

June 3, 2014

**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: April 10, 2014

LOCATION OF CONFERENCE: Sullivan Town Hall

ATTENDED BY: **NHDOT**
Don Lyford Marc Laurin
John Butler Steven Babalis
John Kallfelz

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 informational was held in June of 2013. 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 three 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, including 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. Four alternatives were developed.

Upstream Alternative

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 1900 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 90 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 7 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 old foundations near the east bank of Otter Brook, and to the septic system for the East Sullivan Village Store.

The approximate construction duration is 18 months with an estimated construction cost of \$3.0 million.

Online Alternative

The proposed design would construct the new bridge along a similar alignment as to the existing. The bridge would be on a tangent abutting an abrupt horizontal curve to the southwest. The proposed bridge would be at a sharp skew with Otter Brook resulting in a bridge that is approximately 160 feet long. There would be two 12 foot wide lanes and 8 foot wide shoulders on the bridge. The shoulders would taper down to four feet to the west and would increase to match the 10 foot wide shoulders to the east. Similar to the upstream alternative, Valley Road could either be connected to NH 9 or become a dead end road. A retaining wall would be constructed along NH 9 between Valley Road and the proposed bridge along the northern edge of the roadway. The length of work is approximately 1,900 feet.

In order to construct the online alternative, a temporary diversion (detour) is proposed to be constructed just upstream of the existing bridge. The diversion would require the construction of a temporary bridge approximately 200 feet long. It is envisioned to avoid permanent impacts to the Turner/Hudson property and house, but due to the encroachment of the diversion, it is anticipated that the property would be unlivable during the duration of construction. This would result in the temporary acquisition of the parcel and resale after construction. The diversion would impact the historic ruins near east bank of Otter Brook and to the septic system for the East Sullivan Village Store.

The construction duration is anticipated to be 30 months. The longer construction duration is resulting from the complexity of construction and the extra time needed to construct the diversion and temporary bridge. The online alternative has an estimated construction cost of \$6.2 million. The higher cost when compared to the upstream alternative is due to the construction cost of the diversion, temporary bridge, and the larger permanent bridge.

Downstream Alternative

The proposed design would construct a new bridge approximately a third of a mile south of the existing bridge. This would place the new bridge about 1000 feet north of the Roxbury town line. The brook is somewhat wider at this point, so the bridge is envisioned to be approximately 200 feet long. The design proposes constructing approximately 2000 feet of new road along the eastern bank of Otter Brook. There would be two 12 foot wide lanes and four foot shoulders on the bridge. The shoulders would increase to 10 feet in the vicinity of Centre Street to match into the existing shoulders. The bypassed section of NH 9 would be realigned to match into new NH 9 just south of the bridge maintaining southern access to East Sullivan Village. The length of work is approximately 3,800 feet.

The downstream alternative would not impact the historic district, but would result in substantial impacts to natural resources by constructing a new road through an undisturbed wooded area adjacent to the brook. Impacts to private property includes acquisition of the Henault house, and partial acquisition of the Patnode parcel. The septic system for the East Sullivan Store is anticipated to be impacted.

The estimated construction duration is 24 months and the estimated construction cost is \$4.7 million.

Downstream Alternative 2

The proposed design would construct a new bridge about 120 feet south (downstream) of the existing bridge. The bridge would reside on a horizontal curve, with about 2,000 of NH 9 being reconstructed. Otter Brook runs parallel with NH 9 which results in the downstream bridge to be at an extreme skew with the river. The resulting bridge is estimated to have a span length of approximately 475 feet. A bridge of that length would have a construction cost over \$4.5 million, not including the necessary roadwork to match into the bridge. Considering this, the alternative was felt to be impractical due to the substantial initial and long term costs of the bridge.

A matrix of issues for the three alternatives considered to be feasible was available as a hand-out (copy attached).

Considering all of the issues, the Department is leaning toward the upstream alternative as the preferred design due to the significantly lower cost, improved bridge skew angle at the brook crossing, and improved alignment for NH 9.

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 originally developed to address the retaining wall area. The two alternatives that included improvements to the roadway profile have been eliminated due to cost. The two remaining alternatives have pros and cons. Both alternatives were designed to be compatible with potential future profile improvements.

Engineered Slope Cut:

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 least expensive alternative, but it would require removing a substantial area of trees from the slope, which would not be very aesthetic and would have significant erosion control concerns during construction. Estimated construction cost is approximately \$1,000,000.

Retaining Wall:

This alternative would construct a new retaining wall. The wall would be about 525 feet long and up to 15 feet high. This alternative would minimize impacts to the wooded slope and avoid impacts to Houghton Ledge Road; however, it is more expensive than constructing an engineered slope. The retaining wall would be less complicated to construct and have fewer erosion concerns when compared to an engineered slope. Estimated construction cost is approximately \$1,700,000. This is the Departments preferred alternative due to the lower risk of environmental concerns.

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, 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.

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.

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 \$6,000,000 allocated for construction of this project.

Questions & Comments:

Comment: Chris Pratt felt the Department needs to continue researching the historic resources of Sullivan. Based upon his knowledge of the area, he felt the downstream alternative has the least impacts to the historic resources.

Comment: Patricia McMahon Clark reported she lived in the Turner/Hudson house for 63 years. Patricia recited some memories of her time in East Sullivan Village and the importance the community played in her and her father's life. She felt that there is great value to the community that is created by the historic district and the Turner/Hudson house contributes to the District.

Question: Kathleen Rowe noted that she moved to Sullivan in 1978 and supports the importance of the community's history. She first inquired why the online alternative was so much more expensive when compared to the upstream alternative. She then inquired if traffic could be routed onto Valley Road and Centre Street during construction or could alternating one way traffic be utilized. She noted that alternating one way traffic with a temporary signal was recently used on Route 9 in Antrim at a bridge.

Answer: John Butler responded that the increased cost of the online alternative mainly is due to the need for a longer ultimate bridge due to skew angle, additional cost of a temporary bridge, and the extra roadway cost for the temporary diversion.

John also noted that detouring traffic onto Valley Road and Centre Street had been evaluated. The Department had concerns because Valley Road is narrow, and would need to be widened if it would carry NH 9 traffic. The proximity of Otter Brook bank and the historic properties would make the widening challenging. Also the Department has concerns with tractor trailers encroaching into the opposing lane to make the turn at the Valley Road and Centre Street intersection.

John responded that alternating one way traffic was reviewed at the site. It was not felt to be feasible at the location due to the volume of traffic on NH 9 (including truck traffic) and the long duration of the construction.

John Kallfelz also noted that the Antrim bridge project is not comparable with this project. The Antrim bridge project consisted of only a deck replacement, whereas, in Sullivan the entire bridge needs to be replaced with a significant change in elevation.

Question: A resident inquired why would the Turner/Hudson house be unlivable during construction for the online alternative.

- Answer: John Butler responded that there would be sizable construction activity on the parcel. The construction would likely be an unacceptable disruption to daily activities, and a potential liability to the Department.
- Question: It was asked if the old Route 9 roadway with the downstream alternative would be turned over to the town after construction.
- Answer: Don Lyford responded that generally the Department prefers to turn over roadway segments like that to the Town. However, in this instance the State owns Valley Road up to Centre Street. Therefore it is less likely that section of road would be turned over.
- Question: Tricia Patnode inquired why would old Route 9 be kept in the downstream alternative and not discontinued. She noted that the parcels abutting that section of Route 9 use a private drive (Conner Drive) off of Valley Road.
- Answer: Don responded that it would be unlikely the old Route 9 would be discontinued since the abutters currently have frontage on a public road which gives them the ability to have an individual driveway in the future.. A resident on Conner Drive reported that she owns a tattoo business on Conner Drive. If old Route 9 was discontinued, she would no longer have the benefit of having a business sign along that roadway frontage.
- Comment: Joann Lincoln expressed concern with the upstream alternative. She was concerned that the raised elevation of the bridge of six feet would visually impair the Valley Road abutters. She also expressed support for Alternative B for the retaining wall.
- Comment: Gary and Tricia Patnode expressed concern with the cost estimate of the downstream alternative. They inquired if the terrain had been surveyed and if it had not been surveyed, how can it be expected that the estimate is accurate. Gary added that there are numerous wetlands and seeps along the eastern bank on his property. Gary noted the terrain is steep and would require substantial excavation.
- Response: Don Lyford responded that the terrain had not been surveyed and the estimate is based upon rough topographical maps. Don continued stating that although the Department does not have detailed survey, the Department can determine the general cost of new road with a fair level of accuracy. It was acknowledged that there is a little more unknown with the downstream cost estimate, but the estimated cost should not change a significant amount if more survey detail was collected.

- Comment: John Little, owner of the Sullivan Country Store expressed his support of the online alternative. He also felt the impacts to the community of the upstream alternative exceed the cost savings when compared to the online alternative.
- Comment: Rebecca Henault noted that she does not support the downstream alternative. She reported that she just bought her first home and does not want to lose it.
- Comment: Gary Patnode noted that at the previous public informational, the allocated funds in the 10 year plan was \$4.5 million. Now in the current 10 year plan, it is \$6.0 million. He suggested that perhaps additional funding could be allocated to the project, which would make the on-line alternative more feasible.
- Comment: Walter Goodnow (Valley Road abutter) expressed gratitude toward his neighbors for supporting the value of Sullivan's history. Walter also felt that the community is reviving.
- Question: John Little inquired as to why the temporary bridge shown in the online alternative could not be the permanent bridge.
- Answer: Don Lyford responded that he would look into it. *Subsequent to the meeting Steve Babalis noted that the temporary bridge shown on the online alternative works at that location because it raises the elevation of the bridge only three feet. Maintaining traffic would not be feasible during construction if a bridge in that location had to be six feet higher in elevation over the existing. In addition the roadway work shown in the diversion meets 35mph design standards, whereas, the ultimate condition would need to meet 45 mph design standards. The temporary bridge is shown to have a 12 foot lanes with four foot shoulders.*
- Question: J.B. Mack of Southwest Regional Planning Commission inquired if any type of barrier had been investigated to separate the Historic District and Upstream alternative. J.B. suggested that a tree barrier may be beneficial.
- Answer: Don Lyford responded that a barrier has not yet been evaluated, but it will be during the air and noise study done prior to the Hearing.
- Question: Gary Patnode inquired if the hearing is planned for later this year and what will happen prior to the hearing.
- Answer: Don Lyford responded that a public hearing is planned to occur in about six months. Don noted that after this public informational meeting, the input received at the meeting will be reviewed with the Department's executive office, with a goal of choosing a preferred alternative for presentation at a formal public hearing. The governor and executive council will appoint a three member hearing commission to oversee the hearing. Comments and requests made at the hearing will be formally addressed and have resolutions defined in a "Report of

the Commissioner". If the hearing commission feels that the issues have been sufficiently addressed and a need for the project has been demonstrated, the project will receive formal approval and will continue on into final design. In final design, right-of-way plans and construction plans will be developed. The project is anticipated to advertise in January 2017.

Request: Gary Patnode and other residents requested that the Department return for another public informational meeting prior to the hearing to notify the public of the preferred alternative.

Response: Don Lyford responded the Department will return prior to the hearing.

Request: Joann Lincoln requested that the Department return with renderings of the proposed alternative to give the community a perspective of how the bridge will ultimately look.

Response: Don Lyford responded that the Department will look into creating those renderings.

Question: A resident inquired if the bottom of Otter Brook could be dredged in order to have the bridge lower than what is shown on the plans.

Response: Don Lyford noted that the bridge is designed based on the 100 year flood elevation. Even if the bottom of the river is lowered, it would have nominal effect on the overall flood elevation. Additionally, natural resource agencies and Army Corp of Engineers would have serious concerns with modifying the brook in that manner.

Question: John Little inquired as to how much community input would the Department need in order for the communities opinion to be included in the discussion.

Response: Don Lyford responded that all community input will be considered. It was noted that input from the local officials is particularly important.

Question: A resident inquired if the Town would be kept informed as to how the project is progressing.

Response: Don Lyford responded that the Towns of Roxbury and Sullivan will be actively included in the discussions.

Question: A resident inquired if the environmental document would be completed prior to the next public informational meeting.

Response: Don Lyford responded that the report would not be completed by the next informational meeting but would be completed prior to the hearing.

Submitted by:



Steven J. Babalis, PE
Preliminary Design

Noted by: J. Butler

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

S:\Highway-Design\TOWNS\Roxbury\10439\CONFRPT\10439_04102014_PI.doc

MEETING ATTENDANCE

PROJECT: Roxbury – Sullivan 10439: NH Route 9 bridge over Otter Brook & 2 miles of roadway improvements

LOCATION: Sullivan Town Hall, Public Informational Meeting

NAME	AGENCY AND/OR ADDRESS	COMMENTS
William A. ROBINSON	55 HUBBARD RD, SULLIVAN N.H.	
Chip Droque	TOWN OF ROXBURY	
WALTER GOODNOW	432 VALLEY RD	
Jo ANN LINCOLN	436 VALLEY ROAD	
Richard KATHSON ROBE	19 CENTRE ST	
Chris Pratt	183 valley Road	
Ray & Ann Sweet	358 centre st Sullivan	
Donald Robb	441 valley RD	
Sandra & Dennis O'Brien	21 Rt 9	
Laura + Al Merrifield	Residents 10 Jenkins Lane Sullivan NH	
Charles / Kat McLahon Clerk	Sullivan town resident	446-1396
James G Turner	439 Valley Rd	762-3724

MEETING ATTENDANCE

PROJECT: Roxbury – Sullivan 10439: NH Route 9 bridge over Otter Brook & 2 miles of roadway improvements

LOCATION: Sullivan Town Hall, Public Informational Meeting

NAME	AGENCY AND/OR ADDRESS	COMMENTS
KEN DUFFOM	Town of Roxbury	
John Little	Sullivan Country Store	
GARY WOOD	Sullivan, NH	
Gus Kerpandean	State Reg. Fish Div 21	
Dan Drass	Sullivan Connors, OR	Demofst
Vyavanski	Sullivan	
Gaye Afanasiew	Sullivan, NH	
Anne Seidenberg	Sullivan, NH (Valley Rd)	
John Kallfelk	NH DOT District 4	
S. B. Mack	SWRPC	
Rebecca Henault	122 Rt 9	
Marcus DuBois	122 Rt 9	
Bruce Williams	142 Rt 9	

MEETING ATTENDANCE

PROJECT: Roxbury – Sullivan 10439: NH Route 9 bridge over Otter Brook & 2 miles of roadway improvements

LOCATION: Sullivan Town Hall, Public Informational Meeting

NAME	AGENCY AND/OR ADDRESS	COMMENTS
Kelly L. Wichland	142 RT 9 East Sullivan	
STEVE HAMILTON	11 WOODLAND DR SULLIVAN	CHAIRMAN PLANNING BOARD
Neil Henry	Sullivan Fire & Rescue	FIRE Chief / EMD
Mike Blanchard	Sullivan Fire & Rescue	
Steve Henault Curdys	634 Centre St.	
TRICIA PATNODE	Apple Hill Rd	
GARY PATNODE	SULLIVAN SELECIMAN / RT. 9 & Apple Hill Rd.	
Thomas Pinard	426 Valley Rd	Another 007 @ school.com
John Messersmith	65 Houghton Ledge Rd	603-209-6884
Daniel Eaton	NH State Rep.	

ROXBURY - SULLIVAN 10439

April 10, 2014

NH ROUTE 9

OTTER BROOK BRIDGE REPLACEMENT

ALTERNATIVE	ESTIMATED CONSTRUCTION COST	PROPERTY IMPACTS	HISTORIC RESOURCE IMPACTS	NATURAL RESOURCE IMPACTS	ROUTE 9 ALIGNMENT	CONSTRUCTION DURATION	LENGTH OF PROJECT	OTHER
UPSTREAM OFF-LINE	\$3.0 M	1 house acquisition & demolition 0.6 acres total R.O.W. acquisition	1 historic house acquisition & demolition Encroachment into historic district	Minor	Improved	18 months	1,900 feet	
ON-LINE	\$6.2 M	1 house acquisition & possible resale 0.3 acres total R.O.W. acquisition	1 historic house acquisition & possible resale	Minor	Retains sharp curve	30 months	1,900 feet	
DOWNSTREAM OFF-LINE	\$4.7 M	1 house acquisition & demolition 9.2 acres total R.O.W. acquisition	No known impacts	New road through wooded area adjacent to brook. Significant additional paved area.	Improved	24 months	3,800 feet	Additional road to maintain.