

# BUREAU OF ENVIRONMENT

## CONFERENCE REPORT

**DATE OF CONFERENCES:** September 7 and 14, 2006

**LOCATION OF CONFERENCES:** J.O. Morton Building

**ATTENDED BY:** Jon Evan, Kevin Nyhan, Darrel Elliott, Christine Perron, Marc Laurin, Erik Paddleford, Mark Hemmerlein, Charles Hood, Bill Hauser, Dave Scott, John Kallfelz, Ron Grandmaison, Nancy Mayville, Steve Liakos, Robert Juliano, Mark Richardson, Kit Morgan, Tom Jamison, Dave Powelson, NHDOT; Jim Garvin, Linda Wilson, Jim McConaha, and Edna Feighner, NHDHR; Harry Kinter, FHWA; Jason Gallant, Louis Berger; Amy Dixon, LCHIP; John Watters, HNTB; Lynne Monroe and Carol Hooper, Preservation Company; Mark Wamser, Gomez and Sullivan; Deb Loiselle, DES; Matt Low, HTA; Jamie Paine, CLD; Matt Walsh, City of Concord; Gerard Fortin, Vollmer Associates; Pat Cutter, Consulting Party, Andover Historical Society; Greg Bakos, VHB; Richard Candee, Consulting Party, Portsmouth Historical Society; Carol Barleon, Office of Energy and Planning.

**SUBJECT: Monthly SHPO-FHWA-ACOE-NHDOT Cultural Resources Meeting**

*Thursday, September 7, 2006*

**Portsmouth, BHF-X-T-0101(015), 13678. Participants: John Watters, HNTB; Lynne Monroe and Carol Hooper, Preservation Company; Mark Richardson, Steve Liakos, Bob Juliano, Nancy Mayville, Charlie Hood, Kevin Nyhan, and Bill Hauser.**

The purpose of this meeting was to present a new alternative, the Modified Replacement In-Kind alternative, and continue discussion of the alternatives. FHWA has indicated that the in-kind replacement option may be feasible and prudent; and suggested that a fifth option that involves a partial rehabilitation may be the direction to go. It involved replacing all the elements below the top chord. More work needs to be done on the alternatives consideration. Harry Kinter noted that cost of long-term maintenance could be one factor under consideration, but by itself does not constitute a valid 4(f) argument. The replacement in-kind alternative does not appear to have reached the extraordinary magnitude level that is memorialized in the federal rulemaking.

Dave Hall, the FHWA engineer is concerned about the safety and strength of the existing components if the lift span were rehabilitated. The current rehabilitation proposal encases the existing connections, which means that they could not be inspected and the approach would permit continued rusting of the built-up members. Rehabilitation does not appear to be a viable alternative.

John Watters made a PowerPoint presentation of the project alternatives, emphasizing a new alternative, called Modified Replacement In-Kind. The presentation included photographs of the existing bridge and photo-renderings of the alternatives. The presentation included a tabulation of construction costs and total costs (including long-term maintenance costs) for each of the alternatives. The presentation included a summary of the additional costs that would be incurred for different treatments of several structural elements of the existing bridge.

The lift span of the Modified Replacement In-Kind alternative would include: replacing upper and lower chords with closed steel box shapes joined with welded construction; vertical and diagonal truss members with built-up appearance and "X" lattice members to mimic the current appearance; and, modern steel plate girders and rolled structural shapes for lower lateral bracing and floor beam system, which is not so visible. The Modified Replacement In-Kind alternative would eliminate the upper lateral bracing and the sway bracing, since these elements would not be structurally necessary. The Modified Replacement In-Kind alternative would rehabilitate the approach trusses and towers.

A question was asked concerning how much of the original fabric of the bridge would be retained with the Modified Replacement In-Kind alternative. John Watters responded approximately 90%. This is arrived at by considering the entire Memorial Bridge as five major elements: two approach trusses; two lift towers; and, the lift span. The two approach spans and two towers are being retained and rehabilitated, thus accounting for 80% retention of the original fabric. For the lift span, which comprises 20% of the entire structure- approximately 50% of this span's materials would be retained, thus accounting for another 10% retention. J. Garvin pointed out that only about 20% of the fabric would be retained. He requested that as much of the removed 20% be replicated, but did not have concerns about the proposal upper and lower chords and proposed structure below the deck.

There was considerable discussion concerning the character defining features of the bridge, particularly the importance of the upper lateral bracing and the sway bracing in the original 1922 bridge design and their visual prominence and structural role in the original bridge. They are diagnostic of the 1922 design. Additional costs to include these elements would be \$1.9 million for the upper lateral bracing and \$0.6 million for the sway bracing. J. Garvin also asked the source of the additional weight of the bridge. John Watters responded that most of it was coming from the solid deck and was the reason the weights would need to be increased.

Harry Kinter summed up the discussion by stating that there appears to be agreement that the two alternatives still on the table for the lift span are the Replacement in-Kind and the Modified Replacement In-Kind alternatives. He asked how much of the original fabric can be sacrificed for cost.

Jim Garvin noted that the project would have an adverse effect on the bridge. He asked if bolted members could, instead, be riveted. This process would add considerable cost to the project even if the technology were available. However, the bolts may be made to look like rivets. Also, the machinery house has been altered over the years, and DHR would like to see one that look more like the 1922 version.

There would need to be further deliberation on the new alternative. Since all consulting parties were not present, concurrence could not be achieved at this meeting.

Unresolved issues are with treatment of the machine house, the upper lateral bracing, and the sway bracing. J. Garvin indicated that he realized that, while preferable, it would not be prudent to rehabilitation the bridge because of safety issues.

For the next meeting NHDOT and HNTB will refine details of what is included in the Modified Replacement In-Kind alternative and reexamine the costs.

*Thursday, September 14, 2006*

**Portsmouth, BHF-X-T-0101(015), 13678. Participants: John Watters, HNTB; Carol Hooper, Preservation Company; Nancy Mayville, Kevin Nyhan, Steve Liakos, Bob Juliano, Charles Hood, and Bill Hauser, NHDOT; Richard Candee, Portsmouth Historical Society.**

The purpose of this meeting was to continue discussion of the alternatives and to reach concurrence on prudence.

Nancy Mayville recapped last week's meeting and the agreement that the Replacement In-Kind, Modified Replacement In-Kind, and the modern replacement alternatives are the only three alternatives still under discussion. Others have been dismissed as not prudent or not feasible. The later does not appear to fulfill the needs of 4(f).

John Watters recapped the understanding of agreement on certain details as:

- Below the deck including the lower chord – modern materials would be used;
- Upper chord would be modern materials, welded, with no lacing;
- Lacing would be used on vertical and diagonal members.

Upper laterals and sway bracing are still under discussion and the form of the control house needs clarification. These elements are character-defining features of the bridge.

Jim Garvin noted that the project Would have an adverse effect, so mitigation is required. The Secretary of the Interior's standards require that deteriorated structural features of an eligible property must be repaired or replaced. If repair is not prudent and feasible, then the new feature must be similar in material and design to the original. This is an important consideration with respect to retaining the sway bracing and upper laterals, which were essential elements to the original design. Jim McConaha indicated that meeting the Secretary of the Interior's Standards would be a strong argument to retain the sway bracing and the upper laterals. The bridge forms a gateway to one of New Hampshire's most prominent historic cities.

Harry Kinter reviewed the alternatives in the Section 4(f) context:

- Do nothing is not prudent;
- Rehabilitation is not prudent;
- Partial replacement is not prudent
- Replacement is feasible and prudent
- Replacement In-Kind is feasible and appears to be prudent
- Modified Replacement In-Kind is feasible and appears to be prudent

Under 4(f), FHWA is obligated to select a prudent and feasible alternative that does least harm. This points to the Modified Replacement In-Kind, but there is a question as to how much mitigation can the NHDOT afford? Cost is a factor in 4(f) considerations.

Nancy Mayville said that there have already been concessions with the Modified Replacement In-Kind, which is \$1.5 million greater in construction cost than the Replacement alternative. This cost is a consideration for both Maine and New Hampshire. These concessions include the replication of the lacy verticals and diagonals.

Harry Kinter noted that he would need cogent reasons why the additional cost of upper lateral bracing and sway bracing is not prudent. It is 40.1 vs. 42.6 million. He believed that the Maine SHPO preferred the replacement in-kind.

J. Garvin inquired about the current design of the control house. He noted DHR's preference for a design similar to the 1922 design without the later modifications. J. Watters responded that the current design looked pretty similar to the 1922 version. J. Garvin suggested reusing the existing sway bracing on the new bridge. John Watters responded that the existing sway bracing could not be reused because it would be damaged during dismantling and it was less costly to use new bracing.

Submitted by Joyce McKay, Cultural Resources Manager

c.c.	J. Brillhart	K. Cota	N. Mayville	Bill Cass
	C. Barleon, OSP	C. Waszczuk	D. Lyford	
	V. Chase	R. Roach, ACOE	H. Kinter, FHWA	

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