

# Chapter 1

## General Provisions

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## 1.0 Introduction

The criteria and design standards presented in this document, together with all future amendments, comprise the *City of Woodland Park Drainage Criteria Manual* (hereafter called the “Manual”). The Manual has been developed by drawing on elements of the City of Colorado Springs Drainage Criteria Manual (Colorado Springs Manual) and the most current version of the Denver Urban Drainage and Flood Control District’s (UDFCD’s) Urban Storm Drainage Criteria Manual (UDFCD Manual). Because the City of Woodland Park (City) is a headwaters city in the mountains rather than a major metropolitan area, many sections of the Colorado Springs and UDFCD Manuals have been simplified for a smaller community, in a mountainous setting with significant existing development and infrastructure. In many sections of this Manual, the reader is directed to the Colorado Springs and/or UDFCD Manuals for additional guidance, especially for more complex and/or larger projects. In these cases, the Applicant should consult with the City Engineer to define specific criteria that will apply.

All drainage reports, plans, drainage system analyses, and drainage system designs shall comply with the criteria in this Manual. Drainage improvements shall be designed in conformance with the *City of Woodland Park Engineering Specifications* (2011). In addition, it is the responsibility of the owner, developer, planner, and designer (hereafter called “Applicant”) to ensure that the proposed improvements are consistent with other applicable documents such as the *City of Woodland Park Stormwater Management Program (1996)*; land use master plans, transportation plans, utility plans, etc. and that all applicable permits are in place and have been complied with<sup>1</sup>.

## 2.0 Enactment Authority

This Manual has been adopted by the Woodland Park City Council and was prepared under the direction of the Director of Public Works. This Manual shall apply to all new projects in the City of Woodland Park as of March 1, 2014.

## 3.0 Jurisdiction

This Manual shall apply to all land within the incorporated areas of the City of Woodland Park, including any public lands. This Manual shall apply to all storm drainage systems and facilities constructed in or on public rights-of-way, easements dedicated for drainage across public or private property, easements or tracts for public use, and to all privately owned and maintained stormwater conveyance, detention, retention, or water quality facilities.

## 4.0 Purpose

This Manual provides the policies and minimum design procedures and technical criteria for the planning, analysis and design of storm drainage systems within the City for the purpose of protecting public health, safety and welfare. All subdivisions, re-subdivisions, planned unit developments, or any other proposed construction within the City shall include adequate and appropriate storm drainage system planning, analysis, design and improvements. Such planning, analysis, and design shall conform with or exceed the criteria set forth herein. Storm drainage system planning, analysis, and design that require policies,

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<sup>1</sup> The most up-to-date versions of these documents shall be used. The City expects to update the Drainage Master Plan in the near future (anticipated 2014). This and other documents may be periodically updated, and it is the responsibility of the Applicant to obtain the most recent versions of applicable master planning documents.

guidance, technical methods, or criteria not specifically addressed in this Manual shall follow the provisions of the UDFCD Manual and/or the Colorado Springs Manual. The Applicant shall consult with the City Engineer to determine how methods and/or criteria from these Manuals apply to their specific project. Because the UDFCD and Colorado Springs Manuals may be revised from time to time, the Applicant should obtain the latest versions from the UDFCD and Colorado Springs' websites or other means to assure that the most current versions of the criteria are being used.

## 5.0 Amendments and Revisions

When the provisions of this Manual are not adequate to provide clear guidance, it is the responsibility of the Applicant to seek guidance from the City or other appropriate party so that the intents of the criteria in this Manual are properly integrated into design. The application of methodologies or standards not defined in this Manual will not be accepted without an approved variance. Policies and criteria may be amended as new technologies are developed or if experience gained in the use of this Manual indicates a need for revision. All proposed changes must be approved in writing prior to implementation. Minor revisions require the approval of the Director of Public Works and may require a public notification process, depending on the implications of the change. The Director of Public Works will make reasonable accommodations and modify the proposed minor revision(s), as appropriate, based on comments received through the public notification process. Major revisions also require the approval of the City Council and a resolution or ordinance, as appropriate. The Director of Public Works shall monitor the performance and effectiveness of this Manual and recommend and implement amendments as needed to improve guidance or to better accomplish goals of the Manual.

**Table 1-1. Examples of Minor and Major Revisions**

<b>Minor</b>	<b>Major</b>
Grammar, typographic errors and formatting	Policy changes (such as storm frequency and freeboard requirements)
Submittal Requirements	Criteria changes (such as allowable flow depth, hydraulic grade line limits and maximum velocities)
Clarifications	
New Construction Details or Revisions	
Revisions to Recommended Parameters	
Revisions to Standard Methods	
Updating of Reference Document Versions	
Application of Manufactured Devices	
Material Specifications	
Adaptation to State and Federal Regulations that are not a Major Revision	
Application of Alternate Materials	

## 6.0 Enforcement Responsibility

The City Engineer or his/her designated representative (e.g. City consultant) is the designated official responsible for the review of all drainage reports and plans, drainage system analyses, drainage system designs and constructed improvements, for compliance with this Manual. The most recent version of this Manual, as available on the City's web site (<http://www.city-woodlandpark.org>), shall be the basis for enforcement. The City Engineer, or designated representative, shall have responsibility for enforcement of the criteria in this Manual.

## 7.0 Review and Acceptance

1. **All drainage submittals shall be reviewed for compliance with the criteria presented in this Manual and approved prior to their implementation.** Acceptance of submittals does not relieve the Applicant from the responsibility of ensuring that the design, calculations, plans, specifications, construction, and record drawings are in compliance with the intent of the criteria in this Manual.
2. **When appropriate, submittals shall be referred to other agencies having jurisdiction.** It is the responsibility of the Applicant to identify the appropriate referral agencies and provide the required documentation to acquire the necessary approvals and/or permits. Other review agencies may include Teller County, the Fountain Creek Watershed District (FCWD), state agencies (Colorado Water Conservation Board [CWCB], Colorado Department of Public Health and Environment [CDPHE], Colorado Department of Transportation [CDOT] etc.) and/or federal agencies (United States Army Corps of Engineers [USACE], United States Fish and Wildlife Service [USFWS], etc.).
3. **Submittals that impact FEMA-designated floodplains shall be submitted to FEMA for review in accordance with the provisions of Chapter 5 of this Manual.**
4. **No considerations for public maintenance assistance will be given to facilities designed or constructed without provisions satisfying maintenance requirements specified in this Manual.** Public assistance with drainage and water quality infrastructure on private development projects will typically not be provided. For projects that include a public infrastructure component (storm sewer improvements, channel improvements, detention, etc.), City assistance with maintenance will be determined on a case-by-case basis.

## 8.0 Interpretation

In the interpretation and application of the provisions of the criteria in this Manual, the following shall govern:

1. The provisions shall be regarded as the minimum requirements for the protection of the public health, safety, and welfare of residents and property owners in Woodland Park and surrounding jurisdictions that adopt these criteria. Therefore, this Manual shall be liberally construed to further its underlying purposes of protection of the public good.
2. Whenever a provision of this Manual conflicts with any provision in any applicable law, ordinance, resolution, rule or regulation, containing requirements covering the same subject matter, the requirements that are more restrictive or impose higher standards shall govern.
3. The criteria in this Manual shall not abrogate or annul any easements, permits, drainage reports or construction drawings, recorded, issued, or accepted prior to the effective date of this Manual. All

submittals made prior to the effective date of this Manual, but not approved within six months of the effective date, may need to be revised to comply with this Manual at the discretion of the City Engineer. A determination by the City Engineer that a previous submittal must be revised to comply with the criteria in this Manual shall be documented in writing to the Applicant. All submittals made after the effective date of this Manual shall be prepared and submitted in compliance with the criteria in this Manual.

## 9.0 Relationship to Other Standards or Permits

If other entities that have jurisdiction impose more stringent criteria, this difference is not considered a conflict. If the state or federal government imposes stricter criteria, standards, or requirements, either through law or through conditions of a permit, these may be incorporated into the requirements after due process and public hearing(s), as needed, to modify this Manual.

## 10.0 Variances

Variance requests must be submitted in writing to the City Engineer and must, at a minimum, contain the following information:

- Identification of Applicant and project for which the variance will be applied.
- Recitation of criteria or standards from which the Applicant seeks a variance.
- Justification for not complying with the criteria in this Manual.
- Alternate criterion or standard that is proposed to comply with the intent of the criteria in this Manual and other applicable guidance documents.
- Supporting documentation, including necessary calculations, reference materials, software, specifications, etc., adequate to evaluate how the proposed variance satisfies the intent of the criteria in this Manual.

The variance request must be signed and stamped by a Professional Engineer licensed in the State of Colorado.

## 11.0 Acronyms

In this Manual, the following common acronyms may be used:

ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
BCD	Baffle Chute Drop
BFE	Base Flood Elevation
BMP	Best Management Practice
CAP	Corrugated Aluminum Pipe
CAPA	Corrugated Aluminum Pipe Arch
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CEC	Consulting Engineers Council
CGIA	Colorado Governmental Immunity Act

CLOMA	Conditional Letter of Map Amendment
CLOMR	Conditional Letter of Map Revision
CMP	Corrugated Metal Pipe
CMPA	Corrugated Metal Pipe Arch
CRS	Colorado Revised Statutes
CSP	Corrugated Steel Pipe
CSPA	Corrugated Steel Pipe Arch
CWA	Federal Clean Water Act
CWCB	Colorado Water Conservation Board
DCIA	Directly Connected Impervious Area
DBPS	Drainage Basin Planning Study
EDB	Extended Detention Basin
EGL	Energy Grade Line
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EURV	Excess Urban Runoff Volume
FAA	Federal Aviation Administration
FCWD	Fountain Creek Watershed Flood Control and Greenway District
FEMA	Federal Emergency Management Agency
FHAD	Flood Hazard Area Delineation
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FPE	Flood Protection Elevation
GSB	Grouted Sloping Boulder
HDS	Hydraulic Design Series
HEC	Hydraulic Engineering Center
HEC-HMS	Hydraulic Engineering Center Hydrologic Modeling System
HEC-RAS	Hydraulic Engineering Center River Analysis System
HERCP	Horizontal Elliptical Reinforced Concrete Pipe
HGL	Hydraulic Grade Line
HUD	U.S. Department of Housing and Urban Development
H:V	Horizontal to Vertical Ratio of a Slope
ICC	Increased Cost of Compliance
LID	Low Impact Development
LOMA	Letter of Map Amendment
LOMR	Letter of Map Revision
MDCIA	Minimized Directly Connected Impervious Area
NAVD	North American Vertical Datum
NFIA	National Flood Insurance Act
NFIP	National Flood Insurance Program
NGVD	National Geodetic Vertical Datum
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWS	National Weather Service
P.E.	Professional Engineer (Licensed by the State of Colorado)
PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation
RCBC	Reinforced Concrete Box Culvert
RCP	Reinforced Concrete Pipe

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ROW	Right-of-Way
SBA	Small Business Administration
SEO	Colorado State Engineer's Office
SFHA	Special Flood Hazard Area
SFIP	Standard Flood Insurance Policy
SPP	Structural Plate Pipe
SPPA	Structural Plate Pipe Arch
SWMM	Stormwater Management Model
TRC	Technical Review Committee
TWE	Tailwater Elevation
UDFCD	Urban Drainage & Flood Control District
UDSWMM	Urban Drainage Stormwater Management Model
USFWS	U.S. Fish and Wildlife Service
USACE	U.S. Army Corps of Engineers
WQCV	Water Quality Capture Volume