

ACTION TRANSMITTAL

DATE: August 12, 2013

TO: TAC Funding and Programming Committee

PREPARED BY: Heidi Schallberg, Senior Planner (651-602-1721)

SUBJECT: Scope Change Request for Bridge No. 9 over the Mississippi River at the University of Minnesota

REQUESTED ACTION: The City of Minneapolis requests a scope change to modify the scope of the Bridge No. 9 project over the Mississippi River to Pier 3 concrete repair and installation of full height concrete encasement.

RECOMMENDED MOTION: Recommend of the request to modify the scope for SP#141-090-038 Bridge No. 9 over the Mississippi River to Pier 3 concrete repair and installation of full height concrete encasement.

BACKGROUND AND PURPOSE OF ACTION: In the 2009 solicitation, the City of Minneapolis received \$1,040,000 in Transportation Enhancements funding for this project. The city is requesting a scope change based on information from a more recent field evaluation of the bridge. The city's request and supporting information are attached.

RELATIONSHIP TO REGIONAL POLICY: Projects that receive funding through the regional solicitation process are subject to the regional scope change policy. The purpose of this policy is to ensure that the project is designed and constructed according to the plans and intent described in the original application. Additionally, federal rules require that any federally-funded project scope change must go through a formal review and TIP amendment process if the project description or total project cost changes substantially. The scope change policy and process allow project sponsors to make adjustments to their projects as needed while still providing substantially the same benefits described in their original project applications.

STAFF ANALYSIS: Staff reviewed the scope change request submitted by the city. Additional testing done in 2012 after funding was awarded found that emergency repairs were needed for two of the bridge piers, and that work was completed in 2012 and 2013. Additional work will need to be done for these two piers beyond these emergency repairs. The 2009 condition study report indicated that Pier 3 was the one in most need of repair. This scope change request would allow the work to focus on this pier, which is consistent with the intent of the application to "preserve the structural integrity of the bridge." Based on the new information about the bridge condition, it would be difficult to re-evaluate the project application and recalculate scores in retrospect. In the 2009 solicitation, the project scored 675 points out of 1,000 and was ranked 9 out of 28 selected projects and 55 applications. The purpose of the project with the requested scope change remains consistent with the original application. Based on the information provided by the city, staff recommends approval of the requested scope change.

ROUTING

TO	ACTION REQUESTED	DATE COMPLETED
TAC Funding & Programming Committee	Review & Recommend	
Technical Advisory Committee	Review & Recommend	
Transportation Advisory Board	Review & Adopt	
Metropolitan Council Transportation Committee	Concurrence	
Metropolitan Council	Concurrence	



**Department of
Public Works**
Steven A. Kotke, P.E.
City Engineer
Director

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Minneapolis MN 55415

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August 6, 2013

Mr. Karl Keel, Chair
Funding & Programming
Metropolitan Transportation Advisory Committee
Metropolitan Council
390 Robert Street North
Saint Paul, MN 55101 -1805

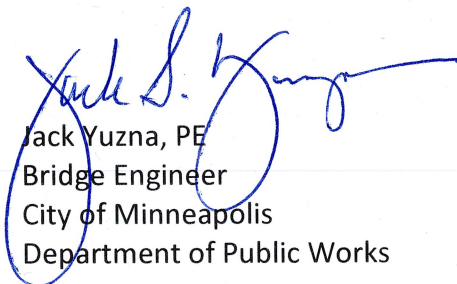
RE: TE-09-13 - Bridge No. 9 (MnDOT 94246)
Bridge 9 over the Mississippi River Substructure Rehabilitation
and Superstructure Painting Scope Change
SP 141-090-038

Dear Mr. Keel:

The City of Minneapolis wishes to request a scope change for our Bridge 9 project. During our 2012 field evaluation, the City found that the sub-structure's deterioration was significantly greater than anticipated in our 2009 Bridge Condition Report. The integrity of two the piers required a NBIS critical finding and emergency repairs were immediately begun to avoid closure. Based on findings, we are requesting that the scope be changed to Pier 3 Concrete Repairs & Full Height Concrete Encasement.

Your committee's consideration of our request is greatly appreciated.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jack S. Yuzna".

Jack Yuzna, PE
Bridge Engineer
City of Minneapolis
Department of Public Works



1. Background

Bridge No. 9 is a converted railroad bridge which carries pedestrian and bicycle traffic over the Mississippi River and West River Parkway between the University of Minnesota East and West Bank campuses in Minneapolis. A two span deck truss crosses the river. Three plate girder approach spans are located on the West Bank and two plate girder approaches are located on the East Bank. The bridge was originally constructed as a Northern Pacific Railroad crossing in the late 1880's. Portions of the current bridge date back to this original construction. It was reconstructed by the railroad in 1922. In 1999 the bridge was renovated for pedestrian use, opening for traffic in 2000. The City of Minneapolis (City) is the current owner. A location map is attached. Bridge No.9 also carries the University of Minnesota (U of M) main steam line to its West Bank Campus.

2. Original Scope

Following a Condition Study Report by SEH in March 2009, Minneapolis submitted an application for Federal Transportation Enhancement funds to address rehabilitation items identified in the report. Titled Bridge No. 9 (MnDOT Bridge 94246) Rehabilitation and Painting, Application No. TE-09-13 was approved for Program Year 2014. This application listed the following repair items identified in the 2009:

Item No.	Description	Estimated Cost
1	Pier Repairs	\$412,000
2	Approach Spans Waterproofing and Ballast Curb Repairs	\$319,000
3	Abutment Repairs	\$25,000
4	Repair and Partial Paint Steel Superstructure and Clean/Repair Bearings	\$449,000
5	Install "No Vehicles Allowed " Sign	\$500
	Total	\$1,205,500

Portions of the 2009 Condition Study Report were attached to the Transportation Enhancement Fund Application. Section 6.0 Summary of Project Costs indicated "These Items preserve the structural integrity of the bridge by repairing the deteriorated features with the most urgent need for repair."

3. Scope Change

Once funding was secured, the City retained Olson & Nesvold Engineers in 2012 to perform field and laboratory testing, collect geotechnical information and provide updated repair recommendations in advance of development of repair plans. In the course of this work a critical finding, related to bearing support conditions, was discovered. Concrete core samples and other forensic work revealed the lack of confining reinforcement at the piers and bearing supports. The piers were found to require more extensive repairs than the anticipated in the 2009 report.

The City directed ONE to develop repair plans to address the critical finding. Emergency repairs were immediately initiated to address pier & bearing support conditions at Pier 4 (river pier) and Pier 2 (see attached Elevation Plan for pier locations) to allow pedestrian traffic to remain on the bridge. This work was completed by City of Minneapolis forces in fall & winter of 2012 and 2013. The cost of the work exceeded \$700,000.

The repairs required at Pier 4 and Pier 2 are more extensive than the anticipated in the 2009 report. Concrete encasement was provided at Pier 4 from the top of cofferdam to the pier cap to prevent truss bearing support failure. A post-tensioned steel clamping fixture was installed at Pier 2 to accomplish the same objective. Additional work is necessary at both piers to complete these repairs. At Pier 4 a deep foundation system is needed to underpin the concrete encasement. At Pier 2 concrete encasement is required for the full height of the pier column to provide a permanent solution.

Bearing support is also a concern for Piers 2 and 3 (east bank piers). Full height concrete encasement should be installed at these locations. Additional pier cap deterioration or concrete cracking at Pier 2 or Pier 3 could necessitate bridge closure if these repairs are not completed on a timely basis.

The 2009 report indicated that Pier 3 (east bank river pier) was in greatest need of repair. With critical finding at Pier 2 & 4 addressed, the City proposes to focus on repairs to Pier 3. Full concrete encasement of the pier will require that lateral support around the pier and within the river to the bottom of the spread footing at bedrock. The site has extremely limited working area. There is a steam line vertical shaft house built abutting the east pier face as well as other underground steam and electrical utilities. Given the condition of the pier and the complexities of making the repairs within the site; the City proposes to re-scope the project to Pier 3 concrete repairs & full height encasement.

4. Revised Project Description

The conditions of the bridge’s piers were far worse than anticipated in the 2009 report. The City of Minneapolis has concluded that the strengthening of the piers and scope of work will require several years to program. Therefore the City of Minneapolis proposes the project description be changed to Pier 3 Concrete Repairs and Installation of Full Height Concrete Encasement. If additional local funding is available, Pier 3 bearings replacement would also be included in this project.

The extent of repairs and the type of work differs from the original funding application. However, the intended purpose to “preserve the structural integrity of the bridge by repairing the deteriorated features with the most urgent need for repair” is consistent with the original application.

5. Additional Work

After Pier 3 repairs, future projects will be required to address the following issues:

- Pier 4 underpinning to provide foundation support for the concrete encasement emergency repair completed by Minneapolis in 2012 & 2013.
- Pier 5 concrete encasement.
- Pier 2 concrete encasement.
- Abutment 1 footing stabilization.
- Bearing rehabilitation.
- Deck repairs.
- Bridge painting including superstructure and railings.

6. Revised Cost Estimate – Pier 3 Repairs Encasement

Item	Estimated Cost
Concrete Encasement	\$800,000
Excavation Support	\$450,000
Bearing Rehabilitation	\$70,000
Total	\$1,320,000

CITY OF MINNEAPOLIS PROJECT NO. SP 141-090-038
BRIDGE NO. 9 OVER MISSISSIPPI RIVER AND WEST RIVER PARKWAY



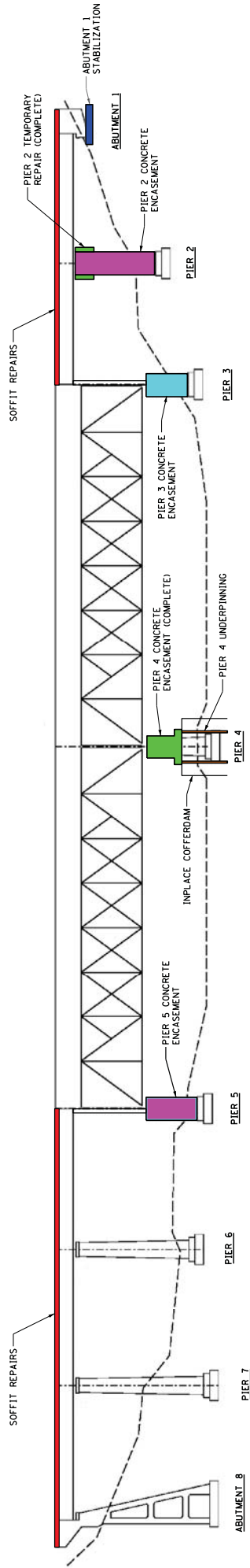
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Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TOWNSHIP 29N
RANGE 24W
SECTION 24

SITE LOCATION
SCOPE CHANGE
BRIDGE NO. 9 PEDESTRIAN BRIDGE
MINNEAPOLIS, MINNESOTA



ELEVATION

SEQUENCE

- 1. PIER 4 ENCASUREMENT AND PIER 2 TEMPORARY REPAIR - COMPLETED WORK
- 2. PIERS 3 ENCASUREMENT - BID FEBRUARY 2014
- 3. PIER 4 UNDERPINNING - BID SCHEDULE DEPENDENT ON FUNDING
- 4. PIER 2 ENCASUREMENT - BID SCHEDULE DEPENDENT ON FUNDING
- 5. ABUTMENT 1 FOOTING STABILIZATION - BID SCHEDULE DEPENDENT ON FUNDING
- 6. SOFFIT REPAIRS - BID SCHEDULE DEPENDENT ON FUNDING

BRIDGE NO. 9 (MnDOT 94246)
CITY OF MINNEAPOLIS