



# Waterford

## VT Route 18, Bridge 2

### Waterford BF 0225(5)

**Project Location: Town of Waterford in Caledonia County on VT Route 18 over an Unnamed Brook. The bridge is located approximately 7.6 miles south of the intersection of VT Route 18 and Pleasant VT Route 2.**

### Project Facts

- It is anticipated that overhead utilities will not need to be relocated for this project.
- The culvert carries an unnamed tributary of the Connecticut River. This tributary is potentially a host to a variety of fish species.
- This project will be bundled with the VT Route 18 Bridge 7 project.

The Waterford VT Route 18 Bridge 2 project will replace the existing culvert, which does not have adequate bank full width and is in serious condition, with a new culvert that meets current design standards. The existing Waterford VT Route 18 Bridge 2 is a corrugated metal plate pipe culvert constructed in 1981 and later retrofitted with weirs for fish passage. The culvert has a diameter of 8-feet and is 120-feet long. The bridge has a culvert rating of “serious”.

VTrans evaluated alternatives for rehabilitation or replacement of Waterford VT Route 18 Bridge 2 in an engineering study completed in February 2016. The study assessed the proposed design criteria for the bridge and roadway alignment, right of way impacts, hydraulics, aquatic organism passage (AOP), archaeological and wetland resources. Several alternatives were considered including no action, culvert liner, and full replacement with a precast reinforced concrete box. Given the condition of the structure and existing bank full width deficiencies, the engineering study recommended full bridge replacement with a precast reinforced concrete box using Accelerated Bridge Construction (ABC) methods with an offsite detour, with the project being grouped with the VT Route 18 Bridge 7 project.

The new culvert will be a 16-foot by 8-foot precast concrete box culvert. The new precast box will have 12 inch high bed retention sills, to allow for a natural channel bottom to form, accommodating aquatic organism passage. Since the precast culvert will have a closed bottom, it will be protected from scour. In order to satisfy the AOP needs, the culvert invert will be buried 36 inches and stone will be placed along the length of the channel bottom through the culvert, resulting in a 5 foot high waterway opening. The new culvert will have headwalls that extend 4-feet below the channel bottom at the inlet and the outlet to prevent undermining. This new structure will meet the minimum standard for hydraulics and will have no roadway overtopping below the Q50 storm event.

It is anticipated that the bridge will be constructed during the summer of 2017 using ABC methods, which will expedite construction and reduce disturbance to the public. There will be an allowable 7 day road closure with temporary single lane closures prior to and following the bridge closure period. The detour for this project location would add approximately 1.8 miles to the through route, and have an end-to-end distance of 17.2 miles. There is a local bypass route which will most likely be used by local traffic. This route adds 2.8 miles to the through route, and has an end-to-end distance of 2.9 miles.



*Looking South Over Bridge*

**Target Construction Schedule:** It is anticipated that construction activities will take place beginning in June 2017 and last one construction season. The allowable bridge closure period is 7 days to be determined at a later date.

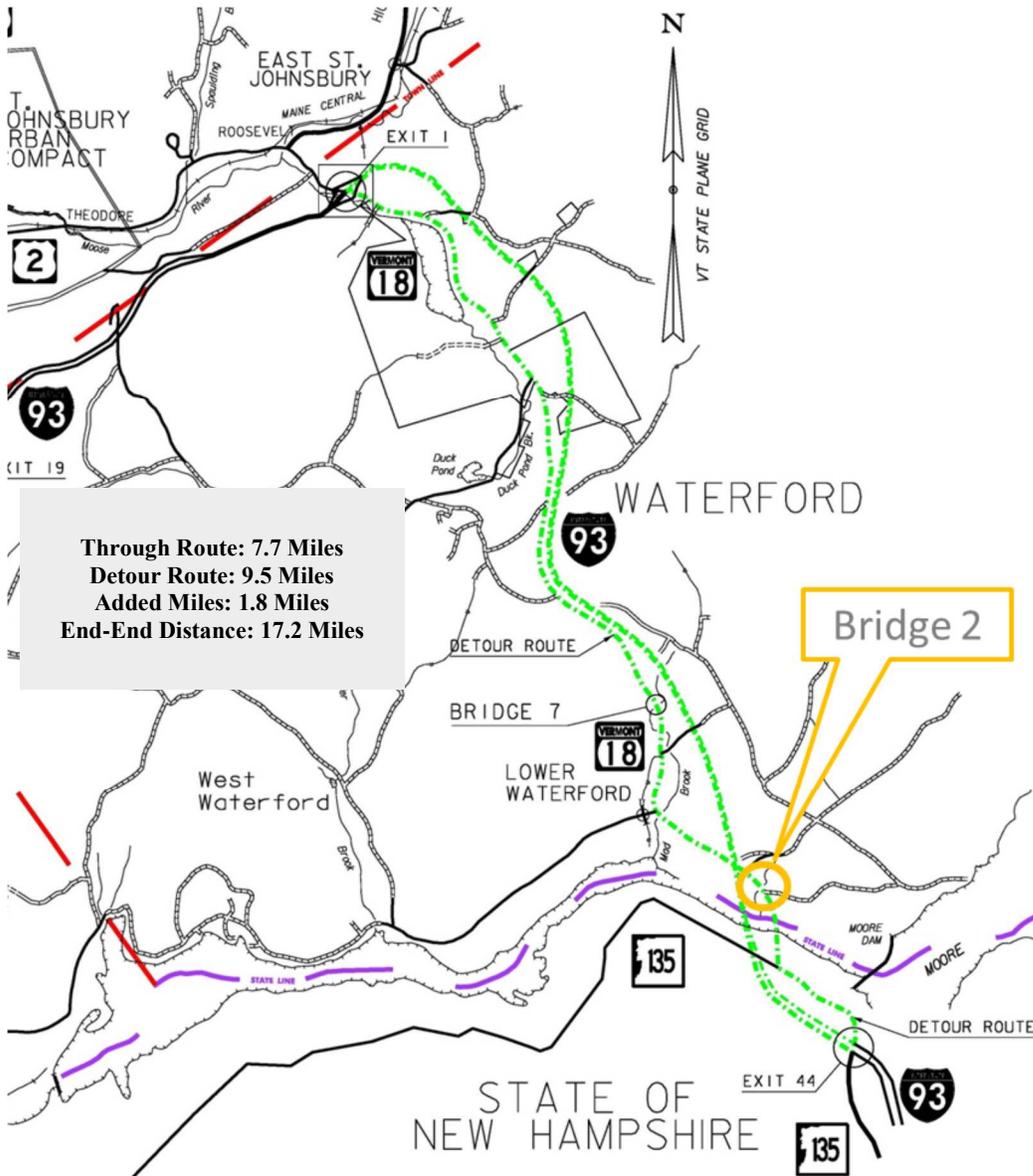
**Contractor:** TBD

**Estimated Total Project Cost (including engineering and contingencies):** TBD

**VTrans Project Manager:** Kristin Higgins, P.E.

**VTrans Resident Engineer:** Unknown at this time

**Detour Route:** VT Route 18, to NH Route 18, NH Route 135, and I-93, back to VT Route 18



Bridge Location Map



Holes in Corrugated Metal Pipe



Outlet End Drop in Stream



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