

# CHAPTER 1 INTRODUCTION

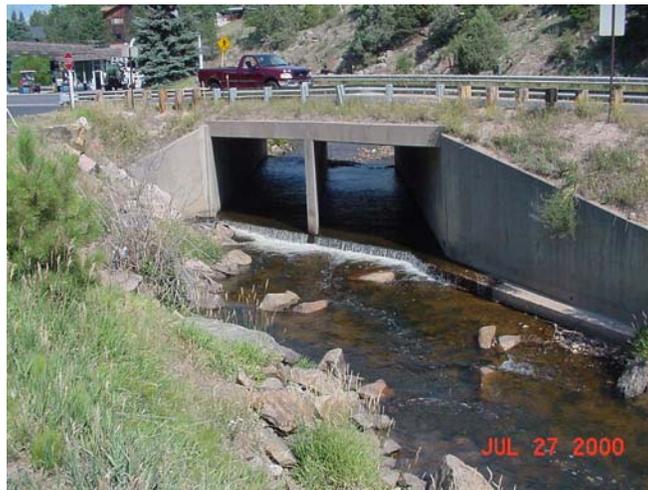
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## 1.1 INTRODUCTION

### 1.1.1 Background

The design of highway drainage features requires a hydrologic analysis to determine the magnitude and frequency of flows and a hydraulic analysis to locate and size drainage facilities. Drainage facilities must not only be hydraulically efficient, but also be consistent with the importance of the road, safety, initial cost, aesthetics, environmental considerations, maintenance and legal responsibilities. The *CDOT Drainage Design Manual* was developed to provide guidance and to establish criteria for engineers performing hydrologic and hydraulic analysis and design.



This manual is intended for use by CDOT hydraulics and roadway design engineers, consultants and local entities involved in CDOT administered projects. Designs of drainage features on CDOT projects shall be in accordance with the methods, guidelines and criteria presented in this manual and its references. Local agency projects shall follow this guidance if financed by state or federal funds.

This manual does not substitute for the use of sound engineering judgment nor does it relieve the user of the responsibility to keep abreast with the current state of practice in hydrologic analysis and hydraulic design. It is intended to aid the designer with drainage problems and arrive at solutions in different environments. Certain guidelines are included to establish consistency and to help choose optimal economic solutions.

### 1.1.2 References and Computer Programs

References to specific publications, computer programs, FHWA, US Army Corps of Engineers, FEMA and AASHTO guidelines, manuals and regulations are noted within the manual. It is expected that the designer will be knowledgeable in the use of the referenced items. Designers should identify apparent discrepancies between these documents and questions about CDOT's design requirements as early in the design process as practicable, and refer them to the CDOT Staff Hydraulic Engineer for resolutions so that clarifying language can be incorporated into these documents and uniform policies and procedures maintained.

It is the intent that the procedures and criteria outlined in the manual be subject to updating as new engineering techniques are advanced, and to the judgment of the designer. It is the designer's responsibility to keep abreast with new or revised program methods and regulations approved by the appropriate state and federal agencies.

In sections of 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 those source documents as well as a short listing of those documents that are recommended additions to the designer's library of references.

### **1.1.3 Updates**

The Colorado Department of Transportation plans to regularly issue updates and changes to this manual. Notification of revisions will be made by e-mail, by public announcements, and at the Colorado Department of Transportation website. Consultants need to complete the registration form to be notified of updates.

CDOT Staff Branches publishes an assortment of manuals vital for the engineer to properly work on and complete a project. It is the intent of the Staff Branches to add all manuals to the CDOT website ([http://www.dot.state.co.us/DesignSupport/Drainage Design Manual](http://www.dot.state.co.us/DesignSupport/Drainage%20Design%20Manual)) as the manuals are updated and revised. The *CDOT Drainage Design Manual* also can be purchased at the CDOT Bid Plans Room at 4201 East Arkansas Avenue in Denver.

Comments regarding the content of this document are welcomed and should be addressed to the State of Colorado, Department of Transportation, Project Development Branch, State Senior Hydraulics Engineer, 4201 E. Arkansas Avenue, Denver, CO 80222-3400.