Aurora Source Water Protection Program

South Platte Urban Water Partnership

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Michael F. McHugh, P.G., Senior Water Resources Project Manager

Agenda

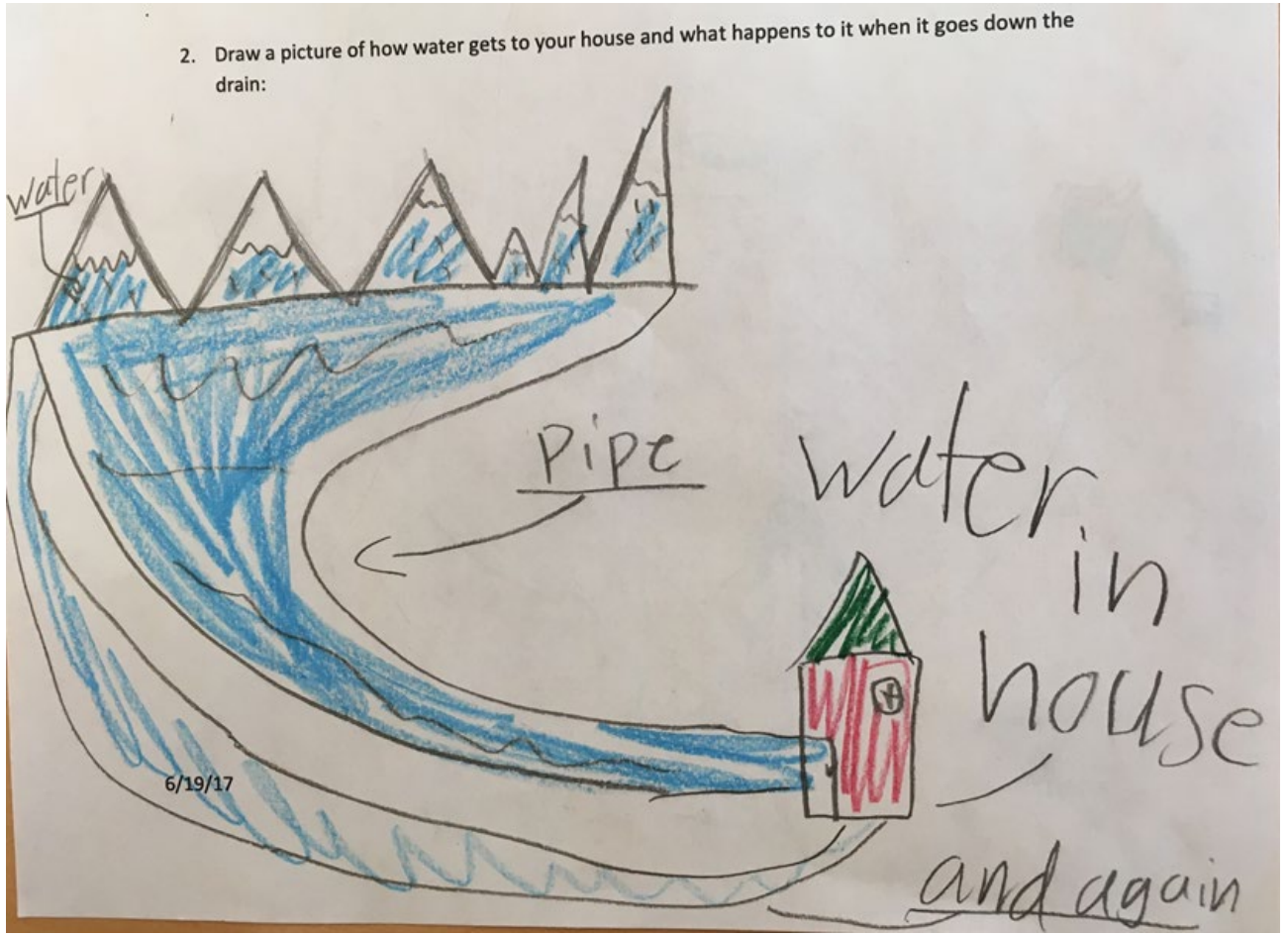
- Introduction
- What is a Watershed ?
- Watershed River Basins
- Three flavors of water?
- Watershed Basin Physiography
- What Ecosystem Services do Watersheds Provide?
- Partnerships
- Threats
- Projects
- The Future

Introduction

- 3rd largest city in Colorado
  - Population 381,000
  - 160.53 mi^2
- 54th largest city in US

- Water department is responsible for 5-types of water
  - Raw water
  - Treated water
  - Wastewater
  - Reuse water
  - Storm water

- Water supply
  - Colorado River, Arkansas River and South Platte River basins
  - Water can be delivered from up to 180 miles away
  - 12-Water storage reservoir in current system (156,000 AF)
  - 3-Water treatment plants



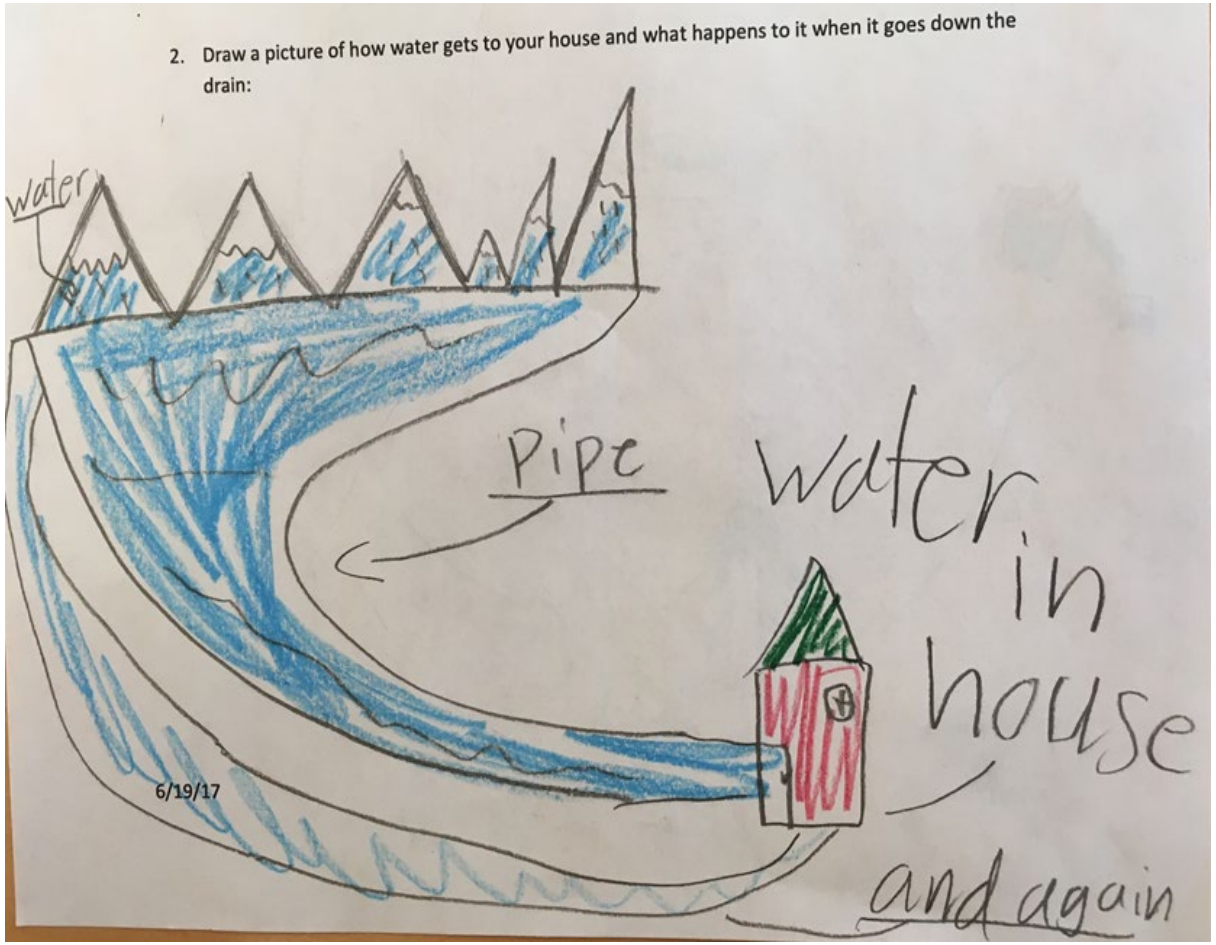
Introduction Cont'd

- Water conservation
  - 2015 Municipal water efficiency plan
  - Water-wise landscape rebate (Xeriscape)
  - Ultra-high-efficiency toilet rebates
  - Irrigation system efficiency rebates
  - Programs for low income residents
  - Water education
  - Landscape code changes
  - Tiered water rates

  - Sand Creek Water Reclamation facility – 5MGD
  - 3 golf courses, 4 parks, City Hall and I-225 interchange
  - Prairie Waters Project
    - $650M indirect potable reuse project
    - 10,000 AF annually

- Integrated Water Master Plan
  - Comprehensive plan updated every 5-years
  - Multi scenario / demand-based plan

- Upcoming conversion to advanced metering infrastructure



Aurora Water--Water Resources Division

- Watershed Management is a core function of the Water Resources Division. This function is to protect, improve and enhance our water resources' quality and quantity and avoid impairment of the City of Aurora's ability to utilize and expand vital raw water supplies.

What is a Watershed

- Simply the point at which to all the water will drain.
- Can be organized into sub-watersheds
- Sub-watersheds given a Hydrologic Unit Code (HUCs)

Three Flavors of Water?

- Directly Use
- Commingled Use
- Use by Exchange

Aurora’s Watersheds are defined as the geographic area above the furthest downstream points of diversion into our raw water intakes in our three watershed basins upstream to their headwaters or points of origin.

Three Major River Basins

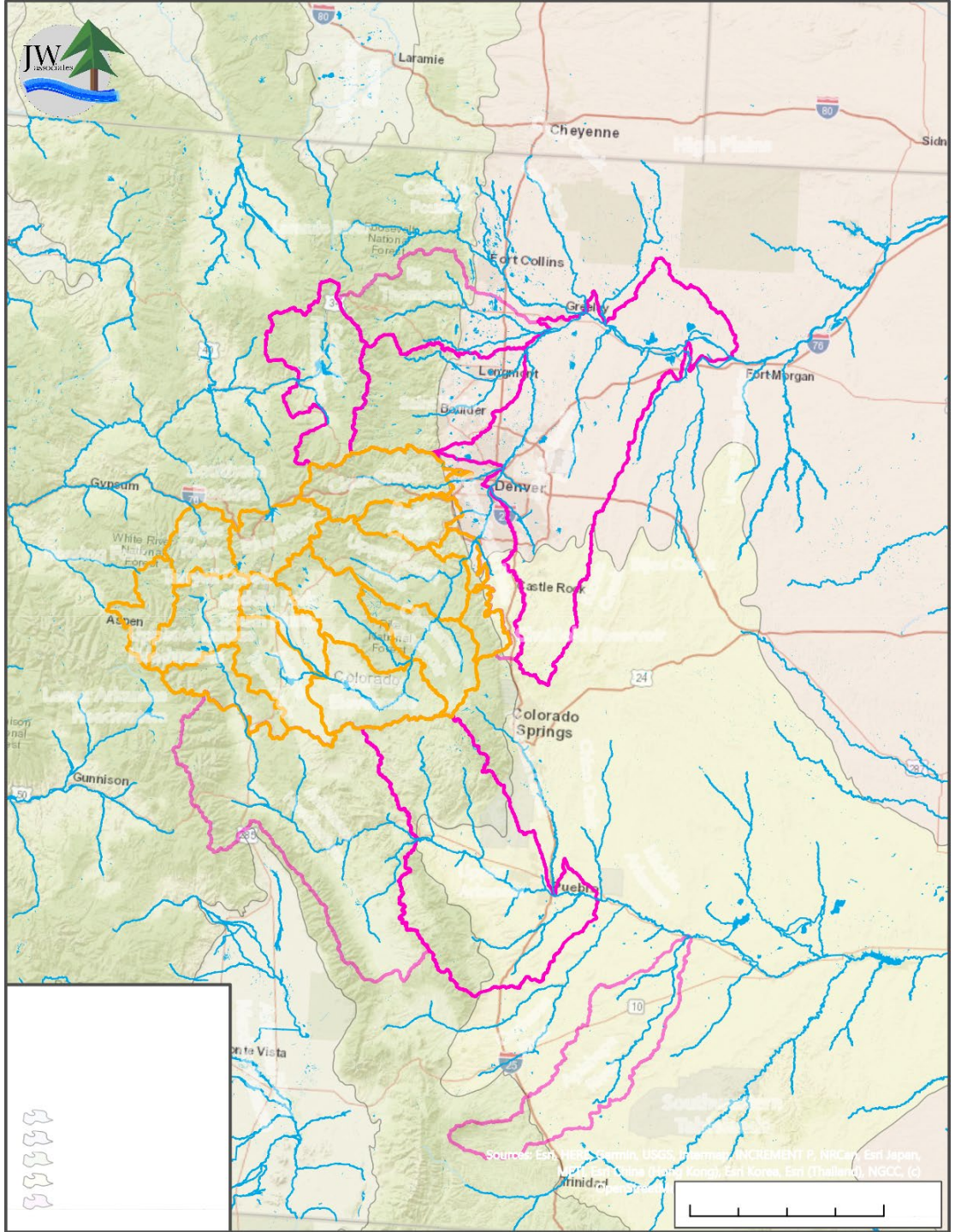
The Watershed Management Function is based on five watershed functions divided into two categories, Hydrologic Watershed Functions and Ecological Functions.

- There are three fundamental hydrologic watershed functions
- Additionally there are two ecological watershed functions

The Watershed Management Program Plan

- Recent acquisitions and new science mean we need to update the plan
- Has two major goals within the Watershed Management Core Function:
- first, protect and enhance the five watershed functions,
- and second, recognize and reap the benefits arising from these functions. This is sometimes referred to as ecosystem services.

Extent of Watersheds Now



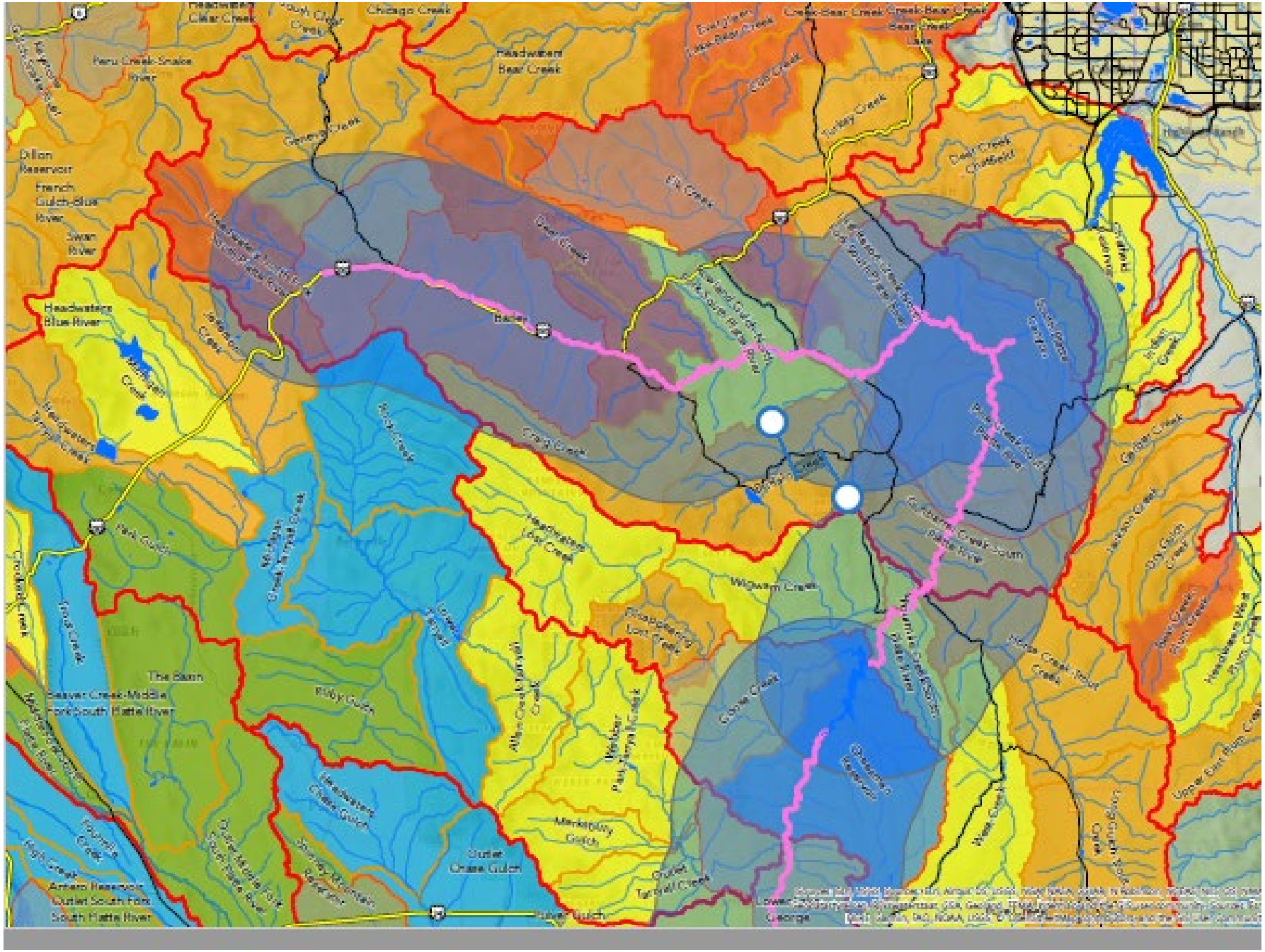
Goals of the Watershed Protection Plan

The first goal includes protecting, rehabilitating, enhancing the productivity of the watersheds through a variety of activities

The Second Goal

Recognize and reap the benefits arising from the watershed functions.

This is sometimes referred to as ecosystem services.



Zones of Concern South Platte River

Partners

- Colorado Springs Utilities
- Denver Water
- Pueblo Board of Water Works

Technical Approach

- Our previous Watershed Protection Plan combined Hazards/risks with Constraints and Opportunities
- The new Approach:
- Complete analysis for hazards/risks and rank watersheds
- Identify existing or potential projects that would address the hazards/risks by 6th level watershed grouped by Sub-basin
- Use the constraints/opportunities analysis to further define or refine potential projects

Hazard Analysis

- Elements of the hazard analysis the same as the previous analysis but some of the base data has been updated. The main hazard categories are;
- Wildfire Hazards
- Watershed Resilience
- Mining
- Water Quality
- Water Supply

Wildfire Composite Analysis

- **Wildfire Hazard** - Complete new Flammap modeling using latest LandFire data (September 2019). Modify Lodgepole pine by change specific fuel models. Use both flame length and canopy fire activity.
- **Flooding/Debris Flow Hazard** - Ruggedness and Roads (road density, road/stream crossings, roads within 100 meters of streams). The ruggedness analysis used from the previous analysis. Updated the roads base data and added the new roads analysis.
- **Soil Erodibility** - NRCS K-factor and slope analysis.
- **Wildfire Composite Hazard** - Composite rank of the above three components.

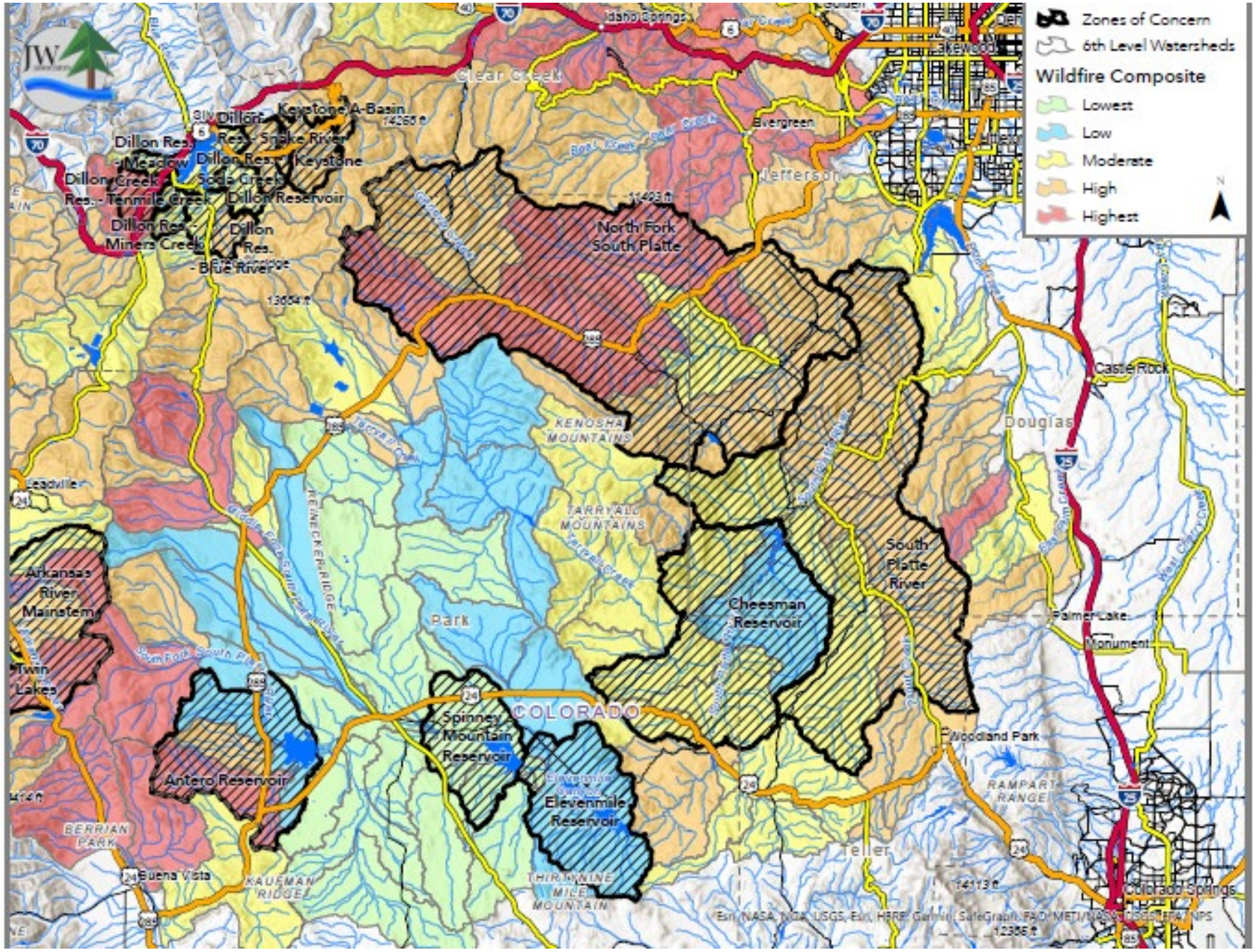
Watershed Resilience Analysis

- **Climate Change Vulnerability Index**

- Two major pieces
  - Resilience
  - Ecosystem Sensitivity
- Then look at the Forest Composite Hazard

Wildfire Composite Hazard and Zones of Concern Overlay

No organization is an unaffected!



Lower Basin

- In the near-term water rights will be used by exchange or for augmentation
- Concerns and Hazards are slightly different

- More of an emphasis on:
- Oil and Gas operations
- Agricultural Practices
- Water Quality Pesticides/Fertilizers
- CAFO