



CITY OF CONCORD

REPORT TO THE MAYOR AND CITY COUNCIL

FROM: Edward L. Roberge, PE, City Engineer

DATE: December 28, 2012

SUBJECT: Status report on the Sewalls Falls Bridge Replacement Project (CIP22)

Recommendation

Accept the attached report by Clough, Harbour & Associates (CHA) summarizing the re-evaluation of preliminary design alternatives, and:

1. accept the City Engineer's recommendation that Alternative 8 (Online Bridge Replacement) is the best project alternative in terms of its overall safety benefits, limited impacts to natural resources, limited need for additional public right-of-way, and lowest construction and life-cycle maintenance costs, and authorize staff to advance Alternative 8 to final design; or
2. affirm the City Council's previously selected preferred alternative (Alternative H – Rehabilitation of the Existing Bridge with the addition of a Second One-Way, One-Lane Bridge on the Upstream Side) and authorize staff to advance Alternative H to final design.

Background

On October 11, 2011, the City Council passed Resolution No. 8507 appropriating funds for project administration, design, permitting, and right-of-way acquisition required for the Sewalls Falls Bridge Replacement Project (CIP #22). Shortly thereafter, the City entered into a municipal managed project agreement with the NH Department of Transportation (NHDOT) and began coordinating the completion of a detailed structural inspection and load rating analysis of the existing truss bridge, the first step required prior to advancing to the final design phase.

Based on the findings of the detailed structural inspection and load rating analysis, City Council authorized staff at its meeting on September 10, 2012 to review previous preliminary design alternatives with the appropriate reviewing authorities and agencies in order to evaluate those alternatives based upon results of the analysis and return to City Council with a final project recommendation.

Discussion

The Council will recall that the previously selected preferred alternative (Alternative H) includes rehabilitating the existing truss bridge as a one-lane bridge for eastbound travel and constructing a new one-lane bridge for westbound travel just upstream or north of the existing bridge. As previously reported, the detailed structural inspection was completed in early March 2012 concluding in a load rating analysis report that was submitted to City Council in September 2012. Where the analysis concludes that the rehabilitation and strengthening of the truss structure will require significant modification or replacement of existing steel elements and the remaining steel elements have limited fatigue life, staff expressed its concerns with the long term safety and structural stability of the truss bridge. The previous evaluation of preliminary design alternatives did not include the findings of this report. In that, serious concerns with condition, capacity, safety, limited structural life due to fatigue, and project capital and life-cycle costs were not completely considered.

At its September 2012 meeting, City Council authorized staff to review the preferred alternative as well as other preliminary design alternatives considered with the appropriate reviewing authorities and agencies involved in the process prior to proceeding to the final design phase. The Council may recall that some 10 to 12 alternatives were developed through the project planning phase where 3 alternatives were considered most compatible with the City's long term goals. Those alternatives include the previously selected preferred alternative (Alternative H), an off-line bridge replacement alternative consisting of constructing a new two-lane bridge upstream of the existing bridge and retaining the existing truss bridge for pedestrian or recreational use or abandoned as a static structure (Alternative 4), and an on-line bridge replacement alternative where a new two-lane bridge would be constructed on the same roadway alignment following the removal of the existing bridge (Alternative 8). All three design alternatives were evaluated based on common design elements and design approach using criteria such as horizontal and vertical alignment, construction complexity and phasing, utilities, right-of-way impacts, natural, cultural, and environmental resource impacts, and capital and life-cycle costs. Other evaluation considerations included remaining service life of the existing steel truss structure as a result of the fatigue analysis, and future growth and traffic use of the bridge.

The detailed report concluded that Alternative 8 (on-line replacement) offers the best opportunity to improve horizontal and vertical alignment, has the least impact to environmental resources, reduces the need for extensive right-of-way, and has the lowest construction and long-term life-cycle costs. However, this alternative would require the removal of the existing truss structure considered historic.

The project team including Engineering staff and CHA met with representatives of NH Department of Transportation (NH DOT), Federal Highway Administration (FHWA), cultural and natural resource review agencies, the Concord Heritage Commission, and others involved in the project development to present the detailed report. Meetings in September, October, and December concluded that the final project alternative must meet the City's immediate, and most importantly, the long-term needs and goals. This includes preservation of cultural and natural resources, controlling initial and long-term costs as well as factors that affect project costs, safety, and the future growth of the Sewalls Falls

Road/Whitney Road project area and the potential for utility extension in northeast Concord and an I-93 interchange.

In order to meet the City's long-term needs and goals, Engineering staff remains concerned with any alternative that maintains the existing truss bridge in a functional capacity to carry legal highway loads. Given that the non-redundant truss structure has a limited remaining fatigue life and extensive modifications are required to meet current service codes, the factors that most control the decision to determine the best project alternative is safety and structural stability. In this case, Alternative 8 is the best project alternative that meets those criteria while addressing the City's immediate and long-term needs and goals.

As this recommendation differs from the previous design alternative preferred by City Council, a public meeting has been scheduled on Wednesday, January 23, 2013 at 6:00 PM at the Beaver Meadow Golf Course Club House to outline the findings of the structural inspection and load rating analysis report to the public and accept comments on the bridge alternatives. Additionally, staff will present the same findings to the Concord Heritage Commission at its meeting on January 3, 2013. The comments generated by those meetings will be reported by staff at the February 2013 City Council presentation.

Therefore, it is recommended that City Council accept the attached report by Clough, Harbour & Associates (CHA) summarizing the re-evaluation of preliminary design alternatives, and accept the City Engineer's recommendation that Alternative 8 (Online Bridge Replacement) is the best project alternative in terms of its limited impacts to natural resources, limited need for additional public right-of-way, lowest capital and life-cycle maintenance costs, as well as its overall safety improvements, and authorize staff to advance Alternative 8 to final design.

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attachments

cc: Tom Aspell, City Manager
Carlos Baía, Deputy City Manager - Development
Brian LeBrun, Deputy City Manager – Finance
Martha Drukker, Associate Engineer
Jeff Warner, Project Manager
Nancy Mayville, NHDOT
Tom Jameson, NHDOT