

## **INTRODUCTION TO THE PURPOSE AND USE OF THIS BRIDGE MANUAL**

### **i. PURPOSE**

The purpose of this Bridge Manual is to promote efficiencies in the design and construction of bridges in the Commonwealth of Massachusetts by providing uniform bridge design requirements, by standardizing construction details and by pre-designing common bridge details. Understanding that there are as many ways to design and detail a bridge as there are Designers, it is more efficient to settle on one standard way so that Contractors, Detailers, Fabricators and Resident Engineers can get accustomed to a standard approach to the building of bridges, and, as a result, the Commonwealth will reap economies of scale as bridge construction becomes a familiar, repetitive task.

The additional purpose of this Bridge Manual is to build on the wealth of knowledge gained from many decades of bridge design, construction and bridge performance in the Commonwealth. This historical perspective has allowed MassDOT to understand which details and designs have performed well, which have not and why. These lessons learned have gone into the development of the standard details of Parts II and III. The anticipated beneficial result is that good practices will be institutionalized for Designers to use so that their bridges will perform well over time.

### **ii. USE OF THIS BRIDGE MANUAL**

The bridge design guidelines and standard details presented in this Bridge Manual are specifically intended for the design and construction of new bridge structures in the Commonwealth of Massachusetts. With some modification, they are applicable for use with stage construction and superstructure replacement projects as well as deck replacement and some preservation projects.

However, this Bridge Manual cannot be expected to provide standard details or guidance to cover every type of situation that a Designer may encounter. For this reason, it is still the Designer's responsibility to verify that the design information and/or standard details presented in this Bridge Manual are applicable to their particular project or situation. Designers must be knowledgeable about bridge design and must stay up to date about all issues related to bridge design and construction practice, including fabrication, construction materials, safety, bridge inspection and durability. They must also demonstrate attention to detail and to the quality of design. In addition, Designers must use common sense, solving real problems rather than engaging in the pursuit of solutions to hypothetical "what if" problems that have little probability of ever happening in real life.

This knowledge and experience give the Designer the tools to determine if the Bridge Manual is applicable to their design situation or not or if a particular Bridge Manual standard detail needs modification in order to be applicable. Understanding the "why" behind a Bridge Manual guideline or detail is crucial. It is a poor, unacceptable practice for a Designer to just take a detail and then force it to fit a particular situation for which it is not suited only because it is in the Bridge Manual.

In situations where the Designer must stray outside of the Bridge Manual, the Designer is required to seek prior approval from the Bridge Section. The purpose of this is not to discourage the Designer's initiative, but rather to start a dialog with MassDOT about what the Designer intends to do and why, and, if needed, to collaboratively develop a mutually agreeable solution before the Designer expends too much effort towards a design that MassDOT, as the owner, may not find acceptable.