United States Highway 8 Reconstruction Project

Submitted by Chisago County, Minnesota

2021 Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Program

Project Name United States Highway 8 Reconstruction Project

Total Project Cost : $70.34M

2021 RAISE Funds Requested $25M

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Supporting Information can be found at:

https://www.srfconsulting.com/chisago-county-us-highway-8-raise

HIGHWAY 8
LET'S GET MOVING

Chisago County

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I. PROJECT DESCRIPTION

Chisago County, Minnesota is submitting the 2021 RAISE Transportation Discretionary Grant Program application to request $25 million in funds. The United States Highway 8 Reconstruction Project will improve safety and mobility along eight (8) miles of US Highway 8 (US 8) from Interstate 35 (I-35) in the west to Karmel Avenue in the east. Chisago County along with the Minnesota Department of Transportation (MnDOT) will partner with the United States Department of Transportation (USDOT) to improve highway safety, ensure environmental sustainability, leverage economic vitality, and build equitable and sustainable communities in the Twin Cities region. The Project's total future eligible project cost is $69.34 million and complies with the requirements of a rural project.

US 8 is identified as a vital interregional corridor on the National Highway System (NHS) that serves a variety of transportation needs for freight, commuters, vacationers, business patrons, and rural community members in Minnesota and western Wisconsin. The project generates economic benefits to the Twin Cities region and optimizes movement as part of the Rural Opportunities to Use Transportation for Economic Success (ROUTES) Initiative. In recent years, the highway has become increasingly strained due to high levels of daily commuters, large trucks hauling freight, and spikes in weekend recreation traffic. In 2017, the project corridor was identified near or at capacity while future 2040 no build forecasts show the entire project corridor at or exceeding capacity. Current annual average daily traffic (AADT) on US 8 ranges from 23,000 (west limits of the Project) to 16,900 (east limits of the Project) for 2020 and has already exceeded capacity for the entire project corridor.

Figure 1 illustrates the US 8 Reconstruction Project location hereafter known as the Project. The Project is in rural Minnesota north of the Minneapolis-St. Paul Metropolitan Area (30 minutes travel time) and immediately west of the Wisconsin border. The Project's westernmost section (1.5 miles) is in Washington County while the remaining 6.5 miles is within Chisago County. US 8 is primarily a rural undivided, two-lane roadway with a posted speed limit of 55 mph. The western one mile of the Project is a four-lane access-controlled, divided highway while the remaining seven miles is a two-lane highway with numerous access points. The Project benefits include:

- improving safety and mobility by adding roadway capacity and reducing congestion,
- promoting rural economic development and access to opportunities by reconstructing the state principal arterial from a two-lane undivided roadway to a four-lane divided highway,
- removing access points and consolidating access by constructing a local roadway network of frontage and backage roads,
- implementing intersection controls and limiting uncontrolled intersections/ access points,
- adding ITS and other technological upgrades,
- upgrading pedestrian curb ramps and cross walks,
- constructing a multi-use trail, and
- completing maintenance needs along the existing four-lane segment.

Sixty secondary roads and private driveways provide direct access to US 8. This leads to queuing of traffic on the narrow two-lane high-speed roadway. It also makes ingress/egress a challenge and safety concern for drivers who often compromise safety to make their maneuvers. Further, alternative parallel routes are not available to help alleviate existing and future congestion along the Project. As a result, the need for capacity improvement is critical at both the intersection and corridor level. The Project corridor experienced a total of 216 crashes between 2015 and 2019 including one fatal crash (front to front) at the intersection of US 8 and 276th Street. The proposed improvements due to the reconstruction of US 8 will develop and

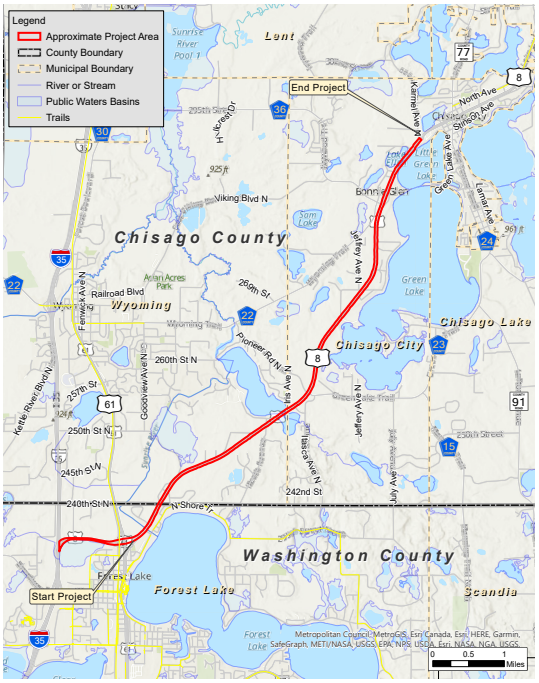


Figure 1 Project Location

construct long-term solutions that will improve the safety and congestion issues and provide better quality of life to local communities.

The Project is identified in the Chisago County 2013 Transportation Plan Update as a corridor with issues and opportunities, which includes roadway expansion, signalized intersections, and construction of multiuse trails. It is also identified as a corridor with the highest existing daily traffic in Chisago County – exceeding 23,000 vehicles per day in some segments. MnDOT has a long history with the Project area, having identified serious safety and capacity issues, as well as a lack of multimodal connectivity, along the length of the Project. MnDOT completed a transportation analysis and engaged the public to develop a Scoping Document in 2002 and completed the Highway 8 Corridor Study in 2008. The Project is included in MnDOT's 10-year Capital Highway Investment Plan (CHIP) with mill and overlay pavement improvements planned for 2025 and budget of $6.5 million.

Chisago County, in partnership with MnDOT, six surrounding communities, local chambers of commerce, freight-dependent businesses, and elected officials, is proud to submit this $25 million RAISE Grant fund request to partner with the USDOT to enhance the movement of traffic, improve highway safety, and strengthen rural access to economic opportunities in the Minneapolis-St. Paul/Wisconsin region as well as leverage economic development and tourism access for the local rural economy. Letters of support for the project can be found here.

Proposed Improvements

Chisago County identified the need for a long-term solution to improve safety and mobility along US Highway 8 project corridor in the 2013 Transportation Plan Update. The County assessed options for a new corridor design, which would address safety and mobility issues, while taking pedestrian and bicyclist needs into consideration. The Project **will improve safety, ensure a smoother ride, decrease congestion, consolidate access, improve trip time reliability, provide regional roadway system access for economic generators, reduce stormwater run-off, and enhance bicycle and pedestrian movement across the corridor.** Project improvements include:

- reconstructing seven miles of US 8 to a four-lane, divided roadway with a median and 8' shoulders to address roadway current capacity and congestion issues,
- rehabilitating one-mile of existing four-lane, divided roadway near I-35 to upgrade the deteriorating infrastructure,
- adding dedicated turn lanes, intersection improvements and controls to address safety issues due to uncontrolled intersections,
- adding a network of frontage and backage roads to close numerous existing access points (private driveways and other local roads) by consolidating access and reducing conflict in a high-speed corridor,
- constructing a 10 foot wide multiuse trail along the north side of US 8 to accommodate pedestrians, bicyclists, and individuals of all ages and abilities, and to tie into the existing network of Swedish Immigrant Regional Trail (SIRT) for improved regional connectivity,
- upgrading the pedestrian crosswalks and trail and intersection curb ramps to meet current Americans with Disability Act (ADA) and Minnesota Public Right-of-Way Guidelines (PROWAG) standards,
- installing undercrossing and fencing to preserve the existing wildlife ecosystem around the project, and
- installing stormwater infrastructure to expand runoff capacity.

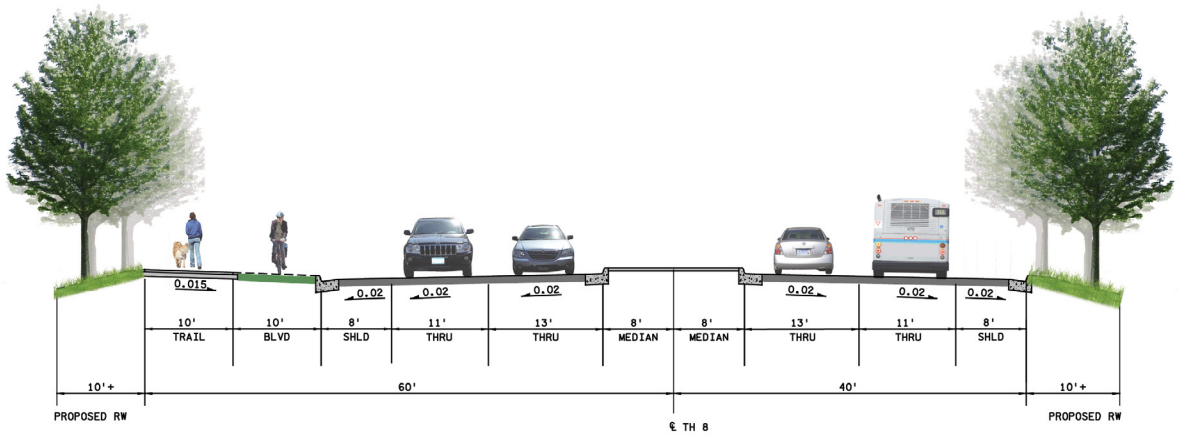


Figure 2 Project Typical Section

Figure 2 illustrates the typical section for the Project.

Full access intersection improvements are proposed at eight intersections (Greenway Avenue, Hale Avenue, Heath Avenue, Pioneer Road (CSAH 23), James Avenue, 276th Street, Viking Boulevard (CSAH 36), and Karmel Avenue). Figure 3 shows clear zone maintenance enhancements and other safety features that will be incorporated, as necessary. These features include design elements such as Reduced Conflict Intersections (RCIs) and roundabouts (RABs). US 8 is a designated house-moving route in Minnesota and carries oversized vehicles. The proposed RAB at Karmel Avenue is designed to accommodate the movement of oversized and overweight vehicles. Additionally, right-of-way acquisitions and environmental impacts will be addressed innovatively. Reconstruction of the corridor will avoid or minimize property and natural resource impacts.

Figure 3 Clear Zone Maintenance

Wildlife undercrossing and fencing will be developed as a part of the Project to support the Blanding's Turtle, a threatened species in Minnesota, and other amphibians within the existing ecosystem of adjacent lakes and wetlands. The undercrossing would be facilitated by oversized culverts which serve two needs – safe animal movement and extra capacity for flood events. This infrastructure has been successfully used in other projects statewide and drastically reduced preventable animal deaths and improved motorist safety. Concurrently, water quality is an important consideration to ensure the expanded roadway does not negatively impact nearby water bodies. The Project will include thorough analysis and design considerations to detain and filter stormwater runoff.

Project History

Since the last 20 years, MnDOT and Chisago County began evaluating methods to improve the capacity and safety of US 8 between Forest Lake and Taylors Falls. In 2002, MnDOT worked with communities surrounding the US 8 corridor to identify the capacity and safety issues and developed the Highway 8 Corridor Study Scoping Document. The transportation analysis and community involvement resulted in identifying major issues along the Project segment, which led to the Highway 8 Corridor Study in 2008. The study considered a range of roadway alternatives to address the growing capacity, access, and safety problems and provided a long-term vision of a four-lane, divided highway between I-35 and Chisago City. More recently, local partners including businesses, elected officials, and other interested stakeholders have publicly supported the expansion and safety improvements to US 8 as it will enhance freight movement and support the local economy.

The 2008 Study was completed in 2013 through 4 main steps: Project Initiation, Evaluation of Alternatives, Recommendation of Alternative to Advance, and Preparation of an Environmental Assessment Worksheet (EAW). The Evaluation of Alternatives step was accomplished through a two-tier screening processes to assess five alternatives. The "Fatal Flaw" Evaluation and the Preliminary Summary of Potential Impact was developed as a result. The EAW was finalized in May 2013 and the preferred alternative was identified to help guide future development. Unfortunately, no improvements were built following the Study as a result of funding limitations, though it continued to receive support from local, county, and state agencies.

Ongoing analysis, environmental documentation, preliminary design, and public outreach is in progress despite continued funding limitations. A community-driven approach to the US 8 improvement has produced several successful public engagement events including four pop-events and three public open houses (2 in-person and 1 virtual) from 2019 to 2021. A report was completed in the Fall of 2019 for Chisago County documenting existing and 2040 no-build traffic conditions. The study informed the project need and documented ongoing issues related to safety and congestion, both during the weekday peak periods as well as peak seasonal traffic. The study found that the corridor is at or over-capacity under existing and 2040 no-build scenarios, two intersections are at the statewide critical crash rate threshold, and significant queuing occurs at the key intersections.

An Environmental Assessment (EA) is currently underway, with a report documenting the Purpose and Need produced in June 2020. EA approval is anticipated in Fall of 2021 with a Finding of No Significant Impact (FONSI) decision in early 2022.

Preliminary design has also progressed with refined concepts completed concurrently. Additional intersection details have further developed. These include signal design at several intersections and a roundabout design at Karmel Avenue. Drainage design has also substantially progressed with the inclusion of seven additional drainage basins along the project corridor. The trail connections have been expanded to provide better access and connections to the Regional Trail System. Geotechnical design is currently under exploration and evaluation stage. Figure 4 shows a segment of the preliminary design with the expanded roadway, full access intersection, and reconstructed local roadway network to accommodate closed public and private access points. The project layout can be accessed at this link.

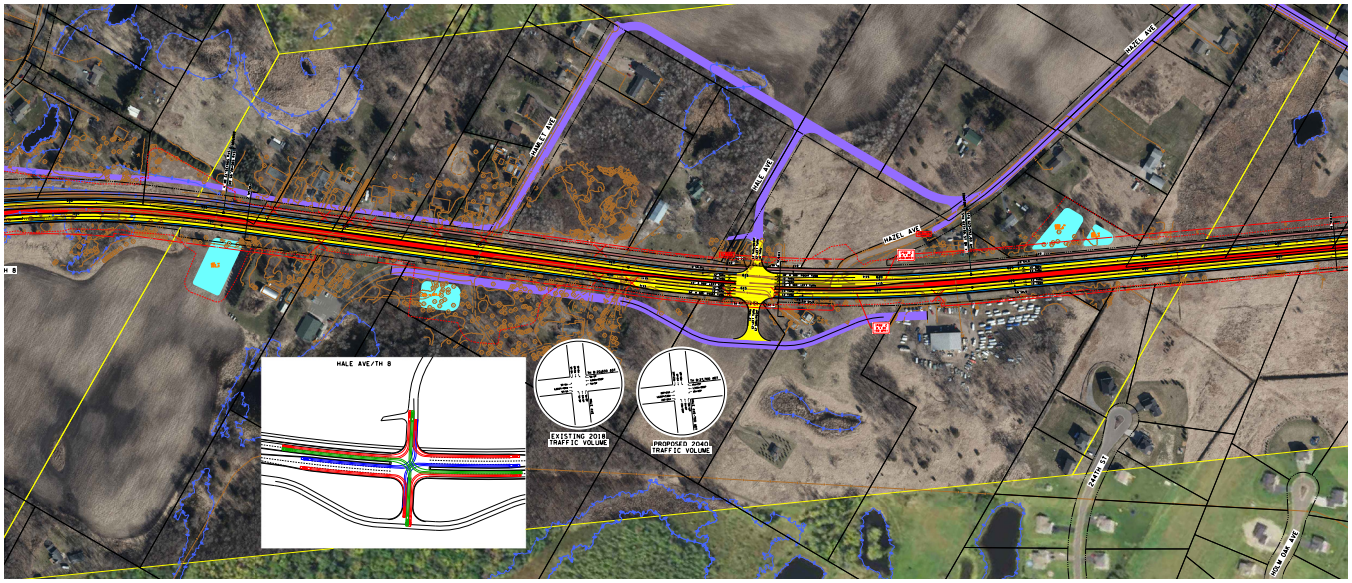


Figure 4 US 8 Expansion and Improvements

II. PROJECT LOCATION

US 8 runs 280 miles along a rural corridor from the Upper Peninsula of Michigan, across northern Wisconsin, and terminating at I-35 in Forest Lake, Minnesota. The Project limits extend eight miles through the communities of Wyoming and Chisago City from I-35 and terminates just west of and prior to the central business district of Chisago City (Figure 5). The Project is located primarily within Chisago County, but ties into the existing four-lane roadway at its western terminus in Washington County. The western terminus of the Project is located within Census Tract 27163070103 which is considered an eligible Low-Income Community (LIC) based upon the New Market Tax Credit Program. US 8 is an important regional transportation system for east-west travel between the Twin Cities and the northern regions of Wisconsin. In addition to project area communities, US 8 also provides access to other rural Minnesotan communities including Lindstrom, Center City, Shafer, and Taylors Falls. Key community cultural components include lake access, historic town centers, small-town culture, and local history. As a part of the National Highway System (NHS), the main function as a non-freeway principal arterial roadway, is to accommodate the movements of through traffic along the corridor.

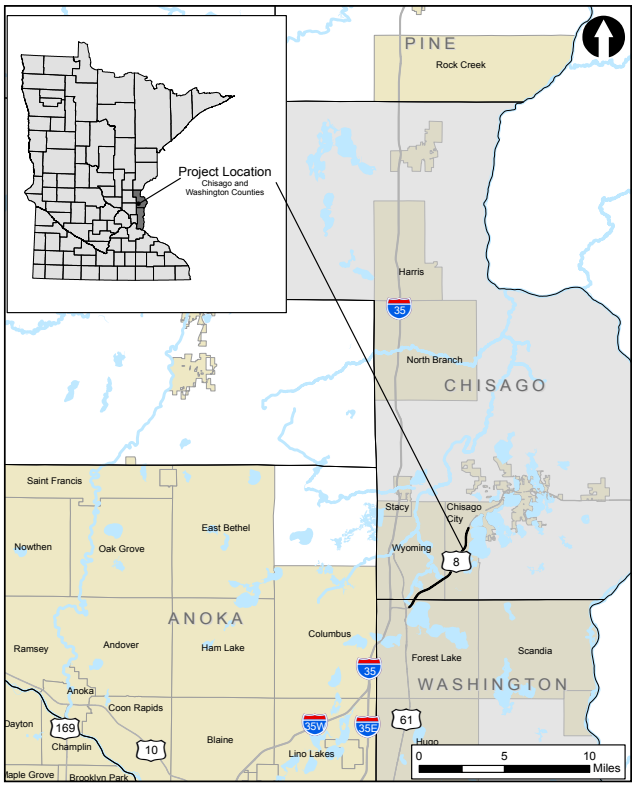


Figure 5 Project Location

III. GRANT FUNDS, SOURCES AND USES OF PROJECT FUNDS

Project Costs

Total Project Cost: $70.34 million

RAISE Grant Request Amount: $25 million (36 percent of future eligible project cost)

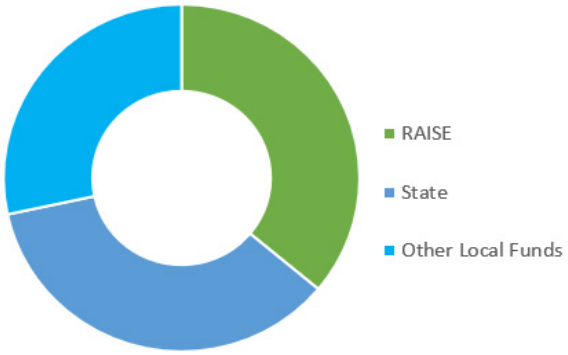


Figure 6 Project Funding Sources

Availability and commitment of funding sources: This funding request is a critically important piece of the total project package. Chisago County is committed to working closely with local partners including the State Legislature, MnDOT, and local communities for the remaining local share. To-date, $1 million from the Minnesota State Legislature has been invested in project development including environmental assessment and project design to advance the US 8 Reconstruction Project. As this phase is completed, the County will continue to work closely with MnDOT to secure additional funding commitment. MnDOT strongly supports the advancement of this project and has budgeted $10.19 million via their Capital Highway Investment Plan (CHIP) in 2025 and Trunk Highway Bonds from 2020 Legislative session, which will be transferred to the Project upon award of this grant. Additional contribution from Corridors of Commerce and the State Legislature will be confirmed upon notification of award. Chisago County continues to work very closely with state officials and the Minnesota Governor's office to ensure the uncommitted local match is earmarked for the Project. Table 1 presents the project budget and a detailed construction cost estimate is available via the link.

Table 1 RAISE Grant Project Budget

	Project Element	Project Funding								Total Cost Estimate
		Federal		Non-Federal						
		RAISE		MnDOT		Legislature		Other Local Funds		
		Dollars	Project Percentage	Dollars	Project Percentage	Dollars	Project Percentage	Dollars	Project Percentage	
Previously Incurred Expense	Environmental assessment / Prelim Design					$1,000,000				$1,000,000
	Total Incurred Expenses	**$0**	**0%**	**$0**	**0%**	**$1,000,000**	**100%**	**$0**	**0%**	**$1,000,000**
Future Eligible Cost	Final Design					$1,907,000				$1,907,000
	Construction Cost	$24,222,051		$10,000,000						$34,222,051
	Miscellaneous Cost (A)	$777,949				$5,040,051				$5,818,000
	Right-of-Way Acquisition					$7,000,000				$7,000,000
	Frontage/Backage Roads									
	- City of Wyoming							$7,220,000		$7,220,000
	- Chisago City							$8,415,000		$8,415,000
	Contingencies	$0		$0		$0		$4,004,000		$4,004,000
	Utility Agreements	$0		$0		$724,159		$25,841		$750,000
	Total Future Costs	**$25,000,000**	**36%**	**$10,000,000**	**14%**	**$14,671,210**	**21%**	**$19,664,841**	**28%**	**69,336,051**
	RAISE Participation Maximum (80/20)									
		RAISE Request	$25,000,000	36%						
		Non-Federal	$44,336,051	64%						
	Total Future Eligible Project Costs	69,336,051								
										Total Project Costs
										$70,336,051
(A)	Miscellaneous cost includes mobilization, temporary pavement & drainage, construction traffic control, landspacing, and non quantified minor items.									

Non-Federal Funding Source

County Funding

Chisago County has served as the champion of the Project for nearly two decades and is committed to ensuring that all uncommitted local funds are identified and assigned to the Project. The County adopted a wheelage tax in 2013 that charges an annual $10 per vehicle registration fee as well as a 0.5 percent sales tax for transportation projects in 2016. Both funding sources were originally estimated to provide approximately $2.1 million annually; however, current revenues are approximately $3.6 million annually. These are non-federal revenue dedicated toward transportation maintenance and improvements within the County.

State Funding

MnDOT has committed $6 million in non-federal funding to support the Project which is identified in their 10-year CHIP. MnDOT has programmed that money in 2025 for improvements and preservation (pavement rehabilitation) throughout the corridor. Since the roadway is a US Highway, future ongoing maintenance and operations of the new facility will be managed by MnDOT. Section IV, Criterion #5 provides additional details about MnDOT's operation and maintenance project commitment.

$10.19 million/ 15% of Project Costs

MnDOT has committed $4.19 million in Trunk Highway bond funds through 2020 Legislative session to support the Project. The Minnesota State Legislature has also provided $11 million in General Obligation bond funding and $8 million in General Funds toward the project to continue planning and design to ensure the Project is ready for federal funding and subsequent construction. This funding commitment illustrates the statewide significance of the Project.

MN State Legislature

$19 million/ 27% of Project Costs

RAISE Funding Need

Chisago County, in partnership with MnDOT, has secured $29.19 million in non-federal funds for the Project to-date. If RAISE funding is not awarded, the County will not be able to proceed with construction as planned in 2024 and the Project will continue to be delayed. The delay will be significant as MnDOT would proceed with a significant investment for pavement preservation of the Project area in 2025 using funds that would otherwise be committed as a match for this grant application. The transportation, climate, and equity challenges being addressed by this Project would be delayed for the lifecycle of the overlay, up to 2040, and the original 1981 roadway would be left in place. The geometry of the roadway would be unchanged which will lead to the projected increase in the crash cost, frequency, and inevitable fatalities. It would also lead to additional costs to local businesses and would further result in a loss economic competitiveness for rural development opportunities. The existing and future mobility challenges along the Project would persist. Securing federal funding for the Project would ensure that the County is able to take full advantage of leveraging additional local funds.

IV. SELECTION CRITERIA

Primary Selection Criteria

Safety

The safety of all users using the transportation system is critically important towards achieving the goals of MnDOT's Towards Zero Deaths program. On September 30, 2018, a violent crash occurred at US 8 and East Viking Boulevard where two vehicles were totaled, and injuries reported. Figure 7 provided by the Washington County Sheriff depicts the condition of both vehicles at the scene and the devastating aftermath.

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 at intersections, or 38 percent of the state total. Of these, over two-thirds (763) occurred on two-lane roads with speed limits of 45 mph or greater. The Project is a two-lane highway with a speed limit of 55 mph and has experienced an average of 43 crashes per year between 2015 to 2019, as well as a total of 13 crashes involving freight vehicles and 1 pedestrian crash at James Avenue intersection, during that time.

High Crash Corridor

The Project area experienced multiple crashes including fatalities and major incapacitating injuries. In the past ten years (2008-2018) five fatal crashes were reported. From 2015 to 2019, nearly 216 crashes occurred of which approximately five percent involved a vehicle moving freight, such as a semi-truck. An average of 16 crashes per year occurred along the Project's segments and 27 crashes per year occurred within the Project's intersections. Figures 8 and 9 show the segment and Figures 10 and 11 show intersection crashes by year and type.

CRASHES

216 crashes between 2015 and2019

Figure 7 US 8 and E. Viking Blvd Crash – Washington County Sheriff

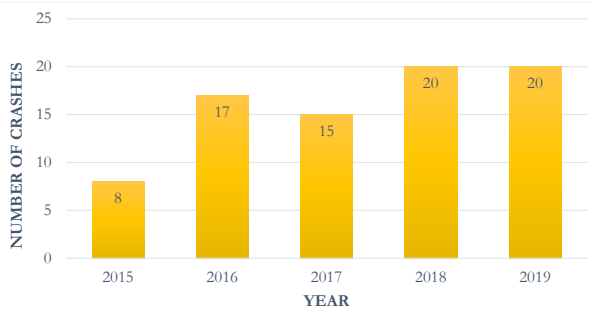


Figure 8 Segment Crashes per Year

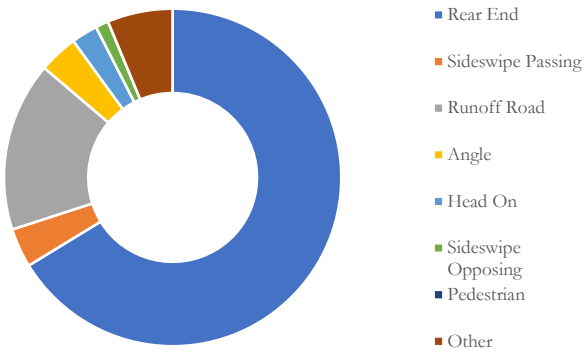


Figure 9 Segment Crashes by Type

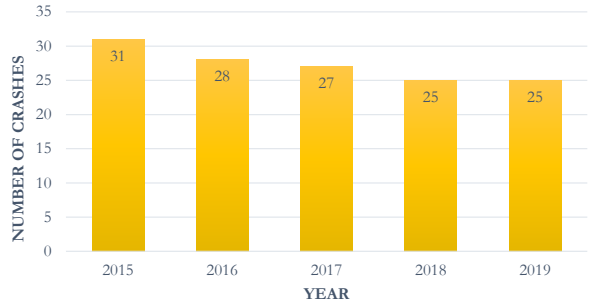


Figure 10 Intersection Crashes per Year

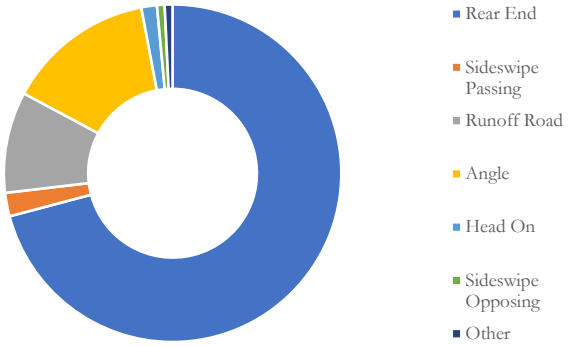


Figure 11 Intersection Crashes by Type

Three intersections along the Project, Greenway Avenue, Pioneer Road, and Viking Boulevard, were identified as meeting and exceeding the critical crash rate. A table of this analysis can be viewed by the link. Critical indexes above 1.00 indicate there is likely an existing safety concern at the intersection.

The existing geometry of the Project contributes to the safety issues which include:

Transition from two to four lanes

- Number of access points (60) of which half are private commercial and residential driveways
- Lack of turn lanes
- Traffic turning onto US 8 with limited gaps
- Lack of passing lanes
- Lack of intersection capacity

> *On a daily basis I see drivers taking risks, such as illegally passing on the shoulder, which often results in a serious crash.*
> – Sheriff Brandon Thyen, Chisago County Sheriff's Office

With volumes along the Project expected to increase by six percent of the current traffic volumes over the next 20 years, traffic operations will become more difficult to manage, further increasing the number of potential crashes. A map of all crashes and their severity can be found in Figure 12. The lack of turning and passing lanes in the existing corridor leads to unsafe driving conditions that are both illegal and dangerous. In absence of a left turn lane, vehicles must come to a complete stop in the middle of a high-speed corridor to make a left turn. This is a major safety concern which is being addressed by the proposed improvements in this Project. In absence of passing lanes, vehicles behind the stopped vehicle tend to pass using shoulders which results in otherwise avoidable crashes. The Project incorporates design elements such as construction of dedicated turn lanes, passing lanes, and consolidation of access points that will enhance the safety of the corridor. The Project will result in a crash cost saving of $31.8 million over the next 20 years as demonstrated in the BCA.

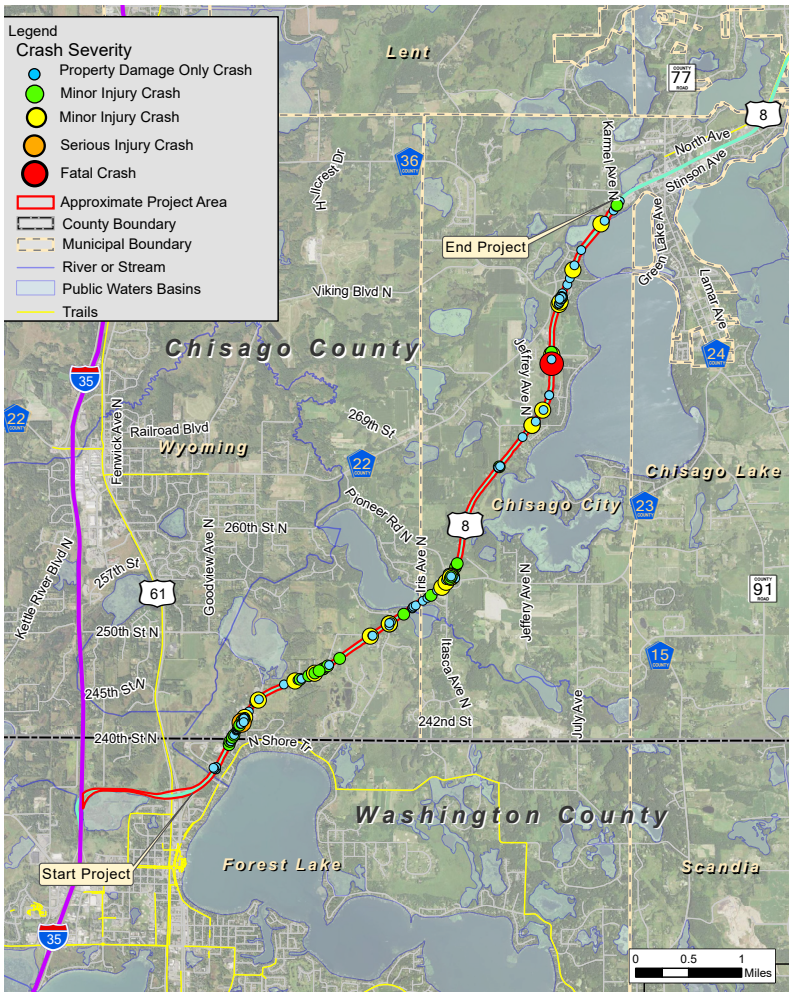


Figure 12 Crashes along US 8 (2015-2019)

Figure 13 Private Access along the Project

Reducing Access Points within the Project Corridor

The public and private intersections and access points along the Project corridor pose safety and mobility issues. Currently, 60 public and private access points exist along the Project corridor leading to as many as 11 accesses per mile in some segments. This far exceeds MnDOT's access management guidance for a principal arterial roadway which states a principal arterial should have full-movement and secondary intersections spaced at one mile and 1/2 mile, respectively. An inventory map of all existing accesses along the Project corridor is linked here and a table of summary of access spacing is here. Most of these access points lack any traffic control and therefore, results in congestion due to limited gaps in traffic along US 8. The total number of access points will be reduced on the corridor by adding consolidated and/or off-street access points thereby improving the intersection safety and efficiency of thru traffic movement. The Project will close and redirect 40 residential direct accesses and 13 roadway access points.

Bridging the Gap in Multimodal Connectivity

The Project bridges a significant gap in multimodal connectivity by constructing a multiuse trail that will enhance the regional trail network in Chisago County and beyond. Currently there are no existing separate pedestrian and bicycle facilities along the US 8 corridor. A 20-mile, multiuse trail known as the Swedish Immigrant Regional Trail (SIRT) is under development in the County. The SIRT is partially built east of the Project, and when completed, will connect 20 miles across Chisago County from existing regional trails at I-35 to the Saint Croix National Scenic Riverway in Taylors Falls. The new trail will support pedestrian and bicycle mobility for commuting and recreating between several cities and parks allowing access to diverse natural and cultural communities. Moreover, the trail will directly support the local rural economy

by allowing visitors access to businesses, lakes, and recreation areas by foot or bicycle.

Environmental Sustainability

United States Highway 8 Reconstruction Project incorporates Environmental Sustainability in both Project Planning Efforts and Project Elements.

The Project will avoid adverse environmental impacts to air and water quality, wetlands, and threatened and protected species in the region.

Climate Action Plan

In 2007, Minnesota passed the bi-partisan Next Generation Energy Act (NGEA) that established goals for the state to reduce greenhouse gas (GHG) emissions by 15% below 2005 levels by 2015, 30% by 2025, and 80% 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, including fleet fuel use and electricity. In 2020, MnDOT began quantifying GHG emissions as part of the environmental review process. Chisago County identifies Sustainability as one of the goals in the agency's 2016-2026 Comprehensive Plan. The County aims to continue economic growth while protecting natural resource systems and providing a high quality of life. The Project is currently going through an extensive NEPA Environmental Review that will be completed by the end of the year.

Environmental Justice Analysis

As part of the Project Development 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 2014-2018 American Community Survey 5-Year Estimates, field review, input from local agency partners, and extensive public outreach to identify locations of low-income and/or minority residents. The analysis found that the communities within the project area have a low-income population present adjacent to the south side of US 8 on the far west end of the project.

The EJ analysis found that the project would not result in disproportionately high and adverse human health or environmental effects on the low-income population. The proposed project improvements adjacent to block groups with the low-income population is limited to pavement preservation within the existing right of way. It is not anticipated that the project would require right of way acquisition within block groups where the low-income population is present. The project will improve pavement condition, vehicular safety and mobility, and expand sidewalk/trail facilities.

Avoiding Adverse Environmental Impacts

The Project is near numerous water resources including jurisdictional ditches, the Sunrise River, Forest Lake, Comfort Lake, Lake Ellen, and Green Lake. One of the top priorities of the Project is to balance the environmental impacts with roadway enhancements and selecting a design alternative that reflects the same. An air quality analysis was conducted as part of the environmental assessment (EA) and it was found that the Project would not result in adverse air quality impacts.

The Project will minimize the stormwater runoff and its impacts on existing systems by performing a hydraulic analysis. In some areas, smaller ditches or curb and gutter sections will be used to reduce impacts to wetlands and lakes. In addition, the maintenance associated with stormwater management system requires a significant amount of resources. The project design goal is to minimize future maintenance, thereby, reducing energy use and enhancing financial sustainability of the transportation infrastructure through improved stormwater Best Management Practices (BMPs).

The Project will result in wetland impacts. As the design progresses, opportunities to minimize impacts to wetland and DNR Public Waters are being considered. Impacts to adjacent public waters have largely been minimized to the edge of the public waters. Time of year restrictions

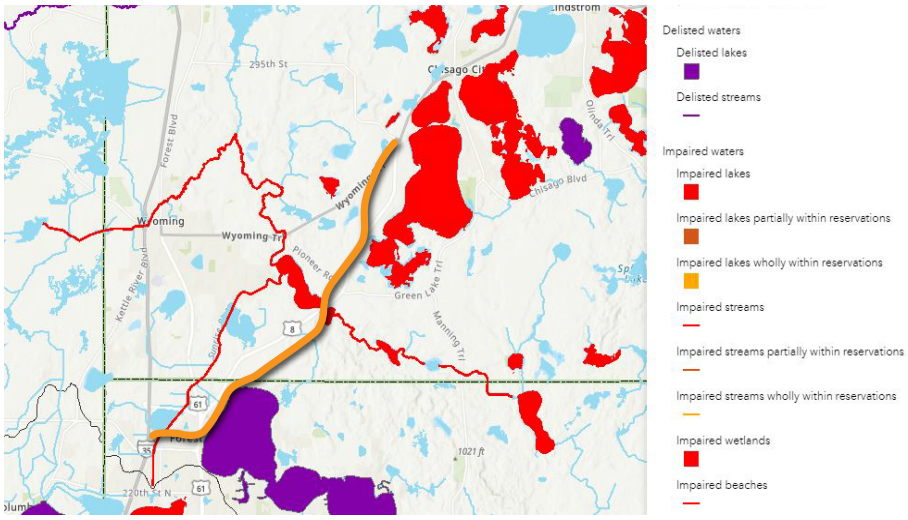


Figure 14 Impaired Waters

will be implemented during fish migration and spawning. Erosion control measures will be implemented during construction to minimize temporary impacts.

Avoidance and minimization measures will be implemented to avoid adverse impacts to threatened and protected species, including the northern long-eared bat (federally listed) and Blanding's turtle (state listed). The Department of Natural Resources (DNR) has reviewed the Project and recommended conservation measures. Conservations measures implemented for the northern long-eared bat include tree clearing time of year restrictions (limited to the winter season). The Project will incorporate sloped curb sections to minimize impacts to Blanding's turtles (allow turtles to cross the road). Other measures, such as culvert sizing minimum requirements, will be incorporated into the design where appropriate to accommodate safe passage for small animal species under the road. Culvert-related conservation measures will be determined as the design advances.

Reducing GHG Emissions

A greenhouse gas (GHG) analysis is currently underway as part of the EA. The analysis calculates operational emissions and construction emissions. Capacity issues along US 8 cause significant mobility and safety issues for travelers. The existing traffic volume currently causes operational concerns, especially at Greenway Road, Pioneer Road, Viking Blvd and 270th Street intersections as seen via the links for the AM and PM peak hours. Up to 23,000 vehicles per day currently travel through Project segments, of which 2,300 are commercial vehicles. According to a recent traffic study, the Project area is currently near or at capacity while the 2040 no build forecasts are at, or exceeding capacity as seen in Table 2.

Table 2 Project Existing and Future Volume-to-Capacity

TH 8 Location	Facility Type	Capacity	Existing 2017 ADT	Forecasted 2040 ADT	1.3% Growth Rate Method	2017 Volume-to-Capacity	2040 Volume-to-Capacity
West of TH 61 (Forest Lake)	4-lane divided	32,000	21,900	29,500	1.30%	0.68	0.92
East of TH 61 (Forest Lake)	2-lane undivided rural	15,000	20,600	27,700	1.30%	1.37	1.85
West of CSAH 36 (Chisago City)	2-lane undivided rural	15,000	14,500	19,500	1.30%	0.97	1.30
East of CSAH 36 (Chisago City)	2-lane undivided rural	15,000	17,700	23,800	1.30%	1.18	1.59

Volume/Capacity Ratio 0.85-1.00 Near Congested 1.00+ Congested

An initial analysis found that the operational improvements along the Project will reduce vehicle hours traveled (VHT) by passenger cars as well as freight traffic in the project area by 0.3 percent leading to less idling and fewer GHG emissions per vehicle trip. Overall CO2 emissions will decrease by 0.3 percent in the Build scenario versus the No Build scenario in 2040. Providing safe and operationally efficient access to employment centers, commercial hubs, and recreation areas not only improves the economic competitiveness of the area, but also benefits the air quality for communities along the Project. Adding capacity to the roadway will reduces congestion and delay consequently reducing

the burden associated with traveling on the corridor for commuting, recreation, and passing through purposes. As a result of the Project, users will benefit $15.7 million from regional travel time cost savings over the next 20 years, which equals to, approximately, a 1.7 million VHT savings as shown in the BCA. Moreover, the project will consider financial and environmental sustainability through pavement preservation techniques wherever possible.

Enhancing the Multimodal Network

In addition to roadway improvements, the trail network will be expanded to connect to SIRT and will encourage use of active transportation through walking and biking. Construction of the 10 feet wide multiuse trail along the north side of US 8 will enhance the multimodal network for pedestrians, bicyclists, and individuals of all ages and abilities. An increase in these modes would reduce the share of travel devoted to automobiles decreasing emissions and vehicle miles traveled (VMT). Studies have shown that there is a reduction of 5 to 15 percent of VMT when pedestrian or bicycle facilities are offered in lieu of automobile transportation.

Improving Resiliency and Disaster Preparedness

The Project will expand roadway capacity on US 8 which will improve mobility in the event of a disaster. The Project is adjacent to floodplain areas. Stormwater BMPs will be employed to improve drainage. Implementing BMPs temporarily detains a large portion of the runoff volume and releases it at a slow rate, which limits flooding. Floodplain impacts will also be mitigated as needed. The proposed improvements will prepare US 8 to construct and maintain a resilient infrastructure and efficiently manage traffic movement in case of an emergency.

Quality of Life

Increasing Transportation Choices and Equity for Individuals

Over the years, the travel demand on US 8 has grown considerably. Chisago County is viewed by many as a reasonable commuting distance to the Twin Cities, particularly due to connections to Interstate 35 and the growth of commercial development in the northern Twin Cities. In general, most of the existing population in the county resides in either small cities or unincorporated areas, which has transformed to traditionally agricultural and resort-based communities into a commuter shed for the Twin Cities Metropolitan area. The Project will improve mobility and safety along the US 8 Corridor by reducing congestion, improving pedestrian and bicycle circulation, and developing access for multimodal transit network in the region.

Currently, there are no existing separate pedestrian and bicycle facilities along the US 8 corridor. Pedestrians and bicyclists use the 10 feet wide shoulders next to the high-volume, high-speed two-lane rural section roadway. Moreover, there are right-turn lanes at many of the at grade intersections along US 8. There are no paved shoulders adjacent to the right-turn lanes and pedestrians and bicyclists share the right-turn lanes with vehicular traffic. There were 125 reported intersection crashes in a five-year period from 2015 to 2019 for nine public street intersections along US 8 in the project corridor. Of these, five crashes involved freight. One of the crashes resulted in severe injuries.

The construction of a multiuse trail with ADA upgrades will enhance the regional trail network of SIRT in Chisago County and beyond. SIRT will run east to west across Chisago County to the Wisconsin border. Portions of the trail exist today east of Chisago City. The trail provides important regional recreational connections and a safe transportation alternative for pedestrians and bicyclists. It will connect to additional regional trails including the Sunrise Prairie Regional Trail and the Hardrock Creek Trail. This Project will construct a multiuse trail on the north side of US 8 along an off-street facility, which will serve to develop the east-west connection. The new trail will enhance the multimodal mobility for commuting and recreating between several cities and parks in Minnesota and Wisconsin allowing access to diverse natural and cultural communities.

Chisago County is served by the Arrowhead Transit service, which provides residents with curb-to-curb service. The rural transit operates Monday thru Friday from 6:00 a.m. to 5:30 p.m. by reservation along US 8. The Project will improve efficiency of Arrowhead Transit to Running Aces Park-n-Ride by reducing congestion by 3% and reducing delay by approximately 60 seconds. The construction of the new multiuse trail under this Project will enhance the access to Arrowhead Transit service for pedestrians, bicyclists, and users of all ages and abilities through the transit stops and stations.

Improving Connectivity through Regional and Rural Mobility

US 8 serves a rich diversity of roadway users that includes commuters, vacationers, business patrons, and local community members. According to MnDOT's 2018 Streetlight Insight transportation study along the Project, 63 percent of personal vehicles passing through the corridor travel west to further destinations south towards the Twin Cities or further to the west, while 36 percent of commuters travel through the Project corridor traveling north and further east to neighboring cities or the Wisconsin border. Personal trips with destinations along the Project corridor range between 37 to 64 percent of the total trips, depending on their origin (Figure 15). Of the total daily traffic on the Project corridor, 10 percent are freight.

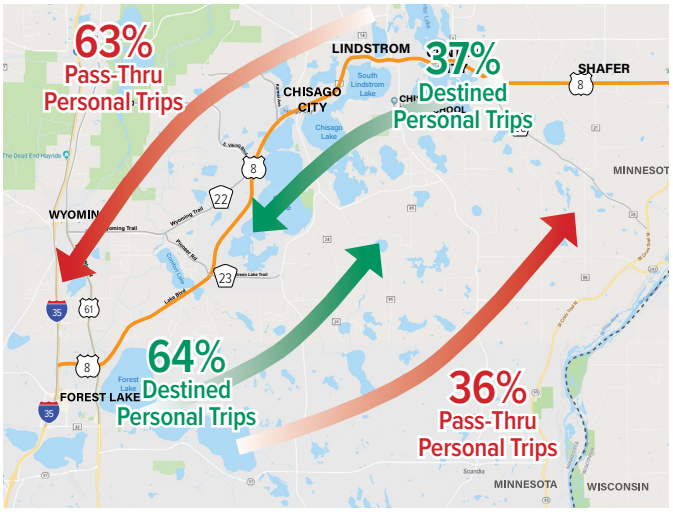
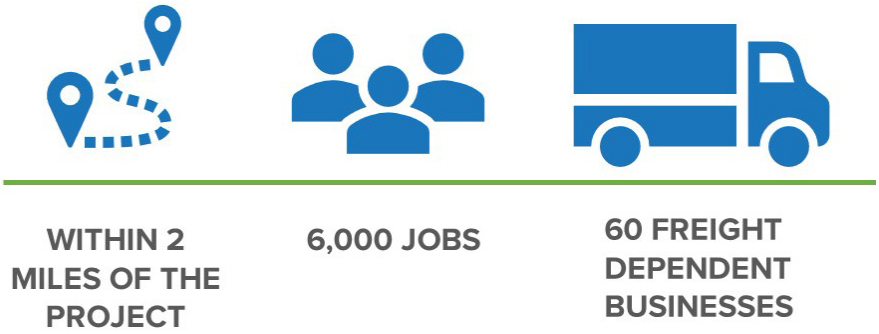


Figure 15 Personal Trips - Origin and Destinations

Homeownership is relatively high in the communities within the Project area at approximately 75 percent. The average commute time to workplaces is nearly half an hour. This data suggests that community members are invested long-term in their communities and likely use US 8 on a regular basis. Further, the type and density of adjacent development has generated a high level of short distance local trips, a demand for a high level of access, and high volumes of turning traffic. These characteristics combined with the large volume of through traffic have resulted in concerns for the quality of traffic operations, slower travel speeds for through vehicles traveling along the Corridor, and long delays for local traffic on the minor street approaches to US 8. Improving the congestion and delay along the Project will improve connectivity to jobs, health care, and other critical destinations for all users.

Economic Competitiveness

Significant Regional and National Transportation Network



The Project decreases transportation cost and improves access for all users including freight and commuters. US 8 is an important commuter and freight corridor, facilitating connections between the Minneapolis-St. Paul region via I-35, and rural communities in Minnesota and northern Wisconsin. This region provides connections to vital destinations which leads to the creation of an over-demand on the roadways. This project would improve the roadway stress, alleviate congestion, and help in transportation needs for commuters and freight operation.

MnDOT designated US 8 as a part of the Minnesota Twin Trailer Network which is an approved statewide network for twin trailer combinations in addition to the National Truck Network. The designation implies that the highway can provide adequate geometrics for commercial truck drivers of such vehicle combinations. The proposed improvements

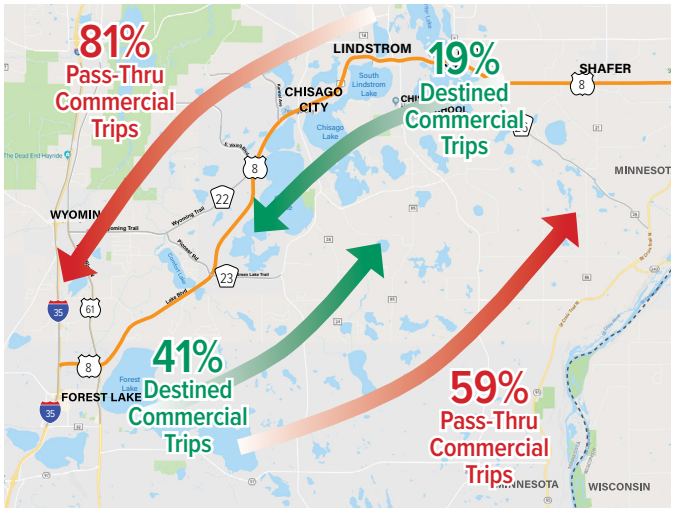


Figure 16 Commercial Trips - Origin and Destinations

will allow US 8 to better conform to this designation by improving intersection and roadway geometrics. The designation illustrates MnDOT's focus on US 8 as a key freight connector for the State of Minnesota as well as the key connection it provides to rural northern Wisconsin. The Project also connects freight vehicles to I-35 which is a key corridor to the Port of Duluth, Minneapolis-St. Paul, and other regional destinations.

As seen in MnDOT's 2018 Streetlight Insight Transportation study data (Figure 16), about 19 percent of all westbound and 41 percent of all eastbound commercial trips made along the Project corridor are locally destined, which emphasizes the local commercial importance of the corridor. The remaining 81 percent of commercial trips originating east of the Project corridor and 59 percent of commercial trips originating west of the Project corridor pass through, which signify the regional and inter-state commercial significance. The Project will improve traveling efficiency for these commercial vehicles accessing local businesses and regional destinations in Minnesota and Wisconsin.

Capacity issues exist along US 8 with current traffic volumes which hinders the mobility of freight and other motorists using the corridor. Based on 2019 MnDOT traffic data, existing annual average daily traffic (AADT) on US 8 ranges from 14,500 to 23,000 vehicles, and up to 2,300 commercial vehicles in certain segments. In portions of the Project, heavy commercial vehicles represent up to 14 percent of total daily traffic. Projected traffic volumes will increase to 19,500 to 29,500 vehicles per day in 20 years. Based on the standard maximum daily capacity threshold of 15,000 vehicles per day for a two-lane, undivided rural highway, existing volumes already meet or exceed capacity of the roadway and projected volumes will nearly double the roadway's capacity. As the capacity is exceeded, congestion will slowdown freight movement and negatively impact local businesses while also causing significant safety concerns. Limited gaps in traffic inherently force drivers to consider dangerous maneuvers at the existing uncontrolled intersections and numerous other access points, all of which would be addressed by the Project.

Figure 17 illustrates the important of US 8 as a major freight connection by displaying existing daily heavy commercial vehicle volumes and associated freight generating businesses. Supporting freight movement along a critical rural transportation corridor, as the Project does, also achieves the objectives found in the US DOT's recently created ROUTES initiative.

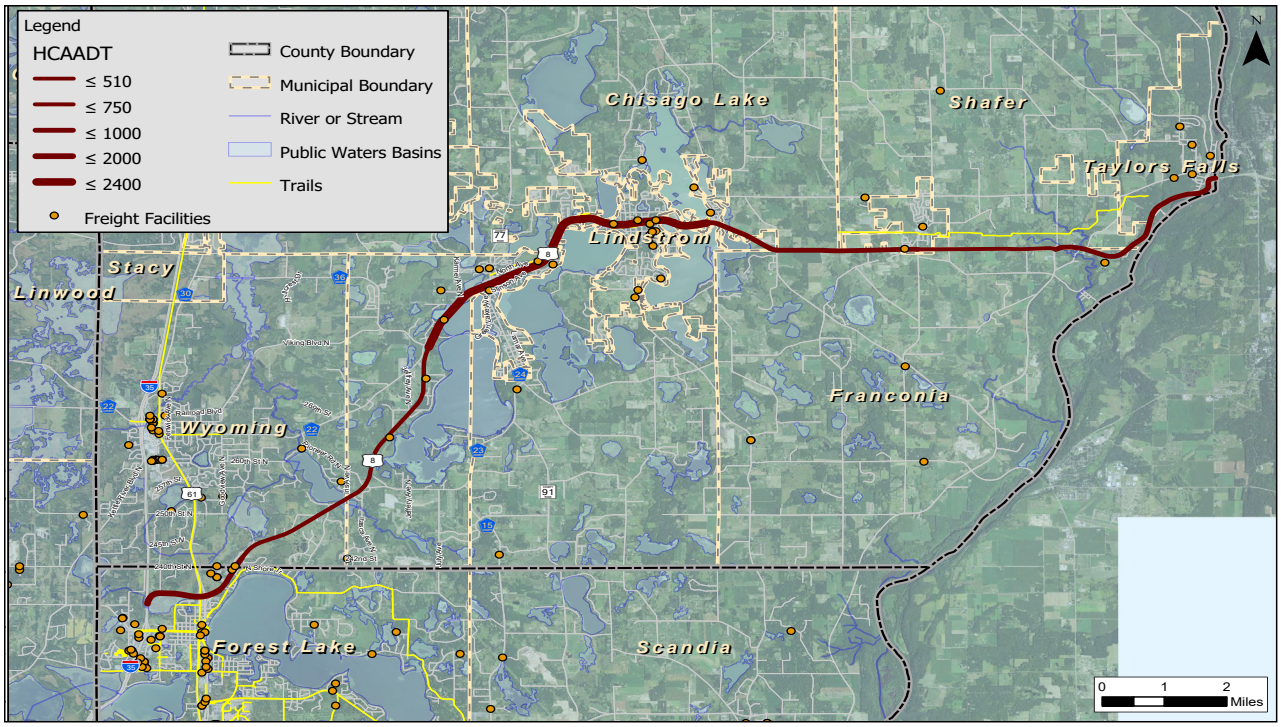


Figure 17 US 8 Freight Volume and Generators

Increased Access to Employment and Economic Development of Rural Economies

US 8 is an important regional corridor that serves a variety of transportation needs between I-35 and areas of rural Minnesota and western Wisconsin. It is a critical link between rural community members along US 8 and job opportunities in the Minneapolis-St. Paul region. As a Principal Arterial roadway through a rural area, US 8 provides a safe and reliable travel option in absence of similar alternative routes available nearby.

It is important that we prioritize safety and mobility along the Highway 8 interregional corridor. In addition to improving safety, this project is an opportunity to analyze ways that Highway 8 can continue to promote regional commerce and economic growth into the future..

– Congressman Pete Stauber (MN-08)

Employment Barriers

75% of residents near US 8 commute more than 10 miles to work

The Project is the primary transportation route for goods and services for area businesses, as well as accessing jobs and recreation. US 8 serves a large volume of daily commuters and weekend recreational traffic (during summer months). A study of the U.S. Census' Longitudinal Economic-Household Dynamics (2017) was conducted within two-miles of the Project and illustrated in Figure 18. It showed that the area is evenly split between people commuting to external jobs and those commuting to businesses along the Project, approximately 5,200 and 5,700, respectively. Of those commuting from the Project area, nearly 75 percent travel more than 10 miles to access their place of employment. More so, 35 percent travel over 25 miles to the south and west which illustrates the importance of job opportunities in Minneapolis-St. Paul for rural community members and their ability to access them safely and easily via the Project.

Locally, nearly 6,000 jobs exist within two-miles of the Project of which over 3,500 of those are distributed across 60 freight-dependent businesses that include manufacturing, warehousing, construction, and retail-trade, among others. Polaris Industries, Inc., a leading U.S. manufacturer of powersports equipment, operates a 300,000 square-foot research and development facility (Figure 19) less than two miles from the Project which has undergone several expansions and employs hundreds. Additionally, US 8 connects to regions in western Wisconsin that support frac sand mining operations with trucks hauling to nearby railroad facilities in the area.

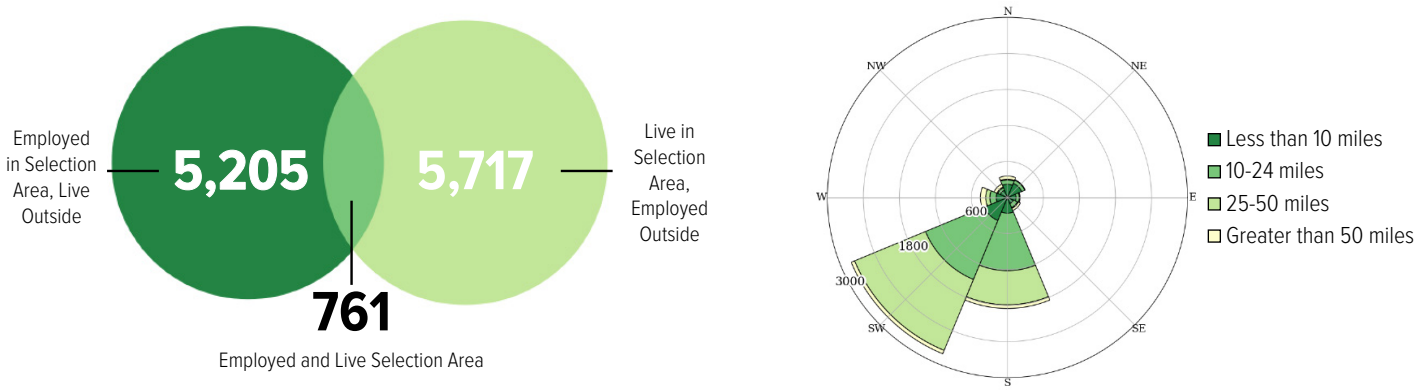


Figure 18 Commuter Job Flows and Distance/Direction from the Project (2017)

Tourism is also critically important to the area, especially during the summer months when travelers primarily from the Twin Cities use US 8 to access nearby lakes, historic attractions, trails, and parks, including the Saint Croix National Scenic Riverway. Figure 20 shows parks, schools, and lake access points for boating, all of which draw both local and regional visitors. Data from 2015 illustrates the region-wide economic impact of the Saint Croix National Scenic Riverway located less than 10 miles east of the Project, with nearly 700,000 annual visitors and an economic benefit of $38 million which supports over 400 local jobs. The main visitor center near Taylors Falls and broader park is primarily accessed via US 8. Recreational traffic was studied in 2019 along US 8 during Fridays and Sundays, with averages analyzed from April, June, and October 2017. The review indicated that peak travel flows extend the peak period for longer than off-peak recreational time periods, sometimes doubling it.

Figure 19 Polaris Main R&D Facility – Wyoming, MN

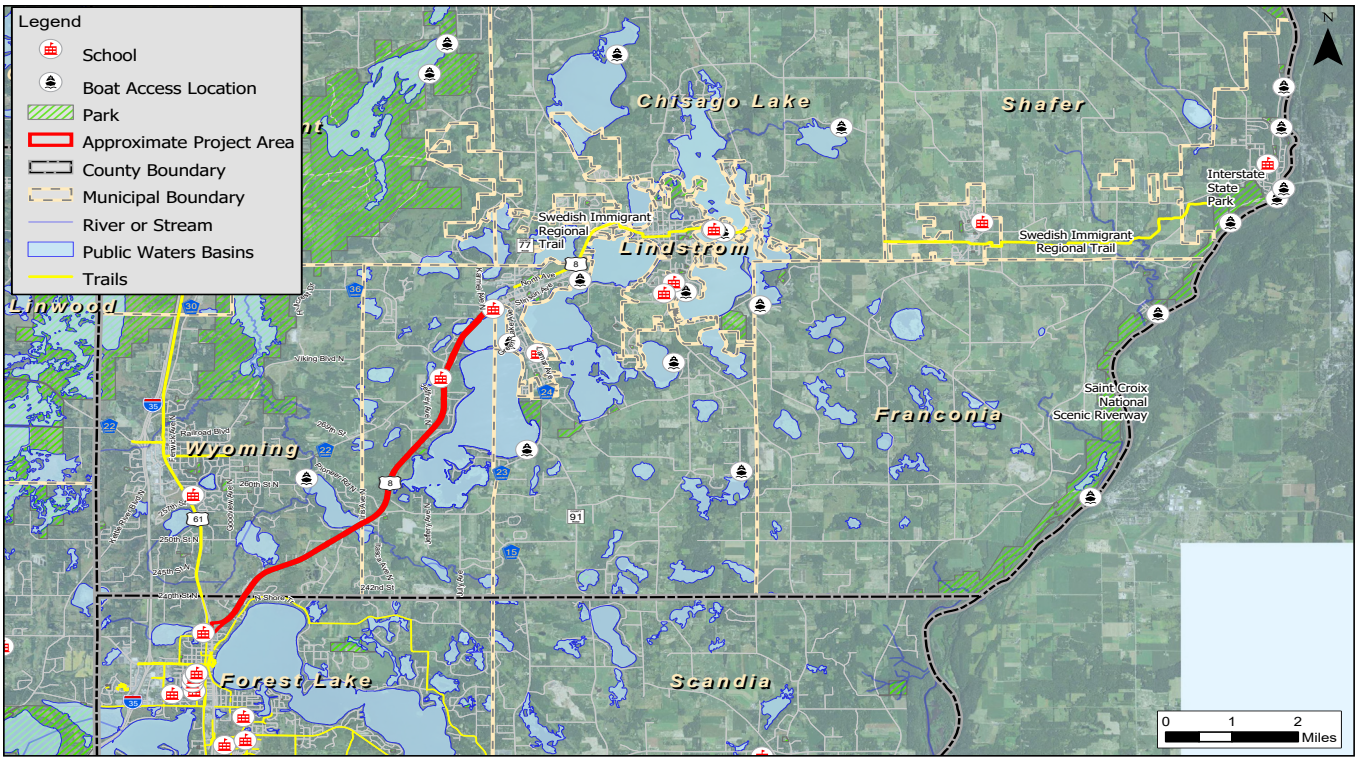


Figure 20 Project Destinations

State of Good Repair

US Highway 8 was originally constructed in the 1950's followed by a reconstruction in 1981. Multiple preventative maintenance techniques have been used including bituminous mill & overlay, crack repair, shoulder reconstruction, resurfacing, joint/edgeline sealing to maintain the pavement. A mill and overlay upgrade is planned for the Project segment in 2025.

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. MnDOT uses Ride Quality Index (RQI for measuring the pavement roughness along the national highway system (NHS). The 2017 Pavement Condition Annual Report found that US 8 is currently within the RQI "Good" along the Project corridor. However, it is projected to fall within the RQI "Fair" range (2.1 to 3.0) by 2026 (projected RQI = 2.9) and will deteriorate to "Poor" condition by 2038 (projected RQI = 2.0) considering the planned mill and overlay in 2025. If left unimproved, the condition of US 8 along the Project corridor will decrease to "Poor" by 2033 threatening future transportation network efficiency, safety, mobility, and in turn economic growth and competitiveness of the region.

Table 3 MnDOT Pavement Condition Ratings

Condition Categories (Metric)	RQL (# of yrs from current yr to ry RQI=2.5; if RQL≤2.5 then RSL=0)	Condition Categories (Metric)	RQI	PQI	SR
High	12+ years	Very Good	4.1 - 5.0	3.7 - 4.5	3.3 - 4.0
		Good	3.1 - 4.0	2.8 - 3.6	2.5 - 3.2
Moderate	4 to 11 years	Fair	2.1 - 3.0	1.9 - 2.7	1.7 - 2.4
Poor	0 to 3 years	Poor	1.1 - 2.0	1.0 - 1.8	0.9 - 1.6
		Very Poor	0.1 - 1.0	0.1 - 0.9	0.1 - 0.8

US 8 Operation and Maintenance Plan

MnDOT will operate and maintain US 8 as part of its 12,000-mile state highway system. Long-term maintenance operations will be performed by MnDOT based upon its typical maintenance schedule for bituminous roadways. Table 4 presents key maintenance improvements that would be required during the lifecycle of the Project based on guidance from MnDOT's Metro District Materials and Pavements Department.

Table 4 Operation and Maintenance Schedule

Activity	Year	Cost (per lane-mile)	Total Cost
Annual Routine Maintenance	Annual	$8,100	$314,280
Thin (2-inch) bituminous mill and overlay	20	$250,000	$9,700,000
Medium (4-inch) bituminous mill and overlay	35	$350,000	$13,580,000

Operation and Maintenance Funding

Financial trends indicate that operation and maintenance revenues have slowed compared to previous decades. Consequently, 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 operation and maintenance (O&M) costs on the state highway system are funded by taxes and fees from four main revenue sources:

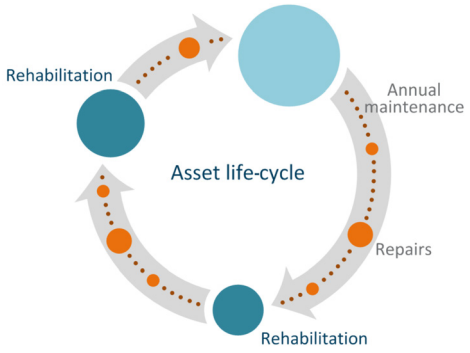
- State gas tax (motor fuel excise tax)
- State tab fees (motor vehicle registration tax)

- State motor vehicle sales tax
- Federal highway funds (highway user tax distributions, flexible highway account, and County State Aid Highway Fund).

MnDOT Transportation Asset Management Plan (TAMP)

MnDOT has a demonstrated history of fully funding maintenance improvements and has established the agency 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). 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.



Graphic Source: MnDOT TAMP

Secondary Selection Criteria

Partnership

The Project is led by Chisago County with support and partnership from FHWA, MnDOT, Washington County, and more (see Figure 21). The partners also include three cities – Chisago City, Wyoming, and Forest Lake – that are involved in the planning and public engagement of the Project. The corridor serves a broader group of jurisdictions beyond these three cities as well which include Lindstrom, Stacy, and Center City, among others.

Figure 21 Project Partners

Agency Partners

- Chisago County
- Washington County
- MnDOT
- FHWA
- Police/Fire/EMT
- City of Forest Lake
- City of Wyoming
- Chisago City
- Lindstrom, Center City, Shafer
- Forest Lake/ Wyoming Chamber
- Chisago Lakes Chamber
- ABC Community
- County Sherriff
- Chisago Lake Township
- Chisago Lakes School District
- Minnesota State Highway Patrol & Commercial Vehicle Enforcement

Directly Impacted

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

Indirectly Impacted

- Area residents (Chisago City, Wyoming, Forest Lake, Lindstrom, Center City, Stacy)
- Vacationers/Recreators (Lake home residents, lake recreation, snowmobiling, golf, Interstate Park)
- Corridor Commuters
- Trucking and Freight Industry
- Institutions (Schools, Medical facilities, Religious congregations)

The County implemented a robust Public Involvement Plan, which may be found in link. The Plan includes three major strategies that will be deployed throughout the progress of the Project: Consistent Communication, Tailored Involvement, and Coordination with Project Management and Advisory Groups. Consistent communication is achieved through various online and print resources such as local newsletters and city websites. Additional public and agency involvement include the use of online and in-person engagement tools. An interactive mapping tool is available at the Chisago County Project Website.

A US 8 Task Force along with advisory bodies comprised of staff from various government agencies including the Project Management Team, Technical Advisory Committee, Local Advisory Team, and Permitting Agencies gather to communicate critical milestones and share key knowledge. Pop up Engagement and Community Open Houses (virtual and in-person) were held from 2019 to 2021 to connect and engage with users of the roadway system. To-date four pop-up events and three public open houses have been held to gather feedback and integrate stakeholder input into the Project's design. This includes safety issues and key access points for proposed traffic controls, intersection design, and access locations. The virtual open house conducted this year is available to view via this link. Letters of support from elected officials, public agencies, and private businesses can be found here.

Innovation

Innovative Technology

Reduced Conflict Intersection (RCI)

RCIs, also referred to as restricted crossing U-turn (RCUT) intersections, have been identified through the FHWA's Every Day Counts Initiative as an innovative design with proven safety benefits. FHWA studies have determined that RCI intersections reduce crash occurrences by 28 to 44 percent. Furthermore, these intersections offer substantial cost savings and reduced construction time benefits compared to other types. The Project team evaluated use of RCIs in the preliminary design and will finalize the locations as the design progresses. The use of RCIs will address safety issues, capture cost savings compared to alternative intersection designs, and streamline the construction timeframe.

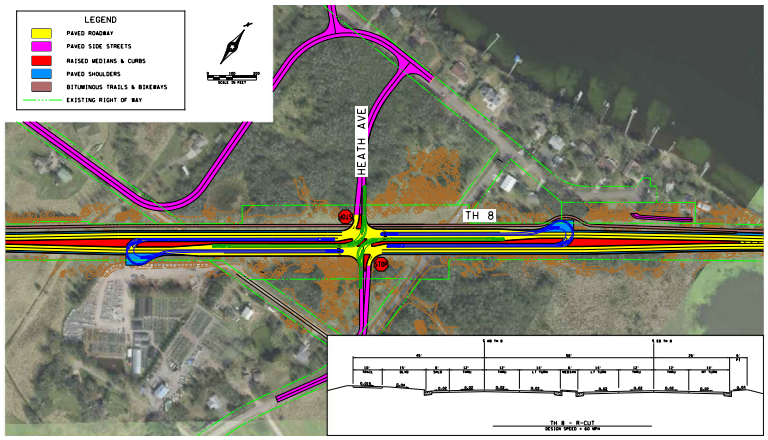


Figure 22 RCI alternative for intersections

Broadband Deployment

The Project leverages the existing effort by MnDOT to deploy fiber along US 8. Conduits will be used for Broadband internet access and/or Intelligent Transportation Systems (ITS). Broadband can vastly improve the speed and reliability of internet service, which could benefit future businesses, employees, and residents who work and live near the Project. 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 as well as connected and automated vehicles (CAV). Intelligent signs may provide congestion, detour, and crash information to motorists to make an informed travel decision. By providing information to 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.

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. Federal internet service standards have increased, and many rural areas have not been able to maintain quality internet access. Chisago County, in collaboration with MnDOT's ongoing effort, can resolve this issue by ensuring fiber optic internet access along the Project.

Intelligent Transportation Systems (ITS)

The Project final design will refine the Intelligent Transportation Systems (ITS) elements being incorporated. 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 the Project, the County can provide traveler

information such as travel times, alternate routes, and incident notifications. These enhance driver awareness and allow informed decision-making 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 to road users. By providing information to 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 (especially frequent in Minnesota during the winter months).

Innovative Project Delivery

Civil Information Management Software

During public engagement, 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. The transparency will enable owners, consultants, contractors, and stakeholders to easily work together. 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 which enables effective conflict detection, rapid design review, and validation. These efforts will reduce the project schedule and overall costs.

Intersection Control Evaluation (ICE)

Each intersection along the Project will undergo an Intersection Control Evaluation (ICE). The ICE will include a safety review to identify the average and critical crash rates, any geometric deficiencies, causes, and trends. Alternative operations and intersection controls will be considered. Safety strategies will be deployed as a result of the ICE include roundabouts, RCIs, reducing intersection skews, rumble or mumbles strips, and clear zone maintenance enhancements.

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. Chisago County has utilized the best value procurement process for several transportation projects and will consider applying this procurement process to the Project.

Environmental Review and Permitting (Agency Liaisons)

The Project is currently completing an EA and it is anticipated that the review will be approved in late 2021 and issued FONSI in early 2022. 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 liaisons with the US Army Corps of Engineers (USACE) to directly manage the Section 404 permitting process for state highway projects.

Value Engineering Study

A Value Engineering (VE) study was commissioned by MnDOT for the US 8 reconstruction project in Fall 2020. The scope of the assignment was to perform a value engineering study following the SAVE International model. The alternatives' potential cost savings, performance, and stakeholder acceptance were compared with functions to assure that value was preserved or enhanced. The recommendations of the VE study were categorized under the following FHWA Functional Benefits:

- Safety: Recommendations that mitigate or reduce hazards on the facility.
- Operations: Recommendations that improve real-time service and/or local, corridor, or regional levels of service of the facility.

- Environment: Recommendations that successfully avoid or mitigate impacts to natural and or cultural resources.
- Construction: Recommendations that improve work zone conditions, or expedite the project delivery.
- Right of Way: Recommendations that affect property ownerships or easements.

The project team "accepted" many of the initial recommendations, while others were "accepted for further review".

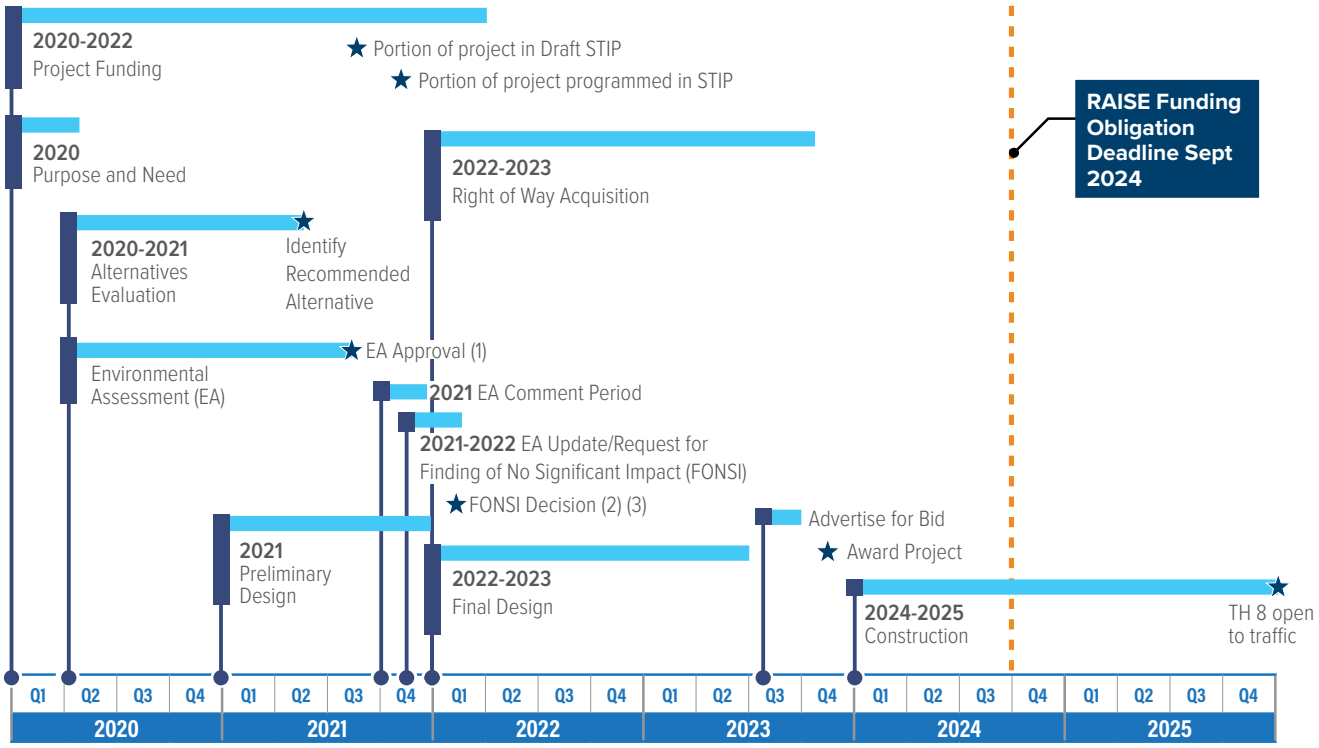
Innovative Financing

Chisago County implemented both a 0.5 percent sales tax and $10 per vehicle annual registration fee to create new, non-federal transportation revenue for county transportation maintenance and improvement projects. Both funds produce a total of $3.7 million annually and could enable the County to provide additional funding should additional local match funds be required following an award of the grant.

V. ENVIRONMENTAL RISK REVIEW

Project Schedule

The County's proposed project schedule will meet the RAISE Grant requirements. Figure 23 illustrates the project schedule. Construction is anticipated to begin January 2024 and will be completed by December 2025.



Notes:

(1) FHWA cannot sign an Environmental Assessment (EA) until a portion of the project (e.g., first anticipated construction phase) is in a draft STIP.

(2) Assumed outcome of NEPA process.

(3) FHWA cannot issue a Finding of No Significant Impact (FONSI) decision until a portion of the project is programmed in the STIP. FONSI decision could be made earlier depending on timing of STIP programming.

(4) Assumes 2 years for construction.

Figure 23 Proposed Project Schedule

Environmental Permits and Review

The Project is in the NEPA stage of the project development process. An Environmental Assessment Worksheet (EAW) was completed in May 2013 in accordance with Minnesota Rules Chapter 4410. The project is being reviewed as a Class III action under NEPA (Environmental Assessment, EA). The EA process was initiated in Spring 2020 and approval is anticipated in Fall 2021 with a Finding of No Significant Impact (FONSI) decision anticipated for early 2022. FHWA's fiscal constraint policy prohibits approval of NEPA documents prior to a project's listing in the State Transportation Improvement Program (STIP). The County has met with FHWA Minnesota Division Office on several occasions, and FHWA staff have agreed to participate in the current NEPA and will be engaged throughout the Project.

Due to the size of the Project and number of aquatic resources nearby, it is expected that more than five acres of wetlands will be impacted. Therefore, a Section 404 Individual Permit (IP) authorization will be required from the USACE prior to construction. The County is taking proactive measures to coordinate with wetland regulatory agencies, including USACE, DNR, Board of Water and Soil Resources (BWSR), and Wetland Conservation Act (WCA) local government units (LGUs). A 401-water quality certification from the Minnesota Pollution Control Agency (MPCA) will also be required. The County will resolve and mitigate any issues early in project development, avoiding costly delays in permitting. All wetlands will be field delineated within the construction limits as per USACE and WCA requirements. Wetland boundaries will be reviewed with the Technical Evaluation Panel (TEP).

Further, MPCA's NPDES permit will be required due to the amount of disturbance created by the Project. The new impervious surfaces created by the Project will require a combination of pond and ditch improvements for stormwater management. Stormwater management requires a significant amount of agency resources. Thus, early coordination will occur with the Watershed District, MnDOT, and Cities to verify that standards and stormwater management requirements are understood and mutually accepted.

A Phase I archaeology survey was previously completed for the Project in 2013 with the EAW. Additional archaeological surveys will be completed for Project areas as part of the current NEPA review. MnDOT Cultural Resources Unit (CRU) will prepare the Section 106 finding for the Project and coordinate with SHPO as necessary. The County will prepare an updated Phase I Environmental Site Assessment (ESA) as required by MPCA for liability assurances in conjunction with right of way acquisition.

State and Local Approvals

The Project is consistent with the State, regional, and local plans. Although the Project is not currently a part of the State Transportation Investment Program (STIP), the Project will be included prior to obligation. All required State and Local approvals will be obtained prior to construction:

- Municipal Consent from the Cities of Wyoming and Chisago
- Watershed District Permit from the Comfort Lake Forest Lake Watershed District
- Local Governmental Unit from the Wetland Conservation Act (Outside MnDOT right-or-way)

Assessment of Project Risks and Mitigation Strategies

As with most construction projects, negative externalities could occur; however, proactive mitigation measures and early collaboration with all project partners will be implemented to minimize impacts. The County will evaluate all risks during Final Design including environmental uncertainties, needed legislative approvals, engineering and design risks, alternative financial structures needed to advance the Project, and adequacy of financial sources. A Transportation Management Plan will be prepared for the Project and will organize strategies for managing project work-zone impacts and include construction traffic operation controls and public information components.

Right-of-way acquisition is a risk to cost and schedule. The estimate includes significant contingency for acquisition costs. The County will exercise eminent domain if necessary, to gain access to the property to construct the Project within the required schedule constraints.

The adequacy of local funding obligations will be determined by State and local agencies and is a continued conversation between the County and those entities. MnDOT has already committed funding, however, additional resources are needed for construction. The County

will consider its funding resources through existing special taxes and fees, as well as continue to work very closely with MnDOT, the State Legislature and Governor's office, and other local partners to ensure that funding is in place following a grant award.

VI. BENEFIT COST ANALYSIS

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 allow benefits to 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 result of the BCA is briefly summarized below. A detailed technical memorandum of the analysis and the active BCA workbook is attached and available to view at the grant application website: https://www.srfconsulting.com/chisago-county-us-highway-8-raise/

No Build Alternative

The No Build Alternative included leaving the US 8 project area in its current geometric and operational condition, with no modifications or restrictions to current access. This includes the two-lane undivided with a posted speed limit of 55 miles per hour with 60 public and private accesses. It was assumed that the existing roadway would have a mill and overlay completed in year 2025.

Build Alternative

The proposed project replaces the existing two-lane undivided section with a four-lane divided roadway, eight-foot shoulders and median. Over 40 private and public accesses will be closed and redirected to frontage or backage roads, when possible, to reduce vehicle conflict points and to improve traffic safety along the Project Corridor. Also, full access intersection improvement improvements are proposed for the following eight intersections to include designated turn lanes, reduction of skews.

- Greenway Avenue
- Heath Avenue
- James Avenue
- Viking Boulevard (CSAH 36)
- Hamlet Avenue
- Pioneer Road (CSAH 23)
- 276th Street
- Karmel Avenue

BCA Methodology

The primary cost and benefit components analyzed in the BCA included the typical methodology considerations found at this link.

Other analysis considerations included:

- This analysis assumed that the Build Alternative would be constructed over a two-year period, starting in year 2024, with completion in year 2025. Therefore, year 2026 was assumed to be the first full year that benefits will be accrued from the Project. The analysis focused on the estimated weekday benefits for the twenty-year period from 2026 to 2045.
- The present value of all benefits and costs was calculated using 2019 dollars.
- A BCA period of 20 years was used to determine net project costs and benefits.

Project Costs

Year 2019 project cost for the RAISE Grant components of the overall project is expected to be about $69.4 million. The current 2019 project costs discounted at a rate of 7 percent is approximately $47.7 million.

BCA Results

The BCA 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. 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. Results of the benefit-cost analysis are included in Table 5 below.

Table 5 Benefit Cost Analysis Summary

	7% Discount
Benefits (2019)	$109.8 million
Costs (2019)	$47.7 million
B/C Ratio	2.30

VII. SUPPORTING DOCUMENTS

Links to supporting documents are included throughout this narrative. All supporting documents and the RAISE grant application narrative are available to view at the following webpage: https://www.srfconsulting.com/chisago-county-us-highway-8-raise/

Appendix A. Benefit Cost Analysis Memorandum

Appendix B: Benefit Cost Analysis Workbook