



City of San Diego Cabrillo Bridge (Laurel Street Overcrossing) Rehabilitation and Retrofit Project

DRAFT FACT SHEET

GOALS

Improve structural integrity of the bridge
Improve safety and accessibility
Preserve a historically significant bridge

THE PROJECT

This is a Department of Transportation (in conjunction with the City of San Diego) rehabilitation and retrofit project of the Cabrillo Bridge (Laurel ST OC Bridge) over State Route 163.

The bridge is located in Balboa Park and was built for the 1915 Panama-California Exposition. It is considered to be one of the earliest examples of a Spanish Colonial Style closed (hollow) spandrel arch bridge in the United States. The bridge is an integral part of Balboa Park, which is listed as a National Historic Landmark. The bridge itself is also listed on the National Register of Historic Places, is on the California Register of Historic Resources and has been a landmark listed by the City of San Diego.

Today the 769 foot long bridge serves as the primary east -west route into the park and it is over a District 11 state highway, which happens to be one of only two routes leading out of the City's downtown section. Collapse or severe earthquake damage can seriously hamper emergency response efforts as well as tourism, business and freight impacted commerce. This project is not just about preserving a beautiful and historic structure but it is also about safety and commerce. Needless to say, the project is a high priority.

The Cabrillo Bridge has been determined to have seismic vulnerabilities and areas of unsound concrete, which have spalled and delaminated due to corrosion of reinforcing steel from moisture damage. Seismic analyses were conducted on the as-built structure for seismic loading. The bridge columns represent the most critical seismic vulnerability of the structure. The displacement capacities were marginally deficient for Bents 4-6 but all the bents were significantly deficient in terms of shear. Additionally, the bridge lacks safe interior access for conducting routine inspections within the CITY maintained portions.

The purpose of this project is to improve the structural integrity of the Cabrillo Bridge, to help ensure the safety of the traveling public passing under the structure and across the bridge, and to provide safe access for maintenance staff inspecting the bridge. The improvements are proposed to take place while providing a context sensitive solution.

The Cabrillo Bridge is eligible for Federal funding since it was rated either Structurally Deficient (SD) or Functionally Obsolete (FO) with a Sufficiency Rating (SR) of less than or equal to 80. The bridge has also been rated Structurally Deficient since the superstructure was rated as 4, being in poor condition, due to deterioration or spalling. Any bridge classified as structurally deficient was excluded from the functionally obsolete category. Bridge rehabilitation through removal and repair of unsound concrete will improve the condition of the superstructure to remove the SD rating.

The project intends to rehabilitate the concrete of the bridge and retrofit some structural elements in order to better withstand a seismic event. This is alternative #1 as stated below:

1	Implement Alternative (rehab and retrofit) by combining Stages 1 (Inspection and analysis) & 2 (Field construction) into one contract with design measures taken to minimize risk.	Minimal – No adverse visual or historical impact	Categorical Exemption / Categorical Exclusion.
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Other alternatives (#'s 2 through 4) that were considered but rejected are as follows:

2	Replace with bridge that reflects the external visual appearance, but has a different internal design, and does not improve existing geometric deficiencies. Provide safe access for interior bridge inspection.	Significant – Adverse historical and visual impacts	EIS/EIR Needed
3	Replace with a typical cast in place/pre-stressed structure that does not replicate external appearance, but meets current design standards.	Significant – Adverse historical and visual impacts	EIS/EIR Needed
4	NO BUILD	No impacts	No Document

This project is considered to be STATE-AUTHORIZED under current FHWA/Caltrans Stewardship Agreements; however, FHWA has requested to stay involved in the project development process due to the historic nature and scope of this project.

TRAFFIC

State Route 163 serves intraregional travel by linking the Central Business District (CBD) with the adjacent and surrounding communities. State Route 163 is one of three freeways serving downtown San Diego, and is therefore a critical emergency route for the CBD. SR-163 also provides access for tourism to Balboa Park with two lanes under each span between bents 4 and 6. The Cabrillo Bridge itself also provides access to Balboa Park for vehicles, bicycles and pedestrians, and links travel to Sixth Avenue, a parallel arterial of SR-163. The ADT for this portion of the State Route 163 corridor is 108,000. State Route 163 is not on the National Highway System (NHS).

The City's plan to handle future ADT traffic on the Cabrillo Bridge, based upon the City's current Balboa Park - Central Mesa Precise Plan, adopted on October 20, 1992, recommends a more pedestrian oriented environment and decrease in vehicular traffic within Balboa Park by providing more public transportation, parking shuttles, and possibly one way eastbound traffic on El Prado (Laurel Street) during hours of operation of the Park's tram system.

FUNDING

The estimated capital cost for programming is \$32,000,000 (2008 dollars) with preliminary support cost estimate of \$6,500,000 (2008 dollars) for Alternative 1. This project has received approval to proceed with Flexible Match funding with Federal Funds from the Local Highway Bridge Program applied by the CITY through the Division of Local Assistance, with matching funds from the CITY and STATE for project support under a Cooperative Agreement. The State proposes to take a lead support role in the implementation of this seismic retrofit/rehabilitation project to ensure its timely completion.

OTHER (A)

Three alternatives were proposed that had merit but were difficult to evaluate just on costs and a qualitative review of the impacts. Quantitative risk analysis was proposed.

After undergoing quantitative analysis, the alternatives were further categorized in terms of the amount of probable risk inherent in the budget estimate due to factors beyond the control of the team. The results showed that the less desirable alternatives would be the ones that contained millions of dollars more inherent risk when compared side by side. Quantitative analysis was therefore a tool that could save tens of millions of dollars in the long run if the project goal is met. The Cost Risk Analysis Report for the project shows that in terms of quantified risks the project would save about \$9 Million by choosing the "rehabilitation and retrofit" instead of the "replace" alternatives.

OTHER (B)

Other current projects on the SR 163 corridor:

1. Transportation Enhancement Project (TE). This project is from the Richmond Street Bridge to just north of the Six Avenue Undercrossing. This project is Cleaning and removing homeless encampments (clearing and grubbing), Planting rehabilitation, installing a new irrigation system, providing electrical to Richmond Street for lighting and power to irrigation controllers, and removing and replacing existing fencing.
2. Pruning 54 trees within the grassy median north of I-5 and SR-163 median (Minor B)

Other future projects (unfunded) on the SR 163 corridor:

Transportation Enhancement Project (TE) - A TE was recently approved for gore and slope paving from "A" street north to Richmond Street.

STATUS

The environmental phase of the project began January 2009 and is set for completion in October 2010. Completion of the construction phase is set for 6/11/2015 around the same time as the bridge's 100-year anniversary.