

Environmental Resources Division:

Floodplain and Master Planning Programs

September 2018 Update



"Floods are an act of God; flood damages result from the acts of men." Gilbert White

Environmental Resource Division (ERD)

• Permit Management

- **MS4 Permit** Holder for City of Centennial & conduct County's MS4 Permit program operations
 - Grading, Erosion & Sediment Control (GESC) Permits
 - Stormwater Public Improvement Permits- Permanent facilities for water quality treatment
- Approve & issue City **Floodplain Development Permits** (FPDP)
- Issue **County FPDPs** (County approval required)
- Coordinate/Optimize/Obtain US Army Corps of Engineers **404 Permits** for Maintenance Activities, including Contract Maintenance projects

• Floodplain Management

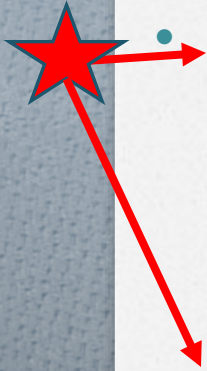
- Serve as City's Floodplain (FP) Administrator; provide technical assistance to County
 - City and County participate in the National Flood Insurance Program (NFIP) through an "agreement" with FEMA
 - Responsible for ensuring development activities comply with the Floodplain Management and Flood Damage Prevention Regulations in the Land Development Code (LDC) and minimum NFIP and State requirements
 - Require permits for development in the floodplain
 - Maintain and update flood data and maps

• Watershed Master Planning

- Partner with Urban Drainage & Flood Control District (UDFCD) to develop Master Plans and Flood Hazard Area Delineation (FHAD) Studies
 - Valuable tools to identify flood risk, inform CIP 5-year Plan, identify Maintenance projects, provide a guide for land development, and identify preservation areas

• Special Projects

- Written procedures & Policy docs
- PR, Press Releases, Annual Reports
- Special studies promoting SEMSWA Mission



January - September '18 Activities

- ✓ 17 Floodplain Permits issued
- ✓ 15 Requests for modification of the floodplain approved
- ✓ "8-Floodplain Study" FEMA map revision (PMR) **in process** to be effective in 2019
- ✓ Budgeting for 5-year City and County Community Rating System (CRS) verification in 2019
- ✓ 60,000 households received City newsletter or mailing of SEMSWA 1-page annual report summary
- ✓ Floodplain easements: East Toll Gate Creek and Little Dry Creek
- ✓ Special Projects: Roadway culverts and road reconstruction; City-SEMSWA coordination on Floodplain Ordinance & Code
- ✓ FHAD: Big Dry Creek & Tributaries
 - ✓ Master Plans: First Creek Tributaries, SJCD 6100 N, Goldsmith Gulch, Cherry Creek Tributaries, and High Line Canal



- Annual 1-page Summary
- East Toll Gate Creek Floodplain through Dove Hill Subdivision
- Big Dry Creek & Tributaries FHAD



FP Easement Assistance for Maintenance & CIP

❑ Little Dry Creek

- ❖ N. of Arapahoe Road: City-owned drainage tract; facilitate conveyance to SEMSWA for CIP project
- ❖ S. of Arapahoe Road: Sturbridge has requested SEMSWA accept FP easement*
- ❖ Liberty Hills Tributary: Carriage Gate HOA has requested SEMSWA accept FP easement*

❑ East Toll Gate Creek

- ❖ Dove Hill Subdivision: private ownership; facilitate easement acquisition for access for Contract Maintenance work to remove vegetation and for future CIP Project for stream stabilization

*requests are still under review; they were actively pursued in years past, however, HOAs were not willing to grant the easements. Since then, there has been significant degradation and lack of maintenance, which will increase our costs considerably.



Sturbridge



Liberty Hills Trib



Dove Hill

50-50 Roadway Culvert Maintenance Prioritization

- ❖ Maintenance Goal: Remove trees and vegetation within 50' upstream and 50' downstream of all roadway crossings in the service area to maintain maximum conveyance capacity
- ❖ FP group identified roadway locations that are shown to overtop in the 100-year event from existing floodplain mapping to prioritize work schedule



Briarwood Ave. Culvert Before & After



Little Dry Creek
overtopping prior to
2008 project at
Arapahoe Road

Assessing Floodplain Impacts from Roadway Reconstruction Projects

- ❖ Modifications to roadways that overtop in the 100-year event may require a permit process to verify no FP elevation change due to increased pavement thickness
- ❖ Increases in roadway elevations could adversely impact other properties
- ❖ FP group helps identify these areas with annual review of City and County pavement maintenance and reconstruction programs

City of Centennial Floodplain Management Regulations Update

- ❖ Stormwater Management Manual (SMM) Update
 - Opportunity to review and improve the Floodplain Management Regulations
- ❖ A series of working sessions were held with City Planning Staff
 - Review goals and City Council's intent with 2013 Amendment to the Land Development Code (LDC)
 - Clarification of subjective requirements,
 - Address gaps in process and procedures
- ❖ Floodplain Management Goals
 - Protect people and property
 - No harm
 - Reduce flood risk and future flood damages
 - Floodplain preservation



Colorado Blvd bridge, 1933 Castlewood Canyon dam collapse



Dillon Road flooding September 12, 2013

Key Discussion Items

- Confirmed prohibition of fill for the purposes of gaining developable land
 - Develop parameters to allow no impact activities
 - Clarified requirements and permit timing on properties removed from floodplain
 - Agreed to revise critical facility language to be less subjective
 - Discussed SEMSWA variance process and need to specify which regulations can be varied
- ❖ Next steps
 - Draft LDC & SMM review
 - Study Session with City Council
 - P&Z and Council Hearing
 - Adoption

Master Planning Projects

Completed:

Big Dry Creek & Tributaries FHAD

- 59 structures identified in 100-year floodplain
 - Big Dry Creek – 19
 - Nobles Rd Tributary – 34
 - Otero Tributary – 4
 - Filmore Tributary – 2
- The majority of structures are impacted by undersized roadway crossings
 - E Orchard Rd (Big Dry)
 - S University Blvd (Big Dry & Nobles)
 - E Dry Creek Rd (Otero Tributary)
 - S Steele St (Otero Tributary) – condo/townhome buildings
 - E Jamison Ave & S University Blvd (Filmore Tributary)
- Nobles Rd Tributary was piped under E Nobles Road from S Colorado Blvd to E Arapahoe Road during 1960's development
 - Existing storm pipe and street capacity, and undersized roadway crossings contribute to the structure impacts
- The FHAD was submitted to FEMA for flood map revision
- No updated structure map layer to show which buildings are in floodplain until approved by CO Water Conservation Board



Goldsmith Gulch at Peakview Ave

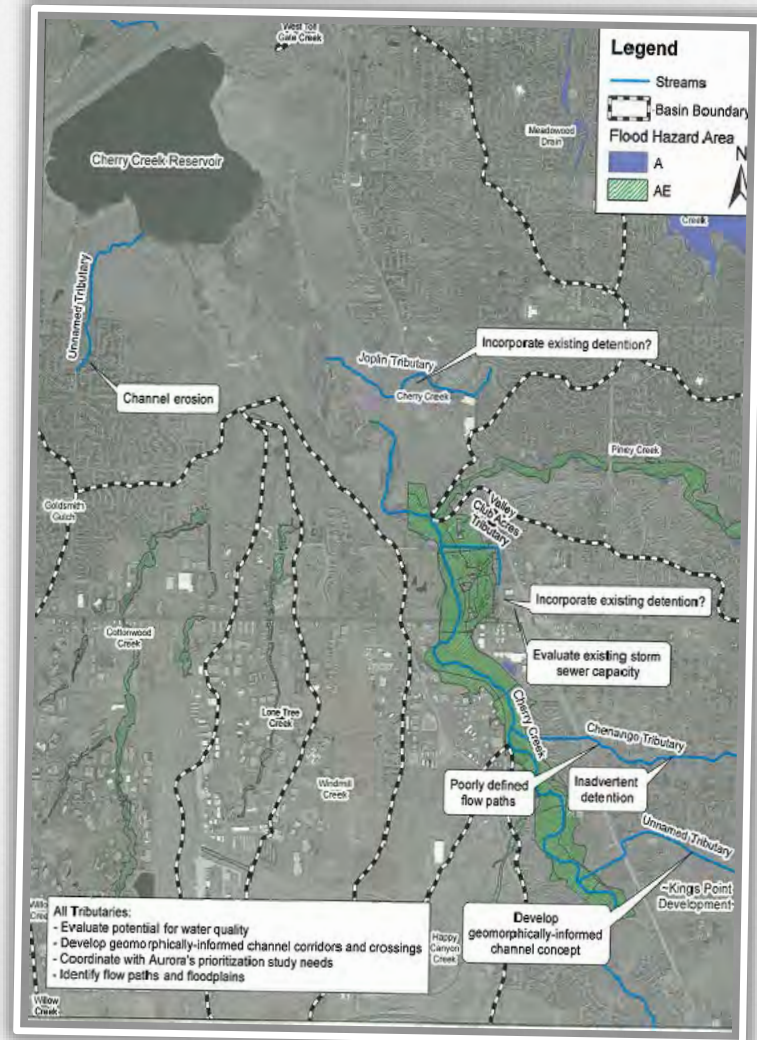
On-going:

- South Jefferson County Drainage (SJCD) 6100 N. Major Drainageway Plan (MDP) and FHAD
- High Line Canal Operational Study
- Goldsmith Gulch MDP and FHAD
- First Creek Tributaries MDP
- Cherry Creek Tributaries (upstream of the Reservoir) MDP & FHAD

Master Planning Projects, continued

➤ Cherry Creek tributaries

- Five Tributaries:
 - Joplin,
 - Valley Club Acres;
 - Chenango;
 - Northwest Unnamed; and
 - Southeast Unnamed
- Additional tributaries will be included – to be determined based on additional mapping
- Identify floodplains and associated flood risk
 - Find solutions to drainage conveyance using low maintenance stream corridors
- Investigate opportunities for water quality enhancements



Initially identified areas of interest for Cherry Creek Tributaries MDP