



Meeting Date: January 27, 2016
Staff Contact: John M. Stomp III, Chief Operating Officer

TITLE: OB-16-3 - Water Resources Management Strategy Status Report

SUMMARY:

The Water Authority adopted the Water Resources Management Strategy (Strategy) in 2007 following the original adopted Strategy in 1997. The Strategy is a policy document that provides direction and guidance on water resources and other water related projects and programs. Many of the projects and policies in the 2007 Strategy have been completed and an updated Strategy is being developed by staff and a technical team of consultants working closely with the Technical Customer Advisory Committee (TCAC).

A status report was presented in September 2015 that provided an overview of the Strategy to date and process for updating the Strategy through 2016. This month's presentation will discuss the work that been completed by staff and the technical team with the TCAC over the past four months. The presentation will focus on the proposed groundwater reserve management plan and the three reserve levels: 1) Below Subsidence Threshold - No Pumping; 2) Safety Reserve - Pumping Only in Emergency; and 3) Working Reserve - Pump with Restoration Plan.

The Water Authority is planning two public meetings February 10 and 11 to obtain initial input on the Strategy. There will be more public involvement meetings planned this summer after the scenario development has been completed. The goal is to have the updated Strategy completed by Fall 2016 for Board approval.

FISCAL IMPACT:

None

Water Resources Management Strategy 2017 Update

January 27, 2016

Purpose of this Presentation

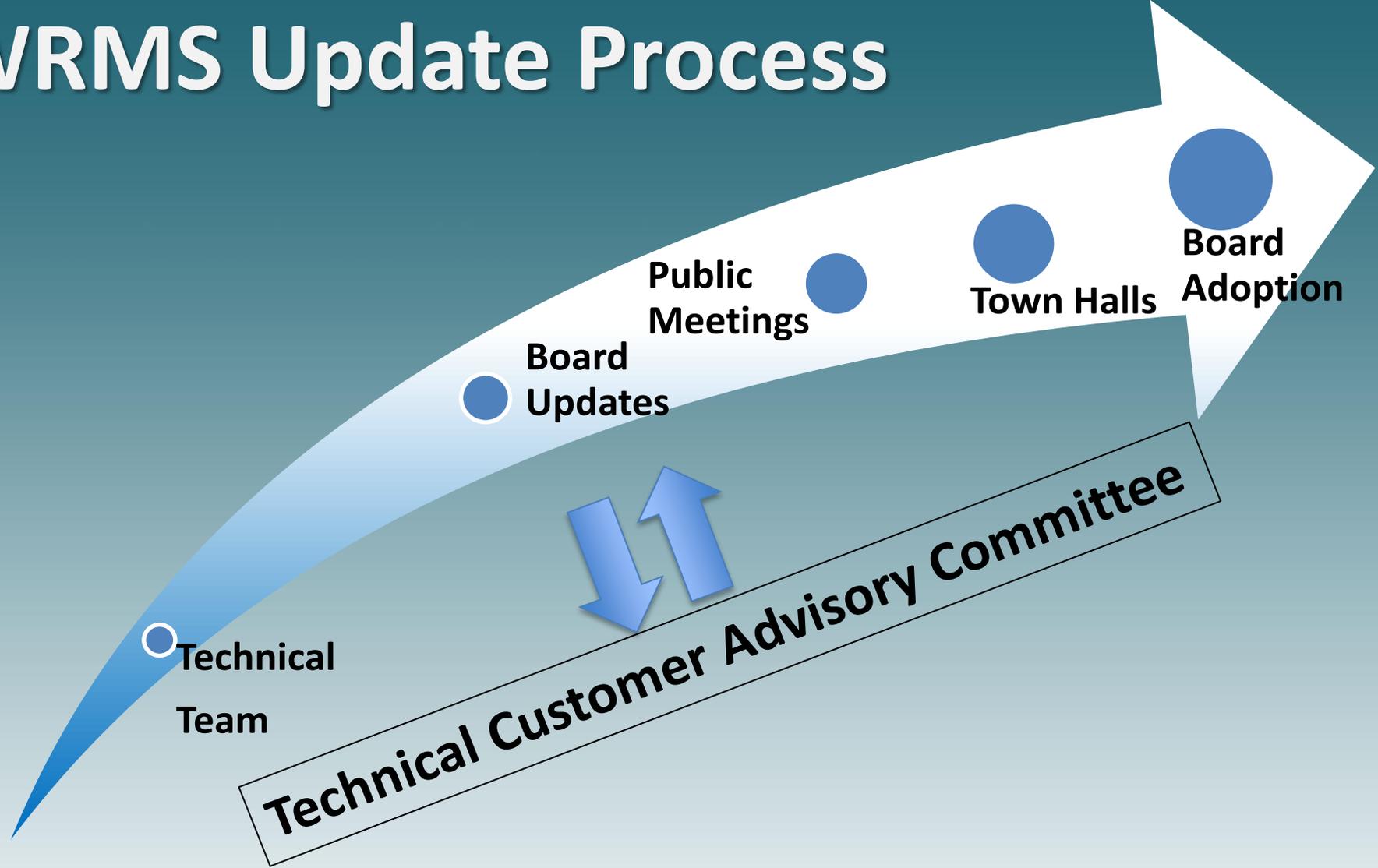
- Review the need for a 2017 WRMS
- Articulate the proposed groundwater reserve management plan
- Propose a groundwater reserve management level
- Engage in dialogue with the Board
- Set the stage for evaluating potential future supply gaps to present at the March Board meeting

Need for Updated Strategy

- 2007 Strategy policies/projects complete
- Need to update existing data
- Need to incorporate new technical information – aquifer rising, climate change, etc.
- Consider a 100-year planning horizon
- Strategy will be updated every 10 years if new information becomes available

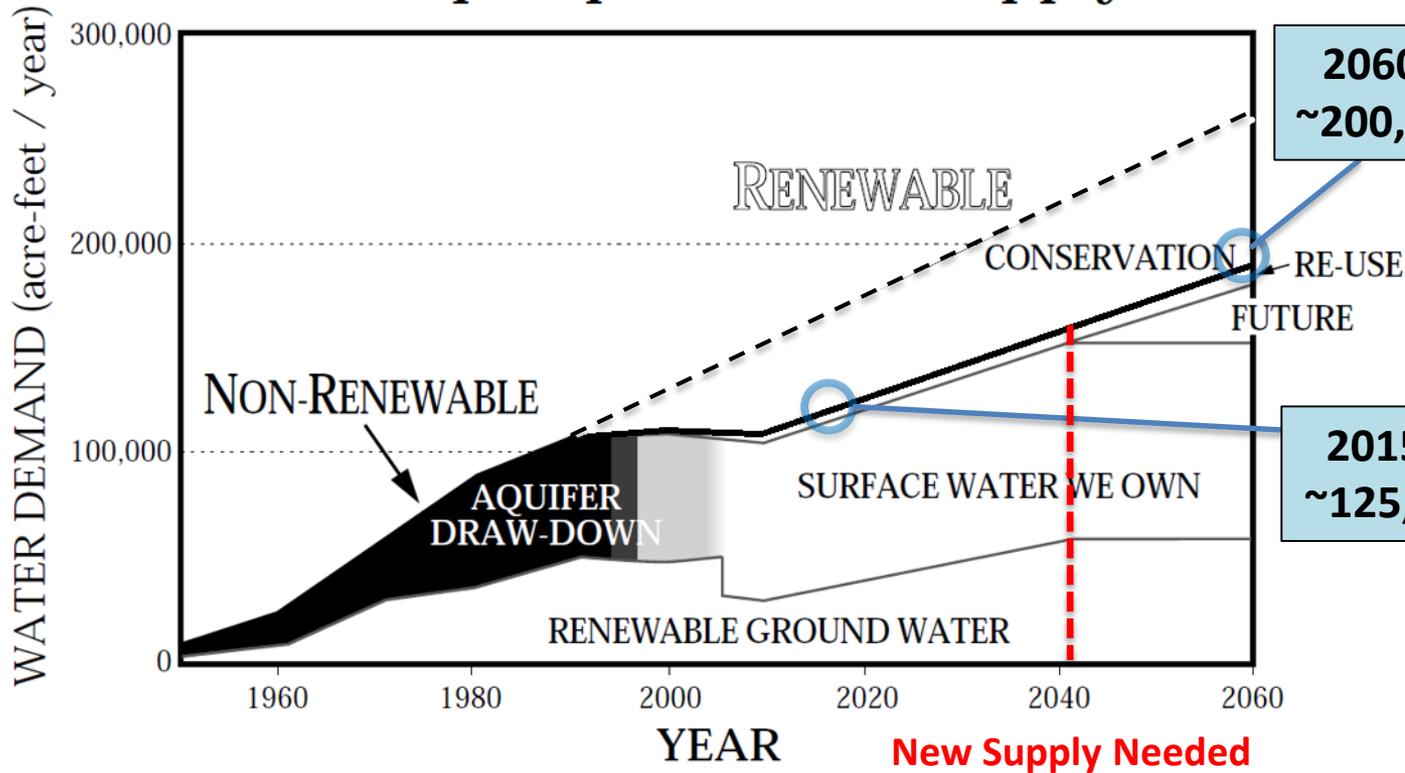


WRMS Update Process



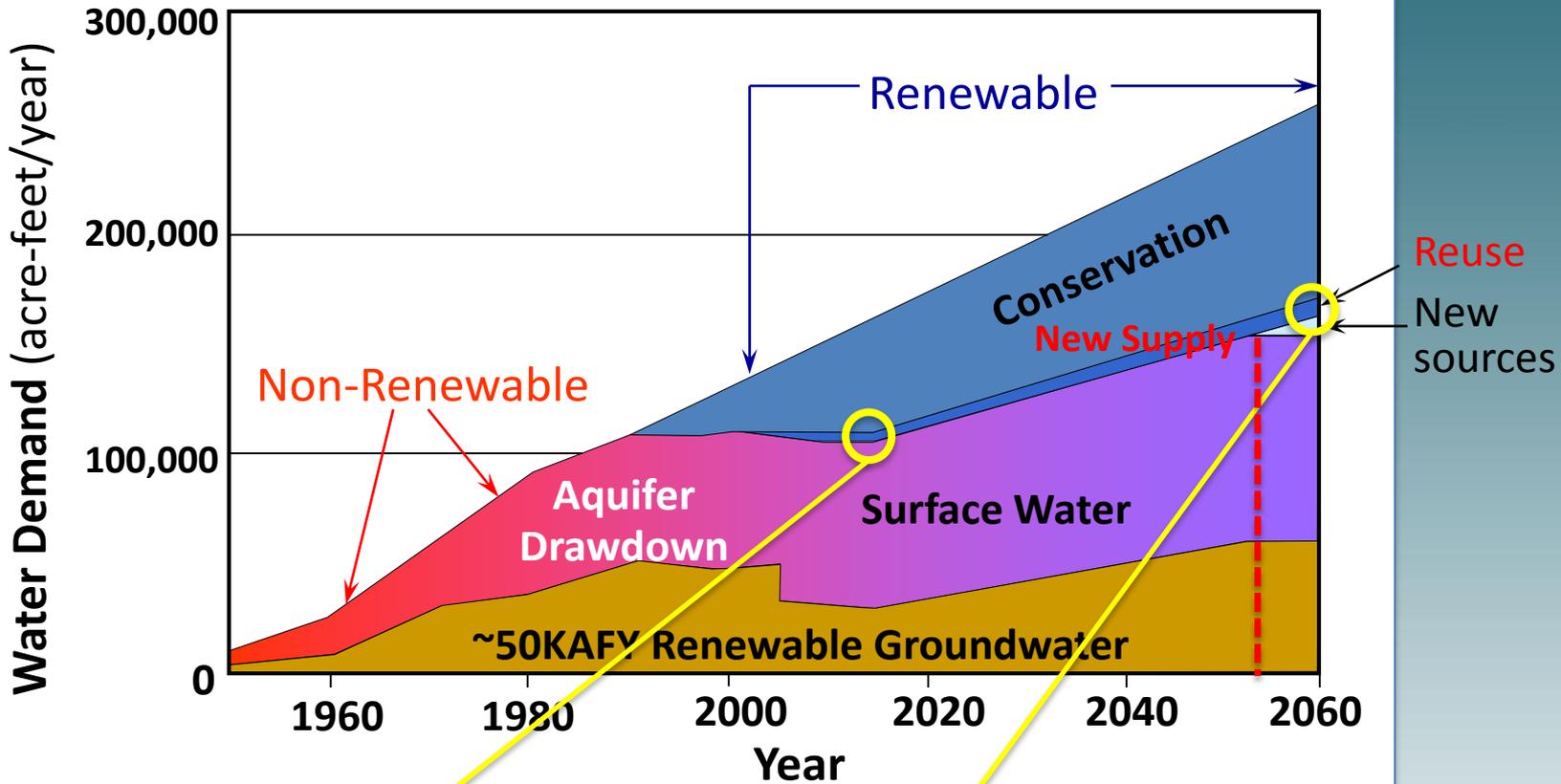
The 1997 WRMS

Albuquerque's Water Supply



2015 actual demand ~95,000 ac-ft

The 2007 WRMS



2015 projected demand
~110,000 ac-ft @150 gpcd

2060 projected demand
~175,000 ac-ft @ 150 gpcd

2015 actual demand ~95,000 ac-ft

2007 WRMS Status Report

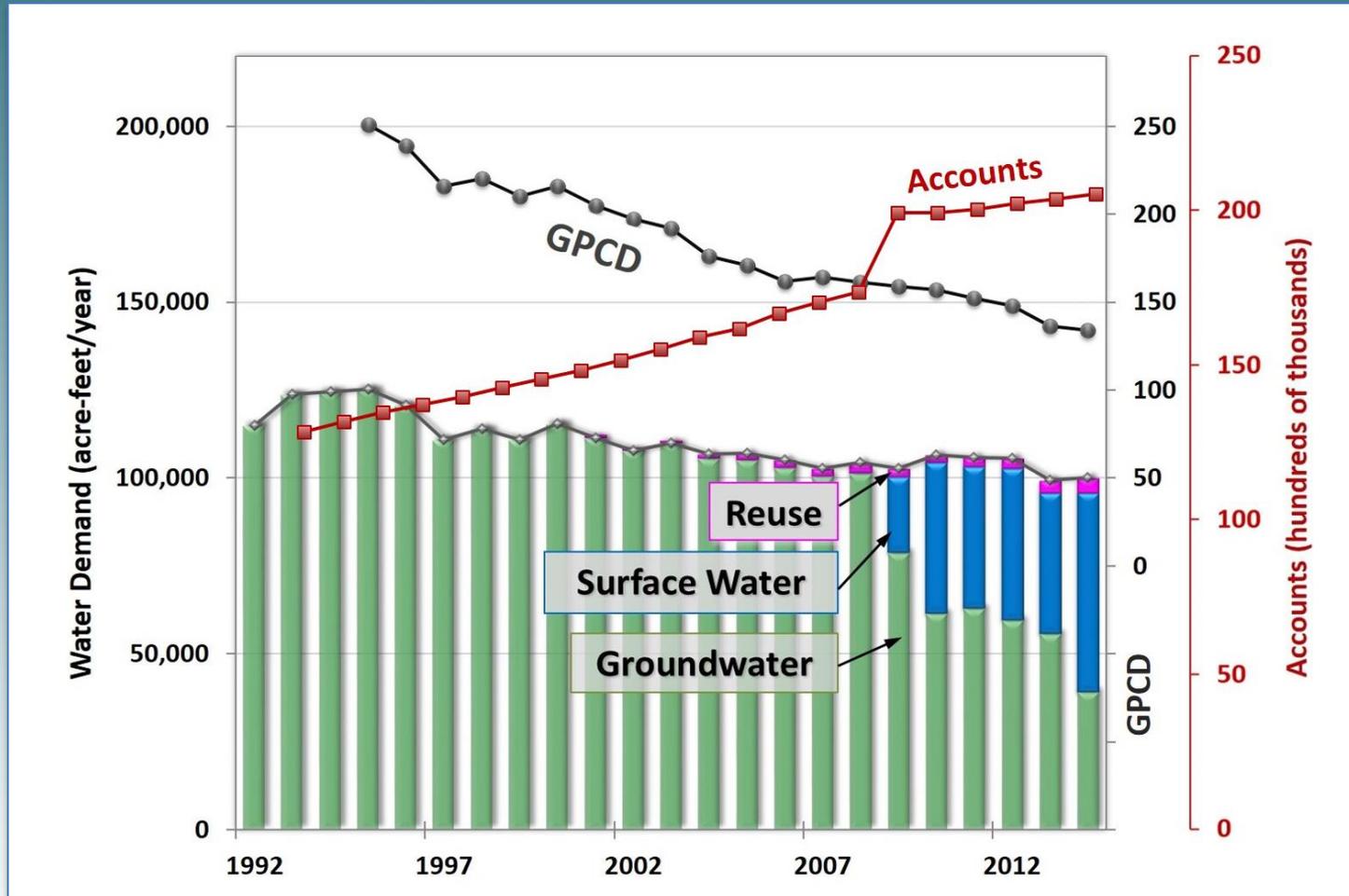
- **Accomplishments**

- Water conservation has decreased demand significantly since 1995, even while population has grown
- The Drinking Water Project has been implemented
- Re-use is being implemented
- ASR is being implemented
- Groundwater monitoring network was established

- **Results**

- Aquifer levels are rising due to decreased groundwater pumping (water supply is increasing)
- Consumptive use has declined
- River depletions from groundwater pumping are declining
- Overall supply resiliency has increased

Water Usage is Decreasing Even as the System has Grown



Drinking Water Project Implemented

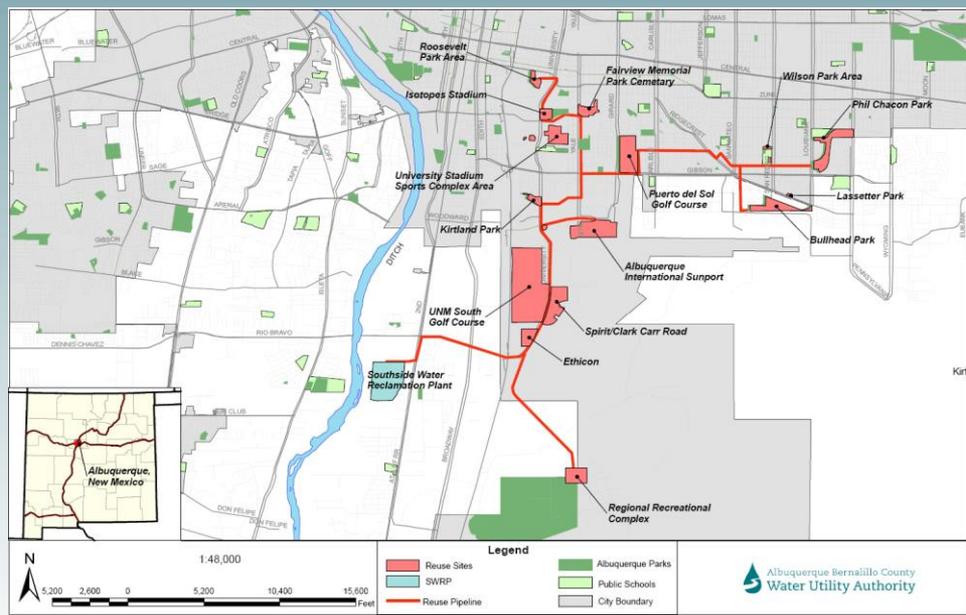
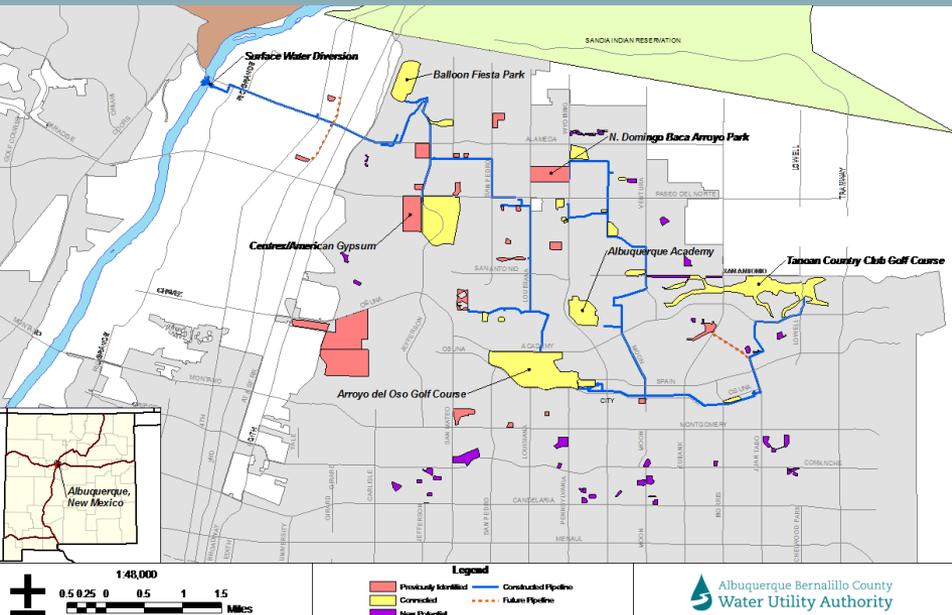
Multiple Benefits

- **Co-locate wells near transmission pipelines for ASR**
- **New infrastructure can move supply throughout the system**
- **Reduced need for arsenic treatment**

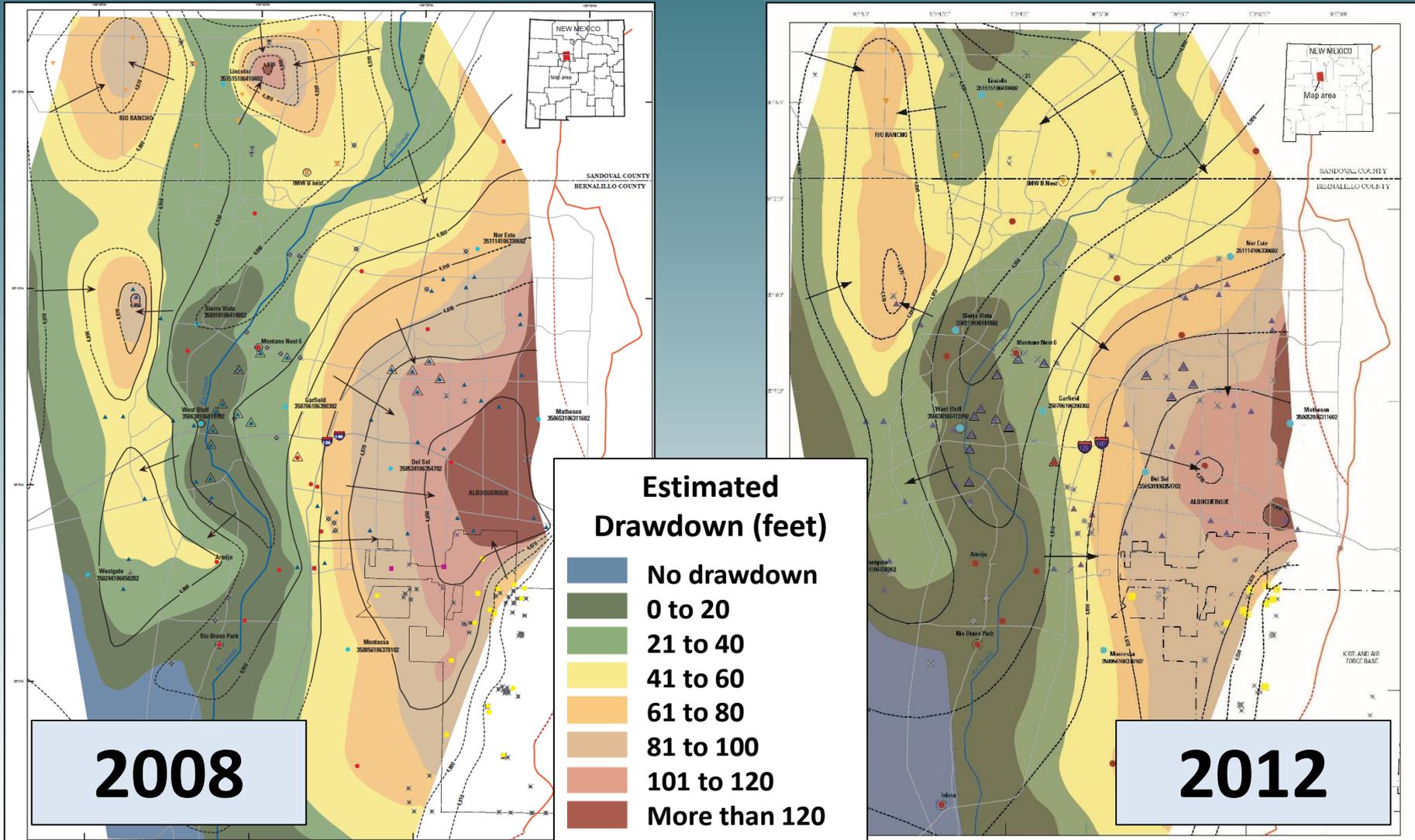
Reuse Continues to be Implemented

Current projects and supply

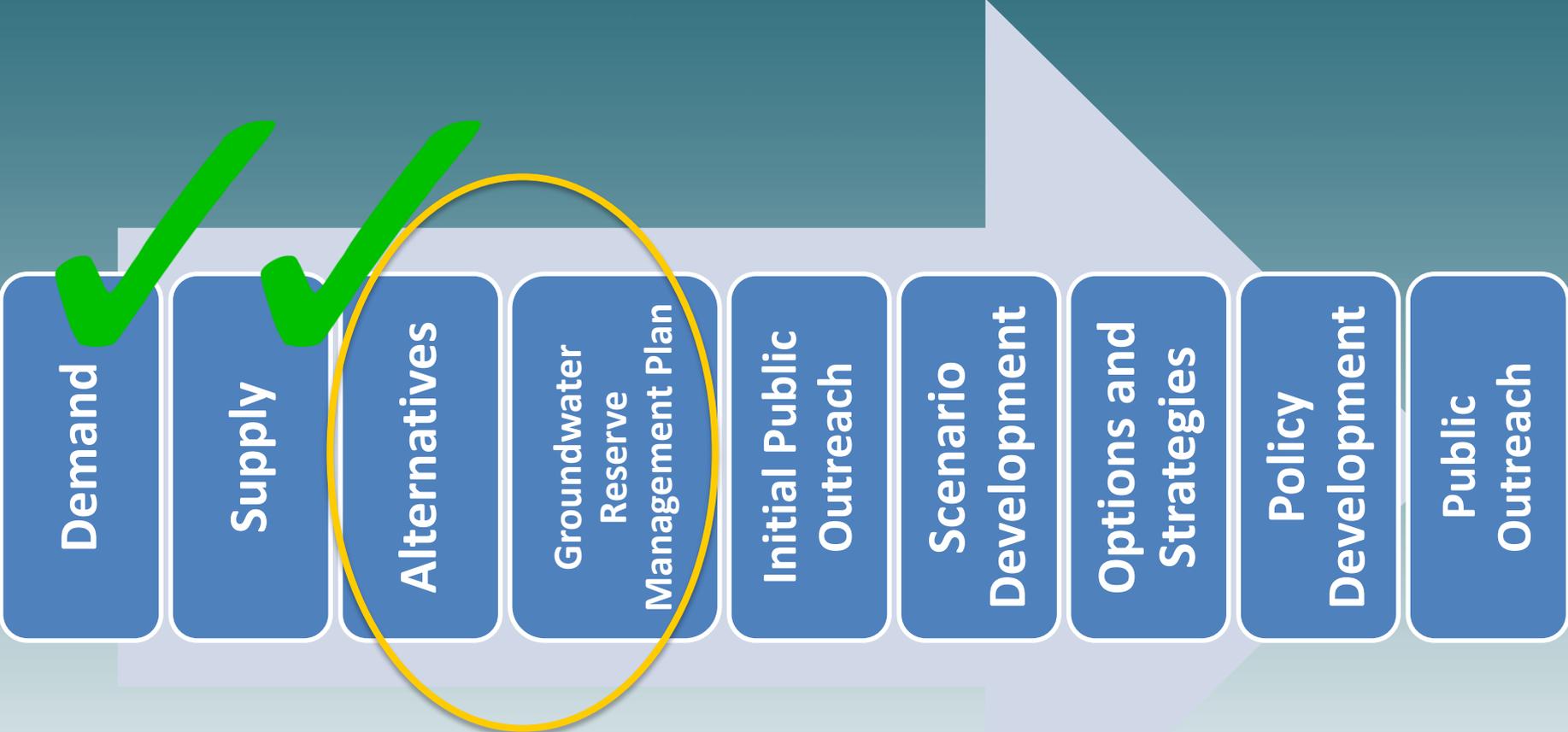
- Industrial recycling ~300 ac-ft/yr
- North I-25 non-potable project ~ 2,500 ac-ft/yr
- Southside effluent reuse ~1,300 ac-ft/yr



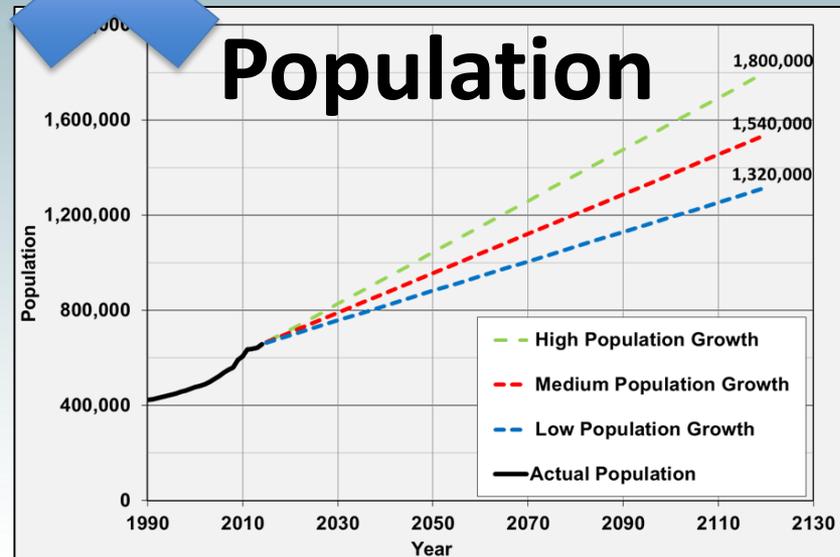
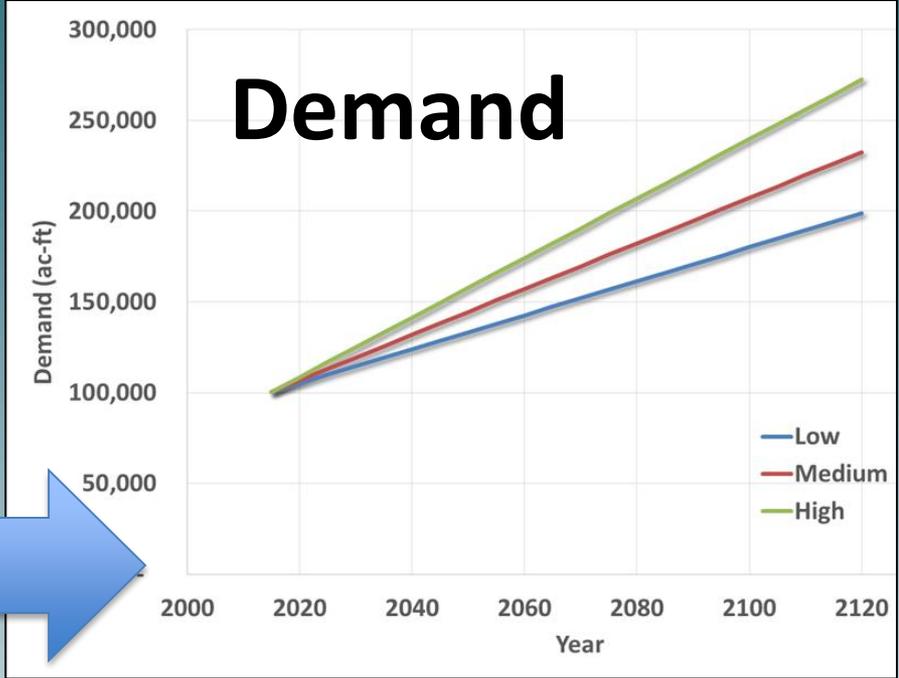
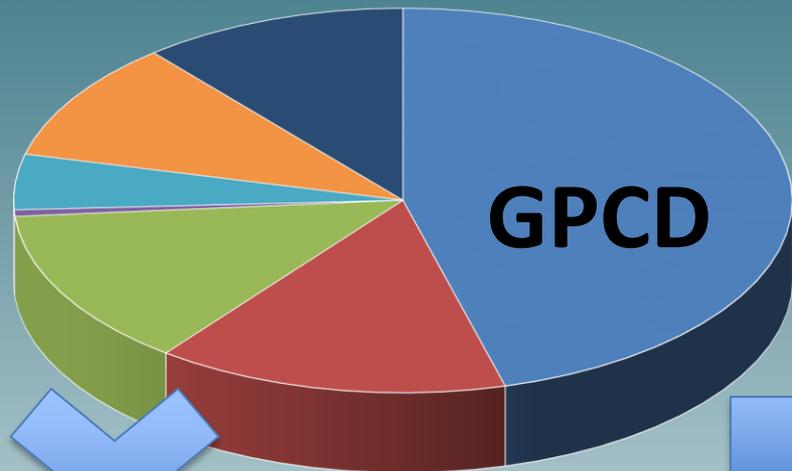
Groundwater Levels Rising as a Result of Implementation of the DWP



Road Map for the Process



Calculating Demand: Low, Medium, High



- We assume as a baseline that GPCD remains the same in the future

Climate Change Data

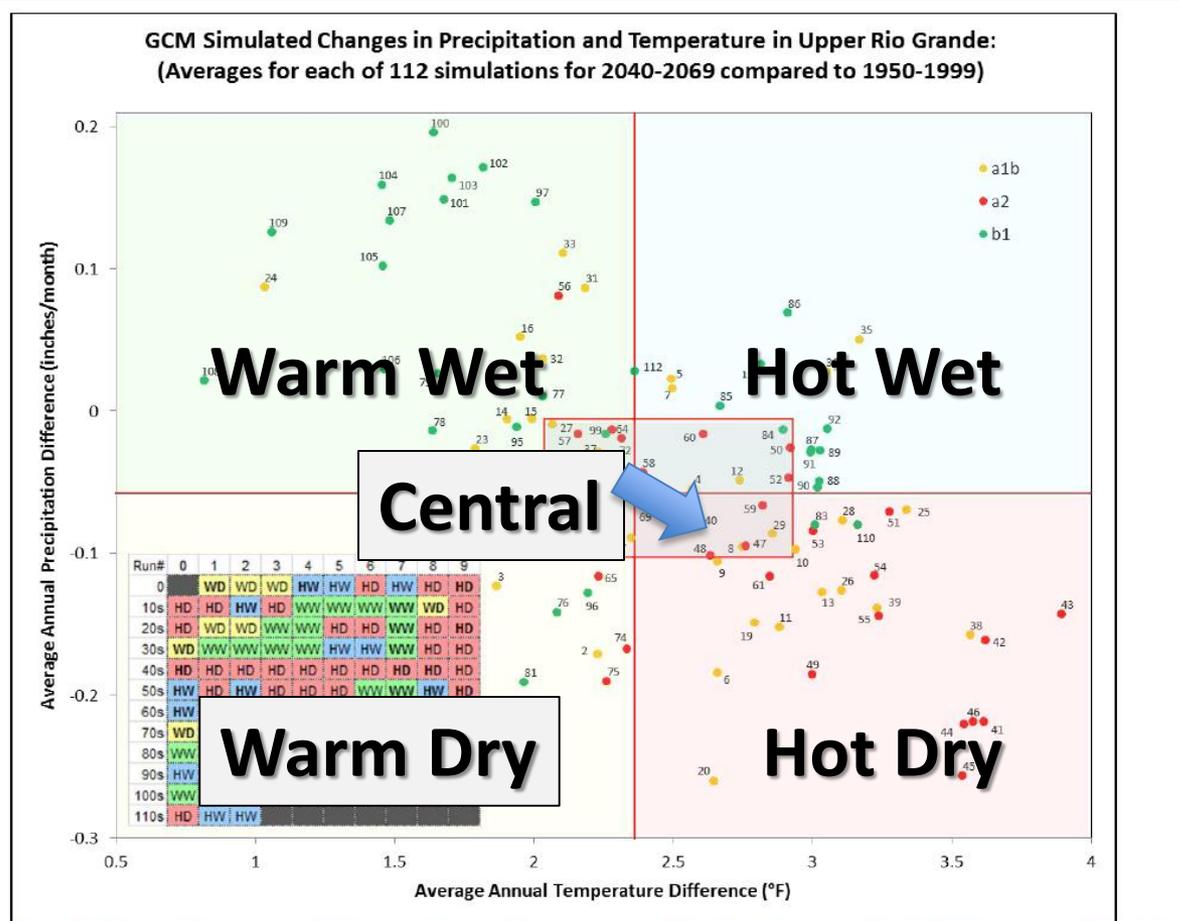


Figure 2: Plotting the temperature delta (X axis) against the precipitation delta (Y axis) to group the 112 GCMs into ensembles. The red lines represent the 50% values for each, and the red bounding square encompasses the 25% to 75% values.

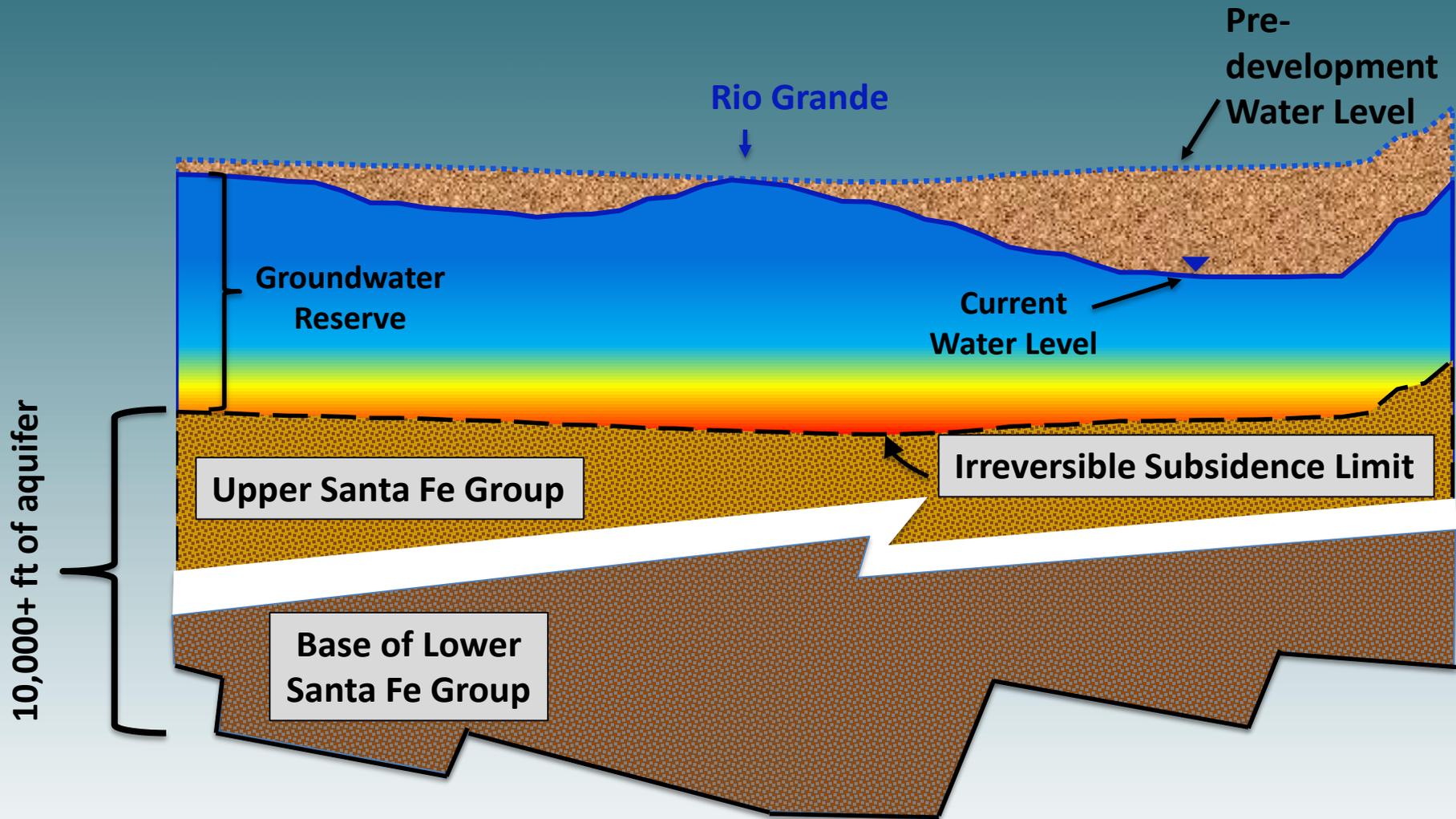
The climate-change data were derived by Reclamation from base data first developed as part of the West-Wide Climate Risk Assessment

2007 WRMS

Policy C. “Establish and Maintain a Ground-Water Drought Reserve”

- **Maintain sufficient water in the aquifer to provide water supply during a prolonged drought.**
- **Water levels in the aquifer maintained so that pumping the drought reserve will not cause adverse irreversible impacts to the aquifer.**

Current Conditions

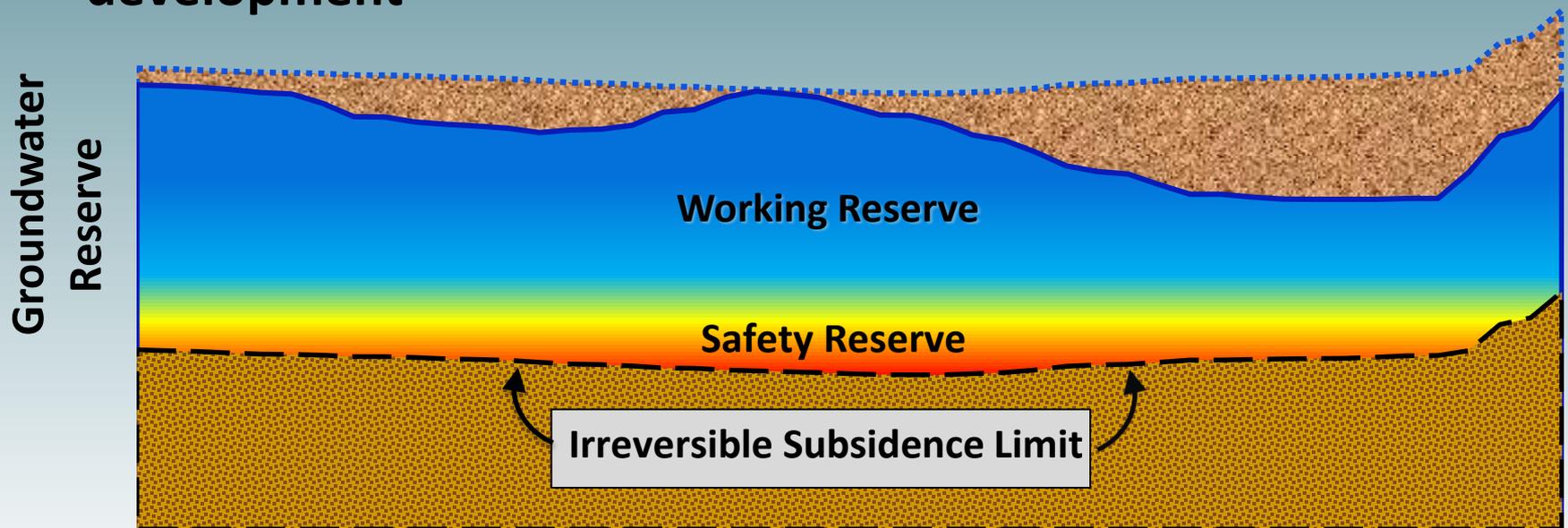


Proposed 2017 Groundwater Management Policy

- **Partition the aquifer into three zones**
 1. **Below subsidence threshold: no pumping**
 2. **Safety Reserve: pumping only in emergency**
 3. **Working Reserve: pump with restoration plan**
- **Seek new supplies whenever future drawdown is anticipated to fall below a set management level**

Definition of the Reserves

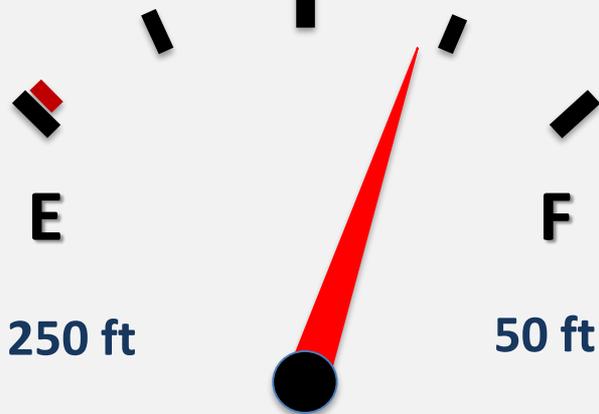
- Level of irreversible subsidence: 300 feet below pre-development
- Safety Reserve: between 250 and 300 feet below pre-development
- Working Reserve: between 50 and 250 feet below pre-development



Working Reserve Gauge

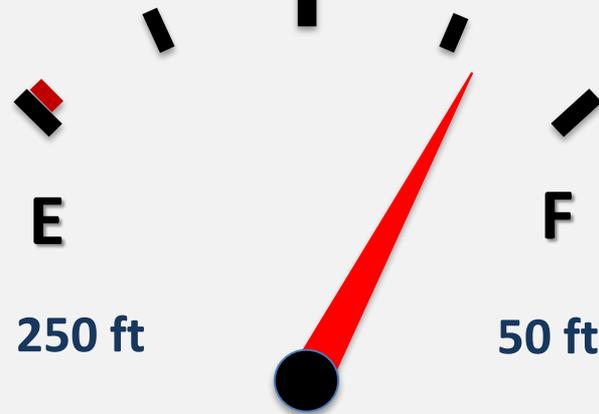
Past, 2008
~115 ft

1/2



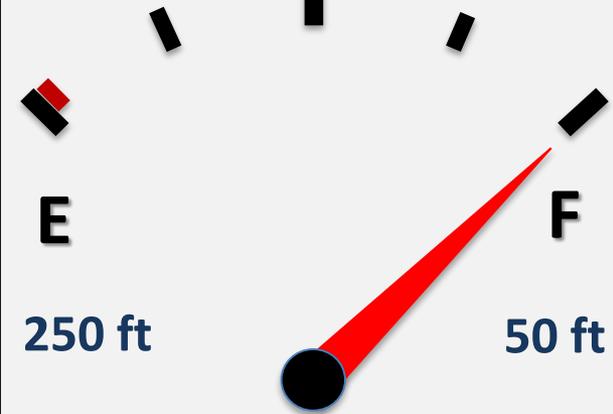
Present Day
~90 ft

1/2



Projected, ~2020
~50 ft

1/2



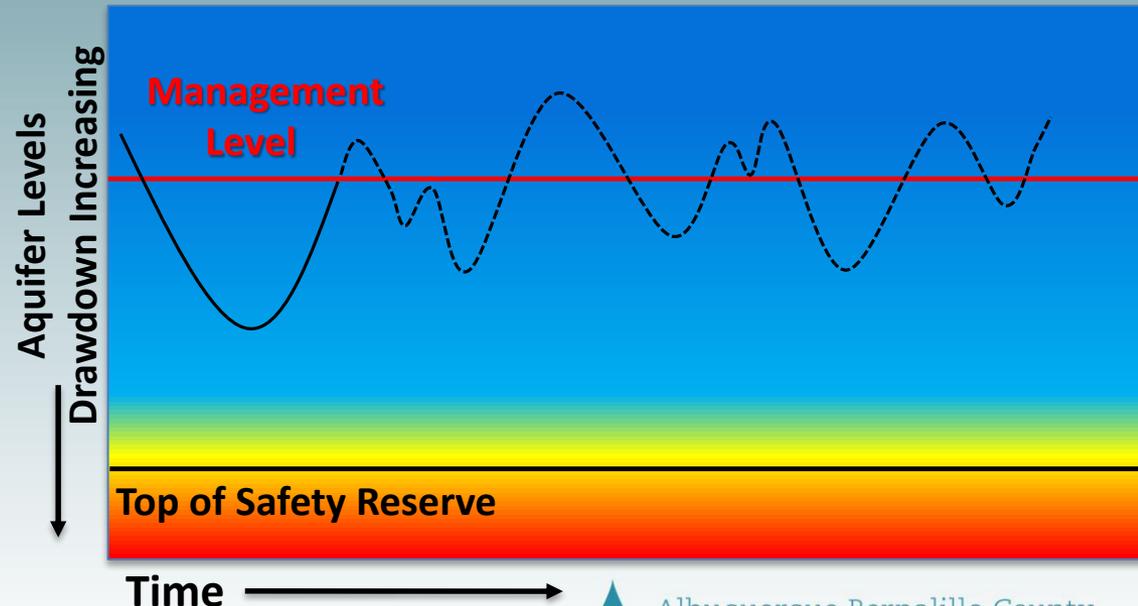
Working Reserve: between 50 and 250 feet below pre-development water levels

Groundwater Reserve Management Level – 110 feet of Drawdown

- **Why this level works:**
 - **We have been below this level and come back so we know this level is feasible**
 - **Aquifer levels are expected to rise for about 10 years, so 110-foot level is conservative**
 - **With existing rights, allows substantial use of groundwater in perpetuity while managing to this level**
 - **Leaves storage in the Working Reserve untapped for the 100-year planning horizon and beyond**

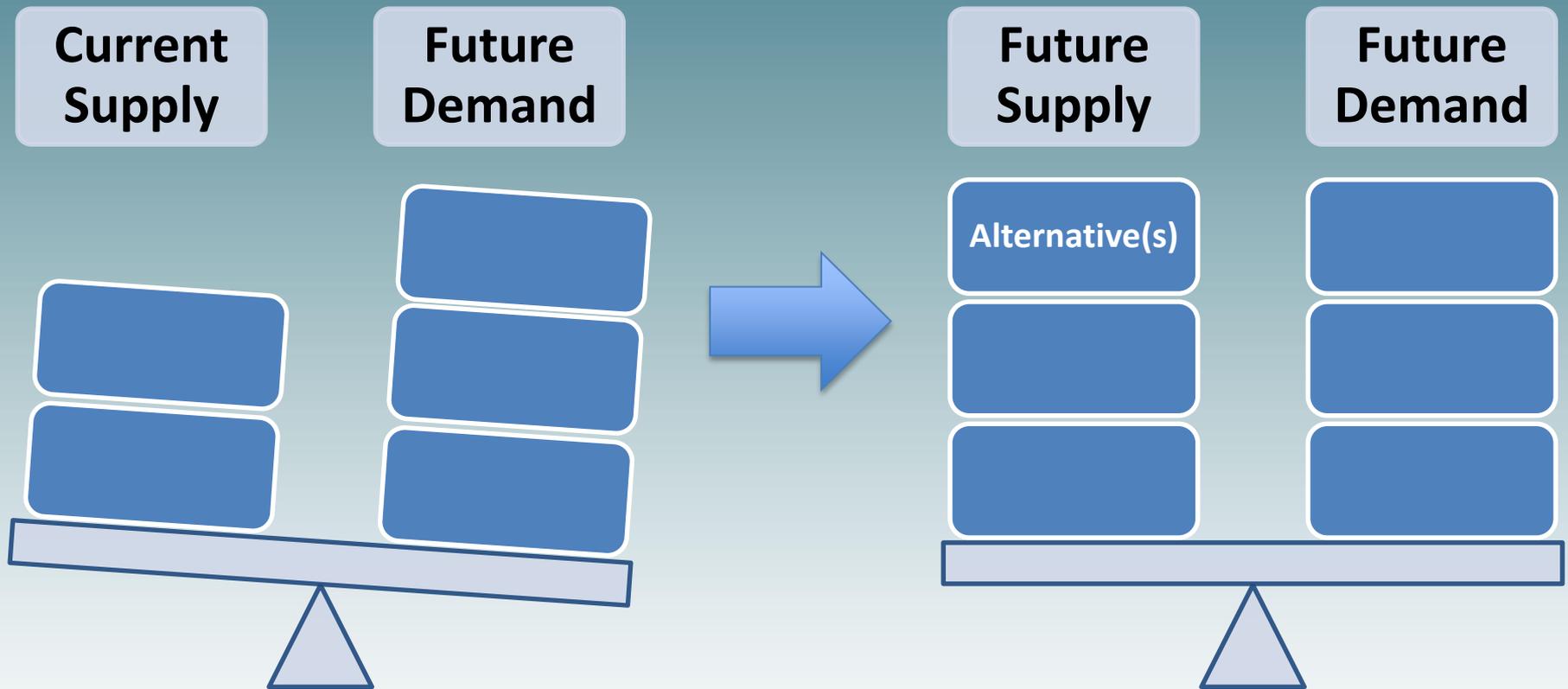
Management of Working Reserve: In Practice

- Allows anticipation of need for new supply
- New supply may come in various quantities:
 - Drawdown will drop below management level while putting new supply in place
 - Water levels will rise above management level due to size of project
 - Use groundwater management, then modify if necessary



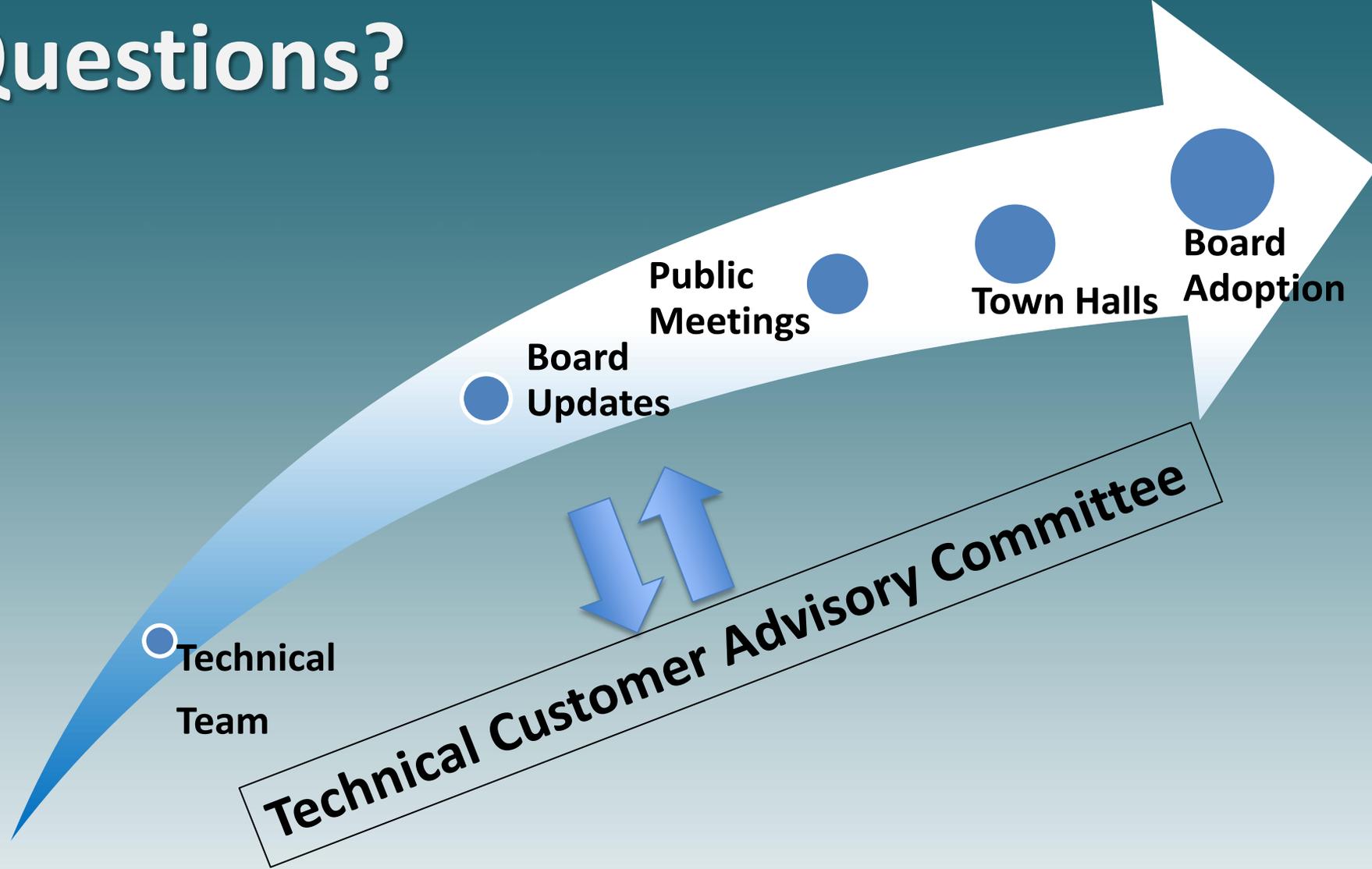
Identify Potential Future Supply Gaps

If future demand is expected to exceed current supply, plan to add new supply alternative(s)



Current List of Alternative Categories	Number of Alternatives
Conservation	3
Surface water	3
Non-potable reuse	2
ASR	4
Storm-water	2
Inter-basin transfer	5
Indirect potable reuse	2
Direct potable reuse	2
Fee, credit, or banked water	4
Surface storage	4
Water rights	1
Watershed management	2
Brackish groundwater	2
Permit modification	1
Total	37

Questions?



Technical Team

Board Updates

Public Meetings

Town Halls

Board Adoption

Technical Customer Advisory Committee

2015

2016