MEMORANDUM

TO: ARCHITECTURAL REVIEW COMMITTEE

FROM: TERESA MCCLISH, DIRECTOR OF COMMUNITY DEVELOPMENT

SUBJECT: STATUS OF THE BRIDGE STREET BRIDGE PROJECT

DATE: FEBRUARY 18, 2014

RECOMMENDATION:
It is recommended that the Architectural Review Committee (ARC) provide input to Committee Member Fellows for his participation on the Bridge Street Bridge Stakeholder Group Committee regarding the selection of a preferred alternative for the rehabilitation or replacement of the Bridge Street Bridge (the “Bridge”). No formal action is requested from the ARC at this time.

IMPACT ON FINANCIAL AND PERSONNEL RESOURCES:
Costs are included in the Capital Improvement Program budget and are 100% grant funded through the Federal Highway Bridge Program. Staff time will continue to be required for project management and to solicit and process stakeholder input.

BACKGROUND:
Due to various deficiencies, the Bridge is restricted to a 3-ton maximum load limit. Rehabilitation or replacement may both be feasible options to bring the Bridge up to standard loading conditions.

In 2005, a Preliminary Engineering Study (PES) was prepared that presented a preliminary set of alternatives and associated costs for rehabilitating or replacing the Bridge. However, further project development was halted due to the required local match funds under the regular Local Highway Bridge Program (HBP).

In July 2010, the City submitted requests and received 100% Federal funding through the use of toll credits for bridges off the federal-aid system. Preliminary Engineering work includes environmental studies, NEPA/CEQA approval, permitting, final design, and other related work, including the cost of advertising leading to physical construction of a project. Construction work includes the actual cost to construct the project itself, construction engineering, and administrative settlement of cost for contract claims.

Authorization to proceed with Preliminary Engineering was received in April 2011, and City and Caltrans staff met on July 12, 2011 to review the alternatives contained in the
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STATUS UPDATE FOR THE BRIDGE STREET BRIDGE PROJECT
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2005 PES. In May 2012, the Council awarded Quincy Engineering a contract to refine feasible alternatives, provide visual displays and conduct public review, perform necessary engineering and environmental studies, and prepare plans, specifications and estimates for the preferred alternative. Most of the technical studies are complete and four feasible alternatives have been developed, including a “no-build” alternative.

ANALYSIS OF ISSUES:
Feasible alternatives include (in no order of priority):
1. Conventional bridge replacement;
2. Salvage and relocate truss and bridge deck components on new bridge;
3. Bridge replacement with new similar truss;
4. Rehabilitation of existing bridge; and
5. Do nothing.

It is important to note that the no-build option would mean that the Bridge will remain both functionally and structurally obsolete, would not be eligible for maintenance funding and consequently, and would eventually need to be closed. Replacement options will mean some impact to the historic bridge and visual changes. The retrofit option will also result in visual changes due to the need to strengthen the existing/ lower supporting truss. Because the Bridge is a prominent historical feature in the Village, careful consideration of perspectives and renderings is necessary to inform the environmental review process and assist decision makers and the public.

The first community meeting was held November 6, 2013. A second community meeting was held on January 22, 2014. All stakeholders, property owners, and tenants were mailed a meeting notice. In addition, for the second meeting, two of the Stakeholders hand walked notices to each address throughout the Village area (e.g., Bridge, Branch, Nelson, Mason, Short). A notice was posted in front of City Hall as well as on the City's website.

The main focus of the most recent community meeting was to discuss the various alternatives in further detail, provide feedback on public comment that has been received from the first Community Meeting in November 2013 and Stakeholders Group meeting earlier in January 2014, and to outline the future activities in moving the project forward.

Advantages and disadvantages of each alternative were discussed, as well as relative costs and construction schedules. The alternatives presented are alternatives that appear to be eligible for funding (up to 100%) that the City has secured under the Highway Bridge Program (HBP).

Variations of Alternative 4 – Retrofit Existing Bridge were also discussed. Particular items of interest included possibly making it a one-way bridge, and if features selected are not be eligible for funding under the HBP program ways to fund the project from other sources.
The overall project schedule and immediate next steps were also discussed. Each Stakeholder Group is scheduled to meet in February 2014, in order to discuss the alternatives, and vote on a preferred alternative. City staff will gather community comment, Stakeholder Group votes, and present a preferred alternative to the City Council in March 2014. The City Council will then select the preferred alternative.

ATTACHMENT:
Power point slides from January Community Meeting
PURPOSE OF TODAY'S MEETING

• Summary of Work to Date
• Condition of Existing Bridge
• Highway Bridge Program (HBP)
• Discussion of Alternatives – Advantages and Disadvantages
• Relative Construction Costs and Construction Durations
• Traffic Handling & Stage Construction
• Project Schedule
• Future Activities
SUMMARY OF WORK TO DATE

- 1996-1999 – Identification of deficiencies and funding secured for preliminary analysis of alternatives
- 2005 – Preliminary analysis of alternatives completed and City begins search for funding
- 2010 – City secures HBP grant funding for engineering and construction
- 2012 – City hires Quincy Engineering to perform the engineering
- 2012-2013 – Improvement alternatives are developed
- Nov 2013 – First Community meeting held to discuss improvement alternatives
- Jan 2014 – Stakeholder Group Meeting held
- Jan 2014 – Second Community meeting held

EXISTING BRIDGE CONDITION

- Bridge Built in 1908
  - Eligible for National Register of Historic Places
- 1914 Flood Damage
  - Built Additional Span
- Supplemental Truss
  - 1989 Designed
  - 1990 Constructed
- Sufficiency Rating = 12.8
- ADT = 3,300
EXISTING BRIDGE CONDITION

- Bridge is Functionally Obsolete (FO)
- Inadequate Bridge Width
- Unprotected Truss
  - Blunt Object Safety Issue
  - Potential Bridge Damage

EXISTING BRIDGE CONDITION

- Bridge is Structurally Deficient (SD)
  - Insufficient vertical load carrying capacity
  - Seismic deficiencies for lateral loads
  - Poor concrete quality
  - Unknown Foundations
  - Condition of Truss
  - Paint Condition
  - Timber sidewalk
HIGHWAY BRIDGE PROGRAM (HBP)

- Primary intent of HBP is to remove bridges from Eligible Bridge List
  - Rehabilitation
  - Replacement
- To qualify for the HBP Program
  - Bridge Must Be On Eligible Bridge List (EBL)
  - Must be Structurally Deficient (SD) or Functionally Obsolete (FO)
  - Sufficiency Rating (SR) must be
    
    \[
    \begin{align*}
    50 < SR < 80 & \quad \text{Rehabilitation} \\
    SR < 50 & \quad \text{Replacement}
    \end{align*}
    \]
- In order to utilize HBP funding, Scope of Work must:
  - Result in a bridge that will not be FO
  - Result in a bridge that will not be SD
  - Should result in a bridge that will have an SR > 80

DESIGN ALTERNATIVES

- Option 1 – Conventional Replacement
- Option 2 – Salvage and Relocate Truss on New Concrete Structure
- Option 3 – Replace In Kind
- Option 4 – Retrofit Existing
- Option 5 – Do Nothing
Option 1 – Conventional Replacement

- Pros
  - Lowest Cost
  - Lowest Construction Duration
  - 100% Federally Funded
  - Full Loading Capacity
  - Satisfies modern width standards
  - Lowest long-term maintenance

- Cons
  - Loss of Historical Significance
Option 2 – Salvage and Relocate Truss

- Pros
  - Full Loading Capacity
  - Satisfies modern width standards
  - Lower long-term maintenance
  - Maintains Some Historical Aesthetics
- Cons
  - Higher Cost
  - Longer Construction Duration
  - May not be fully funded
Option 3 – Replace in Kind

- Pros
  - Full Loading Capacity
  - Satisfies modern width standards
  - Maintains Some Historical Aesthetics
  - Lower Construction Duration
- Cons
  - Higher Cost
  - May not be fully funded
  - Higher long-term maintenance
ADVANTAGES AND DISADVANTAGES

Option 4 – Retrofit Existing

- Pros
  - Maintains Historical Significance
- Cons
  - Reduced Loading Capacity
  - Non standard width
  - Higher Cost
  - May not be fully funded
  - Higher long-term maintenance
  - Longer Construction Duration

DESIGN ALTERNATIVES

- Option 5 - Do Nothing Alternative
  - Current Sufficiency Rating 12.8 out of 100
  - 3 Ton Maximum Load Limit
  - Closure is Eminent
  - Failure to act now could result in funding out of other City programs
ADVANTAGES AND DISADVANTAGES

Option 5 – Do Nothing

- Pros
  - No action required
- Cons
  - Eminent Closure

RELATIVE CONSTRUCTION COST

Option 1A - Cast-In-Place Replacement
Option 1B - Pre-Cast Replacement
Option 2 - Relocate Truss on New Bridge
Option 3 - Replace In Kind
Option 4 - Retrofit Existing

Bridge Cost Only

0% 50% 100% 150% 200% 250%
CONSTRUCTION DURATION

Option 1A - Cast-In-Place Replacement

Option 1B - Pre-Cast Replacement

Option 2 - Relocate Truss on New Bridge

Option 3 - Replace In Kind

Option 4 - Retrofit Existing

0 1 2 3 4 5 6 7 8
Months

DESIGN ALTERNATIVES

- Existing Bridge Width 24 feet

Table 6-6. Minimum Roadway Widths and Design Loadings for New and Reconstructed Bridges

<table>
<thead>
<tr>
<th>Design Volume (veh/day)</th>
<th>Minimum Clear Roadway Width for Bridges*</th>
<th>Design Loading Structural Capacity</th>
<th>Design Volume (veh/day)</th>
<th>Minimum Clear Roadway Width for Bridges*</th>
<th>Design Loading Structural Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 and under</td>
<td>Traveled way + 0.6 m (each side)</td>
<td>HL 95</td>
<td>400 and under</td>
<td>Traveled way + 2 ft (each side)</td>
<td>HL 95</td>
</tr>
<tr>
<td>40 to 1390</td>
<td>Traveled way + 1 m (each side)</td>
<td>HL 95</td>
<td>40 to 1390</td>
<td>Traveled way + 3 ft (each side)</td>
<td>HL 95</td>
</tr>
<tr>
<td>1500 to 2000</td>
<td>Traveled way + 1.7 m (each side)*</td>
<td>HL 95</td>
<td>1500 to 2000</td>
<td>Traveled way + 4 ft (each side)*</td>
<td>HL 95</td>
</tr>
<tr>
<td>over 2000</td>
<td>Approach roadway (width)*</td>
<td>HL 95</td>
<td>over 2000</td>
<td>Approach roadway (width)*</td>
<td>HL 95</td>
</tr>
</tbody>
</table>

* Where the approach roadway width (travelled way plus shoulder) is surfaced, that surface width should be carried across the structure.

* For bridges in excess of 30 m (100 ft) in length, the minimum width of travelled way plus 1 m (3 ft) on each side is acceptable.

- AASHTO Design Criteria
  - Standard Width 30 feet
- FHWA Inventory Coding Guide
  - Absolute Minimum Width 28 Feet
  - Requires Design Exception
CONSTRUCTION ACTIVITIES- TRAFFIC

PUBLIC COMMENTS JANUARY 2014

- Perhaps more decorative or time period-type railing and features could be used for Option 1
- Could the existing bridge be relocated under Options 1 and 3, and would grant funds cover these costs?
- Can Option 4 be modified to reduce or replace the super-bent?
- If the bridge were to closed or modified to one-way traffic, what would be the traffic patterns/impacts?
- If the bridge was to become the City's facility, what are the anticipated annual maintenance costs?
- Elimination of the steel structure is not desirable alternative
- Historical groups prefer preservation of the existing bridge
### ADVANTAGES AND DISADVANTAGES

<table>
<thead>
<tr>
<th></th>
<th>Option 1 Conventional Replacement</th>
<th>Option 2 Salvage and Relocate</th>
<th>Option 3 Replace In-Kind</th>
<th>Option 4 Retrofit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>100%</td>
<td>150%</td>
<td>200%</td>
<td>200% + Lifecycle</td>
</tr>
<tr>
<td>Construction Duration</td>
<td>5 or 6 months</td>
<td>7 months</td>
<td>5 months</td>
<td>8 months</td>
</tr>
<tr>
<td>100% Federally Funded</td>
<td>Yes</td>
<td>Maybe</td>
<td>Maybe</td>
<td>Maybe</td>
</tr>
<tr>
<td>Full Load Capacity</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Standard Width</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Future Maintenance</td>
<td>Lowest</td>
<td>Lower</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Historical Aesthetics</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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### FUTURE ACTIVITIES

- Stakeholder group to meet, discuss, and vote on alternatives
- City staff gathers community comment, stakeholder group votes, and presents a preferred alternative to the City Council
- City Council selects a preferred alternative
- Environmental Studies and Preliminary Design initiated for preferred alternative
- Circulation of Draft Environmental Document and Public Comment Period
- City Council adopts Environmental Document
- Final Design is initiated
- Complete Evaluation of Alternatives
- Select Preferred Alternative
  - Environmental Studies
  - Preliminary Design

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