Route 1 Bypass over Hodgson Brook
Bridge No. 192/106
Public Informational Meeting

April 14, 2016
Bridge 192/106

US Route 1 Bypass

over

Hodgson Brook
Existing Bridge Information

- Carries Route 1 Bypass over Hodgson Brook
- 5-cell concrete box culvert, each cell 8’w x 6 1/2’h
- Constructed in 1940, modified in 1966 (widened roadway)
- Roadway width is approximately 78 feet and includes 4 travel lanes, 1 turning lane, a median and shoulders
- AADT = 40,000 vehicles, 8% Trucks
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Route 1 Bypass at Borthwick Ave facing the Traffic Circle (NW)
Route 1 Bypass at Hodgson Brook – facing away from traffic circle (SE)
Bridge Condition

- Culvert has a condition rating of 4 (poor)
- Bridge is ‘Structurally Deficient’
- Sufficiency rating = 47%
- Extensive deterioration of concrete and steel reinforcing primarily along the bottom edge of all box culvert ‘piers’
- Intermittent deterioration of concrete and steel reinforcement on the underside of the ceiling slabs. With the heaviest occurring on the last 3’ of the down stream end.
Deterioration of box culvert ‘Piers’
Deterioration of box culvert ‘Piers’
Deterioration of culvert top slab
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Deterioration of culvert top slab
Options

- Do Nothing
- Culvert Rehabilitation
- Culvert Replacement
Culvert Rehabilitation

- Extend service life of culverts, 20 years
- Concrete patch and repair
  - or
- Culvert slip-line

Slip-line operation
Culvert Rehabilitation – Pros/Cons

Pros:
- Less expensive than replacement
- Can be completed with limited impact to traffic
- Limited impact to utilities

Cons:
- Short term solution
- Potential reduction in hydraulic capacity
- Provides no improvement to aquatic passage
Culvert Replacement

- 75 year design life
- Replace culvert with single span, open bottom structure
- Use Accelerated Bridge Construction (ABC) techniques to minimize construction duration and impact to traffic
- Phased construction
- Full roadway closure
Culvert Replacement

Pros:

- 75 service life
- Natural bottom – improves aquatic passage
- Little or no effects on hydraulics
Culvert Replacement

Cons:

- Traffic Control
  a) Phased - One-lane in each direction, two-way traffic
  b) Full Closure & Detour - with Accelerated Bridge Construction
  c) Emergency Access Routes

- Utilities Impacts
- Increased ROW Impacts
- Increased Environmental Issues
- Historic Issues
- Significant cost increase
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Phased - Traffic Control
One-lane each direction (Two-way) Traffic

- Maintaining traffic during construction
  (40,000 AADT with 19,000 capacity)
- Significant backups expected – may extend into the circle
- Duration of construction more than double full closure option
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Full Closure & Detour - Traffic Control

- Considerations for Emergency Vehicles & School Bus Routes
- Best times of year (least amount of traffic)
- Construction schedule vs. other City projects
- How do we maximize Accelerated Bridge Construction potential
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Utilities

Gas, Water, Sewer, Drainage, Overhead Wires
Utilities

Gas, Water, Sewer, Drainage, Overhead Wires
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Right Of Way
Coordination To Date (Environmental Resources)

- City Officials
- Hodgson Brook Advisory Board
- NH Coastal Program
- NH Fish & Game
- NHDOT Traffic Bureau
Cultural Resources

- Projects Must Follow Section 106 of the National Historic Preservation Act

- Section 106 Requires Consideration of Cultural Resources, Including Historic Buildings, Structures and Archaeological Deposits

- The NH Division of Historical Resources (NHDHR) Acts as the State Historic Preservation Office (SHPO)
  - On Going
Cultural Resources

- **Architectural Historian:**
  - Reviews the project area to identify potentially historic buildings or structures
  - On Going

- **Archaeologist:**
  - NHDHR will check to see if there are any archaeological concerns with the anticipated project area
  - On Going
Cultural Resources

- Information will be Reported to NHDOT and NHDHR For Technical Review and Consultation. This will include the "Determination of Effect" if any Cultural Resources are Found.

- Interested Persons or Organizations May Request “Consulting Party” Status from FHWA

  Contact Jamie Sikora
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Natural Resources

- Check Project Limits for Natural Resources
  Such as Hodgson Brook
  - On going
Anticipated Project Timeline

- Alternatives Analysis – through May, 2016
- Complete preliminary design – December, 2016
- Permitting – 2018
- Construction – 2019
Your Input is needed

- Do Nothing, Repair or Replace
- Traffic Impacts
  - Phased
  - Full Closure & Detour
- Emergency Access Routes
- Business Impacts
- Preferred Construction Timing
- Other

Thank You
Section 106 Statement Requirements

The evaluation of environmental and cultural resources impacts within the project limits is on-going. The resources and impacts of the preferred option chosen will be documented in an Environmental Study, which will be made available for public review.

For Cultural Resources, the project will need to comply with the requirements of Section 106 of the National Historic Preservation Act of 1966. This act requires the Department to identify and assess the project’s impacts to cultural resources, which are building, historic districts, and structures, as well as archaeological sites, that are generally greater than 50 years old.

These regulations offer owners of historic properties directly affected by the project or agencies that possess a direct interest in the historical resources an opportunity to become more involved in an advisory role through meetings and commentary. They may become what are known as Consulting Parties to the Section 106 process.

The lead Federal Agency for this project is the Federal Highway Administration. Although the role of a consulting party is advisory in nature, FHWA must consider a consulting party’s input carefully before making a final decision on how the project will affect historic properties.

Consultation recognizes the importance of local involvement in the decision making process. If you wish to become a consulting party, please contact me after the meeting.

Additionally, the Federal Highway Administration’s Section 4(f) of the DOT Act regulations require the evaluation of impacts to historic and recreational properties to determine whether alternatives which avoid or minimize impacts to these properties are reasonable or prudent.

An historical survey will be conducted during the development of this project. The Department will continue to coordinate with the NH Department of Historical Resources (NHDHR) and the Federal Highway Administration (FHWA) regarding historic properties or historic districts determined to be located within the project limits.

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