

# SD 73 Reconstruction - Improving Mobility, Safety, and Access to the Pine Ridge Reservation

## WHITE RIVER TO KADOKA

FY 2023/2024 Multimodal Project Discretionary Grant (MPDG) Program

## PROJECT DESCRIPTION

**Project Name:** SD 73 Reconstruction – Improving Mobility, Safety, and Access to the Pine Ridge Reservation

**Project Type:** INFRA/Rural Project

**Total Project Cost:** \$29,692,231

**Total Future Eligible Project Costs:** \$27,967,839

**FY 2023/2024 Rural Request:** \$22,374,271

**FY 2023/2024 INFRA Request:** \$16,780,703

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Supporting Information can be found at:

<https://www.srfconsulting.com/sddot-sd73-248/>



CONTENTS

PROJECT DESCRIPTION . . . . . 1

PROJECT LOCATION . . . . . 1

PROPOSED IMPROVEMENTS . . . . . 2

BENEFITS TO RURAL POPULATIONS . . . . . 3

CURRENT TRANSPORTATION CHALLENGES. . . . . 4

PROJECT HISTORY . . . . . 4

DETAILED STATEMENT OF WORK/DESIGN STATUS. . . . . 5

# PROJECT DESCRIPTION



The South Dakota Department of Transportation (SDDOT) is requesting \$22,374,271 in Rural, or \$16,780,703 in INFRA funds, as part of this FY 2023/2024 Multimodal Project Discretionary Grant application for the reconstruction of 8.7 miles of South Dakota 73 (SD 73) and for lighting improvements along nearly one mile of SD 248 in the City of Kadoka. The requested dollars will cover the construction costs of three separate project IDs for rural projects in an area of persistent poverty, and on a federally recognized reservation. Improvements from this project meet the purpose and merit criteria goals of the FY 2023/2024 MPDG Program by ensuring continued access to the Pine Ridge Reservation while also mitigating preexisting safety hazards caused by the highway’s outdated design.

## PROJECT LOCATION

The SD 73 Reconstruction – Improving Mobility, Safety, and Access to the Pine Ridge Reservation Project is primarily located along an 8.7-mile stretch of roadway from 254th St. (County Highway 79) just south of the White River to the I-90 eastbound entrance ramp in Kadoka. A smaller, 0.87-mile portion of the Project lies along SD 248 from SD 73 to 13th Avenue in Kadoka.

The southern 2.4 miles of the 8.7-mile project, (27.5 percent of the project), is located in Census tract 9412. This tract is located within the Pine Ridge Reservation, an area of persistent poverty (APP). This area is also identified in Climate and Economic Justice Screening Tool, developed by the White House Council on Environmental Quality (CEQ), as having five indicators of disadvantage including climate change, energy, health, housing, and workforce development. Because the Pine Ridge Reservation is a federally recognized reservation in the United States, the census tract 9412 automatically qualifies as a historically disadvantaged community.

Census tract 9611, which contains the remaining 6.3 miles, does not qualify as a historically disadvantaged community by NOFO definition to meet Justice40 criteria, however, the tract is in an area of persistent poverty and shows three indicators of disadvantage as identified by the Climate and Economic Justice Screening Tool (CEJ). These disadvantage indicators include climate change, energy, and health.

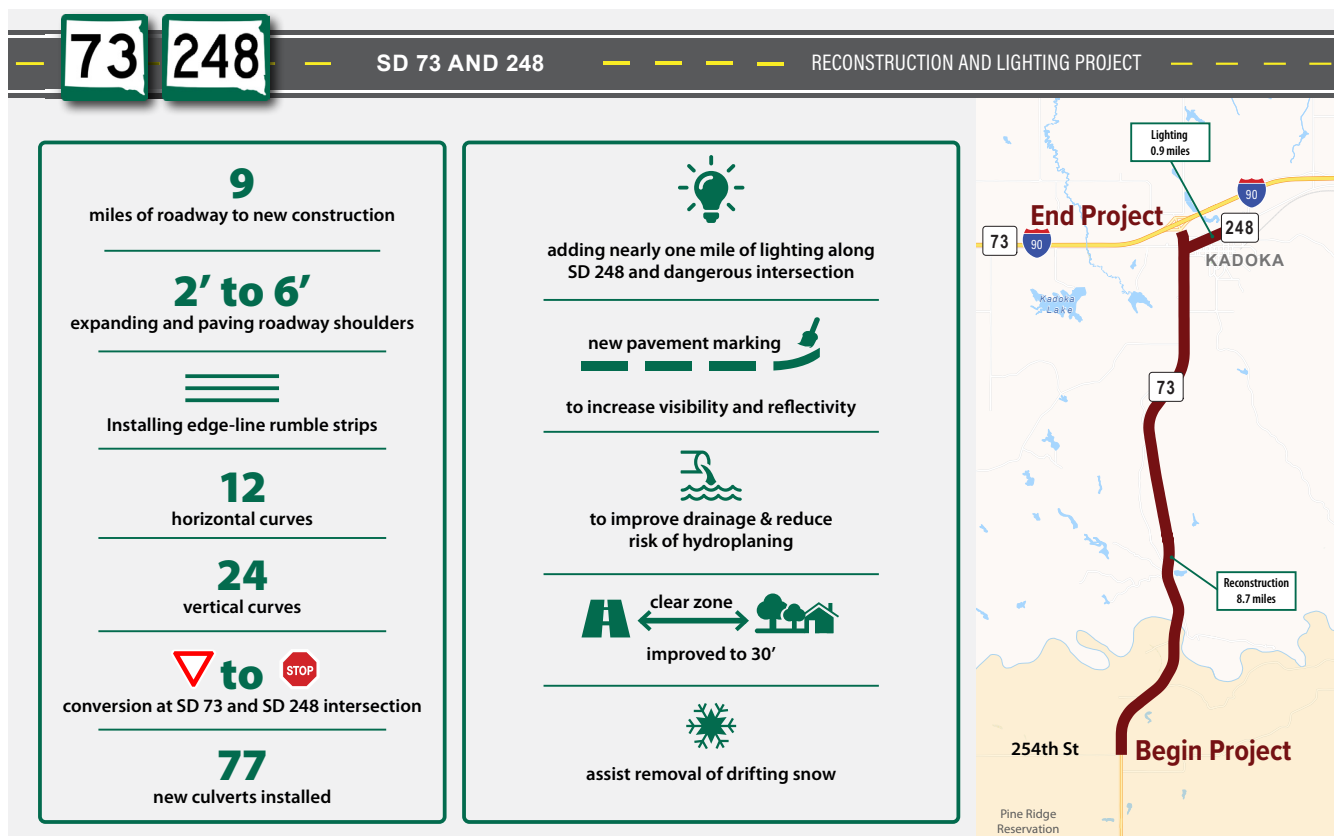


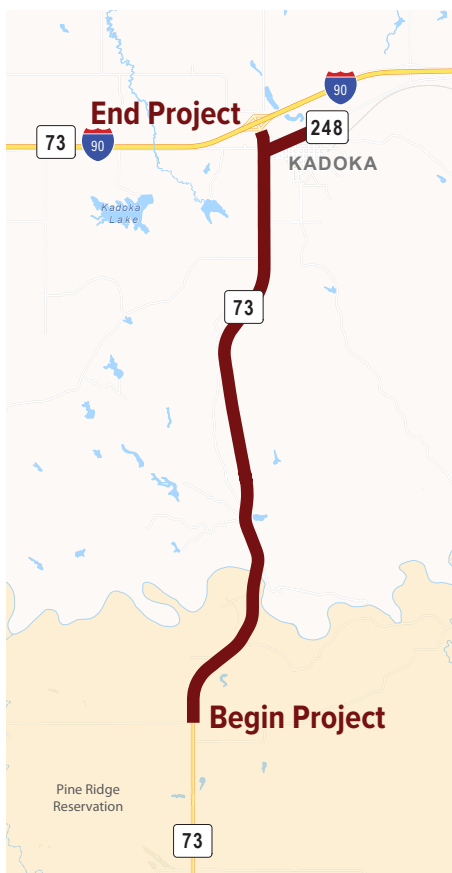
Tract	Distance	APP	HDC	CEJ
9611	6.3 miles of reconstruction along SD 73 and 0.87 miles of lighting along SD 248	Yes	No	3 indicators: Climate Change, Energy, and Health
9412	2.4 miles of highway reconstruction along SD 73	Yes	Yes	5 indicators: Climate Change, Energy, Health, Housing, and Workforce Development

## PROPOSED IMPROVEMENTS

The SD 73 Reconstruction – Improving Mobility, Safety, and Access to the Pine Ridge Reservation Project will provide multiple safety outcomes for all roadway users including trucks, motorists, cyclists, and pedestrians. Specific improvements include:

- Reconstructing nearly nine miles of roadway to new construction
- Expanding and paving of roadway shoulders from two feet to six feet
- Installing edge-line rumble strips
- Adding new pavement marking (paint, epoxy, tape, durable)
- Addressing geometric deficiencies, including twelve horizontal curves and 24 vertical curves to meet 70 mph design speeds
- Flattening backslopes to assist with the removal of drifting snow traps and melting
- Correcting cross-slopes to ensure proper roadway drainage and reduce the risk of hydroplaning
- Changing intersection control at the SD 73/248 intersection from right-turn yield to stop controlled
- Installing lighting at the SD 73/248 intersection and along nearly one mile of SD 248 to improve visibility
- Improve clear zone to 30'
- Replacing 42 cross culverts under mainline, 33 driveway culverts, one box culvert and one cattle pass





SD 73 is an important state highway extending 256 miles north-south across the entire state of South Dakota, connecting with North Dakota Highway 49 to the north and Nebraska Highway 61 to the south.

The highway is the primary route for freight and for tourists, as the highway connects with Interstate 90 and serves as a route to the Badlands National Park and its 1.2 million visitors annually. SD 73 is of critical importance to the State of South Dakota because it is a National Highway System Non-Interstate Route (NHSNI) and is on the SD [Preferential Truck Route Network](#).

In addition to the above, SD 73 is the only north-south highway serving the Pine Ridge Reservation, one of the poorest reservations in the United States with a poverty rate of over [42 percent](#). SD 73 travels through two reservations, including the Cheyenne River (4,419 square miles), and Pine Ridge Reservation (4,353 square miles). Of the 326 federally recognized reservations in the United States, the two reservations rank fourth and fifth nationally in terms of size. The Pine Ridge Reservation also ranks eleventh nationally in population (19,157).

This area is located in a [food desert](#) and has severely limited access to essentials, including groceries, fuel, and basic health care needs. The area also has a population with disproportionately high mortality rates, obesity rate being 17 percent higher than the national average, and having the most kidney dialysis centers per capita in the nation. Residents are very highway dependent for mobility and count on SD 73 to bring in outside resources into the Reservation and nearby rural communities.

The SD 73 and SD 248 segments have significantly higher crash rates than other rural principal arterial roadways in South Dakota. The 0.87 miles of SD 248 segment within Kadoka for example has a segment crash rate of 13.75 – a rate more than nine times that of the statewide weighted crash rate of 1.47. Four road segments comprising roughly 7.4 miles of the 8.7-mile corridor along SD 73 south of Kadoka have crash rates above the statewide average.

## BENEFITS TO RURAL POPULATIONS

The SD 73 Reconstruction – Improving Mobility, Safety, and Access to the Pine Ridge Reservation Project will improve safety for the traveling public, enhance quality of life for its residents, and enable economic opportunities in one of the most economically depressed regions of the United States. The success of a region’s employment base is closely tied to the quality of the transportation system. Investments into the National Highway System (NHS), allow businesses to be more efficient, and dependable transportation infrastructure allows goods and services to be delivered in a timely matter and at a lower cost to consumers. This transportation investment will improve safety for all users. When there is a medical emergency, well-maintained roads that are free of congestion are vital for first responders.

This section of SD 73 provides a critical north-south connector for Jackson County residents, rural communities, the Pine Ridge Reservation, and the Oglala Sioux Tribe. This transportation investment will ensure highway access to not only residents of the Reservation, but to the travelling public between I-90 and the South Dakota/Nebraska state line. Additionally, SD 73 provides a direct connection to tourist areas such as Badlands National Park.



## CURRENT TRANSPORTATION CHALLENGES

### Challenge 1: Narrow Roadway Shoulders

The current roadway shoulders along the 8.7-mile project area of SD 73 are two feet wide. Narrow shoulders combined with other factors such as topography, speed, unpredictable and extreme weather events, and wildlife make SD 73 a potentially unsafe road. The SD 73 project will expand and pave roadway shoulders from two feet to six feet.

[Research](#) indicates crash rates grow exponentially on roadways with no shoulders or narrow shoulders. Roads with narrow shoulders do not provide a stable, clear recovery area for drivers to maneuver to avoid crashes. Additionally, overcorrecting on a soft shoulder (one tire on gravel or grass and the other on pavement) is common due to the change of traction and roadway elevation. The existing shoulders on SD 73 do not provide adequate space for the storage of disabled vehicles, for the location of law enforcement vehicles, or for routine maintenance activities. Additionally, the two-foot shoulders on SD 73 make it nearly impossible for bicyclists and pedestrians to use the roadway.

### Challenge 2: Alternate Routes are Limited

Due to the very rural nature of this portion of SD 73, there are few alternate north-south routes available. Several roads are gravel and unsuitable for trucks and additional traffic volume. SD 73 is the only highway that provides north-south travel across the Pine Ridge Reservation to I-90. If SD 73 is not improved and becomes unusable, detours would require traveling between 63 to 87 miles to the east or 157 miles to the west to access I-90.

Due to the length of the detours, travel times, fuel consumption, and emissions would increase substantially if this portion of SD 73 were closed for any duration. For example, using SD 73, Kadoka is about 28 miles (approximately a 30-minute drive) from the Reservation town of Wanblee. If SD 73 were closed or unavailable, a trip between Wanblee and Kadoka would more than quadruple the distance and travel time to about 129 miles and about 2 hours and 20 minutes.

Furthermore, if a secondary incident were to occur, travel options would become even more limited for area residents and the traveling public, especially trucks. In some cases, closure of SD 73 and a secondary route would result in no available routes, forcing residents to wait for the incident to be cleared.

If SD 73 were to be closed, it would:

- Reduce access to economic opportunities, medical care, and other goods and services
- Increase the time spent in motor vehicles and exposure to unsafe winter driving conditions
- Increase vehicle miles traveled and greenhouse gas emissions; and
- Reduce the reliability of the route

### Challenge 3: Substandard Vertical Curves

SD 73 is posted at 65 mph and along the highway, there are many geometric deficiencies, including horizontal and vertical curves that do not meet SDDOT design standards and several that don't meet a 55 mph design speed. The project will improve twelve horizontal curves and 24 vertical curves to meet 70 mph design speeds throughout the corridor, thus improving sight distance.

## PROJECT HISTORY

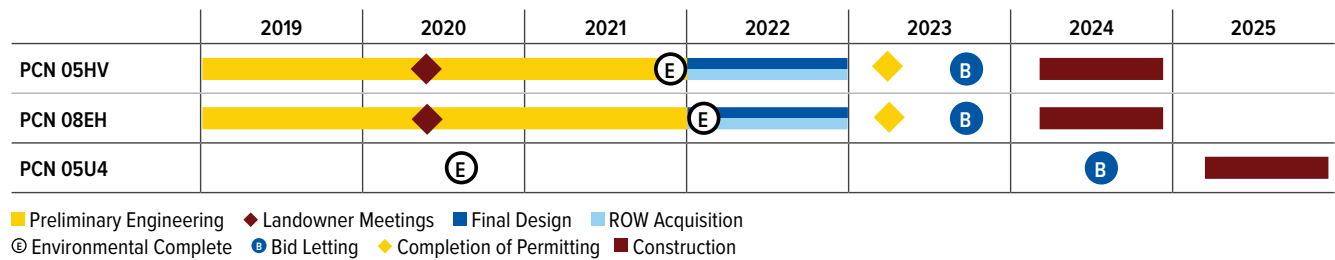
SD 73 was constructed in 1955 just prior to the signing of the Federal Aid Highway Act of 1956 by President Dwight D. Eisenhower. Over the course of the past 67 years, SD 73 has been resurfaced and regraded multiple times, with the most recent resurfacing project taking place in 2008. In 2016, SDDOT staff identified the 8.7-mile stretch of SD 73 between the White River and Kadoka as a priority for reconstruction and maintenance activities, as well as the section of SD 248 for improved lighting upgrades.



The SD 73 Reconstruction – Improving Mobility, Safety, and Access to the Pine Ridge Reservation Project was initiated in early 2019 and has steadily met its major milestones per the project schedule below. Plan sets, and full environmental documents can be found in the appendices. Bid letting, and construction are all that remain. There is very little risk the project will not proceed on schedule.

## DETAILED STATEMENT OF WORK/DESIGN STATUS

The SD 73 Reconstruction – Improving Mobility, Safety, and Access to the Pine Ridge Reservation Project will be constructed in two phases in 2024 and 2025 under three project IDs. The two phases will be considered one project with differing letting dates.



Phase One of the Project (2024 construction) will include the reconstruction of SD 73 from 254th (County Highway 79) Street south of the White River to I-90 eastbound entrance ramp in Kadoka, a distance of 8.7 miles (PCN 05HV). Proposed work includes the grading, shoulder widening, interim resurfacing, replacing culverts, and right-of-way fencing. It will also include a lighting project along SD 248 from SD 73 to 13th Avenue in Kadoka, a distance of 0.87 miles (PCN 08EH). Phase Two of the Project will be a follow-up asphalt concrete (AC) surfacing project, completing surfacing for the entire 8.7-mile project area on SD 73 (PCN 05U4). It will include installation of pavement markings, permanent signing, and grinding of edge rumble strips. SD 73 will remain open during construction and local traffic and emergency vehicle access will always be maintained.