ENVIRONMENTAL ASSESSMENT WORKSHEET

US 52 Southbound Reconstruction
SP 2506-83

Goodhue County, Minnesota

Prepared for:
Minnesota Department of Transportation (MnDOT) | District 6
Rochester, Minnesota

August 2020

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Environmental Assessment Worksheet

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board website http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm.

The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.

Cumulative potential effects can either be addressed under each applicable EAW Item, or can be addressed collectively under EAW Item 19.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an Environmental Impact Statement (EIS).

1.0 PROJECT TITLE

US 52 Southbound Reconstruction (SP 2506-83)

2.0 PROPOSER

Proposer:	Minnesota Department of Transportation, District 6
Contact Person:	Mark Schoenfelder
Title:	Transportation District Engineer
Address:	2900 NW 48th Street
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3.0 RESPONSIBLE GOVERNMENTAL UNIT

RGU:	Minnesota Department of Transportation, District 6
Contact Person:	Jai Kalsy
Title:	Principal Project Manager
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4.0 REASON FOR EAW PREPARATION

Required:	Discretionary:
☐ EIS Scoping	☐ Citizen petition
■ Mandatory EAW	☐ RGU discretion
	☐ Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s): Rule 4410.4300, subpart 22 (A) Highway Project.

5.0 PROJECT LOCATION

County: Goodhue County

City/Township: Cannon Falls Township, Leon Township, Wanamingo Township, Minneota Township, Zumbrota

PLS Location (¼, ¼, Section, Township, Range):

Table 1: PLS Locations

Township	Range	Section(s)
109N	15W	6, 7
109N	16W	1
110N	15W	31
110N	16W	6-8, 15-17, 22, 23, 26, 36
110N	17W	1
111N	17W	5, 6, 8, 16, 17, 21, 22, 26, 27, 35, 36
112N	17W	30, 31

Watershed (81 major watershed scale): Cannon River (39), Zumbro River (41)
GPS Coordinates: Not applicable
Tax Parcel Number: Not applicable

At a minimum attach each of the following to the EAW:

- County map showing the general location of the project (see **Figure 1, Appendix A**)
- US Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable) (see **Figure 2, Appendix A**)
- Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan. (see **Figure 3, Appendix A**)

6.0 PROJECT DESCRIPTION

a. Provide the brief project summary to be published in the EQB Monitor, (approx 50 words).

The proposed project includes: reconstructing southbound US 52 pavement from Cannon Falls to Zumbrota; resurfacing 2.9 miles of northbound US 52 pavement north of County 7; constructing an interchange for TH 57/County 8 Boulevard over US 52 in Hader; extending County 14 Boulevard to 57th Avenue; constructing frontage roads at Wagner Hill Way and CSAH 50; replacing bridges carrying US 52 over Butler Creek, two unnamed creeks, North Fork Zumbro River, and TH 60E, and TH 60W over US 52; and access management.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.

Project needs identified in **Section 6.d** below will be addressed with the proposed project. Refer to **Figure 3, Appendix A** for a depiction of the proposed construction.

Roadway Construction The proposed project involves reconstructing approximately 13.5 miles of pavement for southbound US 52 from 0.5 miles south of County 24, located just to the south of Cannon Falls, to 3.8 miles north of the north junction of TH 60, near Zumbrota. Work associated with the reconstruction, which is proposed to meet pavement condition needs, includes: removing inplace travel lane and shoulder pavement and aggregate base materials; correcting any soft soils encountered; and placing an aggregate base and new concrete pavement surfacing. The horizontal alignment of the roadway will closely match the existing alignment. The profile grade of the reconstructed roadway will closely match the existing profile, except at locations where vertical curves will be modified to meet current speeds or at median locations that required modifications to transition grades between the southbound and northbound roadways. Segments where vertical curve corrections are anticipated at the following approximate locations, which can be found in **Figure 3, Appendix A**:

- Sta. 231 to Sta. 244 (page 2)
- Sta. 371 to Sta. 379 (page 6)
- Sta. 413 to Sta. 433 (pages 6-7)
- Sta. 517 to Sta. 560 (pages 9-10)
- Sta. 579 to Sta. 656 (pages 11-13)
- Sta. 846 to Sta. 856 (page 18).

Due to proposed access modifications described in the following section, three new segments of roadways are proposed. The first segment is a 1.1 mile extension of County 14 Boulevard on the west side of US 52 from 327th Street Way to its southerly intersection with 57th Avenue. The connected segments of CSAH 14 Boulevard will serve as a collector roadway. The second segment involves constructing a 1.0 mile long frontage road on the east side of US 52 from Wagner Hill Way to County 1 Boulevard, with a gap between 360th Street Way and Maple Way. The final segment is a 0.7 mile long extension of 415th Street and 135th Avenue to County Road 50. These segments are depicted in **Figure 3, Appendix A, pages 1-2, 4-6, and 16-17** respectively.

Work on the CSAH 14 Boulevard extension includes: removing the pavement and aggregate

base materials south of 327th Street Way; removing trees within the construction limits of the new section of roadway; excavating inadequate sub-base materials; placing embankment material, an aggregate base, and bituminous pavement; and realigning two driveways.

Work on the Wagner Hill Way/County 1 Boulevard and County Road 50 frontage roads is comprised of: removing trees within the construction limits of the new section of roadway; excavation and/or placing embankment materials; removing inadequate sub-base materials; and constructing an aggregate base and surface.

In addition, approximately 2.9 miles of pavement for northbound US 52 from 1.1 miles north of N Junction of TH 60 to 1.3 miles north of County 7 will be resurfaced. Work associated with the resurfacing includes placing a bituminous overlay on the existing concrete pavement.

Prior to the commencement of all roadway work, erosion and sediment control BMPs will be established. Upon completion, the disturbed areas will be revegetated.

Access Modifications Access to southbound and northbound US 52 will be modified in the form of: closure of certain driveways and field access points; closure or redirection of median openings; eliminating or reducing access movements; and constructing an interchange at TH 57/County 8 Boulevard. The access modifications are proposed to address vehicle mobility needs and safety concerns. In addition, the modifications are in conformance with the *MnDOT Access Management Manual* and supports the MnDOT long-term plan to convert US 52 to a full access-controlled freeway facility, both of which are outlined in **Section 6.d**. Methodologies and strategies utilized in assessing access treatments is provided in **Appendix B**.

Work associated with the access modifications includes: establishing erosion and sediment control BMPs, removal of pavement, grading, and placing base and pavement materials as required within the median and shoulders for the connection/disconnection of the access, and revegetating disturbed areas.

The proposed grade separation of US 52 from TH 57/County 8 Boulevard is comprised of: establishing erosion and sediment control BMPs, constructing a bridge to carry TH 57/County 8 Boulevard over US 52, placing embankment materials and pavement for approach ramps and roadways, and revegetation of disturbed areas. The horizontal alignment of TH 57 & County 8 Boulevard will be shifted to the southeast to accommodate the grade separation. Refer to **Figure 3, Appendix A** for a depiction of the location of access modifications and **Exhibit 1, Appendix B** for proposed access modification treatments.

Bridge Construction The project involves the proposed work to address needs identified in **Section 6.d** and **Appendix D** for the following bridges:

- Bridge 9414 (Southbound US 52 over North Fork of Zumbro River)
- Bridge 9659 (Southbound US 52 over TH 60)
- Bridge 9660 (Northbound US 52 over TH 60)
- Bridge 9662 (TH 60 over US 52)

Due to the deficiencies of each bridge, the structures will be replaced. Rehabilitating the structures to address the needs is not feasible.

Construction activities associated with the replacement of Bridge 9414 over the North Fork of Zumbro River include: establishing construction erosion and sediment control BMPs; removing the existing bridge; constructing a new bridge; backfilling the bridge abutments; install scour prevention elements, including a wildlife passageway; and re-vegetating disturbed areas. Water trail usage will be maintained, except for when short term closures are required for safe prosecution of overhead construction activities.

Bridges 9659 and 9660 carrying southbound and northbound US 52 over the south junction of TH 60 will be replaced in two stages. Construction activities include: establishing construction erosion and sediment control BMPs; removing curb and gutter and a narrow portion of the TH 60 pavement; removing the existing bridge; constructing a new bridge; backfilling the bridge abutments; and re-vegetating disturbed areas. Traffic will be maintained on TH 60, except for when short term closures are required for safe prosecution of overhead construction activities.

Construction activities associated with the replacement of Bridge 9660 include: establishing

construction erosion and sediment control BMPs; removing the existing bridge; constructing a new bridge; backfilling the bridge abutments; and re-vegetating disturbed areas. Traffic will be maintained on US 52, except for when short term closures are required for safe prosecution of overhead construction activities.

Bridge 4762 (US 52 over unnamed stream) and 9483 (US 52 over Butler Creek): These structures are planned to be replaced with double box culverts that are the same size as existing. Maintenance measures to preserve the structures and address the current needs were determined to be less practical at this time and the bridges will inevitably require replacement as they age. Replacing the structures requires a full open cut of the southbound and northbound lanes with head-to-head traffic staging. The opportunity to proactively replace the bridges with the proposed project allows for the traffic to be disrupted under one project, resulting in a net benefit to the public in terms of safety and cost and time savings.

Bridge 25009 (Northbound US 52 over North Fork of Zumbro River): This structure is scheduled to receive a new overlay and, as conditions require, barrier repair/reconstruction. Similar to Bridge 9483, it is proposed take advantage of the traffic staging being in place for the pavement reconstruction project. According to MnDOT *Bridge Preservation and Improvement Guidelines*, the preservation activities are expected to add up to 25 years to the service life of the bridge.

Bridge 91048 (US 52 over unnamed stream): This structure will be replaced with a single 12-foot-wide by 10-foot-tall box culvert to address hydraulic issues.

Construction activities associated with the culvert replacements include: establishing construction erosion and sediment control BMPs; temporarily diverting existing flow; removing the overlying pavement and structure; dewatering; preparing bedding for, installing, and backfilling new precast concrete box culverts; installing scour prevention elements; re-establishing the stream/creek bed; and re-vegetating disturbed areas.

Snow Drifting and Blow Ice

To address snow drifting and blow ice needs, structural snow fence will be installed along the inside of the westerly US 52 right-of-way and the roadway ditch section widened for snow storage. The fence, approximately 50% porous, slows the velocity of the wind and deposits redirected snow into the widened ditch. These countermeasures will be implemented where the topographic conditions dictate and as the project budget allows.

Drainage

Culverts will be cleaned where conditions dictate. Furthermore, culverts will be extended where the aprons are within the roadway clear zone to eliminate a potentially hazardous obstruction. If placing the aprons outside of the clear zone is not feasible, safety aprons, or standard aprons with safety grates, will be installed. Culvert extensions will involve: establishing construction erosion and sediment control BMPs; temporarily diverting existing flow; dewatering; preparing bedding for, installing, and backfilling new culverts; installing scour prevention elements; re-establishing flow; and re-vegetating disturbed areas.

As described in **Section 10.a**, karst geology is prevalent in the project area. Guidelines published in the Minnesota Stormwater Manual will be followed. Stormwater ponds required due to an increase in impervious area will be designed as filtration ponds, using an impermeable liner.

Cable Median Barrier and Guardrails

To improve safety and provide consistency within the US 52 corridor, High-tension Cable Barriers (HTCB) are proposed to be installed in the median where conditions warrant and allow. In addition, sections of plate-beam guardrail that do not meet current MnDOT design standards will be replaced.

Lighting

New lighting will be provided within project limits at the following locations to enhance safety:

- County road to county/trunk highway intersections, where warranted
- Ramp termini at the Hader interchange
- Reduced conflict intersections and median U-turns
- Acceleration and deceleration lanes.

Construction activities for lighting involve: establishing construction erosion and sediment control BMPs; connecting to a source of power, auguring and placing concrete bases; installing roadway light standards and fixtures, and re-vegetating disturbed areas.

Accessibility:
All infrastructure components (i.e., bridges, sidewalks, crosswalks, etc.) will be constructed to meet accessibility guidelines.

There will be no modifications to existing equipment or industrial processes.

The project will be constructed utilizing the design-build delivery method. Under this method, the stages and timing of construction is determined by the design-builder. MnDOT anticipates construction will begin in early 2021 and be completed by the end of 2023. Refer to **Section 18: Transportation** for traffic-related aspects of project construction.

c. *Project magnitude:*

Table 2: Project Magnitude

Total Project Acreage	307 acres
Linear project length	16.4 miles
Number and type of residential units	Not applicable
Commercial building area (in square feet)	Not applicable
Industrial building area (in square feet)	Not applicable
Institutional building area (in square feet)	Not applicable
Other uses – specify (in square feet)	Not applicable
Structure height(s)	Not applicable

d. *Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.*

Project Purpose:
The purpose of this project is to improve the condition of highway infrastructure and vehicular safety and mobility on US 52 between Cannon Falls and Zumbrota.

Project Needs:
The project needs described below identify transportation deficiencies that currently exist within the project area.

Pavement Condition
US 52 in Goodhue County was constructed beginning in the early 1920s. The existing southbound roadway consists of a 20-foot-wide concrete pavement overlaid with variable depth bituminous surfacing, and has been asymmetrically widened and has been overlaid with bituminous pavement. In the 1960s, US 52 became a divided highway when a 24-foot-wide northbound concrete section was added and has been overlaid with a variable depth bituminous surface.

Within the project limits, the roadway has been through several cycles of maintenance and preservation activities. The asymmetric widening of southbound US 52 resulted in a shift in the centerline of the roadway. The widened section is exhibiting significant cracking and deterioration in the wheel paths. Northbound US 52 is also exhibiting signs of significant deterioration with concrete faulting, spalling, and joint failures.

A measurement of pavement condition is the Ride Quality Index (RQI), which indicates the roughness of the ride that a driver experiences. The RQI rating ranges between 0.0 (very poor) and 5.0 (very good). Guidelines in the *MnDOT Pavement Preservation Manual* indicate that action should be taken for Rural Principal Arterials when the RQI reaches 3.0. For the segment of US 52 in the project area, the average RQI is 2.9, which places the roadway in the “fair” category. The RQI is projected to fall to 2.3 in 2023, indicating that the pavement has no service life remaining.

The MnDOT *20-Year State Highway Investment Plan* (MnSHIP) is a policy guidance document for deciding capital investment priorities for the state’s highway system. MnSHIP has established a performance target of 65 percent for all non-National Highway System roads

being in “Good” pavement condition, and only 3 percent in “Poor” pavement condition.

Bridge Condition

Bridges involved in the project have structural and functional issues. A complete description of the bridge needs for the project is provided in **Appendix D**.

Vehicle Mobility

MnDOT has jurisdictional authority over US 52. MnDOT’s statewide access management policy is outlined in their “Access Management Strategies and Resource Guidance” found in the *MnDOT Access Management Manual*, dated January 2, 2008. Access management guidelines are applied by categories based on a statewide network (i.e., interstate highway, interregional corridor, state highway, etc.). These guidelines identify recommended design criteria for intersection spacing based on a roadway category, and includes primary intersections (full movements), secondary intersections (intermediate intersections between primary intersections), and private driveways.

The segment of US 52 between the Twin Cities and Rochester, which includes the project area, is classified as Category 1AF (non-interstate freeway facility) and High-Priority Interregional Corridor (IRC). The access management guidelines for Category 1AF specifies that access be made by interchange only, with at-grade intersections permitted solely by exception and on an interim basis. This level of access management is intended to strongly emphasize mobility.

The category is intended to reflect future or long-term function of the roadway, not the existing condition. It is recognized there will be a transition period where new and existing at-grade access will continue on an interim basis. The *MnDOT Access Management Manual* recognizes some Category 1AF highways may be transitioning to a freeway, as is the case for US 52. The following guidelines apply to the interim intersections on US 52 within the project area:

- The desirable spacing between an existing interim at-grade intersection and the merge point of the closest interchange ramp should be a minimum of one-half mile.
- Spacing between two at-grade, full-movement intersections should be at least one mile.
- Driveways should not be permitted if reasonably convenient and suitable alternative access is available. When this access is not available, an interim driveway may be permitted and, if possible, should be designed so that traffic can be re-directed to another road when the facility becomes fully access-controlled.
- New traffic signals should not be considered unless no other feasible alternative is available. The new traffic signal should be considered interim, and a plan to remove the signal in the future should be developed. Whenever possible, the new traffic signal should be located where a future interchange is planned.

The policies outlined above support the previously established plan to convert US 52 to a fully access-controlled freeway facility. A long-term plan to convert US 52 to a full access-controlled freeway facility was adopted as part of the *Highway 52 Interregional Corridor Management Plan (2002).* Under this plan, all access points along US 52 would be closed as safety and traffic needs dictate.

Many of the existing high-volume intersections along US 52 in the project area are county highways managed by Goodhue County. As such, Goodhue County has a shared responsibility on access management in the corridor. The supporting access management guidelines are presented in the *Goodhue County Transportation Plan (2004-2025*), which recognizes the MnDOT access management policy and guidelines in the US 52 corridor.

Vehicle Safety

Crash Rates

One measure that MnDOT uses for vehicular safety is the Critical Index (CI). According to the MnDOT Traffic Engineering Manual, the Critical Index is the ratio of the Total Crash Rate (CR) to Critical CR. The Total CR is defined as the number of crashes per million vehicle miles traveled. The Critical CR is calculated by weighting the average crash rate for similar intersections or segments across the state by the existing traffic volume.

A CI exceeding 1.00 indicates there may be a safety concern at the intersection or roadway

segment. An analysis of crash rates was performed using data from 2016–2018 for key intersections within the project corridor, as well as the corridor itself. Results of the study are summarized in **Exhibit 3, Appendix C**. As noted, the corridor had a CI of 1.28 and the intersection of US 52 NB ramp and TH 60 had a CI of 1.01, indicating a safety issue is present. The intersection of US 52 and TH 57/County 8 Boulevard had a CI of 0.94, very close to the point of indicating the presence of a safety concern.

Snow Drifting and Blow Ice
MnDOT conducted a snow control study for the project corridor in November 2018. According to the study, prevailing winds in the project area during the winter months blow at a transport angle of 300 degrees, which translates to a direction slightly to the north of due west to slightly south of due east. The existing alignment of US 52 extends from northwest to southeast at a similar angle. The roadway alignment and prevailing wind speeds, coupled with flat and relatively barren sections of rural topography, produces sections of roadway that are prone to snow drifting and icing. Anecdotally, MnDOT maintenance crews responsible for plowing the corridor have supported the snow control study, finding that particular sections of the roadway drift and ice more frequently and rapidly than other sections, making it difficult to maintain reliably safe winter driving conditions and requiring greater resources to combat the issue. Areas noted to have snow drift and blow ice are depicted in **Exhibit 3, Appendix C**.

Geometric Deficiencies
As indicated in the Vehicle Mobility section above, the US 52 corridor is classified as a non-interstate freeway facility and High-Priority IRC. The design speed that is typical for a rural roadway of this type is 70 mph. The existing southbound segment of roadway in the project area has the following geometric deficiencies:

- Vertical curves that do not meet the current criteria for design speed. These segments are noted in **Section 6–Project Description, Roadway Construction.**
- The length of the deceleration lane at the County 9 Boulevard interchange meets design criteria, but has been noted by MnDOT staff and public comments to be too short to operate properly under typical speeds and driver expectations for the corridor.

Infrastructure Condition
Cable Median Barrier and Guardrails:
Current MnDOT guidelines recommend placing HTCB within medians to reduce the severity of run-off-the-road crashes. Segments of US 52 north and south of the project area have HTCB installed, whereas the segment in the project area does not.

Plate-beam guardrail also exists in the corridor where conditions warrant. Sections of the guardrail do not meet current MnDOT design standards due to non-compliant end treatments.

Drainage:
Stormwater runoff in the project corridor is currently conveyed in ditches & pipe culverts. Many of the culvert installations have not been maintained and are not functioning adequately. In addition, aprons within the roadway clear zone do not meet current safety standards. Current practice for culvert aprons is to place them outside of the roadway clear zone, if feasible, to eliminate a potentially hazardous obstruction. If placing the aprons outside of the clear zone is not feasible, safety aprons, or standard aprons with safety grates, will be considered.

Beneficiaries:
The project is being led by MnDOT District 6 and will benefit all users of the US 52 corridor. Vehicular safety and mobility will be improved with the proposed construction and access modifications. Upon completion of the project, motorists traveling between Cannon Falls and Zumbrota on US 52 will experience a smoother ride.

e. *Are future stages of this development including development on any other property planned or likely to happen?* ☐ Yes ■ No

If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

f. *Is this project a subsequent stage of an earlier project?* ☐ Yes ■ No

If yes, briefly describe the past development, timeline and any past environmental review.

7.0 COVER TYPES

Estimate the acreage of the site with each of the following cover types before and after development:

Table 3: Cover Types

	Before	After		Before	After
Wetlands	5.03	0	Lawn/landscaping	150.46	196.39
Deep water/streams	0.18	0	Impervious surface	96.04	106.73
Wooded/forest	1.89	0	Stormwater Pond	0	3.60
Brush/Grassland	4.33	0	Other (describe)		
Cropland	48.79	0			
			TOTAL	306.72	306.72

Note: The cover type estimate assumes all areas within preliminary design construction limits are converted to transportation uses (e.g. lawn/landscaping, impervious surface, stormwater features).

8.0 PERMITS AND APPROVALS REQUIRED

List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.

Table 4: Permits and Approvals Required

Unit of Government	Type of Application	Status
MnDOT	Environmental Assessment Worksheet	Complete
MnDOT	EIS Need Decision	To be requested
MnDOT	Wetland Conservation Act approval	To be requested
Minnesota Department of Natural Resources (MnDNR)	Public Waters Work Permit	To be requested
MnDNR	Groundwater Appropriation Permit	To be requested
Minnesota Pollution Control Agency (MPCA)	Section 401 Certification	To be requested
MPCA	National Pollutant Discharge Elimination System (NPDES)/ State Disposal System (SDS) Stormwater Permit	To be requested
US Army Corps of Engineers (USACE)	Section 404 Permit	To be requested

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos.9-18, or the RGU can address all cumulative potential effects in response to EAW Item No.19. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 19

9.0 LAND USE

a. Describe:

i. Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.

The US 52 project corridor is contained within Goodhue County and spans south of the City of Cannon Falls and terminates within the City of Zumbrota, passing through the townships of Cannon Falls, Leon, Wanamingo, and Minneota, as well as the unincorporated communities of Wastedo and Hader. The project area of influence includes the existing right-of-way (ROW), as well as ROW from adjacent properties. ROW acquisition, including but not limited to fee, temporary and permanent easements, and commissioners orders, may impact an estimated 65-70 parcels across the project corridor.

Land Use

Land use within and adjacent to the project area primarily includes agricultural uses, and undeveloped or open space uses, interspersed with residential and commercial uses as follows:

- The commercial and urban residential uses are primarily located south of the City of Cannon Falls, within Hader and within the City of Zumbrota.
- Agricultural uses predominantly include cropland and feedlot sites. The Natural Resources Conservation Service (NRCS) Web Soil Survey indicates the presence of prime, statewide importance, local importance, or unique farmland adjacent to and within the project area. Refer to **Section 10: Geology, Soils, and Topography/Land Forms** for further detail and impacts on the soils within the project area.
- Residential uses include agricultural farmsteads, single family residences, multi-family residences, and manufactured homes. Commercial uses include agricultural and feeding operations and isolated commercial and office establishments.

Other uses within the project area include electric and communication utilities and light industrial. Specifically, the CapX electric cooperative's 345 kV transmission line is located adjacent to the TH 52 ROW, and a substation for a lower voltage transmission line is located adjacent to the ROW along the west side of US 52 in the City of Hader.

Parks and Trails

A limited number of designated recreational resources are located within a half-mile of the project study area as listed below. No federal lands, conservation lands, state parks, scenic natural areas (SNA), water access sites, fishing sites, forests or forestry lands, or non-motorized state trails are located within approximately half-mile of the project area.

- Snowmobile trail[1] 317 is intermittently located within a half-mile of the project area, and crosses US 52 at County 1 Boulevard and at TH 57/County 8 Boulevard.
- Goodhue Pioneer State Trail is within a mile of the project area, in proximity of the City of Zumbrota. This State Trail does not interact directly with the project area.
- The Zumbro River State Water Trail[2] is intermittently located within a half-mile of the project area, and interacts directly with the project area at the site of the southbound bridge replacement over the North Fork Zumbro River (Bridge 9414), located approximately a quarter-mile northwest of the intersection of US 52 and 165th Avenue. The North Fork Zumbro River is a designated State Water Trail, however the river will remain open to the passage of boats and canoes during construction. The contractor will maintain safe river passage for all river traffic throughout the duration of construction. If conditions should arise that would make river passage unsafe, notification of the conditions will be made by posting signs at public access points and on the MnDNR Zumbro River Water Trail website.

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

Transportation Plans

Planned land use is only referenced in the Goodhue County Transportation Plan[3] (2004-2025); however, several other applicable plans reference land use within the project area. These plans and the applicability of each are as follows:

Goodhue County Transportation Plan (2004-2025): Goal 4 of this plan is applicable to this project, since it details future land use priorities, which include: identifying and preserving transportation corridors, managing access along state and county arterial roadways, identifying areas impacted by the transportation system, utilizing techniques to balance mobility and access, and allowing the Goodhue County Public Works Department to provide input on projects. Each of these priorities do not detail a specific future land use plan, but rather outline the process to achieve effective changes to land use.

[1] Minnesota Department of Natural Resources. Snowmobile Trails. https://www.dnr.state.mn.us/snowmobiling/interactive_map/index.html
[2] Minnesota Department of Natural Resources. Zumbro River State Water Trail. https://www.dnr.state.mn.us/watertrails/zumbroriver/index.html
[3] Goodhue County. Goodhue County Transportation Plan (2004-2025). https://www.co.goodhue.mn.us/DocumentCenter/View/6081/Transportation-Plan?bidId=

Highway 52 Interregional Corridor Management Plan (2002)[4]: Under this plan, access management is the planning, design and implementation of land use and transportation strategies to maintain a safe flow of traffic while accommodating the access needs of adjacent development. This plan also provides guidelines to promote coordination between land use and transportation strategies.

Minnesota GO, 20-Year State Highway Investment Plan 2018-2037 (MnSHIP)[5]: This plan suggests land use and transportation systems be integrated to leverage public and private investments. An objective of this plan is to give high priority to improvements which consider complimentary land uses and the surrounding context.

District Safety Plans Update (May 2016): This plan contains statewide and district level safety analysis and planning measure and establishes locations where safety improvements are a priority. The US 52 segment from 0.5 miles north of TH 57 to 0.6 miles south of CSAH 24 was identified in the plan as a priority with a five-star risk rating on a scale of one to five stars.

Water Management Plans

Goodhue County Comprehensive Local Water Management Plan (2010-2020)[6]: This plan provides general priority to the conservation practices that may be applicable within the project study area. The plan prioritizes water quality concerns into two major land uses: urban/residential and rural/agricultural. Under urban/residential, the plan includes erosion and sediment control, septic system compliance, groundwater protection, and impaired waters. Under rural/agricultural, the plan includes erosion and sediment control, feedlot water quality improvement, nutrient management, and impaired waters.

Comprehensive Plans

Goodhue County Comprehensive Plan[7] (2016) is applicable to this project, since it details a goal for agricultural land within the project area, detailed under Element 1-Agriculture; this goal suggests soils with a prime farmland rating shall be protected from non-agricultural development whenever possible.

Goodhue County A3 Urban Fringe District Health Impact Assessment (2015) presents health impacts to consider when deciding zoning district changes. Although no zoning changes are anticipated as a result of this project, potential zoning impacts in the vicinity of the project area should be considered in coordination with the project improvements.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

The significant majority of the project area is zoned by Goodhue County as agricultural (A1 and A2 per Goodhue County), with a minority zoned as highway business (B2), shoreland (S), floodplain (FP) and urban fringe (A3).

Present zoning distribution intends to protect and preserve prime agricultural land by limiting the density of residential and other development in these areas while also encouraging farmers, residents, and businesses to protect the land from erosion and loss of wetlands, water quality, and woodlands. Access will be maintained to all agricultural fields in the area, with some affected accesses re-routed; refer to **Section 18: Transportation**. It is not anticipated this project will have a substantial effect upon agricultural production in Goodhue County.

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.

The project influence area is primarily contained within the existing MnDOT ROW, with the exception of the US 52/TH 57 interchange in the City of Hader and the service roads at the north end of the project. It is not anticipated the proposed project will contribute to any incompatibility with existing land uses, as detailed in the Goodhue County Comprehensive Local Water Management Plan, or zoning, as outlined in the Goodhue County ordinances for the aforementioned zoned areas.

[4] https://www.co.dakota.mn.us/Transportation/TransportationStudies/Documents/Hwy52InterregionalCorridorPlan.pdf
[5] http://minnesotago.org/application/files/2915/5076/5777/MnSHIP_Final_Jan2017_with_Update.pdf
[6] https://co.goodhue.mn.us/DocumentCenter/View/1071/Water-Plan?bidId=
[7] Goodhue County. Comprehensive Plan (2016). https://www.co.goodhue.mn.us/DocumentCenter/View/11368/2016-Goodhue-County-Comprehensive-Plan

Agricultural land exists within much of the project area (**Figure 4, Appendix A**). Agriculture parcels requirng right-of-way acquisition, either fee, temporary or permanent easements, are depicted in green shading. An estimated 45 acres of permanent right-of-way will be acquired from 14 agricultural parcels. Nearly all of the impacts and right-of-way required for the project are attributed addressing the access management needs of the project. The majority of the ROW is dedicated to the extension of County 14 Boulevard (page 1 of **Figure 4**) and the US 52/TH 57 interchange (page 7 of **Figure 4**). Some access to agricultural parcels will be changed, but alternative access will be provided. Refer to **Appendix B** for a description of access management strategies.

Measures to avoid impacts to agricultural land include undertaking only the mainline pavement reconstruction portion of the project to address pavement needs, and not implement the access management portion. However, this would not address the access management and vehicle safety and mobility needs of the project.

Measures to minimize impacts to agricultural land include utilizing the maximum acceptable roadway inslopes to the extent practicable without compromising safety.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.

The project is compatible with nearby land uses, zoning, & plans listed above. Mitigation is not anticipated.

10.0 GEOLOGY, SOILS, AND TOPOGRAPHY/LAND FORMS

a. Geology - Describe the geology underlying the project area and identify/map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

The project area is located within the Paleozoic Plateau Section region, in the western portion of the Rochester Plateau subsection[8]. This landscape was originally a plateau underlain by flat-lying sedimentary rocks of the Paleozoic Era that have been eroded and dissected by streams and rivers tributary to the Mississippi River, leading to present day topography of bluffs and valleys. Depth of drift over the bedrock varies from 10 to 200 feet, with localized exposures of Ordovician dolomite, sandstone, Cambrian sandstone, shale, and Devonian dolomite bedrock occurring in the ravines and along valley walls.

Sedimentary carbonate rock resources affiliated with the Sinnipee Group classification are intermittently present along the project corridor. The predominant member is the Galena Group, of which parts produce aggregate suitable for use in concrete, but its content of insoluble residue is too high for use in bituminous pavement. Rock quarries in proximity to the project corridor include Prosser Limestone (Galena Group formation) and Platteville Formation (Sinnipee Group member).

Relatively small instances of sand and gravel tertiary resources, secondary resources, and pits are present along the project corridor[9]. A secondary deposit is classified as less than 35-percent gravel, less than 20 feet thick, or more than 10 feet of cover. A tertiary resource is classified as a deposit that has limited quantity and quality of gravel.

As the carbonate bedrock underlain with shallow sediment cover is a common geologic composition in the region, the project area is located within active and transition karst lands. A depiction of the project construction limits within the regions prone to surface karst feature development can be found in **Exhibit 4, Appendix C**. A review of the Karst Feature Inventory[10] data from the MnDNR) was conducted to identify potential geologic hazards that could result in groundwater impacts, such as sinkholes, springs, and stream sinks. This database identifies 54 documented karst features within a half-mile and 11 within a quarter-mile of the project area, all of which are documented in **Table 5**. All of these features are located approximately

[8] Minnesota Department of Natural Resources. Rochester Plateau Subsection Profile. https://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/profiles/rochester_plateau.pdf
[9] Goodhue County Board of Commissioners and Minnesota Department of Natural Resources. Geologic Resources of Goodhue County. https://conservancy.umn.edu/bitstream/handle/11299/58551/rs%5b1%5d.pdf?sequence=3&isAllowed=y
[10] Minnesota Department of Natural Resources. Karst Feature Inventory Points. https://gisdata.mn.gov/dataset/geos-karst-feature-inventory-pts

between Reference Points 91 and 94, at elevations ranging from 1,130 to 1,210 feet. Identified karst features within 1,000 feet of the construction limits are shown in **Exhibit 5, Appendix C**.

Table 5: Known Karst Features within a Half-Mile of Project Area

MSSID	Sinkhole	Distance from Project Area
MN25:D00186	-	<350 feet
MN25:D00226	-	<350 feet
MN25:D00404	Sinkhole	<350 feet
MN25:D00203	-	<1,320 feet
MN25:D00202	-	<1,320 feet
MN25:D00206	-	<1,320 feet
MN25:D00072	-	<1,320 feet
MN25:D00213	-	<1,320 feet
MN25:D00204	-	<1,320 feet
MN25:D00216	-	<1,320 feet
MN25:D00214	-	<1,320 feet
MN25:D00405	Sinkhole	<1,320 feet
MN25:D00205	-	<1,320 feet
MN25:D00215	-	<1,320 feet
MN25:D00189	Sinkhole	<2,640 feet
MN25:D00208	-	<2,640 feet
MN25:D00217	-	<2,640 feet
MN25:D00106	-	<2,640 feet
MN25:D00143	Sinkhole	<2,640 feet
MN25:D00087	-	<2,640 feet
MN25:D00363	Sinkhole	<2,640 feet
MN25:D00188	-	<2,640 feet
MN25:D00223	-	<2,640 feet
MN25:D00222	-	<2,640 feet
MN25:D00219	-	<2,640 feet
MN25:D00225	-	<2,640 feet
MN25:D00358	-	<2,640 feet
MN25:D00141	-	<2,640 feet
MN25:D00139	-	<2,640 feet
MN25:D00221	-	<2,640 feet
MN25:D00107	Sinkhole	<2,640 feet
MN25:D00218	-	<2,640 feet
MN25:D00142	Sinkhole	<2,640 feet
MN25:D00224	-	<2,640 feet
MN25:D00105	-	<2,640 feet
MN25:D00155	-	<2,640 feet
MN25:D00389	Sinkhole	<2,640 feet
MN25:D00401	Sinkhole	<2,640 feet
MN25:D00402	Sinkhole	<2,640 feet
MN25:D00403	Sinkhole	<2,640 feet
MN25:D00406	Sinkhole	<2,640 feet
MN25:D00364	Sinkhole	<2,640 feet
MN25:D00360	Sinkhole	<2,640 feet
MN25:D00362	Sinkhole	<2,640 feet
MN25:D00359	Sinkhole	<2,640 feet
MN25:D00207	-	<2,640 feet
MN25:D00220	-	<2,640 feet
MN25:D00123	-	<2,640 feet
MN25:D00104	-	<2,640 feet
MN25:D00430	Sinkhole	<2,640 feet
MN25:D00486	Sinkhole	<2,640 feet
MN25:D00487	Sinkhole	<2,640 feet
MN25:D00488	Sinkhole	<2,640 feet
MN25:D00489	Sinkhole	<2,640 feet

MnDOT's Geology Unit visited the project site in August 2020 to visually inspect features identified in close proximity to the construction limits and is conducting a geotechnical investigation in areas of the proposed

stormwater treatment features. Results of the investigation are pending.

The Minnesota Construction Stormwater Permit prohibits infiltration of stormwater runoff within 1,000 feet up-gradient or 100 feet down-gradient of active karst features[11]. The following guidelines recommended by the Minnesota Stormwater Manual for stormwater management will be implemented as applicable during project implementation:

- Conduct a thorough geotechnical investigation in areas with suspected or documented active karst. Karst geology can change rapidly over very short distances so additional soil borings may be required in comparison to geotechnical investigations for shallow groundwater or bedrock.
- Investigate non-infiltration best management practices (BMPs) on sites where infiltration is not allowed under requirements of the Construction Stormwater Permit (i.e. where the BMP would be "within 1,000 feet up-gradient or 100 feet down-gradient of active karst features").
- Preserve the maximum length of natural swales as possible at the site to increase the infiltration and accommodate flows from extreme storms.
- Minimize the area of impervious surfaces at the site. This will reduce the volume and velocity of the stormwater runoff. Consult with a geotechnical engineer prior to the design and construction of a BMP.
- Capture the runoff in a series of small runoff reduction practices where sheet flow is present. This technique will help keep the stormwater runoff from becoming channelized and will disperse the flow over a broad area. Practices such as swales, bioretention with underdrains, media filters, and vegetated filters should be considered first at a site. Adequate precautions should be taken to assure that runoff water is adequately pretreated.
- Design BMPs to be off-line such that volumes of runoff greater than the capacity of the BMP are bypassed around the BMP. This approach will limit the volume through the BMP to a quantity that is manageable in the karst.
- Install multiple small BMPs instead of a centralized BMP. Centralized BMPs are defined as any practice that treats runoff from a contributing drainage area greater than 20,000 square feet, and/or has a surface ponding depth greater than 3 feet. Centralized practices have the greatest potential for karst-related failure, and will require costly geotechnical investigations and a more complex design.
- Direct discharge from stormwater BMPs to surface waters and not to the nearest sinkhole. Because karst areas can be quite large in Minnesota, discharges should be routed to a baseflow stream via a pipe or lined ditch or channel to redirect the flow away from the karst, provided the stream does not disappear into a karst feature.
- Minimize site disturbance during BMP construction. Seek the recommendations of a geotechnical engineer for management of heavy equipment, temporary storage of materials, changes to the soil profile - including cuts, fills, excavation and drainage alteration - on sites that have been found to contain a karst feature.
- Report sinkholes as soon as possible after the first observation of sinkhole development. The sinkhole(s) should then be repaired or the stormwater management facility abandoned, adapted, managed and/or observed for future changes, whichever of these is most appropriate.
- Develop a contingency plan for how to manage the stormwater should a BMP fail as a result of the development of a karst feature.
- If a karst feature is encountered report to the appropriate state agency, such as the DNR, Minnesota Geological Survey (MGS), and local agencies (such as the city, township or county). These known occurrences should be surveyed for specific location and permanently recorded on the property deed. For transition karst areas, local discretion and the likelihood of karstic features should be used to determine the amount of geotechnical investigation. An easement or reserve area should be identified on the development plats for the project so all future landowners know of the presence of active karst on their property.
- Incorporate additional precautions where infiltration practices are used. For example, infiltration of stormwater from stormwater hotspots is discouraged unless pollutant concentrations can be significantly reduced through pretreatment practices.

b. Soils & topography–Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions

[11] Minnesota Pollution Control Agency. Minnesota Stormwater Manual. https://stormwater.pca.state.mn.us/index.php?title=Karst

relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume & acreage of soil excavation &/or grading. Discuss impacts from project activities (distinguish between construction & operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii.

Soils within the Rochester Plateau subsection of the Paleozoic Plateau Section have variable loess thickness with deposits ranging from 30 feet thick on broad ridgetops to less than a foot on valley walls. The predominant soils are Udalfs, with localized Aquents along the floodplains of rivers. Cambrian siltstones, sandstones, and shales influence soil properties.

Topography for the Project Corridor was acquired from the MnDNR Topographic GIS database[12]. Elevation ranges from approximately 880 to 1,220 feet (NAVD 88), with the lower elevations nearing Cannon Falls and Zumbrota.

The Goodhue County Soil Survey (SSURGO, 2016) digital soils data were obtained and examined for the project area via the National Resources Conservation Service (NRCS) Web Soil Survey[13]. The most prevalent soils in the project area are silt loam, non-hydric, with 2 to 6 percent slopes. The majority of the project area has an erosion hazard rating of moderate. Hydric soils exist across approximately 12% of the project area, the majority of which has a hydric rating below 30. A total of 51 soil types identified within the approximate project area of influence are presented along with a Soil Classification System soils report in **Exhibit 6, Appendix C**.

Approximately 304 acres of soil will be graded for the proposed project and the estimated volume of soil excavation is approximately 720,000 cubic yards. Project soils do not present any situations that will require unique soil stabilization methods, soil correction, or other measures. Poor soils within the project area will be excavated and replaced with material suitable for roadway subgrades.

During construction, drainage and erosion control measures will be implemented as part of project design, contracts, and the NPDES Permit for Construction Site Activities. Temporary features such as silt fence, site stabilization with temporary vegetation, temporary ponds, drainage control, and treatment features may be necessary. A Stormwater Pollution Plan (SWPPP) will be developed for this project. All disturbed areas would be revegetated in accordance with the SWPPP and related permitting requirements. All BMPs will be maintained and repaired as necessary throughout project construction.

NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 11 must be consistent with the geology, soils and topography/land forms and potential effects described in EAW Item 10.

11.0 WATER RESOURCES

a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.

i. Surface water–lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

Surface Waters

The project area spans the watersheds of the Cannon River and Zumbro River, both within the Upper Mississippi Black Root subregion. The Public Waters Inventory (PWI) was reviewed and public surface water resource interactions were identified with the North Fork Zumbro River, Butler Creek, Belle Creek,

[12] Minnesota Department of Natural Resources. MnTOPO. http://arcgis.dnr.state.mn.us/maps/mntopo/
[13] United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). Web Soil Survey for Goodhue County, Minnesota. https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

and four unnamed creeks as detailed in **Table 6**. No lakes, wetlands, or other public waters basins are listed in the Minnesota Public Waters Inventory.

Table 6: Project Area Surface Waters

Name	Number	Public Water	303d Impaired
Butler Creek	M-048-012-001	Yes	Yes (Benthic macros, turbidity, E. coli)
Unnamed Creek	M-048-004-005	Yes	No
Belle Creek	M-048-004	Yes	No
Unnamed Creek	M-034-049-015	Yes	No
Zumbro River, North Fork	M-034-049	Yes	Yes (Benthic macros, turbidity, E. coli)
Unnamed Creek	M-034-049-013	Yes	No
Unnamed Creek	M-034-049-012	Yes	No

Wetlands

The Level 1 Wetland Delineation Report[14] indicated the potential for 33 wetlands located within the project area. An on-site Level 2 Wetland Delineation[15] was completed between August and October of 2018 and the subsequent report was completed in February 2019. A subsequent on-site delineation and report amendment was completed in July 2020 and August 2020, respectively. The site work and reports and verified the presence of 31 wetlands, 55 wet ditches, and 10 other aquatic resources (OARs) within the project area. The wetlands are classified as Shallow Marsh and Fresh (Wet) Meadow and represent a range of hydric and non-hydric soils.

MPCA 303d Impaired Waters

The 2018 MPCA 303d Impaired Waters List[16] identifies four waters that are within one mile of the project limits, which are summarized in **Table 7**.

Table 7: MPCA 303d Impaired Waters

Waterbody Name	Beneficial Use	Impairment Cause	TMDL Plan Status	AUID Number
Little Cannon River	Recreation, cool and warm water aquatic life and habitat and wetlands	E. Coli, Aquatic macroinvertebrate bioassessments, Turbidity	Approved	07040002-526
Butler Creek	Recreation, cool and warm water aquatic life and habitat and wetlands	E. Coli, Aquatic macroinvertebrate bioassessments, Turbidity	Approved	07040002-590
Belle Creek	Recreation, cool and warm water aquatic life and habitat and wetlands	E. Coli, Turbidity	Approved	07040002-735
North Fork Zumbro River	Recreation, cool and warm water aquatic life and habitat and wetlands	E. Coli, Aquatic macroinvertebrate bioassessments, Turbidity	Needed or Not Yet Approved	07040004-971

ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

Groundwater/Aquifer

The majority of the project area coincides within an aquifer. The Cambrian-Ordovician aquifer circumvents the project area and is present near Cannon Falls and Zumbrota; two aquifers of alluvial and glacial origin overlap the project area from Cannon Falls to Butler Creek and again north of Zumbrota; the upper carbonate aquifer overlaps from approximately Hader to 145th Avenue Way. The majority of the project

[14] Sambatek. Level 1 Wetland Delineation Report of Trunk High 52 for SP 2506-83. November 5, 2018.
[15] Sambatek. Level 2 Wetland Delineation Report of Trunk Highway 52 for MnDOT S.P. 2506-83. February 4, 2019.
[16] Minnesota Pollution Control Agency. Impaired Waters Viewer (IWAV). https://www.pca.state.mn.us/water/impaired-waters-viewer-iwav

area has a modeled water-table depth[17] of 0 to20 feet, with areas of 20 to 50 feet common south of Cannon Falls, 50 to 100 feet near Minneola and Leon Townships, and 100 to 200 feet in the Wagner Hill area north of the intersection of US 52 and County 1 Boulevard.

Well Information

A review of the Minnesota Department of Health (MDH) Well Index[18] was conducted to determine the location and use of wells. A total of 46 wells were identified as being located within an approximate 500 foot radius of the project area as listed in **Table 8**. The majority of these are domestic wells and are located outside of the project limits and US 52 ROW.

- Eleven of these wells (686592, 684002, 822832, 608182, 658499, 705646, 826008, 719637, 751019, 692882, 698225) are unverified, which allows for the possibility that the actual location of these wells may be closer to or within the project limits.
- Eight wells are located within the ROW at the US 52/CSAH 9 interchange (77421, 77423) and the US 52/420th Street intersection (561157, 561158, 561159, 561160, 561161, 561197), all of which are sealed.
- An additional eight wells at various locations along the corridor are within 100 feet of the project limits (684002, 416035, 540544, 435163, 497371, 548914, 826008, 132697).

The MDH Well Index does not necessarily contain information for all wells and borings, and the absence of information about a well does not mean there is no well. Any domestic wells associated with acquired properties shall be properly sealed and if any wells are found within the construction limits they will be addressed in accordance with the MDH rules per Minnesota Administrative Rules Chapter 4725, Wells and Borings.

The project development process has identified at least one well not present within the MDH Well Index that may exist within the MnDOT ROW. This well, located at the parcel directly to the north of the intersection of US 52 and County 1, will be surveyed during the development of the project and appropriate measures will be taken in accordance with Minnesota Administrative Rules Chapter 4725, Wells and Borings.

Table 8: Project Area Wells

Well ID	Distance from Project Area	Use	Status
608155	<500 feet	Other	-
162688	<500 feet	Domestic	-
686592	<500 feet	Domestic	Unverified
425222	<500 feet	Domestic	-
684002	<100 feet	Domestic	Unverified
457194	<500 feet	Domestic	-
570724	<500 feet	Domestic	-
162735	<500 feet	Domestic	-
475852	<500 feet	Domestic	-
822832	<500 feet	Domestic	Unverified
768755	<500 feet	Domestic	-
268823	<500 feet	Domestic	-
416035	<100 feet	Domestic	-
540544	<100 feet	Domestic	-
162693	<500 feet	Domestic	-
435163	<100 feet	Domestic	-
497371	<100 feet	Domestic	-
608182	<500 feet	Domestic	Unverified
658499	<500 feet	Domestic	Unverified
548914	<100 feet	Domestic	-
705646	<500 feet	Domestic	Unverified
77421	Likely Within	Environ; bore hole	Sealed
77423	Likely Within	Environ; bore hole	Sealed

[17] Minnesota Department of Natural Resources. Water-Table Depth Model of Goodhue County. https://files.dnr.state.mn.us/waters/groundwater_section/mapping/cga/c12_goodhue/pdf_files/Plate07_Water_Table_Depth.pdf

[18] Minnesota Department of Health. Minnesota Well Index (MWI). https://www.health.state.mn.us/communities/environment/water/mwi/index.html

Well ID	Distance from Project Area	Use	Status
545103	<500 feet	Domestic	-
443890	<500 feet	Domestic	-
135603	<500 feet	Domestic	-
228325	<500 feet	Domestic	-
561157	Likely Within	Monitor well	Sealed
561158	Likely Within	Monitor well	Sealed
561159	Likely Within	Monitor well	Sealed
561160	Likely Within	Monitor well	Sealed
561161	Likely Within	Monitor well	Sealed
561197	Likely Within	Monitor well	Sealed
826008	<100 feet	Domestic	Unverified
719637	<500 feet	Domestic	Unverified
751019	<500 feet	Domestic	Unverified
132973	<500 feet	Domestic	-
132666	<500 feet	Domestic	-
218583	<500 feet	Domestic	-
218775	<500 feet	Domestic	-
148363	<500 feet	Domestic	-
132697	<500 feet	Domestic	-
692882	<500 feet	Domestic	Unverified
228309	<500 feet	Domestic	-
271996	<500 feet	Domestic	Sealed
698225	<500 feet	Domestic	Unverified

MDH Wellhead Protection Areas

A review of the MDH Wellhead Protection Areas inventory was conducted to determine the presence of wellhead protection areas in proximity to the project area. The portion of the project area that falls within the City of Zumbrota interacts with MDH wellhead protection area 94001, for which a wellhead protection plan has been created for the wellhead protection area. Construction activities at this location must be addressed in accordance with the MDH rules per Minnesota Administrative Rules Chapter 4725, Wells and Borings.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

i. Wastewater–For each of the following, describe the sources, quantities & composition of all sanitary, municipal/domestic & industrial wastewater produced or treated at the site.

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

Not applicable. This project is not anticipated to generate any wastewater to a public treatment facility.

2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.

Not applicable. This project is not anticipated to generate any wastewater to a subsurface sewage treatment system.

3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges.

Not applicable. This project is not anticipated to impact existing wastewater treatment or conveyance systems.

ii. Stormwater–Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control,

sedimentation control or stabilization measures to address soil limitations during and after project construction.

The project area falls under the Goodhue County Soil and Water Conservation District, and interacts with three watershed organizations: Cannon River Watershed Partnership, Belle Creek Watershed District, and Zumbro Watershed Partnership. Stormwater runoff from the project corridor conveys in three general directions. The southern quarter of the project corridor drains to the southeast toward North Fork Zumbro River. The middle portion of the project corridor from just southeast of Hader to near 90th Avenue drains to the north toward Belle Creek and is within the Belle Creek Watershed District. The northern portion of the corridor drains to the northwest toward Butler Creek. Stormwater is directed away from the roadway toward roadside drainage ditches, swales, and infiltration/retention basins near interchanges. There are 12 existing stormwater basins: three near the US 52/CSAH 9 interchange, four near the first US 52/TH 60 interchange, and four near the second US 52/TH 60 interchange.

The project will result in a net increase in impervious area by approximately 10.69 acres compared to existing conditions. Appropriate stormwater control measures will be designed to accommodate the increase in surface area. Stormwater runoff will be maintained to the existing quality and quantity to extent feasible. BMPs for water quality treatment, volume control, and rate control will also be incorporated during construction of this project. Due to the karst topography described in **Section 10–Geology, soils and topography/land forms**, water quality or stormwater control basins will be designed for filtration, and not for infiltration. These BMPs will be designed and constructed to meet NPDES permit regulatory requirements.

The project area is not in proximity to any municipality with a MS4 General Permit designation. A Stormwater Pollution Prevention Plan (SWPPP) will be developed for this project in conjunction with the NPDES Construction Stormwater permit. The SWPPP will include MnDOT best management practices for erosion control, sedimentation control, and stabilization.

iii. Water appropriation–Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

Temporary dewatering may be required during construction. Should dewatering become required and exceed the Minnesota permit threshold of withdrawing more than 10,000 gallons of water per day or one-million gallons per year, a water appropriation permit application will be completed and submitted to the MnDNR for approval prior to any dewatering activities taking place. Dewatering will comply with the MPCA NPDES Construction Stormwater Permit, and shall be discharged in a manner that does not create nuisance conditions or adversely affect the receiving water or downstream properties. Private or permanent public wells may be affected by the project. Should unsealed wells be encountered during the project, they will be sealed or otherwise addressed in accordance with Minnesota Administrative Rules Chapter 4725, Wells and Borings. This project will not connect to or impact any existing municipal water infrastructure.

iv. Surface Waters

a) Wetlands–Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed, and identify those probable locations.

Wetland Impacts

Thirty-one wetland basins were identified, delineated, and classified in the Level 2 Wetland Delineation. The project was designed to avoid and mitigate effects on these wetlands, resulting in approximately 0.76 acres of temporary impacts, and 3.15 acres of permanent impacts to these delineated wetlands. A majority of the

1.9 acres of the permanent wetland impacts are associated with the Hader interchange. An additional 0.67 acres of temporary impacts and 1.88 acres of permanent impacts are anticipated to wet ditches. Approximately 0.18 acres of tributary associated with Butler Creek, Belle Creek, Drum Creek, and North Fork Zumbro River are impacted through this project.

Wetland Avoidance Alternatives & Mitigation

A Wetland Impact Assessment and Two Part Finding was developed for the proposed project to identify the wetland effects and mitigation (**Appendix E**). The report documents the avoidance alternatives considered and minimization measures being taken. It was determined that there is no practicable alternative to the proposed construction in the identified wetlands, and that the proposed action includes all practicable measures to minimize harm to the wetlands.

b) Other surface waters–Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

The current US 52 alignment crosses several public waters and construction activities associated with the project. The project includes bridge and culvert work, grading, and repaving and will temporarily impact these public waters:

- Butler Creek at approximately 1,000 feet north of the US 52/Skunk Hollow Road intersection. Interaction involves the replacement of a box culvert associated with Bridge No.9483. The replacement of the box culvert will cause temporary impacts during removal and installation of the new culvert. Temporary cofferdam and pump around measures will be installed during construction.
- An unnamed creek at approximately 1,100 feet north of the US 52/110th Avenue intersection. Interaction does not presently involve the replacement of a culvert or other feature.
- Belle Creek at approximately 1,300 feet north of the US 52/CSAH 8 intersection. Interaction involves the replacement of a culvert associated with Bridge No.91048. The replacement of the large culvert will cause temporary impacts during removal and installation of the new culvert. Temporary cofferdam and pump around measures will be installed during construction.
- An unnamed creek at approximately 400 feet southeast of the US 52/County 7 intersection. Interaction does not presently involve work on Bridge No.4762 or culvert replacement.
- The North Fork Zumbro River at approximately 1,300 feet northwest of the US 52/165th Avenue intersection. Interaction involves the replacement of southbound US 52 Bridge No.9414. The replacement of the southbound US 52 bridge at this location will require the installation of a temporary causeway during construction. The causeway will be removed and the site restored to pre-construction conditions after the bridge replacement.
- An unnamed creek at approximately 1,600 feet northwest of the US 52/TH 60 interchange in the City of Zumbrota. Interaction does not presently involve work on Bridge No.91047 or culvert replacement.
- An unnamed creek at approximately 3,000 feet southeast of the US 52/TH 60 interchange in Zumbrota. Interaction involves pipe improvements at Bridge No.91046, which will cause temporary impacts due to access to the bridge.

Work below the ordinary high water level shall comply with the MnDNR Public Waters Work Permit and MPCA NPDES Construction Stormwater Permit by providing appropriate sediment control BMPs and perimeter control methods. The project will not change the number or type of watercraft on any waterbody.

12.0 CONTAMINATION/HAZARDOUS MATERIALS/WASTES

a. Pre-project site conditions–Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions

that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

Two reports were completed to review existing contamination or potential environmental hazards within the project corridor. An interchange-specific Modified Phase I Environmental Site Assessment[19] was completed in May 2019 for the segment of TH 52 within Hader, and a corridor-wide Environmental Review[20] was completed in November 2019 for the remaining alignment within the TH 52 Improvement Design-Build project. Together, these reports identified six high-risk sites and 66 medium-risk sites within the project corridor.

Per the recommendations in both reports, a Phase II Drilling Investigation was completed in September 2019 to investigate areas where identified sites of elevated concern coincide with potential construction and right-of-way acquisition. No chemicals of concern were identified in the Phase II above established regulatory action levels or naturally occurring metals concentrations in soil and groundwater. Areas of poor quality fill with quantities of debris, including brick and wood, above MPCA unregulated fill criteria were encountered in the Phase II. Where applicable, the results of the Phase II Drilling Investigation will be included in Book 2, Section 4 of the Design-Build contract procurement documents.

An Environmental Consultant will be retained by MnDOT to provide construction monitoring oversight to properly manage known and unknown contaminated soil and/or groundwater, including the debris encountered in the Phase II, encountered on new or existing MnDOT ROW.

The MnDOT Office of Environmental Stewardship (OES) also provided a regulated waste assessment for structures affected by the project on February 13, 2019. This includes a total of seven bridges: 9414, 9483, 9659, 9660, 9662, 25009, 91048. The following bridges were assessed and regulated materials were found on Bridges 9414, 9662, 9659, 9660, and 25009: treated wood (all), lead paint (9662, 9659, 9660), lead sheeting (9662, 9659, 9660), polychlorinated biphenyls (PCBs) (9659), and possibly asbestos (all). Bridge waterproofing materials identified as having the potential for containing asbestos will be sampled during construction and tested. All regulated materials encountered will be handled and disposed of in a MPCA permitted sanitary or industrial waste landfill.

b. Project related generation/storage of solid wastes–Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

Regulated solid wastes generated by construction of the proposed project will be disposed of properly in a permitted, licensed solid waste facility or a similarly regulated facility. Project demolition of concrete, asphalt, and other potentially recyclable construction materials will be directed to the appropriate storage, crushing, or renovation facility for recycling or reuse.

If a spill of hazardous or toxic substances should occur during or after construction of the proposed project, it is the responsibility of the transport company to notify the Minnesota Department of Public Safety, Division of Emergency Services, to arrange for corrective measures to be taken pursuant to 6 MCAR 4.9005E. Any contaminated spills or leaks that occur during construction are the responsibility of the contractor and would be responded to according to the MPCA and MnDOT contaminant and remedial action procedures.

c. Project related use/storage of hazardous materials–Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

Toxic or hazardous materials would not be present at the construction site, with the exception of those needed for construction purposes such as fuels and lubricants for equipment. Appropriate safety measures

[19] Ramboll US Corporation on behalf of MnDOT. Modified Phase I Environmental Site Assessment for SP 2506-83. May 2019.
[20] Ramboll US Corporation on behalf of MnDOT. Environmental Review for SP 2506-83. November 2019.

would be followed during construction to avoid spills. Leaks, spills, or other releases would be responded to in accordance with MPCA and MnDOT spill, containment, and remedial action procedures.

d. Project related generation/storage of hazardous wastes–Describe hazardous wastes generated/ stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

No above or below-ground storage tanks are planned for permanent use in conjunction with this project. Temporary storage tanks may be located in the project area during the construction period. Appropriate measures would be taken during construction to avoid spills that could contaminate groundwater or surface water in the project area. In the event a leak or spill occurs during construction, appropriate action to remediate the situation would be taken immediately in accordance with MPCA and MnDOT guidelines and regulations.

For each of the regulated materials identified on Bridges 9414, 9662, 9659, and 9660, documentation that each of these regulated waste materials were handled properly must be obtained and placed in the project file and eDOCs for future reference. The waterproofing material placed behind the abutment walls along construction joints must be tested for asbestos by MnDOT staff prior to the material being disturbed. The treated wood must be separated and taken to an MPCA-permitted sanitary or industrial waste landfill. The lead paint must be either encapsulated or removed/contained prior to the bridge beams being disturbed. The lead sheeting must be disposed of at a recycling facility. The bituminous felt that contains PCBs must be handled and transported as hazardous waste.

13.0 FISH, WILDLIFE, PLANT COMMUNITIES, & SENSITIVE ECOLOGICAL RESOURCES (RARE FEATURES)

a. Describe fish and wildlife resources as well as habitats and vegetation on, in, or near the site.

The US 52 project corridor is located within the Paleozoic Plateau section of the MnDNR Ecological Classification System[21]. Land use immediately adjacent to the project area is predominantly agricultural with rural residential, industrial, and commercial uses present at a lower frequency. The project area has previously been disturbed by the construction of the highway itself and the development of the adjacent land for agricultural purposes, which represents the majority of ecosystems and habitats within and adjacent to the project area.

Fish and Wildlife

The corridor is in proximity to or interacts with public waters including creeks, rivers, floodplains, and wetlands. Undisturbed flora resources are primarily limited to deciduous forests. Fish and wildlife species in the project area are those typical of agricultural land, regional deciduous forests, and regional watersheds. A higher diversity of wildlife is supported within the “Site of Biodiversity” between Butler Creek and County 1 Boulevard.

According to a planning-level query of the US Fish and Wildlife Service (USFWS) Information, Planning, and Conversation System (IPaC), species of fish that can be found in the rivers and creeks within the project corridor include green sunfish (*Lepomis cyanellus*), rock bass (*Ambloplites rupestris*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), common carp (*Cyprinus carpio*), creek chub (*Semotilus*), channel catfish (*Ictalurus punctatus*), blue catfish (*Ictalurus furcatus*), northern pike (*Esox lucius*), and brook trout (*Salvelinus fontinalis*). Other species found in the Zumbro River Watershed include bald eagles (*Haliaeetus leucocephalus*), great blue herons (*Ardea herodias*), beavers (*Castor canadensis*), river otters (*Lontra canadensis*), and coyotes (*Canis latrans*).

Vegetation

The project crosses both the deciduous forest-woodland and the prairie vegetative classification zones of Minnesota[22]. A vegetation review was conducted by MnDOT’s Roadside Vegetation Management Unit (RVMU) and summarized in a memoranda dated September 5, 2018 and April 27, 2020, which can be

[21] Minnesota Department of Natural Resources. Ecological Classification System. https://www.dnr.state.mn.us/ecs/index.html
[22] Minnesota Department of Natural Resources. Minnesota’s Native Vegetation. https://files.dnr.state.mn.us/eco/nhnrp/nckey.pdf

found in **Appendix I**. The review identified vegetation in proximity to the project area which includes non-native grasses (Category 3 Vegetation), native oak, basswood, sugar maple forests (Category 1 Vegetation), and wild parsnip (Category 5 Vegetation). The native oak, basswood, and sugar maple forests are adjacent to the southbound lanes from Butler Creek (Station 275) to County 1 Boulevard (Station 420).

Invasive Species

Two invasive species have been recorded within the project limits (MnDOT RVMU 2018 memo, **Appendix I**). Poison hemlock (*Conium maculatum*) is highly poisonous to humans and livestock and can grow in dense patches, displacing native species along streams, wet areas, fields, and disturbed habitats, such as roadsides. It is spread by seeds and a MDA Prohibited Noxious Weed (Eradicate List) in Minnesota, meaning above and below ground parts of the plant must be destroyed. Amur silver grass (*Miscanthus sacchariflorus*) invades disturbed sunny to semi-shaded environments, such as roadsides, woodland borders, and clearings. Although not a severe threat at this time it forms single species stands and it should be monitored and eliminated in the open landscape.

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-) and/or correspondence number (ERDB) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

The MnDNR provided comments on the proposed US 52 project in an email dated October 4, 2019 (**Appendix I**). The Natural Heritage Information System (NHIS) database was queried by MnDNR within an approximate one-mile radius of the project area. Several rare features have been documented within the search area. In order to prevent the inadvertent release of the location of specific listed or rare species contained in the NHIS, the species or their location were not identified. The rare features explicitly listed may or may not be impacted by the proposed project.

<u>Sites of Biodiversity</u>

A 'Site of Biodiversity Significance' was identified from the Minnesota County Biological Survey along the segment between Butler Creek (Station 275) and County 1 Boulevard (Station 420) with the significance rating of 'High' abutting and 'Outstanding' in proximity to the project's influence area. This area is composed of healthy oak-maple-basswood forest types and includes a state-listed threatened species, the Timber Rattlesnake (*Crotalus horridus*). Sites with this ranking contain very good quality occurrences of the rarest species, high-quality examples of rare native plant communities, and/or important functional landscapes. This area is considered an Area of Environmental Sensitivity (AES), a term designated to areas identified as containing unique characteristics which need special protection during construction. These areas may be any area identified for added protection due to habitat, wildlife, cultural resources/properties, ecological significance, geological features, visual quality, or its sensitivity to disturbance.

<u>Listed Species</u>

In addition to the Timber Rattlesnake (*Croatlus horridus*), state-listed species potentially within the project area include threatened mussels whose presence has been documented both upstream and downstream of the proposed project in the North Fork Zumbro River. These native mussels are particularly vulnerable to deterioration in water quality and especially increased siltation.

According to a planning-level query of the USFWS IPaC, the project limits and surrounding area are within the distribution range of endangered, threatened, and migratory species. The federally-designated endangered species is the Minnesota Dwarf Trout Lily (*Erythronium propullans*), and the threatened species include the Northern Long-eared Bat (*Myotis septentrionalis*) and the Prairie Bush-clover (*Lespedeza leptostachya*). Migratory birds include the American Golden-plover (*Pluvialis dominica*), Bald Eagle (*Haliaeetus leucocephalus*), Dunlin (*Calidris alpina arcticola*), Hudsonian Godwit (*Limosa haemastica*), King Rail (*Rallus elegans*), Lesser Yellowlegs (*Tringa flavipes*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), Rusty Blackbird (*Eupagus carolinus*), Semipalmated Sandpiper (*Calidris pusilla*), and the Wood Trush (*Hylocichla mustelina*).

Although the NHIS does not presently contain any known occurrences of northern long-eared bat roosts or

hibernacula within the project area, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. If information becomes available indicating presence of roosts or hibernacula, or additional listed species or other rare features, further review may be necessary. Evidence of bats was noted during MnDOT's structural inspection of Bridge 25009. Another inspection of Bridge 25009 and adjacent Bridge 9414 in October 2019 by the MnDOT Protected Species Program Coordinator found evidence of occasional bat use of both bridges (i.e., a small number of droppings), but these bridges did not appear to be used as day roosts or maternity roosts.

Section 7 consultation with the US Fish and Wildlife Service by the US Army Corps of Engineers (USACE) will be required because of federal wetland and watercourse permitting needs. Consultation by USACE will occur during the permitting phase.

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

Fish and Wildlife Impacts

The acquisition of ROW and construction activities, such as grading and culvert extensions, have the potential to affect wildlife habitats within and in proximity to the project area. Due to these activities occurring within or adjacent to the existing previously-disturbed ROW, it is not anticipated that flora and fauna will experience further corridor fragmentation or other related adverse effects.

Potential degradation of fish and wildlife habitat due to project work may include soil disturbance, incidental herbicide exposure, hydrologic alterations, tree removal or disturbance, and introduction of non-native plants. Potential erosion and sediment impacts to water bodies could occur from construction activities, potentially impacting fish species in the project area.

Culvert work that may utilize Cured-In-Place Plastic liners (CIPP) may temporarily alter the chemical or thermal properties in the receiving water during the installation process, curing process, or initial flush. These by-products of installation have a potential for adverse impacts to receiving waters. In extreme cases, impacts may result in a localized fish kill. CIPP liners can permanently increase water velocity by further constricting flows through culverts. This impact could impact fish passage.

The corridor includes several areas identified as having high densities of deer-vehicle collisions: RP 80-81 and RP 94-95. Potential solutions to increase the survival rate of the deer include: passage benches and/or aggregate surfacing under bridges; replacing box culverts with span bridges; increasing the size of box culverts (minimum of 10' x 10') and/or include floodplain box culverts to allow wildlife crossings during normal flows; and, include deer fencing to physically prevent deer from entering the roadway.

Vegetation Impacts

Due to the nature of roadway construction, temporary construction-related impacts are anticipated to occur. Staging areas will impact the non-native grasses, vines, brush, and shrubs on the project and may impact trees depending on staging locations. Soils disturbed from earthmoving can provide conditions suitable for infestations of invasive plant species. Reconstruction and regrading of southbound US 52 and the service roads will impact trees near the limits of construction in the project area.

Karst Feature Impacts

The project area is within regions that are prone to surface karst feature development. There are 11 identified karst features within 1,000 feet of the project construction limits. Refer to **Section 10–Geology, Soils, and Topography / Land Forms** for more information on the features, investigations conducted, and guidelines that the project will adhere to.

Rare Features Impacts

Soil disturbance, incidental herbicide exposure, hydrologic alterations, tree disturbance, competition from non-native, sod-forming grasses, introduction of weed seeds, or shading by encroaching shrubs can all lead to degradation of Sites of Biodiversity Significance.

Activities that may impact the northern long-eared bat include, but are not limited to, any disturbance to hibernacula and destruction/degradation of habitat, including tree removal. During warmer months (i.e., April 1 to October 31), northern long-eared bats roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. This bat is opportunistic in selecting roosts, using tree species based

on suitability to retain bark or provide cavities or crevices. It has also been found, rarely, roosting in structures like barns, sheds, and bridges. The pup season is from June 1 to August 15. They spend winter hibernating in caves and mines. Per the US Fish and Wildlife Service/MnDNR available data there are no documented roost trees or hibernacula in the project area.

d. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.

Fish and Wildlife Countermeasures

Due to entanglement issues with small animals, use of erosion control blankets shall be limited to 'bio-netting' or 'natural-netting' types, and specifically not products containing plastic mesh netting or other plastic components. These are Category 10, 15, 20, 25, or 30 in the 2020 MnDOT Approved Products List. Hydro-mulch products may contain small plastic fibers to aid in its matrix strength which could potentially re-suspend & make their way into Public Waters. As such, mulch components shall be reviewed, and any products with plastic fiber additives shall not be utilized in areas that drain to Public Waters.

As recommended in the MnDNR comments dated October 2019 (**Appendix I**), and in accordance with DNR General Public Waters Work Permit (GP 2004-001), applicable best practices or requirements for this project include the following:

- Design for replacement of Public Waters crossings shall meet design criteria for fish passage.
- Provide a passage bench at the Zumbro River, North Fork bridge replacement.
- Culvert work will require suitable containment or a treatment prior to discharge to Public Waters. Special Provisions in the construction specifications should be written to prevent hot water precipitate or chemical containing precipitate from discharging into receiving waters.

Bridge inspections conducted by MnDOT in 2017 identified the presence of swallows on Bridges 4762, 9414, and 25009. In order to mitigate impacts on this wildlife, netting or other measures such as rubber strips will be installed prior to the commencement of construction to prevent birds from nesting. Before construction starts, bridges must be re-inspected by MnDOT construction staff to verify birds have been successfully deterred from all structures.

Vegetation Countermeasures

Minimizing the construction footprint to the extent practical, including construction staging areas and heavy equipment access routes, will diminish potential impacts to plant communities in the project area. Selection of construction staging areas already disturbed will also help to minimize impacts to plant communities. Post-construction re-grading and rapid establishment of appropriate native vegetation at stormwater basins, ditches, and backslopes will minimize potential impacts.

Trees adjacent to construction limits affected by reconstruction activities will be protected. Reconstruction of interchanges at TH 57, TH 60(N), and TH 60(S) will not have impacts on trees to be preserved. MnDOT Specification 2572.3.A.5 will be followed for any trees that will be preserved through construction. If staging or construction will occur within 10 feet of a tree identified to be preserved, a review should be conducted by the MnDOT RVMU to determine protection measures. A provision will be included that any tree clearing will be limited to November 1 to March 31, inclusive.

Revegetation of disturbed soils should include native mixes in areas that are not proposed for mowed turf grass. Native recommendations developed by the Minnesota Board of Water & Soil Resources (BWSR) should be utilized. Revegetation may include woody vegetation (trees and shrubs) in addition to grasses and/or forbs. The selected contractor will be required to contact MnDOT representatives from the Erosion Control and Stormwater Management Unit, RVMU, and the District maintenance staff to determine appropriate permanent revegetation plans.

To help limit the spread of invasive weeds during the construction phase, the following activities will be integrated into construction activities:

- Identification of weeds locations;
- Prioritization of these areas for weed control before construction begins;
- Prevention of movement of soil harboring a strong seed bank (soil under a weed infestation);
- Prevention of the spread of reproductive weed parts by cleaning equipment; and
- Monitoring for noxious weeds after construction to control as necessary.

Watercourse Countermeasures

Countermeasures associated with the impacts to watercourses include but are not limited to the following:

- Work Exclusion Dates recognized by the MPCA NPDES General Stormwater Permit for Construction Activity (MN R10001) will be followed. Authorization to discharge stormwater associated with construction activities (permit MN R10001) recognizes the DNR "work in water restrictions" during specified fish migration and spawning timeframes for areas adjacent to water. During the restriction period, all exposed soil areas within 200 feet of the water's edge and drainage to these waters, must have erosion prevention stabilization activities initiated immediately after construction activity has ceased (and be completed within 24 hours). The restriction dates for streams in this area are March 1 through June 1.

Areas of Environmental Sensitivity Countermeasures

The ecologically sensitive sites between Butler Creek and County 1 Boulevard (MnDOT Reference Points 91 and 93, respectively) will be identified as an 'Area of Environmental Sensitivity' on project plans including but not limited to general layout, removal, and construction plan sheets. Particular concerns in this area include soil disturbance, incidental herbicide exposure, hydrologic alternations, tree disturbance, competition from non-native, sod-farming grasses, introduction of weed seeds, or shading by encroaching shrubs leading to degradation of these sites. Accordingly, MnDOT Specification 2572.3 will be adhered to at this location via the Protection Measures for Areas of Environmental Sensitivity, including:

- Design the project to avoid impacts to any identified Area of Environmental Sensitivity.
- Protect and preserve vegetation from damage in accordance with MnDOT Spec 2572.3.
- Prohibit vehicle and construction activities, including the location of field offices, storage of equipment and other supplies at least 25 feet outside the dripline of trees or other identified Area of Environmental Sensitivity to be preserved, also in accordance with MnDOT spec 2572.3.
- Redundant sediment/erosion control Best Management Practices may be required for protection of areas of environmental sensitivity.
- Revegetate disturbed soils with native species suitable to the local habitat. For recommended seed mixes see the MnDOT turf establishment recommendations dated April 14, 2014.

Rare Species Countermeasures

Should the Timber Rattlesnake be encountered on the project site, state law and rules shall be adhered which prohibit the destruction of threatened or endangered species, except under certain prescribed conditions. Photos should be taken and sent to the MnDOT Office of Environmental Stewardship within 24 hours of the sighting. If snakes are in imminent danger they should be allowed to move out of harm's way, otherwise they should be left undisturbed.

The USFWS has published a final 4(d) rule that identifies prohibited take for the northern long-eared bat. Refer to the USFWS Key to the Northern Long-Eared Bat 4(d) Rule[23] to determine whether USFWS must be contacted. As indicated previously, the structural inspection of Bridge 25009 noted the evidence of bats present. Another inspection of Bridge 25009 and adjacent Bridge 9414 in October 2019 by MnDOT's Protected Species Program Coordinator, confirmed bat use of both bridges. To avoid pup season and prevent a prohibited take, gland reconstruction work on Bridge 25009 and bridge demolition on Bridge 9414 will be started before May 31 or after August 15. Additionally, tree clearing will be limited to November 1 to March 31, inclusive.

14.0 HISTORIC PROPERTIES

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

The project vicinity was reviewed for potential impacts on historic and archaeological resources. This includes resources related to archaeological, historic, and architecturally significant locations and properties as identified by the National Register of Historic Places (NRHP), the State Register of Historic Places

[23] USFWS Key to the Northern Long-Eared Bat 4(d) Rule for Non-Federal Activities http://www.fws.gov/midwest/endangered/mammals/nleb/KeyFinal4dNLEB.html

(SRHP), and local historic property designations.

Historic and Archaeological Sites

Through the Minnesota Office of the State Archaeologist (OSA) Portal, the Minnesota State Historic Preservation Office (SHPO) resources, and various other sources (e.g., historic aerial photographs, historic maps), MnDOT OES Cultural Resources Unit (CRU) in a letter dated January 15, 2019[24] (**Appendix I**) found no NRHP or SRHP properties, and no archaeological sites within the US 52 ROW due to past disturbance from the construction of the highway and the installation of associated utilities. However, five archaeological sites were identified within a one-mile radius of the project area.

The five archaeological sites include: four Native American heritage resources and one EuroAmerican cemetery (Site 21-GD-0296). The cemetery is located approximately 1,000 feet northwest of the existing US 52/County 8 Boulevard intersection on the east side of US 52, is adjacent to the US 52 ROW boundary. Since the extent of the cemetery has not been delineated, if work will take place in the vicinity of the cemetery, consultation with OSA is required. The January 2019 letter from OES CRU recommends, prior to any ground disturbance, a protective buffer be established around the cemetery in consultation with OSA to avoid inadvertent disturbance during construction.

The OES CRU distributed a letter on August 21, 2018[25] (**Appendix I**) to Tribal Representatives inquiring whether there were any comments or concerns regarding historic, archaeological or cultural resources that may be impacted by the project. No response was received.

Local Historic Property Designations

Local historic property information[26], per the Goodhue County Historical Society, identified eight historic properties of local significance in or within a quarter-mile of the project area. None of these properties are listed on the NRHP or the SRHP. The properties include three razed schools, three ghost towns (Wastedo, Hader, Minneola), and two local landmarks (Poe's Corner, Wagner Hill).

The project is not anticipated to have a significant visual, auditory, atmospheric, or other effect on any state or federal historic designations, known artifact areas, or architectural features. Local landmarks may be impacted; in the event that local historical or archaeological features are encountered during project development, measures will be taken to avoid an adverse effect on these features or properties.

15.0 VISUAL

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

The proposed project primarily follows the existing highway corridor and will generate minor visual impacts, such as those associated with alignment and grading adjustments. No vapor plumes, glare, or other substantial impacts to the visual resources of the natural, cultural, and project environments are anticipated. No anticipated are substantial impacts to the ability of the affected population to view visual resources are anticipated.

One potential scenic view located within the project area includes the non-state/non-federally designated local landmark, Wagner Hill; located in Leon Township, approximately between the US 52/CSAH 14 and US 52/CSAH 1 intersections. Wagner Hill is a forested hill with an approximately 200 foot elevation profile and serves as a local landmark for residents to reference when traveling[27]. Land uses adjacent to Wagner Hill are primarily residential and agricultural. The impact on the visual quality and integrity of the scenic view is anticipated to be minor, as the project will not create any substantial profile changes, vapor plumes, or intense lighting to surrounding properties.

Permanent adverse visual impacts may include that associated with the installation of new snow drift mitigation, new grade separation, and two frontage roads within the study area. These impacts are detailed as follows:

[24] Barnes, R. *SP 2506-83, TH 52 Improvements* [Letter]. Submitted to MnDOT by OES CRU, January 2019.
[25] Barnes, R. Proposed State Funded Transportation project Being Undertaken by MnDOT, SP 2506-83, TH 52 Improvements [Letter/Email]. Submitted to Interested Tribal Representatives by OES CRU, August 2018.
[26] Historic Places & Facts | Goodhue County, MN. Retrieved 17 September 2019, from https://www.co.goodhue.mn.us/523/Historic-Places-Facts
[27] https://maps.co.goodhue.mn.us/PDFs/NRHPPY/Vasa_WagnerHill.pdf

- The snow drift mitigation installation, by method of Wyoming-style snow fences, is proposed intermittently within the study area adjacent to agricultural land at key snow drift locations. The adjacent land use at these locations is predominantly agricultural and not in close proximity to residences, scenic viewsheds, or vistas. The associated visual impacts are not anticipated to be substantial or to affect the overall visual quality to surrounding properties. No mitigation is anticipated.
- The new grade separation is located at the US 52/TH 57 intersection in the City of Hader. The proposed grade separation improvements will have a permanent visual impact on the immediate area. However, this area is not in proximity to any scenic viewsheds or vistas. The associated visual impacts are not anticipated to be substantial or to affect the overall visual quality to surrounding properties. No mitigation is anticipated.
- The extension of the 63rd Avenue frontage road south of the City of Cannon Falls will have a permanent visual impact on the surrounding properties. The new road will be a two-lane undivided paved roadway, approximately 0.75 miles long, extending from the existing cul-de-sac across from Highview Road south to County Boulevard. This location is adjacent to forested areas and will therefore have an impact on a natural viewshed. However, the project will not block any line-of-sight to natural areas, or create any vapor plumes or intense lighting. Therefore, the associated visual impacts are not anticipated to be substantial or to affect the overall visual quality in the project area. No mitigation is anticipated.
- The new service road along the northeast side of US 52, will have a permanent visual impact on the surrounding properties. The new road will be a two-lane undivided paved roadway, approximately 1.5 miles long, extending from Wagner Hill Way south to the County 1 Boulevard/365th Street Way intersection. The location is adjacent to forested and agricultural areas, and tree removal is anticipated. The project will not block any line-of-sight to natural areas, or create any vapor plumes or intense lighting. The associated visual impacts are anticipated to have a minor effect on the overall visual quality of the surrounding properties. Existing mitigation measures include a frontage road layout that minimizes the impact on the forested area.
- Based on the noise analysis conducted & discussed in **Section 17–Noise**, there is potential for three noise walls to be constructed on the east side of NB US 52 south of the TH 60/W 5th Street interchange in Zumbrota. A final decision will be subjected to the viewpoint (voting) of the benefited residents and property owners. The voting process, in part, will take into account the visual impact of the potential noise walls.

Temporary adverse visual impacts associated with construction, such as those related to the presence of equipment and temporary traffic control, will be noticeable to roadway users and local residents. However, these are anticipated to persist for the duration of the construction period and removed thereafter.

16.0 AIR

a. Stationary source emissions–Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

This project will not have stationary source air emissions concerns.

b. Vehicle emissions–Describe the effect of the project traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

An analysis of Green House Gas (GHG) emissions due to vehicle operation was made for the project, comparing the No Action and Build Alternative over a design life of 20 years. The analysis shows the project will result in a decrease in GHG emissions compared to the base year. The analysis also shows the project will have no effect on GHG emissions compared to the No Action Alternative. Specific mitigation strategies for this project include the implementing snow drift countermeasures (structural snow fence and widened ditches) and use of recycled asphalt pavement.

The project is not located in an area in which conformity requirements apply, and the scope of the project does not indicate air quality impacts would be expected. Therefore, no further air quality analysis is

necessary.

Refer to **Appendix G** for the complete Air Quality Analysis Report and Greenhouse Gas Analysis documents.

c. Dust and odors–Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

Dust generated during construction will be minimized through standard dust control measures such as applying water to exposed soils and limiting the extent and duration of exposed soil conditions. Construction contractors will be required to control dust and other airborne particulates in accordance with MnDOT specifications. During construction, particulate emissions will temporarily increase due to the generation of fugitive dust associated with activities such as grading and other soil disturbance. The following dust control measures will be undertaken as necessary:

- Minimize the duration and extent of areas being exposed or regraded at any one time.
- Apply water on construction areas and haul roads, in particular during periods of high wind or high levels of construction activity.
- Minimize the use of vehicles on unpaved surfaces when feasible.
- Sweep paved access roads, parking areas, and staging areas in the construction zone and adjacent areas that experience soil tracking from the construction zone.
- Hydroseed or apply soil stabilizers to inactive construction areas and cover stockpiles as required under the project MPCA NPDES permit and Stormwater Pollution Prevention Plan.
- Limit traffic speeds on unpaved roads in the project area to 15 miles per hour.

Odors could be generated by exhaust from diesel engines on equipment utilized during construction. All equipment will be required to be properly equipped to control odor emissions.

17.0 NOISE

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

Noise During Construction

The construction activities associated with implementation of the proposed project will result in increased noise levels relative to existing conditions. These impacts will primarily be associated with construction equipment and pile driving.

Table 9 shows peak noise levels monitored at 50 feet from various types of construction equipment. This equipment is primarily associated with site grading/site preparation, which is generally the roadway construction phase associated with the greatest noise levels.

Table 9: Typical Construction Equipment Noise Levels at 50 Feet

Equipment Type	Manufacturers Sampled	Total Number of Models in Sample	Peak Noise Level (dBA)	
			Range	*Average*
Backhoes	5	6	74-92	83
Front Loaders	5	30	75-96	85
Dozers	8	41	65-95	85
Graders	3	15	72-92	84
Scrapers	2	27	76-98	87
Pile Drivers	N/A	N/A	95-105	101

Elevated noise levels are, to a degree, unavoidable for this type of project. MnDOT will require construction equipment be properly muffled and in proper working order. While MnDOT and its contractor(s) are exempt from local noise ordinances, it is the practice to require contractor(s) to comply with applicable local noise restrictions and ordinances to the extent that is reasonable. Advanced notice will be provided to affected

communities of any planned abnormally loud construction activities. It is anticipated night construction may be required to minimize traffic impacts and to improve safety. However, construction will be limited to daytime hours as much as possible. This project is expected to be under construction for two construction seasons. If necessary, a detailed nighttime construction mitigation plan will be developed during the project's final design stage.

Any associated high-impact equipment noise, such as pile driving, pavement sawing, or jack hammering, will be unavoidable with construction of the proposed project. Pile-driving noise is associated with any bridge construction and sheet piling may be necessary for staging construction. While pile-driving equipment results in the highest peak noise level, as shown in Table 5, it is limited in duration to the activities noted above (e.g., bridge construction). The use of pile drivers, jack hammers, and pavement sawing equipment will be prohibited during nighttime hours.

Traffic Noise Analysis

MnDOT's noise policy is outlined in *Noise Requirements for MnDOT and other Type 1 Federal-aid Projects*. This document implements the Federal Highway Administration's (FHWA) traffic noise regulation is described in 23 Code of Federal Regulations (CFR), Part 772 (Procedures for Abatement of Highway Traffic Noise and Construction Noise). This regulation (23 CFR 772) requires the identification of highway traffic noise impacts and the evaluation of potential noise abatement measures, along with other considerations. The policy applies to federal Type 1 undertakings, as well as projects that exceed mandatory Environmental Quality Board (EQB) thresholds or for which a voluntary EAW is processed. As such, the project must follow this policy and requires a traffic noise analysis.

The following is a summary of the *TH 52 SB Improvement Project – Noise Study Between Cannon Falls and Zumbrota, Minnesota*, (Noise Study) of which the complete report is included in **Appendix H**. The report includes background information on noise, information regarding traffic noise regulations (i.e. federal and state noise regulations and standards), a discussion of the traffic noise analysis methodology, documentation of the potential traffic noise impacts associated with the project, and an evaluation of noise abatement measures.

Federal & State Noise Regulations

Under federal rules, traffic noise impacts are determined based on land use activities and predicted worst hourly Leq[28] noise levels under future conditions. For example, for residential land uses (Activity Category B), the Federal Noise Abatement Criterion (NAC) is 67 dBa (Leq). The term receptor is used to refer to land uses that receive traffic noise. Receptor locations where modeled traffic noise levels are "approaching" or exceeding the NAC must be evaluated for noise abatement feasibility and reasonableness. In Minnesota, "approaching" is defined as 1 dBa or less below the Federal NAC. A noise impact is also defined when traffic receivers are projected to experience a "substantial increase" in the future traffic noise levels over the existing modeled noise levels. A "substantial increase" is defined as an increase of 5 dBa or greater from existing to future conditions.

The Minnesota state noise standards are located in Minnesota Rules Chapter 7030. The MPCA is the state agency responsible for enforcing state noise rules. In 2016, the Commissioners of the MPCA and MnDOT agreed that the traffic noise regulations and mitigation requirements from the FHWA are sufficient to determine reasonable mitigation measures for highway noise. By this agreement, existing and newly constructed segments of highway projects under MnDOT jurisdiction are statutorily exempt from Minnesota State Noise Standard (MN Rule 7030) if the project applies the FHWA traffic noise requirements. As a result, any required noise analysis will follow FHWA criteria and regulations only, as has been completed for this project. This project is not required to address Minnesota Rule 7030.

Analysis Methodology and Results

Field measurements of existing noise levels were taken. Using the data collected, modeling was conducted utilizing the noise prediction program FHWA TNM 2.5. A detailed description of noise monitoring and modeling procedures is provided in **Appendix H, Sections 2.2 and 2.3** respectively. Traffic noise impacts were assessed by modeling noise levels at receptor sites likely to be affected by the proposed project, the locations of which are illustrated in the Noise Study **Appendix H, Figure 2**.

[28] Measured traffic noise levels are characterized as a function of time. The equivalent stead-state sound level which in a stated period contains the same acoustic energy as the time-varying sound level during the same period, with Leg(h) being the hourly value of Leq.

From analysis of the Future (2041) Build condition, 98 out of 354 receptors approach or exceed FHWA Noise Abatement Criteria (NAC). Of those receptors, 89 also approach or exceed the NAC during the Existing (2021) condition. None of the Future (2041) Build receptors exceed existing noise levels by 5.0 dBA or more. Of the 98 receptors which approach or exceed FHWA NAC, all are residential.

For the complete narrative of the results, refer to **Noise Study Section 3.0** in **Appendix H**.

Potential Noise Abatement

Noise abatement measures (i.e. noise walls) were evaluated at receptor locations where modeled noise levels were projected to approach or exceed federal NAC, or result in a substantial increase. Of all the barriers modeled, only three met both the 5.0 dBA noise-reduction feasibility requirement and 7.0 dBA noise-reduction design goal while also being cost-effective. The locations where noise walls are proposed is located in Zumbrota along the east side of US 52, beginning at the southeast quadrant of the US 52 and TH 60/W 5th Street interchange and spreading to the south. The traffic noise analysis for the three proposed noise walls (Barrier FF, Barrier LL, and Barrier QQ) is based upon preliminary design studies completed at the time the noise analysis was performed. Final noise mitigation decisions will be subject to final design considerations and the viewpoint (voting) of benefited residents and property owners. If conditions substantially change by the time the project reaches the final design stage, noise abatement measures may not be provided.

If design conditions do warrant changes, receptors that would have received benefits from noise walls, and local officials will be notified of plans to eliminate or substantially modify a noise abatement measure prior to completing the final design process. This notification will explain any changes in site conditions, additional site information, any design changes implemented during the final design process, and noise wall feasibility and reasonableness. When the project final design and public involvement process have been completed, MnDOT will make the final decision regarding noise wall installation.

18.0 TRANSPORTATION

a. Describe traffic-related aspects of project construction and operation. Include:
1) existing and proposed additional parking spaces,
2) estimated total average daily traffic generated,
3) estimated maximum peak hour traffic generated and time of occurrence,
4) indicate source of trip generation rates used in the estimates, and
5) availability of transit and/or other alternative transportation modes.

The Project will reconstruct the existing traffic lanes and shoulders on SB US 52, resurface 2.9 miles of NB US 52 pavement north of County 7, consolidate driveways, reconfigure at-grade intersections to reduce conflict points, replace seven (7) bridges, extend three sections of frontage road, and add a new interchange near Hader.

Traffic will be maintained for both directions of US 52 during construction, but will be reduced to one lane in each direction. Crossovers will be constructed to shift traffic from the impacted direction of traffic to the other direction, resulting in a reduction of one travel lane for both northbound and southbound US 52. Traffic speeds will be reduced through the construction zone to 55 mph. Motorists may experience slower traffic speeds as they approach the construction zone, in particular during peak traffic times. A Traffic Management Plan (TMP) will be developed to prepare for construction related traffic impacts and may include measures such as advanced signage of travel times in the corridor. Occasional short term detours will be required for activities such as bridge demolition. TH 60 / West 5th Street will be detoured for three to six months during the reconstruction of Bridge 9662 on the northern edge of Zumbrota.

The existing informal park-and-ride shoulder parking along Hader Trail at 114th Avenue utilized by approximately three to five commuters will be affected by the proposed project. A park-and-ride parking lot will be added for 30 passenger cars in the northeast quadrant of the Hader interchange. During construction along Hader Trail, alternate shoulder parking will be available in close proximity to the existing location.

The addition of the interchange near Hader will result in minor reassignment of existing local traffic patterns, but the interchange or the Project will not generate traffic. Throughout the project corridor and depending on their location, local residents and businesses may experience an increase in the distance traveled due to the access modifications proposed with the Project. The altered route, affected movements, and distances can be found in **Exhibit 1, Appendix C.** Of the 296 possible movements in the corridor, there are 189 movements that will experience a longer route, the longest of which is approximately 7 miles long.

Existing transit service along US 52 is currently provided by Rochester City Lines (RCL). The only stop within the project area is located in the City of Zumbrota. RCL service will not be interrupted by the Project.

An existing commuter park and ride area is located west of US 52 on the shoulder of Hader Trail at TH 57. This existing area has parking capacity for 5-6 vehicles and does not have transit service. The new interchange will obliterate this parking area, however a future commuter park and ride area is planned for a portion of grade to be abandoned on CR 8 located east of US 52. This area will have parking capacity for approximately 30 vehicles with no transit service and no truck parking provided.

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Use the format and procedures described in the Minnesota Department of Transportation Access Management Manual, Chapter 5 (available at: http://www.dot.state.mn.us/accessmanagement/resources.html) or a similar local guidance.

The Project will not generate traffic nor have an effect on traffic congestion. The construction of the interchange at Hader will improve overall intersection safety and side road levels of service. It will also improve mainline left turn levels of service. The project fulfills part of a long-term plan to improve mobility by converting US 52 to a full access-controlled freeway facility, adopted as part of the *Highway 52 Interregional Corridor Management Plan (2002).* No other traffic system improvements outside of the project area will be necessary.

c. Identify measures that will be taken to minimize or mitigate project related transportation effects.

The Hader interchange is planned to be constructed in the first stage of construction to allow for a third interchange within the project area during temporary head-to-head traffic to better serve trucks and emergency response and agricultural vehicles. Following construction, the addition of the interchange, frontage roads, RCIs, and median U-turns will provide for safer and more consistent access to destinations beyond US 52.

19.0 CUMULATIVE POTENTIAL EFFECTS

(Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

Cumulative effects result from the incremental impact of the proposed project added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. The geographic area considered for cumulative potential effects is the area proximate to the project limits. The projects considered are planned or programmed for construction between 2020 and 2023.

Table 10 summarizes project related environmental effects that could combine with other environmental effects and the geographic extent of the anticipated impacts.

An Environmental Management Plan (Design Green Sheet) has been developed to summarize environmental commitments for project, which can be found in **Appendix J**. This document will be continually updated and refined during the design and construction phases. Final project impacts are anticipated to be equal or less than the impacts outlined in this EAW.

Table 10: Project Related Environmental Effects and Geographic Extent

EAW Item	Topic/Issue	Project Related Environmental Effects	Geographic Extent
9	Land Use	Impacts to agricultural land	Throughout project area
10	Erosion & Sedimentation Control	Disturbed ground/exposed soils during construction	Throughout project area
10	Geology	Karst features	- Regions prone to surface karst feature development: throughout project area - Karst features within 1000 feet of construction limits: RP 91-94 (County 1 Boulevard to Wagner Hill Way)

EAW Item	Topic/Issue	Project Related Environmental Effects	Geographic Extent
11	Water Resources	- Increase in impervious area - Impacts to aquatic resources - Impacts to wetlands - Potential water appropriation during construction	Throughout project area
12	Existing Contamination / Potential Environmental Hazards	- One closed leaking underground storage tank (LUST) within 500 feet of the project area - Existing contamination potential on new or existing right-of-way - Removal of regulated wastes.	- LUST: Hader interchange - Potential contamination: throughout project area - Regulated Waste: inplace bridges
13	Rare Species	- Potential to encounter Timber Rattlesnakes - Potential presence of bats - Potential presence of migratory birds	- Timber Rattlesnakes/ bats: throughout the project area - Bats: Zumbro River bridges - Migratory birds: Bridges 4762, 9414, and 25009
17	Noise	- Temporary construction noise impacts - Modeled noise levels approaching/exceed FHWA Noise Abatement Criteria	- Throughout project area - Proposed construction of 3 noise walls
18	Transportation	- Minor reassignment of existing local traffic patterns - Increase in travel distance for some local residents and businesses due to access management - Traffic management during construction	Throughout the project area

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

The State of Minnesota 2020-2023 State Transportation Improvement Program (STIP), Goodhue County's County Highway Construction Program, the City of Zumbrota website, and the City of Wanamingo website were reviewed to identify present and other reasonably foreseeable future projects near the project limits.

MnDOT scheduled projects include:

1. Approximately 2.2 miles of Unbonded Concrete Overlay from the south end of the Cannon River bridge in Cannon Falls to 0.2 miles north of CR 86/280th Street (SP 1905-41) to be constructed in 2021.
2. Approximately 16 miles of Unbonded Concrete Overlay from CR 86 to CSAH 42 to be constructed in 2023.

In addition, Goodhue County has the following projects scheduled:

1. Approximately 12.4 miles of Full Depth Reclamation (FDR) paving on CSAH 14 between US 52 and CSAH 30 in 2020.
2. Approximately 4.4 miles of FDR paving on CSAH 8 between CSAH 1 and TH 57 in 2023.

The construction schedule, staging, detours, and public engagement of these projects are being coordinated to limit disturbance to the traveling public on US 52 and county/local roads. Each project is undergoing their own individual environmental review and will obtain applicable regulatory approvals and permits to mitigate any potential significant impacts.

Past actions that occurred recently in the project area include:

1. Grade separation of CSAH 9 over US 52 (Bridge 25030) in 2015.
2. Traffic Management System improvements from CSAH 12 near Pine Island to the north junction of TH 60 interchange in Zumbrota in 2019.
3. Traffic Management System Improvements from TH 60 in Zumbrota to TH 56 in Inver Grove Heights in 2020.

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

Environmental effects resulting from the proposed US 52 Southbound Reconstruction project are described in EAW Sections 7–18. The other present and reasonably foreseeable future projects listed in **Section 19.b** may also impact these same resources. Impacts from those projects will be addressed via federal, state, and local review and permitting processes and would be individually mitigated to ensure cumulative impacts are not significant.

Considering the types of projects that are planned to occur or have recently occurred, and considering regulatory permitting and approval processes, the proposed project along with other reasonably foreseeable projects will have a minimal cumulative impact on the environment.

20.0 OTHER POTENTIAL ENVIRONMENTAL EFFECTS

If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

Floodplain

The project will encroach upon the Zumbro River floodplain. The project will not result in any significant floodplain impacts. See **Appendix F** for the Floodplain Assessment.

RGU Certification

(The Environmental Quality Board will only accept SIGNED Environmental Assessment Worksheets for public notice in the EQB Monitor.)

I hereby certify:

•The information contained in this document is accurate and complete to the best of my knowledge.

•The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined in Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.

•Copies of this EAW are being sent to the entire EQB distribution list.

Signature Marni Karnowski Digitally signed by Marni Karnowski Date: 2020.09.04 12:03:56 -05'00' Date _____

Title Chief Environmental Officer

Environmental Assessment Worksheet was prepared by the staff of the Environmental Quality Board at the Minnesota Department of Administration, Office of Geographic and Demographic Analysis. For additional information, worksheets or for EAW Guidelines, contact: Environmental Quality Board, 658 Cedar Street, Saint Paul, MN 55155, 651.201.2492, or http://www.eqb.state.mn.us.