Sewalls Falls Road Bridge

Cultural Resource Meeting

April 4, 2013
Meeting Purpose

• Review of the project process to date
• Project replacement vs. rehabilitation
• Review of recent public process
• Review of public comment to date
• Public comment by Consulting Parties.
• Steps moving forward
Project Background

- Existing Pratt Truss Bridge was originally constructed in 1915
  - Designed by Storrs and Storrs, Concord, NH
  - Constructed by Berlin Construction Co., Conn.
- Trestle extension on south side was constructed in 1937
- Steel deck was added in 1950
- Eligible for Historic Registry
- Bridge functionally obsolete due to the geometry and load capacity.
- Bridge is on NHDOT’s Red List
- Continuous maintenance required
  - Bridge closed 2x / 4 months
Project History

- Project was initiated in 1994 with NHDOT

- NHDOT Preliminary Engineering began in 1999
  - Bridge Replacement / Alternative Alignment evaluation
  - Evolved to consider Rehabilitation through public process

- Preferred Alternative:
  - Rehabilitation of the existing bridge as well as the addition of a one lane steel girder/concrete deck
City Project Development

• 2010 - Project was turned over to the City of Concord
  ➢ Municipally Managed Bridge Aid Program

• 1st Steps
  ➢ Detailed inspection
  ➢ Load rating analysis
**Detailed Inspection and Load Rating Results**

- Extent of rehabilitation greater than initially assumed
- Presented findings and concerns to Cultural Resources

<table>
<thead>
<tr>
<th>Description</th>
<th>Number Repaired</th>
<th>Total Number In Bridge</th>
<th>% Replaced or Strengthened</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Replace diagonals bent from vehicular impact</td>
<td>7</td>
<td>40</td>
<td>17.5%</td>
</tr>
<tr>
<td>2. Strengthen tension diagonals</td>
<td>25</td>
<td>40</td>
<td>62.3%</td>
</tr>
<tr>
<td>3. Strengthen lower chord members</td>
<td>17</td>
<td>36</td>
<td>47.2%</td>
</tr>
<tr>
<td>4. Strengthen verticals</td>
<td>7</td>
<td>32</td>
<td>21.9%</td>
</tr>
<tr>
<td>5. Strengthen gussets</td>
<td>40</td>
<td>72</td>
<td>55.6%</td>
</tr>
<tr>
<td>6. Replace floorbeams</td>
<td>20</td>
<td>20</td>
<td>100%</td>
</tr>
<tr>
<td>7. Replace stringers</td>
<td>144</td>
<td>144</td>
<td>100%</td>
</tr>
<tr>
<td>8. Replace bottom lateral bracing</td>
<td>36</td>
<td>36</td>
<td>100%</td>
</tr>
<tr>
<td>9. Modify Portal / replace intermediate sway bracing</td>
<td>30</td>
<td>30</td>
<td>100%</td>
</tr>
</tbody>
</table>
City Project Development

• Retained Historic Documentation Company, Inc.
  ➢ Assess rehabilitation impacts to historic significance of bridge
  ➢ Concluded that rehabilitation and replacement of members resulted in adverse effects which were offset by maintaining its use

• City concerns
  ➢ Safety
    » Extent of rehabilitation
    » Non-redundant structure
    » Facture critical members
    » Less than ideal roadway geometry
  ➢ Long term needs
    » Future development
    » Potential new interchange

• Re-evaluate previously investigated alternatives
Design Criteria & Approach

• All three (3) alternatives are based on a common design criteria and design approach: The proposed roadway geometry includes:
  ➢ 2 – 12’ (3.6 m’) travel lanes
  ➢ 5’ (1.5 m) shoulders
  ➢ 5’ (1.5 m) sidewalk(s)

• The roadway alignments are based on a 35 MPH (60 KPH) design speed.

• Southern Approach Spans Removed

• Stormwater Management:
  ➢ Fish and Game parcel
  ➢ Concord Monitor parcel
Rehab Existing / Sister Bridge Upstream
Rehab Existing / Sister Bridge
Upstream
Off-Line New Bridge
Off-Line New Bridge
On-Line Replacement
### Alternatives Summary Matrix

<table>
<thead>
<tr>
<th>Criteria / Alternative</th>
<th>Rehabilitation</th>
<th>Preservation</th>
<th>Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alt -H</td>
<td>Off-Line</td>
<td>On-Line</td>
</tr>
<tr>
<td>Cultural Impacts</td>
<td>Minor</td>
<td>Moderate</td>
<td>Significant</td>
</tr>
<tr>
<td>Environmental Impacts</td>
<td>Moderate</td>
<td>Significant</td>
<td>Minor</td>
</tr>
<tr>
<td>ROW Impacts</td>
<td>Moderate</td>
<td>Significant</td>
<td>Minor</td>
</tr>
<tr>
<td>Risk Contingency</td>
<td>High</td>
<td>Moderate</td>
<td>Minimal</td>
</tr>
<tr>
<td>Initial Costs</td>
<td>+$3,090,100</td>
<td>+ $778,000</td>
<td>Lowest</td>
</tr>
<tr>
<td>Maintenance Cost (25 year)</td>
<td>+$1,903,00</td>
<td>+$81,000</td>
<td>Lowest</td>
</tr>
<tr>
<td>Meets Long-term City Needs</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- **On-line Replacement**
  - Removal of existing bridge
  - Minimizing environmental and ROW impacts
  - Minimal risk
  - Lowest initial and long term costs
  - Preferred roadway geometry
  - Meets immediate / long-term City needs
Recent Public Process

- **6/7/2012 - Heritage Commission**
  - review of detailed inspection and load rating

- **8/10/2012 – NHDHR**
  - review of detailed inspection and load rating

- **8/13/2012 - City Council**
  - review of detailed inspection and load rating
  - authorization to reevaluate alternatives

- **9/6/2012 - Heritage Commission**
  - review of alternatives analysis

- **9/13/2012 - Cultural Resource Meeting**
  - Review of detailed inspection and load rating
  - review of alternatives analysis
  - City to retain HDC
Recent Public Process

- **12/6/2012 - Cultural Resource Meeting**
  - review of HDC report, detailed inspection and load rating, alternatives analysis
- **12/19/2012 - Natural Resource Meeting**
  - review of detailed inspection and load rating, alternatives analysis
- **1/3/2013 - Heritage Commission**
  - review of HDC report, detailed inspection and load rating, alternatives analysis
- **1/23/2013 - Section 106 PIM**
  - review of HDC report, detailed inspection and load rating, alternatives analysis
- **2/11/2013 - City Council**
  - review of efforts to date
  - Council approves on-line replacement
Public Comment To Date
Public Comment by Consulting Parties
Next Steps

• Finalize Environmental Study and Programmatic 4(f) Evaluation
  – Responses from Regulatory Agencies
  – Mitigation Options

• Begin Final Design Spring / Summer 2013
• Advertise for Construction Spring / Summer 2014
• Construction Completed 2016
Questions / Comments / Answers
Truss Nomenclature