

ANNEX K: DENVER WATER

K.1 Community Profile

Denver Water is a large special district that includes Summit County within its service area. Denver Water is the State's oldest and largest water utility, established in 1918. It is funded by water rates and new tap fees, as opposed to taxes. Denver Water is run by a five-member Board of Water Commissioners. A designated CEO/Manager is appointed by the Board to execute its policies and orders.

Denver Water's service area encompasses the entirety of Summit County. Refer to the countywide maps in Chapter 3 and in Summit County's annex.

K.2 Hazard Identification and Profiles

Representatives of Denver Water identified the hazards that affect the District and summarized their geographic location, probability of future occurrence, potential magnitude or severity, and planning significance specific to the District and its facilities (see Table K.1). In the context of the countywide planning area, there are no hazards that are unique to Denver Water.

Table K.1. Denver Water—Hazard Summary

Hazard Type	Geographic Location*	Probability*	Magnitude*	Hazard Rating
Avalanche	Isolated	Highly Likely	Limited	Low
Dam Failure	Small	Unlikely	Catastrophic	Medium
Drought	Large	Likely	Critical	High
Earthquake	Large	Occasional	Limited	Low
Erosion/Deposition	Small	Likely	Limited	Low
Flood	Small	Likely	Critical	High
Hazardous Materials Release	Isolated	Unlikely	Catastrophic	Medium
Landslide, Mudflow/Debris Flow, Rock Fall	Isolated	Occasional	Critical	Medium
Lightning	Small	Likely	Critical	Medium
Mountain Pine Beetle Infestation	Large	Likely	Critical	High
Severe Winter Weather	Large	Highly Likely	Critical	Medium
Wildfire	Medium	Highly Likely	Catastrophic	High
Windstorm	Large	Likely	Limited	Low

*See Section 3.2 for definitions of these factors

Information on past events for each hazard can be found in Section 3.2 Hazard Profiles in the body of this document.

K.3 Vulnerability Assessment

The intent of this section is to assess Denver Water’s vulnerability separately from that of the planning area as a whole, which has already been addressed in Section 3.3 Vulnerability Assessment in the main plan. For more information about how hazards affect the County as a whole, see Chapter 3 Risk Assessment.

District Asset Inventory

Table K.2 lists critical facilities and other community assets identified by the District as important to protect in the event of a disaster.

Table K.2. Denver Water—Critical Facilities and Other Community Assets

Name of Asset	Hazard Specific Info/Comments
Dillon Dam	Dam failure, drought, earthquake
Robert’s Tunnel	earthquake

Sources: Denver Water

Vulnerability by Hazard

This section examines those existing and future structures and other assets at risk to hazards ranked of moderate or high significance that vary from the risks facing the entire planning area and estimates potential losses. This section focuses on wildfire impacts to watersheds.

Wildfire

Existing Development

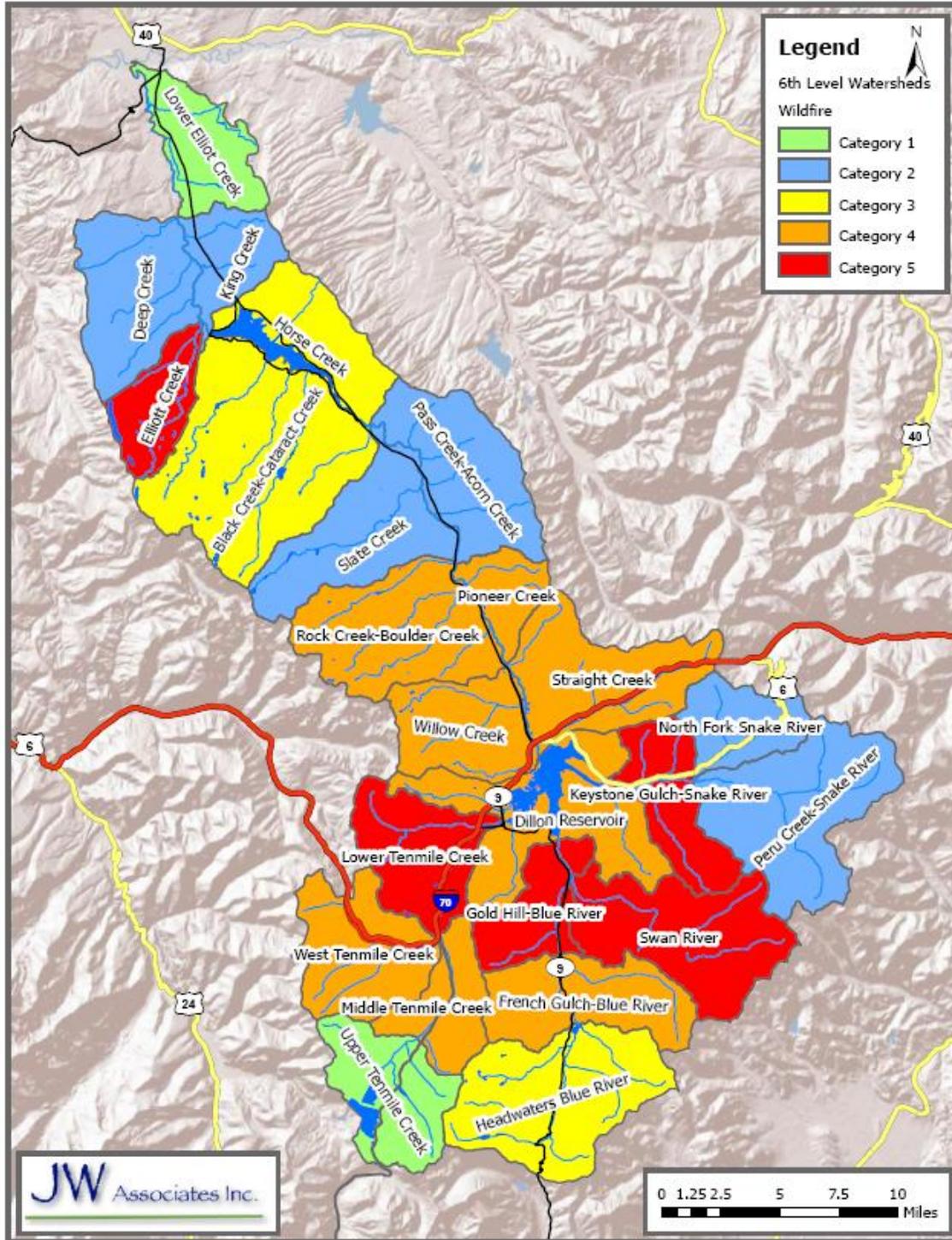
Watersheds and the numerous associated reservoirs in the county could be significantly impacted by high severity wildfire, especially in the wake of the mountain pine beetle epidemic. For example, the damage to Strontia Springs Reservoir caused by siltation from the 1996 Buffalo Creek Fire took fifteen years to complete and cost Denver Water over \$30 million.

Watersheds on the steep western slope of the Front Range feed directly into reservoirs and are of highest concern for wildfire impacts. The Blue River Wildfire/Watershed Assessment (JW Associates, Inc. 2011) “identifies and prioritizes sixth-level watersheds based on their hazards of generating flooding, debris flows, and increased sediment yields following wildfires that could have impacts on water supplies” (pg. 1). Figure K.2 shows the Blue River watershed wildfire hazard ranking.

Watersheds can be considered as assets in their own right. Consultation with those water supply agencies with facilities, reservoirs, and properties should be included in mitigation discussions, and are in fact required to take part since the passage of Colorado House Bill 09-1162. Further

consultation with members of a Burned Area Emergency Response Team may provide further guidance in mitigating and preparing for the effects of wildfire in a watershed.

Figure K.2. Blue River Watershed Wildfire Hazard Ranking



Source: JW Associates, Inc., Blue River Wildfire/Watershed Assessment 2011

Future Development

Continued growth of Summit County’s population will generally mean an expanded WUI and potential exposure of buildings and people. It is important that CWPPs, EOPs, and other planning documents and regulations remain current to ensure improved community adaptation to the fire prone environment in which they are being built. Denver Water has already begun to work with local offices of emergency management, including Summit County, to address wildfire hazards.

Growth and Development Trends

Denver Water does not have authority to manage growth or development within its district.

K.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

Regulatory Mitigation Capabilities

Regulatory mitigation capabilities include the planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities. Table K.5 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in Denver Water. Many of the regulatory capabilities used by local jurisdictions are not applicable to Denver Water.

Table K.5. Denver Water—Regulatory Mitigation Capabilities

Regulatory Tool (ordinances, codes, plans)	Yes/No	Comments
General or Comprehensive plan	N/A	
Zoning ordinance	N/A	
Subdivision ordinance	N/A	
Growth management ordinance	N/A	
Floodplain ordinance	N/A	
Other special purpose ordinance (stormwater, steep slope, wildfire)	N/A	
Building code	N/A	
Fire department ISO rating	N/A	
Erosion or sediment control program	N/A	

Regulatory Tool (ordinances, codes, plans)	Yes/No	Comments
Stormwater management program	N/A	
Site plan review requirements	N/A	
Capital improvements plan	Yes	
Economic development plan	N/A	
Local emergency operations plan	Yes	Denver Water Emergency Management began developing an EOP in August 2012. Emergency manager brought on board to implement a comprehensive emergency management program that will interface with local jurisdictions
Other special plans		Drought Response Plan FERC requires Emergency Action Plans (EAPs) on all dams. Also have treatment and distribution plans.
Flood insurance study or other engineering study for streams	N/A	
Elevation certificates (for floodplain development)	N/A	
Other		

Administrative/Technical Mitigation Capabilities

Table K.6 identifies the personnel responsible for activities related to mitigation and loss prevention in Denver Water.

Table K.6. Denver Water—Administrative and Technical Mitigation Capabilities

Personnel Resources	Yes/No	Department/Position	Comments
Planner/engineer with knowledge of land development/land management practices	N/A	Planning	
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Engineering	
Planner/engineer/scientist with an understanding of natural hazards	Yes		Drought planners
Personnel skilled in GIS	Yes	IT/GIS	
Full time building official	N/A		
Floodplain manager	N/A		
Emergency manager	Yes	Operations & Maintenance – Manager of Emergency Response	
Grant writer			
Other personnel			
GIS Data Resources	Yes	IT/GIS	

Personnel Resources	Yes/No	Department/Position	Comments
(Hazard areas, critical facilities, land use, building footprints, etc.)			
Warning Systems/Services (Reverse 9-11, cable override, outdoor warning signals)	Yes	IT	Everbridge
Other			

Fiscal Mitigation Capabilities

Fiscal mitigation capabilities are financial tools or resources that Denver Water could or already does use to help fund mitigation activities. Denver Water has received funding for watershed improvements from the Colorado State Forest Service.

Mitigation Outreach and Partnerships

Denver Water has public education programs related to water conservation, drought response, water quality, and a very active youth education program focusing on a variety of water-related topics. Additionally, Denver Water has a public affairs division that provides media relations, social media, marketing, publications, internal communication, stakeholder relations, government relations, community outreach, and website communications for both our combined service area of 1.3 million people and for the communities where Denver Water’s watersheds and facilities are located.

Past Mitigation Efforts

Denver Water has partnered with USFS to improve forest and watershed conditions in parts of Colorado by implementing hazardous fuels treatments and removing hazardous biomass. Forests play a role in protecting areas important to surface drinking water. USFS maps these areas using GIS before working with Denver Water on fuels treatment projects. This effort is part of the Forests to Faucets program.

K.5 Mitigation Goals and Objectives

Denver Water has adopted the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 4 Mitigation Strategy.

K.6 Mitigation Actions

Denver Water identified and prioritized the following mitigation actions based on the risk assessment. Background information on how each action will be implemented and administered, such as ideas for implementation, responsible agency, potential funding, estimated cost, and timeline also are included.

Mitigation Action: Denver Water—1 Update Drought Management Plan

Jurisdiction: Denver Water

Action Title: Update drought management plan

Priority: High

Issue/Background: Updating the drought management plan will allow Denver Water to identify risks to their infrastructure and critical facilities, and reduce the impacts of water shortages.

Ideas for Implementation:

Responsible Agency: Denver Water

Partners: CWCB

Potential Funding:

Cost Estimate: Staff time

**Benefits:
(Losses Avoided)** Reduce drought impacts to people and critical facilities; build resiliency to drought

Timeline: Tentative completion date of 12/31/2013

Status: New in 2013

Mitigation Action: Denver Water—2 Develop IGA with Summit County

Jurisdiction:	Denver Water
Action Title:	Develop intergovernmental agreement with Summit County
Priority:	Low
Issue/Background:	Denver Water currently has an IGA signed with the Colorado Office of Emergency Management. The Denver Water legal department will develop an IGA for Summit County for emergency management purposes.
Ideas for Implementation:	
Responsible Agency:	Denver Water
Partners:	Summit County OEM
Potential Funding:	Denver Water
Cost Estimate:	Staff time
Benefits: (Losses Avoided)	Strengthening emergency management partnerships; improving emergency preparedness by putting these agreements in place before a disaster or emergency occurs
Timeline:	
Status:	New in 2013

Mitigation Action: Denver Water—3 Update AOP for Property Owners

Jurisdiction: Denver Water

Action Title: Update the Annual Operating Plan for Summit County property owners and Denver Water customers

Priority: Low

Issue/Background: AOPs are updated on an annual basis. Denver Water met with Summit County officials on 11/28/2012 to provide the updated AOP and basic training on the plan. The 2014 exercise was discussed, and planning efforts were scheduled to begin during Summer 2013.

Ideas for Implementation:

Responsible Agency: Denver Water

Partners: Summit County

Potential Funding:

Cost Estimate: Staff time

**Benefits:
(Losses Avoided)** Informs Summit County customers of projected operations and releases from Denver Water's reservoirs each year; contributes to drought preparedness if water levels are projected to be lower than previous years.

Timeline: AOPs are updated annually

Status: New in 2013

Mitigation Action: Denver Water—4 Public Outreach in Summit County

Jurisdiction:	Denver Water
Action Title:	Public outreach efforts in Summit County
Priority:	Low
Issue/Background:	The Denver Water government stakeholder group would like to partner with Summit County stakeholders and rebuild relationships, and provide networking and education for the public. Denver Water OEM has additional ideas and information on public education efforts as they related to FERC requirements.
Ideas for Implementation:	Denver Water participated in Summit County's public workshop for the hazard mitigation plan 2013 update as part of this initiative.
Responsible Agency:	Denver Water Emergency Management
Partners:	Summit County OEM, participating jurisdictions
Potential Funding:	Denver Water
Cost Estimate:	Staff time, developing and printing public information materials
Benefits: (Losses Avoided)	Strengthen partnership between Denver Water and Summit County; keep public informed
Timeline:	Ongoing
Status:	New in 2013

Mitigation Action: Denver Water—5 GIS Mapping Coordination Project

Jurisdiction:	Denver Water
Action Title:	Develop GIS mapping coordination project to show damages based on dam EAPs, flood maps, and county floodplains
Priority:	Low
Issue/Background:	COEM is in the process of developing a “reference guide” for all 600+ dams in Colorado for local emergency managers to access and use for local planning efforts. Denver Water has inundation maps, included in their AOP for local officials to use in order to develop local notification and evacuation plans.
Ideas for Implementation:	
Responsible Agency:	Denver Water
Partners:	COEM, CO DNR – Division of Water Resources, Summit County
Potential Funding:	Denver Water
Cost Estimate:	Staff time
Benefits: (Losses Avoided)	Improve dam failure notification and evacuation procedures in Summit County; protect life safety
Timeline:	Three years
Status:	New in 2013