DEPARTMENT OF TRANSPORTATION

Minnesota Highway 19 Reconstruction Project

MERIT CRITERIA

2023 Rebuilding American Infrastructure with Sustainability and Equity (**RAISE**) Program






Project Name: Minnesota Highway 19 Reconstruction Project
Project Type: Rural Capital Project - Road, Repair/Rehabilitation
Total Project Cost: $29.09M
2023 RAISE Funds Requested: $15.39M

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Supporting Information can be found at:
https://www.srfconsulting.com/mn-th19-raise-grant/

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MERIT CRITERIA

SAFETY

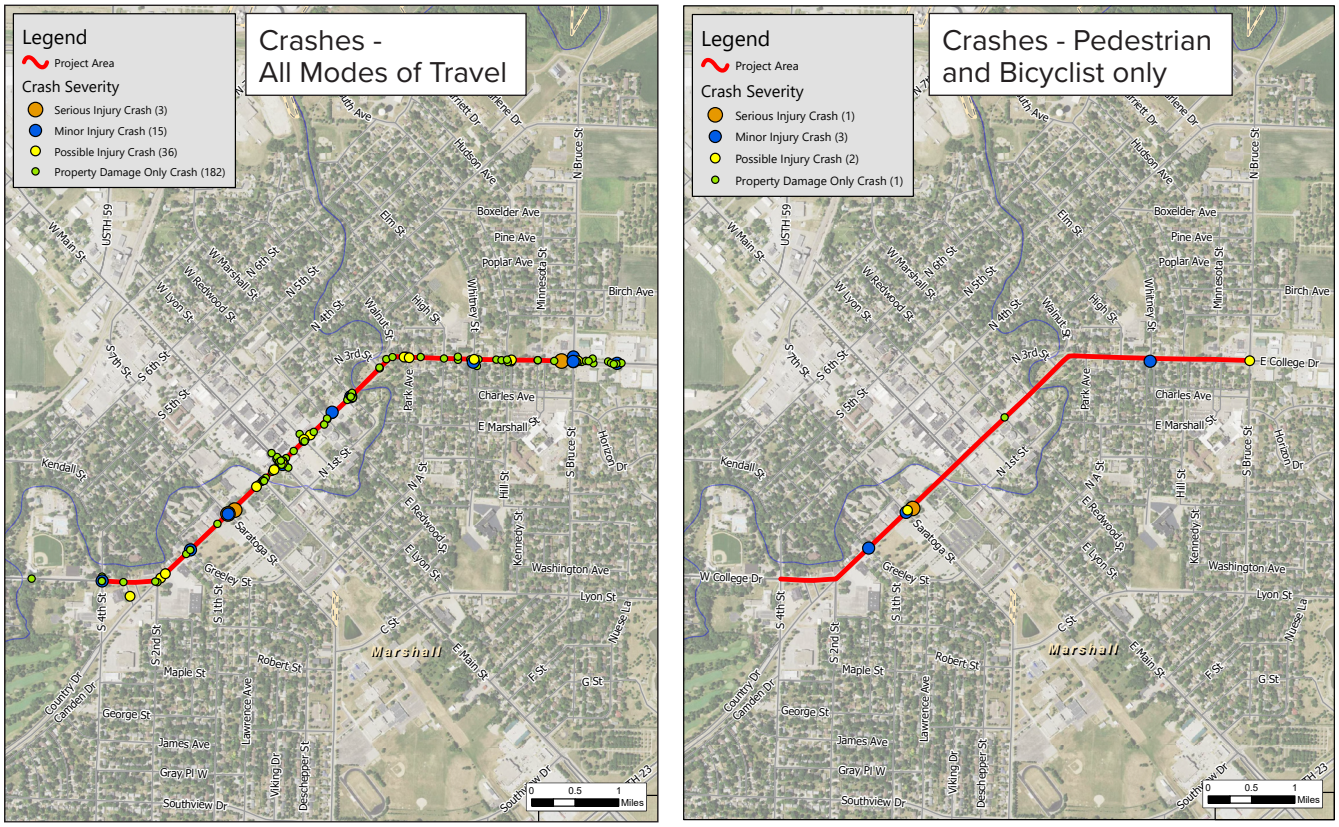
One of the primary needs of the Highway 19/College Drive Reconstruction Project (herein known as the Project) is to improve the safety of motorized as well as non-motorized travelers through downtown Marshall and beyond. The proposed Project improvements support the goals of Minnesota Department of Transportation's (MnDOT) Towards Zero Deaths program which emphasizes the safety of all users using the transportation system. The program, adopted in 2003, calls for the elimination of traffic fatalities and serious injuries through the integrated application of education, engineering, enforcement, and emergency medical and trauma services.

3	15	36	182
serious injury or fatal crashes	minor injury crashes	possible injury crashes	property damages only

In July 2020, MnDOT conducted a traffic analysis in the Project corridor to investigate and determine the optimal type of traffic control for each intersection along MN 19 to serve the existing conditions and future needs. The investigation included analysis of traffic operations during the AM, mid-day, and PM peak hours for the existing year (2019) and forecast year (2045) traffic conditions.

It also included assessing the traffic control volume warrants, intersection and roadway safety, and traffic operations.

Figure 1 Crash Maps for All Users and Non-Motorized Users Only in the Project Corridor.



The traffic analysis found that approximately 34 percent of crashes in the project corridor were rear-end crashes which were a result of congestion through the downtown area. Also, 35 percent of the crashes were right angle/left

turn crashes which indicated that existing traffic controls were insufficient for safe vehicular operations. The analysis identified a critical need to improve the traffic control options along the Project corridor. Optimal types of intersection controls were recommended at each intersection. The analysis included a No Build scenario, with no change to the existing control conditions, and viable traffic control changes for each intersection, including all-way stop control, traffic signal control, roundabout control, minor street stop control, or potential access reduction such as right-in/right out (RI/RO) or 3/4 access intersection control. A matrix of options was developed and analyzed further based upon the existing and forecasted traffic volumes, traffic control criteria, safety, and operations analysis for each intersection.

Crash data from 2012 to 2021 was reviewed by type and severity for all users as well as non-motorized users (Figure 1). The crash rates were then calculated and compared to the critical crash rates. The critical rates were based on vehicular exposure and the statewide average crash rate for similar intersections. It was found that 236 crashes occurred in the project corridor, of which 204 were intersection crashes and 37 were segment crashes. There were three serious injury crashes, two at the Saratoga Street intersection and one to the west of Bruce Street intersection, within the Project corridor. Based on the recommendations of the traffic analysis and inputs from the engineering design team, detailed recommendations were developed at each intersection along the project corridor, which were then incorporated into the scope and subsequently, the preliminary engineering design of the Project.

Table 1 Crash Reduction

Crash Severity	2025-2045 No Build	2025-2045 Build	Crash Reduction
Serious Injury Crash	4	2	50 %
Minor Injury Crash	28	17	39 %
Possible Injury Crash	66	37	44 %
Property Damage Only Crash	312	180	42 %
Unknown Severity Crash	2	2	0 %
Total	412	239	42 %

For example, the Project will reduce the existing pedestrian crossing distance by approximately 18 feet at Saratoga Street by adding traffic bumpouts and removing the dedicated right turn lanes. This will help reduce crashes related to vulnerable users as vehicles turning right will be stopped at the red light. Similarly, the Project improvements at Marvin Schwan Memorial Drive and Marshall Street will allow only right-in/right-out turns which will eliminate the occurrence of left turn crashes at these intersections. The construction of a roundabout at Country Club Drive/South 2nd Street/MN 19 intersection, along with reconfiguring and/or removing access at Artillery Drive and Timmerman Drive, will eliminate conflict points and provide traffic calming safer operations. The change in traffic operations at this intersection to a lower-speed operation within a higher-density community will improve safety for all users.

The improvements due to this Project will resolve the existing safety issues along the corridor today by reducing congestion, reconfiguring traffic controls and access to reduce weaving conflicts, and adding pedestrian/bicyclist infrastructure that will provide safer movement for all users including the vulnerable population. The projected crash cost saving because of the Project, over 20 years, is approximately $3.3 million discounted at a rate of seven percent.

The implementation of strategic safety improvements are anticipated to reduce the crash rate occurrence and crash severity along MN 19 corridor by almost half.

ENVIRONMENTAL SUSTAINABILITY

The Project incorporates climate change and environmental justice-based methodology in both project planning and project delivery components.

Project Planning Components

Climate Action & Equitable Development Plans

In 2007, the State of Minnesota passed the bi-partisan Next Generation Energy Act (NGEA) that established goals for the state to reduce greenhouse gas (GHG) emissions by 15 percent below 2005 levels by 2015, 30 percent by 2025, and 80 percent by 2050 compared to a 2005 baseline. MnDOT was the first state agency to apply the Next Generation Energy Act GHG reduction goals to all agency operations. However, further work is needed towards achieving the goals of reducing greenhouse gas (GHG) emissions from transportation sector 30 percent by 2025. The agency did exceed its goals of reducing facility related GHG emissions by 39 percent, reducing water use by 27 percent, and converting all highway lighting to light-emitting diode (LED) by 97 percent, in 2020, as outlined in MnDOT's Sustainability and Public Health Report. The Project directly supports the Climate Action Plan by improving traffic flow in the corridor, thereby, saving on idling time which results in reduced GHG emissions.

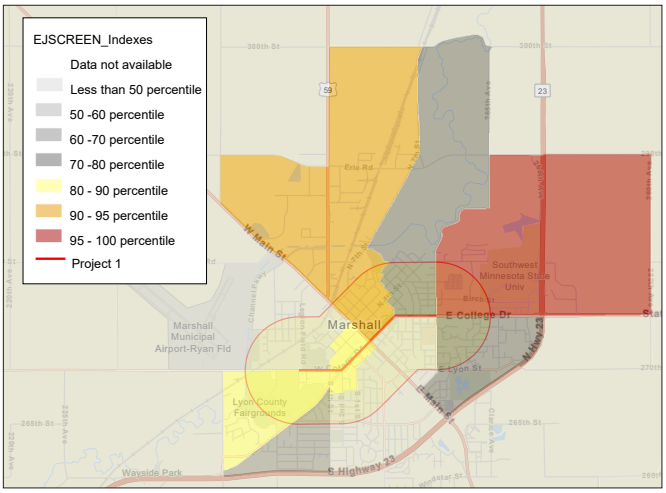
In December 2022, MnDOT released the 20 year Statewide Multimodal Transportation Plan, the policy document that guides transportation planning in Minnesota. The plan addresses inequity challenges by understanding how transportation system, services and decision-making processes help or hinder the lives of people in underserved communities in Minnesota. This Project directly supports the goals of advancing transportation equity by

- incorporating inclusive and culturally sensitive community engagement and adopting the feedback into decision-making processes,
- providing quality and affordable multimodal infrastructure for safe movement of vulnerable users,
- creating and expanding connections between employment centers and underserved neighborhoods,
- creating a collective vision with mutually beneficial outcomes, potentially following successful collaborative practices that are part of the Minnesota Toward Zero Deaths program, and
- contracting to businesses owned/operated by underrepresented populations to support wealth-building among underrepresented communities.

Project Delivery Components

Environmental Justice Analysis

Figure 2 Low Income Population within 0.5 Miles of the Project

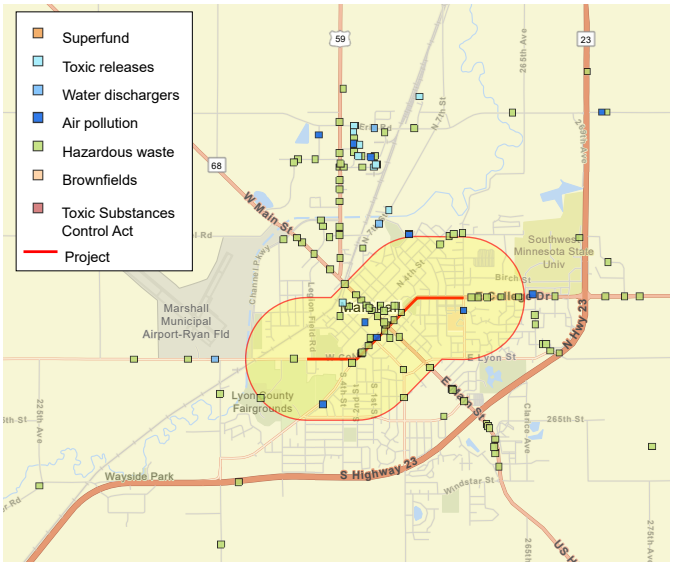


As part of the Categorical Exclusion Determination (CATEX) process and in compliance with Executive Order (E.O.) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, the Project underwent an Environmental Justice (EJ) Analysis. The data for the analysis was determined using the demographic data complied using U.S. EPA's EJSCREEN tool, 2014-2018 ACS estimates, field review, input from local agency partners, and extensive public outreach, and other known concentrations of low-income and/or minority residents. It was found that there is a significantly higher percentile of minority and low-income populations within 0.5 mile of the Project area compared to the national data (Figure 2). It was also noted that this population is affected by proportionally higher risk of environmental justice indices such as unemployment rate, air toxics cancer risk, wastewater discharge, proximity to Risk Management Plan (RMP) facilities, etc. Further analysis demonstrated that there is a significant

need for non-motorized transportation facilities in the Project corridor that benefits the underserved communities in the Project area.

Repairing Existing Dilapidated Infrastructure

Figure 3 EPA Regulated Facilities within 0.5 Miles of the Project

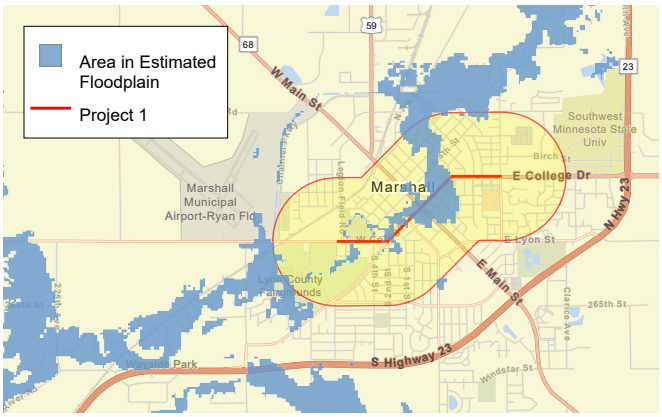


The Project is in a commercial area of Marshall with historic and current uses of gas stations, auto repair, and various other businesses that generate and store petroleum and/or hazardous chemicals. Some of these businesses have abandoned their original sites leaving behind toxins in soil and/or water. The EJ Analysis noted several facilities, within a 0.5-mile buffer of the Project corridor, generating hazardous and toxic wastes (Figure 3). In addition, there is a presence of shallow groundwater (depths less than 15 feet below grade) within the project limits and, therefore, the potential of encountering shallow, contaminated groundwater during construction. The engineering design of this Project will assess and mitigate the risk to contaminated soil and groundwater due to such facilities. The Project will perform a dewatering/hydraulic analysis of the area to identify probability and magnitude of potential dewatering. The hydraulic analysis will include the installation of piezometers, slug testing, and interpretation of data to assist the design team in mitigating future construction risk related to dewatering, especially in areas of contamination.

Avoiding Floodplain and Wetland Impacts

The Project runs parallel to the Redwood River and crosses it in three areas. The Redwood River is designated as a State Water Trail by Minnesota Department of Natural Resources (MnDNR) and as a Floodplain by Federal Emergency Management Agency (FEMA) (Figure 4). As the design progresses, existing river crossings will be analyzed for adequacy and an optimum size for the hydraulics structures and waterways, under the new roadway scenario, will be recommended. The Project team will work with MnDNR to address FEMA mapping changes, through Letter of Map Revisions, resulting from the roadway profile change at the river, if any. The hydraulic recommendation letter will be accompanied with no-rise certificates, hydraulic data sheets, and risk assessment forms. Based on the wetland delineation report completed in October 2021, impacts to wetlands should be minimal and any wetlands impacted would be restored to their existing or improved condition.

Figure 4 100-year Flood Plain Map in Marshall



Avoiding Adverse Environmental Impacts

Currently, the stormwater discharge from the Project corridor has no formal water quality treatment. The Project will avoid adverse environmental impacts through improved stormwater management. The Project will be subject to the National Pollutant Discharge Elimination System (NPDES) permit administered by the Minnesota Pollution Control Agency. As the design progresses, the project design team will review the amount of disturbance and new impervious area created with the project to make sure the NPDES requirements are met. The Project improvements include improved erosion protection at storm sewer outfalls and water quality manholes to provide stormwater treatment prior to discharge.

The environmental review found that rare features within an approximate one-mile radius of the proposed Project are present. These include rare native mussel species (listed

as Special Concern species) in the Redwood River. The Project improvements will implement and maintain erosion prevention and sediment control practices near the river to protect the native mussel populations.

Electrification Infrastructure/EV Charging Stations:

As a rural regional hub, there is a need of developing a robust electrification infrastructure in Marshall. Marshall is located on an electric vehicle (EV) charging corridor in Minnesota. Currently, there are two Level 2 and one Level 3 electric vehicle charging stations at the municipal liquor store and at nearby hotels within 1 mile of the Project corridor. The Project will add one 150 kW DC fast charger, either at Avera Medical Center or west of Atlantic Place, to facilitate access and reliability for EV drivers in rural Minnesota. As Project design progresses, the location of the EV charging station will be finalized.

Improving Resiliency and Disaster Preparedness

The Project proposes SAFL baffles, improved erosion protection, and water quality manholes to provide stormwater treatment prior to discharge to downstream waterbodies, including the Redwood River. This improvement will repair and resolve the existing issue of contaminated groundwater in the Project area as well as reduce localized stormwater flooding. The Project will improve mobility as a result of superior pavement and enhanced ride quality in the corridor. This in turn will improve resiliency and disaster preparedness along the corridor.

The City of Marshall has also identified the Project as an opportunity to restore and upgrade aging utility infrastructure during the construction of this Project, thereby, ensuring resiliency in infrastructure.

The Project is environmentally sustainable, advances transportation equity, repairs dilapidated infrastructure while improving resiliency and expanding the electrification infrastructure in southwest Minnesota.

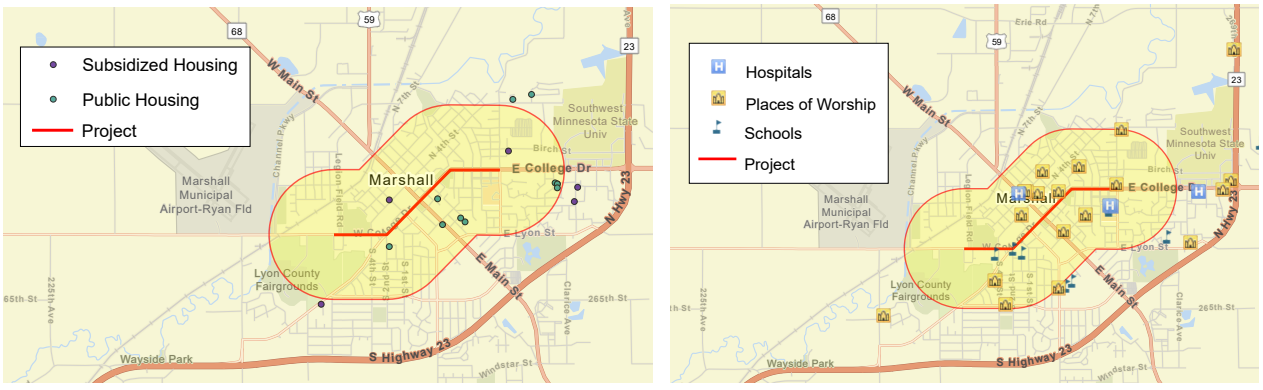
QUALITY OF LIFE

Increasing Transportation Choices and Equity for Individuals

Presently, there are substantial deficiencies in the pedestrian/bicyclist infrastructure along MN 19 in Marshall. In Spring 2020, MnDOT documented that many of the pedestrian curb ramps in the project area do not meet current Americans with Disabilities Act (ADA)/Public Rights-of-Way Accessibility Guidelines (PROWAG) guidelines. Additionally, other ADA challenges such as steep grades, cracked and uneven sidewalks, and building access issues were also documented within the Project area. It was also found that access between neighborhoods, businesses, and other facilities for underserved populations using non-motorized modes of transportation was difficult along MN 19, with some buildings having no ramp access. Additionally, there are no marked or signed bicycle facilities along the Project corridor.

The Project lies across census tract 3605 which is designated as an APP and 55 percent of the Project cost are spent in it. There is also a significant concentration of low-income and minority population as well as public and subsided housing (Figure 5) within a 0.5-mile radius of the Project corridor. The absence of a safe, accessible multimodal transport option is a barrier for local circulation for the underserved communities and adversely affect the quality of life of the community.

Figure 5 Subsidized and Public Housing, Schools, Places of Worship, etc near the Project.



The Project improvements were designed to remedy the challenges identified in the pedestrian/bicyclist infrastructure along MN 19. These improvements include

- traffic bumpouts, raised medians, and pedestrian refuge islands to reduce pedestrian crossing distances at 11 intersections,
- narrowing of boulevards to provide improved alignment with street connections,
- upgraded traffic signals at three intersections that will include pedestrian level timing improvements such as countdown timers, leading pedestrian interval (LPI), no right turns on red (NRTOR) blank out signs during pedestrian phases, flashing yellow arrows (FYA) turns off during pedestrian calls, etc., and
- Rectangular rapid flashing beacons (RRFBs) to alert motorists of pedestrian crossing at West Lyon Street.

Additionally, all intersections will have marked crosswalks, improved lighting, and curb ramps upgraded to meet ADA standards to provide safer crossing zones for pedestrians and bicyclists. These improvements will benefit the underserved community by eliminating the conflict points and providing safer connections, thereby, increasing opportunities to walk, roll, or bike to nearby destinations without a motorized vehicle.

Enhancing the Unique Characteristics of Downtown Marshall

Marshall is the regional hub for economic, educational, and recreational activity in southwest Minnesota. The Project is located in downtown Marshall, which offers a unique mix of traditional and modern experiences. Areas around the Project corridor are zoned as central business zone, general business zone, single family residential zone, medium to higher density residential zone, and parks. Parts of the central business zone are also classified as a Heritage District. The many destinations and local businesses along MN 19 in Marshall downtown can be accessed by pedestrians and bicyclists only if the gaps in the existing network of sidewalks and trails is remedied. Therefore, it was extremely important to design the Project corridor keeping context sensitive solution at the forefront of those decisions. The Project improvements align with the goals of MnDOT's Land Use Context Memorandum. The enhanced non-motorized and motorized infrastructure upgrades because of the Project will enhance the unique characteristics of downtown Marshall and its resident community.

Addressing Racial Equity and Barriers to Opportunity

MnDOT's Equity and Inclusion Programs

MnDOT has proactively developed a strong portfolio of several Equity and Inclusion Programs such as Disadvantage Business Enterprise (DBE), Targeted Group Business (TGB), Equal Employment Opportunity (EEO) Program, among others. MnDOT encourages and awards private business contracts to minority- or women-owned businesses. MnDOT has awarded more than $173 million in prime contracts and goods purchases with under-utilized businesses in the past 5 years to mitigate its contracting disparity, increasing from $19 million in FY16 to over $38 million in FY20. In accordance with the goals of MnDOT's Equity and Inclusion programs, MnDOT actively seeks to grant small contracts well-suited for under-utilized businesses and hire from the local communities for the Project.

From 2019 to 2022, MnDOT extensively engaged with the underserved community in Marshall during the scoping and early preliminary design phase of the Project. Feedback from the community not only influenced the design of the project, but was an integral component of the early work to set the needs and vision for the corridor. The impacts during construction to the traveling public and nearby residents and businesses were also analyzed and found to be minor in nature. However, the Project will incorporate proper noise, dust, traffic management mitigation, and access management for motorists, bicyclists, and pedestrians as well as planned detour routes to consider the needs of property owners and stakeholders. Table 2 shows quality of life benefits due to the Project over 20 years. The benefits from the Project will enhance the quality of life for the residents of Marshall , including the underserved and underrepresented communities.

Table 2 Quality of Life Benefits

Annual Quality of Life (QoL) Benefits		Total Benefits	
Mobility Cost Savings	Cycling Facility Improvement Cost Savings	QoL Benefits	7% Discounted Value
$599,956	$133,807	$733,763	$278,332

MOBILITY AND COMMUNITY CONNECTIVITY

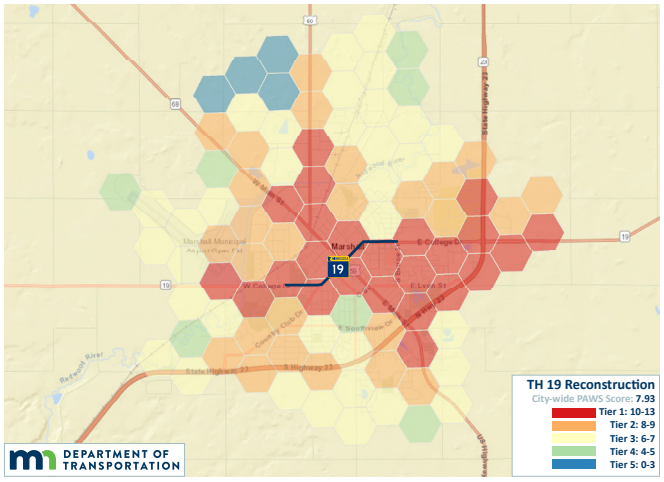
MN 19 corridor has been viewed as a barrier for local circulation for both motorized and non-motorized travelers. In order to remedy this challenge, MnDOT has actively engaged the community and participated in activities directly related to improving pedestrian/bicycle/vehicular movement and safety through a deliberative, integrative, and comprehensive design/planning approach discussed below.

Improving Non-Motorized Mobility and Connectivity

The existing gaps and poor state of pedestrian/bicyclist infrastructure along MN 19 has led to several crashes involving vulnerable users. These include 12 bike/pedestrian crashes in Marshall in the last 10 years, four of which were within the Project corridor at the intersection of MN 19 and Saratoga Street. Therefore, it is essential to eliminate conflict points and accommodate safer pedestrian movements. As part of project planning, an analysis was conducted using Priority Areas for Walking Study (PAWS), a mapping tool to identify priority areas to invest in creating or improving the pedestrian/bicyclist infrastructure. Developed as part of MnDOT's Statewide Pedestrian System Plan, this analysis shows scores for half-mile hexagons based on equity, safety, health, infrastructure, and land use factors, across Minnesota.

Figure 6 shows the PAWS score for the Project corridor. The red hexagons indicate the highest PAWS score which implies a need for prioritizing comfort and safety for people walking over convenience for people using other modes of transportation. A need for improved ADA compliant pedestrians and bicyclist connections was found to overlap with the entire Project corridor including the underserved communities in the area.

Figure 6 PAWS score Analysis for the Project Corridor.



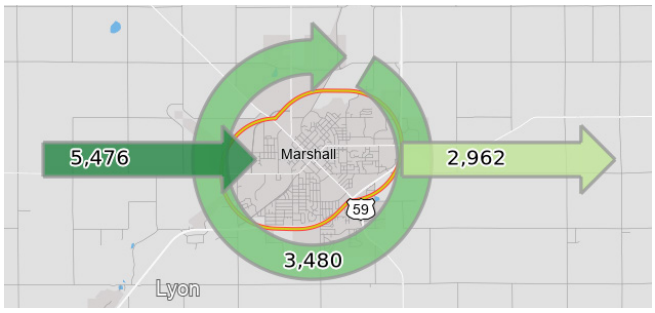
The Project constructs 1.525 miles of safer pedestrian and bicyclist infrastructure that proactively incorporates several elements of Universal Design and Safe Systems approach such as wider sidewalks (up to 15 feet), green spaces, ADA compliant upgrades, perpendicular tactile paving, raised medians and pedestrian safety islands, RRFBs, and improved lighting and landscaping, among others. The benefits due to these improvements will encourage thriving communities to work, live, and play using transportation choices that do not involve the use of a car, thereby benefiting the underserved community around the Project area. The Marshall community also has an active Safe Routes to School (SRTS) plan that encourages students to walk and bike to schools along and near the Project corridor, which benefits the health, safety, and access for students as well. This is a crucial step towards improving mobility and increasing community connectivity for non-motorized travelers in the region.

Improving Motorized Mobility and Connectivity

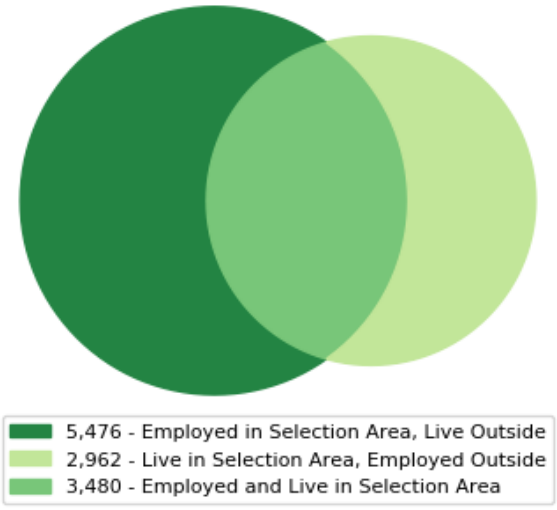
MN 19 is a key minor arterial roadway in the regional transportation network and provides east-west connections in southwest Minnesota. MN 19 also carries freight and oversize/overweight (OSOW) vehicles throughout the year and serves as a critical transportation nexus between dispersed rural communities and urban economic centers such as Minneapolis-St. Paul Twin Cities and Sioux Falls.

As Marshall is a regional employment center, most residents live and work within the city limits. Additionally, a high number of non-residents commute into Marshall for employment. According to 2019 Census data, approximately 5,476 people commute into Marshall and approximately 2,962 people commute out, using MN 19 in the Project corridor (Figure 7). There are also 3,480 residents who both live and work within one mile of the Project corridor.

Figure 7 Inflow/Outflow Analysis



Inflow/Outflow Job Counts in 2019



In addition, there are on average approximately 509 permits awarded each year to OSOW vehicles using the Project corridor. Most of these vehicles range between 30 to 259 feet in length with an average length of 101 feet. Due to the poor state of repair of the pavement and the constrained width of the corridor, it can be difficult for these vehicles to safely maneuver MN 19 through the Project corridor. In September 2020, an OSOW vehicle carrying a wind turbine blade crashed into the streetlight at the intersection of MN 19 and Main Street (Figure 8). The Project improvements will remedy the challenges currently faced by OSOW vehicles while maneuvering through the corridor. There are concerns about school buses being unable to navigate through the local street connections, specially at Saratoga Street. The Project conducted a detailed turning movement analysis, through a Design Vehicle Memorandum, for the largest high frequency vehicles as well as OSOW vehicles that travel through the Project intersections. The analysis also evaluated the OSOW movements through the proposed roundabout at 2nd Street/Country Club Drive/MN 19 intersection. Based on the findings, it was recommended to reconfigure curb radii and remove parking areas at the Main Street intersection, to better accommodate OSOW and other heavy vehicles through the corridor.

MnDOT's Office of Freight/Commercial Vehicles Operations and Customer Relations conducted research in association with the University of Minnesota and identified that poor ride quality roads were frequently cited as a risk to driver safety, materials, trucks, and live cargo, and cause damages resulting in increased costs. Many of the businesses, researched as part of this report, reported using MN 19 to carry freight across Minnesota and beyond. The report found that rough roads and/or handling caused damage to approximately 20 percent of the shipped products. Rough pavement quality also causes damage to trucks resulting in more frequent vehicle maintenance, costing manufacturers thousands of dollars. Finally, rough pavements were reported to jeopardize safety of the users.

The proposed Project improvements include reconstructing MN 19 including the base, subbase, and pavement layers, along with constructing curb and gutter, upgrading stormwater infrastructure, and improving lighting in the corridor, all of which will result in a higher quality roadway. The improvements also include constructing a new roundabout at the 2nd Street/Country Club Drive intersection, famously known as the chicken foot intersection, by reducing conflict points and employing traffic calming techniques (Figure 9).

The project benefits will lead to increased mobility and expanded connectivity for both motorized and non-motorized travelers, including the underserved communities, to transportation, jobs, and business opportunities.

Figure 8 Wind turbine blade crashes streetlight.

Figure 9 New Roundabout Proposed at the Chicken Foot Intersection

ECONOMIC COMPETITIVENESS AND OPPORTUNITY

Improving System Operations to Improve Multimodal Freight Mobility

Southwest Minnesota is known for farming and manufacturing agricultural products, specializing in corn, sugar beet, soybean, and oilseed farming. The number of jobs, economic output of the agriculture industry, changes to the agricultural market, and international trade trends all affect the regional economy of Lyon County. However, no interstate highways directly serve the 12-county region of southwest Minnesota. Key freight-related industries in the region include agriculture, heavy construction, food and livestock processing, and machinery manufacturing (Figure 10).

Figure 10 Top 5 Freight Related Clusters by Employment in Southwest Minnesota.

Source: US Cluster Mapping Tool. Harvard College. 2018.

MN 19 is identified as a State Route in MnDOT's Multimodal Freight Transportation System. Since interstates are non-existent within the region, trucking activity is reliant on US Highways and State Routes. These corridors are important because they support freight movement between densely populated areas both inside and outside the region. The Heavy Commercial Annual Average Daily Traffic (HCAADT) on MN 19 ranged from 175 to 325 heavy vehicles, in 2020. MN 19 is also used by OSOW vehicles carrying components used in machinery manufacturing for various industries, located in and beyond the southwestern region.

According to the MnDOT District 8 Freight Transportation Plan between 2009 and 2013, southwest Minnesota was ranked as the fourth-highest region in terms of the highest

number of severe crashes, and third highest in number of severe crashes at intersections, in Minnesota between 2009 and 2013. The Manufactures' Perspective Report found that the cause of these crashes is often linked to poor road surface. This is a risk to driver and cargo safety and leads to increased costs due to damages and vehicle maintenance. The existing MN 19 pavement is in a dilapidated condition along the Project corridor and possess a significant risk to safe freight operations. The improvements due to full reconstruction will enhance safer operating conditions in the corridor, thereby, improving system operations to increase travel time reliability and manage travel demand for goods movement. This further reduces the cost of doing business and improves local and regional freight connectivity to the national and global economy.

Increased Access to Employment and Promoting Public-Private Investments

The Project improvements lead to the development of a complete and safe transportation infrastructure. Such improvements increase the economic productivity of land, capital, and labor, which in turn improves the economic strength of the region. There are extensive public and private investments being made in Marshall. These developments would benefit from the robust transportation network resulting from the Project, and lead to the expansion of Marshall's rural economy. The Project leverages the following upcoming investments in Marshall:

- Block 11 is a three-phased redevelopment project that will include 83 new apartment units and first floor downtown retail space. Construction of Phase I began in Summer 2022.
- Avera Health will invest $6 million in renovation on three of the organization's sites including the Avera Marshall Medical Center and the former medical equipment store both located on the corner of Bruce Street and MN 19. The former medical equipment store will become a physical therapy center and a reconfiguration of space on the hospital's main campus for visiting specialists and increased patient registration space.
- Ralco Nutrition is in the process of relocating their corporate office (approximately 45 employees) to downtown Marshall. They purchased a historic property which is being renovated for first floor retail, second floor offices, and third floor event space.
- Two sites located on MN 19 are currently under contract for large private development projects. Both sites are anticipated to close on land sales by the end of 2022 with construction in 2023. There are two additional development lots available on East College Drive which have been heavily looked at by private developers for retail, entertainment, and restaurant development.
- The Market Street Mall is currently under contract for new ownership that would redevelop the property to new use.
- The former Shopko building was purchased in 2021 and is in the process of being redeveloped into a retail shopping center with two to five new national brand retailers.

In addition to the new opportunities for employment due to these above-mentioned developments, presently there are 517 employers within 2 miles of the Project with a total of 10,667 jobs. These include major industries such as Schwan's Company, Avera Health, US Bancorp, Turkey Valley Farms, Marshall Public Schools, Southwest Minnesota State University, among others. The improved transportation infrastructure will facilitate travel from these places of employment and retail to key destinations and residential units including affordable housing.

Facilitating Tourism Opportunities

Figure 11 Tourism Opportunities in Marshall.

Source: visitmarshalmn.com

As described above, Marshall offers a unique mix of regional tourism opportunities. The City of Marshall offers a unique bike share program where people can rent, ride, and return Trek bikes at no charge. There are several vital destinations within 1 mile of the Project corridor which can be accessed both by motorized and non-motorized users. These include, but are not limited to, Redwood River State Water Trail, Camden Regional Bike Trail, 9/11 Memorial Park, Liberty Park, Legion Field Park, Marshall-Lyon County Library, Marshall Art Experience, and many food and drink establishments among others. Marshall also offers camping, hiking, and mountain biking adventures at nearby Camden State Park and Garvin County Park. The improvements due to the Project will strengthen the multimodal transportation network in Marshall, thereby, bringing in more visitors each year comprising of both motorized and non-motorized users.

Promoting Robust Job Creation

Several of the local employers provide a choice to join a union for their employees (Table 3). The Project will also generate employment as MnDOT partners with several local contractors and businesses as per their **Equity and Inclusion Programs** detailed in *Quality of Life section* above. The desired improvements that the Project will achieve are cost effective, sustainable, and equitable in terms of economic vitality of the region.

Table 3 Number of Union Jobs

Organization	Southwest Minnesota State University	Marshall School District	Avera Medical Center	City of Marshall	MnDOT	Lyon County
# union workers	397	220	135	52	38	38

STATE OF GOOD REPAIR

The 14,000-mile state highway system constructed, operated, managed, and maintained by MnDOT represents 74 percent of the state-owned capital assets. It is critical to maintain the performance and value of the state transportation assets to enable Minnesota to continue to provide safe and high-level service to its citizens. This Project meets the goal of USDOT and MnDOT to improve the condition and safety of existing state and locally owned transportation infrastructure within the right-of-way, before proposing projects that add new general purpose travel lanes serving single occupancy vehicles. The investment made by the USDOT, MnDOT, and the City of Marshall will ensure that the current state of failing infrastructure is restored, upgraded, and maintained to build a safe transportation network that reduces future maintenance needs and lower life-cycle costs.

Addressing Current and Projected Vulnerabilities

MN 19 shows major signs of physical deterioration which are significantly more than the expected pavement wear and tear (Figure 12). In 2018, MnDOT recorded a ride quality index (RQI) of 2.5 in the Project corridor, which is designated as the terminal RQI value. When a road has reached its terminal RQI value it does not mean the road cannot be driven on, but rather that it has deteriorated to the point where most people feel it is uncomfortable and a major rehabilitation is needed. It is expected that under a No-Build condition, the RQI value will further regress to 1.8 by 2025 and by 2027 the pavement will no longer be serviceable. This will cause a huge impact to the residents of Marshall and a major strain on the transportation network in the region.

Figure 12 Existing Infrastructure.

The Project improvements address current and projected vulnerabilities, through either full reconstruction or rehabilitation of the roadway and upgradation of the pedestrian infrastructure to ADA compliant standards, which not only provides much needed safety enhancements but also ensures efficiency of transportation network in the future, mobility of goods, improved accessibility and mobility of people, and accelerated economic growth. Therefore, the Project is a sound investment as it maximizes and preserves the long-term value of MN 19 and the surrounding transportation network, by sustaining its long-term performance under growing traffic volumes.

MnDOT Transportation Asset Management Plan (TAMP)

MnDOT has a demonstrated history of fully funding maintenance improvements and has established itself as a leader in asset management. MnDOT developed its first Transportation Asset Management Plan (TAMP) in accordance with the 2012 Moving Ahead for Progress in the 21st Century Act (MAP-21) which was updated to its current form in June 2019. MnDOT's TAMP expanded beyond minimum requirements per MAP-21 to include the entire state highway system as well as other infrastructure within the right-of-way corridor. MnDOT's TAMP was a national pilot project and serves as a guide for other states.

MnDOT applies the TAMP as a guide to analyze life-cycle costs, evaluate risks and develop mitigation strategies, establish asset condition performance measures and targets, and develop investment strategies. The TAMP will serve as a guide to ensure all necessary Project operation and maintenance is implemented.

Operations and Maintenance Funding

MnDOT is committed to implementing timely investments in capital and preventative maintenance treatments to extend the service life of assets while reducing lifecycle costs. Ongoing operating and maintenance (O&M) costs on the state highway system are funded by taxes and fees from four main revenue sources:

- State gas tax (motor fuel excise tax)
- State tab fees (motor vehicle registration tax)
- State motor vehicle sales tax, and
- Federal highway funds (highway user tax distributions, flexible highway account, and County State Aid Highway fund).

Operations and Maintenance Cost

MnDOT estimate that operation and maintenance of the Project, over 20 years, will result in a benefit of approximately $300,000. Detailed analysis of the operation and maintenance activity cost estimates is available in Benefit-Cost Analysis Memo.

Accountability Measures

MnDOT is willing to meet specific construction start and completion dates subject to forfeit of up 20 percent of the grant award, if not met. As proposed in the detailed Project Schedule, MnDOT intends to begin construction by March 2025 and end construction by November 2026.

PARTNERSHIP AND COLLABORATION

Grant Recipient

The Minnesota Department of Transportation is the lead applicant and primary point of contact of this RAISE grant application. MnDOT has been a proactive leader and advocate for this Project for several years. MnDOT has extensive experience with procuring and developing transportation improvement projects. With over 14,000 miles of highway (including interstates) and nearly 1,500 bridges under their ownership, MnDOT is experienced and committed to the maintenance and expansion of the roadway system. Within the last ten years, MnDOT and its partners have procured 12 federal grants used to increase efficiency and safety on the MnDOT system.

Reducing Inequity through Meaningful Public Engagement

Engaging a broad range of stakeholders through every phase of the project from planning through construction is critical to Project success. MnDOT is committed to meaningful public engagement to ensure that key stakeholders and the local community, including the underserved and overburdened communities, are involved in decisions around transportation. Issues that were considered included social impacts, traffic impacts, visual impacts, air quality impacts, and right-of-way impacts, for each intersection in the Project. The Project team created and implemented a meaningful public involvement plan that consisted of diverse and inclusive range of communications and outreach tools and methods to be used throughout the lifecycle of the Project. Extensive outreach was conducted through 33 unique events from January 2019 to September 2022. This methodology aligns with the USDOT's Promising Practices for Meaningful Public Involvement in Transportation Decision-Making Guide.

Outreach formats included the Project website, community presentations, targeted focus groups (including underrepresented populations of Latino, Karen, and Somali), in-person/hybrid/virtual events, pop up events, surveys, direct mailing/emailing, social media, newspaper, and television ads etc. The information provided at each event generally included project information, improvements and benefits, updates, schedule, opportunity for comments and feedback, and links for in-person and virtual engagement.

The community, comprising of Caucasian, African American, Latino, southeast Asian, Somali, and Karen populations, were all engaged with the MnDOT outreach team (Figure 14).

Figure 13 Project Website Analytics

7,091 visits	**5,994** unique visitors	**9,015** page views
52% of traffic from social media	**221** return visitors	**23%** of traffic from search engine

Based on the stakeholder and community feedback, the Project adopted and prioritized elements throughout the corridor that would bring equitable development through public involvement, collaborative problem solving, and would make a visible difference in underserved, under-resourced, and overburdened communities.

Figure 14 In-person Community Engagement Event

Project Partners

The Project benefits from the ongoing involvement of several project partners and stakeholders, including many public institutions, community residents, private developers,

businesses, and elected officials. This type of strategic public/private collaboration directly benefits the community of Marshall and is critical to the long term-success of MN 19. A list of various project partners including Minority Business Enterprises, community groups, public and private agencies, and directly and indirectly impacted stakeholders is noted below.

Agency Partners

- MnDOT
- City of Marshall
- Lyon County
- FHWA
- Marshall Police/Fire Departments
- North Memorial Ambulance
- Lyon County Sheriff's Office
- MN Highway Patrol
- Marshall Chamber of Commerce
- United Community Action Partnership Transit
- Southwest Minnesota State University
- Marshall Public Schools
- Marshall Convention and Visitors Bureau
- Southwest Adult Basic Education Avera Marshall Regional Medical Center

Directly Impacted

- Property owners, business owners, and property managers along the corridor
- Residents who live on the corridor

Indirectly Impacted

- Area residents (Marshall, Lynd, Russell, Ghent, Minnesota, Cottonwood, Amiret)
- Vacationers/Recreators (Lake home residents, lake recreation, snowmobiling, golf, Camden Regional Park)
- Corridor Commuters
- Trucking and Freight Industry
- Institutions (Schools, Medical facilities, Religious congregations)

The Project is supported by all partners and stakeholders, including the local and regional community. See Link for all documented letters of support.

INNOVATION

Innovative Technology

Rectangular Rapid Flashing Beacons (RRFB)

The Project improvements include installing Rectangular Rapid Flashing Beacons (RRFB) as a strategy to enhance safety by increasing driver awareness of pedestrians in crosswalks. RRFB consist of two rapidly and alternately flashing rectangular yellow indications that are attached to supplement the pedestrian warning sign or school crossing sign at a crosswalk. The RRFB is activated either manually when a pedestrian pushes a button or passively by an automatic pedestrian detection system. Further, the RRFB will be ADA complaint and have a speech push-button that says, "Yellow lights are flashing" when the RRFB is activated.

Fiber Optics Conduit Deployment

Rural internet access is a growing concern with rural communities far less likely to have access to reliable internet service. Fiber-optic rings can vastly improve internet service in rural areas and support economic development opportunities. MnDOT, in collaboration with the City of Marshall, will provide infrastructure in form of conduits which houses cables to facilitate communications/Broadband internet, Intelligent Transportation Systems (ITS), and/or to assist future Connected and Automated Vehicles (CAV), in Marshall.

Conflict Manholes

Portions of the storm sewer system along the Project corridor do not meet current design standards. MnDOT and the City of Marshall intend to combine and reroute a part of the storm sewer to reduce the overall cost and minimize local street construction, compared to constructing two separate storm sewer systems to current standards. However, the increased pipe sizes from the combined flows, combined with the generally flat terrain result in a conflict between the storm sewer and sanitary sewer at two locations. A conflict manhole will be utilized as an innovative solution to facilitate these crossings. The sanitary sewer will flow directly through a storm sewer manhole, fully contained within a casing pipe as well as the standard carrier pipe, while

maintaining the flow line and flow area of the storm sewer through the structure. This solution will save construction dollars and decrease impacts to both the sanitary and storm systems as well as the city street system. The City of Marshall has used this solution in other locations in Marshall but this will be the first application by MnDOT in the community.

Innovative Project Delivery

MnDOT Construction Management Resources

MnDOT provides construction management services in-kind at times to projects that intersect their roadways. This helps MnDOT to streamline construction management and reduced project cost through innovative project delivery.

In accordance with the goals of **MnDOT's Equity and Inclusion programs**, MnDOT will issue small contracts well-suited for under-utilized businesses; simplify contracting processes and documents and incorporate equity into reporting systems; track all contracts to identify progress and gaps in terms of equity; train and incentivize offices to identify work well-suited for under-utilized businesses; train small businesses on MnDOT requirements and specifications; and collaborate with tribal and local partners to connect under-utilized businesses to opportunities in the wider marketplace.

Intersection Control Evaluation (ICE)

An Intersection Control Evaluation (ICE) was performed at eight study intersections along the Project in July 2020. The ICE included a safety review to determine the average and critical crash rates, and identified any geometric deficiencies, causes, and trends. Alternative operations and intersection controls were considered including no-build, all-way stop control, traffic signal control, roundabout control, minor street stop control, or potential access reduction such as RI/RO or 3/4 access intersection control. The ICE report recommended optimal type of intersection control for each intersection to serve the existing conditions and future needs. The preliminary layout of the Project corridor was then developed based on the detailed analysis and recommendations of the ICE report.

Civil Information Management Software/3D & 4D Modeling

During the Project's public engagement phase, project designers used innovative Civil Information Management (CIM) software for preliminary modeling and visualization of the Project to understand and mitigate impacts. This allowed stakeholders and partners to make decisions through visuals in real-time. The Project will continue to utilize CIM software to model and visualize the project, as well as increase transparency of the project.

Transportation Management Plans for Mitigating Risks

A project-specific transportation management plan (TMP) will be designed and implemented to maintain acceptable levels of safety, accessibility, and mobility. The plan will minimize traffic congestion near the work zone because of temporary roadway closures and detour routes. The TMP will also identify a variety of management strategies to mitigate negative impacts on traffic. These strategies will include increased incident management and vehicle removal capabilities, intelligent transportation system (ITS) technologies to divert traffic and inform travelers of delays and encourage alternate routes, work zone traffic simulations to forecast impacts on traffic flow and congestion, alternative scheduling and phasing including nighttime construction, and scheduling work to minimize lane closures and delays during peak traffic hours. The TMP will also provide for detours, construction staging, and signage for non-motorized travelers as well.

Innovative Financing

MnDOT recognizes that transportation investments directly and indirectly foster economic growth through the provisioning of construction jobs, enabling goods to be transported through a commerce friendly network of corridors and providing mobility to citizens; MnDOT is committed to investing in our roads and bridges that contribute to a growing economy and will continue supporting commerce.

SUPPORTING DOCUMENTS

All supporting documents and the RAISE grant application narrative are also available to view at the following webpage:

https://www.srfconsulting.com/mn-th19-raise-grant/