

July 11, 2013

**STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DESIGN**

**CONFERENCE REPORT**

**PROJECT:** ROXBURY-SULLIVAN  
F-X-0121(034)  
10439  
NH 9, Bridge over Otter Brook & 2 Miles Roadway Improvements

**DATE OF CONFERENCE:** June 6, 2013

**LOCATION OF CONFERENCE:** Sullivan Town Hall

**ATTENDED BY:** **NHDOT**  
Don Lyford      Marc Laurin  
John Butler      Bill Saffian  
Mike Dugas      Doug Graham

**OTHERS**  
See attached sign-in sheet.

**SUBJECT:** Public Officials/Public Informational Meeting

**NOTES ON CONFERENCE:**

Don Lyford opened the meeting with a brief review of the history of the project. The last public meeting was held in 2000, and subsequent to that meeting funding constraints resulted in the project being delayed. The current project schedule calls for a target advertising date of January 2017. A formal public hearing is anticipated in the summer of 2014. The amount of funding currently allocated to this project is not adequate to fully reconstruct the entire segment, so the Department is trying to prioritize the areas of greatest need so that portions can be built as funding becomes available.

John Butler described the design details of the proposed project. The project area along NH Route 9 is approximately 2 miles long and runs roughly from the Centre Street intersection in East Sullivan westerly to the Houghton Ledge Road intersection/Granite Gorge ski area in Roxbury. Current average daily traffic (ADT) is approximately 7100 vehicles per day and is expected to increase to approximately 8500 vehicles per day over the next 20 years. This section of roadway was last reconstructed in the 1930s, although modest drainage and guardrail improvements have been done within the last 10 years. The posted speed limit is 45 mph.

Environmental constraints include a historic district in East Sullivan to the north of NH 9 and Otter Brook, which parallels NH 9 for much of the project length.

It was explained that the overall project area has been divided into 4 sub-project areas, and ranked by priority:

1. Otter Brook bridge replacement
2. Retaining wall area near Houghton Ledge Road
3. Roadway reconstruction between the first two areas
4. Hubbard Brook bridge rehabilitation

Otter Brook bridge replacement:

The bridge over Otter Brook was built in the 1930s and is in need of complete replacement. It is on the Department's Red List, meaning that its condition is such that it needs to be inspected more frequently than a normal bridge. Several factors make it challenging to construct a new bridge at this location:

1. Need to maintain traffic on NH 9. The volume of traffic on NH 9 and the relatively high amount of truck traffic make it desirable to maintain two lanes of traffic (one in each direction) at all times.
2. Skew of Otter Brook relative to NH 9. Otter Brook crosses NH 9 at a very severe skew angle, running virtually parallel to the roadway.
3. Proximity of houses. There are houses close to the road on both sides of NH 9 near the bridge area.
4. Raise in elevation is required. The new bridge needs to be approximately 6 feet higher than the existing bridge in order to be above the 100-year flood elevation of Otter Brook. Past flooding has actually gone around the existing bridge and washed out the road.

Several bridge replacement alternatives were considered such as constructing the new bridge upstream or downstream of the existing bridge, or constructing a temporary bridge to maintain traffic while a new bridge is constructed in the same location as the existing bridge. The proposed design would construct the new bridge approximately 120 feet upstream (northerly) of the existing bridge. The bridge would be on a curve, and approximately 2000 feet of NH 9 would be realigned and reconstructed. The proposed horizontal curve would be flatter and longer than the existing short, sharp curve to the west of the bridge. The skew angle between the roadway and the brook is reasonable at this location, resulting in a new bridge that would be approximately 60 feet long. It would be a single span bridge, so there would be no pier in the brook like the existing bridge. There would be two 12 foot wide lanes and 8 foot wide shoulders on the bridge. The shoulders would taper down to 4 foot wide shoulders to the west and would increase to match the 10 foot wide shoulders to the east. Valley Road could either be connected to relocated NH 9 or it could become a dead end road with no connection at NH 9.

Impacts to private property include a complete acquisition of Turner/Hudson house and property, and partial property acquisitions from approximately 5 other parcels. Some of these

properties, including the Turner/Hudson house, are within the historic district. There would also be impacts to historic ruins near the east bank of Otter Brook, and to the septic system for the East Sullivan Village Store.

The construction cost for this bridge replacement sub-project is estimated to be approximately \$2.7 million.

#### Retaining Wall Area:

There is an existing loose boulder retaining wall approximately 1000 feet easterly of the Houghton Ledge Road intersection. It was built in the 1930s and the NHDOT's Bureau of Highway Maintenance is concerned about its stability. It is on the inside of a relatively sharp curve and restricts sight distance around the curve. Also in the area of the retaining wall, there are 3 vertical curves on the profile of NH 9 that are substandard for the 45 mph posted speed limit. These limit the sight distance along NH 9 to less than the desired amount.

Four alternatives were developed to address the retaining wall area. Each of the 4 alternatives has pros and cons, and the Department is currently undecided as to which alternative to pursue.

#### Alternative A:

This alternative would remove the retaining wall and construct a steep engineered cut slope into the hillside. The engineered slope would be approximately 60 feet high, and would require the relocation of about 300 feet of Houghton Ledge Road at the top of the slope. An engineered slope is generally less expensive to construct and maintain over the long term than a retaining wall. This is the simplest and least expensive alternative, but it would require removing a substantial area of trees from the slope and it would not address the deficiencies in the NH 9 profile. Estimated construction cost is approximately \$600,000.

#### Alternative B:

This alternative would construct a new retaining wall in approximately the same location as the existing wall. The wall would be about 250 feet long and up to 12 feet high. This alternative would not impact the wooded slope or Houghton Ledge Road; however, it is more expensive than constructing an engineered slope and would not address the deficiencies in the NH 9 profile. Estimated construction cost is approximately \$1,000,000.

#### Alternative C:

This alternative would remove the retaining wall and construct an engineered cut slope similar to Alternative A, but it would also flatten the vertical curves in the NH 9 profile to achieve the proper amount of sight distance for a 45 mph speed limit. It results in lowering the crest in NH 9 by as much as 11 feet and reconstructing approximately 2500 feet of the NH 9 roadway. Estimated construction cost is approximately \$3,100,000.

#### Alternative D:

This alternative would construct a new retaining wall similar to Alternative B, but it would also flatten the vertical curves in the NH 9 profile similar to Alternative C. The retaining wall would be approximately 300 feet long and up to 20 feet high. This is the most expensive alternative, estimated to cost approximately \$4,600,000.

#### Route 9 Roadway Reconstruction:

The existing NH 9 roadway was last reconstructed in the 1930s. The structural composition of the roadway base is relatively poor, making the pavement susceptible to frost heaving and deterioration. Ideally, the roadway should be completely reconstructed; however, the cost of doing so would be beyond the scope of the project funding. Pavement reconstruction options are still being explored, but it is currently assumed that some form of pavement reclamation process will be done. It is envisioned that the existing alignment and profile of NH 9 will be retained to the west of the bridge replacement sub-project (unless Alternative C or D is chosen in the retaining wall area), and that a modest pavement widening to achieve 4 foot wide paved shoulders will be done. Estimated cost to do pavement reclamation for the full project length to the west of the bridge sub-project is \$1,700,000. If Alternative C or D is chosen at the retaining wall area, the estimated cost to do pavement reclamation within the remaining middle gap section is \$1,000,000.

#### Hubbard Brook Bridge:

The NH 9 bridge over Hubbard Brook in Roxbury is in relatively good condition overall, but is in need of a deck replacement. The bridge is only a 14 foot long span, so the deck replacement could likely be done with prefabricated panels to expedite the construction time and minimize traffic disruptions. Estimated construction cost is \$50,000.

John concluded the design presentation with a discussion of the highway right-of-way. The existing NH Route 9 right-of-way to the east and west of the proposed project area is controlled access right-of-way. This means that previous highway projects purchased the rights to limit the number of access points (driveways) that are allowed on NH 9 from each property. The intent of minimizing the number of access points is to increase safety and preserve mobility along the highway. The project area currently has regular right-of-way on NH 9, so the Department is considering the layout of controlled access right-of-way as part of the current project. If it is decided to pursue this, the Public Hearing plan would explicitly note the number of access points that each affected property would be allowed to have.

Marc Laurin discussed the environmental resources and issues associated with the project. Existing natural resources include Otter Brook and its associated floodplain, Hubbard Brook, wetlands, endangered or rare plants and animals, conservation lands, and water quality. Cultural resources include an historic district in East Sullivan, and other potential archaeologically-sensitive sites. Marc described the process to become a Consulting Party to the historic review process as defined in Section 106 of the National Historic Preservation Act.

Becoming a Consulting Party gives 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.

Don Lyford concluded the presentation by stating that there is currently \$4,500,000 allocated for construction of this project.

Questions & Comments:

It was asked if a left turn lane will be constructed on NH 9 at the Centre Street intersection. It was noted that there are also turning movements into and out of the store near the intersection. Don Lyford responded that a left turn lane is not proposed. The volume of left turning traffic is relatively low. Reconstructing the existing 10 foot wide paved shoulders could be done, which would function as an area for through traffic to bypass left turning traffic.

It was asked how bad is the condition of the Otter Brook bridge? Bill Saffian responded that it currently has a Federal Sufficiency Rating of 27, on a scale from 0 (bad) to 100 (good).

It was asked what the speed limit will be. Another person suggested lowering the speed limit near the Valley Road intersection. Don Lyford responded that the current speed limit of 45 mph is expected to be retained. Doug Graham noted that the speed limit on Route 9 in the project area used to be 35 mph, but was changed to 45 mph due to a legislative mandate several years ago.

Mr. Yawarski, abutter near Valley Road, asked if the last two driveways on Valley Road, including his shared driveway, would now be on Route 9 with the proposed design. Don Lyford confirmed that this would be the case. Mr. Yawarski noted that he has plans to construct a new driveway directly onto Route 9 within his property frontage.

A concern was expressed by a Valley Road resident that there will be increased traffic noise at his house if the road is shifted to the north as proposed. Don Lyford responded that a noise analysis will be done as part of the project's environmental document.

Chip Drogue, Roxbury Selectman, recommended relocating the Houghton Ledge Road intersection westerly to move it further away from the sharp NH 9 curve with the retaining wall, thereby improving sight distance to and from the intersection. It was also noted that Granite Gorge occasionally holds events that generate significant traffic into and out of their driveway, creating a safety concern for westbound NH 9 traffic coming around the curve.

It was asked what type of retaining wall will be built if it is decided to rebuild it. Will it be granite? Don Lyford responded that the type of wall and materials for the wall are unknown

at this time. It would not be made of loose granite boulders like the existing wall. Aesthetic treatments for the wall facing can be discussed if it is decided to rebuild the wall.

It was asked how a decision will be made regarding the retaining wall alternatives. Don Lyford responded that public input and cost will be important factors. Current project funding is not adequate to replace the Otter Brook bridge and do the more expensive retaining wall alternatives. From a funding perspective, it may make sense to construct different phases of the project in different years if additional funding can be allocated.

It was asked why anything needs to be done to this section of road other than replacing the bridge. Isn't it adequate as is? Doug Graham responded that there have been signs of movement in the retaining wall, so it definitely needs to be addressed. He also noted that this section of roadway is challenging to maintain due to the lack of good drainage and poor pavement condition. He noted at least one location to the east of the retaining wall area where Otter Brook has eroded the NH 9 embankment in the past and threatened to undermine the roadway.

#### Post-Meeting Discussions:

John Little, representing the East Sullivan Village Store, expressed concerns with the proposed access to the store. He suggested that the existing roadway in front of the store could be retained and configured to be a semi-circular driveway. He envisioned it being similar to a roadside pull-off area. He was concerned that drivers would not stop at his store if they had to slow down to make a 90 degree turn into his driveway. He also expressed a desire to retain the wide paved shoulders on NH 9 so that tractor trailers could continue to use them to park on when stopping at the store. He noted that old Centre Street (south of NH 9) provides access to the rear of the store.

John Butler noted that the concept of a circular driveway is probably doable, but the Department would not endorse a configuration that would permit vehicles to "sweep" off of and onto the highway over a broad area. From the Department's perspective, it is safer to have discrete driveways of limited width in order to define and control the locations where vehicles can enter and exit the highway. He suggested that a circular driveway configuration could be achieved by connecting the parking area in front of the store to old Centre Street. Wide shoulders might be constructed on NH 9 in front of the store, however, using them for truck parking would be strongly discouraged. This would inhibit their ability to function as bypass shoulders for through traffic going around left turning traffic (either turning left into Centre Street or into the store driveway), and parking on the shoulders would restrict the sight distance for vehicles pulling out of Centre Street or the store driveway.

Chip Drogue, Roxbury Selectman, noted that the driveway just west of Houghton Ledge Road is just "temporary", and doesn't need to be retained. He also asked if Houghton Ledge Road could be relocated so that it turns to the east instead of to the west, intersecting Route 9

much farther to the east, with the goal of improving the grade on Houghton Ledge Road. He also questioned if the old right-of-way shown on the plan to the south of Route 9 actually belongs to NHDOT or to Granite Gorge.

Gary Patnode asked if there could be a separate driveway for access to his property near the east end of the Otter Creek bridge, instead of the shared driveway shown on the plan.

Submitted by:



John D. Butler, PE  
Preliminary Design Supervisor

cc: W. Cass                      D. Graham  
W. Oldenburg                M. Laurin  
D. Lyford                      M. Dugas  
B. Saffian                    T. Cleary  
S. Babalis  
Roxbury Selectmen  
Sullivan Selectmen

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## MEETING ATTENDANCE

**PROJECT:** Roxbury-Sullivan 10439, NH Rte 9 bridge over Otter Brook & 2 miles of roadway improvements

**LOCATION:** Sullivan Town Hall  
Public Officials / Public Informational meeting

NAME	AGENCY AND/OR ADDRESS	COMMENTS
GARY LAFRONTAIE	Roxbury Police	
Lee Willette	Rt 9 Roxbury NH	
Charles J. Willett #	RT 9 Roxbury	
DOUG GRAHAM	NHDOT-DISTRICT 4	
J. R. MACK	SWRPC	
Tom Pinard + Anne Seidenberg	426 Valley Rd, Sullivan	
PAUL YAWANSKI	46 CONNOR DR Sullivan	
HAL GOODNOW	432 VALLEY RD	
JOANN LINCOLN	436 VALLEY RD	
GERRY DAVIS	ROXBURY SELECTMAN	
GARY PATNODE	SULLIVAN Selectman + ABUTTER	
TRICIA PATNODE	Apple Hill & Route 9	

## MEETING ATTENDANCE

**PROJECT:** Roxbury-Sullivan 10439

**LOCATION:** \_\_\_\_\_

NAME	AGENCY AND/OR ADDRESS	COMMENTS
Bill & Lorraine Lindwood	122 Rte 9	
Chris Pratt	183 Valley Road, Sullivan.	
Bekky Cummings	780 Centre St.	
Kathleen Lewis	19 Centre St	
Richard Lowe	19 Centre St.	
Aileen O'Brien	21 Route 9, Otter Brook Center	
John Parcell (CHA)	113 Concord Rd, KEENE	
John Cattr	SULLIVAN STORE 140 RT 9	
R. J. H. Jones	358 Centre St. Sullivan	
Mr. P. Butler	45 Houghton Hedge Rd	
Chris Deque	Roxbury Selectman	
Dick Gilchrist	ROXBURY HISTORIAN	

**MEETING ATTENDANCE**

**PROJECT:** Roxbury-Sullivan 10439

**LOCATION:** \_\_\_\_\_

NAME	AGENCY AND/OR ADDRESS	COMMENTS
Ron Hull	39 Gilsum St SULLIVAN	