Watershed Management Plan

Protecting Our Drinking Water Supply

Public Utilities

Keep It Pure

DON'T POLLUTE THE WATERSHED

Introductions

Mentimeter Word Cloud

Introductions

Agenda

- Introductions – SLCDPU & Stakeholder Committee
- Plans Need & Historical Context – Laura Briefer
- Jurisdictional Roles & Existing Plans – Patrick Nelson & Marian Rice
- Watershed Characteristics & Plan Development – JW Associates
- Facilitated Discussion – The Langdon Group & Stakeholder Committee

Meeting Courtesies

- Mute your microphone
- Leave your camera on
- Use the comment tool or the raise your hand tool
- Our ground rules:
  - Want everyone to participate
  - There are no right or wrong answers – every opinion counts
  - Be respectful; no one interrupts or talks over another person
  - Keep an open mind, listen carefully, and try to understand other people's view
  - Respond to others how you want to be responded to

What To Expect:

- Facilitated discussion at the end
- Want your input, ideas and recommendations
- We appreciate your time, knowledge, and views
- We will prepare a meeting report

Overview Video

Plan Need & Historical Context

GOAL

Protect the high-quality source of drinking water supply that originates from our watershed areas.

NEED

Salt Lake City Department of Public Utilities is required by the Safe Drinking Water Act to create and implement a plan that documents how our source waters are protected. The conditions in our watershed areas have changed and they are under pressure on multiple fronts. It's time to update the plan.

VISION

Develop sound policy that can be executed methodically by Salt Lake City Department of Public Utilities through collaborative management with trusted partners.

"The eyes of the future are looking back at us, and they are praying for us to see beyond our time"

– Local author and naturalist Terry Tempest Williams

Keeping Our Drinking Water Pure

Is The Purpose Of The Watershed Management Plan

Keep It Pure

DON'T POLLUTE THE WATERSHED

Jurisdictional Roles

Water Quality
- U.S. Environmental Protection Agency
- Utah Division of Drinking Water
- Utah Division of Water Quality
- Salt Lake County Health Department
- Salt Lake County Watershed Restoration and Planning
- Salt Lake City Department of Public Utilities

Wetlands
- U.S. Army Corps of Engineers
- Uinta-Wasatch-Cache National Forest
- Salt Lake County Health Department
- Salt Lake City Department of Public Utilities
- Sandy City

Stream Alteration & Flood Control
- Utah Division of Water Rights
- Salt Lake County Flood Control
- Salt Lake City

Land Use
- Uinta-Wasatch-Cache National Forest
- Salt Lake County
- Salt Lake County Health Department
- Salt Lake County Metropolitan Service District
- Salt Lake City
- Town of Alta
- Town of Brighton
- Emigration Township
- Sandy

Law Enforcement
- U.S. Forest Service
- Unified Police Department
- Salt Lake City Police
- Town of Alta Marshals
- University of Utah Police

Wildfire Response & Fuels Reduction
- U.S. Forest Service
- Utah Division of Forestry, Fire & State Lands
- Unified Fire Authority
- Salt Lake City Fire Department

A lot of entities involved but there are still gaps and having enough funding for what is needed is an issue

Existing Plans

The Purpose Of The Watershed Management Plan

Public Utilities is required and has the authority to protect its source waters and to demonstrate they are appropriately protected. One way we do this is by having in place the Watershed Management Plan. It helps guide the City's and Public Utilities watershed polices, programs and ordinances.

- Wasatch Cache National Forest Plan 2003
- Salt Lake County Canyons Master Plan
- Salt Lake County Water Quality Stewardship Plan 2009, 2015 update
- Salt Lake City Watershed Management Plan 1999
- City Creek Canyon Master Plan 1988
- Emigration Township General Plan
- Town of Brighton General Plan (Underway)
- Mountain Accord
- Central Wasatch Commission Mountain Transportation System
- UDOT Little Cottonwood Canyon Transportation EIS
- U.S. Forest Service & Salt Lake County Trails Master Plan (Starting)
- Town of Brighton Trails Plan (Starting)
- Salt Lake City Trails & Natural Lands – Foothill Trails Master Plan
- Salt Lake City Trails & Natural Lands – Master Plan
- Division of Wildlife Resources Little Dell Fishery Plan (Draft, On Hold)
- City Creek Water Treatment Plan Rebuild (Public Outreach)
- Big Cottonwood Canyon Water Treatment Plant Rebuild (Public Outreach)

Watershed Characteristics & Plan Development

JW Associates

Why Update The Plan?

- Plan is updated every 6 years as required per UDEQ DDW. But it is time for more in-depth review.
- Changes in the existing condition as compared to 1999
- Change in environmental stressors
- Identification of trends
- Adaptive and proactive management

High quality water + ongoing stewardship = Pure water for the future

Driving Concept – Watershed Resiliency

RESILIENCY DEFINITIONS

General Definition

"The capacity of a system to absorb disturbance and reorganize while undergoing change so as to retain essentially the same function, structure, identity, and feedbacks."

Holling, C.S. 1973. Resilience and Stability of Ecological Systems. Annual Review of Ecology and Systematics. Vol. 4: 1-23.

Watershed Resiliency

The ability of a watershed to withstand or recover quickly from a severe event such as fires, floods or extreme weather.

Cornell Cooperative Extension

RESILIENT WATERSHED CHARACTERISTICS

- Healthy riparian areas with native vegetation
- Intact wetlands
- Natural stream flows
- Functional flood plains connected to streams
- Healthy, diverse upland vegetation
- Wildfires that are in the natural disturbance range (intensity & extent)
- Minimal impervious or compacted cover
- Low road density
- Well designed stream/road crossings

Watershed Resilience - Importance for Water Supplier

POST-FIRE ASPEN SPROUTING

East Troublesome Fire, Grand County, CO

Photo: JW Associates - Brad Piehl

1. **Ability to withstand disturbance** = Reduction in risk to infrastructure and service disruptions

2. **Rapid recovery from disturbance** = Reduction in long-term water treatment costs

Higher source water quality ➡ Lower treatment costs ➡ Higher quality at the tap

EXISTING WATER QUALITY

Coming into the WTPs

Water quality coming into the treatment plants has been **consistently high, requiring minimal treatment** prior to being delivered to the tap

Leaving the WTPs

Treated water leaving the WTPs **exceeds all US EPA requirements** (SLCDPU Water Quality Report, 2021)

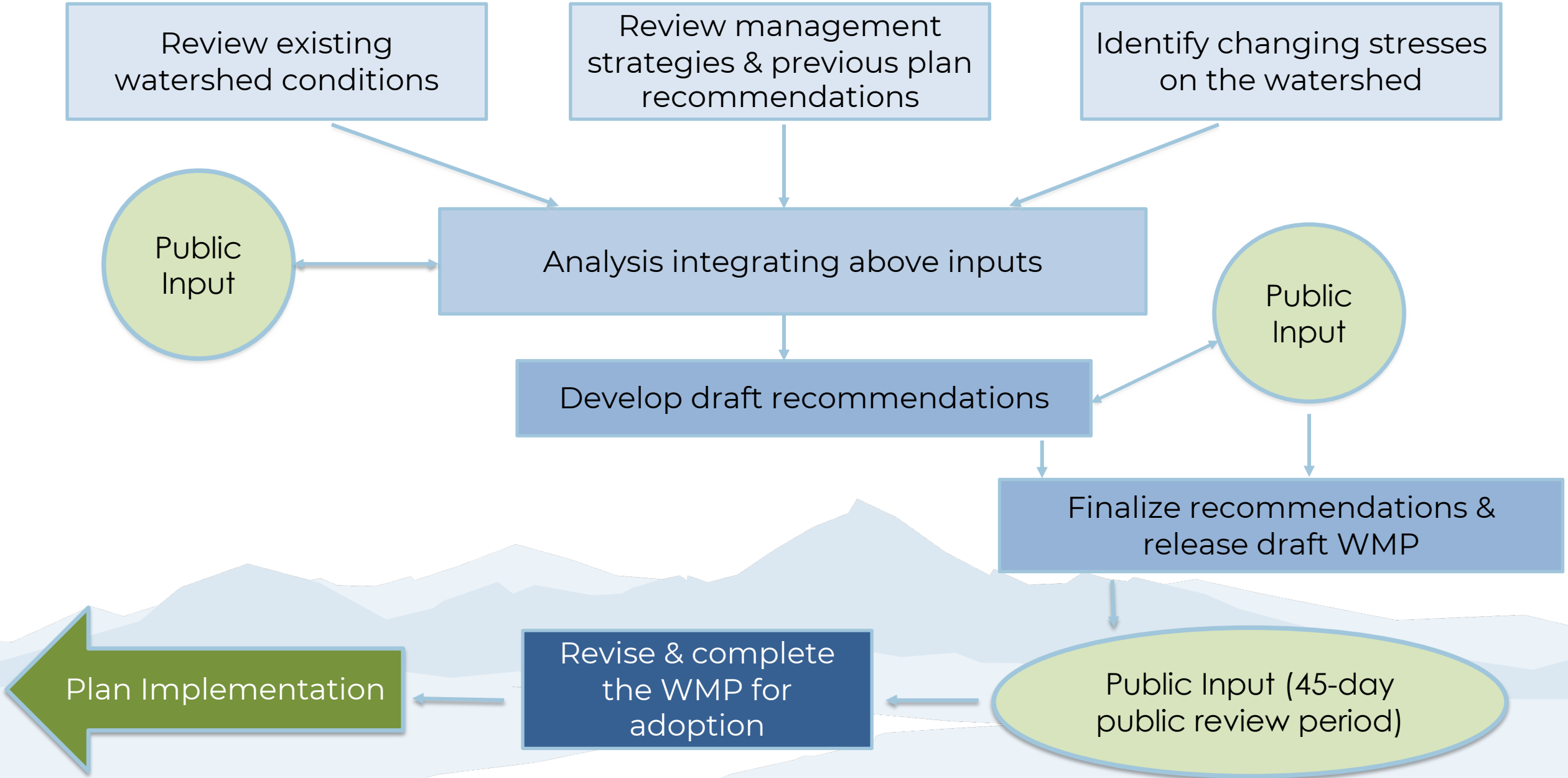
Looking to the Future

There are **warning signs of changes** – Example: increasingly intense monsoon events deliver high sediment loads to the treatment plants. Wildfire and human influence provide increased sources of eroded sediments available for transport.

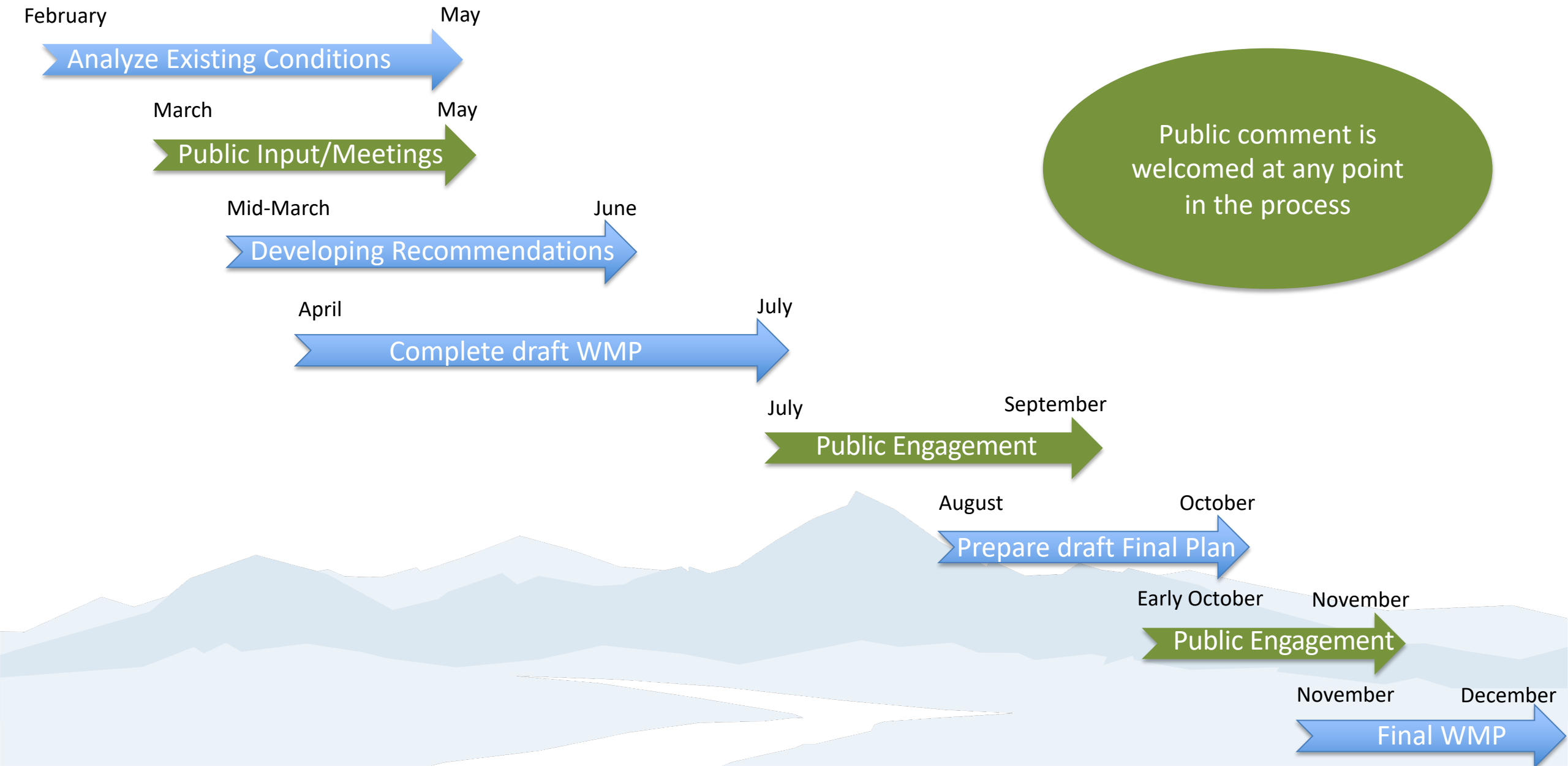
A HEALTHY RIPARIAN ZONE

Big Cottonwood Canyon Photo: Sharon Turner

Plan Development Framework



Anticipated Timeline



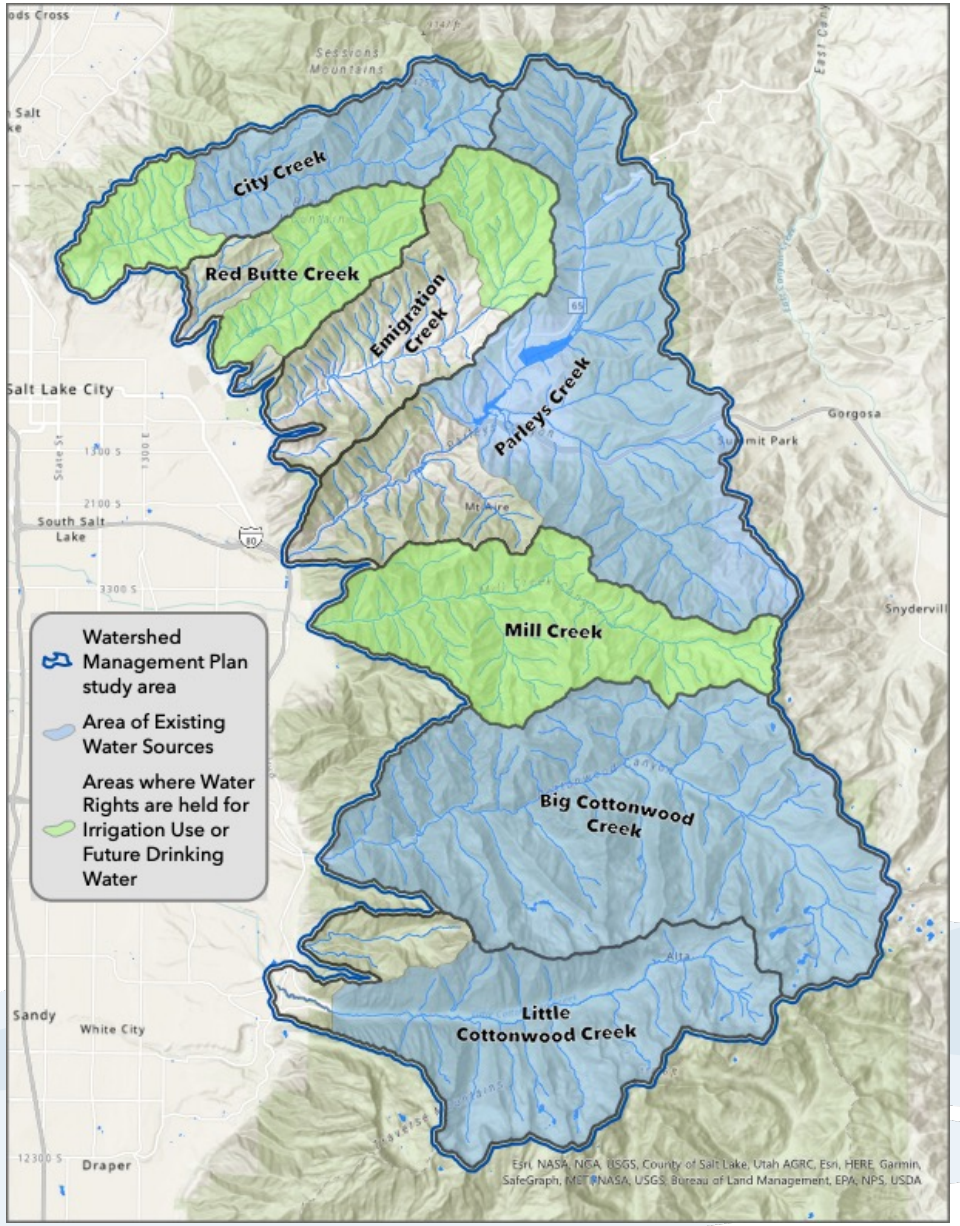
View from Brighton Ski Area

Photo: JW Associates – Jessica Wald

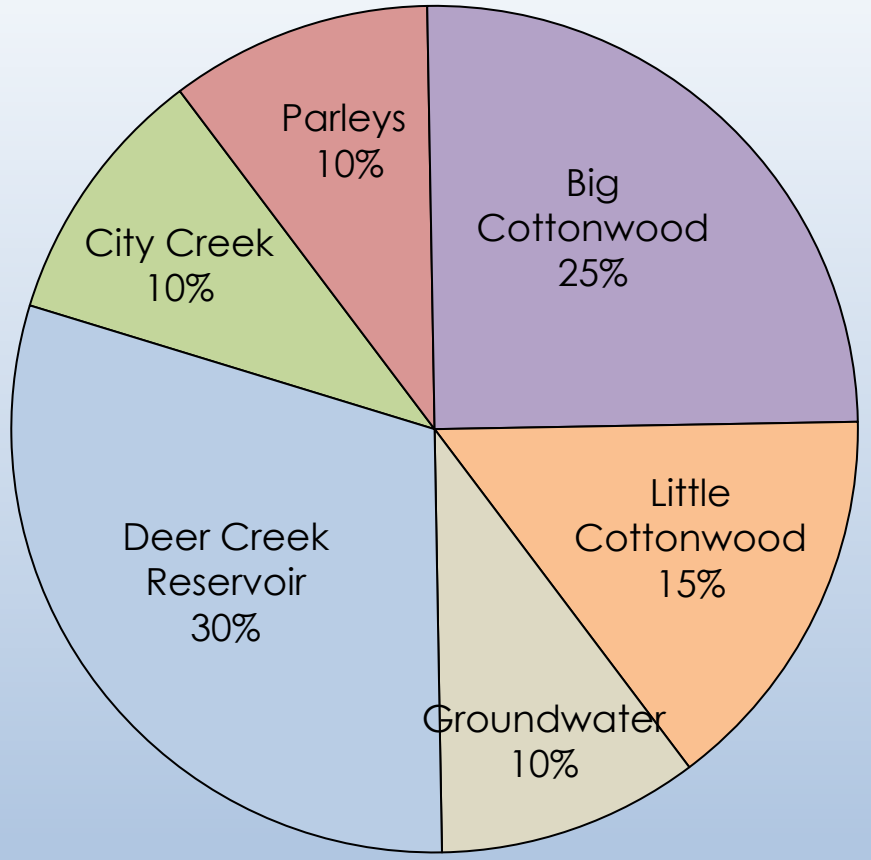
The unique watersheds of the Wasatch Front

Critical for water, valued by the community

Plan Watersheds and Study Area



SLC Drinking Water Supply Sources



Approximate proportion of the water supply by source

Unique Attributes of Salt Lake City and the Wasatch Watersheds

- Proximity to urban core
- Short distance from source to tap
- Major recreational areas concentrated in small canyons
- Rapid population growth

View of Wasatch from Sugar House Park

Photo: JW Associates – Jessica Wald

Watersheds' Proximity to Urban Core - Short Distance from Source to Tap

SALT LAKE CITY

- **Approximately 60%** of the service area's drinking water comes from these canyons
- Only **28 miles** from downtown SLC to ski areas, near the top of the canyons' watersheds
- Time for a drop of water to go down Big Cottonwood and into the tap is **about 24 hours**

OTHER REGIONS

- **Southern California -** Most water comes from the Colorado River – nearly all of which originates out of state
- **Colorado's front range (including Denver) -** Most of the water is piped across the continental divide
- **Nevada-** 90% of their water is from Lake Mead and snowmelt from the Rocky Mountains
- **Idaho –** 90% of the domestic water comes from groundwater

Comparison to similar communities in the west

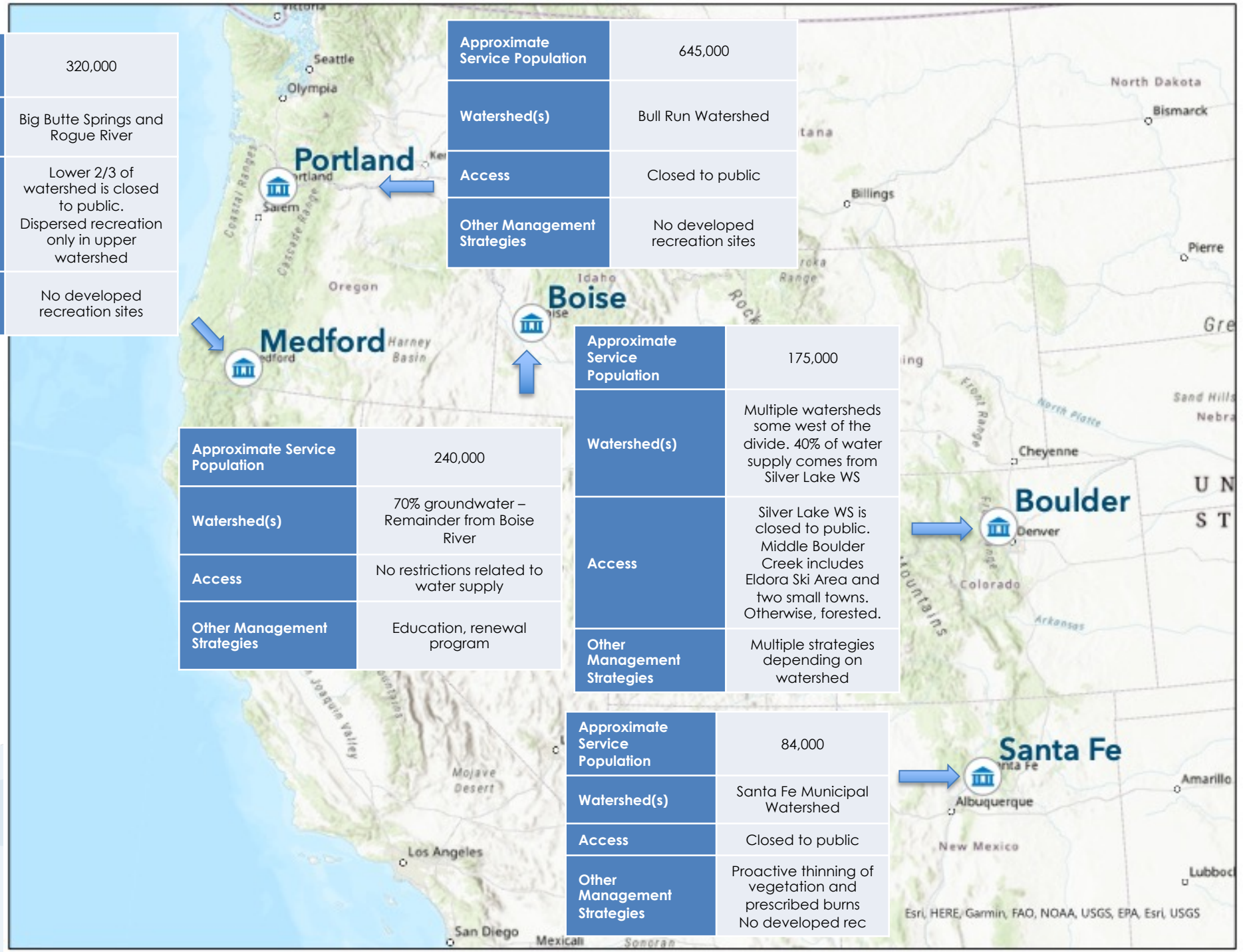
Approximate Service Population	320,000
Watershed(s)	Big Butte Springs and Rogue River
Access	Lower 2/3 of watershed is closed to public. Dispersed recreation only in upper watershed
Other Management Strategies	No developed recreation sites

Approximate Service Population	645,000
Watershed(s)	Bull Run Watershed
Access	Closed to public
Other Management Strategies	No developed recreation sites

Approximate Service Population	240,000
Watershed(s)	70% groundwater – Remainder from Boise River
Access	No restrictions related to water supply
Other Management Strategies	Education, renewal program

Approximate Service Population	175,000
Watershed(s)	Multiple watersheds some west of the divide. 40% of water supply comes from Silver Lake WS
Access	Silver Lake WS is closed to public. Middle Boulder Creek includes Eldora Ski Area and two small towns. Otherwise, forested.
Other Management Strategies	Multiple strategies depending on watershed

Approximate Service Population	84,000
Watershed(s)	Santa Fe Municipal Watershed
Access	Closed to public
Other Management Strategies	Proactive thinning of vegetation and prescribed burns No developed rec



Major recreational areas and opportunities in the Wasatch Watersheds

RECREATION OPPORTUNITIES

- **4 world-famous ski resorts** less than 30 miles from downtown Salt Lake City
- **3 Wilderness Areas** with trailheads a few miles from Salt Lake City
- **Extensive trail network** for hiking and biking: some walking distance from the edge of town
- Rapidly growing **mountain bike opportunities** that are gaining national attention

BRIGHTON SKI AREA

Brighton Ski Area

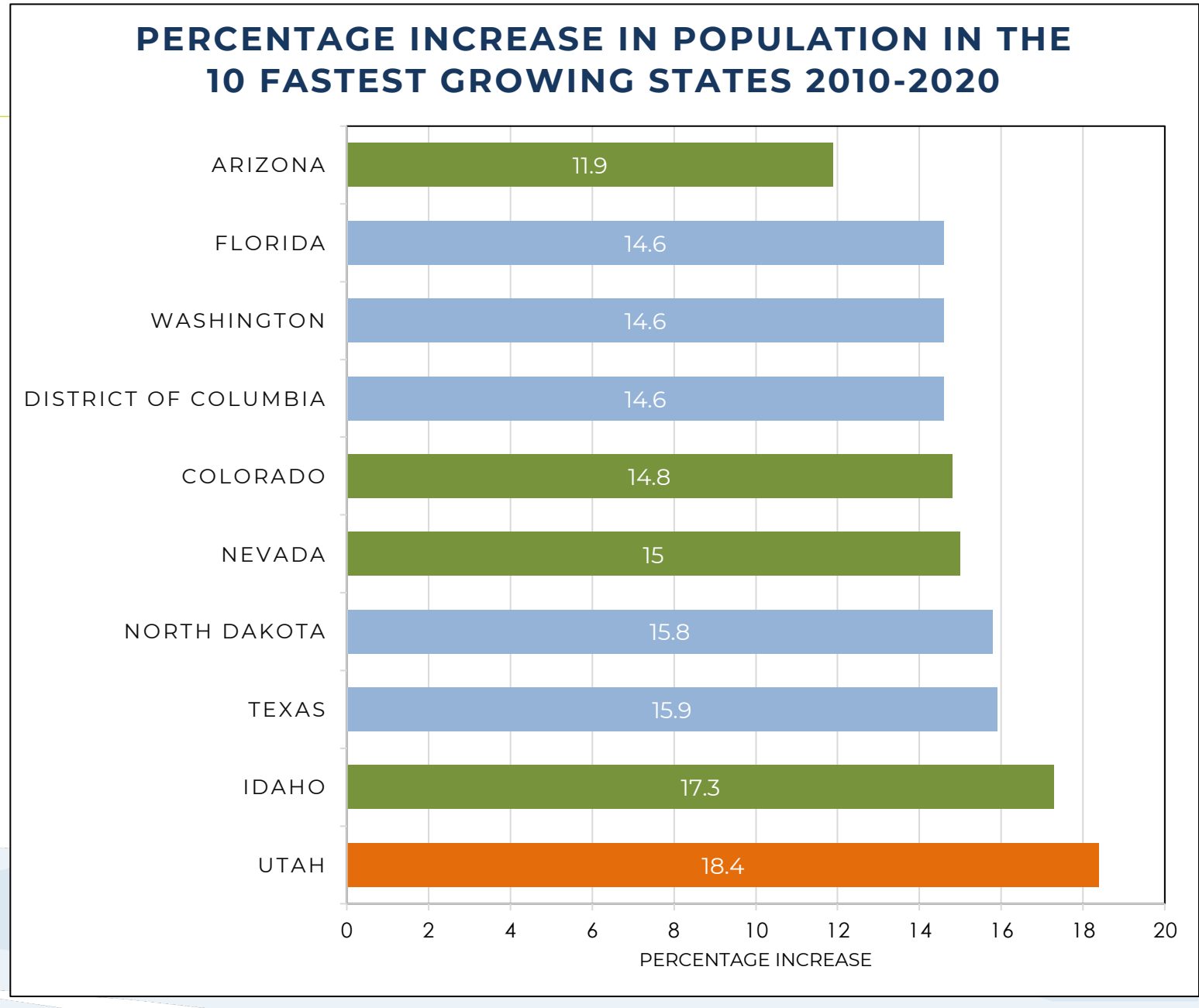
Photo: JW Associates - Jessica Wald

Utah is the fastest growing state in the U.S.

The **Uinta-Wasatch-Cache National Forest** is among the top five most visited in the nation

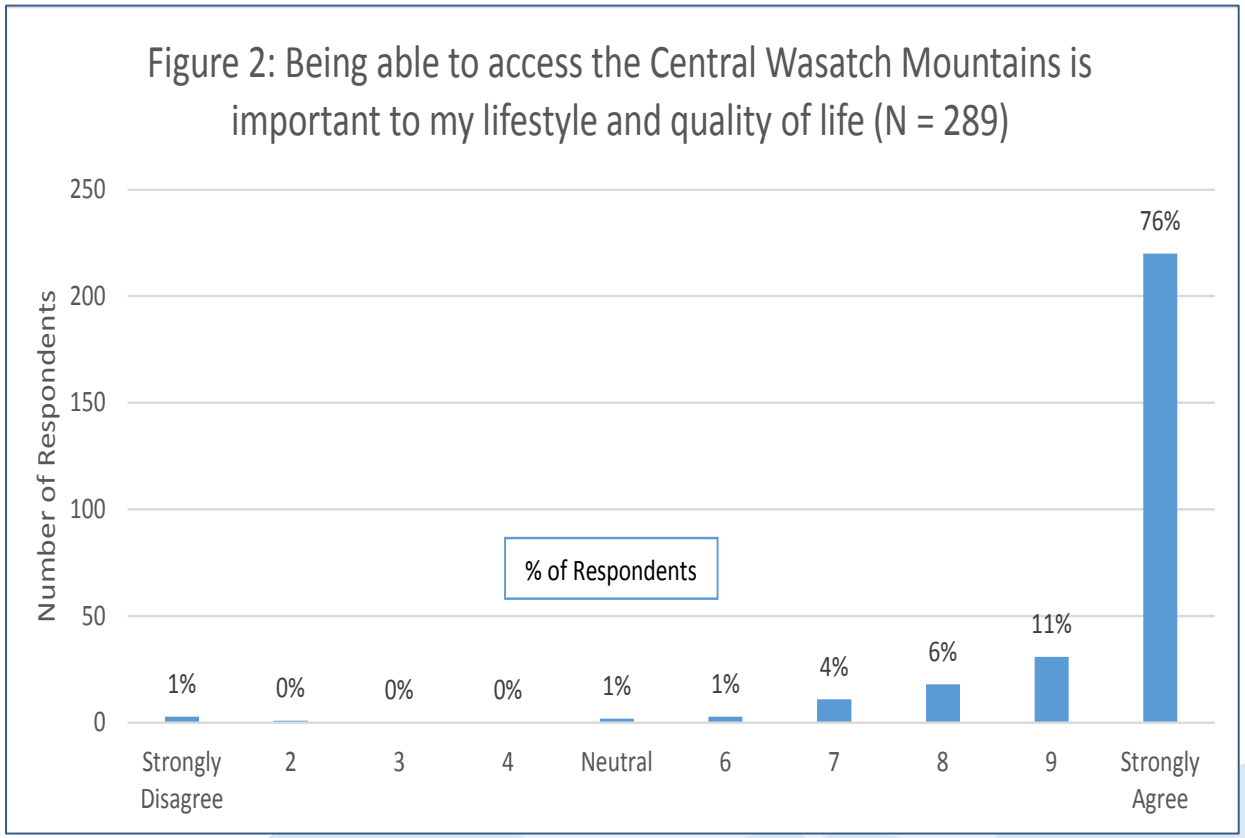
More visitors annually than Yellowstone NP (average of 4.2 million past 5 years)

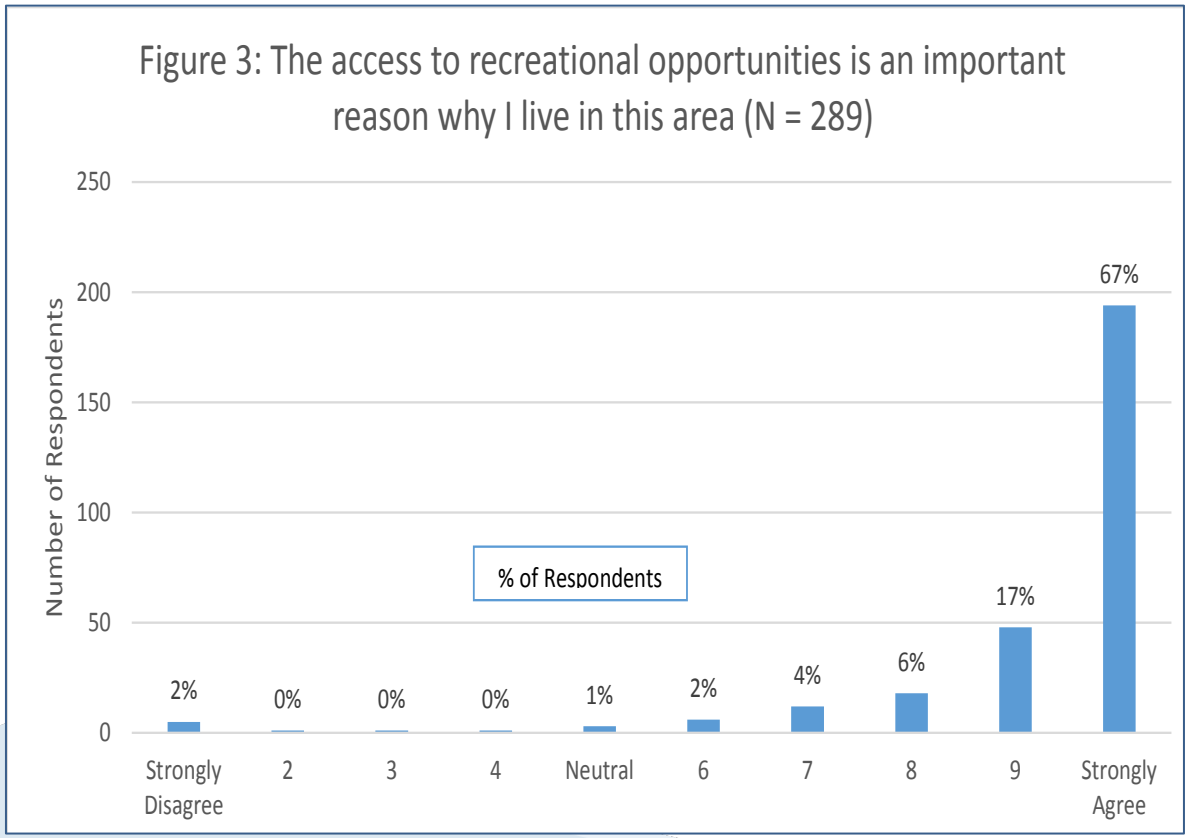
(Source: Best Practices for Watersheds and Recreation: 2018 Research Paper by Headwaters Economics)



Source: Census Bureau

Recreation is a priority for residents





Source: 2014-2015 Central Wasatch Visitor Use Study: Follow-Up E-Survey (Institute for Outdoor Recreation and Tourism, Utah State University, 2015)

Little Dell Reservoir

Photo: JW Associates – Jessica Wald

Critical concerns for watershed health

- Climate Change
- Wildfire
- Human Influence

Watershed Condition – Vulnerability to Stress

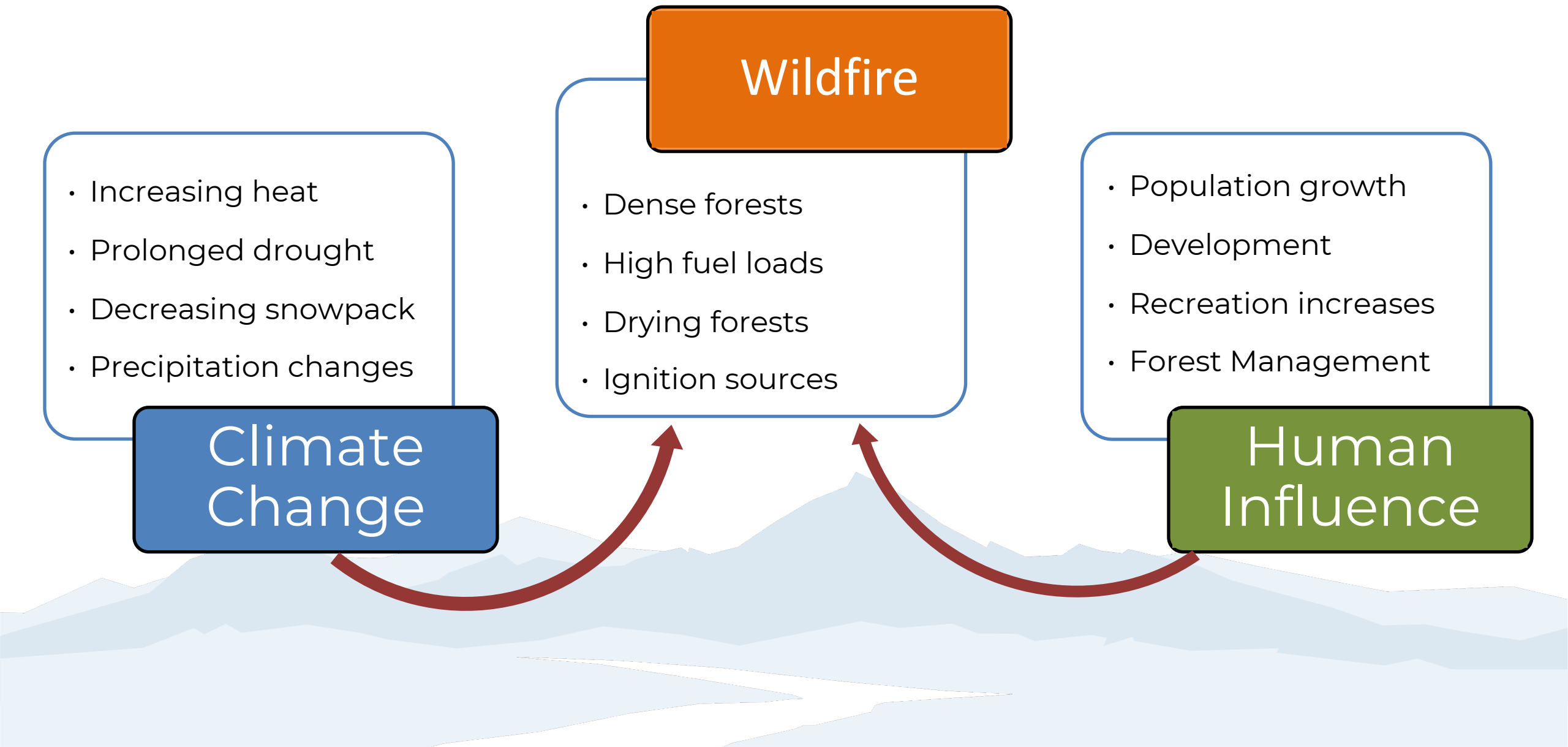
"Watershed condition changes over time due to natural processes and anthropogenic influences. The most pervasive impacts to watershed condition are expected to come from population increases . . . and climate change"

US EPA, Healthy Watersheds Protection: Developing a Watershed Vulnerability Index, EPA.gov.

Mountain Dell and Little Dell Reservoirs, Parleys Canyon

Photo: Patrick Nelson

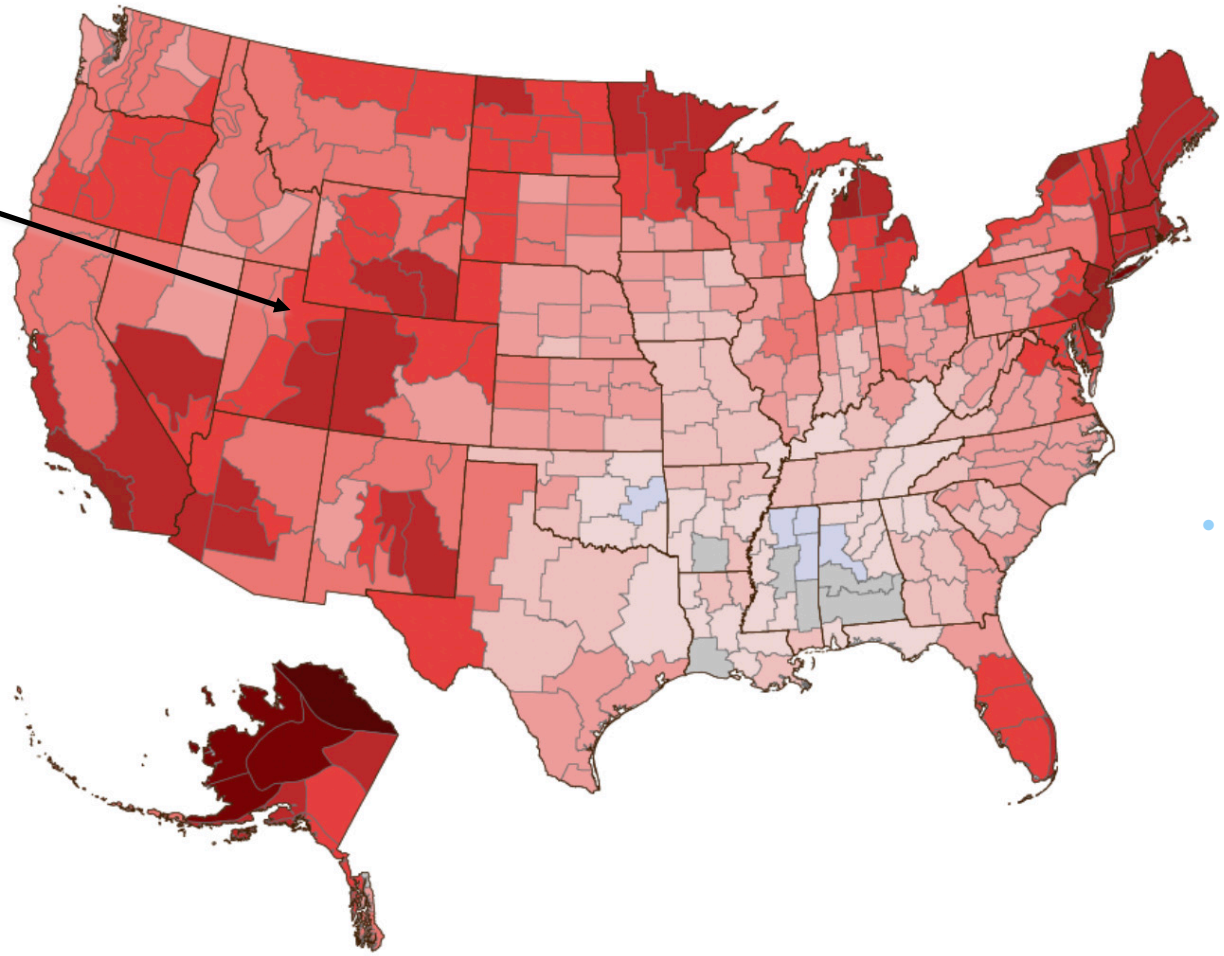
Major Stressors on Watersheds



Average Annual Temperature Deviations from long-term averages

Figure 3. Rate of Temperature Change in the United States, 1901–2020

Salt Lake City and Wasatch Mountains



- US EPA, Climate Change Indicators, US Temperature Change, EPA.gov

Temperatures in Northern Utah have risen 1.5 to 2.5 degrees Fahrenheit from historical averages

High elevations worldwide are warming faster than sea level

Utah ski resorts are warming faster than global averages

By 2100, minimum temps are expected to rise by 10 °F

Sources: Utah Department of Public Safety: Utah Hazard Mitigation: Climate Change https://hazards.utah.gov/wp-content/uploads/Utah-SHMP-Ch12-Climate-Change-1.pdf. Accessed March 4, 2022; Utah State University, Utah State Today, Climate Chante in Utah will Require Ski Resort Adaptations. July 29, 2021.

Factors Influencing Wildfire – Climate Change & Forest Management

Wildfire is **NATURAL** and **HEALTHY** for ecosystems, HOWEVER:

- Past forest management practices including fire suppression

  Increased forest density Larger wildfires of higher intensity and severity

- Between 1992 and 2012

  ⬆ ~6 weeks: Fire Season Length

  ⬆ 3x more megafires burning more than 100,000 acres

  (Utah Hazard Mitigation, https://hazards.utah.gov/wildfire/)

- **No End in Sight**

  Increasing temperatures, drought, drier soils and vegetation, spread of noxious weeds

  ➡ All likely to increase the length and intensity of fire season ⬅

How do we balance the stress of climate change

and the desire for recreation and development

with long-term protection of our watersheds and water supply?

Lake Blanche, Big Cottonwood Canyon

Photo: Sharon Turner

Next Steps

IN-DEPTH DISCUSSIONS ON CRITICAL CONCERNS

- Climate Change (April 11)
- Wildfire (April 21)
- Human Influence (May 6)

Keep In Mind

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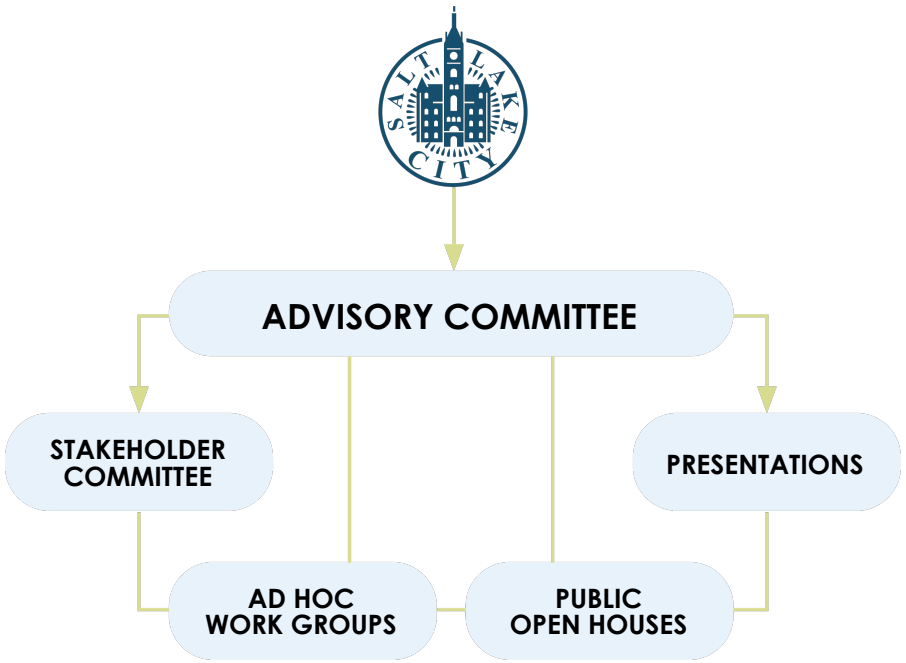
Facilitated Discussion

The Langdon Group

Website

slcwatershedmanagementplan.com

Wrap Up



Advisory Committee Meetings (3 total)

- **Meeting 1 – Process Framework**
  March 14, 3:00 – 4:00 pm

Stakeholder Committee Meetings (8 total)

- **Meeting 1 – Need, Characteristics & Framework**
  March 24, 1:00 – 3:00 pm
- **Meeting 2 – Climate Change**
  April 11, 3:00 – 5:00 pm
- **Meeting 3 – Wildfire**
  April 21, 10:00 – 12:00
- **Meeting 4 – Human Impacts**
  May 6, 10:00 – 12:00
- Meeting 5 – Elements To Be Explored
  TBD
- Meeting 6 – Draft Guidelines/Practices/Tools
  TBD
- Meeting 7 – Draft Plan
  TBD
- Meeting 8 – Updated Draft Plan
  TBD

Public Open Houses (4 total)

- **Meeting 1 – Need, Characteristics, Framework, Areas Of Focus**
  May 25, 5:00 – 7:00 pm

Thank You

Public Utilities

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