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North Dakota Freight Reliability and Preservation on US 52

FY 2025-2026 Multimodal Project Discretionary Grant (MPDG) Program

Project Name	North Dakota Freight Reliability and Preservation on US 52
Project Type	INFRA/Rural Project
Future Eligible Project Costs	$40 million
2024 BIP Funds Requested	$20 million

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Supporting Information can be found at:
www.srfconsulting.com/25-26-mpdg-nddot-us-52/

North Dakota Freight Reliability and Preservation on US 52

Submitted by North Dakota Department of Transportation

FY 2025-2026 Multimodal Project Discretionary Grant (MPDG) Program

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Project Outcome Criteria

This section describes how the North Dakota Freight Reliability and Preservation on US 52 Project (Project) aligns with the MPDG Project Outcome Criteria. The Project forwards goals and policies of the North Dakota Department of Transportation (NDDOT) as found in the Department's Long Range Transportation Plan (LRTP), Transportation Connection, highlighted in Figure 1 below. The Project addresses critical transportation challenges on US Highway 52 (US 52) as described in the Project Description Narrative to enhance safety and improve freight mobility and reliability through this critical regional and international freight corridor. The Project strongly supports USDOT's Rural Opportunities to Use Transportation for Economic Success (ROUTES) Initiative and commitment to address rural infrastructure challenges.

Figure 1. NDDOT Goals (Transportation Connection)

Criterion #1: Safety

The Project is a direct result of NDDOT's Strategic Highway Safety Plan (SHSP), Vision Zero. The Department's SHSP provides a comprehensive and coordinated effort by the State and over 200 traffic safety partners to reach the goal of zero serious injury and fatal crashes across the state. To do this, NDDOT, through implementation of Vision Zero, aims to improve traffic safety through education, roadway safety enhancements such as this Project, and policy decisions.

The Project components of access management (PCN 23153), acceleration and deceleration lanes at at-grade railroad crossings and turn lanes at strategic intersections (PCN 23404), and pavement rehabilitation (PCN 23641) will comprehensively reduce crashes in the Project area by three to 25 percent. As described further below, Project improvements will comprehensively reduce crash risk and save lives from incapacitating (life-changing) injury or death, forwarding the goals and policies of Vision Zero. The Project will reduce rural highway crashes on US 52 and associated vulnerabilities caused by existing transportation challenges through the Project area including: (1) access management, (2) traffic operations, and (3) pavement condition. By delivering the Project, the safety of travelers on US 52 will increase and lives will be saved.

Crash Data

A primary focus of the Project is to reduce incapacitating injury and fatal crashes (severe crashes) along the rural Project corridor by reducing crossing conflict points, improving traffic operations at critical multimodal intersections, and ensuring pavement is in a state of good repair. Rural areas have a fatality rate 1.7 times greater than urban areas, per 100 million vehicle-miles traveled (VMT). US

52 has a speed limit of 65 miles per hour (mph) through a majority of the Project corridor, where high travel speeds increase the risk of incapacitating and fatal crashes. The severe crash risk associated with speed is compounded by the presence of significant freight traffic (25-73 percent). In 2021, the Insurance Institute for Highway Safety (IIHS) found that passenger vehicle drivers were at a 21 percent greater risk of being involved in a fatal crash than drivers of heavy vehicles or trucks. Additionally, the IIHS research shows the risk of death for passenger vehicle occupants is over four times greater than the risk for occupants of a heavy vehicle or truck, when crashes involve a heavy vehicle or truck. According to USDOT, the at-grade rail crossings in the Project area are more dangerous than in urban areas as 45 percent of all roadway fatalities and 34 percent of all public highway at-grade railroad crossing fatalities occur on rural roads.

As shown in Table 1, between April 1, 2014, and March 31, 2024, 173 crashes occurred within one-quarter-mile of the specific Project locations on US 52. Nineteen were severe crashes, including 13 incapacitating injury crashes and six fatal crashes. See below for further analysis of specific crash relation and/or manner by Project component.

Table 1. Crash Severity within ¼-mile of Project Components

PCN	Crash Type					
	Total Crashes	Fatal	Incapacitating Injury (serious injury)	Non-Incapacitating Injury	Possible Injury	Property Damage Only (PDO)
23153	9	0	3	1	2	3
23404	41	1	4	4	1	31
23641	138	5	9	27	18	79
***TOTAL**	173	6	13	31	19	104

*Total crashes are not a direct summation of crashes in proximity to Project components, for example, PCN 23641 overlaps portions of PCN 23153 and PCN 23404.

PCN 23153 – Access Management at Intersection of US 52 and ND 3

According to the NDDOT crash data in proximity to PCN 23153 (1/4-mile), 67 percent of severe crashes at the US 52 and ND 3 junction were intersection related. Fifty-six percent of all crashes at this location were intersection related. Angle crashes comprised 56 percent of all crashes including 100 percent of the severe crashes.

Angle crashes may be caused by several factors associated with the intersection of US 52 and ND 3, including but not limited to drivers failing to yield the right of way and inattentional errors. For example, the skewed intersection and westbound US 52 slip lane increase the risk of inattentional errors associated with driver sightlines and blind spots, as drivers must turn their head more than usual to have the same field of view necessary to make a safe turn onto US 52.

PCN 23404 – Acceleration and Deceleration Lanes at Railroad Crossings, and Turn Lanes

In proximity to PCN 23404 Project components, NDDOT data confirms 33 percent of all crashes and 40 percent of all severe crashes were related to the railroad crossings. All fatal crashes were related to an at-grade railroad crossing. Rear-end crashes comprised 33 percent of all crashes and 60 percent of severe crashes, which included two incapacitating injury crashes and one fatal crash. Additionally, there were two sideswipe crashes in proximity to at-grade railroad crossings.

Rear-end and sideswipe crashes near at-grade railroad crossings are most likely caused by trucks hauling hazardous materials or passenger buses stopping at the railroad crossings to comply with specific safety protocols. Because US 52 currently does not have acceleration and deceleration lanes at the at-grade railroad crossings, vehicles following safety protocols are likely to stop fully within or partially within the US 52 travel lane, depending on existing shoulder widths, which vary from four to 10 feet. Inattentive drivers and/or limited sightlines caused by vertical and/or horizontal curves may lead to rear-end crashes and sideswipes as drivers fail to maneuver around unexpectedly stopped vehicles.

There were two crashes in proximity to turn lane locations. One was intersection related and one was non-junction related. Both crashes were flagged as non-collision with motor vehicle crashes or single-vehicle crashes. Single-vehicle crashes are typically caused by running off the road, speeding, impaired driving, or visibility challenges.

PCN 23641 – Pavement Rehabilitation

According to the NDDOT crash data, 57 percent of all crashes including 43 percent of all severe crashes were non-junction related in proximity to PCN 23641. Thirty-three percent of incapacitating injury crashes and 60 percent of fatal crashes were non-junction related. Non-collision with motor vehicle crashes or single-vehicle crashes comprised 51 percent of all crashes including 40 percent of fatal crashes. Additionally, angle crashes comprised 56 percent of incapacitating injury crashes and 20 percent of fatal crashes while head-on crashes comprised 22 percent of incapacitating injury crashes and 20 percent of fatal crashes.

Non-collision with motor vehicle crashes, angle, and head-on crashes may be exacerbated by deteriorating pavement conditions on US 52 in the pavement rehabilitation area. Pavement condition primarily affects the control drivers have traveling over the roadway, which may lead to increased stopping distances, decreased maneuverability, and poorer performance in inclement weather typical of North Dakota.

Project Impacts to Safety

The Project's components collectively improve safety on US 52 by reducing risk associated with transportation challenges in the Project area. Based upon information provided by FHWA and USDOT regarding crash modification factors (CMF), after completion of the Project, NDDOT expects to see a five-to-20 percent reduction in total crashes and three-to-25 percent reduction in severe crashes on US 52 in proximity to the Project area.

Table 2. Existing and Projected Crash Rates in Proximity to the Project Area

PCN	Total Crash Rate*	Severe Crash Rate*	Improvement	CMF Value (total/critical crashes, as applicable)	[1]Total New Crash Rate* (Δ)	[1]New Severe Crash Rate* (Δ)
23153	1.54	0.52	Access Management Fix Skew	0.95 / 0.75 Varies	1.46 (-0.08)	0.39 (-0.13)
23404	7.25	0.93	Acceleration & Deceleration Lanes	0.8	5.80 (-1.45)	0.74 (-0.19)
	0.25	0	Turn lanes	0.86	0.22 (-0.03)	0
23641	0.43	0.04	Pavement Rehabilitation	0.86 / 0.97	0.37 (-.06)	0.039 (-0.001)
Project Avg.	**2.37**	**0.37**			**1.96 (-0.41)**	**0.29 (-0.08)**
State Avg.	**1.16**	**N/A**				

[1]As calculated after Project completion, Δ (delta) from current to new or anticipated crash rates.
*Crash rate calculated as crashes per million vehicle miles traveled (MVMT).

As shown in Table 2, the Project is expected to reduce fatalities and serious injuries through proven safety countermeasures that systematically reduce the total and severe injury crash rates in proximity to the Project area. Access management at the intersection of US 52 and ND 3 includes removal of the westbound US 52 slip lane and realignment at the US 52 and US 52 Business Route (US 52 B) intersection. Traffic operations improvements associated with the acceleration and deceleration lanes at at-grade railroad crossings and turn lane improvements provide critical lanes to separate US 52 thru-traffic from vehicles stopping at railroad crossings (adhering to safety protocols) and vehicles turning off of US 52. Rehabilitated asphalt pavement will increase driver control, vehicle maneuverability, and ability for drivers to recover as may be necessary. Collectively through 2045, the components associated with the Project are projected to reduce total crashes by 59, including 5 severe crashes, saving lives.

Criterion #2: State of Good Repair

NDDOT owns and operates approximately 3,675 miles of roadways on the National Highway System (NHS). It is critical to maintain the performance and value of the state's multimodal transportation assets to enable North Dakota to provide a safe and high-level service to all users of the transportation system while minimizing lifecycle costs. The Project meets the goal of USDOT and NDDOT to improve the condition and safety of existing state-owned transportation infrastructure within the right-

of-way, before proposing projects that add new general-purpose travel lanes that primarily serve single-occupancy vehicles. The investment made by USDOT and NDDOT will ensure a state of good repair on US 52 is sustained to build a safe transportation network that reduces future maintenance needs and lowers lifecycle costs.

Operations and Maintenance Costs

The schedule plan for maintaining the Project follows the goals of NDDOT's Transportation Asset Management Plan (TAMP). In the long term, maintenance costs for the Project are expected to be much lower than under the No Build Alternative, which would require condition-based preventative maintenance activities to be performed more frequently to keep US 52 in a state of good repair through the Project area. With the current and projected condition of pavement, the typical cyclical preventative maintenance activities will be less effective to address the emerging condition issues and the asphalt pavement between RP 141.2 and RP 185.6 will need reconstruction much sooner without the Project.

The cyclical lifecycle (30-years) maintenance activities for the Project components are estimated to be less with the Project. For example, the existing condition of asphalt pavement between RP 141.2 and RP 185.6 indicates that preventative maintenance is urgently necessary to avoid further pavement deterioration, which would require NDDOT to complete a costlier rehabilitation or reconstruction project to maintain a safe, reliable roadway. With high volumes of freight traffic in the Project area (25 to 73 percent of daily traffic), pavement deteriorates more rapidly on US 52 than on other two-lane highways in North Dakota. If the existing asphalt roadway is left to deteriorate and a full-depth reconstruction is needed, based upon the NDDOT maintenance data, the State would spend over $8 million more on lifecycle operations and maintenance costs without the Project through year 2045 in the PCN 23641 Project area alone. The Project will reduce lifecycle operations and maintenance costs while maintaining critical infrastructure in a state of good repair.

Addressing Current and Projected Vulnerabilities

US 52's asphalt pavement between RP 141.2 near Drake, ND and RP 185.6 near Fessenden, ND is showing significant warning signs of physical deterioration which need urgent remediation before deterioration accelerates to a point where a rehabilitation project is no longer practical. Pavement ratings utilizing the International Roughness Index (IRI), Distress Rating, and Rut Rating show sections of pavement currently ranging from poor to excellent, depending upon location. The age of the US 52 cross-section through this area is 24 to 25 years old and the most recent overlay occurred over 10 years ago.

NDDOT's most recent pavement condition data is from 2023 and doesn't reflect recent observations of emerging conditions by the Department's Minot District, which show significant deterioration between RP 141.2 and RP 185.6. In this portion of the Project area, there are areas of significant longitudinal cracking, transverse cracking, and shoving. Longitudinal cracking and transverse cracking across US 52 in this area are indicative of aging asphalt pavement, compromised or deteriorated base course, and heavy and frequent freight traffic, which is as high as 39 percent of daily traffic in this area of the Project (RP 143.5). Observed asphalt shoving is characterized by a washboard-like appearance with ripples or waves across the pavement surface and is indicative of

instability within the pavement structure. The observed indicators of deterioration are exacerbated by the heavy freight traffic through the Project corridor and may create rough, uneven driving conditions that are uncomfortable and potentially hazardous for drivers as described in Criterion #1 above.

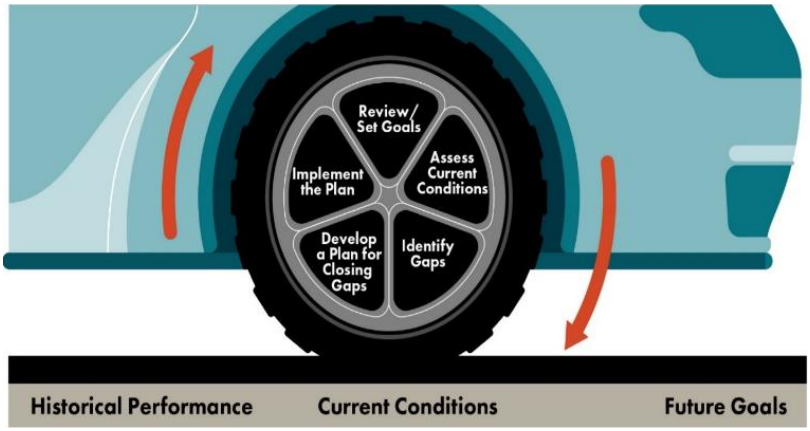
If unaddressed, pavement conditions between RP 141.2 and RP 185.6 will reduce vehicular speeds, increase vehicle maintenance costs, and negatively impact the movement of freight and commodities across the state. The Benefit-Cost Analysis (BCA) estimates that without the Project, vehicle hours traveled would be approximately 21 percent higher by 2045. Poor pavement condition slows freight traffic, leading to freight reliability challenges, increased costs for labor and delays, and the loss or damage of commodities caused by rough driving surfaces. These outcomes would negatively impact local rural economies, the state economy, and international trade.

The Reason Foundation ranks North Dakota's highway system as 28th in the nation for rural arterial pavement condition. North Dakota's overall highway performance is very strong, having ranked in the top ten states in the nation since 2016. Timing work to improve deteriorating pavement and pavement at risk of rapid deterioration remains a priority for the NDDOT, especially on critical rural arterial roadways such as US 52. The Project improvements address current and projected vulnerabilities on US 52 through rehabilitation of pavement in rapidly deteriorating areas between RP 141.2 and RP 185.6. The MPDG funding will allow NDDOT to address critical emerging pavement deterioration on US 52, which will preserve pavement in a state of good repair, sustain freight mobility and reliability, and enhance safety through the Project corridor.

NDDOT Transportation Asset Management Plan (TAMP)

The NDDOT has a proven history of fully funding maintenance improvements. Robust transportation asset management has been and continues to be a core and influential principle of decision-making processes to provide safe and efficient transportation infrastructure throughout the state. Adhering to the American Association of Highway and Transportation Officials (AASHTO) Asset Management Guide, the Department developed its first Transportation Asset Management Plan (TAMP) prior the 2012 Moving Ahead for Progress in the 21st Century Act (MAP-21) requirement. After MAP-21, NDDOT has continued to update a federally compliant TAMP. The plan was updated to its current form in November 2022, in compliance with the Bipartisan Infrastructure Law (BIL) and 23 CFR 515. The Department's TAMP expands beyond the minimum federal regulations to manage all of NDDOT's roadways and bridges using the asset management principles established in the TAMP.

Figure 2. NDDOT TAMP Process



NDDOT implements the TAMP through goal-oriented, data-supported methods that help system managers make informed decisions and reach desired outcomes. The TAMP serves as a guide to analyze life-cycle costs, evaluate risks, develop mitigation strategies, establish asset condition performance measures and targets, and develop investment strategies.

NDDOT utilizes a comprehensive set of metrics related to pavement condition and ride quality to assess lifecycle needs and prioritize roadway improvements (pavement maintenance, preservation, rehabilitation, functional improvement, and replacement). The TAMP serves as the guide to ensure all necessary Project operation and maintenance activities are implemented.

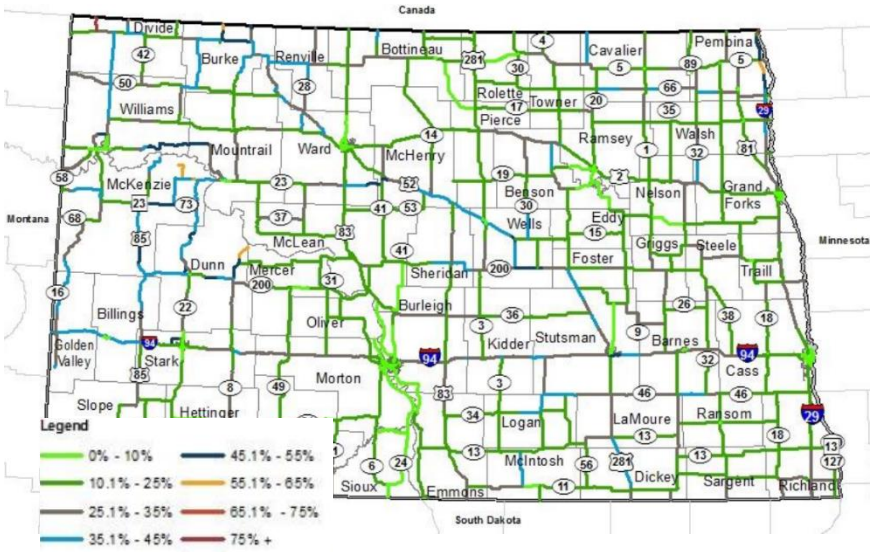
Criterion #3: Economic Impacts, Freight Movement, and Job Creation

The primary focus of the Project centers around improvements to freight mobility and reliability. US 52 is a critical freight corridor with significant supply-chain implications for North Dakota, the surrounding region, and international trade routes. The Project will strengthen the state and regional economy by improving freight mobility and support job creation, forwarding the ROUTES Initiative to address challenges relating to transportation safety, mobility, and economic development.

Addressing Existing Freight Bottlenecks

US Hwy 52 is a critical freight corridor in North Dakota and has a northern termination in Portal, North Dakota, at the U.S.-Canadian border. Per USDOT Bureau of Transportation Statistics, the Portal border crossing is the 20th busiest U.S.-Canada border crossing in the U.S. and the second busiest border crossing in North Dakota. In 2018, nearly 90,000 trucks entered the U.S. through Portal and more than 121,000 trucks entered Canada. The Portal crossing is one of only two border crossings in North Dakota that are considered a Designated Commercial Facility, which provides 24-hour service, seven days a week, for the reporting and clearing of commercial goods between the U.S. and Canada.

Figure 3. 2019 Truck Percentage of AADT



A portion of the Project corridor between Portal and Minot is part of the Primary Highway Freight System (PHFS), which includes the most critical portions of highway on the U.S. freight system. Truck traffic on US 52 at RP 6.9 near Portal comprised 73 percent of the total traffic volume in 2022. The remaining portion of US 52 between Minot and Carrington is located on the National Highway

System (NHS). This section of US 52 also experiences significant freight and heavy vehicle traffic, ranging between 25 percent and 45 percent of total traffic volumes.

The North Dakota State Freight & Rail Plan identifies US 52 between RP 0 and RP 252 as a Strategic Level One Freight Corridor. This classification is assigned to the most critical freight corridors in the state. US 52 connects economic hubs and freight producing counties across North Dakota, running in a northwesterly-southeasterly fashion between Burke, Ward, McHenry, Pierce, Sheridan, Wells, and Stutsman Counties. Starting in Stutsman County, US 52 aligns with I-94 (unsigned from Jamestown to Minneapolis) additionally serving Barnes, and Cass Counties. The counties served by US 52 comprised 32.3 percent of North Dakota's gross domestic product (GDP) in 2022, which totaled $74.1 billion. Freight transport through North Dakota is projected to increase by nearly 240 million tons by 2045 with the total value freight goods projected to be more than $200 billion. Trucks are projected to account for 16.5 percent, or 39.6 million tons, of the total tonnage increase during this timeframe. By 2045, the value of goods transported by truck is projected to increase by $58.4 billion, or nearly 30 percent of the increase in freight traffic moving through North Dakota. US 52 will continue to be a vital freight route well into the future as traffic continues to grow.

Improving U.S. Competition in the Global Market through Efficient and Reliable Freight Movement

Figure 4. Green Bison Soybean Processing Plant

North Dakota's most valuable crop is soybeans, accounting for $2.7 billion in cash receipts in 2023. While a high concentration of soybean production occurs in the southeast portion of the State, counties along US 52 also contribute to significant statewide production (2023 Soybean Production by County – North Dakota). These include Foster County (5.8M bushels), McHenry County (4.8M bushels), Pierce County (3.3M bushels), Sheridan County (3.5M bushels), Ward County (5.8M bushels), and Wells County (9.2M bushels). These six counties (Burke County did not report production) accounted for 14.8 percent of statewide production of North Dakota's most valuable crop. US 52 directly connects these counties to Jamestown, ND, which is the population center 10 miles to the west of Spiritwood, ND, where the state's first dedicated soybean crushing plant and refinery are located. The Green Bison Soybean Processing Plant, which opened in September 2023, utilizes byproducts from soybean processing to create renewable diesel fuel. This reduces industrial waste and contributes significantly to value-added agriculture and manufacturing efficiency. Trucks carrying agricultural commodities deriving from the Project counties rely on US 52 to bring their

products to the Green Bison plant. The Green Bison plant has been so successful, another soybean crushing plant is being constructed near US 52 in Cass County.

Soybean production is expected to increase due to increasing capacity for biodiesel production, which will significantly impact soybean shipments as the biodiesel industry continues to mature. Currently, the Green Bison Soybean Processing Plant is capable of processing up to 150,000 bushels per day. The new plant has capacity to process more than 100,000 bushels per day when it opens.

There are many other commodities that rely on US 52 in the Project area to reach Interstate 94, which provides statewide connectivity from Fargo to Montana. Figure 5 shows US 52 through the Project area is a top freight route for machinery, an essential commodity for the state's agricultural economy. The North Dakota Freight and Rail Plan provides several maps for different types of highway freight commodities (see pages 3-28 through 3-41) and US 52 is consistently a prominent route, solidifying the highway's importance to the state and American economies, including international trade with Canada.

Figure 5. Average County-to-County Truck Flows, ND Detail - Machinery

Minot Intermodal Terminal

The US 52 Project corridor is a critical component of the multimodal freight network in North Dakota, running parallel with two class one freight railroads, the BNSF Railway and Canadian Pacific Railway, which connect North Dakota commodities to global markets. US 52 provides direct connection and vital mobility to the Minot Intermodal Terminal, which began operation in 2021.The estimated average daily truck traffic interfacing with the intermodal terminal ranges between 340 and 918, depending on direction of travel. The intermodal terminal supports long- economic growth throughout the region and anchors North Dakota on a competitive multimodal freight level with large urban areas such as Minneapolis, Chicago, and Kansas City. Minot's facility provides service to the Northwest Seaport Alliance with on-dock trains to terminals in Seattle and Tacoma.

The Minot Intermodal Terminal is the only BNSF Certified Site in North Dakota. The intermodal terminal provides access to more than 800 acres of shovel-ready, heavy industrial development sites. The BNSF certification of the facility gives North Dakota a competitive advantage in the Upper Great Plains, as the designation certifies rail-served heavy industrial sites have met stringent readiness standards intended to reduce development time and risk for major companies seeking rail-serviced intermodal sites. The Project is part of a coordinated strategy to expand intermodal capacity and support development opportunities throughout the region.

Investing in a High-quality Workforce

NDDOT maintains many programs that provide economic opportunity to contractors and their employees. One such program is the On-the-Job Training (OJT) Program. All highway construction contractors are required to participate in OJT Program, which focuses on providing skills to minority, female, or economically disadvantaged individuals. This provides training opportunities for several different occupations, such as equipment operators, truck drivers, concrete finishers, structural carpenters, or other skilled craft workers.

NDDOT also maintains the Disadvantaged Business Enterprise (DBE) Program, which encourages the development and use of companies owned and controlled by minorities, women, and socially and economically disadvantaged individuals on federally aided highway construction projects.

In addition, NDDOT complies with all other federal regulations including Title VI/Nondiscrimination & ADA, Davis-Bacon, Title VII/Internal Equal Employment (EEO). Under the Contractor Compliance Review Program (CCR), NDDOT performs routine and randomized audits of contractors where federal funds were utilized to ensure compliance with all federal and state regulations/programs.

Project Impacts to Economy, Freight Movement, and Job Creation

Access management improvements at the US 52 and ND 3 intersection will reduce crossing conflict points to improve safety, mobility, and reliability on US 52. Pavement rehabilitation in the Project area will bring the asphalt pavement between RP 141.2 and 185.6 into a state of good repair, preserving mobility, reliability, and improving safety on US 52. The Project also will install acceleration and deceleration lanes at six existing at-grade railroad crossing locations and add turn lanes on US 52 at three intersections between Portal and Carrington. A lack of acceleration and deceleration lanes can create speed differentials, platooning, and delays. These auxiliary lanes have been found to improve overall traffic operations and safety on two-lane highways. Some vehicles, such as those carrying hazardous materials and passenger buses, are required to stop at each rail crossing. This leads to safety issues, as noted in Criterion #1, as well as delays for other vehicles traveling behind. The acceleration and deceleration lanes at the rail crossing locations will allow vehicles that are not otherwise required to stop to continue moving through the railroad crossings, thereby reducing delay created by stopped vehicles that currently cannot fully exit the US 52 thru-lanes. The additional turn lanes will also reduce delay, increase mobility, and enhance safety by improving traffic operations.

Overall, The Project includes components that collectively improve mobility and preserve reliability of US 52 for highway freight, intermodal freight, and access to jobs in primary and emerging sectors of the North Dakota economy.

Criterion #4: Climate Change, Resilience, and the Environment

Greenhouse Gas Emissions

The transportation system is a priority sector in North Dakota's strategy to reduce greenhouse gas (GHG) emissions. The Project will advance the State toward carbon neutrality by year 2030. Without the Project, growing traffic through the Project corridor will face more operational challenges, resulting in increased delay. Total traffic and freight traffic are forecasted to increase through 2045, which will further exacerbate existing transportation challenges along US 52 in the Project area. As shown in the Benefit Cost Analysis (BCA), the 2045 traffic increases through the Project area will cause more traffic delay under existing conditions. The additional delay will result in 3.3 million additional vehicle hours traveled (VHT) through 2045, including 1.1 million additional VHT for trucks and freight. The Project will decrease VHT by decreasing crashes, improving traffic operations, and decreasing delay at railroad crossings and critical intersections. VHT reduction will produce a corresponding reduction of greenhouse gas (GHG) emissions. While the Project is expected to substantially reduce GHG emissions, this is an unquantifiable benefit. Accurate estimation requires the use of a complex emissions formula with substantial data inputs and unknown quantities, including freight traffic, speed reductions, VHT, and detailed origin-destination data. Given these constraints, accurate estimation of GHG emission reduction was not feasible within the timeframe given to respond to this Notice of Funding Opportunity (NOFO). Primary emissions reductions are expected to occur with the Project by preserving mobility and reliability of US 52 as a critical freight corridor and through the highway's strategic truck-to-rail intermodal connection.

As the Minot Intermodal Terminal, described in Criterion #3, continues to develop, US 52 will continue to emerge as one of the most critical multimodal freight corridors in North Dakota. The Project strongly supports a freight modal shift from truck to rail by preserving mobility and reliability of truck freight on US 52, which provides direct access to the Minot Intermodal Terminal. The modal shift from truck to rail freight is known to lower GHG emissions by up to 75 percent reduction. Additional unquantifiable GHG reduction benefits are anticipated on US 52 as the Project improves safety, mobility, and reliability as a critical truck freight connection to major rail-freight intermodal infrastructure.

Project Delivery Components

Environmental Justice Analysis

Pursuant to NDDOT's Design Manual, NDDOT completed either a Programmatic Categorical Exclusion (PCE) or Categorical Exclusion by Definition (CED) environmental approval process in compliance with Executive Order (E.O.) 12898 for the Project. Project components requiring right-of-way acquisition underwent a thorough Environmental Justice Analysis pursuant to NDDOT's Environmental Justice Analysis Guidance. The environmental justice guidance recommends the U.S. Environmental Protection Agency's (EPA) EJSCREEN to identify low-income and/or minority

populations within a 0.25-mile buffer (minimum) of the Project. If readily identifiable populations of low-income and/or minority populations are identified in the Project area, a determination of adverse impact will be made. Avoidance, minimization, or mitigation measures will be taken in compliance with NDDOT's Design Manual, Chapter II, Section 3, depending upon the determination of adverse impact under the National Environmental Policy Act (NEPA) process and the extent to which adverse impacts disproportionately affect low-income and/or minority populations. NDDOT involves all impacted populations in the decision-making process.

According to the EJSCREEN Community Reports, approximately 6,466 people live within one mile of the Project components. The minority population constitutes three to 10 percent of the total population of affected Census Tracts and the low-income population constitutes eight to 29 percent of the total population of affected Census Tracts. In proximity to the Project components, neither the concentration of the minority population nor the low-income population is significantly higher than the national average, and does not meet the established thresholds of a readily identifiable low-income and/or minority population. Given the scope of the Project and proximity to vulnerable populations, the proposed improvements are not anticipated to have a disproportionately adverse impact on low-income and/or minority populations.

Avoiding Floodplain and Wetland Impacts

The Project area is in the Drift Prairie geological region of North Dakota, which extends diagonally from northwestern to southeastern North Dakota. A small portion of the Project area north of Kenmare at RP 40.4 is in a Federal Emergency Management Agency (FEMA) Flood Hazard Zone A or the 100-year floodplain. All other areas of the project are in areas of undetermined flood hazard and/or are outside of the 100- and 500-year floodplain. NDDOT will coordinate with the local floodplain administrators of the respective zoning authority to achieve compliance with E.O. 11988, *Floodplain Management*. The Project is anticipated to have minimal impact outside of the existing Project area, will not contribute to flooding, and will minimize any potential impacts to the floodplain. The U.S. Fish & Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) resource list found that the Project area did intersect wetlands mapped by the National Wetlands Inventory (NWI). In these cases, a wetland delineation was performed and impacts have been minimized to the extent practical, pursuant to guidance provided by the U.S. Army Corps of Engineers (USACE).

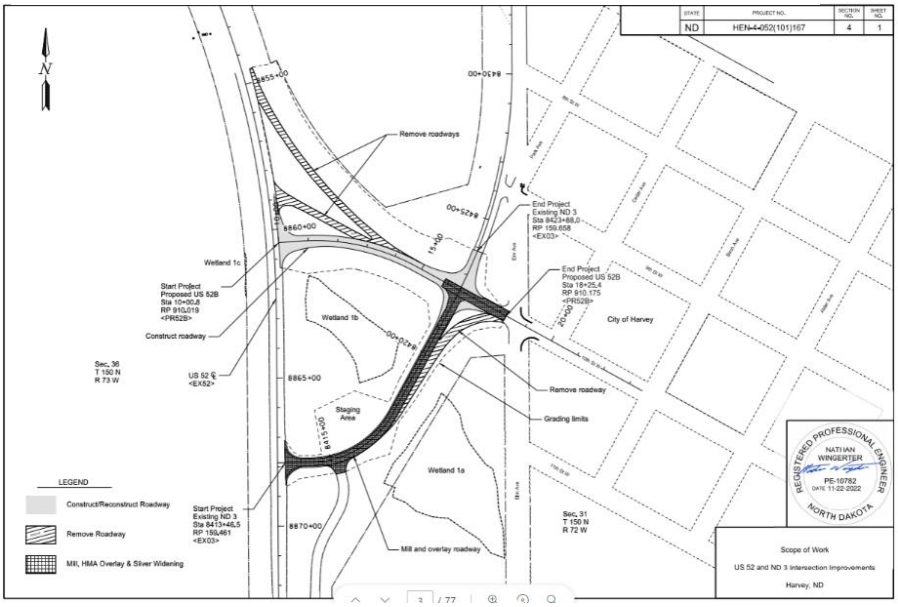
Criterion #5: Equity, Multimodal Options, and Quality of Life

Meaningful Public Engagement in a Disadvantaged Community

The Project involves improving intersection geometries at the US 52 and ND 3 intersection adjacent to the City of Harvey. Several skewed intersections are proposed to be removed and replaced with two perpendicular connections along US 52 that are adequately spaced from one another. In addition, the existing intersection of ND 3 and US 52 Business (US 52 B) will be improved by eliminating conflict points. This part of the Project is in a Disadvantaged Census Tract per USDOT ETC Explorer (Wells County Census Tract 9598).

Public input was solicited over the course of a month between October 23, 2021, and November 23, 2021. A public meeting was held at the Harvey Armory on November 8, 2021, soliciting feedback from local residents, business owners, and landowners. Those that were not able to attend the meeting were able to provide comments on the access changes via email and in person. The comments received showed some participants were concerned about potential impacts to local businesses. Overall, participants favored keeping the southern access point as provided in Alternative B, which was ultimately incorporated into the final design.

Figure 6. PCN 23153 Improvements



Incorporation of Bicycle and Pedestrian Facilities

All Project components will include a minimum five-foot shoulder and up to a six-foot shoulder in many locations. The minimum five-foot shoulder has been specifically selected as an alternative over a four-foot shoulder, as it aligns with the ND Moves: Statewide Active and Public Transportation Plan recommendations for this segment of US 52. This segment of roadway is considered a Tier 3 Regional Bike Connector Corridor and the Project, if selected, will move the State of North Dakota closer to achieving the goal of establishing a viable alternative transportation network across the State.

Improve Freight Access to Disadvantaged and Underserved Communities

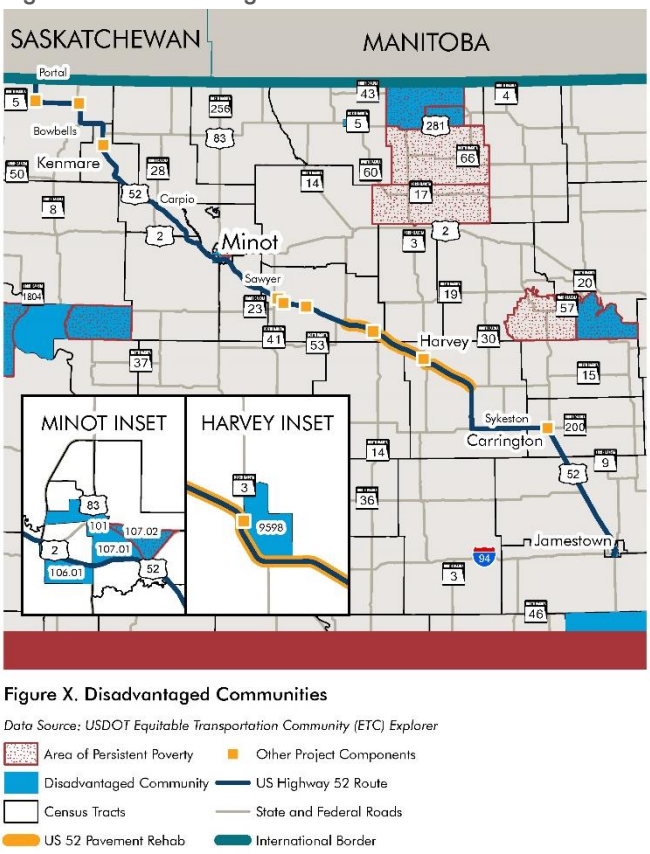
The Project improves freight access to disadvantaged communities to increase goods and job opportunities for those communities by increasing safety, reliability, and mobility of US 52 as a critical freight corridor. The Project is located adjacent to a disadvantaged Census Tract in Harvey, ND (Wells County Census Tract 9598). The US 52 Project corridor also connects directly to disadvantaged communities and an Area of Persistent Poverty (APP) in Minot.

The Project's positive impact on freight will help continue to drive the North Dakota economy. Rural communities, and disadvantaged and underserved communities within the Project area and along the Project corridor will see improved access to goods and job opportunities associated with the projected growth of truck commodity volumes on US 52 through the Project corridor. Continued development at the Minot Intermodal Terminal, which has over 800 acres of shovel-ready industrial sites, will create demand for related development in convenient locations along US 52, a critical principal arterial freight corridor connecting directly to the intermodal site. The continued growth of value-

added agricultural industries and freight-related industries will produce good-paying jobs for North Dakotans.

The project improves critical freight access between disadvantaged and underserved communities to strategic economic development opportunities critical to the future regional and state economy. Vision West ND is a collaborative team of representatives from central and western North Dakota counties working toward economic sustainability to address immediate, short-term needs to meet growth management challenges and to establish a diversified economy in the future. There are numerous large-scale economic development projects in the central and western North Dakota region and across the state which will rely on US 52 to move goods and connect workers to good-paying jobs and services. According to Vision West ND, a few of the notable economic development initiatives directly supported by the US 52 Project include:

Figure 7. Disadvantaged and Vulnerable Communities



- NextEra Energy Resources – Jamestown, ND. $1.3 Billion hydrogen facility that makes renewable energy-based fertilizer.
- Applied Digital Data Center – Jamestown & Ellendale, ND. Investing $2.2 Billion over 10 years in large data centers for cryptocurrency-mining and high-performance computing.
- Green Bison – Spiritwood, ND. See Criterion #3 for more information.
- Grand Farm – Casselton, ND. Merging technology and agriculture with a $160 million federal grant.
- Packet Digital – Fargo, ND. $60 million facility for drone energy via battery cell plant.

Other large economic development initiatives in the region include several carbon capture and sequestration projects, sustainable energy, sustainable manufacturing, mineral refinement, a hydrogen hub, ethanol production, and unmanned aerial systems.

Criterion #6: Innovation Areas: Technology, Project Delivery, and Financing

Project Delivery

North Dakota's highway system ranks among the best in the nation overall for cost-effectiveness and condition, according to the Annual Highway Report by the Reason Foundation. NDDOT also employs one of the smallest staffs of all state DOTs, which represents the driven, hard-working, and

responsible ethic characterizing the state's workforce. To deliver and sustain this cost-effectiveness and condition of the highway system, NDDOT has used innovative administrative practices to maximize investment, make data-driven decisions, and respond to the needs of residents. In 2022, the Department was awarded FHWA funds to implement a vendor diagnostic e-Ticketing portal as well as to pilot the use of an asphalt extractor to analyze the properties of Recycled Asphalt Pavements. The agency continues innovating to keep residents safe, care for existing infrastructure, better connect residents across the rural state of North Dakota, increase mobility, and invest in the future. In November 2023, the Department once again issued a solicitation for innovative transportation projects, processes, and products through its Transportation Innovation Program (TRIP), an ongoing program with annual solicitations supported by State Transportation Innovation Councils (STIC) funding.

With regard to this Project, NDDOT is bundling three separate projects into a single let project, which will reduce the project schedule and overall costs. Receiving an MPDG grant for the Project will uphold NDDOT's continued use of innovation to deliver cost-effective and high-quality transportation infrastructure across the state.

Financing

In 2023, the North Dakota Legislature (Legislature) created the Flexible Transportation Fund (FTF) through Senate Bill 2113. The FTF provides funding for state projects and matching for federal funding obtained by the NDDOT. The Legislature also passed House Bill No. 1012, which provided appropriations for the FTF. The creation of this fund built on the success of House Bill No. 1015, which was passed in 2021 and provided $100 million for matching discretionary federal grants – the first time that NDDOT received an appropriation from the state's general fund for the sole purpose of matching federal discretionary grants. This innovative financing tool allows NDDOT to provide a 50-percent match for this Project.

Supporting Documents

Links to supporting documents are included throughout this narrative. All supporting documents and MPDG grant application materials are available to view at the following webpage:

http://www.srfconsulting.com/25-26-mpdg-nddot-us-52/