

**CITY OF BOULDER  
WATER RESOURCES ADVISORY BOARD  
AGENDA ITEM**

**MEETING DATE: October 19, 2020**

**AGENDA TITLE:** Information Item – Wildfire Planning for Source Water Protection

**PRESENTERS:**

Joe Taddeucci, Director of Public Works - Utilities  
Meghan Wilson, Water Quality and Environmental Services Manager  
Michelle Wind, Drinking Water Program Supervisor  
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**EXECUTIVE SUMMARY**

This Information Item summarizes the city’s recent developments to plan for wildfire and protect the water supply from post-wildfire impacts. Wildfire planning is identified as a high priority watershed management issue in the Water Utility Master Plan and the Source Water Protection Plan. To better understand potential post-fire impacts and facilitate watershed recovery, the city has been using a customized wildfire planning tool. City staff also took an active role in the collaborative effort to develop the Colorado Post-Fire Playbook. This agenda item is informational and does not require WRAB action.

**BACKGROUND**

Wildfires in Colorado have been increasing in frequency, extent, and severity with 2020 shaping up to be one of the most active fire seasons in recorded state history. Several factors contribute to worsening fire conditions. Climate change is causing overall warmer, drier conditions, and forest fuels are increasing due to long-term fire suppression policies and bark beetle. Also, more people are visiting and living in the wildland urban interface, leading to more intentional or accidental fires.

Wildfires can significantly impact water supplies. With reduced vegetation and hydrophobic soils, wildfire-impacted hillslopes are prone to erosion and overland debris flow during post-fire rain events. These conditions can lead to downstream sediment loading, resulting in reduced reservoir storage capacity, increased water treatment costs, drinking water taste and odor issues, and short- and long-term source water quality impacts. Erosion and debris flows can also damage infrastructure, expose previously buried pipelines and impact access to facilities.

Approximately two-thirds of the city’s water supply comes from the forested headwaters of Middle Boulder Creek (via Barker Reservoir), and North Boulder Creek (via Lakewood Reservoir). Primarily due to the higher elevation, where the probability of a wildfire is lower compared to the lower montane region of the foothills, there have been few U.S. Forest Service

(USFS) forest thinning projects in the Middle and North Boulder Creek watersheds. However, there is evidence that wildfires are increasing at higher elevations. Therefore, the city has multiple efforts in progress to help plan for a wildfire and facilitate post-fire watershed rehabilitation. In addition to tracking [fuel conditions](#) and working closely with USFS and other entities, the city has a customized pre- and post-wildfire planning tool and recently collaborated on a statewide effort to develop the [Colorado Post Fire Playbook](#) – a concise guide to assist Colorado counties, tribes, municipalities and water providers in post-fire recovery.

## **ANALYSIS**

**Wildfire Erosion and Sediment Transport Tool** – To understand erosion potential and inform post-fire watershed rehabilitation, the city partnered with [Colorado Forest Restoration Institute](#) to develop the Wildfire Erosion and Sediment Transport Tool (WESTT). Finalized in May 2019, WESTT is an easy to use, updatable, long-term planning tool designed to:

1. Predict post-fire erosion and sediment transport to the city’s drinking water diversions,
2. Determine the most effective type and placement of post-fire rehabilitation strategies to stabilize hillslopes and trap sediment, and
3. Estimate watershed rehabilitation costs.

Further details on WESTT can be found in the [October 2019 WRAB update](#).

**Colorado Post-Fire Playbook** – Wildfire rehabilitation efforts are complicated by the large number and variety of land managers and land use interests involved and high cost for watershed recovery. While a plethora of guidance and impact reports are available, they are often long and vague, making them challenging to implement. Recognizing the need for a clear, concise and action-oriented resource for water providers and local governments, City of Boulder staff took an active role in collaborating with other partners to develop the [Colorado Post-Fire Playbook](#).

The Playbook was developed over the course of seven months by 14 volunteer representatives from state and federal agencies, water providers, municipalities, consulting firms and watershed groups. The Playbook contains 11 specific steps to implement before, during and within 30 days of a fire to plan for and facilitate watershed rehabilitation. A few key steps include:

1. Listing contact information for critical stakeholders pertinent to the area of interest (e.g., source watersheds or land within and around a municipality).
2. Establish a Local Recovery Group comprised of representatives from municipalities, tribes, counties, and water providers. The Local Recovery Group meets regularly to improve local information sharing that is then fed to the larger state/federal Regional Recovery Group.
3. Request funding assistance from the Colorado Water Conservation Board and the Natural Resources Conservation Service. Other grant opportunities are also identified.

Steps in the Playbook were specifically identified because of their level of importance to recovery and ability to implement regardless of resource availability. The Playbook is only 14 pages and designed to easily pull information together and have resources at hand post-fire. The Playbook was finalized and published on Colorado Department of Public Health and Environment's website in early June 2020. Boulder has completed the pre-fire Playbook steps and has filled out the critical contacts list.

### **NEXT STEPS**

The authors of the Playbook will reconvene in February 2021 to consolidate any feedback and comments received, and update the Playbook as needed. In the meantime, the city is also working with the Colorado Department of Public Health and Environment to import ranked critical drinking water infrastructure data into USFS' database, which may help first responders protect the city's water supply assets during a wildfire. Staff are also in the initial stages of discussions with Boulder County and Colorado State Forest Service regarding a possible forest thinning/forest health project in an area of the Middle and North Boulder Creek watersheds identified by WESTT as a hotspot for post-fire erosion and sediment transport to Barker Reservoir.