City of Santa Barbara
Public Works Department

Memorandum

DATE: May 19, 2021

TO: Historic Landmarks Commission

FROM: Jessica W. Grant, Supervising Transportation Planner and Eric Goodall, Acting Supervising Engineer

SUBJECT: Mission Canyon Bridge Studies – Update on Study Effort and Concept Review of Bridge/Roadway Options

REQUEST

Public Works Department is coming before the HLC to request your feedback on three conceptual bridge treatment options and three conceptual roadway approach options developed as part of the initial Mission Canyon Bridge Studies effort. We anticipate that an Environmental Impact Report (EIR) will be required for a full discussion of any proposed project alternatives, due to the bridge's City Landmark status. At this time we are requesting your preliminary review comments before we proceed to the formal project scoping phase.

BACKGROUND

Mission Canyon Bridge spans Mission Creek and is located to the north of Mission Santa Barbara and Mission Historical Park, south of Rocky Nook Park, and east of the Santa Barbara Museum of Natural History. The bridge was constructed by Rowland Hazard in 1891. A wooden sidewalk, supported off the bridge, was added in 1929 and the bridge was widened on the downstream side in 1930. Photos of the existing conditions are included in Attachment 1. Mission Historical Park, including the Mission Canyon Bridge, was designated a City Landmark in 1998. The bridge, in its present configuration, was individually listed on the National Register of Historic Places in February 2020.

On June 21, 2016, Council directed Staff to move forward with a Highway Bridge Program grant to complete the Mission Canyon Bridge Studies. Federal funds were programmed for the Preliminary Engineering phase in federal fiscal year 2018/2019, which has focused on studying the existing conditions and challenges associated with the bridge. On May 20, 2018, City Council approved the professional services contract with Wallace Group, Inc. to assist with these environmental and technical studies and preliminary engineering. On April 25, 2019, the project team kicked off the Mission Canyon Bridge Studies process at a community meeting that was held at Rocky Nook Park.

PREMILINARY STUDY OBJECTIVES

The Wallace Group completed a Constraints Report (Attachment 2). The Historical Resources Inventory and Context Report (Attachment 3) provides the historical context for all identified historical resources within a study area encompassing not only the bridge but also Mission Historical Park and portions of Mission Canyon.

The objectives of the Mission Canyon Bridge Studies include:

- Study Mission Canyon Road Bridge and the existing seismic, scour, and hydraulic capacity deficiencies of the bridge;
- Review bridge and roadway design options in the context of the community's dedication to historical, biological, and recreational resource protection;
- Assess the existing roadway geometrics and provide options to improve sight distance, reduce collisions, enhance safe pedestrian and bicycle access, and maintain emergency vehicle access on Mission Canyon Road;
- Study the historic background of Mission Canyon Bridge and associated historic features in the project area;
- Study sensitive biologic and riparian resources and habitat and ways to improve habitat areas; and
- Assess how potential bridge and roadway options affect the recreational resources associated with Rocky Nook Park.

Included below is a brief summary of the constraints, challenges and opportunities.

- Right of Way limitations
    - Current roadway varies in width from 22 feet wide north of the entrance to Rocky Nook Park to 30 feet wide at the entrance of Rocky Nook Park, across the bridge, and south of the bridge. The current roadway configuration is insufficient for pedestrian walkways, crosswalks, and bike lanes that connect to local parks and cultural organizations in the study area vicinity.
    - The existing City owned right of way in the study area varies from roughly 40 feet wide north of Rocky Nook Park to almost 60 feet wide south of Mountain Drive. There are both private and publicly owned parcels surrounding the project. There is an opportunity to align the roadway to accommodate pedestrians, cyclists and drivers but it will require both temporary construction easements and permanent right-of-way impacts.
- Utility conflicts
    - Overhead electric and telecommunications lines may need to be relocated. There is an opportunity to accommodate overhead utilities into widened bridge.
    - The depths of the existing underground utilities are not known at this time. The vertical roadway profile is not anticipated to be adjusted; therefore, the underground utilities are not likely to require relocation. Minor adjustments to medallions, storm drain inlets, and outlets are anticipated. There is an

opportunity to relocate the independent sewer line bridge into the Mission Canyon Bridge.

- Biological constraints
    - This section of Mission Creek has been identified as a barrier to the Southern California Steelhead, a federally endangered species. The barrier will be required to be removed and habitat area restored, if work in the creek is performed.
    - Any bridge or roadway realignment work would impact mature sycamore/oak trees and riparian vegetation habitat. Any temporary and permanent impacts would need to be mitigated.
- Hydrological constraints
    - The FEMA Flood Insurance Rate Map (FIRM) for the bridge area indicates the existing bridge and the surrounding area are subject to inundation by the 100-year flood event.
    - The bridge is a constriction point in the creek channel, and backwater effects result in overtopping at a low spot on Mission Canyon Road north of the existing bridge, and inundating the roadway and bridge.
    - There is an opportunity to meet the 100-year design storm event if the bridge is reconstructed to have a one single arch that has an opening of approximately 50 ft long by 16 ft tall or two arches approximately 25 ft long by 16 ft tall to meet the criteria.
- Roadway constraints
    - Existing curves going into bridge limit a driver's ability to see an object, pedestrian, or bicyclist in the roadway.
    - The team is investigating opportunities to reduce the speed limit through the corridor.
    - Due to right of way constraints and historic resource constraints, design exceptions are anticipated. The Engineering Greenbook recommends 12-foot lane widths. The opportunity to accommodate all roadway users would most likely result in 11-foot lanes for the majority of the length of the study area and 10-foot lanes for a short section to avoid the relocation of historic resources. 6 foot wide sidewalk could be accommodated but would need to be narrowed to 4 feet for a short section to avoid historic resources. 5 foot wide bike lanes could be accommodated. All of these items will require design exceptions from Caltrans.
- Bridge constraints
    - For the existing earth filled arch bridge the weight and pressure from the soil provides the compressive force on the arch, which keeps the arch from collapsing. A preliminary seismic analysis of the existing bridge has been completed and found the bridge to be insufficient to resist the design earthquake (magnitude 7.2). This included analyzing the sidewalls (retaining walls) of the existing bridge which were found to fail in both sliding and overturning. As the sidewalls move, the soil over and around the arch will shift and will no longer provide adequate compressive force on the arch, causing the structure to collapse.

- Given the bridge and roadway are on an emergency evacuation route and are prone to fail in the design earthquake, there is an opportunity to reconstruct the bridge to meet seismic standards and address potential safety issues.
- The existing bridge is susceptible to channel scour with an existing scour hole. There is an opportunity to repair the scour protection while still removing the Steelhead fish barrier in Mission Creek.

- Historical Resource constraints
  - Rowland Hazard is responsible for the design and construction of a portion of the existing Mission Canyon Bridge in 1891. The Historic Resources Inventory and Context Report (Attachment 3) provides details and photographs of similar bridges that Rowland Hazard designed and constructed in the 1880s in Peace Dale, Rhode Island.

    Because Mission Canyon Bridge is a City Landmark, it is subject to City Resolution 98-008 and the City's Municipal Code, Section 22.22.080:

    "A. Alterations to a City Landmark – Required Findings. No City Landmark shall be altered on the exterior, relocated, or demolished, except where the Historic Landmarks Commission has determined that one or more of the following findings are applicable to the proposed alteration, relocation, or demolition:

    1. The exterior alterations are being made primarily for the purposes of restoring the Landmark to its original appearance or in order to substantially aid in the preservation or enhancement of the Landmark.

    2. The relocation of the Landmark will substantially aid its long-term preservation or enhancement.

    3. The landmark has been damaged by an earthquake, fire, or other similar natural casualty such that its repair or restoration is not reasonably practical or feasible and specific measures have been imposed as pre-conditions on the demolition, which measures mitigate the loss of the Landmark to a less than significant level or which measures are deemed sufficient to warrant a finding of overriding considerations pursuant to the CEQA.

    B. Issuance of an Approval for the Relocation, Demolition, or Alteration of a City Landmark. In issuing an approval for the alteration of a City Landmark pursuant to this section, the Commission shall make one or more of the findings required by subsection A above in addition to imposing mitigation measures as conditions of approval consistent with such findings."

    Due to the preliminary analysis indicating that the existing arch bridge and stone walls are prone to collapse in the design seismic event and any storm greater than the 20-year storm event will cause the road to flood, we believe HLC will be able to make those findings pursuant to A.3. All bridge options will require some level of alteration, reconstruction and/or modifications of the existing arch and stone masonry walls. The existing stones will be

reused as part of the reconstruction of the bridge to whatever extent feasible. As a result, an EIR is the anticipated environmental document to present a detailed analysis of the bridge design alternatives.
    - Besides the Mission Canyon Bridge, the historic resources immediately adjacent to the study area are the Mission-era Lower Reservoir and Elevated Aqueduct, the Oliver Trough-Fountain, the North Stegosaurus Wall, and Rocky Nook Park.
- Financial Constraints
    - Currently the bridge is programmed as a bridge rehabilitation project as part of the Federal Highway Bridge Program (HBP). To replace the bridge, Caltrans will require justification. Due to funding shortfalls, the Caltrans HBP Advisory Council is modifying the guidelines, reducing bridges eligibility. This will have the biggest impact on how projects are prioritized as well as the amount of approach work that is eligible. The restrictions of these guidelines are not anticipated to loosen in the future. That said, it is anticipated that additional funding will be needed if a project moves forward.

BRIDGE AND ROADWAY OPTIONS

Given the preliminary study findings and existing constraints, the Wallace Group developed three bridge options as well as three roadway alignment options:

Bridge Options:

1. Retain existing masonry bridge arch and sandstone exterior
2. Retain existing masonry arch and construct adjacent second masonry arch using existing and supplementary sandstone
3. Replace existing arch with 50 foot single arch masonry bridge using existing and supplementary sandstone

Roadway Options:

A. Pathways on both sides with sandstone walls to match existing
B. Downstream pedestrian bridge and path, partial upstream path with sandstone bridge walls to match existing
C. Pathway upstream, roadway deficiencies with sandstone bridge walls to match existing

Any of the three bridge options can be constructed with any of the three roadway options.

Attachment 4 contains a summary of each bridge and roadway option as well as the pros and cons for each option.

COMMUNITY MEETING

On December 2, 2020, the three bridge options as well as three roadway alignment options were presented to the public during a public meeting, which were met with mixed opinions. However, many of the members of the public expressed a preference for Bridge

Option 3. While this option does change the curvature of the arch, it still maintains a single arch. The roadway option preferred was Option A.

Attachment 5 has a summary of community feedback from the community meeting held on December 2, 2020.

HLC CONCEPT HEARING

At the concept hearing, the City team will recap the study area constraints and review the conceptual bridge and roadway options for Mission Canyon Bridge as a City Landmark and as part of the larger Mission Historic Park. The team is looking for HLC comments to help create a project that not only meets the safety goals but honors the historic bridge and landscape. A follow up concept hearing may be required to allow adequate time for commission feedback.

Once the concept reviews are completed, the next step will be for the City team to go before the City's Planning Commission for a public EIR scoping hearing. The City will then be able to develop a formal project description, statements of purpose and need, and project alternatives. All of the technical studies will then be completed or updated for inclusion in the Draft EIR.

ATTACHMENTS

1. Photos of Existing Conditions
2. Mission Canyon Bridge Studies: Constraints Report
3. Historical Resource Inventory and Context Report
4. Mission Canyon Bridge and Roadway Options
5. Summary of Community Feedback

cc: Josh Haggmark, Acting Public Works Director
Brian D'Amour, City Engineer
Robert J. Dayton, Transportation Planning and Parking Manager
Derrick Bailey, Principal Traffic Engineer