Lower Brule Sioux Tribe
Multi-Hazard Mitigation Plan

PREPARED FOR

The People of the Lower Brule Sioux Tribe
Lower Brule Sioux Indian Reservation

PREPARED BY

the

Lower Brule Sioux Tribe

in collaboration with

Louis Berger, Inc.

June 2019

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ACRONYMS AND ABBREVIATIONS

BIA	Bureau of Indian Affairs
FEMA	Federal Emergency Management Agency
HMP	Hazard Mitigation Plan
LBST	Lower Brule Sioux Tribe
reservation	Lower Brule Sioux Reservation
Tribe	Lower Brule Sioux Tribe
US	United States

Acknowledgements

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High School Hazard Mitigation Planning Committee

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- Jesslyn Estes
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INTRODUCTION

The Lower Brule Sioux Tribe (LBST) is susceptible to many natural disasters, including winter storms, wind, drought, tornadoes, flooding, hail, wildfires, earthquakes, and landslides. Each of these natural disasters can greatly affect the lives of the people living on the Lower Brule Sioux Reservation (reservation) by damaging infrastructure and the economy and causing injury or death to community members. Since 1954, LBST has been included in 13 presidential disaster declarations.

Most of the disaster declarations have resulted from winter storms, floods, and wind storms that affect large areas within South Dakota (see Figure 1). In the past, LBST has been a sub-applicant with the State of South Dakota when applying for Federal Emergency Management Agency (FEMA) emergency funding. This situation causes concern because the Tribe does not receive adequate funding following these disasters. With the adoption of this Hazard Mitigation Plan (HMP), the Tribe will be able to apply for funding as an applicant with the State of South Dakota, and, most crucially, the ability to apply for FEMA Public Assistance Grants in categories C through G and Hazard Mitigation Assistance Grants. Currently, the Tribe's emergency preparedness is lacking because the Tribe has no municipal sirens, community shelters, or evacuation plans. Without this HMP, the Tribe will not have the critical infrastructure necessary to protect its people during emergencies and will be forced to continue being funded at the State's discretion, leaving little opportunity for improvements.

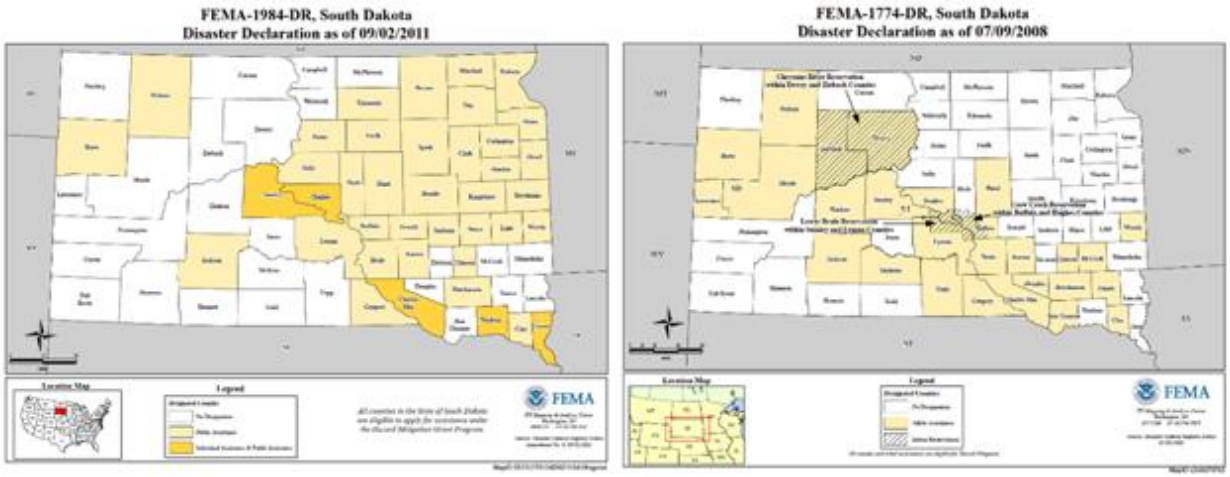


Figure 1: Areas of South Dakota included in Disaster Declarations

The creation of this HMP was a collaborative effort between emergency management specialists, Tribal leaders and staff, and Lower Brule community members. With this HMP in place, LBST will have a much greater capacity to protect the lives, homes, and possessions of people living on the reservation; Tribal infrastructure; and the Tribe's essential cultural resources, for years to come.

Location

The reservation, located in central South Dakota bordering the west side of the Missouri River (Figure 2), consists of 156,917.47 acres of trust land and 69,743.63 acres of fee land, totaling 226,661 acres within the reservation boundary. LBST also owns 29,314 acres of land off the reservation. Within the reservation, 100 farm/pasture leases encompass 88,253 acres and 25 range units totaling 84,402 acres, all leased by Tribal operators.

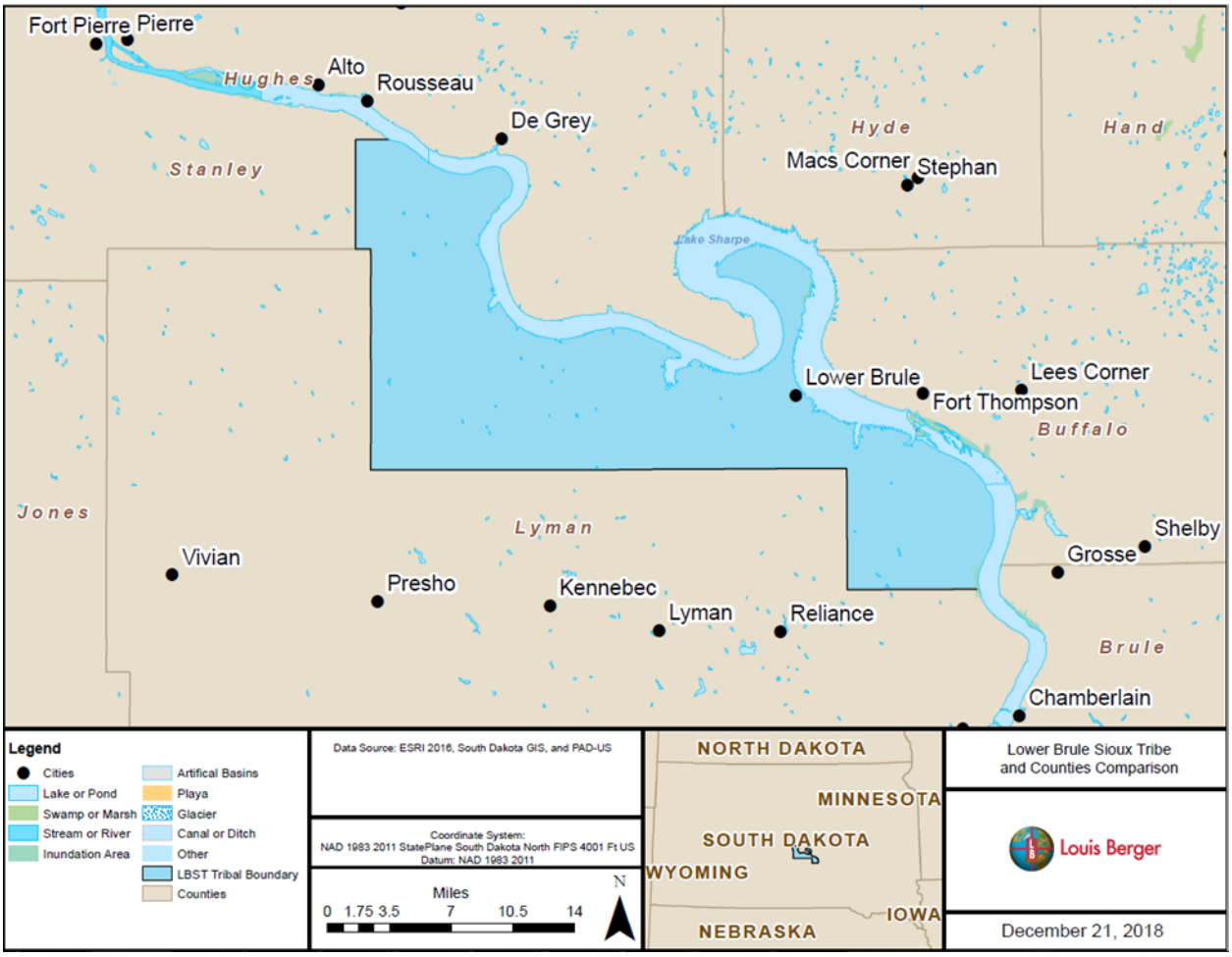


Figure 2: Map of Lower Brule Sioux Reservation

History

On June 22, 1825, representatives of the United States (US) government signed a treaty with several bands of Lakota, Yancton, and Yanctonnais at Fort Lookout on the Missouri River. Fort Lookout is on the southern boundary of the present-day Lower Brule Sioux Reservation, in the Fort Hale District. This treaty was seemingly “For the purposes of perpetuating the friendship which has heretofore existed, as also to remove all future cause of discussion or dissension.” To perpetuate this friendship, however, the Tribes had to agree: “that they reside within the territorial limits of the United States, acknowledge their supremacy, and claim their protection.”

Deeper into this agreement came a phrase that would have profound impacts on these assembled tribes and every other Tribe in the Americas: “the limits of their particular district of country.” For the first time, the Sioux tribes faced an issue alien to their way of life—limits to their territory.

On September 17, 1851, at Fort Laramie, commissioners appointed by the President of the US signed a treaty with representatives of the Lakota, Cheyenne, Arapahoe, Crow, Assiniboine, Gros-Ventre, Mandan and Arikara Nations. For the first time, Lakota people had to accept a specific portion of land as their territory: “commencing the mouth of the White Earth River, on the Missouri River; thence in a southwesterly direction to the forks of the Platte River; thence up the north fork of the Platte River to a point known as the Red Buts (sic), or where the road leaves the river; thence along the range of mountains known as the Black Hills, to the head-waters of Heart River; thence down Heart River to its mouth; and thence down the Missouri River to the place of beginning.” Brulé hunting parties had traditionally gone south of the Platte River, but soon the Tribe realized that the US regarded such acts as illegal.

On October 14, 1865, at Fort Sully, the US government and the LBST signed a treaty that established the Lower Brule Sioux Reservation as a tract of land extending north from below the mouth of the White River along the Missouri River to Fort Lookout, about 20 miles as the crow flies, and west 10 miles in depth.

Three years later, in 1868, the second Fort Laramie Treaty created a Sioux Nation territory, called the Great Sioux Reservation. Without acknowledging the 1865 treaty, this treaty encompassed all the lands from the south boundary of Dakota Territory, west from the east bank of the Missouri River to the west side of the Black Hills and north to near the present-day boundary of North and South Dakota. The northern boundary was later extended to the Cannonball River.

The treaty included this statement: “the United States now solemnly agrees that no persons except those herein designated and authorized so to do, and except such officers, agents and employees of the Government as may be authorized to enter upon Indian Reservations in discharge of duties enjoined by law, shall ever be permitted to pass over, settle upon, or reside in the territory.” These words set apart a homeland that included the sacred Black Hills but did not stop settlers from streaming west.

In 1874, when a US Army expedition led by General George Armstrong Custer entered the Black Hills and discovered gold, they announced it to the public, and the flow became a flood. The Tribes fought back, and in 1876, defeated General Custer and his 7th Cavalry at the Battle of Greasy Grass (Little Big Horn), near present-day Hardin, Montana.

In retribution, the US first attacked a rider to the Indian Appropriations Act of 1876 that cut off all rations for the Sioux, who faced starvation because of the extermination of the buffalo, unless they ended hostilities and ceded the Black Hills. Soon after, this threat forced the Sioux to agree to the Manypenny Agreement, and the Act of February 2, 1877, officially removed the Black Hills from the Great Sioux Reservation. That act illegal as verified in 1979, when the US Court of Claims concluded that this seizure violated the Fifth Amendment of the US Constitution.

While the US broke this treaty with the Sioux, the explicit goal was to break up reservations and force Indians to assimilate into the dominant white culture. The first attempt after the Act of 1877 was the Indian General Allotment Act of 1887 (Dawes Act), which allotted Indian lands into 160-acre tracts to individual heads of households and smaller amounts to other family members.

Once all Indian people had their allotments, the US government began to sell off unallotted lands within reservation boundaries to non-Indians.

The next assault on the Lakota land base began with the Act of August 7, 1882, which in part authorized the government to: "negotiate with the Sioux Indians for such modification of existing treaties and agreements with said Indians as may be deemed desirable by said Indians and the Secretary of the Interior." The government sent out a group of Commissioners to obtain agreements from the Sioux Tribes, but LBST refused to sign. To force the Kul Wicasa into an agreement, the Commissioners and the Brules at Rosebud Agency agreed on a Lower Brule Reservation on January 27, 1883. There were no Lower Brule signatories.

The Great Sioux Reservation, as agreed by the Sioux Tribes, was broken up into smaller reservations by the Act of March 2, 1889. The Act split the Sicangu into two reservations: the Rosebud Reservation, which was established south of the White River, and the Lower Brule Sioux Reservation, which was not maintained in the White River location, as outlined in the 1883 agreement, which Lower Brule had not signed. Instead, the reservation was moved north, so that its southern boundary was 20 miles upstream from the White River, at Fort Lookout, where the 1825 Treaty was signed. This ”new” reservation, an area of 446,500 acres, was within the Lower Brule aboriginal territory.

In 1898, the US government forced another agreement on the Lower Brule, relating to Tribal members who continued to resist removal to the reservation north of Fort Lookout. The Act of March 3, 1899 made these Tribal members and their family’s members of the Rosebud Reservation and transferred their rights to Lower Brule trust land, reducing the reservation to 326,500 acres.

The reservation boundary was fixed for less than 10 years. The Act of April 21, 1906, allowed the US government to take 56,560 acres of unallotted lands in the Stanley County portion of the reservation and provide them to non-Indian homesteaders. This area is now known as the Fort Pierre National Grassland. The Tribe still disputes the legality of this takeover.

That same year, the Act of May 8, 1906 (Burke Act), allowed the Secretary of the Interior to convert an Indian allotment, which could not be bought or sold, to fee land (saleable to non-Indians, and subject taxation), even without the knowledge or permission of the allottee. This was typical of divisive measures that contributed to the steady erosion of Lower Brule land well into the 20th century, as Tribal members, enduring great poverty, were forced to sell their allotments to non-Indian ranchers and farmers.

In 1923, a group of non-Indian writers and social scientists formed the American Indian Defense Association and elected a social worker named John Collier as executive secretary. The American Indian Defense Association promoted American Indian cultural autonomy by recommending radical changes in the US government’s approach to Indian land rights and culture. When US President Franklin J. Roosevelt appointed John Collier as Commissioner of the Bureau of Indian Affairs in 1933, it created a tide of change. Unlike previous government politicians, commissioners, and agents, Collier understood the starkly different concept of land held by aboriginal peoples, as he stated in his annual report to the government in 1938: “the Indian by tradition was not concerned with possession, did not worry about titles or recordings, but regarded the land as a fisherman might regard the sea, as a gift of nature, to be loved and feared, to be fought and revered, and to be drawn on by all as an inexhaustible source of life and strength.”

The constant efforts of Tribal representatives, non-Indian activists and Commissioner Collier's work within the government resulted in the Indian Reorganization Act, June 18, 1934 (Wheeler-Howard Act), which finally eliminated the discreditable land grab initiated by the Indian General Allotment Act of 1887. It stated: "hereafter no land of any Indian Reservation, created or set apart by treaty or agreement with the Indians, Act of Congress, Executive order, purchase, or otherwise, shall be allotted in severalty to any Indian"; that "the existing periods of trust placed upon any Indian lands and any restriction on alienation thereof are hereby extended and continued until otherwise directed by Congress; and that "the Secretary of the Interior, if he shall find it to be in the public interest, is hereby authorized to restore to Tribal ownership the remaining surplus lands of any Indian Reservation heretofore opened, or authorized to be opened, to sale, or any other form of disposal by Presidential proclamation, or by any of the public land laws of the United States."

The next loss of Lower Brule territory did not come to light until 1932. In the Act of 1889, the southern boundary of the reservation was defined as the 44th parallel of latitude. After the Sioux Tribes sued the US for an accounting of all the lands which had been opened for settlement and disposed of under the Act of 1889, it emerged that the location of the 44th parallel by the surveyor in 1890 did not agree with the location of the parallel as determined by the US Geological Survey, which placed it more than a mile south. In 1934, the Sioux Tribes, based on this report, amended their petition to include a claim for the more than 30,000 acres of land that would have been included in the reservation if the US Geological Survey line had been its southern boundary. After a succession of court cases between 1934 and 1963, the courts agreed that the southern boundary was improperly located and that lands, which were properly part of the reservation, had been sold as public lands. To this date, the Tribe has not been compensated.

The Lower Brule people had to endure two more damaging actions by the US government in the mid-20th century, when they passed the Pick-Sloan Act in 1944, which authorized the construction of dams on the Missouri River. The Fort Randall Taking Act (1958) and the Big Bend Taking Act (1962) took away the bottomland of the Missouri River valley and with it, almost the entire social, cultural and economic base of the Tribe. These lands, 22,296 acres of prime, rich floodplains and terraces, were sacrificed when the government decided in a cost-benefit analysis that destroying Tribal homelands along the Missouri River was better than placing the dams where they might impact non-Indian farmers and settlements. The entire town of Lower Brule, once the largest settlement between the Missouri and the Black Hills, was inundated with 69 percent of reservation families forced from their homes, miles of roads, housing, farm and ranch buildings, a rodeo arena, and a race track lost, many ancestral areas, including worship and gathering places, flooded or destroyed, and whole cemeteries of our people once again uprooted and moved to higher ground! This left us with an open wound, as every year, the crashing waves of Lake Francis Case and Lake Sharpe eat away more land and more of our ancient cultural sites.

After almost 300 years since Lakota Tribal leaders signed a treaty with the US at Fort Lookout (1825), the reservation is a confusing checkerboard of lands with several different kinds of ownership: land belonging to the Tribe or Tribal members, held in trust by the US government (trust lands, Tribal lands, and allotted lands); and land removed from trust and owned outright by Tribal and non-Tribal individuals (fee lands). Because the inheritance of allotted lands was to descendants, a single plot of land today might be divided among many relatives, making it extremely difficult to deal with land management issues.

The most urgent priority in this complex cultural landscape has been the return of lost lands. As almost half the property in the reservation was non-Indian-owned as late as the 1950s, the LBST has established an aggressive land re-purchase and consolidation program. LBST has now regained at least 20% of this land and recovered several large tracts of aboriginal territory: 93 acres in Oacoma, near the old Lower Brule Agency of the late 1800s; 1,080 acres near the most important sacred place, Bear Butte, in the Black Hills; and several ranches along the Native American scenic byway (Highway 1806), from the northern reservation boundary almost to the town of Fort Pierre.

The first federal government action to return lands taken from Lower Brule took place in 1999. Title VI of the Water Resources Development Act of 1999 included the "Cheyenne River Sioux Tribe, Lower Brule Sioux Tribe, and State of South Dakota Terrestrial Wildlife Habitat Restoration Bill." This legislation resulted in the return to the Lower Brule Sioux Tribe of 7,000 acres – what was left of the dry lands along the shorelines of Lake Sharpe and Lake Francis Case that the US took from Lower Brule when it authorized the dams on the Missouri River in 1944.

Government

The Lower Brule Sioux Tribe is a sovereign nation defined by its government-to-government relationship with the US. The Tribe and its close relatives, the Rosebud Sioux Tribe, are members of the Sicangu Band of the Lakota Nation. The Lakota first signed treaties with the federal government in 1825 and 1851; the Lower Brule Sioux Tribe signed a specific treaty in 1865; and all the Lakota tribes signed a comprehensive treaty in 1868. These treaties constitute the legal documents establishing boundaries and recognizing the rights of sovereign Tribal governments.

LBST was chartered under the Indian Reorganization Act of June 18, 1934, and the Tribal constitution was ratified on July 11, 1936. The first bylaws were approved in 1960. On June 17, 1974, the constitution and bylaws were amended, and on September 2, 1986, they were again amended, and a code of ethics adopted. The 1975 Indian Self Determination and Education Assistance Act, PL 93-638 gave the tribe additional self-governance powers.

Tribal affairs are conducted by a six-member Tribal Council, consisting of a Chairman, Vice-Chairman, Secretary-Treasurer, and three Council Members. They are elected at large and serve two-year terms. The Tribal Council Chairman serves as the Chief Executive Officer and administrative head of the Tribe.

Lower Brule Tribal Council 2018 - 2020

Chairman: Boyd I. Gourneau
Vice-Chairman: Cody Russell
Secretary/Treasurer: Orville "Red" Langdeau Jr.

Council Members

Clyde Estes
John McCauley, Sr.
Marvin Grassrope

Areas of Cultural Significance

LBST holds the protection of areas with cultural significance paramount. In accordance with this HMP, all listed and non-listed areas will be considered when planning for future mitigation projects. Archaeological surveys conducted by the State Archaeological Research Center, Rapid City, SD and the Cultural Resources Office, Lower Brule Sioux Tribe have confirmed almost 200 cultural sites along the reservation shoreline. Many more are located inland. For the protection of LBST's cultural sites, only the National Register of Historic Places sites are listed below:

- Burnt Prairie site, listed in 1986
- Fort Lookout IV, listed in 1990
- Iron Nation Archaeological Site, listed 2003
- Iron Nation's Gravesite, listed in 2014
- Jiggs Thompson site, listed in 1986
- Langdeau site, listed in 1966
- Medicine Creek Archeological District, listed in 1986

The Tribe protects and maintains several mission churches and cemeteries, built between 1890 and the 1920s—St. Albans, Messiah, Holy Name and Holy Faith (cemetery only) Episcopalian churches and Divine Infant Catholic Church. After an extensive restoration project, the churches have been reconsecrated and once again serve members of the Lower Brule rural community.

The Tribe has established two Culturally Sensitive Areas that protect ancient cultural sites in the Big Bend and Medicine Creek areas from any development and set aside a stretch of sandhill prairie—the only surviving area of sand dune ecology in the Missouri River valley.

Geography, Geology, and Topography

The reservation lies within the Pierre Hills and Missouri River trench regions of the Missouri Plateau section of the Great Plains physiographic province. The Pierre Hills are generally characterized as gently sloping to strong sloping. In the area of the reservation adjacent to the Missouri River, the topography is strongly sloping to steep. The Missouri River, which flows south and southeast, has cut a trench 2 to 4miles wide and 300 to 450 feet deep across the physiographic province, Elevations in the area range from about 1,370 feet above mean sea level along the river to more than 2,000 feet in the uplands.

Climate

The annual average precipitation on the Reservation is 34 inches (Figure 3). About 14 inches of this precipitation falls during the April through September growing season. About 20% of the time, however, the growing season rainfall is less than 11 inches. Because of the potential for drought conditions, most of the area is used as range land. Only about 36% of the land in Lyman and Stanley counties (the location of the reservation) is used for crop production. However, LBST can sustain crop production over a larger than average area because water from the Missouri River is available for irrigation on adjacent croplands.

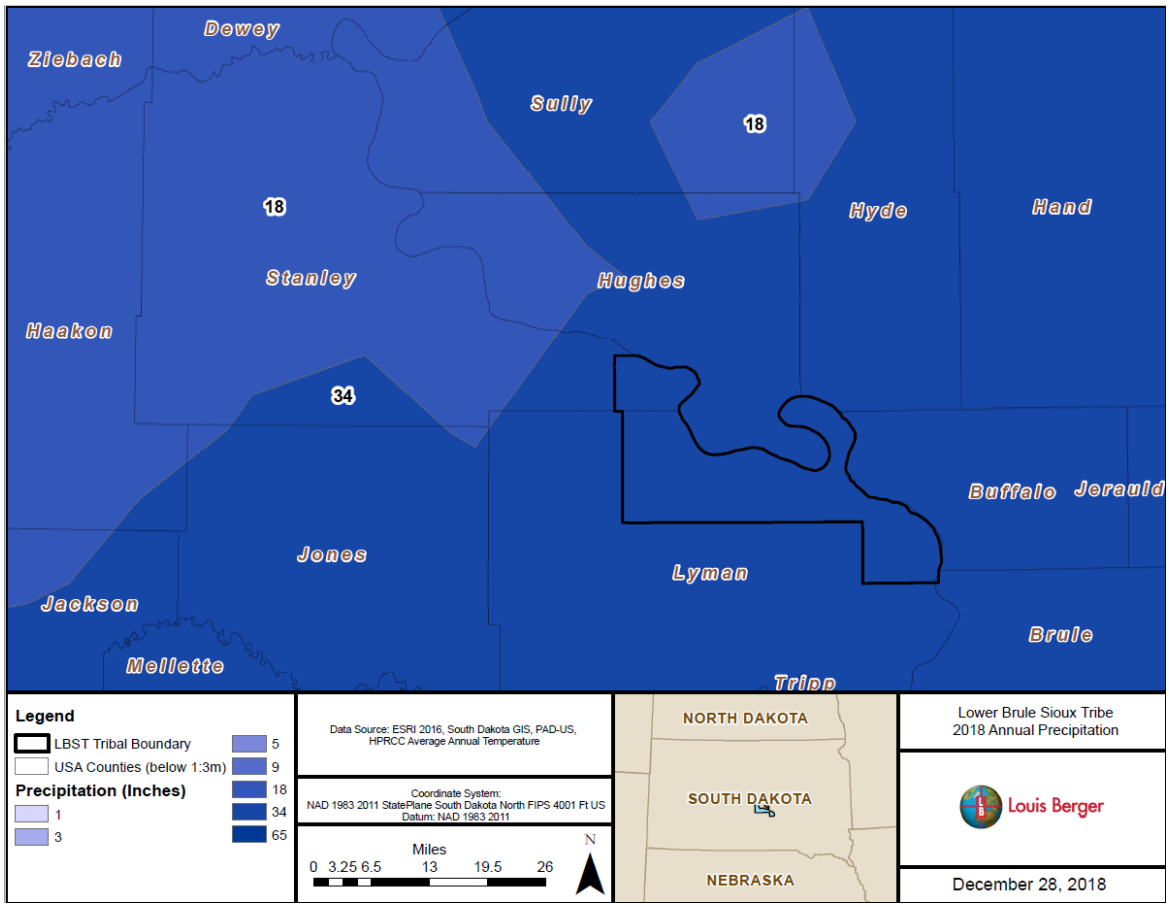


Figure 3: Map of Annual Precipitation on the Lower Brule Sioux Reservation

Summers in the Reservation area are generally quite warm, with frequent hot spells and only occasional cool days. During the summer, the average temperature is 73 degrees, with an average maximum temperature of 88 degrees (Figure 4). Although most precipitation falls during the spring and early summer, the sun shines about 70 percent of the time during the summer months. Thunderstorms occur on about 44 days each year.

While prevailing summer winds are generally from the south, winds during the winter are frequently from the north/northwest. This makes the area very cold in the winter, as the winds often bring arctic air down from the north. The average winter temperature is 20 degrees, with an average daily minimum temperature of 8 degrees. Winter snowfall is normally not too heavy, averaging about 31 inches annually. It is usually blown into drifts, leaving much of the ground free of snow. The sun shines about 55 percent of the time in the winter. Figure 5 shows the annual temperature and precipitation for the area.

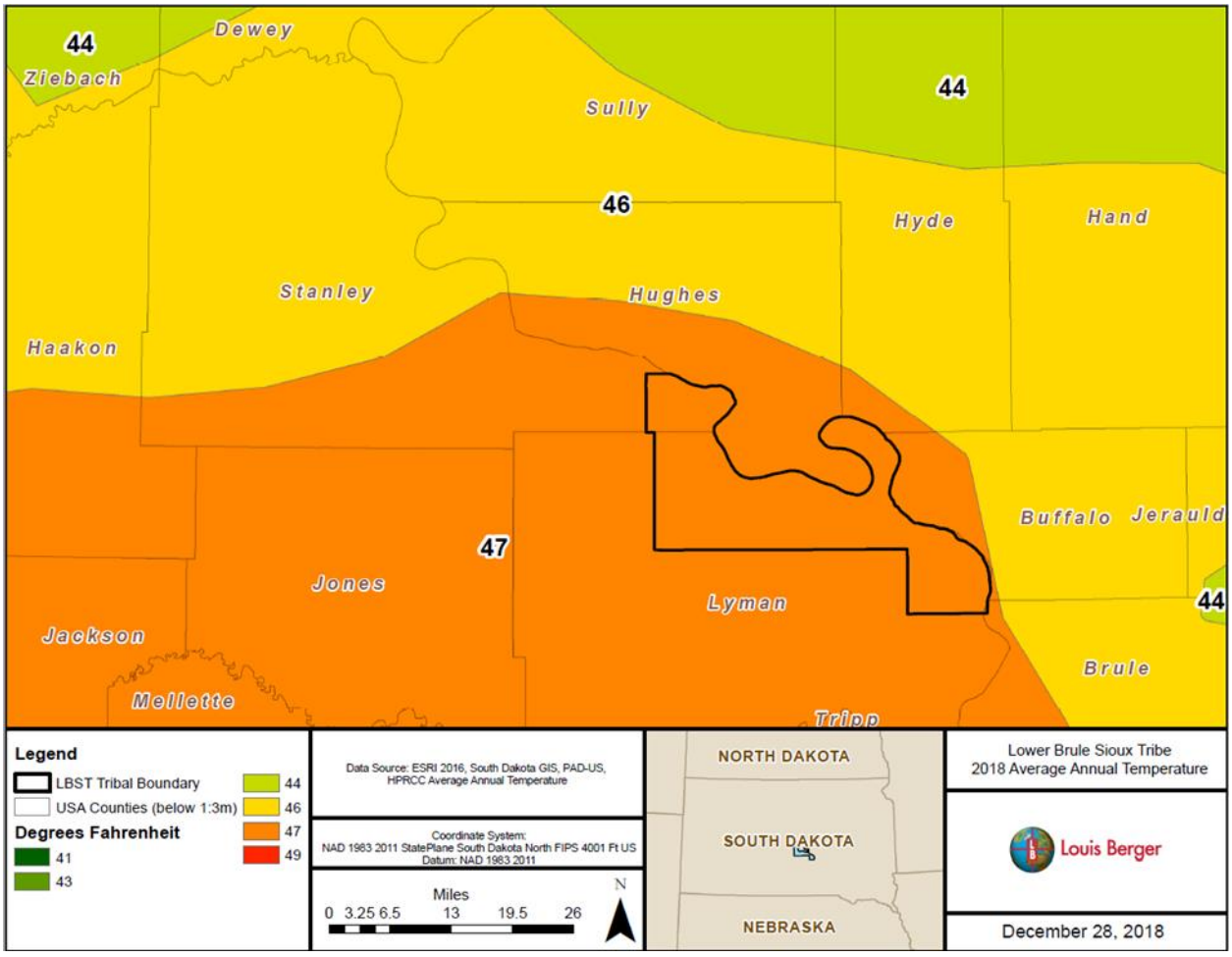


Figure 4: Map of Average Annual Temperature on the Lower Brule Sioux Reservation

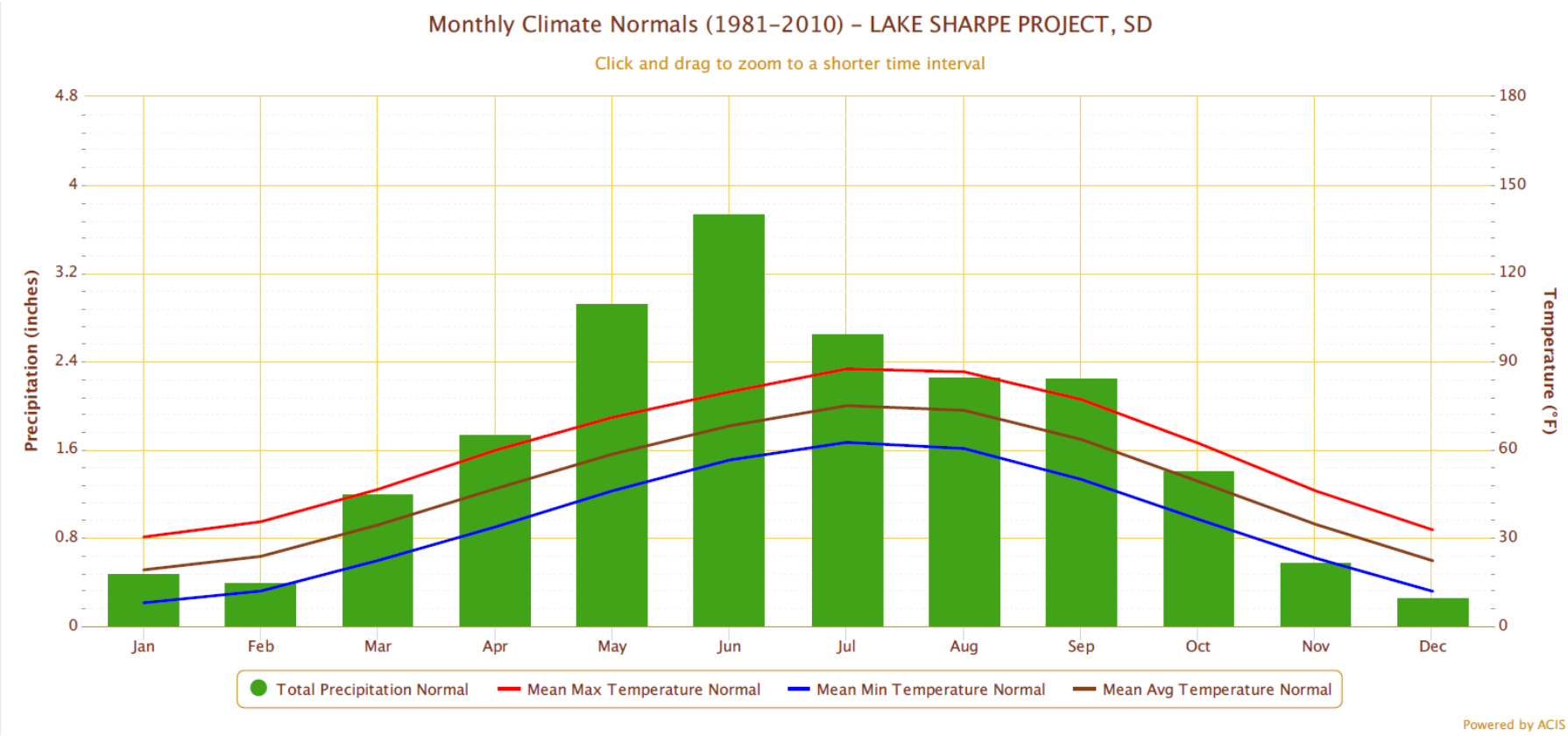


Figure 5: Monthly Normal Climate on the Lower Brule Sioux Reservation

Demographics

The people of Lower Brule live in urban and rural areas across the reservation. Most residents live in the town of Lower Brule and the nearby West Brule Community. Approximately one quarter of the reservation population is rural (see Figure 6).

The 2010 US Census states that the 2010 population of the Lower Brule UT was 1,481 people. They lived in 432 housing units, totaling 3.43 people per housing unit. Louis Berger has developed a current estimate. First, they verified the number of homes within the reservation using aerial photography. Then, after taking into consideration the US Census data, estimates from the Lower Brule Housing Authority, and information from other Tribal officials, they increased the estimated number of people per housing unit to 5.00. The currently projected total population of the Reservation is therefore approximately 2,160.

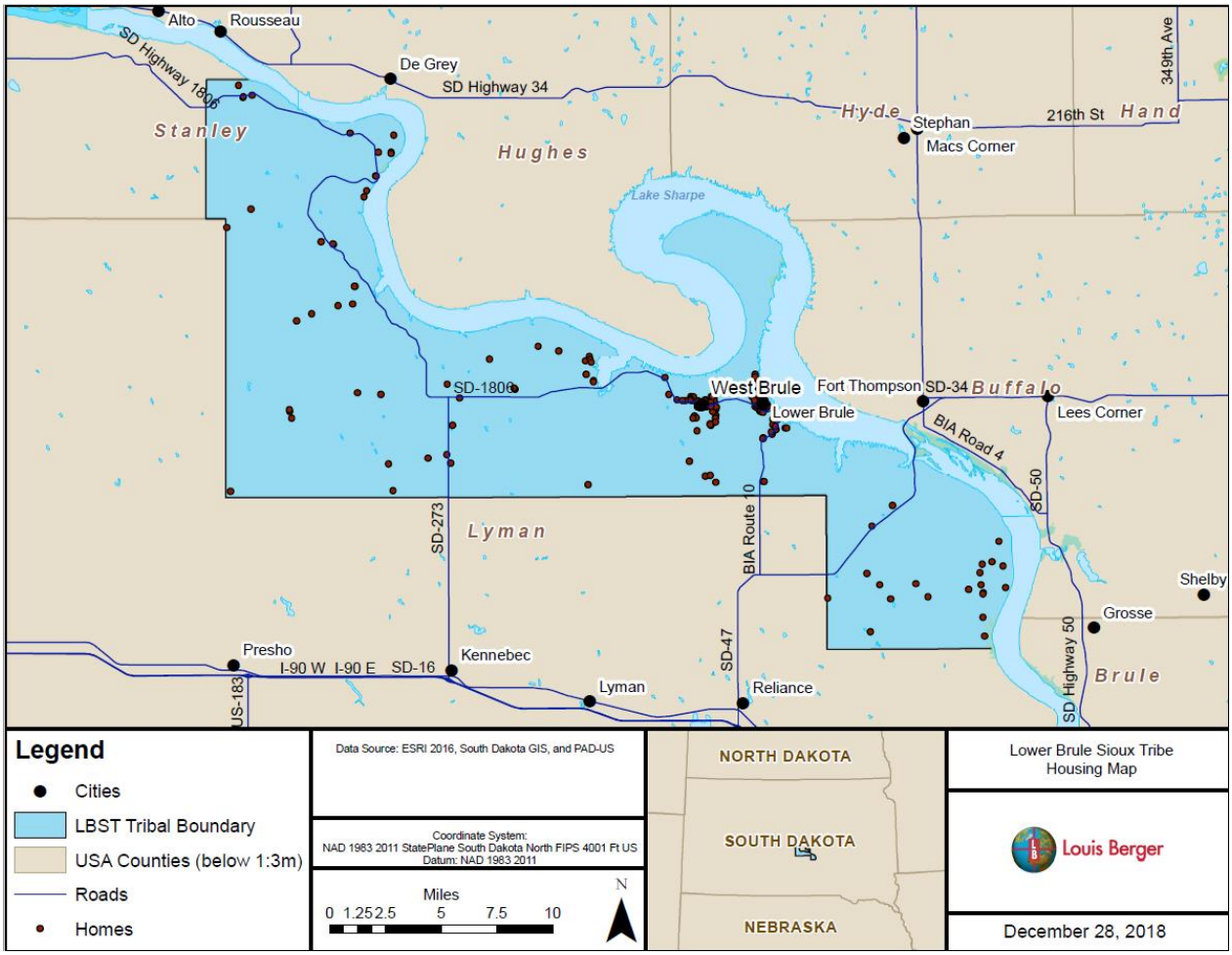


Figure 6: Distribution of Housing on the Lower Brule Sioux Reservation

The top industries within the reservation, based on US Census Bureau 2011–2015 American Community Survey 5-year Estimate, were public administration, educational services, healthcare, arts, entertainment, recreation, accommodation, and food services. Economic draws to the reservation include hunting, fishing and boating recreation on Lake Sharpe, gaming, and tourism.

Critical Infrastructure

LBST has defined critical facilities in the planning area using the following criteria per FEMA guidelines:

- Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic and/or water-reactive materials;
- Hospitals, nursing homes, and housing likely to contain occupants who may not be sufficiently mobile to avoid death or injury during a flood;
- Police stations, fire stations, vehicle and equipment storage facilities, and emergency operations centers that are needed for flood response activities before, during, and after a flood; and
- Public and private utility facilities that are vital to maintaining or restoring normal services to flooded areas before, during, and after a flood.

After analysis of the structures located on the reservation, the following were defined as critical infrastructure for the area shown in Figures 7 through 10:

- Tribal Administration Building
- Ambulance Building
- Bureau of Indian Affairs (BIA) and Tribal Fire Stations
- Community Center
- Elementary School
- High School
- Indian Health Service Clinic
- Detention Center
- Courthouse/Police Station
- Propane Station
- Water Treatment Facility and Booster Stations
- Golden Buffalo Casino, Motel and Convention Center

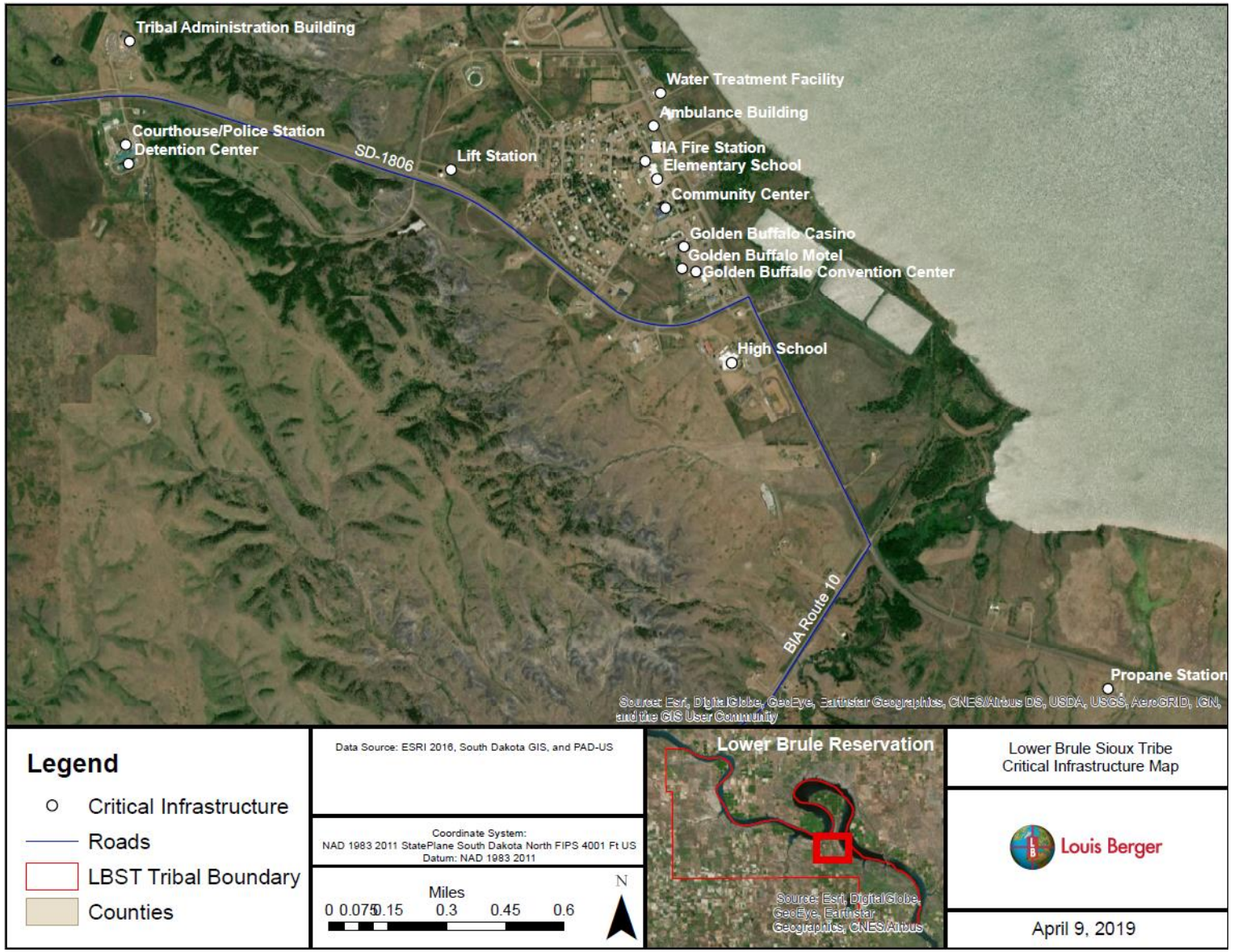


Figure 7: Overview Map of Critical Infrastructure on the Lower Brule Sioux Reservation

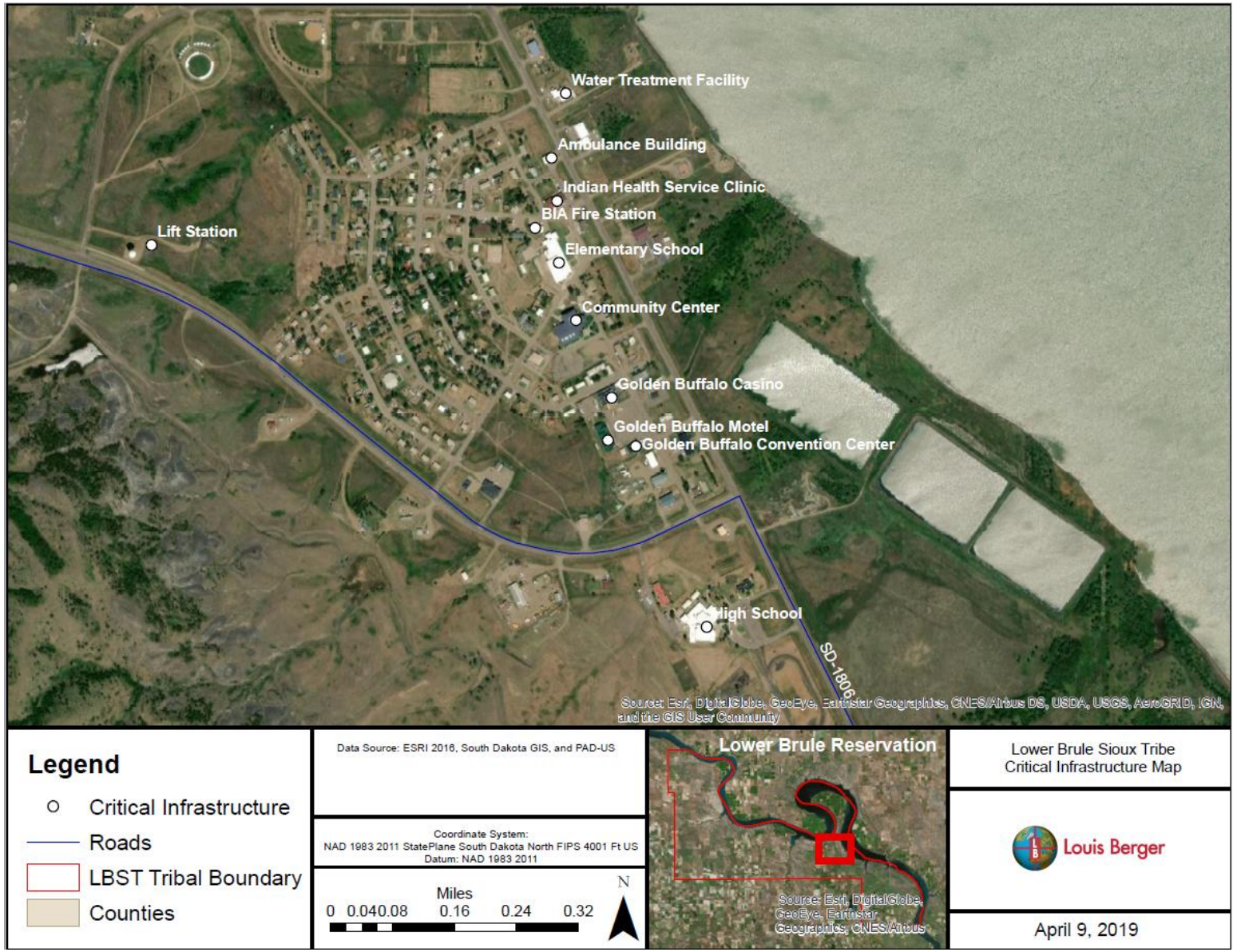


Figure 8: Critical Infrastructure Map on the Lower Brule Sioux Reservation

Figure 9: South East of Lower Brule Sioux Reservation Critical Infrastructure Map

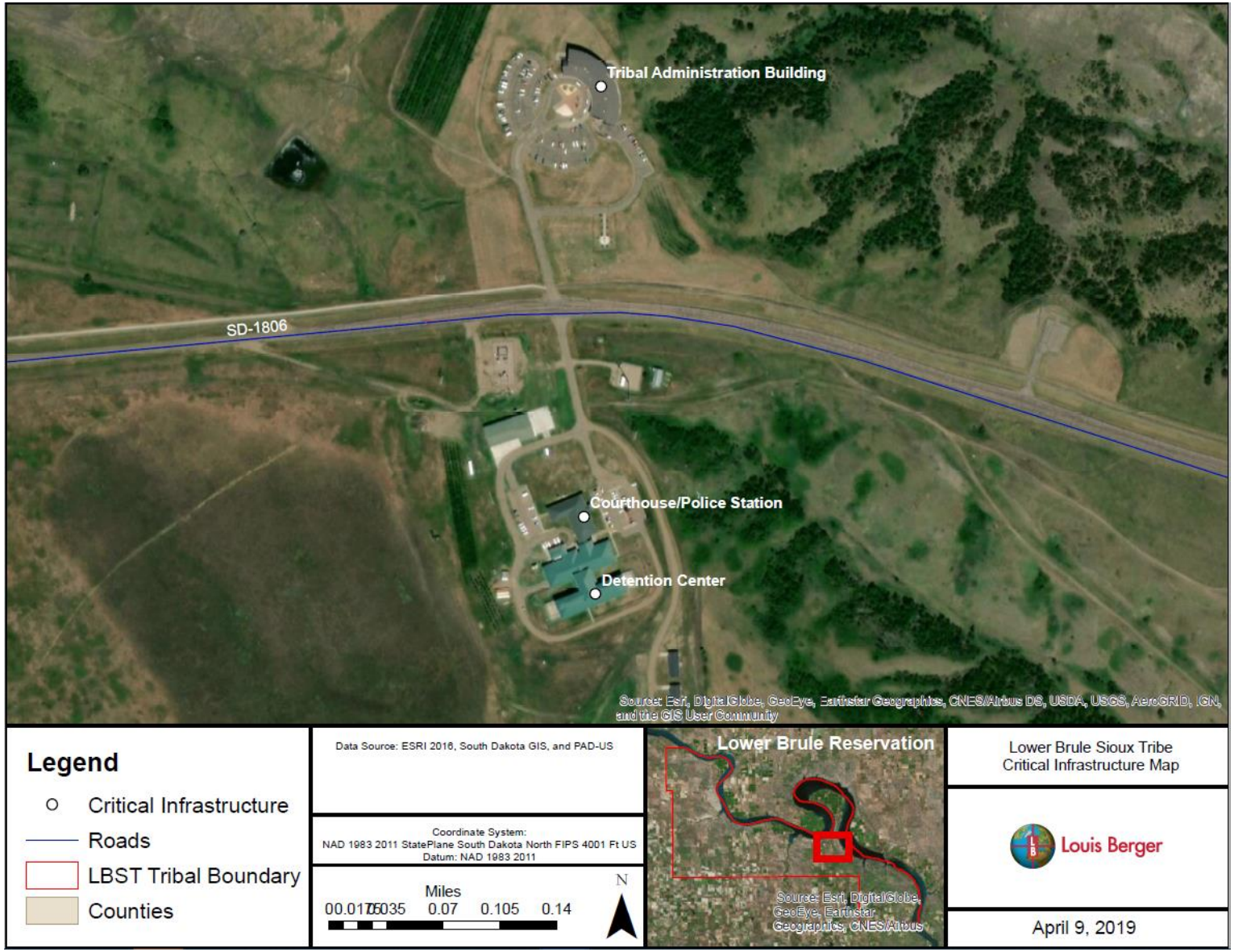


Figure 8: West of Lower Brule Sioux Reservation Critical Infrastructure Map

Insured Structures

According to the Arrowhead Tribal Program, LBST, as of July 1, 2018, owns and insures homes, Tribal department buildings, critical facilities, and miscellaneous articles on and off the reservation with a total insured value of 64.6 million dollars (Table 1). Appendix 8.6 has a comprehensive list of insured structures.

Table 1: LBST Total Insured Values

Totals	
Tribal Department Buildings	$17,797,993
Tribal Homes	$8,209,424
Miscellaneous	$1,749,660
Critical Infrastructure	$36,892,604
Total	**$64,649,681**

LBST owns and insures 58 structures within and outside the reservation borders (Table 2).

Table 2: LBST Insured Tribal Buildings

Tribal Department Buildings			
Description	**Building Limit**	**Contents Limit**	**Total**
Tribal College	$422,400	$20,190	$442,590
Wolakota Counseling Office	$150,000	$5,048	$155,048
Teen Center	$39,981	$10,095	$50,076
Contractors' Warehouse	$209,899	$50,474	$260,373
Office/EE Enterprises	$412,302	$25,238	$437,540
Motor Pool	$138,934	$5,048	$143,982
Bank	$172,917	$0	$172,917
Vacant Bldg.	$499,760	$50,474	$550,234
Arcade Bldg.	$100,000	$10,095	$110,095
Office Bldg. / TV Office	$100,000	$10,095	$110,095
Office bldg. / Loan Express	$162,172	$10,095	$172,267
OCC Store, Video Rentals	$100,000	$10,095	$110,095
Telecommunications Office	$100,000	$10,095	$110,095
Post Office / Donation Ctr	$249,880	$20,190	$270,070
Laundromat	$86,358	$25,238	$111,596
Finance Storage	$34,984	$7,571	$42,555
Game, Fish & Wildlife Old Office	$184,412	$20,190	$204,602
Game, Fish & Wildlife Bunkhouse	$34,984	$5,048	$40,032
Day Care/Playground Equip	$0	$6,056	$6,056
Head start	$549,736	$100,948	$650,684
Attached Garage	$240,000	$25,000	$265,000

Tribal Department Buildings			
Description	**Building Limit**	**Contents Limit**	**Total**
Water Mgmt. Storage	$150,000	$80,759	$230,759
Game Fish & Wildlife Admin	$515,753	$50,474	$566,227
Game Fish & Wildlife Storage	$120,000	$30,000	$150,000
Commodities Warehouse	$287,861	$151,422	$439,283
LBST Daycare Center	$111,196	$30,284	$141,480
LBST Daycare Center	$111,196	$30,284	$141,480
Community College Facilities	$490,211	$0	$490,211
Education Admin Offices	$463,777	$0	$463,777
4th Grade Classrooms	$150,000	$10,000	$160,000
4th Grade Classrooms	$150,000	$10,000	$160,000
6th Grade Classrooms	$150,000	$10,000	$160,000
Gillman Place - Livestock Barn	$81,944	$0	$81,944
Gillman Place - 7 Grain Bins	$70,000	$0	$70,000
Buffalo Interpretive Center	$375,820	$96,910	$472,730
Trading Post Incl Pumps & Canopies	$2,000,000	$152,100	$2,152,100
Fire Dept. – Storage	$125,000	$60,000	$185,000
Facilities Office/Bus & Road Maintenance (Split Office)	$2,940,000	$125,000	$3,065,000
Alcohol Counseling Center	$180,000	$5,000	$185,000
6 Grain Bins One Grain Bldg.	$140,000	$0	$140,000
Game fish & parks storage	$100,000	$10,000	$110,000
Cabin	$90,000	$10,000	$100,000
Cabin	$90,000	$10,000	$100,000
West Brule Center	$165,000	$20,000	$185,000
Transitional House	$165,000	$15,000	$180,000
Transitional House	$165,000	$15,000	$180,000
Oacoma House	$650,000	$0	$650,000
Bait Shop	$25,000	$0	$25,000
High School Tech Bldg.	$210,000	$30,000	$240,000
High School Tech Bldg.	$210,000	$30,000	$240,000
Arts & Crafts Store	$275,000	$5,000	$280,000
Detention Center House 1	$250,000	$4,000	$254,000
Detention Center House 2	$250,000	$4,000	$254,000
Detention Center House 3	$250,000	$4,000	$254,000
Solid Waste Building	$550,000	$100,000	$650,000
Cultural Storage	$25,000	$0	$25,000
Pow Wow Complex	$100,000	$0	$100,000
Rodeo Complex	$100,000	$0	$100,000
Totals	**$ 16,271,477.00**	**$ 1,526,516.00**	**$ 17,797,993.00**

Within the communities of Lower Brule and West Brule LBST Housing Authority insures 42 homes (Table 3).

Table 3: LBST Insured Homes

Tribal Homes			
Description	**Building Limit**	**Contents Limit**	**Total**
Dwelling	$253,703	$0	$253,703
Dwelling	$272,893	$0	$272,893
Dwelling	$240,556	$0	$240,556
Dwelling	$272,893	$0	$272,893
Dwelling	$224,724	$0	$224,724
Dwelling	$224,724	$0	$224,724
Dwelling	$224,724	$0	$224,724
Dwelling	$224,724	$0	$224,724
Dwelling	$216,856	$0	$216,856
Dwelling	$142,012	$0	$142,012
Dwelling	$142,012	$0	$142,012
Dwelling	$253,703	$0	$253,703
Dwelling	$253,703	$0	$253,703
Dwelling	$216,856	$0	$216,856
Dwelling	$216,856	$0	$216,856
Dwelling	$216,856	$0	$216,856
Dwelling	$253,703	$0	$253,703
Dwelling	$142,012	$0	$142,012
Dwelling	$138,174	$0	$138,174
Dwelling	$272,893	$0	$272,893
Dwelling	$272,893	$0	$272,893
Dwelling	$224,724	$0	$224,724
Dwelling	$224,724	$0	$224,724
Dwelling	$224,724	$0	$224,724
Dwelling	$233,698	$0	$233,698
Dwelling - Duplex	$233,728	$0	$233,728
Dwelling	$253,703	$0	$253,703
Dwelling	$253,703	$0	$253,703
Dwelling	$253,703	$0	$253,703
Dwelling	$253,703	$0	$253,703
Dwelling	$272,893	$0	$272,893
Outbuilding	$36,982	$0	$36,982
Dwelling	$142,012	$0	$142,012
Dwelling	$142,012	$0	$142,012
Gillman Place - Dwelling	$131,937	$0	$131,937
Gillman Place - Dwelling	$122,141	$0	$122,141
Gillman Place - Dwelling	$9,995	$0	$9,995
Gillman Place - Dwelling	$57,572	$0	$57,572
House	$165,000	$15,000	$180,000
House	$165,000	$15,000	$180,000
Garage	$50,000	$0	$50,000
Garage	$50,000	$0	$50,000
Totals	**$8,179,424**	**$30,000**	**$8,209,424**

Out of these Tribal buildings, the Steering Committee has identified several structures as critical facilities. The list of structures and their insurance values are listed in Table 4.

Table 4: LBST Insured Critical Infrastructure

Critical Infrastructure			
Description	**Building Limit**	**Contents Limit**	**Total**
Water Mgmt. Admin	$999,520	$71,673	$1,071,193
Water Mgmt. Pump house	$24,989	$25,238	$50,227
Water Mgmt. Pump house	$1,999	$20,190	$22,189
Water Mgmt. Pump Station	$123,940	$30,284	$154,224
Fire Dept. w/ Att'd Garage	$250,000	$0	$250,000
Tribal Admin Building	$5,497,360	$757,111	$6,254,471
Community Center	$4,497,840	$100,948	$4,598,788
Ambulance Office & Garage	$220,939	$50,474	$271,413
Elementary School	$3,998,080	$504,741	$4,502,821
High School	$7,940,457	$757,111	$8,697,568
Detention Center	$9,295,537	$0	$9,295,537
Courthouse/Police Station	$1,724,173	$0	$1,724,173
Totals	**$34,574,834**	**$2,317,770**	**$36,892,604**

LBST also insures other items in the community, including lights, construction equipment, and an emergency services boat for water rescue missions (Table 5).

Table 5: LBST Insured Miscellaneous Items

Miscellaneous		
Description	**Total**	
18-foot Lund Boat	$	21,693
Miscellaneous Contractor's Equipment	$	1,463,460
Miscellaneous Articles	$	182,157
9 Lights @ Rodeo - $3500 Each	$	31,500
7 Lights @ Ball Field $1700 Each	$	12,250
8 Lights @ Pow Wow $700 Each	$	5,600
6 Lights @ School $4500 Each	$	27,000
2 Lights @ School Parking Lot $3000 Each	$	6,000
Totals	**$**	**1,749,660**

Transportation

Approximately 175 miles of roadways are located on the reservation. They are owned and maintained by several different entities, including BIA, the South Dakota Department of Transportation, Stanley County, Lyman County, LBST, and private individuals. BIA Routes 5, 3, and 10 are the major highways across the reservation and the only roads paved (see Figure 11). Their generally poor condition causes hazardous driving conditions when wet or when covered by ice or snow.

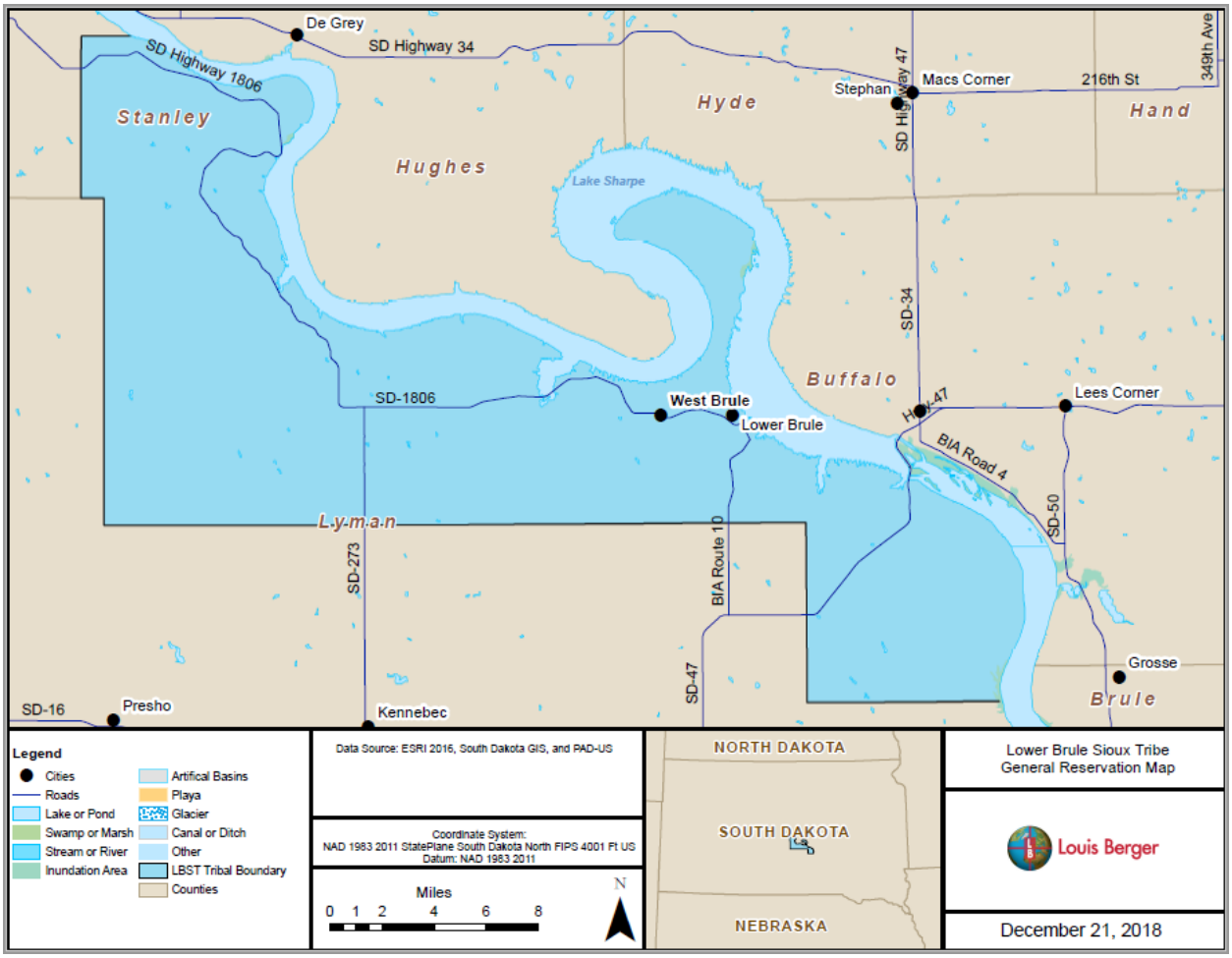


Figure 11: LBST Roads Map

Land Descriptions and Usage

The reservation consists of a mixture of uplands, river breaks, and riparian land. Following the construction of the Big Bend and Fort Randall dams along the Missouri River, the original riparian area, the bottomland of the Missouri River valley, was flooded and destroyed. As a result, the present riparian areas along the Lake Sharpe and Lake Francis Case reservoirs are largely sterile, with continuously eroding banks. The uplands and river breaks are mainly used for ranching, with some dryland farming in areas of good soil. A 6-mile section of river breaks is also fenced off for the Tribe's elk and buffalo herds. Riparian land within the reservation is used

for irrigated crop production and some ranching. Hunting is popular in all land areas, and species such as the elk, buffalo, and turkey have been successfully reintroduced.

Utilities

This section describes the utilities on the reservation including water (Figure 12), wastewater, and the electricity infrastructure.

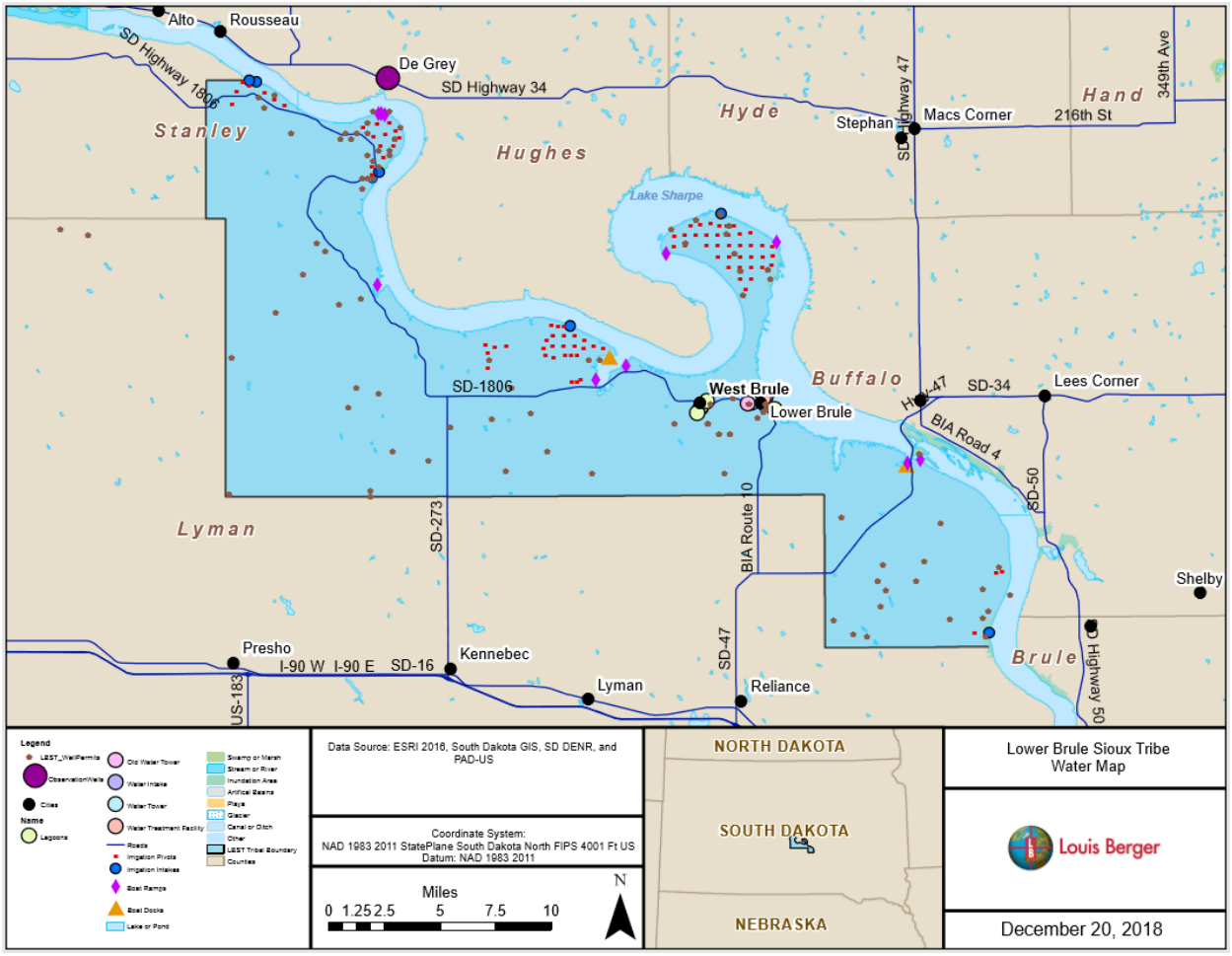


Figure 9: LBST Utilities Map

Water

The Mni Wiconi Project Act of 1988 (Public Law 100-5 16) authorized the construction of the Mni Wiconi Rural Water Supply Project to ensure a safe and adequate municipal, rural, and industrial water supply for both Indian and non-Indian residents of South Dakota. The Act authorized construction of the Oglala Sioux Rural Water System to serve the Oglala Sioux Tribe on the Pine Ridge Indian Reservation and the West River and Lyman-Jones Rural Water Systems to serve residents in seven counties in southwestern South Dakota. The Oglala Sioux Rural Water System's water treatment plant near Fort Pierre supplies the water for the Mni Wiconi Rural Water System. The Mni Wiconi Act Amendments of 1994 (Title 8 of Public Law 103-434) added the

construction of the Rosebud Sioux Rural Water System and the Lower Brule Sioux Rural Water System (LBRWS) to serve the respective reservations.

The main water source for the reservation is the LBRWS. The treatment facility is located next to the Missouri River, in Lower Brule, South Dakota. The water system has the capability to supply water to Lower Brule and West Brule Communities as well as the northern portion of the Medicine Butte Service Area. If necessary, water can also be pumped to the Medicine Butte tank to supply water to much of the reservation and a portion of the West River/Lyman Jones Rural Water System. The system also can receive water from the Oglala Rural Water Supply System (Mni Wiconi Rural Water System). The LBRWS can therefore connect to this water system during times its facility is not in operation or during maintenance.

The LBRWS has the capacity to produce 750 gallons per minute (GPM) with plans to increase the capacity to 1,000 GPM. The water intake is located 1,400 feet east of the shore, approximately 20 feet below the surface of Lake Sharpe.

West Brule has a 150,000-gallon single pedestal spheroid water tower located in the southeastern portion of the Community. Water from booster station #1 is pumped to the storage facility and then supplied to the homes. West Brule also has a 22,500-gallon standpipe that is no longer in use. Lower Brule has a 400,000-gallon single pedestal spheroid water tower located northwest of the town. There are two booster stations located on the reservation operated by the LBRWS. Booster station #1, which is in the town of Lower Brule, pumps water up a hill to West Brule. Booster pump #2 is located east of the West Brule Community on BIA Road 6. This booster station is the point of entry if water is needed from the Oglala Sioux Rural Water Supply System.

Wastewater

The Lower Brule wastewater system has three cells, located next to the Lake Sharpe reservoir in front of the town of Lower Brule: A Primary Cell (13.4 acres), a Secondary Cell (9.61 acres), and a Tertiary Cell (9.61 acres). The treatment facility is operated under National Pollutant discharge elimination system (NPDES) Permit #SD0020800. There has been continuous, heavy erosion along the banks of Lake Sharpe in front of the lagoons since the reservoir reached its operating level in 1964. Since then, the lake has advanced more than 800 feet towards the lagoons and now, the berm around the Tertiary cell is less than 80 feet from the shore. At this rate of erosion, the river may reach the sewage cell within four years, causing an environmental disaster.

West Brule has two lagoon systems. The older lagoon system is located on the north east side of the community. It has three cells: A Primary cell (0.47 acres), a Secondary cell (0.49 acres), and a Tertiary Cell (1 acre). A newer, larger set of lagoons have been built on the south side of West Brule. This system contains 4 cells: A Primary Cell (1 acre), a Secondary Cell (1 acre), a Tertiary Cell (3.37 acres), and a Quaternary Cell (4.64 acres).

Electricity

LBST is serviced by West Central Electric Cooperative, Incorporated (West Central) (Figure 13). This company supplies electrical power to over 3,700 members in central South Dakota within Haakon, Jackson, Jones, Lyman, and Stanley counties. Its territory spans 7,000 square miles, with 4,000 miles of power lines, servicing 6,900 meters. The power comes from the US Corps of Engineers facility at the Big Bend Dam. LBST is conducting a feasibility study for solar and wind energy on the reservation with the goals of diversifying energy resources, reducing the amount of power purchased from West Central, and in turn selling energy produced on the reservation back to West Central.

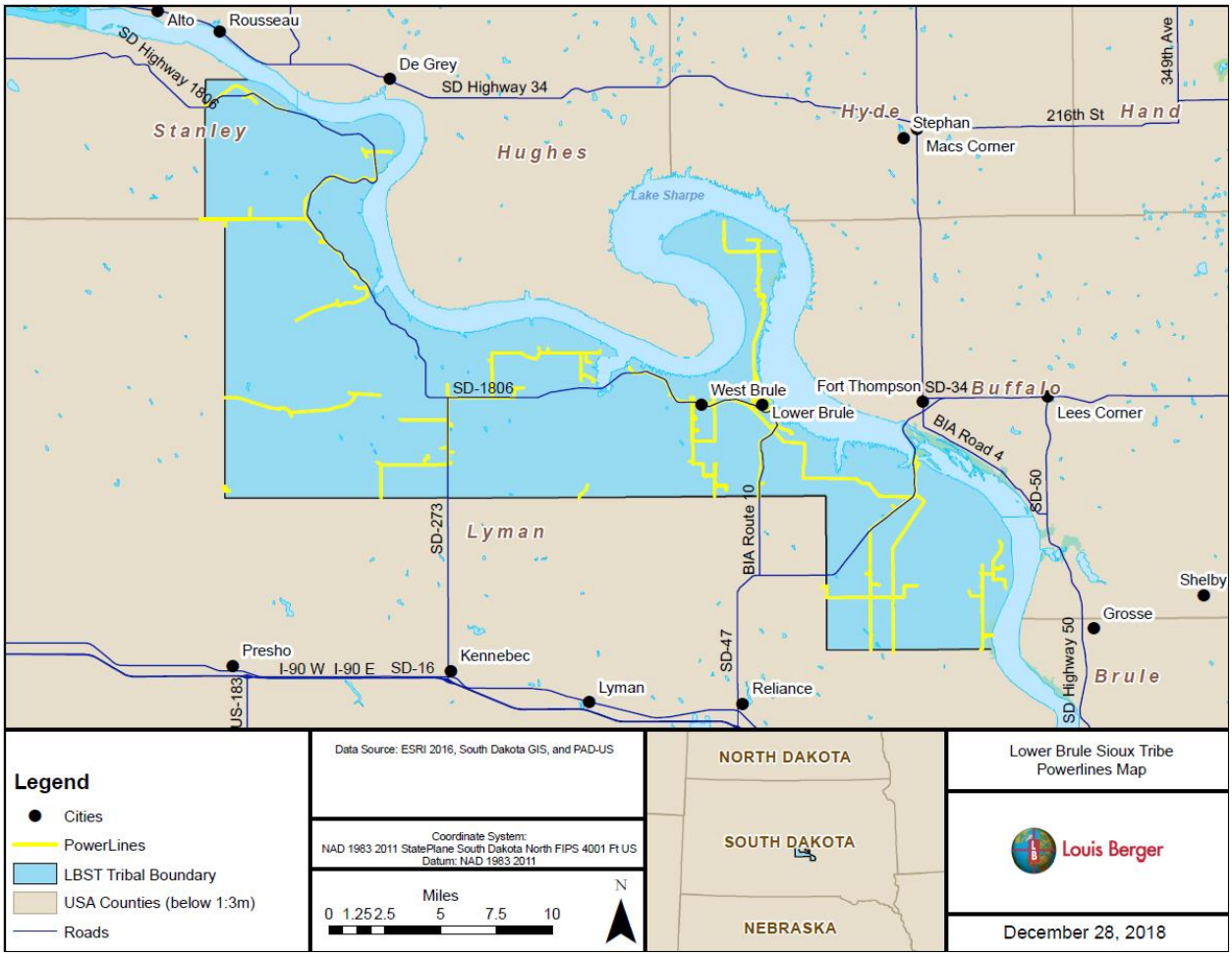


Figure 13: LBST Electricity Infrastructure

ELEMENT A. PLANNING PROCESS

This section describes the planning process followed by LBST HMP Steering Committee to develop the plan.

A.1 Methods and Partners

FEMA Requirements 201.7 (b), 201.7 (c)(i) and (ii) specify that an effective planning process is essential to the development of an effective mitigation plan. The mitigation planning process should include coordination with other Tribal agencies, appropriate federal agencies, adjacent jurisdictions, interested groups, and be integrated to the extent possible with other ongoing Tribal planning efforts as well as other FEMA mitigation programs and initiatives.

The planning process for developing the HMP began when the Tribe responded to the FEMA Pre-Hazard Mitigation Grant solicitation in 2017. The grant application was initiated in the Public Information/Cultural Resources Office. After consultations within the Tribe and with technical advice from FEMA personnel, the Tribal Council approved the grant development in a Tribal Resolution (15-022A, see Appendix 8.1). The FEMA Grant was submitted in November 2017 and approved in 2018. A second Tribal Resolution was signed in July 2018 authorizing the hiring of a Consultant firm with specialization in the development of HMPs, Louis Berger, Inc., Rapid City, South Dakota (Louis Berger). The Core Planning Committee consists of senior staff involved in the submission the 2017 Grant. The Core Committee includes program directors and staff from LBST Cultural Resource/Public Information Office; LBST Finance/Infrastructure; LBST Tribal Manager; LBST Emergency Management; LBST Wildlife Department.

On July 12, 2018, the HMP kick-off meeting was held at the Golden Buffalo Casino in Lower Brule, South Dakota (for the agenda and sign-in sheet, see Appendix 8.2). The purpose of the meeting was to formalize a Steering Committee and to define and develop goals and objectives for the HMP development process

On August 14 and 15, 2018, the Tribe held a Hazard Identification and risk assessment workshop at the Golden Buffalo Convention Center in Lower Brule, South Dakota (for the agenda and sign-in sheet, see Appendix 8.3). The purpose of the workshop was to identify the natural hazards in the region that have caused disasters in the past and pose a continuing threat.

On October 16 and 17, 2018, a hazard mitigation identification and outreach workshop took place at the Golden Buffalo Convention Center in Lower Brule (for the agenda and sign-in sheet, see Appendix 8.4). The purpose of the meeting was to receive input from the local public and youth and to develop and rank mitigation projects that LBST is capable of accomplishing.

On June 3, 2019, the LBST held a public review meeting to receive feedback from the Lower Brule community on the draft HMP.

Hazard Mitigation Planning Team Meetings

The Steering Committee met on four separate occasions to create goals, provide information, and make planning decisions for the HMP. The meetings consisted of a kick-off meeting, a hazard identification and risk assessment workshop, a hazard mitigation identification and outreach meeting, and a public review meeting. These meetings are described in further detail below.

Tribal Multi-Hazard Mitigation Kick-off Meeting

A kick-off meeting took place meeting at the Golden Buffalo Casino in Lower Brule, South Dakota on July 12, 2018. The attendees included Directors of relevant LBST programs—Emergency Management, Ambulance, Wildlife, Transportation, Fire Management—and members of the Tribal Council. State representatives include the Tribal Relations Director for the State of South Dakota and the Director of Emergency Management. To start the meeting, the Louis Berger team gave a presentation describing the process of developing a Tribal HMP, covering the planning process, risk assessment, vulnerability assessment, mitigation action development, plan adoption, and implementation, monitoring, and maintenance of the plan.

Hazard Identification and Risk Assessment Workshop

A hazard identification and risk assessment workshop took place at the Golden Buffalo Convention Center in Lower Brule, South Dakota, on August 14–15, 2018. Attendees included 10 staff members of LBST, 2 representatives from the local BIA Police Department, and 2 representatives from the US Army Corps of Engineers.

The Louis Berger team began the meeting by describing the benefits of a HMP, its contents and the definitions of hazard and risk in terms of mitigation. Hazard types described for the area included flooding, dam failure, winter storms, wild fires, drought, tornados, wind, earthquake, landslides, and hail. In order to quantify which hazards have affected the reservation the most, the team conducted a hazard identification and risk assessment activity with the participants. The hazard assessment rating system used probability, affected area, primary impacts, and secondary impacts (see Figure 14). The stakeholders ranked each natural hazard using the hazard assessment criteria.

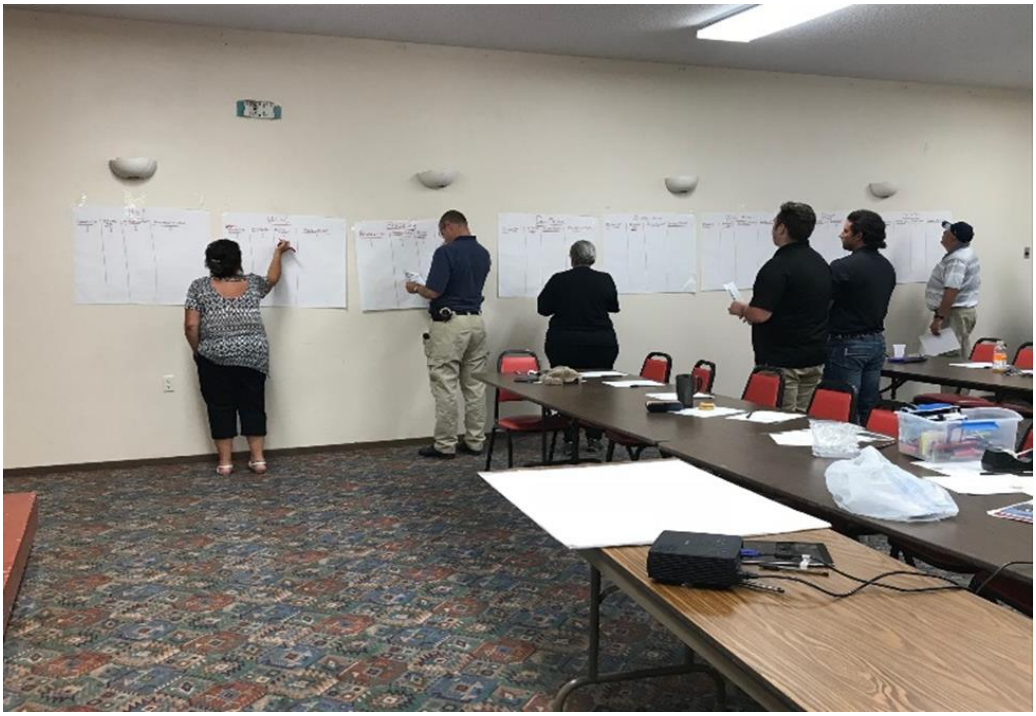


Figure 10: Hazard Assessment Activity

Mitigation Strategy Workshop

A hazard mitigation identification and outreach workshop took place in Lower Brule, South Dakota, during October 16 and 17, 2018. The Louis Berger team first met with students from the Lower Brule High School (see Figure 15). The meeting started with an introduction of Tribal multi-hazard mitigation plans and the potential benefits the HMP could bring to the reservation. The team asked students to list the natural hazards they have experienced, how they responded, and if they believed they had responded correctly. The students then developed a list of natural hazards, which included tornado, flood, blizzard, house fire, wild fire, hail, and wind. A question and answer session followed, and it proved that the students were clearly aware of what to do in emergencies. As a concluding question, the team asked the students to come up with their own list of mitigation projects that would most benefit the reservation.

Following the meeting at the high school, a public meeting took place at the Golden Buffalo Convention Center. The public meeting gave a brief overview of the contents of the HMP and the results of the hazard identification and risk assessment. Following the presentation, the public gave suggestions on hazard mitigation projects the Tribe could implement. The next day, Louis Berger presented to the Steering Committee a compiled list of over 40 projects, ranked individually using the STAPLEE method.

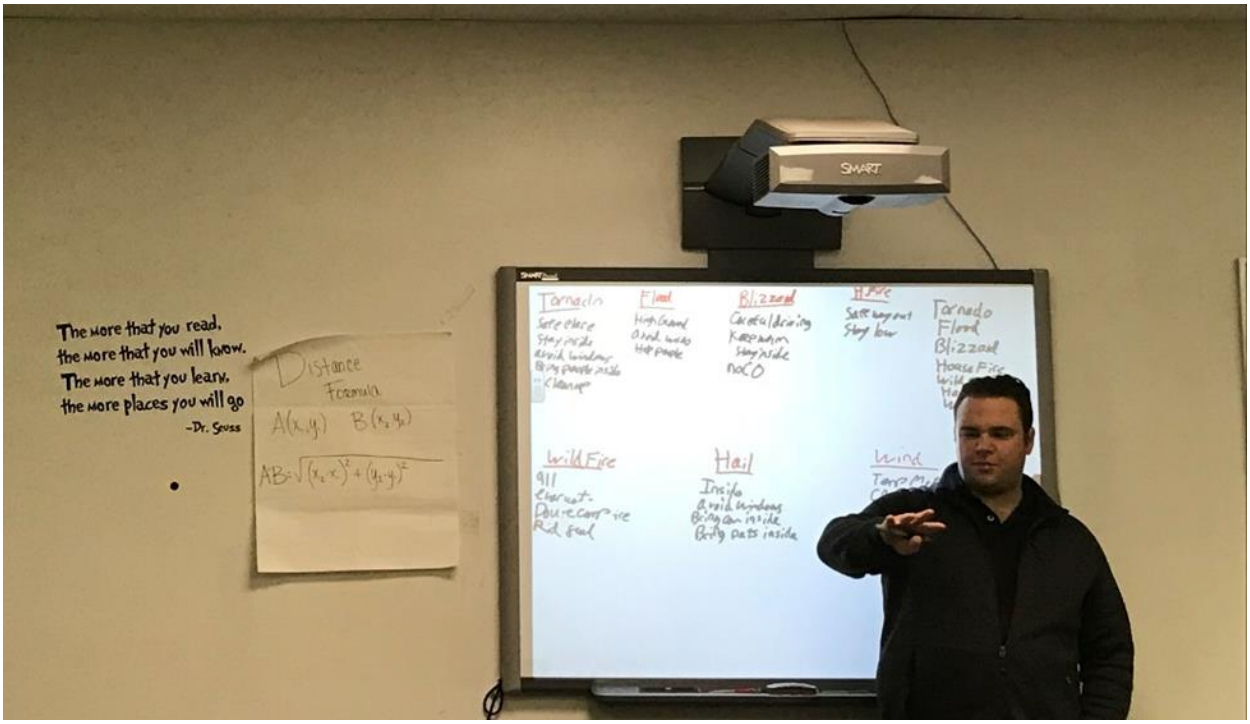


Figure 15: Meeting with LBST High School

A.2 Public Involvement

Because the reservation has a small population, public involvement was paramount. The Lower Brule Sioux Tribe does not define the term “public” within its constitution or by-laws, yet for the Multi-Hazard Mitigation Plan, the Planning Committee agreed that all people living within the exterior boundaries of the Lower Brule Reservation or other tribal lands have the right to provide input for the plan. Having public involvement helped ensure that the HMP would be relevant to the public’s interests and concerns. A first public meeting was held on October 16, 2018. Its goals were to make sure that the risk assessment results aligned with community members’ opinions, and to visit about mitigation projects that could be done to benefit the reservation and its people. The same day, a special visit was made to the Lower Brule High School, where students first identified the major natural disasters that have affected their own lives and then proposed mitigation projects that would reduce the hazard risks associated with these natural disasters. Appendix 8.5 contains the students’ listings of natural disasters and mitigation projects.

A final public review meeting was held on June 3, 2019 at the Golden Buffalo Convention Center to go over the HMP in its final draft stage to make sure no significant risks or mitigation actions had been overlooked. The comments from this meeting were incorporated into the plan before submission to FEMA.

A.3 Neighboring Jurisdictions and Authority

Neighboring jurisdictions involved with the initial development of the HMP include the US Army Corps of Engineers, BIA, Lyman County Sheriff’s Department, South Dakota Emergency Management Program, and South Dakota Tribal Relations Department.

The reservation is mostly located in Lyman County, South Dakota, with a smaller portion in Stanley County (Figure 16). Hughes and Stanley Counties published an HMP that does not affect LBST’s mitigation planning. Lyman County created a Pre-disaster Mitigation Plan in 2015 that mentions LBST in the mitigation strategies for the county. Among its top 15 mitigation projects, Lyman County determined that West Brule and Lower Brule need community sirens (valued at $20,000). This HMP also identified road and bridge improvements, and community storm shelters (no dollar estimates, or time frames given). The HMP states that Lyman County is not responsible for pursuing the proposed mitigation actions for the reservation, but Lyman County will provide cooperation at the Tribe’s request. Because neither county plan implicates Lower Brule in its processes, these processes will not be included in the mitigation strategies for the Tribe’s HMP.

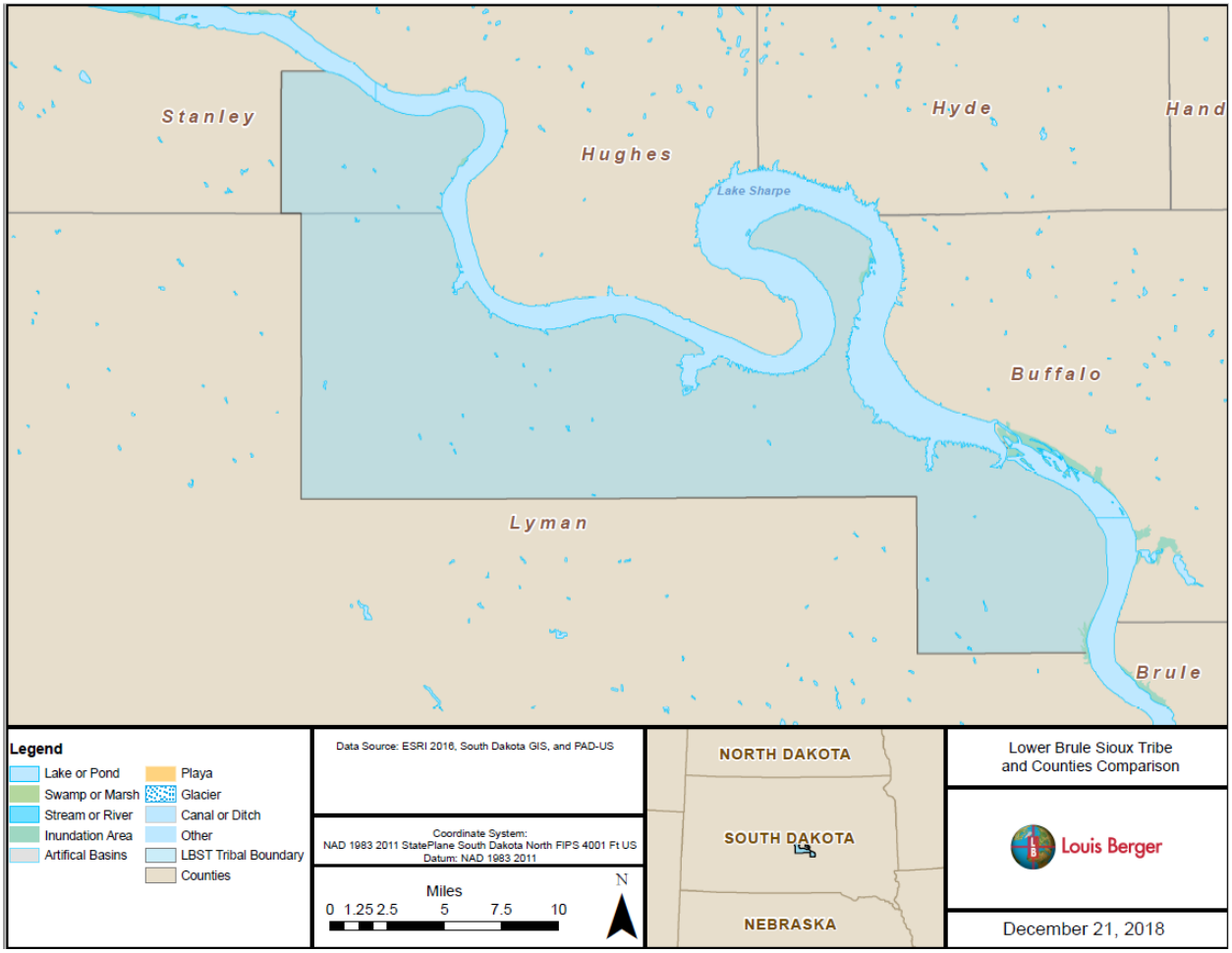


Figure 16: Map of LBST and County Relationship

The Robert T. Stafford Disaster Relief and Emergency Assistance Act 42 U.S.C. 5165 section 322, with amendment by the Disaster Mitigation Act of 2000 P.L. 106-390 allows the Lower Brule Sioux Tribe to develop a vulnerability-based approach to reducing risks caused by from natural hazards through mitigation planning, adoption, and implementation. The collaborative effort to develop this plan has been undertaken with the authority [by Tribal Council] to adopt and implement this plan, which upon approval by FEMA Region 8, will be adopted by the Lower Brule Sioux Tribe by formal council resolution.

A.4 Incorporation of Existing Plans, Studies, and Reports

This section outlines the general plans, documents, and information LBST has already established in accordance with emergency management planning or identified in the region shared with state and county jurisdictions that have been reviewed for incorporation into this plan.

LBST Emergency Operations Plan

The Tribal Council adopted a LBST Emergency Operations Plan (EOP) in 1993. Its goals were to save lives, reduce injuries, and protect property. The EOP covers 18 topics: direction and control, reception and care, resource management, shelter, communications, warning,

radiological protection, law enforcement, fire, health and medical, evacuation, engineering and public utilities, morgue and burial, public information, fiscal services, ministerial, human resources, and search and rescue. The concerns in this plan are included in the MHMP, but as this plan incorporates processes within the tribal infrastructure that are now out of date, no information from this plan was directly incorporated.

LBST Transportation Safety Management Plan

The Tribal Council adopted a Transportation Safety Management Plan for the Tribe in November 2017. The Transportation Safety Management Plan incorporates the background, data analysis, issues causing crashes, existing safety programs, and implementation strategies. In 2017, LBST began to develop a Tribal Transportation Safety Plan that would identify existing safety efforts and transportation safety issues, as well as implementation plans to address these issues. As part of the safety plan development, Tribal, state, federal and interested parties came together to review existing data and ongoing safety efforts on the reservation, and they identified new or continuing strategies to improve transportation safety in the Tribal community. The strategies were prioritized around the 4Es of safety—education, enforcement, emergency response and engineering. Road ownership and accident frequency information about the LBST road system in this plan was incorporated into the MHMP.

Hughes/Stanley Counties Multi-Hazard Mitigation Plan

The Hughes/Stanley Counties Multi-Hazard Mitigation Plan, updated in 2016, included the review of hazards, risks, vulnerabilities, and capabilities of Hughes and Stanley County, and updating and creation of mitigation actions. The natural hazards and man-made threats profiled in this Plan include communicable disease, dam failure, drought, flood, geologic hazard, hazardous material release, homeland security incident, severe summer weather, severe winter weather, urban fire/structure collapse, wildland fire, and windstorm. This update also included a mitigation strategy consisting of six goals and 72 mitigation projects based on an assessment of risks. Of the 72 identified projects, 26 were for the Counties, nine were for the city of Blunt, 13 were for the city of Fort Pierre, six were for the city of Harrold, and 18 were for the city of Pierre. The LBST MHMP did not use any specific information from this plan, as the Tribe and counties have verbally agreed to work together on hazard mitigation strategies that will benefit all communities in the region.

Lyman County Pre-Disaster Mitigation Plan

Lyman County developed a Pre-Disaster Mitigation Plan in 2015 in response to the Disaster Mitigation Act of 2000. The focus of the Plan was to support responsible decision-making to avoid risks and increase implementation efforts of activities or projects that will eliminate or reduce the possibility of exposure to a hazard threat. The Plan was intended to help create a disaster resistant community by reducing the threat of natural hazards to life, property, economy, and infrastructure, while encouraging the protection and restoration of natural and cultural resources. The hazards that have affected the County in the past and will affect the County in the future include drought, severe winter and summer storms, hazardous materials and wildfires. As mentioned in section A.3. the Lyman County Pre-Disaster Mitigation Plan mentions several mitigation actions that benefit the LBST. These mitigation actions were incorporated into the LBST MHMP and the Tribe and County have agreed verbally to work together when updating plans.

A.5 Integration with other Tribal, State, and Federal Programs

Several Tribal, state, and federal partners had an opportunity to collaborate directly during all stages of the LBST MHMP, including the three formal meetings. State participants were the Lyman County Sheriff's Department, South Dakota Emergency Management Program, and South Dakota Tribal Relations Department. Federal participants were the US Army Corps of Engineers and the BIA Wildland Fire and Law Enforcement branches.

The Lower Brule Sioux Tribe has worked for many years to achieve good working relationships with these state and federal partners. Below is a detailed summary of each relationship.

Lyman County Sheriff's Department, headquartered in Kennebec, has a significant role in emergency management for the communities outside the Reservation. As the Tribe and county share lands, rivers and other water resources, highways, and water and power infrastructures, there has always been cooperation and coordination during natural emergencies, as these tend to affect the entire region.

The South Dakota Office of Emergency Management (OEM), provides the organization necessary to expedite aid, rehabilitation and the rapid acquisition and delivery of resources across the state. As its interests are those of the Tribe in focusing on planning, response coordination and emergency aid after disasters and for mitigating hazards to lessen the effects of future disasters, the OEM is an important partner when problems occur that impact the Reservation.

The South Dakota Department of Tribal Relations, maintains a cooperative government to government relationship with the LBST, and assists the Tribe in identifying, developing and coordinating state and local off-Reservation resources. As this is part of their mission to improve the quality of life for all Tribal people in the state, they act as an important liaison when the Tribe is faced with complex hazards and disasters.

US Army Corps of Engineers, The Tribe's relationship with the US Army Corps of Engineers is a progressive and effective partnership that has developed over the past two decades, in response to issues associated with water resources. The Corps is responsible for the management of the two large mainstem dams (Fort Randall and Big Bend) and their reservoirs (Lake Francis Case and Lake Sharpe), the center of which form the eastern boundary of the Lower Brule Sioux Reservation. In addition, the Corps reviews individual proposals in the permitting process related to a wide range of construction activities subject to Section 404 of the Clean Water Act (CWA), which establishes a program to regulate the discharge of dredged or fill material into waters of the United States. This partnership has resulted in several large-scale shoreline protection projects, which mitigate the effects of wind-driven wave and ice erosion using riprap and stone and earth revetments. These projects have significantly reduced erosion and siltation hazards along the reservoir shoreline and improved the recovery capacity in the entire riparian ecosystem.

Bureau of Indian Affairs: The BIA provides two services to the LBST that are essential for an effective HMP: wildland fire control (Branch of Wildland Fire Management); and law enforcement (the Office of Justice Services). Given the complex distribution of Trust lands within the Reservation, these services work closely with the LBST and cooperate with regional state entities to ensure the health and wellbeing of the entire Reservation community.

A.6 Plan Updates

Every 12 months from the time the plan is adopted, the Tribal Manager will email each Program Director an Annual Review Questionnaire to complete. The Annual Review Questionnaire will include an evaluation of the following: Planning Process, Hazard Identification and Risk Assessment, Mitigation Strategy, Plan Updates, and Assurances and Plan Adoption. The Manager will collect all completed questionnaires and determine if the HMP needs to be updated to address new or more threatening hazards, new technical reports or findings, and new or better-defined mitigation projects. The Manager will summarize these findings and email a description of the findings to the Program Directors. If the Tribal Manager believes that the Tribal HMP needs to be updated based on the findings, then he or she will request that the Program Directors attend a Tribal HMP Update Planning meeting.

In accordance with DMA 2000, §201.7(d)(4)(i), the Core Planning Committee will meet to update the Tribal HMP every 5 years. To ensure the update occurs efficiently the Core Planning Committee will undertake the following activities:

- Analyze and update the risk of natural hazards on the reservation;
- Compile and analyze previous Annual Review Questionnaires;
- Provide a detailed review and revision of the mitigation strategy;
- Prepare a new implementation strategy;
- Prepare a new draft Tribal HMP and submit to the Tribal Council for adoption; and
- Submit and update Tribal HMP to FEMA for approval

A.7 Public Participation in Plan Maintenance

In accordance with §201.7(c)(4)(iv), LBST will remain dedicated to involving the public during reviews, updates, and implementations of the plan. Copies of the HMP will be in the Tribal Administration Building. The Planning Team will also identify opportunities to raise community awareness about the Tribal HMP and the hazards that affect the reservation. The handouts from this project (see Appendix 8.8-8.11) will be used for future meetings and advertisements. This effort could include attendance and provision of materials at Tribal emergency preparedness and response events.

ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT

In order to understand the natural hazards that have the greatest impact on LBST, the Planning Committee tasked the hazard mitigation consultant, Louis Berger, with the creation of hazard profiles and risk assessments for each natural hazard that could occur on the reservation.

Louis Berger gave an overall presentation to LBST Steering Committee on natural hazards that could affect the reservation. Of all potential hazards, the consultants identified flooding, dam failures, winter storms, wild fire, drought, hail, tornadoes, wind, earthquakes, and landslides as natural hazards that could affect the reservation. They developed profiles for each hazard based on overview, location, history of events, and probability of future events. With the hazard profiles in place, they conducted a risk assessment in order to quantify which hazards pose the most risk to LBST based on probability, affected area, primary impacts, and secondary impacts. The results of the risk assessment were ranked as limited (0-25), moderate (25-50), and significant (>50) based on the criteria listed in B.3 Risk Assessment. The results of the Risk Assessment are shown in Table 6.

Table 6: Risk Assessment Totals

Significant	Moderate	Limited
Winter Storms - 59.9	Drought - 48.5	Dam Failure - 22.4
Wind - 53.1	Tornadoes 41.4	Landslide - 15.0
	Flooding - 37.8	Earthquake - 8.6
	Hail - 35.5	
	Wild Fire - 27.3	

B.1 Type, Location, and Extent of Natural Hazards

Winter Storms

Severe winter can bring extreme cold, freezing rain and high snowfall. Snow showers are the most common occurrence, falling with variable intensities for brief periods with possible accumulation. Snow squalls are brief, yet intense snow showers accompanied by strong, gusty winds. Accumulation from these storms may also be significant. Blowing snow occurs when there is snow already falling or when wind picks up snow already deposited on the ground. Roads may act as snow fences and catch large deposits of snow blown from fields or roofs.

Blizzards bring drifting snow and whiteout conditions, and so they are of high concern. Wind can reach speeds higher than 35 mph and visibility can be reduced to ¼ a mile or less for many hours. After snowfall ceases, the winds may continue and cause blowing snow over roads that may extend hazardous driving for days. A severe blizzard can cripple a region by felling trees and power lines, disrupting traffic and damaging structures.

Freezing temperatures accompany all winter storms hazards but are particularly dangerous when combined with high winds, as they create extremely cold wind chills. Wind chill is a quantity expressing the effective lowering of the air temperature by wind, which increases heat loss.

Freezing rain and ice storms cause measurable ice to accumulate on outside surfaces. It occurs when rain falls onto surfaces with ambient temperatures below freezing. This can cause widespread damage to infrastructure when trees or branches weighted down with ice fall onto power lines and structures. It also affects roadways, causing slick surfaces and making normal vehicular traffic dangerous. Sleet is like hail but is much smaller in size. It occurs when raindrops freeze completely into ice pellets before reaching the ground, often mixed with rain or snow. It does not stick to surfaces as freezing rain does but can cause slippery surfaces.

Winter storms pose a significant threat, as the entire region is susceptible to damage from this natural hazard for six months out of the year.

Wind

Various types of non-rotational wind events affect the planning area. These can cause widespread damage to critical infrastructure, buildings and agriculture and threaten people's lives.

Downbursts are strong ground level wind systems. They occur most commonly when air in a strong thunderstorm collapses downwards to the ground and then radiates in all directions, causing tornado-like damage. Straight-line winds are strong winds, reaching speeds of 58 mph and gusts of 130 mph, that can also produce tornado-like damage. Straight-line winds may occur in downbursts or as the gust fronts of thunderstorms. These events may form derechos that can span the country. Heat bursts are a rare event caused by precipitation-evaporated air compressing and heating as it descends from high altitude. They may occur on the backside of a squall line, generally at night, and can produce winds over 100 mph (Rauber, 2013).

Figure 17 shows the local areas where winds above 70mph were recorded from 1955 to 2017. High wind events are an annual occurrence within the planning area. As West Brule is exposed on a high terrace and Lower Brule is located at the base of the Missouri River Breaks (heavily dissected ridges and draws that run from the higher terrace down the valley slopes), straight line winds may be extremely destructive during summer storms.

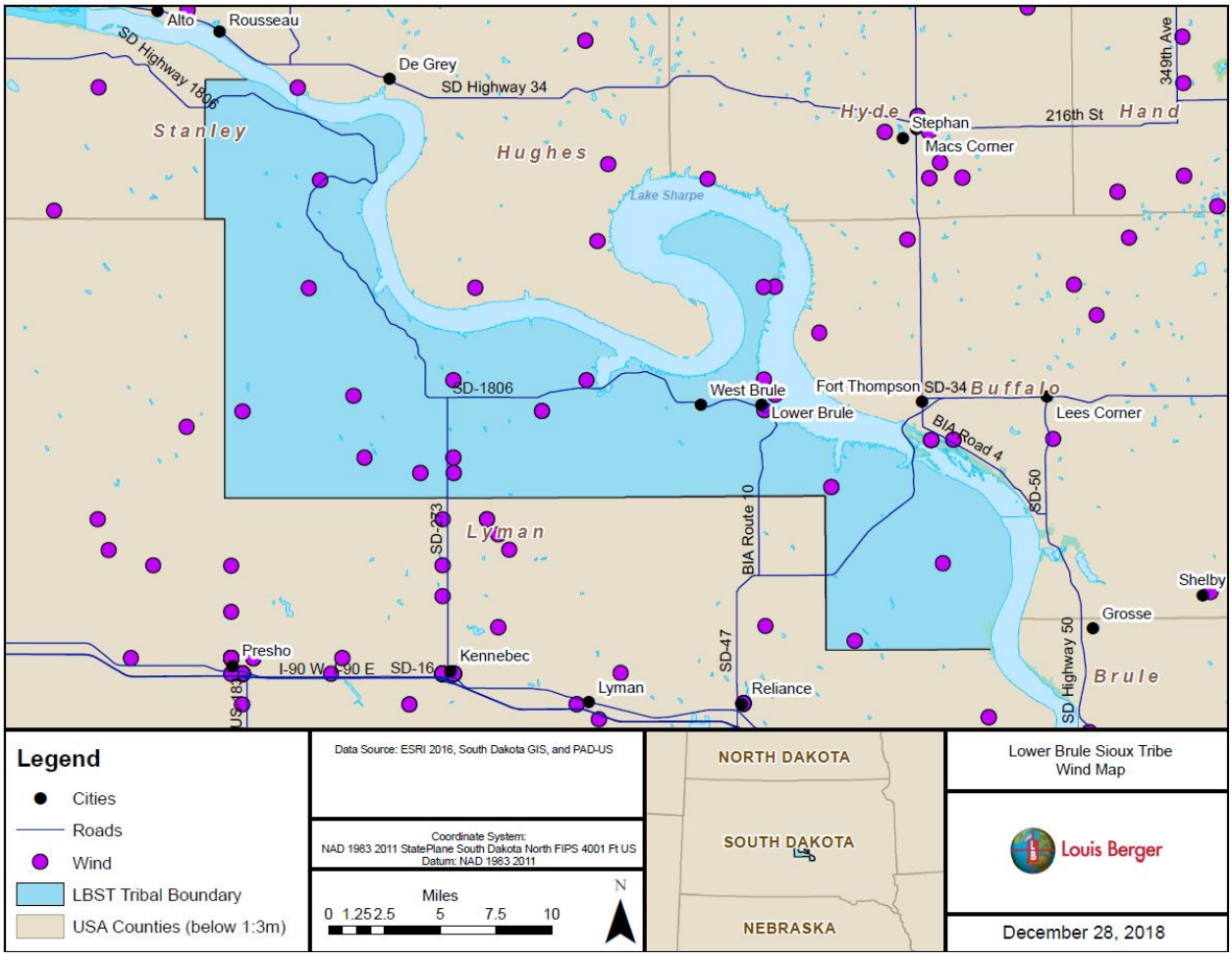


Figure 17: High Wind Locations on the Lower Brule Sioux Tribe Reservation

Drought

A drought is a period of below-average precipitation resulting in prolonged shortages in the water supply. They can last for months or years, but a drought emergency may be declared in as few as 15 days. Meteorological droughts are prolonged periods with less than average precipitation. They usually precede other types of droughts.

Hydrological droughts occur when the water reserves available in aquifers, lakes and reservoirs fall below their average level. Results are seen slowly and can be caused by other factors than rainfall, such as dam breaks or other water diversion.

Agricultural droughts occur during periods of lower than average rainfall in areas with soil properties, ground conditions and soil management feature that result in poor water holding and distribution capacity for crops. As much of the regional economy relies on farming, drought of this type may have significant negative effects in the planning area.

Droughts pose a significant threat to the whole planning area. LBST has taken several steps in its infrastructure, economic and land management improvements that provide recognized secondary benefits as drought mitigation. The Lower Brule Rural Water System, which includes a local water treatment plant and distribution system, supports the municipal and commercial water needs of the LBST as well as livestock taps throughout the reservation. The Tribe is also involved in several long-term initiatives with the National Resources Conservation System that meet the NRCS goal of improving the health of soils and plant communities and provide the value-added benefits of withstanding the effects of drought These undertakings include the construction and maintenance of embankment ponds in grazing lands, the installation of cattle watering stations across the reservation, served by the Rural Water system, and the management of grazing and croplands with the goal of improving soil structure and thereby enhancing water retention in the soil. The latter, long-term program includes rotational grazing management to protect plant communities, the control of overgrazing, and the covering of crops after harvest. Such measures limit the amount of exposed ground, thus reducing runoff and erosion from rainfall.

Tornadoes

Tornadoes are rapidly rotating columns of air in contact with the ground and a cloud base. They form in thunderstorms when changes in wind speed and direction create a horizontal spinning effect within a storm cell. This dynamic structure is then tipped vertically by rising air moving up through the storm. They are often accompanied by hail. Large lingering thunderstorms called supercells spawn the most destructive tornadoes (Edwards, 2012). Typically, they are about 660 feet wide and travel about six miles. Winds may top 250 miles an hour and the tornado can grow to a mile wide and stay on the ground for 50 miles.

Tornado intensity and damage are calculated using the Enhanced Fujita (EF) Scale; estimates published before 2007 use the previous Fujita (F) Scale (Figure 18).

Fujita Scale	
F–0	40–72 mph winds
F–1	73–112 mph
F–2	113–157 mph
F–3	158–206 mph
F–4	207–260 mph
F–5	261–318 mph

Enhanced Fujita Scale	
EF–0	65–85 mph winds
EF–1	86–110 mph
EF–2	111–135 mph
EF–3	136–165 mph
EF–4	166–200 mph
EF–5	>200 mph

Figure 18: Tornado Severity Scales

Since the 1950s, it has been possible to forecast tornadic weather, using tornado watches and National Weather Service convective outlooks, and today, this is enhanced by a national network of Doppler weather radar stations. Doppler radar is helpful for tornado warnings as it measures the velocity and radial direction (towards or away from the radar) of the winds within a storm. It can also spot rotational hook echoes. These echoes indicate that conditions are right for the potential development of tornadoes. The National Weather Services also offers Skywarn, a program to train storm spotters to identify severe weather. It allows for visual confirmation especially if the location is distant from a radar station. (Lewellen, n.d.)

Tornadoes pose a threat to the entire planning area. Figure 19 shows a map of tornadoes that have touched down in the planning area from 1955–2017. They are most prevalent in the spring and summer, but they can occur at any time of the year.

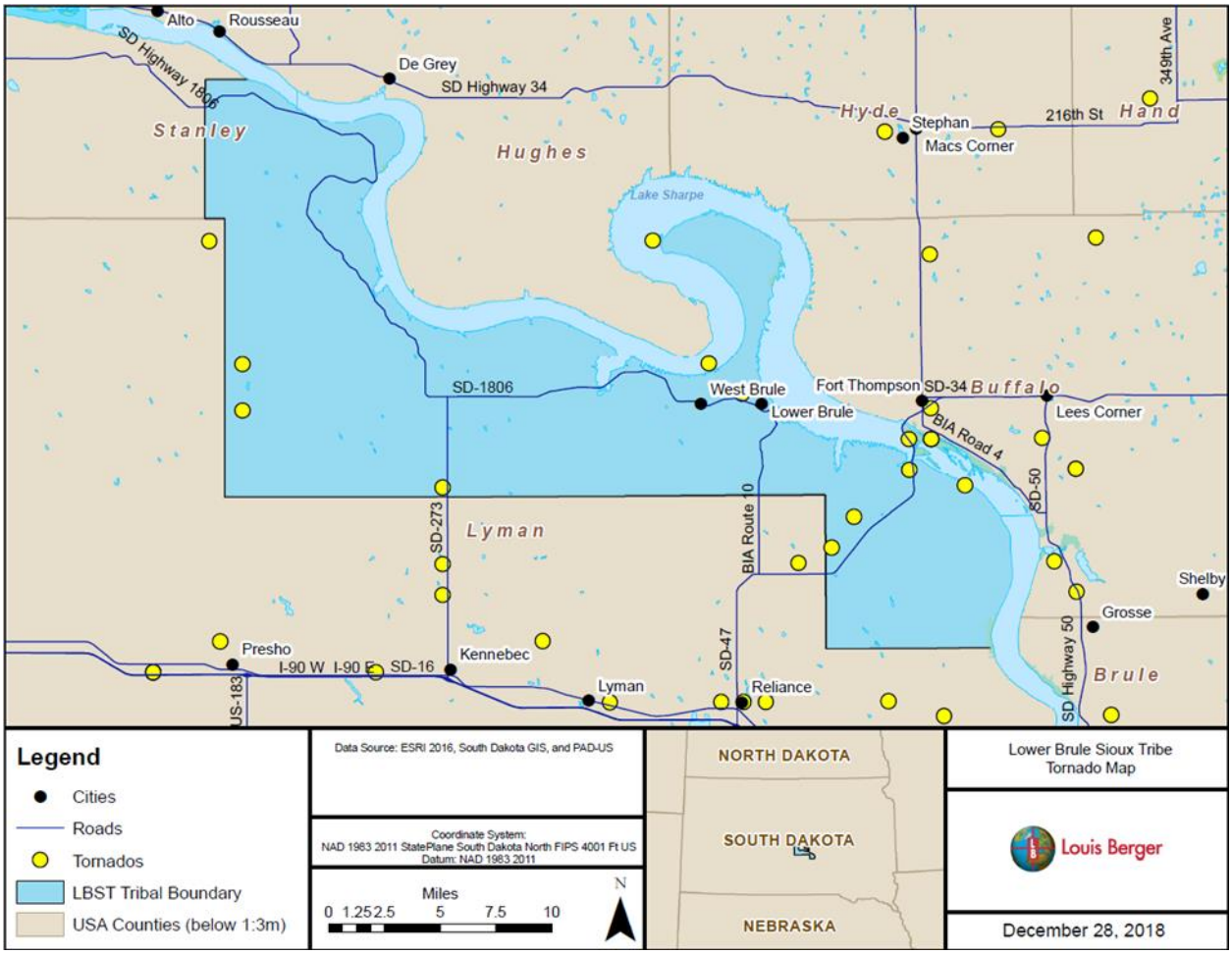


Figure 19: Tornadoes within the Planning Area

Flooding

Flooding is the partial or complete inundation of normally dry lands. Floods can occur for various reasons. Heavy precipitation can cause flooding to occur in the immediate area of the storm or further downstream. Factors that can affect this hazard include geography, topography, climate and land use planning. It is the costliest natural disaster in the US.

Flash Flooding is the rapid and extreme flow of high water into a normally dry area or a rapid water level rise in a stream or creek above flood stage. Water flowing at 10 miles an hour can exert the same pressures as wind gusting at 270 mph. Most flash flooding is caused by slow-moving thunderstorms or multiple storms moving over the same area. Flash flooding is extremely dangerous as it can reach its full peak in only a few minutes and can allow little time for protective measures to be taken. Flooding may also occur after rainfall over many days or after excessive snowmelt. Combined with saturated ground, the water in affected areas can no longer percolate through the soil and will accumulate in the lowest areas. This is an increasingly noticeable hazard as land development removes the natural drainage ability. (Flood Related Hazards, n.d.)

River flooding occurs when river levels rise, overflow their banks or the edges of their main channel, and inundate areas normally dry. When rivers break their banks and travel on their flood plains they slow down. This process allows for sand, silt, debris and other materials carried by the torrents to be deposited on land. Rivers see natural annual or semiannual peaks due to snowmelt upstream. Prior to damming, the Missouri River had two seasonal rises, one in March from snowmelt in the Great Plains and breakup of ice in the river and its tributaries, and the other in June, an effect of snowmelt in the Rocky Mountains, combining with runoff from rainfall in the Plains. Dams on the river now store much of the excess water that caused spring floods and releases this water during the summer. (Ice Dams, 2006) However, as evidenced by the flood along the Missouri River in 2011, which affected all river communities in South Dakota, such mitigation is not permanent.

River flooding can also be caused by ice or debris blocking the river channel. Ice jams can occur when there is a sudden push exerted on the ice by a surge of runoff into the river from snowmelt. They can act as dams on the river, causing floods upstream until the jam weakens or melts; this can then cause catastrophic flooding downstream. Ice and debris jams can also threaten trees and structures as they build up and breach the river banks or when a jam is flushed down stream. Six-inch thick ice is enough to dislodge houses from their foundation. (Belatos, 1995).

The entire planning area is susceptible to flash flooding, as the terrain consists of rolling hills and dissected drainages.

Hail

Hail is a form of solid precipitation, similar in appearance to ice pellets and sleet, but it forms in warmer weather conditions, in thunderstorm with cumulonimbus clouds. Hailstones begin as small water droplets that freeze as they rise in updrafts. As the updrafts in a thunderstorm are intense, they keep the incipient hail aloft and it continues to grow. When the weight of a hailstone is greater than the upward forces of the winds, it falls to the ground.

The size of a hailstone normally ranges between 0.2 inches and 6 inches. It can travel up to 150 mph and as far away as two miles from a storm. With its combination of weight and speed of descent, hail can cause serious damage to automobiles, aircraft, skylights, livestock, crops, and even cause fatalities (Jewell, n.d.).

In weather reports, the size of hail is often compared to other circular objects such as peas, coins, marbles and golf balls. The United Kingdom's national meteorological service has developed the TORRO (Tornado and Storm Research Organization) Hail Scale. It enables the systematic classification of hailstones and hailstorms (see Table 7) (Haby, n.d.).

Table 7: TORRO Intensity Scale

Size Code	Intensity Category	Typical Hail Diameter (mm)	Description	Typical Damage Impacts
H0	Hard Hail	5	Pea	No damage
H1	Potentially Damaging	5-15	Mothball	Slight general damage to plants, crops
H2	Significant	10-20	Marble, Grape	Significant damage to fruit, crops, vegetation
H3	Severe	20-30	Walnut	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25-40	Pigeon's egg > squash ball	Widespread glass damage, vehicle bodywork damage
H5	Destructive	30-50	Golf ball > Pullet's egg	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40-60	Hen's egg	Bodywork of grounded aircraft dented; brick walls pitted
H7	Destructive	50-75	Tennis ball > baseball	Severe roof damage, risk of serious injuries
H8	Destructive	60-90	Large orange > soft ball	Severe damage to aircraft bodywork
H9	Super Hailstorms	75-100	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>100	Melon	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

The entire planning area is susceptible to the effects of hail (Figure 20). Damage may be localized to structures or widespread on crops, depending on the magnitude of the storm and hail size.

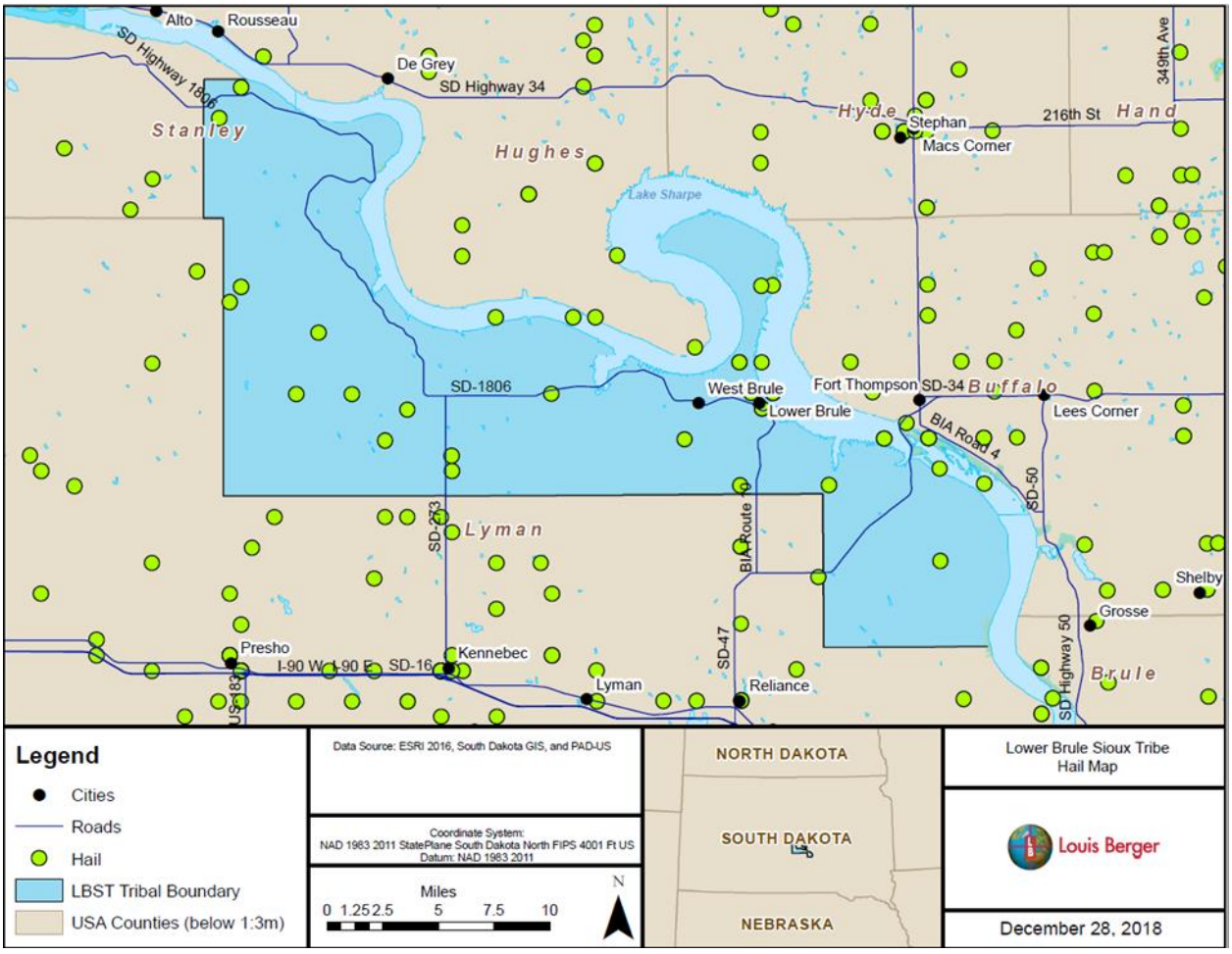


Figure 20: Significant Hail Recordings on the Lower Brule Sioux Reservation

Wildfire

Wildfires are large fires in combustible vegetation occurring in rural areas. They may be characterized by cause of ignition, physical properties, type of combustible material and the effects of weather.

Three major natural causes of wildfire ignition are dry climate, lightening and volcanic eruptions. The most common human-related causes are arson, discarded cigarettes, power line arcs and sparking from equipment. Wildfires can cause damage to property and claim lives.

The height of wildfire season is April through October with a peak seen from May until August. Periods of drought and dry conditions throughout the year increase the wildfire potential, and they are aggravated by a variety of other factors, including high temperature, high winds, low humidity, dry vegetation and poor cloud cover. On the ground, topography, fuel density and its vertical arrangement are also factors.

The types of wildfires are classified by the fuel that they consume. Ground fires are fed by ground litter (duff), subterranean roots other organic material buried underground such as coal and peat. These fires can burn for days to years. The town of Centralia in Pennsylvania has had an underground coal mine fire burning since 1962.

Surface or crawling fires are fueled by low-lying vegetation such as ground litter, debris, grass and low shrubs. This type of fire burns at a relatively lower temperature than other fires and can spread at a slower rate. However, favorable topography and wind can accelerate this speed. Ladder fires burn material between the low-lying vegetation and the forest canopy.

Crown (canopy or aerial) fires burn material at the top of the forest, including tall trees, vines and mosses. Sustained crown fires are dependent on the density of the suspended material, canopy height, enough surface and ladder fires, and vegetation moisture content and weather conditions.

Wildfire smoke can cause secondary concerns such as poor air quality. The US Department of Health and Human Services estimates that 46 million people were exposed to wildfire smoke from 2004 to 2009 in western states. Worldwide it is estimated that 339,000 people die because of wildfire smoke each year. The smoke especially can affect the very young, elderly and those with chronic respiratory conditions. New studies show that pregnant women may also suffer from the effects of wildfire smoke inhalation. Particle size and chemical composition are significant factors when estimating the potential health effects on people (Fire Terminology, n.d.).

Increasing settlement in wildland areas places more people and property at risk to wildfires. Because the Planning Area has extensive grasslands, and approximately one quarter of residents on the reservation live on rural properties, landowners, ranchers, and farmers face a high risk of this hazard.

Dam Failure

Dam failures are comparatively rare but can cause massive amounts of property damage and loss of life. Causes of dam failure vary from natural causes such as prolonged rainfall, landslides, earthquakes, or erosion to human causes such as improper maintenance and design, negligent operation, or sabotage and terrorism. Structural failure then may occur when part or all the dam's structure is unable to continue to withstand pressures and collapses.

Overtopping is the spilling of water over the top of the dam. It is often a precursor of dam failure. The cause may be inadequate spillway design, debris blockage, spillway failure or settlement of the dam crest. Water may also bypass a dam through piping or seepage. This can cause sinkholes to form in the dam. Seepage often occurs around hydraulic structures, such as pipes and spillways, through animal burrows, around roots of wooded vegetation and through cracks in the dam, dam auxiliary structures and dam foundations (DFI, n.d.) .

Approximately 50 miles upstream from Lower Brule on the Missouri River is the Oahe Dam and Reservoir. If the Oahe Dam failed, it would cause catastrophic flooding immediately below in the cities of Pierre and Fort Pierre, and would continue down the Lake Sharpe Reservoir, destroying the town of Lower Brule. If a breach occurred below the reservation at the Big Bend Dam on Lake Sharpe, the reservation would be without drinking water.

Landslide

A landslide is the downhill movement of masses of soil, rock and debris by gravity. Factors that allow the force of gravity to create a landslide from restive soil include saturation by water, steepening slopes by erosion or construction, alternate freezing or thawing, earthquake shaking, and volcanic eruptions. Landslides are typically associated with periods of heavy rainfall or rapid snowmelt and tend to worsen the effects of flooding that often accompanies these events. In areas burned by forest and brush fires, a lower threshold of precipitation may initiate landslides. Specifically, landslides are defined as rapid slipping of a mass of earth or rock from a higher elevation to a lower level under the influence of gravity and water lubrication. Rockslides as defined as the rapid downhill movement of large masses of rock with little or no hydraulic flow, like an avalanche. Earthflows are much slower and can occur over the course of several hours, days or years. (Garrison, 2012)

Earthquakes may also cause landslides, as the shaking effects unconsolidated or weathered material from slopes. In 1959 an earthquake in Montana caused an entire mountainside to slide into the Madison River Gorge, killing 27 people, damming the gorge and formed a new lake. Human-caused landslides can occur when soils are destabilized after new construction, urbanization and altering slopes. In Los Angeles, urbanization on the hillsides has resulted in widespread mudflows when winter rains saturate embankments and other made land.

South Dakota is particularly vulnerable to landslides because of the combination of layers of silt over clay that characterizes much of the terrain, and the many dissected drainages crossing the western side of the state, dominated by the Missouri River Basin. Future landslides can occur because of rainstorms, fires, earthquakes and human activities (Crandell, 1952).

The entire planning area is prone to landslides and other forms of moving soils. Figure 21 shows the state's landslide susceptibility.

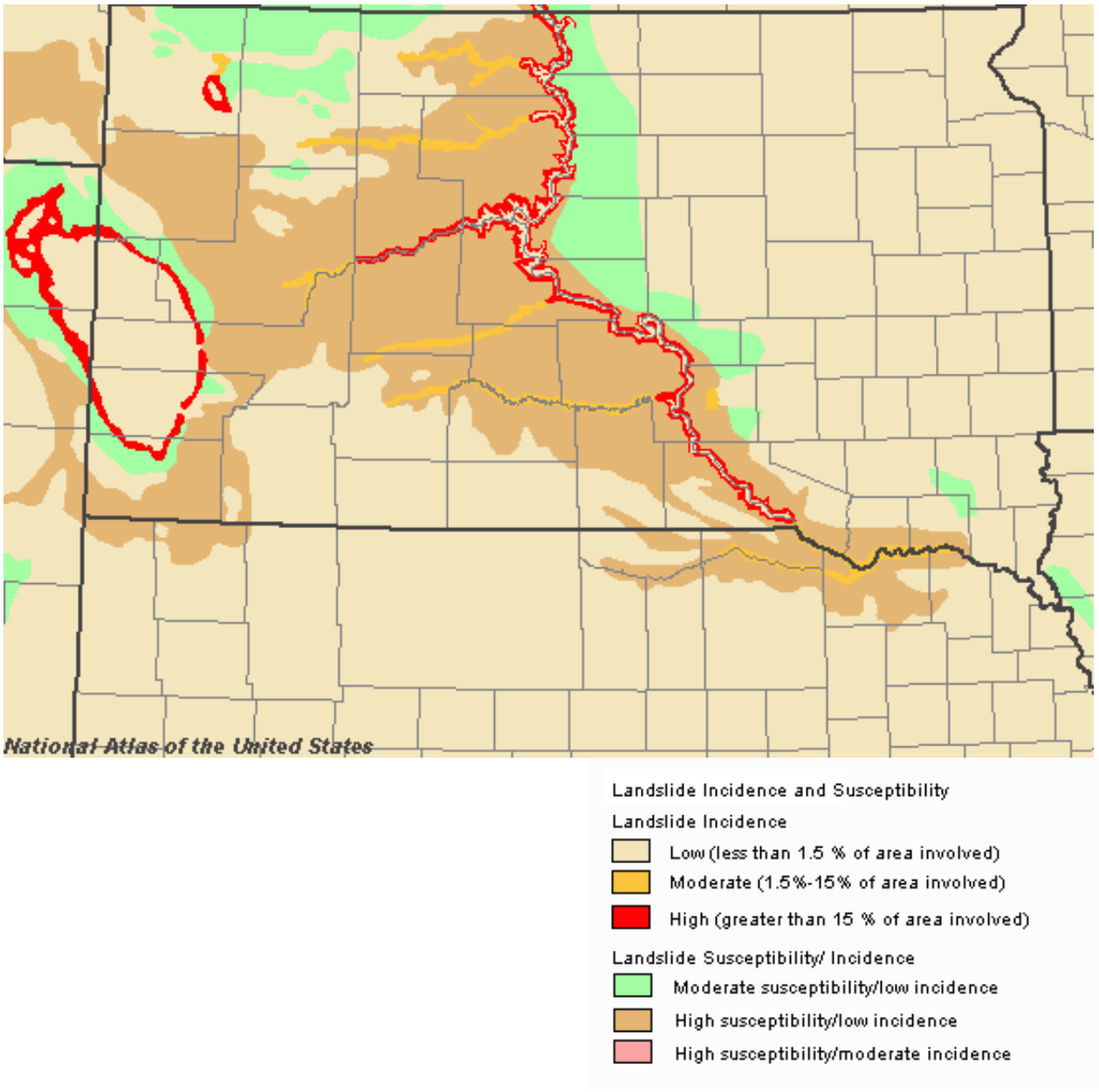


Figure 11: South Dakota Landslide Susceptibility

Earthquake

An earthquake is the shaking of the surface of the Earth due to a sudden release of energy, which moves through the ground in seismic waves. Earthquakes are mostly caused by the rupture of the lithosphere in the Earth's crust but can also be caused by volcanic activity, landslides, explosions and nuclear tests. The strength of an earthquake is measured by reference to the Richter scale. The scale ranges from 0.0–10 and each numeric increase is a 10-fold difference in the perceived ground shaking and 32-fold difference in energy. Secondary impacts include fire, soil liquefaction, and floods. (Chadima, 1992). The entire planning area is equally susceptible to an earthquake.

B.2 Previous Occurrences and Probability of Future Events

Winter Storms

The most devastating winter storm in South Dakota history was the Schoolhouse Blizzard, which struck the Plains states on January 12, 1888. A relatively warm day preceded the storm, and with no precise meteorology at the time, people were unprepared. The fast-moving storm changed an unseasonably warm day to driving snow, with whiteout conditions in hurricane force winds and temperatures as low as -40 degrees Fahrenheit. While only 6 inches of snow fell, the combined ferocity and suddenness of the storm, along with the poor visibility and extremely cold temperatures, caused 235 deaths. (Ford, 2013)

On April 9, 2013, a rare late spring ice storm devastated most of the eastern side of the state. In a 12-hour period the city of Sioux Falls, SD recorded 1.42 inches of freezing rain and sleet but over an inch was freezing rain. Winds reached 51 mph with freezing temperatures over three days. Damage was substantial as the storm brought down many trees over power lines. More than 900 trees and 25,000 branches were removed, and total damages cost the city $8.25 million dollars. (Bjelland, 2018)

The most recent catastrophic winter storm also occurred in 2013. Winter Storm Atlas hit a multi-state region, including the reservation, on October 3 and lasted for three days, producing as much as 48 inches of snow with wind gusts up to 70 miles per hour (Pereira, 2013). More than 20,000 people lost power, three fatalities occurred, and 14,000 cattle died (Figure 22).

Figure 12: Effects of Winter Storm Atlas

Winds

High wind events are an annual occurrence within the planning area. As West Brule is exposed on a high terrace and Lower Brule is located at the base of the Missouri River Breaks (heavily dissected ridges and draws that run from the higher terrace down the valley slopes), straight line winds may be extremely destructive during summer storms.

On June 19, 2015, straight line winds blew the roof off the Tribal Courthouse, partially destroyed a large part of the wooden arbor surrounding the Pow Wow Grounds, damaged 30 Tribal vehicles at Lower Brule Tribal Office, removed roofing on the Golden Buffalo Motel and Convention Center, damaged several private trailer homes and flattened a substantial area of crops.

On June 27, 2018, a severe storm with hail and strong winds overturned several center pivots, flattened crops of beans and stripped cornfields in the Tribe's agricultural lands in the Big Bend.

The Planning Committee stated that there is almost a 100% probability that high winds with the potential for damage may occur in the planning area every year.

Drought

The Planning Committee stated that there is a near 100% probability that a drought will occur either next year or in subsequent years.

LBST experiences exceptional drought conditions every 3-5 years (see Table 8 and Figures 23 and 24).

Table 8: National Drought Monitor's Ranking System

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: short-term dryness, growth of crops or pastures. Coming out of drought: some lingering water deficits: pastures or crops not fully recovered.
D1	Moderate Drought	Some damage to crops, pastures, streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested.
D2	Severe Drought	Crops or pasture losses likely; water shortages common; water restrictions imposed.
D3	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions.
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies.

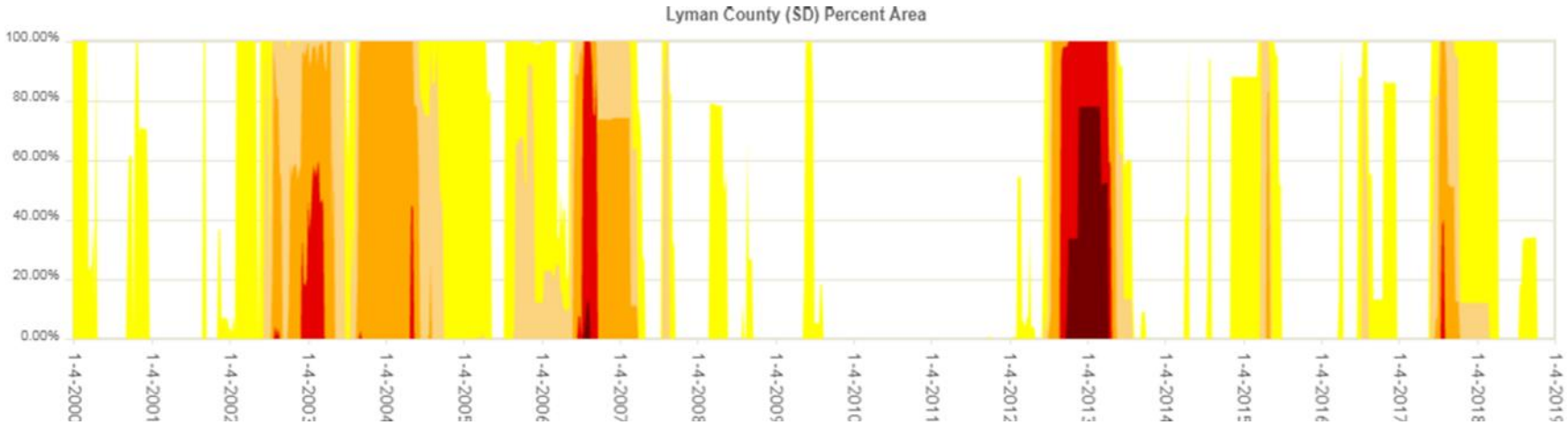


Figure 13: Lyman County Drought History

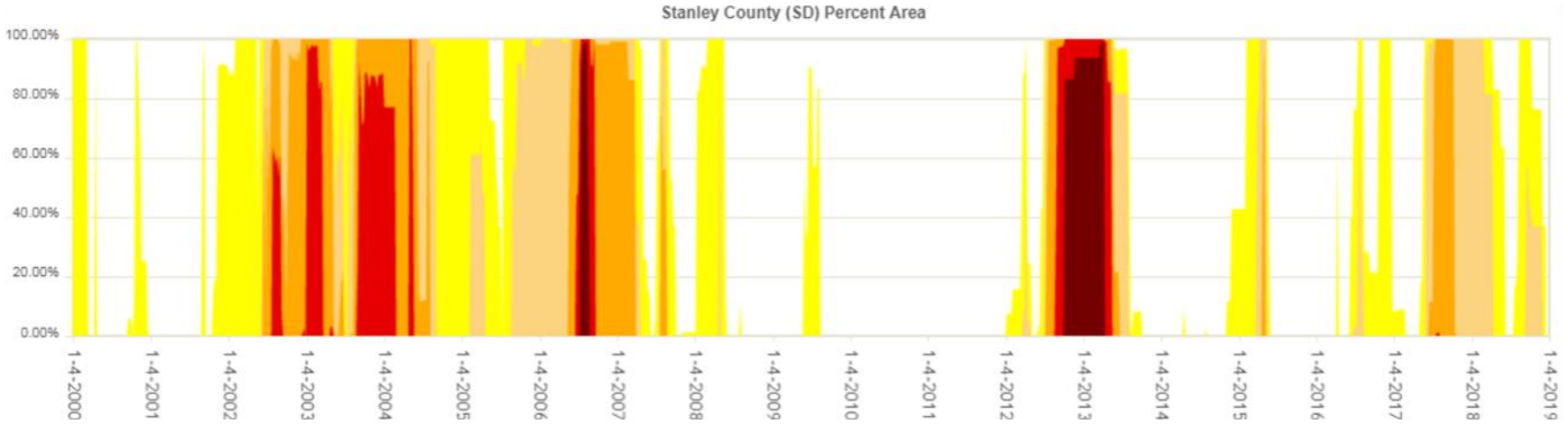


Figure 24: Stanley County Drought History

Tornadoes

Thirty-six tornados have been recorded in the planning area. The largest tornado was an EF3 on July 9, 1971, which passed just north of the town of Lower Brule in the Narrows of the Big Bend. No injuries or fatalities were reported. The same storm produced another EF3 west of Reliance, about 15 miles south of the reservation. It caused two injuries. There have been 289 tornados recorded as being an EF2 or above in South Dakota (Tornado History Project, n.d.).

On May 4, 2009, a small, unreported tornado (EF-0, presumed) moved through the outskirts of the town of Lower Brule. It avoided residences and other buildings, crossed Lake Sharpe and moved onto the Crow Creek Sioux Reservation before disappearing. Fortunately, no damage was reported.

On June 18, 2014, strong supercell thunderstorms moved across north central South Dakota. During this storm, an EF-2 tornado touched down southwest of the town of Wessington Springs, about 50 miles due east of Lower Brule. It followed a 2.26-mile path northeast through the town. The tornado destroyed three businesses and 24 homes and damaged 23 others.

On August 14, 2016, a severe storm struck Lower Brule during the annual Powwow. Several funnel clouds were observed in the lightening. Attendees and campers on the Powwow grounds were evacuated to the Lower Brule Casino. Fortunately, tornados did not touch down.

The Planning Team stated that tornadoes are somewhat likely to occur in the planning area in the future. They agree that there is between a 1 and 10% probability in the next year and/or has a recurrence interval of 11 to 100 years.

Flooding

The first ever flood recording in the Lower Brule area was the Great Flood of 1881 began near Pierre, South Dakota when rapid melting of the Missouri River followed a winter with unusually heavy snow and extended cold temperatures. As the ice broke quickly on the river, it formed a gorge over 30 miles long that extended downstream to the town of Vermillion. At Fort Pierre, the gorge held back the water and flooded the town with more than four feet of water. At the peak of the flooding in Vermillion, on March 27, the town's residents had to flee onto the bluffs above and more than 130 buildings were swept away, and more than a thousand cattle and horses were lost. When the gorge finally released, the Missouri River had cut a new channel, bypassing the meander that served the town, and forcing its move to its present location, above the valley next to the bluffs. (Flood of 1881)

In 2011, the Missouri River flooding was initially caused by melting snow in the Rocky Mountains, and the increased volume of water eventually overcame the capacity of the Missouri River dams, forcing the operators, the US Army Corps of Engineers, to increase flow to ensure the integrity of the dams. This caused flooding downstream, affecting towns from North Dakota to Missouri, including Fort Pierre, South Dakota. It was especially devastating as it lasted from June all the way through August.

On the reservation, it increased the erosion of many ancient cultural sites, including some listed on the National Register of Historic Places, and it damaged infrastructure near the river, including irrigation pumps.

Total flood damages in South Dakota between 1996 and 2016 are presented below in Table 9.

Table 9: Totals for South Dakota Flood Damages

State	Year	Number Of Claims Closed With Payment	TotalPaid
South Dakota	2016	1.00	$ 88,700.00
South Dakota	2015	30.00	$ 398,324.40
South Dakota	2014	35.00	$ 1,135,651.60
South Dakota	2013	9.00	$ 93,016.56
South Dakota	2012	36.00	$ 434,678.28
South Dakota	2011	531.00	$ 11,654,557.52
South Dakota	2010	265.00	$ 3,378,383.25
South Dakota	2009	11.00	$ 106,101.51
South Dakota	2008	33.00	$ 392,216.71
South Dakota	2007	173.00	$ 2,377,731.76
South Dakota	2006	1.00	$ 1,041.15
South Dakota	2005	3.00	$ 4,724.24
South Dakota	2004	7.00	$ 25,937.68
South Dakota	2003	1.00	$ 4,704.05
South Dakota	2002	1.00	$ 9,564.72
South Dakota	2001	95.00	$ 620,557.22
South Dakota	2000	1.00	$ 50,000.00
South Dakota	1999	84.00	$ 1,232,894.98
South Dakota	1998	24.00	$ 237,679.89
South Dakota	1997	478.00	$ 7,168,809.93
South Dakota	1996	23.00	$ 234,813.99
		Total	**$ 29,650,089.44**

In 1995, heavy rains caused flooding around Medicine Creek bridge, on BIA Road 10, north of Lower Brule. A vehicle was swept off the road into the current, placing the elderly driver in imminent danger of being drowned. He was roped to safety by a Lower Brule Councilman and Lower Brule emergency services personnel.

On June 22, 2011 an extremely heavy rain caused rapid flooding on a small tributary of Counselor Creek. The rushing water dammed up against the upstream side of BIA Road 10 near the southern boundary of the reservation, the culvert failed, and the road washed out, taking with it two vehicles and causing two fatalities. Search crew found the vehicles and their victims several miles downstream. This highway, the main access to Lower Brule from the south, was closed for three months.

In spring of 2019 the LBST experienced significant flooding as much of the Mid-west. This flooding brought the destruction of stock dams and roads.

The Planning Committee stated that flooding is somewhat likely to occur in the planning area in the future. They agree that there is between a 1 and 10% probability in the next year and/or has a recurrence interval of 11 to 100 years.

Hail

On July 23, 2010, the world's largest diameter hailstone fell a few miles west of the reservation, near Vivian, South Dakota (Figure 25). According to the National Weather Service, the hailstone measured 7.9 inches in diameter and 18.62 inches in circumference and weighed 1.9375 pounds.

Figure 25: World Record Hailstone, which Fell 36 Miles West of Lower Brule

The Planning Committee stated that there is a near 100% probability that hail will occur every year.

Wildfire

On October 5, 2011, a fire along Highway 47 burned 1,790 acres. The fire started along Highway 47 and burned to BIA Route 5 at Counselor Creek destroying powerlines that stopped electrical service to the town of Lower Brule.

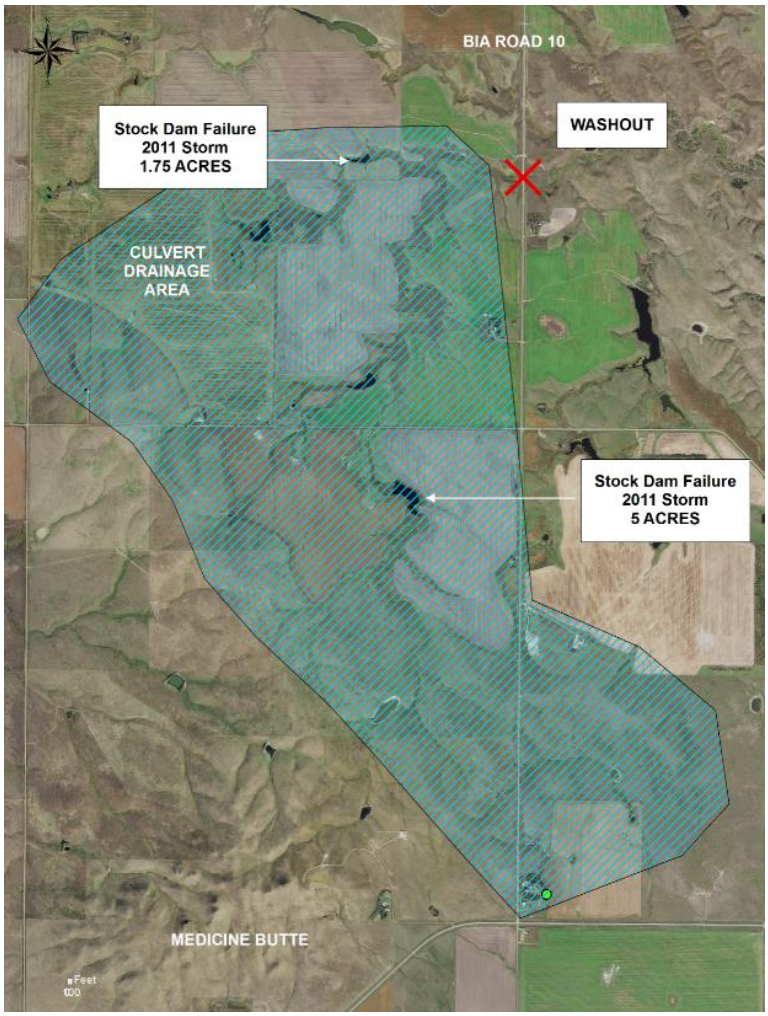
On November 5, 2016, the Potter Fire burned 158 acres of Tribal land and 624 acres of private land, totaling 782 acres. This fire started along Highway 47 and spread to the Tribal wetland area near Medicine Butte. The fire resulted in the destruction of a wildlife vehicle.

The Steering Committee stated that wild fires are very likely to occur in the planning area in the future. The Steering Committee agrees that there is a 100% probability in the next year and/or has a recurrence interval of every year.

Dam Failure

In 2011 after heavy rainfall and larger than anticipated spring snowmelt, the Oahe reservoir was at its near maximum capacity discharging flow. The city of Pierre, South Dakota, evacuated 3,000 residents. Eyewitness accounts said the dam was nearly overtopping with water coming onto the roadway.

The presence of stock dams across the Reservation creates a flash-flood hazard. Under ordinary circumstances, as most dams are relatively small, the extent of flows from a breached dam are not sufficient to constitute a serious threat. During serious weather events, such as rapid melting of snow or heavy rainfall, however, dams may breach and add significantly to the flow of floodwater running down natural drainages. In 2011, during an extremely heavy rain (more than 10 inches over several hours), there is evidence that at least two stock dams within the drainage failed. These failures may have contributed to the eventual washout of BIA road 10 during the storm and the loss of two lives.



The Steering Committee stated that a dam failure is unlikely to occur in the planning area in the future. It agrees that there is less than a 10% probability in the next 100 years and/or it has occurred 10 times in the last 100 years.

Landslide

In spring 2018, a hazardous landslide occurred on Highway 1806, north of Lower Brule, when the downstream side of a filled section of road gave way. By June 19, the slide had advanced to the edge of the pavement, as reported by Lower Brule Cultural Resources personnel. The slump created a potentially serious hazard to traffic, which included trucks hauling gravel and other heavy loads. The highway was reduced to one lane and the slump was eventually repaired. Landslide slumps happen on an annual basis along Highway 47.

In spring of 2019, after months of flooding, a slump occurred on the Lower Brule farm, destroying a section of irrigated crop land. The irrigation pivot had to remove two sections in order to continue operation.

The Steering Committee stated that a landslide with the potential to cause property damage or loss of life is likely to occur in the planning area in the future. They agree that there is greater than a 100% probability in the next 10 years.

Earthquake

Seven historical earthquake events with recorded magnitudes of 3.5 or above found in South Dakota. (Information by Region-South Dakota)

March 4, 1983, Mg 4.4 13 miles northeast of the town of Lower Brule

July 3, 1995, Mg 2.8 6.6 miles south of the town of Lower Brule

The Steering Committee stated that an earthquake is likely to occur in the planning area in the future. They agree that there is greater than a 5% probability in the next 100 years and/or it has occurred 5 times in the last 100 years.

B.3 Hazard Impact

As stated in 44 CFR Part 201, a risk assessment must make a clear connection between the Tribal government's vulnerability and the hazard mitigation actions.

Natural disasters affect the Lower Brule Sioux Tribe in terms of its population, infrastructure, and natural/cultural resources, which include commercial crops, livestock, buffalo, natural medicines and plants, and wildlife.

During the goal definition process, the planning committee determined that the health and safety of the population was paramount, with the most vulnerable being elders and children. This natural concern is especially acute at Lower Brule because most of the population is concentrated in two small communities, Lower Brule and West Brule, and the rest are scattered in rural homesites, often in remote areas of the Reservation. This distribution stretches scarce emergency management resources and so increases the general vulnerability of the community when disaster strikes.

Because of the wide distribution of the population, road, power and water infrastructures and culturally significant places on the Lower Brule Reservation are also extremely vulnerable to natural hazards listed in the plan. This is especially the case for hazards associated with large area weather events, such as winter and summer storms, flooding and droughts.

Winter storms, especially with blizzard conditions, heavy snowfall, and freezing rain, create hazardous driving conditions, cause roads and bridges to become impassable, and cause blackouts as powerlines fall or transformers fail across the reservation.

Summer storms often have high winds, lightning, heavy rain and hail. The winds may damage or destroy buildings or tip over mobile homes and irrigation pivots, and on Lake Sharpe and Lake Francis Case reservoirs, intensify the already extreme shoreline erosion every year, which eats away at agricultural lands and important cultural sites. Hail commonly flattens crops, damages vehicles and breaks windows on the Reservation.

Flooding on the Lower Brule Reservation from rapid snowmelt and heavy precipitation swells creeks and dams, threatening homes, roads and bridges, and crops, and sometimes fills the Missouri River reservoirs to their flood stage, significantly increasing shoreline erosion and damage to irrigation pumps.

As most of the Reservation is grassland, it is highly vulnerable to drought, a condition that is relatively frequent for short periods in the summer and in some years may become a serious problem. When it is prolonged, it kills grasslands and intensifies the erosion of exposed soils and may cause population declines in a wide range of wildlife. Drought also impacts the LBST infrastructure by increasing the demand of water supply of the LBST Water Distribution System, increasing the amount of electricity needed for cooling systems and irrigation.

With the extensive grasslands, vulnerability to wildfire is also high on the Reservation, and fires occur every year close to the communities of West Brule and Lower Brule. This vulnerability is increased by the fact that these communities do not have fire departments specializing in structure fires.

Some vulnerabilities may seem lower because the threat is either a relatively rare occurrence or it covers less ground. Tornados are a common feature of severe storms in the region, but they

have a narrow path, and so to this date have rarely impacted communities in the Reservation area. The potential is always there, however, and if one did strike a community, the impact would be devastating, causing loss of life and heavy damage along its path.

Earthquakes are generally rare, with low to medium impacts in the region, but they have occurred nearby, and they have the potential to damage infrastructure.

Given the combination of a widely distributed rural population with two small, highly vulnerable communities that hold most of the population, the Louis Berger team addressed the challenge of matching vulnerabilities and mitigation actions by organizing a hazard identification and risk assessment workshop, involving specialists in various aspects of emergency management and response. The meeting took place at the Golden Buffalo Convention Center in Lower Brule, South Dakota on August 14-15, 2018. Attendees included 10 staff members of LBST, two representatives from the local BIA Police Department, and two representatives from the US Army Corps of Engineers. The meeting started by introducing the definitions of hazards and ways to measure their impact on the Tribe—a hazard being any source of potential damage, harm, or adverse health effects on something or someone.

After discussion of these topics, Louis Berger introduced measurement factors for hazards as magnitude, duration, extent, and speed of onset. ***Magnitude*** measures how large the hazard was in terms of energy produced, volume, wind speed, or material displaced. ***Duration*** is how long the hazard typically lasts. ***Extent*** is the size of the geographic area affected by the hazard. ***Speed of onset*** is defined by how fast the hazard can develop from normal conditions (Figure 26).

Risk was introduced as the chance, high or low, that a hazard will cause something or someone harm. Risk was also described as the function of hazards, vulnerability, and consequence, divided into three types of risk—acceptable, tolerable, and intolerable. Ways to live with these risks include avoidance, mitigation, transfer, and acceptance. Avoidance was described as measures to avoid risk from natural hazards. These measures could include avoiding development in hazardous areas, relocating people or assets away from hazardous areas, or developing buffer zones. Reduction/mitigation includes measures undertaken to reduce the risks from natural hazards, such as by strengthening buildings against ground shaking from earthquakes. Risk transfer was to transfer the risk from a natural hazard from one party to another, such as property insurance. Risk acceptance was the acceptance of risk from a natural hazard; any realized losses will be borne by those parties exposed to the hazard. This is not specifically a treatment option as no action is taken. Mitigation, the effort to reduce loss of life and property by lessening the impact of hazards to reduce risks, is achieved through regulations, local ordinances, land use, and building practices and mitigation projects that reduce or eliminate long-term risk from hazards and their effects.

Once the Steering Committee was familiar with the definitions of risks and their measurement parameters, they split up and ranked each hazards risk by probability, affected area, primary impacts, and secondary impacts on a scale of 1-5. The responses of the Committee were entered into the spreadsheet calculations shown in Tables 10-11. The responses for each hazard are listed below in Tables 12-21. Table 22 is the final ranking of the hazards considered by how much risk they pose to the community: significant, moderate, and limited.

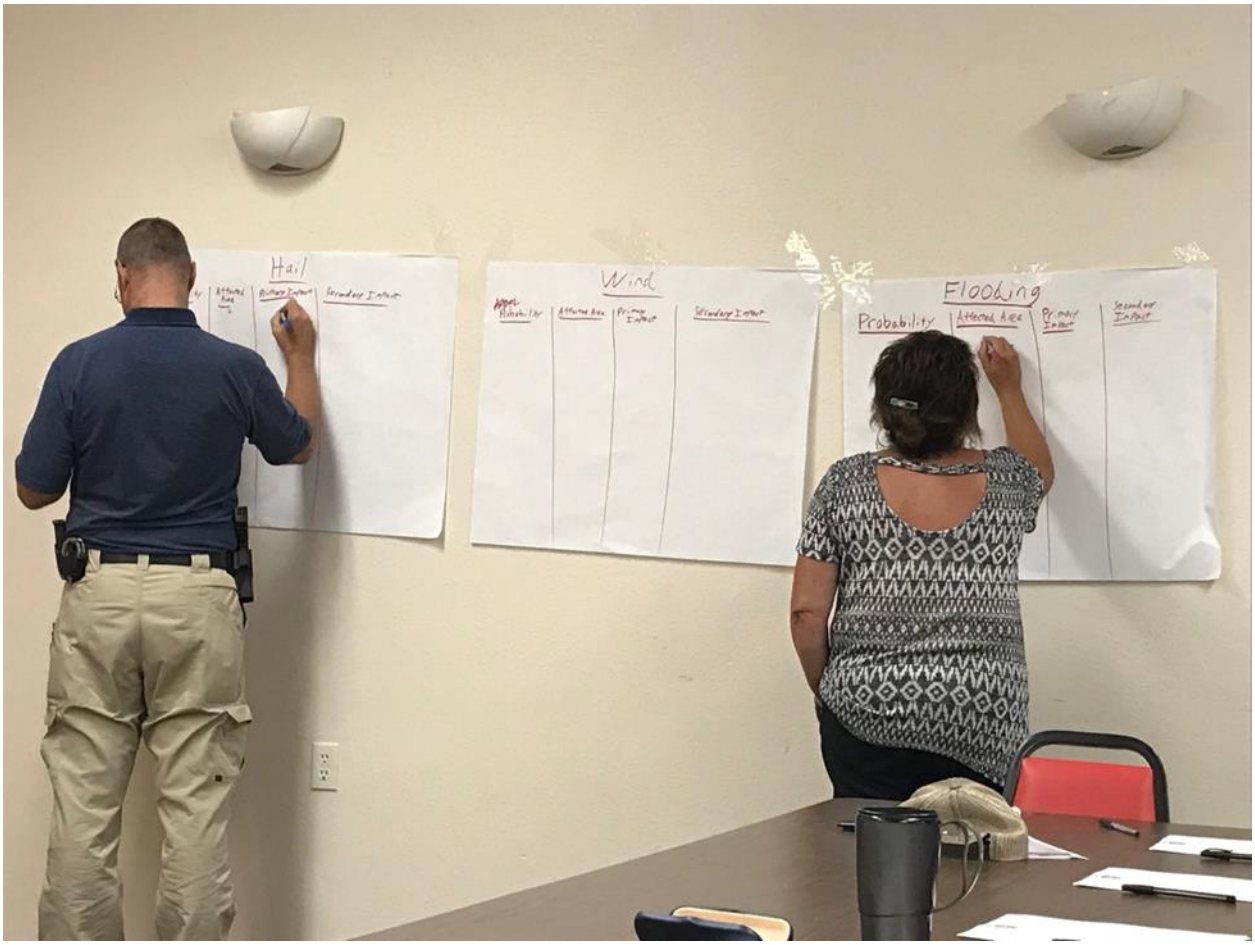


Figure 26: Hazard Impact Ranking

Table 10: Hazard Impact Ranking Weights

Probability	**Weight**	**2.0**
Based on estimated likelihood of occurrence from historical data		Average
Unlikely (Less than 1% probability in the next 100 years or has a recurrence interval of greater than every 100 years.)		1
Somewhat Likely (Between 1 and 10% probability in next year or has a recurrence interval of 11 to 100 years.)		2
Likely (Between 10 and 100% probability in next year or has a recurrence interval of 10 years or less.)		3
Highly Likely (Near 100% probability in next year or happens every year)		4
Affected Area	**Weight**	**0.8**
Based on size of geographical area of the planning area affected by hazard		Average
Isolated		1
Small		2
Medium		3
Large		4
Primary Impact	**Weight**	**0.7**
Approximate amount of damage done to typical facility in the planning area		Average
None/Negligible		1
Limited		2
Moderate		3
Catastrophic/Destroyed		4
Secondary Impacts	**Weight**	**0.5**
Based on estimated secondary impacts to community (economic losses, evacuations, displacements, loss of utilities etc.)		Average
None/Negligible - no loss of function, downtime, and/or evacuations		1
Limited - minimal loss of function, downtime, and/or evacuations		2
Moderate - some loss of function, downtime, and/or evacuations		3
High - major loss of function, downtime, and/or evacuations		4

Table 11: Hazard Impact Total Score Formulas

Total Score = (Probability x Impact) + Local Plans Score +Survey Score, where:	
Probability = (Probability Score X Weight)	
Impact = (Affected Area + Primary Impact + Secondary Impacts), where:	
Affected Area = Affected Area Score X Importance	
Primary Impact = Primary Impact Score X Importance	
Secondary Impacts = Secondary Impacts Score X Importance	
Formula	
(Probability x 2) x [(Affected Area x 0.8) + (Primary Impact x 0.7) + (Secondary Impacts x 0.5)] + Survey Score	
Hazard Planning Consideration	**Total Score Range**
Limited	0-25
Moderate	25 - 50
Significant	50 - 75

Winter Storms

Table 12: Winter Storm Risk Assessment Results

Probability	**Weight**	**2.0**
Based on estimated likelihood of occurrence from historical data		*4*
Affected Area	**Weight**	**0.8**
Based on size of geographical area of the planning area affected by hazard		*3.8*
Primary Impact	**Weight**	**0.7**
Approximate amount of damage done to typical facility in the planning area		*3*
Secondary Impacts	**Weight**	**0.5**
Based on estimated secondary impacts to community (economic losses, evacuations, displacements, loss of utilities etc.)		2.2
Survey Score	**Weight**	**1.0**
Survey Score = (Survey Rating / 3) x 10 where:		10
Formula		**Total**
(Probability x 2) x [(Affected Area x 0.8) + (Primary Impact x 0.7) + (Secondary Impacts x 0.5)] + Survey Score		59.9

Winds

Table 13: Wind Risk Assessment Results

Probability	**Weight**	**2.0**
Based on estimated likelihood of occurrence from historical data		*3.8*
Affected Area	**Weight**	**0.8**
Based on size of geographical area of the planning area affected by hazard		*3.1*
Primary Impact	**Weight**	**0.7**
Approximate amount of damage done to typical facility in the planning area		*2.7*
Secondary Impacts	**Weight**	**0.5**
Based on estimated secondary impacts to community (economic losses, evacuations, displacements, loss of utilities etc.)		2.6
Survey Score	**Weight**	**1.0**
Survey Score = (Survey Rating / 3) x 10 where:		10
Formula		**Total**
(Probability x 2) x [(Affected Area x 0.8) + (Primary Impact x 0.7) + (Secondary Impacts x 0.5)] + Survey Score		53.1

Drought

Table 14: Drought Risk Assessment Results

Probability	**Weight**	**2.0**
Based on estimated likelihood of occurrence from historical data		*4*
Affected Area	**Weight**	**0.8**
Based on size of geographical area of the planning area affected by hazard		*3.9*
Primary Impact	**Weight**	**0.7**
Approximate amount of damage done to typical facility in the planning area		*1.5*
Secondary Impacts	**Weight**	**0.5**
Based on estimated secondary impacts to community (economic losses, evacuations, displacements, loss of utilities etc.)		2.1
Survey Score	**Weight**	**1.0**
Survey Score = (Survey Rating / 3) x 10 where:		6.7
Formula		**Total**
(Probability x 2) x [(Affected Area x 0.8) + (Primary Impact x 0.7) + (Secondary Impacts x 0.5)] + Survey Score		48.5

Tornadoes

Table 15: Tornado Risk Assessment Results

Probability	**Weight**	**2.0**
Based on estimated likelihood of occurrence from historical data		*3.3*
Affected Area	**Weight**	**0.8**
Based on size of geographical area of the planning area affected by hazard		*2.7*
Primary Impact	**Weight**	**0.7**
Approximate amount of damage done to typical facility in the planning area		*2.7*
Secondary Impacts	**Weight**	**0.5**
Based on estimated secondary impacts to community (economic losses, evacuations, displacements, loss of utilities etc.)		2.4
Survey Score	**Weight**	**1.0**
Survey Score = (Survey Rating / 3) x 10 where:		6.7
Formula		**Total**
(Probability x 2) x [(Affected Area x 0.8) + (Primary Impact x 0.7) + (Secondary Impacts x 0.5)] + Survey Score		41.4

Flooding

Table 16: Flooding Risk Assessment Results

Probability	**Weight**	**2.0**
Based on estimated likelihood of occurrence from historical data		*3.1*
Affected Area	**Weight**	**0.8**
Based on size of geographical area of the planning area affected by hazard		*2.8*
Primary Impact	**Weight**	**0.7**
Approximate amount of damage done to typical facility in the planning area		*2.4*
Secondary Impacts	**Weight**	**0.5**
Based on estimated secondary impacts to community (economic losses, evacuations, displacements, loss of utilities etc.)		2.2
Survey Score	**Weight**	**1.0**
Survey Score = (Survey Rating / 3) x 10 where:		6.7
Formula		**Total**
(Probability x 2) x [(Affected Area x 0.8) + (Primary Impact x 0.7) + (Secondary Impacts x 0.5)] + Survey Score		37.8

Hail

Table 17: Hail Risk Assessment Results

Probability	**Weight**	**2.0**
Based on estimated likelihood of occurrence from historical data		*3.6*
Affected Area	**Weight**	**0.8**
Based on size of geographical area of the planning area affected by hazard		*2.4*
Primary Impact	**Weight**	**0.7**
Approximate amount of damage done to typical facility in the planning area		*1.6*
Secondary Impacts	**Weight**	**0.5**
Based on estimated secondary impacts to community (economic losses, evacuations, displacements, loss of utilities etc.)		1
Survey Score	**Weight**	**1.0**
Survey Score = (Survey Rating / 3) x 10 where:		10
Formula		**Total**
(Probability x 2) x [(Affected Area x 0.8) + (Primary Impact x 0.7) + (Secondary Impacts x 0.5)] + Survey Score		35.5

Wildfire

Table 18: Wildfire Risk Assessment Results

Probability	**Weight**	**2.0**
Based on estimated likelihood of occurrence from historical data		*2.5*
Affected Area	**Weight**	**0.8**
Based on size of geographical area of the planning area affected by hazard		*2.2*
Primary Impact	**Weight**	**0.7**
Approximate amount of damage done to typical facility in the planning area		*2.1*
Secondary Impacts	**Weight**	**0.5**
Based on estimated secondary impacts to community (economic losses, evacuations, displacements, loss of utilities etc.)		1.8
Survey Score	**Weight**	**1.0**
Survey Score = (Survey Rating / 3) x 10 where:		6.7
Formula		**Total**
(Probability x 2) x [(Affected Area x 0.8) + (Primary Impact x 0.7) + (Secondary Impacts x 0.5)] + Survey Score		27.3

Dam Failure

Table 19: Dam Failure Risk Assessment Results

Probability	**Weight**	**2.0**
Based on estimated likelihood of occurrence from historical data		*1.3*
Affected Area	**Weight**	**0.8**
Based on size of geographical area of the planning area affected by hazard		*3.1*
Primary Impact	**Weight**	**0.7**
Approximate amount of damage done to typical facility in the planning area		*3.3*
Secondary Impacts	**Weight**	**0.5**
Based on estimated secondary impacts to community (economic losses, evacuations, displacements, loss of utilities etc.)		2.5
Survey Score	**Weight**	**1.0**
Survey Score = (Survey Rating / 3) x 10 where:		6.7
Formula		**Total**
(Probability x 2) x [(Affected Area x 0.8) + (Primary Impact x 0.7) + (Secondary Impacts x 0.5)] + Survey Score		22.4

Landslide

Table 20: Landslide Risk Assessment Results

Probability	**Weight**	**2.0**
Based on estimated likelihood of occurrence from historical data		*1.1*
Affected Area	**Weight**	**0.8**
Based on size of geographical area of the planning area affected by hazard		*1.1*
Primary Impact	**Weight**	**0.7**
Approximate amount of damage done to typical facility in the planning area		*1.2*
Secondary Impacts	**Weight**	**0.5**
Based on estimated secondary impacts to community (economic losses, evacuations, displacements, loss of utilities etc.)		1.1
Survey Score	**Weight**	**1.0**
Survey Score = (Survey Rating / 3) x 10 where:		10
Formula		**Total**
(Probability x 2) x [(Affected Area x 0.8) + (Primary Impact x 0.7) + (Secondary Impacts x 0.5)] + Survey Score		15.0

Earthquake

Table 21: Earthquake Risk Assessment Results

Probability	**Weight**	**2.0**
Based on estimated likelihood of occurrence from historical data		*1.1*
Affected Area	**Weight**	**0.8**
Based on size of geographical area of the planning area affected by hazard		*1.3*
Primary Impact	**Weight**	**0.7**
Approximate amount of damage done to typical facility in the planning area		*1.2*
Secondary Impacts	**Weight**	**0.5**
Based on estimated secondary impacts to community (economic losses, evacuations, displacements, loss of utilities etc.)		1
Survey Score	**Weight**	**1.0**
Survey Score = (Survey Rating / 3) x 10 where:		3.3
Formula		**Total**
(Probability x 2) x [(Affected Area x 0.8) + (Primary Impact x 0.7) + (Secondary Impacts x 0.5)] + Survey Score		8.6

B.4 Overall Vulnerability

Refer to Section B.3 for narrative.

Table 22: Results of Risk Assessment

Significant

Winter Storms - 59.9				
Probability	Affected Area	Primary Impact	Secondary Impact	Survey Score
4	3.8	3	2.2	3

Wind - 53.1				
Probability	Affected Area	Primary Impact	Secondary Impact	Survey Score
3.9	3.1	2.8	2.7	3.0

Limited

Dam Failure - 22.4				
Probability	Affected Area	Primary Impact	Secondary Impact	Survey Score
1.3	3.1	3.3	2.6	2.0

Landslide - 15.0				
Probability	Affected Area	Primary Impact	Secondary Impact	Survey Score
1.1	1.1	1.2	1.1	2.0

Earthquake - 8.6				
Probability	Affected Area	Primary Impact	Secondary Impact	Survey Score
1.1	1.3	1.2	1	1.0

Moderate

Drought - 48.5				
Probability	Affected Area	Primary Impact	Secondary Impact	Survey Score
4	3.9	1.5	2.1	2

Tornadoes 41.4				
Probability	Affected Area	Primary Impact	Secondary Impact	Survey Score
3.3	2.8	2.8	2.4	2.0

Flooding - 37.8				
Probability	Affected Area	Primary Impact	Secondary Impact	Survey Score
3.1	2.9	2.4	2.2	2.0

Hail - 35.5				
Probability	Affected Area	Primary Impact	Secondary Impact	Survey Score
3.7	2.4	1.7	0.9	3.0

Wild Fire - 27.3				
Probability	Affected Area	Primary Impact	Secondary Impact	Survey Score
2.6	2.2	2.1	1.9	2.0

ELEMENT C. MITIGATION STRATEGY

This section outlines the mitigation strategy of LBST's MHMP.

C.1 Pre- and Post-Disaster Policies, Programs and Capabilities

The Lower Brule Sioux Tribal government was formed under the Indian Reorganization Act (IRA) in 1934. The Constitution and Bylaws for the Lower Brule Sioux Tribe took effect on November 27, 1935. Over the years the Constitution has been improved by making amendments and establishing ordinances and codes. The Tribal Council does make changes to the Constitution; it requires a majority vote by Tribal members through a referendum or a special secretarial election—the last occurred in 1986. Within this document, there are no laws or ordinances that refer directly to hazard mitigation. As the Tribe is relatively small, however, program administration by the Tribal Council flows directly through the Tribal Manager to the various Departments, and it is at this administrative level that some established programs include hazard mitigation benefits.

The BIA Wildland Fire Department at Lower Brule (WFD) carries out the Branch of Wildland Fire Management's mission is to protect lives, property, and resources while restoring and maintaining healthy ecosystems through cost-effective and creative fire-management programs, collaboration, and promoting Indian self-determination. It is directly responsible for the suppression of grassland fires, mitigating hazardous conditions on rural lands and promoting fire prevention. In cooperation with the Public Information/Cultural Resources Office (PI/CRO) and the Department of Wildlife, Fish and Recreation (WFR) the WFD conducts controlled burns, which reduce hazardous fuel loads and help improve the health of soils and fosters increased plant growth. The additional moisture retention mitigates drought effects and subsequent fire and erosion threats.

WFR has been actively managing wildlife resources and improving habitat on the reservation for over 30 years, planting thousands of acres of trees and food plots annually, as well as turning marginal croplands into restored grasslands. Title VI of the Water Resources Development Act of 1999, Pub. L. No. 106-53, 113 Stat. 269, 385-97, authorizes federal funding to finance the restoration of terrestrial wildlife habitat loss resulting from flooding related to certain federal water projects. By restoring the ecology, which improves the health of the entire environment, WFR can achieve goals consistent with pre-hazard mitigation, as the improved lands become more resistant to damage from drought and erosion. This also allows the land to recover more quickly after disasters.

The PI/CRO works for the protection and preservation of Lower Brule traditional culture and the modern community. As cultural resources include land, plants and animals, the Office has an important role in land management and development on the reservation and provides expertise and resources for interactions between the Tribe and federal and state agencies—most importantly, the US Army Corps of Engineers, given its responsibility for Lake Sharpe and Lake Francis Case – and the many non-Indian communities in the region. It also has a professional archaeologist, and so oversees all matters related to the National Historic Preservation Act of 1966 (as amended), which has laws and guidelines that apply to all federal and trust lands in the US. With this varied expertise, the PI/CRO can respond quickly to the practical and cultural issues associated with emergency management, including conservation practices and cultural site recovery.

The PI/CRO conducts substantial cultural resources survey projects every year in order to ensure that these valuable resources are protected from development. The Office has set aside two large tracts of land with significant cultural resources and habitats—the Narrows Culturally Sensitive area and the North and South Iron Nation Culturally Sensitive areas—which are protected from future development. Combined with land management practices designed to improve soils and habitats, these areas are now much more stable and better able to withstand the erosive effects of severe weather on their fragile cultural resources.

The Environmental Protection Office (EPO) implements programs with funding by EPA. EPO promotes environmental education/outreach, development and approval of environmental codes/ordinances, provides environmental monitoring of water quality, and works with other Departments where concerns overlap, including WFR and the PI/CRO. Most recently, the EPO and the PI/CRO worked cooperatively with the USGS on the precise monitoring of daily erosion along the shore of Lake Sharpe, with the goal of understanding the mechanics of the erosion so that future shoreline stabilization projects are more informed about the dynamics and rates of erosion.

LBST adopted the Universal Building Code, which applies to all future construction under the Tribe's Housing Department.

LBST has also anticipated flood risks and therefore has flood insurance through its comprehensive insurance policy.

Grant Management

Tribal Departments have successfully sought and completed grants on behalf of the Tribal Council for over 20 years. In particular, the WFR the PI/CRO recently completed a substantial multi-year grant with the US Army Corps of Engineers, with the goal of evaluating the rates and extents of erosion on cultural sites along the banks of Lake Sharpe and Lake Francis Case. PI/CRO is also working with WFR and the US Army Corps of Engineers on a new long-term bank stabilization project on these reservoirs in order to mitigate future erosion.

Long-term Recovery Plans, policies and procedures

The rural population on the reservation is widely dispersed, and so the BIA Wildland Fire Department, the BIA Police Department, the Ambulance Service, and LBST Emergency Management Program, are frequently strained during emergencies. A crucial emergency service the Tribe lacks is a structural fire department, as the BIA Wildland Fire Department only has the authority to respond to wildfires. Give that these essential programs cross boundaries between federal trust responsibilities (BIA programs) and Tribal programs, efficient coordination is essential. An important goal in the institution of the HMP is to ensure that the programs presently involved in aspects of pre-hazard mitigation are coordinated into a single planning structure that will simplify disaster recovery and thereby make it more efficient and effective.

C.2 Mitigation Funding Sources

In accordance with FEMA Requirement 201.7(c)(3)(v), the mitigation strategy includes an identification of current and potential sources of Federal, Tribal, and private funding to implement mitigation activities listed below and shown in Table 23. Those listed in the table are funding sources that are eligible for mitigation project funding, however, when obtaining funding for future projects LBST will search for funding from agencies that are not listed as well.

Past Funding for Hazard Mitigation

The Tribe's hazard mitigation strategy has historically relied on outside funding because of the scale of hazards and associated costs, which are outside the Tribe's funding capacity. The Tribe has pursued a policy of establishing partnerships with federal agencies with missions and authorities to fund projects that incorporate mitigation strategies – principally with the US Army Corps of Engineers (Corps) and the National Resource Conservation Service (NRCS).

These partnerships confer primary benefits in terms of hazard mitigation for the Tribe, even though the federal agencies do not have hazard mitigation as a primary benefit. Both agencies recognize hazard mitigation as a significant, secondary benefit of their actions.

With such partnerships in place, the Tribe has been able to achieve significant hazard mitigation with respect to two crucial and continuing threats to the Tribal infrastructure, economy and health and wellbeing of the community: 1) damage and destruction caused by winds, wave and ice erosion along Lake Sharpe and Lake Francis Case, which seriously affects agricultural lands, riparian zones that support wildlife and its economic benefits, and important cultural sites; and 2) drought, which impacts the Tribe's most important industry, agriculture, and poses additional threats of wildfires, increased erosion of grazing lands, and damage to cultural sites.

With respect to the hazards posed by the two reservoirs, the Tribe began a partnership with the Corps that has, as its primary goal, the reduction or elimination of damage to economically or culturally important shoreline areas from bank erosion, caused by wind-driven waves and ice. With Corps funding, the Tribe constructed riprap shoreline defenses over several miles in projects on both reservoirs. These efforts resulted in the virtual elimination of the erosion hazard in these areas.

The Tribe also developed a partnership with the US Geological Survey to measure the erosion along Lake Sharpe. Its goal was to gather high-quality scientific data on the constant and continuing erosion that could be used by other agencies (principally the Corps) to assist in shoreline protection priorities and strategies.

With respect to the drought hazard, the Tribe has worked closely with the NRCS in several long-term initiatives that meet their goal of improving the health of soils and plant communities and provide the value-added benefits of withstanding the effects of drought These undertakings include the construction and maintenance of embankment ponds in grazing lands, the installation of cattle watering stations across the reservation, served by the Rural Water system, and the management of grazing and croplands with the goal of improving soil structure and thereby enhancing water retention in the soil. The latter program includes rotational grazing management to protect plant communities, the control of overgrazing, and the covering of crops after harvest. Such measures limit the amount of exposed ground, thus reducing runoff and erosion from rainfall.

The Tribe has received the Excellence in Cooperative Conservation award from the NRCS, two years in a row (2018 and 2019).

The Tribe has not received any FEMA hazard mitigation monies outside the Pre-Hazard Mitigation Grant that has produced this MHMP.

Future Potential Sources of Hazard Mitigation Funding

The Tribe will continue its active partnerships with the Corp and the NRCS in hazard mitigation. Currently, the Tribe and Corps are involved in a bank stabilization project at Fort George, where irrigation pivots are eroding, and a bank stabilization project in front of the town of Lower Brule, which will protect the Tribes primary infrastructure and community. The Tribe recently completed a project with the NRCS that installed a station that continuously broadcasts data on weather and soil conditions.

In addition to the ongoing initiatives, with the approval of an HMP, the Tribe will seek funds directly from available FEMA grants for hazard mitigation. Once this plan is approved, the Tribe also plans to approach the US Department of Homeland Security for funding under its Tribal Homeland Security Grant Program.

The Tribe has not approached private funding sources in the past for hazard mitigation. However, LBST will target any private source that provides support in these areas, once the HMP is in place.

Table 23: LBST Funding Capabilities

Financial Resource	Eligible Funding to Use for Mitigation Activities
LBST General Funds	Can exercise this authority with Tribal approval Process
Federal Emergency Management Agency (FEMA)	With an adopted HMP, many funding opportunities are available including Indian Capital Improvement Project Funding, Hazard Mitigation Grant Program, Pre-Disaster Mitigation Grant Program, and Flood Mitigation Assistance Grant Program.
US Fire Administration Grants	FEMA funding available through the Assistance to Firefighters Grants to enhance fire departments ability to protect the health and safety or firefighters and the public.
US Department Agriculture	US Department Agriculture, Rural Development, Grant funding is available on an annual basis. This grant can be used to fund infrastructure projects that may pertain to hazard mitigation.
Bureau of Indian Affairs	BIA funding which is available on an annual basis. These grants can be used to fund trainings, studies, and planning efforts.
US Department of Commerce	Funding available for economic development in economically distressed areas.
US Department of Homeland Security	The US Department of Homeland Security distributes grant funds to enhance the ability for regional authorities to prepare, prevent, and respond to terrorist attacks and other disasters. Grants can be used for planning, equipment, training, and exercise needs.
US Department of Housing and Urban Development	The US Department of Housing and Urban Development awards discretionary funding through more than 20 Grant programs that support its initiatives including community and economic development, environment and energy, and fair housing.
Indian Health Service	Indian Health Service grants are available on an annual basis to ensure that comprehensive, culturally acceptable personal and public health services are available and accessible to Native Americans

C.3 Goals to Reduce or Avoid Vulnerabilities to Risks

The first mission of the Lower Brule Sioux Tribal Council, as authorized by the Tribal Constitution, is to safeguard and promote the peace, safety, morals, and general welfare of the Lower Brule Sioux. With this purpose in mind, the HMP is designed to reduce or avoid vulnerabilities to potential environmental hazards, as identified and prioritized in the formal risk assessment outlined in this document. The primary risks on the reservation are winter storms, extreme winds, drought, tornado, flooding, hail, wildfire, dam failure, landslide, and earthquakes.

The development of specific goals began with an assessment of community awareness about the 10 potential hazards defined in the initial risk assessment – those with the greatest potential to affect the reservation (see Element B above). In order to give the community tangible options, the Planning Committee created a list of 20 potential mitigation actions related to the 10 hazards. The goal was to gain a clear understanding of what a wide range of Lower Brule community members perceived as the primary threats to their wellbeing and how these threats might be avoided. The participants were technical staff, Tribal community members, a committee of high school students, and outside perceptions and actions from the MHMPs of Lyman and Stanley Counties. The Core Planning Committee then examined the list and set practicable priorities in accord with Tribal capacities and responsibilities.

Once the list of hazard vulnerabilities was established, the Core Planning Committee organized them into a set of goals that would provide structure and guidance for the subsequent action plans. The primary objective was to reduce the losses to critical facilities utilities, and infrastructure from natural hazards, and so the individual goals represent specific action areas.

- Goal 1: Assess the vulnerabilities of critical facilities and infrastructure to the relevant potential hazards, develop appropriate mitigation actions, and seek funding where necessary.
- Goal 2: Update and revise the Emergency Response Plan, improve warning and communication systems, and obtain appropriate emergency response equipment.
- Goal 3: Train emergency response personnel and enhance public awareness of natural hazards.
- Goal 4: Assess the vulnerability of culturally and economically significant sites and lands in rural areas to natural disasters and develop appropriate mitigation actions.

C.4 Mitigation Actions

With the mitigation hazard goals set, the Planning Committee then organized the 20 proposed hazards into action plans.

- Anchor Mobile Homes
- Build Single Family Storm Shelters
- Build Storm Shelters in Lower Brule and West Brule
- Construct a Reserve Potable Water Source
- Design and Implement an Emergency Transportation/Evacuation Plan for Lower Brule and West Brule
- Establish a Community Watch Program in Lower Brule and West Brule
- Hold Public Meetings on Disaster Preparation/Mitigation Efforts
- Implement an Emergency Communications Plan
- Offer Training in First Aid/CPR to Tribal Employees and Community Members
- Offer Wildfire Prevention Classes for Rural Residents
- Protect Cultural Sites
- Provide Skywarn Storm Spotter Training for Tribal Employees
- Purchase A Second Snow Plow for the Roads Department
- Purchase and Install Backup Generators for Lower Brule Schools
- Purchase and Place Tornado Sirens in Lower Brule and West Brule
- Purchase First Aid Kits and AEDs for Public Buildings
- Repair Key Roads, Bridges and Culverts
- Seek Funding for Mitigation Projects
- Repair Tribal Buildings to Meet Universal Building Codes
- Update Emergency Operations Plan

To begin the mitigation identification process, the Planning Committee created a list of 20 potential mitigation actions related to the 10 hazards with the greatest potential to affect the reservation (see Element B above). These proposed actions came from technical staff, Tribal community members, a committee of high school students, and from the MHMPs of Lyman and Stanley Counties. The list was then examined by the Core Planning Committee and, where necessary, reprioritized in accord with Tribal capacities and responsibilities (Table 24).

Table 24: Mitigation Actions

Goal	Mitigation Action	Completion	STAPLEE Ranking	STAPLEE Priority	Core Committee and Tribal Council Priority
2	Update Emergency Operations Plan	1 year	26	High	High
2	Implement an Emergency Communications Plan	1 years	21	Low	High
2	Design and Implement an Emergency Transportation/Evacuation Plan for Lower Brule and West Brule	1 years	18	Low	High
2	Purchase and Place Tornado Sirens In Lower Brule and West Brule	1 year	24	High	High
2	Build Storm Shelters in Lower Brule and West Brule	1-2 years	22	Medium	High
1	Repair Key Roads, Bridges And Culverts	2 years	24	High	High/Ongoing
3	Hold Public Meetings on Disaster Preparation/Mitigation Efforts	1 year +	23	Medium	High
2	Purchase First Aid Kits and AEDs For Public Buildings	1 year	23	Medium	High
1	Seek Funding For Mitigation Projects	Ongoing	23	Medium	High
3	Offer Wildfire Prevention Classes for Rural Residents	1 year	27	High	High
4	Protect Cultural Sites	Ongoing	22	Medium	High
3	Provide Skywarn Storm Spotter Training for Tribal Employees	1 year +	23	Medium	Medium/High
3	Offer Training in First Aid/CPR to Tribal Employees and Community Members	1 year	22	Medium	Medium
2	Purchase a Second Snow Plow for the Roads Department	2 years	22	Medium	Medium
2	Purchase and Install Backup Generators for Lower Brule Schools	2 years	18	Low	Medium
1	Anchor Mobile Homes	3-4 years	21	Low	Low
3	Establish A Community Watch Program in Lower Brule and West Brule	3 years	21	Low	Low
1	Repair Tribal Buildings to Meet Universal Building Codes	3 year	26	High	Low
1	Construct a Reserve Potable Water Source	4 years	16	Low	Low
1	Build Single Family Storm Shelters	3 years	15	Low	Low

C.5 Action Plan

The Core Planning Committee developed the general goals and prioritized the mitigation actions to ensure that they were consistent with the Tribe's administrative and financial capabilities, and with relevant Tribal programs and their experience in hazard mitigation elements. The goals also ensure that the HMP has a consistent, logical structure by reflecting risk assessments and anticipating the intended mitigation actions.

Prioritization

In order to understand the Tribe's capabilities to complete these mitigation actions, Louis Berger applied the STAPLEE method to each of the proposed mitigation actions. Once the STAPLEE analysis was complete, they consulted with the Core Committee and the Tribal Council and produced a Mitigation Action List (Table 25).

STAPLEE is a cost/benefit analysis tool and includes considerations for **S**ocial, **T**echnical, **A**dministrative, **P**olitical, **L**egal, **E**nvironmental and **E**conomic issues.

S Social – Extent of support of Tribal members and other stakeholders for the overall implementation strategy and specific mitigation actions, with reference to social, cultural, and sacred beliefs and customs.

T Technical – Degree of technical feasibility of the proposed mitigation action to help to reduce losses in the long term with minimal secondary impacts, given Tribal resources and capabilities, and whether the alternative action is a whole or partial solution, or not a solution at all.

A Administrative – Capability of personnel and administration in Tribal government for the anticipated staffing, funding, and maintenance requirements necessary to implement the mitigation action without outside assistance.

P Political – Acceptability of mitigation actions to Tribal government, Tribal members, and other political leadership in terms of environment, economic development, safety, and emergency management.

L Legal – Extent of legal authority of Tribal government to implement the mitigation action.

E Economic – Extent to which proposed mitigation actions are sufficiently cost-effective to be funded in current or upcoming budget cycles.

E Environmental - Impact of the proposed mitigation actions on the environment in reference to environmental or historically significant assets, such as Tribal resources with cultural and religious significance, threatened and endangered species, wetlands, and other protected natural or cultural resources.

Table 25: STAPLEE Criteria Ranking used for Mitigation Actions

STAPLEE Criteria	Rating	Evaluation Rating
S: Is it Socially acceptable?		Definitely YES = 3 Maybe YES = 2 Probably No = 1 Definitely NO = 0
T: Is it Technically feasible and potentially successful?		
A: Does the responsible agency/department have the Administrative capacity to execute this action?		
P: Is it Politically acceptable?		
L: Is there Legal authority to implement?		
E: Is it Economically Beneficial?		
E: Will the project have either a neutral or a positive impact on the natural Environment? (score a 3 if positive impact, 2 if neutral impact)		
Could it be implemented quickly?		
Will historic structures or key cultural resources be saved or protected?		

The complete STAPLEE analysis data are listed in Appendix 8.7.

Implementation and Administration

In accordance with DMA 200, §201.7(c)(4)(iii), the Tribal Manager will ensure that elements of the HMP are incorporated into other existing planning mechanisms. The process for incorporating the HMP into various planning documents will occur as other plans are updates and new plans are developed. The Tribal Manager will ensure that the hazards and mitigation projects are included in the updates or development of the following plans:

- LBST Emergency Management Comprehensive Plan
- LBST Strategic Development Plan
- LBST Emergency Operations Plan
- Integrated Resource Management Plan
- US Army Corps of Engineers' Lake Sharpe Master Plan
- Shoreline Stabilization Project

C.6 Progress Review

In accordance with DMA 2000, §201.7(c)(4)(ii), the mitigation projects and project closeouts will be monitored using quarterly reporting forms for all projects. These quarterly reports will be the responsibility of the Tribal Manager. The report will address the current status of the mitigation project, including any changes made to the project, identify implementation problems, and describe appropriate strategies to overcome them. After considering the findings of the submitted progress reports, the Tribal Manager may request that the implementing department or agency meet to discuss project conditions.

ELEMENT D. PLAN UPDATES

This is the initial LBST HMP therefore, no revisions are relevant. In developing this document existing emergency plans were reviewed. This plan contains the updates and changes in priorities implemented in those earlier documents.

ELEMENT E. ASSURANCES AND PLAN ADOPTION

E.1 Federal Compliance

A Tribal Resolution will be passed, including assurances that the Tribal government will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, including 2 CFR Parts 200 and 3002, and will amend its plan whenever necessary to reflect changes in Tribal or federal laws and statutes.

E.2 Tribal Adoption

A Tribal Resolution will be passed, formally adopting the plan by the Lower Brule Sioux Tribal Council following plan approval by FEMA.

ELEMENT F. REFERENCES

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ELEMENT G. APPENDICES

G.1 LBST Tribal Hazard Mitigation Plan Resolution

RESOLUTION NO. 15-022A
LOWER BRULE SIOUX TRIBE

AUTHORIZE THE SUBMISSION OF A GRANT REQUEST TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) – OFFICE OF HAZARD MITIGATION, TO ASSIST THE LOWER BRULE SIOUX TRIBE IN THE DEVELOPMENT OF A HAZARD MITIGATION PLAN FOR THE LOWER BRULE SIOUX INDIAN RESERVATION AND THE MISSOURI RIVER SHORELINE

WHEREAS, *The Lower Brule Sioux Tribe is a federally recognized Indian Tribe organized pursuant to the Indian Reorganization Act of 1934; and*

WHEREAS, *as empowered by the Constitution and Bylaws, Article VI, Section 1, (e) Tribal Council as authorized by law" to safeguard and promote the peace, safety, morals, and general welfare of the Lower Brule Sioux Tribe and to regulate the conduct of trade and the use and disposition of property upon the reservation provided that any ordinance directly affecting non members of the reservation shall be subject to review by the Secretary of the Interior"; and*

WHEREAS*, the Lower Brule Sioux Indian Reservation is comprised of an economically disadvantaged American Indian population; and*

WHEREAS *the Lower Brule Sioux Tribe has previously documented shoreline erosion and the need for stabilization and mitigation of emergency consequences resulting from the shoreline erosion along Lake Sharpe and Lake Francis Case; and*

WHEREAS, *the Lower Brule Sioux Tribe desires to request planning funds and assistance from FEMA; and*

NOW, THEREFORE, IT IS HEREBY RESOLVED, *that the Lower Brule Sioux Tribe does hereby authorize the submittal of a grant application to the Federal Emergency Management Agency - Office of Hazard Mitigation to assist the Tribe in the development of a Hazard Mitigation Plan.*

CERTIFICATION

The foregoing Resolution was duly adopted by the Lower Brule Sioux Tribal Council, assembled in Regular Session, with quorum present, on the 4th day of March, by the affirmative vote of 5 for, none opposing, none not voting and none absent.

_____
MICHAEL B. JANDREAU, CHAIRMAN
LOWER BRULE SIOUX TRIBE

ATTEST:

_____
ORVILLE C. LANGDEAU, JR., SECRETARY-TREASURER
LOWER BRULE SIOUX TRIBE

G.2 July 12, 2018, Sign-in Sheet

Lower Brule Sioux Tribe Hazard Mitigation Meeting
July 12, 2018
LBST Convention Center

SIGN-IN SHEET

Name	Phone Number	Organization (If Applicable)	Email Address
Chance Knutson	605-454-6767	Louis Berger	cknutson@louisberger.com
Larry Jandreau	605 730-5870	LBST EM	lbstEm@gwtc.net
Joe Abdo	730-3307	LB Ambulance/Patient Trans	joe.abdo@lowerbrule.net
Joel Bich	730-0757	LBST Wildlife	joelbichofr@gmail.com
David Reiss	773-345	SD Tribal Relations	david.reiss@state.sd.us
Jim Poppen	773-8095	SD Emergency Mgt	jim.poppen@state.sd.us
Ingrid Unberger	730-2497	Lower Brule Road Dept	lowerbruleroads@hotmail.com
Brandon GreyOwl	478-0359	Lower Brule Ambulance	
Kim Bruns	880-1934	Lower Brule A&D.	
Clyde Estes	730-1544	LBST-ERT/Council	ClydeEstes@lowerbrule.net
Brian LaRocque	780-1795	LB BIA Fire	brian.larocque@bia.gov

G.3 August 14–15, 2018, Agenda and Sign-in Sheet

Lower Brule Sioux Tribe Hazard Identification and Risk Assessment Workshop

Golden Buffalo Convention Center

August 14 - 15, 2018

AGENDA

Tuesday, August 14, 2018

1:00 PM – Introductions

1:30 PM – Project Update

- Project Timeline
- Document Outline

2:00 PM – Summary of Hazards and Impacts to Tribe

- Historical research to identify previous occurrences of hazards events
- Description and record of hazards by type, location, extent/magnitude of all natural hazards that can affect the Tribe and assess risks

3:15 PM – Break

3:30 PM – Hazard Identification Survey

5:00 PM – Adjourn

Wednesday, August 15, 2018

8:00 AM – Continental Breakfast

9:00 AM – Hazard Identification Survey Results

- Introduction of risk assessment calculations and major impacts
- Interpretation of survey results

10:30 AM – Break

10:45 AM – Critical Facilities Identification

11:45 AM – Wrap-Up and Next Steps

12:00 PM – Adjourn

Lower Brule Sioux Tribe Hazard Mitigation Meeting

August 14-15, 2018

Golden Buffalo Convention Center

SIGN-IN SHEET

Name	Phone Number	Organization (If Applicable)	Email Address	8/14/2018	8/15/2018
Jerry Hazell	730-2603	LBST-EPO			✓
Chris Moran	473-5444	BIA-OJS police	William.moran@bia.gov		✓
Ellen Durkin	605-473-8029	LBST			
Michael Jackson for Tim Azure		LBST-Planning			

Lower Brule Sioux Tribe Hazard Mitigation Meeting

August 14-15, 2018

Golden Buffalo Convention Center

SIGN-IN SHEET

Name	Phone Number	Organization (If Applicable)	Email Address	8/14/2018	8/15/2018
Jacki Bultsma	605-245-1807	USACE	jacki.r.bultsma@usace.army.mil	x	X
Ellen Durkin	605-473-8029	LBST	elendurkin@lowerbrule.net		
Heather Reid	605-473-0585	LBCC			
Larry Jandreau	605 730-5810	LBST Emergency Mgr.	lbstfm@gwtc.net		
Christine Madsen Kim	605 473 8000	LBST	christinekbst@lowerbrule.net		X
Colleen Grass Rope	605-220-4587	LBST	[illegible]@hotmail.com		X

Lower Brule Sioux Tribe Hazard Mitigation Meeting

August 14-15, 2018

Golden Buffalo Convention Center

SIGN-IN SHEET

Name	Phone Number	Organization (If Applicable)	Email Address	8/14/2018	8/15/2018
Chance Knutson	605-454-6767	Louis Berger	Cknutson@louisberger.com	X	X
Scott Wik	605-245-1801	USACE	scott.a.wik@usace.army.mil	X	X
Dan Meyer	473-3440	BIA	danny.meyer@bia.gov	X	
Ben James	473-5312	LBST WFR	benjamus@lowerbrule.net	X	
Rebecca Beck	740-7279	Louis Berger	rebeck@louisberger.com	✓	✓
Phil Gonigal	610 617 4015	Louis Berger	Pmcgonigal@louisberger.com	X	X
Tim Azure	605-470-0312	Planning Tribal	timazure@lowerbrule.net	X	
Clyde Estes	605-730-1544	LBST Council Emer Response Team	ClydeEstes@lowerbrule.net	X	
Susanne Kennedy	605-730-4482	Golden Buffalo Casino	suekenn@gbtc.net	X	X

G.4 October 16–17, 2018, Sign-in Sheet and Agenda

Lower Brule Sioux Tribe Hazard Mitigation Plan Workshop

Golden Buffalo Convention Center

October 16-17, 2018

AGENDA

Tuesday, October 16, 2018

2:30 PM – School Assembly for LBST Hazard Mitigation Plan

4:00 PM – Steering Committee Meeting

Golden Buffalo Convention Center

- Recap of Work-To-Date
- Report on School Assembly
- Tribal laws, Regulations, Policies, and Programs Related to Mitigation
- Preview of Public Meeting
- Overview of Wednesday's Meeting

5:00 PM – Meal

5:30 PM – Public Meeting

- Welcome by Chairman Gourneau
- Overview of Hazard Mitigation Plan and Process
- Discussion of Natural Disasters
- Discussion of Emergency Procedures
- Open Table Discussion of Potential Improvements

7:00 PM – Adjourn

Lower Brule Sioux Tribe Hazard Mitigation Plan Workshop

Golden Buffalo Convention Center

October 16-17, 2018

AGENDA

Wednesday, October 17, 2018

8:00 AM – Recap of Public Meeting
- Things Learned?

8:30 AM – Mitigation Goals and Funding

9:00 AM – Identifying Mitigation Actions and Projects

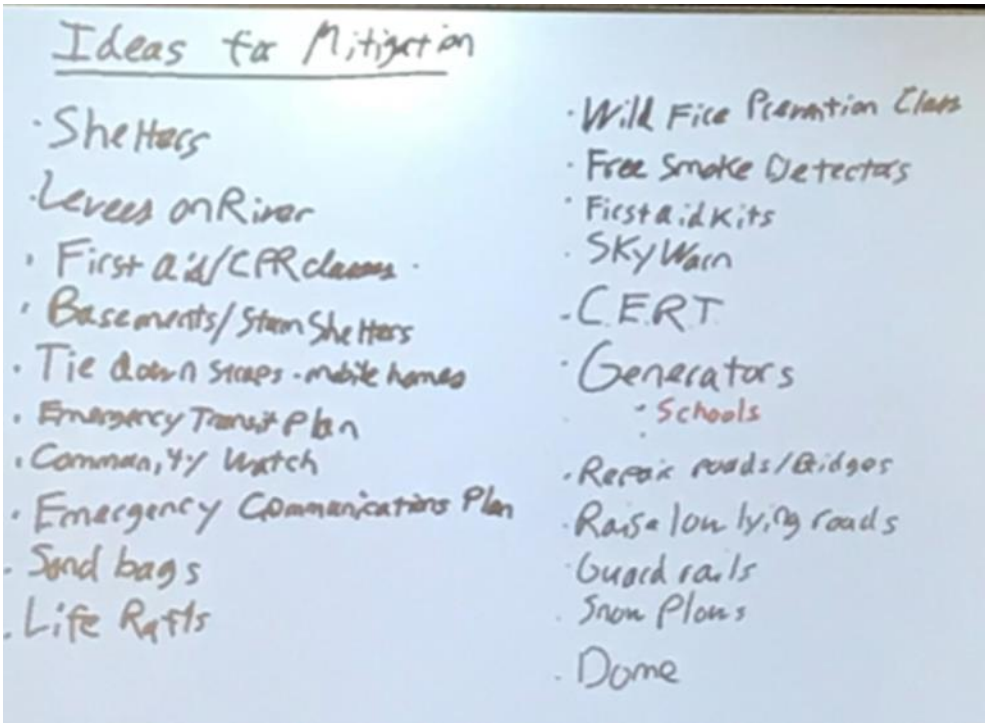
10:30 AM – Break

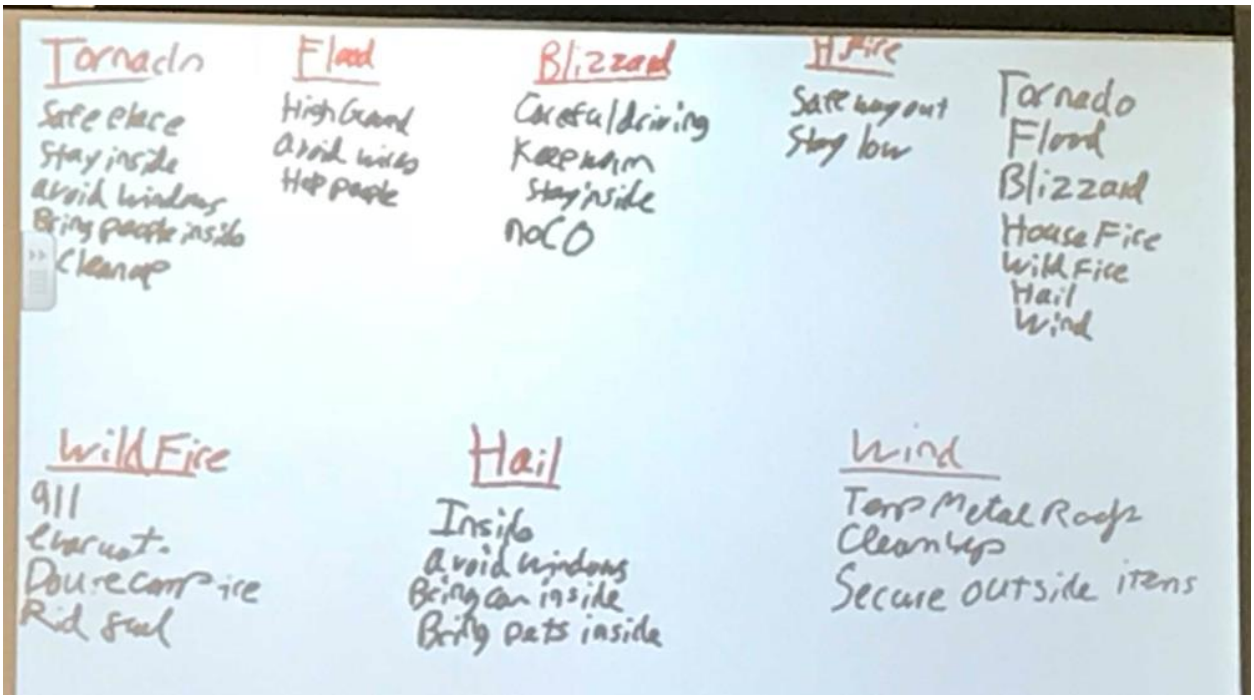
10:45 AM – Action Plan Development

11:45 AM – Wrap-Up and Next Steps

12:00 PM – Adjourn

G.5 List of Natural Disasters and Mitigation Actions Developed by Students





G.6 Full List of Insured Structures

Loc	Address	City	Description	Occupancy	Year Built	Square Feet	Building Limit	Contents Limit	TIV
1	302 Bia Route No. 10	Lower Brule	Tribal College	Colleges/University	1980	3200	$422,400	$20,190	$442,590
2	101 Crazy Horse St.	Lower Brule	Wolakota Counseling Office	Colleges/University	1975	1500	$150,000	$5,048	$155,048
3	103 Crazy Horse St.	Lower Brule	Teen Center	Center (i.e. Family, Sr., Youth, Fitness)	1995	1000	$39,981	$10,095	$50,076
4	104 Crazy Horse St.	Lower Brule	Contractors Warehouse	Warehousing-Class I	1990	3000	$209,899	$50,474	$260,373
5	106 Crazy Horse St.	Lower Brule	Office/EE Enterprises	Offices and Banks	1979	3200	$412,302	$25,238	$437,540
6	107 Crazy Horse St.	Lower Brule	Motor Pool	Garage, Repair Shop	1965	1000	$138,934	$5,048	$143,982
7	204 Crazy Horse St.	Lower Brule	Bank	Offices and Banks	1996	1000	$172,917	$0	$172,917
8	300 Crazy Horse St.	Lower Brule	Vacant Bldg	Warehousing-Class I	1968	3200	$499,760	$50,474	$550,234
9	102 Sitting Bull St.	Lower Brule	Arcade Bldg	Center (i.e. Family, Sr., Youth, Fitness)	1972	1000	$100,000	$10,095	$110,095
10	1208 Sitting Bull St.	Lower Brule	Office Bldg / TV Office	Offices and Banks	1972	1000	$100,000	$10,095	$110,095
11	102C Sitting Bull St.	Lower Brule	Office bldg / Loan Express	Offices and Banks	1972	1000	$162,172	$10,095	$172,267
12	102DSitting Bull St.	Lower Brule	OCC Store, Video Rentals	Stores, Smoke shops	1972	1000	$100,000	$10,095	$110,095
13	102E Sitting Bull St.	Lower Brule	Telecommunications Office	Offices and Banks	1972	1000	$100,000	$10,095	$110,095
14	400 Crazy Horse St.	Lower Brule	Post Office / Donation Ctr	Offices and Banks	1974	2400	$249,880	$20,190	$270,070
15	BIA Road C	Lower Brule	Laundromat	Miscellaneous (NOC)	1993	900	$86,358	$25,238	$111,596
16	500 Red Tale Ave	Lower Brule	Finance Storage	Warehousing-Class I	1970	900	$34,984	$7,571	$42,555
17	3200 BIA Route No. 3	Lower Brule	Game, Fish & Wildlife Old Office	Offices and Banks	1978	1500	$184,412	$20,190	$204,602
18	3202 BIA Route No. 3	Lower Brule	Game, Fish & Wildlife Bunkhouse	Fisheries, Hatcheries	1975	250	$34,984	$5,048	$40,032
19	212 Spotted Tail St.	Lower Brule	Day Care/Playground Equip	Headstart, Day Care, etc.	2003	0	$0	$6,056	$6,056
20	220 Spotted Tail St.	Lower Brule	Headstart	Headstart, Day Care, etc.	2003	4800	$549,736	$100,948	$650,684
21	903 Crazy Horse St.	Lower Brule	Attached Garage	Garage, Repair Shop	1963	2400	$240,000	$25,000	$265,000
22	900 BIA Route No. 3	Lower Brule	Water Mgmt Admin	Offices and Banks	2001	7200	$999,520	$71,673	$1,071,193

Loc	Address	City	Description	Occupancy	Year Built	Square Feet	Building Limit	Contents Limit	TIV
23	300 BIA Route No. 21	Lower Brule	Water Mgmt Pumphouse	Pumphouse, Lift Station	2001	1000	$24,989	$25,238	$50,227
24	400 BIA Route No. 21	Lower Brule	Water Mgmt Pumphouse	Pumphouse, Lift Station	2001	100	$1,999	$20,190	$22,189
25	200 BIA Route No. 21	Lower Brule	Water Mgmt Pump Station	Pumphouse, Lift Station	2001	600	$123,940	$30,284	$154,224
26	820 BIA Route No. 3	Lower Brule	Water Mgmt Storage	Pumphouse, Lift Station	2001	1100	$150,000	$80,759	$230,759
27	520 BIA Route No. 10	Lower Brule	Fire Dept w/ Att'd Garage	Firehouse, Police, EMT Dept.	1980	2500	$250,000	$0	$250,000
28	187 Oyate Circle	Lower Brule	Tribal Admin Building	Offices and Banks	2001	23000	$5,497,360	$757,111	$6,254,471
29	120 Brule Circle	Lower Brule	Community Center	Center (i.e. Family, Sr., Youth, Fitness)	2001	26000	$4,497,840	$100,948	$4,598,788
30	3204 BIA Route No. 3	Lower Brule	Game Fish & Wildlife Admin	Offices and Banks	2002	4000	$515,753	$50,474	$566,227
31	3206 BIA Route No. 3	Lower Brule	Game Fish & Wildlife Storage	Warehousing-Class I	2002	3000	$120,000	$30,000	$150,000
2	101 Crazy Horse St.	Lower Brule	Ambulance Office & Garage	Firehouse, Police, EMT Dept.	2002	2730	$220,939	$50,474	$271,413
3	103 Crazy Horse St.	Lower Brule	Commodities Warehouse	Misc Whse, Perishables, Cold Storage	2002	3000	$287,861	$151,422	$439,283
32	214 Spotted Tail St.	Lower Brule	LBST Daycare Center	Headstart, Day Care, etc.	1998	1250	$111,196	$30,284	$141,480
33	216 Spotted Tail St.	Lower Brule	LBST Daycare Center	Headstart, Day Care, etc.	1998	1250	$111,196	$30,284	$141,480
34	100 College St.	Lower Brule	Community College Facilities	Colleges/University	1963	2477	$490,211	$0	$490,211
35	100 School Road	Lower Brule	Elementary School	Schools-Primary and Secondary	1963	24779	$3,998,080	$504,741	$4,502,821
36	200 School Road	Lower Brule	High School	Schools-Primary and Secondary	1981	46731	$7,940,457	$757,111	$8,697,568
37	620 BIA Route No. 10	Lower Brule	Education Admin Offices	Schools-Primary and Secondary	1981	400	$463,777	$0	$463,777
38	110 School Road	Lower Brule	4th Grade Classrooms	Schools-Primary and Secondary	1998	2000	$150,000	$10,000	$160,000
39	120 School Road	Lower Brule	4th Grade Classrooms	Schools-Primary and Secondary	1998	2000	$150,000	$10,000	$160,000
40	130 School Road	Lower Brule	6th Grade Classrooms	Schools-Primary and Secondary	1998	2000	$150,000	$10,000	$160,000
41	356 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	2644	$253,703	$0	$253,703
42	306 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1963	2844	$272,893	$0	$272,893
43	307 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1963	2507	$240,556	$0	$240,556

Loc	Address	City	Description	Occupancy	Year Built	Square Feet	Building Limit	Contents Limit	TIV
44	308 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1963	2844	$272,893	$0	$272,893
45	331 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1963	2342	$224,724	$0	$224,724
46	332 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1963	2342	$224,724	$0	$224,724
47	334 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1963	2342	$224,724	$0	$224,724
48	335 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1973	2342	$224,724	$0	$224,724
49	347 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	2260	$216,856	$0	$216,856
50	363 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	1480	$142,012	$0	$142,012
51	364 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	1480	$142,012	$0	$142,012
52	351 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	2644	$253,703	$0	$253,703
53	352 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	2644	$253,703	$0	$253,703
54	353 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	2260	$216,856	$0	$216,856
55	357 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	2260	$216,856	$0	$216,856
56	358 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	2260	$216,856	$0	$216,856
57	359 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	2644	$253,703	$0	$253,703
58	348 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	1480	$142,012	$0	$142,012
59	362 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	1440	$138,174	$0	$138,174
60	304 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1963	2844	$272,893	$0	$272,893
61	305 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1963	2844	$272,893	$0	$272,893
62	315 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1963	2342	$224,724	$0	$224,724
63	330 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1963	2342	$224,724	$0	$224,724
64	333 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1963	2342	$224,724	$0	$224,724
65	349 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	2960	$233,698	$0	$233,698
66	350 Crazy Horse Street	Lower Brule	Dwelling - Duplex	Single Family Dwelling, Duplex, Triplex	1980	2960	$233,728	$0	$233,728

Loc	Address	City	Description	Occupancy	Year Built	Square Feet	Building Limit	Contents Limit	TIV
67	354 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	2644	$253,703	$0	$253,703
68	355 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	2644	$253,703	$0	$253,703
69	360 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	2644	$253,703	$0	$253,703
70	361 Crazy Horse Street	Lower Brule	Dwelling	Single Family Dwelling, Duplex, Triplex	1980	2644	$253,703	$0	$253,703
71	12 Miles East of Sturgis	Sturgis	Dwelling	Single Family Dwelling, Duplex, Triplex	1976	2844	$272,893	$0	$272,893
71	12 Miles East of Sturgis	Sturgis	Outbuilding	Single Family Dwelling, Duplex, Triplex	1976	1480	$36,982	$0	$36,982
71	12 Miles East of Sturgis	Sturgis	Dwelling	Single Family Dwelling, Duplex, Triplex	1970	1480	$142,012	$0	$142,012
71	12 Miles East of Sturgis	Sturgis	Dwelling	Single Family Dwelling, Duplex, Triplex	1990	1480	$142,012	$0	$142,012
72	7 Miles Northwest of Kennbec	Kennbec	Gillman Place - Dwelling	Single Family Dwelling, Duplex, Triplex	1970	2880	$131,937	$0	$131,937
72	7 Miles Northwest of Kennbec	Kennbec	Gillman Place - Dwelling	Single Family Dwelling, Duplex, Triplex	1990	4888	$122,141	$0	$122,141
72	7 Miles Northwest of Kennbec	Kennbec	Gillman Place - Dwelling	Single Family Dwelling, Duplex, Triplex	1970	2000	$9,995	$0	$9,995
72	7 Miles Northwest of Kennbec	Kennbec	Gillman Place - Dwelling	single Family Dwelling, Duplex, Triplex	1970	2400	$57,572	$0	$57,572
72	7 Miles Northwest of Kennbec	Kennbec	Gillman Place - Livestock Barn	Farms/Equip	1970	3416	$81,944	$0	$81,944
72	7 Miles Northwest of Kennbec	Kennbec	Gillman Place - 7 Grain Bins	Farms/Equip	1970	0	$70,000	$0	$70,000
73	5 Miles West of FT	Pierre	Buffalo Interpretive Center	Offices and Banks	2003	3700	$375,820	$96,910	$472,730
74	100 Akicita Otipi	Lower Brule	Detention Center	Firehouse, Police, EMT Dept.	2007	40000	$9,295,537	$0	$9,295,537
1	302 Bia Route No. 10	Lower Brule	Courthouse/Police Station	Firehouse, Police, EMT Dept.	2008	10800	$1,724,173	$0	$1,724,173
75	32627 Medicine Ball Memorial Way	Lower Brule	Trading Post Incl Pumps & Canopies	Gas Station		3000	$2,000,000	$152,100	$2,152,100
76	373 BIA Hwy 10	Lower Brule	Fire Dept - Storage	Warehousing-Class I	2003	1200	$125,000	$60,000	$185,000
77	370 BIA Hwy 10	Lower Brule	Facilities Office/Bus & Road Maintenance (Split Office)	Offices and Banks	1975	60000	$2,940,000	$125,000	$3,065,000
78	Corner of Crazy Horse St	Lower Brule	Alcohol Counseling Center	Clinic, Treatment Facility	1963	1800	$180,000	$5,000	$185,000
79	County Line Road	Lower Brule	6 Grain Bins One Grain Bldg	Farms/Equip	1970	1500	$140,000	$0	$140,000
17	3200 BIA Route No. 3	Lower Brule	Game fish & parks storage	Warehousing-Class I	2011	1800	$100,000	$10,000	$110,000
80	22696 Little Bend Rd	Lower Brule	Cabin	Single Family Dwelling, Duplex, Triplex	2013	700	$90,000	$10,000	$100,000

Loc	Address	City	Description	Occupancy	Year Built	Square Feet	Building Limit	Contents Limit	TIV
80	22696 Little Bend Rd	Lower Brule	Cabin	Single Family Dwelling, Duplex, Triplex	2013	700	$90,000	$10,000	$100,000
81	1002 Yellow Hawk Ave	Lower Brule	West Brule Center	Center (i.e. Family, Sr., Youth, Fitness)	2015	1800	$165,000	$20,000	$185,000
82	1013 Two Hawk Ave	Lower Brule	Transitional House	Single Family Dwelling, Duplex, Triplex	2014	1800	$165,000	$15,000	$180,000
83	1014 Two Hawk Ave	Lower Brule	Transitional House	Single Family Dwelling, Duplex, Triplex	2014	100	$165,000	$15,000	$180,000
84	204 W 4th Street	Oacoma	Oacoma House	Single Family Dwelling, Duplex, Triplex	1925	6750	$650,000	$0	$650,000
85	960 BIA Hwy 10	Lower Brule	Bait Shop	Stores, Smoke shops	2011	900	$25,000	$0	$25,000
88	202 Crazy Horse St	Lower Brule	High School Tech Bldg	Schools-Primary and Secondary	2010	2100	$210,000	$30,000	$240,000
87	203 School Road	Lower Brule	High School Tech Bldg	Schools-Primary and Secondary	2010	2100	$210,000	$30,000	$240,000
88	202 Crazy Horse St	Lower Brule	Arts & Crafts Store	Stores, Smoke shops	1980	3150	$275,000	$5,000	$280,000
89	102 Akicita Otipi	Lower Brule	Detention Center House 1	Municipalities	2015	2625	$250,000	$4,000	$254,000
90	104 Akicita Otipi	Lower Brule	Detention Center House 2	Municipalities	2015	2625	$250,000	$4,000	$254,000
91	106 Akicita Otipi	Lower Brule	Detention Center House 3	Municipalities	2015	2625	$250,000	$4,000	$254,000
92	1059 BIA Hwy 17	Lower Brule	Solid Waste Building	Pumphouse, Lift Station	2005	5400	$550,000	$100,000	$650,000
93	33 Iron Nest Ave	Lower Brule	House	Single Family Dwelling, Duplex, Triplex	2000	1800	$165,000	$15,000	$180,000
94	349 Red Leggings Street	Lower Brule	House	Single Family Dwelling, Duplex, Triplex	2000	1800	$165,000	$15,000	$180,000
95	341 Iron Nest Ave	Lower Brule	Garage	Garage, Repair Shop	2000	576	$50,000	$0	$50,000
96	342 Iron Nest Ave	Lower Brule	Garage	Garage, Repair Shop	2000	576	$50,000	$0	$50,000
97	323 Sitting Bull St	Lower Brule	Cultural Storage	Warehousing-Class I	2003	900	$25,000	$0	$25,000
98	5648 Pow Wow Highway	Lower Brule	Pow Wow Complex	Pavilion, Amphitheatre, Stadiums			$100,000	$0	$100,000
99	5652 Pow Wow Highway	Lower Brule	Rodeo Complex	Pavilion, Amphitheatre, Stadiums			$100,000	$0	$100,000

G.7 Top 20 Mitigation Actions

Goal	Mitigation Action	Completion	STAPLEE Ranking	STAPLEE Priority	Core Committee and Tribal Council Priority
2	Update Emergency Operations Plan	1 year	26	High	High
2	Implement an Emergency Communications Plan	1 years	21	Low	High
2	Design and Implement an Emergency Transportation/Evacuation Plan for Lower Brule and West Brule	1 years	18	Low	High
2	Purchase and Place Tornado Sirens In Lower Brule and West Brule	1 year	24	High	High
2	Build Storm Shelters in Lower Brule and West Brule	1-2 years	22	Medium	High
1	Repair Key Roads, Bridges And Culverts	2 years	24	High	High/Ongoing
3	Hold Public Meetings on Disaster Preparation/Mitigation Efforts	1 year +	23	Medium	High
2	Purchase First Aid Kits and AEDs For Public Buildings	1 year	23	Medium	High
1	Seek Funding For Mitigation Projects	Ongoing	23	Medium	High
3	Offer Wildfire Prevention Classes for Rural Residents	1 year	27	High	High
4	Protect Cultural Sites	Ongoing	22	Medium	High
3	Provide Skywarn Storm Spotter Training for Tribal Employees	1 year +	23	Medium	Medium/High
3	Offer Training in First Aid/CPR to Tribal Employees and Community Members	1 year	22	Medium	Medium
2	Purchase a Second Snow Plow for the Roads Department	2 years	22	Medium	Medium
2	Purchase and Install Backup Generators for Lower Brule Schools	2 years	18	Low	Medium
1	Anchor Mobile Homes	3-4 years	21	Low	Low
3	Establish A Community Watch Program in Lower Brule and West Brule	3 years	21	Low	Low
1	Repair Tribal Buildings to Meet Universal Building Codes	3 year	26	High	Low
1	Construct a Reserve Potable Water Source	4 years	16	Low	Low
1	Build Single Family Storm Shelters	3 years	15	Low	Low

G.8 LBST Tribal Hazard Mitigation Hand-out

Louis Berger

Lower Brule Sioux Tribe Hazard Mitigation Plan

What is Hazard Mitigation Planning?

Hazard mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. Mitigation activities are most effective when implemented consistent with risk reduction priorities developed under a comprehensive, long-term mitigation plan. Hazard mitigation planning enables Lower Brule Sioux Tribe to identify risks and vulnerabilities associated with natural disasters, and develop long-term strategies for protecting people and property from future hazard events. Tribal addoption and FEMA approval of the Tribal Hazard Mitigation Plan will allow the Tribe to work directly with FEMA on emergency response.

1. Organize Resources – At the start, the Lower Brule Sioux Tribe will focus on assembling the resources, partners, and technical expertise needed for a successful mitigation planning process. This is a time for all to come together to share existing plans, methods and ideas.

2. Assess Risks – Next, the Lower Brule Sioux Tribe will identify the characteristics and potential consequences of hazards. It is important to understand what geographic areas different hazards might impact and what people, property, or other assets might be vulnerable.

3. Develop a Mitigation Plan – Based on an understanding of risk, the Lower Brule Sioux Tribe then will set priorities and develop long-term strategies for avoiding or minimizing the undesired effects of disasters. The product is a mitigation plan and implementation approach.

4. Implement Plan and Monitor Progress- The Lower Brule Sioux Tribe can bring the mitigation plan to life in a variety of ways, from implementing specific mitigation projects to changing aspects of day-to-day tribal operations. To ensure success in ongoing implementation, the plan must remain relevant. Thus, the Lower Brule Sioux Tribe will conduct periodic evaluations to assess changing risks and priorities and make revisions as needed.

Mitigation Planning Process

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Benefits for Lower Brule Sioux Tribe

The Lower Brule Sioux Tribe has responsibility for protecting the health, safety, and welfare of their citizens. Developing hazard mitigation plans enables Tribal officials to:

- Increase education and awareness around threats, hazards, and vulnerabilities;
- Build partnerships for risk reduction involving government, organizations, businesses, and tribal members;
- Identify long-term, broadly-supported strategies for risk reduction;
- Align risk reduction with other objectives;
- Identify implementation approaches that focus resources on the greatest risks and vulnerabilities; and
- Communicate priorities to potential sources of funding.

Moreover, a FEMA-approved hazard mitigation plan is a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects

Mitigation Plan Requirement for Certain FEMA Grants

FEMA's mitigation plan requirement applies to Federally-recognized Indian Tribal governments applying directly to FEMA for assistance as "applicants," or Indian Tribal governments (Federally-recognized or not) applying for FEMA assistance through a state as "sub-applicants."

The Mitigation Plan Allows Lower Brule Sioux Tribe to work with FEMA as an Applicant

LOWER BRULE SIOUX TRIBE BENEFITS	
Control over entire application process	Yes
Set hazard mitigation and redevelopment priority to the tribe's specific needs	Yes
Submit own prioritized list of specific projects to FEMA	Yes
Additional preparation and review time for application submittal	Yes
5 percent initiative funding	Yes
Up to 7 percent of the applicant's HMGP ceiling may be used for mitigation planning activities	Yes
Control of HMGP Advance Assistance Pilot funds available	Yes
Funding available for management costs	Yes

LOWER BRULE SIOUX TRIBE RESPONSIBILITIES	
Submit a disaster declaration request to FEMA within 30 days of the incident	Yes
Have minimum staffing requirements for grant administration	Yes
Have a FEMA-approved hazard mitigation plan	Yes
Have an approved Administrative Plan	Yes
Perform Hazard Mitigation Assistance (HMA) application review (i.e., determination of technical feasibility and cost-effectiveness)	Yes
Provide non-federal match funds	Yes
Ensure Environmental Planning and Historic Preservation (EHP) compliance and federal requirements for floodplain management and protection of wetlands are met	Yes
Submit quarterly financial and progress reports	Yes
Perform grant closeout procedures and maintain files for 3 years	Yes

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G.9 LBST Hazard Mitigation Survey

Lower Brule Sioux Tribe Hazard Mitigation Plan Survey

This questionnaire is designed to gauge the level of knowledge local citizens have about issues related to natural disasters. The information you provide will help coordinate activities to reduce the risk of injury or property damage in the future.

A planning partnership of tribal members and other stakeholders is currently creating Hazard Mitigation Plan to address natural hazards in the Lower Brule tribal community. In order to identify and plan for future natural disasters, we need assistance from the residents.

The survey will take less than 15 minutes to complete. It consists of 24 questions designed to help identify risks from and preferred methods to plan for natural disasters in your community.

The term "mitigation" means to make less harsh or severe. Hazard mitigation activities are actions that can be taken to protect people and property from natural hazard events such as flood, severe storms, and excessive temperatures.

1. Which options below best define your role in the community?

Resident

Business operator

Landowner

Local official

Institutional/organizational partner

Other (please specify)_____

2. How long have you lived in your municipality?

Less than one year

One to four years

More than five years

3. Do you own or rent your residence?

Own

Rent

4. How concerned are you about your community as a whole being impacted by a natural disaster?

Extremely Concerned

Somewhat Concerned

Not Concerned

5. Have you been impacted by a natural disaster in your community?

Yes

No

6. If you answered 'yes' to the previous question, please indicate the type(s) of disaster and the frequency with which you have experienced them in your community

	Multiple Times Each Year	About Once A Year	Every Few Years	Once Or A Few Times In My Lifetime	Never
Flooding					
Severe Snowstorms/ Ice Storms/ Nor'easters					
Severe Thunderstorms/Winds/Tornadoes					
Wildfires/Brushfires					
Earthquakes					
Dam Failures					
Droughts					
Extreme Temperatures					
Landslides					

8. Did you sustain financial loss as a result of a disaster event?

Yes

No

Damage to residence/business not covered by insurance.

Damage to residence/business covered by insurance.

Lost wages because I could not work.

9. Does your street, home or business flood regularly during significant rain events?

Yes

No

10. If your street, home or business floods regularly during significant rain events, how many times did it flood during the past 12 months?

1 Time

2 Time

2 Times

3 Times

4 Times

5+ Times

11. Is your home located in a designated floodplain or flood zone?

Yes

No

I don't know

12. Do you currently have flood insurance?

Yes

No

I don't know

Prefer not to say

13. If you do NOT have flood insurance, please check the reason(s) why.

Not located in a floodplain	
Too expensive	
Not necessary because it never floods	
Not necessary because I'm elevated or otherwise protected	
My mortgage did not require flood insurance	
Never really considered it	
Other (please specify)_____	

14. How vulnerable do you consider your home/business/organization the impacts of natural hazards? *(Please only circle one)*

Not at all vulnerable

Moderately vulnerable

Only a little vulnerable

Very vulnerable

I'm not sure

15. What actions have you taken to reduce risk for your house/apartment/property for potential disasters? *(Please mark all that apply)*

Flood proofing (elevating furnace, water heaters, electric panels)	
Install retrofits such as high impact windows or doors to withstand high winds; fire resistant siding, roofing or window screens; storm shelters, etc.	
Install fire breaks around home	
Remove dead / dying trees or vegetation	
Purchase homeowners / renters insurance policy	
Alternate power supply	
Alternate water supply	
Received first aid/CPR training	
Made a fire escape plan	
Purchase Flood Insurance	
Designated a meeting place	
Identified utility shutoffs	
Sand bags	
Stored food and water	
Stored flashlights and batteries	
Stored a battery-powered radio	
Stored a fire extinguisher	

Stored medical supplies (first aid kit, medications)	
Planted fire resistant landscaping	
Natural hazard insurance (Flood, Earthquake, Wildfire)	
Cleared Roof/Gutters	
Prepared a disaster supply kit	
Installed smoke detectors on each level of the house	
None	
Other (please specify)_____	

16. Are you more interested in making your home/business/organization or community more resistant to natural hazards?

Yes

No

17. Would incentives such as insurance discounts, property tax breaks or low interest loans motivate you to take additional steps to protect your property from natural disasters (example: flood-proofing home, reinforcing roof, etc.)?

Yes

No

18. Which of the following incentives might encourage you to spend money to retrofit your home to withstand the impacts of possible natural hazards (for example, elevating a flood-prone home, reinforcing a wind-prone home, using fire-proof materials on a home in a wildfire prone area, etc.)? *(Please check all that apply)*

Building permit fee waiver	
Insurance premium discount	
Low interest rate loan	
Property tax break	
Mortgage discount	
State tax incentive	
None	
Other (please specify)_____	

19. What is the most effective way for you to receive information about how to make your home, business and neighborhood more resistant to natural hazards? *(Please check all that apply)*

Television	
Local Cable Access Channel	
Local Newspaper	
Radio	
Information in Utility Bills	
Direct Mailings	
Email	
Tribal Website	
Tribal Meetings	
School Meetings and Messages	
Information at Local Library	
Roadside Message Boards	
Social Media (Facebook, Twitter, etc.)	

20. How do you generally receive warnings regarding severe weather events? *(Please check all that apply)*

Television	
Radio	
Phone Info through "Code Red" Systems (where applicable)	
NOAA Weather Radios	
Cell Phone Services/Apps	
Email	
Social Media (Facebook, Twitter, etc.)	
Cable TV System Alerts	
Other (please specify)_____	

21. A number of community-wide activities can reduce risks from natural hazards. In general, these activities fall into one of the following four (4) general categories. Please tell us how important you think each one is for your community to consider pursuing.

	Very Important	Somewhat Important	Not Important
Structure and Infrastructure Projects - Construct "bricks & mortar" infrastructure and building improvements to eliminate or reduce hazard threats, or to mitigate the impacts of hazards. Examples include new culverts, storm-proof windows, etc.			
Preparedness, Coordination and Response Actions - Ensure that a framework exists to facilitate and coordinate the administration and enforcement of planned activities. Integrate prevention/mitigation activities into all local community operations.			
Education and Awareness Programs - Education and community outreach to raise awareness of overall or hazard-specific risk and generate support for individual or community-wide efforts to reduce risk. Examples include school programs, mailed info, etc.			
Local Plans and Regulations - Integrate mitigation into local bylaws, ordinances and regulations to protect vulnerable resources and reduce risk. Examples include development restrictions in flood zones, capital planning for mitigation projects, etc.			

22. Please rate all the disasters listed below either a 1 (low threat) to a 3 (high threat) in terms of how you believe they could impact your residence or business. If you do not believe a disaster is applicable please leave it blank.

Hazard	Rate	Hazard	Rate
Winter Storm		Man-Made Hazards	
Drought		Mass Casualty Incident	
Severe Thunderstorms		Civil Disturbances	
Windstorm		Dam or Levee Failure	
Tornadoes		Shortage of critical materials	
Flooding		Natural Caused mass evacuation	
Communication Failure		Railway Incident	
Hail		National Security Emergency	
Power Failure		Hostage / Violence	
Wildland/Interface Fire		Structural Failure	
Lightning Strikes		Explosion	
Motor Vehicle Transportation Incidents		Aviation Incident	
Transportation Incidents		Natural Gas Failure	
Agricultural Pests and Diseases		Technological Hazards	
Hazardous Materials Incidents		Bio-Terrorism	
Structural Fires		Expansive Soils	
Communications Isolation		Terrorism	

Aquifer/Water Supply Contamination		Subsidence	
Climate Change		Mudflows / Debris Flows	
Utility Mishap		Seasonal Population Shift	
Infectious Diseases / Epidemic		Landslides	
Fuel Shortage		Earthquakes	
Sewer Failure		Nuclear Incident	
Other -		Other -	

23. Resources to mitigate natural hazards are limited, and hard choices must be made about which community assets and services to prioritize. Please indicate your priority areas below.

	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important
Protect private property					
Protect critical facilities and infrastructure (for example, fire stations, transportation networks, hospitals, etc.)					
Prevent development in hazard-prone areas					
Protect/enhance natural features to aid in mitigation (restore wetlands, streams, etc.)					
Protect historic and cultural landmarks					
Protect and reduce damage to utilities					
Strengthen emergency services (police, fire, ambulance, etc.)					
Promote cooperation among public agencies, citizens, non-profit organizations, and businesses					

24. Do you believe climate change is a factor to you your residence/business?

Yes

No

25. What are your top 5 concerns regarding natural or human-caused disasters?

1._____
2._____
3._____
4._____
5._____

G.10 FEMA Emergency Hand-out

Ready.
Prepare. Plan. Stay Informed.

Family Emergency Plan

FEMA

Make sure your family has a plan in case of an emergency. Before an emergency happens, sit down together and decide how you will get in contact with each other, where you will go and what you will do in an emergency. Keep a copy of this plan in your emergency supply kit or another safe place where you can access it in the event of a disaster.

Neighborhood Meeting Place: Phone:

Out-of-Neighborhood Meeting Place: Phone:

Out-of-Town Meeting Place: Phone:

Fill out the following information for each family member and keep it up to date.

Name: Social Security Number:
Date of Birth: Important Medical Information:

Name: Social Security Number:
Date of Birth: Important Medical Information:

Name: Social Security Number:
Date of Birth: Important Medical Information:

Name: Social Security Number:
Date of Birth: Important Medical Information:

Name: Social Security Number:
Date of Birth: Important Medical Information:

Name: Social Security Number:
Date of Birth: Important Medical Information:

Write down where your family spends the most time: work, school and other places you frequent. Schools, daycare providers, workplaces and apartment buildings should all have site-specific emergency plans that you and your family need to know about.

Work Location One
Address:
Phone:
Evacuation Location:

School Location One
Address:
Phone:
Evacuation Location:

Work Location Two
Address:
Phone:
Evacuation Location:

School Location Two
Address:
Phone:
Evacuation Location:

Work Location Three
Address:
Phone:
Evacuation Location:

School Location Three
Address:
Phone:
Evacuation Location:

Other place you frequent
Address:
Phone:
Evacuation Location:

Other place you frequent
Address:
Phone:
Evacuation Location:

Name	Telephone Number	Policy Number

Dial 911 for Emergencies

Ready.
Prepare. Plan. Stay Informed.

Family Emergency Plan

FEMA

Make sure your family has a plan in case of an emergency. Fill out these cards and give one to each member of your family to make sure they know who to call and where to meet in case of an emergency.

ADDITIONAL IMPORTANT PHONE NUMBERS & INFORMATION:

Family Emergency Plan

EMERGENCY CONTACT NAME:
TELEPHONE:

OUT-OF-TOWN CONTACT NAME:
TELEPHONE:

NEIGHBORHOOD MEETING PLACE:
TELEPHONE:

OTHER IMPORTANT INFORMATION:

DIAL 911 FOR EMERGENCIES

Ready.

< FOLD HERE >

ADDITIONAL IMPORTANT PHONE NUMBERS & INFORMATION:

Family Emergency Plan

EMERGENCY CONTACT NAME:
TELEPHONE:

OUT-OF-TOWN CONTACT NAME:
TELEPHONE:

NEIGHBORHOOD MEETING PLACE:
TELEPHONE:

OTHER IMPORTANT INFORMATION:

DIAL 911 FOR EMERGENCIES

Ready.

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ADDITIONAL IMPORTANT PHONE NUMBERS & INFORMATION:

Family Emergency Plan

EMERGENCY CONTACT NAME:
TELEPHONE:

OUT-OF-TOWN CONTACT NAME:
TELEPHONE:

NEIGHBORHOOD MEETING PLACE:
TELEPHONE:

OTHER IMPORTANT INFORMATION:

DIAL 911 FOR EMERGENCIES

Ready.

G.11 LBST Press Release

Press Release

Lower Brule Sioux Tribe Hazard Mitigation Plan

The Lower Brule Sioux Tribe invites all Tribal members and programs to the Golden Buffalo Casino Convention Center on October 16, 2018 at 5:00 PM for a meal and to discuss the benefits of a Tribal Hazard Mitigation Plan.

The Tribe needs to develop a plan in order to pursue disaster assistance funding from the Federal Emergency Management Agency (FEMA) in the wake of a disaster.

This plan will be used to identify weaknesses in emergency response and to develop plans for preparation and response for natural disasters. These tools will help the Tribe avoid risks and increase the implementation efforts of projects/activities that will reduce exposure to hazardous threats.

The intention of this plan is to help create a resilient community by reducing the threat of natural hazards to life, property, economy, infrastructure and to reduce the impact of future events, while honoring the Kul Wicasa Oyate traditional and cultural way of life.

For more information, please email: LBSTMHMPinfo@louisberger.com

Or

Clair Green, Cultural Resources Officer: clairgreenoffice@gmail.com; (605)-730-1935