

Project Description/Purpose and Need Statement

Project No. 0085-0148

Replacement of Bridge No. 01406 in Montville
Route 163 over Oxoboxo Brook

Bridge No. 01406 was built in 1925 and carries Route 163 over Oxoboxo Brook, approximately 3.3 miles south of Route 82 in Montville. The bridge carries one lane of Route 163 in each direction, and the 2023 estimated average daily traffic is 1,600 vehicles, with 3% trucks.

The existing bridge is single span, 25-foot long by 32-foot 8-inch wide reinforced concrete slab supported by reinforced concrete abutments. There are no available plans, shop drawings or material properties for this bridge. It was given HL-93 Inventory and Operating judgement ratings of 36 and 47 tons, respectfully, based on no visible distress to the structure in its 100-year lifetime.

The bridge does not carry any known utilities; however, there are overhead electrical and communication lines located on the east side of the structure. These utilities will likely need to be relocated for construction.

The condition rating for the Deck, per the CTDOT Bridge Inspection Manual, is based only on the condition of the overlay because the deck is integral with the superstructure, which is a reinforced concrete slab. The Overlay has a condition rating of 5 – Fair. The bituminous concrete overlay has longitudinal and transverse cracks as well as areas of map cracking with cracks up to 3/4 inch wide, rutting with settlement up to 3/4 inch, and areas of delamination up to full length by 3 feet wide.

The Superstructure has a condition rating of 4 – Poor. The underside of the reinforced concrete slab displays hollow areas up to full length by 3 feet wide with and without efflorescence, longitudinal hairline cracks and areas of map cracking with and without efflorescence, and areas of severe honeycombing up to 48 inches long by 12 inches wide by 5 inches deep with and without exposed rebar. At each slab fascia, there are vertical hairline cracks with and without efflorescence. Per the latest inspection report, approximately 34% of the slab is deteriorated.

The Substructure has a condition rating of 5 – Fair. The reinforced concrete abutments display moderate to heavy scale up to 1 inch deep along the water surface, hollow areas, and diagonal cracks up 1/4 inch wide with efflorescence and up to 1/8 inch of misalignment at adjacent vertical faces. The reinforced concrete wingwalls display moderate to heavy scale up to 1 inch deep along the water surface. At Wingwall 1A, there is a 1-foot by 1-foot area of severe scale up to 3 inches deep and a 9-inch long by 5-inch high by 1 inch deep spall. At Wingwall 2A, there is a 2 foot long by 1 foot high area of scale up to 1 inch deep with an adjacent hollow area. The abutment footings are exposed up to full length by 9 inches high.

The Channel and Channel Protection have a condition rating of 6 – Satisfactory. The middle of the channel below the superstructure has a localized area of scour up to 3 feet deep. The upstream and downstream channel embankments display areas of undercutting. Per the latest inspection report, Item 113 Scour Critical as a condition rating of 5 – Fair.

According to FEMA Flood map panel 09011C0331G the bridge is located in a special flood hazard area.

The purpose of this project is to address the above noted structural deficiencies and to provide a structure that meets current design standards, load rating requirements, and provides adequate hydraulic capacity. A full replacement of the bridge is required to meet these goals.