

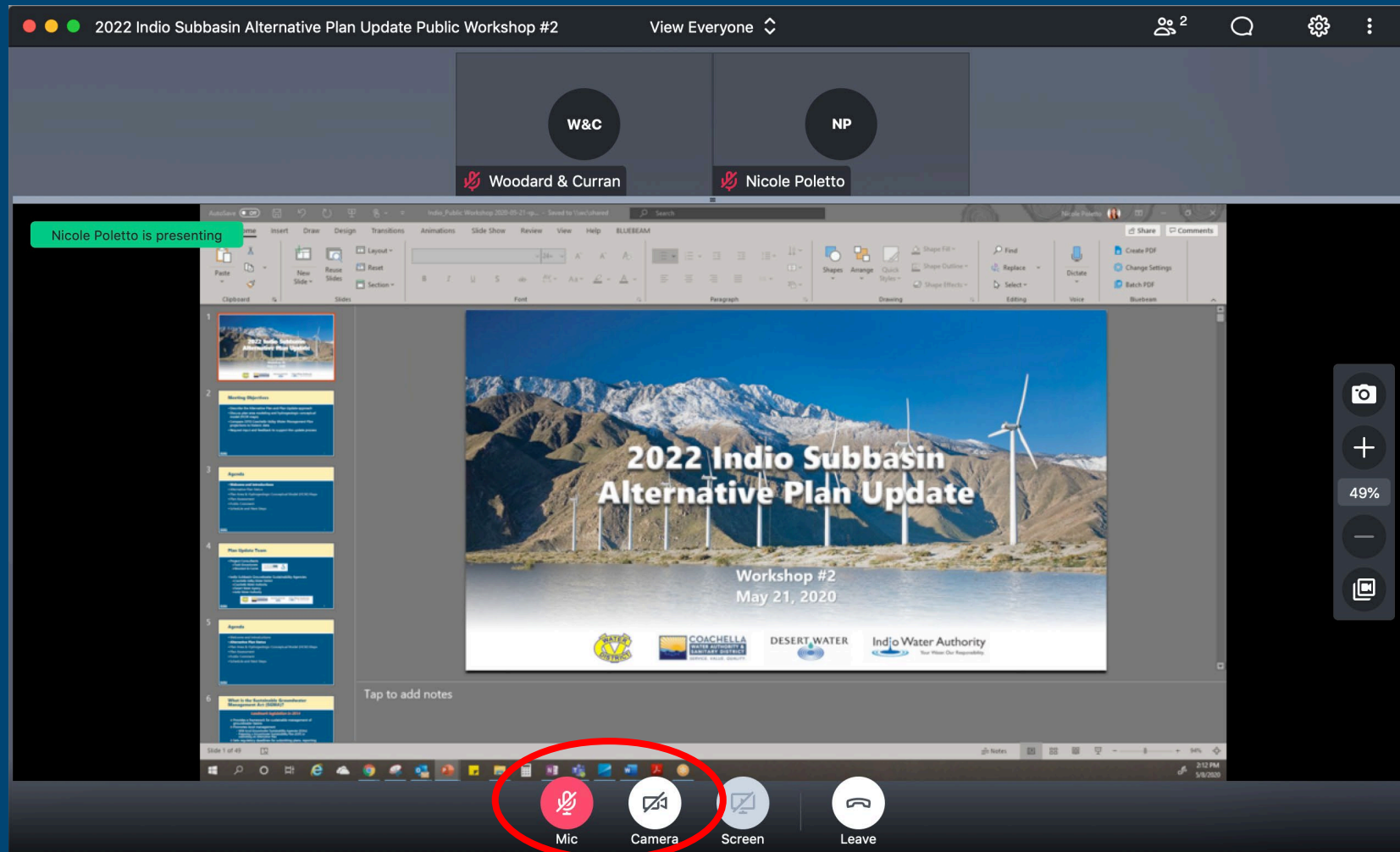
2022 Indio Subbasin Alternative Plan Update

Workshop #4
March 3, 2021



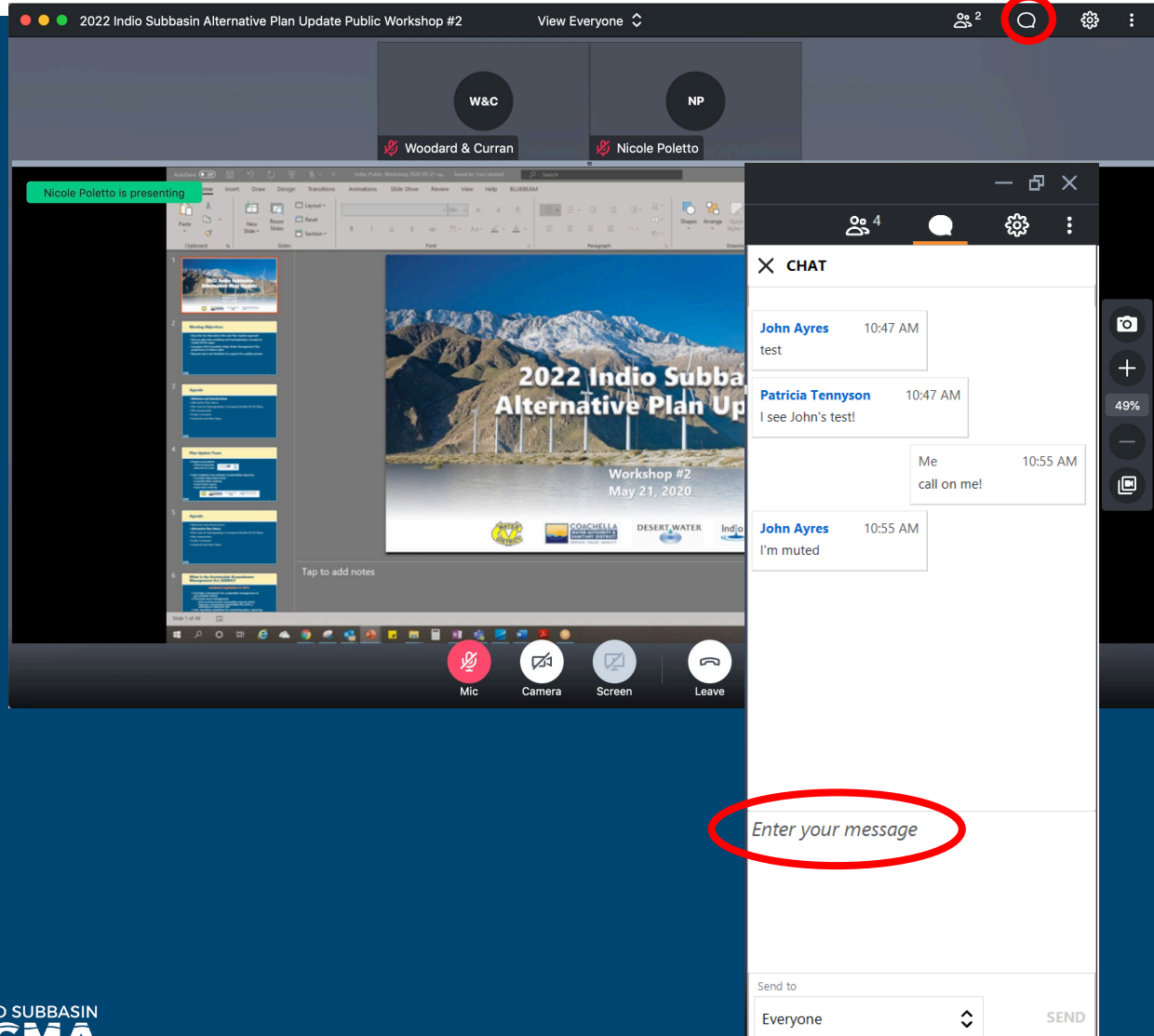
GoToMeeting – Quick How To

- Your screen should look like this:



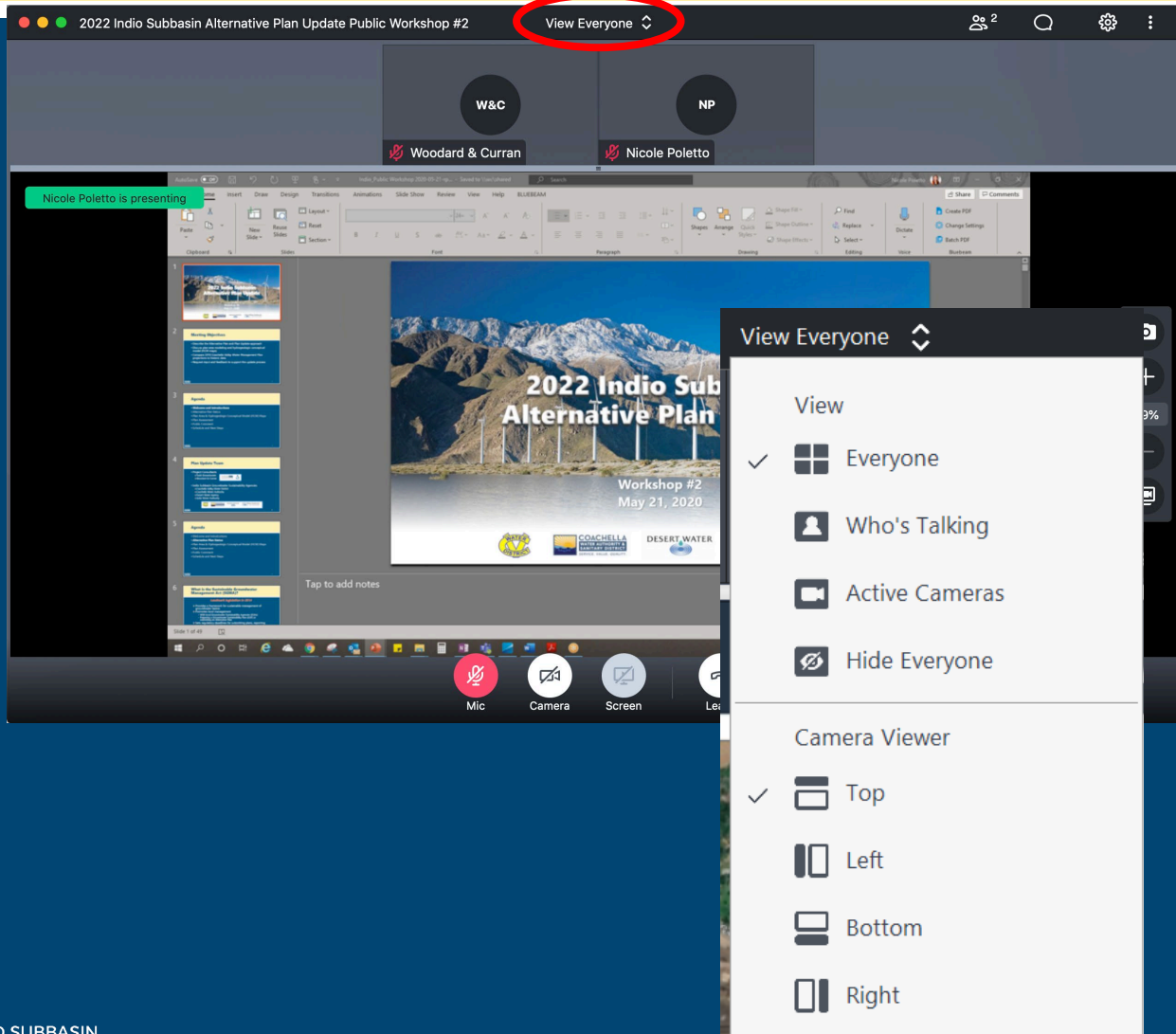
- Turn on/off your Mic (mute) and Camera (video) using the controls along the bottom
- During the meeting, you may need to wiggle your mouse to make the controls appear
- For Callers: use *6 to unmute on the phone

GoToMeeting – How to Ask a Question



- Our organizer will mute everyone at the beginning of the meeting
- Let us know you have a question by clicking the **Chat** icon in the top right
 - ❖ Click on *Enter your message*, type your message and hit SEND
- Once we receive your Chat, we will call on you and answer your question
- For Callers: when ask for your questions or comments, use *6 to unmute

GoToMeeting – How to See Everyone



- To change your display options, select the **View** menu in the top center
 - ❖ Select View-Everyone to display all attendees in the meetings
 - ❖ Select Camera Viewer-Top to display participant images along the top of your screen
- The grey divider can be raised or lowered, which will change the screen size

Meeting Objectives

- Provide overview and status of the Alternative Plan Update
- Discuss the Groundwater Conditions
- Present an overview of Sustainable Management Criteria
- Discuss potential Projects & Management Actions identified for the modeling Scenarios
- Request input and feedback to support the Plan Update

Agenda

- **Welcome and Introductions**
- Alternative Plan Status
- Groundwater Conditions
- Sustainable Management Criteria
- Groundwater Model Status
- Projects and Management Actions
- Public Comment
- Get Involved

Plan Update Team

- Project Consultants

- ❖ Todd Groundwater
- ❖ Woodard & Curran



- Indio Subbasin Groundwater Sustainability Agencies

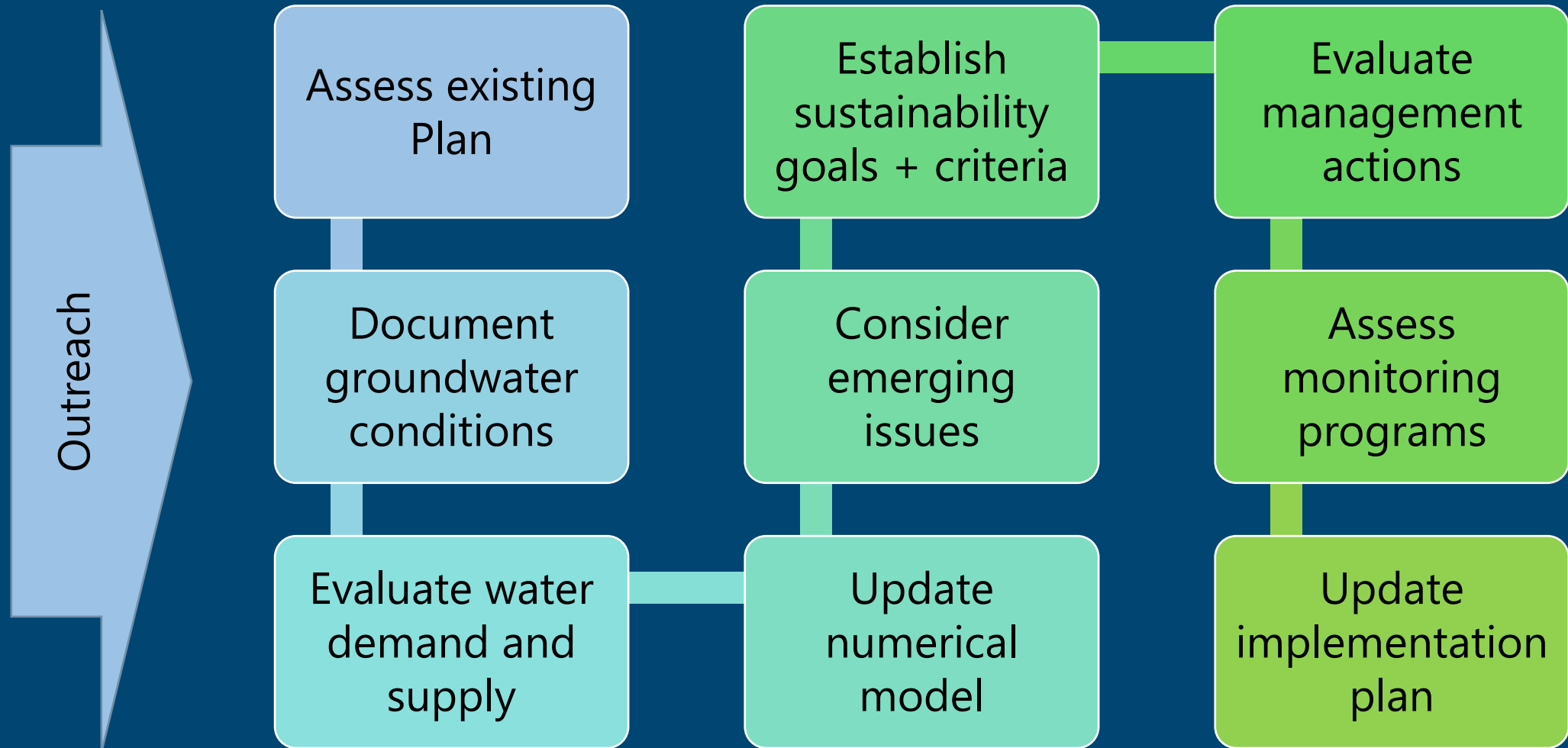
- ❖ Coachella Valley Water District
- ❖ Coachella Water Authority
- ❖ Desert Water Agency
- ❖ Indio Water Authority



Agenda

- Welcome and Introductions
- **Alternative Plan Status**
- Groundwater Conditions
- Sustainable Management Criteria
- Groundwater Model Status
- Projects and Management Actions
- Public Comment
- Get Involved

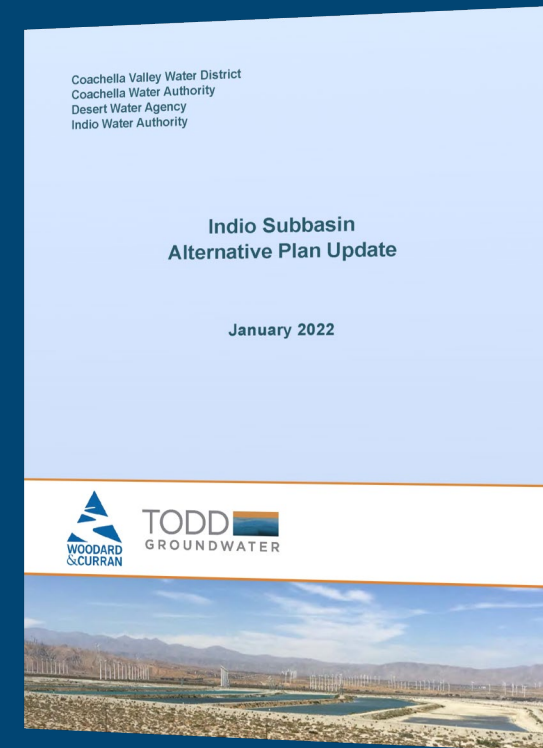
Status of Alternative Plan Update



Status of Alternative Plan Update

Outline of 2022 Alternative Plan Update presents a progression of work

1. Introduction
2. Plan Area
3. Hydrogeologic Conceptual Model
4. Groundwater Conditions
5. Water Demand Projections
6. Existing Water Supplies
7. Water Budgets and Plan Scenarios
8. Emerging Issues
9. Sustainable Management Criteria
10. Monitoring Program
11. Projects and Management Actions
12. Implementation Plan

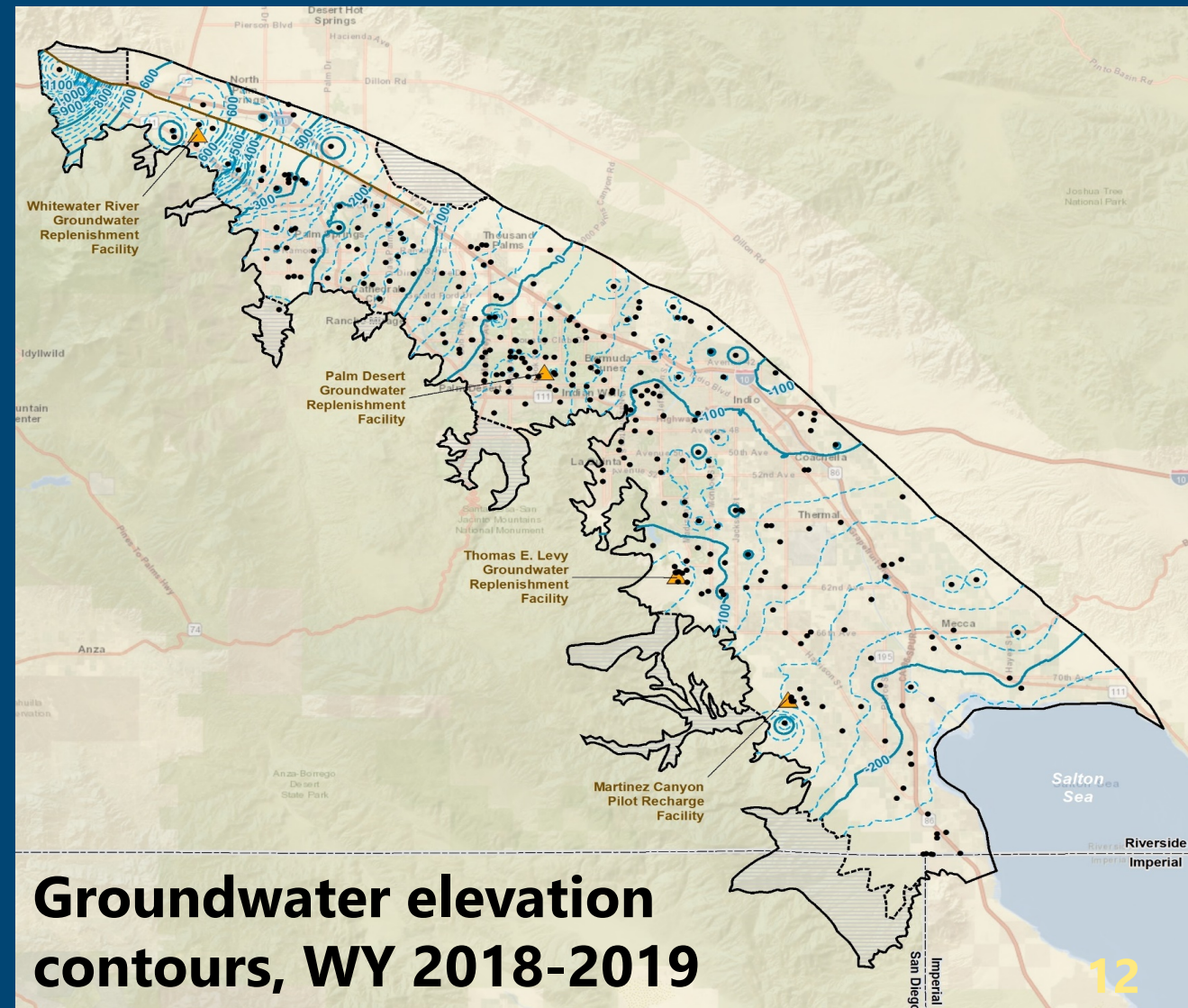


Agenda

- Welcome and Introductions
- Alternative Plan Status
- **Groundwater Conditions: Levels, Storage, Subsidence**
- Sustainable Management Criteria
- Groundwater Model Status
- Projects and Management Actions
- Public Comment
- Get Involved

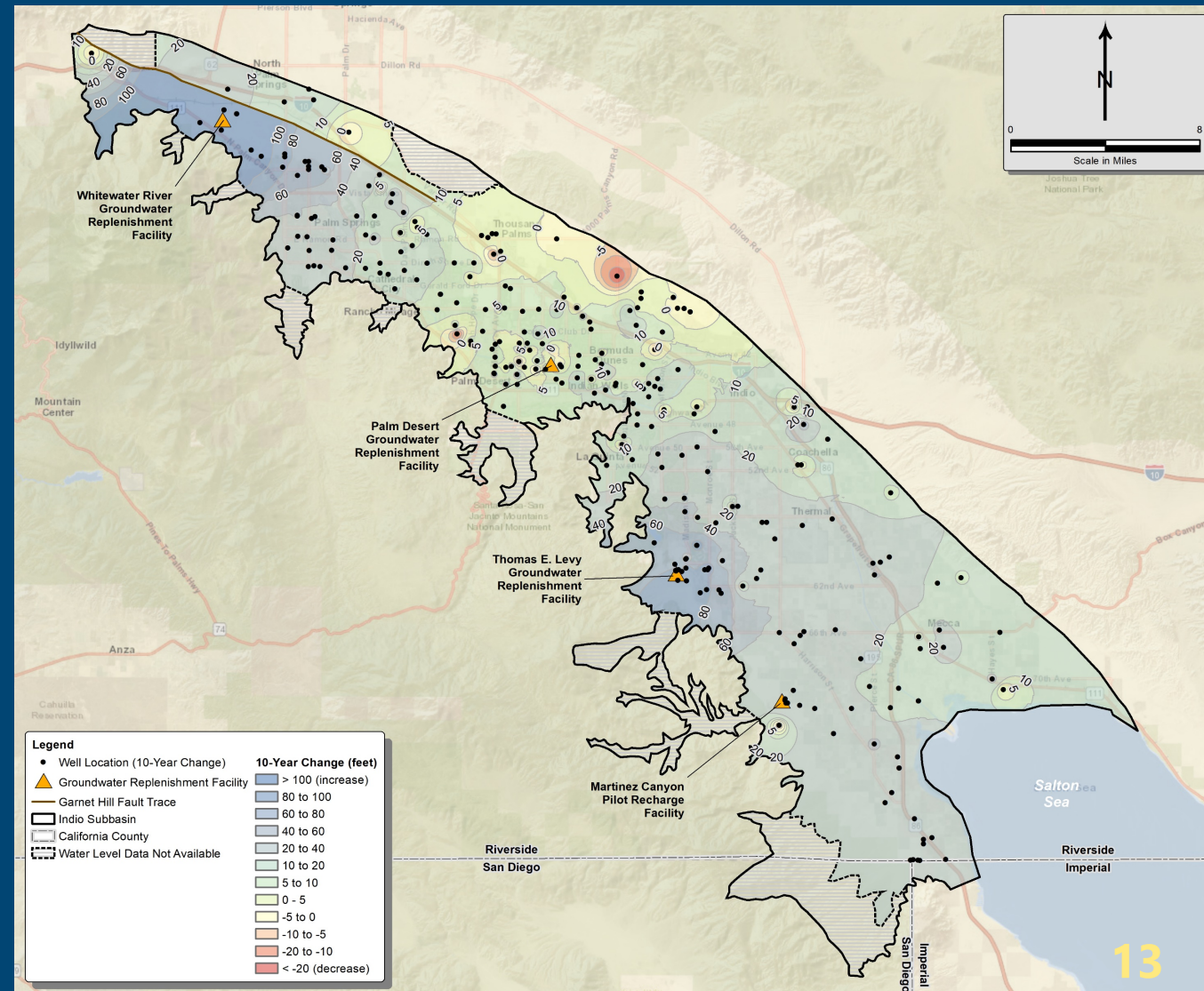
Groundwater Conditions: Levels

- Indio Subbasin has a robust monitoring program, 345 wells measured
- Elevations range from 1,100 feet above mean sea level to 200 feet below msl
- Groundwater flow is from northwest to southeast



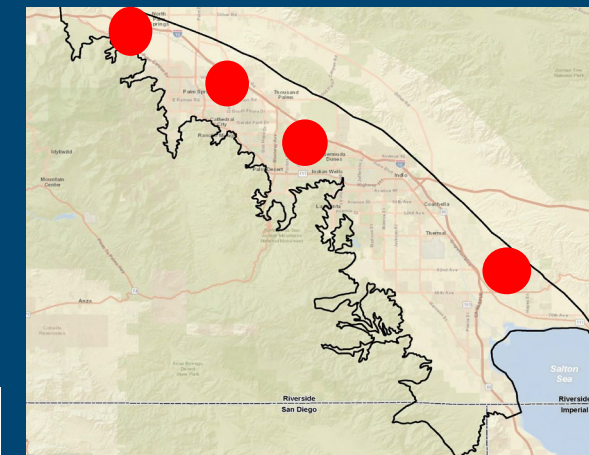
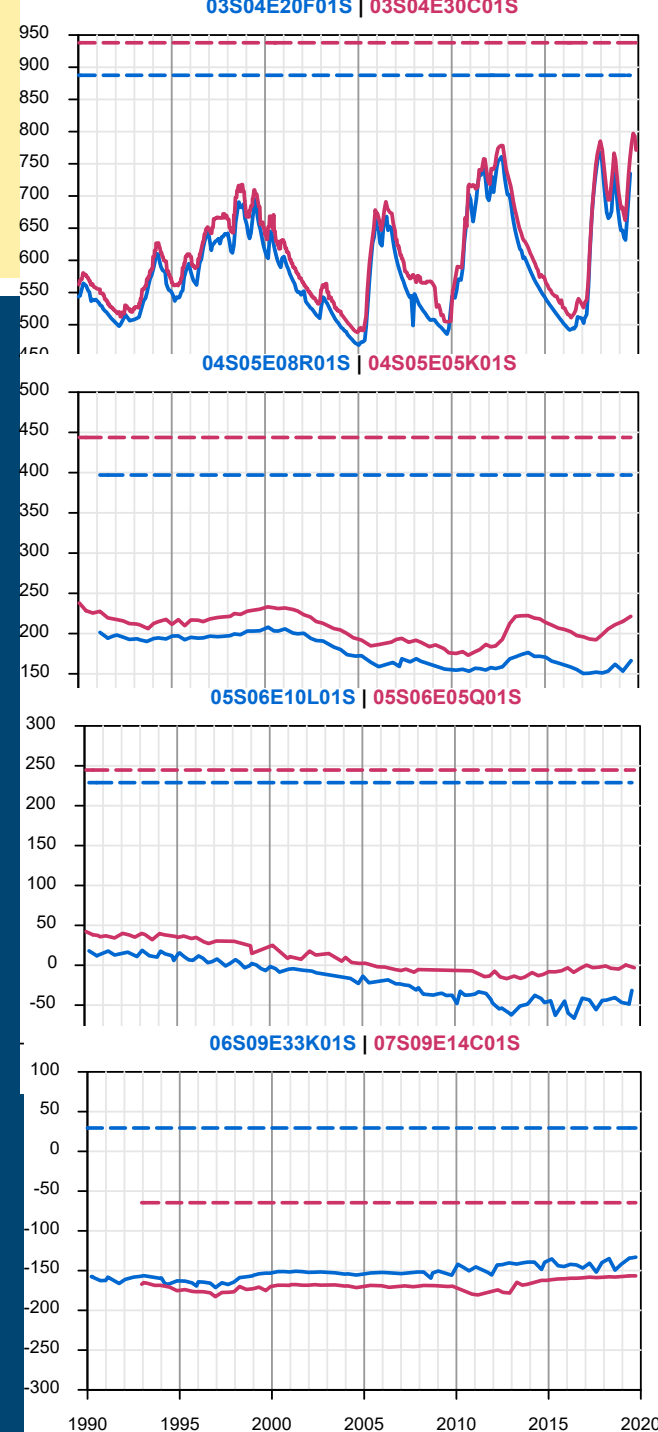
Change in Groundwater Levels 2009-2019

- Groundwater levels have increased over most areas, with some localized decreases
- Largest increases near GRFs
- Increases in mid-valley of 7-15 feet and in southeast of 10-40 feet
- Increases are due to GRF recharge, source substitution, and conservation programs



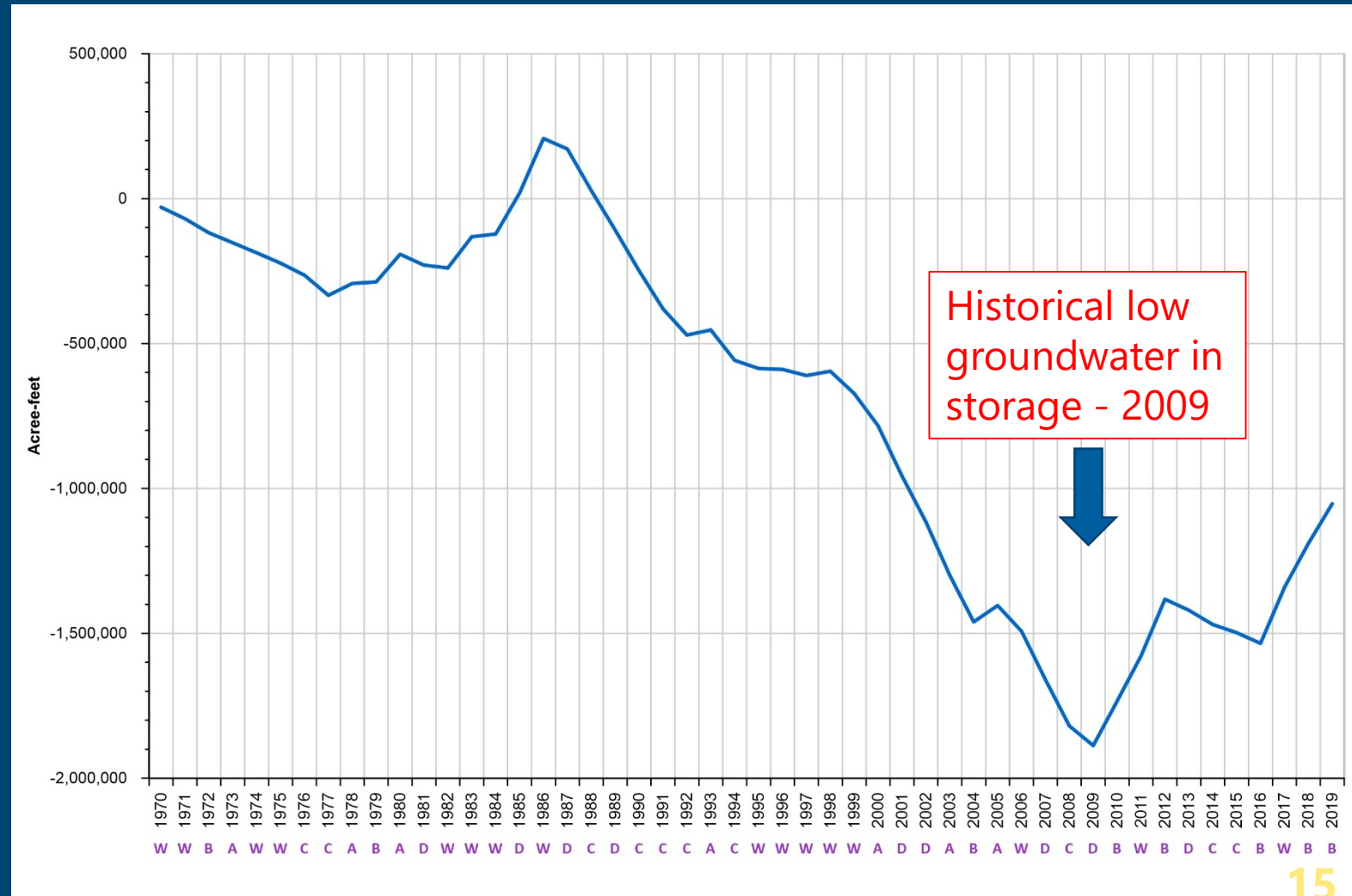
Groundwater Level Hydrographs

- Numerous hydrographs are available
- Hydrographs show:
 - ❖ Overall increases 2009-2020
 - ❖ Large increases due to recharge at GRFs
 - ❖ Smaller, later increases with distance from GRFs
 - ❖ Recovery from overdraft with recharge, source substitution, and conservation



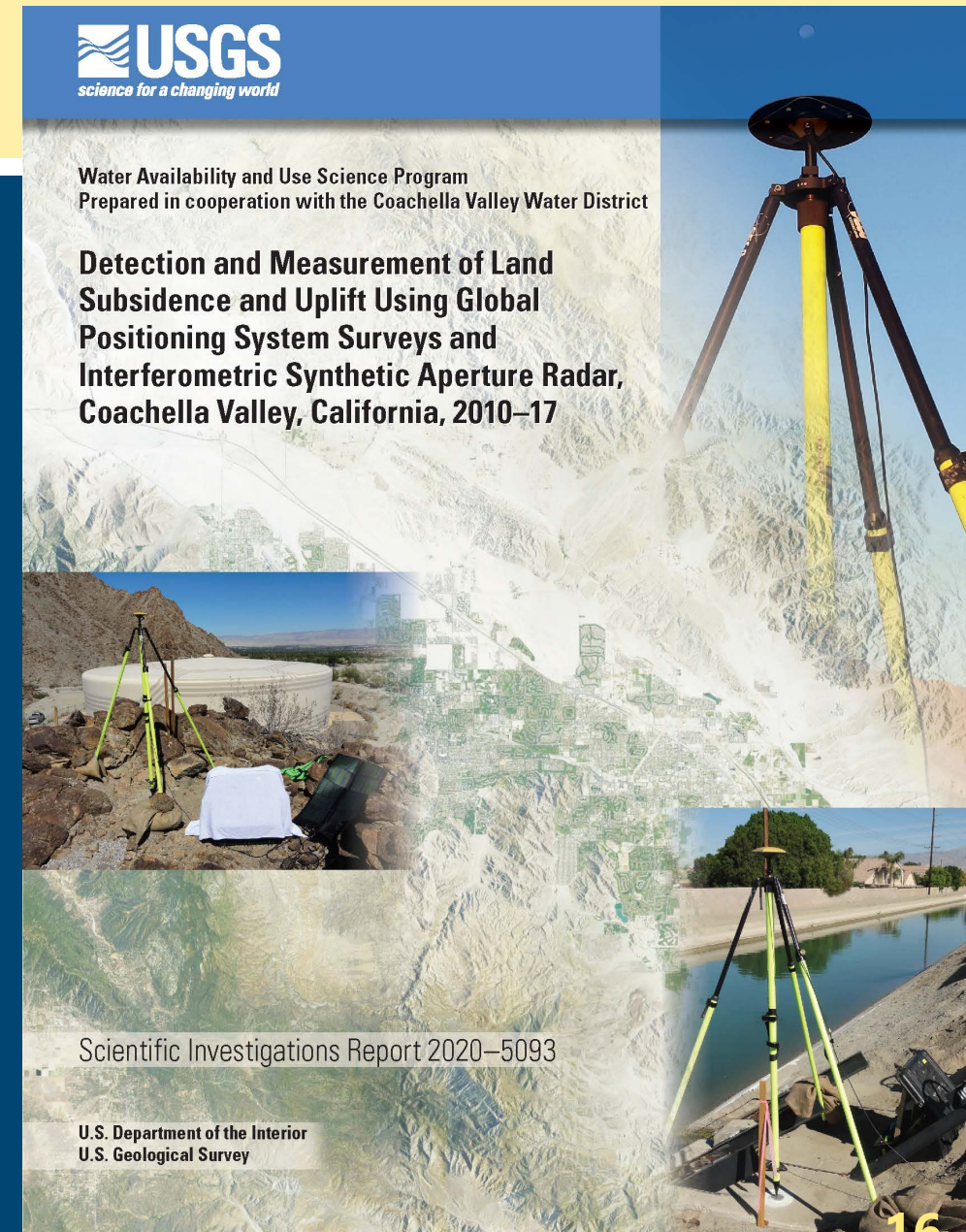
Change in Groundwater Storage

- “Running total” from 1970 to 2019 shows overdraft 1987-2009
- Reversal of historical overdraft since 2009
- An increase of about 840,000 AF stored water for use if/when shortages occur, e.g., recent drought



Land Subsidence

- Subbasin is susceptible to subsidence due to compaction of basin sediments with groundwater level declines
- Investigated by USGS and CVWD since 1995
- Up to 2 feet, 1995 to 2010, correlated to groundwater declines due to pumping
- Stabilization and uplift documented since 2010 with higher groundwater levels



Agenda

- Welcome and Introductions
- Alternative Plan Status
- Groundwater Conditions
- **Sustainable Management Criteria**
- Groundwater Model Status
- Projects and Management Actions
- Public Comment
- Get Involved

Sustainable Management Criteria: Levels, Storage, Subsidence

- DWR Recommendations:
 - ❖ Set groundwater levels thresholds
 - ❖ Consider using levels as a proxy for storage and subsidence

GSA objective:

To avoid undesirable results of significant and unreasonable loss of yield from existing production wells

- ❖ Due to chronic groundwater level decline
- ❖ Throughout the basin; not every well
- ❖ As a result of GSA basin management

Sustainability Criteria – Terms

Qualitative

- **Sustainability Goals** – Conditions in the absence of *undesirable results* within 20 years.
- **Undesirable Results** – Conditions that we want to avoid.

Quantitative

- **Measurable Objectives (MO)** – Specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions to achieve the sustainability goal.
- **Minimum Thresholds (MT)** – Numeric value for each sustainability indicator used to define undesirable results.
- **Interim Milestones (IM)** – Target value representing measurable groundwater conditions, in increments of five years.

Alternative Plan Goal vs Sustainability Goal

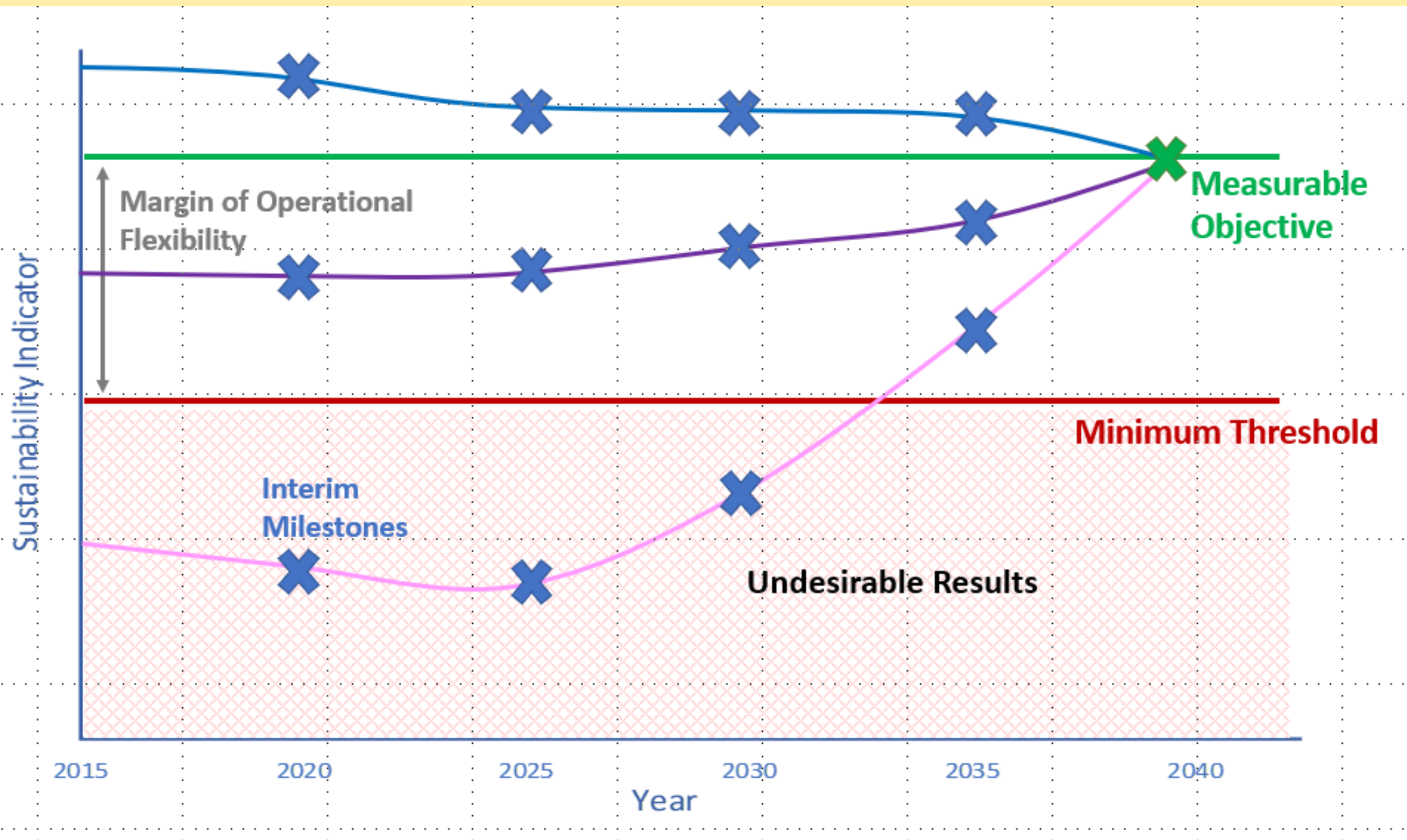
CVWMP / Alternative Plan Goal:

- To reliably meet current and future water demands in a cost effective and sustainable manner

SGMA Sustainability Goal:

- To maintain a locally managed, economically viable, sustainable groundwater resource for existing and future beneficial use in the Indio Subbasin by managing groundwater to avoid undesirable results

DRAFT



Sustainability Criteria – Sustainability Indicators



Chronic lowering of groundwater levels



Reduction of groundwater storage



Land subsidence



Degraded water quality



Seawater intrusion



Depletions of connected surface water with impacts on beneficial uses including groundwater dependent ecosystems

Defining Undesirable Result Statements



- Statements that describe what 'bad' looks like – what we want to prevent from happening
- Phrased broadly to meet regulations “significant and unreasonable effects...caused by groundwater conditions”



- Drives monitoring networks and thresholds, which must detect conditions before they are significant and unreasonably undesirable



- “Significant and Unreasonable” – provides flexibility within SGMA for *local control* because locals determine what is significant and unreasonable

Undesirable Results in Indio Subbasin



Chronic Lowering of Groundwater Levels

Significant and unreasonable reduction in the long-term viability of domestic, agricultural, municipal, or environmental uses over the planning and implementation horizon of this Alternative Plan.



Reduction in Groundwater Storage

Significant and unreasonable reduction in the viability of domestic, agricultural, municipal, or environmental uses over the planning and implementation horizon of this Alternative Plan.



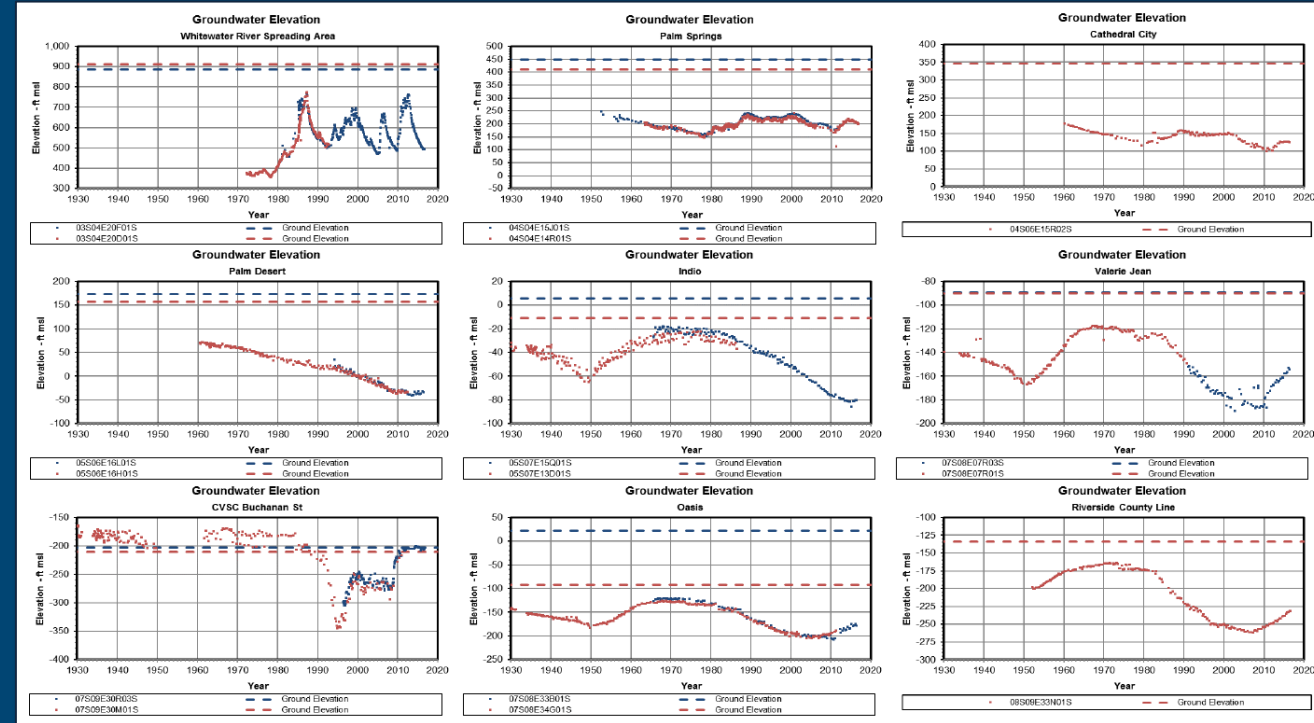
Land Subsidence

Significant and unreasonable reduction in the viability of the use of water conveyance and flood control infrastructure over the planning and implementation horizon of this Alternative Plan.

Undesirable Results in Indio Subbasin: Groundwater Levels

Questions:

- What *undesirable results* do we want to avoid?
 - ❖ Impacts to shallow wells?
 - ❖ Maintenance of municipal and industrial water supply?
 - ❖ Other?



Setting Minimum Thresholds (MTs) for Levels

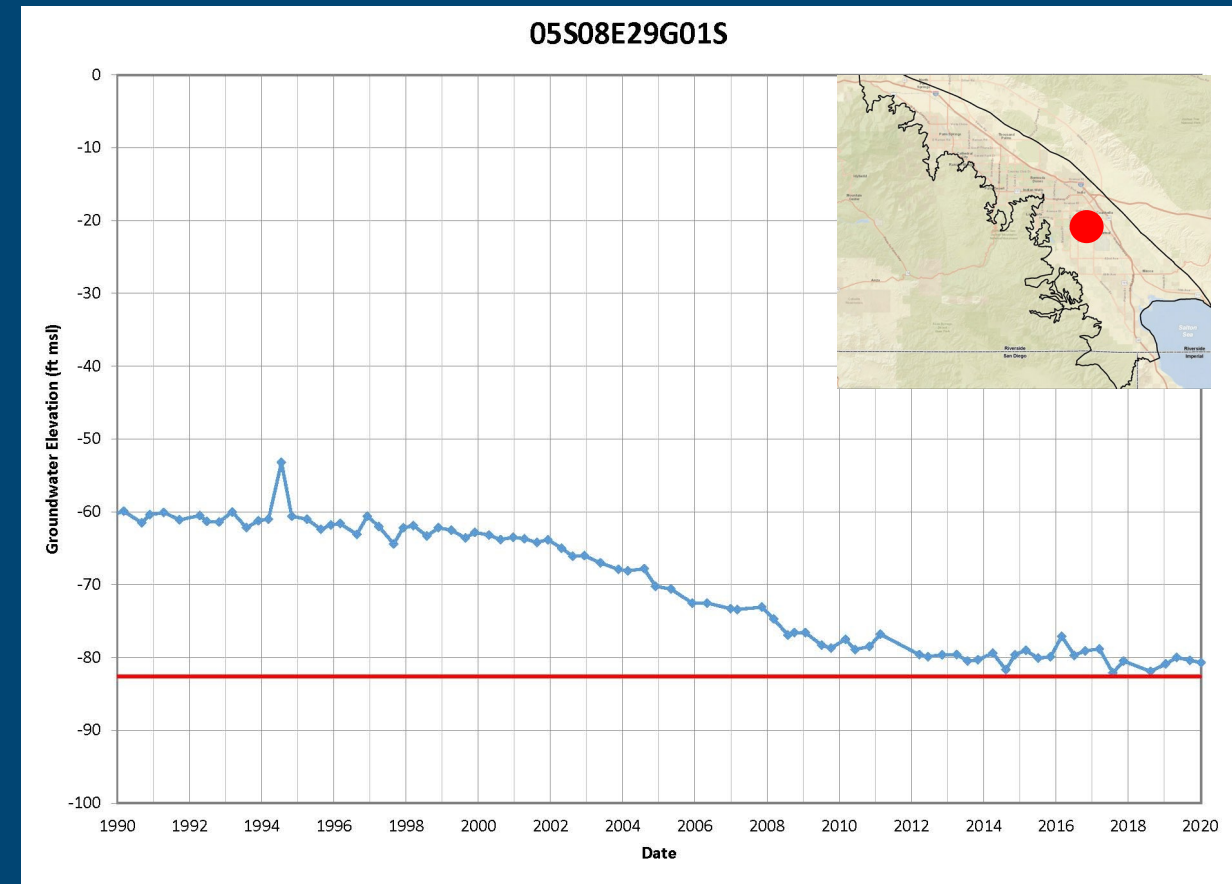
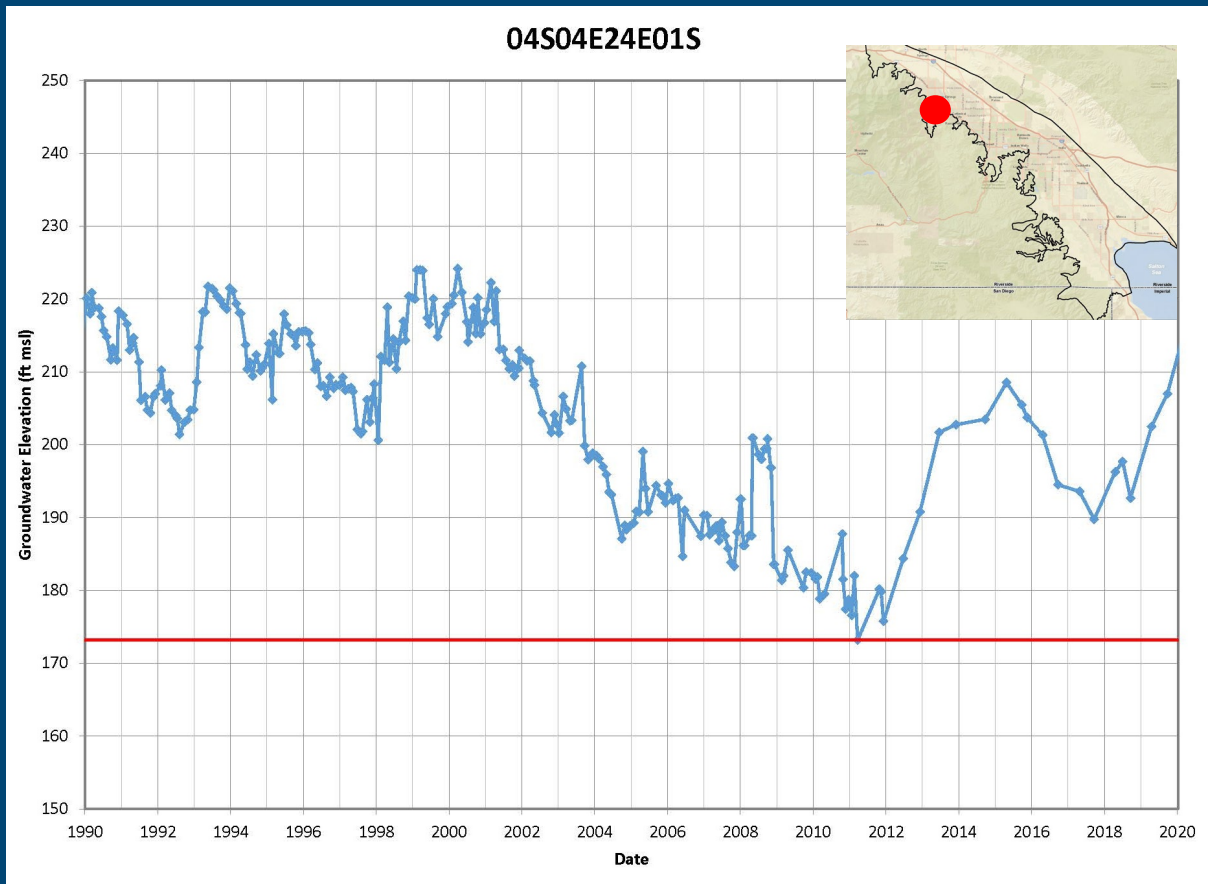
SGMA definition for groundwater level Minimum Threshold (MT):

A groundwater elevation measured at a representative monitoring site.

How to define the MT elevation? Two options considered:

1. Use historical low groundwater levels
 - ❖ Occurred recently without reported significant problems
 - ❖ Probably conservative, but certainly protective
2. Document construction of all production wells, select criteria per diverse well characteristics, relate private wells to representative "Key Wells"
 - ❖ Consider this in the future as a mean to refine MTs

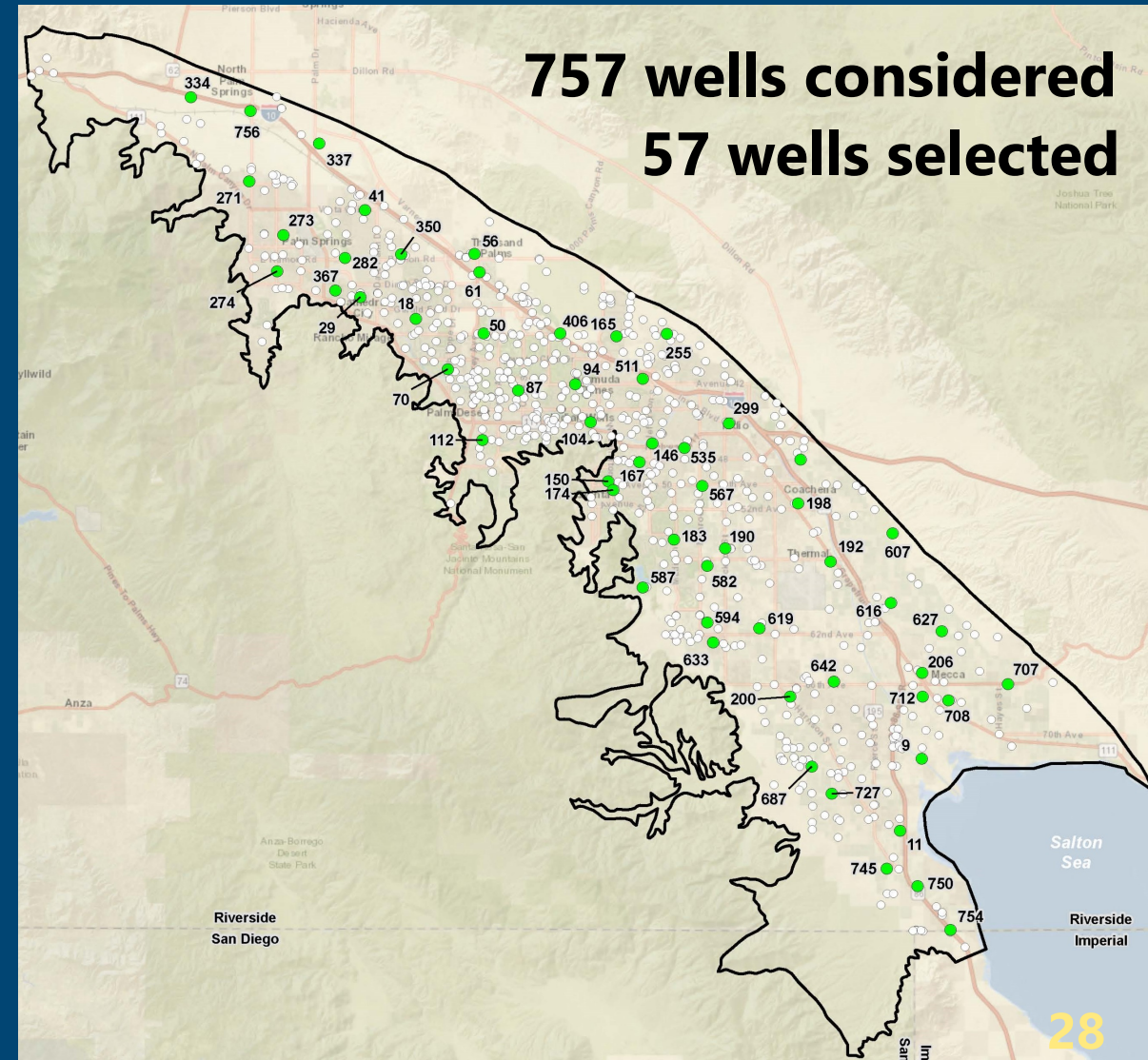
MTs as Historical Lows Measured at Key Wells



Key Well Network for Groundwater Levels

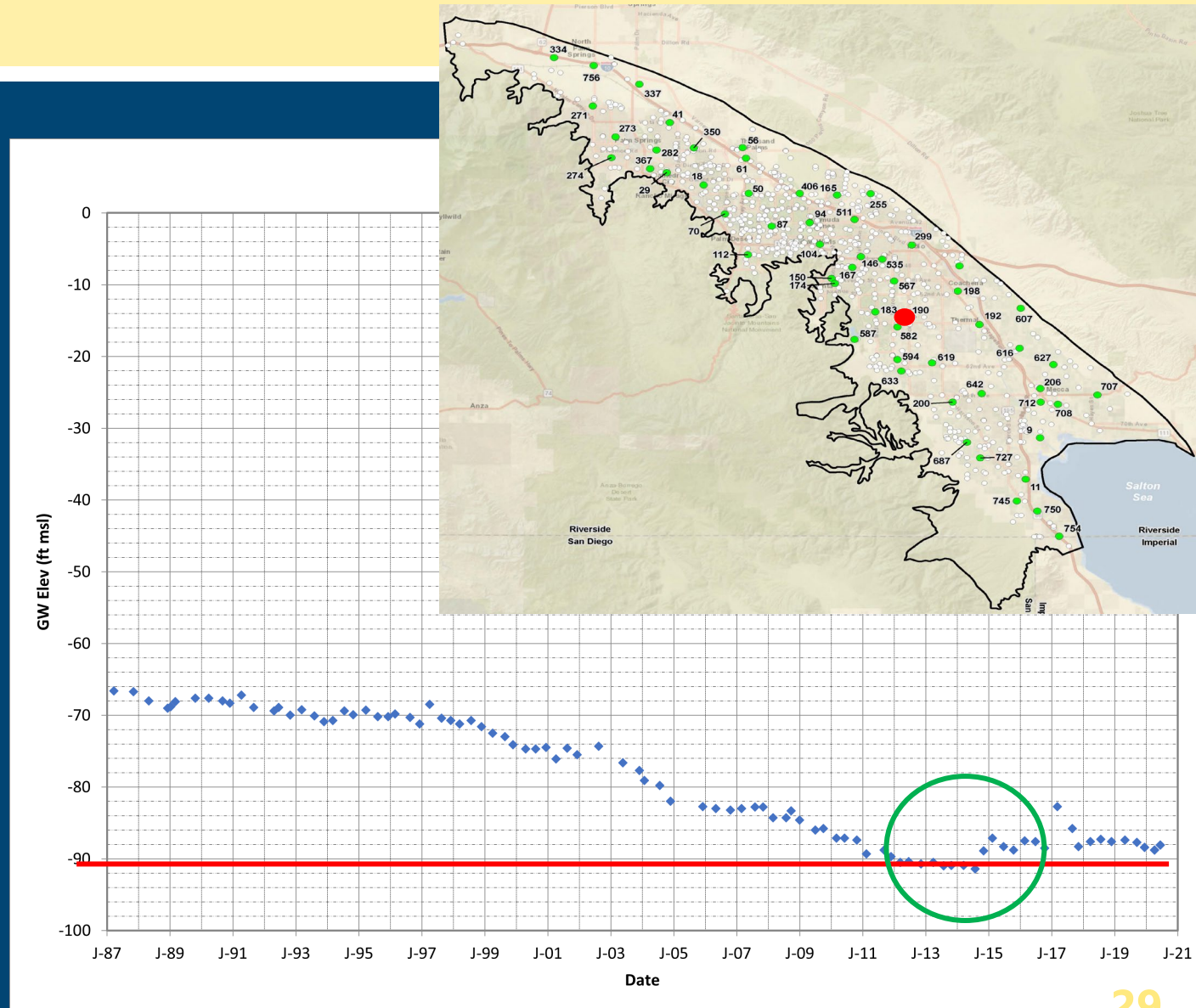
Key Well selection factors include:

- Well construction data available
- Current monitoring
- Long, reliable record
- Areal distribution
- Location among production wells
- Proximity to small water systems
- All GSAs represented



Undesirable Results for Chronic Groundwater Level Decline

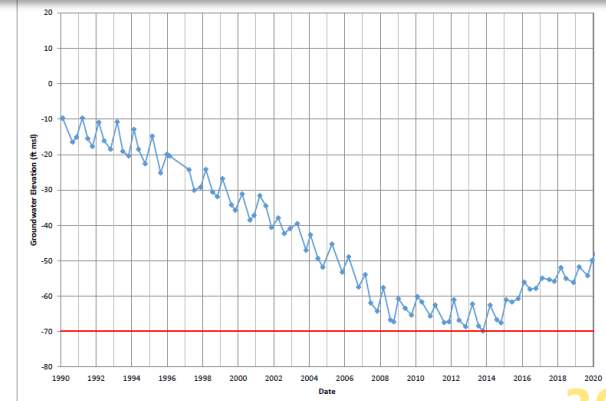
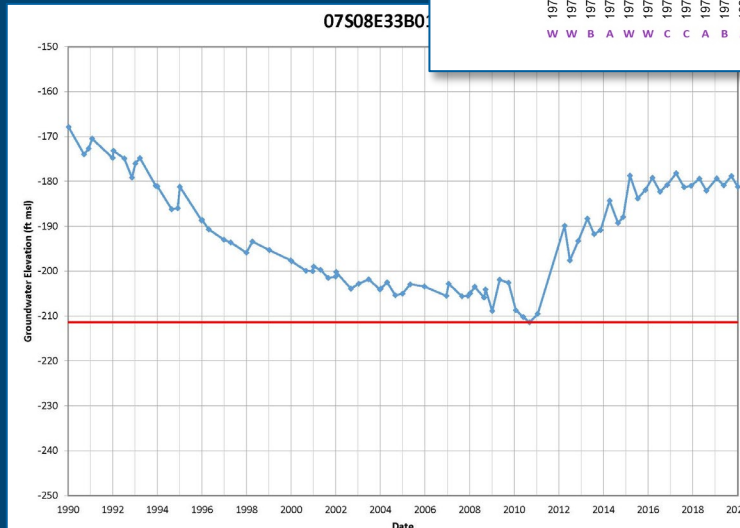
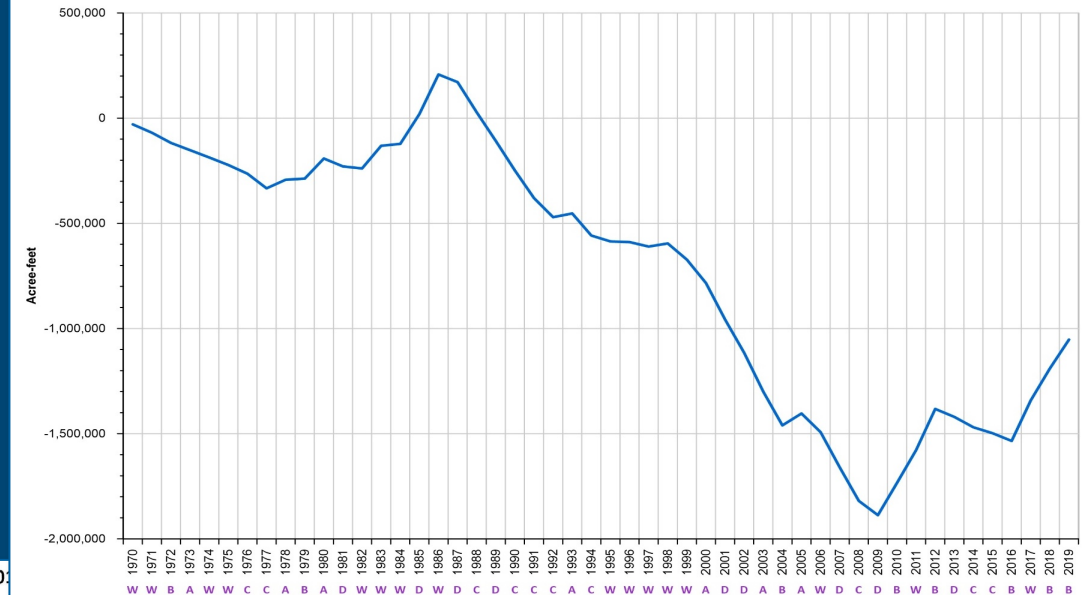
- Crossing the MT infrequently or briefly may not be undesirable
- Local problems may be undesirable, but do not represent overdraft
- GSAs will be monitoring and responding to water levels near the MTs
- An undesirable result occurs when the MT is crossed in five consecutive low-season monitoring events in 25% of wells across the subbasin
- Annual reporting will include MT hydrographs and management actions



Using Levels as a Proxy for Storage

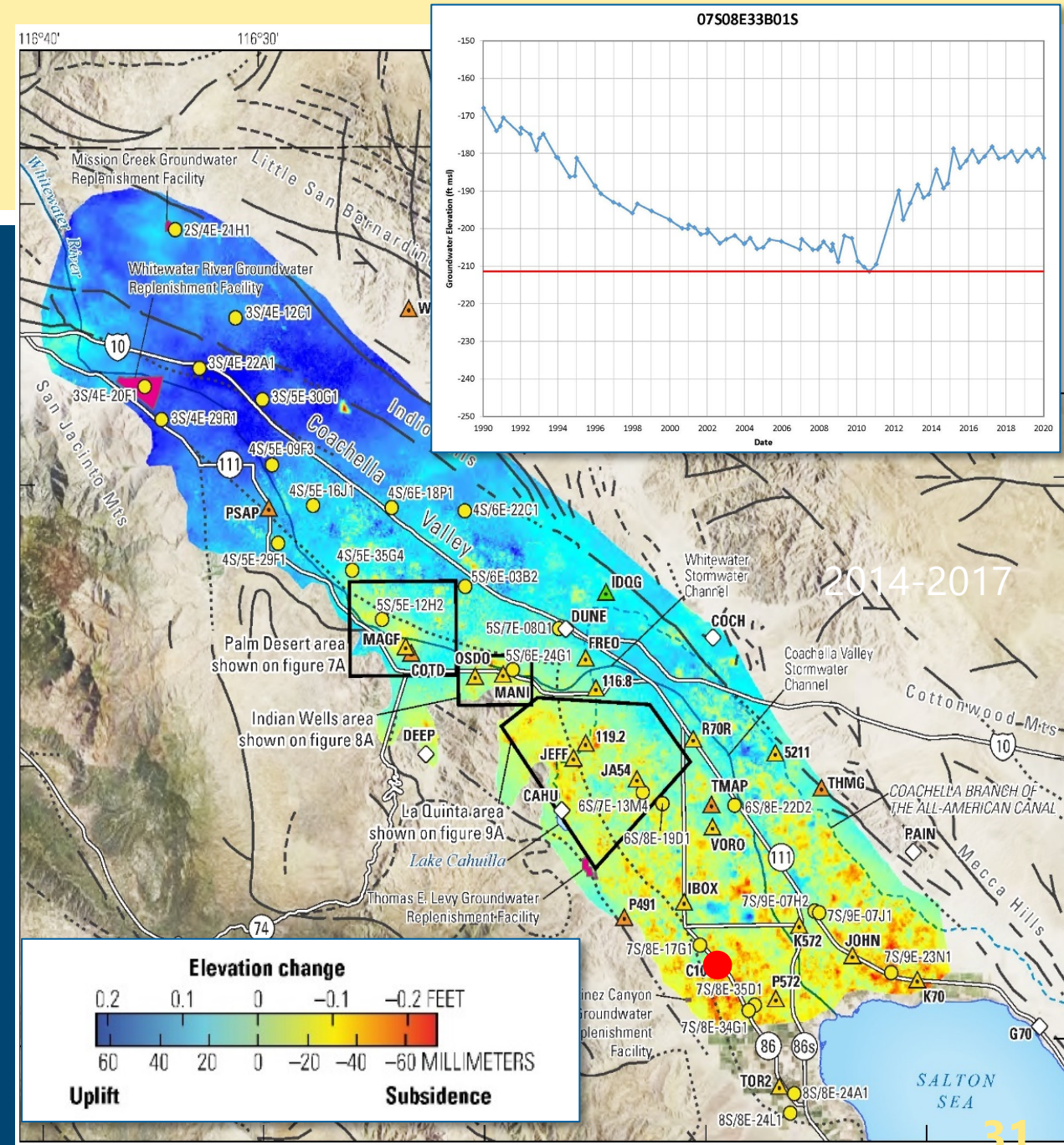
- Levels monitoring generally matches the long-term change in storage
- With groundwater level MTs as historical lows, then storage cannot reach a significant and unreasonable condition

➤ We recommend using levels as a proxy for storage



Using Levels as a Proxy for Subsidence

- Undesirable results include
 - ❖ Disruption of surface drainage, water supply conveyance, and flood control
 - ❖ Damage to infrastructure
 - ❖ Earth fissures
- Maintaining groundwater levels above historical lows would be protective against subsidence
- We recommend using levels as a proxy for subsidence

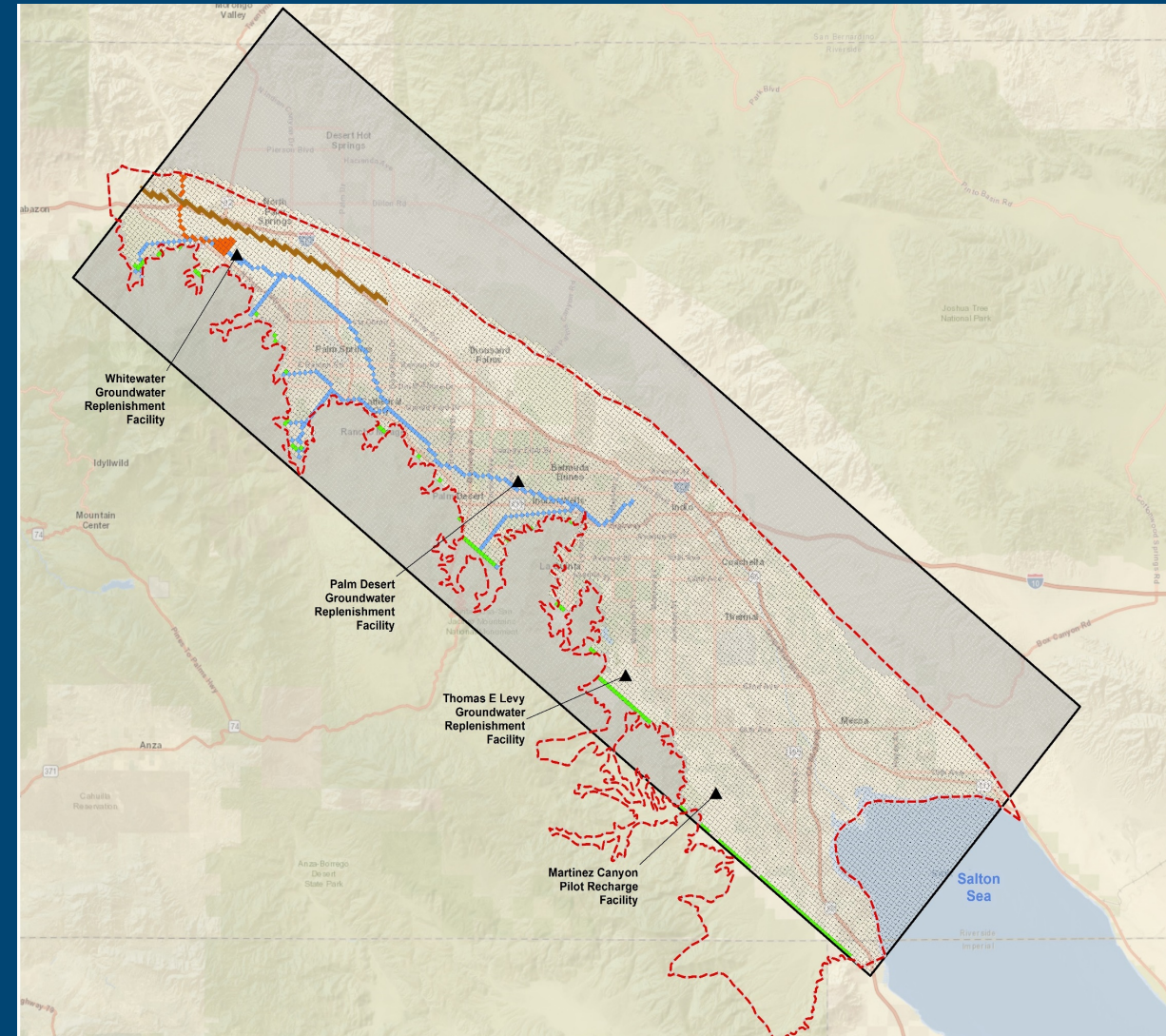


Agenda

- Welcome and Introductions
- Alternative Plan Status
- Groundwater Conditions
- Sustainable Management Criteria
- **Groundwater Model Status**
- Projects and Management Actions
- Public Comment
- Get Involved

Groundwater Model Status

- Provides numerical simulation of the Subbasin
- Updated with recent data on inflows and outflows
- Coordinated with models for adjacent basins
- In final calibration and chapter preparation
- Continues to provide a reliable tool to simulate future conditions and scenarios



Agenda

- Welcome and Introductions
- Alternative Plan Status
- Groundwater Conditions
- Sustainable Management Criteria
- Groundwater Model Status
- **Projects and Management Actions**
- Public Comment
- Get Involved

Projects & Management Actions (PMAs)

- Alternative Plan Update to include “a description of the projects and management actions the GSA has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.”

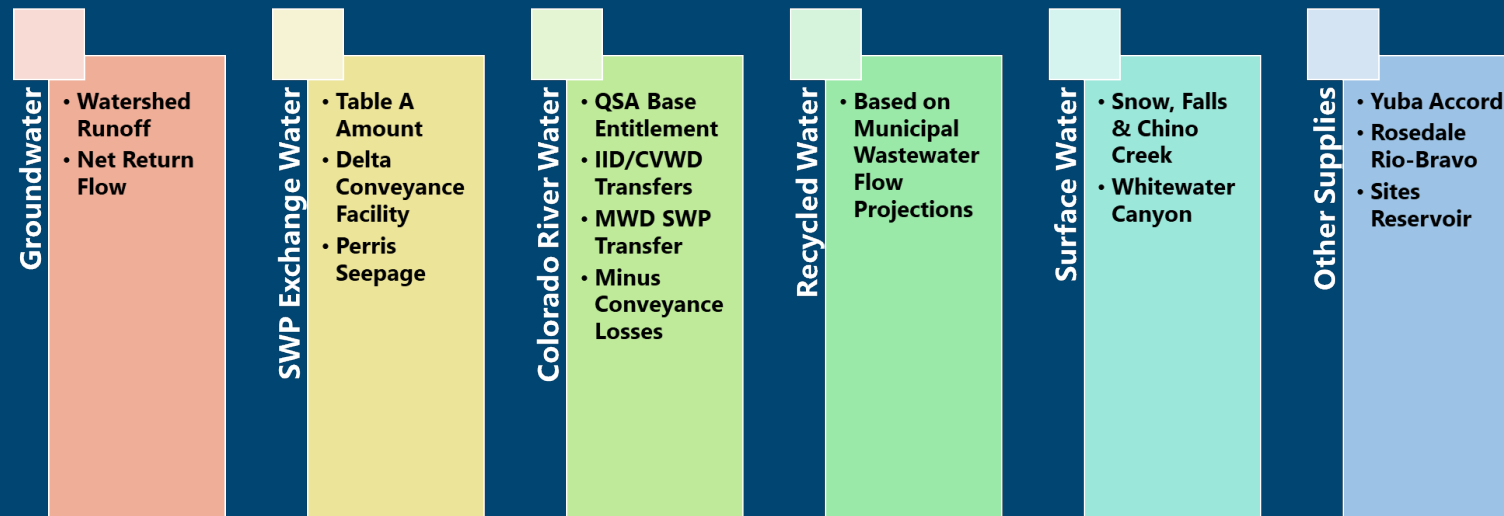
Coordinated across several chapters:

Water Supply ↔ Scenarios ↔ Projects & Management Actions

Two Major Groupings of PMAs

- SGMA Implementation
- Projects & Management Actions

These are different from, but support, the water supplies that we discussed last workshop. Many PMAs help to convey, deliver, and recharge our regional supplies.



SGMA Implementation

- Tasks the GSAs may implement to support SGMA compliance
- Recommendations:
 - ❖ Monitoring (Groundwater Levels and Quality)
 - ❖ GSAs Meetings – Annually
 - ❖ Annual Reports
 - ❖ Alternative Plan 5-year Update (incl Groundwater Model Update)
 - ❖ Pursue Funding Opportunities
 - ❖ Monitoring Network Improvements
 - ❖ Stakeholder Outreach and Website Maintenance
 - ❖ Subbasin Well Inventory
 - ❖ Expand Pumping Measurements
 - ❖ Consider SGMA Fee

Projects & Management Actions

- Actions the GSAs may implement to support sustainable water management
- PMAs organized into 5 categories:
 - ❖ Water Conservation
 - ❖ Water Supply Development
 - ❖ Source Substitution & Replenishment
 - ❖ Water Quality Improvements
 - ❖ Other Studies & Programs

Potential PMAs by Category

Water Conservation

- Conservation Programs and State Regulations
 - Urban
 - Agricultural
 - Golf

Water Supply Development

- Surface Water Diversions
- Stormwater Capture
- WRP-4 RW Expansion
- EVRA Potable Reuse
- Delta Conveyance Facility
- Lake Perris Seepage
- Sites Reservoir
- Supplemental Water Supplies

Source Substitution & Replenishment

- MVP Expansion
- Oasis Distribution System
- East Golf Expansion
- Increased RW Deliveries
 - WRP-7
 - WRP-10
- TEL-GRF Expansion
- PD-GRF Expansion
- Continued WWR-GRF Recharge

Water Quality Improvement

- Implement SNMP
- Recharge Water Quality Improvement
 - Colorado River Salinity Forum
 - Continue Evaluating: CR Treatment and SWP Importation
- Groundwater Treatment
- Domestic Water & Sewer Consolidations

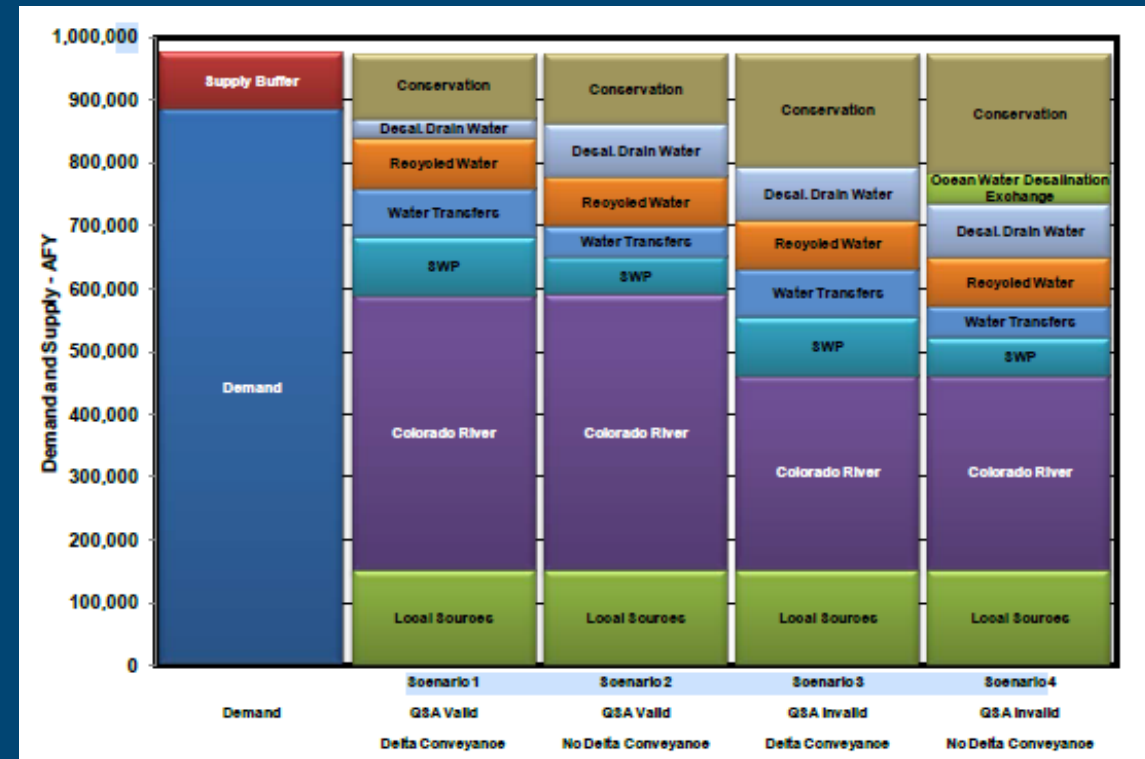
Other Studies & Programs

- Monitoring & Reporting
- Further GDEs Analysis
- Well Construction/Abandonment
- Drainage Control
- Flood Control

Objectives for Scenario Modeling

- What Are We Trying to Achieve?
 - ❖ Consider how uncertainties may affect the GSAs ability to sustainably manage water resources
 - ❖ Meet SGMA regulations, including balancing water budget and avoiding groundwater overdraft

Scenario Modeling in 2010 CVWMP



Plan Scenarios – Uncertainties for Demands

■ Uncertainties:

- ❖ Land Use Agencies (Municipal/Tribes) – higher than anticipated growth, large scale developments with higher than anticipated demands
- ❖ Agricultural – influx of new farmers with higher than anticipated demands

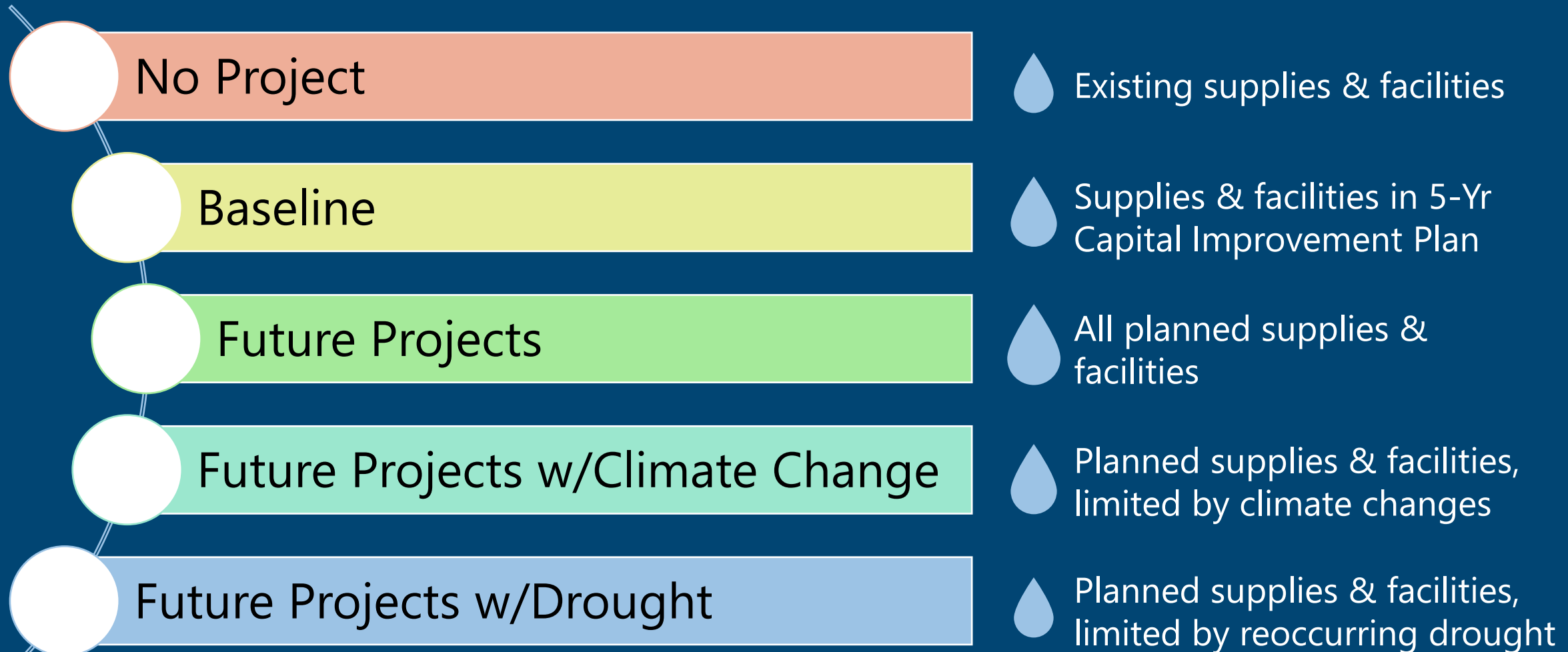
■ Recommendation:

- ❖ Supply buffer of +10% municipal demands, plus double the acreage of potential new agriculture (+1,000 acres)
 - Consider greater agricultural growth in Scenarios

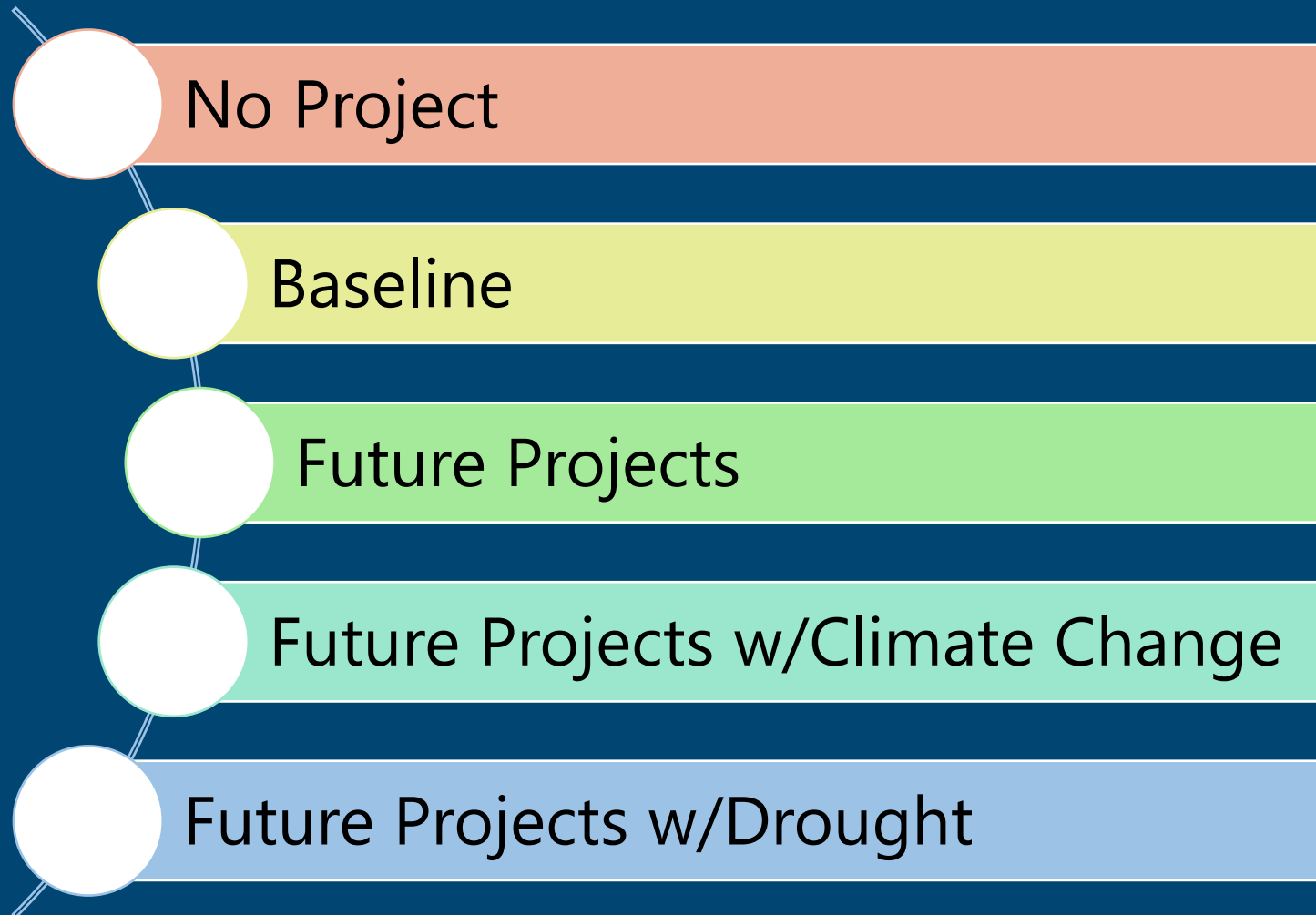
Plan Scenarios – Uncertainties for Supplies

- Supply Uncertainties:
 - ❖ Climate change –
 - Local hydrology – reduction in watershed runoff
 - Colorado River – cutbacks under *Lower Basin DCP*
 - SWP – additional reductions in delivery reliability; Delta Conveyance Facility not constructed
 - ❖ Imported water – natural disaster disrupting conveyance, regulatory constraints
 - ❖ Groundwater – outflows and storage
 - ❖ Recycled water – regulatory tightening, treatment or connections not constructed
 - ❖ Sites Reservoir – not constructed or significantly delayed
 - ❖ Lake Perris Seepage – not constructed or significantly delayed
- Recommendation:
 - ❖ Model up to 5 Scenarios with varying portfolios of supplies and projects

What Might Scenarios Look Like?



What Might Scenarios Look Like?



Questions:

- What else should be considered in the Scenario modeling?
- Are there other projects that should be added?



Next Steps

- February 2021 – April 2021
 - ❖ Document groundwater dependent ecosystems
 - ❖ Finalize projects and management actions
 - ❖ Finalize proposed sustainability criteria
 - ❖ Run Scenarios in groundwater model
 - ❖ Quantify Indio Subbasin water budget

Agenda

- Welcome and Introductions
- Alternative Plan Status
- Groundwater Conditions
- Sustainable Management Criteria
- Groundwater Model Status
- Projects and Management Actions
- **Public Comment**
- Get Involved



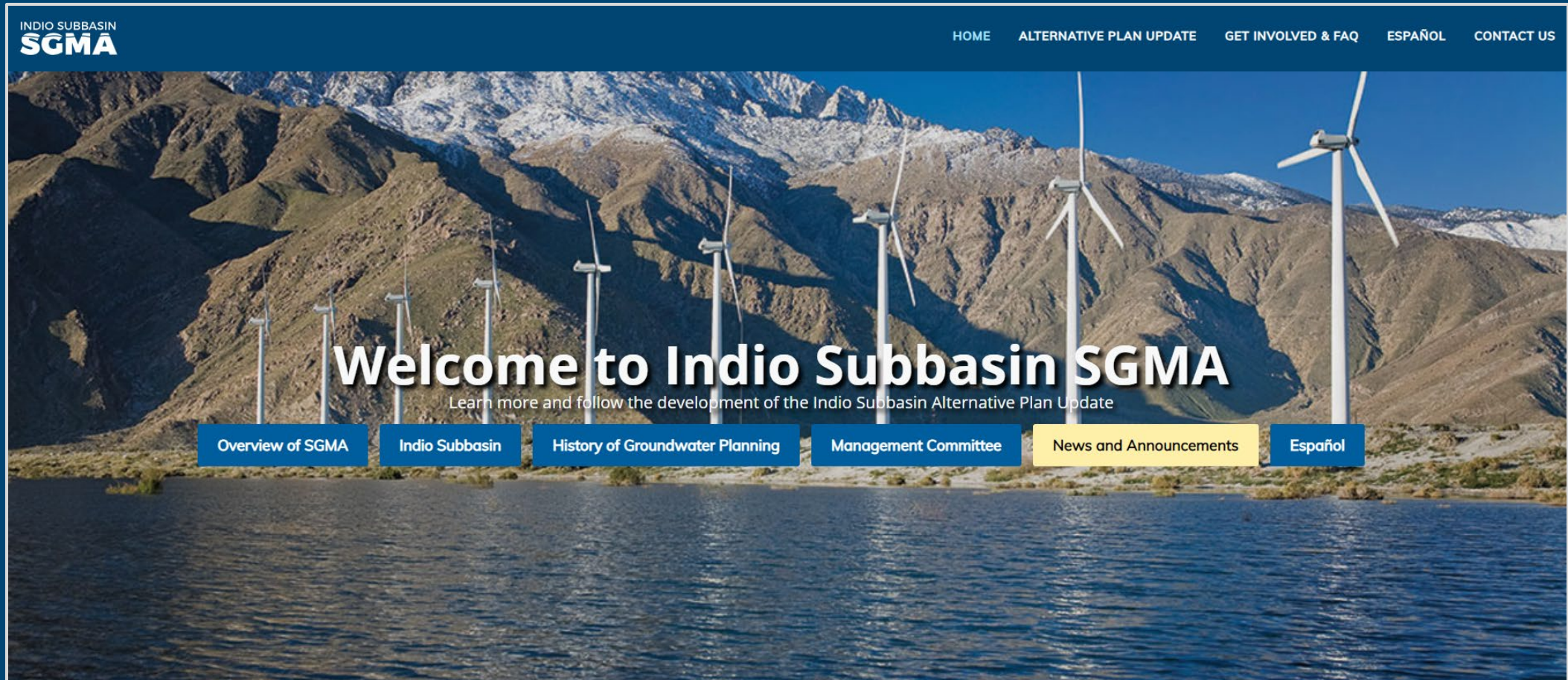
Public Comment

Input and feedback are welcomed
For Callers – you may need to press *6 to unmute

Agenda

- Welcome and Introductions
- Alternative Plan Status
- Groundwater Conditions
- Sustainable Management Criteria
- Groundwater Model Status
- Projects and Management Actions
- Public Comment
- **Get Involved**

Get Involved – Visit our Website



Get Involved – Visit our Website

Sign up for email invites, updates, and data/report releases at
www.IndioSubbasinSGMA.org

Stay Connected

Sign up to be on our mailing list for updates about the Indio Subbasin SGMA process.

Name *

Email *

Submit 

We will never share your information with anyone.

Get Involved – Next Workshop



May 27, 2021



2:00 – 4:00 PM



Location: TBD



For additional information,
please contact:

Rosalyn Prickett

IndioSubbasinSGMA@woodardcurran.com

(858) 875-7420