



Kennedy Bridge Planning Study

East Grand Forks, MN | Grand Forks, ND

Project Fact Sheet | December 2013

What is the Kennedy Bridge Planning Study?

The Kennedy Bridge Planning Study, led by the Minnesota Department of Transportation (MnDOT), in partnership with the North Dakota Department of Transportation (NDDOT), evaluated a range of issues and engineering concepts to maintain and enhance the US Highway 2 crossing of the Red River.

Opened in 1963, the Kennedy Bridge is a vital connection between the cities of East Grand Forks, MN, and Grand Forks, ND. It serves the region's major east-west interregional highway and provides a vitally important local crossing of the Red River and the river's floodway. MnDOT and NDDOT have engaged throughout 2013 to begin the bridge planning and project development process, considering the following:

- The **primary need** is to continue to provide a structurally sound Highway 2 Red River crossing. Addressing this need requires attention to the bridge's condition, including its many components. While the Kennedy Bridge is regularly inspected and safe, the primary need recognizes that the structure is also 50 years old and requires an action plan for long-term performance.
- There are also **secondary needs** to consider for development and evaluation of design concepts. These needs include minimizing traffic impacts during construction, providing accommodations for pedestrian/bicycle traffic, and addressing other transportation improvement opportunities.

Addressing these needs required development of engineering concepts for rehabilitation of the Kennedy Bridge, as well as for possible bridge replacement. The 2013 Bridge Planning Study has refined the general options to determine the most promising choices available. More detailed engineering and decision-making steps will follow the Planning Study's conclusion in 2014 and beyond.

What did the Study include?

- **Bridge Rehabilitation**—A range of rehabilitation issues were examined, including technical aspects of the bridge foundations, steel truss, hydraulic considerations, and geotechnical conditions.
- **Bridge Replacement**—A variety of bridge replacement concepts were identified and discussed, including alignments adjacent to the existing bridge. This evaluation considered a range of possible bridge types and layouts.
- **Public and Agency Input**—The Bridge Planning Study included a series of meetings with an Advisory Committee, as well as outreach to the general public. These meetings provided opportunities for stakeholders to discuss the condition of the bridge and its future. The Advisory Committee meetings allowed the bridge design team to coordinate input among the many public agencies to be involved in future steps of design, project review/approvals, and construction.
- **Environmental Resources and Community Values**—The bridge vicinity was reviewed for environmental resources and constraints, including the area's historic and recreational features and values. Related issues include avoiding/minimizing adverse effects to historic resources and planning for potential bicycle and pedestrian accommodations.

What is the Kennedy Bridge background?

What are the planning issues and goals?

The Kennedy Bridge is located within a community setting that is both historic and forward-looking, bringing many related issues to the planning process. The many issues addressed include the following:

- **Traffic Demands and Local Red River Crossings**—The Kennedy Bridge serves the area's major interregional east-west highway (US 2), carrying about 23,000 vehicles per day, with four lanes of capacity. This traffic demand is

expected to increase by 2040 to about 30,000 vehicles per day. The area's other two Red River bridges to the south (the Sorlie Bridge on DeMers Ave. and the Point Bridge on 1st Street South) each carry less traffic than the Kennedy Bridge. The other two bridges provide two lanes of capacity at each crossing.

■ **Clearance Above Floods**—Of the three above-noted Red River bridges, only the Kennedy Bridge has the potential to remain open during a 100-year flood event. Compared to the Sorlie Bridge, located about 0.6 mile south (upstream), the Kennedy Bridge provides 7.6 feet of extra clearance. The Point and Sorlie bridges are the first to close during Red River floods, respectively, making the Kennedy Bridge the only local roadway crossing of the Red River during some moderate floods and during all major floods. The 1997 flood, which exceeded a 100-year event, was a record event that forced closure of the Kennedy Bridge. As proven by that flood, the approach roadway to the east includes a low segment that will be considered for adjustment, along with the 4th Street ramps.

■ **Historic and Recreational Resources/Setting**—The Kennedy Bridge, built in 1963, is a historic structure: 1,261 feet long, including two 279-foot-long steel Parker Truss main spans. The vicinity of the bridge also includes other historic and recreational features, which include the following:

- The St. Michael's Hospital and Nurses Residence (now adapted for residential use), located south of the bridge approach in Grand Forks.
- The Riverside Historic District, a residential area located north of the Grand Forks bridge approach.
- The Red River Greenway, opened summer 2009, provides a recreational loop trail more than 10 miles long inside the engineered floodway on both sides of the Red River (related features include a Minnesota state park campground).

The planning study has addressed the noted issues of project context through development of project goals for bridge rehabilitation and bridge replacement. Based on these factors, and the ability to cost-effectively address needs, bridge rehabilitation is the priority action. The bridge rehabilitation concepts identified in the study will address needs while avoiding or minimizing adverse impacts.



What are the bridge rehabilitation elements? What are the potential impacts?

The main elements of a bridge rehabilitation project are noted within the pictures. The top priority is to address movement of Pier 6, which supports the west end of the steel truss and has gradually shifted due to Red River soil movements. While this issue was anticipated in the original bridge design, the time has come to resolve the shifted position of Pier 6. Other rehabilitation elements include painting, other adjustments, and the possible replacement of the bridge deck.

Bridge Rehabilitation Elements



Underpin or replace Pier 6



Protect truss from corrosion (blast clean and paint)



Reinforce abutment bearings



Adjust approach span bents



Monitor or replace pin and hanger assemblies



Maintain or replace deck and railings



Add bike/ped trail

The main community impact of a bridge rehabilitation project would be traffic interruptions during the work process, particularly with a deck replacement. The design team has estimated a timeframe of at least 1 year to complete a bridge rehabilitation project, including work on piers, steel members, and a deck replacement. The 1-year timeframe assumes staging of the work to accommodate traffic (one lane in each direction with a few short periods of closure, avoiding concurrent closure of other Red River bridges).

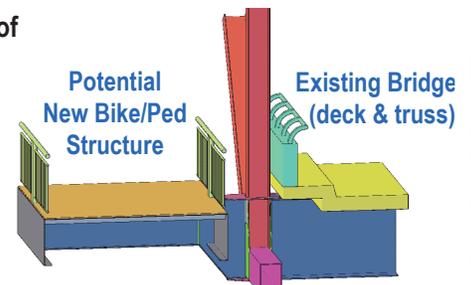
What designs are being considered for bicycles and pedestrians?

The Kennedy Bridge does not accommodate pedestrians and bicycles and, in fact, includes a posted prohibition, as shown. But the importance of the bridge, the popularity of the Red River Greenway, and observed demand has raised the need to seriously consider improvements as part of a bridge rehabilitation project.



New Bike/Pedestrian Structure—Because the Kennedy Bridge deck width is constrained by the steel truss, the first idea was to attach a new structure to the outside of the truss (and build it next to the approach spans). While this concept is technically feasible, it would also add substantially to rehabilitation project costs and the structure's complexity. Some potentially significant considerations would be whether bridge inspections can be completed effectively with the added structure and whether it would adversely affect the historic character of the Kennedy Bridge.

Potential Addition of Bicycle/Pedestrian Structure (Cross Section)



Adjusted Roadway Cross Section on the Existing Bridge—Given the previously mentioned challenges to adding a new bicycle/pedestrian structure, the design team also developed concepts to adjust the roadway cross section on the existing bridge, constrained by the width inside the steel truss spans (67 feet–4 inches). With a posted speed limit of 35 mph, the traffic engineering has the potential to be adjusted to accommodate bicycles and pedestrians without widening.

The four roadway cross sections shown here provide some of the adjustment concepts considered to date (other concepts have also been developed). In developing the adjustments, the designers considered the desirability of a center median and the preference for 12-foot-wide lanes (full width, as they are today). However, with limited width available, some compromises need to be considered.

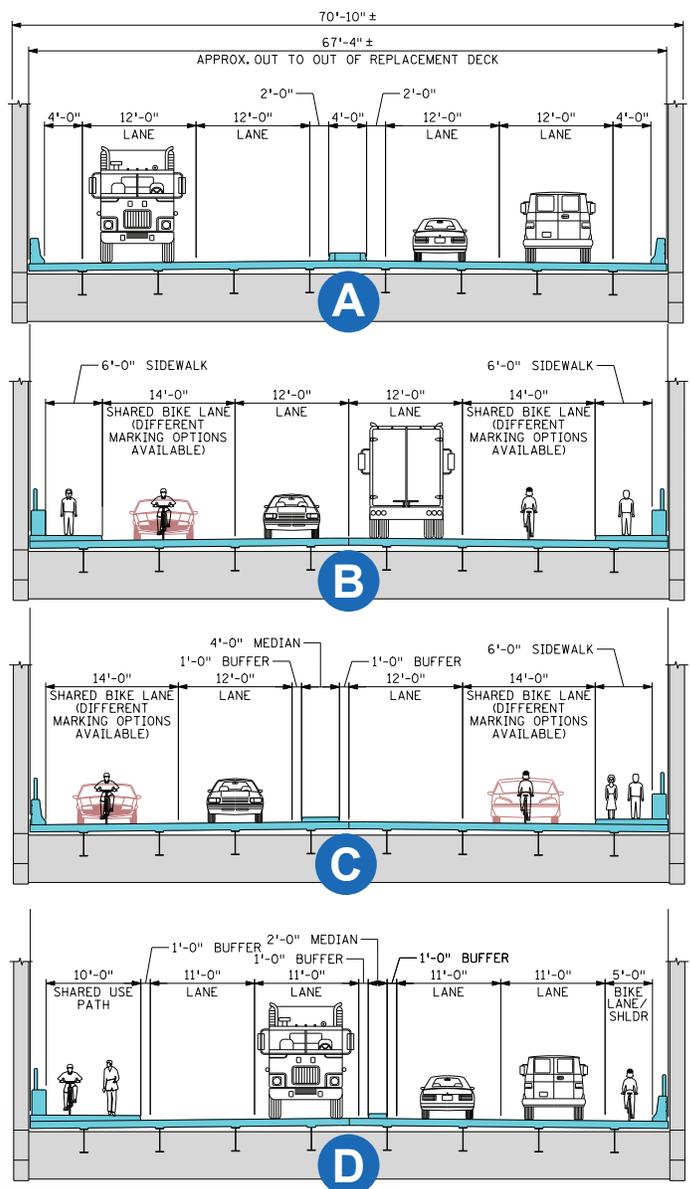
Example cross section concepts are as follows:

- A** Concept A provides no accommodation for bikes/pedestrians; therefore, this is the baseline with a 4-foot-wide median, as on the existing bridge.
- B** Concept B has no median, but provides two, 6-foot-wide sidewalks and 14-foot-wide lanes on the outsides for bikes and motorized vehicles.
- C** Concept C is similar, but the median is added, leaving only one sidewalk.
- D** Concept D proposes 11-foot-wide lanes, combined with a 10-foot-wide raised trail on one side, for both bikes and pedestrians. It also includes a narrow median and a 5-foot-wide shoulder, marked as a bicycle route.

Why not replace the Kennedy Bridge?

The study also looked at bridge replacement concepts, which would provide more opportunity for improvements and a longer life cycle than rehabilitation—but only with substantially higher initial costs and more impacts. Because the Kennedy Bridge is eligible for listing on the National Register of Historic Places, the long-term feasibility and cost effectiveness of bridge rehabilitation must be considered first. Based on the study’s findings, considering costs, funding, and environmental review steps, a determination will soon be made if preservation of the Kennedy Bridge is the preferred alternative.

Roadway Cross Section Options



Where can I find more information?

MnDOT is providing technical leadership for this study, in cooperation and consultation with NDDOT and other agencies (NDDOT is also leading a study of the Sorlie Bridge). For information about the Kennedy Bridge, please visit the project website: <http://www.mndot.gov/d2/projects/kennedybridge>. If you have specific questions, please contact MnDOT’s Project Manager:

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