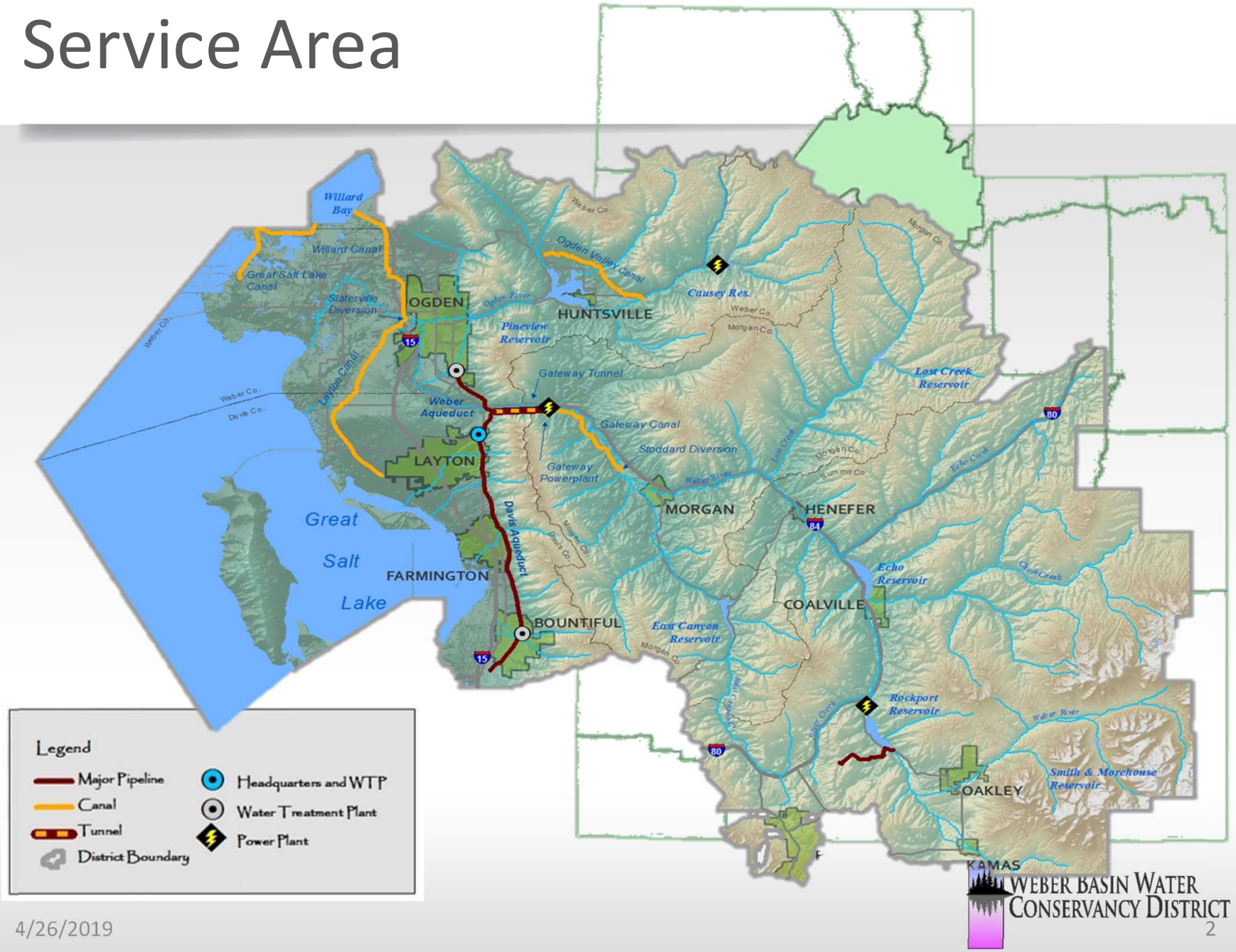
DROUGHT CONTINGENCY PLANNING – LESSONS LEARNED

Utah Resilience Planning Workshop

March 28, 2019

WEBER BASIN WATER CONSERVANCY DISTRICT

Service Area



WEBER BASIN WATER CONSERVANCY DISTRICT

Why do a Drought Contingency Plan?

- Poor winter of 2012-2013 WBWCD stored only 15,799 acre-feet in upstream reservoirs (Total Water Contracts of 225,000 acre-feet)
- 90,154 acre-feet of M&I Contracts
- Weber Basin Project water rights are junior rights
- Implemented restrictions 2013, 2014 & 2015

Weber Basin Water Conservancy District

USBR Drought Contingency Grant

- WBWCD applied for and received funding through USBR for 50% of funding
- Project Team:

UtahStateUniversity

J·U·B ENGINEERS, INC.

THE LANGDON GROUP

GATEWAY MAPPING INC.

OTHER J-U-B COMPANIES

UTAH DNR WATER RESOURCES

WESTERN WATER ASSESSMENT
A NOAA RISA TEAM

WEBER BASIN WATER CONSERVANCY DISTRICT

Collaborative Effort

Task Force & Advisory Group Members

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- Clearfiel
- Compass
  Lake Mir
- D&W, W
- Davis &
- Layton C
- Ogden B
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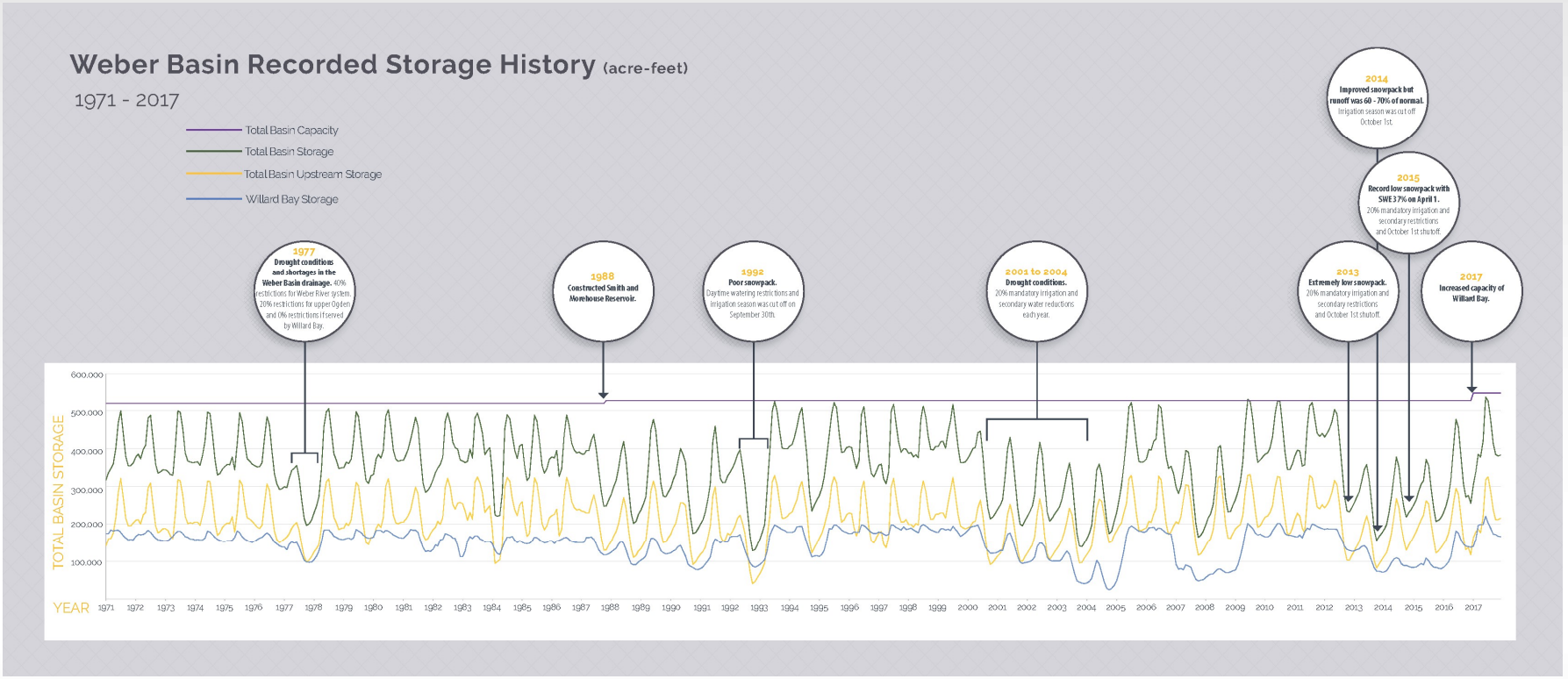
Weber Basin Water Conservancy District

Historic Data Management System



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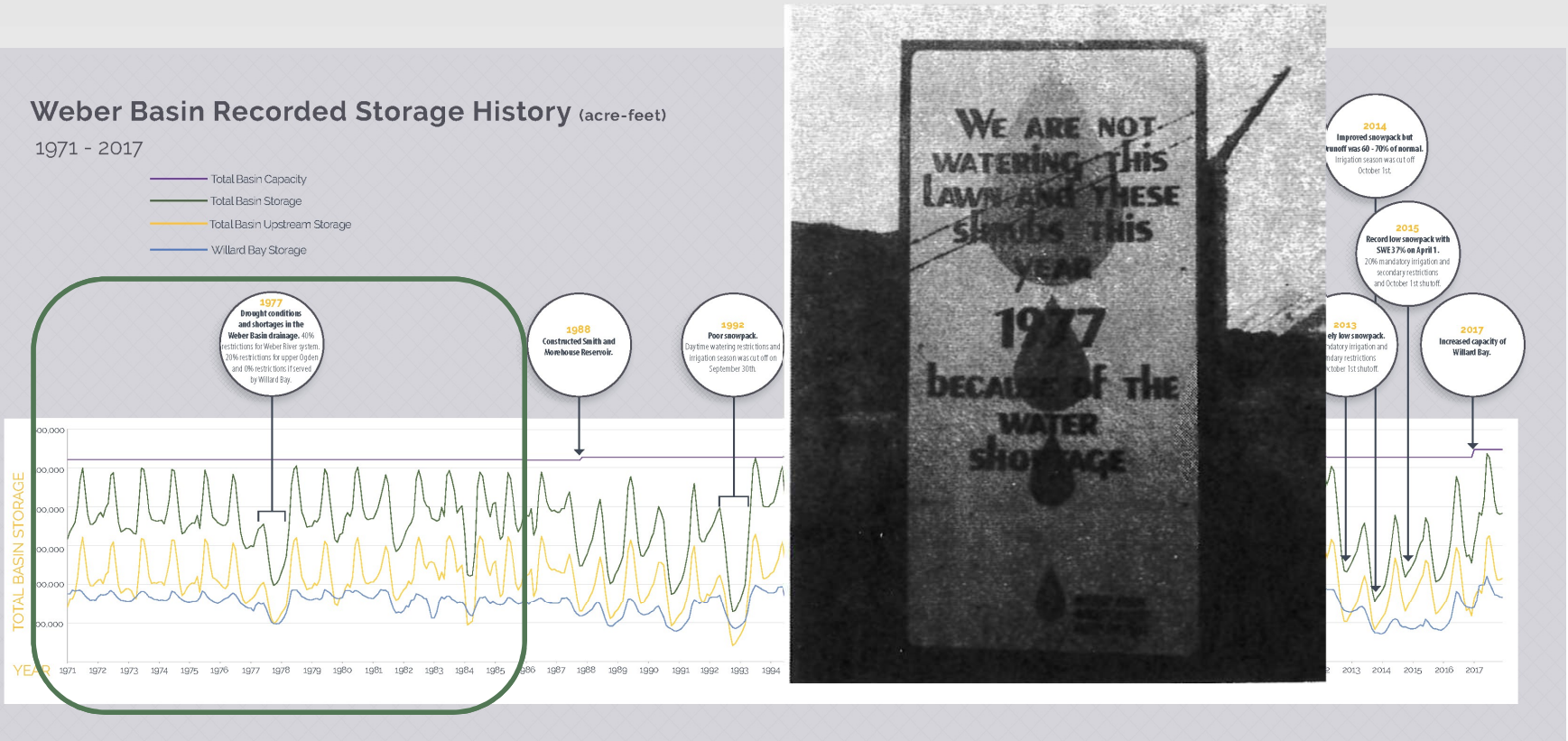

Weber Basin Water Conservancy District

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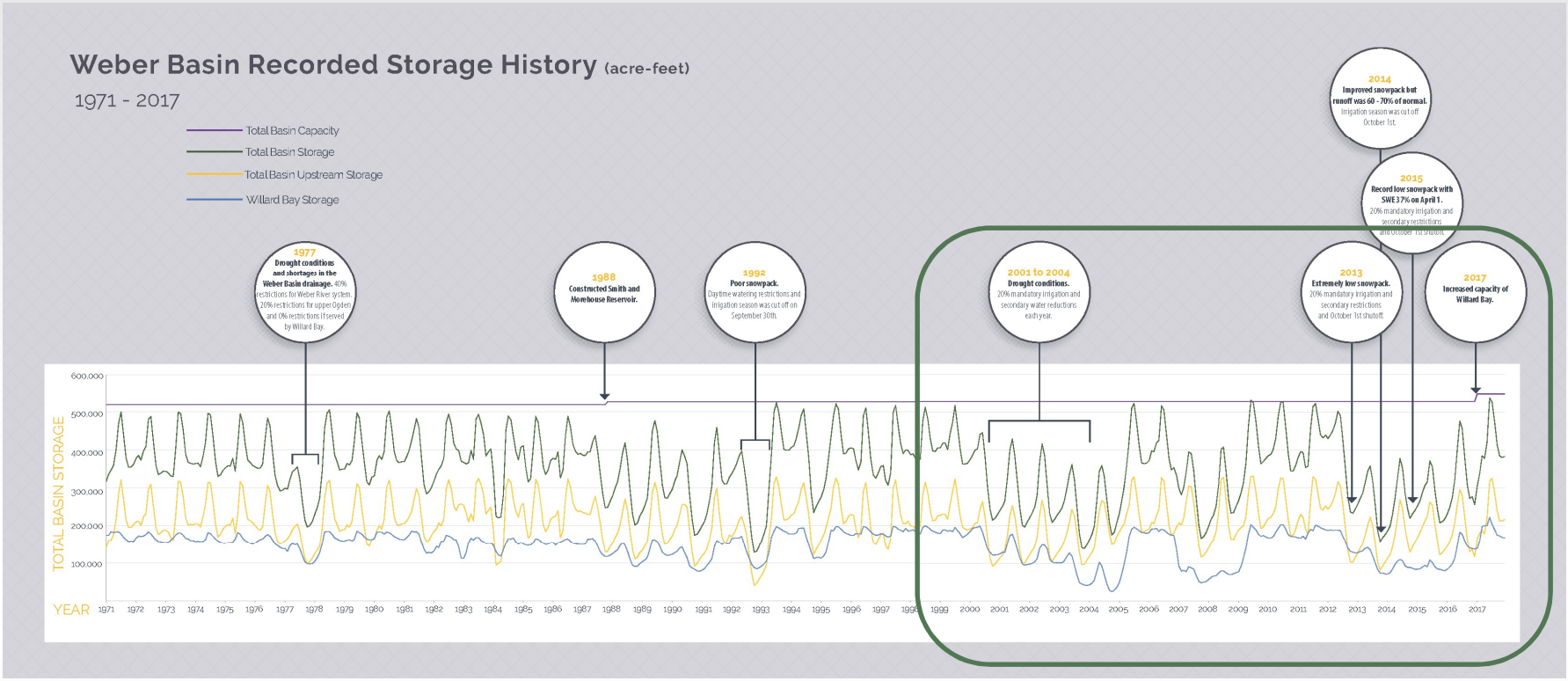
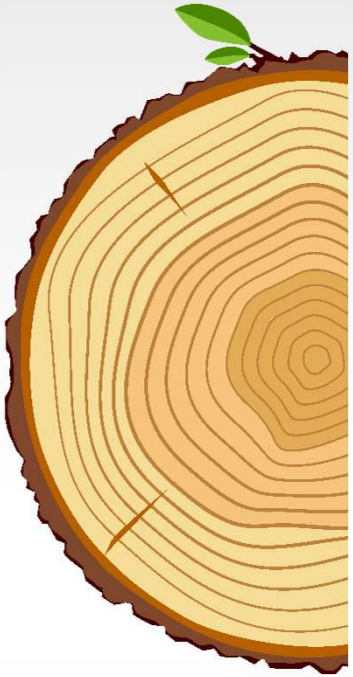


WEBER BASIN WATER CONSERVANCY DISTRICT

Vulnerability Assessment

- Streamflow Reconstruction from Tree Rings back to year 1429 –(Bekker et al. 2014).
- USU statistical model to downscale annual flows to monthly flows
- Western Water Assessment provided projections of hydrology for climate change scenarios
- DWRe used Riverware model to simulate performance of our current infrastructure



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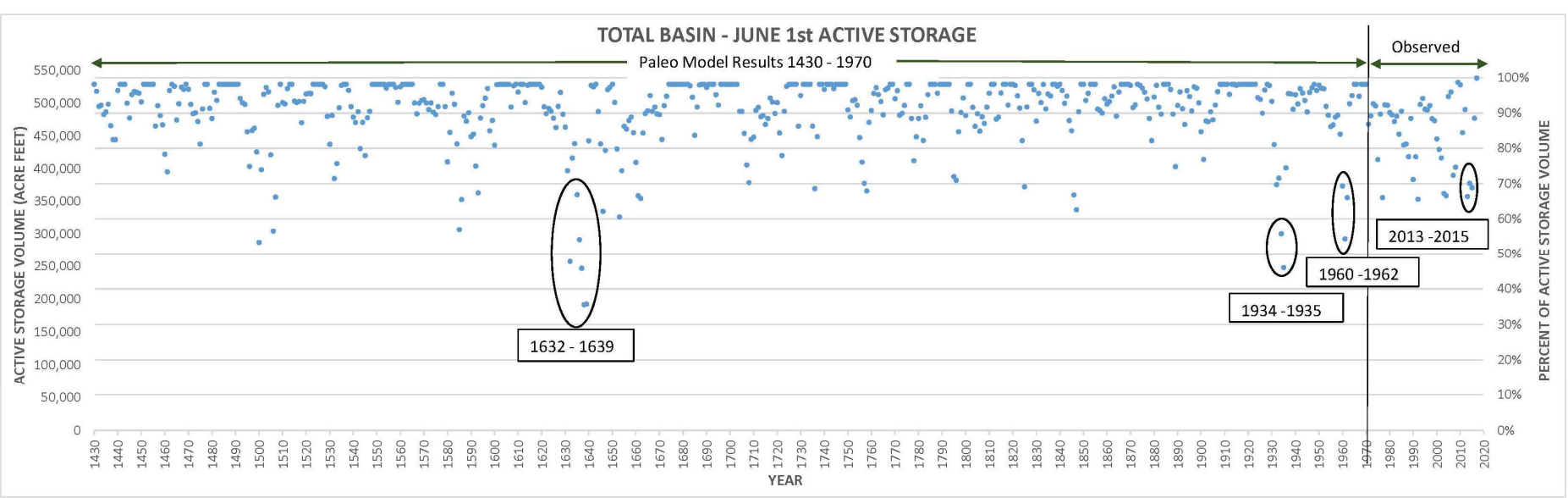
Paleo Model Results



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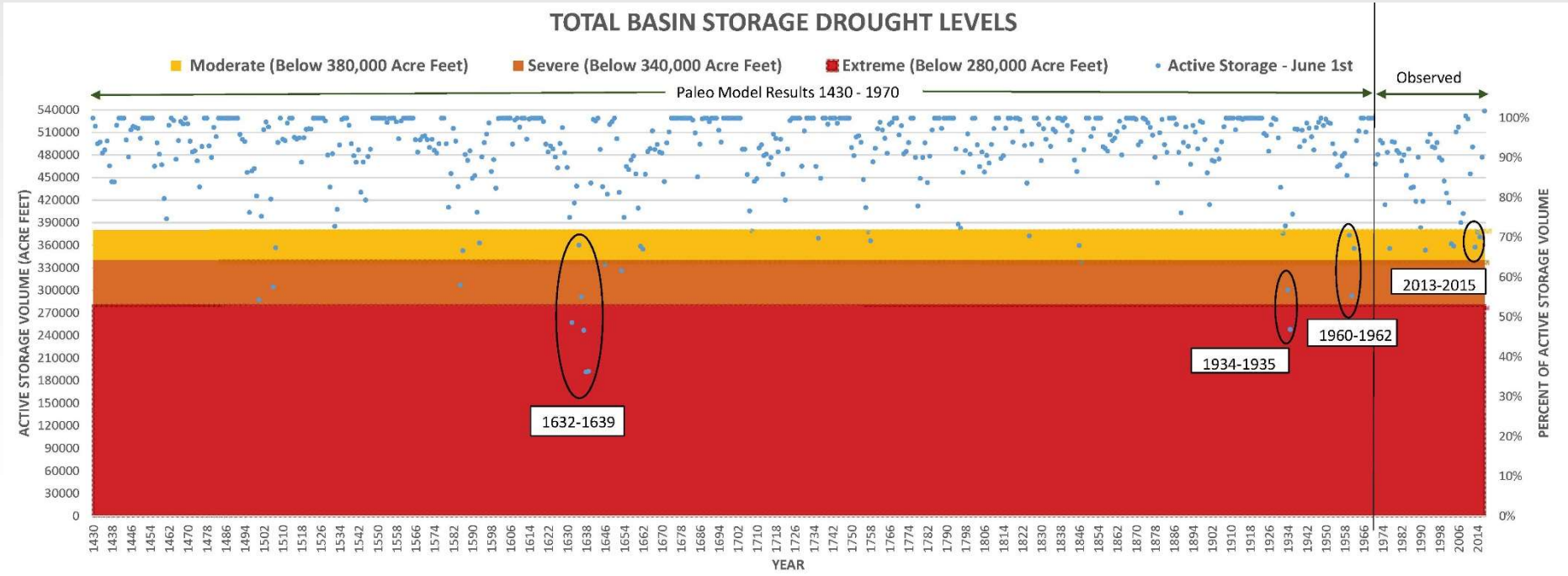
Response Action Levels

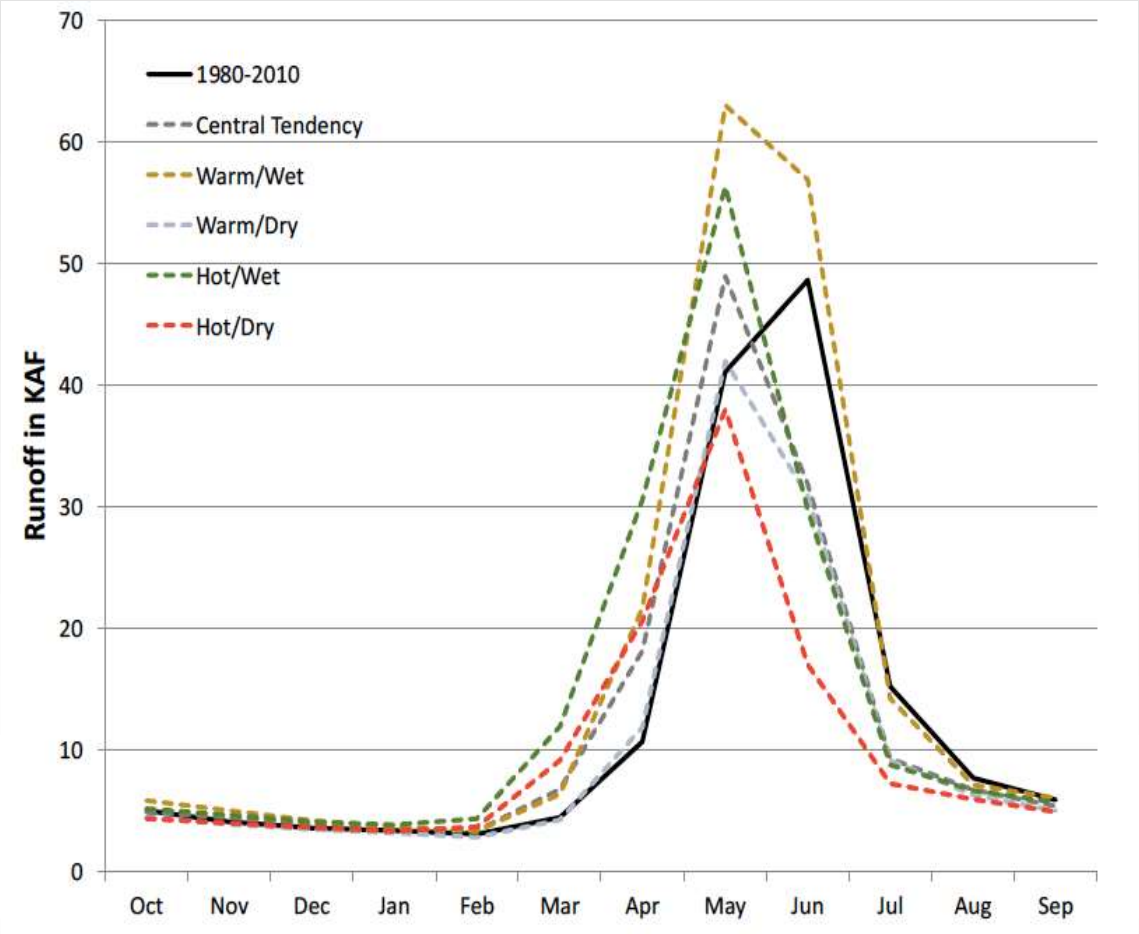


WEBER BASIN WATER CONSERVANCY DISTRICT

Climate Change Scenarios

Hot-Dry is the worst future scenario

The peak moves to May from June in all scenarios.



Weber Basin Water Conservancy District

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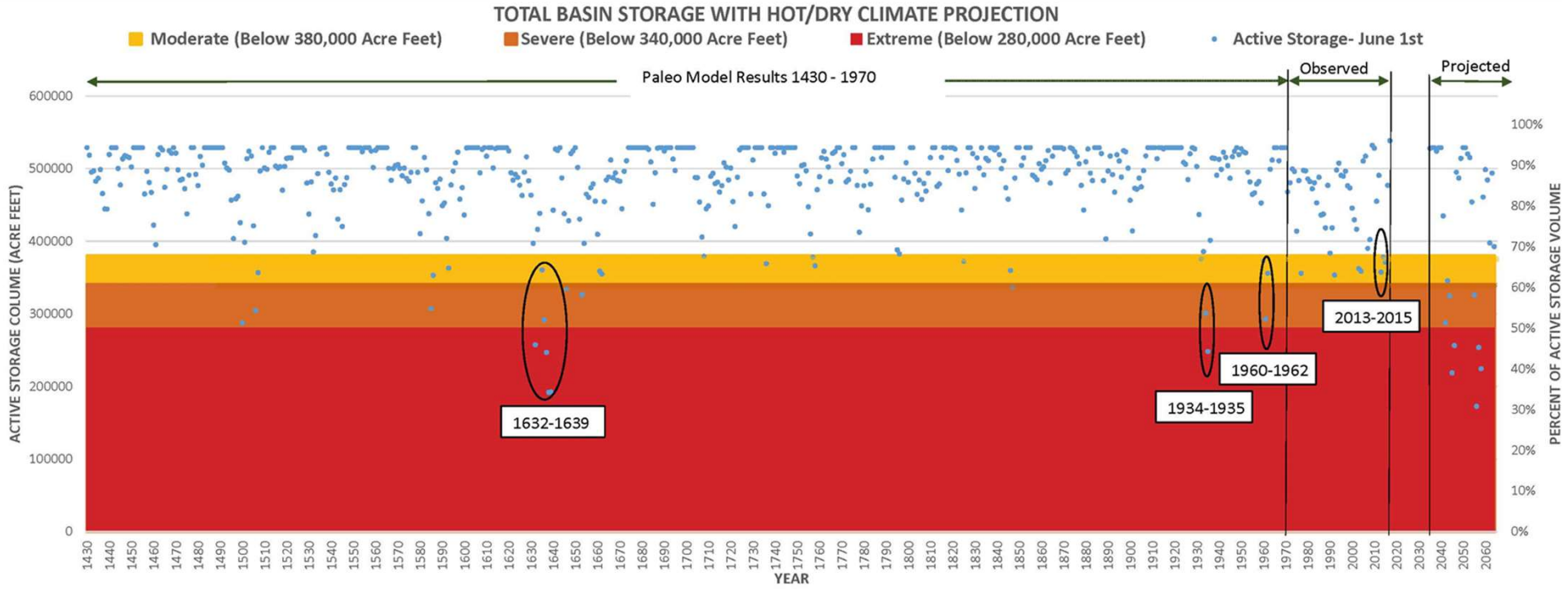

Weber Basin Water Conservancy District

Mitigation Action Definition

Measures that we can take **prior to a drought** to help lessen the impacts of a drought within Weber Basin.

Weber Basin Water Conservancy District

Mitigation Strategies

1. **Short-Term Transfer Agreements** - Create a program and get contracts in place to compensate large agricultural users to fallow land or plant drought tolerant crops when asked.
2. **Internet Water Supply Dashboard** - Create a web based system that reports current performance of system and drought levels and informs people what water conservation actions they should be implementing.
3. **Drought Surcharge Fees** - Study and develop a secondary water drought surcharge fee structure for Weber Basin to utilize during drought periods. Fee structures will provide revenue needed for system operation and maintenance and to fund response actions during droughts. (Assume all secondary connections are metered)
4. **WBWCD Secondary Water Metering** - Meter all secondary WBWCD water users and provide usage reports to the users. Save 35% average when going to meters. 11,000 services left to meter at a cost of $1,200 per service.
5. **Other Systems Secondary Water Metering** - Start a WBWCD program to provide secondary water metering technical assistance and meter installation assistance for secondary systems in the district boundaries, but not owned by the District. Assume 80, 000 meters added.
6. **Drought Surcharge Fees Education** - Educate cities and the public about rate structures. Prepare a sample ordinance to provide for cities for drought water rate adjustments. Visit cities to explain the rate structures and the benefits (50 customer agencies).
7. **Drought Plan Results** - Present the drought plan process findings and recommendations to cities and irrigation companies in the district by visiting city council meetings and irrigation meetings. Education about usage reductions that will be needed during different drought stages.
8. **Weber Canyon ASR** - Develop ASR near mouth of Weber Canyon. Use purchased Echo or East Canyon water in wet years to be used later during drought.
9. **Continue meetings with Division of Wildlife Resources, Trout Unlimited, and other habitat stakeholders** to better define strategies to make river habitat more drought resilient while still meeting water delivery requirements. Strategies may include stream connectivity improvements and water pulsing through the river to clean channels during wet years.
10. **Create New Tiered Rate Structure and Short Term Transfer Water Fund** - Create a fund prior to a drought to purchase water through short term transfer agreements during times of drought. Use overage fees from water users that exceed a certain level of water use in any given month.

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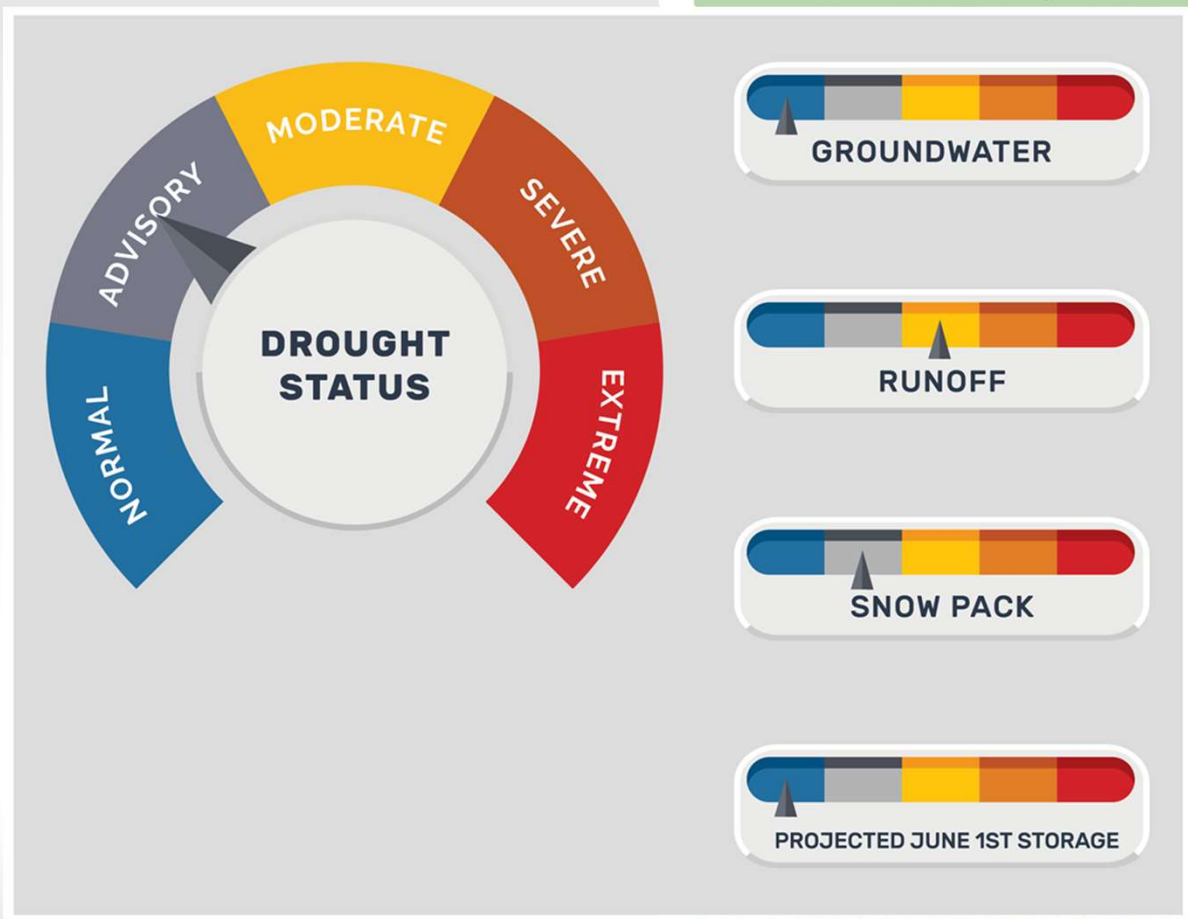

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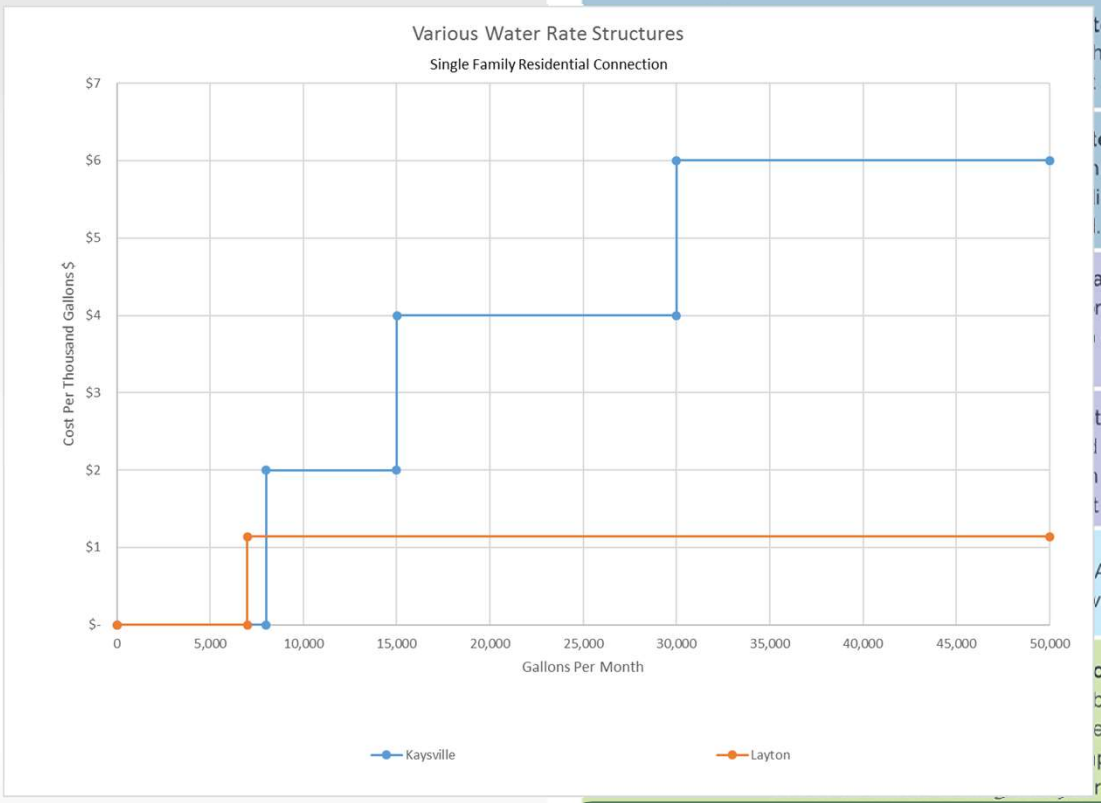

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Response Action Definition

A **planned action** taken **after** a **trigger event** occurs. The purpose of a response action is to manage the resulting impact of an adverse event.

Weber Basin Water Conservancy District

Stakeholder Demand Reduction Feedback

Demand Reduction Targets

Drought Levels		Demand Reduction Targets				
RESPONSE LEVEL	WATER SHORTAGE DESCRIPTION	SECONDARY WATER[4]	AGRICULTURAL IRRIGATION[5]	M&I CULINARY OUTDOOR WATER[4]	M&I CULINARY INDOOR WATER[4]	TOTAL YEAR 2020 DEMAND REDUCTION (ACRE-FEET)[5]
1	Normal	0%	0%	0%	0%	0
2	Advisory	Reduce demands through messaging and general water conservation				0 to 43,000
3	Moderate	20%	20%	20%	0%	43,000
4	Severe	60%	40%	60%	10%	123,000
5	Extreme	95%	70%	95%	25%	206,000

[4]Assumed that water use reductions will be met across the entire WBWCD service area

[5]Assumed that only WBWCD agricultural supplies will be reduced. Does not include agricultural demands in the basin that are not managed by the District

Weber Basin Water Conservancy District

Lessons Learned

- Multiple Severe and Extreme droughts have occurred in the last 400 years
- Climate change may have a significant impact on future water supply and future water demand
- Mitigation actions can be performed to improve our drought resiliency
- Improved communication and cooperation between water users will improve drought response and resiliency

Weber Basin Water Conservancy District