

## **1.1 Introduction**

### **1.1.1 Background**

The AASHTO Task Force on Hydrology and Hydraulics, in cooperation with the FHWA Rural Technical Assistance Program, has assisted in writing this Drainage Manual. This manual does not set AASHTO design policy and procedures. All design practices and procedures have been reviewed and set by the Connecticut Department of Transportation (ConnDOT).

### **1.1.2 Overview**

The AASHTO Task Force has incorporated their numerous years of experience into their comprehensive drainage manual. This has been modified by the ConnDOT to provide guidance on various aspects of highway drainage for the specific conditions in the State of Connecticut. Design theories, concepts, manuals, practices and procedures, are condensed and written for use by the designer. Where appropriate, relevant existing AASHTO guidelines are given and/or referenced.

The manual has been developed to give the designer a basic working knowledge of hydrology and hydraulics. All basic design elements are included such that the designer can design highway drainage with minimal assistance. However, this manual cannot provide guidance on complex hydrologic or hydraulic problems and is no substitute for experience or engineering judgment.

### **1.1.3 Manuals and Computer Programs**

References to specific computer programs, AASHTO guidelines, manuals and regulations will be noted within the manual. It is expected that the designer will be knowledgeable in the use of the referenced items. This manual cannot incorporate computer program user manuals or keep up-to-date with these programs and the latest drainage-related Federal regulations. Therefore, it is incumbent upon the hydraulic engineer to retain a current, working knowledge of all applicable statutes and regulations related to the discipline. Further, it is the responsibility of the engineer to obtain approval of any computer programs not specifically mentioned in this manual prior to initiating work on Department administered projects. In this manner, the designer will be assured that the Hydraulics and Drainage section concurs with the use of a specific computer program for the intended application.

### **1.1.4 Metric Conversion**

This manual is presented in dual units, SI (metric) and English units. In most cases all equations, tables and figures are given in dual units. In a few instances empirical equations, based on historical data, could not be converted to metric units and therefore only English units are given. Where equations could be converted, hard conversions between units were used. In all cases, computer software is available to obtain the required information in metric units. All example problems are given in metric units. The English equations and units are presented in parentheses. If the equations are the same for both systems, only one equation is presented. Care must be used to avoid improper use of metric input data into the historic English equations noted above.

### **1.1.5 References**

At points in the manual where the designer may need more detailed source material, references are given. The reference section at the end of each chapter has been organized to include these source documents as well as a short listing in bold print of those documents which are recommended additions to the designer's library of references.