

## **Section 1 - Introduction**

### **1.1 Purpose**

This Manual, supplemented by other NJDOT Baseline Documents and operating procedures and policies, is the vehicle by which the design of bridges and structures is implemented. Presented herein is a compilation of NJDOT Structural Design guidance, specification interpretations, standard practices, details and standards.

Good design practice will always require a combination of basic engineering principles, experience and judgment in order to furnish the best possible structure to suit an individual site within reasonable economic limitations. It does not preclude justifiable exceptions, subject to the approval of the Manager, Bureau of Structural Engineering, provided the exceptions are based on sound engineering principles.

While the Design Manual establishes the standards for designing bridge structures in New Jersey, Designers are encouraged to explore innovative methods in providing NJDOT project bridge designs. Discovery of an innovative method and a concurrence for its use should be submitted to the Bureau of Structural Engineering. Sufficient information; such as, history of the method's development, identification of successful use by other States and evidence of adherence to AASHTO LRFD design parameters must be provided.

Use of Prefabricated Bridge systems is also strongly encouraged, along with the use of enhanced materials; such as, High Performance Steel and High Performance Concrete to better assure the attainment of a bridge structure's design service life expectancy.

### **1.2 Reference Publications**

- A. The following publications, as modified in this Manual, govern the design of bridges and structures:
- AASHTO A Policy on Geometric Design of Highways and Streets
  - AASHTO Guide Specifications and Commentary for Vessel Collision Design of Highway Bridges
  - AASHTO Guide Specifications for Fracture Critical Non-Redundant Steel Bridge Members
  - AASHTO Guide Specifications for Highway Bridge Fabrication with HPS 70W Steel
  - AASHTO Guide Specifications for LRFD Seismic Design of Highway Bridges
  - AASHTO LRFD Bridge Design Specifications
  - AASHTO LRFD Bridge Construction Specifications
  - AASHTO LRFD Guide Specifications for Design of Pedestrian Bridges
  - AASHTO LRFD Movable Highway Bridge Design Specifications
  - AASHTO Manual for Bridge Evaluation
  - AASHTO Manual on Foundation Investigations
  - AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals
  - AASHTO/AWS D1.1 Structural Welding Code-Steel
  - AASHTO/AWS D1.5 Bridge Welding Code
  - AREMA Manual for Railway Engineering
- B. The above publications are approved references to be used in conjunction with this Manual. Primarily they set forth minimum nationwide requirements which are consistent with current practice, but require modifications to suit local

conditions. In the event of conflict in the requirements, the instructions in this Manual shall govern.