Project Description/Purpose and Need Statement

Project No. 0103-0283
Replacement of Bridge No. 00273
City of Norwich

Bridge No. 00273 is a two-span structure carrying Cranberry Hill Road over Interstate 395 (I-395) approximately 0.7 miles south of Route 2 in Norwich. The existing structure, constructed in 1958, consists of a reinforced concrete deck simply supported by steel plate girders for both spans. The substructure consists of reinforced concrete abutments and a median pier with spread footings as well as a counterforts at the west abutment. It provides a total travelway width of 40'-0" consisting of one (1) 12' travel lane with an 8' shoulder in each travel direction. Cranberry Pond Road has a posted Speed Limit of 25 MPH and an AADT of approximately 537 vehicles. The approaches past both ends of the bridge narrow down to a smaller roadway cross-section that is more typical of the remainder of Cranberry Pond Road. Protective fencing is attached to the top of both bridge parapets. There are overhead utilities along the north edge of the roadway throughout the project limits. The existing minimum vertical clearance to I-395 below which has two (2) lanes of traffic with shoulders in each travel direction is currently substandard at 14'-2".

Bridge No. 00273 is in poor condition due to its Superstructure rating of '4'. Steel girder ends near the pier have up to 1/4" deep section loss to web base with isolated perforations as well as section loss up to knife edge and perforations to adjacent bearing stiffeners. Bottom flanges have section loss up to 1/4" deep for up to 15' long. Diaphragms have section loss up to 3/16" primarily near the pier. Bearings exhibit light to moderate rust with up to 1/4" of laminated rust between plates. The Deck is in satisfactory condition with a rating of '6' and exhibits random spalls up to 2.5' long by 5.5' wide by 1.5" deep with exposed reinforcement. Expansion joints contain open 3/4" wide and up to 20' long with settlement of up to 2.5". The Substructure is in satisfactory condition with a rating of '6'. Abutments and wingwalls have random areas of light scale which extend onto bridge seats as well as random hollow areas and spalls up to 13" high by 6" wide by 1/2" deep with exposed reinforcement. The pier has isolated hollow areas and spalls up to 16" wide by 5" long by 2.5" deep with exposed reinforcement.

The purpose of this project is to replace Bridge No. 00273 due to its structural deficiencies in order to provide a structure that is in a state of good repair, is capable of meeting current load rating and highway design standards, and improves the vertical clearance to I-395. The proposed replacement structure will consist of a standard reinforced concrete deck and reinforced concrete parapets with protective fencing supported by steel plate girders with improved details to minimize the need for future maintenance placed on top of new reinforced concrete abutments and pier within the I-395 median. The roadway profile will be raised to improve the vertical clearance to I-395 to 16'-3". The new structure will provide one (1) 10' travel lane with a 5' shoulder in each travel direction resulting in a proposed structure that is meeting current standards but is narrower than the existing. The approaches will be reconstructed to match the revised bridge width and to properly transition to the narrower roadway cross-section beyond the project limits. Appropriate guiderail attachments to the bridge and end anchorages will be installed. Drainage structures within the project limits will be modified accordingly.

Replacement will require closure of the Cranberry Pond Road for the duration of construction of approximately two (2) construction seasons with a proposed detour that involves all local roads. Shoulder closures on I-395 are anticipated for work area protection and for completing construction activities. Overhead utilities will require temporary and/or permanent relocation during construction. The existing and proposed structures are entirely within the existing Right-of-Way, so no Right-of-Way impacts are anticipated. There are no environmental permits anticipated for this project as there are no wetlands or watercourses within the proposed project excavation/fill limits. Construction is anticipated to begin in the Summer 2028 based on the availability of funds. The estimated construction cost is approximately $14 million and is anticipated to be undertaken with 80% federal funds and 20% state funds.