2019 Rural **BUILD** Grant Application

US 212 Freight Mobility and Safety Project

Submitted by Carver County, Minnesota

2019 Rural **BUILD** Transportation Discretionary Grants program

Project Name US 212 Freight Mobility and Safety Project
Project Type Road-New Capacity
Total Project Costs $112M
2019 BUILD Funds Requested $25M

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Supporting Information can be found at:
https://www.srfconsulting.com/us-212-build-grant/

CARVER COUNTY

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I. PROJECT DESCRIPTION

US 212 (US 212) for this grant application is part of the larger U.S. Route 212 regional and national highway system that runs from Wyoming to Minnesota, officially designated in 1926. The project area contains aging pavement that has not been expanded or reconstructed since its original paving in 1930, being overlooked for 90 years. US 212 is part of the National Highway System (NHS) and National Highway Freight Network (NHFN), providing a major freight connection for 22,000 square miles of rural Minnesota and South Dakota, whose largest source of employment is manufacturing. US 212 is identified by the Minnesota Department of Transportation (MnDOT) in the Minnesota State Freight Investment Plan as a **Critical Rural Freight Corridor** and was also identified in the Metropolitan Council's Regional Truck Highway Corridor Study as a **Tier 1 freight Corridor**. Western Minnesota does not have Interstate (or Interstate-like) access to the Twin Cities. Instead, this large area relies on US 212 to provide interstate commerce connectivity from these rural areas to the multi-state economic hub of the Twin Cities. Figure 1 illustrates the relationship of the project to the regional and multi-state transportation network. Click here to view US 212 existing conditions.

Figure 1 Project Location in Relationship to Regional Transportation Network

An origin-destination (OD) analysis using StreetLight was completed to quantify the users of this TH segment of US 212 and the importance of the corridor to the region, Minnesota, and surrounding states. The OD analysis was completed to identify the users of the corridor and how the corridor serves users from counties in Minnesota and surrounding states for both personal users and freight. The results of the OD analysis are shown in Figure 2 and Figure 3 below. The percentages shown on the figures represent the percentage of trips using this segment of US 212 that originated or are destined for each County and state crossing.

The results of the personal OD analysis show US 212 serves more than just Carver County, with people from the counties to the north and south of the corridor and from the South Dakota border to the Wisconsin border using this segment of US 212. US 212 serves the western metro area of the Twin Cities Region with Hennepin County being the largest origin/destination and accounting for nearly 30 percent of personal traffic on the corridor; this indicates US 212 is an important corridor for supplying employment in the Twin Cities. McLeod County is also a major origin/destination for the corridor and accounts for nearly 20 percent of the personal traffic using this segment of US 212.

Figure 2 Personal Origin-Destination Results

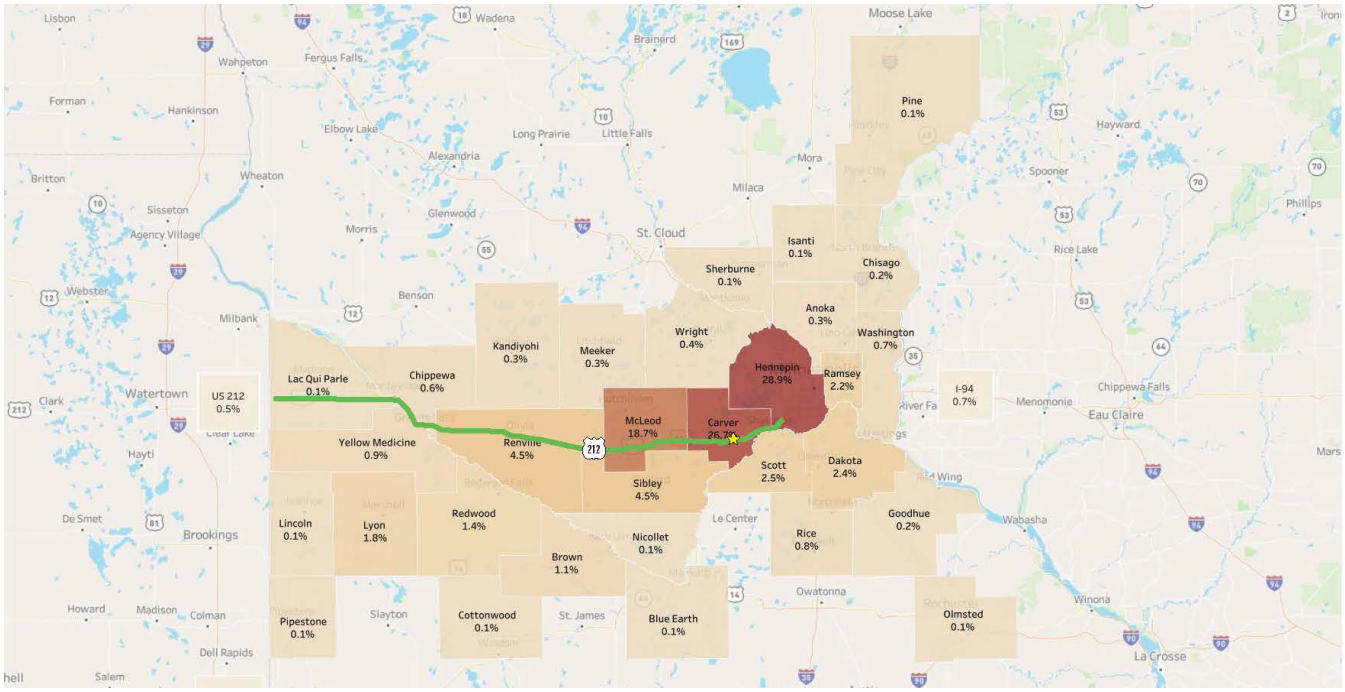
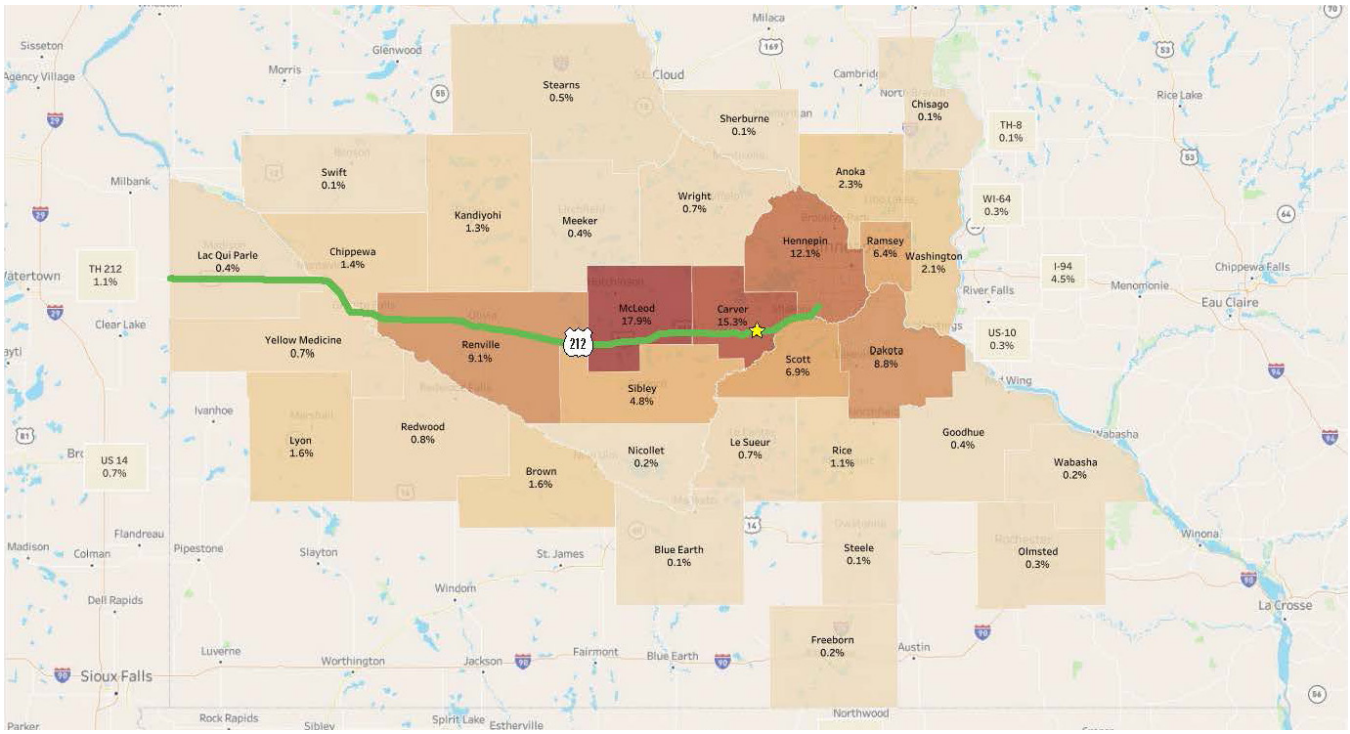


Figure 3 Commercial Origin-Destination Results



The results of the commercial OD analysis show this segment of US 212 supports both intrastate and interstate freight traffic. The counties of Renville, McLeod, Sibley, Carver, Hennepin, Scott, Dakota, and Ramsey each account of five percent of freight traffic on the corridor. With the substantial amount of agricultural land surrounding the corridor, US

212 becomes even more important during harvest season as US 212 is heavily used to deliver products to the ports in Scott County. Furthermore, almost five percent of the freight traffic using this segment of US 212 crosses the Minnesota/Wisconsin border using I-94, which shows US 212 also serves interstate freight traffic.

The average trip length for personal and freight traffic were also determined using the StreetLight analysis. The average trip length is 61 miles for personal users and 91 miles for freight traffic. These longer trip lengths show the importance of the US 212 from a regional perspective and that the corridor serves people and goods from areas far beyond Carver County.

The project would reconstruct and modernize the existing depression-era bottlenecks in the Glencoe to Twin Cities area from a rural two-lane undivided highway to a four-lane divided, multi-service expressway. While serving a role like an interstate highway, US 212 is also a key regional highway. Two fragmented segments of two-lane, undivided highway between the Cities of Chaska and Norwood Young America (herein referred to as "the Corridor") prevent US 212 from being a continuous, four-lane expressway.

These two remaining gaps in the Corridor create bottlenecks in the interstate freight supply chain and safety issues with narrow lanes, narrow shoulders, limited turn lanes, conflicts with rural farm equipment, troubled intersections, and traffic merge issues from a four-lane divided highway to a two-lane undivided highway.

Carver County, in partnership with the MnDOT, the Southwest Corridor Transportation Coalition (SWCTC), its 41 communities, local chambers of commerce, and elected officials, is proud to submit this $25 million BUILD grant request to partner with the US DOT and FHWA to help eliminate the US 212 freight bottleneck, improve highway safety, and strengthen rural access to economic opportunities in the Twin Cities urban center.

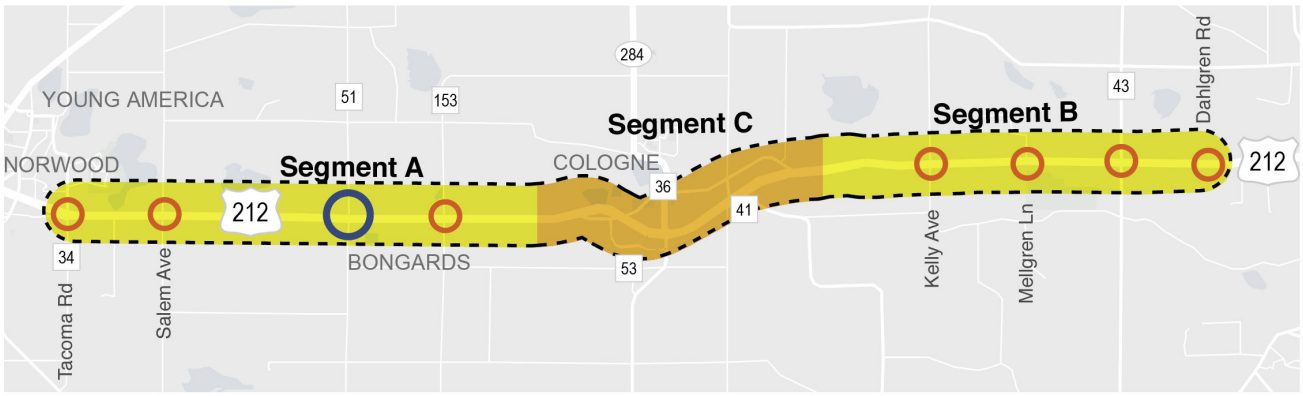
Proposed Improvements

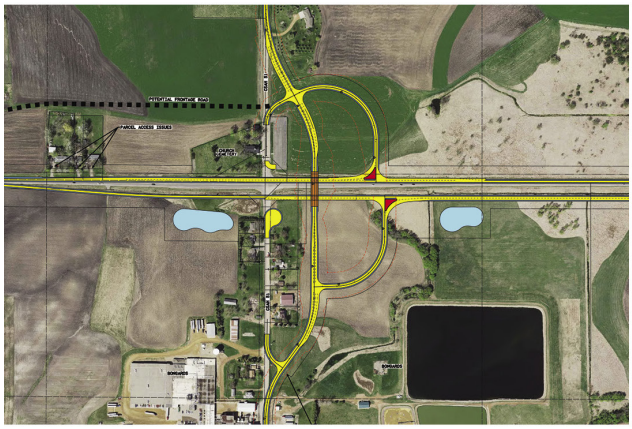
The US 212 Freight Mobility and Safety Project (herein referred to as "the project") will **modernize and expand the two-lane segments** of rural highway roadway from the City of Norwood Young America to the City of Cologne (Segment A), and the City of Cologne to the City of Carver to a four-lane divided expressway (Segment B). Segment C, an approximately two-mile section within the City of Cologne, will include innovative improvements including expansion of snow fencing and the fiber optic broadband network. Each of these segments are approximately five miles in length, totaling approximately ten miles. The project will eliminate bottlenecks in the freight network, increase mobility for rural populations and freight, and address safety concerns on the Corridor.

The project includes a number of elements that are intended to support economic vitality, leverage unique and cost-effective local and federal funding, incorporate the latest in infrastructure innovation, and deliver timely construction and performance-based outcomes. With the current, narrow roadway almost 100 years old, new pavement and added lanes are sorely needed to eliminate bottlenecks in the freight network, increase mobility and access for rural populations and economies, and address safety concerns on the Corridor.

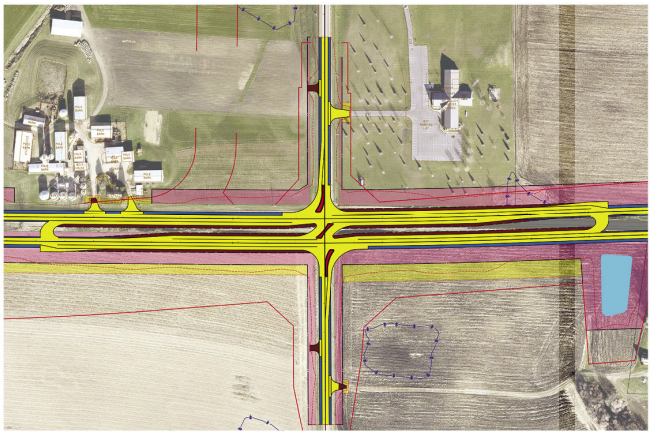
The project will update the functionally obsolete two-lane cross-section to a multi-faceted modern four-lane expressway. It will address critical safety issues and conflicts, reconstructing key intersections as **Reduced Conflict Intersections** and constructing a **grade separated overpass** at the intersection of US 212 at County Highway 51. The project will include specially designed snow fencing techniques to counter regular snow drifts and icy pavements to reduce current heavy snow-related incidents. Upgrades to the County's fiber optics network and backbone will be made to expand rural broadband, intelligent transportation systems, and future connected automated vehicles. Other improvements include the addition of full width shoulders, turn lanes at north-south roadway intersections, replacement of bridges over Carver Creek, new access roads and several access closures or changes in accordance with current MnDOT access management guidelines. Figure 4 illustrates the proposed project improvements.

Figure 4 Project Elements





1 Grade Separated Overpass



7 Reduced Conflict Intersections (RCI)

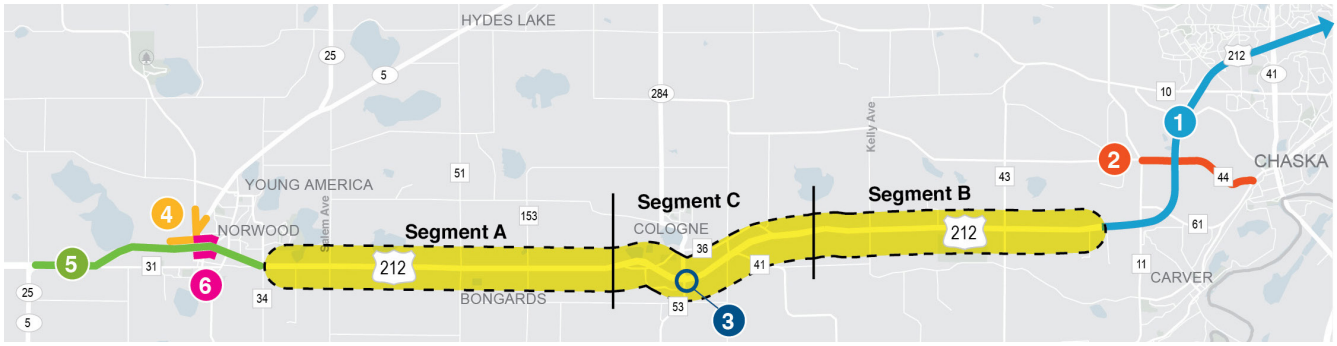
10 Miles of 2-lane to 4-lane expansion

Project History

MnDOT and Carver County have partnered over decades to develop a vision for the Corridor. More recently, the County in partnership with MnDOT, local partners, businesses, elected officials and interested citizens completed the US Highway 212 Corridor Study in 2013 which identified a long-term vision for the Corridor and short-term safety improvements. The study examined three segments along US 212 from the City of Norwood Young America to the City of Carver. The focus of the study was on the remaining two-lane rural highway gaps in the Corridor (Segments A and B) to achieve the long-term vision of a single, continuous four-lane expressway. In prior work, FHWA approved the Environmental Assessment (EA) on December 31, 2009 for a portion of the Project.

The County and its partners have made several critical investments in the Corridor to improve safety and mobility. In 2009, MnDOT upgraded a portion of US 212 from a two-lane highway to a four-lane limited access highway from the eastern terminus at I-494 from the City of Eden Prairie westward to the City of Carver. Spot safety measures have been implemented as funding allowed, including mainline turn lanes on US 212 in 2011 at County Hwys 51 and 43, due to fatal and high rate intersection crashes there. Carver County, MnDOT and local communities have committed to several other improvements in the Corridor. Figure 5 identifies improvements that have been completed or will be constructed in 2019 and 2020.

Figure 5 Project History



1. US 212 2-Lane to 4-Lane Conversion. **Completed 2009**
2. US 212/County Hwy 44 Interchange **Construction 2019**
3. US 212/County Hwy 53 Reduced Conflict Intersection **Completed 2012**
4. TH 5/TH 25/County Hwy 33 Intersection Improvements **Construction 2020**
5. US 212 Pavement Rehab and Intersection Improvements **Construction 2020**
6. US 212 Pedestrian Underpass **Construction 2020**

The project addresses multiple transportation challenges including mobility, safety, and reducing gaps in the transportation system to enhance connections between the greater western Minnesota region, South Dakota and the urban center. These challenges are summarized below. Additional details on these issues and anticipated project benefits are provided in the Section IV (Selection Criteria).

Transportation Challenges

Challenge 1: Eliminate the Freight Bottleneck

Several bottlenecks in the freight network within the US 212 Corridor exist where the highway transitions from a four-lane expressway to a two-lane rural highway, resulting in reliability, accessibility, and safety challenges.

Freight Bottleneck

17% increase in operational costs

Negatively affects 65 freight generators

The project will address critical capacity issues by expanding the two significant gaps in the US 212 Corridor, creating one, continuous four-lane expressway from the Twin Cities metropolitan area to Glencoe, Minnesota. The project will also expand highway shoulder widths and construct additional turn lanes to eliminate inefficiencies in the freight network..

Challenge 2: Reduce Fatalities and Serious Injuries

The existing US 212 Corridor experiences significant safety issues due to limited shoulder width, full access rural intersections, and blowing snow during winter storm events.

Fatalities

10 fatalities in past 10 years

The project will reduce fatalities and serious injuries in the corridor by eliminating two-lane rural highway gaps, reconstructing key intersections as RCIs and constructing a grade-separated overpass at the intersection of US 212 and County Highway 51.

Challenge 3: Remove Barriers to Employment Opportunities

Rural populations rely on US 212 to connect to employment opportunities in the Twin Cities urban center. US 212 experiences congestion because this segment is reduced to a two-lane, undivided roadway.

Employment Barriers

72% of residents travel outside the County for work

The project will expand highway capacity in the corridor to strengthen US 212 as a major connection linking rural communities to the Twin Cities economic hub. Approximately 12,000 employees live within one mile of US 212 in Carver County

Challenge 4: Ensure State of Good Repair

The Corridor needs pavement improvements to maintain a state of good repair. Segments A and B of the Corridor were originally constructed in 1929 and 1930, respectively. The aging infrastructure has not been expanded or reconstructed since.

Pavement Deterioration

Pavement quality projected to deteriorate to “poor” by 2025

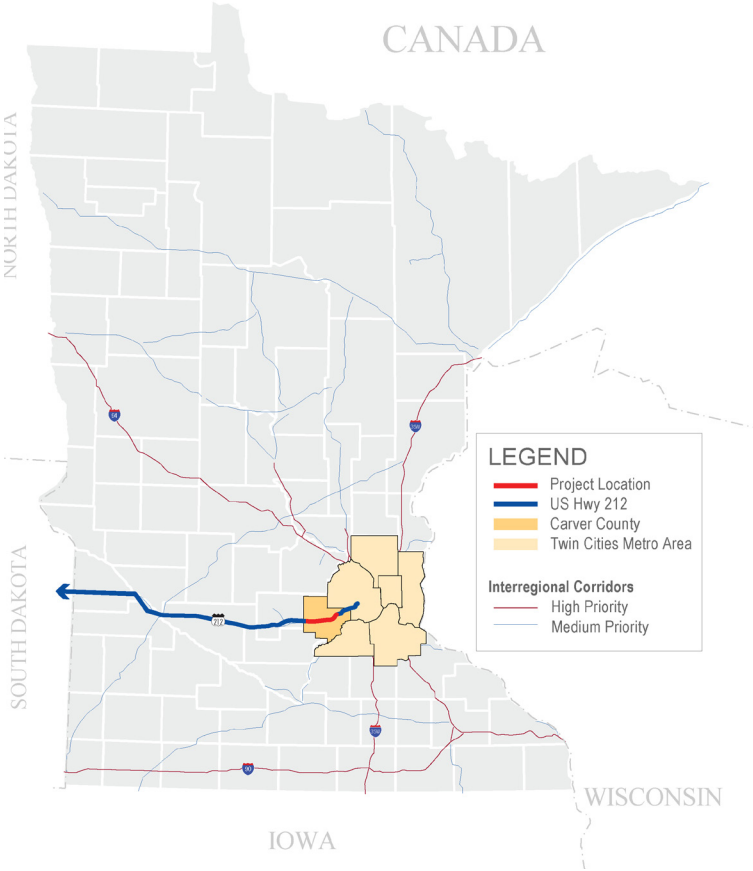
II. PROJECT LOCATION

US 212 spans 138 miles from the South Dakota state line to I-494, connecting regional traffic from the urban Twin Cities and Western Minnesota rural communities to the rest of the Great Plains. US 212 serves as a primary route linking Minnesota's economic regional trade centers.

The project is located approximately 25 miles west of the Minneapolis – St. Paul, MN-WI (Twin Cities) Urbanized Area and is designated as a Rural Area. The project includes two segments of US 212 between the Cities of Norwood Young America, Cologne and Carver in Carver County, Minnesota. Each of these two-lane gaps are approximately five miles in length, totaling approximately ten miles. The limits of the Corridor are described below. Figures 6 and 7 depict the project location.

Figure 6 Project Location

Figure 7 Project Location



- US 212 from County Highway 34/ Tacoma Avenue (44.76809°N, 93.90905°W) to approximately 0.3 miles west of County Highway 11 (44.77708°N, 93.64248°W
- City of Norwood Young America, Benton Township, City of Cologne, City of Carver, and Dahlgren Township
- Sections 7-18, Township 115N, Range 24W; Sections 14-18, Township 115N, Range 25W; and Section 13, Township 115N, Range 26 W

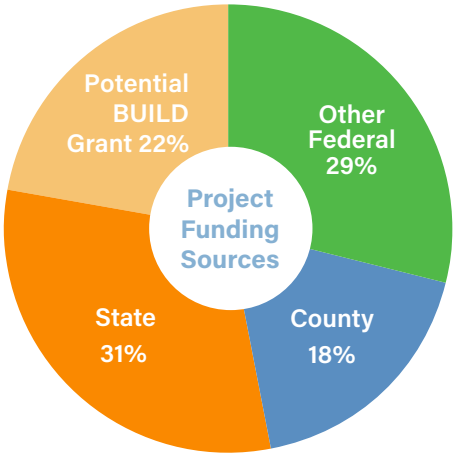
III. GRANT FUNDS, SOURCES AND USES OF PROJECT FUNDS

Project Budget

Total Project Cost: $112 million

BUILD Grant Request Amount: $25 million (22 percent of project cost)

Figure 8 Project Funding Sources



Availability and commitment of funding sources: This funding request is the final piece to the total project funding package. All funding identified below is available and is formally committed to this project (see documentation including MnDOT Letter of Support, MHFP Award Letter, and Carver County Resolution).

Carver County is committed to contributing $20 million dollars via the 2017, non-federal revenue from the adopted ½ percent sales tax and $20 excise tax. MnDOT has allocated $35 million. To date, over $3.2 million including $1.2 million in federal funds and $2 million in MnDOT and local funds was used for project development such as environmental assessment, project design, and right-of-way official mapping to advance the delivery of the project. Table 1 presents the project budget. Detailed construction costs estimates are available at the grant application website.

Table 1 BUILD Grant Project Budget

BUILD Project Element	Total Cost (design + construction)	Funding Type				
		Federal Funding			Non-Federal Funding – Local Share	
		BUILD Grant	Other Federal - Regional Solicitation	Future Federal - Regional Solicitation)	County Sales Tax	MnDOT
Highway Corridor Study, Environmental Assessment, Official Map, Preliminary Engineering	$2,296,000	$0	$1,200,000		$0	$1,096,000
Design Engineering	$1,000,000	$0	0		$0	$1,000,000
Total Incurred Expense	$3,296,000	$0	$1,200,000		$0	$2,096,000
Environmental Assessment	$167,000					$167,000
Design Engineering	$5,525,000					$5,525,000
Right-of-Way	$5,470,200					$5,470,200
Construction	$87,285,140	$22,727,273	$20,000,000	$10,000,000	$20,000,000	$14,557,867
Contingency (10%)	$8,729,000	$2,272,727	$2,000,000			$4,456,273
Construction Administration	$4,802,000					$4,802,000
Total Future Costs	**$111,978,340**	**$25,000,000**	**$22,000,000**	**$10,000,000**	**$20,000,000**	**$34,978,340**
Percentage of Total Cost by Funding		22.33%	19.65%	8.93%	17.86%	31.24%

Non-Federal Funding Source

County Funding

Carver County has served as the champion of the project and is committed to provide 18 percent of the future project cost. The Carver County Board of Commissioners adopted a resolution to approve the request for BUILD Grant funding and to commit to the local match for the project. Local funding from Carver County is dedicated to the project and leverages a new, non-federal revenue source passed by Carver County in 2017. Carver County adopted a ½ percent sales tax and $20 excise tax on vehicle purchases to finance the local share of this project. The ½ percent sales tax provides approximately $7 million in annual, non-federal revenue dedicated for transportation improvements within the County. This project is specifically identified to receive these local funds in the County's adopted Transportation Tax Plan, which designates eligible projects for the tax revenue. Based on current projections, $20 million from this new revenue source will be available for the project by 2023.

CARVER COUNTY

$20 Million

State Funding

MnDOT has committed to providing $35 million in non-federal funding to support the project. MnDOT has programmed dollars for spot improvements and preservation (pavement rehabilitation) throughout the corridor. If the County is successful in securing BUILD Grant dollars, portions of these MnDOT programmed dollars (approximately $18 million) will be reallocated towards the project which are identified in the MnDOT Metro District 10-Year Capital Highway Investment Plan (2019-2028). If awarded, all BUILD dollars and respective match funds will be spent on construction (with a 10 percent contingency).

DEPARTMENT OF TRANSPORTATION

$35 Million

Additionally, MnDOT is committed to providing State funding for this highway project, which is under their jurisdiction. Since the roadway is a US Highway, future ongoing maintenance and operations of the new facility will be managed by MnDOT. Section V, Criterion #4 provides additional details about MnDOT's operation and maintenance project commitment.

Other Federal Funding Sources

The project was submitted for INFRA funding in 2019 and was submitted for BUILD funding in 2018. Since then, Carver County and MnDOT have secured the following funding for additional improvements within the US 212 Corridor.

Minnesota Highway Freight Program (MHFP)

In 2017, Carver County was awarded $15 million in federal Minnesota Highway Freight Program (MHFP) funding through MnDOT. Subsequently, the project was added through the MnDOT and Metropolitan Council transportation planning processes to the 2019-2022 State Transportation Improvement Program (STIP) and the Metropolitan Council's 2019-2022 Transportation Improvement Program (TIP) as state project number 010-596-012.

MHFP

$15Million

Metropolitan Council Regional Solicitation

The Metropolitan Council, the Twin Cities regional metropolitan planning organization, administers the Regional Solicitation program, a competitive process where Surface Transportation Program Block Grant (STP-BG) federal funds are allocated to local governments, state agencies, and transit providers to fund regional transportation needs. In 2018, Carver County was awarded $7 million in federal Regional Solicitation funding to support the project.

METROPOLITAN COUNCIL

$7 Million

Committed Investments Not Part of this BUILD Request

MnDOT and Carver County have partnered to implement safety and preservation improvements within an approximately three-mile segment of US 212 through the City of Cologne (Segment C). Segment C was previously reconstructed as a four-lane highway. Improvements proposed within Segment C of the Corridor that are not included as part of this BUILD grant request are described below.

US 212 Preservation Project

MnDOT is currently advancing a preservation project to resurface the existing pavement, construct a median barrier, rehabilitate two bridges and install lighting to improve safety and improve pavement conditions within Segment C of the Corridor. This project is planned to begin construction in 2023.

US 212/County Highway 41 Reduced Conflict Intersection

MnDOT has secured funding to reconstruct the intersection of US 212 and County Highway 41 within Segment C as a reduced conflict intersection (RCI) to address safety issues within the Corridor. This project is funded and planned to begin construction in 2019.

BUILD Funding Need

Carver County, in partnership with MnDOT and local communities, has secured approximately $70 million in non-federal and other Federal funding to invest in the project. The County anticipates that in the event that BUILD Grant funding is not awarded, the County may be able to proceed with implementing the expansion of Segment B of the Corridor. However, delays in the project schedule are anticipated and the scope of the project would be reduced. Planned innovative technology and safety components of the project would be eliminated if BUILD funding is not awarded.

If the BUILD grant is not awarded, the expansion improvement proposed for Segment A from a two-lane rural highway to four-lane divided highway with wider shoulders would be significantly delayed. In the near future, MnDOT would proceed with a significant investment for a pavement preservation overlay project for Segment A. The expansion project would be delayed for the lifecycle of the overlay, approximately 15 to 20 years, and the original 1930 pavement would be left in place. In addition, the geometry of the roadway would be unchanged, meaning the project area would see projected increases in the crash cost and crash frequency. None of the planned innovative and safety improvements for Segment C of the project would be constructed.

The County has secured $22 million in other Federal funding to leverage for this project. A portion of this funding is programmed for 2022 and may be jeopardized if the project is delayed beyond this date. Securing the remaining funding required for the entire project would ensure that the County is able to take full advantage of the Federal funds awarded to date.

IV. SELECTION CRITERIA

Primary Selection Criteria

a) Safety

Improve Roadway Safety

Minnesota's 2014-2019 Strategic Highway Safety Plan (SHSP) examines the distribution of severe crashes across roadway types and identifies specific design and engineering strategies that can reduce deaths.

From 2008 to 2012, rural roadways in Minnesota accounted for 1,126 severe crashes involving intersections, or 38 percent of the state total. Of these, over two-thirds (763) occurred on two-lane roads with speed limits of 45 miles per hour or greater. Key design interventions that could reduce the number of severe crashes at intersections include adding left-turn lanes, widening shoulders, or implementing reduced-conflict intersection designs.[1] The project implements these key design interventions such as reduced-conflict intersection designs.

High Crash Corridor

Several crashes have occurred in the Corridor including fatalities and major incapacitating injuries. In the past ten years (2009 to 2019), there have been **ten reported traffic fatalities and three severe crashes involving life threatening injuries** on the two-lane gap segments of US 212 from the City of Norwood Young America to the City of Carver. On July 8, 2019 a fatal crash occurred when a vehicle traveling westbound on US 212 (within the project area) crossed into the eastbound lane hitting a vehicle head on. Traffic was closed in both directions for several hours following the crash. On January 16, 2019, a fatal crash occurred in Segment B of the corridor when a semitrailer truck collided with a pickup truck making a U-turn after stopping on the shoulder of US 212. Traffic was closed in both directions on US 212 for several hours following the crash.

Table 2 summarizes the existing annual crash cost associated with Segments A and B, projected total crash reduction, and annual crash cost savings. The Corridor experiences a high number of fatal and severe injury crashes. It is anticipated that safety improvements, including RCIs and a grade separated overpass, **will reduce severe crashes by 44 percent in Segment A and 55 percent in Segment B**. Annual crash costs associated with the existing conditions of the Corridor are estimated to be $6,760,00 in Segment A and $10,250,000 in Segment B. The project is anticipated to **generate substantial annual crash cost savings ranging from $2,930,000 in Segment A and $5,800,000 in Segment B.**

Table 2 Crash Analysis

	Existing Annual Crash Cost	Projected Total Crash Reduction	Projected Severe Crash Reduction	Estimated Annual Crash Cost Savings
Segment A (Norwood Young America - Cologne)	$6,720,000	38%	44%	$2,960,000
Segment B (Cologne to Carver)	$10,250,000	40%	55%	$5,800,000

Source: MnDOT Minnesota Crash Mapping Analysis Tool (MNCMAT). Data obtained from January 2009 through January 2019.

[1] *2014-2019 Minnesota Strategic Highway Safety Plan: http://www.dot.state.mn.us/trafficeng/safety/shsp/Minnesota_SHSP_2014.pdf*

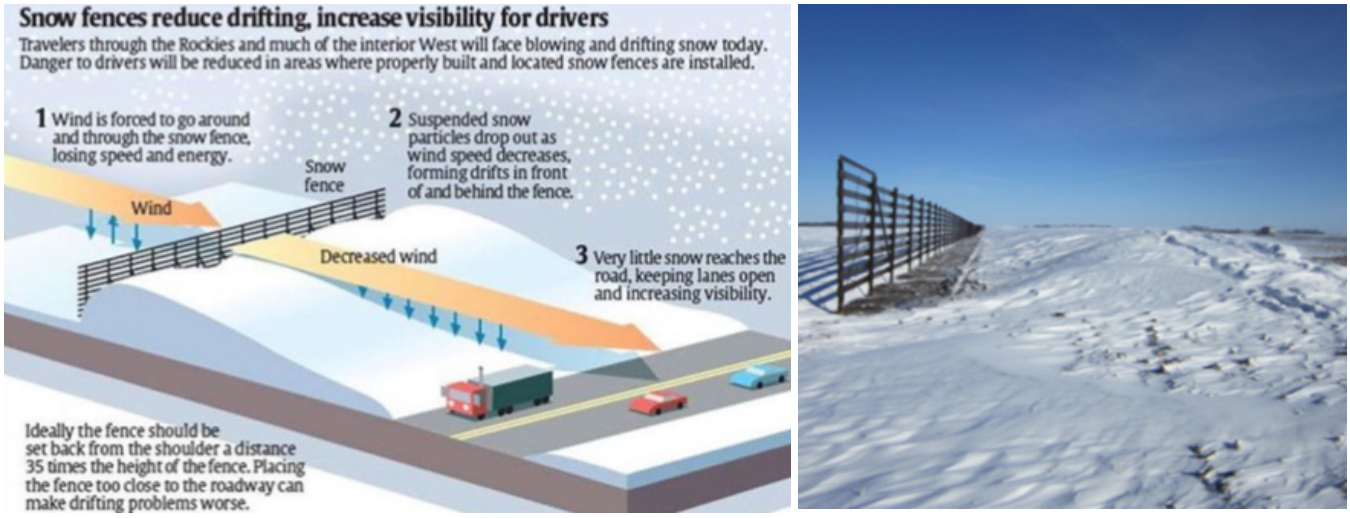
The existing geometry of the Corridor contributes to this safety issue. Specific issues identified in the US 212 Corridor Study include:

- Transitions from two lanes to four lanes
- Lack of turn lanes on US 212
- Traffic turning on to US 212
- Lack of passing lanes
- Limited right-of-way, including narrow shoulders

Furthermore, the open agricultural landscape of the Corridor often results in increased volumes of congestion and safety hazards during snow events. Blowing and drifting snow can lead to lane blockages, icy conditions, and narrow travel lanes. Snow events tend to lead to increased crash rates, especially for run off the road crashes. In the ten-year crash data (January 2009 -January 2019) for Segments A and B, approximately 30 percent of the crashes occurred during snow- or ice-covered road conditions.

The project will address these safety issues by converting the two gaps in the US 212 expressway from a rural two-lane, undivided highway to a four-lane, divided expressway. Based on the crash analysis, **it is anticipated that the project will reduce the crash rate in the Corridor** (see Table 2). Additionally, the project will include snow fencing to increase winter driving safety by creating a barrier to snow drifting during windy conditions. Figure 9 depicts snow fences. A detailed cross section is provided on the grant application website.

Figure 9 Snow Fence

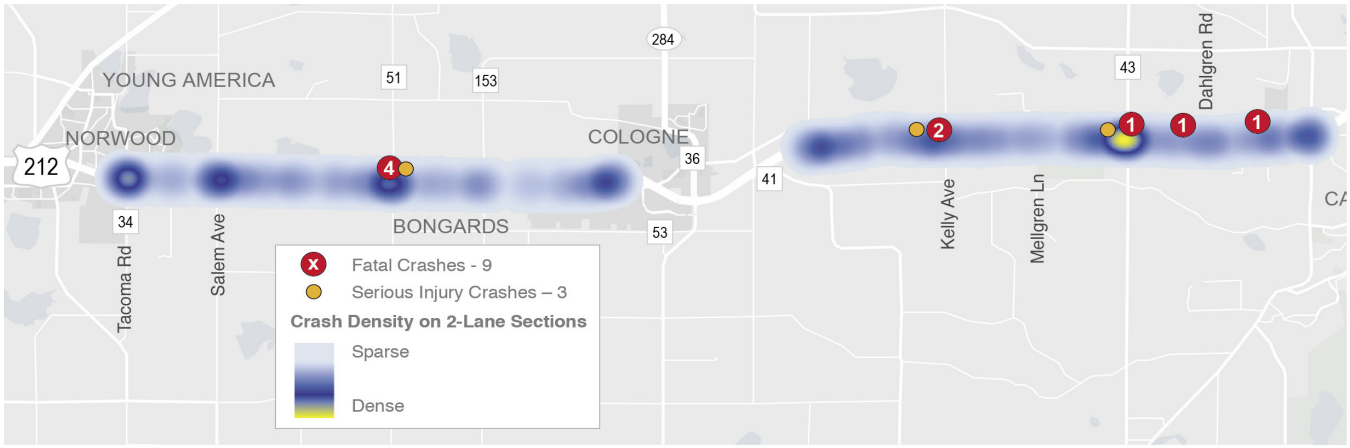


Intersection Safety

Past studies have identified several high-risk intersections in the Corridor including the US 212 Corridor Study, Carver County Roadway Safety Plan (CRSP), Metropolitan Council's Principal Arterial Intersection Conversion Study (PAICS). These project intersections include US 212 at County Highway 43, County Highway 51, and County Highway 34. Eight right angle crashes have occurred at the intersection of US 212 and County Highway 43 in the past five years including a recent fatality in 2018. At the intersection of US 212 and County Highway 51 two fatalities occurred in 2009 and a major incapacitating injury occurred in 2010. The US 212 and Highway 34 intersection has also been identified as having an increased risk for crashes. Since 2011, this intersection has had three right-angle, four head-on, and two left turn crashes. Two additional intersections (Kelly Avenue and Mellgren Lane) also experience crashes greater than the average critical crash rate. RCIs are proposed for both of these intersections. Figure 10 illustrates crash occurrences in the Corridor and identifies the locations of crashes that resulted in fatalities and major incapacitating injuries.

To increase safety at intersections, **the project will utilize RCIs along the Corridor** (see Figure 4). Implementing RCI designs will enhance safety by restricting left-turn conflict points from directly crossing multiple travel lanes at once but still allowing access in all directions. Compared to traditional four-lane divided intersections, RCIs have much less severe right-angle (or "T-bone") crashes. Studies have demonstrated a 70 percent reduction in fatalities and a 42 percent reduction in injury crashes.[2]

Figure 10 Crash Occurrences in the Project Corridor Through 2019



b) State of Good Repair

The pavement condition in the Corridor is deteriorating and will reach a performance ranking of "poor" by 2025 within Segment A and 2027 within Segment B. Segments A and B of the Corridor were originally constructed in 1929 and 1930, respectively. The aging infrastructure has not been expanded or reconstructed since.

Although the road surface is currently in acceptable condition, the Depression-Era sub-grade is deteriorating the road surface at a quicker rate than typically expected. The Ride Quality Index (RQI), used by MnDOT in the 2017 Pavement Condition Annual Report to categorize performance measure categories for the NHS, is currently at a 3.0 (2017) and 3.1 (2017) within Segment A and Segment B, accordingly. The Corridor is projected to fall within the RQI "Fair" range, which is 2.1 to 3.0, by this year. In order to maintain a state of good repair, the Corridor needs to be reconstructed prior to 2025.

c) Economic Competitiveness

Eliminate the Freight Bottleneck

US 212 is a critical highway freight corridor that provides connections for over 22,000 square miles of southwest Minnesota and South Dakota to the Twin Cities where access to the interstate highway system does not exist.

> *We support the four-lane expansion of Highway 212 in Carver County and prefer that these improvements be made in the short-term.*
>
> – United Farmers' Cooperative

On portions of US 212, heavy commercial vehicles represent up to 14 percent of total daily traffic based on 2016 MnDOT traffic data. **Freight bottlenecks contribute to a 17 percent increase in heavy commercial vehicle operational costs and negatively affect upwards of 65 heavy commercial freight generators** located adjacent or in proximity of the US 212.[3] Forecasted growth in heavy commercial vehicle volumes by the year 2040 will amplify the existing freight bottleneck in the Corridor.

[2] *FHWA. Field Evaluation of a Restricted Crossing U-Turn Intersection. June 2012. Report No. FHWA-HRT-11-067. https://www.fhwa.dot.gov/publications/research/safety/hsis/11067/11067.pdf*

[3] *Carver County. Draft Comprehensive Plan. Pages 4.100. https://www.co.carver.mn.us/home/showdocument?id=14307*

Capacity issues along U.S. Highway 212 cause significant mobility and safety issues for trucks traveling in the Corridor due to the lack of lane continuity, substandard shoulders, and safety issues. The existing traffic volumes currently exceed the capacity of a two-lane, undivided freeway. Within the Corridor, existing average daily traffic ranges from 11,600 to 14,500 (2015) vehicles per day. Projected traffic volumes within the Corridor will increase to 12,800 to 18,900 vehicles per day by 2040[4]. Based on a standard maximum daily capacity threshold of 15,000 vehicles per day of a two-lane undivided rural roadway, existing traffic volumes are nearly exceeding capacity of the roadway. Morning and afternoon PM peak traffic leaves very short gaps available for side street intersection. Some of these limited gap conditions have led to fatal intersection crashes.

As part of the US 212 Corridor Study, 16 major freight generators in the study area were interviewed. All 16 interviewees supported the four-lane expansion of US 212. The roadway was identified by every business interviewed as key to receiving inputs to production and shipping manufactured goods to the market.

88 percent of interviewees identified transit time or speed as the most important US 212 transportation factor. The shippers noted that they time their freight movements to avoid peak hour traffic congestion through the bottleneck when possible. Many of the businesses rely on just-in-time deliveries (e.g., parts for machines) or final outputs (e.g., perishable foods or tight customer-driven deadlines). For instance, if a machine breaks down at Southern Minnesota Beet Sugar, parts are immediately shipped from the Twin Cities. The company stated that **shipping delays on US 212 have interrupted or stopped their production**.

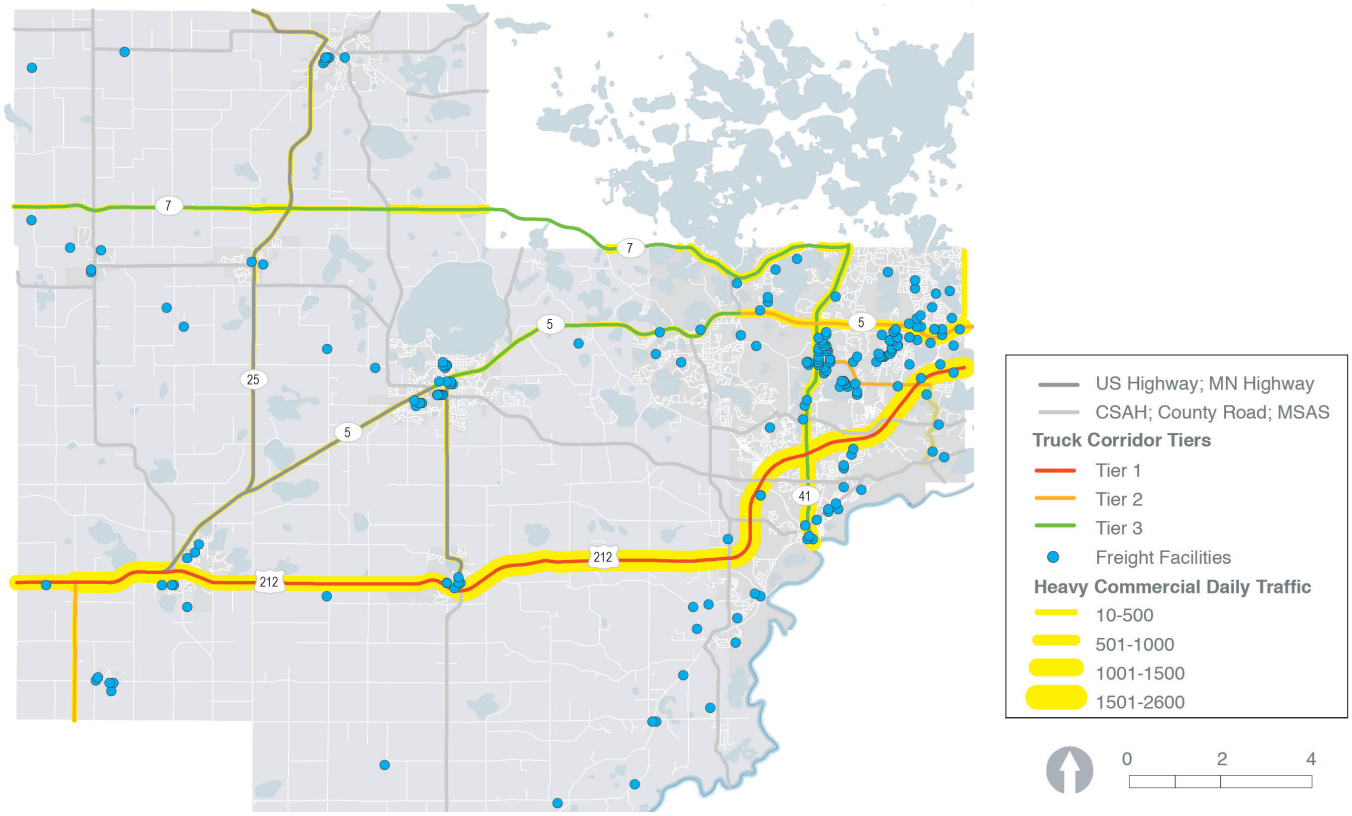
Furthermore, oversized loads are not permitted to operate in narrow segments of the corridor, requiring a State Patrol escort. Due to the increased cost of this escort, oversized shipments often divert onto the county road system. This rerouting adds time and expense to a trip, increases the potential for damaged goods, reduces safety, and affects the local roadway system. Expansion to a four-lane facility will alleviate the need for a State Patrol escort.

The project alleviates a ten-mile bottleneck that directly impacts regional and multi-state freight movements. The problematic two-lane segments impact high truck traffic volumes moving freight from western Minnesota to river and rail terminals in the Shakopee/ Savage area. Figure 11 illustrates the importance of US 212 as a major freight connection.

✓ Reduces shipping delays
✓ Removes 10-mile bottleneck

[4] *Carver County. Draft Comprehensive Plan. Pages 4.38. https://www.co.carver.mn.us/home/showdocument?id=14307*

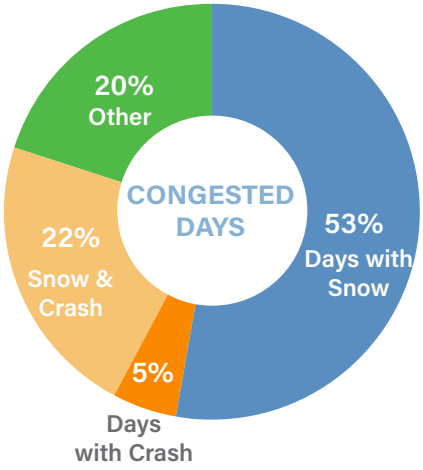
Figure 11 Carver County Freight Network and Generators



The project area is experiencing development that is adding to transportation activity along Highway 212. As an example, Pattison Sand Company (PAC) is going through the approval process to allow an intermodal development on the southeast corner of Hwy 212 and Salem Ave. This business opportunity is a result of the proximity to Hwy 212 and TC&W RR. This intermodal facility will operate a rail serviced transload facility at the intersection of US 212 and Salem Avenue. The facility will support other rail serviced commodities in the future and will be open to retail sales and the general public. The facility will generate an average of 150 trips per day requiring access to/from US 212.

Travel Time Delay and Reliability Issues

Figure 12 Congested Days by Event



A Travel Time Reliability Analysis was completed for Segment B of the Corridor between the Cities of Cologne and Carver, between County Highway 11 and County Highway 36. The analysis concluded that factors contributing to congestion in the Corridor include crashes, snow and other causes. While crashes are observed to contribute to congestion throughout the year, snow has a more dramatic effect on congestion during the winter months.

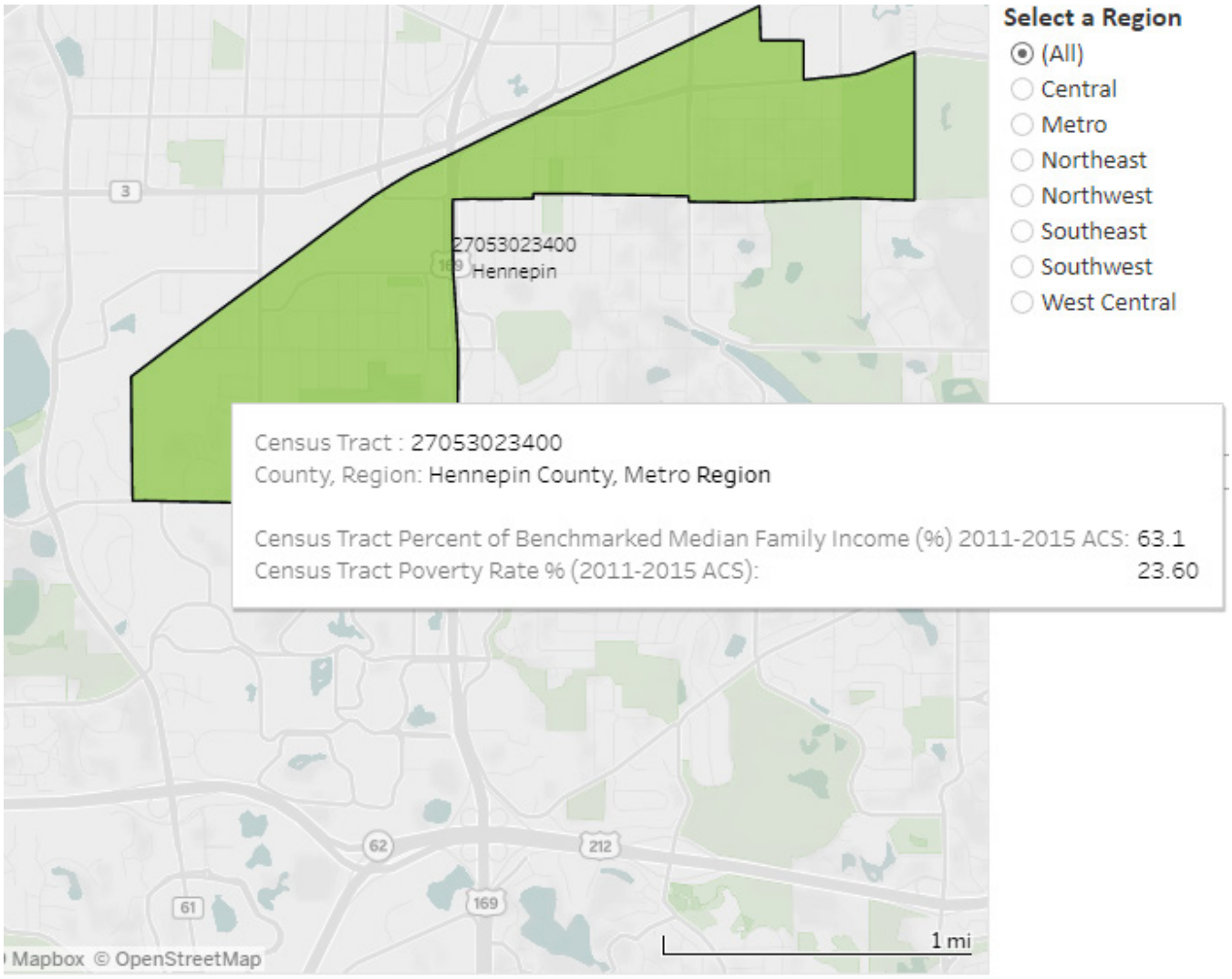
Over the study period, 55 days observed a travel time index (congested hours) greater than 1.25 the expected travel time, ranging from 1.5 to 7.9. The total vehicle hours of delay observed for these days ranged from 32 to 505 hours for an average of 123 vehicle delay hours per day. Figure 12, illustrates the percentage of days with travel time index above 1.25 that correlated with snow,

crash, snow and crash, or other events. 75 percent of the 55 days experienced congested hours due to a snow event or both crash and snow event.

Opportunity Zones

Expansion of US 212 in Carver County provides an operationally efficient and safe route to and from Twin Cities area. Thus, the proposed improvement supports development opportunities along the US 212 corridor between Carver County and Twin Cities. As shown in Figure 13, Census Tract about a mile north of the Hwy 212 and Hwy 169 interchange in Hennepin County is designated as a Qualified Opportunity Zone. Improvements on Hwy 212 will reduce traffic delay and improve travel times and/or travel time reliability to/from the opportunity zone, benefiting current and future businesses in the zone.

Figure 13 Qualified Opportunity Zone



d) Environmental Sustainability

The existing corridor contains minimal storm water management practices that reduce nutrient loading or runoff volume to downstream water resources. Sediment and nutrients picked up from paved surfaces by runoff are discharged to the surrounding wetlands, streams, and lakes.

The build option will incorporate storm water management practices that reduce nutrient loading and runoff volume by sedimentation, filtration, plant uptake, and groundwater recharge. These practices will remove 90% total suspended solids and 90% total phosphorus from runoff generated from paved surfaces in a 1-inch storm. The cumulative treatment capacity in the built corridor will remove nutrients from more than 270,000 cubic-feet of runoff generated from a 1-inch storm. Similarly, the storm water management practices will capture and retain more than 135,000 cubic-feet of runoff generated from a 1-inch storm.

In addition, a Passage Bench will be installed which will allow wildlife to pass beneath bridges uninterrupted as they travel along a streambank.

e) Quality of Life

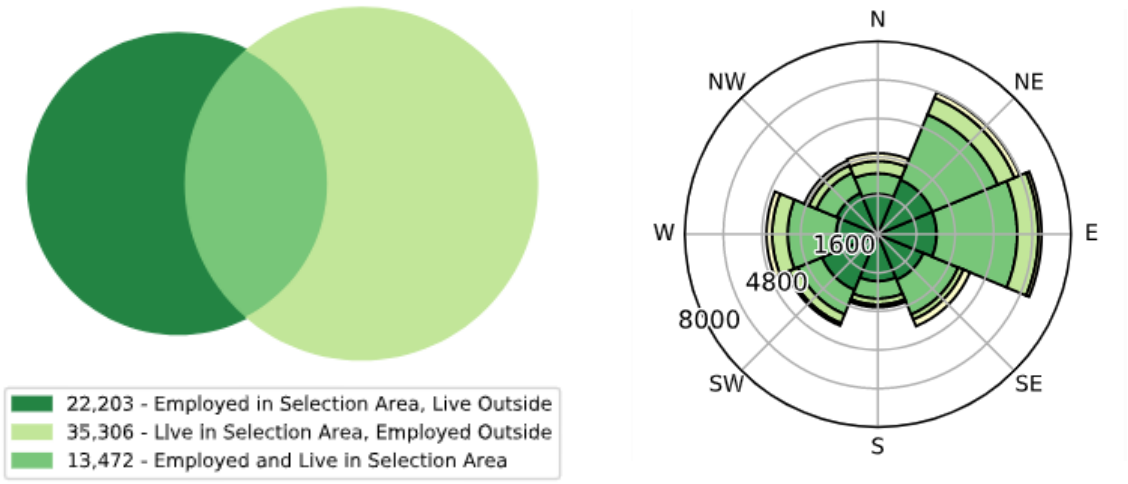
Expanded Access to Employment

US 212 serves as a critical link between rural communities in Carver County and job opportunities in the Twin Cities urban center. As a Principal Arterial roadway through the rural area, US 212 is depended on as a safe and reliable commuting option without similar alternative routes available.

Carver County is a net exporter of workers. According to 2015 U.S. Census data, 72 percent of Carver County residents travel outside of the County for work[5]. Figure 14 demonstrates that the majority of employees live within the County and commute outside of the County for employment.

Most commuters to, or from, Carver County must use US 212 to reach work destinations. Approximately 53 percent of the total 35,675 employees in Carver County commute greater than ten miles. The majority of commuters are traveling eastward into the Twin Cities urban center[6]. Figure 14 illustrates the direction of commuters between place of residence and work place.

Figure 14 Commuter Job Flows and Distance/Direction in Carver County (2015)



[5] *U.S. Census Bureau. Longitudinal Employer-Household Dynamics Survey, Inflow/Outflow Job County in 2015. https://onthemap.ces.census.gov/*

[6] *U.S. Census Bureau. Longitudinal Employer-Household Dynamics Survey, Job Counts by Distance/ Direction in 2015. https://onthemap.ces.census.gov/*

The project will benefit the employees living and commuting along US 212. **Approximately 12,000 employees live within one mile of US 212 in Carver County**.[7] The project will expand capacity of the US 212 Corridor by converting the remaining two gaps of rural two-lane highway to one continuous, four-lane expressway.

Secondary Selection Criteria

f) Innovation (innovative technologies, innovative project delivery, innovative financing)

Innovative Technology

Reduced Conflict Intersection (RCI)

RCIs, also referred to as Restricted Crossing U-Turn (RCUT) intersections, have been identified through the Federal Highway Administration's (FHWA) Every Day Counts Initiative as an innovative design with proven safety benefits. FHWA studies have determined that RCUT intersections reduce crash occurrences by 28 to 44 percent.[8] Furthermore, RCUT intersections offer substantial cost savings and reduced construction time benefits compared to grade separated interchanges. The project proposes construction of seven RCIs in the Corridor to address existing safety issues, capture cost savings compared to alternative intersection designs, and streamline the construction timeframe.

Image Source: MnDOT

RCIs

70% reduction in fatalities

42% reduction in injury crashes

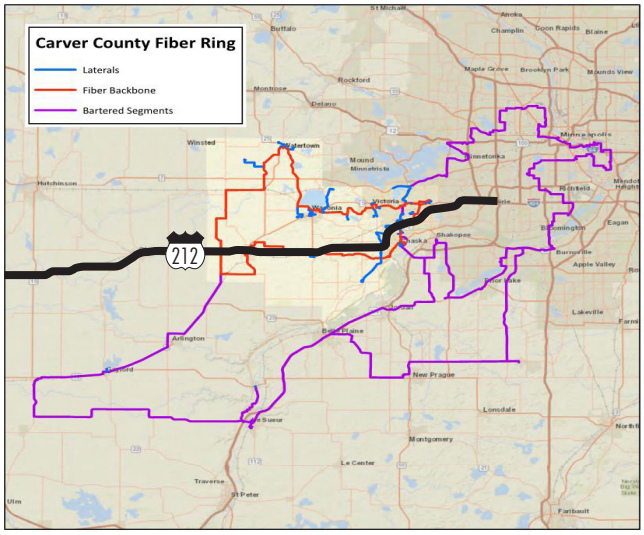
Broadband Deployment

The project will connect rural communities to fiber-optic internet access by utilizing the existing CarverLink, the publicly owned broadband fiber optics network that runs adjacent to the Corridor. The fiber ring connection runs along the US 212 Corridor (see Figure 15).

[7] *MN Department of Employment and Economic Development (DEED) data based on Metropolitan Council's Transportation Analysis Zone inputs with a base year of 2014.*

[8] *FHWA. Intersection and Interchange Geometrics Project Case Study. https://safety.fhwa.dot.gov/intersection/innovative/uturn/case_studies/mn/mn_rcut.pdf*

Figure 15 Existing Fiber-Optic Network



Providing reliable and fast data communications is becoming necessary as local agencies and communities adopt technology. Fiber optic communications can vastly improve the speed and reliability of internet service – a requirement as population and employment centers continue to grow. CarverLink, the publicly owned broadband fiber optics network that covers hundreds of miles of Carver County, provides internet service and network connectivity to communities, businesses, and people across the County, though there is still room for the network to expand. Improving internet access along the US 212 Corridor will benefit the businesses, employees, and residents who work and live near the roadway, in particular providing more reliable connections to help small businesses compete. **Fiber optic networks will guarantee quality internet speeds along the corridor and also serve as a reliable communication method for transportation applications** such as traditional ITS applications as well as connected and automated vehicles.

Rural internet access is a growing concern. Rural communities are far less likely to have access to reliable internet service. Fiber-optic rings can vastly improve internet service in rural areas. Federal internet service standards have increased, and many rural areas have not been able to maintain quality internet access. Carver County can resolve this issue by ensuring fiber optic internet access along higher population and employment densities, including US 212.

Blow Ice Warning Systems

Figure 16 Blow Ice Warning System Sign

Ice on roadways is a significant concern for a region that experiences below-freezing temperatures for the better part of three months. Even the most experienced drivers can be caught off-guard when traveling over black ice, through freezing rain, and on snow-packed roadways. "Blow ice" forms when snow blows across the highway, creating an unexpected sheet of ice for travelers. This blow ice phenomenon has caused numerous crashes. An innovative technology-based solution to this problem has been developed utilizing in-pavement ice sensors, cameras, and warning signs with flashing beacons upstream. Carver County will identify the most effective locations for installation of blow ice warning systems to improve safety in the Corridor. Figure 16 shows a blow ice warning system sign.

Other Intelligent Transportation Systems (ITS)

The project will include Intelligent Transportation Systems (ITS) elements. ITS technologies advance transportation safety, mobility, and efficiency by integrating advanced technologies into transportation infrastructure or vehicles. ITS encompasses a broad range of electronic communication and sensing technologies but traditionally includes elements such as dynamic message signs, CCTV cameras, and vehicle detection. By deploying these ITS elements along US 212, the County can provide traveler information such as travel times, alternate routes, and incident notifications. These

enhance driver awareness and allow drivers to make informed decisions while traveling. These deployments can also be used for incident management purposes such as identifying crashes, detecting queued traffic, and emergency response.

The project will explore installation of wireless dynamic message signs that provide real-time traffic advisory and route guidance information to road users. By providing information to road users in advance of a situation, they help to improve safety and reduce congestion when an incident occurs or in the event of poor road or weather conditions.

Innovative Project Delivery

Civil Information Management Software

During public engagement of the corridor study, project designers used innovative Civil Information Management (CIM) software for preliminary modeling and visualization of the proposed project to understand and mitigate impacts. This allowed stakeholders and partners to make decisions through a visual compare and contrast in real-time.

The project will continue to utilize CIM software to model and visualize the project, as well as increased transparency of the project. The transparency will enable owners, consultants, contractors, and stakeholders to work together easily. The CIM software enables designers to make constant adjustments to the design to ensure the best alternatives. The software also uses embedded 3D visualization as part of the process. This enables an effective conflict detection, rapid design review and validation. These efforts will reduce project schedule timelines and overall costs.

Best Value Procurement

Since 2007, public agencies in Minnesota have been explicitly enabled and encouraged to use the best value method to procure construction contracts. MnDOT and related transportation agencies utilize the best value procurement process to deliver high-quality projects faster and more cost effectively by awarding contracts based on quality rather than price alone. It is anticipated that best value procurement will help the project deliver long-term benefits on an efficient schedule and budget. Carver County has utilized the best value procurement process for several transportation projects and will consider applying this procurement process for this project.

Environmental Review and Permitting

The project has already completed an environmental review of Segment B and incorporated feedback from agency stakeholders into proposed design to minimize the project's impacts to sensitive environmental resources. An Environmental Assessment (EA) for Segment B was approved by FHWA in 2009 in accordance with the National Environmental Policy Act (NEPA). The County is currently in the process of initiating a new EA that will include Segment A and re-evaluate potential impacts resulting from Segment B. The project will be able to take advantage of past environmental analysis to accelerate the new EA effort.

The project will benefit from existing MnDOT programmatic agreements and agency liaisons to maximize the efficiency of environmental review and permitting processes. MnDOT has executed a programmatic agreement with FHWA and the State Historic Preservation Office (SHPO) to streamline the Section 106 review process. Additionally, MnDOT has established a MnDOT has established agency liaisons with the US Army Corps of Engineers (USACE) to directly manage the Section 404 permitting process for state highway projects.

Innovative Financing

Carver County is one of the leading counties in Minnesota to implement both a ½ percent sales tax and an excise tax to create a new, non-federal transportation revenue source for county and state transportation projects in the County. This new dedicated transportation funding source will enable the County to provide a local

match to state and federal funding for critical infrastructure projects, including the US 212 Freight Mobility and Safety Project.

In 2017, Carver County passed resolutions to approve a new, dedicated, non-federal transportation revenue. The resolutions enabled Carver County to implement a ½ percent sales tax, a $20 excise tax on vehicle purchases, and to increase the wheelage tax to $20 per vehicle (See Carver County Resolution #25-17: Implementing a ½ Percent Local Option Sales Tax and $20 Vehicle Excise Tax for Transportation and Resolution #26-17: Implementing a $20 Annual Wheelage Tax for Transportation). The ½ percent sales tax will result in at least $3.5 million in annual revenue for the County dedicated for transportation improvements.

g) Partnership

Jurisdictional Collaboration

The Southwest Corridor Transportation Coalition (SWCTC) was formed to work cooperatively with MnDOT, local governments, businesses, state, and federal legislators and interested citizens to advocate for transportation improvements on US 212 and Trunk Highway 5. The SWCTC travels to Washington DC every year to meet with Members of Congress and transportation officials to promote the importance of US 212 and request funding assistance. These meetings resulted in $1.2 million in federal appropriation to allow project development to occur and assist in project readiness for the Cologne to Carver segment of the US 212 Rural Freight Access Program of Projects.

60 communities, businesses, and local chambers of commerce have passed resolutions to support improvements to US 212

The SWCTC is a strong partnership with broad representation from all sectors. In total, 60 communities, businesses, and local chambers of commerce have passed resolutions supporting improvements to expand the capacity of this highway; including the Board of Commissioners of every county along the corridor. Several agencies and jurisdictions passed specific letters of support for this BUILD Transportation Discretionary Grant opportunity. The full package of letters of support from key agencies, elected officials, counties, cities, Chambers of Commerce, and businesses can be viewed at this link.

As mentioned previously, the partnership led to the US 212 Corridor Study. This study looked at lower-cost ways to make improvements to the corridor while working towards the long-term conversion of the corridor to a four-lane facility. The first phase of the study utilized public engagement, through newsletters, open houses and a project website. The project website is still maintained and provides the past newsletters and open house materials. The project website can be accessed by clicking here. The second phase of the study was completed in 2016 and focused on identifying a preferred alignment for the Cologne to Carver segment. Following this phase of the Corridor Study, the SWCTC has been focused on working together to continue advancing improvements along the corridor, with the ultimate goal of improving the safety and capacity of the US 212 corridor.

V. PROJECT READINESS

Technical Feasibility

The County is already the lead agency on the US 212 Corridor Study and all other project development activities which also utilize federal funds. The County has delivered several federally funded highway projects and understands the rules and procedures to manage a federal grant.

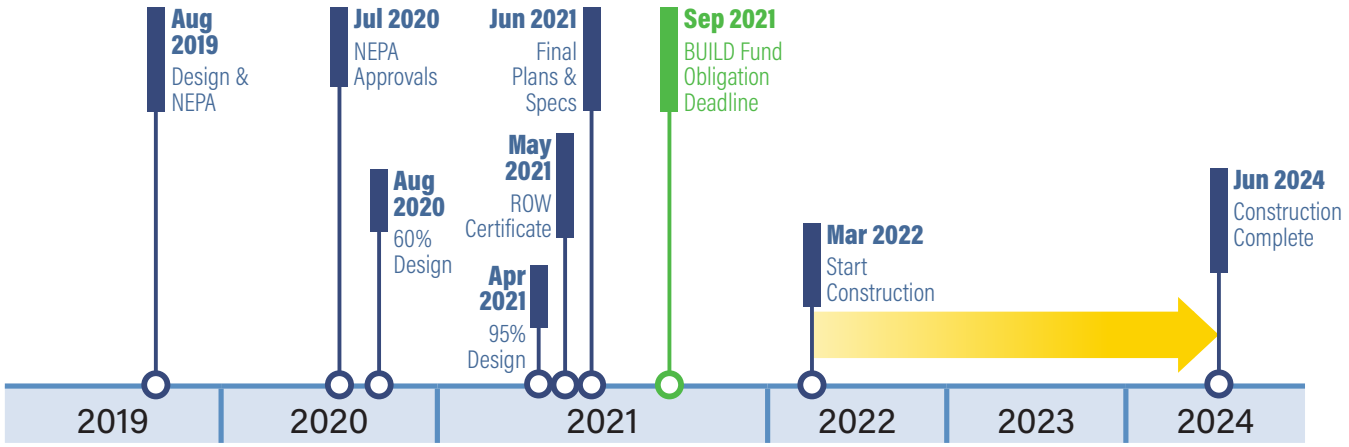
Carver County and MnDOT have worked together to explore the best ways to address access, safety, freight movement, and mobility needs along US 212. To move the project forward and fully understand the impacts and cost, Carver

County has proceeded with detailed design and preparation of a final bid package for construction letting. Preliminary design layouts and cost estimates including contingency levels have been completed for the project.

The proposed design meets all current USDOT, AASHTO, and MnDOT standards for multi-lane highways. General details of the design include: 70 mph design speed, 12-foot lanes, 10-foot outside shoulder, 4-foot inside shoulder, rural ditch drainage (NOAA Atlas 14 - Precipitation Frequency met for design), 84-foot centerline spacing, and bituminous pavement. The final design for Segment B has identified the final roadway alignment, profiles, geometry, drainage elements, and grading limits for the project. From the final design information, real quantities were derived. Expected unit costs are based on the most recent record of similar highway construction projects in Minnesota.

Project Schedule

The project schedule demonstrates that grant funds can be obligated by September 30, 2021. Carver County anticipates that construction will begin by March 2022 and completed by June 2024 before the expenditure deadline of September 30, 2026. All property and right-of-way acquisition will be completed in accordance with 49 CFR Part 24 and other Federal regulations. The County has an experienced right-of-way acquisition staff that have been actively involved during the project development process and have worked with MnDOT on numerous state highway projects. An official map has been prepared. As discussed in the following section, an Environmental Assessment was approved in 2009. The County is in the process of updating this environmental review document to address any new impacts and include Segment A of the Corridor.



Required Approvals

Environmental Approvals

FHWA approved an Environmental Assessment (EA) on December 31, 2009 for Segment B of the Corridor. The EA found that the project is not expected to cause adverse impacts to any community or neighborhood. No categories of people uniquely sensitive to transportation would be unduly impacted. The EA also found that the project impacts are distributed evenly throughout the Corridor and the proposed improvements would provide benefits for all who utilize the roadway. The environmental justice section concluded that the project would not have disproportionately high and adverse human health or environmental effects to any minority population or low-income population.

Due to the age of the approved document, an EA Re-Evaluation is required to address any new environmental impacts along the corridor. Since the project includes both Segment A and Segment B, a new EA will be completed. Carver

County has initiated this effort and is coordinating with MnDOT and FHWA on the process. Final plan submittal is expected by Fall 2021. As required, all remaining permits will be included in the final submittal. Since being designated as a MnDOT Interregional Corridor in 2000, the US 212 corridor has undergone significant analysis. Carver County, MnDOT and respective federal agencies foresee no issue with permit issuance.

State and Local Approvals

Support for the project is provided for by several different levels. There is a broad base of support for the project, as shown by the Letters of Support submitted for this application. These include Letters of Support from MnDOT, Metropolitan Council, and US Senate Representatives from MN to cities and local businesses along the US 212 Corridor. A portion of the project is programmed in MnDOT's State Transportation Improvement Program (STIP) and in the Metropolitan Council's Transportation Improvement Program (TIP) as state project number 010-596-012. This project is programmed due to the Minnesota Highway Freight Program funding awarded for Fiscal Year 2022. Upon award of BUILD funds, the TIP and STIP would be amended to incorporate the full project scope. The project is currently listed in the Metropolitan Council Transportation Policy Plan (TPP) for four-lane expansion from Carver to Cologne. Likewise, the TPP would be amended to incorporate the full project scope. This project is specifically identified to receive Carver County local sales tax funds in the County's adopted Transportation Tax Plan and is in the Capital Improvement Plan as the highest priority project. Based on current annual revenues of the adopted ½ percent sales tax, $20 million is allocated for the project by 2023.

Large Project Requirements

The US 212 Freight Mobility and Safety Project is a large project that complies with minimum project size requirements and meets the criteria established in D.2.b.vii of the Notice of Funding. Table 3 demonstrates how the project addresses each of these requirements.

Assessment of Project Risks and Mitigation Strategies

Right of way acquisition is a risk to cost and schedule. The estimate includes significant contingency for acquisition cost. The County will exercise eminent domain if necessary to gain access to the property to construct the project within the required schedule constraints. An approved Environmental Assessment was completed in 2009 for Segment B of the project. The County is currently preparing an updated environmental document that includes both segments of the corridor. There are no other risks to the project given the amount of study that has already occurred.

VI. BENEFIT COST ANALYSIS

The cost effectiveness of the improvements was evaluated through a detailed benefit-cost analysis (BCA) to monetize the project benefits. A summary of the BCA results and methodology is provided in Section VI of this narrative. A detailed BCA technical memorandum and analysis tables are available at the grant application website: https://www.srfconsulting.com/us-212-build-grant/.

The BCA analysis demonstrates that the project will result in regional and national economic benefits and achieves the following key outcomes:

- Travel time savings for private vehicles and freight generators
- Significant reduction in fatal and severe injury crash occurrences
- Operation and Maintenance cost savings

The greatest benefits accrue from travel time cost savings and safety benefits, totaling approximately $182 million when discounted at seven percent. Additionally, the project will result in approximately $4.5 million in operation and maintenance cost savings. Based on a discount rate of seven percent, the approximately $75 million investment would generate approximately $164 million in total benefits, a net present value of approximately $89 million, resulting in a benefit to cost ratio of 2.2.

The objective of a benefit-cost analysis (BCA) is to bring all the direct effects of a transportation investment into a common measure (dollars), and to account for the fact that benefits accrue over an extended period while costs are incurred primarily in the initial years. The primary elements that can be monetized are travel time, changes in vehicle operating costs, vehicle crashes, environmental impacts, remaining capital value, and maintenance costs. The results of the BCA are briefly summarized below. A detailed technical memorandum of the analysis is available to view at the grant application website: https://www.srfconsulting.com/us-212-build-grant/.

No Build Alternative

The No Build Alternative included leaving the US 212 Corridor from the Cities of Norwood Young America on the west to Carver on the east in its current geometric and operational condition; with no modifications or restrictions to current access. This includes the two-lane undivided sections of US 212 from Norwood Young America to Cologne, and from Cologne to Carver. Regional roadway improvements that are currently programmed were included as part of the regional transportation network.

Build Alternative

The project will replace the existing two-lane undivided sections with a four-lane divided roadway; thus, connecting the existing four-lane sections of US 212 west of Norwood Young America and east into the Twin Cities metro area. The spot mobility and safety improvements consisting of RCIs, grade separation, and snow fences were also assumed at the locations denoted previously in this document.

BCA Methodology

The primary cost and benefit components analyzed in the BCA included:

- Travel time/delay (vehicle hours traveled – VHT)
- Operating costs (vehicle miles traveled – VMT)
- Environmental and air quality impacts
- Crashes by severity
- Initial capital costs
- Remaining Capital Value: The remaining capital value

(value of improvement beyond the analysis period) was considered a benefit and was added to other user benefits.

- Maintenance and rehabilitation costs

Other analysis considerations included:

- It was assumed that right-of-way acquisition for the Build Alternative would take place in year 2021, and construction would be incurred during years 2022 to 2024. Therefore, year 2025 was assumed to be the first full year that benefits will be accrued.
- The present value of all benefits and costs was calculated using 2017 as the year of current dollars.
- A benefit-cost analysis period of 20 years was used to determine net project costs and benefits.

Project Costs

Year 2017 project cost for the BUILD Grant components of the overall project is expected to be about $111.8 million. The current 2017 project costs discounted at a rate of 7 percent are approximately $75.1 million.

BCA Results

The benefit-cost analysis provides an indication of the economic desirability of a scenario, but results must be weighed by decision-makers along with the assessment of other effects and impacts, such as providing access and connectivity to a very economically depressed region. Projects are considered cost-effective if the benefit-cost ratio is greater than 1.0. The larger the ratio number, the greater the benefits per unit cost. A tenth fatality occurred during the completion of this grant application. Results of the benefit-cost analysis are included in Table 3.

Table 3 Benefit Cost Analysis Summary

	7% Discount
Benefits	$164 million
Costs	$75 million
B/C Ratio	2.2
Net Present Value	$89 million

VII. SUPPORTING DOCUMENTS

Links to supporting documents are included throughout this narrative. All supporting documents and the INFRA grant application narrative are available to view at the following webpage: https://www.srfconsulting.com/us-212-build-grant/.