

Appendix 1 - Overview, Maintenance and Innovation

The State of New Jersey encompasses 7,417 square miles of land area. While ranking the 46th among the States in total area, it is the most densely populated State. It is also the most highly urbanized.

New Jersey's inventory contains over 6,400 records of highway carrying bridge structures. One of the structure of note is the Pulaski Skyway bridge. The Pulaski Skyway opened to traffic in 1932. It was constructed to provide a high level crossing of the Hackensack Meadowlands between Jersey City and Newark. This improvement to the highway system designed to fed traffic into the Holland Tunnel and Lincoln Tunnels. This three and a half mile long structure consists of numerous short span Pratt deck trusses and two 1,250 ft long steel cantilever through trusses that span the Passaic River and Hackensack River.



Another structure of note is the Scotch Road over I-95 Bridge, a modern high performance steel (HPS) integral abutment bridge, which is pictured on the cover of this Manual. This bridge is the first HPS construction as well as the first integral jointless abutment bridge for the New Jersey DOT. The bridge reflects a trend of reducing life long maintenance work and cost. The bridge opened to traffic in 2003. The structure is 298 ft long, consisting of two equal continuous spans of HPS plate girders and expansion joints are eliminated.



The challenge for bridge engineers in New Jersey is to maintain the integrity of the State's aging bridge structures and design innovative new structures to meet today's and tomorrow's traffic needs. We encourage the use of enhanced materials, such as High performance Steel (HPS) and High Performance Concrete (HPC), to better assure the expectancy of a bridge structure design life. Subsequent to the new construction of bridge and other traffic structures, their condition must be evaluated on a periodic basis.

The 5th Edition of the Design Manual addresses the complete use of the AASHTO LRFD Bridge Design Specifications for designing bridge structures. Adhering to the criteria of the Manual is in line with the FHWA requirement that design of all new bridges in Federal aid funded projects are to be designed to the AASHTO LRFD Bridge Design Specifications. This Manual provides guidance and direction to accomplish these tasks. Following the direction and guidance stated in this Manual for highway bridges and structures will provide consistency with the New Jersey DOT Standard Specifications for Road and Bridge Construction, the AASHTO LRFD Bridge Design Specifications, other relevant AASHTO design specifications, and the FHWA documents.

The 5th Edition of the Design Manual supersedes the 4th Edition of New Jersey DOT Bridges and Structures Design Manual (2002) and its interim (2004).