

BUSINESS OF THE COUNCIL OF THE CITY OF HALF MOON BAY

AGENDA REPORT

For meeting of: **July 16, 2019**

TO: Honorable Mayor and City Council

VIA: Bob Nisbet, City Manager

FROM: John Doughty, Public Works Director
Maz Bozorginia, City Engineer

TITLE: **MAIN STREET BRIDGE REHABILITATION UPDATE (CIP PROJECT NO. 759)**

RECOMMENDATION:

Receive report and by motion, accept the recommendation of the Main Street Bridge Advisory Committee on the barrier design for the Main Street Bridge Rehabilitation Project.

FISCAL IMPACT:

The FY 2019-20 Capital Improvement Program (CIP) budget has sufficient funds for the design of the project. Caltrans has provided authorization (E-76) for Preliminary Engineering and Environmental phases allowing reimbursement of project costs of up to \$1,291,000 at 88.53 percent with a local match of 11.43 percent.

STRATEGIC ELEMENT:

This recommendation supports the following Elements of the Strategic Plan: Infrastructure and Environment, Healthy Communities and Public Safety, and Inclusive Governance.

BACKGROUND:

The Main Street Bridge, constructed in the year 1900, is the primary access point to downtown Half Moon Bay from State Route 92. The Main Street Bridge is an integral element of the City's downtown and environmental setting. The bridge is a nationally registered historic structure which also has an important relationship with the Pilarcitos Creek and the adjoining riparian habitat resources.

The bridge structure is a concrete arch that is supported on concrete abutments and timber piles. Spandrel walls project out from the arch soffit and support the earthen fill used to create the roadbed. Concrete wingwalls extend back from the abutments to support the roadway approaches. These principal components of the structural elements have remained relatively unchanged since original construction.

The existing historic bridge is narrow and has no shoulders or space for bicycle lanes. There are two wooden deck walkways attached to the bridge on each side. The walkways are not compliant with the Americans with Disabilities Act (ADA) and are difficult to traverse by both pedestrian and bicyclists. The structure is functionally obsolete (a Caltrans and FHWA categorization) due to a lack of adequate shoulders and accessible walkway. The structure was built prior to the development of modern earthquake standards. As such, the primary challenge of this rehabilitation project is the seismic retrofit of the structure while maintaining its historical integrity.

In 2014, the Main Street Bridge (also known as the Pilarcitos Creek Bridge) was listed on the National Register of Historic Places. Also, in 2014, Half Moon Bay voters passed Measure F, the “Main Street Bridge Preservation Act,” which prohibits demolition of or substantial changes to the bridge without voter approval.

In 2016, the City applied for federal grant funding as part of the Highway Bridge Program (HBP) and was approved for the rehabilitation of the historic Main Street Bridge per the Federal and State Transportation Improvements Program (FTIP/STIP). The total project cost is \$8.527M with a federal share of \$7.549M (88.53 percent) and local match of \$978K (11.47 percent). The total project cost includes hard costs (construction) and soft costs (engineering, environmental, and project management).

On July 27, 2017, the Main Street Bridge Advisory Committee (MSBAC) convened to receive a presentation on project background and status. The Committee concurred with the project plan and recommended the City move forward with the project. The MSBAC convened two additional meetings on February 22, 2018 and June 27, 2018 to discuss the project status and to recommend the project proceed forward. The Committee met on June 28, 2019 to consider barrier design options.

In 2017, staff made a request to Caltrans Local Assistance, who manages the federally funded transportation projects, to advance the Preliminary Engineering (PE) funding for the Main Street Bridge to Federal FY 2017-2018. Subsequently, in 2018 Caltrans issued the authorization (Form E-76) to proceed with the Preliminary Engineering Phase for the project. The PE phase includes design, environmental clearance, permits and project management. On August 21, 2018, the City Council awarded the professional services agreement for the design and environmental clearance of the project.

DISCUSSION:

The objective of the Main Street Bridge Rehabilitation Project is to preserve the historic bridge for future residents and visitors of/to Half Moon Bay. Rehabilitation includes repair of concrete wingwalls, repair of spandrel walls, reinforcement of the foundation and ensuring reconstruction of ADA compliant walkways all while preserving historic integrity. The width of the bridge, travel lanes, etc. will be consistent with the existing structure and roadway.

The first level of design is the 35-percent design which is also referred to as conceptual design. 35-percent design provides schematic design in sufficient detail to clearly establish a “Project Description” and initiate environmental review. As this project involves federal funding, environmental review will include NEPA (National Environmental Policy Act) as well as CEQA (California Environmental Quality Act) compliance. The City and its consultants have been actively working on 35-percent design. Since award of the professional services agreement for the design and environmental clearance of the project, the following activities have been completed:

- Topographic survey and channel survey
- Geotechnical Engineering - investigation and preliminary reporting
- Preliminary Design: Seismic analysis and design, preliminary alignment design, preliminary design of park entrance, preliminary design of crosswalk completed, design of replacement bridge barriers ongoing.
- Hydraulics – preliminary hydrology and hydraulic analysis, preliminary scour mitigation (RSP) design.

In addition to those items completed, activities have commenced and are currently in progress as follows:

- Environmental Compliance – pending 35% design
- Utility Coordination – AT&T Vault Relocation
- Design of Bridge Barriers (see below for additional details)

The City’s design team includes an historic architecture firm whose duties include assisting the City through the historic rehabilitation process with Caltrans, NEPA and CEQA. As noted earlier, design of the rehabilitation is being completed with historic preservation in mind. There are a variety of historic components to the bridge, some of which are more significant than others. The concrete arch and spandrel walls are historically significant; no major changes are proposed in the rehabilitation. The project includes limited surface repairs of cracks and spalls and surface coatings are proposed and will be specified by the project historic architect to ensure the repair work is appropriate. The existing timber sidewalks and railings are of less or no historic significance and are proposed to be replaced with a new structure type. This change will facilitate ADA compliance and general access improvements while also reducing structural loading on the historic bridge.

The Main Street Bridge includes a concrete barrier that currently separates pedestrians from the automobile travel lanes. The barriers are an element of the historic aesthetic of the bridge. Per Measure F, the City must preserve the historic aesthetic even if the barriers are required to be removed and replaced with modern safety barriers. Originally the barriers (east and west) served to protect carriages, horses, automobiles and pedestrians from tumbling over the bridge into the Pilarcitos Creek. In the early 1940’s, with the addition of the pedestrian walkway on the east side, the wall served to separate vehicles and pedestrians. The westerly wall

subsequently served the same purpose with the addition of a walkway in the 1970's. While the existing concrete bridge barriers contribute significantly to the appearance of the bridge, major modifications are required to meet current mandated safety requirements.

Caltrans recently adopted new barrier requirements. These standards apply to all State and federally funded bridge construction and rehabilitation projects advertised for construction on or after September 1, 2019. Under the provisions, all barriers must now comply with the Manual for Assessing Safety Hardware (MASH) criteria and must be crash-tested. The City has three options in regard to the barriers:

- 1) Crash-test the existing barriers at one of the 11 approved nationwide test sites. This requirement would result in the City having to test the existing barriers at a cost of up to \$1M and up to 3 years of certification process. If the barriers withstand crash testing for 45MPH (impact by a truck), then we can use the existing barrier design and strengthen them internally. This would result in no adverse effect.
- 2) Use an existing approved barrier form the MASH tested list of barriers. This approach would result in a "Significant Adverse Effect" under NEPA since the design will be somewhat different, and the end tall concrete columns will be eliminated. It would necessitate an EIR as well as a public vote per Measure F requirements.
- 3) Use a modified barrier design which meets MASH standards to emulate the original 1900 bridge design along the vehicle travel way. City staff has evaluated this option with Caltrans barrier specialist who agree with this design and that it meets the requirements. However, in order to obtain a "No- Adverse Effect" concurrence from, Caltrans Environmental Division staff, further data analysis and discussions are required.

On June 27, 2019, staff presented alternative barrier designs to the Main Street Bridge Advisory Committee (MSBAC) for their consideration. The MSBAC discussed the barrier alternatives and unanimously voted to recommend the Option No. 3 (Attachment 1) to the City Council for consideration. This preferred barrier alternative resembles the earlier condition of the bridge as it was originally constructed in the early 1900s.

The proposed concrete barrier design would provide a crash tested Caltrans barrier between the travel way and the sidewalk on the 60-foot length of the bridge with the required 13-foot-long crash cushions on either end. This concrete barrier can be painted white to resemble the existing historic barrier. Since there are no vertical projections allowed in line with the barriers, the four pilasters at the ends of the barriers would need to be either eliminated in their entirety or relocated elsewhere on the bridge as deemed appropriate by Caltrans.

In addition, an approved steel barrier with horizontal steel railing is proposed in the place of the existing wood railing barrier for pedestrians to extend the entire length of the bridge and approaches. This barrier can also be painted white to resemble the existing horizontal white

barrier. This barrier is required both for pedestrian safety as well as for vehicles on the approaches to the bridge.

The City is coordinating with Caltrans Office of the Environmental Compliance and Office of Local Assistance in Oakland as well as Caltrans Office of Structures in Sacramento to assure compliance with the barrier requirement as necessary for the federal funding as well as to obtain a finding of no adverse effect for the environmental analysis.

ATTACHMENTS:

1. Proposed Barrier Rendering
2. Historic & Existing Bridge Photos