CITY OF SAINT PAUL - DEPARTMENT OF PUBLIC WORKS
SP-164-158-025 EASTBOUND KELLOGG RIVERCENTRE BRIDGE PROJECT

PROJECT DESCRIPTION

The project reconstructs the Eastbound Kellogg Bridge No. 90378 at RiverCentre. The existing bridge is a 39-span, 1040 feet long constructed in 1936. It carries two eastbound lanes, a shoulder and pedestrian sidewalk on Kellogg Boulevard between W. 7th Street and Market Street. It is Integral to the Exchange Street viaduct providing vehicular access from the lower bluff area to Kellogg Boulevard. Separately, the bridge offers access to the Xcel Energy Center/RiverCentre Loading Dock allowing commercial delivery vehicles, buses and shuttles to use the loading dock road under the bridge to exit at the signalized intersection inside the viaduct.

The bridge has extensive concrete deterioration, shows signs of advanced corrosion, and it is structurally deficient. After 85 years of service, it has reached the end of its useful design life. The project limits are MSAS 158 (Kellogg Boulevard) between West 7th Street and Market Street. The total project length is 1,800 feet, with existing bridge length (to be replaced) of approximately 1,040 feet.

The reconstruction and rehabilitation of eastbound Kellogg Boulevard includes retaining walls, approach roadways, the Exchange Street viaduct (MSAS 258), and Bridge No. 90378 over the river bluff ravine. Bridge No. 90378 will be demolished and replaced with the Exchange Street Bridge No. 62671 and the Loading Dock Bridge No. 62672 The proposed bridge system consists of a series of tunnels. The loading dock road will be re-directed via its tunnel to exit on Eagle Street, eliminating the intersection from within the Exchange Street viaduct and thus improving traffic safety. Existing traffic patterns will be maintained on Kellogg Boulevard and Exchange Street. A new barrier-separated shared-used trail will be provided through the Exchange Street viaduct connecting the Sam Morgan Regional Trail (Shepard Road) and the future Capital City Bikeway (CCB) project on W. Kellogg Boulevard.

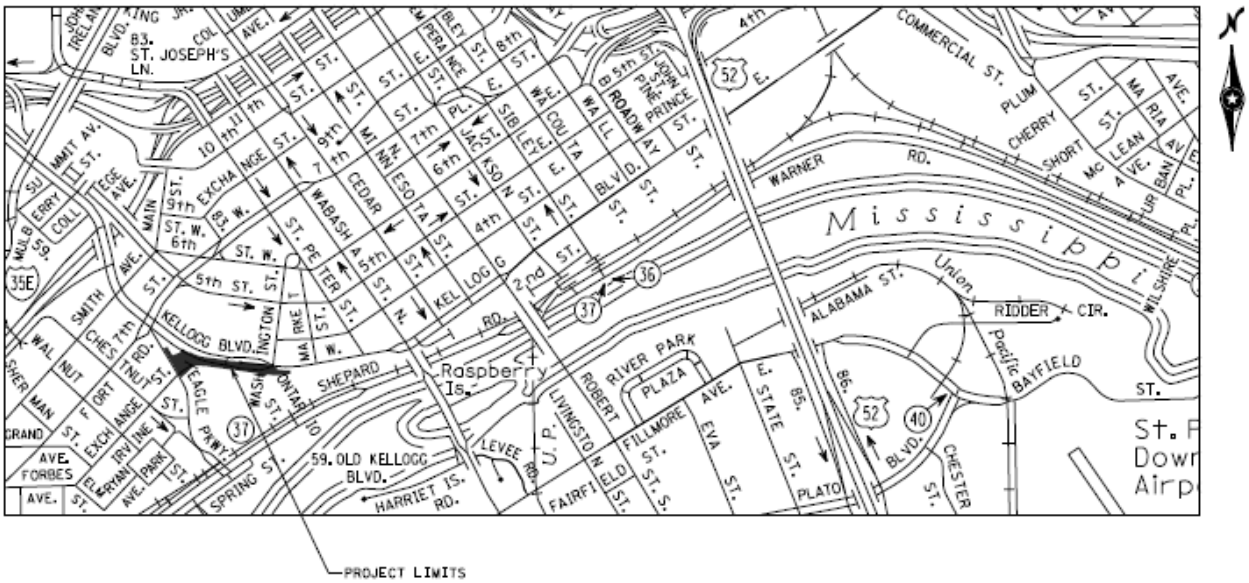
Once reconstructed, the bridge system will continue to serve downtown Saint Paul for decades to come and provide access to major attractions in downtown Saint Paul including the Xcel Energy Center, the RiverCentre, the Science Museum of Minnesota, RiverCentre Parking Ramp and the District Energy Downtown Plant.

Exhibits provided below show existing conditions of Eastbound Kellogg Boulevard and Exchange Street viaduct and the proposed bridge layout.

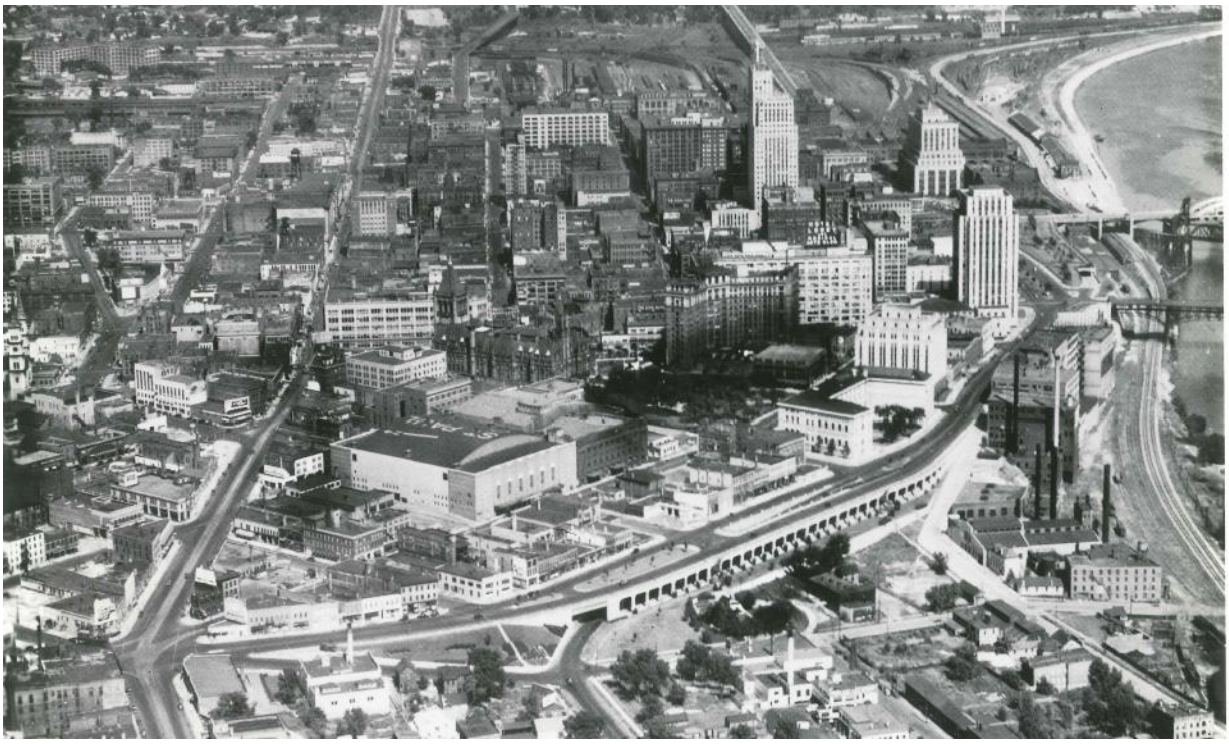
Project Manager: Dag Dejene, PE, Public Works Bridge Division 651-266-5603

CITY OF SAINT PAUL - DEPARTMENT OF PUBLIC WORKS
SP-164-158-025 EASTBOUND KELLOGG RIVERCENTRE BRIDGE PROJECT

PROJECT LOCATION



AERIAL VIEWS



Aerial view showing the multi-span Eastbound Kellogg RiverCentre Bridge and the Exchange Street viaduct built in 1936. There were several modifications to the bridge over the years. In 1995, spans were reconfigured to accommodate the loading dock exit road which runs on the south end of Kellogg Boulevard under the bridge.

Aerial view showing approximate project limits and existing bridge No. 90378 (Eastbound Kellogg RiverCentre Bridge). The bridge is located near major downtown attractions including the Xcel Energy Center/RiverCentre, the Roy Wilkins Auditorium and the Ordway Center and the George Lattimer Central Library. It is adjacent to the RiverCentre Parking Ramp, the Science Museum of Minnesota and the District Energy Plant.

STREET VIEWS

Kellogg Boulevard bridges appear as city streets blending with city streetscape. Eastbound Kellogg RiverCentre bridge limits are shown in blue.

Currently, Exchange Street carries two vehicular lanes under Bridge No. 90378. The sidewalk on Exchange Street terminates right before entering the viaduct. The project will explore ways to improve pedestrian facility and safety through the viaduct. Image viewing east.

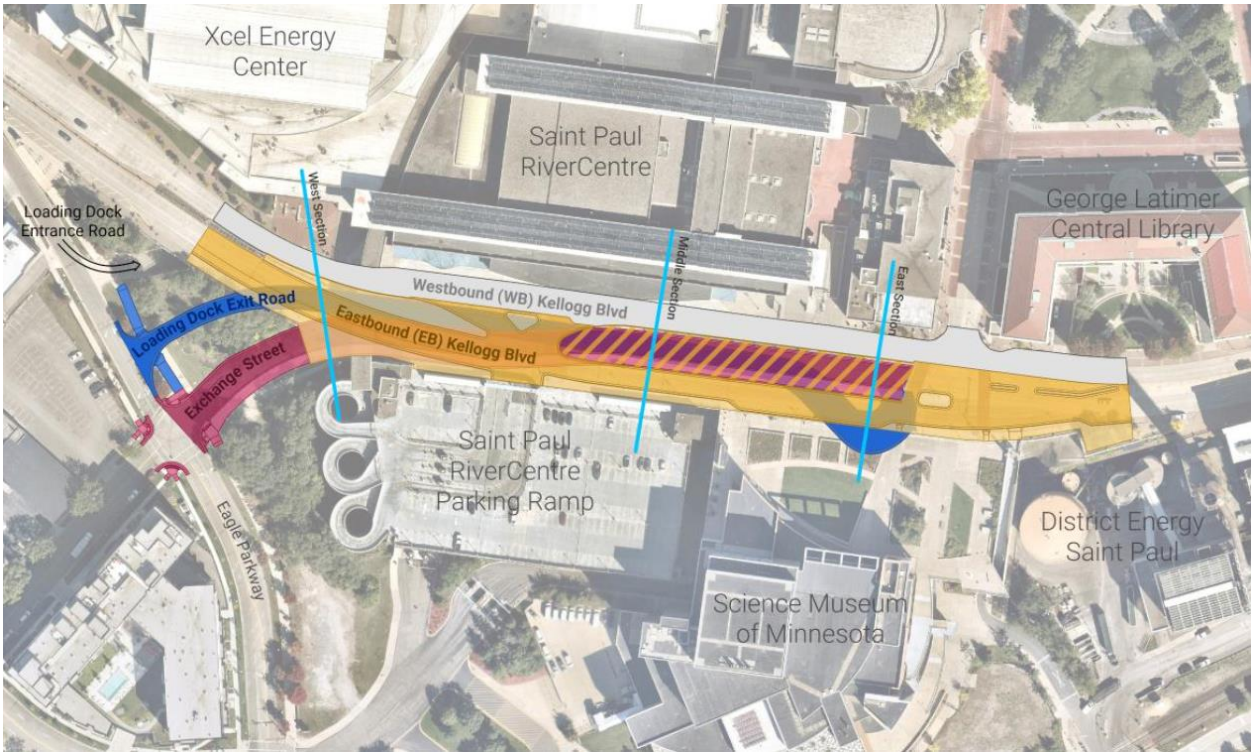
Existing Exchange Street viaduct and retaining wall - photo taken viewing west

CITY OF SAINT PAUL - DEPARTMENT OF PUBLIC WORKS
SP-164-158-025 EASTBOUND KELLOGG RIVERCENTRE BRIDGE PROJECT

Loading dock exist road (right side) meets Exchange Street at the signalized intersection in the viaduct creating a difficult turn angle for truckers and buses. Proposed layout will eliminate signalized intersection and improve traffic safety.

CITY OF SAINT PAUL - DEPARTMENT OF PUBLIC WORKS
SP-164-158-025 EASTBOUND KELLOGG RIVERCENTRE BRIDGE PROJECT

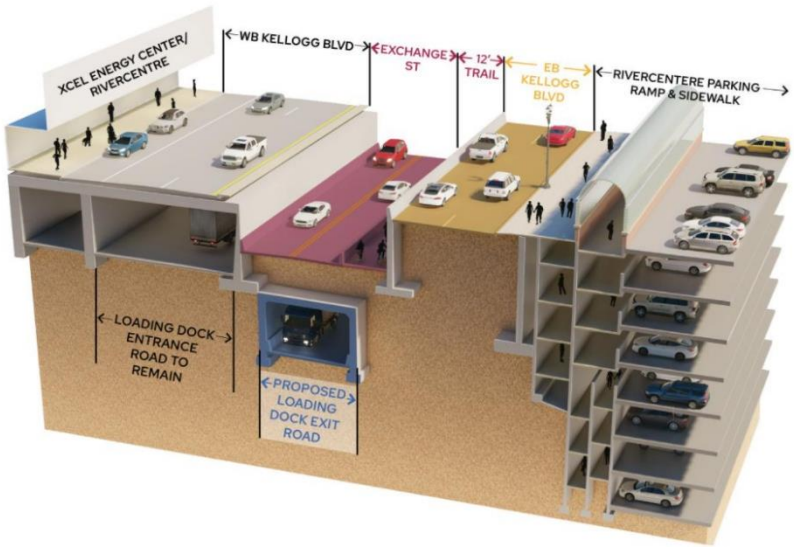
PRELIMINARY DESIGN LAYOUT



UPPER LEVEL – EASTBOUND KELLOGG BOULEVARD

MIDDLE LEVEL – EXCHANGE STREET VIADUCT

LOWER LEVEL – LOADING DOCK EXIT ROAD TUNNEL



MAJOR PROJECT BENEFITS INCLUDE:

1. Enhance Pedestrian Safety
2. Improve Access to Regional Trails and Bikeways
3. Incorporate Public Art
4. Maintain existing traffic patterns (driving familiarity)
5. Improve loading dock access
6. Utility infrastructure improvements

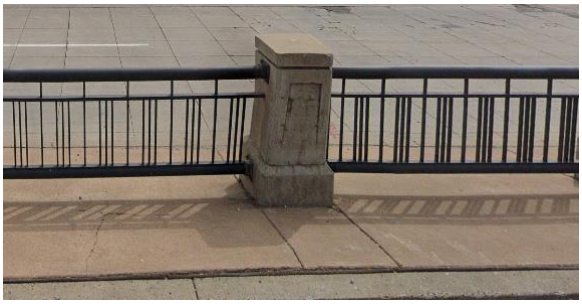
CITY OF SAINT PAUL - DEPARTMENT OF PUBLIC WORKS
SP-164-158-025 EASTBOUND KELLOGG RIVERCENTRE BRIDGE PROJECT

STREETSCAPE FEATURES AFFECTED BY THE BRIDGE RECONSTRUCTION WORK

RAILINGS

Portions of ornamental railings on Eastbound Kellogg may be required to be crash-worthy and will be replaced per federal requirements. Examples of existing railing sections are shown below.

S-curves; common throughout project area



Prairie-style; median area west of bridge

In order to comply with federal requirements, the City may elect to remove segments of ornamental railings and replace them with conventional barriers, or – as the design team proposes – to place similar ornamental railing on top of crash-worthy barriers. Examples are as follows.

Conventional rail system

Custom S-curve on top of concrete barrier *

*This was done on Kellogg Boulevard at Market Street in 2015.

LIGHTING

Refer to attached bridge layout for existing lighting locations. There are two types of lighting units within the project area:

1. 5-Globe style units (3 each)
2. Twin-acorn style units (7 each)

It is anticipated that the overall design approach to ornamental lighting will be consistent with other recent downtown projects. Whenever feasible existing light fixtures will be salvaged, refurbished, and reinstalled. Luminaires will be retrofit with LED bulbs as per the City lighting policy. Supplemental fixtures may be needed to provide adequate lighting levels for road safety and pedestrian areas. Wall-mounted lighting fixtures will be installed within the Exchange Street viaduct and loading dock road tunnels.

PROTECTION OF ADJACENT PROPERTIES FROM VIBRATION

Construction activities including bridge demolition, rock excavation and foundation work are expected to induce vibrations in the project area. The project design mitigates against damage-causing vibrations in several ways. Bridge demolition work will include “slabbing” (saw-cutting and removing) existing concrete bridge deck. Micropile foundations, which are drilled into bedrock, will be specified. This foundation method produces minimal vibration in comparison to conventional methods of driving pile.

Anticipated levels of vibration for this project are unlikely to be significant to cause damage to nearby structures. The design will establish the basis for acceptable levels of vibrations, and the project documents will require a pre- and post-construction survey of nearby structures. The contractor will be required to have a vibration monitoring plan in place. A similar design approach was successfully used when reconstructing downtown Kellogg Boulevard bridges between Market Street and Wabasha Street in 2015.