STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION
District 1
1123 Mesaba Avenue
Duluth, MN 55811

Categorical Exclusion Determination (CATEX)

Review: Draft () Final (X) **Date:** February 4, 2019 **Trunk Highway:** 35, 535, 53

State Project Number: SP 6982-322, 6980-60, 6982-328, 6915-136

Federal Project Number: _____

Project Termini: from TH 35 RP 254+00.769 to 255+00.702 and TH 535 RP 0+00.585 to 0+00.711 and US 53 RP 1+00.640 to 2+00.000

City(ies): Duluth **County(ies):** St. Louis

Section, Township, Range:

SECTION	TOWNSHIP	RANGE
3, 4	49N	14W
33, 34	50N	14W

Program: Bridge Replacement (BR)

Brief Project Description: The Twin Ports Interchange Reconstruction Project has four components: I-35/I-535/US 53 interchange reconstruction, US 53 reconstruction between I-35 and W 3rd Street, I-535/Garfield Avenue interchange reconstruction, and local street improvements for traffic mitigation. Pavement or other improvements will be implemented on 27th and 46th Avenues West (W), Garfield Avenue, and Railroad Street. A potential Railroad Street Connection over I-35 and a realignment of Coffee and Miller Creeks are both being evaluated.

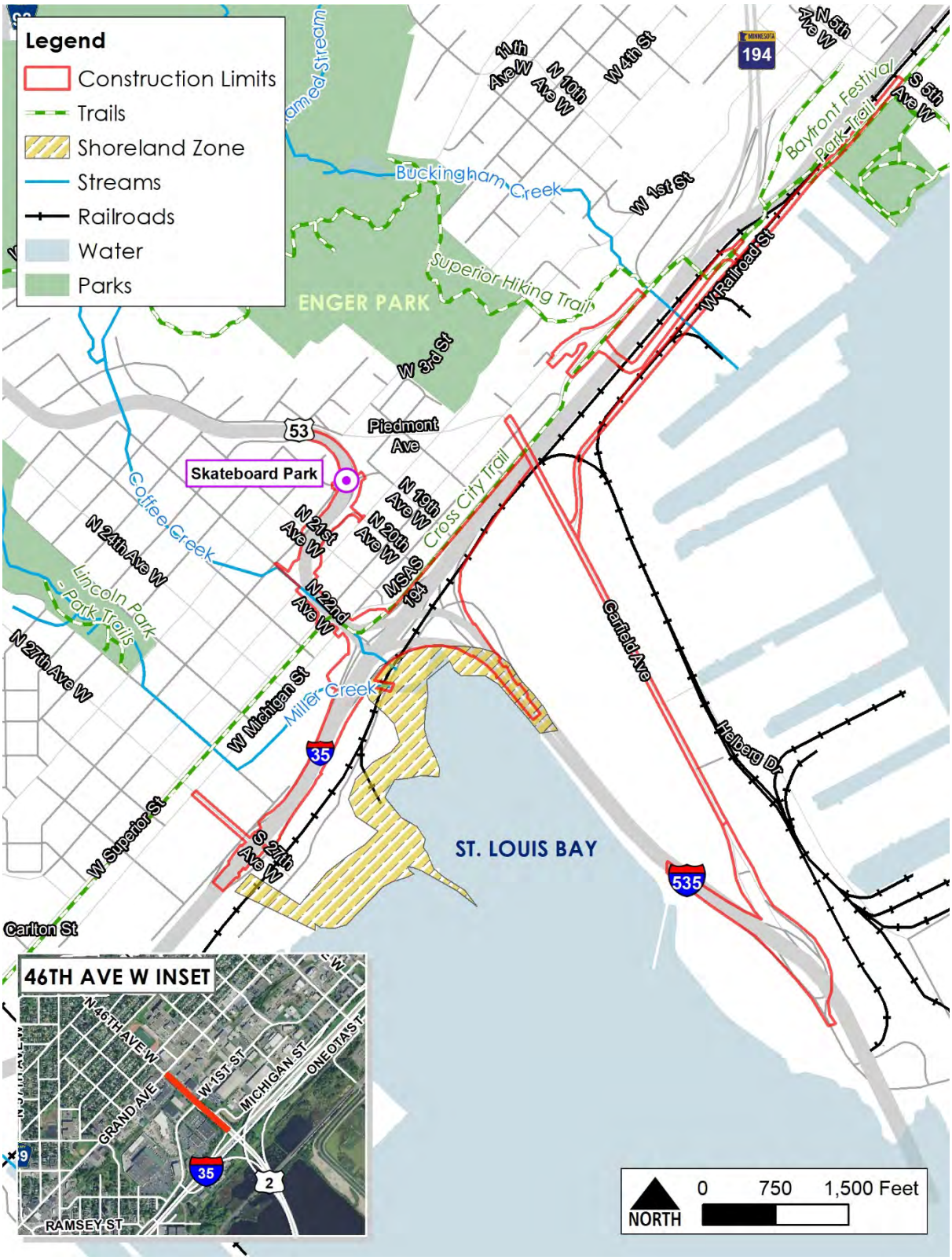
Letting Date: April 26, 2019 for SP 6982-328. To be determined for SP 6982-322, SP 6980-60 and 6915-136

Date Construction Expected to Begin: 2019 for SP 6982-328; 2020 for SP 6982-322, SP 6980-60, and 6915-136

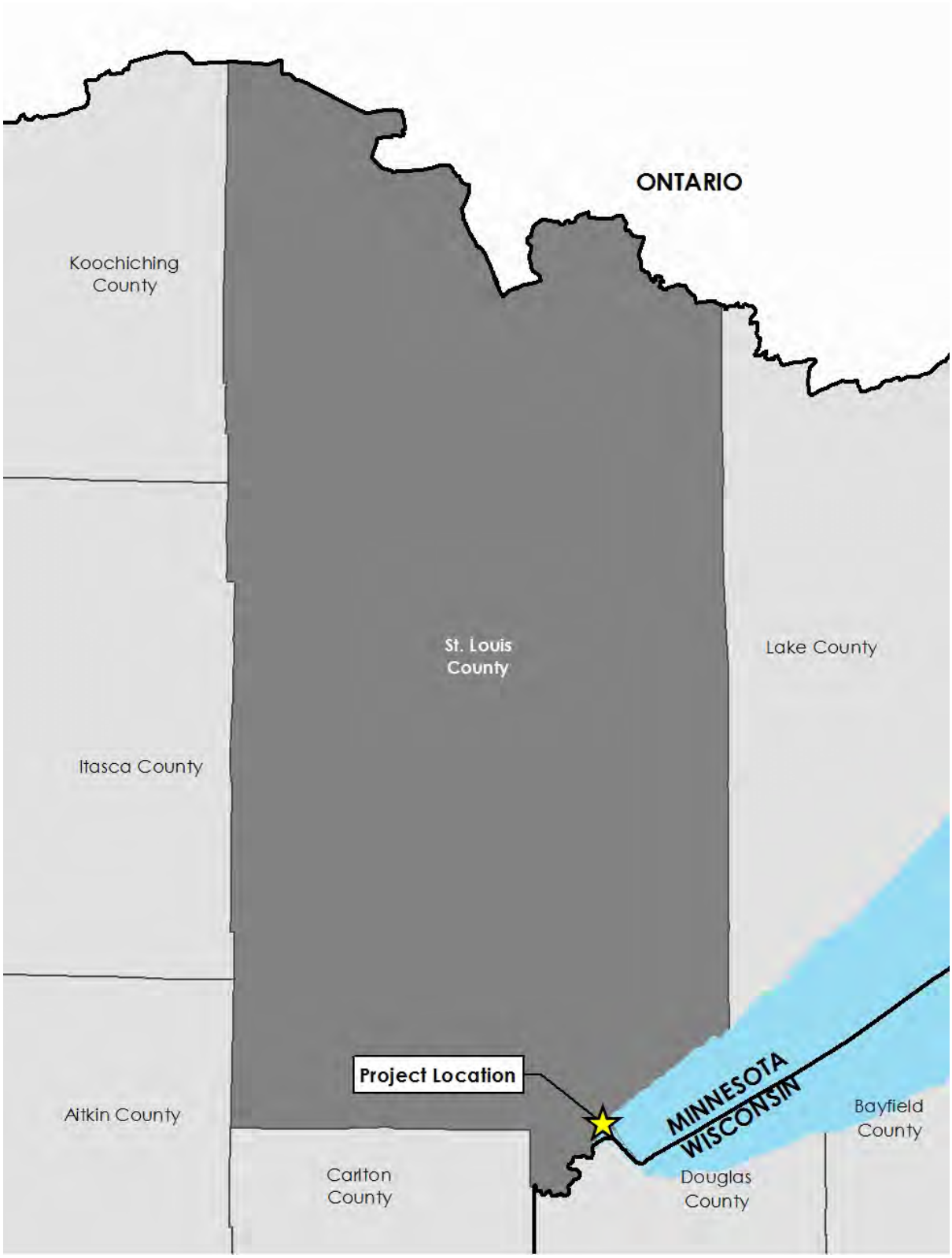
District Determination and Approval			
Based on the evaluation of this project and the attached documentation, it is determined that the project meets the criteria of and is properly classified as a Federal Categorical Exclusion (Class II Action Category 23 CFR 771.117 (c) (26). There are no extraordinary circumstances such as: 1. Significant impacts on the environment; 2. Substantial controversy on environmental grounds; 3. Significant impacts to Section 4(f) or 106 property; 4. Inconsistency with any federal, state or local law or administrative determination relating to the environment. It has been determined to be a: ☐ PROGRAMMATIC CATEGORICAL EXCLUSION. Does not exceed any threshold in Attachment B of the *Programmatic Categorical Exclusion Approval Agreement Between FHWA & MnDOT*. (Only District Signature is required) ☒ CATEGORICAL EXCLUSION (CE): It is a CE, but concerns exist regarding one or more thresholds in Attachment B of the *Programmatic CE Approval Agreement Between FHWA & MnDOT*. (Requires OES and FHWA signatures).			
Submitted by (Project Manager): 2/4/19		Approved by (District Engineer) 2/4/2019	
Roberta Dwyer, Project Manager	Date	Duane Hill, District Engineer	Date
OES and FHWA Approvals (***OES / FHWA signatures required if the project is NOT a Programmatic categorical exclusion)***			
Based on the evaluation of this project and the attached documentation, it is determined that the project meets the criteria of and is properly classified as a Categorical Exclusion.			
Approved:	2/5/19	Approved:	2/11/19
MnDOT Chief Environmental Officer	Date	FHWA Area Engineer	Date

This document is available in alternative formats to individuals with disabilities by calling the Project Manager at the phone number listed above or through the Minnesota Relay Service at 1-800-627-3529.

Project Map


Legend
Construction Limits
Trails
Shoreland Zone
Streams
Railroads
Water
Parks
Buckingham Creek
Superior Hiking Trail
ENGER PARK
W 3rd St
W 1st St
W 4th St
11th Ave W
N 10th Ave W
N 6th Ave W
S 5th Ave W
Bayfront Festival Park Trail
W Railroad St
53
Piedmont Ave
Skateboard Park
Coffee Creek
N 24th Ave W
N 21st Ave W
N 20th Ave W
N 19th Ave W
N 22nd Ave W
Cross City Trail
MSAS 194
Lincoln Park Park Trails
N 27th Ave W
W Michigan St
Miller Creek
35
W Superior St
S 27th Ave W
Carlton St
Garfield Ave
Helberg Dr
ST. LOUIS BAY
535
46TH AVE W INSET
N 46TH AVE W
W 1ST ST
MICHIGAN ST
ONEOTA ST
GRAND AVE
RAMSEY ST
0
750
1,500 Feet
NORTH

Area Map


ONTARIO
Koochiching County
St. Louis County
Lake County
Itasca County
Project Location
MINNESOTA
WISCONSIN
Aitkin County
Carlton County
Douglas County
Bayfield County

Report Purpose

This report for this Class II (Categorical Exclusion) action documents the project's need and description, as well as social, economic, and environmental impacts.

Project Description

Existing Condition

The Twin Ports Interchange (TPI) is located in the city of Duluth, St. Louis County, Minnesota. The Twin Ports region is located at the west end of Lake Superior and includes Duluth, Minnesota and Superior, Wisconsin.

I-35, I-535, and US 53 are all four-lane divided highways. I-35 and I-535 merge with US 53 at the TPI. I-35 connects Duluth to the Twin Cities to the south and Thunder Bay, Ontario via Highway 61 to the north. US 53 heads north out of Duluth to Minnesota's Iron Range and beyond to International Falls, Minnesota and Fort Frances, Ontario, and connects to the south to Wisconsin via I-535. US 53 also connects to US 2 in Superior, WI with connections to the Upper Peninsula of Michigan. In addition, the TPI is a vital piece of a multi-modal transportation system that includes four Class I railroads and the Port of Duluth-Superior.

Proposed Project

The TPI Reconstruction Project includes several improvements to address and correct immediate freight and safety issues caused by structural and geometric deficiencies. The project includes three main components and associated improvements that are described in the following sections and shown in Figure 1:

- Component 1: I-35/I-535/US 53 interchange reconstruction
- Component 2: US 53 reconstruction between I-35 and W 3rd Street
- Component 3: I-535/Garfield Avenue interchange reconstruction

Component 1: I-35/I-535/US 53 Interchange Reconstruction

I-35 is the region's central artery and is a four-lane divided highway. It was constructed in 1969 and includes eight mainline bridges. Over 250,000 square feet of the I-35 mainline surface area (roughly 2,200 linear feet) is currently built on bridge structure between approximately Miller Creek and the Garfield Avenue overpass. These bridges were constructed due to poor soils in the area. The ramps that make the interchange connections from I-35 to I-535 and US 53 include an additional 16 bridges. Of these 16 bridges, 12 are weight restricted[1] and seven are non-redundant.

The eight mainline bridges have experienced significant corrosion to the piling and have required emergency repairs, frequent inspections, and an extended emergency closure of I-35 southbound immediately adjacent to the project location, which lacks any alternate route. Due to changes in freight vehicle sizes, traffic volumes and patterns, interstate geometrics, and bridge conditions, improvements to the interchange are required. The I-35/I-535/US 53 interchange also has a number of geometric deficiencies that make it the interchange with the fourth highest crash rate in the state, accounting for more than one crash per week. These deficiencies include left exits and blind merge points with short weave distances.

The reconstructed interchange will accommodate existing and anticipated future traffic volumes and patterns, replace up to eight mainline I-35 bridges with an at-grade and divided interstate roadway, replace the remaining weight-restricted ramp bridges that connect I-35, I-535, and US 53, and address geometric deficiencies to reduce crashes.

Additionally, the 27th Avenue W (Bridge 69909[2]) is a continuous steel beam bridge that will be reconstructed with the TPI Reconstruction Project. The existing bridge geometrics need to be modified to accommodate the I-35 changes, allow for pedestrian/bicycle access, and turn lanes to match the new striping on 27th Avenue W.

[1] 12 weight restricted bridges are located at the main I-35/I-535/US 53 interchange; there are two additional weight restricted bridges located at the I-535/Garfield Avenue interchange.
[2] 27th Avenue W is currently listed as bridge number 69834. Once reconstructed, the bridge number will change to 69909.

Component 2: US 53 Reconstruction

US 53 is a critical freight route to northern Minnesota for the timber industry and taconite (iron) mines and intersects I-35 as the west approach to the interchange. The part of US 53 within the TPI Reconstruction Project between I-35 and W 3rd Street consists of six concrete box girder bridges constructed in 1972. The US 53 bridges provide access and connectivity for local, regional, and international traffic.

One US 53 mainline bridge is in poor condition (with a National Bridge Inventory (NBI) rating of 4) due to several shear cracks near an abutment and throughout the length of the concrete box girders near the piers. These cracks are a major concern for the future capacity of this bridge. This bridge also has cracking of the bottom and sides of the box girder near the abutment, which is causing significant spalling and delamination. Two associated bridges on the 21st Avenue W ramps have similar issues and are in fair condition (NBI ratings of 5). The other US 53 mainline bridge is in similar overall condition and has an NBI rating of 5. The deck has map cracking on the surface and cracking and delamination with rust staining on the bottom side and top of the interior of the box girder.

The six US 53 bridges be load-rated in the summer of 2018 due to the growing shear cracks in the webs of the cast-in-place concrete box structures at several locations. Additionally, there has been increasing deterioration at several locations that needs to be further studied to determine if any short-term repairs or weight restrictions are needed prior to full replacement of these bridges. A portion of US 53 between 1st Street W and 21 Avenue W may be replaced with a fill section instead of bridge structure.

The US 53 bridges will be reconstructed as part of the TPI Reconstruction Project to maintain and enhance local and regional connectivity and safety.

Component 3: (I-535/Garfield Avenue Interchange Reconstruction)

The I-535/Garfield Avenue interchange is the primary access point for the Port of Duluth-Superior. The interchange was constructed in 1969, and it has two weight restricted bridges that restrict access to I 535, I-35, and US 53 for oversize and overweight (OSOW) loads to and from the Port of Duluth-Superior. OSOW loads must travel several miles on local streets to reach the next interstate access, adding an estimated three hours to each move and resulting in increased costs for shippers and inconvenience for the local community. Reconstructing these bridges will allow overweight permit loads to more efficiently reach the interstate. It will also eliminate the short weave distances at these ramps.

I-535 also spans over a BNSF Railway spur track (Bridge 69810). This bridge is a continuous steel beam type bridge that is planned to be rehabilitated with the TPI Reconstruction Project. Preliminary analysis indicates that the beams at the outer edges of the bridge deck could be modified by adding additional steel bracing (diaphragms) at the piers to provide lateral support to the fascia beams. This work will increase the bridge capacity to carry AASHTO LRFD HL-93 Design Loads and MnDOT LRFD Permit Vehicles.

Proposed 2019 Traffic Mitigation Improvements

Pavement improvements will be implemented on a number of local city streets that are expected to see higher traffic volumes during construction of the TPI Reconstruction project (see Figure 2). These improvements will generally consist of pavement repair and/or restriping of lanes and include the following roadway segments:

- Garfield Avenue from the east end of the bridge over the railyard and I-35 (about 250 feet west of Railroad Street) to Nelson Street
- 27th Avenue W from southbound I-35 on/off ramp to Michigan Street W along with restriping for clearer channelization of traffic.
- 46th Avenue W from on ramp to southbound I-35 to Grand Avenue
- Railroad Street from Garfield Avenue to 5th Avenue W
- Intersection improvements at Garfield Avenue/Railroad Street intersection will be made to provide for clearer channelization of traffic

No pavement widening is required for any of these improvements. All work is being conducted within the existing curb line except for the ADA ramps that will be reconstructed at the intersections. ADA improvements on 27th Avenue W will be done with the reconstruction of the 27th Avenue W bridge.

Railroad Street Connection

MnDOT identified a route on the west side of I-35 that could provide an alternate parallel route to I-35 and enhance local access between the Lincoln Park neighborhood and downtown Duluth during construction. This route could follow 27th Avenue W to Michigan Street W/Lower Michigan Street W until Superior Street W where there would be a new intersection control (roundabout or signal) that would allow for easy turning onto Superior Street for vehicles that want to access Railroad Street via the existing Garfield Avenue overpass. Additionally, the 27th Avenue W bridge over I-35 would be restriped to three lanes and as noted above 27th Avenue W between the I-35 southbound ramps would also be restriped. No other improvements would be made to Michigan Street W between 27th Avenue W and just south of the Michigan/Superior Street W intersection. The proposed improvements are shown in Figure 2.

An additional option was considered that added a fourth leg to the intersection described above that would cross over I-35 and touch down at Railroad Street, where vehicles could continue toward the Canal Park/DECC/downtown area or turn right to get to Garfield Avenue and the freight related business and the port terminals. The estimated cost of a bridge over I-35 is approximately $10 million.

Creek Realignment Options

Miller and Coffee Creeks are designated trout streams that outlet to the St. Louis Bay within close proximity to each other after crossing in separate culverts under I-35. Given their proximity, MnDOT is considering combining the creeks into a common culvert or bridge under I-35 in addition to the alternative of maintaining their respective crossing locations.

If combined, Miller and Coffee Creeks would merge before crossing under I-35. This will allow for a cost-effective crossing (one location versus two) and less impact to rail operations during construction. Also provides opportunity for some creek channel improvements. Soil contamination in the realigned channel area will be investigated in preliminary design and if possible to relocate, addressed in design. The minimum structure width is estimated at 50 feet, based on a height of 6 feet and a length of more than 300. Given the size of this structure, a bridge for the creek crossing is also being considered. The proposed alignment is shown in Attachment A. The portion of Coffee Creek under US 53 between 1st and Michigan Street W will be realigned into 22nd Avenue W with the 2020 road improvements. The downstream portion of Coffee Creek would be realigned and combined with Miller Creek during the 2020 to 2023 construction.

If combining the creeks is not feasible, the default option would be to design independent culverts for each creek after confirming appropriate pipe sizes. This determination is dependent on contaminants and Minnesota Department of Natural Resources (DNR) and US Army Corps of Engineers (USACE) input.

27th Avenue W Over I-35

27th Avenue W (Bridge 69909) is a continuous steel beam bridge that will be reconstructed with the TPI Project. New configuration of the bridge will include a sidewalk /trail on the north side, one driving lane in each direction and a center turn lane.

Railroad Realignment Options

Two options are being considered for temporary track realignments (shoofly) that may be required during construction of the I-535 ramps to/from I-35 and the creek crossing(s) under I-35 and the railroad tracks. These options include:

- Construct a shoofly in the area of the creek crossing to maintain CN and BNSF track operations during construction of the new creek crossing and bridge removals.
- Construct a new CN/BNSF crossover south of the ore docks near 37th Avenue W to allow CN to temporarily or potentially permanently use BNSF trackage through the construction zone to minimize the extent of shoofly construction needed near Miller and Coffee Creek outfalls (see Figure 6).

Cost and Funding Source

Project Cost: The total project cost is $271.9 million. Table 1 provides a cost breakdown by project component.

Table 1: Cost by Project Component

Component	Estimated Construction Cost	Estimated Total Cost[3]
Component 1: I-35/I-535/US 53 Interchange Reconstruction	$113,500,000	$153,200,000
Component 2: US 53 Reconstruction	$61,700,000	$78,700,000
Component 3: I-535/Garfield Avenue Interchange Reconstruction	$26,900,000	$34,800,000
Local Road Improvements	$3,862,776	5,080,000
TOTAL	$205,962,776	$271,780,000

Funding Source(s): Federal, state

Schedule and Project Manager

Project Letting Date: April 26, 2019 for SP 6982-328. To be determined for SP 6982-322, SP 6980-60, and SP 6915-136

Date construction expected to begin: 2019 for SP 6982-328. Spring/Summer 2020 for SP 6982-322, SP 6980-60, and SP 6915-136.

Highway open to traffic: Yes, ramps will be detoured.

*MnDOT's Project Management System (Primavera P6) will contain the latest estimated letting date and pre-letting activity status information.

The Project Manager is:	**This report was prepared by:**
Roberta Dwyer 1123 Mesaba Avenue Duluth, MN 55811 (218) 725-2781 roberta.dwyer@state.mn.us	Beth Kunkel 2550 University Avenue W, Suite 238N Saint Paul, MN 55114 (651) 643-0455 beth.kunkel@kimley-horn.com

Schedule

Conceptual design has been completed, and preliminary engineering and environmental review are underway and are scheduled for completion in February 2019. The preliminary bridge designer and Construction Manager/General Contractor (CMGC) have been procured, and procurement of the final road designer was completed in December 2018. The project is using the alternative delivery method of CMGC, with the goal of completing all of the work within a single work package. Traffic mitigation work on local streets will begin in summer 2019. Work on the I-35/I-535/US 53 interchange is scheduled to begin in 2020. See Table 2 for project milestones.

[3] Total cost includes construction, contingency, railroad flagging and temporary railroad, and design and construction verification.

Table 2: Project Milestones

	Milestone	Start Date	Completion Date
Local Road Improvements	Design	August 2018	February 2019
	Municipal Consent	November 2018	January 2019
	Permits Submitted and Final Approvals	January 2019	March 2019
	Construction	June 2019	October 2019
TPI Project	Conceptual Design	June 2016	July 2018
	State Transportation Improvement Plan (STIP) Amendment Approval	July 2018	October 2018
	30% Design Review and Cost Estimate	September 2018	March 2019
	Environmental Reviews and Approvals	July 2016	February 2019
	Designer Procurement and Contract Execution	September 2018	December 2018
	CMGC Procurement and Contract Execution	May 2018	October 2018
	60% Design	March 2019	May 2019
	90% Design	June 2019	December 2019
	Final Layout Approval	December 2017	November 2018
	Permits Submitted and Final Approvals	January 2019	November 2019
	Right-of-Way Acquisition	July 2018	January 2020
	Railroad Agreements Executed	November 2018	January 2020
	Municipal Consent	Fall 2019	January 2020
	Remediation Action Plan (RAP)/Minnesota Pollution Control Agency (MPCA) Approval	November 2019	March 2020
	Bid	--	March 2020
	CMGC Work Package Issued	--	March 2020
	Construction	Spring 2020	November 2023

Need for Project

The purpose of the project is to improve the functionality (structural and geometric deficiencies) of the I-35/I-535/US 53 interchange, US 53 approach to the I-35/I-535/US 53 interchange, and I-535/Garfield Avenue interchange to improve the safety and flow of traffic and freight between the Port of Duluth-Superior and local, regional, and international destinations.

The project has two primary needs:

Bridge Condition: The infrastructure included in the TPI Reconstruction Project has structural deficiencies, including seven non-redundant and 14 weight restricted bridges, that need to be addressed to accommodate oversize and overweight (OSOW) loads and meet legislative directive.

Vehicle Safety: The I-35/I-535/US 53 interchange has geometric deficiencies, including two left exits, five blind merges,[4] and short weave distances, that need to be addressed to improve safety and mobility.

[4] There are four blind merges located at the main I-35/I-535/US 53 interchange and one at I-535/Garfield Avenue interchange.

The project also has one secondary need:

Freight Mobility: Weight restrictions prevent access to the I-35/I-535/US 53 and I-535/Garfield Avenue interchanges for the majority of OSOW freight loads.

An Alternatives Development Report (2018) has been prepared that provides further detail of the project's needs.

Alternatives

"No Build" Alternative

The No-Build Alternative would maintain the current bridge structures. This alternative would have no resource impacts; however, it would not address the existing bridge deterioration or roadway deficiencies within the project area, thus not meeting the purpose and need for the project.

Alternatives Considered

An extensive and thorough alternatives analysis was conducted for the project. Numerous concepts have been developed to address the infrastructure deficiencies and safety concerns for each of the primary project components, the Railroad Street connection, the local road improvements for traffic mitigation, and the creek realignment. The alternatives were evaluated based on the need and purpose criteria for the project. See the TPI Alternatives Development Report (2018) for a complete description of all the alternatives and evaluation criteria.

Preferred Alternative

The preferred alternative for the TPI Reconstruction Project includes the following to be constructed starting in 2019 and completion by 2023.:

- Component 1: I-35/I-535/US 53 interchange reconstruction – Concept C
- Component 2: US 53 reconstruction between I-35 and 3rd Street – Modified Fill or Bridge Option
- Component 3: I-535/Garfield Avenue interchange reconstruction – In-place Reconstruction or Rehab
- Railroad Street Connection – Improved intersection at Michigan/Superior Street W with and without bridge over I-35
- Pavement improvements on 27th and 46th Avenues W, Garfield Avenue and Railroad Street
- Creek Realignment to combine Miller and Coffee Creek into a common culvert or bridge
- Replacement of the 27th Avenue W bridge over I-35

See the Project Description section above for a full description and Attachment A for proposed layout.

Social, Economic, and Environmental (SEE) Impacts

This project has been reviewed for its potential effects on the environment and community. Information is presented for those items checked "yes" and meriting individual discussion. If items are checked in the "no effect" box, they have been considered, relative to appropriate laws, executive orders, rules, and regulations.

Social, Economic, and Environmental Impacts				
Issue	**Questions**	**Degree of Impact**		
	Will the project . . .	**Yes**	**No**	**Impact Description or Page Reference**
NATURAL ENVIRONMENT				
Farmland Impacts	Require any right of way?		X	One parcel is being acquired; it is within the city limits of Duluth and does not contain farmland or prime farmland.
Fish and Wildlife	Affect fish or wildlife? (including Migratory Birds)	X		See full description in comments below. See DNR Questionnaire Responses Letter in **Attachment B**.
Threatened and Endangered Species, Federal	Affect any Federal endangered species due to project location and design?		X	See MnDOT Office of Environmental Stewardship Section 7 Determination Letter in **Attachment B**.
Threatened and Endangered Species, Species of Special Concern, State	Affect any State endangered species due to project location and design?		X	See the Minnesota Natural Heritage Information System review results in the DNR Questionnaire Responses Letter in **Attachment B**.
Visual Quality	Affect visual quality to or from natural visual resources, cultural visual resources, or project environment?		X	See full description in comments below.
Vegetation	Affect any of the four vegetation categories?		X	See MnDOT Roadside Vegetation Management Unit Review in **Attachment B**.
Water-Related Issues				
Floodplains	Cross or lie adjacent to any floodplain area?	X		See full description in comments below.
Wetlands	Have wetlands present within the construction limits?	X		See full description in comments below.
	Affect wetland habitat?	X		
Stream or Water Body Modification	Change the course, current, or cross section of any stream?	X		See full description in comments below.

Social, Economic, and Environmental Impacts				
Issue	**Questions**	**Degree of Impact**		
	Will the project . . .	**Yes**	**No**	**Impact Description or Page Reference**
Special River Concerns	Affect > a state or federal **Wild & Scenic River;** > a federal candidate **Wild & Scenic River;** > a state **Canoe & Boating River**; > **MNRRA**		X	
Erosion Control	Involve major soil disturbance (depth or volume) or have erosion potential due to land form, wind patterns, or water volume?	X		See full description in comments below.
Water Quality	Affect water quality of lakes, streams, wetlands, etc.?	X		The impervious surface within the project construction limits is estimated to increase by 3.92 acres with the proposed reconstruction. Three wet ponds are being designed to meet water quality treatment requirements. The ponds will be designed as large as possible within the constraints of existing right-of-way. Grit chambers or similar best management practices (BMPs) may be designed in addition to the three wet ponds to provide additional total suspended solids removal.
Section 404 Permit (USACE)		X		The project will qualify for the general permit for transportation projects from the US Army Corps of Engineers (USACE) as authorization under Section 404 of the Clean Water Act.
Coast Guard Permits			X	
Coastal Zone Impacts	Affect highways along Lake Superior?	X		According to the City of Duluth's zoning map, the project area along the shoreline of the St. Louis Bay falls within the City of Duluth's General Development Shoreland Management Zone and Flood Boundary (see Project Map). The creek outfalls and a portion of the I-535 ramp bridges fall within the Shoreland Zone. However, MnDOT is exempt from city regulations.
PHYSICAL / CONSTRUCTION				
Air Quality	Affect air quality?		X	
Noise	Affect noise sensitive receptors?	X		See full description in comments below.
Utilities	Affect utilities?	X		See full description in comments below.

Social, Economic, and Environmental Impacts				
Issue	**Questions**	**Degree of Impact**		
	Will the project . . .	**Yes**	**No**	**Impact Description or Page Reference**
Construction Impacts	Cause construction impacts (erosion, noise, air, vibration, etc.)?	X		See full description in comments below.
Contaminated Properties or Materials	Involve excavation (including utilities) in any known or potentially contaminated property, or handling of any contaminated materials?	X		See full description in comments below. See MnDOT Office of Environmental Stewardship Contaminated Properties Letter in **Attachment B**.
Excess Materials	Involve disposal of excess materials outside planned construction limits?	X		An oversight consultant will be required for the asbestos and PCB caulk removal on the bridges for demolition and renovation.
Groundwater Geology, Earthborne Vibration	Affect groundwater, geology, or cause earthborne vibrations?	X		See full description in comments below.
Traffic Detour	Require a traffic detour?		X	Temporary lane closures may occur during the local street improvements. I-35 will remain open to traffic with temporary lane and ramp closures to occur during ramp and bridge construction. Local traffic improvements are being made ahead of the TPI project in order to accommodate the increase of traffic on local city streets during construction. See the full list of proposed local work under the Proposed Project section.
SOCIAL-ECONOMIC				
Access Control	Change access to properties (close, change location, make one-way, etc.)?		X	
Land Use Impacts	Be inconsistent with local and regional land use plans?		X	
Relocation	Require any relocation of homes or businesses?		X	
Right of Way	Require any right of way (or easements)?	X		See full description in comments below.
Parks, Recreation, Section 4(f) or 6(f)(LAWCON)	Use any significant public park, recreation, or wildlife or waterfowl refugees, or any historical site? Will the project affect any LAWCON land?		X	

Social, Economic, and Environmental Impacts				
Issue	**Questions**	**Degree of Impact**		
	Will the project . . .	**Yes**	**No**	**Impact Description or Page Reference**
Economic Impacts	Affect business activity or have other economic impacts?		X	
Environmental Justice	Have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations?		X	See full description in comments below.
Social	Affect public safety (i.e. police or fire protection)?		X	
	Impact sensitive groups (children, handicapped, minorities, poor, etc.)?		X	
	Affect accessibility to schools, churches, recreation facilities, etc.?		X	
	Affect community cohesion?		X	
Bikeways & Pedestrians	Affect bicycle and/or pedestrian movements?	X		See full description in comments below.
Accessibility	Affect sidewalk or curb and gutter (design for)?	X		Work will be done at 46th Ave/Michigan Street W intersections, and on Garfield Avenue as part of the local road improvement. Improvements at 27th Ave /Michigan Street W will be completed when the 27th Ave W bridge replacement occurs; the pedestrian ramps will be upgraded to be ADA compliant.
Transit	Affect transit routes?		X	According to the Duluth Transit Authority[5] route map, there are no transit routes that travel on US 53, I-35, or I-535 in the project area.
Controversy	Be controversial or be likely to cause controversy?		X	MnDOT has and will continue to engage the public, municipalities and effected parties to address key concerns related to the project's design. Over the past 2 years, MnDOT has held a series of stakeholder meetings, conducted a public travel survey that received over 800 responses, held monthly update meetings for the public, and formed a stakeholder advisory committee to advise MnDOT on interchange design refinements and bring forward community input.

[5]Available at: http://www.duluthtransit.com/

Social, Economic, and Environmental Impacts				
Issue	**Questions**	**Degree of Impact**		
	Will the project . . .	**Yes**	**No**	**Impact Description or Page Reference**
CULTURAL RESOURCES				
Historical Archaeological Cultural	Affect any historical, archaeological, or cultural site?	X		See full description in comments below. See MnDOT Cultural Resources Determination Letter and MnSHPO's Determination Letter in the **Attachment B.**
Tribal Lands	Affect Tribal Lands?		X	

Notes Clarifying SEE Concerns

Fish and Wildlife

Two Wildlife Management Areas (WMA) are located in the St. Louis Bay Estuary near the project area (Interstate Island WMA and Hearding Island WMA). Both of these facilities contain Colonial Waterbird Nesting Areas and are managed for the Common Tern *(Sterna hirundo*), a state listed species (Threatened). Work proposed will not directly impact these areas, but the contractor should be aware of these nearby areas.

The Piping plover (*Charadrius melodus*), listed as Endangered on both the state and federal Threatened and Endangered Species lists, have been known to utilize the WMAs; however, no entries exist in the NHIS since 2000.

Northern long-eared bat (*Myotis septentrionalis*), federally listed as threatened and state-listed as special concern, can be found throughout Minnesota. During the winter this species hibernates in caves and mines, and during the active season (approximately April-October) it roosts underneath bark, in cavities, or in crevices of both live and dead trees. Pup rearing is during June and July. Activities that may impact this species include, but are not limited to, any disturbance to hibernacula and destruction/degradation of habitat (including tree removal).

The St. Louis Bay Estuary has been designated as Infested with Aquatic Invasive Species (AIS) due to the presence of New Zealand Mudsnail, Round Goby, Ruffe, Spiny waterflea, viral hemorrhagic septicemia (VHS), White Perch, and Zebra Mussel. No work should be allowed in the Bay if avoidable (including pumping water for construction purposes). Where work is required, the contractor will follow best practices that have been developed for construction equipment to prevent their spread. See Attachment B Determination Review from MnDOT's DNR Liaison.

Visual Quality

The project area is an existing highway corridor that does not include any scenic views or vistas. The proposed project will reconstruct the existing roadway within the current right-of-way limits.

Minor changes in bridge elevations will occur and as a result, the viewshed to the TPI bridges may be modified. MnDOT has established a visual quality committee to produce a Visual Quality Manual to identify aesthetic requirements for the new bridge and wall design. The manual will include design requirements and guidance for the project for the associated visual quality goals identified through public involvement.

Vegetation

Trees will be removed for the reconstruction of the bridges. The additional project improvements (ADA work, potential roundabout, potential creek realignment) may have minor tree impacts. Coordination with MnDOT's Natural Resource Specialist will be required as the project advances into final design so that a more detailed review can occur to better determine vegetation/tree impacts, and the potential need for vegetation protection measures in the construction plans.

Floodplains

The project limits along I-535 are within the boundary of the St. Louis Bay Floodplain (shown on Figure 3), which is at an elevation of 605 feet. The floodplain boundary is based on Federal Emergency Management Agency (FEMA) 100-year floodplain and floodway data.[6] There will be a minimal amount of fill within the floodplain for new bridge piers, and existing bridge piers will be removed; therefore, there is not expected to be any net floodplain storage impact and no further floodplain mitigation required.

Wetlands

A wetland delineation was conducted in 2017 updated in 2018 for the main interchange area (see Figure 3 and Attachment D for location of delineated wetlands). Additional areas have since been delineated to cover all areas within the preliminary project limits. Attachment D lists the identified wetlands, showing their types and sizes.

It was not feasible to completely avoid all wetland impacts resulting from the TPI Reconstruction Project. Wetland impacts that are unavoidable have been minimized to the extent practicable without compromising safety. Alternatives considered are described in the Alternatives Development Report (2018) and will be outlined for the permit application review process and coordination with the permit agencies.

In total, 2.09 acres of permanent impact is anticipated at eight wetlands (shown in Attachment D). Of those impacts, 0.17 acres are to wetlands located at the bottom of roadside ditches (wet ditches). Wetlands 1, 2, 3, 8, 10, 11, and 13 are located in wet ditches and basins underneath, between, or adjacent to the existing I-35 southbound lanes (Wetlands 1, 2, 3, 8, 11, and 13) or the existing I-535 northbound lane (Wetland 10). They contain stormwater infrastructure such as culverts and drains. These impacted wetlands appear to function as stormwater catchment that flows either indirectly or directly toward St. Louis Bay. Based on the historic review of photos from 1902 and 1905, the wetlands appear to be within an industrial port with largely developed, upland conditions. Furthermore, history of drainage infrastructure designed/constructed at the time of the interchange (circa 1968 plan set from MnDOT) show constructed ditches for road runoff/catchment between the north and southbound I-35 lanes. Based on this historic aerial and plan review, it is anticipated that these wetland resources may not be regulated and, therefore, minimization efforts were not focused in these areas.

Portions of permanent impacts to Wetland 9 are located underneath existing bridge structure. The preliminary bridge design minimized new impact by extending the new bridges over portions of Wetland 9. As design continues, further reduction in impact may be made depending on the final location of the bridge abutment. The extent of minimization will be dependent on soil conditions, water table, and contamination.

Stream Modification

If combined, Miller and Coffee Creeks would merge before crossing under I-35. This will allow cost effective crossing (one location versus two) and less impact to rail operations during construction. Also provides opportunity for some creek channel improvements. Soil contamination in the realigned channel area will be investigated in preliminary design and if possible to relocate, addressed in design. The minimum structure width is estimated at 50 feet and a height of 6 feet, and more than 300 feet long, thus a bridge may be considered for this crossing. The proposed alignment is shown in Attachment A.

Erosion Control

A Stormwater Pollution Prevention Plan (SWPPP) will be developed for this project. All areas disturbed during construction would be revegetated in accordance with the SWPPP and related permitting requirements. MnDOT will revegetate disturbed soils with native seed mixes in areas that are not proposed for mowed turf grass using the guidance developed by the Minnesota Board of Water and Soil Resources or the Vegetation Establishment Recommendations (MnDOT, 2015). In areas with steep slopes, special consideration will be given to prevent erosion during construction, such as erosion control blankets and soil reinforcement. No impacts to soils or topography are anticipated once construction of this project is complete.

[6] Minnesota Geospatial Commons, available at https://gisdata.mn.gov / (accessed August 2018)

Noise

Construction Noise

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 3 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 3: Typical Construction Equipment Noise Levels at 50 Feet[7]

Equipment Type	Manufacturers Sampled	Total Number of Models in Sample	Peak Noise Level (dBA) Equipment Type	
			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 that 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 that night construction may be required to expedite construction, minimize traffic impacts, and improve safety. However, construction will be limited to daytime hours as much as possible.

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 not expected to be necessary for this project. High-impact noise construction activities will be limited in duration to the greatest extent possible. The use of pile drives, jack hammers, and pavement sawing equipment will be prohibited during nighttime hours.

Traffic Noise Analysis

The project includes significant changes to the vertical and horizontal alignment of the project area roadways. As such, this project is considered a federal Type I project[8] requiring a traffic noise analysis. The following is a summary of the TPI Traffic Noise Analysis Report. The complete TPI Traffic Noise Analysis Report is included in Attachment C. This report includes background information on noise, information regarding federal traffic noise regulations and MPCA state noise standards, a discussion of the traffic noise analysis methodology, documentation of the potential traffic noise impacts associated with the proposed project, and an evaluation of noise abatement measures.

Federal Requirements

The FHWA's traffic noise regulation is located in 23 Code of Federal Regulations (CFR) Part 772 (Procedures for Abatement of Highway Traffic Noise and Construction Noise). 23 CFR 772 requires the identification of highway traffic noise impacts and the evaluation of noise abatement measures, along with other considerations, in

[7] Environmental Protection Agency (EPA) and FHWA.
[8] Federal Highway Administration, 23 CFR 772.5 and Type I Projects; more information available at https://www.fhwa.dot.gov/Environment/noise/regulations_and_guidance/analysis_and_abatement_guidance/polguide02.cfm

conjunction with the planning and design of a federal-aid highway project (i.e., projects funded or approved through the FHWA).

Under federal rules, traffic noise impacts are determined based on land use activities and predicted loudest hourly Leq noise[9] levels under future conditions. For example, for residential land uses (Activity Category B), the Federal Noise Abatement Criterion (NAC) is 67 dBA (Leq). We use the term receptor 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.

State Requirements

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's 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.

Methodology

Field measurements of existing noise levels were measured at 9 locations within the TPI project area. These locations were identified because they are representative of the surrounding area and the typical cross section for that section of highway. Field measurements were tested against model results. Noise levels from the field measurements were within 3 dBA (L10) of modeled noise levels, validating the model.

Traffic noise modeling was completed using the FHWA approved Traffic Noise Model 2.5 (TNM 2.5). Traffic noise levels were modeled for existing conditions (2016), the future (2040) No Build Alternative, and the future (2040) Build Alternative.

Because hourly traffic volumes and vehicle mix was not available, the loudest noise hour was determined by using the highest traffic volume on each roadway segment from the provided AM and PM peaks for each segment. This creates a conservatively high hybrid peak noise hour for modeling.

Traffic noise levels were modeled at a total of 374 receptor locations representing residential, recreational, commercial, and industrial land uses within the TPI project corridor. Additional details regarding the noise modeling methodology are described in Attachment C.

Findings

Detailed analysis results for each modeled receptor location can be found in the Traffic Noise Analysis Report in Attachment C. The analysis results are summarized below.

- The existing Leq noise levels at modeled receptors varied between 45.9 dBA and 73.5 dBA
- Future 2040 No Build daytime Leq noise levels were predicted to range between 46.5 dBA and 74.2 dBA.
- Future 2040 Build daytime Leq noise levels were predicted to range between 45.9 dBA and 76.1 dBA, exceeding state noise standards at 52 receptors.

The analysis shows that under future No Build Alternative conditions, traffic noise levels are projected to increase by 0.4 dBA to 1.5 dBA (Leq) compared to existing conditions for most modeled receptors. Modeled traffic noise levels under the future Build Alternative are projected to vary by -11.1 dBA below, to 3.0 dBA (Leq) greater compared to existing conditions.

[9] Measured traffic noise levels are characterized as a function of time. The equivalent steady-state sound level which in a stated period contains the same acoustic energy as the time-varying sound level during the same period, with Leq(h) being the hourly value of Leq. In effect, it's analogous to the "average" sound level over a given period.

Potential Noise Abatement

Noise abatement measures (i.e., noise walls) were evaluated along the TPI project area at receptor locations where modeled noise levels were projected to approach or exceed Federal NAC, or result in a substantial increase (i.e., increase by 5 dBA or greater from existing to future Build Alternative conditions).

The noise wall analysis was completed on a total of 5 walls along the corridor. Of the 5 walls analyzed, none could meet MnDOT requirements and are not proposed as part of the project. Additional details of the noise wall analysis are also included in Attachment C.

The traffic noise analysis for the TPI project area noise walls 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 of benefited residents and property owners. If conditions substantially change by the time the project reaches the final design stage, the analyzed noise abatement measures will be reconsidered.

If that occurs, receptors that would have received benefits from noise walls, and local officials will be notified of plans to add a noise abatement measure prior to 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. A final decision on noise abatement measures will be determined during final design.

Utilities

MnDOT conducted a subsurface utility engineering (SUE) report in 2016 for the majority of the project area. A supplemental investigation and report was done in 2018 within the estimated project limits that were not investigated in the original report. Storm sewer and culverts were documented in a separate report (Twin Ports Interchange Miller and Coffee Creek Hydraulics, 2018). The different utility types within the corridor, owners, and the primary areas of potential impact are listed in Table 4.

Table 4: Utility Ownership within the Project

Utility Owner	Utility Type	Potential Conflict Points
Western Lake Superior Sanitary District	Sanitary Sewer	Crossings of I-35 at 26th Avenue W and about 550 feet further north; and under US 53 along Michigan, Superior and 1st Street W, and 22nd Avenue W; and following US 53 between 1st Street W and the lift station
City of Duluth	Water / Storm Sewer/ Sanitary Sewer/Gas	• A gas main runs along Lower Michigan Street W and crosses I-35 near 26th Avenue W, Garfield Avenue, and US 53 at Michigan and 1st Streets W. • A sanitary lift station at Lower Michigan Street W and US 53 bridge will need to be relocated. • Coffee Creek storm tunnel follows US 53 from 1st Street W to Michigan Street W and though interchange to bay • Water mains and services were designated throughout the project limits
CenturyLink	Telecommunications	No conflicts identified to date
Charter	Telecommunications	No conflicts identified to date
Consolidated Communications	Telecommunications	There are numerous fiber optic and telephone installations, both overhead and underground, located throughout the project corridor.
Northeast Service Corp.	Telecommunications	No conflicts identified to date
Zayo	Telecommunications	No conflicts identified to date
Minnesota Power	Power	Several overhead and buried power installations were mapped throughout the project corridor
MnDOT	ITS	To be reinstalled throughout the project corridor
MnDOT	Illumination and Traffic	Power to traffic signal, cameras, and lighting

MnDOT will be responsible for removing and relocating power and fiber it needs for traffic management systems, and the storm sewer management system serving the project components. The project design will avoid the existing sanitary sewer, gas, and water crossings to the extent possible. This will be achieved primarily by matching existing storm inverts to avoid utilities. Special design details will be developed to relocate the City's lift station. In the Coffee Creek realignment area, a number of small gas, sanitary, and water lines may need to be adjusted and new storm connections made. Power and fiber in most areas will need to be relocated. MnDOT is coordinating with these utility owners regarding potential impacts, construction schedule and how impacts can be minimized.

Construction Impacts

Many of the impacts described in the various resource topics have identified temporary impacts that will occur during construction. Specific measures or permit requirements have also been described that will minimize and/or restore the resources impacts post-construction. These temporary construction impacts include the following resource categories:

- Dust generated during construction that may affect drivers, businesses, and residents
- Construction noise generated during construction that may affect nearby businesses and residents
- Vibrations associated with bridge and sheet piling that may affect nearby existing structures
- Stormwater/erosion control for surface waters within project limits
- The handling of contaminated properties and regulated waste
- Traffic disruptions from required lane and ramp closures during construction that may cause delays and congestion
- Right-of-way acquisitions

Contaminated Properties

The project will involve excavation, including utilities, of known or potentially contaminated property or handling of contaminated materials. A Phase I Environmental Site Assessment (ESA) was completed in January 2018 to identify all known or potentially contaminated properties in the project area. The Phase I identified 42 high, 66 medium and 22 low risk sites for the project area and numerous of these high and medium sites have potential or are known to have released chemicals into the environment (see Figure 4). Based on the results of the Phase I, a Phase II ESA was recommended and is currently in progress.

Drilling work plans are currently being completed for investigations of the soil and groundwater to establish the presence of and the magnitude of those chemical impacts to the environment. This information will be used in conjunction with the construction design plans to write specific contract special provisions and a Response Action Plan (RAP) for known contamination on how to manage known soils and groundwater that will be moved during construction. Unknown materials may also be encountered during construction that were not identified during the initial site investigations. A Construction Contingency plan (CCP) will be written and incorporated within the Response Action Plan, and it will discuss how to handle the unknowns that are encountered. If necessary, MnDOT may enroll documents summarizing the investigations and the material handling into the MPCA Brownfield Program to obtain regulatory assurances for property acquisition and to obtain approvals for the management and clean-up plans. MnDOT will hire an environmental construction oversight contractor, if necessary, to help manage contaminated and regulated materials and to make sure that these materials are handled in accordance with all appropriate federal, state, and local regulations.

Regulated materials such as asbestos or PCB caulk will be removed from the bridges and any buildings prior to demolition. A demolition plan will be prepared for these materials and removals will be monitored by an oversight consultant.

Groundwater, Geology, Earthborne Vibration

Review of the Minnesota Department of Health (MDH) County Well Index[10] shows several wells along the I-35 corridor but located outside the proposed right-of-way limits. The wells range in depths of 6 to 20 feet. Four wells were identified during surveys of the project area. If additional wells are encountered during construction, they will be sealed in accordance with MDH regulations.

[10] Minnesota Department of Health County Well Index, available at https://apps.health.state.mn.us/cwi/

MnDOT is in the process of completing dozens of soil borings that will provide additional groundwater level information.

The project will require pile driving activities during reconstruction of the bridges. MnDOT will perform a building susceptibility study to monitor vibration impacts for general construction activities, including pile driving. This includes a pre-conditions survey for structures adjacent to the work area, monitoring vibrations during construction, and a post-conditions survey of the adjacent structures. The areas to be monitored will be determined by MnDOT's Foundations Office before construction begins.

Right-of-Way

23,701 square feet of permanent easement is being acquired from a parcel at US 53 and Lower Michigan Street W (parcel number 226B). 46,214 square feet of temporary easement will be needed for construction from six parcels. One parcel (parcel number 22) will require some right-of-way; however, the amount is still being determined. See Table 5 for summary of right-of-way acquisition.

Table 5: Summary of Right-of-Way Acquisition

Parcel Number	Owner	Temporary Easement (Square Feet)	Permanent Easement (Square Feet)
226	City of Duluth (Public)	4,355	-
226D	City of Duluth (Public)	15,510	-
226B	Jo Ed Partners (Private)	-	23,701
226A	Autobahn Service and Repair	11,754	-
22	Thomas O. Pirkola	To be determined	To be determined
230	Northern Door and Hardware, Inc.	2,100	
231	CT Productions, LLC	677	
327	Triple J Holdings of Duluth, LLC	11,818	
	Total	46,214	23,701

Temporary occupancy or easement will be required from the City of Duluth for the 2019 road improvements on 46th and 27th avenues, and Garfield and Railroad streets. This work will be limited to areas already paved and therefore will not permanently change the use or function of these roadways. Temporary lane closures may occur during construction of these local road improvements.

Temporary construction access will also be required from BNSF Railway and Wisconsin Central, Ltd. Negotiations with both railroads are on-going and will continue throughout project development. Construction access is part of a general agreement with the railroads, as documented in Attachment B.

Parks, Recreation, Section 4(f) or 6(f)(LAWCON)

Enger Park is located northwest of the project, and the Cross City Trail follows portions of I-35 by permit (see Project Map). There is a skate park under US 53 near 20th Avenue W that is located within MnDOT right-of-way but currently functions without a permit.

The project will not affect Enger Park. Impacts to the Cross City Trail will be temporary during construction as the trail is realigned outside the construction zone for user safety. The anticipated route will shift from Michigan/Lower Michigan Street W to Superior Street W. The skate park similarly will be closed to users during construction of that portion of US 53. A Limited Use Permit will be coordinated with the City to operate the skate park in its current location post-construction.

Environmental Justice

The purpose of Executive Order 12898 is to identify, address, and avoid disproportionately high and adverse human health or environmental effects on minority[11] and low-income populations. 2012-2016 American Community Survey data was examined to determine if minority and/or low-income populations are present in the project limits by block group level, which is the smallest geographic unit for which race and ethnicity data is available. The project falls within five block groups. The summary of low income and minority demographics by block group is shown in Table 6.

Table 6: Demographic Analysis Summary

	Income[12]				Race and Hispanic Origin[13]				
	Population for Whom Poverty Status Is Determined	Population Below Poverty	% Below Poverty Level	Difference from City	Total Population	White Alone, Not Hispanic Or Latino	Minority Population	% Minority	Difference from City
Duluth	108,807	16,500	15.2%		112,165	103,318	8,847	7.9%	
St. Louis County	192,381	29,875	15.5%		200,353	185,370	14,983	7.5%	
Block Group 2, Census Tract 19	701	9	1.3%	-13.9%	701	693	8	1.1%	-6.7%
Block Group 2, Census Tract 20	1069	158	14.8%	-0.7%	1146	1091	55	4.8%	-2.7%
Block Group 1, Census Tract 156	1292	168	13.0%	11.7%	1292	1232	60	4.6%	3.5%
Block Group 3, Census Tract 156	1349	38	2.8%	-12.0%	1355	1322	33	2.4%	-2.4%
Block Group 2, Census Tract 156	729	50	6.9%	-6.1%	770	701	69	9.0%	4.3%

Only one out of five block groups within the project is higher than the city percentage of residents below the poverty level (11.7% higher). Similarly, two out of five block groups have a slightly higher percentage of minority residents within the project limits (3.5% and 5.3% higher). There are minority and low-income populations present within the project area; however, due to the nature and location of the project, there is no evidence that the project will have disproportionately high and adverse effects on these minority and low-income populations. Therefore, no Environmental Justice impacts are anticipated for this project.

Bikeways and Pedestrians

MnDOT provided the following pedestrian and bicycle comments:

[11] Minority populations were defined as non-white populations.
[12] Data are based on poverty status of individuals in the past 12 months by living arrangement by block group. Source: U.S. Census Bureau, 2012-2016 5-Year American Community Survey.
[13] Data are based on Population by Race by block group. Source: U.S. Census Bureau, 2012-2016 5-Year American Community Survey.

- A temporary pedestrian access route (TPAR) plan will be required for any disrupted sidewalks. Consider non-motorized users when posting detours. Place detour signs at strategic decision-making points for bicyclists and walkers.
- Additional guidance on pedestrian crossings from MnDOT Traffic Engineering Manual, Chapter 13 Non-Motorized Facilities, MnDOT Bicycle Design and Engineering Guidance, and pedestrian accommodations through work zones.

The Cross City trail that runs beneath the project area near I-35 will be temporarily detoured to Superior Street W during construction. Detour signs will be posted for bicyclists and walkers.

Historical Archaeological Cultural

Archaeology

MnDOT's Cultural Resource Unit (CRU) completed an Archaeological Investigation within the defined archaeological Area of Potential Effect (APE) (see Figure 5 for location). The APE encompasses:

- Reconstruction of the I-535 and Garfield Avenue interchange
- Reconstruction of the main interchange of I-35/I-535/US 53 and the I-35 mainline from Garfield Avenue to 27th Avenue W, including new structures and relocation of Coffee and Miller Creeks
- Reconstruction of US 53 from approximately 2nd Street W to the junction of I 35
- Other ancillary segments, including 46th Avenue W

The majority of the project activities will occur within existing MnDOT right-of-way; therefore, the investigation focused on areas of potential project disturbance that had minimal prior disturbance and within areas of known archaeological sites, including the original Lake Superior shoreline, original creek channels (Coffee and Miller Creeks), an old trading post, and a cemetery that was reportedly relocated. Areas of ground created by fill material beyond the historic shoreline, prior disturbance, inundation, or other low archaeological potential were excluded from the survey.

The archaeological fieldwork consisted of a visual inspection of the project areas with moderate to high archaeological potential within the APE. Monitoring of MnDOT's soil boring project was the primary method used, supplemented with mechanical and/or geoprobe testing and guided by the literature search, to assess the potential for suspected subsurface resources or intact soils.

The Archaeological Investigation report found while the project area would generally be considered an area of moderate to high archaeological potential given its proximity to the St. Louis River and the mouths of Coffee and Miller Creeks, much of the project area was historically wet and thus consists of created land or has been disturbed by the construction of railyards, the existing interchange, and city utilities. As a result, the archaeological potential of the area has been significantly moderated.

Monitoring of borings are ongoing and will continue into 2019. Borings thus far have been typical of an urban environment, where either intact soils have been completely removed or deeply-buried by fill events. Recommendations regarding next steps are pending the completion of the environmental borings, but based on the information gathered to date, limited areas of intact archaeological deposits may be present within the project area but will not be able to be sampled due to their depth and the presence of existing infrastructure. Therefore, in-person construction monitoring may be used to evaluate potential for archaeological resources in the APE.

Tribal Coordination

MnDOT CRU sent tribal coordination letters on April 20, 2018 to the Bois Forte Band of Chippewa, Fond du Lac Band of Lake Superior Chippewa, Grand Portage Band of Lake Superior Chippewa, Santee Sioux Nation, Turtle Mountain Band of Chippewa and the Upper Sioux Community. A coordination letter to Minnesota Indian Affairs Council (MIAC) was sent on April 16, 2018. Although no written responses were received, MnDOT CRU has had ongoing meetings and verbal communications since April 2018 with the Fond du Lac Band, the Minnesota Indian Affairs Council (MIAC) and the State Archaeologist as field work and monitoring have continued.

Historic Resources

MnDOT CRU has also completed a Phase I-II Assessment of history/architecture resources. A total of 185 pre-1976 resources are located within in the APE, of which seven were carried forward for Phase II investigation,

including a proposed historic district. The APE included the interstate highway system and 44 bridges (see Figure 5).

Three properties in the APE were previously determined eligible for listing on the National Register of Historic Places (NRHP):

- Great Northern Power Company Substation (SL-DUL-3386) at 1424 W Superior Street
- Lake Superior and Mississippi (LS&M) Railroad (SL-DUL-2500)
- Duluth, Missabe & Iron Range (DM&IR) Railroad (SL-DUL-2499)

Based on an evaluation as part of this study, the LS&M Railroad segment from West Duluth Jct. to Lake Ave. S. was determined as non-contributing due to loss of integrity. The Phase II evaluation identified one additional property that has been determined eligible for the NRHP: the Goldfine's By the Bridge building (Goodwill) located at 700 Garfield Avenue. Table 7 lists the resources evaluated in the Phase II report.

In 2005, the Advisory Council on Historic Preservation issued the Interstate Highway Exemption, which relieves federal agencies from considering the vast majority of the Interstate Highway System as an historic resource under Section 106 of the National Historic Preservation Act and Section 4(f) of the US Department of Transportation Act.[14] The portion of I-35 and I-535 within the APE are covered by this exemption and, therefore, a Section 106 and Section 4(f) evaluation is not required for the interstate segments within the project area.

The Phase I-II architecture/history report was submitted to MnSHPO for concurrence in September 2018 (see Attachment B for MnDOT CRU's letter).

Table 7: History/Architecture Resources Evaluated in Phase II

Resource	ID	Status	Recommendation	Potential Effects
Duluth, Missabe & Iron Range Railroad (DM&IR)	SL-DUL-2499	Eligible		A very short segment of the DM & IR Railroad is located within the APE at the CN/BNSF crossover. Addition of this crossover is a typical operational activity that will have no adverse effect on the DM & IR Railroad.
Lake Superior & Mississippi/Northern Pacific Railroad (LS&M)	SL-DUL-2500	Eligible	Noncontributing, due to a loss of integrity (segment from West Duluth Jct. (67th Avenue S) to Lake Avenue S)	As a noncontributing segment of the railroad corridor, these proposed changes to enable continuation of operations during the construction period would have no adverse effect on the historic property.
Great Northern Power Company Substation	SL-DUL-3386	Eligible		The proposed project construction would have no adverse effect on the Great Northern property.
Chicago, St. Paul, Minneapolis, & Omaha Railroad	SL-DUL-3512		Not eligible	
Madison School/Seaway Building	SL-DUL-0022		Not eligible	
Midtowne Manor	SL-DUL-3491		Not eligible	
LS&M/St.P&D/NP/BNSF Railroad Yard	SL-DUL-3513		Not eligible	
Trunk Highway 53	XX-ROD-023		Not eligible	

[14] Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Public Law 109-59, Aug. 10, 2005.

Resource	ID	Status	Recommendation	Potential Effects
West Superior Commercial Historic District	SL-DUL-3514		Not eligible	
Goldfine's By the Bridge	SL-DUL-0025		Eligible for the NRHP under Criterion C and Criterion A	The proposed street improvements work are relatively minor activities and will be limited to Garfield Avenue and will have no adverse effect on the Goldfine's building

The Phase I and II reports and recommendations were submitted to MnSHPO for review. MnSHPO made a final determination that the project will have **no adverse effect** on the historic properties identified as part of the environmental review. See Attachment B for the Letter of Determination from MnDOT's CRU and MnSHPO.

Mitigation and Commitments

Fish and Wildlife

MnDOT will incorporate special provisions as needed to address specific design and mitigation requirements as determined through the Public Waters Permit review process and will at a minimum include:

- Contractor should be aware of the two WMAs located in the St. Louis Bay Estuary near the project area (Interstate Island WMA and Hearding Island WMA).
- Coffee Creek, Miller Creek and the St. Louis Bay are DNR Public Waters, as such a DNR Public Waters Work Permit will be required for the components impacting their course, current, or cross-section. The DNR noted that work in these areas or adjacent to these areas needs to include the reestablishment of native vegetation suitable to the local habitat.
- Construction work within Coffee Creek and Miller Creek, will be restricted to allow for undisturbed fish migration and spawning. MnDOT will coordinate construction activities with the DNR and incorporate the applicable spawning restriction timeframes into the construction schedule (typically no in-water work from September 15 to June 30). MnDOT will follow the provisions of the National Pollutant Discharge Elimination System (NPDES) permit including erosion prevention, stabilization, and revegetation requirements. This includes additional requirements in the NPDES/State Disposal System General Construction Stormwater Permit Parts 23.9, 23.10, and 23.11.
- The MPCA NPDES general permit for 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 that are within 200 feet of the water's edge and drain to these waters must have erosion prevention and stabilization activities initiated immediately after construction activity has ceased (and be completed within 24 hours).
- There is less than 1.0 acre of trees within the project construction limits that will be removed as part of this project. No tree removal will occur between June 1 and August 15, inclusive. Tree clearing timing will be in accordance with federal laws and MnDOT's internal tree clearing guidance. MnDOT has completed a bat survey within existing Coffee Creek culvert tunnels in December 2018 and no evidence of bats were observed.
- The DNR noted that the St. Louis Bay is designated as infested with aquatic invasive species. MnDOT will follow the DNR's best practices guidance for preventing the spread of aquatic invasive species during construction (see Attachment B).

Visual Quality

MnDOT has established a visual quality committee to produce a Visual Quality Manual to identify aesthetic requirements for the new bridge and wall design. The manual will include design requirements and guidance for the project for the associated visual quality goals identified through public involvement.

Vegetation

Coordination with MnDOT's Natural Resource Specialist will be required as the project advances into final design so that a more detailed review can occur to better determine vegetation/tree impacts, and the potential need for vegetation protection measures in the construction plans.

Wetlands

USACE Regulated Wetlands

In total, 2.09 acres of permanent impact is anticipated at eight wetlands (shown in Attachment D). Preliminary coordination with the USACE is ongoing to determine wetland impact that is regulated by the agency. A Jurisdictional Determination (JD) will be coordinated with the USACE to determine which wetland impacts require mitigation. As the project design progresses, wetland types and impacts will be refined in accordance with USACE permitting requirements. The preliminary bridge design minimized new impact by extending the new bridges over portions of Wetland 9. As design continues, further reduction in impact may be made depending on the final location of the bridge abutment. Wetland impacts would be mitigated by purchasing USACE approved bank credits. The minimum replacement ratio for impacts in St. Louis County is 1:1. If credits are not available in the impact Bank Service Area, credits from another Bank Service Area will be used.

Wetland Conservation Act (WCA) Regulated Wetlands

All wetland impacts are located within right-of-way owned by MnDOT; thus, MnDOT is the Local Government Unit (LGU) for all wetland impacts of this project. Due to the location of the project limits, some of the wetlands within the corridor were created in uplands when I-35 was constructed. These wetlands are considered “incidental” and are not under WCA jurisdiction, thus they do not require compensatory mitigation. Incidental determination will be made during the permit review process.

The assumed replacement ratio for this project per WCA requirements is 1:1 for impacts requiring replacement. The mitigation would be provided by purchasing approved wetland bank credits within the same Bank Service Area.

Erosion Control

A SWPPP will be developed for this project. All areas disturbed during construction would be revegetated in accordance with the SWPPP and related permitting requirements. MnDOT will revegetate disturbed soils with native seed mixes in areas that are not proposed for mowed turf grass using the guidance developed by the Minnesota Board of Water and Soil Resources or the Vegetation Establishment Recommendations (MnDOT, 2015).

Water Quality/Stormwater

The project will address stormwater management requirements by adding up to three wet ponds that will be designed to meet water quality treatment requirements. The ponds will be designed as large as possible within the constraints of existing right-of-way. Grit chambers or similar best management practices (BMPs) may be designed in addition to the wet ponds to provide additional total suspended solids removal.

Section 404

The necessary permits will be obtained from the USACE through continued coordination and review. Permits will be obtained separately for the local road mitigation and later for the TPI Reconstruction project components.

Noise

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 not expected to be necessary for this project. High-impact noise construction activities will be limited in duration to the greatest extent possible. The use of pile drives, jack hammers, and pavement sawing equipment will be prohibited during nighttime hours.

Based on the noise wall analysis completed for the corridor, none of the noise walls could meet MnDOT requirements and; therefore, are not proposed as part of the project. If conditions substantially change by the time the project reaches the final design stage, the analyzed noise abatement measures will be reconsidered. A final decision on noise abatement measures will be determined during final design.

Utilities

MnDOT will be responsible for removing and relocating power and fiber it needs for traffic management systems, and the storm sewer management system serving the project components. The project design will avoid the existing sanitary sewer, gas, and water crossings to the extent possible. Special design details will be developed to

relocate the City's lift station. In the Coffee Creek realignment area, a number of small gas, sanitary, and water lines may need to be adjusted and new storm connections made. MnDOT is coordinating with these utility owners regarding potential impacts, construction schedule and how impacts can be minimized.

Construction Impacts

Construction impacts and mitigation measures associated with the TPI Reconstruction Project are listed in Table 8.

Table 8: Construction Impacts Summary

Issue Area	Mitigation Measures
Dust generated during construction	• MnDOT standard best management practices (BMP) for dust control.
Construction noise	• MnDOT standard specifications for construction noise. High-impact noise prohibited during nighttime hours.
Vibrations associated with bridge and sheet piling	• MnDOT is preparing a building susceptibility study for any properties potentially affected by vibrations.
Stormwater and Erosion Control	• Prepare SWPPP. Implement erosion control BMPs during construction. Implement in-water BMPs during construction.
Contaminated Properties and Regulated Waste	• Prepare Construction Contingency Plans and Response Action Plan. • Regulated materials managed according to MnDOT special provisions.
Traffic disruptions during construction	• Transportation Management Plan will be prepared during final design. • Pedestrian and bicycle detour routes will be provided for trail closures for the Cross City Trail. • MnDOT will coordinate with Duluth, Superior, and St. Louis County in the corridor regarding detours and construction phasing.
Right-of-Way Easements	• Acquisition will be conducted in accordance with MnDOT Right-of-Way Manual procedures. • Submit a plan review for construction access from the railroads.

Contaminated Properties and Regulated Waste

Unknown materials may be encountered during construction that were not identified during the initial site investigations. A CCP will be written and incorporated within the Response Action Plan, and it will discuss how to handle the unknowns that are encountered. If necessary, MnDOT may enroll documents summarizing the investigations and the material handling into the MPCA Brownfield Program to obtain regulatory assurances for property acquisition and to obtain approvals for the management and clean-up plans. MnDOT will hire an environmental construction oversight contractor, if necessary, to help manage contaminated and regulated materials and to make sure that these materials are handled in accordance with all appropriate federal, state, and local regulations.

Regulated materials such as asbestos or PCB caulk will be removed from the bridges and any buildings prior to demolition. A demolition plan will be prepared for these materials and removals will be monitored by an oversight consultant.

Vibration

MnDOT will perform a building susceptibility study to monitor vibration impacts for general construction activities, including pile driving. This includes a pre-conditions survey for structures adjacent to the work area, monitoring vibrations during construction, and a post-conditions survey of the adjacent structures. The areas to be monitored will be determined by MnDOT's Foundations Office before construction begins.

Right-of-Way

Acquisition of the parcel and temporary easement will be conducted in accordance with MnDOT Right-of-Way Manual procedures. The railroads require plan review and approval for temporary access during construction on railroad right-of-way.

Bikeways and Pedestrians

A TPAR plan will be required for any disrupted sidewalks. Consider non-motorized users when posting detours. Place detour signs at strategic decision-making points for bicyclists and walkers.

Historic Archaeological Cultural

Archaeology

Monitoring of borings are ongoing and will continue into 2019. In-person construction monitoring may be used to evaluate potential for archaeological resources in the APE.

Historic Resources

On January 10, 2019, MnSHPO made a final determination that the project will have no adverse effect on the historic properties identified as part of the environmental review. The letter from MnSHPO is shown in Appendix B.

Public and Agency Involvement

A public involvement plan (PIP) was created to provide a framework for how public involvement activities will be conducted for the TPI Reconstruction Project. The following is a summary of public involvement to date:

Stakeholder Meetings and Public Open House

In October 2017, a series of stakeholder meetings was held to review and solicit input on concepts, provide an overview of the funding process and possible construction schedule, and ask for help in distributing open house notices to local organizations. Meetings were held with the following stakeholder groups:

- City of Duluth
- City of Superior
- Lincoln Park businesses
- Lincoln Park residents
- Lincoln Park warehouse/wholesale businesses
- Port and industry
- Railroad Street and Courtland Street businesses
- Tourism

An open house was then held on November 13, 2017 to provide an update on the project and receive input on the proposed interchange concepts from the general public.

Travel Survey

An online survey was posted on the project website between November 13 and December 11, 2017, and 881 responses were received. This survey asked questions about frequency of travel through the TPI, purpose of travel through TPI, experience with congestion, and priorities for the reconstruction project.

Monthly Update Meetings

MnDOT began holding monthly update meetings in January 2018 to provide the public with regular project updates and receive feedback as the project continues to evolve. Two identical sessions are held at different times of day to reach a broader audience. The presentations from these meetings are posted on the project website.[15]

Stakeholder Advisory Committee

A stakeholder advisory committee was formed in early 2018 to advise MnDOT on interchange design refinements and bring forward community input on local elements that will be integrated into the project. The advisory committee includes representatives from the following stakeholder groups:

- Lincoln Park Business Association
- Housing & Redevelopment Authority of Duluth
- Visit Duluth
- Garfield Avenue businesses
- Duluth Seaway Port Authority
- Duluth Superior Transportation Association
- Wisconsin Department of Transportation
- Superior Business Improvement District

[15] TPI Project Website: http://www.dot.state.mn.us/d1/projects/twin-ports-interchange/meetings.html

- Superior Chamber of Commerce
- City of Duluth
- Ecolibrium 3
- Duluth Entertainment Convention Center
- Western Lake Superior Sanitary District (WLSSD)
- Duluth Bikes
- Duluth Transit Authority
- Duluth-Superior Metropolitan Interstate Council
- Lincoln Park residents

Railroad Coordination

BNSF owns, operates, and leases much of the rail that parallels I-35 and I-535, and extends through the rail yard on Rice's Point. MnDOT initiated conversations with BNSF regarding the potential concepts being considered and listen to any concerns it may have. Six meetings have been held to date, with monthly meetings beginning in Spring 2019 and will be ongoing during the duration of the project.

A summary of the comments received at the stakeholder meetings and public open house, and results of the travel survey can be found on the project website: https://www.dot.state.mn.us/d1/projects/twin-ports-interchange/index.html

Permits/Approvals

The project will require the following permits/approvals:

Table 9: Permits and Approvals Required

Unit of Government	Type of Application	Status
LOCAL		
City of Duluth	Municipal Consent for local road improvements	Complete
City of Duluth	Municipal Consent for interchange reconstruction	Will be on fall 2019 city council agenda for approval; engagement with City is ongoing
MnDOT as Local Governmental Unit under the Wetland Conservation Act	Wetland Replacement Plan	Application to be submitted November 2018
STATE		
Minnesota State Historic Preservation Office (SHPO)	Section 106 Determination and Programmatic Agreement (PA)	MnSHPO made a final determination that the project will have no adverse effect on the historic properties identified as part of the environemtal review (January 10, 2019 SHPO Letter in Attachment B)
MnDOT Office of Environmental Stewardship (OES) on behalf of the Federal Highway Administration (FHWA)	Endangered Species Act Section 7 Determination	Complete
MnDOT	Environmental Assessment Worksheet	Complete
MnDOT	EIS Need Decision	Complete
MnDOT	Right-of-way agreements	In process
Minnesota Department of Natural Resources (DNR)	Public Waters Work Permit	Application to be submitted in 2020
Minnesota Pollution Control Agency (MPCA)	National Pollution Discharge Elimination System	Preliminary drainage plans complete and will be used to obtain high-level permit approval; specific construction Stormwater Pollution Prevention Plan (SWPPP) will be prepared bydesigner for each construction year
MPCA	No association determination (NAD) and Response Action Plan (RAP)	To be completed
MPCA	Section 401 Water Quality Certification	To be requested
FEDERAL		
US Army Corps of Engineers (USACE)	Section 404 Wetland Impact Permit	Application to be submitted in 2019
USACE	Section 408 Permit	Review complete – USACE determined permit is not necessary
FHWA	Categorical Exclusion	In process
FHWA	Interchange Access Request (IAR)	In process
OTHER - PRIVATE		
BNSF Railway and CN Railway	Flagging Agreement	Ongoing meetings to be held with BNSF Railway; modifications have been incorporated into design; right-of-way agreement is in process
BNSF Railway and CN Railway	Temporary Construction Easements	Same as above

Attachments

A. Project Layouts

B. Correspondence

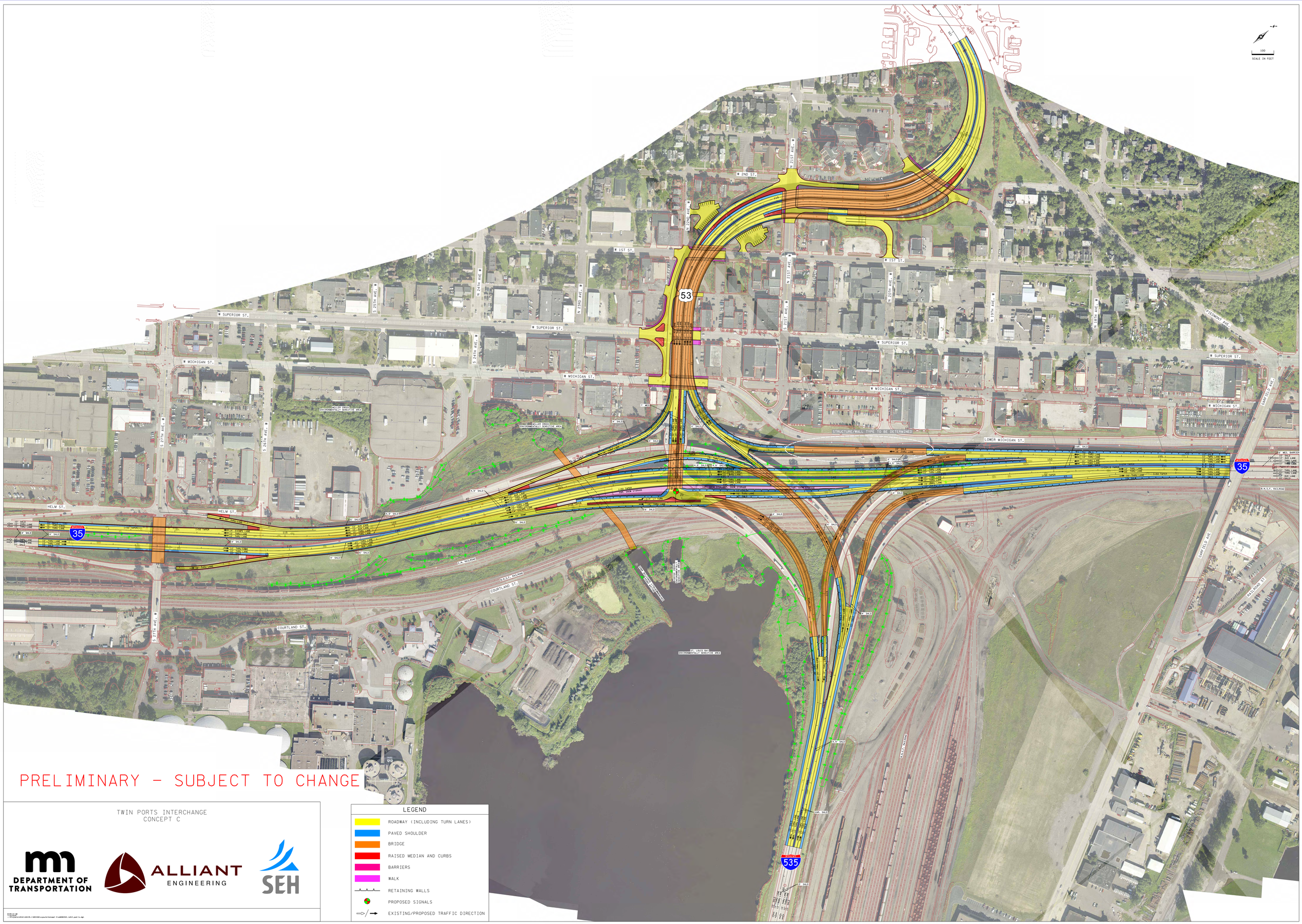
- DNR Questionnaire Responses Letter
- DNR Questionnaire Concerns and Responses Summary
- MnDOT Cultural Resources Determination Letter
- SHPO Determination Letter
- MnDOT Office of Environmental Stewardship Section 7 Determination Letter
- US Fish and Wildlife Determination Letter
- MnDOT Office of Transit, Bicycle and Pedestrian Section Review
- MnDOT Roadside Vegetation Management Unit Review
- MnDOT Office of Aeronautics Review
- Contaminated Materials Review
- Regulated Waste Review
- Railroad Safety and Coordination Review
- State Entrance Monument Review
- Value Engineering Review

C. Noise Technical Analysis

D. Wetland Documentation

E. Hydraulic Recommendation

Attachment A
Alternative Layouts



PRELIMINARY - SUBJECT TO CHANGE

TWIN PORTS INTERCHANGE
CONCEPT C

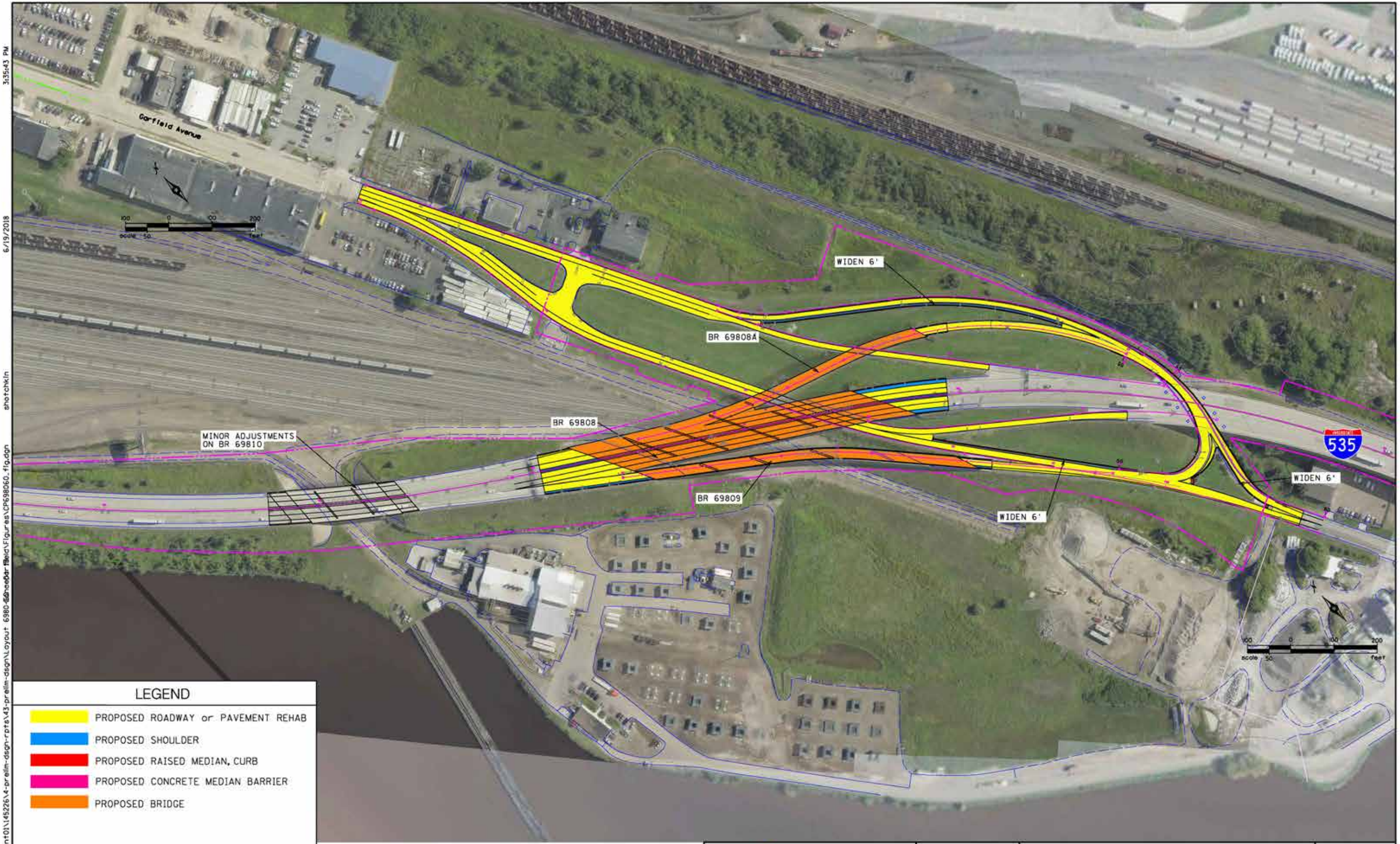
DEPARTMENT OF TRANSPORTATION

ALLIANT ENGINEERING

SEH

LEGEND

- ROADWAY (INCLUDING TURN LANES)
- PAVED SHOULDER
- BRIDGE
- RAISED MEDIAN AND CURBS
- BARRIERS
- WALK
- RETAINING WALLS
- PROPOSED SIGNALS
- EXISTING/PROPOSED TRAFFIC DIRECTION



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6/19/2018 3:35:43 PM shotchkin

SEH
PHONE: (651)490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

145226

DATE:
6/19/2018

I–535 /Garfield Ave.
Interchange Alternatives
Replace Existing Bridges

FIGURE No. 2


Proposed Miller Creek and Coffee Creek Alignment
W 1st Street
W Superior Street
W Michigan Street
Coffee Creek
2019 construction
21st Avenue W
20th Avenue W
19th Avenue W
2020-2023 construction
Miller Creek


27th Avenue W
W 1st Street
19th Avenue W
W Superior Street
Glen Place Drive
Mesaba Avenue
W Michigan Street
Lower Michigan Street
35
W Railroad Street
535
Courtland Street
Garfield Avenue
Railroad Street Option 1
Google Earth

Attachment B
Correspondence

From:	Leete, Peter (DOT)
To:	Jason.Alcott@kimley-horn.com; Dwyer, Roberta (DOT)
Cc:	Meyer, Matthew (DOT); Straumanis, Sarma (DOT); Smith, Christopher E (DOT); Joyal, Lisa (DNR); Orne, Benjamin G MVP; Coyle, Margi (Anne) (DNR); Hendrickson, Deserae L (DNR); Kovacovich, Mark H (DNR); Fowler, Patricia L (DNR)
Subject:	DNR Comments on MnDOT Early Notification Memo for the I-35/TH53/I-535 Interchange Reconstruction project in Duluth (SP 6982-322)
Date:	Tuesday, March 14, 2017 2:46:00 PM
Attachments:	17_2_13, 6982-322 ENM.pdf DNRbasemap.pdf DNR GP2004-0001copy.pdf AIS (from Chapter 1).pdf

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Jason,

This email is the DNR response for your project records. I have not sent this Early Notification Memo (ENM) out for full DNR review. The following comments are based on information provided in the submitted documents regarding the proposed reconstruction of the bridges connecting I-35, TH53, and I-535 in the City of Duluth. Please incorporate the following comments into final designs and special provisions as they are developed:

1. For MnDOT planning purposes, attached to this email is a map of the project area (DNRbasemap.pdf) showing nearby locations of DNR areas concern (if they exist), such as Public Waters (in blue), waterbodies designated as infested with aquatic invasive species (AIS), snowmobile Trails (in pink), and various green shaded polygons for Sites of Biodiversity Significance. This map may be shared or included in project documentation, as all information is from publically available data layers. The Natural Heritage Information System (NHIS) database has been reviewed, though in order to prevent the inadvertent release of a rare features location, those details are not shown on the map. Comments on potential impacts to rare features listed in the NHIS comments are below. If you have questions regarding proposed work near any of the data shown, please give me a call.

2. Overall there is very little impact of direct DNR concern. Except for this little piece: Identified under phase 1 is a new road to connect local roads on the waterfront (between Courtland Street and Railroad Street). The construction of this road is slated to have Miller and Coffee creeks daylighted. The ENM states:

   > COMPONENT 5 (COURTLAND STREET CONNECTION):
   > This connection will also serve as a multi-use corridor for bicycle and pedestrian access to the waterfront and provide a direct pedestrian/bicycle access for neighborhoods to the downtown/waterfront. The pathway will be fenced through the railyard for added safety and security. Another benefit of this connection is the daylighting of Miller Creek and Coffee Creek, both environmentally sensitive urban trout streams. Currently, a harbor habitat restoration project is underway at the outlet of these streams.

   No further details have been provided for this, though I recognize that there might not be any yet. I am also not sure how this plays into the gap between the Munger and Gitchi-Gami state trails. The DNR supports the prospect for recreational enhancement and aquatic restoration efforts and offer to work with project managers as designs are developed. A Public Waters permit will be required for the daylighting (most likely with the GP to MnDOT, see #3 below). If not being done already, please include DNR during design coordination of these components as early as is prudent.

3. Coffee Creek, Miller Creek and the St. Louis River Estuary are DNR Public Waters, as such a DNR Public Waters Work Permit will be required for the components impacting their course, current, or cross-section (including the daylighting of Coffee and Miller Creek mentioned in #2 above). Authorization for the project under the DNR General Permit (GP2004-0001) will require final review

at a later date. A copy of GP2004-0001 is attached, please review all the conditions of this permit and integrate their requirements into project design. Please contact me if you have questions on any of its requirements. Specific items to incorporate into design and construction are:

a. As the project moves forward, design of the crossing should meet the conditions listed in GP 2004-0001: http://files.dnr.state.mn.us/waters/watermgmt_section/pwpermits/General_Permit_2004-0001.pdf. Additional information, including options on how to meet the conditions of the GP are presented in the collection of ' Best Practices for Meeting GP 2004-0001', at http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/gp_2004_0001_manual.html

b. We typically limit work in the water (Work Exclusion dates) to allow for undisturbed fish migration and spawning. These dates are Sept 15 through June 30. While we may revise these dates for a particular project, there may still be limitations on the types of work during this time.

c. Please be aware that the MPCA NPDES general permit for authorization to discharge stormwater associated with construction activities (permit MN R10001) recognizes the DNR "work in water restrictions" during specified fish migration and spawning time frames for areas adjacent to water. During the restriction period, all exposed soil areas that are within 200 feet of the water's edge and drain to these waters, must have erosion prevention stabilization activities initiated immediately after soil disturbing activity has ceased (and be completed within 24 hours).

d. Construction and demolition methods shall be submitted for review and approval at a later date. See the GP2004-0001 condition 'TEMPORARY IMPACTS DURING CONSTRUCTION' and items 'A' though 'L' for subjected conditions. This is normal procedure for bridge or culvert projects as we recognize that construction methods are not finalized until a contractor is chosen. Construction contractors shall be made aware of this condition as they may be held responsible for compliance.

e. Revegetation of disturbed soils should include native mixes in areas that are not proposed for mowed turf grass. Please utilize the native recommendations developed by BWSR (http://www.bwsr.state.mn.us/native_vegetation/) or MnDOT' in the 'Vegetation Establishment Recommendations' – dated November 13, 2015 (http://www.dot.state.mn.us/environment/erosion/seedmixes.html). In addition, for meeting DNR concerns, revegetation may include woody vegetation (trees and shrubs) in addition to grasses and/or forbs. Please contact your Districts representatives for the Erosion Control & Stormwater Management Unit, Roadside Vegetation Management Unit, and the Districts Maintenance staff to help determine appropriate permanent revegetation plans. Additionally, any use of Category 3 or 4 erosion control blanket shall be limited to 'bio-netting' or 'naturalnetting' types (category 3N or 4N), and specifically not allow plastic mesh netting.

4. Please remind contractors that a separate water use permit is required for withdrawal of more than 10,000 gallons of water per day or 1 million gallons per year from surface water or ground water. GP1997-0005 (temporary water appropriations) covers a variety of activities associated with road construction and should be applied of if applicable. An individual appropriations permit may be required for projects lasting longer than one year or exceeding 50 million gallons. Information is located at: http://www.dnr.state.mn.us/waters/watermgmt_section/appropriations/permits.html

5. The Minnesota Natural Heritage Information System (NHIS) has been queried to determine if any

rare plant or animal species, native plant communities, or other significant natural features are known to occur within an approximate one-mile radius of the project area. Based on this query, 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, we have not provided species or location information on the attached 'DNRbasemap.pdf'. For details or questions, please contact me. However, given the nature and location of the proposed project, we do not believe the project will negatively affect any known occurrences of rare features.

a. Two Wildlife Management Areas (WMA) are located in the St. Louis River Estuary near the project area (Interstate Island WMA and Hearding Island WMA). Both of these facilities contain Colonial Waterbird Nesting Areas and are managed for the Common Tern (Sterna hirundo), a state listed species (Threatened). Work proposed will not directly impact these areas, though folks should be aware of these nearby areas. The Piping Plover (Charadrius melodus), listed as Endangered on both the state and federal T & E Species lists, have been known to utilize these areas. Though no entries exist in the NHIS since 2000.

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 additional listed species or other rare features, further review may be necessary.

6. The northern long-eared bat (Myotis septentrionalis), federally listed as threatened and state-listed as special concern, can be found throughout Minnesota. During the winter this species hibernates in caves and mines, and during the active season (approximately April-October) it roosts underneath bark, in cavities, or in crevices of both live and dead trees. Pup rearing is during June and July. Activities that may impact this species include, but are not limited to, any disturbance to hibernacula and destruction/degradation of habitat (including tree removal).

   The U.S. Fish and Wildlife Service (USFWS) has published a final 4(d) rule that identifies prohibited take. To determine whether you need to contact the USFWS, please refer to the USFWS Key to the Northern Long-Eared Bat 4(d) Rule (see links below). Please note that the NHIS does not contain any known occurrences of northern long-eared bat roosts or hibernacula within an approximate one-mile radius of the proposed project.

   Links: 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
   USFWS Key to the Northern Long-Eared Bat 4(d) Rule for Federal Actions

   http://www.fws.gov/midwest/endangered/mammals/nleb/KeyFinal4dNLEBFedProjects.html
   USFWS Northern Long-eared Bat Website
   http://www.fws.gov/midwest/endangered/mammals/nleb/index.html
   USFWS Northern Long-eared Bat Fact Sheet
   http://www.fws.gov/midwest/endangered/mammals/nleb/nlebFactSheet.html

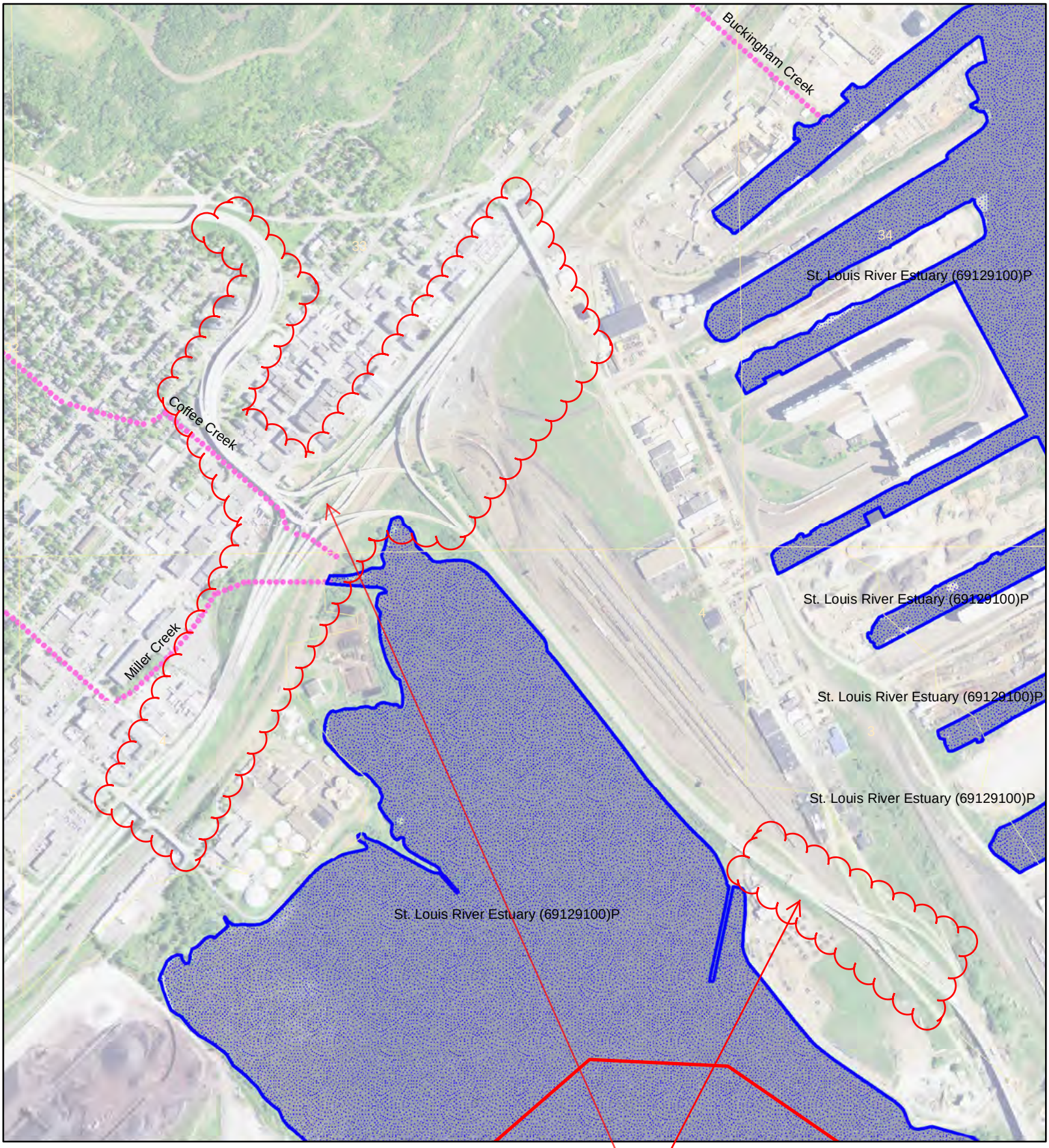
7. The St. Louis River Estuary has been designated as Infested with Aquatic Invasive Species (AIS) due to the presence of New Zealand Mudsnail, Round Goby, Ruffe, Spiny waterflea, VHS, White Perch, and Zebra Mussel. The river water should be identified as infested on project plans and provisions. No work should be allowed in them if avoidable (including pumping water for construction purposes). Where work is required, I have attached best practices that have been developed for construction equipment to prevent their spread.

This ENM has not been circulated to all DNR field staff for comment. I will let you know if any additional comments on design requirements are returned to me due to this email.

DNR folks, if I've missed anything, or have any suggestions for MnDOT to consider, please respond ASAP to Roberta, Jason, and myself.

Contact me if you have questions

Peter Leete
Transportation Hydrologist (DNR-MnDOT Liaison)
DNR Ecological & Water Resources
Ph: 651-366-3634



Peter Leete, Transportation Hydrologist
(MnDNR-MnDOT Liaison)
Date: 3/14/2017

Best Practices for Preventing the Spread of Aquatic Invasive Species

All equipment[1] being transported on roads or placed in Waters of the State shall be free of prohibited and regulated invasive species and unlisted non-native species (any other species not native to Minnesota)

1. **Project plans or documents should identify Designated Infested Waters**[2] located in or near the project area.

2. **Prior to transportation along roads into or out of any worksite, or between water bodies within a project area, all equipment** must be free of any aquatic plants, water, and prohibited invasive species.
   A. **Drain** all water from equipment where water may be trapped, such as tanks, pumps, hoses, silt curtains, and water-retaining components of boats/barges (see Figures 5 & 6) **AND**
   B. **Remove** all visible aquatic remnants (plants, seeds and animals). Removal of mud & soil is not required at all sites, though is encouraged as a Best Practice. Removal of mud and soil may be required on sites designated as infested (see #4).

3. **Prior to placing equipment into any waters,** all equipment must be free of aquatic plants and non-native animals.

4. **Additional measures are required on *Designated Infested Waters* to remove and kill prohibited species such as zebra mussels, quagga mussels, New Zealand mudsnails, faucet snails, or spiny waterfleas.**
   Note: The DNR is available to train site inspectors and/or assist in these inspections. Contact the appropriate Regional Invasive Species Specialist: www.mndnr.gov/invasives/ais/contacts.html
   A. For day use equipment (in contact with the water for 24 hours or less); Perform #2 above or,
   B. For in-water exposure greater than 24 hours: Perform #2 above, and inspect all equipment for the prohibited invasive species present (see Figure 1).

   Then choose one of the following three: **on-site treatment, off-site treatment**, or **customized alternative.**

Figure 1. Invasive species may not be readily visible on equipment. Some species are less than 1/4 inch in size.
Photo credit: Brent Wilber, Lunda Construction

On-Site Treatment

Remove by handscraping or powerwashing (minimum 3000 psi) all accessible areas (Figures 1 and 2) **AND**

Kill Prohibited Aquatic Invasive Species in non-accessible areas using one or more of the following four techniques:

- **Hot Water (minimum 140°F) for ten seconds** (Figure 2) for zebra mussels, quagga mussels, New Zealand mudsnails, faucet snails **OR**
- **Air Dry** (Figures 3 & 4)
  Spiny waterfleas – air dry for a minimum of 2 days
  New Zealand mudsnails – air dry for a minimum of 7 days
  zebra or quagga mussels, faucet snails – air dry for a minimum of 21 days **OR**
- **Freezing Temperatures**
  zebra mussels - expose to continuous temperature below 32°F for 2 days **OR**
- **Crush**
  Crush rock, concrete, or other debris by running it through a crushing plant to kill prohibited species

Figure 2. Removal of aquatic remnants is required before transporting.
Photo credit: Peter Leete, DNR

Off-Site Treatment

Under certain conditions, the DNR will allow transportation of equipment off-site after partial removal of prohibited species (for example, after "removal" has been done and equipment will be taken to a facility to complete final treatment [i.e., "kill"]) This is a 'one-way pass' to allow transport to a storage area or disposal facility. This option can only be utilized if the receiving site is at least 300 feet from riparian areas, wetlands, ditches, stormwater inlets or treatment facilities, seasonally-flooded areas, or other waters of the state. To be allowed to use the off-site treatment option you must do the following:

- Read, complete, and comply with the appropriate authorization form for transportation of Prohibited Invasive Species at www.mndnr.gov/invasives/ais_transport.html (Note that a completed form is required to be in every vehicle that is transporting equipment containing infested species) **AND**
- Complete on-site treatment described in 4B above prior to re-use in or adjacent to water.

Best Practices for Preventing the Spread of Aquatic Invasive Species

Contact a DNR Invasive Species Specialist for authorization of a customized alternative

There may be situations due to time of year, length of exposure, type of equipment, or site conditions that a DNR Invasive Species Specialist could approve alternative methods or requirements for treatment. Contact the appropriate Regional Invasive Species Specialist: www.mndnr.gov/invasives/contacts.html

5. **Temporary appropriations of water from Designated Invested Waters to utilize elsewhere (such as for dust control, landscaping, bridge washing, etc.) is not allowed except by permit, thus should be avoided.**

If use of Designated Infested Waters is unavoidable, permit information is located at www.mndnr.gov/waters/watermgmt_section/appropriations/permits.html

Figure 3. Drying will also kill aquatic organisms. Lay out materials to dry in the proper time. Drying times vary by species. Inspect after drying period is over.
Photo credit: Dwayne Stenlund, MnDOT

Figure 4. Drying techniques must not trap water. This equipment will not dry adequately.
Photo credit: Peter Leete, DNR

Figure 5. Pumping from designated infested waters for use elsewhere on the project is prohibited without a permit.
Photo credit: Peter Leete, DNR

Figure 6. Drain all water from equipment where water may be trapped. Remove drain plugs and drain hoses prior to transport.
Photo Credit: Peter Leete, DNR

Document Information
www.mndnr.gov/waters/watermgmt_section/pwpermits/gp_2004_0001_manual.html
Best Practices for Meeting DNR GP 2004-0001 (published 5/11, updated 12/12) – Chapter 1/Page 8

More on the DNR Invasives Species Program can be found at: www.mndnr.gov/AIS

[1] **'Equipment'** is defined as any implement utilized in construction. This includes boats, barges, heavy machinery, light machinery, or other material that may be moved on-site or off-site, including but not limited to rock (riprap) or timber for temporary workpads, backhoes, pumps, hoses, worksite isolation materials (eg, sheet pile or jersey barriers), boats, barges, temporary staging materials, erosion prevention products, sediment control products (eg, silt curtain), water trucks that take water from open bodies of water (eg, dust control), or dewatering components.
[2] **List of Designated Infested Waters:** http://files.dnr.state.mn.us/eco/invasives/infested_waters.pdf

DNR Contact Information

DNR Ecological and Water Resources lists area office staff at www.mndnr.gov/waters

DNR Ecological and Water Resources
500 Lafayette Road, Box 32, St. Paul, MN 55155-4032, (651)259-5700 or 5100

DNR Ecological and Water Resources website provides information at www.mndnr.gov or by calling (651) 259-5700 or 5100.

DNR Information Center

This information is available in an alternative format on request

Twin Cities: (651) 296-6157
Minnesota toll free: 1-888-646-6367
Telecommunication device for the deaf (TDD): (651) 296-5484
TDD toll free: 1-800-657-3929

Office of Environmental Stewardship
Mail Stop 620
395 John Ireland Boulevard
St. Paul, MN 55155-1899

Office Tel: (651) 366-3615
Fax: (651) 366-3603

September 12, 2018

Sarah J. Beimers, Environmental Review Manager
State Historic Preservation Office
Administration Building #203
50 Sherburne Avenue
St. Paul, MN 55155

RE: SP 6982-322 (TH 35) and SP 6980-60 (TH 535), Twin Ports Initiative (TPI) reconstruction of interchange, I-35 and I-535 and TH 53; Duluth, St. Louis County

Associated SP Nos.: SP 6982-328 (Local Roadways) and SP 6915-136 (US 53), improvements related to Twin Ports Initiative (TPI) reconstruction of interchange, I-35 and I-535 and TH 53; Duluth, St. Louis County

SHPO Number: 2018-2036

Dear Ms. Beimers:

We have reviewed the above-referenced undertaking pursuant to our FHWA-delegated responsibilities for compliance with Section 106 of the National Historic Preservation Act, as amended (36 CFR 800), and as per the terms of the 2005 Section 106 Programmatic Agreement between the FHWA and the Minnesota State Historic Preservation Office (SHPO). The Section 106 review fulfills MnDOT's responsibilities under the Minnesota Historic Sites Act (MS 138.665-.666).

Background

We last corresponded with your office in our letter of May 23, 2018 in which we described the project undertaking, described the tribal consultation that had occurred, presented an area of potential effect (APE) and described the various resources that would be considered as part of the Phase I-II architecture/history study. We noted that the archaeology component of this study was being conducted by Dr. Tim Tumberg, archaeologist with our unit, and that work is still underway and will be submitted separately. At that time, we also identified a potential need for a Programmatic Agreement because of concerns that effects could not be determined in time to accommodate the NEPA document schedule. Your response of June 22nd, 2018 concurred with the APE dated April 27, 2018 as appropriate to account for direct and indirect effects from the proposed project. Your letter further supported use of a Programmatic Agreement as needed for the project.

Our May 23rd letter indicated that tribal consultation letters were sent on April 20, 2018 to the Bois Forte Band of Chippewa, Fond du Lac Band of Lake Superior Chippewa, Grand Portage Band of Lake Superior Chippewa, Santee Sioux Nation, Turtle Mountain Band of Chippewa and the Upper Sioux Community. Consultation with MIAC was sent on April 16, 2018. Although no written responses were received in regard to this project,

ongoing meetings and verbal consultation have continued since that time; Dr. Tumberg has provided additional TPI Project mapping to Minnesota Indian Affairs Council (MIAC), the State Archaeologist, and the Fond du Lac Band in May and June 2018, and more recently for road improvements added later. In addition, District 1 Project Manager Roberta Dwyer met informally with the State Archaeologist, MIAC, and representatives from the Fond du Lac Band on April 26, 2018, to discuss Project activities, share information and ensure that communication continues as this Project proceeds. Our office also contacted the Duluth Planning Department prior to Phase I survey and has included them in submissions to your office.

Architecture/History Report Submittal

Enclosed with this submittal is the *Phase I Architecture/History Survey and Phase II Evaluation for Twin Ports Interchange (TPI) at Interstate Highway 35 (I-35) and I-535, Duluth, Saint Louis County, Minnesota* (Mead & Hunt, Inc., September 2018). This report evaluated the APE as submitted to your office in our May 23 letter (see APE map dated April 27, 2018—Appendix A in report).

The Phase I survey, completed in January 2018, identified 185 historic-age properties constructed prior to 1976 within the APE. Phase II evaluations were conducted on six properties and a proposed historic district. One property previously determined eligible was assessed for integrity.

Three properties in the APE were previously determined eligible:

- Great Northern Power Company Substation (SL-DUL-3386) 1424 West Superior Street (previously identified as SL-DUL-0191, with an incorrect address of 30 W. Superior Street)
- Lake Superior and Mississippi Railroad (SL-DUL-2500) (see table 4 and figure 3 in report)
- Duluth, Missabe & Iron Range Railroad (SL-DUL-2499) (see table 4 and figure 3 in report)

The APE included the interstate highway system and 44 bridges.

- In 2005, the Advisory Council on Historic Preservation issued the Interstate Highway Exemption, which relieves Federal agencies from considering the vast majority of the Interstate Highway System as an historic resource under Section 106 of the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act SAFETEA-LU, Public Law 109-59, Aug. 10, 2005. Certain elements of the Interstate that have been deemed exceptional under National Register criteria have been compiled on a comprehensive list for Minnesota, and must still be considered through the normal historic preservation review process. However, this project does not include work on any of those properties (https://www.environment.fhwa.dot.gov/histpres/highways_list.asp).

  Since the proposed project includes work on non-exempt elements of the Interstate highway, and does not include any exempted portions of the Interstate as per the above-referenced link, the interstate highway itself is exempt from Section 106 evaluation.

- In addition to pre-1976 architecture/history properties, 44 bridges were identified in the APE. The project will replace or reconstruct 36 of these bridges; the other 8 are located within the APE but have no work scheduled. The majority of these bridges carry or cross I-35 and I-535 and construction dates range from 1966 to 1997. These bridges are covered by the ACHP's *Exemption Regarding Historic Preservation Review Process for Effects to the Interstate Highway System* and/or *Program Comment for Common Post-1945 Concrete and Steel Bridges.* Table 3 in the report identifies these bridges, and no further work is required.

The following is a summary of the Phase II evaluations.

Madison School/Seaway Building (SL-DUL-0022); 802 Garfield Avenue

The Madison School was constructed in 1907 and served the largely immigrant population on Rice's Point until it was closed in 1940; it is the last vestige of the mixed residential and industrial neighborhood along Garfield Avenue. Although a representative example of an early twentieth century primary school under Criterion C, Madison School has been converted to an office building and has lost integrity to an extent that it cannot convey its significance under Criterion C. The Madison School/Seaway Building was determined **not eligible** for the NRHP.

Goldfine's by the Bridge (SL-DUL-0025); 700 Garfield Avenue

Goldfine's was constructed in 1962 and represents a mid-century Modern discount retail building that is **eligible for the NRHP under Criterion C and Criterion A**. Goldfine's exhibits typical features of mid-century commercial architecture, with a flat roof, concrete construction, fixed metal windows and minimal orientation. The building's interior was constructed with a modern aesthetic, including its Bridge Room and atrium, built to take advantage of the view of the new Blatnik bridge, as well as stamped-concrete block walls, terrazzo floors and a wide window band. The Goldfine's building represented the effort by the long-time hometown Duluth business owners, the Goldfine family, to update their family business in a way that reflected the new suburbanized consumer model. Although they had long operated a store on Rice's Point, the new Goldfine's represented a dramatic shift in commerce, and represented a local business that expanded into a small chain within Minnesota. The period of significance begins with construction of the building in 1962 and extends to its merger with a larger consumer operation in 1970.

Midtowne Manor (SL-DUL-3491):

- **Midtowne Manor I (SL-DUL-3516); 2021 West 2nd Street**
- **Midtowne Manor II (SL-DUL-3517) and dining hall (SL-DUL-3519) 2011 West 2nd Street**
- **Community Center (SL-DUL-3518) 2014 West 3rd Street**

The Midtowne Manor complex occupies a full block and encompasses two high rise apartment buildings for senior citizens and incorporated an existing elementary school as a community center. Midtowne Manor I, a 14-story apartment building, was constructed in 1971 as part of the Duluth Housing and Redevelopment Authority's (HRA) efforts to provide adequate housing for the city's low income elderly population. Midtowne Manor II was built in 1982 as part of an expansion project that included construction of a dining hall and annexation of a former school to serve as the community center. The Midtowne Manor complex did not pioneer a new method of architecture or service delivery by the HRA, and the complex was determined **not eligible** for the NRHP**.**

Chicago, St. Paul, Minneapolis & Omaha Railroad (Omaha Road) (SL-DUL-3512)

In Duluth, the Omaha Road entered the city at the southwestern tip of Rice's Point and extended approximately 2.5 miles to 5th Avenue West where it served a freight house and passenger depot (both non-extant). As a late entrant to Duluth in 1886, the Omaha Road was limited in its access and amount of trackage. The Omaha Road was evaluated under the Railroads in Minnesota MPDF under Criterion A and Criterion C. The Omaha Road was determined **not eligible under Criterion A** because it did not open a region to settlement, did not serve as a primary or dominant shipper of a significant resource, was not an influential component of a rail network, and did not provide a critical link or juncture between two corridors. The Omaha Road was determined **not eligible under Criterion C**; by 1886 advancements in railroad technology were limited, and the railroad did not embody distinctive characteristics of a type, method or period of construction necessary to qualify for the NRHP under Criterion C.

Lake Superior & Mississippi/St. Paul & Duluth/Northern Pacific/ Burlington/Northern/Burlington Northern Santa Fe Railroad Yard (SL-DUL-3513); Rice's Point

The rail yard (hereafter referred to as the NP Railroad Yard) was originally developed to serve the Lake Superior & Mississippi Railroad after its arrival in Duluth in 1870. The yard is approximately 127 acres on Rice's Point, south of Garfield Avenue. Although it once contained two roundhouses and multiple support buildings, many buildings and tracks were removed in the mid-1970s, and only about one-third of the NP yard infrastructure remains from the period prior to 1975. The NP Railroad Yard was evaluated using the Railroads in Minnesota MPDF for a Railroad Yard Historic District, for its association with the LS&M/StP&D/NP main line (determined eligible as the first railroad to connect St. Paul and Duluth). However, the NP Railroad Yard no longer contains an engine house or the other support buildings necessary to be considered part of a Railroad Yard Historic District, and is determined **not eligible** due to a loss of historic integrity.

Trunk Highway 53 (XX-ROD-023) Duluth to International Falls, MN

TH 53 was evaluated in a Phase II analysis, including the current TH 53 (constructed in 1968) and pre-1968 segments along Garfield and Piedmont Avenue. Because the Garfield and Piedmont segments were not found to possess significance separate from the entire route, they were not assigned a separate inventory number and were evaluated as part of TH 53. In keeping with SHPO and CRU's ongoing trunk highway studies and methodology, the entire extent of TH 53 from Duluth to International Falls was evaluated as part of this project and included in its entirety (see Appendix D). TH 53 was recommended **not eligible** for listing in the NRHP.

West Superior Street Commercial District (SL-DUL-3514); focused on Superior Street west from the intersection with Garfield to east side of 22nd Ave. West

The West Superior Street Commercial District was previously surveyed in 2017 as part of the Historic Resources Inventory for the Lincoln Park Neighborhood, which was sponsored by the City of Duluth. The proposed District was located outside of, but adjacent to the proposed TPI construction of TH 53 from I-35 west adjacent to Michigan, Superior and West 1st streets and curving to the northwest (see APE map). In consultation with the SHPO, it was decided that the TPI project would complete a Phase II Evaluation to reassess the District and its boundaries identified in the Lincoln Park study and determine whether it met NRHP guidelines. Because the TPI Project ran adjacent and did not anticipate any work within the previously proposed District, the TPI work focused on evaluating the District as a whole and did not examine eligibility of individual buildings.

The District was a commercial center serving working class residents who lived and worked in the nearby railroads or industries on Rice's Point. Disconnected both physically and culturally from Downtown Duluth, the commercial district was the heart of the community from its early days when it was associated with the immigrant population, until after World War II when it remained one of the largest shopping areas in the region. From the 1920s on, the area was readily accessible from the intersection of Garfield and Piedmont (TH 53 prior to 1968) and from TH 61, which ran along Superior Avenue and brought traffic from the south into Duluth before construction of the interstate system. The District was found to be **significant under Criterion A in the area of commerce** as a local commercial district that served the workers and residents of the West End community. The period of significance is 1886, date of the oldest building, to 1968, when plan for the TH 53 elevated expressway led to the bypass of the District by regional traffic.

Although the District was evaluated for significance in the area of social history, no intact buildings remain to convey that history and it is not eligible under Criterion A in the area of social history. The District was evaluated for significance under Criterion B for association with persons who have made a significant contribution to the

community; no individuals were identified that would meet this criteria and the District is **not eligible under Criterion B**.

Buildings in the District are examples of utilitarian commercial architecture from late nineteenth and early twentieth centuries, predominantly one-, two-, and three-story brick-clad structures with commercial space on the first floor and flats, offices, or meeting spaces on the floors above. Alterations to most buildings in the District, particularly on the first-floor storefronts, detract from the ability of these buildings to convey their historic features or to represent the historic district from the period of significance. The District is **not eligible under Criterion C.**

The District was found significant under Criterion A and retains integrity of location, feeling and association as a traditional business district. However, its overall setting in the community has been altered because the surrounding economic activities have been removed with the loss of jobs and removal of the railroads that were once adjacent to the District. Physical connections to the railroad areas and Rice's Point to the east have been severed with the construction of I-35/I535 providing a barrier. Although street connections along Superior Street continue west underneath TH 53, it also provides an edge to the commercial district from the more industrial properties to the west. The alterations to most buildings within the District hampers their ability to convey the period of significance. Alterations have obscured original materials and as a result buildings do not retain integrity of design, materials and workmanship. The number of alterations present on buildings reduces the ability of the District as a whole to convey a cohesive design or to identify character-defining features.

Although the West Superior Street Commercial District was found significant under Criterion A, it is recommended **Not Eligible for the National Register** due to a loss of integrity of setting, design, materials, and workmanship. Because the District was found not eligible due to loss of integrity, no individual eligibility analysis of buildings or identification of contributing or non-contributing buildings was performed. To ensure that no potentially eligible properties might be affected by project activities, the 12 properties in the far southwest portion of the proposed District (the block west of Superior Street and south of 21st Avenue, as well as the properties on West 1st from 20th Avenue to 22nd Avenue), were reviewed because of their proximity to the TH 53 roadway and anticipated construction. Based on the information available and visual survey, no Phase II evaluation appeared to be justified for any of those properties.

Lake Superior & Mississippi/St. Paul & Duluth/Northern Pacific Mainline Corridor (SL-DUL-2500)

The corridor of the Lake Superior & Mississippi Railroad and its successor lines was determined eligible for the NRHP in 2004 and included the entirety of the line from St. Paul to Duluth. The line was significant in the railroad history of the state as the first to connect the railroad city of St. Paul with the port of Duluth. For this study, the period of significance was identified as 1870, the date construction was completed to Duluth, to 1956, which indicates the line's ongoing use into the twentieth century and is in keeping with requirements in the Railroads in Minnesota MPDF.

An integrity assessment of the entire main line from St. Paul to Duluth was beyond the scope of this project. However, to provide an adequate distance for consideration, this study looked at a segment larger than the APE; from West Duluth Junction (approximately South 67th Ave. West) to the termini at Lake Avenue, a distance of approximately 5.85 miles.

The assessment overlaid the historic alignment on current aerial maps and found that a substantial portion of the corridor was obliterated by road and building construction (see Figure 47 in report). Although there are some locations where a corridor may be visible, tracks have been removed or relocated throughout the corridor.

Construction of the I-35/I535 interchange obliterated the former alignment, although the modern BNSF railroad follows an alignment farther east in the same vicinity. The large number of tracks that once existed in the area north of Garfield to Union Depot were removed for interstate highway construction in the 1970s. Railroads continue to operate in the same vicinity as the original alignments, but there are only one or two tracks for current operations, as opposed to the multiple tracks that previously characterized the area north of Garfield.

The corridor was evaluated using guidance from the Railroads in Minnesota MPDF. Based on the overall loss of the historic alignment, this segment of the railroad from West Duluth Junction to Lake Avenue no longer retains integrity of location, and consequently integrity of design, materials, feeling and association. The integrity of setting is lost by the construction of the interstate and by loss of railroad elements. Due to loss of historic integrity, the LS&M/StP&D/NP railroad corridor from West Duluth Junction to South Lake Avenue is determined to be a **noncontributing element of the eligible LS&M/St P&D/NP Mainline Corridor.**

Assessment of Effects

Goldfine's by the Bridge

As part of traffic mitigation improvements, the TPI Project will complete pavement repair and/or lane re-striping along Garfield Avenue (see attached Figure 1 and Figure 2). No pavement widening is planned. Existing ADA ramps will be replaced to accommodate current ADA standards. Goldfine's By the Bridge (Goodwill) is adjacent to Garfield Avenue, with no windows and a blank wall on the Garfield elevation. The building's entry is located off Garfield, facing east, on what was once Nelson Street. The parking lot is located east of the building, and accessed off Garfield as well. No work is proposed that would affect Goldfine's view of the Blatnik Bridge, which was important in its history. Because the proposed street improvements work are relatively minor activities and will be limited to Garfield Avenue, there will be **no adverse effect** on the Goldfine's building.

LS&M/StP&D/NP Railroad

Work proposed within the LS&M/SP&D/NP rail corridor will consist of track relocation or construction of a shoofly within the existing BNSF rail corridor near Coffee Creek to accommodate adjustment of bridge piers for the various interstate bridges being constructed. Crossovers between tracks may be required to enable the railroads to continue operations during and after the construction.

The segment of the LS&M/StP&D/NP Railroad from West Duluth Jct. (approximately 67th Ave. West) to 5th Avenue West downtown has been identified as noncontributing to the eligible LS&M rail corridor from St. Paul to Duluth. As a noncontributing segment of the railroad corridor, these proposed changes to enable continuation of operations during the construction period would have **no adverse effect** on the historic property.

Duluth, Missabe & Iron Range Railroad

There is a very short segment of the DM & IR Railroad within the APE for this report; no project activities are planned within the APE (see additional discussion of segment near 37th Ave. W. below).

The Great Northern Power Company Substation (SL-DUL-3386) 1424 West Superior Street

As part of traffic mitigation improvements, the TPI Project has proposed construction of a roundabout at the intersection of Superior and Michigan streets, approximately 300 feet north of the Great Northern Company building (see attached Figure 3). The roundabout would replace an intersection where Superior and Michigan currently come together in a "Y" as one roadway through the Point of Rocks area, continuing north into downtown Duluth where they again split into Michigan and Superior streets. Other traffic improvements have previously occurred nearby: Michigan Street on the east side of the Great Northern property has been previously altered from its original east/west configuration and now has a "Y" where it splits into Michigan and Lower

Michigan. The roundabout is separated from Great Northern property, and would continue to funnel traffic on either Michigan/Lower Michigan or to Superior. Views of the building from I-35 or adjacent streets would remain the same, and views from the Great Northern property would not be affected by the roundabout. A proposal has also been considered by the TPI Project to build a bridge west over I-35 from the roundabout. Although the cost benefit makes bridge construction unlikely, if the bridge were constructed, it would be located far enough away that it would not block views either toward or from the building. The proposed project construction would have **no adverse effect** on the Great Northern property.

It is the determination of this office that there is **no adverse effect on any architecture/history properties** within the APE identified in the *Phase I-II Architecture/History Report* for the TPI Project.

Project Additions After the Phase I/II Architecture/History Report

While the *Phase I-II Architecture/History Report* included a large APE (see Appendix A) that encompassed the primary work for the reconstruction of interchange I-35 and I-535, and included the area for many associated roadway improvements, the TPI has added two outlying improvements that were non-contiguous to the APE previously identified. These two outlying improvements were added to the project after work was completed on the primary report, and thus are reviewed separately within this letter.

--46th Avenue West Roadway Improvement

SP 6982-328 will include pavement rehabilitation throughout the project area already included within the previously identified APE. Outside the APE of the larger project within Duluth, this work will include roadway improvements on 46th Ave. West, from the southbound I-35 off ramps to Grand Avenue (see inset map on attached Figure 2). This segment of road connects to the US 2 Bong Bridge roadway to Wisconsin and is expected to receive increased traffic while work occurs on the I-35/I-535 interchange. Proposed work consists of a thin bituminous overlay of the existing pavement and reconstruction of ADA sidewalk ramps.

The APE for this work is limited to the construction limits, which includes the existing roadway, curb to curb, and the reconstructed ADA ramps. A site file search from SHPO database indicated no identified historic properties in the area, which was confirmed with a Google street view of these blocks. This improvement will have **no adverse effect** on any historic properties.

--Railroad Realignment Option

In addition to the temporary railroad realignment options already evaluated within the primary project APE, a second option was added in the area south of the DM&IR ore docks and north of 37th Ave. W. (see attached Figure 4). A Canadian National (CN)/Burlington Northern Santa Fe (BNSF) track crossover is proposed to allow CN to temporarily use BN trackage through the construction zone, potentially minimizing the extent of shoofly construction near the Coffee Creek and Miller Creek outfalls (elsewhere within the overall project APE).

The APE for this crossover work is limited to the BN/CN railroad corridors, from Merritt Creek to the southern DM&IR ore dock. The DM&IR ore docks (SL-DUL-0014) have been determined eligible for the NRHP, but bridge over the BN and CN rail corridors and are outside the APE for this improvement. As noted in table 4 and figure 3 in the *Phase I-II report*, the BN line (historic Duluth Transfer line, SL-XRR-005) has been determined not eligible. The CN line, the historic DM&IR Railroad (SL-DUL-2499), has been determined eligible for the NRHP.

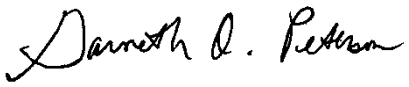
The addition of this crossover is a typical operational activity that will have **no adverse effect** on the characteristics of the historic railroad corridor. The construction of the crossover enhances the ability of the railroad to continue its primary operations within the historic corridor, and would be an efficient solution for the need to maintain operations during the project.

Need for PA

Based on the information prepared for the TPI Project at this time, no PA is required for architecture/history identification or determinations. Should the project make design changes that affect the APE or cause additional areas to be surveyed, we would undertake Section 106 review to address those areas and determine whether there are eligible properties that may be affected. As noted, the archaeology report for the TPI Project will be submitted separately. Our office will continue to communicate with you on this undertaking, and re-evaluate any need for an agreement document when archaeology survey work has been completed.

We look forward to your comment on the report provided with this letter and our determination. Please contact me at (651)366-3615 or at garneth.peterson@state.mn.us if you have any questions or need additional information.

Sincerely,



Garneth O. Peterson, AICP
Historian, Cultural Resources Unit

Enclosures

CC: Joe Campbell, FHWA
Phil Forst, FHWA
Roberta Dwyer, District 1
Melissa Cerda, MIAC
Amanda Gronhovd, OSA
Jill Hoppe, THPO, Fond du Lac Band of Lake Superior Chippewa
Adam Fulton, City of Duluth Planning Manager
Jenn Moses, Duluth HPC

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

January 10, 2019

Garneth Peterson
Cultural Resources Unit
MN Dept of Transportation, MS 620
395 John Ireland Blvd
St Paul, MN 55155

RE: SP 6982-322; SP 6980-60; SP 6982-328; SP 6915-136
Twin Ports Initiative (TPI) Reconstruction of Interchange I-35, I-535 and TH 53
Local Roadways and US 53 Improvements related to TPI Reconstruction and Interchange
Duluth, Saint Louis County
SHPO Number: 2018-2036

Dear Ms. Peterson,

Thank you for continuing consultation on the above project. Information received in our office 11 December 2018 has been reviewed pursuant to the responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966, as amended, implementing federal regulations at 36 CFR 800, per the terms of the 2015 Amended Programmatic Agreement between the Federal Highway Administration (FHWA) and the Minnesota State Historic Preservation Office (SHPO), and pursuant to the responsibilities given the State Historic Preservation Office by the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act.

We have completed our review of your letter dated December 10, 2018, a submittal which included the following documentation in support of your agency's determinations regarding the identification of historic properties and "no adverse effect" finding for the proposed undertaking:

- Figures 1-2: Overview Maps of the Proposed Interchange Reconstruction Project (including street improvement plans for Garfield Avenue);
- Figure 3: Michigan-Superior Roundabout Plans and Railroad Street Connector;
- Figure 4: Railroad Crossover Concept;
- Revised West Superior Street Commercial District Boundary Map;
- Surveyed Properties Map;
- Revised Table 8 from the report titled *Phase I Architecture/History Survey and Phase II Evaluation for Twin Ports Interchange (TPA) at Interstate Highway 36 (I-35) and I-535, Duluth, Saint Louis County, Minnesota* (Mead & Hunt, Inc., September 2018);
- SP 6982-328 60% Plans;
- ADA Sidewalk Plans;
- Twin Ports Interchange (I-35, I-535 & US 53) packet
- Report: *Twin Ports Interchange, Duluth, St. Louis County, Minnesota; SP 6982-322, Summary of Archaeological Investigations* (December 3, 2018, Two Pines Resource Group);
- Foundation Boring Plan – Lower Michigan Avenue Plan; and
- Preliminary Soil Analytical Map

SHPO staff has appreciated the recent opportunities to meet with Minnesota Department of Transportation's Cultural Resources Unit (CRU) staff in order to effectively consult regarding this complex undertaking.

Definition of Federal Undertaking and Area of Potential Effect
In our previous comment letters, dated June 22 and November 16, 2018, we provided agreement with your agency's definition and documentation regarding the Area of Potential Effect (APE) for this project.

Identification of Historic Properties

Archaeology
We have reviewed the report titled *Twin Ports Interchange, Duluth, St. Louis County, Minnesota; SP 6982-322, Summary of Archaeological Investigations* (December 3, 2018, Two Pines Resource Group) and we agree with your agency's findings, as summarized in the December 10th letter, in regards to the results of identification of archaeological sites, specifically that there were no archaeological sites identified as part of these efforts and a determination generally made that the majority of the APE has a low potential to contain intact sites. Taking into consideration the scope and nature of the proposed undertaking and the conditions within the APE for direct, physical effects, we agree that the level of effort completed by your agency to identify archaeological properties has been reasonable.

Architecture/History
Our office agrees with the recommendation that the properties listed on pages 44-104 of the report titled *Phase I Architecture/History Survey and Phase II Evaluation for Twin Ports Interchange (TPA) at Interstate Highway 36 (I-35) and I-535, Duluth, Saint Louis County, Minnesota* (Mead & Hunt, Inc., September 2018) do not warrant additional research based on current contextual information, and are therefore considered **not eligible** for individual listing in the National Register of Historic Places (NRHP). Should additional information reveal in the future that some or all of the properties are related to previously unknown historic contexts, this eligibility determination may result in the need for additional property evaluation.

Regarding the results of the Phase II survey and evaluation and your agency's historic property determinations, we agree that the following properties are **not eligible** for listing in the NRHP: **Madison School/Seaway Building (SL-DUL-0022), Lake Superior & Mississippi/St. Paul & Duluth/Northern Pacific Corridor from West Duluth Junction to South Lake Avenue (SL-DUL-2500), Midtowne Manor (SL-DUL-3516)**, the former **St. Clement's School** (now Lincoln Park Community Senior Center) **(SL-DUL-3518), Chicago, St. Paul, Minneapolis & Omaha Railroad (SL-DUL-3512), Lake Superior & Mississippi/St. Paul & Duluth/Northern Pacific/Burlington Northern Sane Fe Railroad Yard (SL-DUL-3513),Trunk Highway 53 (XX-ROD-023), Trunk Highway 53 from the Duluth City Limits to Pike Lake (SL-ROD-006), Trunk Highway 53, Midway Road near Duluth to the North Junction with Trunk Highway 169 North of Virginia (SL-ROD-007)**.

West Superior Street Commercial District (SL-DUL-3515):
Based on the documentation provided with your December 10th letter, as well as information included in the Phase I Architecture/History Survey and Phase II Evaluation report, we agree with your agency's determination that the West Superior Street Commercial District is **not eligible** for listing in the NRHP. Although the district is significant under Criterion A in the area of commerce from 1889-1930, it does not retain sufficient integrity to convey this association.

We agree that the following properties will be treated as eligible for listing in the NRHP for the purposes of this Section 106 review only. If the project scope changes proximate to these properties, additional information may be needed regarding their eligibility and integrity in order to better evaluation effects: **Goldfine's by the Bridge (SL-DUL-0025), Great Northern Power Company Substation (SL-DUL-3386), Duluth, Missabe & Iron Range Railroad (SL-DUL-2499).** The following properties along West Superior Street will also be considered individually eligible for listing in the NRHP for the purposes of this review only: **National Candy Company Building (SL-DUL-0961), Crane Building (SL-DUL-3391), Crane Terrace Row Flats (SL-DUL-2015), Auto Filling Station (SL-DUL-3381), Enger and Olson Furniture Store (SL-DUL-3394), Enger and Olson Furniture Warehouse (SL-DUL-3107 and SL-DUL-3382), Commercial Building (SL-DUL-3398), Commercial Building (SL-DUL-3403), Commercial Building (SL-DUL-3404), Duluth Press Building (SL-DUL-0962), Commercial Building (SL-DUL-3368), Duluth National Bank (SL-DUL-3410), Mohaupt Block (SL-DUL-3416), Furniture Store (SL-DUL-3417), Hotel Rex (SL-DUL-3411), Commercial Building (SL-DUL-0964), Commercial Building (SL-DUL-0965), Stack Building (SL-DUL-0966), Nelson Knitting Company Building (SL-DUL-0967), Nelson Knitting Company Building (SL-DUL-0968), Commercial Building (SL-DUL-2042),** and **Garfield News Building (SL-DUL-0400).**

Trunk Highway 53, the Experimental Cast-Iron Pavement (Division A) at Burke Road Intersection (SL-FAY-010)
Our office agrees with the determination that this segment of Trunk Highway 53 possesses significance under Criterion C in the area of engineering during the 1921-1954 period. **Additional information** on the current integrity of the property is necessary to determine eligibility. The segment is outside of the APE for this undertaking, therefore, it is not necessary to provide the additional information as part of this Section 106 review.

Assessment of Effect
We appreciate the thorough property-by-property narrative assessment of adverse effects, supported by more detailed project plan documentation, as provided in your December 10th submittal. Based upon information provided to our office at this time, we concur with your agency's finding that the undertaking, as currently proposed, will have **no adverse effect** on the historic properties identified as part of this review. Our office acknowledges and agrees with the provision that this effect determination is contingent on your agency complying with the conditions described in your December 10th letter.

Additionally, we include further clarification that implementation of the undertaking in accordance with this finding, as documented, fulfills your agency's responsibilities under Section 106. If your agency does not construct the undertaking as proposed, including, but not limited to, a situation where design changes to the currently proposed project diverts substantially from what was presented at the time of this review, design changes involving undisturbed ground are made for the undertaking following completion of this review, or your agency finds that it is unable to comply with the finding as stated, then your agency will need to reopen Section 106 consultation with our office and others pursuant to 36 CFR 800.5(d)(1).

Consulting Party/Public Participation
Your December 10th letter summarizes your agency's efforts in regards to consultation with tribes, the Minnesota Indian Affairs Council, the Office of the State Archaeologist, the City of Duluth and the Duluth Heritage Preservation Commission. You have also indicated that MnDOT CRU staff participated in the public hearing held for the Environmental Assessment Worksheet (EAW) in October, but received no comments.

Please feel free to contact me at (651) 201-3290 or sarah.beimers@state.mn.us if you have any questions regarding our comments.

Sincerely,

Sarah J. Beimers
Environmental Review Program Manager

cc via email only:

Adam Fulton and Jenn Moses, City of Duluth
Michael Malone, Chair, Duluth Heritage Preservation Commission
Jill Hoppe, THPO, Fond du Lac Band of Lake Superior Chippewa
Amanda Gronhovd, Office of the State Archaeologist
Melissa Cerda, Minnesota Indian Affairs Council

DEPARTMENT OF TRANSPORTATION

September 20, 2018

Andrew Horton
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Twin Cities ES Field Office
4101 American Blvd East
Bloomington, MN 55425-1665

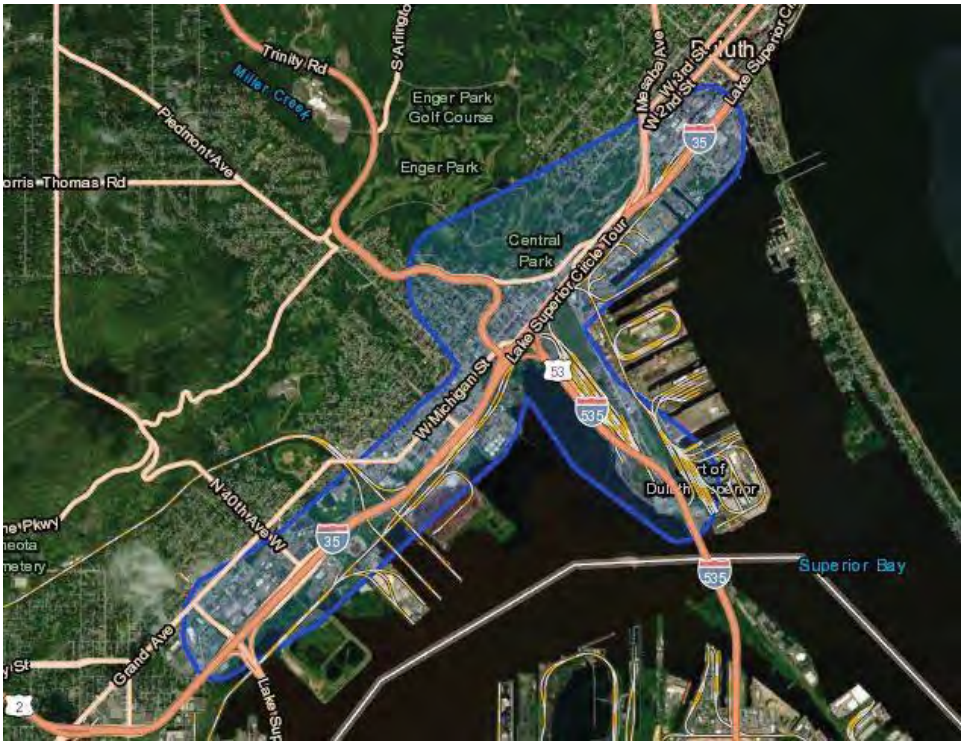
Request for Concurrence – May affect, likely to adversely affect (PBO) – northern long-eared bat (*Myotis septentrionalis*)

No Effect Determination – Canada lynx (*Lynx canadensis*) and designated Critical Habitat
No Effect Determination – Gray wolf (*Canis lupus*) and designated Critical Habitat
No Effect Determination – Piping plover (*Charadrius melodus*) and designated Critical Habitat
No Effect Determination – Rufa red knot *(Calidris canutus rufa)*

S.P. 6982-322, 6980-60, 6982-328, 6915-136 - I-35 & TH 535
Duluth, St. Louis County, MN

Project Description

The Twin Ports Interchange Project consists work along I-35, TH 535, and several local roads in Duluth, Minnesota. The project will consist of replacing numerous bridges as well as bridge repairs and box culvert removal; reconstructing a stretch of the mainline of I-35; replacing ramps; extending an existing street to provide street connections; improving an existing intersection; installing a traffic control devices; pavement improvements along various local roads; building removal; railroad repairs, upgrades, and/or realignment; creek realignment; and associate activities. Less than one acre of tree removal is anticipated.



Action Area identified for the proposed project.

Conservation Measures

- Tree removal must avoid bat pupping season – no tree removal June 1 to August 15, inclusive.
- If rolled erosion control products (EG erosion control blanket) are to be utilized, must be limited to 'bio-netting', 'natural-netting' (category 3N or 4N) or woven type products, and specifically not allow welded plastic mesh netting. See page 25 of chapter one in the manual:' Best Practices for Meeting GP 2004-0001', at http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/gp_2004_0001_manual.html and DNR's Nongame Wildlife Program factsheet at http://files.dnr.state.mn.us/eco/nongame/wildlife-friendly-erosion-control.pdf.
- Revegetation of disturbed soils should follow D1 Vegetation Establishment Recommendations (http://www.dot.state.mn.us/environment/erosion/pdf/vegetation/D1_2016.pdf), and use native mixes in areas that are not proposed for mowed turf grass. For additional information, visit: http://www.dot.state.mn.us/environment/erosion/seedmixes.html

Species List for the Project County

According to the official County Distribution of Minnesota Federally-Listed Threatened, Endangered, Proposed, and Candidate Species list (revised in January 2018), maintained by the Service, the project county is within the range of the following:

Revised January 2018

County	Species	Status	Habitat
St. Louis	Canada lynx *Lynx canadensis)*	Threatened & Critical Habitat	Northern forest
	Gray wolf *Canis lupus)*	Threatened & Critical Habitat	Northern forest
	Northern long-eared bat *Myotis septentrionalis*	Threatened	Hibernates in caves and mines – swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.
	Piping plover *Charadrius melodus*	Endangered & Critical Habitat	Sandy beaches, islands
	Rufa red knot *Calidris canutus rufa*	Threatened	Coastal areas along Lake Superior

MnDOT consults the Minnesota Department of Natural Resources Natural Heritage Information System (Copyright 2018 State of Minnesota, Department of Natural Resources), and other resources as available, to determine if proposed projects may affect listed species.

Endangered Species Act – Section 7 Consultation

Section 7 of Endangered Species Act of 1973, as amended (Act), requires each Federal agency to review any action that it funds, authorizes or carries out to determine whether it may affect threatened, endangered, proposed species or listed critical habitat. Federal agencies (or their designated representatives) must consult with the U.S. Fish and Wildlife Service (Service) if any such effects may occur as a result of their actions. Consultation with the Service is not necessary if the proposed action will not directly or indirectly affect listed species or critical habitat. If a federal agency finds that an action will have no effect on listed species or critical habitat, it should maintain a written record of that finding that includes the supporting rationale.

Notice of Determination

Northern long-eared bat – May affect, likely to adversely affect

The majority of bridges within the project Action Area are beyond 1000' from suitable habitat. A small amount of tree clearing is anticipated, and may occur during the bat active season within 100' of existing road or rail surface. Tree clearing will avoid the bat pupping season, and will not clear trees June 1 to August 15, inclusive.

No documented NLEB hibernacula and/or roost trees are documented within the project Action Area (https://files.dnr.state.mn.us/eco/ereview/minnesota_nleb_township_list_and_map.pdf).

This project review relies on the USFWS Programmatic Biological Opinion for FHWA, FRA, FTA Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 et seq.).

The review was completed using the U.S. Fish and Wildlife Service's Information for Planning and Consultation (IPaC) system (Consultation Code: 03E19000-2018-R-1450). The U.S. Fish and Wildlife Service's consistency verification letter is attached (Attachment 1).

No Effect Determinations

Section 7 of Endangered Species Act of 1973, as amended (Act), requires each Federal agency to review any action that it funds, authorizes or carries out to determine whether it may affect threatened, endangered, proposed species or listed critical habitat. Federal agencies (or their designated representatives) must consult with the U.S. Fish and Wildlife Service (Service) if any such effects may occur as a result of their actions. Consultation with the Service is not necessary if the proposed action will not directly or indirectly affect listed species or critical habitat. If a federal agency finds that an action will have no effect on listed species or critical habitat, it should maintain a written record of that finding that includes the supporting rationale.

No Effect Determination – Canada lynx (*Lynx canadensis*) and designated Critical Habitat
No Effect Determination – Gray wolf (*Canis lupus*) and designated Critical Habitat
No Effect Determination – Piping plover (*Charadrius melodus*) and designated Critical Habitat
No Effect Determination – Rufa red knot *(Calidris canutus rufa)*

Canada lynx and designated Critical Habitat – *No effect determination.*
No known occurrences or critical habitat for this species exist within the action area. Suitable habitat is not present. Tree removal is limited to medians in an urban area. ***Therefore, MnDOT on behalf of the FHWA has made a determination of no effect for this species.***

Gray wolf and designated Critical Habitat – *No effect determination.*
No known occurrences or critical habitat for this species exist within the action area. Suitable habitat is not present. Tree removal is limited to medians in an urban area. ***Therefore, MnDOT on behalf of the FHWA has made a determination of no effect for this species.***

Piping plover Great Lakes Breeding Population and designated Critical Habitat – *No effect determination.*
No recent occurrences or critical habitat for this species exist within the action area. Suitable habitat is not present. ***Therefore, MnDOT on behalf of the FHWA has made a determination of no effect for this species.***

Rufa red knot – *No effect determination.*
No known occurrences for this species exist within the action area. Suitable habitat is not present. ***Therefore, MnDOT on behalf of the FHWA has made a determination of no effect for this species.***

Please contact me if there are questions or concerns.

Digitally signed by Christopher E Smith
Date: 2018.09.20 16:31:41 -05'00'

Christopher E. Smith, M.Sc., CWB®
Wildlife Ecologist | Office of Environmental Stewardship
Minnesota Department of Transportation
395 John Ireland Blvd., MS 620
Saint Paul, MN 55155

E-mail: Christopher.E.Smith@state.mn.us
Phone: 651-366-3605

Attachment 1

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
4101 American Blvd E
Bloomington, MN 55425-1665
Phone: (952) 252-0092 Fax: (952) 646-2873
http://www.fws.gov/midwest/Endangered/section7/s7process/step1.html

IPaC Record Locator: 699-14017671 September 20, 2018

Subject: Consistency letter for the 'S.P. 69820-322 and associated SPs (Twin Ports Interchange)' project (TAILS 03E19000-2018-R-1450) under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated to verify that the S.P. 69820-322 and associated SPs (Twin Ports Interchange) (Proposed Action) may rely on the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action is within the scope and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, and may affect, and is likely to adversely affect the endangered Indiana bat (Myotis sodalis) and/or the threatened Northern long-eared bat (Myotis septentrionalis). Consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) is required.

This "may affect - likely to adversely affect" determination becomes effective when the lead Federal action agency or designated non-federal representative uses it to ask the Service to rely on the PBO to satisfy the agency's consultation requirements for this project. Please provide this consistency letter to the lead Federal action agency or its designated non-federal representative with a request for its review, and as the agency deems appropriate, transmittal to this Service Office for verification that the project is consistent with the PBO.

This Service Office will respond by letter to the requesting Federal action agency or designated non-federal representative within 30 calendar days to:

- verify that the Proposed Action is consistent with the scope of actions covered under the PBO;
- verify that all applicable avoidance, minimization, and compensation measures are included in the action proposal;
- identify any action-specific monitoring and reporting requirements, consistent with the monitoring and reporting requirements of the PBO, and
- identify anticipated incidental take.

ESA Section 7 compliance for this Proposed Action is not complete until the Federal action agency or its designated non-federal representative receives a verification letter from the Service.

For Proposed Actions that include bridge/structure removal, replacement, and/or maintenance activities: If your initial bridge/structure assessments failed to detect Indiana bats, but you later detect bats during construction, please submit the Post Assessment Discovery of Bats at Bridge/Structure Form (User Guide Appendix E) to this Service Office. In these instances, potential incidental take of Indiana bats may be exempted provided that the take is reported to the Service.

If the Proposed Action may affect any other federally-listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please advise the lead Federal action agency for the Proposed Action accordingly.

The following species may occur in your project area and are not covered by this determination:

- Canada Lynx, Lynx canadensis (Threatened)
- Gray Wolf, Canis lupus (Threatened)
- Piping Plover, Charadrius melodus (Endangered)
- Red Knot, Calidris canutus rufa (Threatened)

Project Description

The following project name and description was collected in IPaC as part of the endangered species review process.

Name

S.P. 69820-322 and associated SPs (Twin Ports Interchange)

Description

The Twin Ports Interchange Project consists work along I-35, TH 535, and several local roads in Duluth, Minnesota. The project will consist of replacing numerous bridges as well as bridge repairs and box culvert removal; reconstructing a stretch of the mainline of I-35; replacing ramps; extending an existing street to provide street connections; improving an existing intersection; installing a traffic control devices; pavement improvements along various local roads; building removal; railroad repairs, upgrades, and/or realignment; creek realignment; and associate activities. Less than one acre of tree removal is anticipated.

Determination Key Result

Based on your answers provided, this project is likely to adversely affect the endangered Indiana bat and/or the threatened Northern long-eared bat. Therefore, consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 et seq.) is required. However, also based on your answers provided, this project may rely on the conclusion and Incidental Take Statement provided in the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

Qualification Interview

1. Is the project within the range of the Indiana bat[1]?

   [1] See Indiana bat species profile

   Automatically answered
   No

2. Is the project within the range of the Northern long-eared bat[1]?

   [1] See Northern long-eared bat species profile

   Automatically answered
   Yes

3. Which Federal Agency is the lead for the action?
   A) Federal Highway Administration (FHWA)

4. Are all project activities limited to non-construction[1] activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

   [1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

   No

5. Does the project include any activities that are greater than 300 feet from existing road/rail surfaces[1]?

   [1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

   No

6. Does the project include any activities within 0.5 miles of an Indiana bat and/or NLEB hibernaculum[1]?

   [1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

   No

7. Is the project located within a karst area?

   No

8. Is there any suitable[1] summer habitat for Indiana Bat or NLEB within the project action area[2]? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   [2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the national consultation FAQs.

   Yes

9. Will the project remove any suitable summer habitat[1] and/or remove/trim any existing trees within suitable summer habitat?

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   Yes

10. Will the project clear more than 20 acres of suitable habitat per 5-mile section of road/rail?

    No

11. Have presence/probable absence (P/A) summer surveys[1][2] been conducted[3][4] within the suitable habitat located within your project action area?

    [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

    [2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

    [3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.

    [4] Negative presence/probable absence survey results obtained using the summer survey guidance are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

    No

12. Does the project include activities within documented NLEB habitat[1][2]?

    [1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

    [2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

    No

13. Will the removal or trimming of habitat or trees occur within suitable but undocumented NLEB roosting/foraging habitat or travel corridors?

    Yes

14. What time of year will the removal or trimming of habitat or trees within suitable but undocumented NLEB roosting/foraging habitat or travel corridors occur?

    A) During the active season

15. Will any tree trimming or removal occur within 100 feet of existing road/rail surfaces?

    Yes

16. Will more than 10 trees be removed between 0-100 feet of the road/rail surface during the active season[1]?

    [1] Areas containing more than 10 trees will be assessed by the local Service Field Office on a case-by-case basis with the project proponent.

    Yes

17. Will the tree removal alter any documented Indiana bat or NLEB roosts and/or alter any surrounding summer habitat within 0.25 mile of a documented roost?

    No

18. Will any tree trimming or removal occur between 100-300 feet of existing road/rail surfaces?

    No

19. Are all trees that are being removed clearly demarcated?

    Yes

20. Will the removal of habitat or the removal/trimming of trees involve the use of temporary lighting?

    Yes

21. Will the removal of habitat or the removal/trimming of trees include installing new or replacing existing permanent lighting?

    Yes

22. Does the project include maintenance of the surrounding landscape at existing facilities (e.g., rest areas, stormwater detention basins)?

    No

23. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

    No

24. Does the project include slash pile burning?

    No

25. Does the project include any bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)?

    Yes

26. Is there any suitable habitat[1] for Indiana bat or NLEB within 1,000 feet of the bridge? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

    [1] See the Service's current summer survey guidance for our current definitions of suitable habitat.

    Yes

27. Has a bridge assessment[1] been conducted within the last 24 months[2] to determine if the bridge is being used by bats?

    [1] See User Guide Appendix D for bridge/structure assessment guidance

    [2] Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Consultation, regardless of whether assessments have been conducted in the past. Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that bridge/structure in subsequent years.

    Yes

    SUBMITTED DOCUMENTS

    - BridgeInspectionReports.pdf https://ecos.fws.gov/ipac/project/QJE43EF56JEWBAB5Q6L3JRZ4RM/projectDocuments/14017829

28. Did the bridge assessment detect any signs of bats roosting in/under the bridge (bats, guano, etc.)?

    Note: There is a small chance bridge assessments for bat occupancy do not detect bats. Should a small number of bats be observed roosting on a bridge just prior to or during construction, such that take is likely to occur or does occur in the form of harassment, injury or death, the PBO requires the action agency to report the take. Report all unanticipated take within 2 working days of the incident to the USFWS. Construction activities may continue without delay provided the take is reported to the USFWS and is limited to 5 bats per project.

    No

29. Will the bridge removal, replacement, and/or maintenance activities include installing new or replacing existing permanent lighting?

    Yes

30. Does the project include the removal, replacement, and/or maintenance of any structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

    Yes

31. Is there any suitable habitat[1] for Indiana bat or NLEB within 1,000 feet of the structure? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

    [1] See the Service's current summer survey guidance for our current definitions of suitable habitat.

    No

32. Will the project involve the use of any temporary lighting in addition to the lighting already indicated for habitat removal (including the removal or trimming of trees), or bridge/structure removal, replacement or maintenance activities?

    Yes

33. Is there any suitable habitat within 1,000 feet of the location(s) where temporary lighting (other than the lighting already indicated for habitat removal (including the removal or trimming of trees) or bridge/structure removal, replacement or maintenance activities) will be used?

    Yes

34. Will the project install any new or replace any existing permanent lighting in addition to the lighting already indicated for habitat removal (including the removal or trimming of trees) or bridge/structure removal, replacement or maintenance activities?

    Yes

35. Is there any suitable habitat within 1,000 feet of the location(s) where permanent lighting (other than the lighting already indicated for habitat removal (including the removal or trimming of trees) or bridge/structure removal, replacement or maintenance activities) will be installed or replaced?

    Yes

36. Does the project include percussives or other activities (not including tree removal/ trimming or bridge/structure work) that will increase noise levels above existing traffic/ background levels?

    Yes

37. Will the activities that use percussives (not including tree removal/trimming or bridge/structure work) and/or increase noise levels above existing traffic/background levels be conducted during the active season[1]?

    [1] Coordinate with the local Service Field Office for appropriate dates.

    Yes

38. Will any activities that use percussives (not including tree removal/trimming or bridge/structure work) and/or increase noise levels above existing traffic/background levels be conducted during the inactive season[1]?

    [1] Coordinate with the local Service Field Office for appropriate dates.

    Yes

39. Are all project activities that are not associated with habitat removal, tree removal/trimming, bridge or structure removal, replacement, and/or maintenance, lighting, or use of percussives, limited to actions that DO NOT cause any stressors to the bat species, including as described in the BA/BO (i.e. activities that do not involve ground disturbance, percussive noise, temporary or permanent lighting, tree removal/trimming, nor bridge/structure activities)?

    Examples: lining roadways, unlighted signage , rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

    Yes

40. Will the project raise the road profile above the tree canopy?

    Yes

41. Is the area where the road profile will be raised above the tree canopy within 1,000 feet of documented Indiana bat or NLEB habitat[1][2]?

    [1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

    [2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

    No

42. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) consistent with a Not Likely to Adversely Affect determination in this key?

    Automatically answered

    Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and are not within documented habitat

43. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) and/or increase noise levels above existing traffic/background levels consistent with a No Effect determination in this key?

    Automatically answered

    Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and conducted during the inactive season

44. Is the habitat removal portion of this project consistent with a Likely to Adversely Affect determination in this key?

    Automatically answered

    Yes, because tree removal that occurs during the active season occurs within 100 feet from the existing road/rail surface, is not in documented NLEB roosting/foraging habitat or travel corridors, and a visual survey has not been conducted

45. Is the bridge removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

    Automatically answered

    Yes, because the bridge has been assessed using the criteria documented in the BA and no signs of bats were detected

46. Is the structure removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

    Automatically answered

    Yes, because the structure is more than 1,000 feet from the nearest suitable habitat and is therefore considered unsuitable for use by bats

47. General AMM 1

    Will the project ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable Avoidance and Minimization Measures?

    Yes

48. Tree Removal AMM 1

Can all phases/aspects of the project (e.g., temporary work areas, alignments) be modified, to the extent practicable, to avoid tree removal[1] in excess of what is required to implement the project safely?

Note: Tree Removal AMM 1 is a minimization measure, the full implementation of which may not always be practicable. Projects may still be NLAA as long as Tree Removal AMMs 2, 3, and 4 are implemented and LAA as long as Tree Removal AMMs 3, 5, 6, and 7 are implemented.

[1] The word "trees" as used in the AMMs refers to trees that are suitable habitat for each species within their range. See the USFWS' current summer survey guidance for our latest definitions of suitable habitat.

No

49. Tree Removal AMM 3

Can tree removal be limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits)?

Yes

50. Lighting AMM 1

Will all temporary lighting used during the removal of suitable habitat and/or the removal/trimming of trees within suitable habitat be directed away from suitable habitat during the active season?

Yes

51. Lighting AMM 2

Does the lead agency use the BUG (Backlight, Uplight, and Glare) system developed by the Illuminating Engineering Society[1][2] to rate the amount of light emitted in unwanted directions?

[1] Refer to Fundamentals of Lighting - BUG Ratings

[2] Refer to The BUG System—A New Way To Control Stray Light

Yes

52. Lighting AMM 2
Will the permanent lighting used during removal of suitable habitat and/or the removal/ trimming of trees within suitable habitat be designed to be as close to 0 for all three BUG ratings as possible, with a priority of "uplight" of 0 and "backlight" as low as practicable?

Yes

53. Lighting AMM 1
Will all temporary lighting (besides that indicated for tree clearing or bridge/structure removal, replacement or maintenance activities) be directed away from suitable habitat during the active season?

Yes

54. Lighting AMM 2
Does the lead agency use the BUG (Backlight, Uplight, and Glare) system developed by the Illuminating Engineering Society[1][2] to rate the amount of light emitted in unwanted directions?

[1] Refer to Fundamentals of Lighting - BUG Ratings

[2] Refer to The BUG System—A New Way To Control Stray Light

Yes

55. Lighting AMM 2
Will the permanent lighting (other than any lighting already indicated for tree clearing or bridge/structure removal, replacement or maintenance activities) be designed to be as close to 0 for all three BUG ratings as possible, with a priority of "uplight" of 0 and "backlight" as low as practicable?

Yes

56. For Indiana bat, if applicable, compensatory mitigation measures are required to offset adverse effects on the species (see Section 2.10 of the BA). Please select the mechanism in which compensatory mitigation will be implemented:

6. Not Applicable

Project Questionnaire

1. Have you made a No Effect determination for all other species indicated on the FWS IPaC generated species list?

Yes

2. Have you made a May Affect determination for any other species on the FWS IPaC generated species list?

   No

3. How many acres[1] of trees are proposed for removal between 0-100 feet of the existing road/rail surface?

   [1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   1

4. Please verify:
   All tree removal will occur greater than 0.5 mile from any hibernaculum.

   Yes, I verify that all tree removal will occur greater than 0.5 miles from any hibernaculum.

5. Is the project location 0-100 feet from the edge of existing road/rail surface?

   Yes

6. Is the project location 100-300 feet from the edge of existing road/rail surface?

   Yes

7. Please verify:
   No documented NLEB roosts or surrounding summer habitat within 150 feet of documented roosts will be impacted between June 1 and July 31.

   Yes, I verify that no documented NLEB roosts or surrounding summer habitat within 150 feet of documented roosts will be impacted during this period.

8. Please describe the proposed bridge work:

   Several bridge replacements, some bridge and box culvert repairs

9. Please state the timing of all proposed bridge work:

   Unknown. Likely April-November.

10. Please describe the proposed structure work:

    Demolition

11. Please state the timing of all proposed structure work:

    Winter

12. You have indicated that the following Avoidance and Minimization Measures (AMMs) will be implemented as part of the proposed project:
    - General AMM 1
    - Lighting AMM 1
    - Lighting AMM 2
    - Tree Removal AMM 3

Avoidance And Minimization Measures (AMMs)

These measures were accepted as part of this determination key result:

GENERAL AMM 1

Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.

LIGHTING AMM 1

Direct temporary lighting away from suitable habitat during the active season.

LIGHTING AMM 2

When installing new or replacing existing permanent lights, use downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting); or for those transportation agencies using the BUG system developed by the Illuminating Engineering Society, be as close to 0 for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practicable.

TREE REMOVAL AMM 3

Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits).

Determination Key Description: FHWA, FRA, FTA Programmatic Consultation For Transportation Projects Affecting NLEB Or Indiana Bat

This key was last updated in IPaC on March 16, 2018. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered Indiana bat (Myotis sodalis) and the threatened Northern long-eared bat (NLEB) (Myotis septentrionalis).

This decision key should only be used to verify project applicability with the Service's February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects. The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Minnesota-Wisconsin Field Office
4101 American Boulevard East
Bloomington, Minnesota 55425-1665
Phone: (952) 252-0092 Fax: (952) 646-2873

November 15, 2018

Phillip Forst
U.S. Department of Transportation
Federal Highways Administration
380 Jackson Street, Suite 500
Saint Paul, MN 55101

TAILS: 03E19000-2018-F-1450

RE: Twin Ports Interchange Project (S.P. 6982-322/6980-60)

Dear Mr. Forst:

The U.S. Fish and Wildlife Service (Service) is responding to your request dated September 20, 2018 to verify that the proposed Twin Ports Interchange Project (the Project) may rely on the December 15, 2016, Programmatic Biological Opinion (BO) for federally funded or approved transportation projects that may affect the federally listed threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*). We received your request and the associated LAA Consistency Letter on September 20, 2018.

This letter provides the Service's response as to whether the Federal Highways Administration may rely on the BO to comply with Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) for the Project's effects to the Indiana bat and/or NLEB.

The Federal Highways Administration has determined that the Project is *likely to adversely affect* the NLEB. The Service concurs with this/these determination(s), because suitable roosting habitat will be removed up to 100-ft from the existing road surface at a time when NLEB may be present, but not during the June 1 to August 15 pupping season.This concurrence concludes your ESA Section 7 responsibilities relative to NLEB for this Project, subject to the Reinitiation Notice below.

Conclusion

The Service has reviewed the effects of the proposed Project, which includes the Federal Highways Administration's commitment to implement any applicable mitigation measures as indicated on the LAA Consistency Letter. We confirm that the proposed Project's effects are consistent with those analyzed in the BO. The Service has determined that projects consistent with the conservation measures and scope of the program analyzed in the BO are not likely to jeopardize the continued existence of the NLEB. In coordination with your agency and the other sponsoring Federal Transportation Agencies, the Service will reevaluate this conclusion annually in light of any new pertinent information under the adaptive management provisions of the BO.

Incidental Take

Northern Long-eared Bat

The Service anticipates that tree removal associated with the Project will cause incidental take of NLEBs. However, the Project is consistent with the BO, and such projects will not cause take of NLEB that is prohibited under the ESA section 4(d) rule for this species (50 CFR §17.40(o)). Therefore, the incidental take of NLEBs resulting from the Project does not require exemption from the Service.

Reporting Dead or Injured Bats

The Federal Highways Administration, its State/Local cooperators, and any contractors must take care when handling dead or injured NLEBs, or any other federally listed species that are found at the Project site to preserve biological material in the best possible condition and to protect the handler from exposure to diseases, such as rabies. Project personnel are responsible for ensuring that any evidence about determining the cause of death or injury is not unnecessarily disturbed. Reporting the discovery of dead or injured listed species is required in all cases to enable the Service to determine whether the level of incidental take exempted by this BO is exceeded, and to ensure that the terms and conditions are appropriate and effective. Parties finding a dead, injured, or sick specimen of any endangered or threatened species must promptly notify this Service Office.

Reinitiation Notice

This letter concludes consultation for the Project, which qualifies for inclusion in the BO issued to the Federal Transportation Agencies. To maintain this inclusion, a reinitiation of this Project-level consultation is required where the Federal Highways Administration's discretionary involvement or control over the Project has been retained (or is authorized by law) and if:

1. new information reveals that the Project may affect listed species or critical habitat in a manner or to an extent not considered in the BO;
2. the Project is subsequently modified in a manner that causes an effect to listed species or designated critical habitat not considered in the BO; or
3. a new species is listed or critical habitat designated that the Project may affect.

We appreciate your continued efforts to ensure that this Project is fully consistent with all applicable provisions of the BO. If you have any questions regarding our response or if you need additional information, please contact Mr. Andrew Horton at 952-252-0092 (extension 208).

Sincerely,

Peter Fasbender
Field Office Supervisor

cc: Chris Smith, MnDOT

ENM Pedestrian and Bicycle Resources

Date: 08/31/2018

To: Roberta Dwyer

From: Amber Dallman, Office of Transit and Active Transportation s

RE: ENM for SP 6982-322 tied to SP 6980-60 and SP 6982-328

MnDOT offers resources for integrating safe walking and bicycling into projects. *Minnesota Walks* identifies destinations people want to walk and priority populations that face additional challenges with the transportation system. The *Statewide Bicycle System Plan* identifies state goals and priorities for bicycling. Generally speaking, if a project area is near schools, foods, parks/green space, employment centers or transit safe accommodations for people walking and bicycling should be included. Please refer to the following resources for more information.

- MnDOT Traffic Engineering Manual, Chapter 13 Non-Motorized Facilities and includes guidance on pedestrian crossings
- MnDOT Bicycle Design and Engineering Guidance
- Pedestrian accommodations through work zones

Additional Resources

Please contact Amber Dallman, Pedestrian, Bicycle and Transit Planning Supervisor (amber.dallman@state.mn.us) or Sonja Piper, Pedestrian and Bicycle Safety Engineer (sonja.piper@state.mn.us) with questions.

CC: Sonja Piper, Pedestrian and Bicycle Safety Engineer, Office of Traffic Engineering

From:	Voigt, Paul (DOT)
To:	Bunge, Leila
Subject:	RE: Updated Early Notification Memo for TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)
Date:	Wednesday, August 29, 2018 2:40:11 PM

Leila,
Based on the revisions stated in your latest ENM dated August 28th, 2018, my previous re-review still stands as stated below:

"I have re-reviewed this project and the updated information you supplied in the current ENM dated August 1st, 2018 for vegetation concerns. After looking through my initial review from June 28th of 2016 (attached) and considering the updated project information, my original comments would still be valid, however with some of the additional work items being considered (ADA work, potential roundabout, potential creek realignment) there could be the potential for more tree impacts than originally thought. At this time, I would ask that you add the vegetation work package (VGT1020, VGT1030, VGT1040) to the project schedule so that once there is more information in terms of project construction limits and more detailed information related to the project updates I listed above I can do a more comprehensive review to better determine vegetation/tree impacts, and the potential need for vegetation protection measures in the construction plans."

Let me know if you have any questions,

Paul Voigt

Paul G Voigt
Natural Resource Specialist - Program Coordinator
Office of Environmental Stewardship
Mail Stop 620
395 John Ireland Blvd.
St. Paul, MN 55155-1899
Office: 651-366-3631
Fax: 651-366-3603
E-Mail: paul.voigt@state.mn.us

From: Bunge, Leila [mailto:Leila.Bunge@kimley-horn.com]
Sent: Tuesday, August 28, 2018 2:05 PM
To: Voigt, Paul (DOT) <paul.voigt@state.mn.us>
Subject: FW: Updated Early Notification Memo for TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)

Paul – I think I copied your email address wrong because I received a bounce back when I tried to send the email below to you. Let me know if you receive this and thank you for your response earlier this week! Let me know if I can answer any questions. Thank you!

Bunge, Leila

From: Juran, Rylan (DOT) <rylan.juran@state.mn.us>
Sent: Wednesday, September 5, 2018 3:29 PM
To: Bunge, Leila
Subject: RE: Updated Early Notification Memo for TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)

Categories: External

The Office of Aeronautics has reviewed this project and identified no impact to aviation.
Thank you.

Rylan Juran, C.M.
Aviation Planner | MnDOT Office of Aeronautics
222 E Plato Blvd, St. Paul, MN 55107 | 651.234.7190
rylan.juran@state.mn.us

DEPARTMENT OF TRANSPORTATION

From: Bunge, Leila [mailto:Leila.Bunge@kimley-horn.com]
Sent: Tuesday, August 28, 2018 2:01 PM
To: Leete, Peter (DOT) <peter.leete@state.mn.us>; Smith, Christopher E (DOT) <christopher.e.smith@state.mn.us>; MN_DOT_CulturalResources <CulturalResources.dot@state.mn.us>; Boben, Carolyn (DOT) <carolyn.boben@state.mn.us>; Vogel, Mark (DOT) <mark.vogel@state.mn.us>; Mitchell, Timothy (DOT) <tim.mitchell@state.mn.us>; Juran, Rylan (DOT) <rylan.juran@state.mn.us>; Roseen, Melvin (DOT) <melvin.roseen@state.mn.us>; Mei, Gwen (DOT) <gwen.mei@state.mn.us>; DeLaRosa, Paul (DOT) <paul.delarosa@state.mn.us>; Markeson, Christina (DOT) <tina.markeson@state.mn.us>; Mohar, David J (DOT) <david.mohar@state.mn.us>; Hinzmann, John (DOT) <john.hinzmann@state.mn.us>; Danmeier, Paul (DOT) <paul.danmeier@state.mn.us>; Meyer, Matthew (DNR) <matthew.meyer@state.mn.us>; Miles, James (DOT) <james.miles@state.mn.us>; Rohling, Kevin (DOT) <Kevin.Rohling@state.mn.us>; Anderson, Bryan (DOT) <bryan.anderson@state.mn.us>; joe.w.campbell@dot.gov; Moynihan, Debra (DOT) <debra.moynihan@state.mn.us>; Milkert, Anjani (DOT) <minnie.milkert@state.mn.us>; Prather, Daniel (DOT) <dan.prather@state.mn.us>; Wyczawski, Steven (DOT) <steve.wyczawski@state.mn.us>; 'Voigt, Paul (DOT)' <IMCEAEX-_O=MMS_OU=EXCHANGE+20ADMINISTRATIVE+20GROUP+20+28FYDIBOHF23SPDLT+29_CN=RECIPIENTS_CN=VOIGT+2C+20PAUL+20+28DOT+29AF4813D1-3E7B-4D6C-B310-971B96894BA0@namprd05.prod.outlook.com>
Cc: Dwyer, Roberta (DOT) <roberta.dwyer@state.mn.us>; Alcott, Jason (DOT) <jason.alcott@state.mn.us>; Kunkel, Beth <Beth.Kunkel@kimley-horn.com>
Subject: RE: Updated Early Notification Memo for TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)

Good afternoon,

Thank you for all the responses we've received thus far! A few revisions and project updates have been made to the ENM that I sent out below. Those changes are highlighted in green on the attached ENM and listed below:

- Description, location, and letting date have been added for the local road improvements (SP 6982-328) and SP 6915-136 for bridge work
- Regulated Waste and Temporary Easement boxes are checked

From:	Boben, Carolyn (DOT)
To:	Dwyer, Roberta (DOT); Bunge, Leila
Cc:	Canino, Mary (DOT)
Subject:	SP 6982-322 (TH 35) tied SP 6980-60 (TH 535), SP 6982-328 and SP6915-136 Revised ENM – CMMT Response 8/30/18
Date:	Thursday, August 30, 2018 3:00:44 PM

ENM Due Date: September 5, 2018
Letting Date: January 1, 2019
T number: T1C264
Report Writer: Leila Bunge
Project Manager: Roberta Dwyer
Report Writer: Leila Bunge

SP 6982-322 (TH 35) tied SP 6980-60 (TH 535), SP 6982-328 and SP6915-136 Revised ENM – CMMT Response

The Contaminated Materials Management Team (CMMT) reviewed the Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Agriculture (MDA) databases to check for known contaminated sites in the project area. The databases searched included: leaking underground storage tank facilities, landfills, salvage yards, voluntary investigation and cleanup (VIC) sites, Superfund sites and dump sites. A review of these MPCA files is a component of a Phase I Environmental Site Assessment (Phase I ESA). A complete Phase I ESA includes at least two other components: research on historic land use, and site reconnaissance. It should be noted that the MPCA database files are continually being updated. Although this information is the most up-to-date available, some of the information may be incomplete or inaccurate. There is also a possibility that undiscovered contaminated and/or regulated materials exist in the project area.

Based on the database review, approximately 12 VIC sites and 28 Leak Sites located within approximately 500 feet of the project area. VIC sites are sites with known or potential releases of non-petroleum contamination.

Given the nature and location of the project area, and based on the HPDP threshold criteria as summarized below, this project has high risk of impacting potentially contaminated sites. Therefore, **additional evaluation of the project area for potential contamination is necessary**:

1. The project will involve acquisition of right-of-way. **Please provide pertinent information by completing the EDD-1 and EDD-2 forms in REALMS.**

2. Project excavation is extensive for construction activities, specifically multiple bridge reconstruction.

3. The project is in a commercial/industrial area. This increases the chances of encountering contaminants that may have originated from an off-site source and migrated into the right of way.

4. The project will require groundwater dewatering.

Continued Environmental Assessment Reporting and Drilling Investigations are being completed for this project. Please provide all excavation locations and depths as the areas are finalized. They will be re-evaluated as we obtain the information.

CMMT has not and will not complete any environmental evaluation for the Railroad Realignments.

If new information obtained indicates the project may be impacted by a contaminated site, the project will be evaluated, and soil and groundwater testing completed, as appropriate. If necessary, a plan will be developed for properly handling and treating contaminated soil and/or groundwater during construction in accordance with all applicable state and federal requirements.

Carolyn L. Boben, MS, PG
Contaminated Materials Project Manager/Hydrogeologist
Office of Environmental Stewardship (MS 620)
Environmental Investigative Group Minnesota Department of Transportation
395 John Ireland Blvd
St. Paul, MN 55155
Office: 651-366-3621
Cell: 651-226-1271
carolyn.boben@state.mn.us

From:	Dwyer, Roberta (DOT)
To:	Vogel, Mark (DOT); Bunge, Leila
Subject:	RE: Updated Early Notification Memo for TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)
Date:	Tuesday, August 7, 2018 6:49:05 AM

Mark,

It will be 2019 before we have possession and need to remove this building.

Roberta

From: Vogel, Mark (DOT)
Sent: Monday, August 06, 2018 11:32 AM
To: Bunge, Leila <Leila.Bunge@kimley-horn.com>
Cc: Dwyer, Roberta (DOT) <roberta.dwyer@state.mn.us>
Subject: RE: Updated Early Notification Memo for TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)

Hi Leila, I will need to set up an oversight consultant for the asbestos and PCB caulk removal on the bridges for demolition and renovation. This material will be removed under the prime. When will the bridge work start and for how long will it be going?

Please keep me in the loop if we take possession of any buildings, I will need to assess and remove all the regulated materials for demolition…

MV

From: Bunge, Leila [mailto:Leila.Bunge@kimley-horn.com]
Sent: Wednesday, August 01, 2018 4:02 PM
To: Leete, Peter (DOT) <peter.leete@state.mn.us>; Smith, Christopher E (DOT) <christopher.e.smith@state.mn.us>; MN_DOT_CulturalResources <CulturalResources.dot@state.mn.us>; Boben, Carolyn (DOT) <carolyn.boben@state.mn.us>; Vogel, Mark (DOT) <mark.vogel@state.mn.us>; Mitchell, Timothy (DOT) <tim.mitchell@state.mn.us>; Juran, Rylan (DOT) <rylan.juran@state.mn.us>; Roseen, Melvin (DOT) <melvin.roseen@state.mn.us>; Mei, Gwen (DOT) <gwen.mei@state.mn.us>; DeLaRosa, Paul (DOT) <paul.delarosa@state.mn.us>; Markeson, Christina (DOT) <tina.markeson@state.mn.us>; Mohar, David J (DOT) <david.mohar@state.mn.us>; Hinzmann, John (DOT) <john.hinzmann@state.mn.us>; Danmeier, Paul (DOT) <paul.danmeier@state.mn.us>; Meyer, Matthew (DNR) <matthew.meyer@state.mn.us>; Miles, James (DOT) <james.miles@state.mn.us>; Rohling, Kevin (DOT) <Kevin.Rohling@state.mn.us>; Anderson, Bryan (DOT) <bryan.anderson@state.mn.us>; joe.w.campbell@dot.gov; Moynihan, Debra (DOT) <debra.moynihan@state.mn.us>; Milkert, Anjani (DOT) <minnie.milkert@state.mn.us>; Prather, Daniel (DOT) <dan.prather@state.mn.us>; Wyczawski, Steven (DOT) <steve.wyczawski@state.mn.us>
Cc: Dwyer, Roberta (DOT) <roberta.dwyer@state.mn.us>; Alcott, Jason (DOT)

<jason.alcott@state.mn.us>; Kunkel, Beth <Beth.Kunkel@kimley-horn.com>
Subject: Updated Early Notification Memo for TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)

Good afternoon,

This updated Early Notification Memo is for the **TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)** to review and update as needed your previous response from 2016. This is to ensure that data is updated for 2018 and includes responses for recent changes to the project. The changes to the project include (graphics and descriptions included in attached ENM):

- A recommended concept has been chosen for the interchanges: concept C for the TPI, rehab or reconstruct 27th Ave bridge, rehab or reconstruct the bridges at I-535/Garfield, and reconstruction of the 53 bridges. Rehab of the I-535 bridge (#69810) over BNSF tracks was added to the project.
- Added a number of local road improvements for traffic mitigation; including pavement repair on segments of 46th Avenue West, 27th Avenue West, Garfield Avenue, and Railroad Street, and ADA ped ramp reconstruction at 46th Ave/1st Street and Garfield Ave/Railroad St. intersections. Additional ADA ramp work as part of main project will be added along 22nd Avenue West and 27th Avenue West.
- Potentially relocating Coffee Creek from under the Hwy 53 corridor to 22nd Avenue West, then realign it to connect with Miller Creek for a combined crossing of I-35 to the bay.
- Updated project schedule: Local road improvements for traffic mitigation will be constructed in 2019. The main construction will occur starting 2020. Environmental documentation to be completed by end of 2018.
- Revised project description with focus on the three main project components (see updated project description in ENM form) rather than calling them phases.
- Removal of the Courtland Street Connector from the project. Replaced with a potential Railroad Street Connection. If this connection is determined feasible it could include a new roundabout at Michigan/Superior Street intersection, a new bridge over I-35 with Ped/bike accommodations and potential removal of the existing ped bridge just to the north.
- Added a number of potential staging/laydown areas that may be used by the contractor

Please respond via email to me by August 15th with your response, even if you are confirming there are no changes to your original response. If I have not heard from you over the next couple days, I will follow-up with you by phone to see if you have any questions. Thank you for your time and assistance with this!

Leila Bunge
Kimley-Horn | 2550 University Avenue W, Suite 238N, Saint Paul, MN 55114
Direct: 763 251 1015 | www.kimley-horn.com

Office of Freight & Commercial Vehicle Operations
395 John Ireland Blvd.
Mail Stop 470
St. Paul, MN 55155
Phone: 651-366-3659
Paul.delarosa@state.mn.us

TO: Leila Bunge
Kimley-Horn

FROM: Paul DeLaRosa
Railroad Safety and Coordination Project Manager

DATE: September 6, 2018

SUBJECT: **Early Notification Memo - comments**
S.P. 6982-322 (TH 35) tied SP 6980-60 and 6982-328
TPI Reconstruction Project in Duluth, St. Louis County, MN

This Office has reviewed the Early Notification Memo for the above project which will result in the reconstruction of the Twin Ports Interchange and other ancillary work. This project will impact both the BNSF Railway Company and the Wisconsin Central, Ltd. The contact person for the BNSF Railway Company is Richard Scott. Rich can be reached at (763) 782-3492 or by e-mail at richard.scott2@BNSF.com. The contact for the Wisconsin Central, Ltd. is Jackie Macewicz. Jackie can be reached @ (715) 345-2503 or by email at Jackie.macewicz@cn.ca.

All work within either railroad's right of way will have operational concerns by the railroads. This project will require a multiple construction/maintenance agreements between Mn/DOT, BNSF Railway Company and the Wisconsin Central, Ltd.

GENERAL ENM COMMENTS INCLUDE:

1. Negotiations with both railroads are on-going and will continue throughout project development.
2. Temporary horizontal and vertical clearances shall be adhered to during construction of project. Clearances should be confirmed with both railroads prior to final design.
3. Track windows should be vetted during design and reflected in constructability.
4. Both railroads will require plan review/approval for work taking place on their right of way.
5. All necessary easements for project construction will be handled separately from the construction and maintenance agreements.
6. Mn/DOT Standard Specifications for Construction, 2018 will be modified/supplemented by rail office and sent to the district for inclusion with project specification turn in.
7. District staff shall provide the rail office with the number of anticipated days that flagging services will be needed for each railroad.
8. Each railroad company shall be invited to the pre-construction meeting for this project.

If you have any additional questions, or require further information, please contact this office.

Sincerely,

Paul DeLaRosa
Railroad Safety and Coordination Project Manager

CC: Roberta Dwyer – MnDOT District 1 Project Manager

From: Wyczawski, Steven (DOT)
To: Bunge, Leila
Subject: RE: Updated Early Notification Memo for TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)
Date: Tuesday, August 28, 2018 2:54:39 PM

Leila,

I does not appear that the work limits have changed along the I-535 connection to I-35. My previous comments were related to the Type I State Entrance Monument on westbound I-535. The monument is in close proximity to the project limits there may be electrical service to the monument up-lighting.

Thanks,

Steve

Steven C. Wyczawski, PLA – ASLA
Landscape Architect

Minnesota Department of Transportation
Site Development Unit
395 John Ireland Boulevard
Saint Paul, MN 55155
Office : 651.366.4780

From: Bunge, Leila [mailto:Leila.Bunge@kimley-horn.com]
Sent: Tuesday, August 28, 2018 2:01 PM
To: Leete, Peter (DOT) <peter.leete@state.mn.us>; Smith, Christopher E (DOT) <christopher.e.smith@state.mn.us>; MN_DOT_CulturalResources <CulturalResources.dot@state.mn.us>; Boben, Carolyn (DOT) <carolyn.boben@state.mn.us>; Vogel, Mark (DOT) <mark.vogel@state.mn.us>; Mitchell, Timothy (DOT) <tim.mitchell@state.mn.us>; Juran, Rylan (DOT) <rylan.juran@state.mn.us>; Roseen, Melvin (DOT) <melvin.roseen@state.mn.us>; Mei, Gwen (DOT) <gwen.mei@state.mn.us>; DeLaRosa, Paul (DOT) <paul.delarosa@state.mn.us>; Markeson, Christina (DOT) <tina.markeson@state.mn.us>; Mohar, David J (DOT) <david.mohar@state.mn.us>; Hinzmann, John (DOT) <john.hinzmann@state.mn.us>; Danmeier, Paul (DOT) <paul.danmeier@state.mn.us>; Meyer, Matthew (DNR) <matthew.meyer@state.mn.us>; Miles, James (DOT) <james.miles@state.mn.us>; Rohling, Kevin (DOT) <Kevin.Rohling@state.mn.us>; Anderson, Bryan (DOT) <bryan.anderson@state.mn.us>; joe.w.campbell@dot.gov; Moynihan, Debra (DOT) <debra.moynihan@state.mn.us>; Milkert, Anjani (DOT) <minnie.milkert@state.mn.us>; Prather, Daniel (DOT) <dan.prather@state.mn.us>; Wyczawski, Steven (DOT) <steve.wyczawski@state.mn.us>; 'Voigt, Paul (DOT)' <IMCEAEX-_O=MMS_OU=EXCHANGE+20ADMINISTRATIVE+20GROUP+20+28FYDIBOHF23SPDLT+29_CN=RECIPIENTS_CN=VOIGT+2C+20PAUL+20+28DOT+29AF4813D1-3E7B-4D6C-B310-971B96894BA0@namprd05.prod.outlook.com>
Cc: Dwyer, Roberta (DOT) <roberta.dwyer@state.mn.us>; Alcott, Jason (DOT) <jason.alcott@state.mn.us>; Kunkel, Beth <Beth.Kunkel@kimley-horn.com>
Subject: RE: Updated Early Notification Memo for TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)

Good afternoon,

Thank you for all the responses we've received thus far! A few revisions and project updates have been made to the ENM that I sent out below. Those changes are highlighted in green on the attached ENM and listed below:

- Description, location, and letting date have been added for the local road improvements (SP 6982-328) and SP 6915-136 for bridge work
- Regulated Waste and Temporary Easement boxes are checked
- Under the ADA section, the work is located at 46th Ave W and Michigan St. There are 2 signalized intersections that will have ADA work, and 3 un-signalized intersections that will have ADA work
- The project is in the current approved STIP
- Potential staging areas removed; will not be covered in Catex
- The Railroad Street connection will include either a new roundabout or signal
- Addition of a temporary CN/BN railroad realignment in the TPI project (new figure attached labeled CN Crossover Exhibit)
- A site map is also included for reference

For those that have not responded or if you have responded but your response will change based on the information above, please send your response by September 5. Please reach out if you have any questions. Thank you!

Leila Bunge | Kimley-Horn | 763 251 1015

From: Bunge, Leila
Sent: Wednesday, August 1, 2018 4:02 PM
To: Leete, Peter (DOT) <peter.leete@state.mn.us>; christopher.e.smith@state.mn.us; culturalresources.dot@state.mn.us; Carolyn.Boben@state.mn.us; mark.vogel@state.mn.us; Tim.Mitchell@state.mn.us; Rylan.Juran@state.mn.us; melvin.roseen@state.mn.us; Gwen.Mei@state.mn.us; paul.delarosa@state.mn.us; Tina.Markeson@state.mn.us; david.mohar@state.mn.us; John.Hinzmann@state.mn.us; paul.danmeier@state.mn.us; matthew.meyer@state.mn.us; james.miles@state.mn.us; Kevin.Rohling@state.mn.us; bryan.anderson@state.mn.us; joe.w.campbell@dot.gov; Debra.Moynihan@state.mn.us; minnie.milkert@state.mn.us; dan.prather@state.mn.us; Wyczawski, Steven (DOT) <Steve.Wyczawski@state.mn.us>
Cc: roberta.dwyer@state.mn.us; Alcott, Jason (DOT) <jason.alcott@state.mn.us>; Kunkel, Beth <Beth.Kunkel@kimley-horn.com>
Subject: Updated Early Notification Memo for TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)

Good afternoon,

From:	Milkert, Anjani (DOT)
To:	Bunge, Leila
Subject:	RE: Updated Early Notification Memo for TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)
Date:	Wednesday, September 5, 2018 11:49:22 AM
Attachments:	image001.png

Hey there Leila,
No change. VE requirement has been met.
Thanks for double checking.

Minnie
phone: 651-366-4648
cell: 651-336-3657

From: Bunge, Leila [mailto:Leila.Bunge@kimley-horn.com]
Sent: Wednesday, September 5, 2018 11:42 AM
To: Milkert, Anjani (DOT) <minnie.milkert@state.mn.us>
Subject: RE: Updated Early Notification Memo for TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)

Hi Minnie,

I wanted to follow-up on the revised ENM notice I sent out on 8/28 (attached) for the TPI project. I'm assuming from your perspective that the updates I listed in the email do not change your response that you sent below from the 8/1 notice I sent but just wanted to confirm. Thank you!

Leila Bunge | Kimley-Horn | 763 251 1015

From: Milkert, Anjani (DOT) [mailto:minnie.milkert@state.mn.us]
Sent: Thursday, August 2, 2018 10:06 AM
To: Bunge, Leila <Leila.Bunge@kimley-horn.com>
Subject: RE: Updated Early Notification Memo for TPI Reconstruction Project - SP 6982-322 (TH 35) associated SP 6980-60 (TH 535)

No problem. Gave me an item I could check off too!

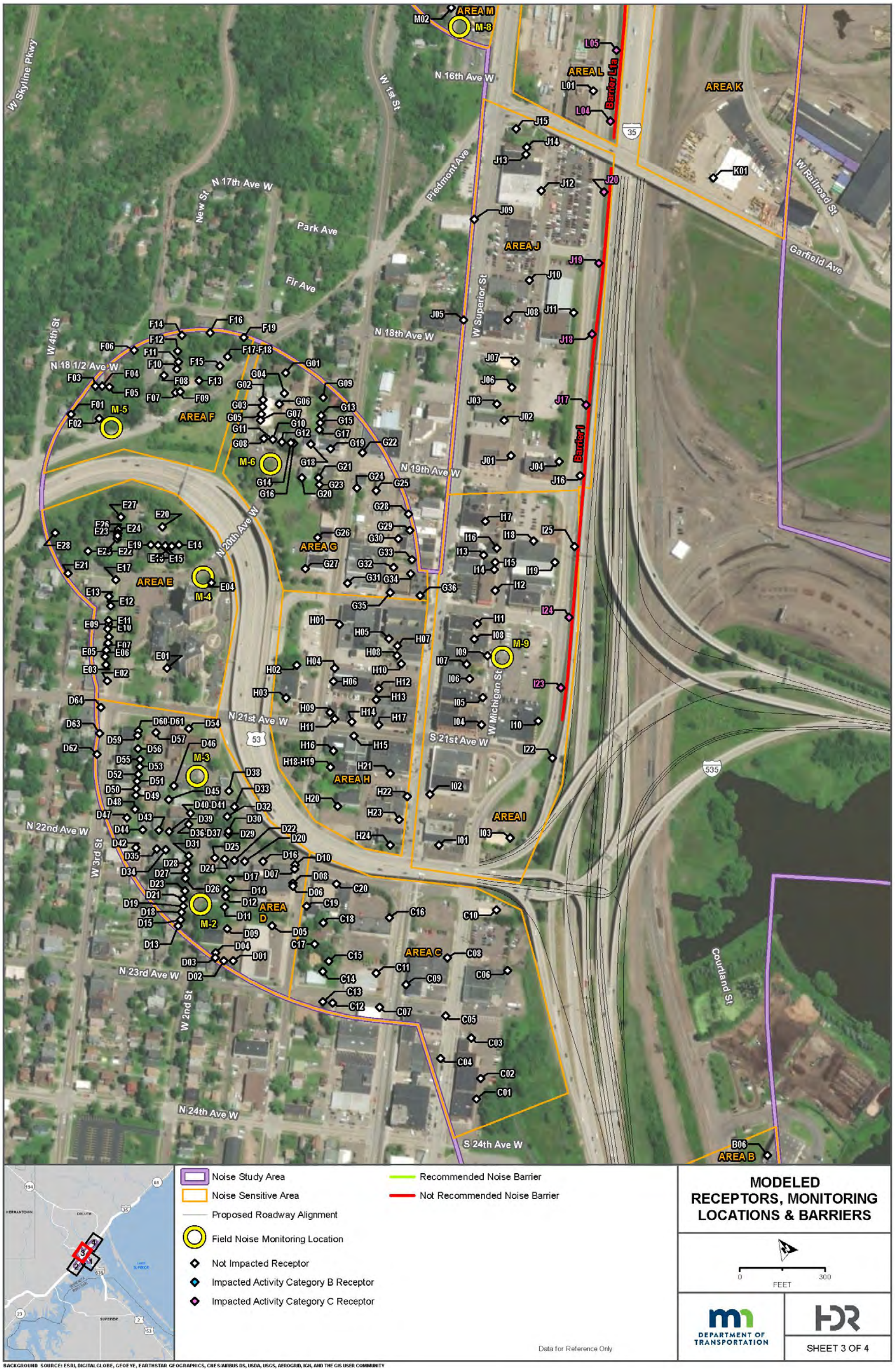
Minnie
phone: 651-366-4648
cell: 651-336-3657

From: Bunge, Leila [mailto:Leila.Bunge@kimley-horn.com]
Sent: Thursday, August 2, 2018 10:06 AM

Attachment C
Noise Technical Analysis


Garfield Ave
Mill Ave
E Birch Ave
Birch Ave
E Nelson St
53
535
Noise Study Area
Noise Sensitive Area
Proposed Roadway Alignment
Field Noise Monitoring Location
Not Impacted Receptor
Impacted Activity Category B Receptor
Impacted Activity Category C Receptor
Recommended Noise Barrier
Not Recommended Noise Barrier
Data for Reference Only
MODELED RECEPTORS, MONITORING LOCATIONS & BARRIERS
0
300
FEET
DEPARTMENT OF TRANSPORTATION
SHEET 1 OF 4
BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY


A10
N 25th Ave W
B05
A09
B04
A08
Lincoln Pkwy
S 26th Ave W
W 1st St
M-1
A07
AREA B
B03
A06
A05
N 27th Ave W
AREA A
B02
S 27th Ave W
A04
A03
N 28th Ave W
W Michigan St
W Superior St
Helm St
Railroad St W
B01
A02
35
N 29th Ave W
S 29th Ave W
A01
Courtland St
N 30th Ave W
N 30 1/2 Ave W
Carlton St
33rd Ave W
Noise Study Area
Noise Sensitive Area
Proposed Roadway Alignment
Field Noise Monitoring Location
Not Impacted Receptor
Impacted Activity Category B Receptor
Impacted Activity Category C Receptor
Recommended Noise Barrier
Not Recommended Noise Barrier
Data for Reference Only
MODELED RECEPTORS, MONITORING LOCATIONS & BARRIERS
0
300
FEET
DEPARTMENT OF TRANSPORTATION
SHEET 2 OF 4
BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY


AREA M
M-8
M02
L05
AREA L
L01
L04
Barrier L1a
AREA K
K01
J15
J14
J13
J12
J20
J09
AREA J
J19
J10
J05
J08
J11
J18
J07
J06
J03
J17
J02
J01
J04
J16
Barrier J
W Skyline Pkwy
N 16th Ave W
W 1st St
Piedmont Ave
N 17th Ave W
New St
Park Ave
Fir Ave
W 4th St
N 18th Ave W
W Superior St
W Railroad St
Garfield Ave
N 18 1/2 Ave W
F14
F16
F19
F12
F06
F11
F17-F18
F10
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G13
F01
M-5
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AREA G
G33
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AREA H
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AREA E
M-4
E04
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E10
E07
E05
E06
E01
E03
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N 20th Ave W
D64
D63
D60-D61
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D59
D57
D46
D62
D56
M-3
D55
D53
D38
D52
D51
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D49
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D33
D48
D40-D41
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D39
D30
N 22nd Ave W
D44
D36-D37
D29
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D42
D31
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D26
D14
D06
D21
C19
D19
D12
AREA D
C16
C10
D18
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C18
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M-2
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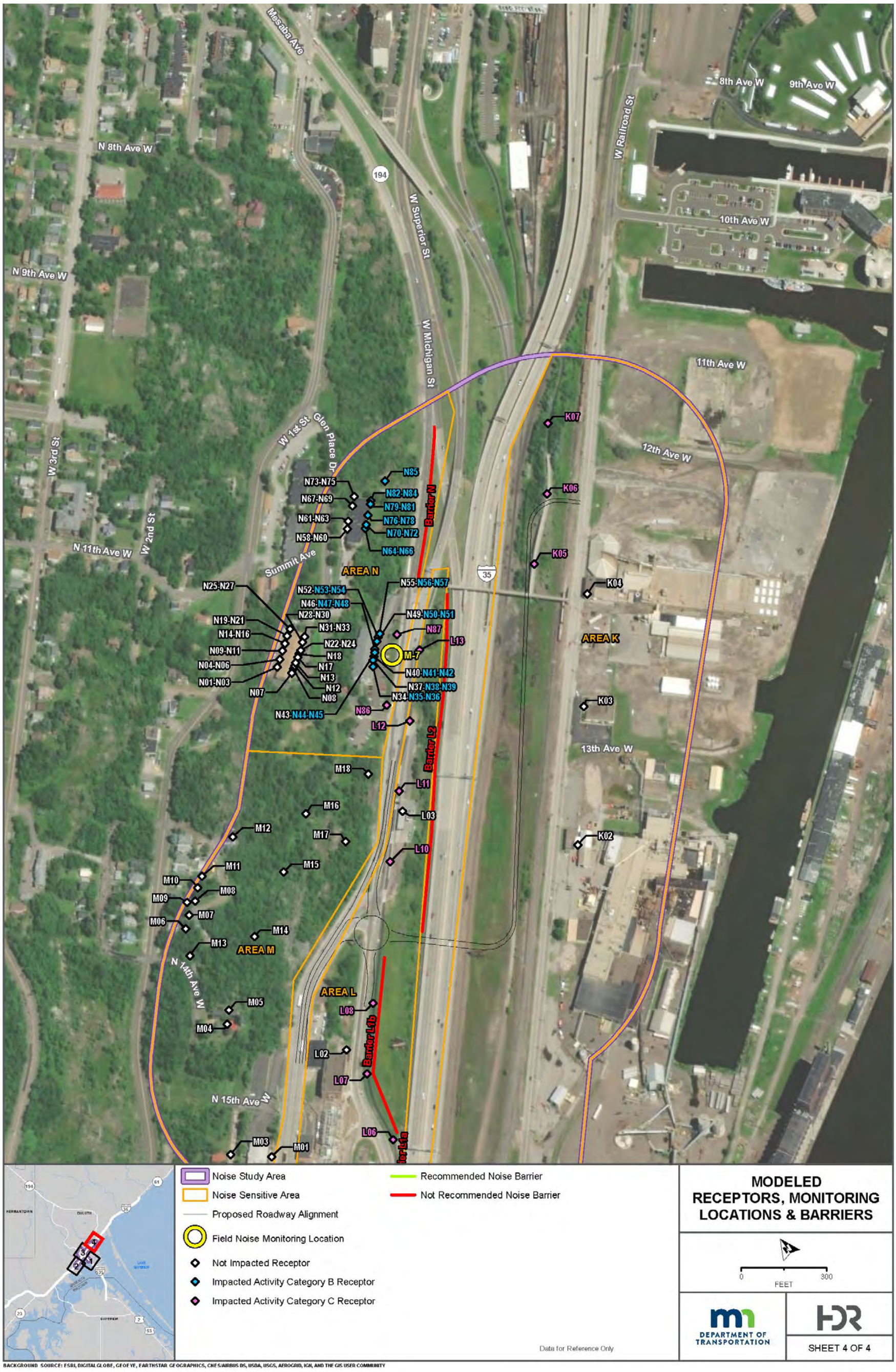
D04
C17
C15
AREA C
C08
D03
D01
C11
C09
C06
N 23rd Ave W
D02
C14
C13
C12
C07
C05
W 3rd St
W 2nd St
C03
C04
C02
C01
N 24th Ave W
S 24th Ave W
B06
AREA B
Courtland St
W Michigan St
Noise Study Area
Noise Sensitive Area
Proposed Roadway Alignment
Field Noise Monitoring Location
Not Impacted Receptor
Impacted Activity Category B Receptor
Impacted Activity Category C Receptor
Recommended Noise Barrier
Not Recommended Noise Barrier
Data for Reference Only
MODELED RECEPTORS, MONITORING LOCATIONS & BARRIERS
0
300
FEET
DEPARTMENT OF TRANSPORTATION
SHEET 3 OF 4
BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY


Mesaba Ave
N 8th Ave W
N 9th Ave W
W Superior St
W Michigan St
W Railroad St
8th Ave W
9th Ave W
10th Ave W
11th Ave W
12th Ave W
13th Ave W
194
35
W 1st St
Glen Place Dr
W 2nd St
W 3rd St
N 11th Ave W
N 14th Ave W
N 15th Ave W
Summit Ave
Barrier N
Barrier L2
Barrier L1b
Barrier L1a
AREA N
AREA K
AREA M
AREA L
N85
N73-N75
N67-N69
N61-N63
N58-N60
N82-N84
N79-N81
N76-N78
N70-N72
N64-N66
N25-N27
N19-N21
N14-N16
N09-N11
N04-N06
N01-N03
N07
N28-N30
N31-N33
N22-N24
N18
N17
N13
N12
N08
N43-N44-N45
N52-N53-N54
N46-N47-N48
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N49-N50-N51
N87
L13
M-7
N40-N41-N42
N37-N38-N39
N34-N35-N36
N86
L12
K07
K06
K05
K04
K03
K02
M18
M16
M17
M12
M15
M11
M10
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M06
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M13
M05
M04
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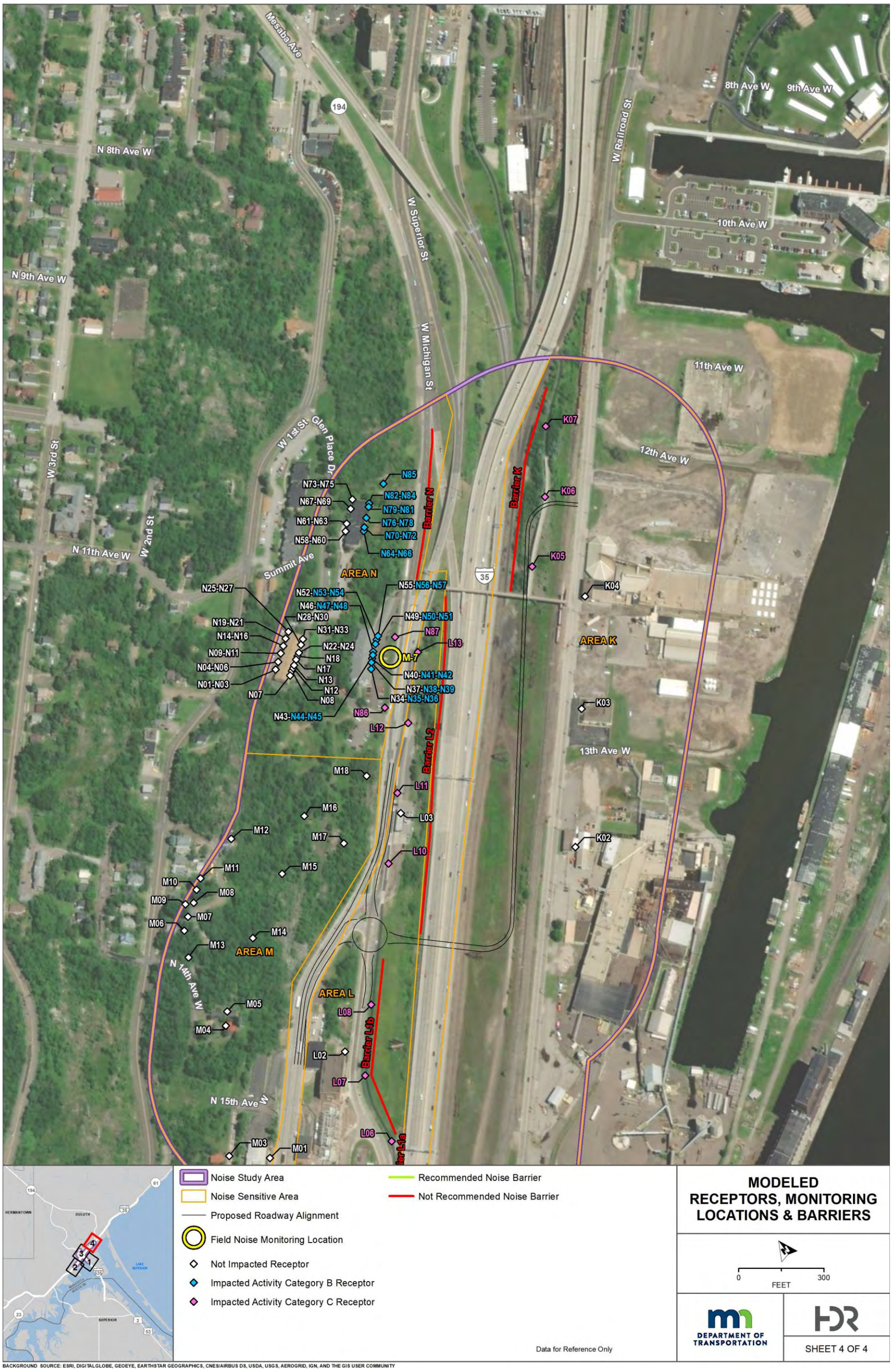
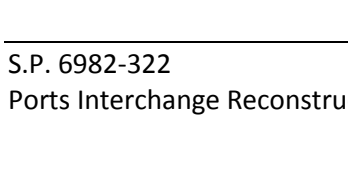
M01
L11
L03
L10
L08
L02
L07
L06
Noise Study Area
Noise Sensitive Area
Proposed Roadway Alignment
Field Noise Monitoring Location
Not Impacted Receptor
Impacted Activity Category B Receptor
Impacted Activity Category C Receptor
Recommended Noise Barrier
Not Recommended Noise Barrier
MODELED RECEPTORS, MONITORING LOCATIONS & BARRIERS
0
300
FEET
DEPARTMENT OF TRANSPORTATION
SHEET 4 OF 4
Data for Reference Only
BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

1 inch = 300 feet





Noise Study Area
Noise Sensitive Area
Proposed Roadway Alignment
Field Noise Monitoring Location
Not Impacted Receptor
Impacted Activity Category B Receptor
Impacted Activity Category C Receptor
Recommended Noise Barrier
Not Recommended Noise Barrier

Data for Reference Only

MODELED RECEPTORS, MONITORING LOCATIONS & BARRIERS

0 FEET 300

DEPARTMENT OF TRANSPORTATION

HDR

SHEET 4 OF 4

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
NSA A:							
A01	E		56.1	56.7	0.6	57.1	1.0
A02	F		61.6	62.2	0.6	62.7	1.1
A03	E		68.2	68.9	0.7	69.3	1.1
A04	F		58.2	58.8	0.6	58.6	0.4
A05	E		66.4	67	0.6	66.9	0.5
A06	E		59.1	59.7	0.6	59.2	0.1
A07	E	67.7	66.1	66.7	0.6	67.5	1.4
A08	F		69.2	69.8	0.6	71.4	2.2
A09	F		73.1	73.7	0.6	76.1	3
A10	F		64.6	65.2	0.6	63.3	-1.3
NSA B:							
B01	F		58	58.7	0.7	58.7	0.7
B02	E		60.5	61.1	0.6	61.4	0.9
B03	F		55.2	55.8	0.6	55.3	0.1
B04	F		59.9	60.6	0.7	60.3	0.4
B05	F		60.7	61.3	0.6	60.6	-0.1
B06	F		60.8	61.4	0.6	60	-0.8
NSA C:							
C01	E		61.9	62.5	0.6	59.8	-2.1

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
C02	F		62.4	62.9	0.5	60.2	-2.2
C03	E		62.1	62.6	0.5	60.3	-1.8
C04	F		58.7	59.2	0.5	57.2	-1.5
C05	E		61.2	61.7	0.5	59.5	-1.7
C06	F		64.8	65.3	0.5	61.2	-3.6
C07	F		59.3	59.8	0.5	57.6	-1.7
C08	E		64.3	64.8	0.5	59.7	-4.6
C09	E		55.9	56.5	0.6	56.0	0.1
C10	F		67.1	67.6	0.5	61.4	-5.7
C11	F		61.2	61.8	0.6	58.9	-2.3
C12	B		58.6	59.2	0.6	56.9	-1.7
C13	B		58.3	58.8	0.5	56.9	-1.4
C14	F		58.7	59.2	0.5	56.8	-1.9
C15	B		59.7	60.2	0.5	57.8	-1.9
C16	C		64.1	64.7	0.6	62.6	-1.5
C17	B		57.4	57.9	0.5	55.3	-2.1
C18	B		57.9	58.4	0.5	57.2	-0.7
C19	B		55.3	55.8	0.5	56.1	0.8
C20	F		63.4	63.9	0.5	61.8	-1.6
NSA D:							

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
D01	B		53.2	53.7	0.5	53.7	0.5
D02	B		53.6	54.1	0.5	53.9	0.3
D03	B		51.8	52.4	0.6	51.7	-0.1
D04	B		50.6	51.2	0.6	50.6	0.0
D05	F		56.5	57.0	0.5	55.7	-0.8
D06	B		60.4	60.9	0.5	59.7	-0.7
D07	E		61.2	61.7	0.5	60.4	-0.8
D08	E		59.4	60.0	0.6	58.7	-0.7
D09	E		56.0	56.5	0.5	56.3	0.3
D10	B		62.9	63.5	0.6	62.6	-0.3
D11	B		55.9	56.4	0.5	56.0	0.1
D12	B		56.3	56.8	0.5	56.3	0.0
D13	B		55.2	55.8	0.6	55.1	-0.1
D14	B		56.1	56.6	0.5	56.3	0.2
D15	B		55.4	56.0	0.6	55.4	0.0
D16	B		60.3	60.8	0.5	60.9	0.6
D17	B		55.5	56.0	0.5	56.0	0.5
D18	B		55.6	56.2	0.6	55.5	-0.1
D19	B	51.3	55.8	56.3	0.5	55.6	-0.2
D20	B		59.1	59.6	0.5	59.8	0.7

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
D21	B		55.9	56.4	0.5	55.7	-0.2
D22	B		58.7	59.2	0.5	59.2	0.5
D23	B		56.1	56.7	0.6	55.9	-0.2
D24	B		58	58.6	0.6	58.5	0.5
D25	B		56.7	57.2	0.5	56.9	0.2
D26	B		56.6	57.1	0.5	56.4	-0.2
D27	B		56.5	57.1	0.6	56.5	0.0
D28	B		56.4	57.0	0.6	56.4	0.0
D29	E		59.7	60.2	0.5	60.1	0.4
D30	B		61.4	61.9	0.5	62.0	0.6
D31	B		56.7	57.2	0.5	56.5	-0.2
D32	B		58.6	59.1	0.5	59.0	0.4
D33	B		61.5	62	0.5	62.4	0.9
D34	B		55.1	55.7	0.6	54.8	-0.3
D35	B		55.2	55.8	0.6	54.7	-0.5
D36	B		57.2	57.7	0.5	57.6	0.4
D37	B		59.5	60.0	0.5	59.8	0.3
D38	B		64.0	64.5	0.5	64.7	0.7
D39	B		52.3	52.9	0.6	51.7	-0.6
D40	B		58.2	58.7	0.5	58.6	0.4

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
D41	B		60.6	61.1	0.5	60.8	0.2
D42	C		55.2	55.7	0.5	54.6	-0.6
D43	B		53.2	53.8	0.6	52.4	-0.8
D44	B		54.4	54.9	0.5	53.7	-0.7
D45	B		50.1	50.7	0.6	50.6	0.5
D46	B	57.0	54.1	54.6	0.5	54.5	0.4
D47	F		54.1	54.6	0.5	53.7	-0.4
D48	B		54.3	54.8	0.5	54.2	-0.1
D49	B		54.2	54.8	0.6	54.5	0.3
D50	B		54.0	54.6	0.6	54.5	0.5
D51	B		54.7	55.3	0.6	55.3	0.6
D52	B		54.7	55.3	0.6	55.4	0.7
D53	B		54.8	55.4	0.6	55.2	0.4
D54	C		60.5	61.0	0.5	60.9	0.4
D55	B		55.3	55.8	0.5	55.4	0.1
D56	B		55.5	56.1	0.6	55.7	0.2
D57	B		53.5	54.1	0.6	54.0	0.5
D58	B		55.7	56.3	0.6	56.0	0.3
D59	B		57.3	57.8	0.5	57.4	0.1
D60	B		55.4	55.9	0.5	55.6	0.2

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
D61	B		56.8	57.4	0.6	56.9	0.1
D62	B		55.3	55.9	0.6	55.3	0.0
D63	B		55.9	56.4	0.5	55.9	0.0
D64	E		55.9	56.5	0.6	55.8	-0.1
NSA E:							
E01	C		57.7	58.2	0.5	57.8	0.1
E02	B		55.7	56.3	0.6	55.6	-0.1
E03	B		56.2	56.7	0.5	56	-0.2
E04	B	60.1	63.8	64.3	0.5	64.3	0.5
E05	B		56.3	56.8	0.5	56.2	-0.1
E06	B		56.4	56.9	0.5	56.4	0.0
E07	B		56.3	56.9	0.6	56.5	0.2
E08	B		56.5	57.1	0.6	56.9	0.4
E09	B		56.8	57.4	0.6	57.1	0.3
E10	B		56.6	57.1	0.5	56.9	0.3
E11	B		56.2	56.8	0.6	56.6	0.4
E12	B		56.9	57.4	0.5	57.2	0.3
E13	B		57.3	57.9	0.6	57.5	0.2
E14	B		63.1	63.6	0.5	63.5	0.4
E15	B		62.5	63.1	0.6	62.9	0.4

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
E16	B		61.6	62.2	0.6	62.1	0.5
E17	B		58.3	58.8	0.5	58.5	0.2
E18	B		61	61.6	0.6	61.4	0.4
E19	B		60.8	61.3	0.5	61.2	0.4
E20	B		62.3	62.9	0.6	62.6	0.3
E21	B		57.1	57.7	0.6	57.2	0.1
E22	B		59.6	60.2	0.6	59.9	0.3
E23	B		59.7	60.3	0.6	60.1	0.4
E24	B		59.9	60.4	0.5	60.2	0.3
E25	B		56.2	56.8	0.6	55.8	-0.4
E26	B		59.9	60.5	0.6	60.2	0.3
E27	B		62	62.6	0.6	62.4	0.4
E28	B		61.9	62.5	0.6	62.2	0.3
NSA F:							
F01	B		62.6	63.2	0.6	62.8	0.2
F02	B	62.5	63.5	64.1	0.6	63.7	0.2
F03	B		61.3	61.9	0.6	61.4	0.1
F04	B		61.7	62.2	0.5	61.7	0.0
F05	B		62	62.6	0.6	62.0	0.0
F06	B		60.1	60.6	0.5	59.5	-0.6

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
F07	B		60.8	61.3	0.5	60.5	-0.3
F08	B		59.3	59.8	0.5	59.5	0.2
F09	B		60.9	61.5	0.6	60.6	-0.3
F10	B		58.2	58.7	0.5	57.4	-0.8
F11	B		58.9	59.4	0.5	58.3	-0.6
F12	B		58.8	59.3	0.5	58.2	-0.6
F13	B		60.4	60.9	0.5	59.9	-0.5
F14	B		58.3	58.9	0.6	57.6	-0.7
F15	B		59.2	59.8	0.6	58.3	-0.9
F16	B		57.2	57.7	0.5	56.3	-0.9
F17	B		59.3	59.8	0.5	58.4	-0.9
F18	B		60	60.5	0.5	59.0	-1.0
F19	B		59.3	59.9	0.6	58.5	-0.8
NSA G:							
G01	B		58.4	58.9	0.5	56.8	-1.6
G02	B		55.3	55.8	0.5	55.8	0.5
G03	B		55.6	56.1	0.5	56.1	0.5
G04	B		54.8	55.4	0.6	54.1	-0.7
G05	B		56.1	56.6	0.5	56.6	0.5
G06	B		57.8	58.4	0.6	57.0	-0.8

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
G07	B		56.9	57.4	0.5	57.1	0.2
G08	B		59.4	59.9	0.5	59.1	-0.3
G09	B		59.3	59.8	0.5	58.1	-1.2
G10	B	57.3	59.3	59.8	0.5	59.0	-0.3
G11	B		60.9	61.5	0.6	60.4	-0.5
G12	B		59.1	59.7	0.6	58.9	-0.2
G13	B		59.0	59.5	0.5	58.1	-0.9
G14	B		58.7	59.3	0.6	58.6	-0.1
G15	B		58.8	59.3	0.5	58.1	-0.7
G16	B		58.4	59.0	0.6	58.3	-0.1
G17	B		57.8	58.4	0.6	57.1	-0.7
G18	F		56.9	57.5	0.6	57.0	0.1
G19	F		56.5	57.1	0.6	56.1	-0.4
G20	B		59.3	59.8	0.5	59.0	-0.3
G21	B		57.1	57.6	0.5	57.4	0.3
G22	F		58.0	58.6	0.6	58.3	0.3
G23	B		58.2	58.8	0.6	58.4	0.2
G24	F		57.0	57.5	0.5	57.4	0.4
G25	F		56.9	57.4	0.5	56.9	0
G26	E		58.4	58.9	0.5	58.9	0.5

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
G27	E		61.2	61.6	0.4	61.5	0.3
G28	E		57.0	57.6	0.6	56.1	-0.9
G29	B		53.5	54.0	0.5	53.6	0.1
G30	E		53.8	54.4	0.6	53.8	0.0
G31	F		59.0	59.5	0.5	59.3	0.3
G32	F		53.1	53.7	0.6	54.1	1.0
G33	B		55.9	56.4	0.5	56.2	0.3
G34	E		54.1	54.8	0.7	55.0	0.9
G35	B		59.0	59.6	0.6	58.7	-0.3
G36	E		57.1	57.7	0.6	57.4	0.3
NSA H:							
H01	F		59.2	59.7	0.5	59.7	0.5
H02	B		61.6	62.1	0.5	62.1	0.5
H03	F		62.4	62.9	0.5	62.9	0.5
H04	F		59.8	60.3	0.5	60.3	0.5
H05	B		58.6	59.2	0.6	58.6	0.0
H06	F		59.2	59.7	0.5	59.9	0.7
H07	F		55.8	56.3	0.5	56.3	0.5
H08	E		55.8	56.4	0.6	56.1	0.3
H09	B		60.5	61.0	0.5	61.0	0.5

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
H10	B		59.3	59.8	0.5	59.4	0.1
H11	F		58.6	59.1	0.5	59.1	0.5
H12	E		50.0	50.6	0.6	50.3	0.3
H13	F		53.4	53.9	0.5	53.9	0.5
H14	E		56.3	56.8	0.5	56.4	0.1
H15	E		55.3	55.9	0.6	55.9	0.6
H16	B		60.1	60.6	0.5	60.5	0.4
H17	B		55.9	56.5	0.6	55.3	-0.6
H18	B		62.2	62.7	0.5	62.8	0.6
H19	E		62.2	62.7	0.5	62.5	0.3
H20	C		64.3	64.8	0.5	64.0	-0.3
H21	F		60.4	60.9	0.5	58.9	-1.5
H22	E		60.6	61.1	0.5	58.2	-2.4
H23	F		62.6	63.1	0.5	61.7	-0.9
H24	E		63.7	64.3	0.6	61.2	-2.5
NSA I:							
I01	E		64.5	65.0	0.5	61.7	-2.8
I02	F		62.3	62.8	0.5	59.8	-2.5
I03	F		68.5	69.0	0.5	58.1	-10.4
I04	F		64.1	64.7	0.6	61.5	-2.6

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
I05	C		64.6	65.1	0.5	62.6	-2.0
I06	E		64.1	64.6	0.5	62.4	-1.7
I07	E		64.0	64.5	0.5	62.4	-1.6
I08	E		64.2	64.7	0.5	62.6	-1.6
I09	F	62.0	65.4	65.9	0.5	63.5	-1.9
I10	E		68.9	69.4	0.5	63.8	-5.1
I11	E		63.8	64.3	0.5	62.1	-1.7
I12	E		60.0	60.5	0.5	59.2	-0.8
I13	F		60.0	60.5	0.5	58.0	-2.0
I14	F		58.6	59.1	0.5	57.9	-0.7
I15	F		58.8	59.3	0.5	58.8	0.0
I16	F		61.2	61.8	0.6	60.0	-1.2
I17	E		63.2	63.7	0.5	61.4	-1.8
I18	F		65.8	66.3	0.5	62.6	-3.2
I19	E		69.5	70.1	0.6	65.7	-3.8
I22	C		**70.6**	**71.1**	0.5	59.5	-11.1
I23	C		**70.1**	**70.6**	0.5	**66.4**	-3.7
I24	C		**70.5**	**71.0**	0.5	**67.2**	-3.3
I25	C		**70.3**	**70.9**	0.6	60.1	-10.2
NSA J:							

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
J01	F		64.2	64.7	0.5	64.6	0.4
J02	E		64	64.6	0.6	64.9	0.9
J03	F		63.8	64.3	0.5	64.7	0.9
J04	E		69.3	69.9	0.6	67.4	-1.9
J05	B		59.3	59.9	0.6	60.4	1.1
J06	E		64.8	65.3	0.5	65.6	0.8
J07	F		64.4	65.0	0.6	65.3	0.9
J08	E		61.7	62.3	0.6	62.5	0.8
J09	F		58.6	59.2	0.6	58.8	0.2
J10	E		64.1	64.7	0.6	64.1	0
J11	F		69.7	70.3	0.6	69.2	-0.5
J12	F		55.5	56.1	0.6	55.8	0.3
J13	F		61.2	61.9	0.7	62.1	0.9
J14	F		62.4	63.0	0.6	63.1	0.7
J15	F		61.8	62.7	0.9	61.8	0
J16	C		**70.0**	**70.5**	0.5	64.4	-5.6
J17	C		**68.8**	**69.5**	0.7	**67.2**	-1.6
J18	C		**69.9**	**70.5**	0.6	**66.9**	-3
J19	C		**70.9**	**71.5**	0.6	**68.2**	-2.7
J20	C		**70.9**	**71.6**	0.7	**68.9**	-2

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
NSA K:							
K01	F		66.1	66.7	0.6	64.1	-2
K02	F		63.6	64.2	0.6	59.9	-3.7
K03	E		64.7	65.3	0.6	62.9	-1.8
K04	F		66.0	66.6	0.6	66.4	0.4
K05	C		**69.8**	**70.4**	0.6	**69.6**	-0.2
K06	C		**69**.0	**69.7**	0.7	**69.9**	0.9
K07	C		**69.6**	**70.3**	0.7	**70.2**	0.6
L01	F		67.8	68.5	0.7	68.0	0.2
L02	F		68.7	69.3	0.6	69.4	0.7
L03	E		67.6	68.2	0.6	67.8	0.2
L04	C		**70.8**	**71.4**	0.6	**71.2**	0.4
L05	C		**70.7**	**71.3**	0.6	**71.2**	0.5
L06	C		**72**.0	**72.6**	0.6	**72.6**	0.6
L07	C		**71.2**	**71.8**	0.6	**72.5**	1.3
L08	C		**72**.0	**72.6**	0.6	**72.6**	0.6
L10	C		**73.1**	**73.6**	0.5	**69.8**	-3.3
L11	C		**70.2**	**70.7**	0.5	**70.8**	0.6
L12	C		**73**.0	**73.6**	0.6	**73.7**	0.7
L13	C		**73.5**	**74.2**	0.7	**74.3**	0.8

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
NSA M:							
M01	C		64.2	65.7	1.5	64.2	0
M02	B	60.8	60.6	61.2	0.6	60.7	0.1
M03	B		60.0	60.7	0.7	60.1	0.1
M04	B		63.3	64	0.7	63.6	0.3
M05	B		63.5	64.2	0.7	63.8	0.3
M06	B		59.5	60.2	0.7	59.9	0.4
M07	B		56.7	57.3	0.6	56.6	-0.1
M08	B		46.9	47.6	0.7	46.0	-0.9
M09	B		49.3	49.9	0.6	48.9	-0.4
M10	B		55.9	56.5	0.6	55.9	0
M11	B		55.2	55.8	0.6	55.2	0
M12	B		61.4	62.0	0.6	61.8	0.4
M13	C		60.8	61.4	0.6	61.3	0.5
M14	C		63.4	64.1	0.7	63.9	0.5
M15	C		62.4	63.0	0.6	62.9	0.5
M16	C		61.6	62.2	0.6	61.8	0.2
M17	C		65.4	**66**.0	0.6	65.6	0.2
M18	C		64.2	64.8	0.6	64.8	0.6
NSA N:							

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
N01	B		48.0	48.6	0.6	47.8	-0.2
N02	B		51.7	52.3	0.6	51.9	0.2
N03	B		54.4	55.0	0.6	54.8	0.4
N04	B		45.9	46.5	0.6	45.9	0.0
N05	B		48.7	49.3	0.6	49.0	0.3
N06	B		51.2	51.9	0.7	51.6	0.4
N07	B		57.9	58.6	0.7	58.6	0.7
N08	B		63.0	63.6	0.6	63.6	0.6
N09	B		47.1	47.7	0.6	47.5	0.4
N10	B		49.2	49.8	0.6	49.5	0.3
N11	B		51.6	52.2	0.6	52.1	0.5
N12	B		63.1	63.7	0.6	63.7	0.6
N13	B		58.0	58.6	0.6	58.6	0.6
N14	B		49.0	49.6	0.6	49.5	0.5
N15	B		51.1	51.8	0.7	51.6	0.5
N16	B		53.5	54.2	0.7	54.1	0.6
N17	B		58.0	58.6	0.6	58.6	0.6
N18	B		63.5	64.1	0.6	64.1	0.6
N19	B		50.3	51.0	0.7	50.9	0.6
N20	B		54.9	55.5	0.6	55.5	0.6

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
N21	B		56.3	57.0	0.7	57.0	0.7
N22	B		58.2	58.9	0.7	58.8	0.6
N23	B		63.6	64.3	0.7	64.2	0.6
N24	B		61.9	62.5	0.6	62.4	0.5
N25	B		51.5	52.1	0.6	52.1	0.6
N26	B		57.0	57.7	0.7	57.7	0.7
N27	B		58.6	59.2	0.6	59.2	0.6
N28	B		57.8	58.5	0.7	58.4	0.6
N29	B		61.9	62.5	0.6	62.4	0.5
N30	B		63.7	64.3	0.6	64.3	0.6
N31	B		58.3	58.9	0.6	58.8	0.5
N32	B		62.2	62.8	0.6	62.7	0.5
N33	B		63.9	64.5	0.6	64.4	0.5
N34	B		63.5	64.0	0.5	64.2	0.7
N35	B		**66.1**	**66.7**	0.6	**66.8**	0.7
N36	B		**68.1**	**68.7**	0.6	**68.7**	0.6
N37	B		63.5	64.1	0.6	64.2	0.7
N38	B		**66.2**	**66.8**	0.6	**66.8**	0.6
N39	B		**68.1**	**68.7**	0.6	**68.7**	0.6
N40	B		63.6	64.2	0.6	64.4	0.8

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
N41	B		**66.2**	**66.8**	0.6	**66.9**	0.7
N42	B		**68.1**	**68.8**	0.7	**68.8**	0.7
N43	B		63.8	64.4	0.6	64.5	0.7
N44	B		**66.4**	**67**.0	0.6	**67**.0	0.6
N45	B		**68.2**	**68.9**	0.7	68.9	0.7
N46	B		63.9	64.4	0.5	64.6	0.7
N47	B		**66.4**	**67**.0	0.6	67.1	0.7
N48	B		**68.3**	**68.9**	0.6	**68.9**	0.6
N49	B		64.3	64.9	0.6	65.0	0.7
N50	B		**66.7**	**67.3**	0.6	**67.4**	0.7
N51	B		**68.5**	**69.2**	0.7	**69.2**	0.7
N52	B		64.6	65.2	0.6	65.3	0.7
N53	B		**67**.0	**67.6**	0.6	**67.7**	0.7
N54	B		**68.7**	**69.3**	0.6	**69.3**	0.6
N55	B		64.8	65.4	0.6	65.5	0.7
N56	B		**67.2**	**67.8**	0.6	**67.9**	0.7
N57	B		**68.9**	**69.5**	0.6	**69.5**	0.6
N58	B		59.9	60.5	0.6	60.1	0.2
N59	B		58.4	59.0	0.6	58.6	0.2
N60	B		56.5	57.1	0.6	56.5	0

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
N61	B		54.4	55	0.6	54.0	-0.4
N62	B		56.1	56.7	0.6	55.8	-0.3
N63	B		58.0	58.6	0.6	58.0	0
N64	B		65.9	**66.6**	0.7	**66.5**	0.6
N65	B		**67.3**	**68**.0	0.7	**67.9**	0.6
N66	B		**68.2**	**68.8**	0.6	**68.7**	0.5
N67	B		58.6	59.2	0.6	58.8	0.2
N68	B		54.7	55.3	0.6	54.8	0.1
N69	B		52.8	53.4	0.6	52.9	0.1
N70	B		**66.1**	**66.7**	0.6	**66.7**	0.6
N71	B		**67.4**	**68.1**	0.7	**68**.0	0.6
N72	B		**68.2**	**68.8**	0.6	**68.8**	0.6
N73	B		59.4	60.0	0.6	60.0	0.6
N74	B		60.1	60.8	0.7	60.7	0.6
N75	B		62.1	62.7	0.6	62.5	0.4
N76	B		**66.2**	**66.9**	0.7	**66.8**	0.6
N77	B		**67.6**	**68.2**	0.6	**68.1**	0.5
N78	B		**68.2**	**68.8**	0.6	**68.8**	0.6
N79	B		**66.2**	**66.8**	0.6	**66.8**	0.6
N80	B		**67.7**	**68.3**	0.6	**68.3**	0.6

Table B-1 Twin ports interchange reconstruction project noise model results

Receptor ID	FHWA Noise Abatement Criteria (NAC) Activity Category	Monitored (June 2018)	Modeled Existing (2016)	Modeled No Build (2040)	Difference between Existing (2016) and No Build (2040)	Modeled Build (2040)	Difference between Existing (2016) and Build (2040)
		$L_{eq(30min)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$	$L_{eq(h)}$
BOLD numbers are those exceeding or approaching the FHWA noise standards.							
N81	B		**68.2**	**68.8**	0.6	**68.8**	0.6
N82	B		**66.1**	**66.8**	0.7	**66.7**	0.6
N83	B		**67.7**	**68.3**	0.6	**68.3**	0.6
N84	B		**68.2**	**68.8**	0.6	**68.7**	0.5
N85	B		**67.9**	**68.5**	0.6	**68.5**	0.6
N86	C		65.2	65.8	0.6	**66**.0	0.8
N87	C	66.7	**66.2**	**66.8**	0.6	**67**.0	0.8

Noise Barrier Cost-Effectiveness Results

Tables

Table C-1. Noise Mitigation Cost Effectiveness Results Modeled Barrier I (20-Foot)

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier \$36/ft^2	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
20-foot tall modeled barrier I											
I01	Commercial	E	61.7	61.7	0.0	1					
I02	Industrial	F	59.8	59.7	0.1	1					
I03	Industrial	F	58.2	58.0	0.2	1					
I04	Industrial	F	61.0	59.0	2.0	1					
I05	Recreational	C	62.2	59.4	2.8	1					
I06	Commercial	E	62.0	59.0	3.0	1					
I07	Commercial	E	62.0	59.1	2.9	1					
I08	Commercial	E	62.2	59.2	3.0	1					
I09	Industrial	F	63.1	60.1	3.0	1					
I10	Commercial	E	64.0	61.5	2.5	1					
I11	Commercial	E	61.8	58.6	3.2	1					
I12	Commercial	E	59.1	56.9	2.2	1					
I13	Industrial	F	57.7	57.4	0.3	1		1,800	36,000	\$1,295,964	\$185,138
I14	Industrial	F	57.8	56.6	1.2	1					
I15	Industrial	F	58.5	57.0	1.5	1					
I16	Industrial	F	59.1	57.9	1.2	1					
I17	Commercial	E	60.7	59.4	1.3	1					
I18	Industrial	F	61.5	59.8	1.7	1					
I19	Commercial	E	65.9	62.5	3.4	1					
I22	Recreational	C	59.5	59.3	0.2	1					
I23	Recreational	C	**66.5**	57.9	**8.6**	1	1				
I24	Recreational	C	**67.2**	56.4	**10.8**	1	1				
I25	Recreational	C	60.0	55.6	4.4	1					
J01	Industrial	F	63.6	59.7	3.9	1					
J02	Commercial	E	63.9	60.1	3.8	1					

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier \$36/ft^2	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
20-foot tall modeled barrier I											
J03	Industrial	F	63.9	60.4	3.5	1					
J04	Commercial	E	66.2	63.2	3.0	1					
J05	Residential	B	60.0	58.6	1.4	1					
J06	Commercial	E	64.5	60.6	3.9	1					
J07	Industrial	F	64.3	60.6	3.7	1					
J08	Commercial	E	61.9	59.7	2.2	1					
J09	Industrial	F	58.7	58.2	0.5	1					
J10	Commercial	E	63.7	61.4	2.3	1					
J11	Industrial	F	68.5	63.1	**5.4**	1	1				
J12	Industrial	F	55.5	55.0	0.5	1					
J13	Industrial	F	62.1	62.1	0.0	1					
J14	Industrial	F	63.1	63.0	0.1	1					
J15	Industrial	F	61.7	61.3	0.4	1					
J16	Recreational	C	64.4	57.9	**6.5**	1	1				
J17	Recreational	C	**67.3**	58.4	**8.9**	1	1				
J18	Recreational	C	**67.0**	58.8	**8.2**	1	1				
J19	Recreational	C	**68.4**	59.6	**8.8**	1	1				
J20	Recreational	C	**69.0**	68.7	0.3	1					

Bold numbers above are L_{eq} values approaching/exceeding Federal noise abatement criteria.

Table C-2. Noise Mitigation Cost Effectiveness Results Modeled Barrier I (15-Foot)

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier $36/$ft^2$	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
15-foot tall modeled barrier I											
I01	Commercial	E	61.7	61.8	-0.1	1					
I02	Industrial	F	59.8	59.8	0.0	1					
I03	Industrial	F	58.2	58.1	0.1	1					
I04	Industrial	F	61.0	59.8	1.2	1					
I05	Recreational	C	62.2	60.4	1.8	1					
I06	Commercial	E	62.0	60.1	1.9	1					
I07	Commercial	E	62.0	60.1	1.9	1					
I08	Commercial	E	62.2	60.1	2.1	1					
I09	Industrial	F	63.1	61.1	2.0	1					
I10	Commercial	E	64.0	62.1	1.9	1					
I11	Commercial	E	61.8	59.5	2.3	1					
I12	Commercial	E	59.1	57.6	1.5	1					
I13	Industrial	F	57.7	57.6	0.1	1		1,800	27,000	$971,964	$161,994
I14	Industrial	F	57.8	57.5	0.3	1					
I15	Industrial	F	58.5	58.2	0.3	1					
I16	Industrial	F	59.1	58.9	0.2	1					
I17	Commercial	E	60.7	60.4	0.3	1					
I18	Industrial	F	61.5	61.0	0.5	1					
I19	Commercial	E	65.9	63.4	2.5	1					
I22	Recreational	C	59.5	59.3	0.2	1					
I23	Recreational	C	**66.5**	58.7	**7.8**	1	1				
I24	Recreational	C	**67.2**	58.2	**9.0**	1	1				
I25	Recreational	C	60.0	58.4	1.6	1					
J01	Industrial	F	63.6	62.2	1.4	1					
J02	Commercial	E	63.9	62.5	1.4	1					

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier \$36/ft^2	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
15-foot tall modeled barrier I											
J03	Industrial	F	63.9	62.6	1.3	1					
J04	Commercial	E	66.2	65.3	0.9	1					
J05	Residential	B	60.0	59.8	0.2	1					
J06	Commercial	E	64.5	63.1	1.4	1					
J07	Industrial	F	64.3	63.1	1.2	1					
J08	Commercial	E	61.9	61.2	0.7	1					
J09	Industrial	F	58.7	58.6	0.1	1					
J10	Commercial	E	63.7	62.8	0.9	1					
J11	Industrial	F	68.5	66.9	1.6	1					
J12	Industrial	F	55.5	55.4	0.1	1					
J13	Industrial	F	62.1	62.1	0.0	1					
J14	Industrial	F	63.1	63.1	0.0	1					
J15	Industrial	F	61.7	61.5	0.2	1					
J16	Recreational	C	64.4	58.9	**5.5**	1	1				
J17	Recreational	C	**67.3**	60.0	**7.3**	1	1				
J18	Recreational	C	**67.0**	59.9	**7.1**	1	1				
J19	Recreational	C	**68.4**	61.7	**6.7**	1	1				
J20	Recreational	C	**69.0**	68.7	0.3	1					

Bold numbers above are L_{eq} values approaching/exceeding Federal noise abatement criteria.

Table C-3. Noise Mitigation Cost Effectiveness Results Modeled Barrier I (10-Foot)

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier $36/$ft^2$	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
10-foot tall modeled barrier I											
I01	Commercial	E	61.7	61.7	0.0	1					
I02	Industrial	F	59.8	59.8	0.0	1					
I03	Industrial	F	58.2	58.2	0.0	1					
I04	Industrial	F	61.0	60.8	0.2	1					
I05	Recreational	C	62.2	61.7	0.5	1					
I06	Commercial	E	62.0	61.5	0.5	1					
I07	Commercial	E	62.0	61.5	0.5	1					
I08	Commercial	E	62.2	61.6	0.6	1					
I09	Industrial	F	63.1	62.5	0.6	1					
I10	Commercial	E	64.0	63.4	0.6	1					
I11	Commercial	E	61.8	61.1	0.7	1					
I12	Commercial	E	59.1	58.6	0.5	1					
I13	Industrial	F	57.7	57.8	-0.1	1		1,800	18,000	$647,964	$129,953
I14	Industrial	F	57.8	57.9	-0.1	1					
I15	Industrial	F	58.5	58.5	0.0	1					
I16	Industrial	F	59.1	59.1	0.0	1					
I17	Commercial	E	60.7	60.7	0.0	1					
I18	Industrial	F	61.5	61.5	0.0	1					
I19	Commercial	E	65.9	64.9	1.0	1					
I22	Recreational	C	59.5	59.4	0.1	1					
I23	Recreational	C	**66.5**	60.5	**6.0**	1	1				
I24	Recreational	C	**67.2**	60.7	**6.5**	1	1				
I25	Recreational	C	60.0	59.2	0.8	1					
J01	Industrial	F	63.6	63.6	0.0	1					
J02	Commercial	E	63.9	63.9	0.0	1					

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier \$36/ft^2	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
10-foot tall modeled barrier I											
J03	Industrial	F	63.9	63.9	0.0	1					
J04	Commercial	E	66.2	66.2	0.0	1					
J05	Residential	B	60.0	60.0	0.0	1					
J06	Commercial	E	64.5	64.5	0.0	1					
J07	Industrial	F	64.3	64.3	0.0	1					
J08	Commercial	E	61.9	61.9	0.0	1					
J09	Industrial	F	58.7	58.7	0.0	1					
J10	Commercial	E	63.7	63.7	0.0	1					
J11	Industrial	F	68.5	68.5	0.0	1					
J12	Industrial	F	55.5	55.5	0.0	1					
J13	Industrial	F	62.1	62.1	0.0	1					
J14	Industrial	F	63.1	63.1	0.0	1					
J15	Industrial	F	61.7	61.7	0.0	1					
J16	Recreational	C	64.4	63.9	0.5	1					
J17	Recreational	C	**67.3**	61.8	**5.5**	1	1				
J18	Recreational	C	**67.0**	61.4	**5.6**	1	1				
J19	Recreational	C	**68.4**	63.0	**5.4**	1	1				
J20	Recreational	C	**69.0**	68.8	0.2	1					

Bold numbers above are L_{eq} values approaching/exceeding Federal noise abatement criteria.

Table C-4. Noise Mitigation Cost Effectiveness Results Modeled Barrier K (20-Foot)

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier \$36/ft^2	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
20-foot tall modeled barrier K											
K04	Industrial	F	66.3	65.8	0.5	1		724	14,494	\$521,784	N/A (no benefits)
K05	Recreational	C	**69.6**	66.4	3.2	1					
K06	Recreational	C	**69.4**	66.7	2.7	1					
K07	Recreational	C	**70.1**	65.7	4.4	1					

Bold numbers above are L_{eq} values approaching/exceeding Federal noise abatement criteria.

Table C-5. Noise Mitigation Cost Effectiveness Results Modeled Barrier L1a/L1b (20-Foot)

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier \$36/ft^2	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
20-foot tall modeled barrier L1a/L2b											
L01	Industrial	F	68.1	63.0	**5.1**	1	1	1,174	23,474	\$845,064	\$281,688
L02	Industrial	F	69.5	65.7	3.8	1					
L04	Recreational	C	**71.3**	63.1	**8.2**	1	1				
L05	Recreational	C	**71.3**	60.8	**10.5**	1	1				
L06	Recreational	C	**72.7**	70.3	2.4	1					
L07	Recreational	C	**72.6**	70.2	2.4	1					
L08	Recreational	C	**72.6**	70.3	2.3	1					
M01	Recreational	C	64.3	63.3	1.0	1					
M02	Commercial	B	60.8	59.0	1.8	1					
M03	Commercial	B	60.1	58.6	1.5	1					
M04	Commercial	B	63.7	62.5	1.2	1					
M05	Residential	B	63.9	62.9	1.0	1					
M14	Recreational	C	63.9	63.6	0.3	1					

Bold numbers above are L_{eq} values approaching/exceeding Federal noise abatement criteria.

Table C-6. Noise Mitigation Cost Effectiveness Results Modeled Barrier L1a/L1b (15-Foot)

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier \$36/ft^2	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
15-foot tall modeled barrier L1a/L2b											
L01	Industrial	F	68.1	64.0	4.1	1		1,174	17,605	$633,780	$316,890
L02	Industrial	F	69.5	67.7	1.8	1					
L04	Recreational	C	**71.3**	64.2	**7.1**	1	1				
L05	Recreational	C	**71.3**	62.7	**8.6**	1	1				
L06	Recreational	C	**72.7**	70.5	2.2	1					
L07	Recreational	C	**72.6**	70.4	2.2	1					
L08	Recreational	C	**72.6**	70.4	2.2	1					
M01	Recreational	C	64.3	63.8	0.5	1					
M02	Commercial	B	60.8	60.0	0.8	1					
M03	Commercial	B	60.1	59.5	0.6	1					
M04	Commercial	B	63.7	63.2	0.5	1					
M05	Residential	B	63.9	63.5	0.4	1					
M14	Recreational	C	63.9	63.8	0.1	1					

Bold numbers above are L_{eq} values approaching/exceeding Federal noise abatement criteria.

Table C-7. Noise Mitigation Cost Effectiveness Results Modeled Barrier L1a/L1b (10-Foot)

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier \$36/ft^2	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
10-foot tall modeled barrier L1a/L2b											
L01	Industrial	F	68.1	66.7	1.4	1		1,174	11,737	$422,532	$211,266
L02	Industrial	F	69.5	69.1	0.4	1					
L04	Recreational	C	**71.3**	66.0	**5.3**	1	1				
L05	Recreational	C	**71.3**	65.3	**6.0**	1	1				
L06	Recreational	C	**72.7**	71.1	1.6	1					
L07	Recreational	C	**72.6**	70.7	1.9	1					
L08	Recreational	C	**72.6**	70.6	2.0	1					
M01	Recreational	C	64.3	64.1	0.2	1					
M02	Commercial	B	60.8	60.7	0.1	1					
M03	Commercial	B	60.1	60.0	0.1	1					
M04	Commercial	B	63.7	63.7	0.0	1					
M05	Residential	B	63.9	63.9	0.0	1					
M14	Recreational	C	63.9	63.9	0.0	1					

Bold numbers above are L_{eq} values approaching/exceeding Federal noise abatement criteria.

Table C-8.Noise Mitigation Cost Effectiveness Results Modeled Barrier L2 (20-Foot)

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier \$36/ft^2	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
20-foot tall modeled barrier L2											
L03	Commercial	E	67.8	67.7	0.1	1					
L10	Recreational	C	**69.9**	69.4	0.5	1					
L11	Recreational	C	**70.8**	70.7	0.1	1					
L12	Recreational	C	**73.8**	72.3	1.5	1					
L13	Recreational	C	**74.6**	72.4	2.2	1					
M06	Residential	B	58.9	58.9	0.0	1					
M07	Residential	B	54.0	53.9	0.1	1					
M08	Residential	B	45.7	45.4	0.3	1					
M09	Residential	B	47.6	47.5	0.1	1					
M10	Residential	B	53.1	53.0	0.1	1					
M11	Residential	B	51.6	51.5	0.1	1					
M12	Residential	B	61.3	61.0	0.3	1					
M15	Recreational	C	62.7	62.0	0.7	1		1,186	23,711	\$853,596	N/A (no benefits)
M16	Recreational	C	61.6	61.4	0.2	1					
M17	Recreational	C	65.4	64.9	0.5	1					
M18	Recreational	C	64.9	64.3	0.6	1					
N01	Residential	B	47.4	47.4	0.0	1					
N02	Residential	B	51.6	51.5	0.1	1					
N03	Residential	B	54.4	54.4	0.0	1					
N04	Residential	B	45.1	44.9	0.2	1					
N05	Residential	B	47.9	47.7	0.2	1					
N06	Residential	B	50.6	50.4	0.2	1					
N07	Residential	B	58.5	58.2	0.3	1					
N08	Residential	B	63.5	62.9	0.6	1					
N09	Residential	B	47.4	47.3	0.1	1					

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier $36/$ft^2$	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
20-foot tall modeled barrier L2											
N10	Residential	B	49.6	49.5	0.1	1					
N11	Residential	B	51.9	51.8	0.1	1					
N12	Residential	B	63.6	63.0	0.6	1					
N13	Residential	B	58.5	58.1	0.4	1					
N14	Residential	B	49.5	49.4	0.1	1					
N15	Residential	B	51.7	51.6	0.1	1					
N16	Residential	B	54.0	53.9	0.1	1					
N17	Residential	B	58.5	58.1	0.4	1					
N18	Residential	B	64.0	63.4	0.6	1					
N19	Residential	B	50.9	50.8	0.1	1					
N20	Residential	B	55.5	55.5	0.0	1					
N21	Residential	B	56.9	56.8	0.1	1					
N22	Residential	B	58.7	58.3	0.4	1					
N23	Residential	B	64.2	63.5	0.7	1					
N24	Residential	B	62.3	62.0	0.3	1					
N25	Residential	B	52.1	52.0	0.1	1					
N26	Residential	B	57.7	57.6	0.1	1					
N27	Residential	B	59.2	59.1	0.1	1					
N28	Residential	B	58.3	57.9	0.4	1					
N29	Residential	B	62.3	62.1	0.2	1					
N30	Residential	B	64.2	63.6	0.6	1					
N31	Residential	B	58.7	58.3	0.4	1					
N32	Residential	B	62.6	62.4	0.2	1					
N33	Residential	B	64.4	63.8	0.6	1					
N34	Residential	B	64.3	63.7	0.6	1					
N35	Residential	B	**67.0**	66.1	0.9	1					

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier $36/$ft^2$	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
20-foot tall modeled barrier L2											
N36	Residential	B	**68.9**	67.4	1.5	1					
N37	Residential	B	64.4	63.7	0.7	1					
N38	Residential	B	**67.0**	66.1	0.9	1					
N39	Residential	B	**68.9**	67.5	1.4	1					
N40	Residential	B	64.5	63.8	0.7	1					
N41	Residential	B	**67.1**	66.2	0.9	1					
N42	Residential	B	**69.0**	67.5	1.5	1					
N43	Residential	B	64.7	63.9	0.8	1					
N44	Residential	B	**67.2**	66.3	0.9	1					
N45	Residential	B	**69.1**	67.6	1.5	1					
N46	Residential	B	64.7	64.0	0.7	1					
N47	Residential	B	**67.3**	66.3	1.0	1					
N48	Residential	B	**69.1**	67.7	1.4	1					
N49	Residential	B	65.2	64.4	0.8	1					
N50	Residential	B	**67.6**	66.6	1.0	1					
N51	Residential	B	**69.4**	67.9	1.5	1					
N52	Residential	B	65.4	64.7	0.7	1					
N53	Residential	B	**67.9**	66.8	1.1	1					
N54	Residential	B	**69.5**	68.1	1.4	1					
N55	Residential	B	65.7	64.9	0.8	1					
N56	Residential	B	**68.1**	67.0	1.1	1					
N57	Residential	B	**69.7**	68.3	1.4	1					
N86	Recreational	C	**66.0**	65.6	0.4	1					
N87	Recreational	C	**67.2**	66.5	0.7	1					

Table C-9. Noise Mitigation Cost Effectiveness Results Modeled Barrier N (20-Foot)

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier $36/$ft^2$	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
20-foot tall modeled barrier N											
N58	Residential	B	60.1	60.1	0.0	1					
N59	Residential	B	58.6	58.5	0.1	1					
N60	Residential	B	56.5	56.5	0.0	1					
N61	Residential	B	54.0	53.9	0.1	1					
N62	Residential	B	55.8	55.8	0.0	1					
N63	Residential	B	58.0	58.0	0.0	1					
N64	Residential	B	**66.6**	66.5	0.1	1					
N65	Residential	B	**68.0**	67.9	0.1	1					
N66	Residential	B	**68.7**	68.7	0.0	1					
N67	Residential	B	58.8	58.8	0.0	1					
N68	Residential	B	54.8	54.8	0.0	1					
N69	Residential	B	52.9	52.9	0.0	1					
N70	Residential	B	**66.7**	66.6	0.1	1		528	10,564	$380,304	N/A (no benefits)
N71	Residential	B	**68.1**	68.0	0.1	1					
N72	Residential	B	**68.8**	68.7	0.1	1					
N73	Residential	B	60.0	60.0	0.0	1					
N74	Residential	B	60.7	60.6	0.1	1					
N75	Residential	B	62.5	62.4	0.1	1					
N76	Residential	B	**66.9**	66.8	0.1	1					
N77	Residential	B	**68.2**	68.1	0.1	1					
N78	Residential	B	**68.8**	68.7	0.1	1					
N79	Residential	B	**66.9**	66.8	0.1	1					
N80	Residential	B	**68.3**	68.2	0.1	1					
N81	Residential	B	**68.8**	68.7	0.1	1					
N82	Residential	B	**66.8**	66.7	0.1	1					

Receptors	Type	NAC: Noise Area Classification	Noise Level (L_{eq}, dBA)		Reduction (in dBA) with Noise Barrier	Number of Receptors	Number of Benefited Receptors	Length of Barrier (feet)	Barrier Area (ft^2)	Total Cost of Barrier $36/$ft^2$	Cost/ Benefited Receptor
			Build year 2040 (no barrier)	Build year 2040 (with barrier)							
20-foot tall modeled barrier N											
N83	Residential	B	**68.3**	68.2	0.1	1					
N84	Residential	B	**68.7**	68.6	0.1	1					
N85	Residential	B	**68.6**	68.5	0.1	1					

Bold numbers above are L_{eq} values approaching/exceeding Federal noise abatement criteria.

Attachment D
Wetland Documentation

Office of Environmental Stewardship
395 John Ireland Blvd.
St. Paul, MN 55155
September 2018

Wetland Impact Assessment & Two Part Finding Form

Project Description

S.P. Number: 6982-322, 6980-60, 6982-328, 6915-136
Project Name: T.H. 35/T.H. 535 (Twin Ports Interchange)
County: St. Louis County
Watershed: Saint Louis River (#3)

Overview: Total Wetland Impacts

This environmental document addresses permanent wetlands impacts for the Twin Ports Interchange (TPI) project in Duluth, Minnesota. Permanent wetland impacts are defined as in a loss in the quantity, quality or biological diversity of a wetland and will not be restored to pre-project conditions and functions within 90 days of the impact occurrence. Temporary wetland impacts will be repaired, rehabilitated or restored to existing conditions within 90 days of the impact occurrence. The regulatory agencies will determine whether an impact to an aquatic resource is permanent or temporary. Temporary impacts will be addressed through the permitting process.

Table 1 lists the total permanent wetland impacts based on the current preliminary design for the project.

Table 1. Total Wetland Impacts

	Permanent Impacts (in acres)
Wetland basins	2.09
Ditches with wetlands in the bottom (WCA[2] and COE[1])	0
Ditches with wetlands in the bottom (COE only)	0
Other Aquatic Resources	0

[1]Corps of Engineers
[2]Wetland Conservation Act

Location of Wetlands in Project Area

MnDOT conducted a Level 1 and Wetland Delineation of the project area in 2017 and a Level 2 Delineation of the project area in 2018. Project area maps are provided in Appendix A for location of the project. The following total wetland basins, ditches with wetlands in the bottom and other aquatic resources (lakes, rivers, streams, etc.) are located within the project area (the acreages are the full basin, not just the area within the MnDOT right-of-way).

Table 1. Aquatic Resource Overview

	Total Areas (in acres)
Wetland basins	10.97
Ditches with wetlands in the bottom (WCA and COE)[1]	-
Ditches with wetlands in the bottom (COE only)	0.30
Other Aquatic Resources (Creeks)	0.45

A Level 1 Wetland Delineation in the project study area was completed prior to the Level 2 Delineation. The Level 1 identifies wetland and other aquatic resource boundaries prior to field delineation. A Level 1 Wetland Delineation uses aerial photos and maps of the project area to define preliminary wetland and other aquatic resource boundaries. The sources used for this Level 1 Wetland Delineation included:

- National Wetlands Inventory (NWI) mapping
- DNR Public Water Inventory (PWI) mapping
- County Soil Survey mapping
- USGS Topographic Mapping
- Current Aerial Photos

A Level 2 Delineation was completed for all wetlands with the exception of the area southwest of 27th Avenue West, the median of I-35, and the BNSF railyard between I-535 and Garfield Avenue, which were not accessible due to safety reasons. All wetlands not identified via Level 2 delineation were located in the bottom of ditches. A Level 2 Delineation is based on a field survey of vegetation, soil, and hydrology characteristics, following procedures described in the *U.S. Army Corps of Engineers Wetlands Delineation Manua*l (Technical Report Y-87-1, 1987) and in accordance with the methods identified in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Interim Regional Supplements) as required by both the Minnesota Wetland Conservation Act and Section 404 of the Clean Water Act.

[1] All wetlands assumed to be Waters of the US as defined by the COE. Final determination will be made by the COE during the permit review process.

PART 1: Avoidance Alternatives

No-Build Alternative

This alternative would avoid all wetland impacts (except those due to routine maintenance), but would fail to meet the project purpose and need. It was therefore rejected from further consideration.

Alternatives Considered

This project involves the replacement of existing roadway infrastructure in an urbanized area with several site constraints (i.e. topography, contamination, and rail corridor proximity). Due to the nature and location of the project, there were no other alternatives considered that would completely avoid wetland impacts.

PART 2: Minimization Measures

It was not feasible to completely avoid all wetland impacts resulting from the TPI project. Wetland impacts that are unavoidable have been minimized to the extent practicable without compromising safety.

In total, 2.09 acres of permanent impact is anticipated at 8 wetlands. The wet ditches and wet basins that make up Wetlands 1, 2, 3, 8, 10, 11, and 13 are located in wet ditches and basins underneath, between, or adjacent to the existing I-35 southbound lanes (for Wetlands 1, 2, 3, 8, 11, and 13) or the existing I-535 northbound lane (Wetland 10). They contain storm water infrastructure such as culverts and drains. These impacted wetlands appear to function as storm water catchment that flows either indirectly or directly toward St. Louis Bay. Based on the historic review of photos from 1902 and 1905, the wetlands appear to be within an industrial port with largely developed, upland conditions. Furthermore, history of drainage infrastructure designed/constructed at the time of the interchange (circa 1968 plan set from MnDOT) show constructed ditches for road runoff/catchment between the north and southbound I-35 lanes. Based on this historic aerial and plan review, it is anticipated that these wetland resources may not be regulated and therefore minimization efforts were not focused in these areas.

Portions of permanent impacts to Wetland 9 are located underneath existing bridge structure. The preliminary bridge design minimized new impact by extending the new bridges over portions of Wetland 9. As design continues, further reduction in impact may be made depending on the final location of the bridge abutment. The extent of minimization will be dependent on soil conditions, water table, and contamination.

Tables 3 and 4 list anticipated permanent wetland impacts related to the preferred alternative. The location of each wetland impact is illustrated in Attachment A.

Table 3. Wetland Assessment based on Wetland Delineation

	Wetlands Located within the Project Area			Delineation Methodology	Permanent Impacts (of the Preferred Alternative)	
Basin ID	**Section, Township, Range**	**Wetland Type/ Existing Plant Community Type(s)**	**Basin Size (Acres)**		**Permitting Jurisdiction (COE, DNR, WCA)**	**Size of Impact (Acres or Square Feet)**
WET-1	4, T49N, R14W	Type 2/3 |Fresh Wet Meadow/ Shallow Marsh	1.62	Level 2	COE	1.31
WET-2	33, T50N, R14W	Type 2 |Fresh Wet Meadow	0.04	Level 2	COE	0.04
WET-3	33, T50N, R14W	Type 2 |Fresh Wet Meadow	0.14	Level 2	None	0.14
WET-9	33, T50N, R14W	Type 2/6/7 /| Fresh Wet Meadow/Shrub-Carr/Hardwood Swamp	2.64	Level 2	DNR, WCA, & COE	0.43
					Total Impacts:	**1.92**

Table 4. Assessment of Ditches with Wetlands in the Bottom based on Wetland Delineation

	Ditches with Wetlands in the Bottom Located within the Project Area			Delineation Methodology	Permanent Impacts (of the Preferred Alternative)	
Ditch ID	**Section, Township, Range**	**Wetland Type/ Existing Plant Community Type(s)**	**Basin Size** (Acres)		**Permitting Jurisdiction** (COE, DNR, WCA)	**Size of Impact** (Acres or Square Feet)
WET-8	4, T49N, R14W	Type 3 |Shallow Marsh	0.02	Level 1	COE	0.06
WET-10	33, T50N, R14W	Type 3 |Shallow Marsh	0.82	Level 2	COE	0.04
WET-11	4, T49N, R14W	Type 3 |Shallow Marsh	0.05	Level 2	COE	0.05
WET-13	3, T49N, R14W	Type 2 |Fresh Wet Meadow	0.02	Level 2	None	0.02
					Total Impacts:	**0.17**

COMPENSATION (REPLACEMENT/ENHANCEMENTS)

Applications for wetland permits will be made to the appropriate agencies with wetland jurisdiction. Expected wetland mitigation needs are refined on a continual basis during early stages of project design, and therefore subject to change. The preferred method of wetland replacement is to use established, federally and state approved wetland bank credits. Efforts will be made to replace wetland losses within the bank service area of the wetland impact. The minimum wetland replacement ratio for the project area is 1:1, within Bank Service Area #1. The specific wetland compensation (bank credits) to be used will be determined through consultation with the Corps of Engineers and the MnDOT Office of Environmental Stewardship (OES) as the project proceeds.

For the COE, ditches with wetland bottoms may be replaced at a different ratio, dependent on the following items:

- If a ditch bottom wetland is filled but a new ditch created (the ditch is shifted) no mitigation is typically required;
- If a ditch bottom wetland is filled but no new ditch is created mitigation is typically required at a 1:1 ratio.

Conclusion

In accordance with Executive Order 11990, based upon the above factors and considerations, it is 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.

Based on the estimated 1.92 acres of permanent (fill/cut) wetland basin impacts and 0.17 acres of permanent impacts to COE ditches with wetlands in the, it is anticipated that the project will qualify for the Transportation Regional General Permit from the COE. However, this finding is subject to change as continued coordination occurs with the COE as the permitting process proceeds.

ATTACHMENTS

- Impact Exhibit
- Impact Table

Twin Ports Interchange

Updated 7/12/2018

Aquatic Resource ID (as noted on plan view)	Sheet #	Aquatic Resource Type (wetland, lake, tributary, etc)	Wetland Basin Impact						Wetland Circ. 39 Type / Existing Plant Community Type(s) in impact area	County, Major Watershed #, and Bank Service Area # of impact area	Permitting Jurisdiction (COE, DNR, WCA)	Description of Impact/Notes
			Permanent				Temporary					
			fill area (ac)	fill vol. (cy)	cut area (ac)	cut vol (cy)	fill (ac) (duration)	cut (ac) (duration)				
WET-0 (Miller Creek)	2	Tributary					0.201		R3RB2	St. Louis, 3, X		Public Water/Trout Stream
WET-1	3	Wetland Basin	1.31						Type 2/3 |Fresh Wet Meadow/ Shallow Marsh	St. Louis, 2, X		New Roadway Construction
WET-2	2	Wetland Basin	0.04						Type 2 |Fresh Wet Meadow	St. Louis, 3, X		New Roadway Construction
WET-3	3	Wetland Basin	0.14						Type 2 |Fresh Wet Meadow	St. Louis, 2, X		New Roadway Construction
WET-4	2	Wetland Basin							Type 2/3 |Fresh Wet Meadow/ Shallow Marsh	St. Louis, 3, X		No Impacts
WET-5	2	Wetland Basin							Type 2/3/7 /| Fresh Wet Meadow/Shallow Marsh/Hardwood Swamp	St. Louis, 3, X		No Impacts
WET-6	1	Wetland Basin							Type 3 |Shallow Marsh	St. Louis, 3, X		
WET-7	2	Wetland Basin							Type 3 |Shallow Marsh	St. Louis, 3, X		No Impacts
WET-8	1	Wetland Basin	0.06						Type 3 |Shallow Marsh	St. Louis, 3, X		Shoulder fill
WET-9	2/3/8	Wetland Basin	0.43				0.561		Type 2/6/7 /| Fresh Wet Meadow/Shrub-Carr/Hardwood Swamp	St. Louis, 2, X		New Miller Creek Crossing\Removal of Existing Miller Creek Box Culverts
WET-10	3/8	Wetland Basin	0.04				0.004		Type 3 |Shallow Marsh	St. Louis, 2, X		New Roadway Construction
WET-11	2	Wetland Basin			0.05				Type 3 |Shallow Marsh	St. Louis, 3, X		Proposed Stormwater Pond
WET-12	5	Wetland Basin							Type 2/3/7 /| Fresh Wet Meadow/Shallow Marsh/Hardwood Swamp	St. Louis, 2, X		
WET-13	5/6	Wetland Basin	0.02						Type 2 |Fresh Wet Meadow	St. Louis, 2, X		New Roadway Construction
WET-14	5	Wetland Basin							Type 2 |Fresh Wet Meadow	St. Louis, 2, X		
WET-15	5	Wetland Basin							Type 2 |Fresh Wet Meadow	St. Louis, 2, X		
WET-16	5	Wetland Basin							Type 2 |Fresh Wet Meadow	St. Louis, 2, X		
WET-17		Wetland Basin							Type 2 |Fresh Wet Meadow	St. Louis, 3, X		Need Delineation Linework
WET-18		Wetland Basin							Type 6 | Shrub-Carr	St. Louis, 3, X		Need Delineation Linework
		Total (ac)	**2.04**		**0.05**		**0.766**					
		Total Cut and Fill (ac)	**2.0900**									

DELINEATED WETLAND WET-8
TYPE PEM1C
PERMANENT IMPACT = 0.06 AC

DELINEATED WETLAND WET-6
TYPE PEM1C
NO IMPACT

27TH AVE

26TH AVE

℄ 27TH OFF RAMP

℄ TH 35 SB

℄ TH 35 NB

℄ 27TH ON RAMP

WET-8

WET-6

SCALE IN FEET
0 25 50 100

WETLAND IMPACT LEGEND

- DELINEATED WETLAND
- CONSTRUCTION LIMITS
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PERMANENT WETLAND BASIN FILL IMPACT
- PERMANENT WETLAND BASIN CUT IMPACT
- TEMPORARY WETLAND BASIN IMPACT

DATE: 7/11/2018 TIME: 3:43:42 PM
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WETLAND IMPACT LEGEND

- DELINEATED WETLAND
- CONSTRUCTION LIMITS
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PERMANENT WETLAND BASIN FILL IMPACT
- PERMANENT WETLAND BASIN CUT IMPACT
- TEMPORARY WETLAND BASIN IMPACT

MILLER CREEK
TYPE R3RB2
TEMPORARY IMPACT = 0.20 AC

DELINEATED WETLAND WET-2
TYPE PEM1B
PERMANENT IMPACT = 0.04 AC

DELINEATED WETLAND WET-11
TYPE PEM1C
PERMANENT IMPACT = 0.05 AC

DELINEATED WETLAND WET-4
TYPE PEM1B/C
NO IMPACTS

DELINEATED WETLAND WET-5
TYPE PEM1B/C, PF01B
NO IMPACTS

DELINEATED WETLAND WET-7
TYPE PEM1B
NO IMPACTS

DELINEATED WETLAND WET-9
TYPE PEM1B/PSS1B/PF01E
TEMPORARY IMPACT = 0.09 AC

℄ TH 53

℄ TH 53 SB TO TH 35 SB RAMP

℄ TH 35 SB TO TH 53 NB RAMP

℄ TH 35 SB

℄ TH 35 NB

℄ TH 35 NB OFF RAMP

WET-0 WET-2 WET-3 WET-5 WET-7 WET-9 WET-11

BR. NO. 91109 16' X 6' DUAL BARREL BOX CULVERT

BR. NO. 91108 DUAL 8' X 8' BOX

30" RCP 15" RCP 60" RCP 72" CMP

ST. LOUIS BAY

SCALE IN FEET
0 25 50 100

DATE: 7/11/2018 TIME: 3:45:08 PM
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DRAWN BY: CEH CHECKED BY: MAW	I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	SIGNATURE: PRINTED NAME: DATE: LIC. NO.	TKDA	DEPARTMENT OF TRANSPORTATION	WETLAND IMPACTS	STATE PROJ. NO. 6982-322 (TH 35) Sheet No. 2 of 10 Sheets

DELINEATED WETLAND WET-3
TYPE PEM1B
PERMANENT IMPACT = 0.14 AC

DELINEATED WETLAND WET-1
TYPE PEM1B/C
PERMANENT IMPACT = 1.31 AC

MICHIGAN ST

LOWER MICHIGAN ST

21ST AVE

20TH AVE

19TH AVE

36" BRICK

SCALE IN FEET
0 25 50 100

℄ TH 35 SB TO
TH 53 NB RAMP

℄ TH 35 SB

℄ TH 35 NB

℄ TH 53 SB TO
TH 35 NB RAMP

℄ TH 35 NB TO
TH 535 SB RAMP

℄ TH 35 SB TO
TH 535 SB RAMP

DELINEATED WETLAND WET-10
TYPE PEM1C
TEMPORARY IMPACT = 0.004 AC

℄ TH 535 NB TO
TH 35 NB RAMP

℄ TH 535 NB TO
TH 35 SB RAMP

DELINEATED WETLAND WET-9
TYPE PEM1B/PSS1B/PF01E
TEMPORARY IMPACT = 0.47 AC

ST. LOUIS BAY

WET-3 WET-1 WET-9 WET-10

60" RCP 36" RCP 30" CMP 72" CMP 42" RCP

WETLAND IMPACT LEGEND

- DELINEATED WETLAND
- CONSTRUCTION LIMITS
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PERMANENT WETLAND BASIN FILL IMPACT
- PERMANENT WETLAND BASIN CUT IMPACT
- TEMPORARY WETLAND BASIN IMPACT

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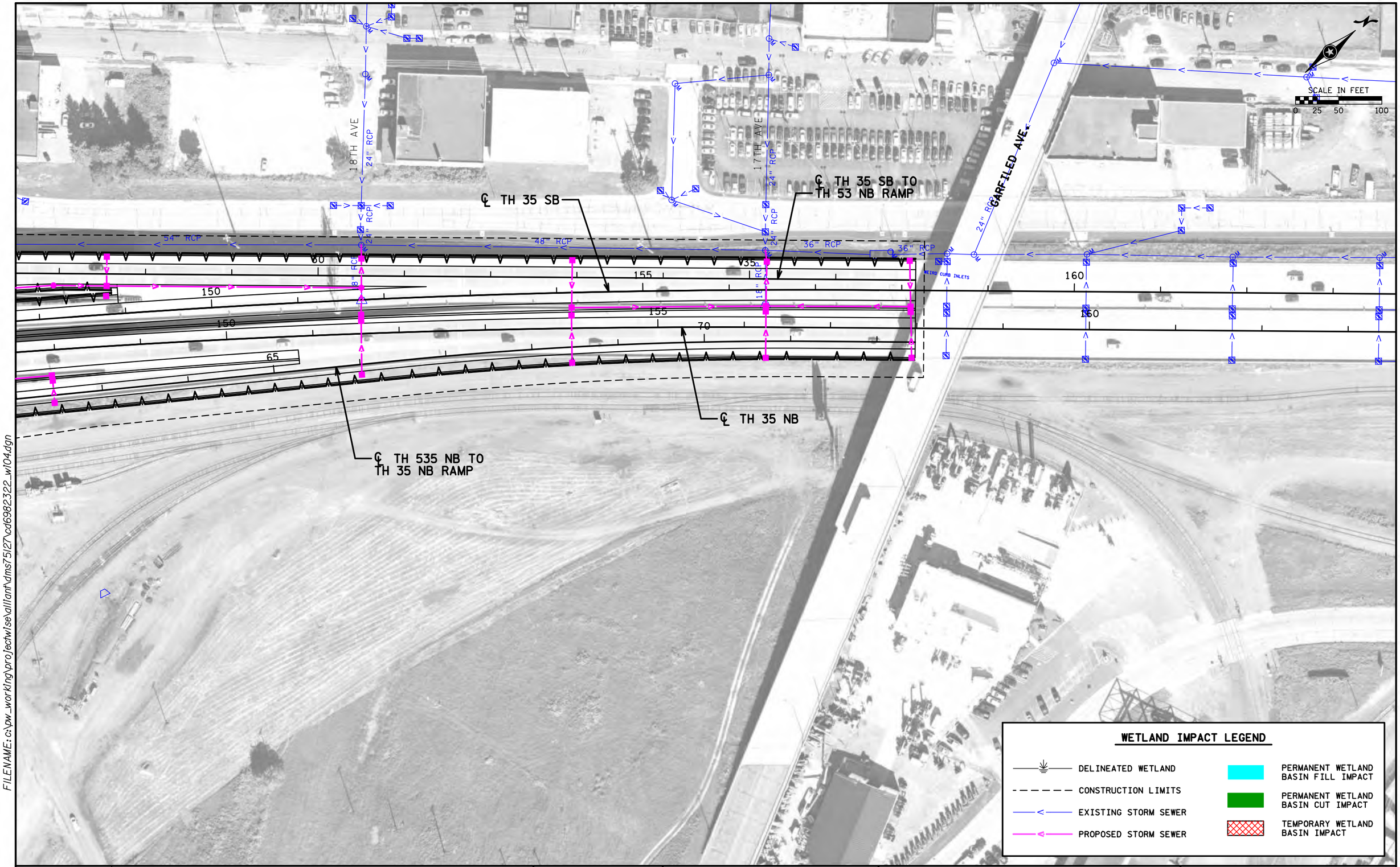

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WETLAND IMPACT LEGEND

- DELINEATED WETLAND
- CONSTRUCTION LIMITS
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PERMANENT WETLAND BASIN FILL IMPACT
- PERMANENT WETLAND BASIN CUT IMPACT
- TEMPORARY WETLAND BASIN IMPACT

SCALE IN FEET
0 25 50 100

DELINEATED WETLAND WET-13
TYPE PEM1B
PERMANENT IMPACT = 0.02 AC

DELINEATED WETLAND WET-14
TYPE PEM1B
NO IMPACT

DELINEATED WETLAND WET-16
TYPE PEM1B
NO IMPACT

DELINEATED WETLAND WET-15
TYPE PEM1B
NO IMPACT

DELINEATED WETLAND WET-12
TYPE PEM1B/C, PF01B
NO IMPACT

WET-13
WET-14
WET-15
WET-16
WET-12

GARFILED AVE.
INPLACE I-535

DATE: 7/12/2018 TIME: 10:49:35 AM
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WETLAND IMPACT LEGEND

- DELINEATED WETLAND
- CONSTRUCTION LIMITS
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PERMANENT WETLAND BASIN FILL IMPACT
- PERMANENT WETLAND BASIN CUT IMPACT
- TEMPORARY WETLAND BASIN IMPACT

SCALE IN FEET
0 25 50 100

DELINEATED WETLAND WET-13
TYPE PEM1B
PERMANENT IMPACT = 0.02 AC

WET-13

ST. LOUIS BAY

INPLACE I-535

GARFILED AVE.

DATE: 7/12/2018 TIME: 10:50:46 AM
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DRAWN BY: CEH CHECKED BY: MAW	I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	SIGNATURE: PRINTED NAME: DATE: LIC. NO.	TKDA DEPARTMENT OF TRANSPORTATION	WETLAND IMPACTS	STATE PROJ. NO. 6982-322 (TH 35) Sheet No. 6 of 10 Sheets

WETLAND IMPACT LEGEND

- DELINEATED WETLAND
- CONSTRUCTION LIMITS
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PERMANENT WETLAND BASIN FILL IMPACT
- PERMANENT WETLAND BASIN CUT IMPACT
- TEMPORARY WETLAND BASIN IMPACT

SCALE IN FEET
0 25 50 100

ST. LOUIS BAY

INPLACE I-535

09

DATE: 7/12/2018 TIME: 10:51:44 AM
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WETLAND IMPACT LEGEND

- DELINEATED WETLAND
- CONSTRUCTION LIMITS
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PERMANENT WETLAND BASIN FILL IMPACT
- PERMANENT WETLAND BASIN CUT IMPACT
- TEMPORARY WETLAND BASIN IMPACT

SCALE IN FEET
0 25 50 100

DELINEATED WETLAND WET-9
TYPE PEM1B/PSS1B/PFO1E
PERMANENT IMPACT = 0.43 AC

DELINEATED WETLAND WET-10
TYPE PEM1C
PERMANENT IMPACT = 0.04 AC

ST. LOUIS BAY

WET-9

WET-10

℄ TH 35 NB TO TH 535 SB RAMP

℄ TH 35 SB TO TH 535 SB RAMP

℄ TH 535 SB

℄ TH 535 NB

℄ TH 535 NB TO TH 35 SB RAMP

℄ TH 535 NB TO TH 35 NB RAMP

500 INPLACE I-535

620 505 615 610 515 510 50

2-8" RCP

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WETLAND IMPACT LEGEND

- DELINEATED WETLAND
- CONSTRUCTION LIMITS
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- PERMANENT WETLAND BASIN FILL IMPACT
- PERMANENT WETLAND BASIN CUT IMPACT
- TEMPORARY WETLAND BASIN IMPACT

SCALE IN FEET
0 25 50 100

MICHIGAN ST
SUPERIOR ST
1ST ST
2ND ST
℄ TH 53
22ND AVE
21ST AVE
21ST AVE
60" RCP
5' X 7' STONE/BRICK
5' X 7' STONE/BRICK
4' X 6'
15" RCP
12" RCP
36"
36" RCP
36" RCP
50
100
105
110
OI

DATE: 7/11/2018 TIME: 3:54:02 PM
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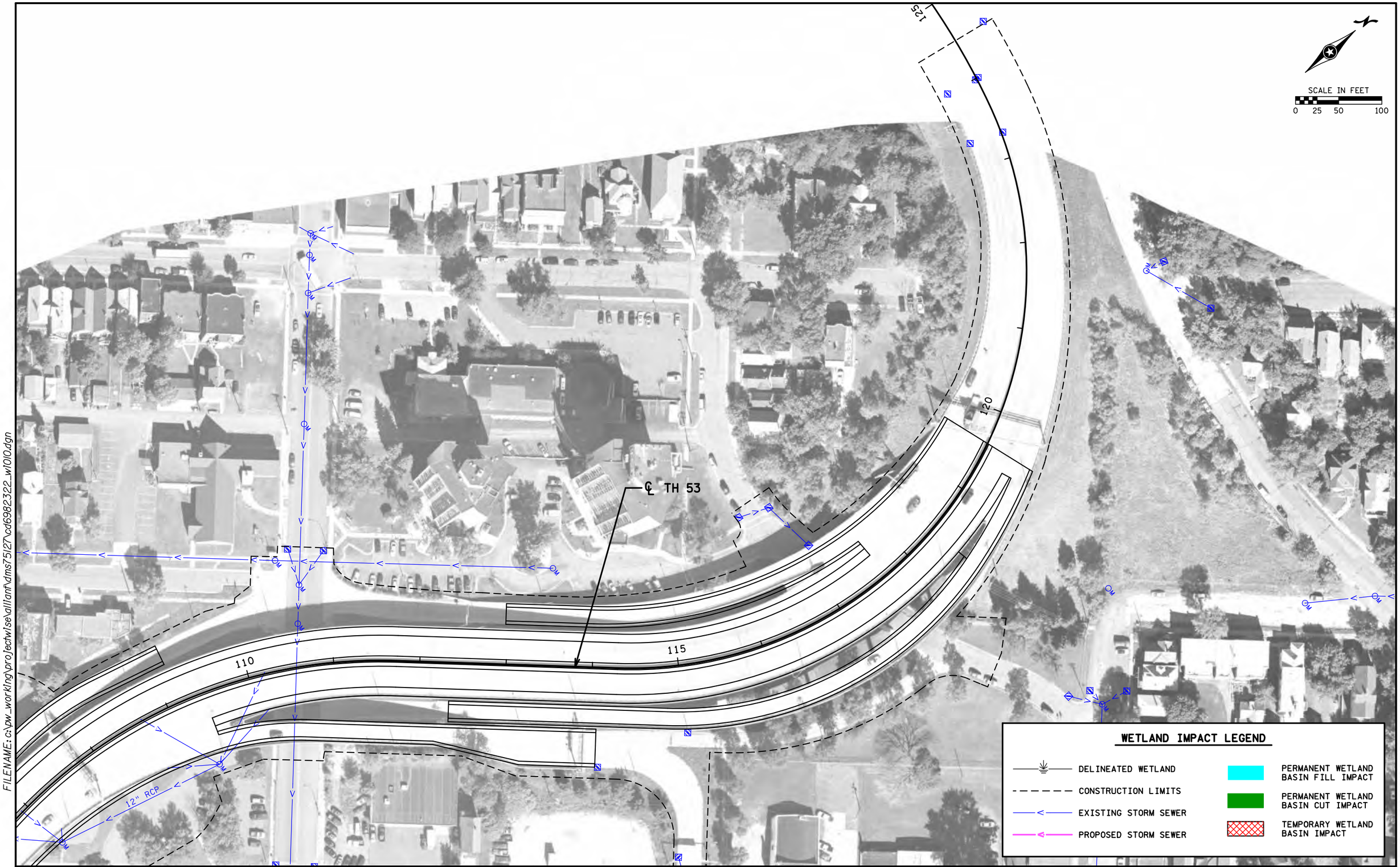
DRAWN BY: CEH CHECKED BY: MAW	I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	SIGNATURE: PRINTED NAME: DATE: LIC. NO.	TKDA	DEPARTMENT OF TRANSPORTATION	WETLAND IMPACTS	STATE PROJ. NO. 6982-322 (TH 35) Sheet No. 9 of 10 Sheets



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Attachment E
Hydraulic Recommendation

TKDA
444 Cedar Street, Suite 1500
Saint Paul, MN 55101
651.292.4400
tkda.com

Memorandum

To:	Nicole Bartelt (MNDOT)	**Reference:**	Twin Ports Interchange
Copies To:	Matt Wassman (TKDA)		Miller and Coffee Creek Hydraulics
	Roberta Dwyer (MNDOT)		
	Christopher Morris (MNDOT)		
	David Mohar (MNDOT)	**Project No.:**	16421.006
From:	Christopher Helland (TKDA)	**Routing:**	
Date:	July 23, 2018		

The purpose of this memorandum is to summarize the hydraulic analysis that was performed on Coffee and Miller Creeks. As part of the Twin Ports Interchange (TPI) Project, the pipes and culverts conveying Coffee Creek and Miller Creek through the interchange will be replaced.

Existing Conditions

TKDA has developed hydraulic models to size replacement structures for Miller Creek, Coffee Creek, and Miller and Coffee Creek if they were to be combined upstream of the Twin Ports Interchange. Both creeks are currently piped beneath the Lincoln Park neighborhood of Duluth. Coffee Creek enters a tunnel at West 8th Street, and exits into Saint Louis Bay. Miller Creek enters a tunnel at West 3rd Street, and exits into an open channel at West Michigan Street. Miller Creek encounters three additional box culverts as it flows downstream: a 10-foot span box culvert below the Duluth Transit Authority building, a 16-foot span by 6.5-foot tall box culvert beneath the abandoned rail embankment, and a double 10-foot wide by 6-foot tall box beneath the TPI project area and the BNSF mainline.

Survey and topographic data for the culverts and the open channel portion of Miller Creek downstream of the tunnel, were entered into a HEC-RAS 5.0.3 model and run with the Corrected National Stream Stats flows discussed in the 6/15/2018 Miller and Coffee Creek Hydrology memorandum. To capture the full effects of realignments, the full suite of 1.5-, 2-, 5-, 10-, 25-, 50-, 100-, and 500-year flows were included in the analysis.

The culvert beneath the Duluth Transit Authority Building was not surveyed. The size was assumed to be 10 feet in diameter based on information from the City GIS layers.

The Coffee Creek crossing of the TPI interchange is known to be undersized. It is assumed that any replacement with a larger pipe will cause an improvement in water surface elevations and carrying capacity.

Proposed Conditions

The existing Miller Creek double box culvert beneath the TPI project area will be replaced as part of the project. The existing Coffee Creek tunnel and pipe from approximately W 1st Street to the outlet in the bay will also be replaced as part of the project. Coffee Creek is planned to be realigned using a combination of closed conduit and open channel from W 1st Street to the upstream end of Miller Creek. See Figure 1. The replacement structure for Miller Creek has been sized for a combined 100-year flow of 2062 for both Coffee and Miller Creeks. A junction with Coffee Creek was created in the HEC-RAS model just upstream of the TPI culvert, and the Corrected National Stream Stats flows for Coffee Creek were entered into a 10-foot bottom width channel with 3:1 side slopes.

A 50-foot wide, 6-foot tall opening passes the 100-year combined flow of 2062 cfs without pressure flow through the structure which meets BNSF's hydraulic design requirements. The 6-foot rise of the existing double box culvert needs to be maintained to provide the proper amount of cover over the pipe through the railroad corridor. A comparison of existing versus proposed headwater for the 10-, 50-, and 100-year events is show below.

Storm Event	Headwater Elevation	
	Existing	Proposed
10-Year	607.85	605.48
50-Year	611.53	608.23
100-Year	613.1	609.27
500-Year	628.65	614.85

To appropriately size the realigned closed conduit portion of the Coffee Creek tunnel, the 50-year headwater elevation in the proposed HEC-RAS model at the Coffee Creek channel (upstream of the junction with Miller Creek) was input as a tailwater condition into a Hydraflow Storm Sewers model. This model was then used to compute the hydraulic grade line (HGL) within the pipe. To convey the Corrected NSS 50-year peak discharge under gravity flow, the realigned closed conduit portion of Coffee Creek should be a minimum of 84 inches in diameter.

Attached are profiles from HEC-RAS for the existing and proposed water surface levels of Miller Creek, as well as a profile and tabular output from Hydraflow Storm Sewers for the proposed water surface levels of Coffee Creek.

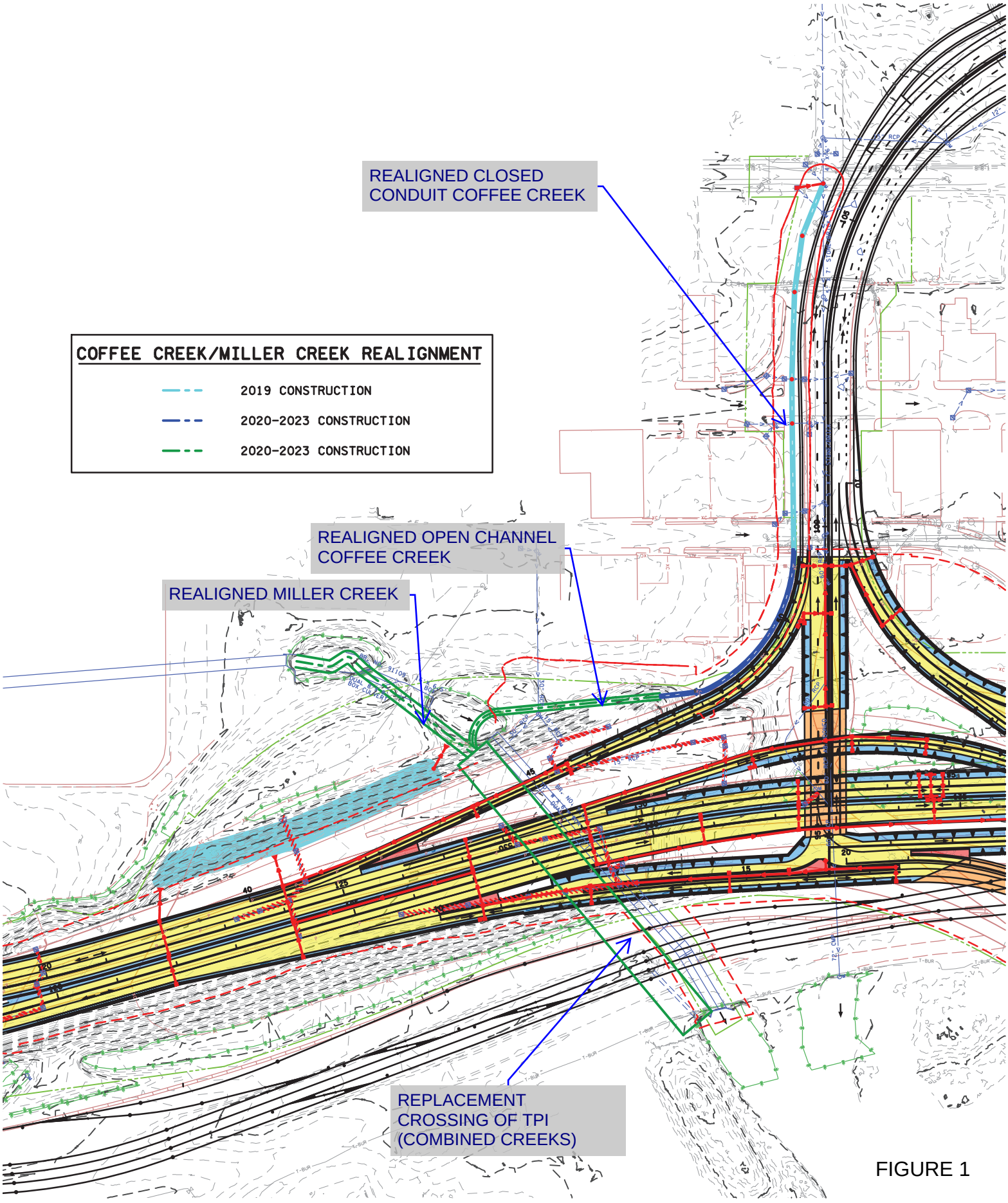
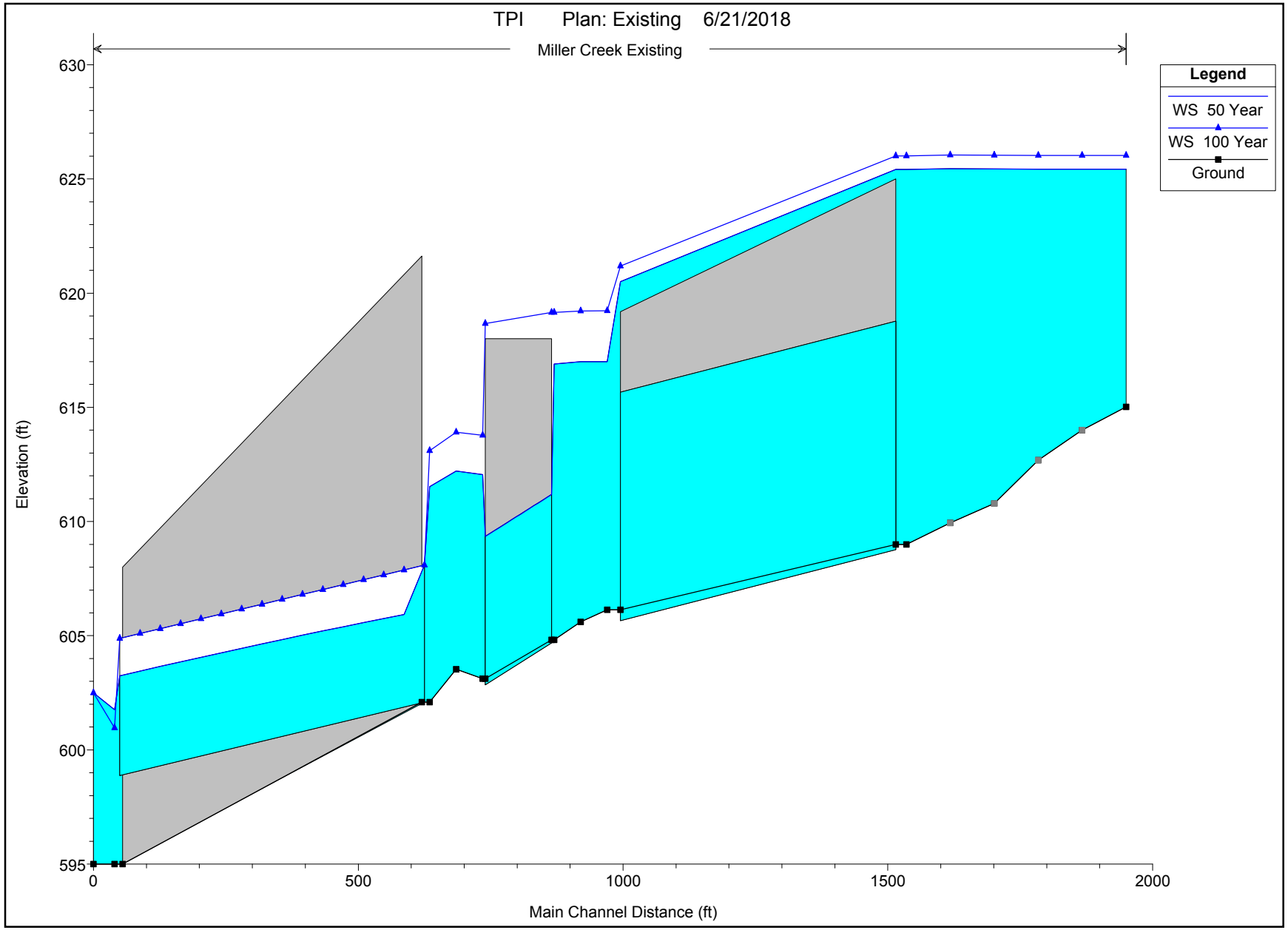
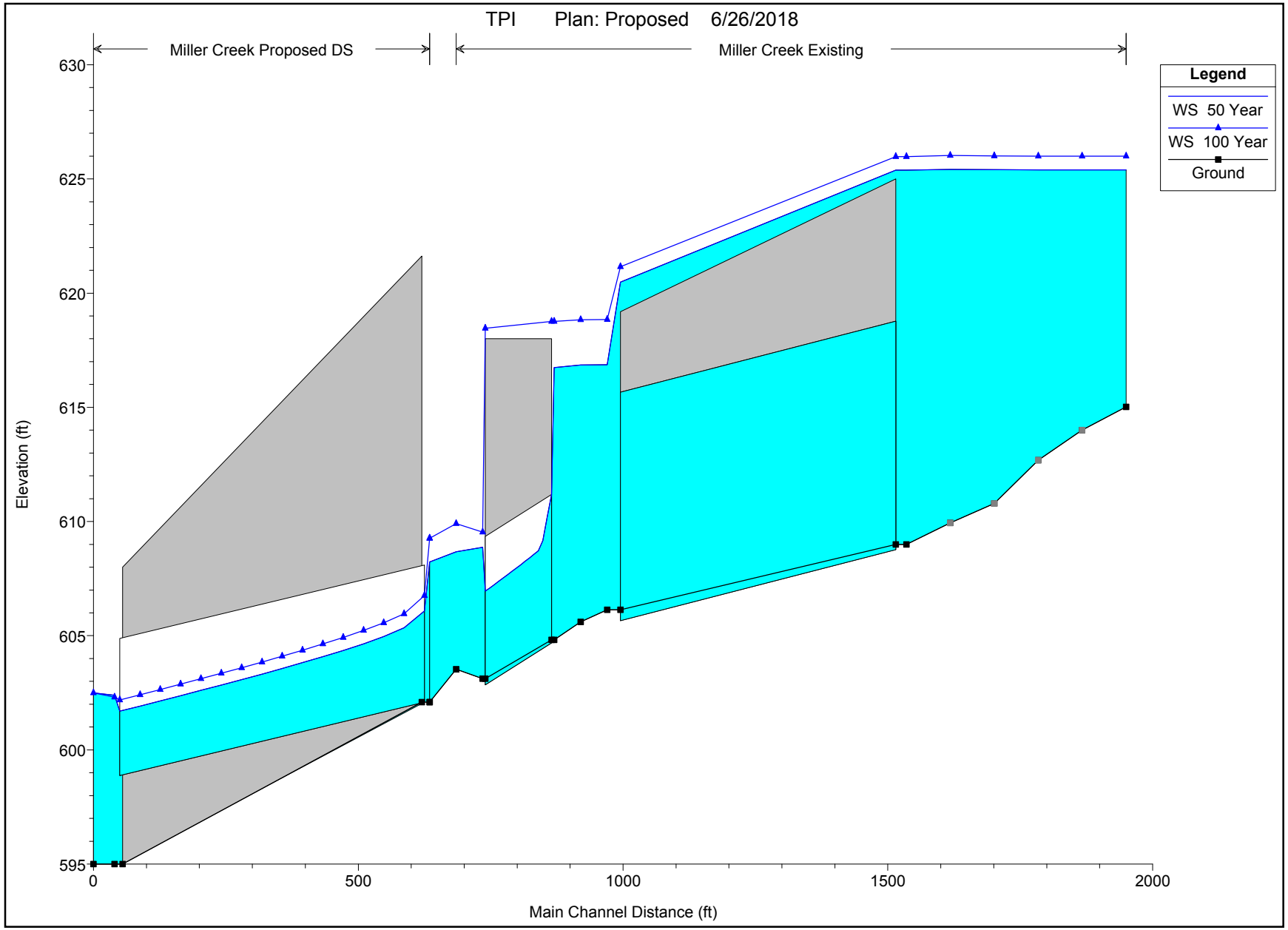
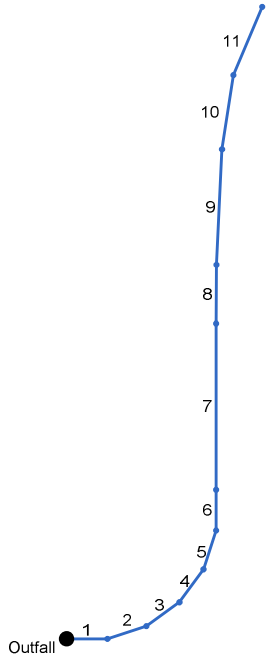

REALIGNED CLOSED CONDUIT COFFEE CREEK
COFFEE CREEK/MILLER CREEK REALIGNMENT
2019 CONSTRUCTION
2020-2023 CONSTRUCTION
2020-2023 CONSTRUCTION
REALIGNED OPEN CHANNEL COFFEE CREEK
REALIGNED MILLER CREEK
REPLACEMENT CROSSING OF TPI (COMBINED CREEKS)

FIGURE 1


TPI Plan: Existing 6/21/2018
Miller Creek Existing
Legend
WS 50 Year
WS 100 Year
Ground
Elevation (ft)
630
625
620
615
610
605
600
595
0
500
1000
1500
2000
Main Channel Distance (ft)


TPI Plan: Proposed 6/26/2018
Miller Creek Proposed DS
Miller Creek Existing
Legend
WS 50 Year
WS 100 Year
Ground
Elevation (ft)
630
625
620
615
610
605
600
595
0
500
1000
1500
2000
Main Channel Distance (ft)

Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan



Project File: Prelim Proposed Coffee.stm	Number of lines: 11	Date: 6/21/2018

Storm Sewer Tabulation

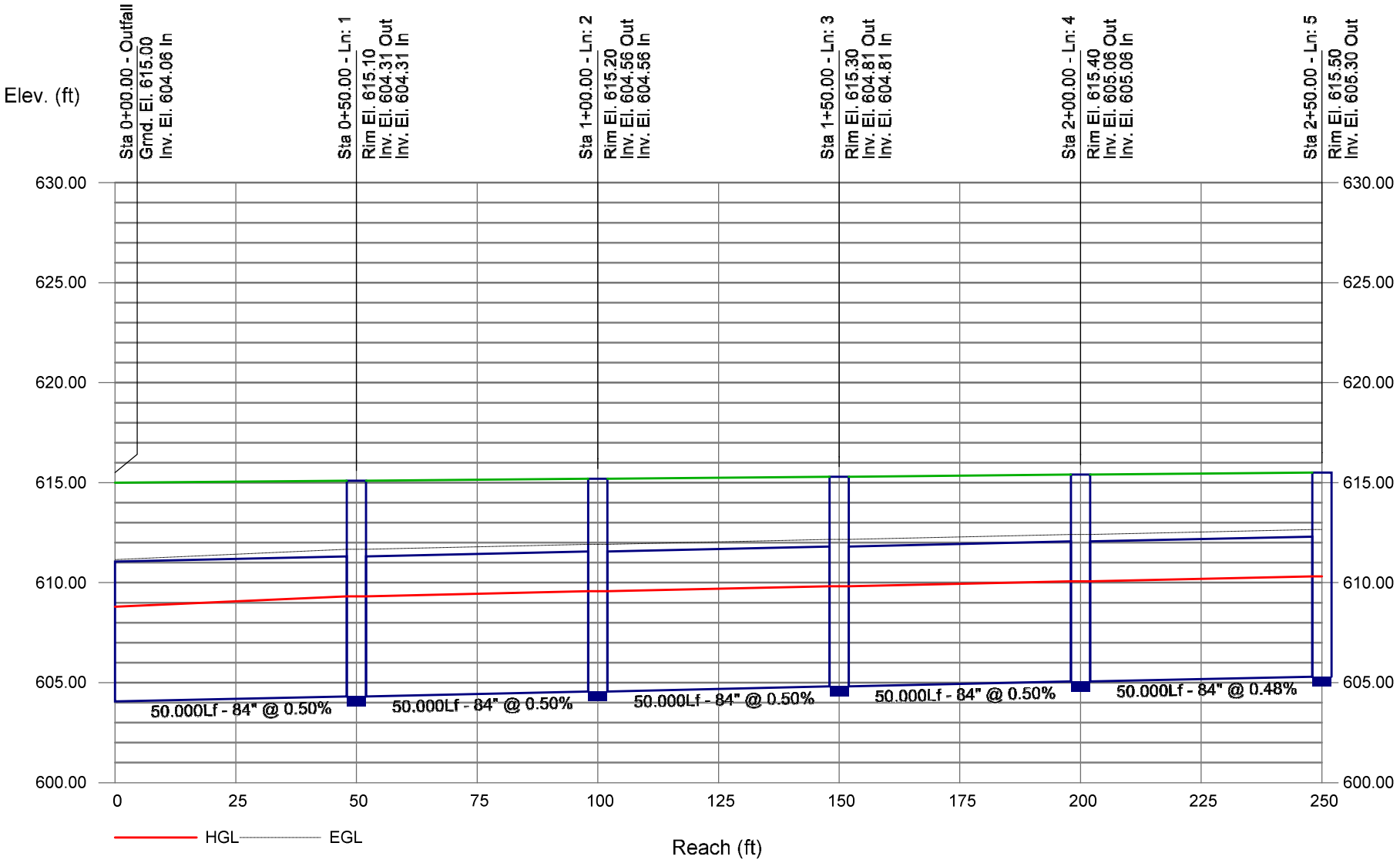
Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	50.000	0.00	0.00	0.00	0.00	0.00	0.0	1.5	0.0	362.0	451.8	12.66	84	0.50	604.06	604.31	608.80	609.32	615.00	615.10	
2	1	50.000	0.00	0.00	0.00	0.00	0.00	0.0	1.4	0.0	362.0	451.8	12.28	84	0.50	604.31	604.56	609.32	609.57	615.10	615.20	
3	2	50.000	0.00	0.00	0.00	0.00	0.00	0.0	1.3	0.0	362.0	451.8	12.28	84	0.50	604.56	604.81	609.57	609.82	615.20	615.30	
4	3	50.000	0.00	0.00	0.00	0.00	0.00	0.0	1.2	0.0	362.0	451.8	12.28	84	0.50	604.81	605.06	609.82	610.07	615.30	615.40	
5	4	50.000	0.00	0.00	0.00	0.00	0.00	0.0	1.2	0.0	362.0	442.7	12.28	84	0.48	605.06	605.30	610.07	610.31	615.40	615.50	
6	5	50.000	0.00	0.00	0.00	0.00	0.00	0.0	1.1	0.0	362.0	451.8	12.28	84	0.50	605.30	605.55	610.31	610.56	615.50	615.71	
7	6	204.000	0.00	0.00	0.00	0.00	0.00	0.0	0.7	0.0	362.0	488.0	12.28	84	0.58	605.55	606.74	610.56	611.75	615.71	618.71	
8	7	72.000	0.00	0.00	0.00	0.00	0.00	0.0	0.6	0.0	362.0	488.0	12.28	84	0.58	606.74	607.16	611.75	612.17	618.71	618.53	
9	8	142.000	0.00	0.00	0.00	0.00	0.00	0.0	0.3	0.0	362.0	485.6	12.28	84	0.58	607.16	607.98	612.17	612.99	618.53	620.46	
10	9	92.000	0.00	0.00	0.00	0.00	0.00	0.0	0.2	0.0	362.0	485.0	12.28	84	0.58	607.98	608.51	612.99	613.52	620.46	621.85	
11	10	91.000	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	362.0	487.6	12.28	84	0.58	608.51	609.04	613.52	614.05	621.85	623.26	

Project File: Prelim Proposed Coffee.stm | Number of lines: 11 | Run Date: 6/21/2018

NOTES:Known Qs only ; c = cir e = ellip b = box

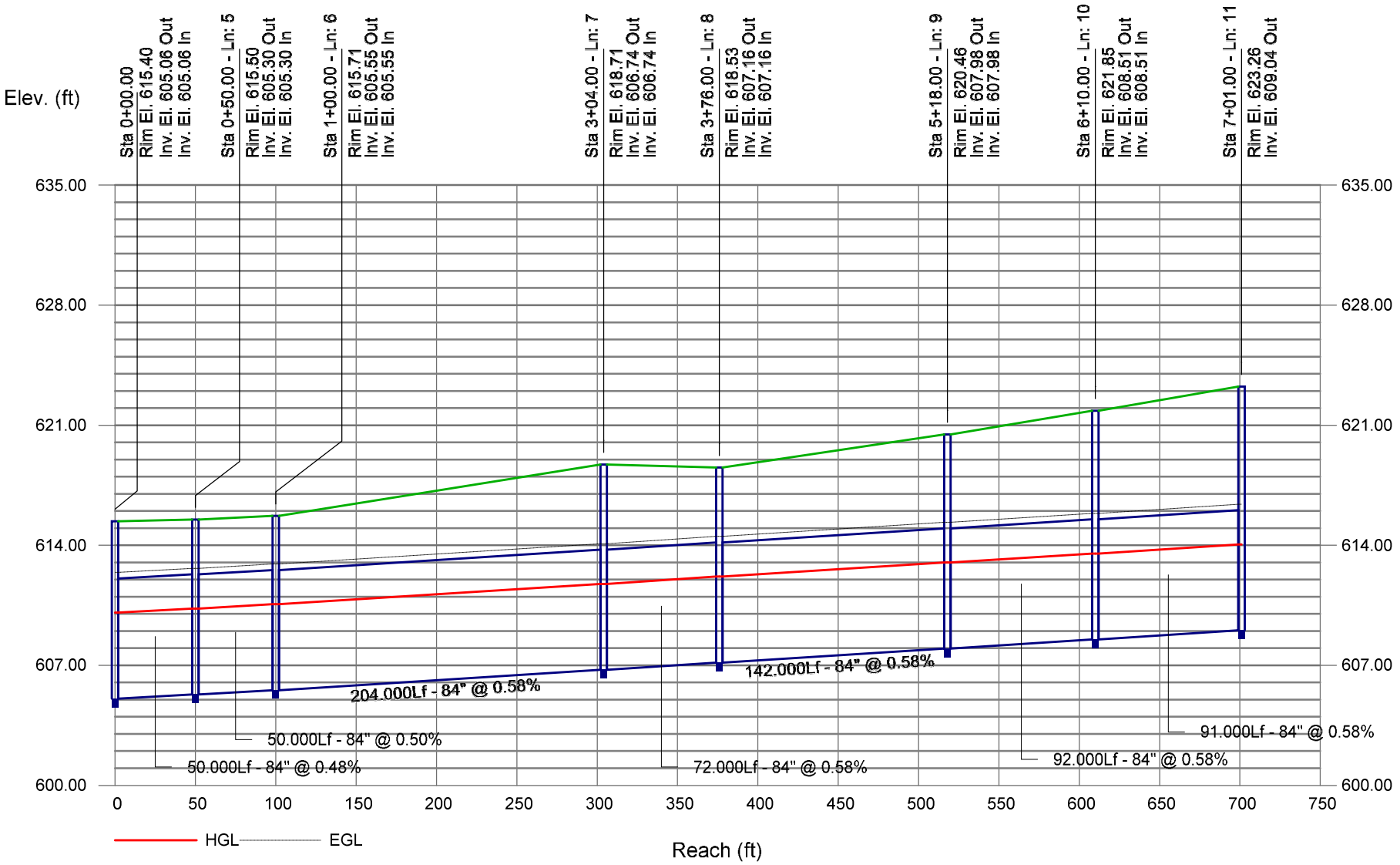
Storm Sewer Profile

Proj. file: Prelim Proposed Coffee.stm



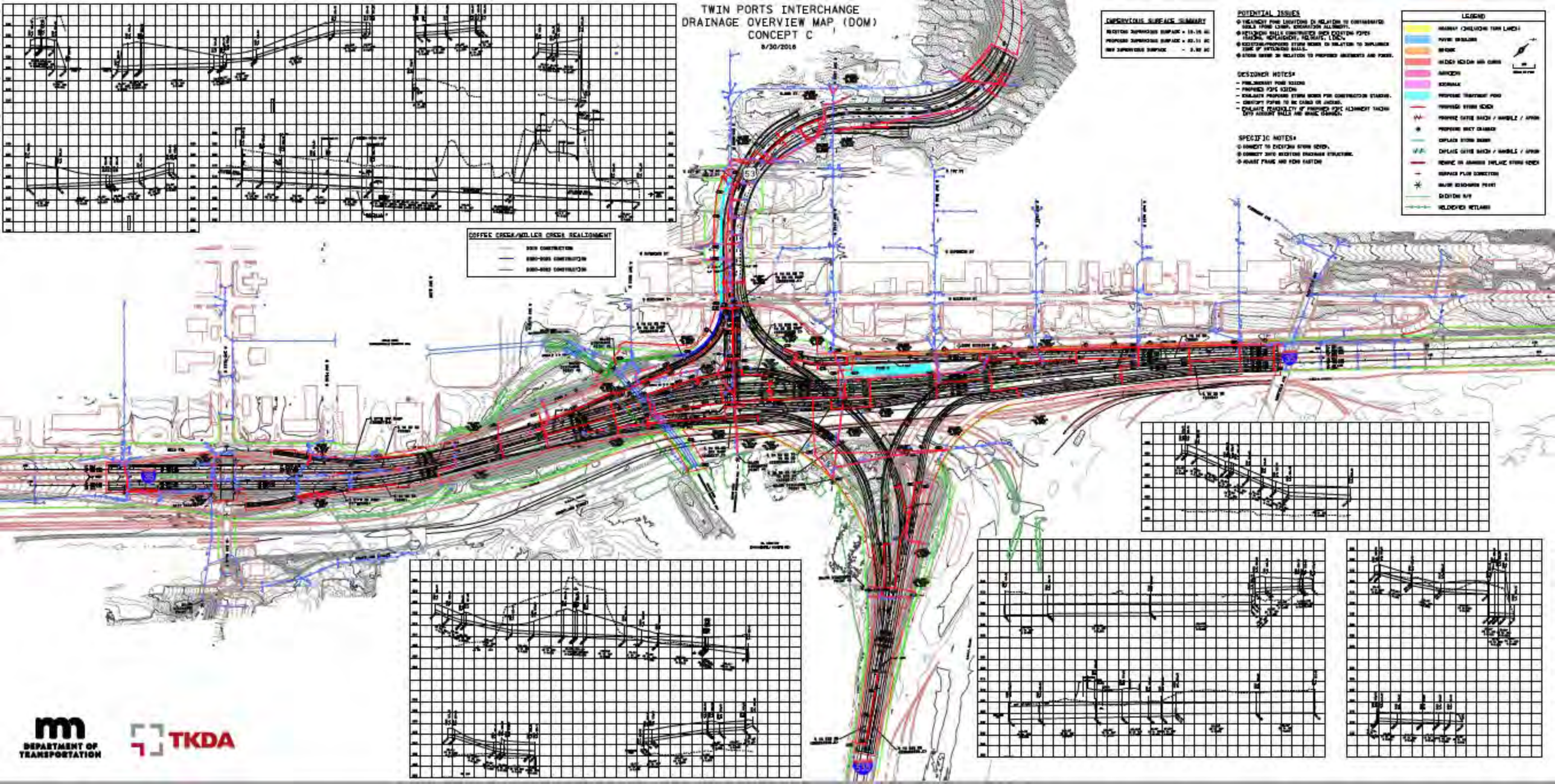
Storm Sewer Profile

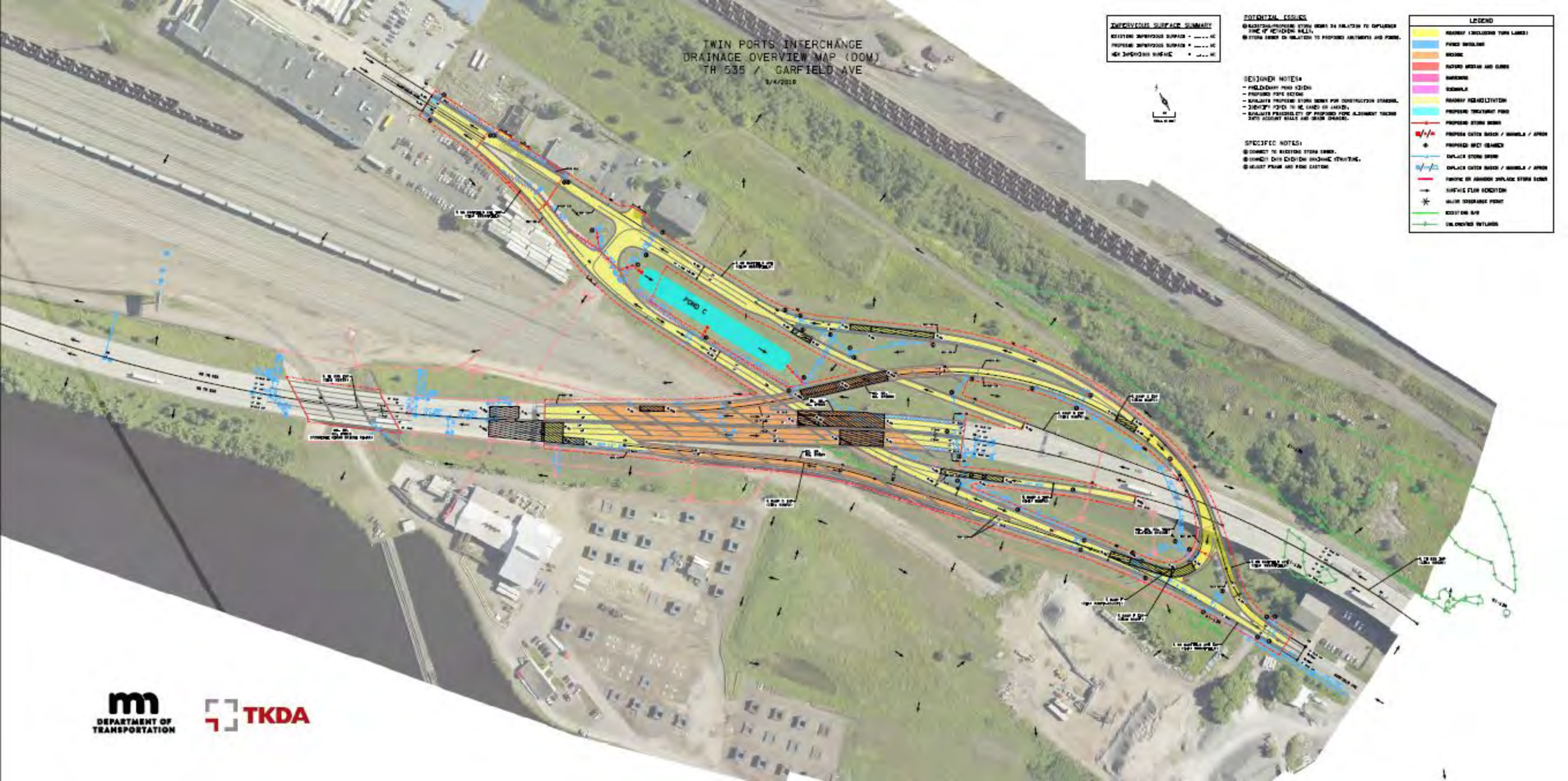
Proj. file: Prelim Proposed Coffee.stm



TWIN PORTS INTERCHANGE
DRAINAGE OVERVIEW MAP (DOM)
CONCEPT C

8/30/2016




TWIN PORTS INTERCHANGE
DRAINAGE OVERVIEW MAP (DOM)
TH 535 / GARFIELD AVE
9/4/2018
IMPERVIOUS SURFACE SUMMARY
POTENTIAL ISSUES
DESIGNER NOTES:
SPECIFIC NOTES:
LEGEND
POND C
DEPARTMENT OF TRANSPORTATION
TKDA

Figures

Figure 1: Component Map

Figure 2: Proposed 2019 Traffic Mitigation Improvements

Figure 3: Water Resources

Figure 4: Contaminated Properties

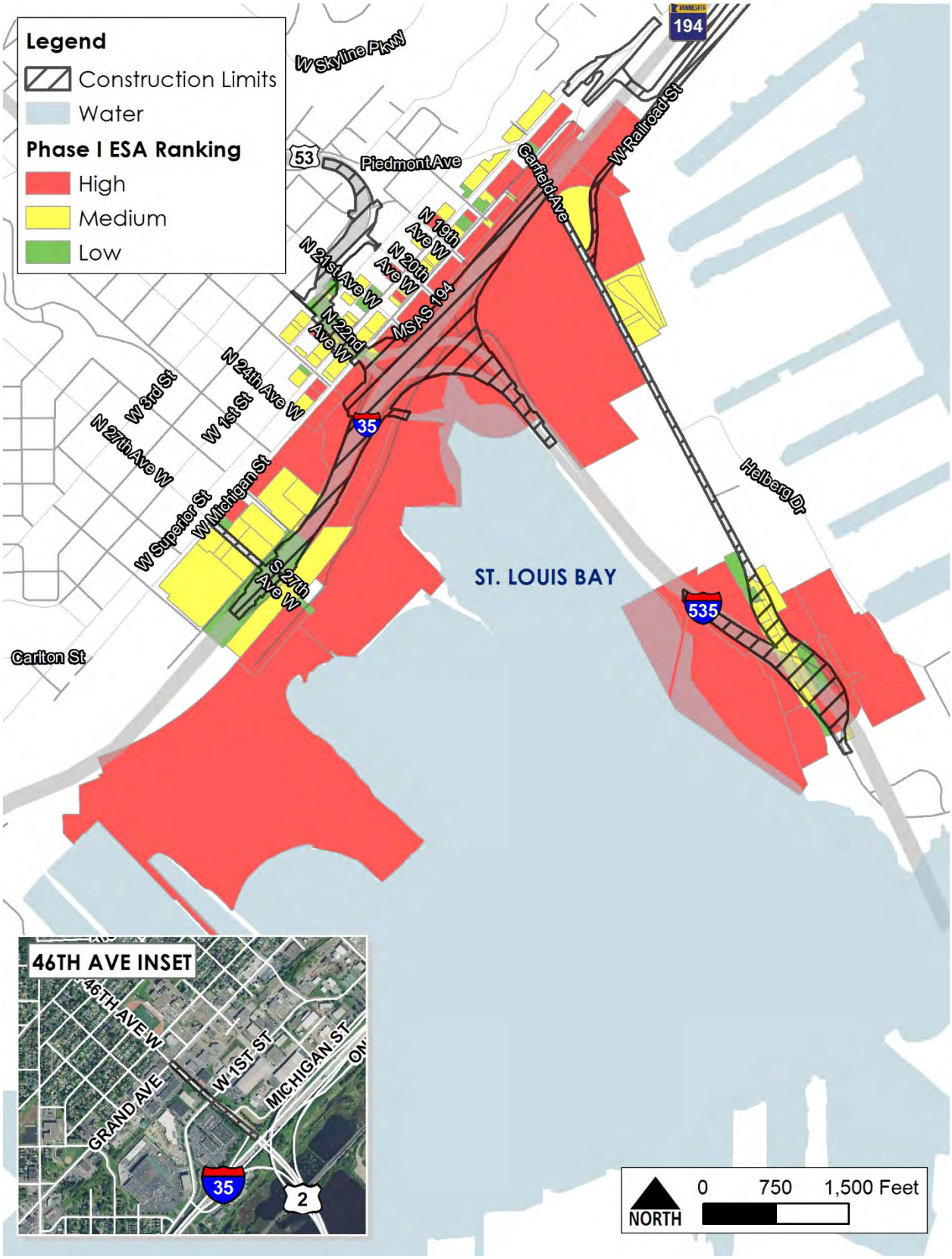


Figure 5: Historic Resources

Figure 6: CN/BNSF Crossover Location