



NHDOT EXIT 5 INTERCHANGE RECONSTRUCTION Manchester, NH

CLIENT

State of New Hampshire
Department of Transportation
Hazen Drive
Concord, NH 03302-0483
(603) 271-2731
Contact: Robert Landry, P.E.

LOCATION

Manchester, New Hampshire

COST

Construction Cost: \$30 Million

PROJECT COMPLETION

2008

DESCRIPTION

The State wished to replace the existing I-293 northbound and southbound bridge over Granite Street with a larger structure to accommodate the proposed turnpike widening and construction of a Single Point Diamond Interchange (SPDI) at Exit 5. Northbound on-ramps and southbound off-ramps were also added within the constraints of an urban area and the Merrimack River.

The existing interchange was replaced with a single point diamond interchange in order to accommodate the widened main line and new ramps while the highway was relocated to the west. This necessitated the relocation of Allard Drive. To also accommodate grade changes in the tight location, 2,400 feet of retaining walls were built. Approximately 2,100 feet of retaining walls were also constructed to avoid impacts to the Merrimack River. A steel 227-foot single-span bridge was needed to span the new SPDI interchange.

The proposed typical roadway section carried through the bridge is 4-12-12-10 northbound and southbound with a 50'-0" median to allow for a future widening to six total lanes. The resulting curb-to-curb dimension is 117'-2" and the total out-to-out width is 121'-0" including the curb sections. T2 bridge rail with snow fence were used at the curbs. The bridge was constructed in phases to maintain traffic while construction was on-going.



- Bridge Design
- Concrete Cantilever Deck Rehabilitation
- Roadway Relocation and Design
- Utility Coordination Relocation
- Retaining Wall and Mini-Pile Design
- Environmental Support
- Phased Construction
- Sound Walls
- Coordination with Granite Street Widening Project's Schedule

One element of the project consisted of the rehabilitation of the existing northbound off-ramp. CLD recommended detailed improvements that included a partial depth deck repair, joint replacements, and concrete wall and beam repairs to the cantilevered concrete ramps. Also, the walls along the river were supported on drilled mini-pile foundations.

This project involved a major coordination component including utilities, geotechnical, and environmental, as well as careful coordination with the City's Granite Street project in order to ensure compatibility of the design and schedules.