

# Boulder County Storm Drainage Criteria Manual



Photograph courtesy of Mr. David Mallory.



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# PREFACE

Boulder County, Colorado, first adopted the Boulder County Storm Drainage Criteria Manual (MANUAL) in July of 1984. Its creation was spurred by the need to provide a uniform set of standards that would be used to guide development and design drainage improvements in order to prevent future drainage problems and enhance the urban and natural environments. The original MANUAL also streamlined the review of drainage design submittals. This update carries forward the goals of the 1984 MANUAL. Additional factors influenced the format and content as well.

This updated MANUAL presents a document that is more brief and easy to understand than the original manual. Much of the original document was dedicated to design methodology rather than design criteria. This update still offers detailed design procedures for common storm drainage calculations used in Boulder County; however, the content is now more focused on providing specific criteria. The user will be referred to comprehensive design guidance provided in documents published by the Federal Highway Administration, the US Army Corps of Engineers Hydrologic Engineering Center, and the Urban Drainage and Flood Control District, which are now easily accessible via the internet.

In September of 2013, several days of intense rain fell along the front range of Colorado. Federal Emergency Declarations covered fifteen counties, including Boulder County. Many private bridges were washed out by runoff from these storms, and recovery is ongoing as of this update. One of the goals of the revised MANUAL is to provide clear guidance to land owners to help them achieve compliance and receive permits to construct replacement crossings. The impacts of these storm events also serve as a reminder that storm drainage criteria can at times have a critical impact on the level of resilience a community has in the face of a natural flood disaster. Another goal of the update to the MANUAL is to evaluate the priorities of Boulder County in terms of balancing public safety, infrastructure designs that provide the most resiliency after a large storm event, capital costs, and impacts to the natural environment, to name a few. The criteria in the MANUAL reflect those priorities.

Many federal and state stormwater regulations have changed since the MANUAL was first adopted in 1984. Many of these regulations involve floodplain development and water quality practices, both permanent and during construction. Because Boulder County participates in FEMA's Community Rating System, it has developed floodplain regulations and practices that allow its residents to purchase flood insurance at a discounted rate through the National Flood Insurance Program. These regulations were considered in the update to the MANUAL.

Finally, Boulder County is an MS4-permitted community with the Colorado Department of Health and Environment. This permit allows Boulder County to discharge runoff to waters of the state, but it requires that certain practices must be implemented. These include requiring erosion and sediment control on construction projects and requiring permanent water quality treatment for some developments. The requirements of the MS4 permit from the CDPHE were also considered in the update to the MANUAL.

In summary, although the original MANUAL served the county well for over thirty years, its criteria, derived from urban practices, have proven to be limited, mainly because of Boulder County's longstanding rural and mountainous conditions. The changes in stormwater criteria, practices, and regulations over time also necessitated a revision. This update is intended to address the great majority of design elements, site characteristics, and regulatory conditions that may be involved in drainage design projects in Boulder County. It also intends to provide clear guidance and criteria that will expedite the review and approval process within Boulder County, and has been written to address the unique priorities and obligations of Boulder County.

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