

I-95 Bridges Project in Etna Completed Under Accelerated Design Schedule

Two I-95 bridges over Route 143 in Etna were completed on time late last year under an accelerated design phase using federally earmarked and high priority funding.

As a condition of awarding the design contract to the engineering firm Erdman Anthony, Rochester, NY, MaineDOT required the design phase be completed in three months, rather than the normal six to 12 months typical for a project this size. During the initial stage, Erdman Anthony not only developed the design, the firm also completed detailed life-cycle cost analyses of several alternatives, an FHWA requirement to justify design recommendations to replace the structure.

“Because the existing 135-ft, three-span structures had sufficiency ratings of greater than 50, it was necessary for us to develop much shorter single-span alternatives with lower life-cycle costs when compared to rehabilitation alternatives,” said Erdman Anthony Project Manager Frank Dahar, PE. “Additionally, rehabilitation alternatives would not eliminate the nonstandard bridge under-clearance, which showed considerable impact damage from large trucks,” added Dahar.

After MaineDOT approved Erdman Anthony’s preliminary design, Erdman Anthony moved directly into final design to meet the deadline. “Without the support and the quick decision making by MaineDOT, we would not have met the deadline,” said Dahar.

The replacement bridges are 78 ft long, with 40-ft-wide composite steel plate girder superstructures supported on T-wall wrapped integral abutments on piles. The need to improve deficient bridge under-clearances and minimize impact to I-95 traffic required that the superstructure be designed with shallow, Grade 50 steel plate girders.

Erdman Anthony also provided construction administration services during construction. Wyman & Simpson, Richmond, constructed the project, and Wendell Harriman of MaineDOT was the Resident Engineer during construction. Construction cost of the twin I-95 structures was \$3.65 million.

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