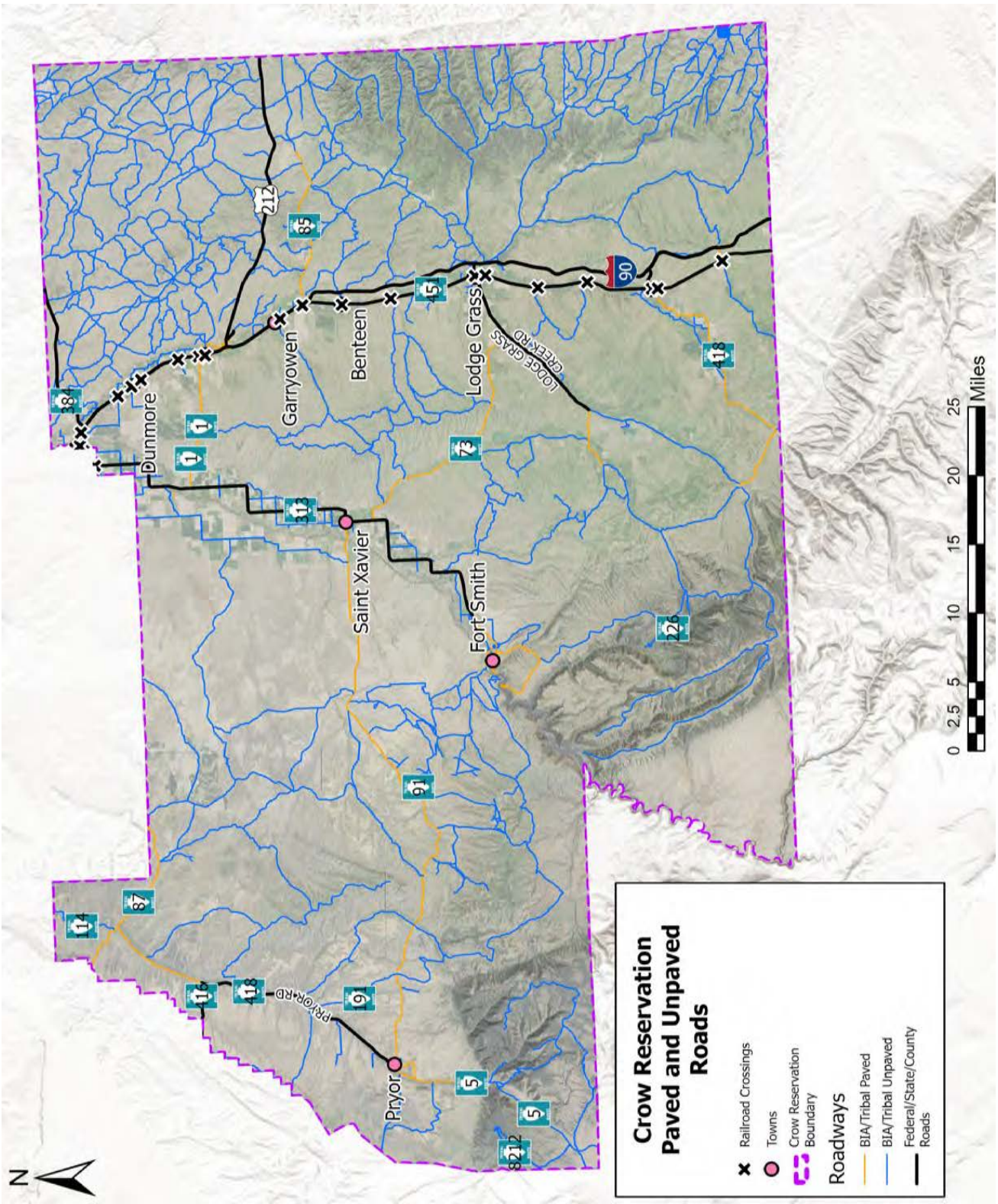
FIGURE 61: EXAMPLES OF NON-PAVED ROADWAY TYPES AND CONDITIONS





Crow Reservation non-paved roads run the spectrum of unpaved roadways from maintained gravel roads to earthen/unimproved roads and trails. As shown previously in RIFDS inventory Tables 3 through 5, on the Crow Reservation there are a total 1,536.2 miles of unpaved roads. Figure 62 shows the full extent of the Reservation's unpaved road system.

FIGURE 62: BIA/TRIBAL NON-PAVED ROADS



RECOMMENDATIONS

Non-paved roadway recommendations address the need for use of good roadway materials 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. It may be beneficial for the Tribe to investigate the potential for improving access to existing and/or developing new gravel resources to reduce costs and to improve road maintenance within the Reservation.

The Crow Indian Tribe could undertake a geological study to identify new gravel sources. These resources could be used by Tribal Members to improve driveways, or for maintenance staff to use on gravel road maintenance and improvement projects. These resources could also be made available to other entities in exchange for maintenance assistance or for additional funds. It is anticipated that once available, new gravel sources will provide more efficiency in obtaining quality gravel materials for use on Crow Indian Tribe roads. It is recommended that the Tribe seek grant funding for the study through the BIA's Energy and Mineral Development Program (EMDP) grant.

– 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 Crow Indian 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.

– 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 paving.

BIA 5, BIA 211, and BIA 8212 are three such gravel/earthen/unimproved roads that have been identified by Crow Tribe Department of Transportation that would benefit from a gravel rehabilitation project. It is recommended that this project proceed as a short-range improvement project if funding can be secured.

– 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 four percent (4%) crown. Improper grading can remove valuable surface materials and grading must account for intersecting roads and driveways, as well as other site conditions.

Finding 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.

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.

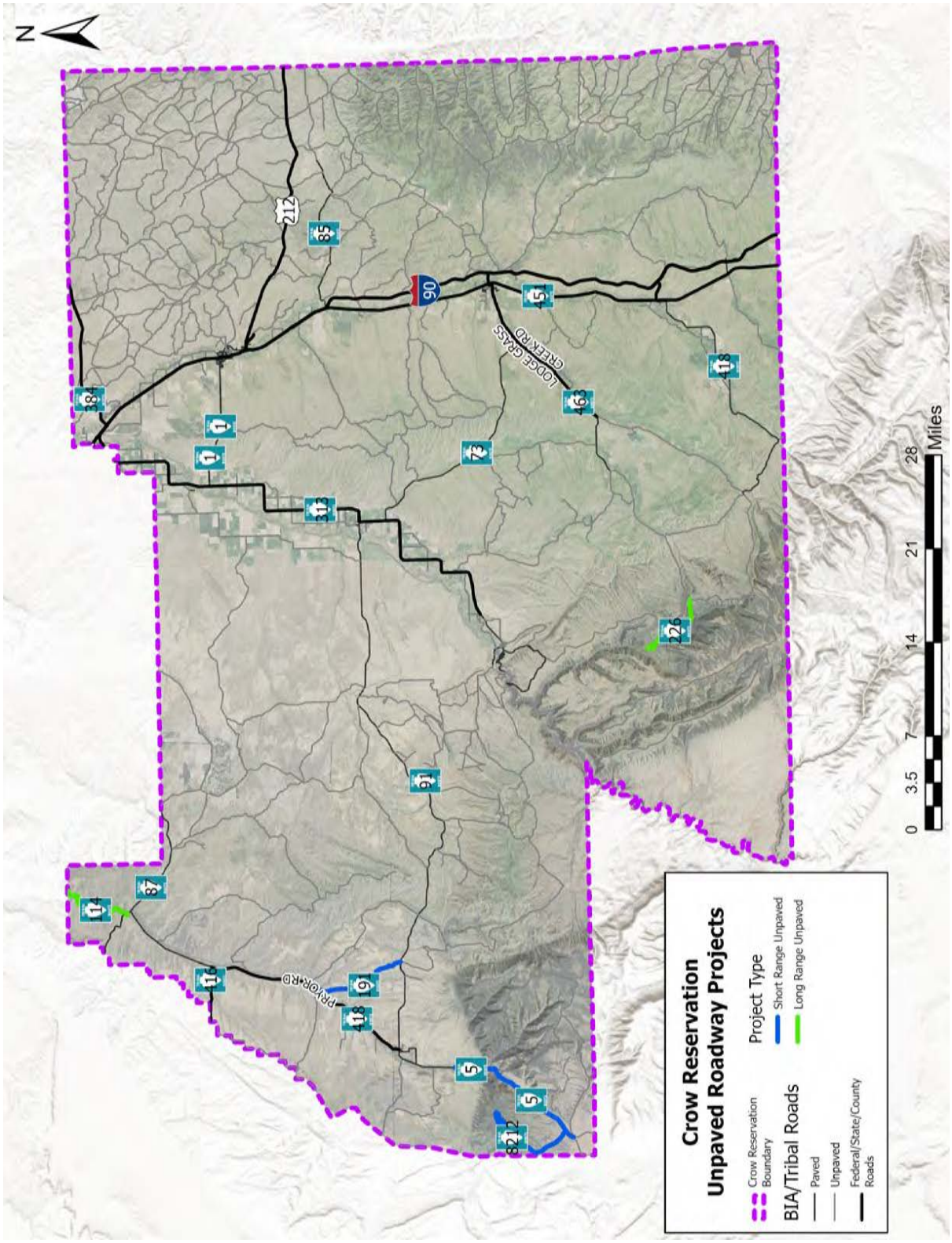
Other issues include gravel roads in narrow mountainous areas being subject to riverine and other types of erosion. Ditch improvements and culvert jetting should be considered along roadways where drainage issues exist.

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.

Non-Paved Road Project Priorities

Planning for Crow Reservation gravel and earthen road project improvements are in various stages of identification, planning, design, and construction by the Crow Indian Tribe Department of Transportation and the BIA. The identified short- and long-range non-paved road priorities include the following projects, depicted graphically in Figure 63 and in Tables 8 and 9, respectively. It is recommended that the appropriate planning, design, entity coordination, and construction be undertaken to advance these improvements as funding allows.

FIGURE 63: SHORT- AND LONG-RANGE GRAVEL/EARTHEN/TRAIL ROAD PROJECTS



– SHORT RANGE GRAVEL/EARTHEN ROAD PROJECTS

Short range projects were identified during the project scoping process of this plan. They will need to be incorporated into the TTIP and cover projects to be completed through the year 2027. A list of the identified short-range gravel surfacing maintenance projects is shown below in Table 8 as well as previously shown graphically in Figure 63.

TABLE 8: SHORT-RANGE GRAVEL/EARTHEN ROAD PROJECTS

Road Name	Location	Surface Type	Length (Miles)	Estimated Cost
BIA 5	From end of paved surface at southern end of BIA 5/Pryor Gap Road to BIA 8212.	Gravel / Earthen / Unimproved Trail	11.4	$245,100.00
BIA 191 / Hay Creek Road	East of Pryor; north south connection between BIA 91 and BIA 4.	Gravel / Earthen / Unimproved Trail	7.6	$163,400.00
BIA 211	South from Pryor on BIA 5 at junction of BIA 211	Earthen / Unimproved Trail	3.3	$70,950.00
BIA 8212	South from Pryor on BIA 5 near junction of BIA 5 and BIA 211	Earthen / Unimproved Trail	9.0	$193,500.00

Short Range Gravel and Earthen Surfacing / Maintenance Project Descriptions

BIA 5 – PRYOR GAP ROAD

This project would begin at the end of pavement/beginning of the gravel segment of BIA 5/Prior Gap Road and continue south to the junction of BIA 8212, which leads to Tribal gravel pit resources. At present time, at roughly the junction of BIA 5 and BIA 210, BIA 5 becomes an unmaintained gravel/earthen trail with turns that would prevent large trucks and/or machinery from easily navigating the roadway, preventing access to a valuable Tribal gravel pit resource along BIA 8212, which BIA 5 provides access to.

Without improvements made to BIA 5, the gravel pit resources are nearly impossible to reach by trucks and/or heavy machinery such as road graders, rendering the gravel pit resources unreachable. Advised improvements to the roadway would be a full gravel road improvement, making turns and current impassable conditions, accessible to heavy machinery, in order to utilize the gravel pit resources which are highly valuable from a Tribal financial standpoint for road maintenance and road construction endeavors.

The estimated cost for this project is $TBD.

Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

BIA 191 – HAY CREEK ROAD (EAST OF PRYOR)

Located east of Pryor off of BIA 91, BIA 191/Hay Creek road is currently an earthen/gravel unimproved road which runs mostly north and south, providing a connection between BIA 91 and BIA 4. Tribal law enforcement has reported that this road has been the site of numerous recent high-speed pursuits, so improvements to the road are needed to improve travel safety. At a minimum, Tribal intent is to improve the roadway as a fully graded improved, gravel roadway.

The estimated cost for this project is $TBD.

Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

BIA 211

Due to the current condition of BIA 5 as it deteriorates from a paved road to gravel road to unimproved earthen roadway leading to the junction at BIA 8212 and BIA 211, BIA 211 could not be accessed to be scoped for the purposes of this LRTP. KLJ recommends that Tribal Transportation Department members attempt to access the roadway and report its current conditions for assessment to be able to make improvement recommendations for an upgrade to a passable gravel road.

The estimated cost for this project is unknown at present time, but estimates could be given based on linear mileage for a typical gravel road improvement project.

Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

BIA 8212

Similarly, to the impassable conditions along BIA 5 and BIA 211, BIA 8212 could not be accessed to be scoped for the purposes of this LRTP. BIA 8212 leads to gravel pit resources that are valuable to the Crow Tribe for road maintenance and construction purposes. KLJ recommends that Tribal Transportation Department members attempt to access the roadway and report its current conditions for assessment to be able to make improvement recommendations for an upgrade to a passable gravel road.

The estimated cost for this project is unknown at present time, but estimates could be given based on linear mileage for a typical gravel road improvement project.

Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

– LONG RANGE GRAVEL/EARTHEN ROAD PROJECTS

Long range unpaved gravel or earthen road projects are listed in Table 9 below, as well as previously shown graphically in Figure 63 and will be identified and prioritized in a multi-year maintenance program to be contracted beginning in 2028. Like the long-range pavement projects, the unpaved gravel road 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. Maintenance along some of these roads might also be managed by applicable private business enterprises, where feasible/applicable.

TABLE 9: LONG RANGE GRAVEL/EARTHEN ROAD PROJECTS

Road Name	Location	Surface Type	Length (Miles)	Estimated Cost
BIA 192 (Fort Smith - ROW Issues)	BIA 192 (Grapevine Rd. ROW Issues. Located west from Fort Smith (Determine a reasonable project limit from BIA 7544/Dam Road for gravel reclamation and/or new pavement project of existing gravel road)	Gravel / Earthen	2.0	$43,000.00
BIA 114	Northwest corner of Crow Reservation, extending south from I-90.	Gravel	2.1	$45,100.00
BIA 226	South of BIA 313, along BIA 235 at the junction of BIA 235 and BIA 8002.	Gravel	6.7	$144,050.00

Long Range Gravel and Earthen Surfacing / Maintenance Project Descriptions

BIA 192 (FORT SMITH - ROW ISSUES)

For BIA 192, there may be ROW Issues heading west from Fort Smith. A reasonable project limit from BIA 7544/Dam Road needs to be determined.

The estimated cost for this project is unknown at present time, but estimates could be given based on linear mileage for a typical gravel road improvement project.

Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

BIA 114

Currently an improved gravel road in good condition, but with several sensitive private landowners along the route. There is Tribal discussion of this being a potential Casino location, approximately two miles south from Interstate 90. However, the bridge on BIA 114 has failed inspection. Potential future improvements could include bridge reconstruction and/or pavement in the long-term. As is, the road is currently in good, maintained condition as a gravel road.

The estimated cost for this project is:
Road: $TBD
Bridge: $TBD
Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

BIA 226

BIA 226 is located in the south-central region of the Crow Reservation, south from BIA 313, then south along BIA 235, it is accessed at the junction of BIA 235 and BIA 8002. BIA 226 provides access to Crow Tribal youth camps and buffalo pasture and sanctuary towards the end of the route. Additionally, BIA/Tribal bridge C219 is located along the route, which needs assessment and likely improvements to provide reliable access, to be determined once the bridge has been rigorously evaluated. Due to the current conditions of BIA 235 and BIA 226 as unimproved earthen trail, the route could not be safely accessed during this LRTP project scoping. KLJ recommends that Tribal Transportation Department members attempt to access the roadway and report its current conditions for assessment to be able to make improvement recommendations for an upgrade to a passable gravel road and/or bridge improvements to C219.

The estimated cost for this project is unknown at present time, but estimates could be given based on linear mileage for a typical gravel road improvement project.

Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

FREIGHT: TRUCKING & RAIL

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 and rail are two means of freight movement within the Reservation. However, freight rail transportation only passes through the Reservation along the I-90 corridor and there are no Reservation based freight rail stations or depots. Rail Crossings are denoted graphically in Chapter 5 in Figure 32. There are no air freight facilities present within the Reservation. See Chapter 3 for an inventory of existing and projected 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 Crow Indian 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 AND CULVERTS

EXISTING CONDITIONS



2022 RIFDS data shows a total 68 Bridges present on the Crow Reservation. Of the total bridges present, 39 bridges are identified on the BIA (33) or Tribal (6) Road systems on the Reservation. There is an additional total of four (4) State and 25 County/Township owned bridges on the Reservation.

An inventory of existing bridges with ownership and bridge length are shown in Table 10 and Table 11. Maps showing locations of bridges and culverts are shown in Figure 64.

**All Bridge information was compiled from RIFDS data export, manual search of bridge photos in RIFDS, and searching Google Earth by latitude and longitude coordinates. When the Google Earth road name contradicted the RIFDS information, the RIFDS assigned road name was kept.*

TABLE 10: BIA/TRIBAL BRIDGE INVENTORY

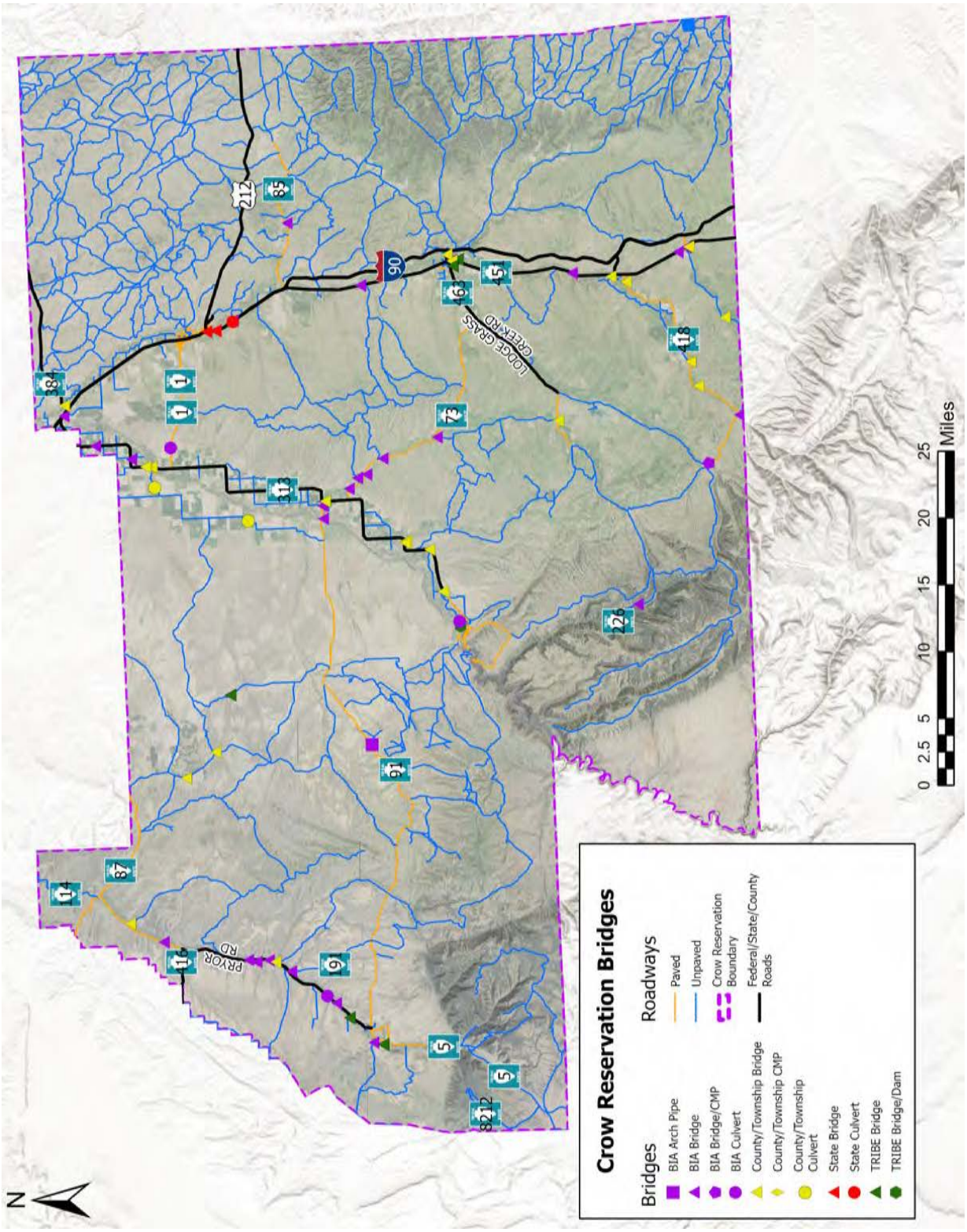
Bridge ID	Facility Carried	Features Intersected	Ownership	Length (ft)	Bridge or Culvert
A001	PRYOR - ST XAVIER ROAD	Water	BIA	33	(3) Arch Pipes
A006	9004	Water	BIA	22	(3) Box Culvert
A007	RENO CREEK ROAD	Water	BIA	40	Bridge
A017	Route 87	Water	BIA	137	Bridge
A018	Route 87	Water	BIA	64	Bridge
A019	Route 87	Water	BIA	122	Bridge
A020	Route 87	Water	BIA	69	Bridge
A021	Route 87	Water	BIA	69	Bridge
A026	TEN BEAR ROAD	Water	BIA	60	Bridge
A027	TEN BEAR ROAD	Water	BIA	40	Bridge
A028	MOUNTAIN CROW ROAD	Water	BIA	533	Bridge
C202	WHISTLING WATER LANE	Water	BIA	20	Bridge
C203	AAKE ROAD	Lodge Grass Creek	BIA	60	Bridge
C207	PRYOR - ST XAVIER ROAD	Water	BIA	67	Bridge
C208	PRYOR - ST XAVIER ROAD	Water	BIA	527	Bridge

Bridge ID	Facility Carried	Features Intersected	Ownership	Length (ft)	Bridge or Culvert
C211	EASR FORK PRYOR CREEK ROAD	Water	BIA	52	Bridge
C217	ST XAVIER - LODGEGRASS ROAD	Water	BIA	63	Bridge
C218	ST XAVIER - LODGEGRASS ROAD	Water	BIA	69	Bridge
C219	YOUTH CAMP ROAD	Water	BIA	21	Bridge
C220	GOODLUCK ROAD	Water	BIA	79	Bridge
C221	ST XAVIER - LODGEGRASS ROAD	Water	BIA	48	Bridge
C222	LITTLE HORN ROAD	Water	BIA	61	Bridge
C223	LITTLE HORN ROAD	Water	BIA	22	LG CMP/Bridge
C224	PRYOR CREEK RANCH ROAD	-	BIA	47	-
C225	EDGAR ROAD	Water	BIA	80	Bridge
C227	ST XAVIER CUTACROSS	Big Horn Canal	BIA	28	(2) Box Culvert
C232	PRYOR CREEK ROAD	Water	BIA	44	Bridge
C233	PRYOR CREEK ROAD	Water	BIA	90	Bridge
C235	PRYOR CREEK ROAD	Water	BIA	58	Bridge
C236	PRYOR CREEK ROAD	Water	BIA	25	(2) Box Culvert
C237	PRYOR CREEK ROAD	Water	BIA	90	Bridge
C238	PRYOR CREEK ROAD	Water	BIA	102	Bridge
C302	RODEO DRIVE	Lodge Grass Creek	TRIBE	65	Bridge
C904	3105	water	TRIBE	36	Bridge
CT300	WESTWOOD LANE	Grey Blanket Creek	TRIBE	94	Bridge
CT320	AFTER BAY ROAD	Big Horn River	TRIBE	240	Bridge/Dam
CT350	SUNDANCE ROAD	Pryor Creek	TRIBE	20	Bridge
CT351	PLAIN BULL ROAD	Pryor Creek	TRIBE	18	Bridge
H007	SHOULDER BLADE CREEK	Water	BIA	32	Bridge

TABLE 11: STATE BRIDGE INVENTORY

Bridge ID	Facility Carried	Features Intersected	Ownership	Length	Bridge or Culvert
*203	LODGE GRASS CREEK ROAD	Water	County/Township	102	Bridge
A004	WARMAN LOOP	Water	County/Township	44	Bridge
A008	7004	Water	County/Township	24	Bridge
A009	7004	Water	County/Township	60	Bridge
A010	7007	Water	County/Township	93	(5) CMP Culverts
A011	7007	Water	County/Township	28	(2) CMP Culverts
A012	7006	Water	County/Township	88	Bridge
A013	LODGE GRASS CREEK ROAD	Water	County/Township	103	Bridge
A014	LITTLE HORN ROAD	Water	County/Township	103	Bridge
A015	LITTLE HORN ROAD	Water	County/Township	94	Bridge
A016	LITTLE HORN ROAD	Water	County/Township	104	Bridge
A022	US HIGHWAY 212	I-90	State	200	bridge
A025	SARPY ROAD	Water	County/Township	184	Bridge
A050	SOAP CREEK ROAD	Water	County/Township	55	Bridge
C200	7546	Water	County/Township	34	Bridge
C900	3002	Water	County/Township	39	Bridge
C901	3101	Water	County/Township	80	Bridge
C902	3101	Water	County/Township	41	Bridge
C905	3104	Water	County/Township	44	Bridge
CT301	BAPTIST CHURCH ROAD	Lodge Grass Creek	County/Township	60	Bridge
H001	MT SECONDARY 313	Water	County/Township	65	Bridge
H002	MT SECONDARY 313	Water	County/Township	101	Bridge
H003	MT SECONDARY 313	Water	County/Township	58	Bridge
H004	MT SECONDARY 313	Water	County/Township	574	Bridge
H005	MT SECONDARY 313	Water	County/Township	28	(2) CMP
H006	MT SECONDARY 313	Water	County/Township	70	Bridge
L000+01	I-90 FRONTAGE ROAD EAST	Water	State	50	Bridge
L000+02	I-90 FRONTAGE ROAD EAST	Water	State	180	Bridge
L000+03	I-90 FRONTAGE ROAD EAST	Water	State	170	(3) Round Culverts

FIGURE 64: CROW RESERVATION BRIDGES



RECOMMENDATIONS

At the time of this LRTP report, an updated bridge conditions report has not been conducted. What is known is that Crow Reservation bridges run the full spectrum from failing/poor to good/excellent condition. It is recommended that Crow Tribal Transportation staff complete inspections of all bridges, beginning with bridges known to be the worst conditions and/or those which are key bridges on primary/essential travel routes. Regular inspections and maintenance are recommended to keep these bridges in good operating condition. It is recommended that the following activities be conducted for existing bridges:

- Conditions Ratings (Request from BIA)
- Project Identifications
- Bridge Funding Grant Applications

Although the Tribe has no maintenance responsibilities for the County and State-owned bridges and culverts on the Reservation, it is further recommended that the Tribe coordinate with state and county representatives on any needs that are identified in the future. In addition, culvert cleaning and replacement is recommended as needed to provide good drainage in residential areas. This may also require coordination between the Tribe and relevant jurisdiction.

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 the health and safety for many Tribal travelers. Sidewalks and shared use paths differ with sidewalks typically about 5 feet wide and are designed to manage pedestrian traffic only.

Typically, shared use paths are 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.

An inventory of existing sidewalks and shared use paths was completed using aerial imagery in conjunction with input from the Crow Indian Tribe. Many rural areas of the Reservation have no sidewalks or shared use paths, even in areas with rural subdivisions and schools.

Most sidewalks and/or shared use paths are in and around the town of Crow Agency, with less extensive sidewalk facilities in the towns of Lodge Grass, Wyola, St. Xavier, Fort Smith, and Pryor. Sidewalks exist throughout each Tribal town. Total linear feet for existing Reservation sidewalks are approximately 79,179 linear feet (15 miles). An additional 7,598 linear feet (1.44 miles) of multi-use use paths is proposed, bringing the Reservation total to 86,777 linear feet (16.44 miles). A graphic map inventory of existing Reservation sidewalks/shared use paths can be seen in Figures 65 to 70.

FIGURE 65: CROW AGENCY SIDEWALKS AND PROPOSED MULTI-USE PATHWAYS

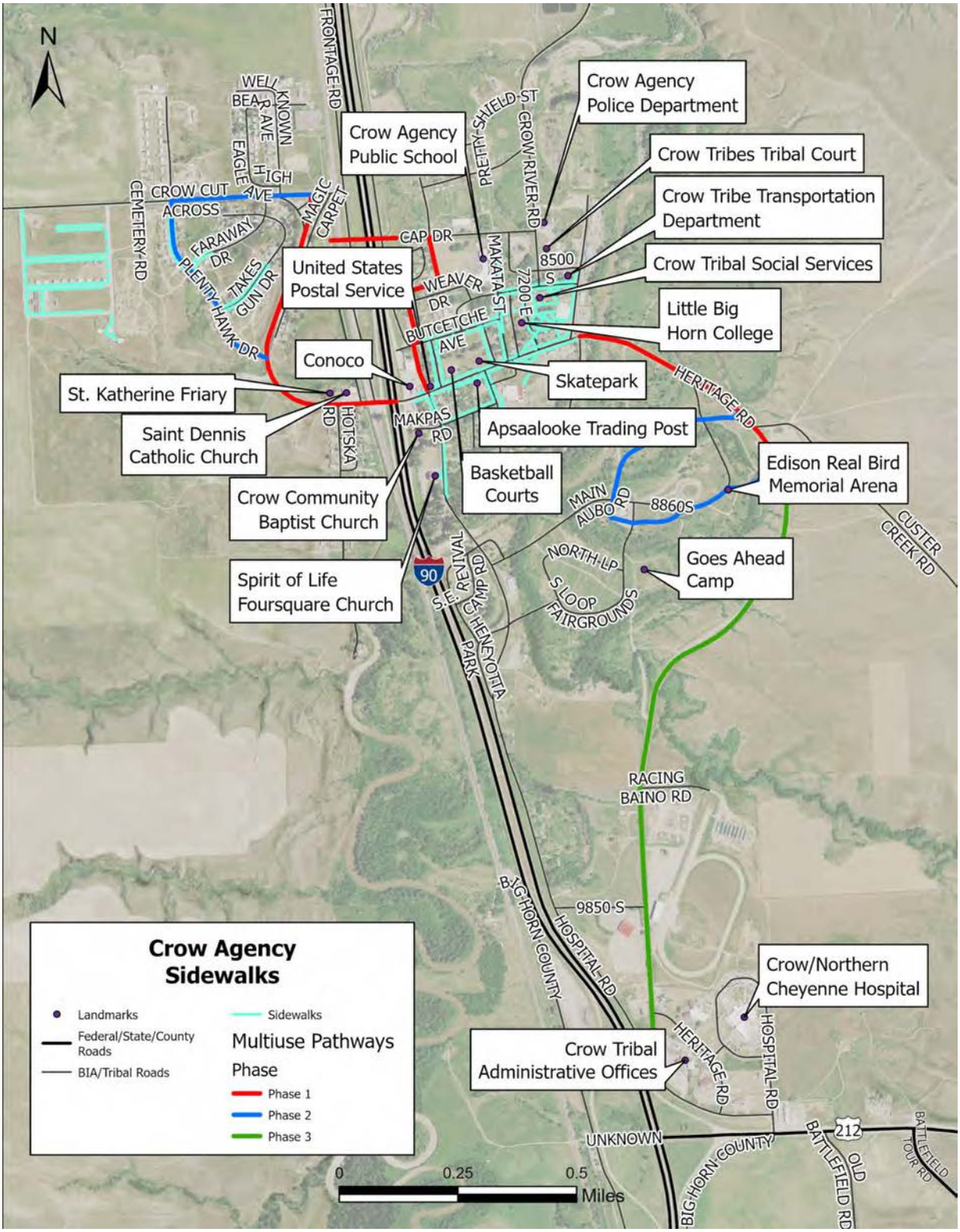


FIGURE 66: LODGE GRASS SIDEWALKS; PROJECTS TBD

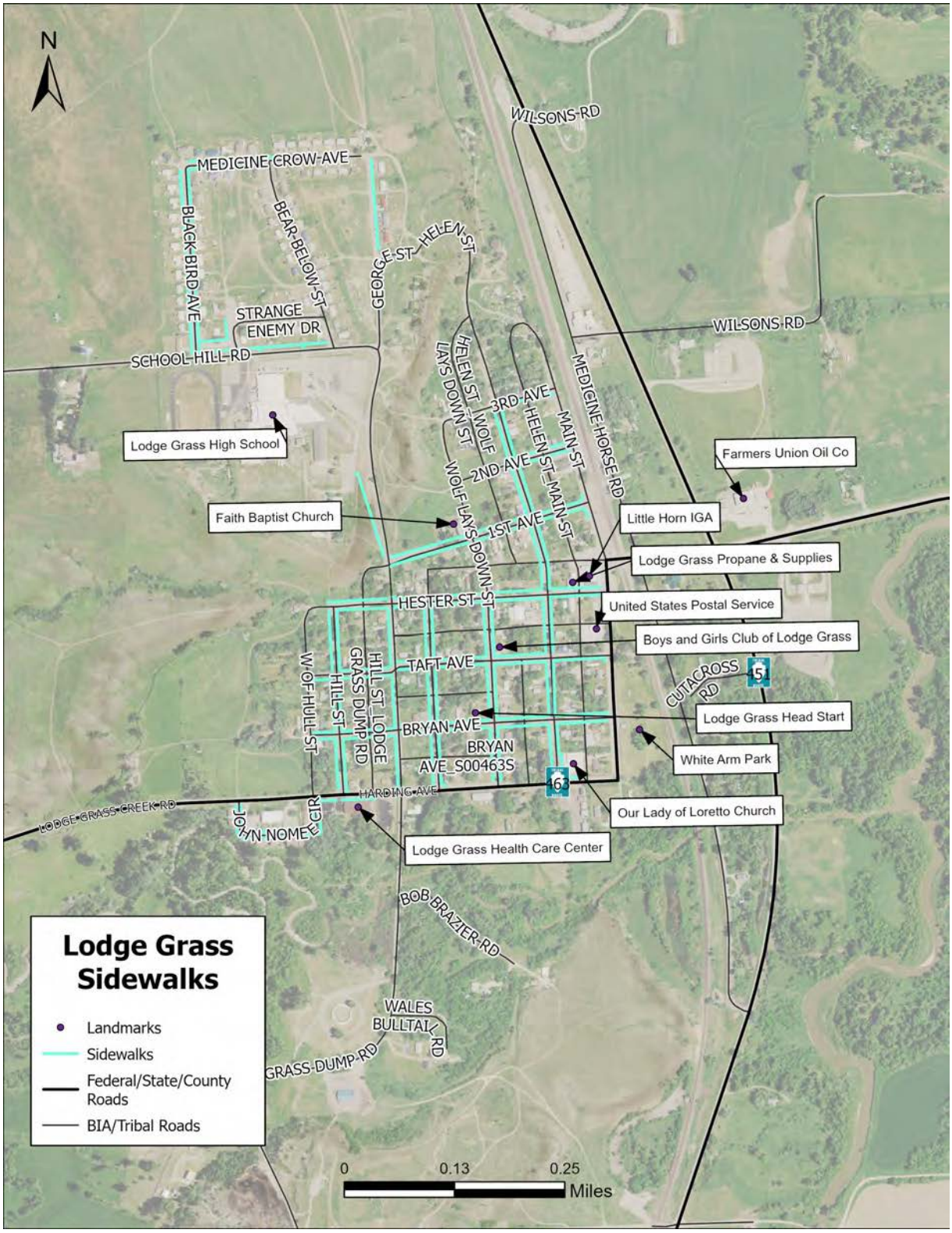


FIGURE 67: WYOLA SIDEWALKS; PROJECTS TBD

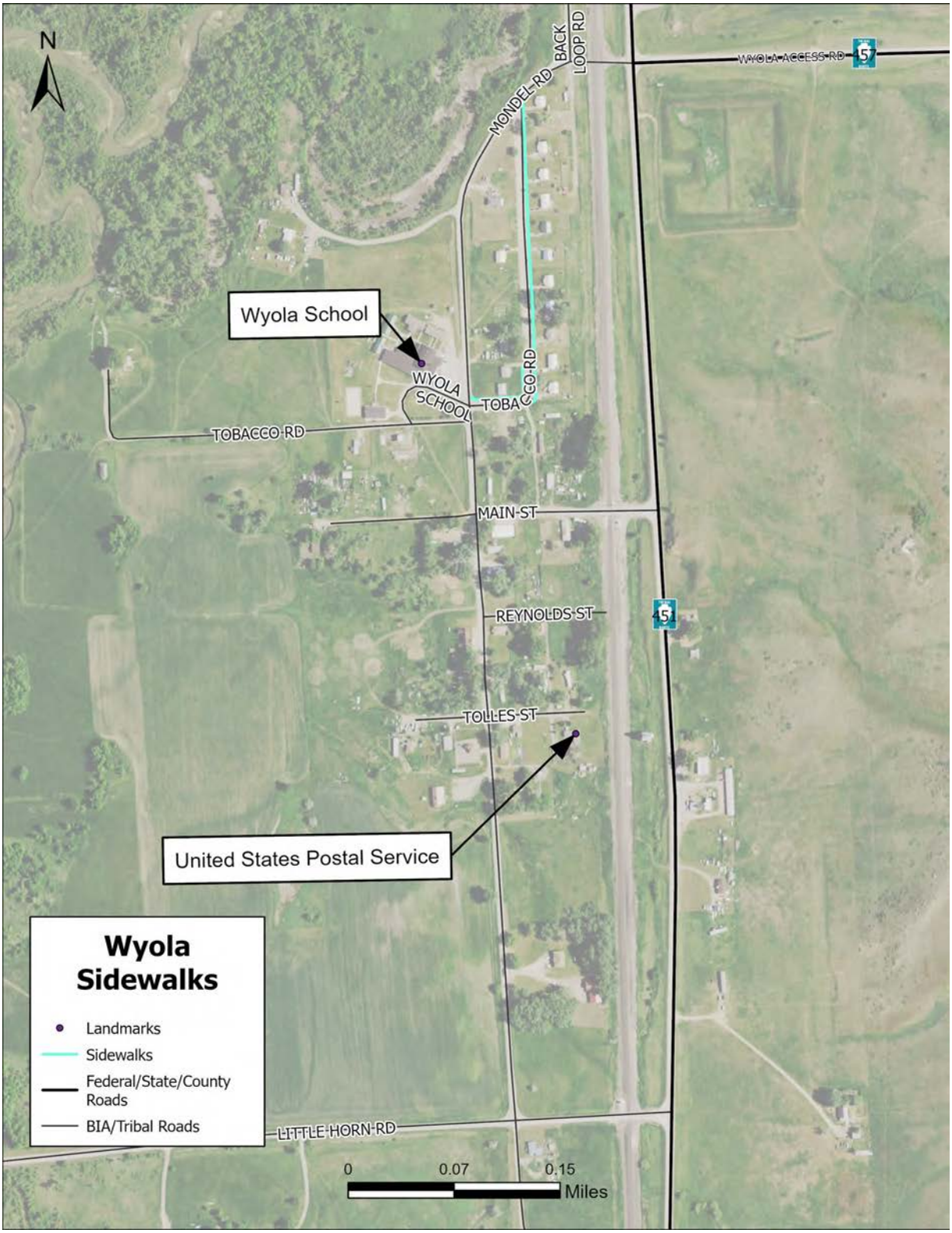


FIGURE 68: FORT SMITH SIDEWALKS; PROJECTS TBD

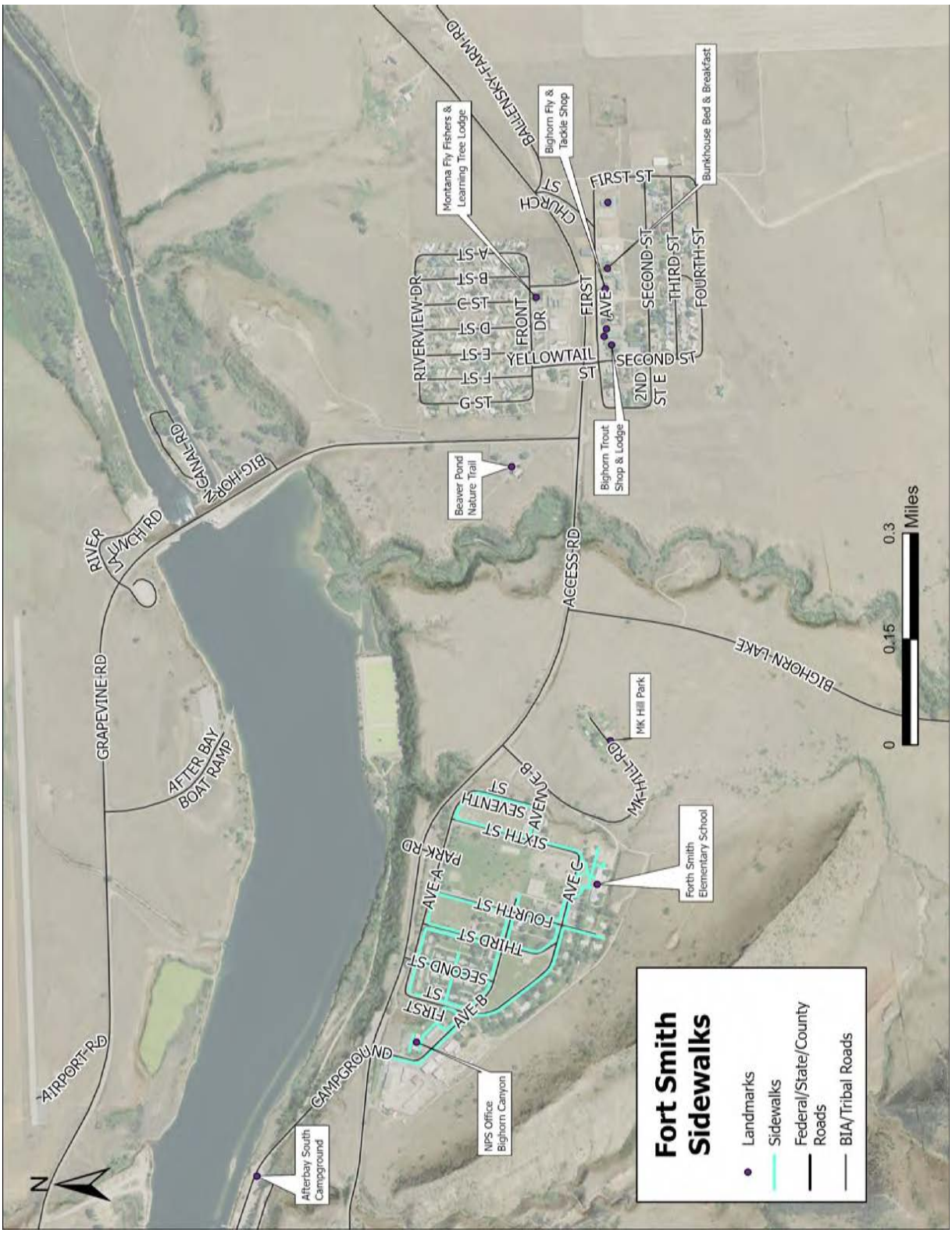


FIGURE 69: ST. XAVIER SIDEWALKS; PROJECTS TBD

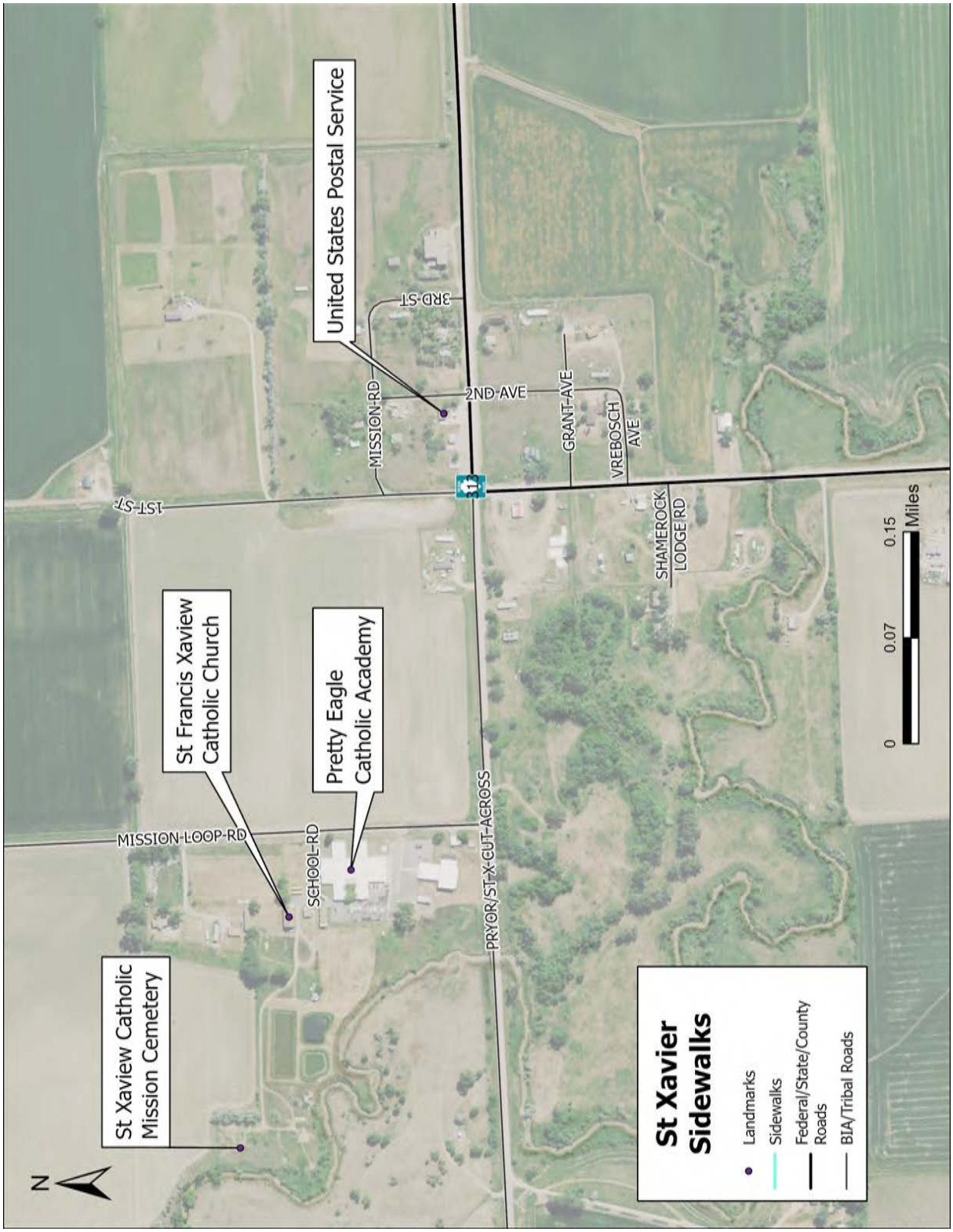
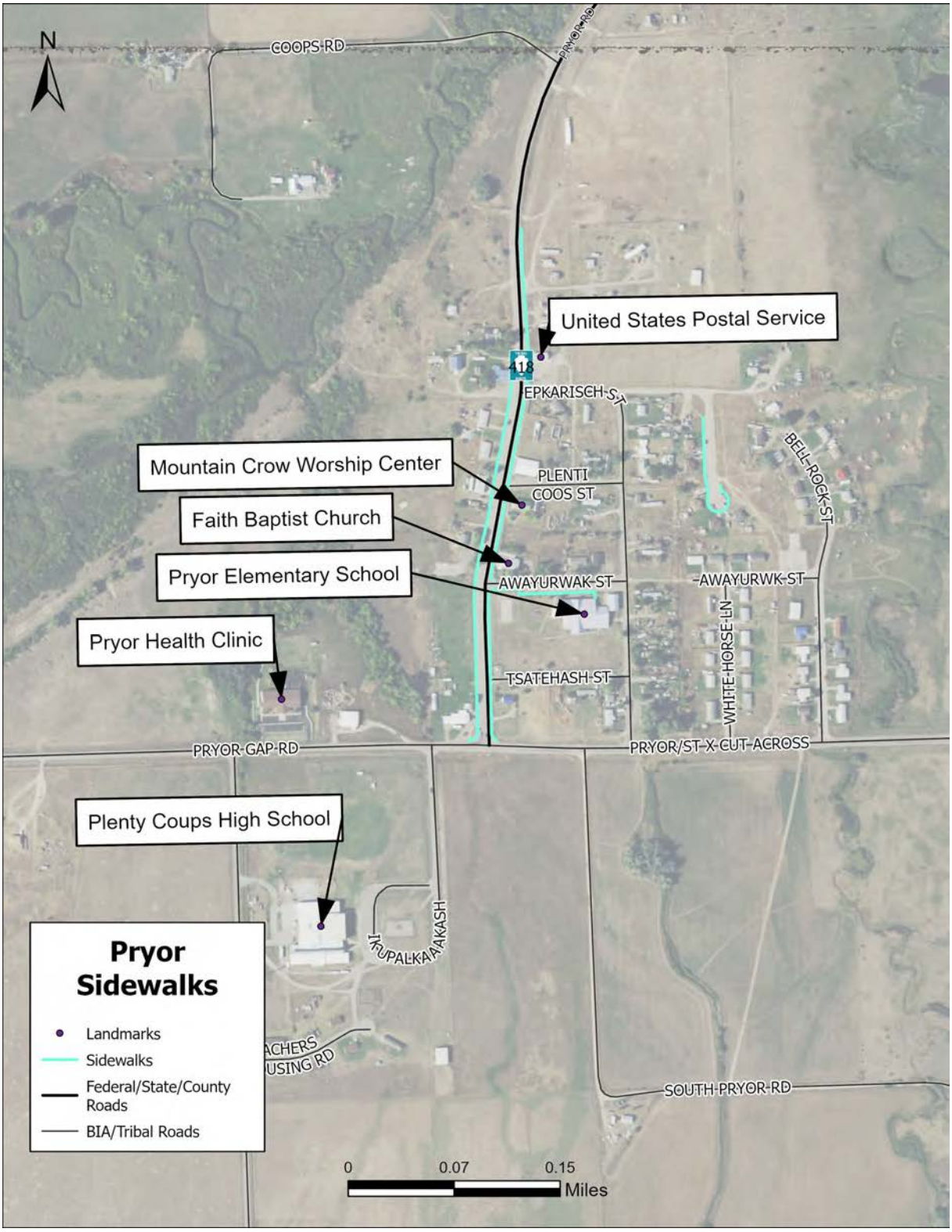


FIGURE 70: PRYOR SIDEWALKS; PROJECTS TBD



RECOMMENDATIONS

Walking and biking is an important mode of transportation for many of the Crow Indian Tribe inhabitants. Some areas, particularly in proximity to Crow Agency, have adequate sidewalk or shared use path facilities. However, 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 serve and connect Crow Indian Tribe subdivisions.
- To connect schools to area housing.
- To create a more complete network in the Crow Agency area.
- Sidewalks were divided into projects and given project ID's so that they can be evaluated based on their subdivision and a logical separation of projects into likely segments. Segments are proposed to be completed in phases.

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 improves 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 Crow Indian Tribe provide bike racks and benches in high activity locations when funding is available.

In general, the Crow Indian Tribe should work to maintain existing sidewalks which have become overgrown with vegetation. Several sidewalks in and around Crow Agency and other Crow Indian Tribe community subdivisions have trees and shrubs blocking the way. Whenever possible, the Tribe can collaborate with homeowners to replace trees which have overtaken sidewalks with new plantings in residents' yards.

– SHORT- AND LONG-RANGE SIDEWALK AND MULTI-USE PATH PROJECTS

The Tribe has identified specific need for pathways. There are six short- and long-range shared use path projects that have been identified as priority projects in the current 2022 TTSP. The project locations currently identified for new sidewalks and multiuse pathways are all within Crow Agency and include the following:

- Pow Wow/Fair Grounds
- Pedestrian Rail Crossing along Makawasha Avenue at I-90
- I-90 Pedestrian Structure at CAP Drive
- Pathway along BIA 1 to Plenty Hawk Drive
- Pathway from Makawasha Avenue along Bala Street heading north and ending at CAP Drive
- Crow agency sidewalks to Head Start

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.

– SHORT RANGE PROJECTS

The top priority short-range projects identified in the 2022 TTSP are shown in Table 12 along with the estimated project's length and associated costs for each project. Several projects are proposed to be completed in multiple phases, also noted in Table 12 (and Table 13 – long-range projects).

TABLE 12: SHORT RANGE SIDEWALK/MULTIUSE PATH PROJECTS

Crow Agency: Subdivision or Geographic Area	Project ID	Phase	Linear Feet	Estimated Project Cost
Pedestrian Railroad Crossing	1	NA	585	$180,000
Pow Wow Ground Multi-Use Pathway	2	I	2,587	$785,000
I-90 Pedestrian Structure	3	NA	690	$5,500,000
BIA 1 To Plenty Hawk Drive	4	I	2,851	$865,000
Walking Pathway (Bala St.)	5	NA	885	$300,000
Head Start Pathway Project	6	I	1,560	$216,523.43
Total			7,598	7,846,523.43

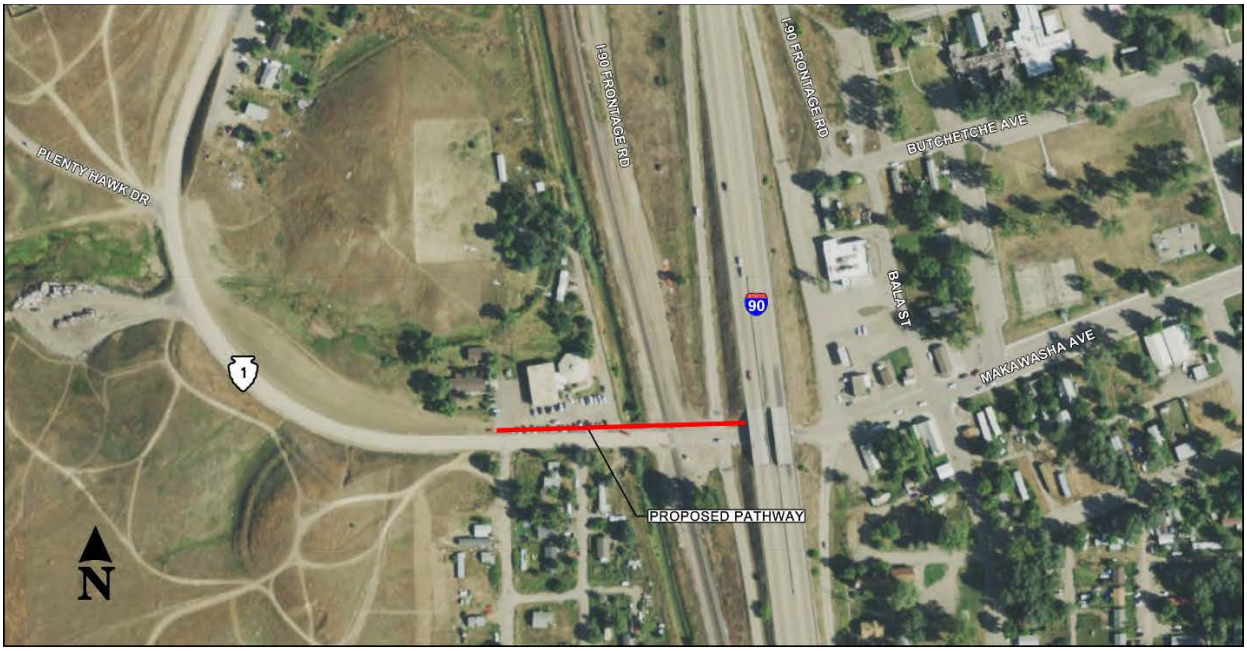
Short Range Project Descriptions

PROJECT ID 1 - CROW AGENCY PEDESTRIAN RAILROAD CROSSING MULTI-USE PATHWAY
This multi-use pathway within Crow Agency would provide for a pedestrian connection from the tribal housing that is west of the interstate and Burlington Northern Rail line to Makawasha Avenue in downtown Crow Agency. Currently pedestrians have to use the narrow roadway to cross the rail tracks and under the interstate structures or use the ditch area and cross the rails and ties. This multi-use pathway connection to the proposed BIA 1 multi-use pathway would be 10-feet wide and could include pedestrian lighting depending on the available funding. The approximate length of the multi-use pathway would be 585-feet. The approximate project construction cost for the multi-use pathway and pedestrian lighting are shown below:

- Multi-Use Pathway: $145,000.00
- Pedestrian Lighting: $35,000.00
- Construction Total: $180,000.00

Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

FIGURE 71: PROPOSED LOCATION - CROW AGENCY PEDESTRIAN RAILROAD CROSSING MULTI-USE PATHWAY



PROJECT ID 2 - POW WOW GROUND MULTI-USE PATHWAY (PHASE I)

This multi-use pathway would start at the east end of Makawasha Avenue in Crow Agency and run to the south along the Pow Wow Grounds and the fair grounds that are used during the Crow Fair. The pathway would also include a loop connection within the Pow Wow grounds and a connection to services at the I-90, US Highway 212 Junction. The multi-use pathway would be 10-feet wide and constructed in multiple phases and could include pedestrian lighting depending on the available funding.

Phase I (shown in red in Figure 72) would begin at Makawasha Avenue and head south along Heritage Road towards the Pow Wow Ground where it would terminate at the south end of the proposed Phase II loop of the multi-use pathway within the Pow Wow Ground. The approximate length of Phase I of the project would be 0.49-miles and could include pedestrian lighting depending on the available funding. The approximate project construction cost for the multi-use pathway and pedestrian lighting are shown below:

- Phase I Multi-Use Pathway: $635,000.00
- Phase I Pedestrian Lighting: $150,000.00
- Phase I Construction Total: $785,000.00

FIGURE 72: POW WOW GROUND MULTI-USE PATHWAY (PHASE I)

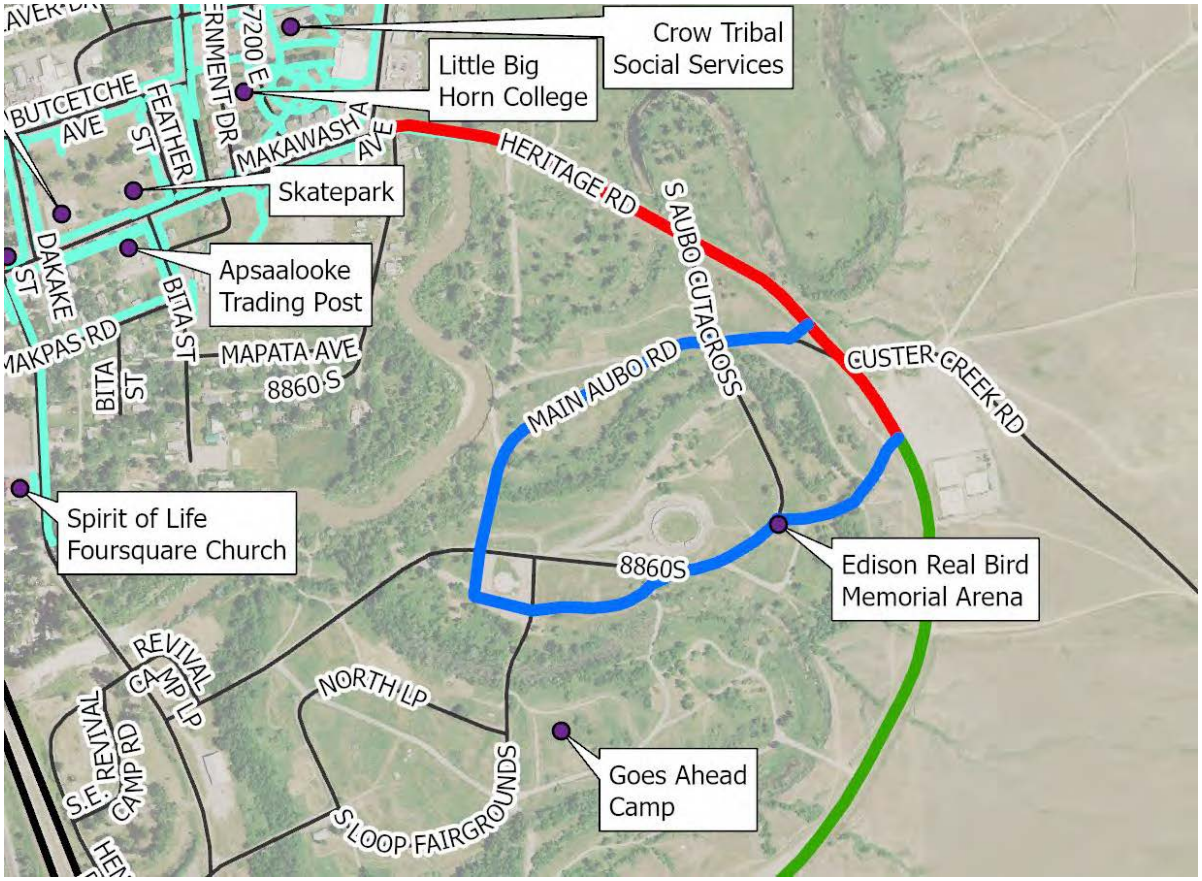


FIGURE 73: PEDESTRIAN OVERPASS STRUCTURE EXAMPLE[4]



PROJECT ID 3 - I-90 PEDESTRIAN STRUCTURE

The only crossing of I-90 for bicyclists and pedestrians is at the Crow Agency Interchange, which itself does not include any sidewalk or other facilities west of the I-90 ramps. The large Tribal housing developments and Tribal facilities located to the north of this on both sides of I-90, have resulted in pedestrians crossing the interstate at grade at unauthorized locations. There is a need for a grade separated structure to meet this need and provide safe crossing of the interstate.

The proposed location for the I-90 Pedestrian Structure would begin on Cap Drive east of the interstate in Crow Agency and head west perpendicular to I-90 where it would terminate on the west side of I-90. The approximate length of the structure would be 680-feet to span the complete length of the interstate.

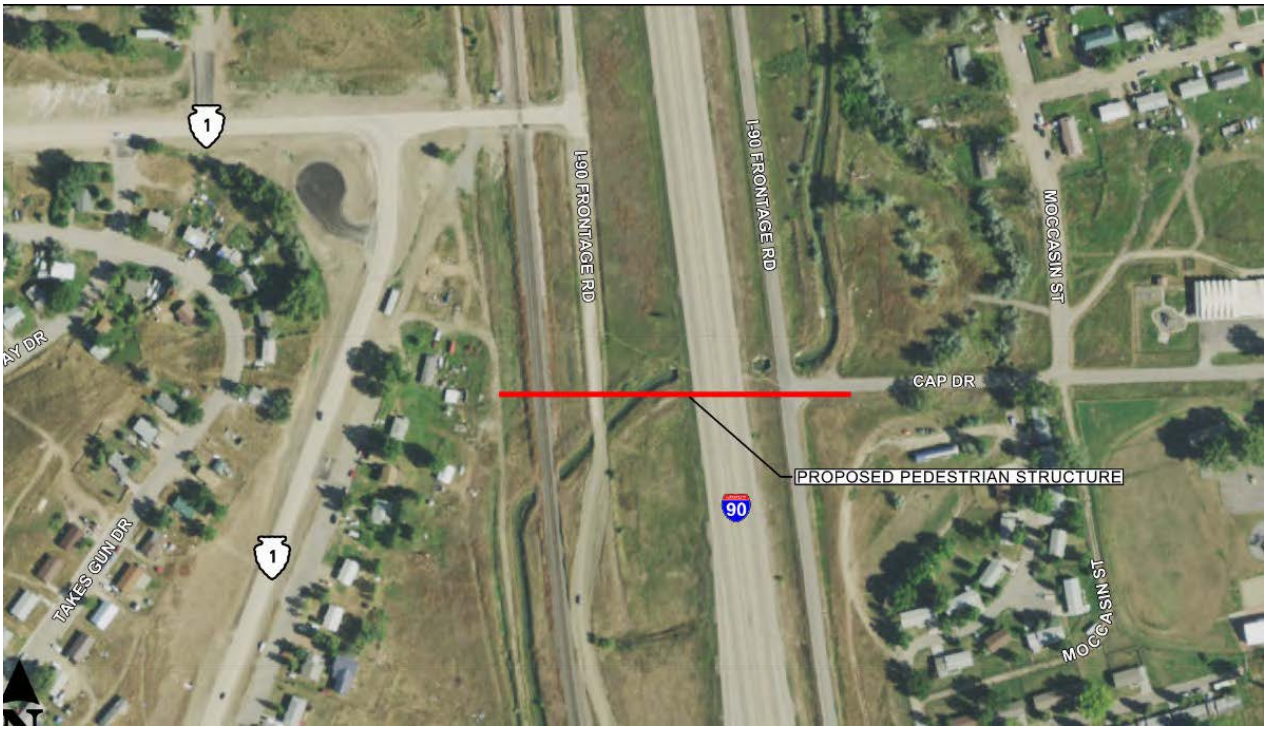
- Based on the cost of other similar structures in Western Montana, construction of this grade separated pedestrian structure would cost approximately $5,500,000.00.

Strategy Champion: Crow Tribal Transportation Program

Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

[4] https://www.aisc.org/globalassets/modern-steel/archives/2012/12/2012v12_welcoming.pdf

FIGURE 74: PROPOSED LOCATION FOR I-90 PEDESTRIAN STRUCTURE



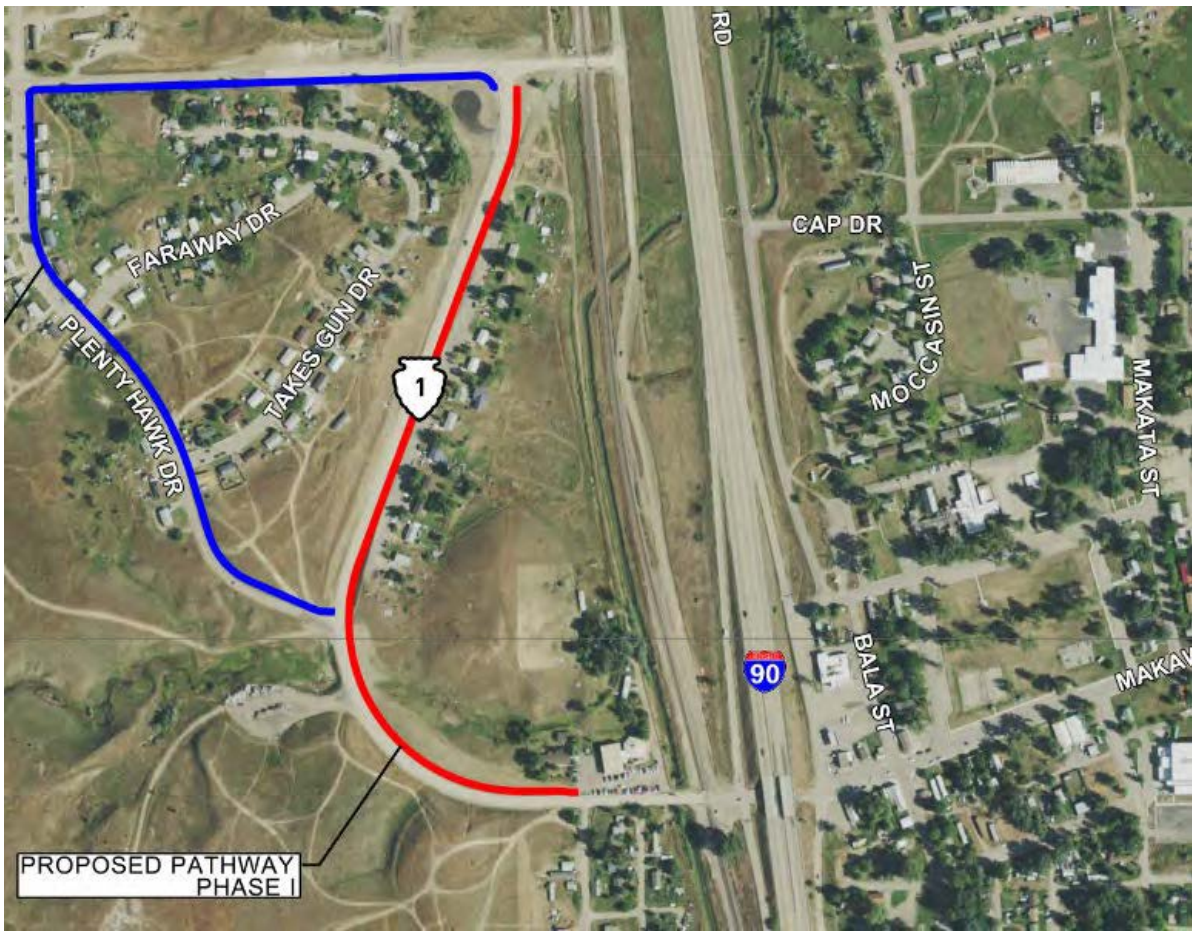
PROJECT ID 4 - BIA 1 TO PLENTY HAWK DRIVE MULTI-USE PATHWAY (PHASE I)
The multi-use pathway is located west of Crow Agency and would be constructed in two different phases and would be 10-feet wide. Phase I would begin at the end of the proposed Crow Agency Railroad Crossing Multi-Use Pathway and follow along BIA 1 heading west before transitioning north where it would terminate at the newly reconstructed T-Intersection of BIA 1. The approximate length for **Phase I** of the multi-use pathway would be 0.54-miles and could include pedestrian lighting depending on the available funding.

BIA 1 to Plenty Hawk Drive Multi-Use Pathway would provide for a safe pedestrian and bicyclist access from the multiple Tribal Housing subdivisions to facilities and businesses in Crow Agency. The approximate project construction cost for Phase I of the multi-use pathway and pedestrian lighting are shown below:

Phase I

- Multi-Use Pathway: $700,000.00
- Pedestrian Lighting: $165,000.00
- Construction Total: $865,000.00

FIGURE 75: PROPOSED LOCATION FOR BIA 1 TO PLENTY HAWK DRIVE MULTI-USE PATHWAY (PHASE I)



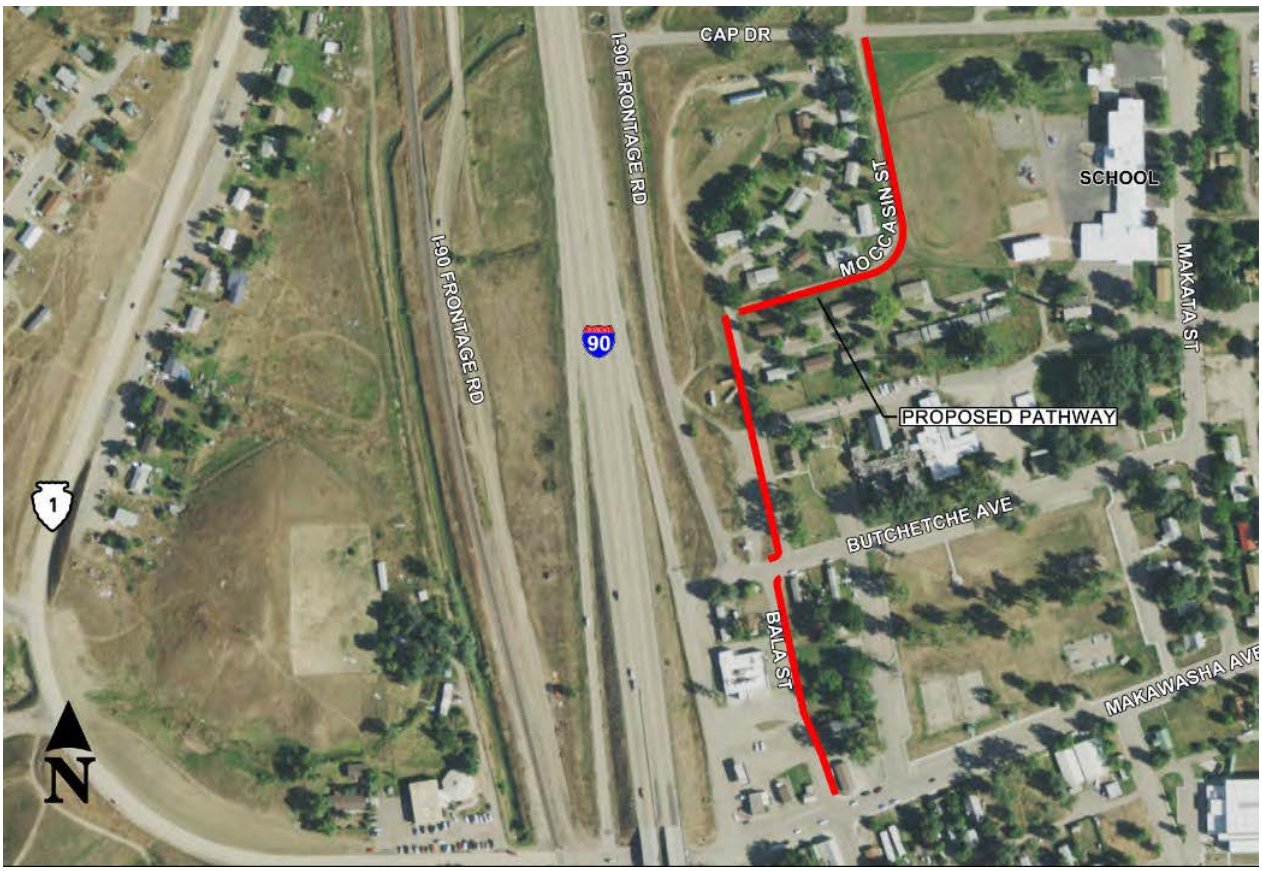
PROJECT ID 5 - CROW AGENCY MULTI-USE WALKING PATHWAY

This walking pathway within Crow Agency would provide for a pedestrian connection from the main road, Makawasha Avenue to tribal housing located to the north. The walking pathway would begin at the intersection of Makawasha Avenue and Bala Street and head north to the intersection of Bala Street and Moccasin Street. It would then head east before transitioning back north, providing access to the school in Crow Agency, where it would terminate at the intersection of Cap Drive and Moccasin Steet. There is currently limited pedestrian access along Bala Street, however much of the existing sidewalk is deteriorating and is not ADA accessible. This walking pathway would be 5-feet wide, and a total length of 885-feet. The design was completed in October 2020.

- The estimated construction cost for this project is approximately $300,000.00.

Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

FIGURE 76: PROPOSED LOCATION FOR CROW AGENCY MULTI-USE WALKING PATHWAY



PROJECT ID 6 - CROW AGENCY HEAD START PATHWAY PROJECT

To better connect residents and improve pedestrian safety to and from the Crow Agency Head Start building located on Butchetche Avenue, the project will add approximately 1,560 ft. of standard 8 ft. wide multi-use pathway segments along the north side of Butchetche Avenue and the West side of Crow River Road (County Road 13A) running south and terminating at South Weaver Drive/Weaver Street, where connection is made via new crosswalk to the existing Crow Agency sidewalk network.

Approximately 30 ft. of standard width 5 ft. sidewalk will be added to close a gap in the existing sidewalk connection from the north side of the Crow Agency School building along 3rd Street, to a new crosswalk connecting to the new pathway leading to the Head Start building. In total, six new crosswalk locations, crossing Butchetche Avenue, River Road, and South Weaver Drive/Weaver Street will be added, complete with new crosswalk markings. Pedestrian signage will include flashing beacons, solar blinker signage, and detectable warning devices. This project has been designed but not yet constructed. Currently, the Crow Tribe has been awarded a $306k grant to construct the project.

- Multi-Use Pathway: $206,000.43
- Pedestrian Lighting: $10,000.00
- Construction Total: $216,523.43

Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

FIGURE 77: CROW AGENCY HEAD START PATHWAY PROJECT



– LONG RANGE PROJECTS

In addition to the short-range projects, there is a need to implement the remaining phases of the prioritized short-range project's phase I segments, as well as assess any additional long-range sidewalk and/or shared use path projects in the remaining Crow Reservation Communities of Dunmore, Garryowen, Lodge Grass, Wyola, St. Xavier, Fort Smith, and Pryor. Additional long-range projects within the greater Crow Indian Reservation should be identified and subsequently

implemented as funding becomes available. Table 13 lists the long-range projects by location, ID number, proposed phase, project length, and estimated costs.

TABLE 13: LONG RANGE SIDEWALK/MULTIUSE PATH PROJECTS

Subdivision or Geographic Area	Project ID	Phase	Linear Feet	Estimated Project Cost
Crow Agency	2	II	4,224	$1,350,000
	2	III	7,181	$2,215,000
	4	II	3,590	$1,089,000
Dunmore	7	TBD	TBD	TBD
Garryowen	8	TBD	TBD	TBD
Lodge Grass	9	TBD	TBD	TBD
Wyola	10	TBD	TBD	TBD
St. Xavier	11	TBD	TBD	TBD
Fort Smith	12	TBD	TBD	TBD
Pryor	13	TBD	TBD	TBD
Total			14,995	$4,654,000

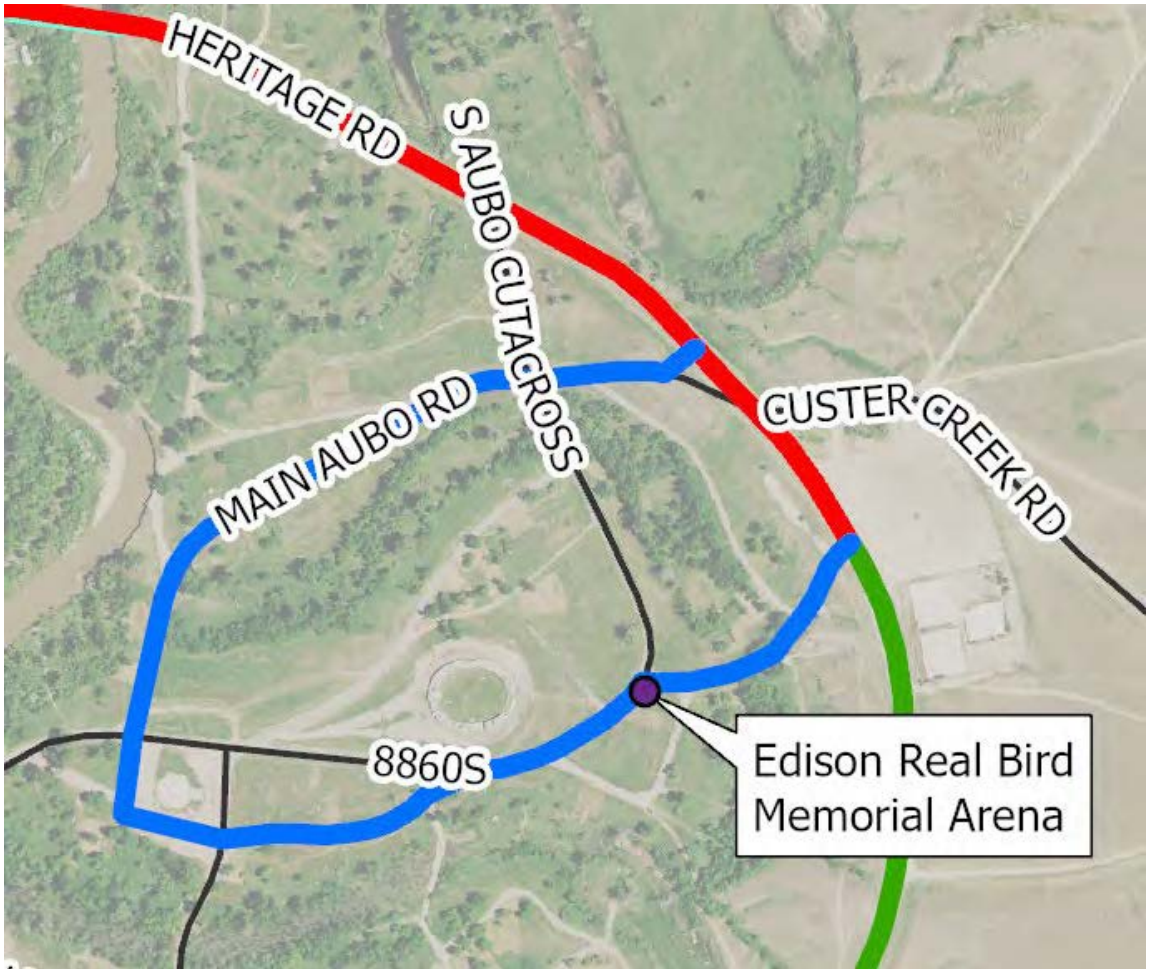
Long Range Project Descriptions

PROJECT ID 2 - POW WOW GROUND MULTI-USE PATHWAY (PHASE II)
Phase II (Shown in blue in Figure 78) of the proposed multi-use pathway would connect the area within the Pow Wow Grounds in a loop back to the proposed Phase I of the proposed multi-use pathway. The approximate length of Phase II of the project would be 0.80-miles and could include pedestrian lighting depending on the available funding. The approximate project construction cost for the multi-use pathway and pedestrian lighting are shown below:

- Phase II Multi-Use Pathway: $1,100,000.00
- Phase II Pedestrian Lighting: $250,000.00
- Phase II Construction Total: $1,350,000.00

Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

FIGURE 78: POW WOW GROUNDS MULTI-USE PATHWAY PHASE II



PROJECT ID 2 - POW WOW GROUND MULTI-USE PATHWAY (PHASE III)

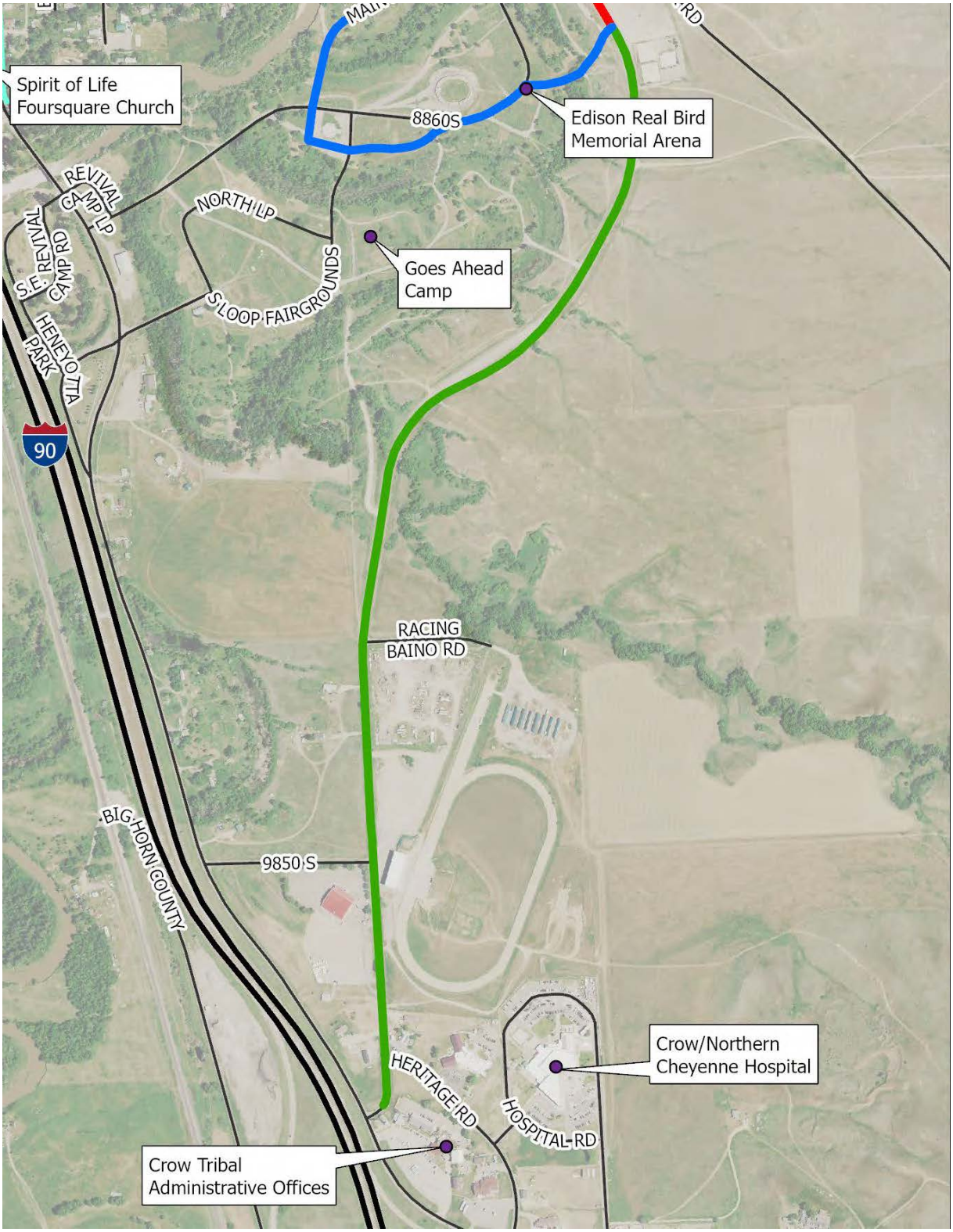
Phase III (shown in green in Figure 79) of the proposed multi-use pathway would continue at the terminus of the proposed Phase I multi-use pathway and continue along Heritage Road heading south to a connection to services at the I-90, including the Hospital in Crow Agency. The approximate length of Phase III of the project would be 1.36-miles and could include pedestrian lighting depending on the available funding. The approximate project construction cost for the multi-use pathway and pedestrian lighting are shown below:

- Phase III Multi-Use Pathway: $1,800,000.00
- Phase III Pedestrian Lighting: $415,000.00
- Phase III Construction Total: $2,215,000.00

Strategy Champion: Crow Tribal Transportation Program

Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

FIGURE 79: POW WOW GROUNDS MULTI-USE PATHWAY PHASE III



PROJECT ID 4 - BIA 1 TO PLENTY HAWK DRIVE MULTI-USE PATHWAY (PHASE II)

Phase II of the project would begin at the south intersection of BIA 1 and Plenty Hawk Drive and head northeast and then transition north to the north intersection of BIA 1 and Plenty Hawk Drive where it would transition again heading east to terminate at the end of Phase I of the proposed multi-use pathway. The approximate length for Phase II of the multi-use pathway would be 0.68-miles and could include pedestrian lighting depending on the available funding.

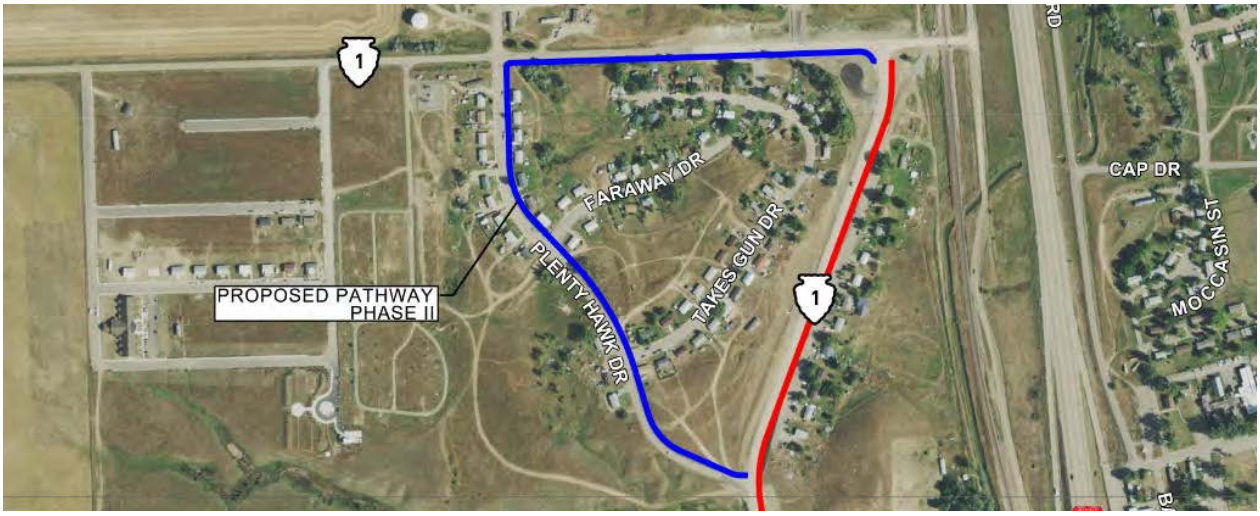
BIA 1 to Plenty Hawk Drive Multi-Use Pathway would provide for a safe pedestrian and bicyclist access from the multiple Tribal Housing subdivisions to facilities and businesses in Crow Agency. The approximate project construction cost for **Phase II** of the multi-use pathway and pedestrian lighting are shown below:

Phase II

- Multi-Use Pathway: $882,000.00
- Pedestrian Lighting: $207,000.00
- Construction Total: $1,089,000.00

Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

FIGURE 80: PROPOSED LOCATION FOR BIA 1 TO PLENTY HAWK DRIVE MULTI-USE PATHWAY (PHASE II)



PROJECTS ID 7 TO 13 – GREATER CROW RESERVATION PROJECTS

The greater Crow Indian Reservation and towns of Hardin (part), Dunmore, Garryowen, Lodge Grass, Wyola, St. Xavier, Fort Smith (part), and Pryor should be assessed for sidewalk and multiuse trail needs. Based on identified needs, proposed future projects should be subsequently planned, cost estimated, designed, and constructed as funding becomes available.

- Multi-Use Pathway and Pedestrian Lighting: $TBD
- Construction Total: $TBD

Strategy Champion: Crow Tribal Transportation Program
Funding Opportunity: TTP Safety Funding, TTP Funding or MDT Transportation Alternatives Funding

AIRPORTS

EXISTING CONDITIONS

– BILLINGS-LOGAN INTERNATIONAL AIRPORT

Billings-Logan International Airport is a public airport 10 miles west of the Crow Indian Reservation's northwest border. Both passenger and cargo/mail carrier airlines service Billings Logan International Airport. The Airport is currently served by six passenger airlines (Allegiant, American, Cape Air, Delta, Frontier, United) that offer a variety of nonstop destinations with connecting flights to thousands of cities worldwide. Freight carrier airlines include Alpine, FedEx, UPS, Horizon, and Richland.

The airport has air freight, air ambulance, charter, instruction, rental, and sales services. The FAA operational statistics indicate that Billings-Logan International Airport has aircraft operations that had 26,365 enplanements from January 2021 to January 2022, up from 18,580 enplanements the prior calendar year. The airport has three paved runways with lengths of 10,518 ft., 5,501 ft., and 3,800 ft.

– BIGHORN COUNTY AIRPORT

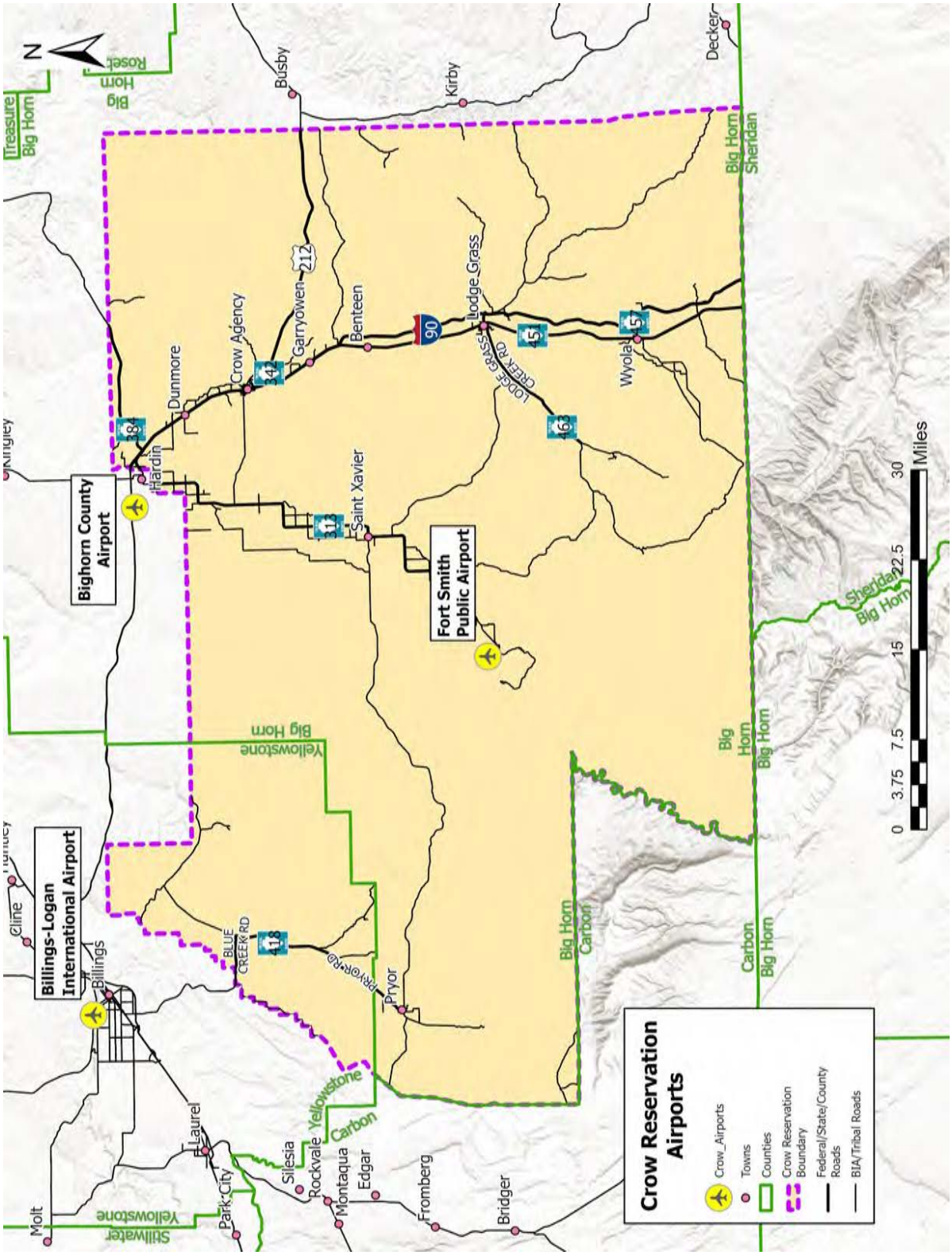
Big Horn County Airport, located 3 miles west of Hardin just south of I-90, was opened in January of 2015. 100 Low Lead (LL) fuel is available as is a courtesy car. Daily hangar rental is occasionally available. The airport is staffed part-time. Aircraft operations average 38 flights per week and include 50% local general aviation, 40% transient general aviation, 5% military, and 5% air taxi. The airport has two paved runways with a total pavement length of 4,491 ft.

– FORT SMITH PUBLIC AIRPORT

Fort Smith landing strip is a public airport owned by the National Park Service. It is located one mile north of Fort Smith on Grapevine Rd. It services approximately 130 aircraft annually with flights comprised of 46% transient general aviation, 46% local general aviation, and 8% military. The airport has two paved runways with a total pavement length of 3,827 ft.

A map of airports located in and in proximity to Crow Reservation are show in Figure 81.

FIGURE 81: AIRPORTS IN VINCINITY OF GREATER CROW RESERVATION



RECOMMENDATIONS

All three airports operate independently of the Crow Tribe. Billings-Logan International Airport (designated BIL) is administered by a board of commissioners and is co-owned by the City of Billings. Big Horn County Airport is owned and operated by Bighorn County. Fort Smith landing strip is a public airport owned by the National Park Service.

It is recommended the Crow Indian Tribe and the BIA coordinate with Bighorn County and MDT for the proper maintenance of highways to maintain access for Tribal members to all three airports. Crow Nation Transit does not currently provide direct shuttle service to BIL, but such a connection would benefit the region.

TRANSIT SYSTEM

EXISTING CONDITIONS

Crow Indian Reservation is served by Crow Nation Transit, a Reservation Tribal transit service operated independently of the Crow Reservation Transportation Department. The department can be reached by Tribal members at the department's main phone line at (406) 661-6609, via their Facebook page at https://www.facebook.com/crownation.transit.1/ , or announcements via the Tribal newspaper, *Original Briefs,* published daily.

The primary purpose of the transit system is to provide transportation within and between the Crow Reservation towns of Crow Agency, Lodge Grass, Wyola, Fort Smith, Pryor and off-Reservation locations in Billings and Hardin. This is a valuable service to the Crow Indian Tribe members who may have no access to personal transportation and rely on it to get to work, school, medical appointments, etc.



The Crow Transit fleet consists of four 2019 Ford E450 Allstar 25 transit busses. These four busses are assigned to four routes, each with morning and evening schedules, and provide service to the above-mentioned destinations. While the eight total scheduled routes are not exact mirrored routes origin/destination wise, the daytime, evening, and one mid-day route, essentially provide daily round-trips.

In recent years, budget cuts, and most recently the Covid 19 pandemic in 2020, have adversly affected service. Funding for Crow Transit has been tight and the agency's staff experiences budgetary shortfalls regarding staffing, existing fleet, equipment, facilities, and transit stop amenity procurement, as well as overall fleet and eequipment mainteance. Recent ridership continues to also be affected by intermittent Covid 19 restrictions.

Currently, on demand and paratransit service is not in operation due to no running Vans at the moment. Crow Nation Transit did secure a funding award through the Federal Transit Administration (FTA) for the purchase of three (3) replacement wheelchair accessible Vans plus budget for three (3) drivers to be assigned to the paratransit service. However, a current issue causing delays with purchasing these vans is due to the National Chip shortage and the paratransit vans have not yet been able to be purchased.

Crow Nation Transit's current fleet of four 2019 Ford E450 Allstar 25 transit busses are starting to show signs of wear and tear from the mileage put on mainly from the distance travelled between each community that service is provided to. In the future, Crow Transit ideally wants to purchase five (5) new busses to replace the existing fleet, where an extra fifth bus would be available in case issues arise when a bus needs major repairs.

The most recent available National Transit Database (NTD) Transit Agency Profile for *Crow Tribe of Indians* is available from 2021, shown graphically below, with NTD Crow Tirbe of Indians agency profiles available for the years 2014-2021 and available for download in pdf format from the NTD website here: https://www.transit.dot.gov/ntd/transit-agency-profiles/crow-tribe-indians

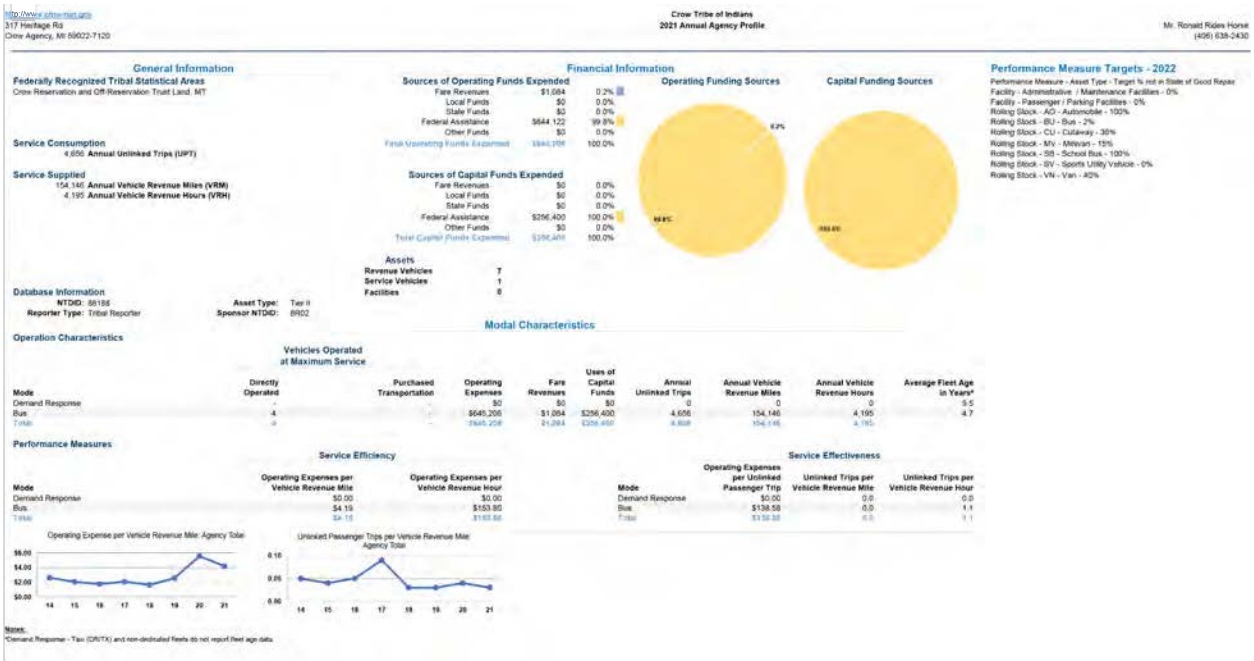


Figure 82 shows the existing transit schedule for the fixed route between the three towns. Figures 83 through 90 show the existing eight (8) Crow Transit morning and evening transit routes.

FIGURE 82: TRANSIT SERVICE SCHEDULE AND ROUTES

MORNING ROUTES

MORNING ROUTE #1

	Arrive	Depart
Wyola Post Office*		5:38 AM
Lodge Grass IGA	5:50 AM	5:51 AM
Teepee Service	6:25 AM	6:26 AM
Liberty	6:45 AM	6:46 AM
Billings LH.S (N 29th St. & 4th Ave N)	7:40 AM	7:41 AM
Billings B.I.A. (N20th St & 4th Ave N)	7:45 AM	7:46 AM
Billings Town Pump (Johnson Ln Exit)	7:55 AM	7:56 AM
Liberty	8:42 AM	8:43 AM
Teepee Service	8:56 AM	8:57 AM
Little Big Horn College	8:58 AM	8:59 AM
Crow Nation Express	9:00 AM	

*Driver will start in Wyola if dispatched the day before.

MORNING ROUTE #2

	Arrive	Depart
Pryor Post Office		5:30 AM
Conoco (Southgate Drive)	6:15 AM	6:20 AM
Billings I.H.S (N 29th St & 4th Ave N)	6:32 AM	6:33 AM
Billings Town Pump (Johnson Ln Exit)	6:55 AM	7:00 AM
Liberty	7:45 AM	7:46 AM
Tribal Administrative Offices	7:55 AM	7:56 AM
Little Big Horn College	8:00 AM	8:01 AM
Crow Tribal Housing Authority	8:02 AM	8:03 AM
Teepee Service	8:05 AM	8:06 AM
Lodge Grass Senior Citizens	8:31 AM	8:32 AM
Lodge Grass IGA	8:35 AM	8:36 AM
Wyola Post Office	8:49 AM	8:50 AM
Lodge Grass IGA	9:04 AM	9:05 AM
Crow Nation Express	9:30 AM	

MORNING ROUTE #3

	Arrive	Depart
Teepee Service		5:45 AM
Sinclair	5:58 AM	5:59 AM
Ft. Smith National Park Service	6:47 AM	6:48 AM
Warman Loop	6:58 AM	7:00 AM
Liberty	7:39 AM	7:40 AM
Little Big Horn College	7:55 AM	7:56 AM
Teepee Service	7:58 AM	7:59 AM
Tribal Administrative Offices	8:03 AM	8:04 AM
Crow I.H.S. (Main Entrance)	8:05 AM	8:06 AM
Crow Nation Express	8:07 AM	8:08 AM
Lodge Grass Senior Citizens	8:32 AM	8:33 AM
Lodge Grass IGA	8:36 AM	8:37 AM
Wyola Post Office	8:52 AM	8:53 AM
Lodge Grass IGA	9:07 AM	9:08 AM
Crow Nation Express	9:29 AM	

MORNING ROUTE #4

	Arrive	Depart
Wyola Post Office		7:05 AM
Lodge Grass Senior Center	7:20 AM	7:21 AM
Lodge Grass IGA	7:25 AM	7:26 AM
Tribal Administrative offices	7:50 AM	7:51 AM
Little Big Horn College	7:56 AM	7:57 AM
Teepee Service	8:00 AM	8:01 AM
Liberty	8:16 AM	8:20 AM
Billings Heights Town Pump	9:10 AM	9:11 AM
Billings I.H.S. (N 29th St & 4th Ave N)	9:18 AM	9:19 AM
Liberty	10:00 AM	10:01 AM
Teepee Service	10:15 AM	10:16 AM
Little Big Horn College	10:20 AM	10:21 AM
Tribal Administrative offices	10:26 AM	

EVENING ROUTES

EVENING ROUTE #1

	Arrive	Depart
Crow I.H.S. (Main Entrance)		3:45 PM
Little Big Horn College	3:50 PM	3:51 PM
Teepee Service	3:55 PM	3:56 PM
Liberty	4:08 PM	4:09 PM
Billings Town Pump (Johnson Ln Exit)	4:47 PM	4:48 PM
Billings I.H.S. (N 29th St & 4th Av N)	5:02 PM	5:03 PM
Billings B.I.A. (N 20th St & 4th Av N)	5:07 PM	5:08 PM
Liberty	5:51 PM	5:52 PM
Teepee Service*	6:07 PM	6:10 PM

*Driver will go to Lodge Grass or Wyola if any riders are present or IF DISPATCHED.

EVENING ROUTE #2

	Arrive	Depart
Crow Nation Express*		4:10 PM
Crow I.H.S. (Main Entrance)	4:12 PM	4:13 PM
Tribal Administrative Offices	4:14 PM	4:15 PM
Little Big Horn College	4:18 PM	4:19 PM
Crow Tribal Housing Authority	4:20 PM	4:21 PM
Teepee Service	4:23 PM	4:24 PM
Liberty	4:37 PM	4:38 PM
Billings Town Pump (Johnson Ln Exit)	5:18 PM	5:19 PM
Conoco (Southgate Drive)	6:05 PM	6:10 PM
Pryor Post Office	7:00 PM	

*(Passengers transfer from Route #4 if going to Hardin or Billings)

EVENING ROUTE #3

	Arrive	Depart
Tribal Administration Offices		4:05 PM
Crow Nation Express	4:07 PM	4:08 PM
Little Big Horn College	4:12 PM	4:13 PM
Teepee Service	4:15 PM	4:16 PM
Liberty	4:26 PM	4:30 PM
Warman Loop	5:00 PM	5:05 PM
Ft. Smith National Park Service	5:30 PM	5:35 PM
Sinclair	6:15 PM	6:16 PM
Teepee Service	6:35 PM	

MID DAY ROUTE #4

	Arrive	Depart
Teepee Service		2:35 PM
Little Big Horn College	2:37 PM	2:38 PM
Tribal Administrative Offices	2:41 PM	2:42 PM
Wyola Post Office	3:17 PM	3:18 PM
Lodge Grass Senior Citizens	3:35 PM	3:36 PM
Lodge Grass IGA	3:40 PM	3:41 PM
Crow Nation Express*	4:05 PM	
Teepee Service	4:50 PM	4:51 PM
Little Big Horn College	4:53 PM	4:54 PM
Tribal Administrative Offices	5:00 PM	5:01 PM
Lodge Grass Senior Citizens	5:22 PM	5:23 PM
Lodge Grass IGA	5:25 PM	5:26 PM
Wyola Post Office	5:39 PM	5:40 PM

*(Passengers transfer to Route #2 if going to Hardin or Billings)

NOTE TO ALL PASSENGERS:

Depending on traffic and road conditions, times may be subject to change so please be at scheduled stops a few minutes early so that you don't miss the transit. Also please be advised that all transit drivers are on fixed schedules, so no wait times will be permitted.

No smoking or any alcoholic beverages allowed on any transit vehicles at all times.

For the safety of the passengers, drivers reserve the right to refuse service.

FIGURE 83: TRANSIT - MORNING ROUTE 1 MAP

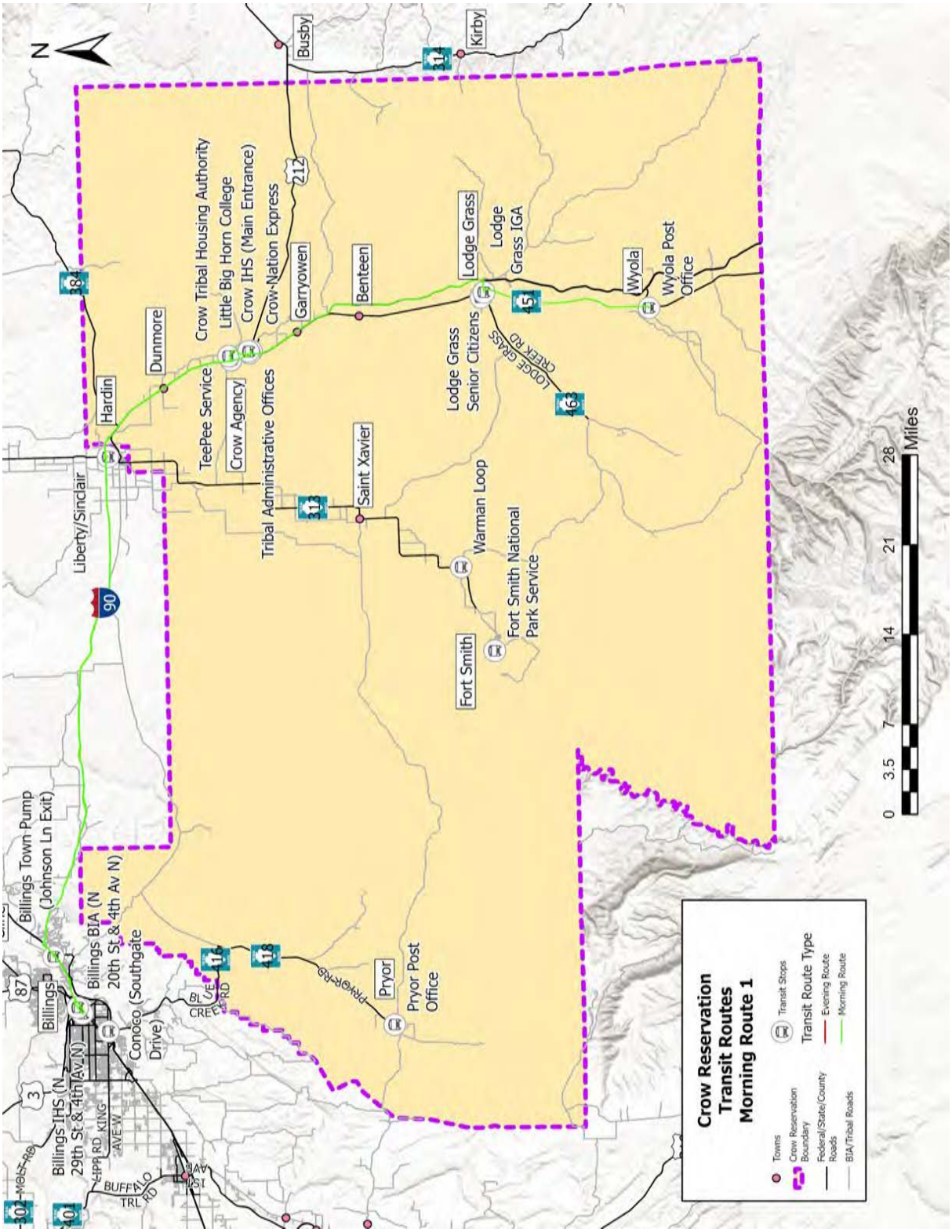


FIGURE 84: TRANSIT - MORNING ROUTE 2 MAP

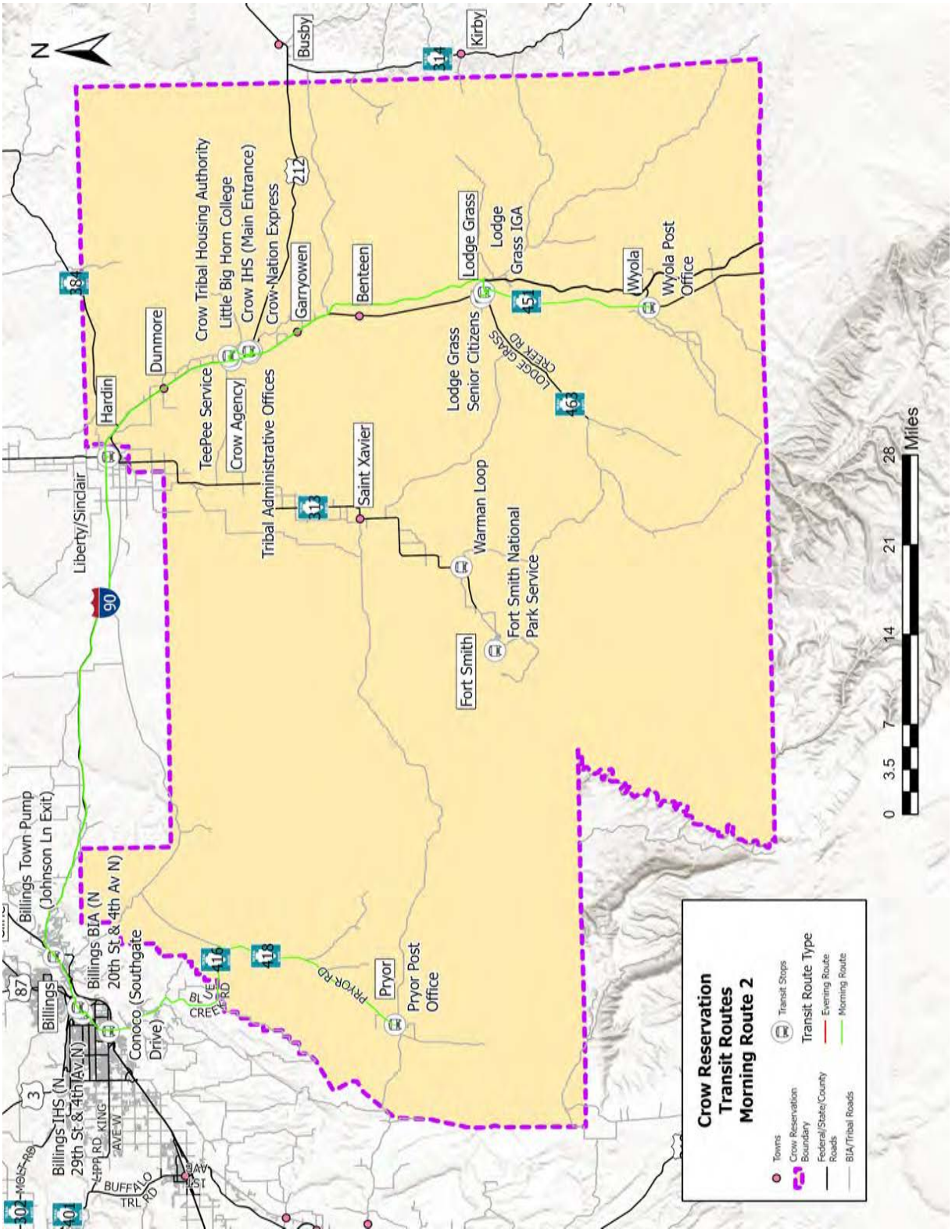


FIGURE 85: TRANSIT - MORNING ROUTE 3 MAP

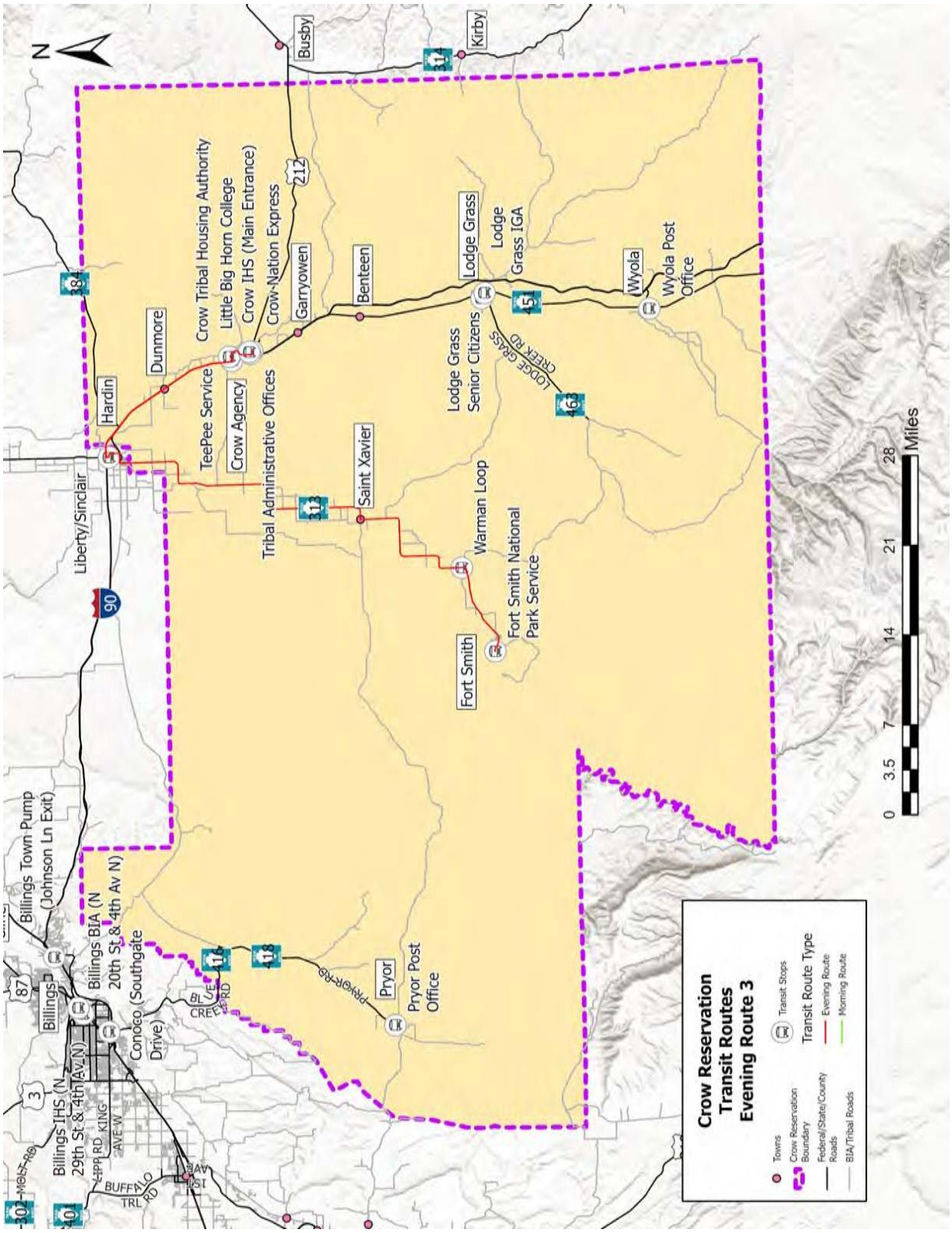


FIGURE 86: TRANSIT - MORNING ROUTE 4 MAP

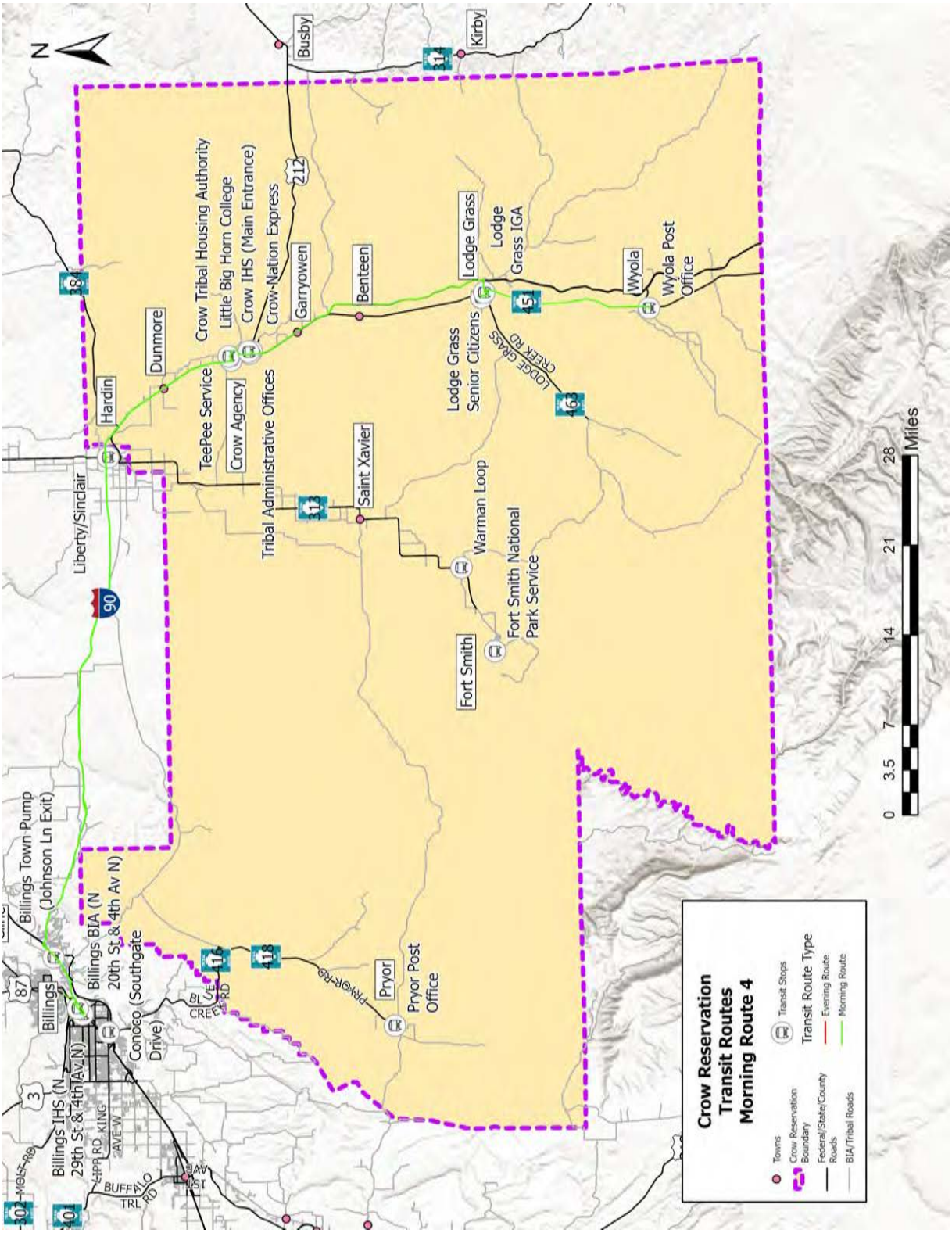


FIGURE 87: TRANSIT - EVENING ROUTE 1 MAP

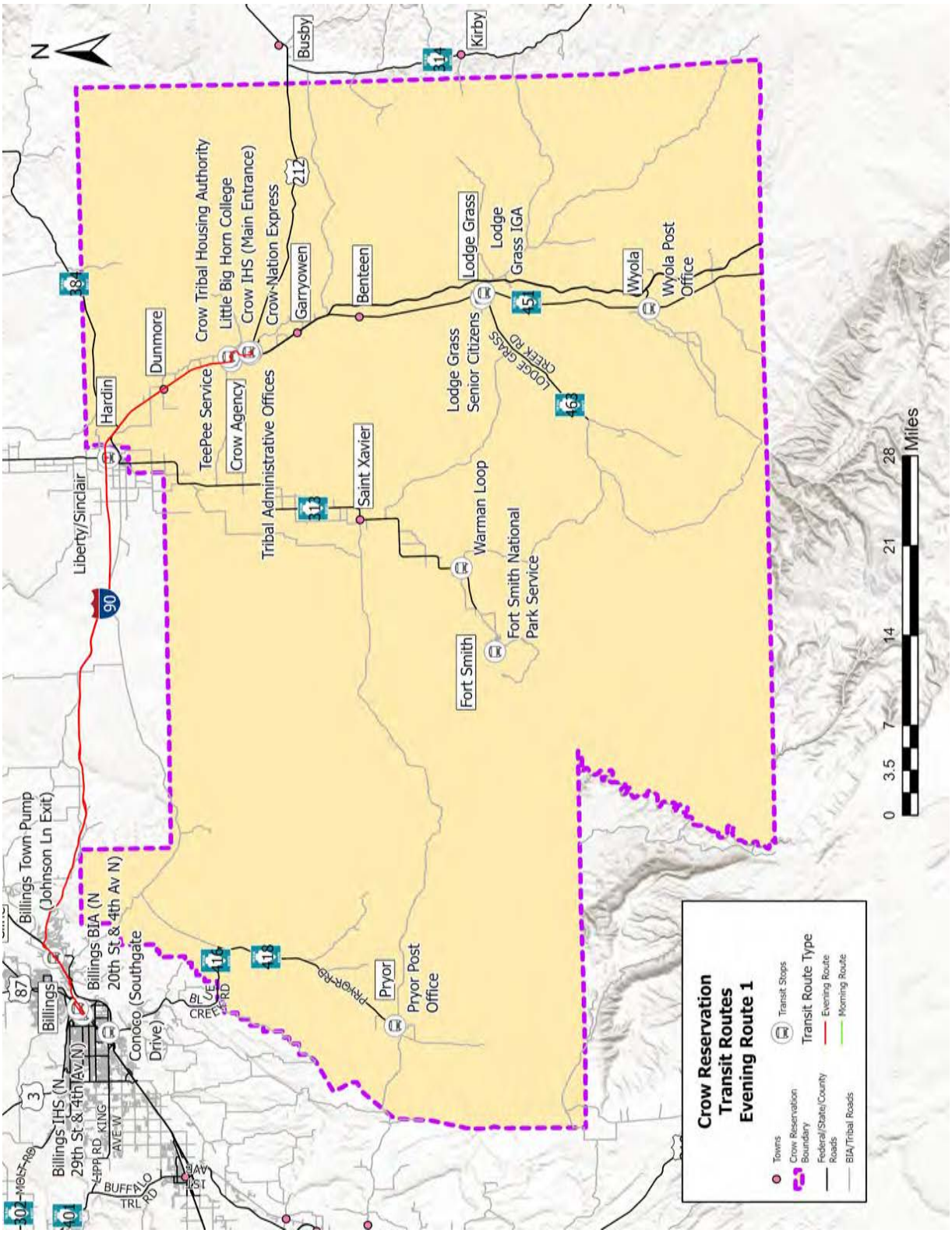


FIGURE 88: TRANSIT - EVENING ROUTE 2 MAP

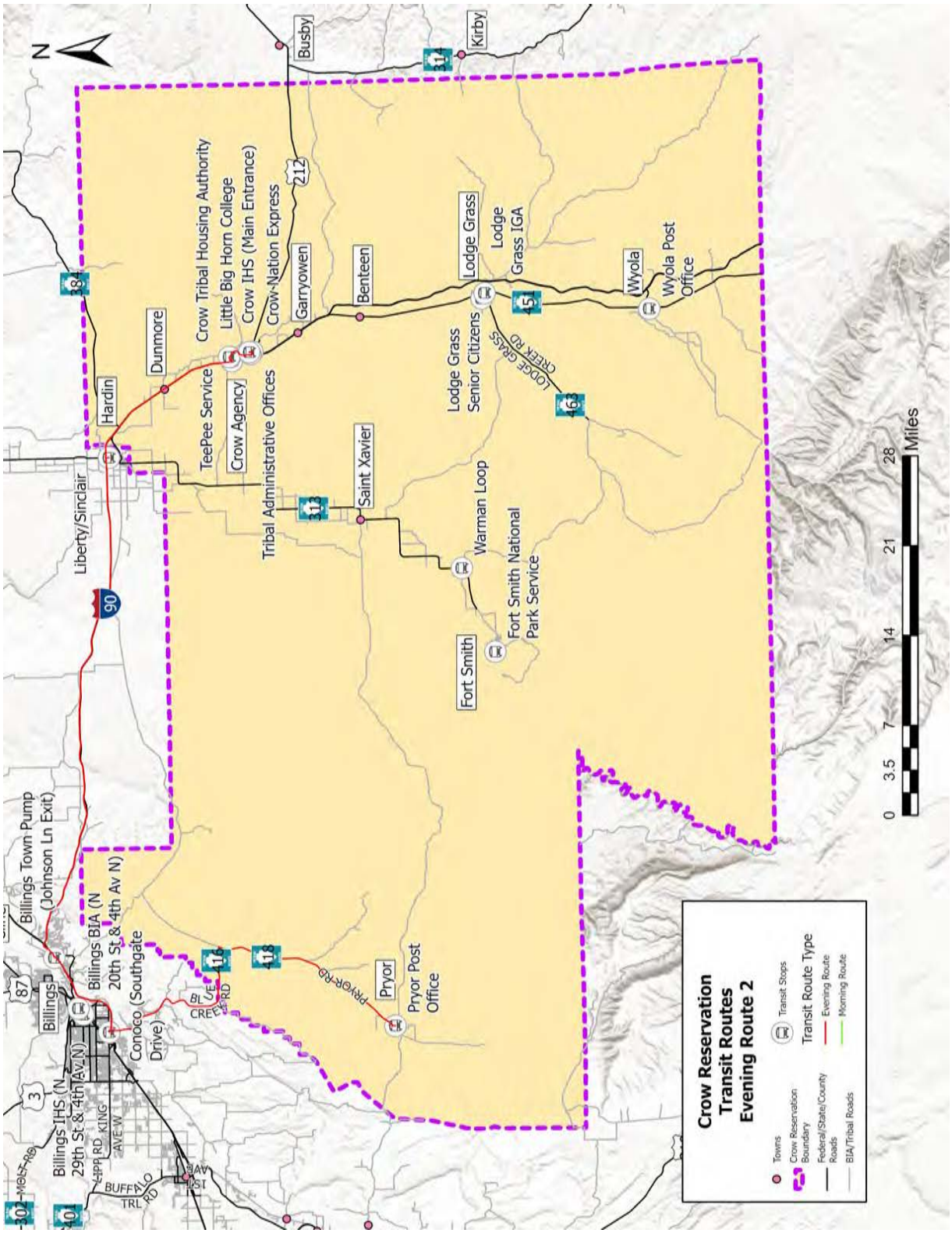


FIGURE 89: TRANSIT - EVENING ROUTE 3 MAP

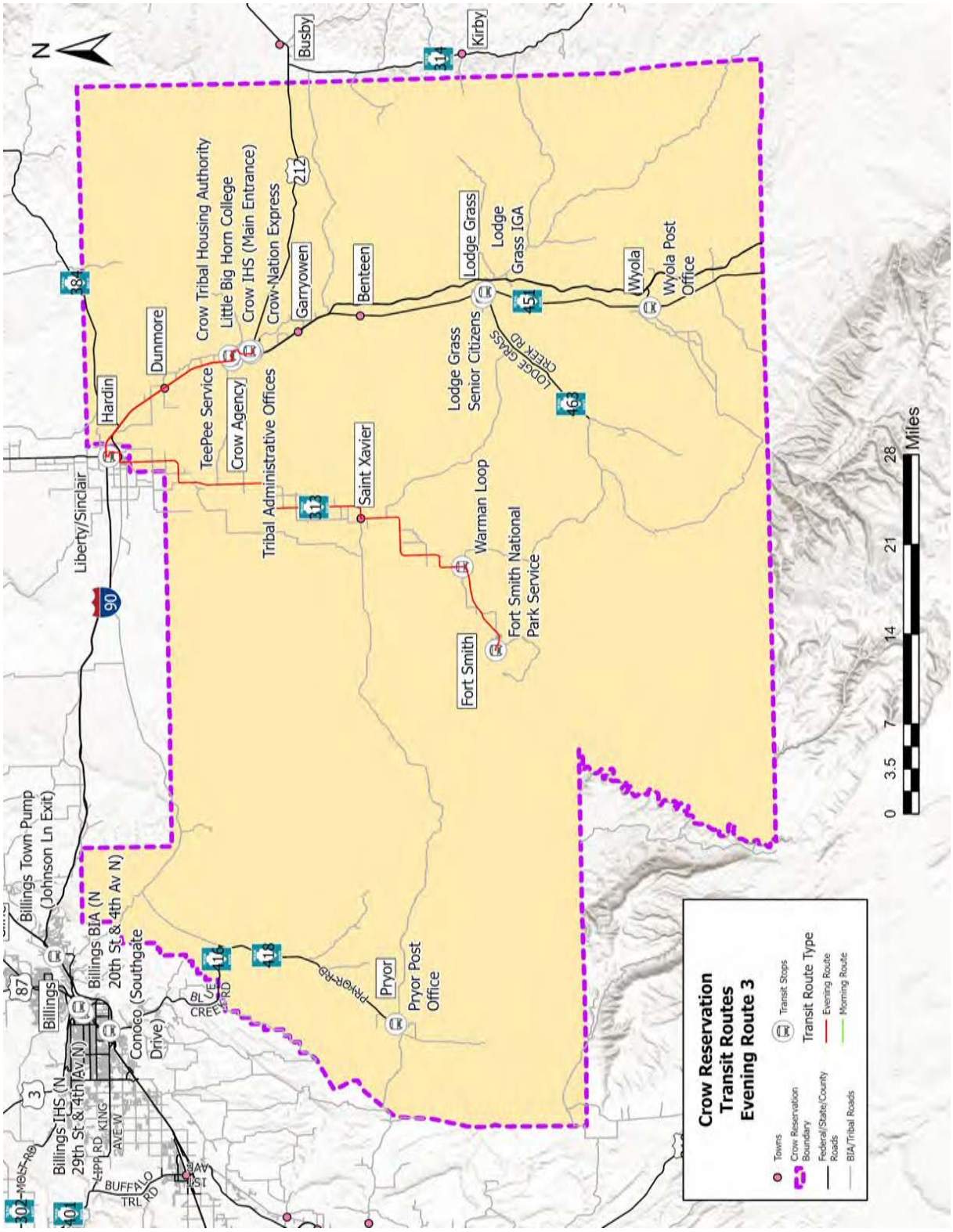
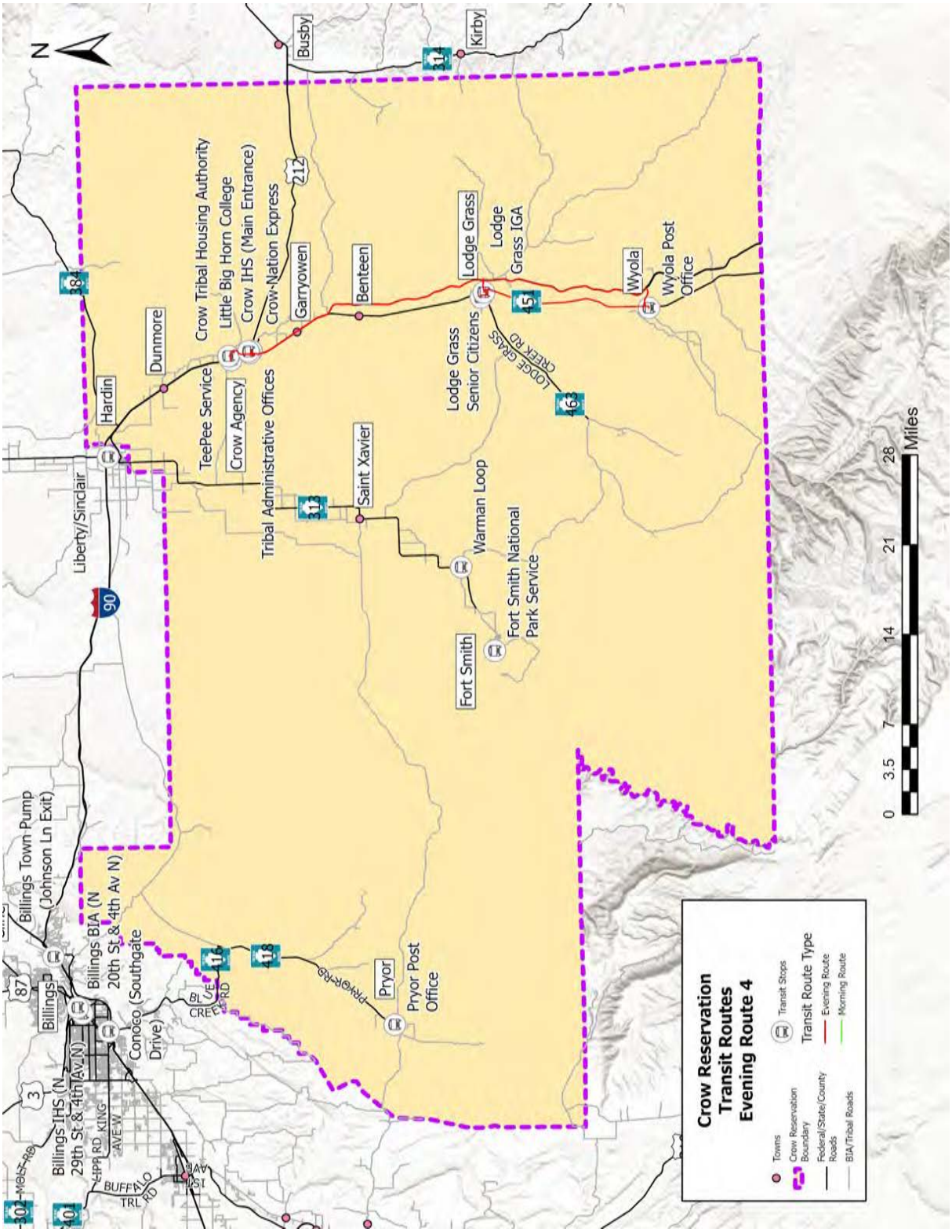


FIGURE 90: TRANSIT - EVENING ROUTE 4 MAP



RECOMMENDATIONS

Recent revenue shortages, as well as Covid 19, caused the Crow Indian Tribe to withdraw funding from Transit. If possible, it is recommended the Crow Indian Tribe reinstate these funds when conditions improve as a federal match will boost Crow Nation Transit's ability to provide greater routes and services.

The Crow Indian Tribe could collaborate with Crow Nation Transit to provide transportation to and from Billings International Airport, other regional bus services, and Billing's area colleges to serve both residents and tourists as Crow Agency could be a convenient stop for visitors to the area.

Crow Nation Transit is requesting that the Operational Costs for the projects below be funded as part of the LRTP. This would require Tribal Council approval.

- Purchase of five (5) new busses to replace the existing fleet. A fifth/extra bus would be available in case issues arise when a bus needs major repairs.
- Bus stop shelters at all scheduled stops.
- A new Transit Facility to include office space, garage for maintenance/storage.
- Temporary employee housing
- Purchase of three (3)- wheelchair accessible vans for its paratransit on demand service *(*Funding awarded; purchase of vehicles pending due to Chip shortage).*

Requested Capital Expenditures:

1. Buses. Crow Nation Transit requests funds to purchase new buses be included in the LRTP. The exact number and sizes of buses will be determined upon approval of the requested operations expansions listed in this plan.

2. Funding to install pavilions, benches and appropriate signage at all existing transit stop locations on all routes for Crow Agency, Lodge Grass, Wyola, Fort Smith, and Pryor as well as the off-Reservation transit service locations in Billings and Hardin.

3. Matching funding for the purchase of real estate, and construction of a transit operations site to include space for offices, secure bus storage, an equipped garage that allows for bus maintenance to be conducted in-house and not outdoors in the elements, and temporary employee housing. A new Transit Facility will greatly benefit Crow Transit's Preventive Maintenance mechanic from having to work outside in the elements.

Chapter 7 discusses transit funding opportunities under the subsection "Tribal Transit Program" on page 166.

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 and to be alerted to utility costs that will accompany roadway improvement projects.

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 multi-use pathways. This provides an added level of safety and security for travelers. It is recommended that the Crow Indian 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 Crow Indian 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 with 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 Crow Indian Tribe transportation system.

SYSTEM MANAGEMENT

The Crow Indian Tribe transportation system is overseen and managed by the Transportation Department which consists of seven divisions: One (1) Department of Interior Contract and six (6) Contracts from FHWA. Transportation, roadwork, and pedestrian and bike facility news and updates, such as road construction and closure information, is provided to Tribal membership and the general public via the Crow Tribe's Facebook page and/or Tribal website at: http://www.crow-nsn.gov/transportation.html

Department of Interior: Transportation Director - Thomas White Clay Sr.

1. Road Maintenance Division (BIA 638)

    - Purpose
        - Maintenance of BIA Contract Agreement Routes within the NTTFI
        - BIA Owned routes and facilities only
    - Safety and Health of Current Infrastructure – Updating new programmatic needs on a daily basis and development of program compliance.

FHWA – Federal Highway Contracts administered through BIA Contracting and Self-Determination Program Contracts
Indirect general and administrative costs include, but are not limited to computers, software, office furniture, and other equipment needed to administer the TTP.

Transportation-related planning and programming activities include, but are not limited to roadway, trails, transit, and safety planning and programming, and planning for tourism and recreational travel.

TTP - 2% Tribal Transportation Planning Division: Tribal Transportation Planner - Michael Stewart. Executive Branch Liaison - Julie Amyotte.

2. Purpose
    - Clearly demonstrate a tribe's transportation needs and to fulfill tribal goals by developing strategies to meet transportation needs. These strategies address current and future land use, economic development, traffic demand, public safety, health, and social needs.
    - Future project Planning through Traffic studies, Safety studies, Road Maintenance studies and trending Transportation studies.

3. **TTP - Pre- Construction Division:** Tribal Transportation Senior Planner - Jason Ward

    - Purpose
        - Planning and design of Tribal Transportation Facilities.
        - Engineering support studies (i.e., geotechnical, hydraulic, etc.)
        - Environmental studies, evaluations, and compliance activities.
        - Planning and design of mitigation for impacts to environmental resources (i.e., wildlife and their habitat, wetlands, cultural resources, water quality, air quality, etc.).
        - Architectural and landscape engineering services including lighting.
        - Inspection of bridges and structures.
        - Public meetings and public involvement activities.
        - Tribal employment rights ordinance (TERO) fees.
    - Preliminary Construction Engineering Support Studies; Conceptual Design Framework; Safety and Health Compliance Framework and Design
    - Environmental Studies and Environmental Impact Studies; Categorical Exclusions; NEPA and 404 Permitting

4. **TTP - Construction Division:** Construction Supervisor - Thomas Yellowtail

    - Purpose - Construction, reconstruction, rehabilitation, resurfacing, restoration, and operational improvements of TTP facilities (i.e., roads, trails, bridges, structures, pedestrian and bicycle facilities, transit facilities, ferry facilities, rest areas, parking areas, etc.)
        - Road sealing and chip sealing.
        - Americans with Disabilities Act (ADA) improvements.
        - Seasonal transportation routes including, but not limited to, snowmobile trails, ice roads, and overland winter roads.
        - Mitigation activities required by Tribal, state, or Federal regulatory agencies, and 42 U.S.C. § 4321 et seq., The National Environmental Policy Act (NEPA) (see 25 CFR Part 170 Appendix A to Subpart B for other environmental related allowable costs).
        - Construction of Approved CSTIP and TTIP Construction projects – Shovel Ready Projects

5. **25% Road Maintenance Supplemental Division:** Road Maintenance Supervisor – O'shon Old Elk
    - Purpose – This program directive is in place to Supplement the Road Maintenance TPA (BIA 638 Program) with rehabilitation, resurfacing, restoration, and operational improvements of TTP facilities (i.e., roads, trails, bridges, structures, pedestrian and bicycle facilities, transit facilities, ferry facilities, rest areas, parking areas, etc.).

  - Road sealing and chip sealing.
  - Americans with Disabilities Act (ADA) improvements.
  - Seasonal transportation routes including, but not limited to, snowmobile trails, ice roads, and overland winter roads.
  - Mitigation activities required by Tribal, state, or Federal regulatory agencies, and 42 U.S.C. § 4321 et seq., The National Environmental Policy Act (NEPA) (see 25 CFR Part 170 Appendix A to Subpart B for other environmental related allowable costs).
- Tribally Owned Routes and Routes within our current National Tribal NTTFI.

TTP - Transit Supplemental Grant Division: Transit Director – Ronald Rideshorse

- Purpose – This set-aside grant comes from the overall TTP funding – as a supplemental grant to the FTA and State Federal Transit Program for Tribal needs.

TTP - TTPSF – Tribal Transportation Program Safety Fund – Division: Transportation Safety and Training Officer - Makalia Gutierrez

- Purpose - Each year under the FAST Act, 2% of the available TTP funds are set aside to address transportation safety issues in Native America. Funds are available to federally recognized Indian tribes through a competitive, discretionary program. Awarded annually, projects are chosen whose outcomes will address the prevention and reduction of death or serious injuries in transportation related incidents, such as motor vehicle crashes. Transportation fatalities and injuries severely impact the quality of life in Indian country. Statistics are consistently higher than the rest of the nation as a whole; FHWA advocates the development of strategic Transportation Safety Plans as a means for tribes to determine how transportation safety needs will be addressed in and around tribal communities.

- Since 2015 TTPSF Grants have been applied for annually.
- Currently we have a $306,000 – grant to design, construct, and maintain a Multi-use Pathway – Crow Agency Head Start Pathway. Awarded FY17 – To be Completed FY23.

The transportation department provides the ongoing maintenance needs of the Tribal BIA road system, such as grading and snow removal, and 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.

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.

The Crow Tribal transportation department owns and operates a variety of heavy equipment. A brief listing follows:

1. Motor Grader
2. D5 Dozer with 6-way blade
3. 320 Excavator
4. Track Steer
5. Water Truck
6. Super End Dump with haul trailer OR a tractor with lowboy and side or end dump trailer. Many pros & cons to each.
7. Flatbed delivery truck
8. High pressure washer/vacuum truck or wagon
9. Dura-patcher or similar pothole patching machine.
10. Crack sealing equipment.
11. Mower for roadside maintenance
12. Miscellaneous tools such as jumping jack, trench compactor, demo saw, laser level, trash/dewatering pump, basic traffic control signs & cones, etc.
13. Snowplows and other snow removal equipment. End dumps can be configured to for haul duties in summer and snowplow/sand spreader in winter.

For some pieces of equipment, a maintenance agreement may be purchased from the vendor. This may be ideal if the Tribes' ability to maintain this type of equipment is limited. 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.

The Crow Tribal transportation department maintains a full staff with a transportation director plus twelve full time office and field staff/operators and a similar number of seasonal summer labor. 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 Crow Indian Tribe has an expansive road system to maintain with about 205 miles of paved (bituminous and concrete) BIA and Tribal roads, approximately 113 miles of gravel roads, and 326 miles of earth/primitive roads currently listed in the RIFDS Inventory. There are many more miles of gravel and/or earthen roads that are likely not listed within the Inventory that the Crow Indian Tribe also maintains and should be inventoried as possible.

The Crow Indian 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 Crow Indian 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 Crow Indian Tribe to focus on vegetation removal, and primitive and gravel road maintenance.

There are some 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 Crow Indian Tribe develop project priorities based on the following:

1. Schedule crack seal, seal coat, and overlay projects based on timeline narrative discussed on page 56.
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. Add or modify roads within the RIFDS inventory 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 regular 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) and MDT. 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 91 through Figure 97.

FIGURE 91: STANDARD HIGH-SPEED BIA PAVED ROAD TYPICAL SECTION

$1,200,000 per mile

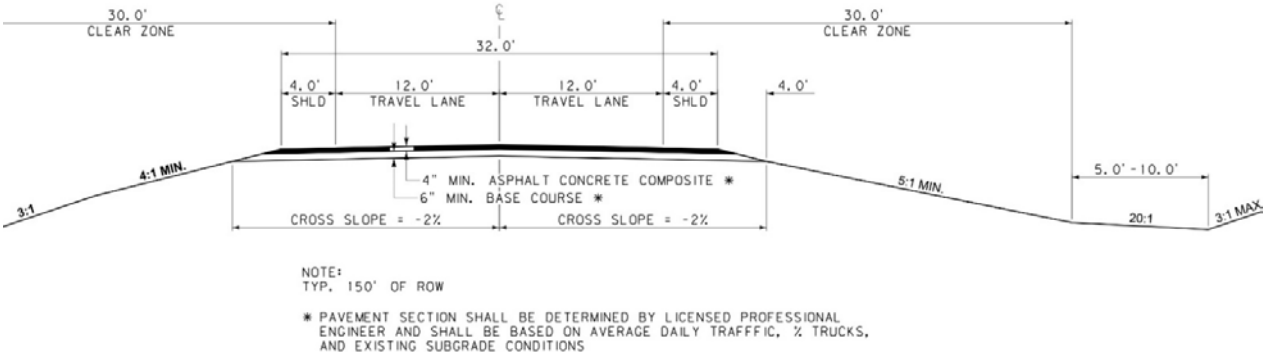


FIGURE 92: STANDARD HIGH-SPEED GRAVEL ROAD TYPICAL SECTION

$400,000 per mile

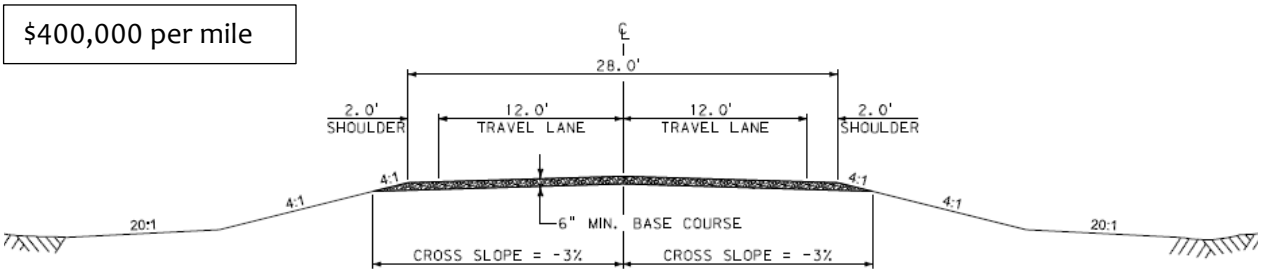


FIGURE 93: STANDARD LOW SPEED GRAVEL ROAD TYPICAL SECTION

$300,000 per mile

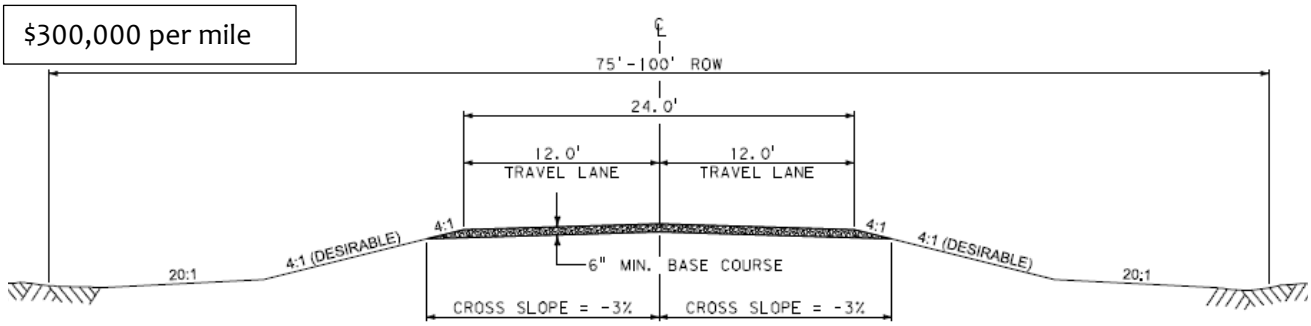
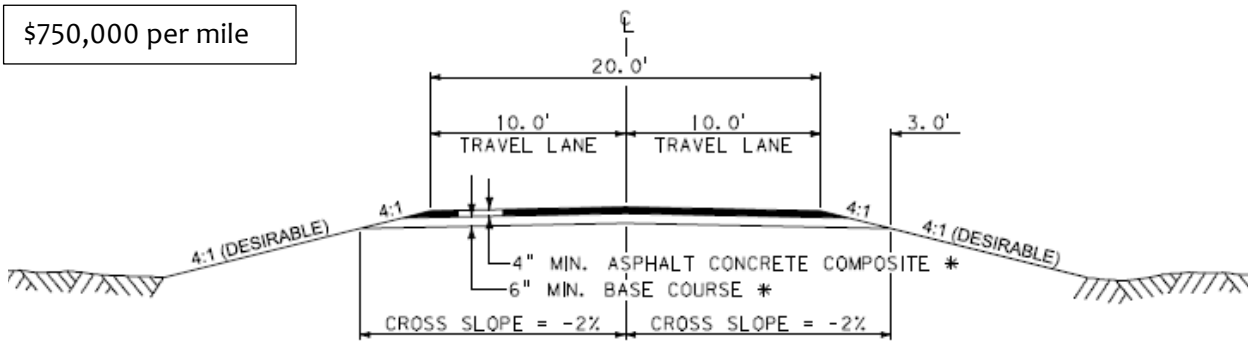


FIGURE 94: STANDARD TRIBAL RESIDENTIAL STREET TYPICAL SECTION – RURAL

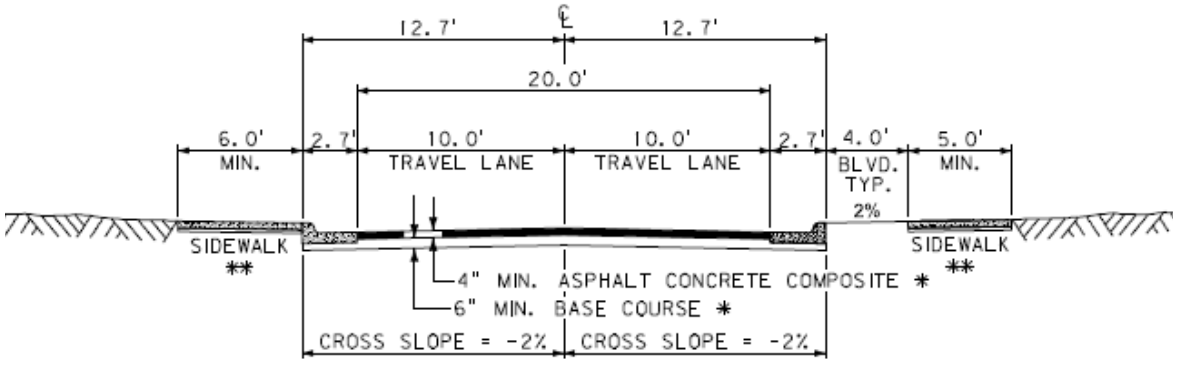
$750,000 per mile



* PAVEMENT SECTION SHALL BE DETERMINED BY LICENSED PROFESSIONAL ENGINEER AND SHALL BE BASED ON AVERAGE DAILY TRAFFFIC, % TRUCKS, AND EXISTING SUBGRADE CONDITIONS

FIGURE 95: STANDARD TRIBAL RESIDENTIAL STREET TYPICAL SECTION – URBAN

$1.5 – 1.7 M per mile



* PAVEMENT SECTION SHALL BE DETERMINED BY LICENSED PROFESSIONAL ENGINEER AND SHALL BE BASED ON AVERAGE DAILY TRAFFFIC, % TRUCKS, AND EXISTING SUBGRADE CONDITIONS

FIGURE 96: STANDARD SEPARATED SHARED USE PATH TYPICAL SECTION

$200,000 per mile

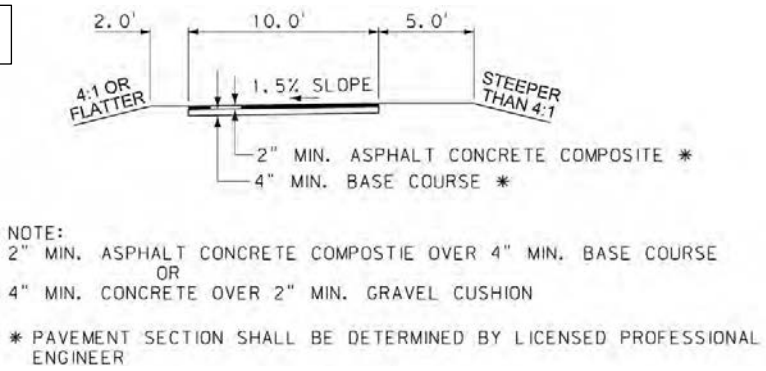
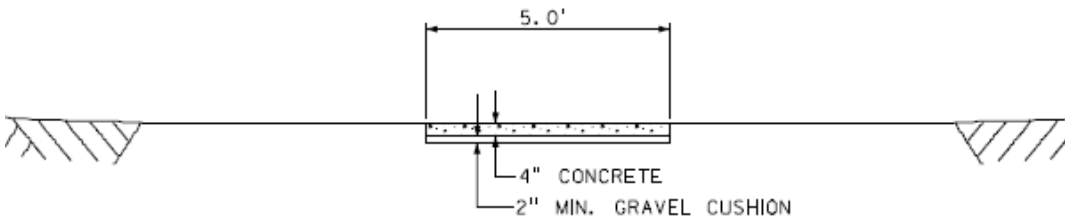


FIGURE 97: STANDARD SIDEWALK TYPICAL SECTION

$300,000 per mile



DEVELOPMENT REVIEW

Future development proposals have the potential for impacts on the Crow Indian Tribe transportation system. It is recommended that future development proposals be submitted to Crow Indian Tribe Planning 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.

ENERGY CONSERVATION CONSIDERATIONS

It is recommended that the Crow Indian 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 MDT. 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 since the American Rescue Plan Act (ARPA) and H.R. 3684 Infrastructure Investment and Jobs Act (IIJA) were signed, there will be more grant money available for the Tribe.

TRIBAL TRANSPORTATION PROGRAM FUNDS

The Tribal Transportation Program (TTP) is the primary source of Tribal transportation funding. It is estimated that the Crow Indian Tribe will be allocated slightly over $6.9 million annually, although IIJA provides for increases in TTP funding in the amount of $3 billion overall in the next five years. This may result in a higher allocation from FY 2023 through FY 2027.

The purpose of the TTP is to enhance the quality of life in Indian country by providing access to basic community services. The TTP replaces the former Indian Reservation Roads (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.

Unless additional funding resources can be tapped, funding for transportation improvements is limited to those resources identified in the Crow Indian Tribe TTIP.

TRIBAL TRANSPORTATION PROGRAM SAFETY FUNDS

The TTPSF program has established funding goals for safety planning and engineering improvements in four categories: Safety Planning (40%); Engineering Improvements (30%); Enforcement/EMS (20%); and Education (10%). Funds are available to federally recognized Indian Tribes through a competitive, discretionary program. Awarded annually, projects are chosen based on outcomes that will address the prevention and reduction of deaths or serious injuries in transportation related crashes. Safety funds support safety projects, studies, safety audits, and other title 23-eligible safety activities.

It is recommended that the Crow Indian Tribe apply for TTPSF funding to address transportation safety issues on the Reservation. The success of these applications can be increased if location-specific crash data is collected with a higher level of detail.

TRIBAL BRIDGE PROGRAM FUNDS

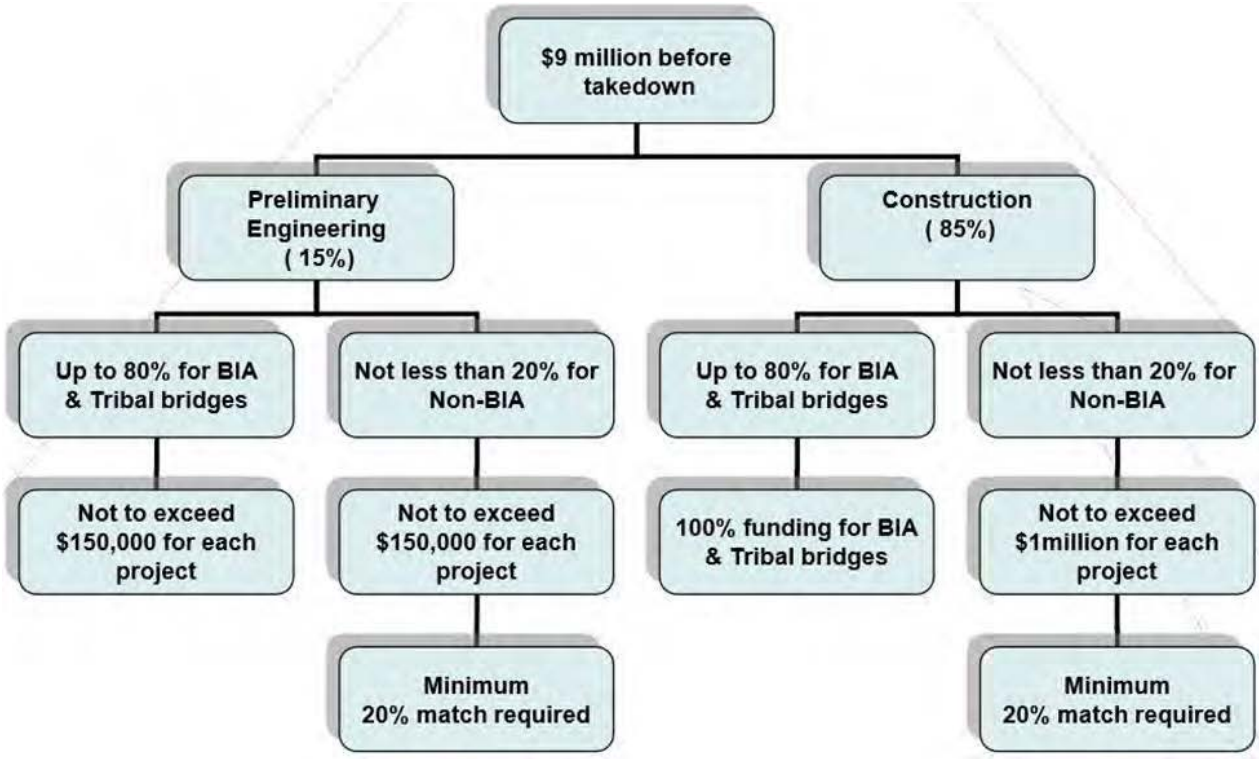
Applications for bridge project funding can be submitted under the Tribal Transportation Bridge Program (TTBP). All projects are ranked and prioritized based on the following criteria:

- 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 (AADT)
- Average Daily Truck Traffic (AADTT)

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.

The Rebuilding American Infrastructure with Sustainability and Equity (RAISE Act) requires inspection of all public bridges including Tribal bridges be performed at least every 2 years, and the data reported into the FHWA National Bridge Inventory. To be eligible for funding, a bridge must have at least a 20-foot opening, be classified as a Tribal transportation facility, and be structurally deficient or functionally obsolete. IIJA provides for a $100 million set-aside in the Tribal Transportation Facility Bridge Program for Tribes. On a national level, annual Tribal bridge program funding that the Crow Indian Tribe can compete for is shown in Figure 98.

FIGURE 98: ANNUAL TRIBAL BRIDGE PROGRAM FUNDING



NATIONALLY SIGNIFICANT FEDERAL LANDS AND TRIBAL PROJECTS (NSFLTP)

Administered by the USDOT and FHA, this funding opportunity was updated by the RAISE Act and provides Federal funding to projects of national significance for construction, reconstruction, or rehabilitation of transportation facilities within, adjacent to, or providing access to Federal or Tribal lands.

Criteria for the NSFLTP program has been altered as part of the IIJA legislation, resulting in an increase of $1.775 billion in funding over the next five years, requirement that 50 percent of funds 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.

TRIBAL TRANSIT PROGRAM

The Federal Transit Administration (FTA) Section 5311 Program authorizes capital, administrative, operating assistance, planning, technology, acquisition of public transportation services, and training grants to Indian Tribes providing public transportation services.

All projects must benefit residents in non-urbanized areas (under 50,000 population) of Montana. Section 5311 provides up to 80% federal share of the costs for administrative expenses, up to 80% for capital costs and up to 50% of the net operating deficit for rural transit operations.

The Rural Technical Assistance Program (RTAP) available under Section 5311 provides grants for training at 100% federal share. Eligible subgrantees for RTAP training grants include administrative and operating personnel providing rural transit services to areas in Montana.

MDT TRANSPORTATION ALTERNATIVES

Transportation Alternatives (TA) is authorized by the Rebuilding American Infrastructure with Sustainability and Equity (RAISE Act) which provides funding for a variety of alternative transportation projects, including many that were previously eligible under separately funded programs. TA replaces the Transportation Alternatives Program (TAP), and the set-aside funds include projects approved under previous programs authorized under MAP-21: Scenic Byways, Recreational Trails, and other discretionary programs.

The Federal share for these projects is 80%, with the non-Federal share covered by the responsible jurisdiction. The award maximum is $400,000, with a minimum amount for infrastructure projects of $50,000. There is no minimum amount for non-infrastructure projects.

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.

RAISE GRANTS

The Department of Transportation provides funding through the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) program. The funds are awarded on a competitive basis for planning and capital investments in transportation projects that will have a significant local or regional impact.

The current RAISE program makes available $1.5 billion in discretionary funding to support roads, bridges, transit, rail, ports, or intermodal transportation. $75 million will be awarded to planning projects and at least $15 million will be awarded to projects located in or to directly benefit areas of persistent poverty or historically disadvantaged communities (including Reservations).

It is important to note that unlike the FY 2022 RAISE round, in FY 2023 there are minimum award amounts for planning grants ($1 million minimum planning grant in rural areas and $5 million minimum planning grant in urban areas). Those minimum planning grant amounts are mandated in the BIL.

Additionally, RAISE Transportation Planning Grants will be impacted by the passing of H.R. 3684 – Infrastructure Investment and Jobs Act, which should overfund grant programs like RAISE. The impact of the IIJA will be roughly $110 billion dollars to roads, bridges, and major projects. Funds will be dedicated to grant programs to replace and repair bridges and increase funding for the major project competitive grant programs like RAISE.

Changes in the RAISE program for FY 2023 include:

- An emphasis on innovative technologies that explicitly address climate change.
- A commitment to racial and economic/access equity along with economic equity.
- An emphasis on addressing environmental justice, particularly for communities that disproportionately experience climate-related consequences.
- Commitment to projects that create good paying jobs.

FY 2023 RAISE grant funds are available for obligation only through September 30, 2027. Obligation occurs when a selected applicant and DOT enter into a written grant agreement after the applicant has satisfied applicable administrative requirements, such as transportation planning and environmental review requirements for capital construction projects. Unless authorized by DOT in writing after DOT's announcement of FY 2023 RAISE awards, any costs incurred prior to DOT's obligation of funds for a project ("pre-award costs") are ineligible for reimbursement.

FY 2023 RAISE funds must be expended (the grant obligation must be liquidated or paid out to the grant recipient) by September 30, 2032. After this date, unliquidated funds are no longer available to the project. As part of the review and selection process described in Section E.2., DOT will consider a project's likelihood of being ready to proceed with an obligation of RAISE grant funds within the timeline described above. DOT does not have the authority to extend the deadlines.

Projects for RAISE will be evaluated based on merit criteria that include:

- Safety
- Environmental sustainability
- Quality of life
- Improves mobility and community connectivity.
- Economic competitiveness and opportunity
- State of good repair
- Partnerships and collaboration
- Innovation

The FY 2023 NOFO continues to clarify the difference between the *quality-of-life* merit criterion (which focuses on increased affordable transportation choices and access to housing, jobs, opportunities and recreation) and the mobility and community connectivity merit criterion (which focuses on physical connections, bridging gaps, and universal design/ADA improvements). *Partnership and Collaboration* now includes meaningful engagement with residents to ensure equity considerations for underserved communities throughout the lifecycle of the project as well as capacity building through the Federal interagency Thriving Communities Network, which includes Department of Housing and Urban Development's Thriving Communities Technical Assistance and the Environmental Protection Agency's Environmental Justice Thriving Communities Technical Assistance Centers Program.

MONTANA TRANSPORTATION ECONOMIC DEVELOPMENT PROGRAMS

The Montana Department of Transportation administers grant programs to foster economic development, enhance community access, and to help smaller communities revitalize after the COVID-19 Pandemic.

Montana offers transportation-based programs which include:

- The Capital and Operating Assistance program; federal and state capital and operating grants to help qualified organizations (tribal governments and agencies) provide transportation to the rural general public, including the elderly and disabled.
- Rural Transit Assistance Program (RTAP) funds are used to support non-urbanized transit activities in four categories: training, technical assistance, research and related support services. This program is a component of the Section 5311 grant.
- Eligible recipients of these funds include all Montana rural transit providers receiving federal transit grants. Funds are also available to Montana's public transit operators in small, urbanized areas such as Billings, Missoula and Great Falls, as long as the activities are primarily designed and delivered to benefit non-urbanized transit providers. This program is 100 percent federally funded.

NEW ARPA & IIJA PROGRAMS/OPPORTUNITIES

ARPA:

The State and Local Fiscal Recovery Funds program, which authorized ARPA allocates $20 billion for Tribal governments to support their response to the recovery from the COVID-19 public health emergency. On January 6, 2022, Treasury published the final rule which, for purposes of this LRTP, and direct impact on transportation related projects, allowed for a standard deduction of revenue loss up to $10 million or the entirety of the Tribal allocation if it is less than $10 million. Essentially, this opens use of these dollars for "any service traditionally provided by the government to include road building and maintenance, and other infrastructure."

IIJA:

H.R. 3684, the Infrastructure Investment and Jobs Act (IIJA) provides significant additional funding to existing programs and several new grant programs to benefit Tribal transportation and transit needs. Although administrative rules have not yet been established for all IIJA programs, the following is a general list of opportunities that will become available for Tribal consideration between 2023-2027:

- Inclusion of Tribes as eligible recipients for State Safe Routes to Schools Program dollars
- Wildlife Crossing Safety Pilot Program
- Tribal High Priority Projects Program (which creates a funding set-aside out of the TTP program for high priority projects ($9 million each year for 5 years) and authorizes an additional $30 million per year out of the general fund for the program)
- Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Program (which establishes both a formula and competitive grant program to improve the resiliency of transportation infrastructure). The competitive program includes 1) Resilience Improvement Grant (to improve the ability of existing surface transportation assets to withstand weather events, natural disasters, or increase resilience to impacts of flooding, wildfires, or other natural disasters); and 2) Community Resilience and Evacuation Route Grant, it is anticipated there will be NO match requirement for these grants and funding includes a 2% set-aside for Indian Tribes.
- Inclusion of Tribes as eligible recipients for State Healthy Streets Program dollars
- Inclusion of "poor" condition of bridges to be funded in the Bridge program (in addition to the previously defined "deficient" bridges.
- Establishes the Rural and Tribal Infrastructure Advancement Program (to provide financial, technical, and legal assistance to evaluate potential projects and assist with development phase activities and to serve as a clearinghouse)
- Authorizes $150 million per year for 5 years for a new program to modernize the state data collection systems to enable full electronic data transfer of vehicle crashes. Indian Tribes are eligible for these grants as "states." Federal share up to 80 percent.
- Establishes a new grant program, "Safe Streets and Roads for All" to support local initiatives to prevent death and serious injury on roads and streets. Authorizes $200 million per year for 5 years and allows for 80 percent federal share.
- Establishes a new grant program, Strengthening Mobility and Revolutionizing Transportation (SMART), which shall provide grants to conduct demonstration projects focused on advanced smart city or community technologies and systems that improve transportation efficiency and safety. Authorizes $100 million per year for 5 years with 30 percent for rural community and regional partnerships.
- Establishes a new EPA program to award grants and rebates on a competitive basis for replacement of existing school buses with clean or zero emissions school buses.

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 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.

AIP grants for planning, development, or noise compatibility projects are at or associated with individual public-use airports (including heliports and seaplane bases). A public-use airport is an airport open to the public that also meets the following criteria:

- Publicly owned.
- Privately owned but designated by FAA as a reliever.
- Privately owned but having scheduled service and at least 2,500 annual enplanements.

Further, to be eligible for a grant, an airport must be included in the NPIAS. The NPIAS, which is prepared and published every 2 years, identifies public-use airports that are important to public transportation and contribute to the needs of civil aviation, national defense, and the Postal service.

The description of eligible grant activities is described in the authorizing legislation and relates to capital items serving to develop and improve the airport in areas of safety, capacity, and noise compatibility. In addition to these basic principles, an awardee must be legally, financially, and otherwise able to conduct the assurances and obligations contained in the project application and grant agreement.

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. The FAA must be able to determine that the projects are justified based on civil aeronautical demand. The projects must also meet Federal environmental and procurement requirements.

The following requirements must also be met for FAA to consider a project for AIP funding:

- The project sponsorship requirements have been met.
- The project is reasonably consistent with the plans of planning agencies for the development of the area in which the airport is located.
- Sufficient funds are available for the portion of the project not paid for by the Federal Government.

- The project will be completed without undue delay.
- The airport location is included in the current version of the NPIAS.
- The project involves more than $25,000 in AIP funds.
- The project is depicted on a current airport layout plan approved by FAA.

Figure 99 lists examples of typical eligible and ineligible AIP Projects.

FIGURE 99: EXAMPLES OF ELIGIBLE AND INELIGIBLE AIP PROJECTS

Examples of Eligible Versus Ineligible AIP Projects	
Eligible Projects	Ineligible Projects
Runway construction/rehabilitation	Maintenance equipment and vehicles
Taxiway construction/rehabilitation	Office and office equipment
Apron construction/rehabilitation	Fuel farms*
Airfield lighting	Landscaping
Airfield signage	Artworks
Airfield drainage	Aircraft hangars*
Land acquisition	Industrial park development
Weather observation stations (AWOS)	Marketing plans
NAVAIDs such as REILs and PAPIs	Training
Planning studies	Improvements for commercial enterprises
Environmental studies	Maintenance or repairs of buildings
Safety area improvements	
Airport layout plans (ALPs)	
Access roads only located on airport property	
Removing, lowering, moving, marking, and lighting hazards	
Glycol Recovery Trucks/Glycol Vacuum Trucks	

*May be conditionally eligible at non-primary airports.

For complete information about the AIP, view the website at www.faa.gov/airports/aip.

Local Fees and Taxes

The Crow Indian Tribe has extremely limited resources for raising local funds. Some items that may be considered include assessing a 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

Until an inventory of pavement conditions and a pavement management plan is prepared, it is difficult to know the extent of transportation improvement needs, both now and heading into the future. It is reasonable to anticipate that the needs will be greater than funding that is available. The federal register requires analysis of funding alternatives.

Keeping this in mind, it is more important than ever that the Crow Indian Tribe wisely spend the limited funds that are received and make necessary efforts to leverage additional funds from competitive funding programs including those established by ARPA and IIJA.

Figure 100 provides a guide for project types and funding mechanisms. It should be consulted yearly to determine potential projects that fit within competitive programs. When projects are identified, the Tribe should determine the appropriate timing to initiate funding applications.

FIGURE 100: FUNDING MECHANISMS BY PROJECT TYPE

Funding Program	Acronym	Funding Mechanism	Typical Project Type
Tribal Transportation Program Funds	TTP	Allocation	Roads
Tribal Safety Funds	TTPSF	Application	Studies, guardrail, hazard reduction
Tribal Bridge Program Funds	TTBP	Application	Bridges
Tribal Equitable Compensation Act	TECA	Application	Road construction and improvement, hazard reduction
Transportation Alternatives Funding	TA	Application	Sidewalks and shared use paths, lighting
Better Utilizing Investments to Leverage Development Funds	BUILD	Application	Variety, tied to economic development
Congestion Mitigation and Air Quality Funds	CMAQ	Application	Maintenance equipment
Federal Transit Administration	FTA	Application	Transit buses, transit shelters
Federal Aviation Administration Airport Improvement Program	AIP	Application	Airport improvements
Nationally Significant Federal Lands and Tribal Projects	NSFLTP	Application	Highways, roads, bridges, trails, transit on or adjacent to Tribal or Federal land

Strategic decisions on where to use available funds must recognize that use of funds to address one need often impacts the ability to resolve another need.

Figure 101 provides an example of how the annual budget of $6.985 million of TTP funds could be spread between new construction and reconstruction, major rehabilitation, pavement preservation and maintenance. This table is intended to serve as a guide, so that when, for example, decisions are made to spend more on one type of project, additional decisions are needed to spend less on another type of project. Alternative funding covering shared use paths, bridges and transit

are not shown as these will generally be dependent upon success in submitting applications and competition against other submittals.

FIGURE 101: EXAMPLE USE OF ANNUAL TTP FUNDS

New Construction and Reconstruction	Cost/Mile	Priority Miles	Miles/Year	Annual Cost
Street Construction/Reconstruction	$2,200,000.00	0	0	$0.00
Lighting (TA Match)	$320,000.00	0	0.00	$0.00
Sidewalks (TA Match)	$250,000.00	0	0.00	$0.00
Shared Use Paths (TA Match)	$250,000.00	1.5	0.75	$187,500.00
			Subtotal	**$187,500.00**
Major Rehabilitation				
Major Surface Rehabilitation	$2,000,000.00	0	0	$0.00
Gravel Rehabilitation	$200,000.00	20	0	$0.00
			Subtotal	**$0.00**
Pavement Preservation				
Crack and Chip Seal	$55,000.00	205	20.5	$1,127,500.00
Chip Seal	$46,000.00	0	0	$0.00
Crack filling and sealing	$22,000.00	0	0	$0.00
4-Inch Structural Overlay	$1,000,000.00	0	0	$0.00
2 Inch Non-Structural Overlay	$600,000.00	205	6.8	$4,080,000.00
			Subtotal	**$5,207,500.00**
Maintenance				
Patching (In Square Yards)	$30.00	2000	200	$6,000.00
Gravel Blading & Maintenance	$7,000.00	113	113	$791,000.00
Conversion of Primative to Gravel	$75,000.00	326	0	$0.00
Multi-Route Pavement Striping	$2,500.00	205	102.5	$256,250.00
Bridge and Culvert Maintenance	$35,000.00	1 LS	1	$35,000.00
Equipment Acquisition and Repairs	$150,000.00	1 LS	1	$150,000.00
Dust Control	$10,000.00	0	0	$0.00
			Subtotal	**$1,238,250.00**
			Project Improvements	**$6,633,250.00**

In Figure 101, annual costs for the shared use pathway estimate were based on saving for the project over a two-year period. Annual costs for crack and chip seal projects assume that all paved roads are put on a rotation for crack and chip seals to occur once every 10 years. In this case, it might make the most sense to conduct a crack and chip sealing project once every 3-5 years using the money that is saved up and completing a larger project.

Ideally, non-structural overlay projects should be done on every paved road mile once every 20 years. However, the cost of doing this appeared to exceed financial capabilities of the Crow Tribe. Therefore, the estimate used in Figure 101 assumes a 30-year rotation for overlay projects. In the example table, if these moneys are spent, about only $360,000 of unspent monies from the $6985,000 TTP allocation would remain on an annual basis. Those monies could be spent or saved for other transportation project purposes.

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.

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 and improving it in subsequent years. At the time this report was completed, a utility implementation strategy was unavailable.

SHORT- AND LONG-RANGE PROJECT RECOMMENDATIONS

Short range projects are those anticipated to be started by the end of the year 2027. For projects to use TTP funding, they must be included in the TTIP. Therefore, at the completion of this LRTP, the Crow Indian Tribe should update the TTIP to include identified short range projects.

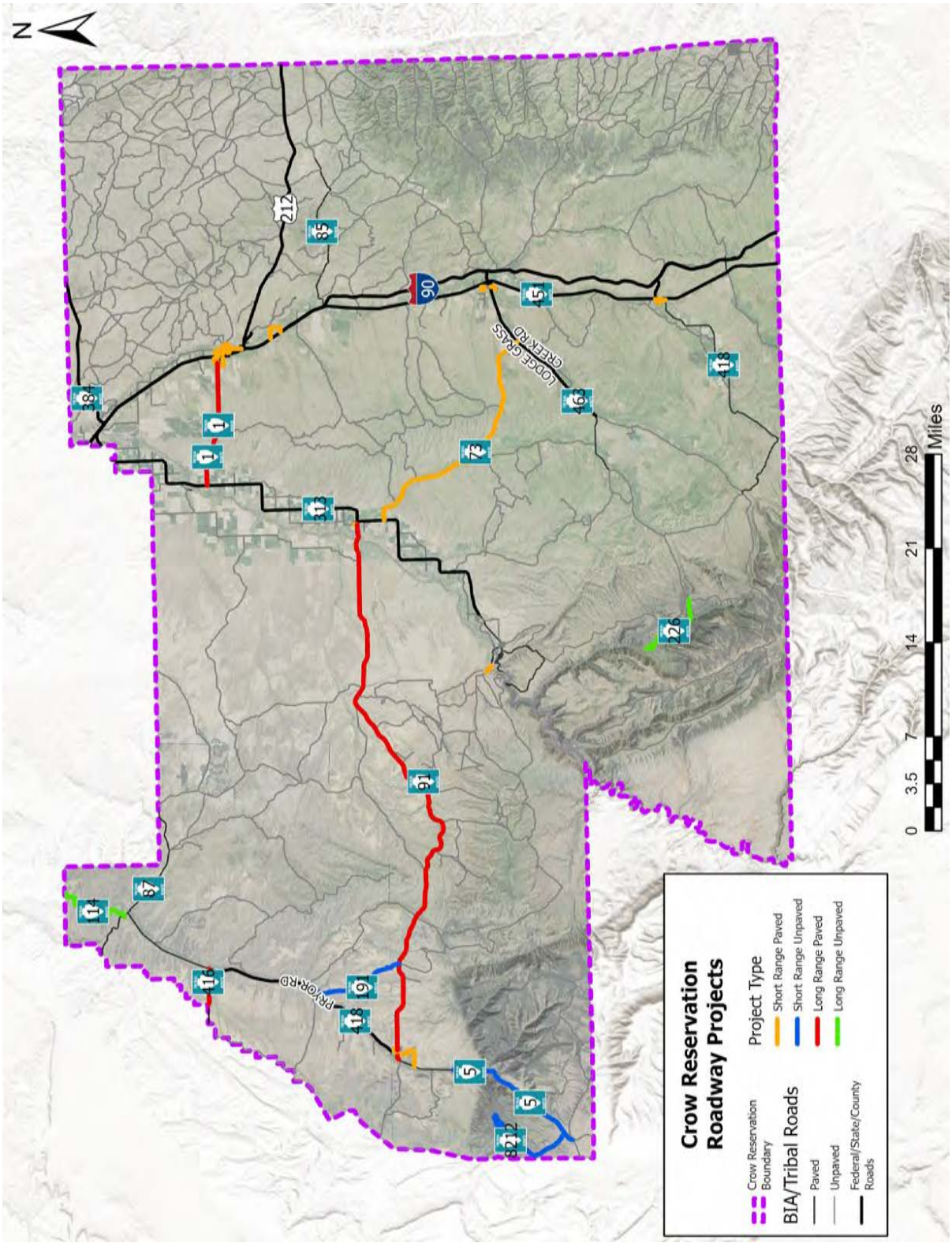
The short-range projects listed in the Tribe's TTIP must be financially constrained to fit within the amount of TTP funds allocated to the Tribe each fiscal year. It is expected that the Tribe will receive about $6,985,000 annually from which the general Tribal maintenance fund is proposed to use up to $250,000.00 ($150,000 for equipment), leaving about $6,735,000.00 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.

In past TTIP submittals, it was not possible to include all the Tribal project needs because they must be included in the LRTP first. Therefore, it is going to take some time for projects to proceed through design for the projects to be bid for construction. The project estimates that have been prepared include a 10% contingency for survey and design added to the construction cost.

Since survey and design has not been completed to address current project construction needs, it may be beneficial for the Crow Indian Tribe to put out an RFP to get one or more consulting engineering firms on board with a general engineering agreement so they may be contracted to assist with these efforts if desired. This would not require the Crow Indian Tribe to use consulting services for project development, but it would allow the Crow Indian Tribe to contract with preferred consultants moving forward without having to go through a separate RFP process each time assistance is desired.

A map of all identified paved and unpaved, short- and long-range road projects are shown together in Figure 102.

FIGURE 102: EXAMPLE USE OF ANNUAL TTP FUNDS



Short-Range Project Priorities

To maintain the Tribe's economic sustainability, funding must be carefully distributed to the most critical projects. Proposed short range *Road Paving* projects are listed in Table 14 with short *Gravel/Earthen Road* projects listed in Table 15. When additional funding is received, the Tribe will be able to prioritize a long-range project to move into the long-range element of the LRTP.

TABLE 14: SHORT-RANGE PAVED ROAD PROJECTS

Project Name	Route	PASER Ratings	Description	Area	Length (Miles)	Estimated Cost
Good Luck Road - Phase 3	BIA 73	4 / 5	Phase 3 RP 7.2 – RP 13.2 Full Depth Structural Overlay / Reclamation with Chip Seal, Rumble Strips, Pavement Markings, Bridge End Subgrade stabilization, Culverts.	Connecting route between Lodge Grass & St. Xavier	6	$4,862,300
BIA 91 Phase 1	BIA 91	5 to 6	PHASE 1: RP 0.0 – RP 7.0	BIA 91 between St. Xavier and Pryor	7	$3,251,820
BIA 91 Phase 2	BIA 91	5 to 7	Phase 2: RP 7.0 – RP 13.0	BIA 91 between St. Xavier and Pryor	6	$5,811,426
BIA 91 Phase 3	BIA 91	5.5 and 6	Phase 3: RP 13.0 – RP 18.1	BIA 91 between St. Xavier and Pryor	5	$4,787,209
BIA 91 Phase 4	BIA 91	6 to 7	Phase 4: RP 18.1 – RP 28.0	BIA 91 between St. Xavier and Pryor	10	$1,840,939
BIA 91 Phase 5	BIA 91	1 and 4.5 to 6.5	Phase 5: RP 28.0 – RP 34.0	BIA 91 between St. Xavier and Pryor	6	$5,213,440
BIA 91 Phase 6	BIA 91	5 to 6.5	Phase 6: RP 34.0 – RP 40.5	BIA 91 between St. Xavier and Pryor	6.5	$1,132,700

Project Name	Route	PASER Ratings	Description	Area	Length (Miles)	Estimated Cost
BIA 91 Phase 7	BIA 91	4.5 to 6	Phase 7: RP 40.5 – RP 44.8	BIA 91 between St. Xavier and Pryor	4.3	$4,515,389
Pryor Gap Road Curve	Pryor Gap Road curve	6	Realignment of Pryor Gap Road curve	Pryor Gap Road curve west of Pryor	.284 (1,500 ft)	$340,922
State Secondary Route 416 / Blue Creek Road	Blue Creek Rd	6, 7, and 8	Install guardrail/Slope flattening, Widen shoulder to 6 ft., Rumble strips, Improve roadside delineation, Install speed limit signs	Western Crow Indian Reservation Boundary at RP 9.26, east to Blue Creek Road and Pryor Road (State Secondary 418)	4.1	$5,239,300 *Option 3: Six-foot shoulder
Whistling Water Loop	BIA 14	5 / 6	Non-structural Overlay w/ Crack and Chip Seal	Off Old 87 south of Crow Agency	1.9	$1,244,500
Crow Agency Streets	BIA 1001 (Pretty Shield St)	TBD	Non-structural Overlay w/ Crack and Chip Seal	Crow Agency	0.2	$131,000
Crow Agency Streets	BIA 1002 (Two Leggings Ave)	TBD	Non-structural Overlay w/ Crack and Chip Seal	Crow Agency	0.2	$131,000
Crow Agency Streets	BIA 1004 (Cap Drive)	5, 6, 7	Nonstructural overlay w/ Crack and Chip Seal	Crow Agency	0.3	$196,500
Crow Agency Streets	BIA 1006 (Makawasha Ave.)	TBD	Nonstructural overlay w/ Crack and Chip Seal (Start: Bala Dr. for 0.4-0.5 mi.)	Crow Agency	0.5	$2,003,100
Crow Agency Streets	BIA 1010 (Makata St. / 3rd St)	5 and 6	Nonstructural overlay w/ Crack and Chip Seal	Crow Agency	0.3	$196,500
Crow Agency Streets	BIA 7001 (Crow River Rd.)	3, 5 and 6	Structural Overlay w/ Dig outs, Nonstructural	Crow Agency	0.4	$321,950

Project Name	Route	PASER Ratings	Description	Area	Length (Miles)	Estimated Cost
			overlay w/ Crack and Chip Seal			
Mason Hill Road	BIA (TBD) Mason Hill Road	N/A	New Construction	Crow Agency	0.8	$4,441,516
Heritage Road	BIA 7777	4 and 7	Structural Overlay / Crack Seal	Crow Agency	1.9	$207,400
Pow Wow Grounds - Internal Roads	Fair Drive / Main + North Loop and South Loop	TBD	Crack and Chip Seal (+) w/ Nonstructural overlay	Crow Agency	2.0	$110,000 (+) $1,310,000
Crow Agency Subdivision Streets	N. Plenty Hawk Dr., High Eagle Ave., Well Known Bear Ave, Buffalo Trail	TBD	Crack and Chip Seal (or) w/ Nonstructural overlay	Crow Agency	1.2	$66,000 (or) $786,000
Lodge Grass Community Streets	Rodeo Road / George St, Medicine Crow Loop, Bear Below St., Strong Enemy Dr., Red Bird Ln.	Rodeo Rd. (5) Sub-division TBD (NA)	Rodeo Road - Nonstructural overlay w/ Crack and Chip Seal (+) Full Reconstruction of Subdivision Streets	Lodge Grass	Rodeo Rd. = 0.45 (+) Subdiv = 1.05	Rodeo Rd. $294,750 (+) Subdivision $3,989,580
Wyola Community Streets	S. Mondel Ave. (+) Tobacco Rd., Rail St., Main St, Reynolds St, Tolles St.	S. Mondel Ave (5) Others: TBD	Nonstructural overlay w/ Crack and Chip Seal (+) Structural Overlay w/ Dig outs for added existing town gravel streets.	Wyola	0.78 Mondel (+) 0.74 mi. Added Streets	$510,900 (+) $888,000
St. Xavier Community Streets	Mission Loop	3	Structural Overlay w/ Dig outs	St. Xavier	0.2	$240,000
Pryor Community	BIA Routes NA	Away Kurwak (6), Tsate-	Crack and Chip Seals for existing	Pryor	0.65 mi. crack/	$395,750

Project Name	Route	PASER Ratings	Description	Area	Length (Miles)	Estimated Cost
Streets (Asphalt)		hash St (7), Plenty Coups (6), Peritsa Ave (6), Epkarisch St. (6)	pavements at $55,000/mi. (+) Structural Overlay w/ Dig outs of gravel road segments at $1.2 million/mile		chip seal (+) 0.3 mi. Structural Overlay	
Pryor Community Streets (Concrete)	Shirleen Bl., White Horse Ln., Bell Rock St., Swan Ave.	TBD	Structural Overlay w/ Dig outs and new curb and gutter (convert to asphalt)	Pryor	0.4	$2,200,000
Pryor Loop Road	BIA 105	2, 3, 4	Reconstruction plus Structural Overlay w/ Dig outs	Pryor	2.7	$3,860,000

TABLE 15: SHORT-RANGE GRAVEL AND EARTHEN ROAD PROJECTS

Road Name	Location	Surface Type	Length (Miles)	Estimated Cost
BIA 5	From end of paved surface at southern end of BIA 5/Pryor Gap Road to BIA 8212.	Gravel / Earthen / Unimproved Trail	11.4	$245,100.00
BIA 191 / Hay Creek Road	East of Pryor; north south connection between BIA 91 and BIA 4.	Gravel / Earthen / Unimproved Trail	7.6	$163,400.00
BIA 211	South from Pryor on BIA 5 at junction of BIA 211	Earthen / Unimproved Trail	3.3	$70,950.00
BIA 8212	South from Pryor on BIA 5 near junction of BIA 5 and BIA 211	Earthen / Unimproved Trail	9.0	$193,500.00

In addition to the short-range paved and unpaved projects listed in Tables 14 and 15, there are a number of *Safety Implementation Strategies* to be undertaken during the next 5 years. These are highlighted in the Crash and Safety Analysis found on page 46 in Chapter 3 of this LRTP.

A number of short-range pedestrian and bicycle multi-use path projects are detailed below in Table 16. The projects are listed by *Project Name and Project ID*, including full project descriptions, maps, and associated estimated project costs, beginning on page 148.

TABLE 16: SHORT-RANGE PEDESTRIAN AND MULTI-USE PATH PROJECTS

Crow Agency: Subdivision or Geographic Area	Project ID	Phase	Linear Feet	Estimated Project Cost
Pedestrian Railroad Crossing	1	NA	585	$180,000
Pow Wow Ground Multi-Use Pathway	2	I	2,587	$785,000
I-90 Pedestrian Structure	3	NA	690	$5,500,000
BIA 1 To Plenty Hawk Drive	4	I	2,851	$865,000
Walking Pathway (Bala St.)	5	NA	885	$300,000
Head Start Pathway Project	6	I	1,560	$216,523.43
Total			7,598	7,846,523.43

Long-Range Project Priorities

Long-range projects are those anticipated to be started after the year 2027. 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 *paved* and *gravel/earthen* road projects are shown in Tables 17 and 18, with long-range *pedestrian/bicycle multi-use path projects* shown in Table 19.

TABLE 17: LONG-RANGE PAVED ROAD PROJECTS

Project Name	Route(s)	PASER Rating(s)	Description	Area/ Location	Length (Miles)	Cost
Pryor Gap Road	BIA 5	5	Non-structural Overlay w/ Crack and Chip Seal	Pryor Gap Rd., (Southwest out of Pryor)	4.2	$2,751,000
BIA 1	BIA 1	6 to 8	Crack and Chip Seal	Lodge Grass/Crow Agency to St. Xavier	9.4	$517,000

TABLE 18: LONG-RANGE GRAVEL AND EARTHEN ROAD PROJECTS

Road Name	Location	Surface Type	Length (Miles)	Estimated Cost
BIA 192 (Fort Smith - ROW Issues)	BIA 192 (Grapevine Rd. ROW Issues. Located west from Fort Smith (Determine a reasonable project limit from BIA 7544/Dam Road for gravel reclamation and/or new pavement project of existing gravel road)	Gravel / Earthen	2.0	$43,000.00
BIA 114	Northwest corner of Crow Reservation, extending south from I-90.	Gravel	2.1	$45,100.00
BIA 226	South of BIA 313, along BIA 235 at the junction of BIA 235 and BIA 8002.	Gravel	6.7	$144,050.00

Long-range pedestrian and bicycle multi-use path projects are detailed below in Table 19. The projects are listed by *Project Name and Project ID,* including full project descriptions, maps, and associated estimated project costs, beginning on page 156.

TABLE 19: LONG-RANGE PEDESTRIAN AND MULTI-USE PATH PROJECTS

Subdivision or Geographic Area	Project ID	Phase	Linear Feet	Estimated Project Cost
Crow Agency	2	II	4,224	$1,350,000
	2	III	7,181	$2,215,000
	4	II	3,590	$1,089,000
Dunmore	7	TBD	TBD	TBD
Garryowen	8	TBD	TBD	TBD
Lodge Grass	9	TBD	TBD	TBD
Wyola	10	TBD	TBD	TBD
St. Xavier	11	TBD	TBD	TBD
Fort Smith	12	TBD	TBD	TBD
Pryor	13	TBD	TBD	TBD
Total			14,995	$4,654,000