

MEMO TO: Tom Leitz
FROM: Alec Tuscany
DATE: 13 November 2024
SUBJECT: Long Term Bridge & Large Culvert Maintenance Program

Long Term Bridge & Large Culvert Maintenance Plan Development Assumptions:

- Costs based on late 2024 construction and material costs. No inclusion of future inflation costs have been included for future year projects.
- Due to the high cost of the Gregg Hill Road culvert replacement (\$134, 058) recommend large culverts and box culverts also be included in the long term maintenance plan. The large culverts and box culverts include:
 - Gregg Hill Culvert (87" HX 137"W)-replaced this year
 - Hollow Road (7' HX 11'-5" W)
 - Shaw Mansion Road 7' dia
 - Perry Hill Road (near Upland Mowing Road)
 - Hubbard farm Road
 - Guild Hill Road concrete box culvert
 - Log Cabin concrete box culvert (5' +/- H X 17 feet wide)
- The following sources were utilized to develop individual bridge or large culvert maintenance scopes of work and costs.
 - Review of VTRANS September/October and December 2023 Bi-annual bridge inspection reports. VTRANS only looks at bridges greater than 20 feet in length or greater. VTRANS does not look at large culverts.
 - Inspection by Stantec Bridge Division
 - Bridge and large culvert contractors-Austin Construction, JA McDonald and Vt Protective Coating
 - Field visits by Town staff

2025

For 2025 Bridge 14 erosion control work is more critical than work on Bridge 3 but Bridge 3 does exhibit safety concerns due to narrowness of bridge. Bridge 3 work could be put off until 2026

Bridge 3 Guptil Road (near Viens driveway)

Bridge is in generally good condition structurally but the deck needs to be repaved after a new membrane is added following concrete deck repair. Upstream concrete fascia beam needs to have spalling repaired. The bridge is narrow causing noticeable slow down of traffic when both lanes of traffic approach the bridge at the same time. During reconstruction described below one lane traffic will be maintained via traffic lights. Contractor space will be tight. Work will be done one half of the bridge at a time. Project will add 1 foot of width to the bridge.

- Remove existing pavement.
- Cut out concrete curb
- Repair concrete deck as needed
- Apply membrane to repaired deck
- Remove existing rail and wood block back to the existing concrete posts

- Repair concrete posts as needed.
- Install tubular steel railing on top of and between the concrete posts. This will visually add width to the bridge.
- Replace approach rail on both ends of the bridge.
- Patch upstream fascia beam.
- Cost \$298,540

Bridge 47 North Main Street

Continue to work (EVERY YEAR) with CVRPC and VTRANS to insure Bridge 47 continues to be at the top of CVRPC and VTRANS Bridge Program for replacement.

2026

Bridge 5 Guptil Road

- Recent Town inspection shows upstream and down stream fascia beams exhibit significant peeling paint and rust.
- Requested quote from VT Protective Coating to clean/scrape fascia beams and paint and then grease and clean and grease interior beams.
- Awaiting Quote

Bridge 31 Winooski Street

- In 2021 VTRANS Bridge Inspection report VTRANS stated " The steel truss is in good condition but with paint starting to fail in places. It is recommended to clean and paint the spots on the bottom chord, the ends of the floor beams and stringers to prevent the deterioration of the structure".
- The 2023 VTRANS Bridge Inspection report indicates while Deck Sidewalk Condition is deemed good some timber planks have some rot.
- Bridge is jointly owned by Town of Duxbury and Town of Waterbury
- The Historic Bridge Preservation Easement Agreement between the State of Vermont Agency of Transportation and Towns of Waterbury and Duxbury indicates:
 - Paragraph 3 (viii) indicates Town responsible for "Replacing damaged pressure treated boards on sidewalk as necessary
 - Paragraph 4 (b) indicates Agency contingent on Municipalities full performance of their responsibilities under Paragraph 3, above, will supplement Municipalities efforts by periodically removing spot rust, applying primer and paint, and coating steel at bearing points and joints with grease. In addition, the Agency will replace the sidewalk deck once needed.
 - Several times since 2005 the Town has asked VTRANS to meet their responsibilities relative to the painting. VTRANS indicated there was no money in their budget to do this.
- While by the Easement Agreement it is not the Town's responsibility to paint the bridge we should start immediately discussions with the State to live up to their painting responsibilities before the structure painting fails further.

- However since VTRANS to date has shown no willingness to paint the bridge the Town has asked VT Protective Coating for a quote to perform the painting work. Awaiting Quote \$
- Recommend Waterbury talk with Duxbury to proceed together to paint the bridge

Shaw Mansion Road Culvert

- Existing culvert 7ft diameter.
- Existing culvert is starting to show rust and small holes in the bottom of the culvert.
- Drainage area very steep (average 17%) with almost no floodplain for storage.
- Based on hydraulic calculations, Grenier Engineering recommends replacing the existing culvert with a larger pipe arch culvert identical in size (137" X 87") to the recently replaced Gregg Hill culvert.
- Existing culvert has less than 2 feet of cover. Project would raise road surface by 2 feet.
- Total cost \$130,000

2027

Hollow Road Culvert

- Existing culvert 7 ft H X 11'-5" W X 110' L
- Some rust showing in bottom of culvert
- Beavers continue to build dams downstream and in the culvert backing up water and reducing hydraulic capacity.
- Grenier recommends pipe arch 142" W X 91" H 10 gauge coated steel
- Replacement will require a significant amount of material to move as the existing culvert is well below grade
- Total cost: culvert (\$60,000) plus JA McDonald quote (\$202,790)= \$262790