URBAN DRAINAGE AND
FLOOD CONTROL
DISTRICT

Green Infrastructure at the District

Holly Piza, PE

Standards Development Manager

Urban Drainage and Flood Control District

Established by CO legislature

1969

7 Counties

33 Cities & Towns

3500

Stream Miles

1608

Area (sq mi)

14.5

Inches of Rain Annually

3.4

Million people living in the district

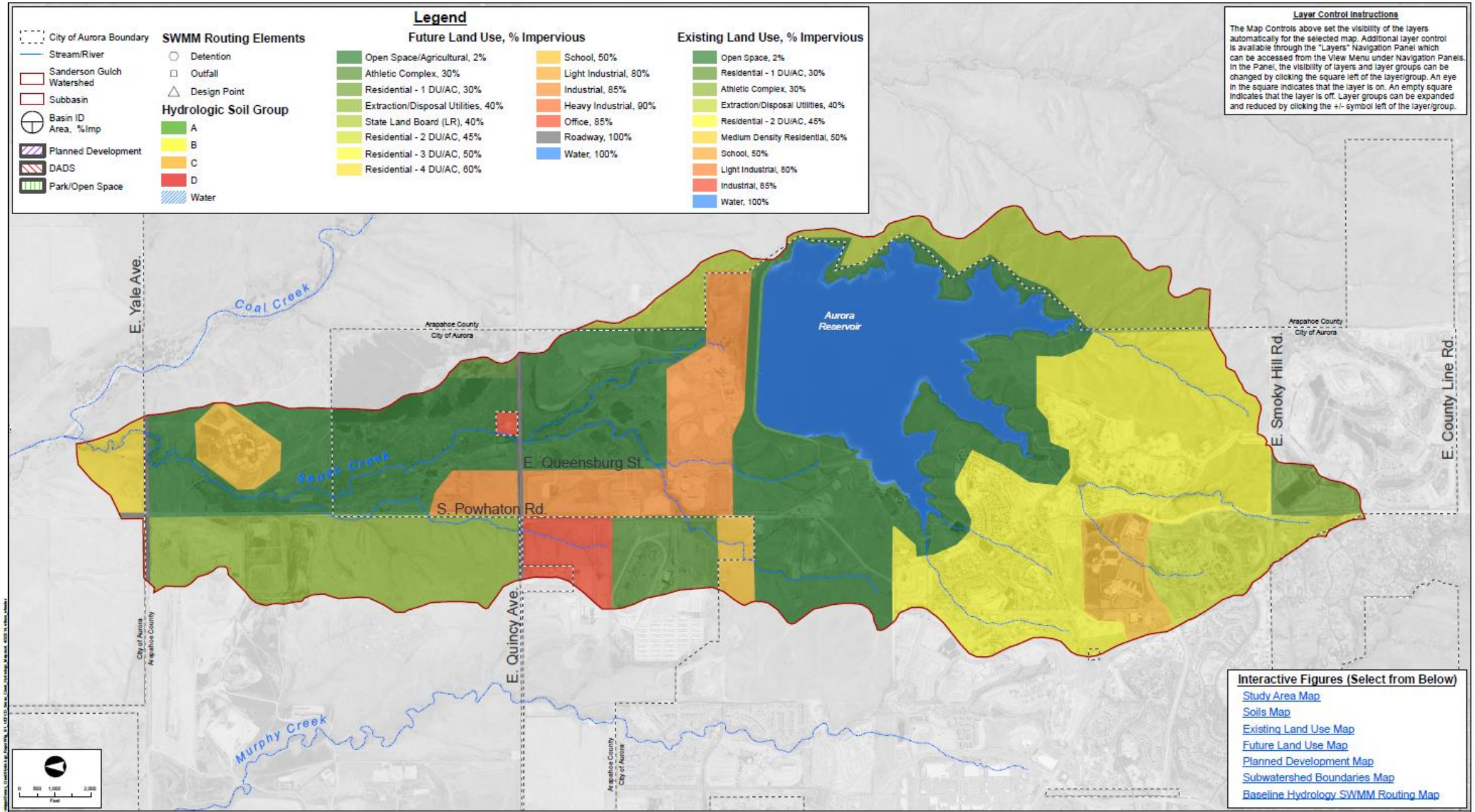
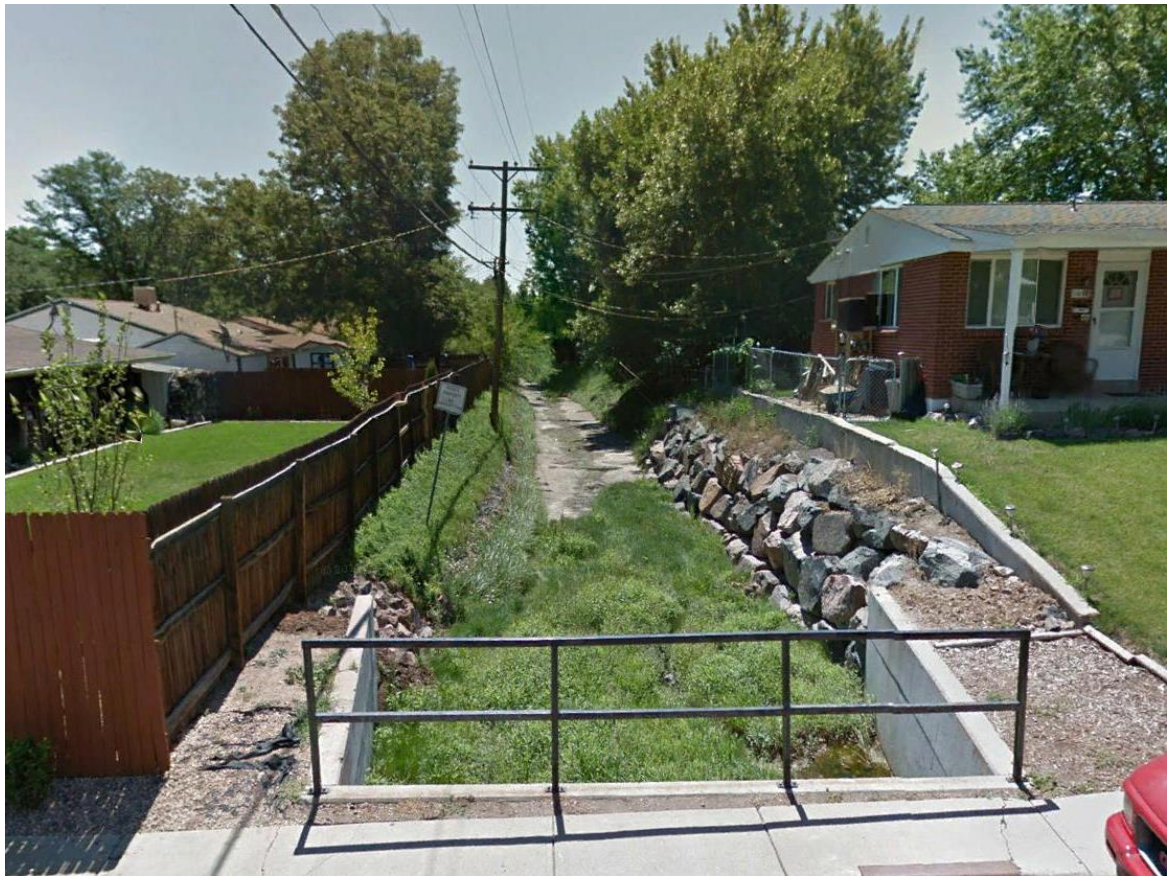


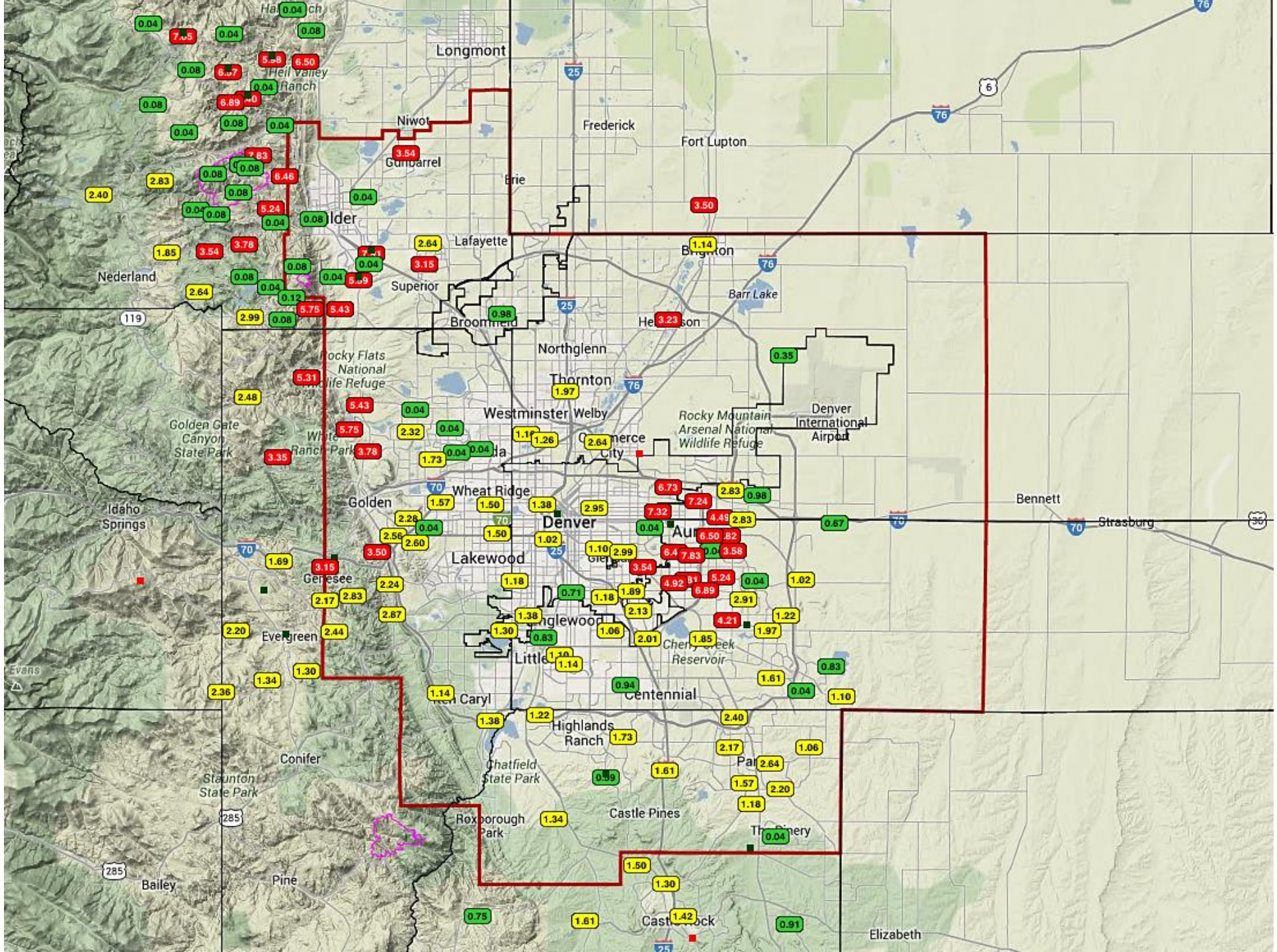
Figure B-1
Hydrology Map
Senac Creek Major Drainageway Plan


Private Property
NO
TRESPASSING



Stapleton Greenway

Stapleton Greenway


Longmont
Niwot
Gunbarrel
Frederick
Fort Lupton
Erie
Lafayette
Superior
Nederland
Broomfield
Northglenn
Thornton
Westminster
Welby
Denver
Aurora
Commerce City
Wheat Ridge
Golden
Lakewood
Englewood
Littleton
Centennial
Highlands Ranch
Castle Pines
Castle Rock
Parker
Bennett
Strasburg
Brighton
Barr Lake
Rocky Flats National Wildlife Refuge
Rocky Mountain Arsenal National Wildlife Refuge
Denver International Airport
Cherry Creek Reservoir
Chatfield State Park
Golden Gate Canyon State Park
Staunton State Park
Roxborough Park
Idaho Springs
Evergreen
Conifer
Bailey
Pine
Genesee
Elizabeth
Evans
119
285
70
25
76
6
36

URBAN STORM DRAINAGE

VOLUME 1

CRITERIA MANUAL

MANAGEMENT, HYDROLOGY, AND HYDRAULICS

URBAN STORM DRAINAGE

VOLUME 2

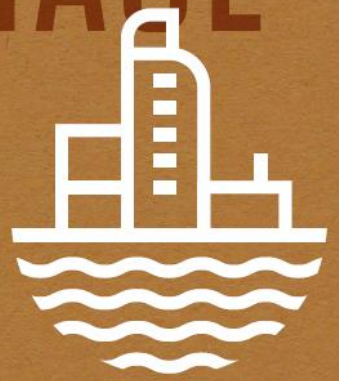
CRITERIA MANUAL

STRUCTURES, STORAGE, AND RECREATION

URBAN STORM DRAINAGE

VOLUME 3

CRITERIA MANUAL



STORMWATER QUALITY

Green Infrastructure

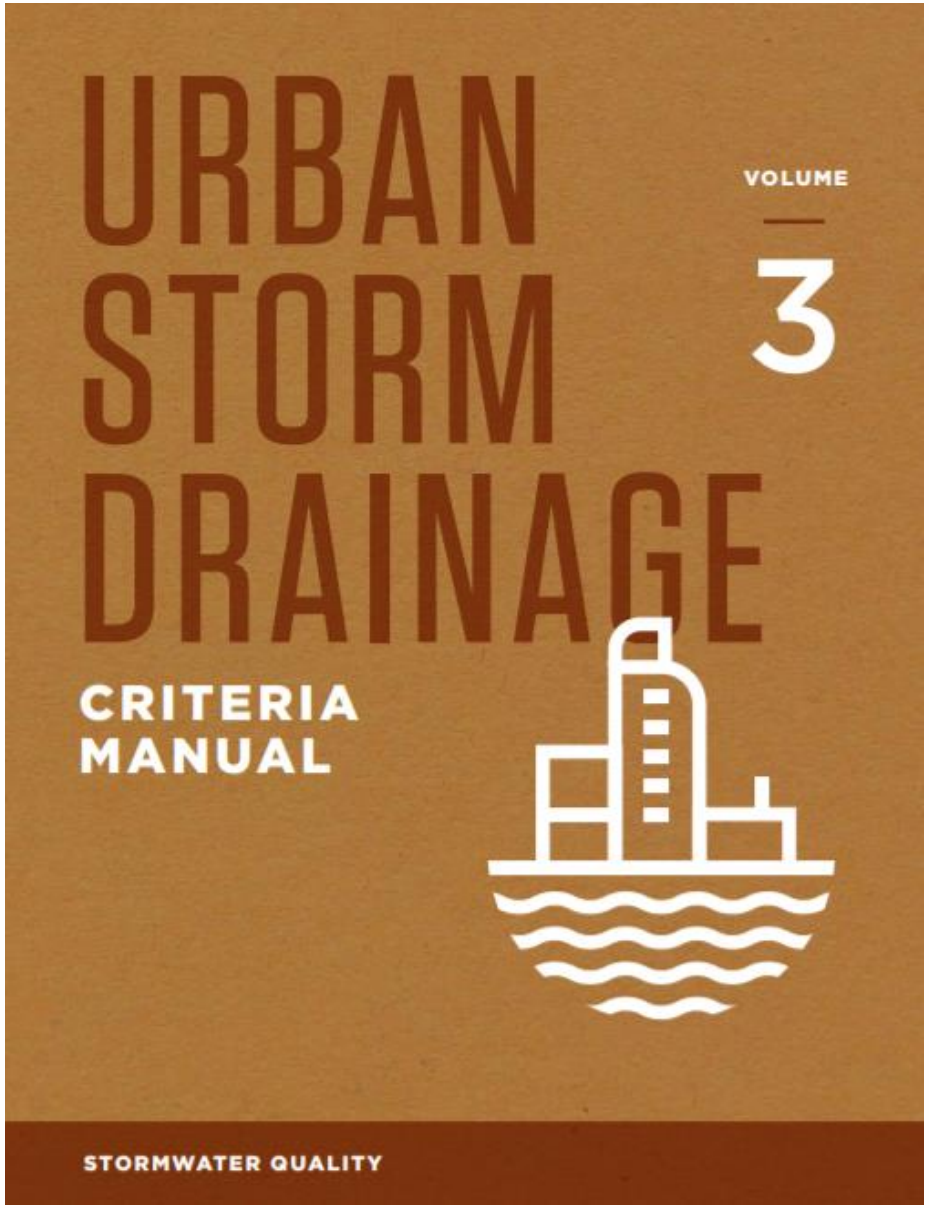
On a regional scale: preservation of riparian floodplains and stream stabilization that allows for habitat and animal passage similar to that found in nature. Design to preserve ecological function and create balance between built and natural environments.

On an urban level, wet weather management practices that include filtration, infiltration, evapotranspiration, and reuse in an attempt to restore natural hydrology.

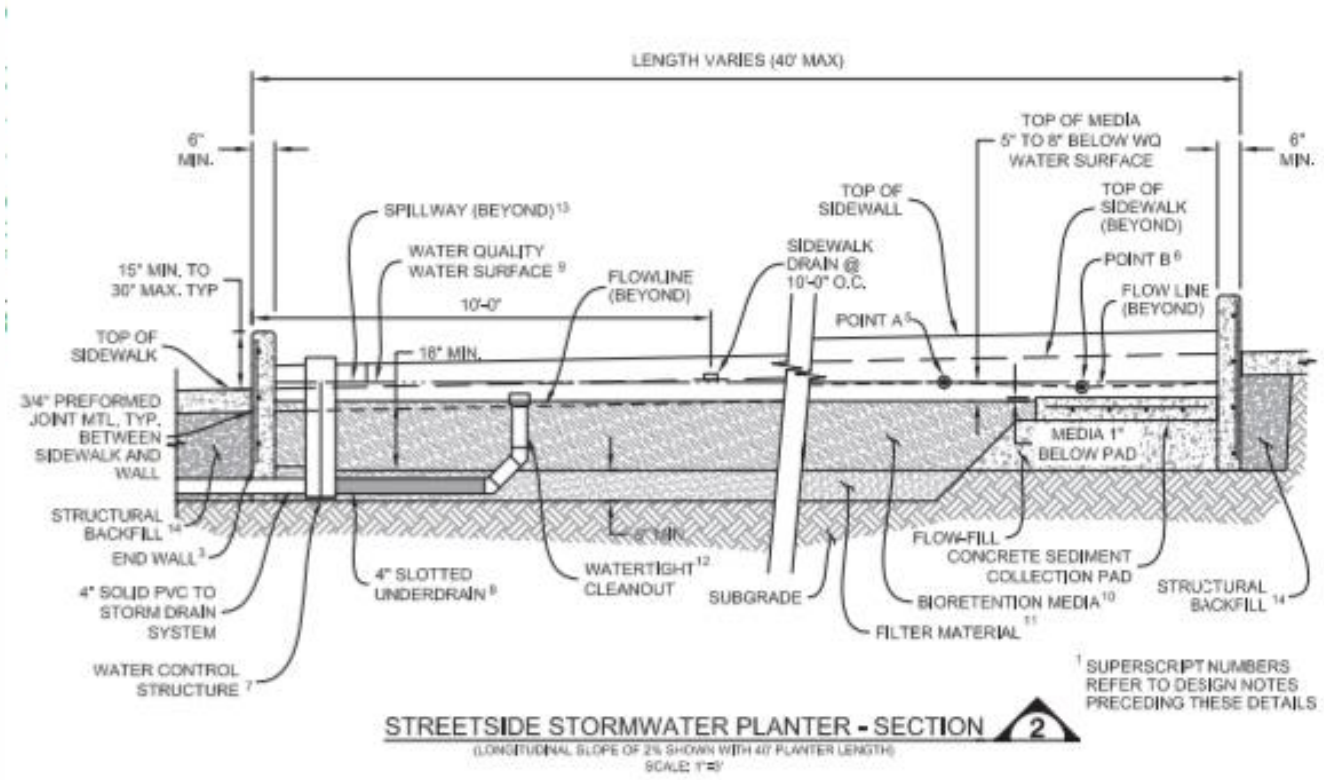
Green Infrastructure

Green Infrastructure utilizes processes found in the natural environment to deliver services and functions required by the built environment.

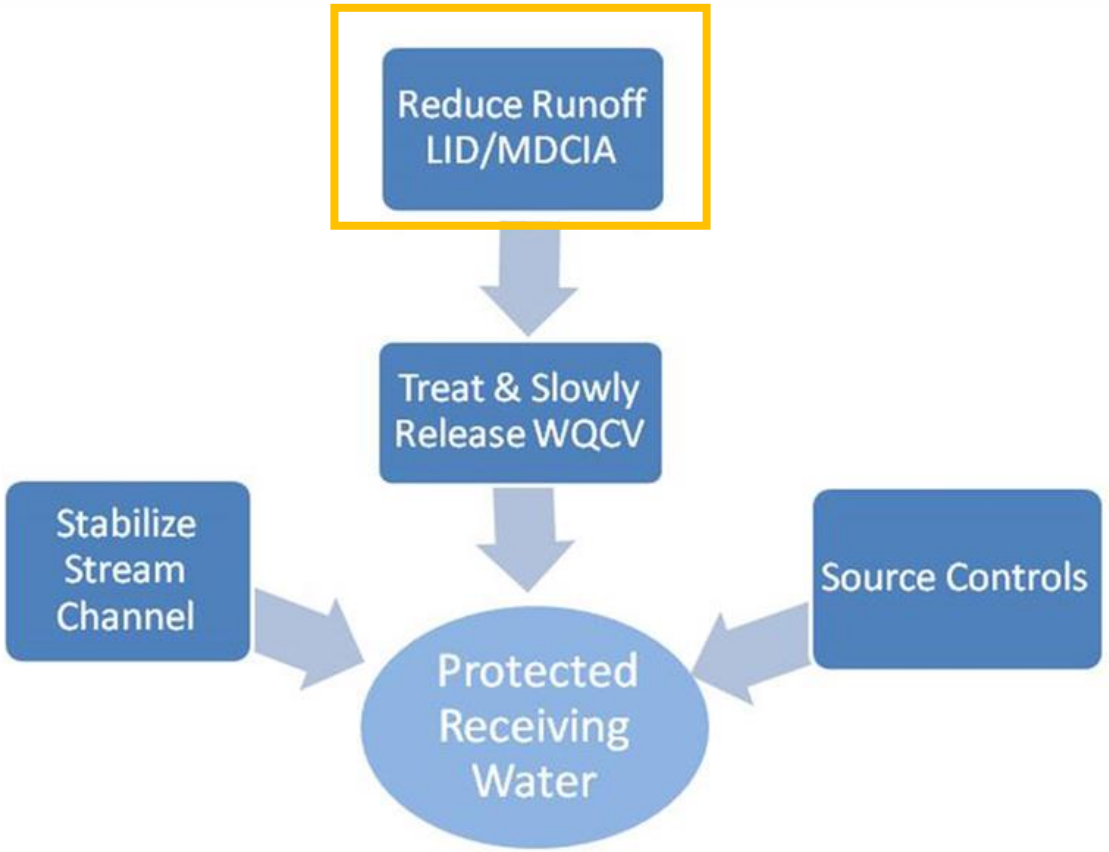
Creating Resources



Creating Resources



Creating Resources



Creating Resources

Quantifying Runoff Reduction T-0

Description

This Fact Sheet provides criteria to quantify stormwater volume reduction when employing runoff reduction practices. The intent of this approach is to avoid the direct connection of impervious areas to the storm drain and instead, guide runoff from pavement and roofs to vegetated areas such as grass buffers and grass swales in a manner that maintains sheet flow conditions.

Photograph RR-1. Disconnecting impervious areas and distributing runoff over grass buffers and swales reduces runoff volume and downstream treatment requirements.

The runoff reduction practices described in this fact sheet can be used to eliminate or reduce the size of volumetric BMPs required for water quality capture volume (WQCV) treatment. For the purpose of stormwater management, the volume of stormwater reduced through runoff reduction using infiltration, depression storage, and evapotranspiration is synonymous to volume treated.

Reducing runoff is the first step of the four-step process for minimizing adverse impacts of urbanization as detailed in Chapter 1, *Stormwater Management and Planning*. Minimizing directly connected impervious areas (MDCIA) by allowing runoff from impervious areas to sheet flow through grass reduces pollutant loading in the receiving water and helps restore predevelopment hydrology.

Runoff Reduction	
Functions	
LID/Volume Red.	Yes
WQCV Capture	Yes
WQCV+Flood Control	No
Fact Sheet Includes EURV Guidance	No
Typical Effectiveness for Targeted Pollutants[1]	
Sediment/Solids	Good
Nutrients	Good
Total Metals	Good
Bacteria	Good
Other Considerations	
Life-cycle Costs	Low

[1] Based primarily on grass buffer data from the International Stormwater BMP Database (www.bmpdatabase.org).

Figure RR-1. Employ runoff reduction practices. The first step in stormwater management is to create less stormwater runoff. We do this through minimizing directly connected impervious areas, conserving amenities such as trees and riparian corridors, and minimizing impacts by not adding more impervious areas than necessary.

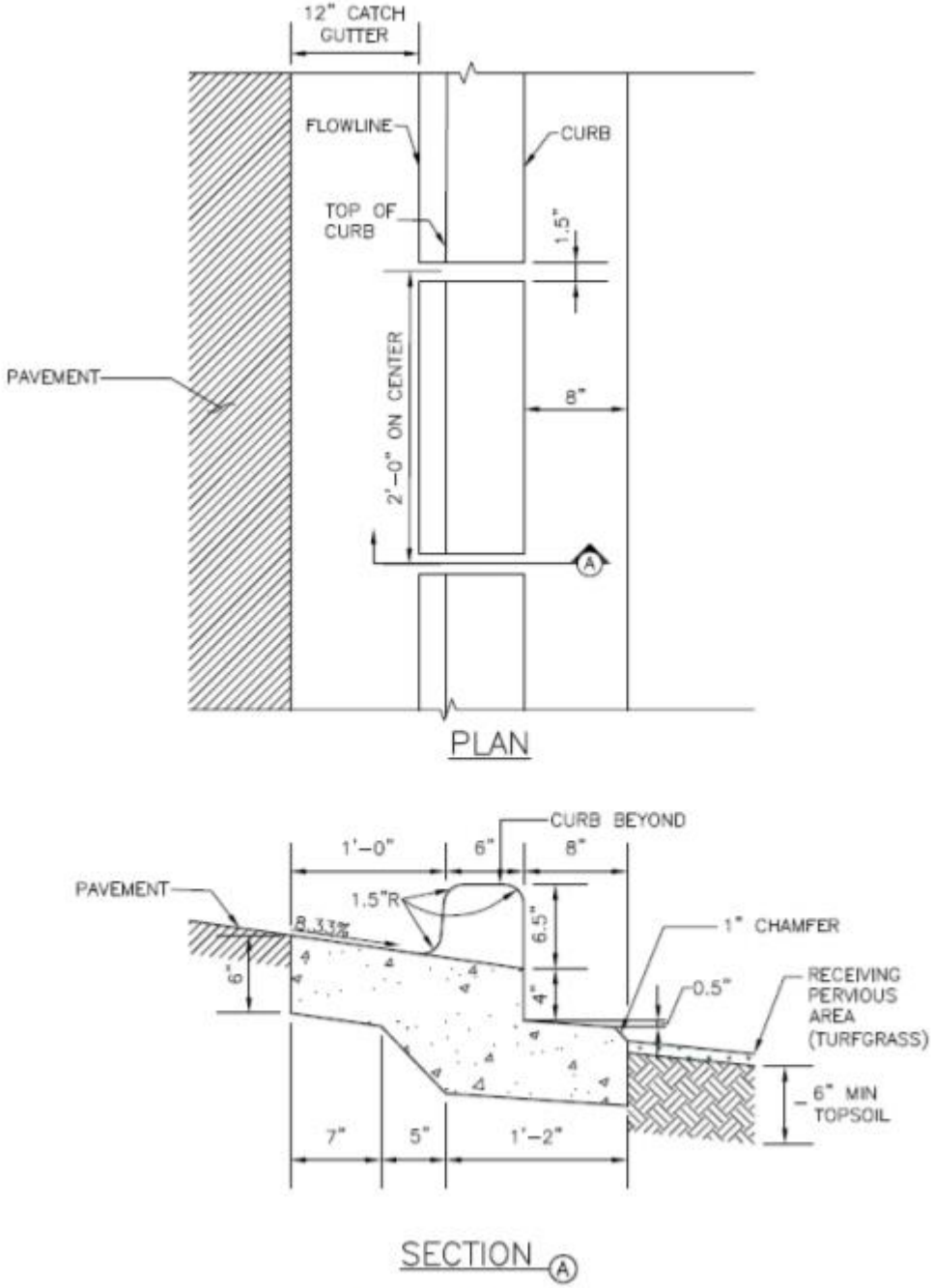


Figure RR-5. Slotted curb.

Creating Resources

Creating Opportunities to Share Information

Creating Opportunities to Share

UDFCD Annual Seminar – Tuesday, April 2

www.udfcd.org

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