

**Town of Sunapee
Bridges Maintenance Capital Reserve Plan**

Schedule of Repair or Replacement with Estimated Cost (Document Updated on September 6, 2017)

| Planned Maintenance Schedule | NHDOT Bridge No. | Road Name & Water Body Name | Year Built | Bridge Type | Total Bridge Length | Deck Width | Wearing Surface | Bridge Posting | Bridge Condition | Maintenance Required | Estimated Repair or Replacement Cost | Estimaed Cost from Capital Reserve Fund | Projected Annual Capital Reserve Contribution | Estimated Annual Capital Reserve Fund Balance |
|------------------------------|--|------------------------------------|------------|--|---------------------|------------------|---|----------------|--|---|--------------------------------------|---|---|---|
| | | | | | | | | | | | | | | \$45,339.64 |
| 2016 | 094/100 | Lower Main Street over Sugar River | 1900 | Steel "I" beams with cast-in-place concrete deck, asphalt wearing course, field stone (mortared) capped concrete abutments, concrete footings, and coated metal substandard bridge rail. | 26 FT | 22 FT | 3" Bituminous concrete pavement | 6 Ton | Good: Reconstruction of the bridge deck and guardrails were completed in 2015 | Annual bridge deck cleaning. Treatment of laminated timbers every 3-5 years. | \$0 | \$0.00 | \$0.00 | \$45,339.64 |
| 2017 | Ear-marked for construction of Bradford Road Bridge | | | | | | | | | | | \$0.00 | \$100,000.00 | \$145,339.64 |
| 2017 | NHDOT Block Grant Aid from SB 38 Ear-marked for construction of Bradford Road Bridge | | | | | | | | | | | | \$104,429.79 | \$249,769.43 |
| 2018 | 071/052 | Bradford Road over Trask Brook | 1950 | Steel "I" beams with corrugated steel and concrete deck, asphalt wearing course, field stone (mortared) capped concrete abutments, field stone capped concrete footings, and substandard bridge rail. | 20 FT | 19 FT - 4 Inches | Bituminous concrete pavement without bitumastic membrane | 12 Ton | NHDOT Redlist: "I" Beam failure, deck and pavement minor spalling and cracking, abutment spalling under "I" beams and within total section. | Replace the existing bridge with a pre-cast concrete open bottom box culvert on pre-cast concrete footings, pre-cast concrete abutments, 3" bituminous concrete pavement wearing course and new guardrails. | \$210,000 | \$210,000.00 | \$50.00 | \$39,819.43 |
| 2019 | | | | | | | | | | | | \$0.00 | \$50,000.00 | \$89,819.43 |
| 2020 | | | | | | | | | | | | \$0.00 | \$50,000.00 | \$139,819.43 |
| 2021 | 4 | Jobs Creek Road over Jobs Creek | Unkown | Single span cast-in-place concrete deck with cast-in-place concrete abutments and cast-in-place concrete abutment extensions. Pre-cast concrete slab and steel "I" beam filled with concrete deck extensions, 3" bituminous concrete pavement wearing course, metal post (welded to "I" beam) and metal guardrail (substandard). | | | 3" bituminous concrete pavement without bitumastic membrane | None | Super structure is cast-in-place concrete deck slab with slab extensions and appear to be in good and poor condition respectively. Substructure is cast-in-place concrete abutments with extensions and appears to be in good and poor condition respectively. Stone wing walls appear to be stable and in fair condition. Metal guardrails are substandard. Bridge should be analyzed for structural capacity. A new bridge extension on the east side of the bridge, and new guardrail system should be installed. | Remove existing bridge deck and abutments and replace it with a pre-cast concrete open bottom box culvert with pre-cast wing walls. Install bridge guardrail and approach rail sytems. | \$125,000 | \$125,000.00 | \$50,000.00 | \$64,819.43 |
| 2022 | 13 | Nutting Road over Trask Brook | Unkown | Twin 5-foot diameter corrugated metal culvert pipes with dry laid field stone embankment wing walls and no guardrail. | 12FT | 24FT | Pavement | None | Light rusting, pitting and scale at inverts, both pipe ends in fair condition. Pipes need to be exposed. Guardrail system should be installed. | Re-establish stream channel through both culverts. Install concrete headwalls at both pipe ends and install guardrail system. | \$40,000 | \$40,000.00 | \$50,000.00 | \$74,819.43 |
| 2023 | | | | | | | | | | | | | \$50,000.00 | \$124,819.43 |
| 2024 | | | | | | | | | | | | | \$50,000.00 | \$174,819.43 |
| 2025 | 069/069 | Trask Brook Road over Trask Brook | 1983 | Twin 5-foot diameter corrugated metal culvert pipes with stone masonry and concrete abutments, dry laid field stone wing walls and no guardrail. | 11 FT | 16 FT | Gravel | None | NHDOT Redlist: Light rusting, pitting and scale at inverts, both pipe ends damaged with 8 FT section loss (ripped with holes along both valleys). | Replace existing culverts (or re-line the culverts provided hydraulic capacity is sufficient to allow), construct cast-in-place concrete abutments, inlet and discharge aprons and new guardrails. | \$125,000 | \$125,000.00 | \$50,000.00 | \$99,819.43 |

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| 2026 | | | | | | | | | | | | | \$50,000.00 | \$149,819.43 |
| 2027 | 9 | Sargent Road over Tucker Brook | Unkno wn | Single span cast-in-place concrete on corrugated metal deck, dry laid stone and concrete capped field stone abutments, dry laid field stone wing wall extensions, gravel wearing course and no guardrail system. | | | Gravel | None | Super structure (cast-in-place concrete deck) appear to be in fair condition. Substructure (dry laid stone abutments with a concrete cap) appear to be in fair to poor condition. Stone wing walls appear to be stable and in fair condition. Bridge should be analyzed for structural capacity. Bridge may need to be replaced in its entirety the near future. Guardrail system should be installed. | Remove exsting bridge deck and abutments and replace it with a pre-cast concrete open bottom box culvert with pre-cast wing walls. Install wooden bridge guardrail and approach rail sytems. | \$145,000 | \$145,000.00 | \$50,000.00 | \$54,819.43 |
| 2028 | | | | | | | | | | | | | \$50,000.00 | \$104,819.43 |
| 2029 | | | | | | | | | | | | | \$50,000.00 | \$154,819.43 |
| 2030 | 6 | Perkins Pond Road over Ledge Pond Brook | Unkno wn | Single span cast-in-place concrete on corrugated metal deck, dry laid stone and concrete capped field stone abutments, dry laid field stone wing wall extensions, gravel wearing course and no guardrail system. | | | Gravel | None | Cast-in-place concrete deck appears to be in fair condition. Dry laid stone abutments and concrete cap appear to be in fair to poor condition. Stone wing walls appear to be stable and in fair condition. Bridge deck slab should be analyzed for structural capacity. Bridge may need to be replaced in its entirety the near future. Guardrail system should be installed. | Remove existing bridge deck and abutments and replace it with a pre-cast concrete open bottom box culvert with pre-cast wing walls. Install bridge guardrail and approach rail sytems. | \$165,000 | \$165,000.00 | \$50,000.00 | \$39,819.43 |
| 2031 | | | | | | | | | | | | | \$50,000.00 | \$89,819.43 |
| 2032 | | | | | | | | | | | | | \$50,000.00 | \$139,819.43 |
| 2033 | 3 | Jobs Creek Road GM over Un-named Brook | Unkno wn | Single span precast concrere arch deck slabs with field stone (dry laid) abutments (under road), pre-cast (dry stacked) concrete waste block abutments (at bridge ends) with extension on down gradient side of bridge, 3" bituminous concrete deck, waste block (dry stacked) wing walls, no guard rail | | | 3" bituminous concrete pavement without bitumastic membrane | None | Super structure (pre-cast concrete deck slabs and cast-in-place concrete arch) appear to be in good and fair condition respectively. Substructure (2-ton waste block abutments and dry laid stone abutments) appear to be in good and fair/poor condition respectively. Stone wing walls appear to be stable and in fair condition. Stone gabion wearing surface retaining system should be replaced with proper bridge wearing surface retaining system. Bridge should be analyzed for structural capacity. Bridge may need to be replaced in the near future, or have the center section replaced at a minimun to match both bridge ends. Guardrail system should be installed. | Remove existing bridge deck and abutments and replace it with a pre-cast concrete open bottom box culvert with pre-cast wing walls. Install bridge guardrail and approach rail sytems. | \$130,000 | \$130,000 | \$50,000.00 | \$59,819.43 |
| 2034 | | | | | | | | | | | | | \$50,000.00 | \$109,819.43 |
| 2035 | 121/166 | Old Route 11 over Otter Pond Outlet | 1927 | Single span cast-in-place concrete slab with reinforced cast-in-place concrete abutments and footings, cast-in-place concrete channel bottom, 3" bituminous concrete wearing course, coated metal bridge rail (sub standard). | 22 LF | 21.9 LF | 3" Bituminous concrete pavement | E2 | Light leaking at slab ends, delamination and spalling of concrete at north end of bridge (Condition is considered severe). Delamination at southwest breast wall with vertical and transverse cracking on all wing walls. Asphalt wearing course is heavily cracked (condition is considered severe). | Repair delaminated and spalled areas of concrete on the abutments and wing walls. Treat concrete surfaces. Resurface the bridge with 3" bituminuous concrete (install membrane if necessary). Replace existing guardrails with standard bridge rail. | \$85,000 | \$100,000.00 | \$50,000.00 | \$59,819.43 |
| 2036 | | | | | | | | | | | | | \$50,000.00 | \$109,819.43 |

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| 2037 | 097/100 | Lower Winn Hill over Sugar River | 2004 | Laminated wood deck, laminated beams, field stone (mortared) capped concrete abutments, asphalt wearing course, wing-walls and footings, and laminated wood guardrail over bridge with no approach rail system. | 25 FT | 16 FT | 1" Bituminous concrete pavement | None | Deck is in very good condition. Superstructure is in very good condition. Substructure is in fair condition. Minor cracking in asphalt wearing surface. Approach rail and rail end not installed. | Clean, and cap (fill) existing field stone abutment. Remove and replace asphalt wearing course. Treat the laminated wood deck and beams. Install bridge approach guardrail, and replace damaged bridge guardrail. | \$100,000 | \$100,000.00 | \$50,000.00 | \$59,819.43 |
| 2038 | 097/101 | Lower Main Street over Ledge Pond Brook | 1985 | Metal plate single span box culvert with cast-in-place concrete deck, asphalt wearing course, granite bridge curb and galvanized bridge guardrail. | 11 FT | 24 FT | | E2 | South end of culvert and wing wall is severely undermined. Small kinks are present along the springline of the barrel. Settling of the barrel is approximately 3/8" at south end. Curbing is cracked in three areas at south end and spalling is present in construction joints at north end. | Remove and reconstruct the existing headwalls at both ends of the culvert. Rehabilitate the existing abutments, reconstruct sidewalk and re-install guardrail system. | \$75,000 | \$75,000.00 | \$50,000.00 | \$34,819.43 |
| 2039 | 100/100 | Mill Street over Sugar River | 1920 | Double span multi-steel "I" beams with wood deck and custom metal railing (Bridge Closed). | 52 FT | 13 FT | Timber Planks | CLOSED | BRIDGE CLOSED DUE TO FAILING CONDITION | Remove existing wood deck and bridge beams. Install permanent barrier. | \$15,000 | \$15,000.00 | \$50,000.00 | \$69,819.43 |
| 2040 | 108/99 | High Street | 2006 | Single span laminated timber beam and laminated timber deck bridge with asphalt wearing course over timber deck, mortared field stone abutments and concrete capped footings, laminated wood guardrail (no approach rail). | 27 FT | 24.3 FT | 3" Bituminous concrete pavement | None | Deck is in very good condition. Superstructure is in very good condition. Substructure is in satisfactory condition. Minor cracking in asphalt wearing surface. Bridge rail is substandard. | Clean and re-point existing field stone abutment joints. | \$100,000 | \$100,000.00 | \$50,000.00 | \$19,819.43 |
| 2041 | | | | | | | | | | | | | \$50,000.00 | \$69,819.43 |
| 2042 | 122/163 | Cooper Street over Otter Pond Outlet | 2006 | Laminated wood deck, laminated beams, asphalt wearing course, field stone (mortared) abutments capped with concrete, field stone wing-walls and footings, and laminated wood guardrail over bridge with no approach rail system. | 27.5 LF | 15.3 LF | 1.5" Bituminous concrete pavement | None | Deck is in very good condition. Superstructure is in very good condition. Substructure is in satisfactory condition with cracked stones and light erosion at the northeast and southwest abutments, and fine vertical cracks in the backwalls. Minor cracking in asphalt wearing surface. Approach rail and rail end not installed. | Clean and cap (fill) existing field stone abutments with concrete. Resurface existing deck (with Pavement Management Plan). Treat existing wood beams and wood deck, tighten all bolts and waterproof concrete bearing pedestals. | \$60,000 | \$60,000.00 | \$50,000.00 | \$59,819.43 |
| | 1 | Meadow Brook Road over Muzzy Brook | Unknown | Single span pre-cast concrete waste block slab with pre-cast concrete waste block abutments, gravel wearing surface, dry-laid stone abutments and no guardrail. | | | Gravel | None | Super structure (pre-cast concrete deck slabs) and substructure (2-ton pre-cast waste block abutments) appear to be in good condition. Stone wing walls appear to be stable. No bridge rail installed. Minor scouring and sediment deposition present at inlet and discharge of bridge. | Rehabilitate inlet and discharge aprons, remove vegetation from abutments, and clean stream channel | \$15,000 | \$15,000 | | \$44,819.43 |
| 2043 | 2 | Main Street GM over Muzzy Brook | Unknown | Single span precast concrete deck slabs with pre-cast (dry stacked) concrete waste block abutments, cast-in-place concrete stream channel, 3" bituminous concrete deck, dry-laid stone wing walls, wood guardrail and posts with no approach guardrail. | | | 3" bituminous concrete pavement without bitumastic membrane | None | Super structure (pre-cast concrete deck slabs) and substructure (2-ton pre-cast concrete waste block abutments) appear to be in good condition. Stone wing walls appear to be stable and in fair condition. Wood post and wood guardrails are substandard. Approach bridge guardrails should be installed. | Complete a structural evaluation of the pre-cast concrete bridge deck, and replace deck slabs if determined necessary. Clean, mortar and fill existing waste block joints. Rehabilitate discharge apron. Install standard bridge rail and approach rail. | \$30,000 | \$30,000 | \$50,000.00 | \$64,819.43 |
| | 5 | North Road over Ledge Pond Brook | Unknown | Single span pre-cast concrete waste block slab deck with pre-cast concrete waste block abutments, gravel wearing surface, dry-laid stone abutments and no guardrail. | | | Gravel | None | Super structure (pre-cast concrete deck slabs) and substructure (2-ton pre-cast waste block abutments) appear to be in good condition. Stone wing walls appear to be stable. No bridge rail installed. Bridge should be analyzed for structural capacity. A new guardrail system should be installed. A beaver debris grate should be installed on the upstream side of the bridge. | Complete a structural evaluation of the pre-cast concrete bridge deck, and replace deck slabs if determined necessary. Clean and mortar waste block abutment joints. Install beaver debris grate. Install bridge guardrail and approach rail systems. | \$20,000 | \$20,000 | | \$44,819.43 |

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|------------------------------|------------------|---|------------|---|---------------------|------------|---|----------------|--|--|--------------------------------------|--|---|---|
| 2044 | 7 | Avery Road (End of pavement) over Tucker Brook | Unknown | Single span pre-cast concrete waste block slab deck with pre-cast concrete waste block abutments, 3" bituminous concrete wearing surface, dry-laid stone abutments and no guardrail. | | | 3" bituminous concrete pavement without bitumastic membrane | | Super structure (pre-cast concrete deck slabs) and substructure (2-ton pre-cast waste block abutments) appear to be in good to fair condition. Stone wing walls appear to be stable. No bridge rail installed. Bridge should be analyzed for structural capacity. Guardrail system should be installed. | Complete a structural evaluation of the pre-cast concrete bridge deck, and replace deck slabs if determined necessary. Clean, mortar and fill existing waste block joints. Rehabilitate discharge apron. Install standard bridge rail and approach rail. | \$20,000 | \$20,000 | \$50,000.00 | \$74,819.43 |
| 2045 | 8 | Avery Road (Beginning of private road) over Tucker Brook | Unknown | Single span pre-cast concrete waste block slab deck with pre-cast concrete waste block abutments, gravel wearing surface, dry-laid stone abutments and no guardrail. | | | Gravel | None | Super structure (pre-cast concrete deck slabs) and substructure (2-ton pre-cast waste block abutments) appear to be in good to fair condition. Stone wing walls appear to be stable. No bridge rail installed. Bridge should be analyzed for structural capacity. Guardrail system should be installed. | Complete a structural evaluation of the pre-cast concrete bridge deck, and replace deck slabs if determined necessary. Clean, mortar and fill existing waste block joints. Rehabilitate discharge apron. Install standard bridge rail and approach rail. | \$20,000 | \$20,000 | | \$54,819.43 |
| 2046 | 10 | Stagecoach Road (near Harding Hill Road) over Trask Brook | Unknown | Single span cast-in-place concrete box culvert with cast-in-place concrete abutments, wing walls and channel bottom, 3" bituminous concrete wearing course and no guardrails. | | | 3" bituminous concrete pavement without bitumastic membrane | None | Super structure and substructure (cast-in-place concrete box culvert) appear to be in good to fair condition with corrosion of the west end of the box culvert visible. Cast-in-place concrete wing walls appear to be in good condition. No bridge rail installed. Bridge should be analyzed for structural capacity. Guardrail system should be installed. | Repair spalled areas of concrete on the abutments and wing walls. Clean and treat concrete surfaces. Resurface the bridge with 3" bituminous concrete (with Roadway Management Plan). Install guardrails and approach bridge rail. | \$25,000 | \$25,000 | \$50,000.00 | \$79,819.43 |
| 2047 | 11 | Harding Hill Road (west end) over Unknown Intermittent Stream | Unknown | Single span cast-in-place open bottom concrete box culvert with cast-in-place concrete wing-walls, gravel wearing course and no guardrail system. | | | Gravel | None | Super structure and substructure (cast-in-place concrete open bottom box culvert) appear to be in good to fair condition with corrosion of the south end of the box culvert visible. Stone wing walls appear to be in fair condition. No bridge rail installed. Bridge should be analyzed for structural capacity. Guardrail system should be installed. | Replace with rigid concrete pipe as determined necessary. Rehabilitate inlet and discharge aprons. | \$15,000 | \$15,000 | \$50,000.00 | \$114,819.43 |
| 2048 | 083/088 | Treatment Plant Road over Sugar River | 2009 | Single span cast-in-place concrete slab with reinforced cast-in-place concrete abutments and footings, cast-in-place concrete channel bottom, 3" bituminous concrete wearing course, coated metal bridge rail (sub standard). | 28 LF | 36.3 LF | 3" Bituminous concrete pavement | HL-93 | Deck is in very good condition. Superstructure is in very good condition. Substructure is in very good condition. Asphalt wearing surface is in good condition. Approach rail and rail ends are in good condition. | Clean and treat concrete surfaces. | \$0 | \$0.00 | \$50,000.00 | \$109,819.43 |
| 2049 | 111/099 | Main Street over Sugar River | 1992 | Single span laminated timber beam and laminated timber deck bridge with asphalt wearing course over timber deck, pointed field stone abutments and concrete capped footings, laminated wood guardrail (no approach rail). | 30 FT | 24.1 FT | 3" Bituminous concrete pavement | None | Deck is in good condition. Superstructure is in good condition. Substructure is in satisfactory condition. Cracking and potholes present in wearing course on the deck and leaking water observed at deck ends. | Resurface existing deck (with Pavement Management Plan). Treat existing wood beams and wood deck, tighten all bolts and waterproof concrete bearing pedestals. | \$0 | \$0.00 | \$50,000.00 | \$69,819.43 |
| 2050 | 12 | Harding Hill Road (east end) over Unknown Intermittent Stream | Unknown | Single span cast-in-place concrete box culvert with cast-in-place concrete wing-walls, gravel wearing course and no guardrail system. | | | Gravel | None | Super structure and substructure (cast-in-place concrete open bottom box culvert) appear to be in good to fair condition with corrosion of the south end of the box culvert visible. Stone wing walls appear to be in fair condition. No bridge rail installed. Bridge should be analyzed for structural capacity. Guardrail system should be installed. | Replace with rigid concrete pipe as determined necessary. Rehabilitate inlet and discharge aprons. | \$15,000 | \$15,000 | \$50,000.00 | \$149,819.43 |

NOTE: THE COST ESTIMATE PROVIDED IS CONCEPTUAL AND WAS DEVELOPED USING CURRENT NHDOT UNIT PRICES. THE PROJECT COMPONENTS SHALL BE REVIEWED BY A STRUCTURAL ENGINEER, AND THE CONCEPTUAL COST MAY BE ADJUSTED AS NECESSARY TO MORE ACCURATELY REFLECT THE COST TO COMPLETE THE REPAIRS.