

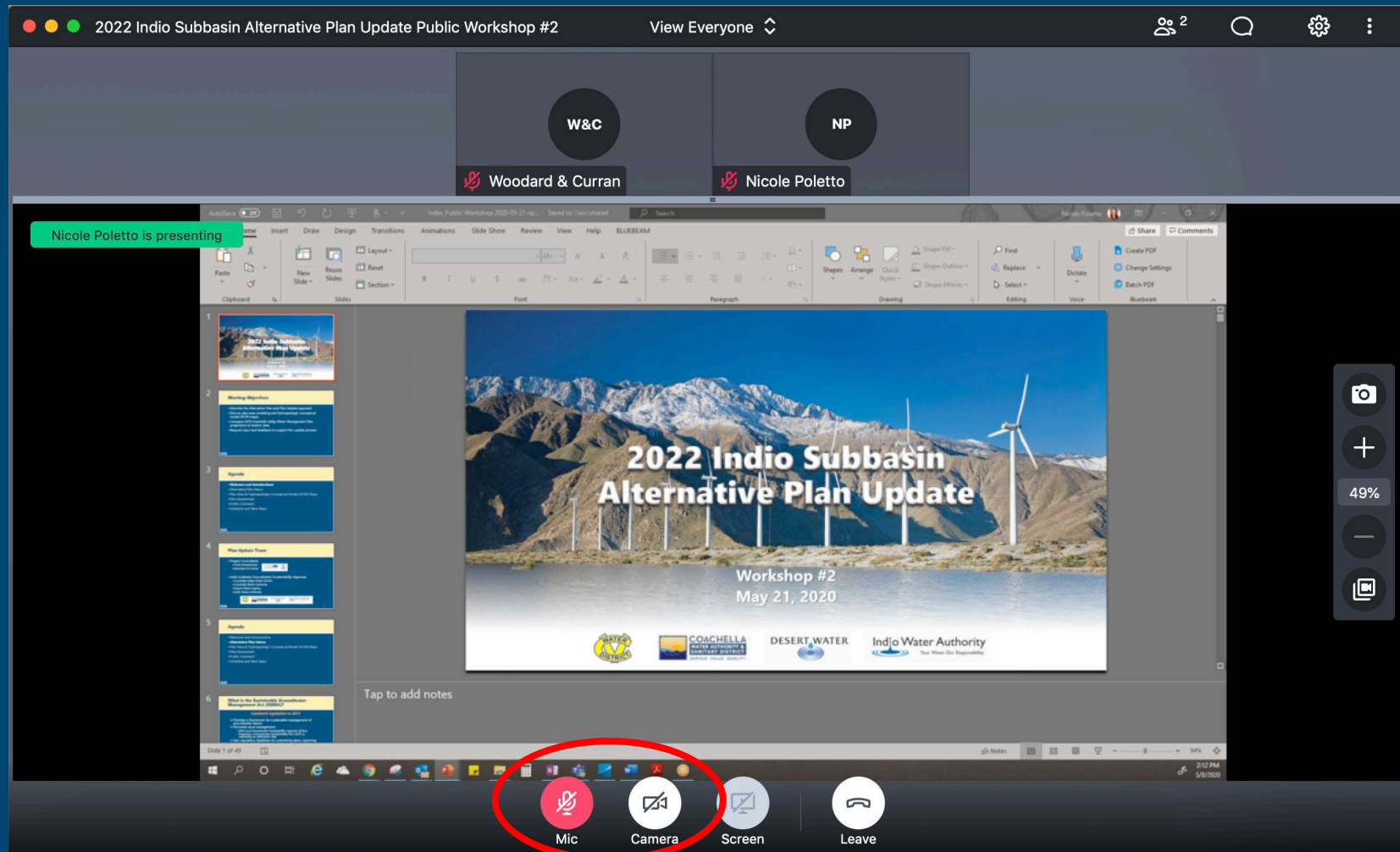
2022 Indio Subbasin Alternative Plan Update

Workshop #2
May 21, 2020



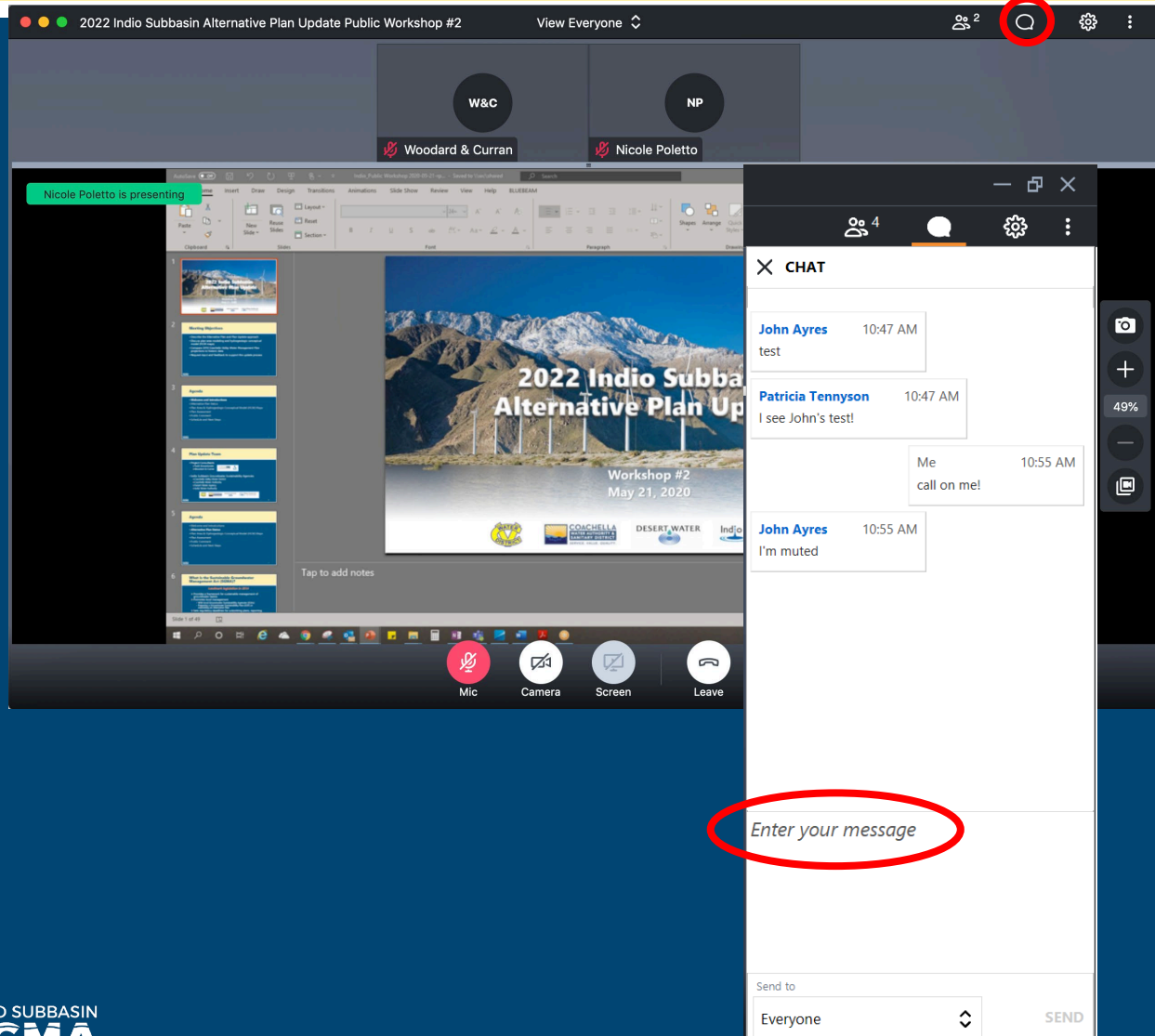
GoToMeeting – Quick How To

- Your screen should look like this:



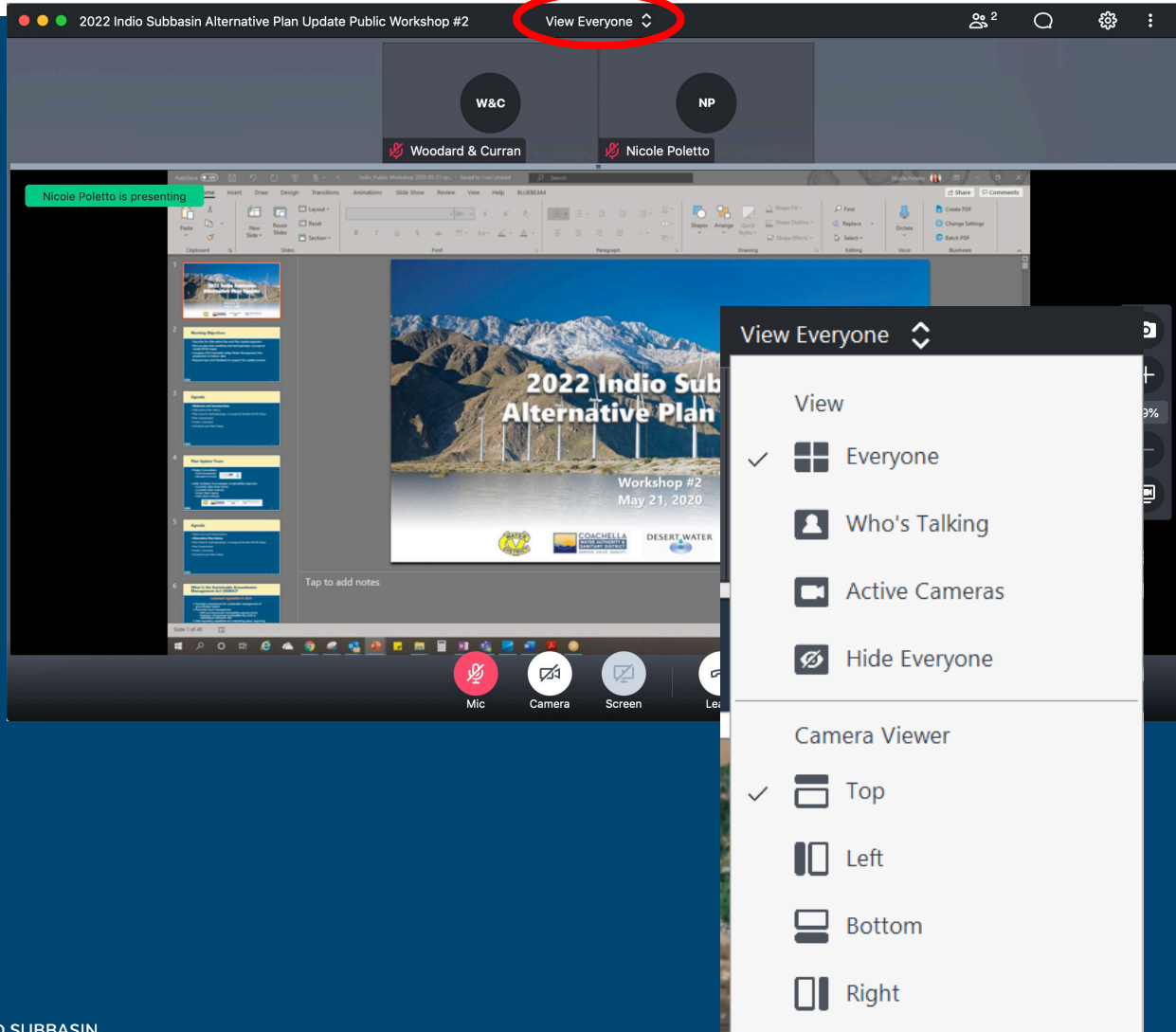
- Turn on/off your Mic (mute) and Camera (video) using the controls along the bottom
- During the meeting, you may need to wiggle your mouse to make the controls appear
- For Callers - use *6 to unmute on the phone

GoToMeeting – How to Ask a Question



- Let us know you have a question by clicking the **Chat** icon in the top right
- Click on *Enter your message*, type your message in the Chat and hit SEND
- Our organizer will mute everyone at the beginning of the meeting
- Once we receive your Chat and can pause to answer your question:
 - ❖ Our meeting organizer will unmute you to relay your question or comment
 - ❖ Please also check your phone/computer to make sure you're not muted there too
- Phone only: we will unmute all callers and ask for your questions or comments

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

- Overview and status of the Alternative Plan Update
- Discuss the Plan Area, Hydrogeologic Conceptual Model (HCM), and Groundwater Model
- Compare 2010 *Coachella Valley Water Management Plan* projections to historic data
- Request input and feedback to support the Plan Update

Agenda

- **Welcome and Introductions**
- Alternative Plan Status
- Plan Area
- Hydrogeologic Conceptual Model (HCM)
- 2010 Plan Assessment
- Groundwater Model Assessment & Approach
- Public Comment
- Schedule and Next Steps

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



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What is the Sustainable Groundwater Management Act (SGMA)?

Landmark legislation in 2014

- Provides a framework for sustainable management of groundwater basins
- Promotes local management
 - ❖ With local Groundwater Sustainability Agencies (GSAs)
 - ❖ Prepare a Groundwater Sustainability Plan (GSP) or Alternative Plan
- Sets regulatory deadlines for submitting plans, reporting progress, and achieving sustainable management
- Offers State assistance
 - ❖ Funding, data, and technical support

What is Sustainable Management?

Management and use of groundwater in a manner that can be maintained without causing undesirable results:



**Chronic lowering of
Groundwater Levels**



~~**Seawater Intrusion**~~



**Reduction of
Groundwater Storage**



**Groundwater Quality
Degradation**



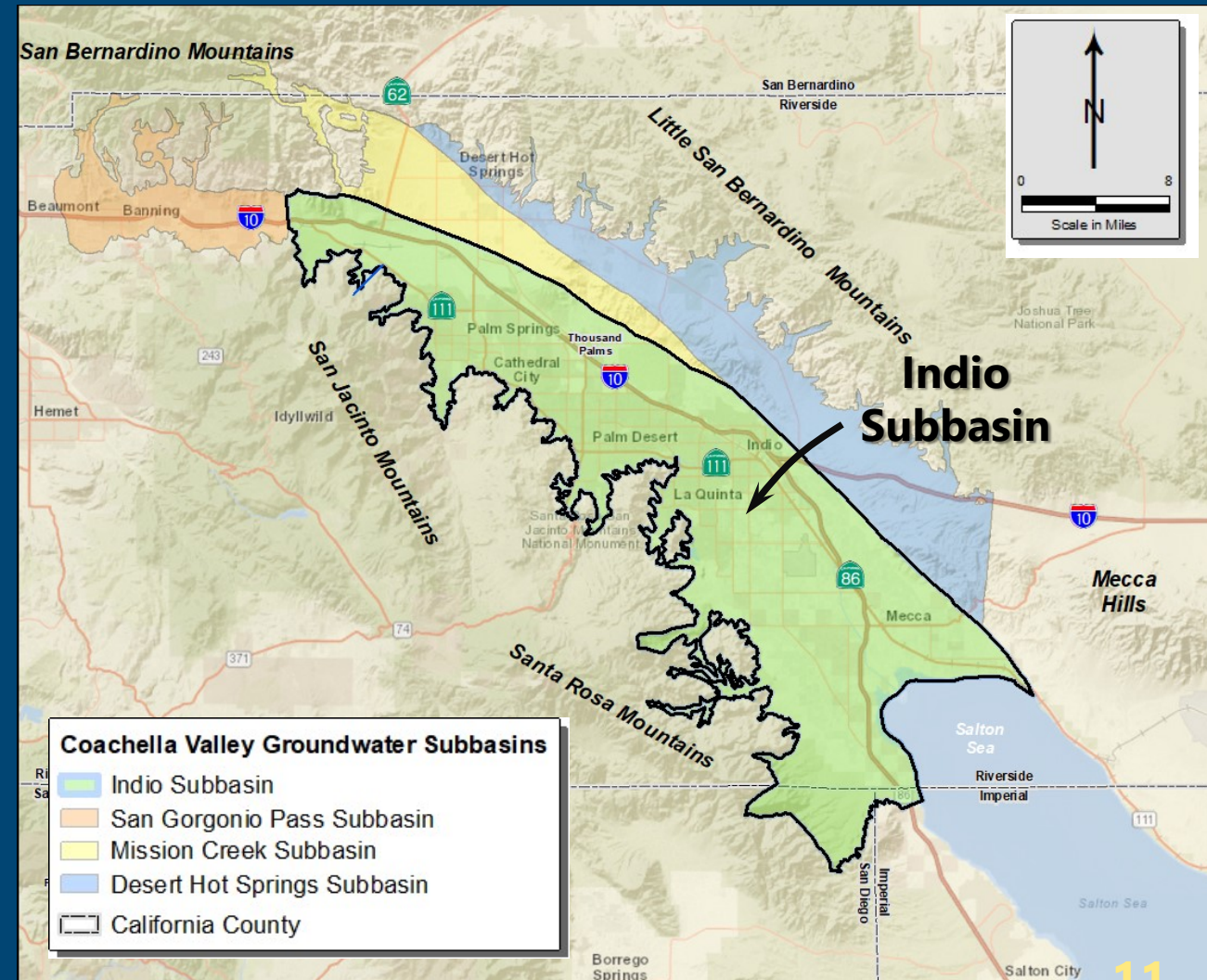
Land Subsidence



**Depletion of
Interconnected Surface
Water**

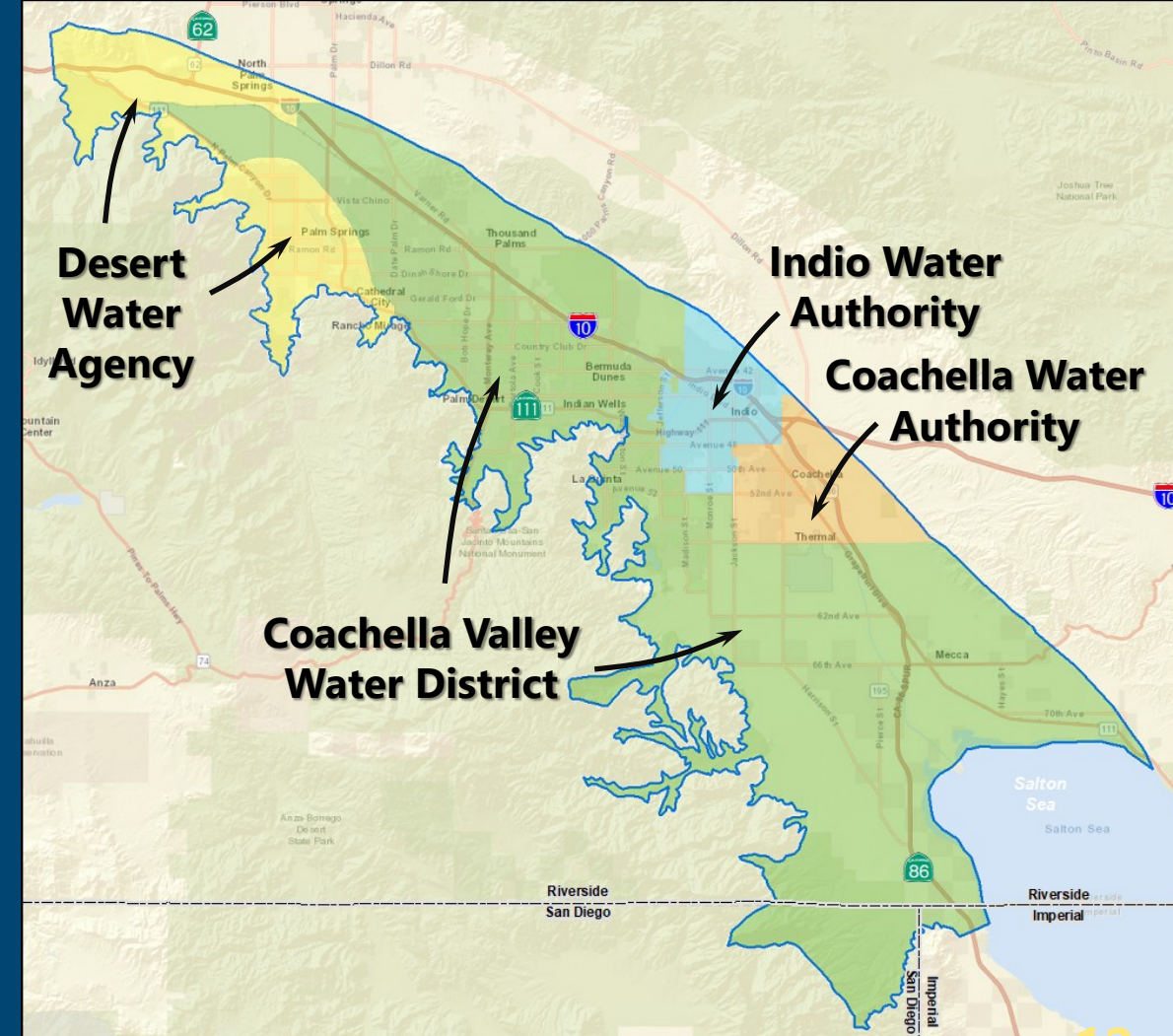
How does SGMA Apply to the Indio Subbasin?

- Defines Indio Subbasin as medium priority, thus subject to SGMA
- Recognizes existing *2010 Coachella Valley Water Management Plan (CVWMP)*, approved as an Alternative Plan
- Recommends that GSAs quantify sustainability criteria and additional elements in Plan Update
- Requires the Indio Subbasin to be sustainably managed within 20 years



What are the Roles/Responsibilities of GSAs?

- Each GSA has responsibility and authority for groundwater management within their respective boundaries
- Historical and ongoing cooperation
 - ❖ Memorandum of Understanding
 - ❖ Joint submission of Alternative Plan
 - ❖ Collaboration on Annual Reports and 5-Year Plan Updates



What is the Alternative Plan?

- *2010 CVWMP = Indio Subbasin Alternative Plan*
 - ❖ Builds on existing plans and long history of active local water management
 - ❖ Assessed future growth and land use changes
 - ❖ Estimated future water demand and supplies
 - ❖ Identified management actions needed to meet current and future water demands in a cost effective and reliable manner
 - ❖ Established data collection and monitoring programs to track groundwater conditions and Plan performance
 - ❖ Fulfills SGMA requirement for an Alternative to a Groundwater Sustainability Plan (GSP)
 - ❖ Next update due by January 1, 2022

Plan Update – Tasks

1

- Assess existing Plan

2

- Update and process datasets

3

- Document current groundwater conditions

4

- Estimate future water demand and supplies

5

- Evaluate management actions and update implementation plan

6

- Simulate groundwater response to future conditions

7

- Establish quantifiable sustainability goals and criteria

8

- Assess data collection/monitoring programs

9

- Develop and implement stakeholder and public outreach

Your Participation and Input are Important

- Our goals are to:
 - ❖ Enhance public understanding about water resources in the Indio Subbasin
 - ❖ Keep you – the public and stakeholders – informed about the Plan Update process
 - ❖ Engage diverse interested parties and stakeholders
 - ❖ Make sure we incorporate best available information
 - ❖ Respond to your concerns

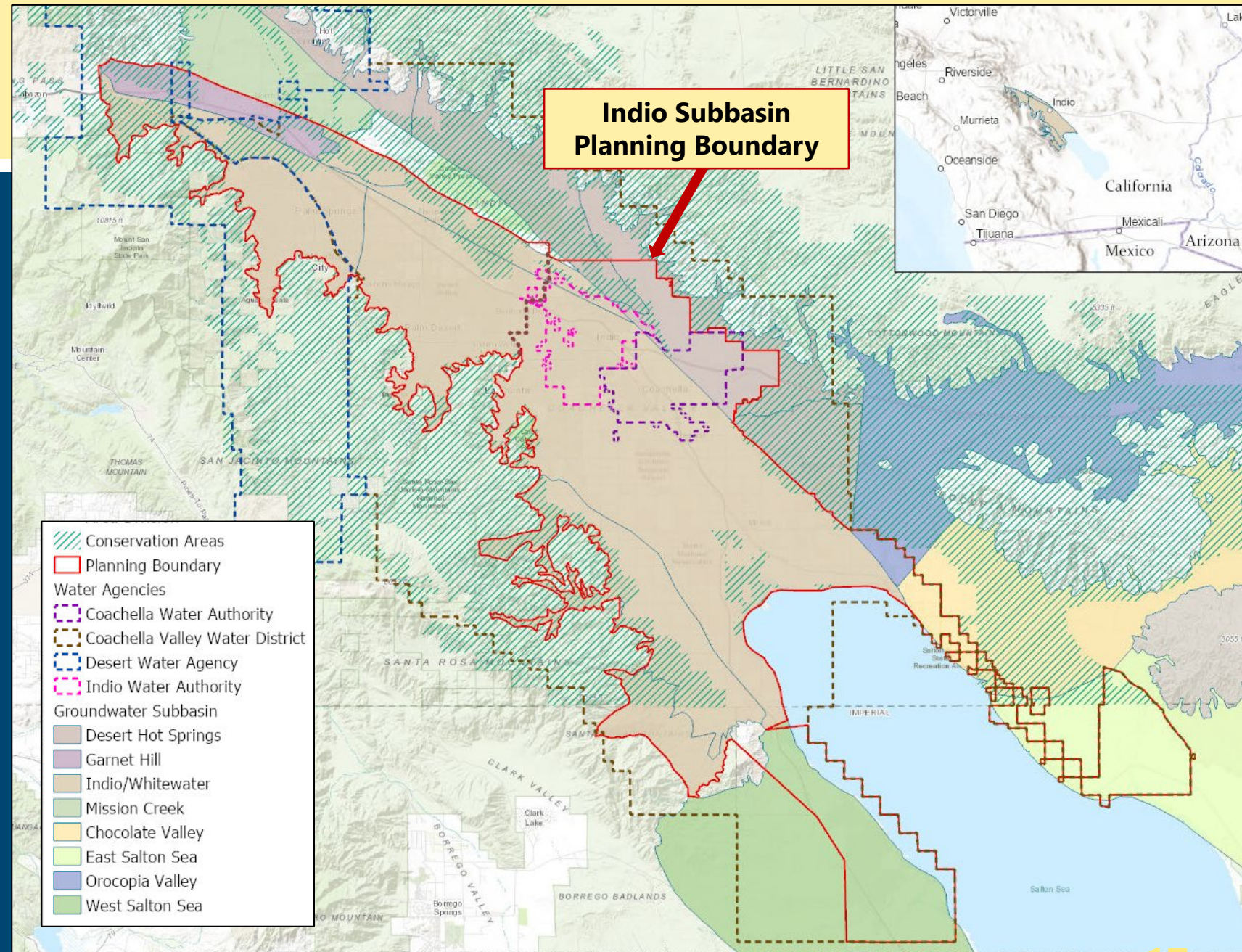
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Plan Area

Planning Boundary

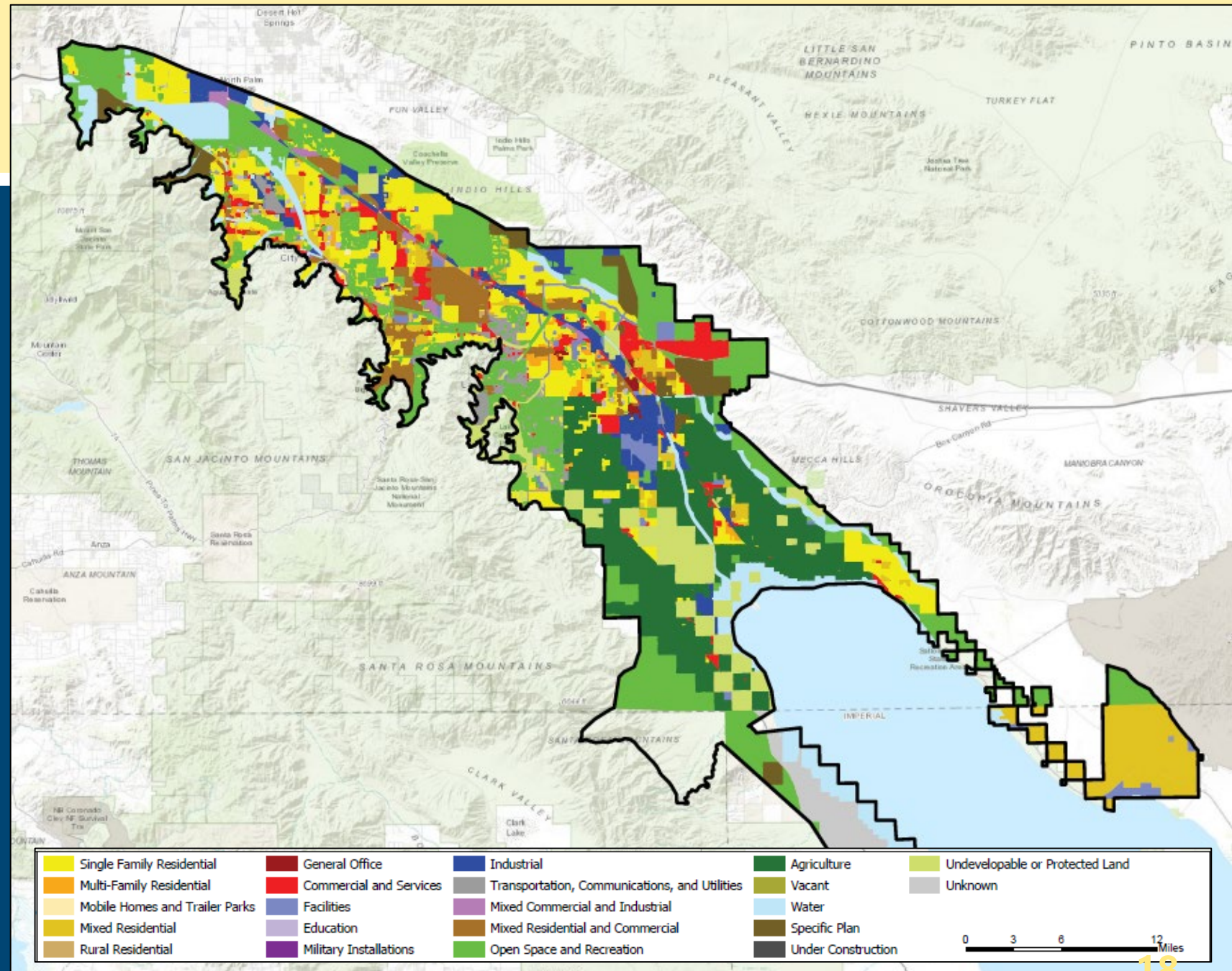
- All of Indio Subbasin
- Extends east to include potential sphere of influence for IWA and CWA
- Extends south to include portions of CVWD service area in the northeast and northwest shores of the Salton Sea



Plan Area

Land Use

- General Plan Land Use - Buildout
- Southern California Association of Governments (SCAG)
- 2020 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS)

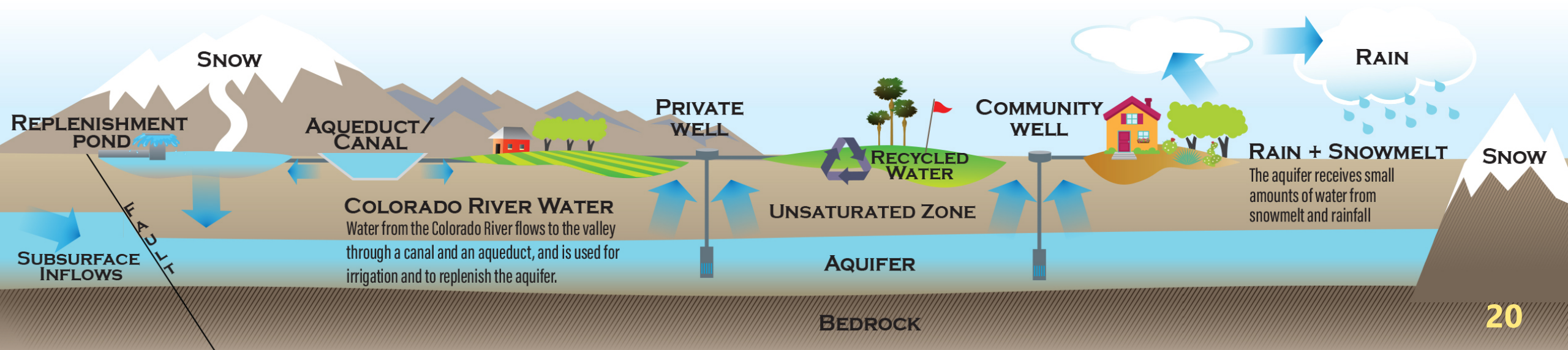


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Hydrogeologic Conceptual Model

- Provides framework for understanding the movement of surface water and groundwater in the Indio Subbasin
- Provides context to identify major water budget components
- Provides basis for development of numerical groundwater model
- Helps to identify data gaps



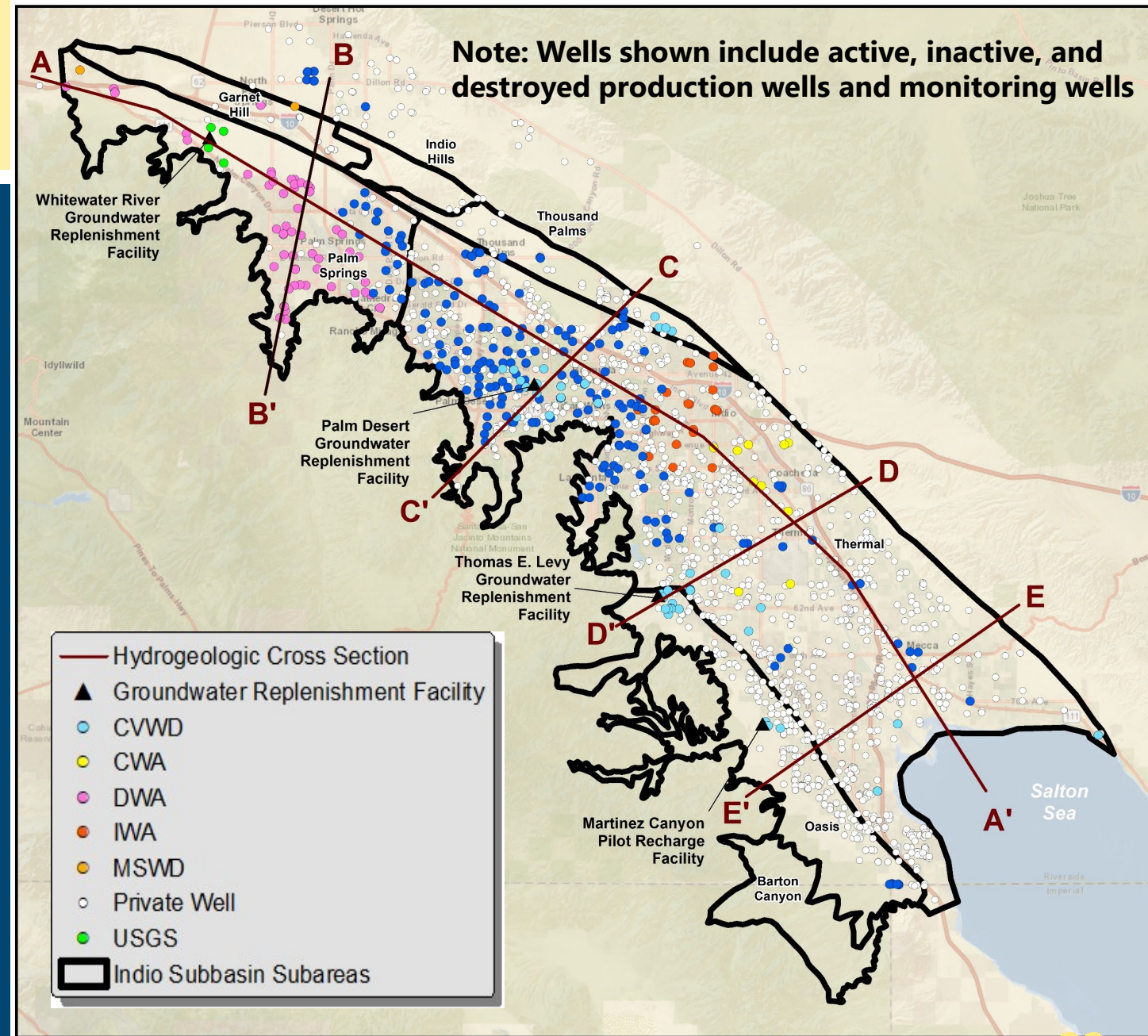
Hydrogeologic Conceptual Model

HCM Components:

1. Hydrogeologic Cross Sections
2. Surface Water and Natural Recharge
3. Groundwater Production
4. Groundwater Levels
5. Groundwater Quality
6. Land Subsidence
7. Groundwater Dependent Ecosystems

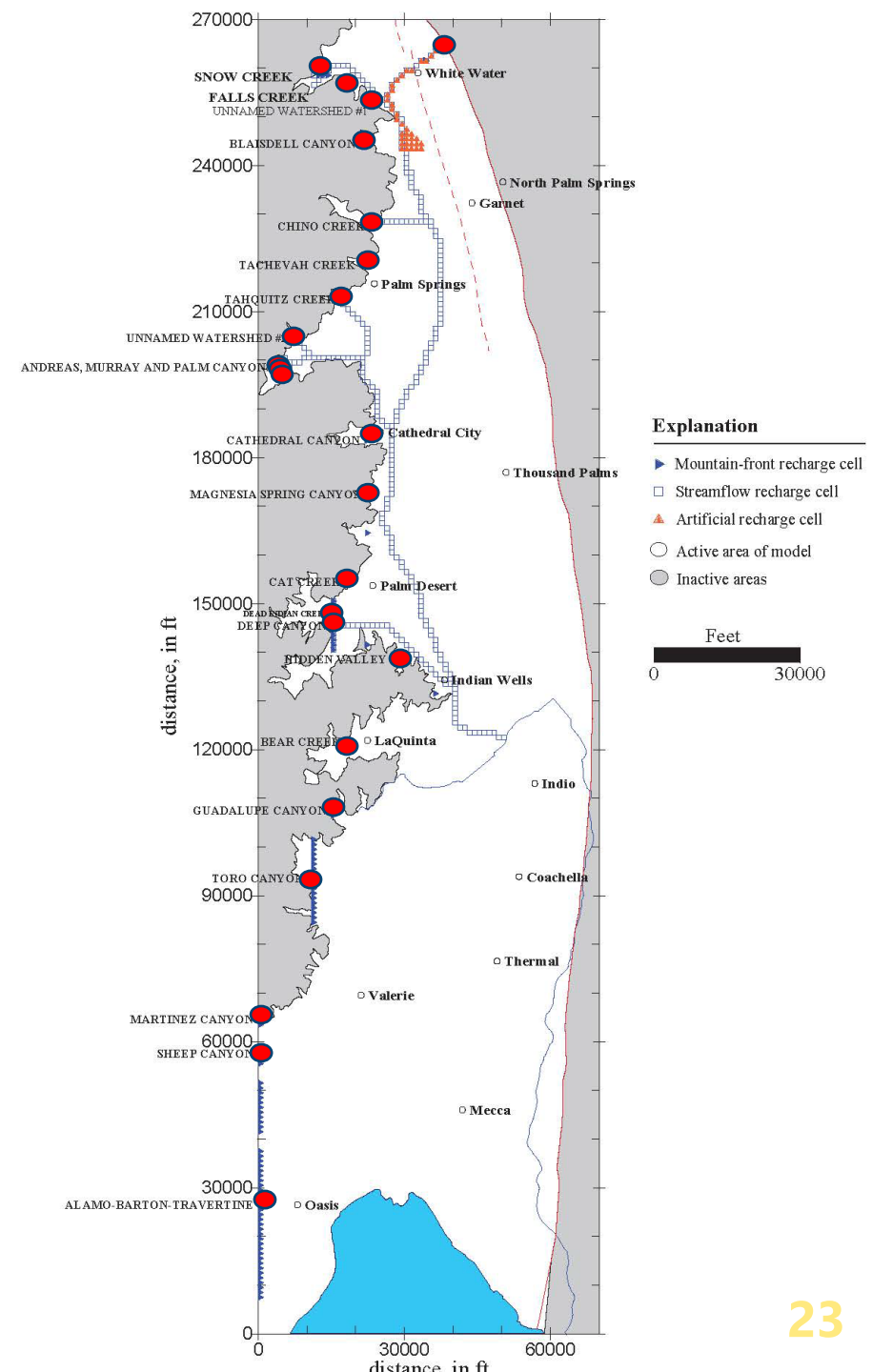
Hydrogeologic Cross Sections

- Illustrates basin geometry and subsurface conditions
 - ❖ Major aquifers and aquitard units
 - ❖ Effects of faults
 - ❖ Groundwater levels
 - ❖ Production well screen intervals
- Five cross sections (in-progress)
 - ❖ Covers five main Indio subareas
 - ❖ Oriented parallel and perpendicular to flow
 - ❖ Crosses major subbasin boundaries and faults
 - ❖ Includes groundwater replenishment areas



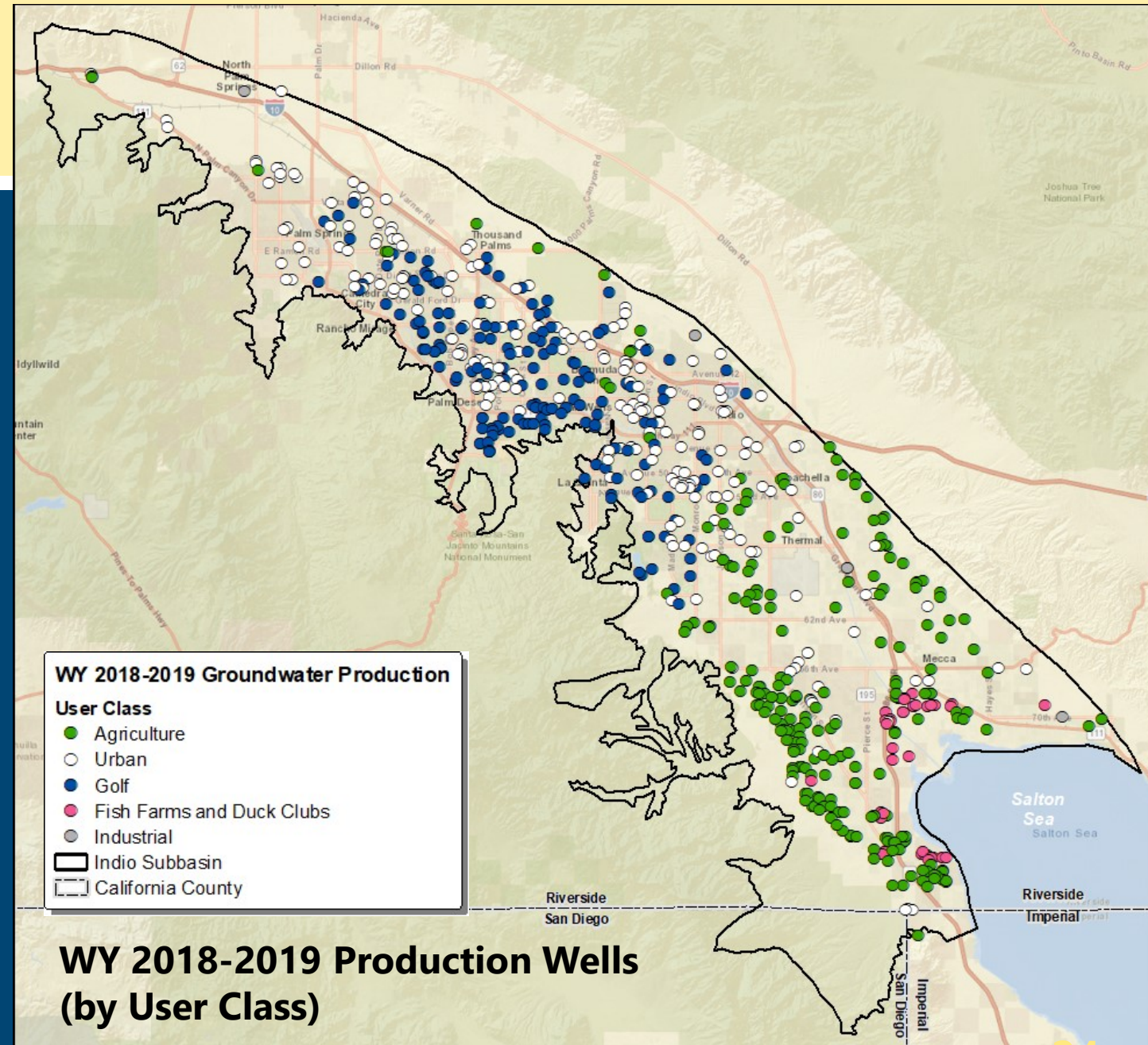
Surface Water and Natural Recharge

- 24 tributary mountain watersheds generate runoff that recharges the Indio Subbasin
 - ❖ Streamflow recharge
 - ❖ Mountain-front recharge
- Update runoff/recharge estimates (in-progress)
 - ❖ Precipitation data from 18 weather stations
 - ❖ Streamflow data from 20 USGS gage stations
- Develop map showing watersheds and stream locations entering Indio Subbasin (in-progress)



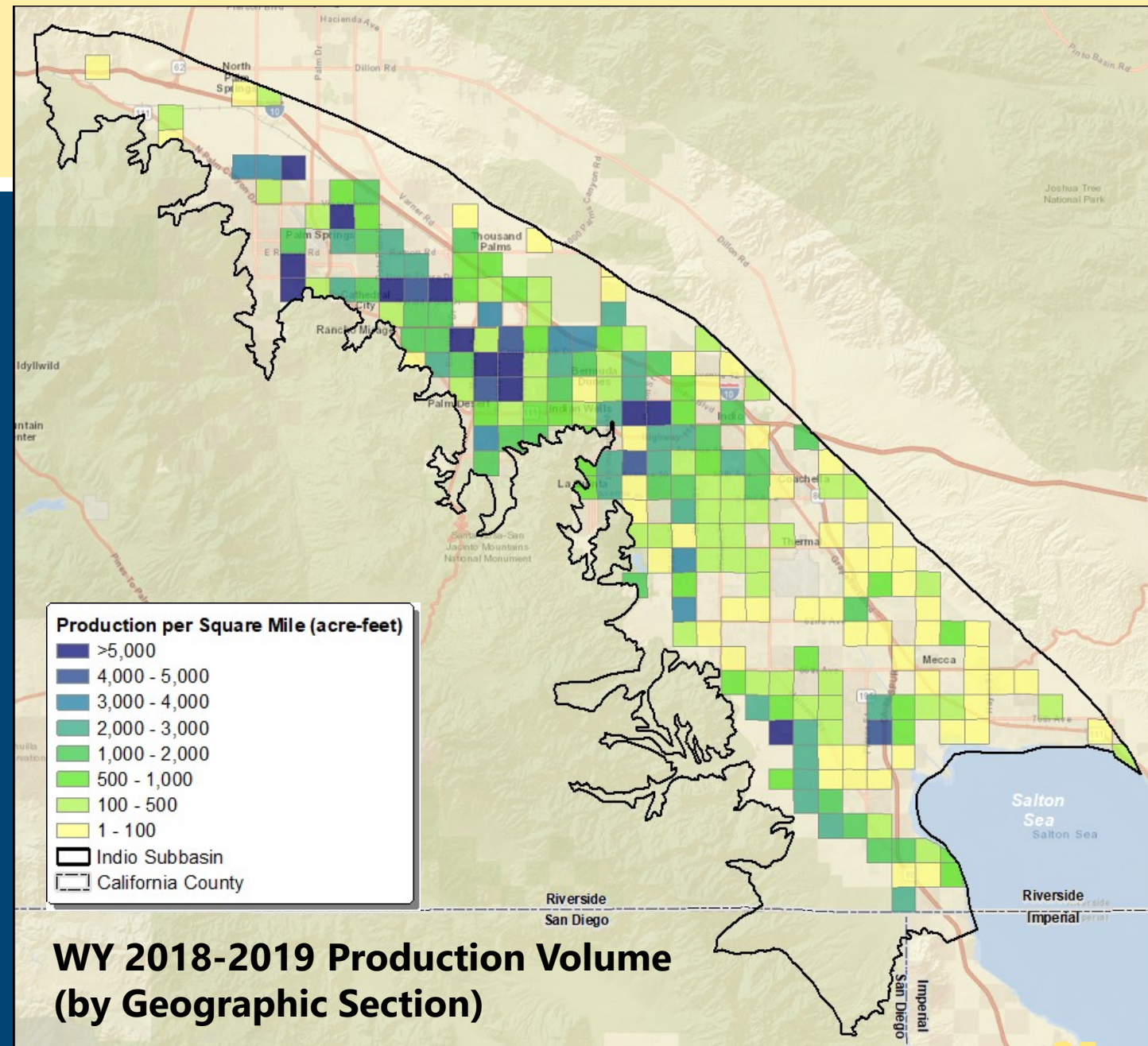
Groundwater Production

- Annual Groundwater Production Mapping
 - ❖ Reported production by well
 - ❖ Currently estimated production
 - Tribal pumping
 - Minimal pumpers
 - ❖ Maps showing wells by user type (in-progress)



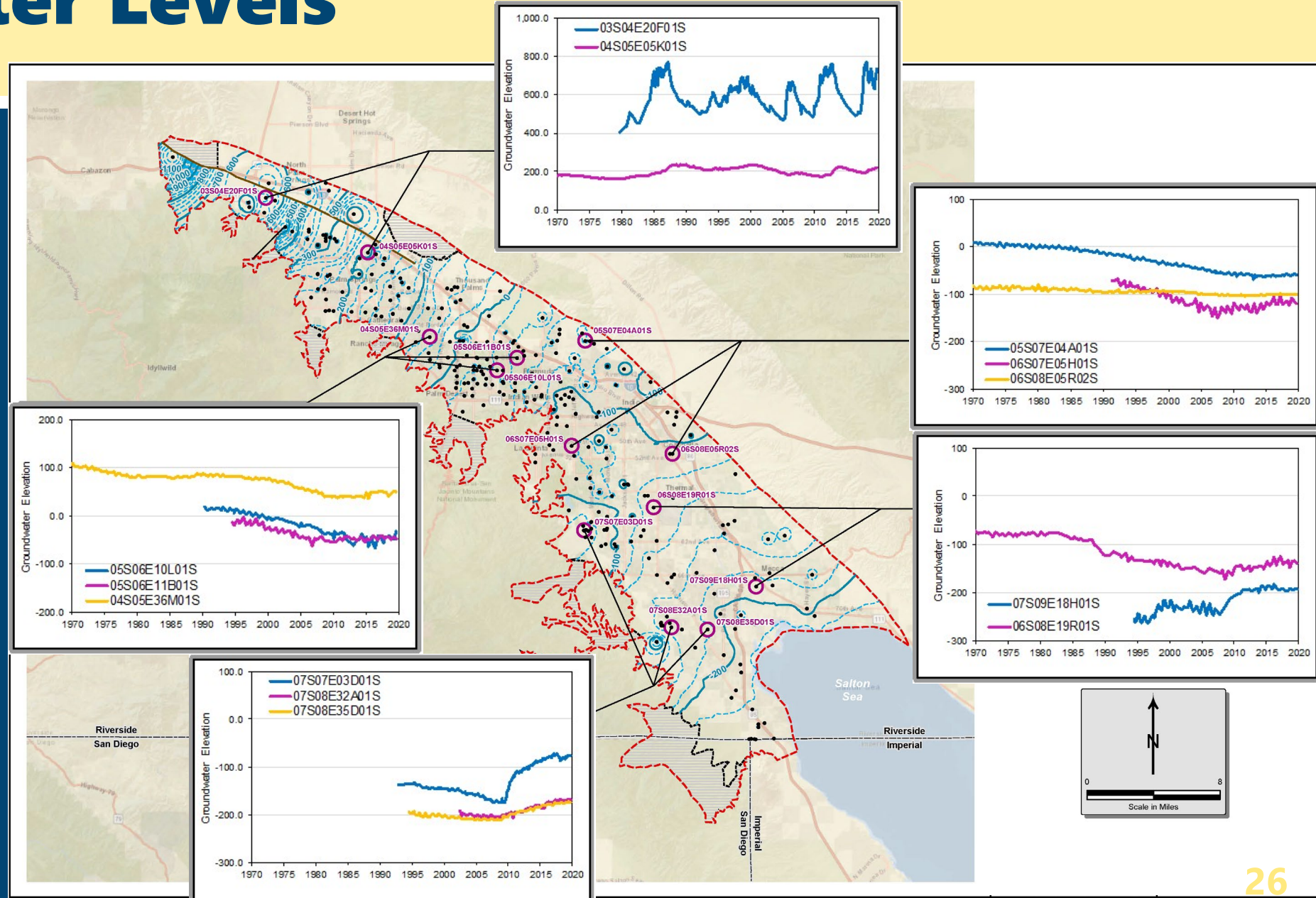
Groundwater Production

- Annual Groundwater Production Mapping
 - ❖ Annual production maps aggregated by geographic section



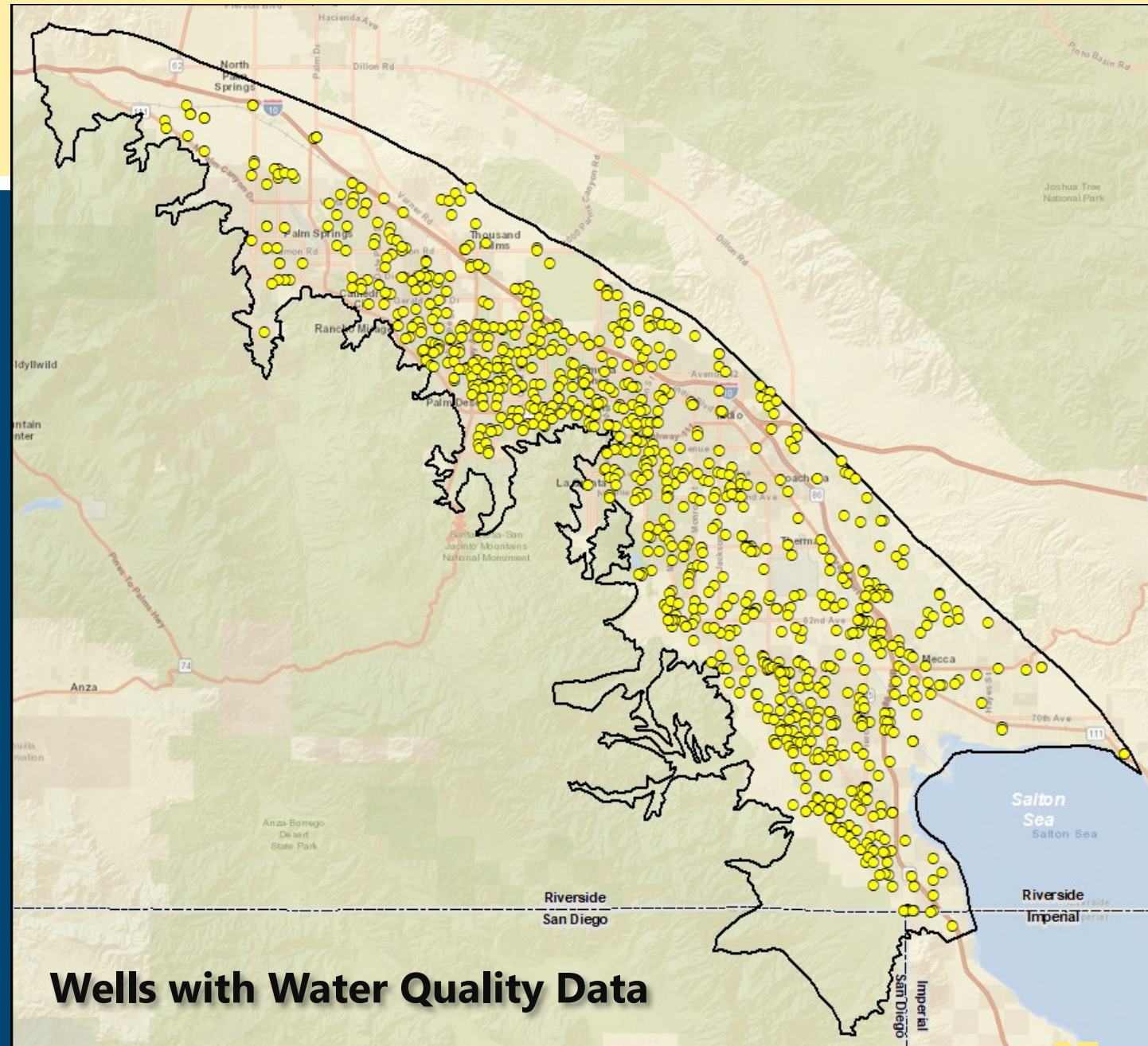
Groundwater Levels

- Groundwater level maps
 - ❖ Supports assessment of updated model
 - ❖ Provides basis for evaluating sustainability criteria
- Mapping to include wells distributed across the subbasin
- Hydrograph maps (in-progress)



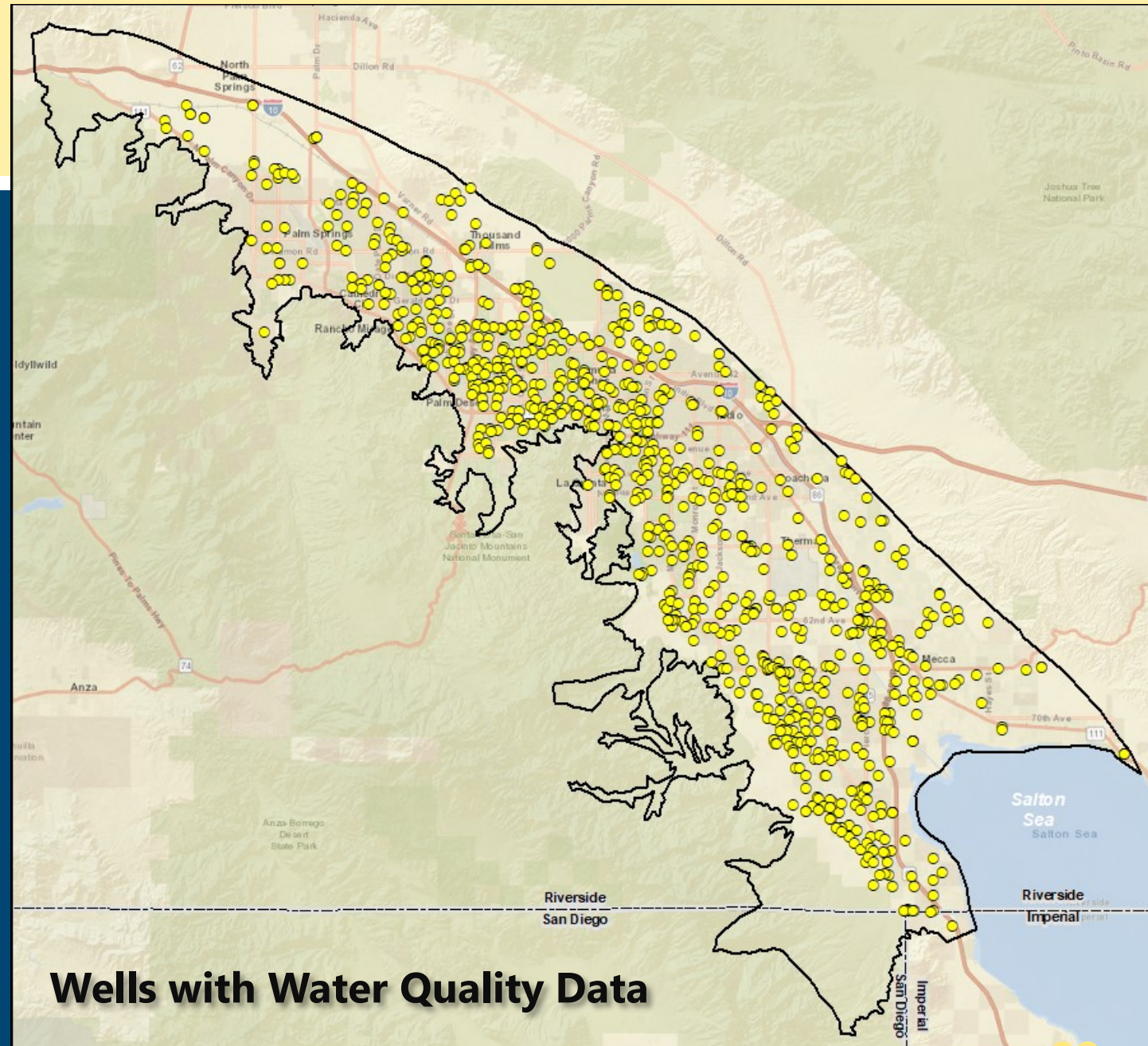
Groundwater Quality

- Constituents of Concern
 - ❖ Total Dissolved Solids
 - ❖ Nitrate
 - ❖ Arsenic
 - ❖ Chromium
 - ❖ Uranium
 - ❖ Perchlorate
 - ❖ Fluoride
 - ❖ Dibromochloropropane



Groundwater Quality

- Organizing and reviewing data (in-progress)
- Period of record: 1970 to 2019
- ~950 wells with water quality
- ~300,000 individual records



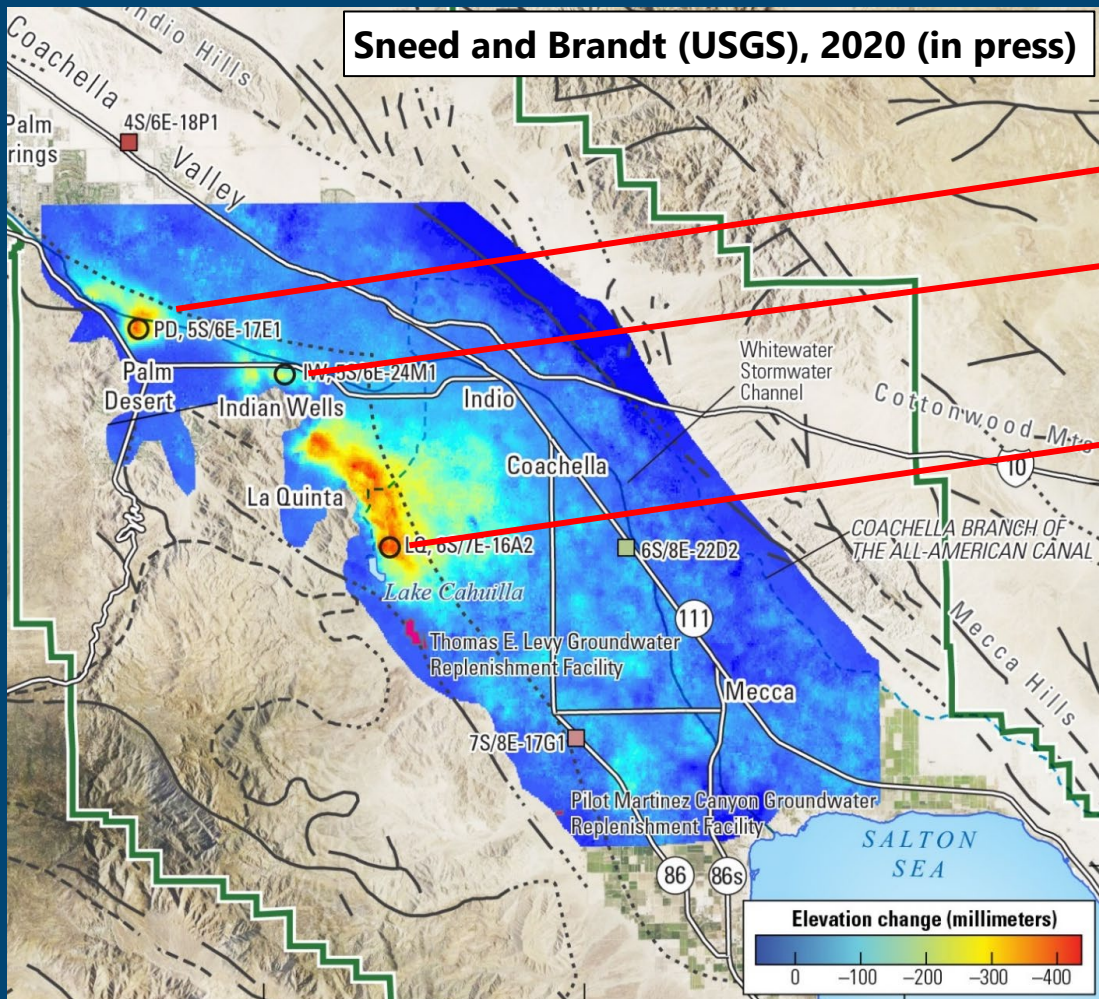
Land Subsidence

- Land Subsidence

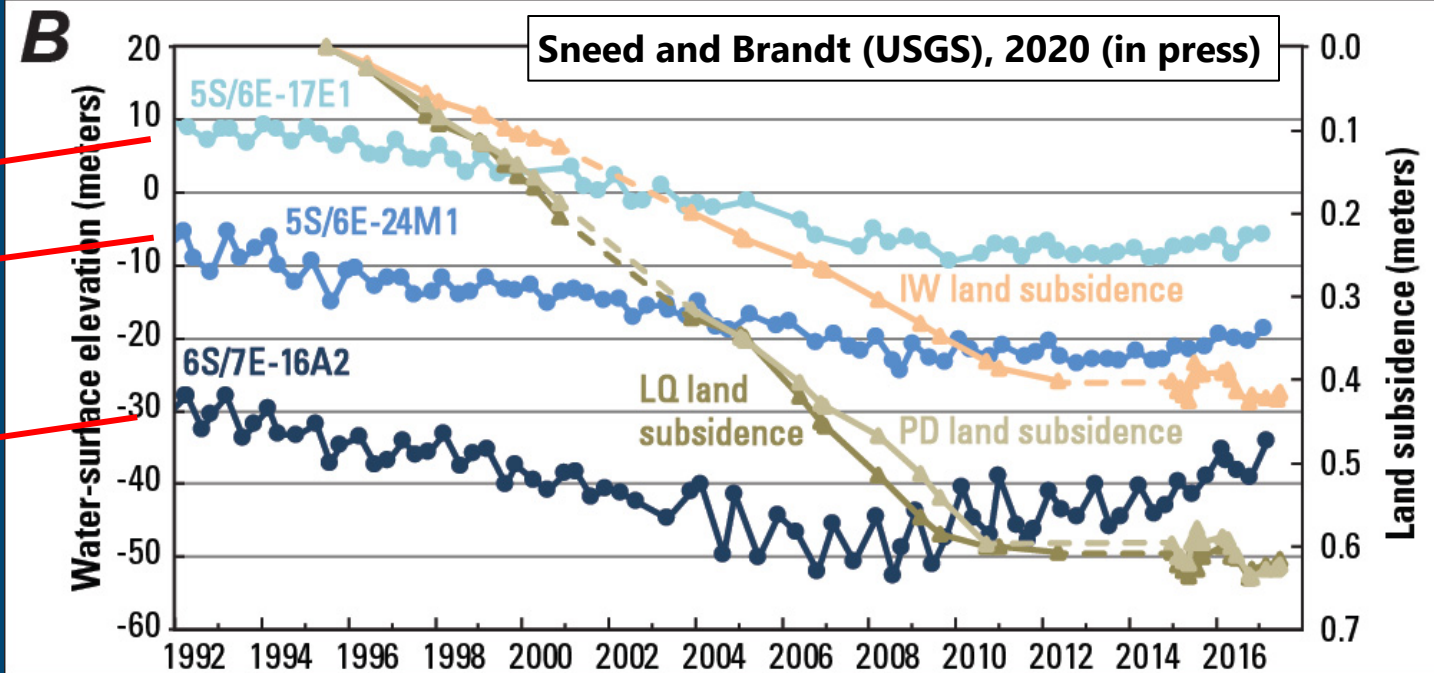
- ❖ Cooperative agreement between USGS and CVWD since 1996
- ❖ Series of papers published (1997, 2001, 2007, and 2014)
 - Evaluating land subsidence from 1930 to 2010
- ❖ Latest USGS report evaluating subsidence from 1995 to 2017 to be published later this year

Land Subsidence

Land Surface Elevation Change (1995-2017)



Groundwater levels / Land Subsidence Monitoring



- Subsidence up to 2.0 feet from 1995 to 2010
- Water level stabilization since 2010 has stopped or decreased the rate of subsidence significantly and even resulted in uplift in some areas

Groundwater Dependent Ecosystems

- Groundwater Dependent Ecosystems (GDEs)
 - ❖ Desktop evaluation (in-progress)
 - Assessment of Natural Communities Commonly Associated with Groundwater (NCCAG) data
 - Review of Coachella Valley Multi Species Habitat Conservation Plan
 - Assessment of Threatened & Endangered (T&E) species in Indio Subbasin
 - ❖ Biological field assessment
 - ❖ GDE summary report

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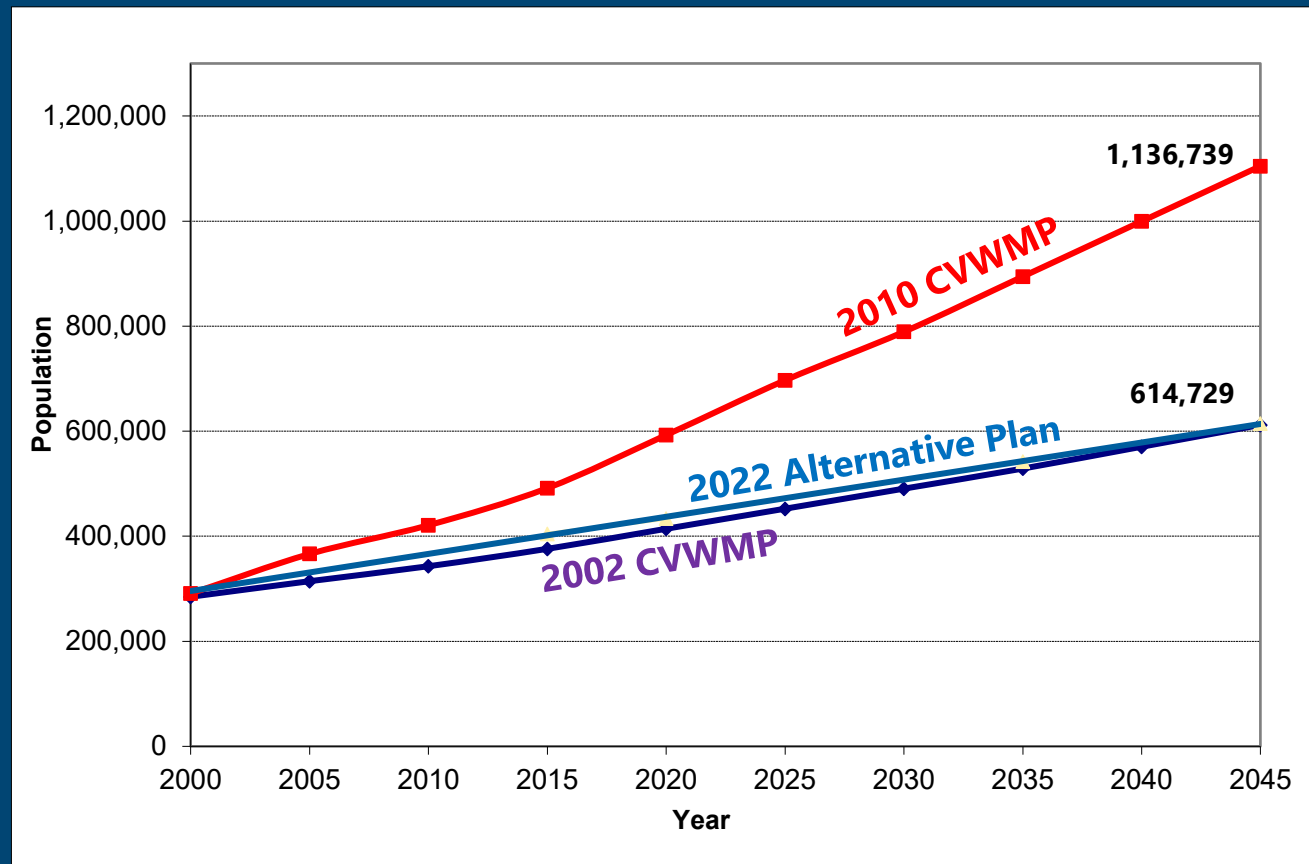
Plan Assessment

- Comparing *2010 CVWMP* projections to historical demand and supply data through CY2019 (in-progress)
- Processing data for:
 - ❖ Groundwater
 - ❖ State Water Project (SWP) exchange water
 - ❖ Colorado River (Canal) water
 - ❖ Surface water
 - ❖ Recycled water
- Revising projection assumptions to ensure they match current conditions and agreements (in-progress)

Population Growth

- 2002 CVWMP used Southern California Association of Governments (SCAG) 1998 data
- 2010 CVWMP used SCAG 2006 data
 - ❖ Based on rapid growth in Coachella Valley from 2000-2006
- Alternative Plan to use SCAG 2020 data
 - ❖ Forecast is closer to 2002 Plan projections

Population Projections

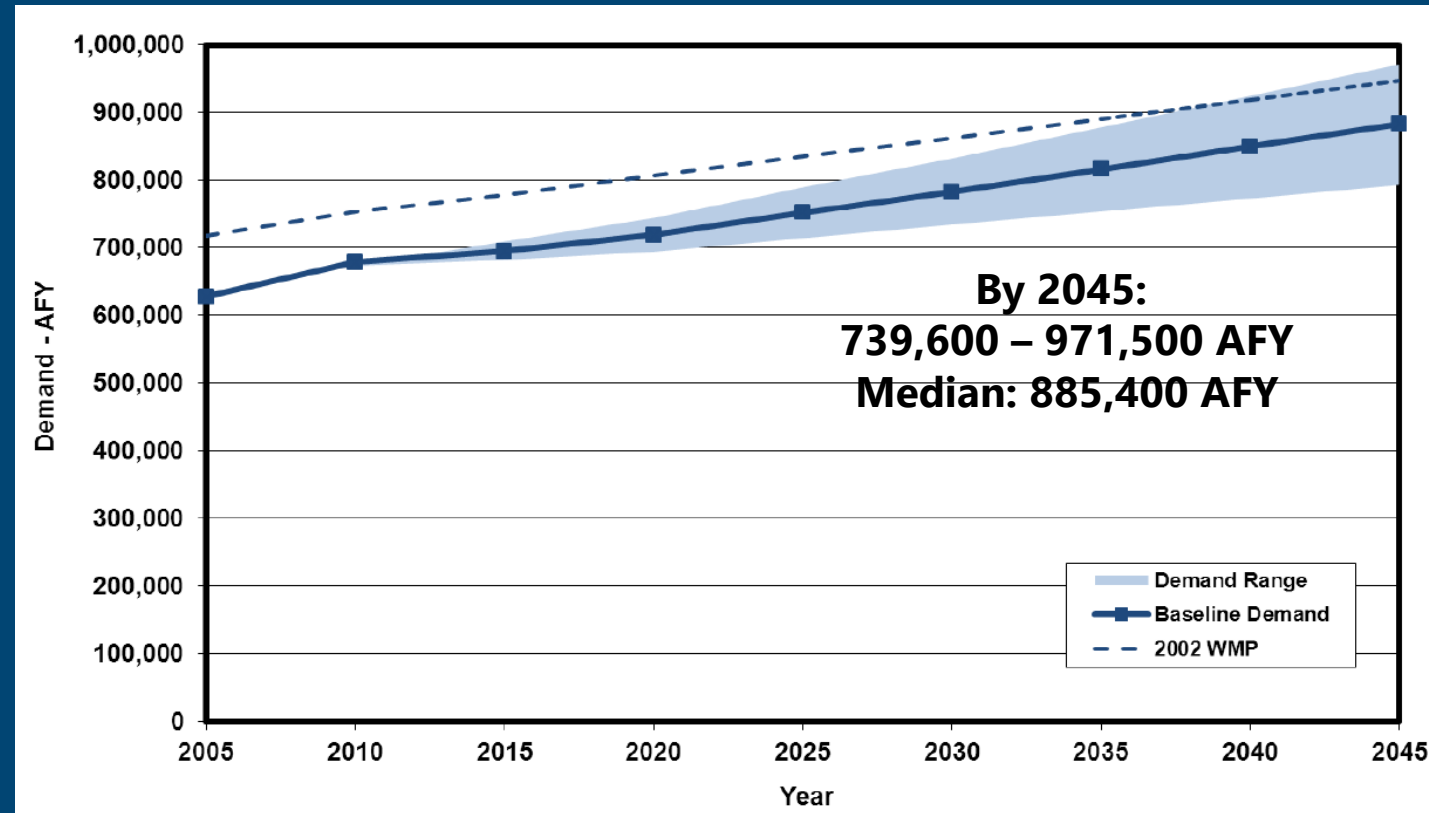


Water Demands

2010 Plan Assumptions:

- Urban growth occurs 50/50 on agricultural and vacant parcels
 - ❖ 371 gallons per capita per day (gpcd)
- Golf courses increase with population
 - ❖ 700-1,200 AFY/course
- Agricultural acreage declines as land is converted to urban uses
 - ❖ 6.28 AFY/acre
- Demands served by a portfolio of water supplies and conservation

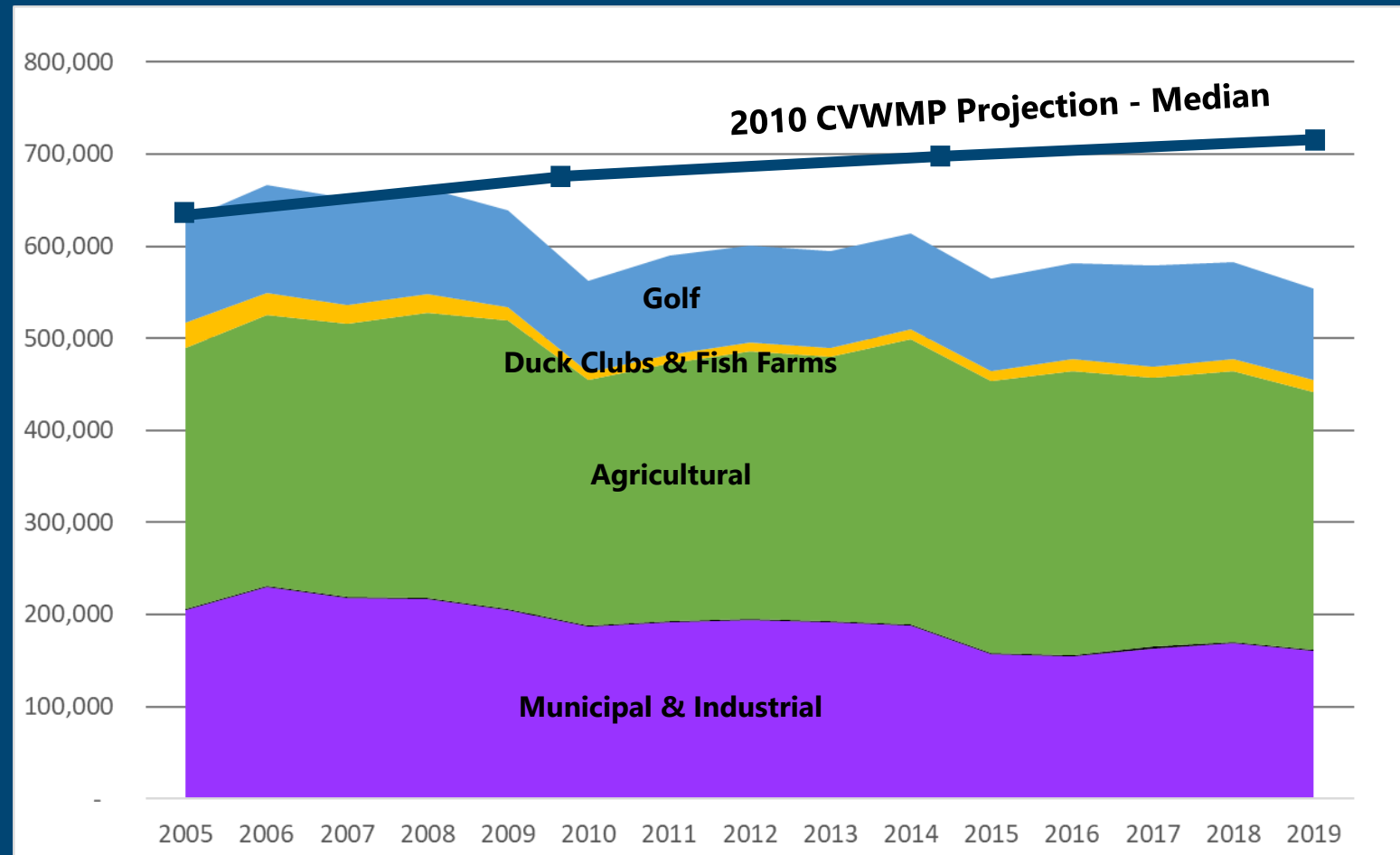
2010 CVWMP Demand Projection



Water Demands

- 2010 CVWMP projected a great deal of urbanization
 - ❖ Growth was not realized, and demand is below the projection
- Recent Statewide droughts have affected water use and encouraged conservation
 - ❖ 2007-2009
 - ❖ 2011-2015
- SBx7-7 (2009) mandated that water suppliers decrease per capita water usage 20% by 2020

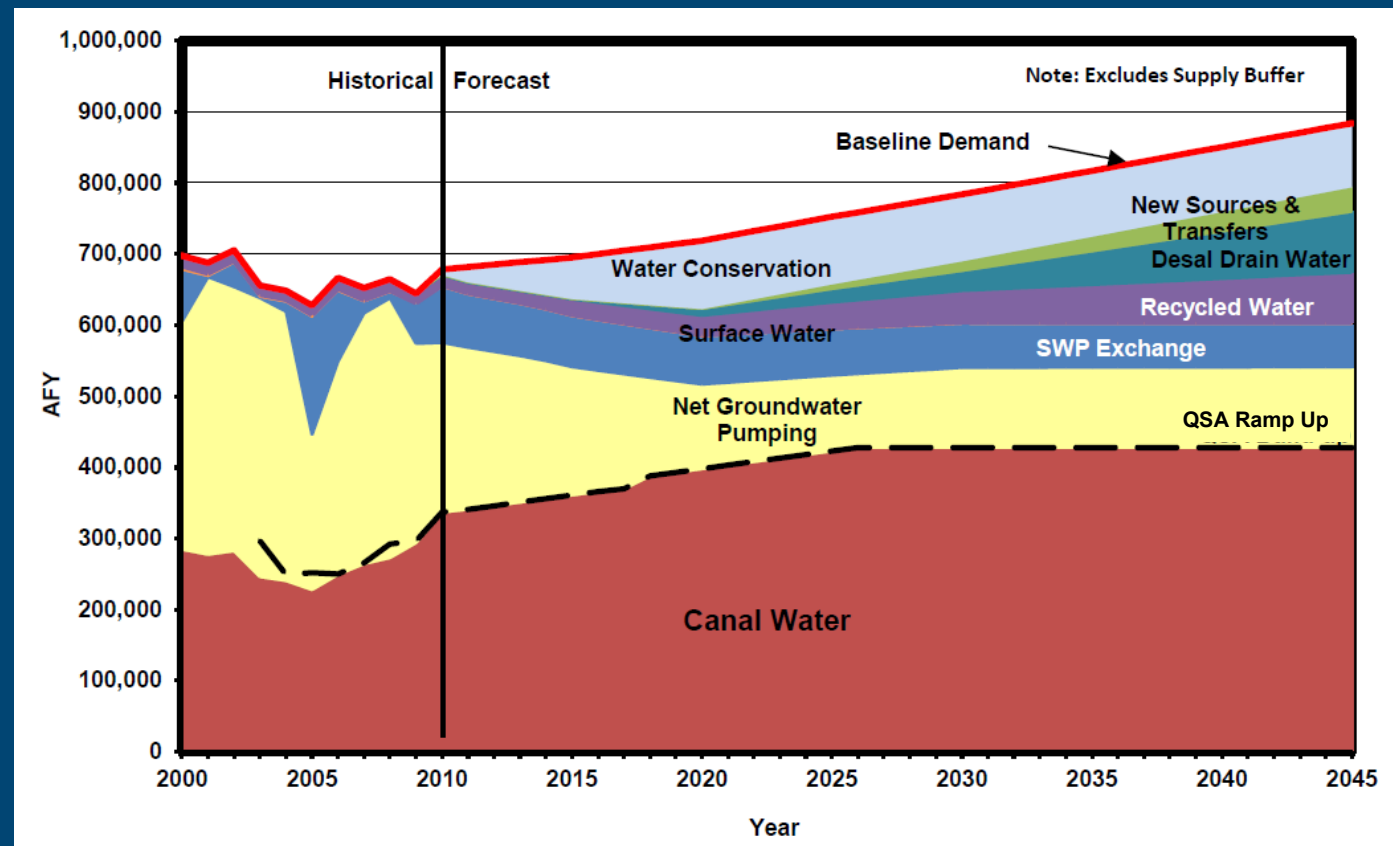
2005-2019 Water Use



Water Supply

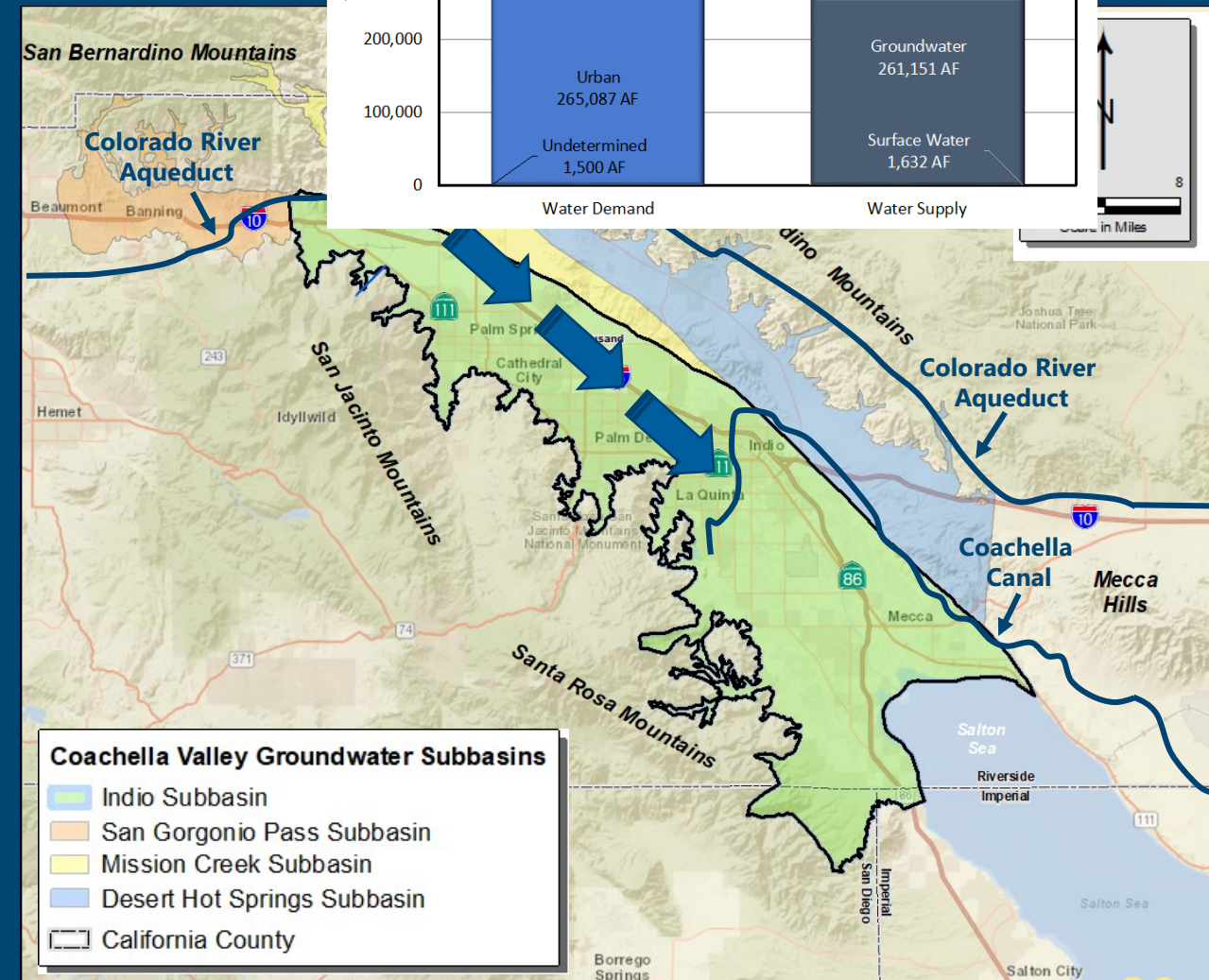
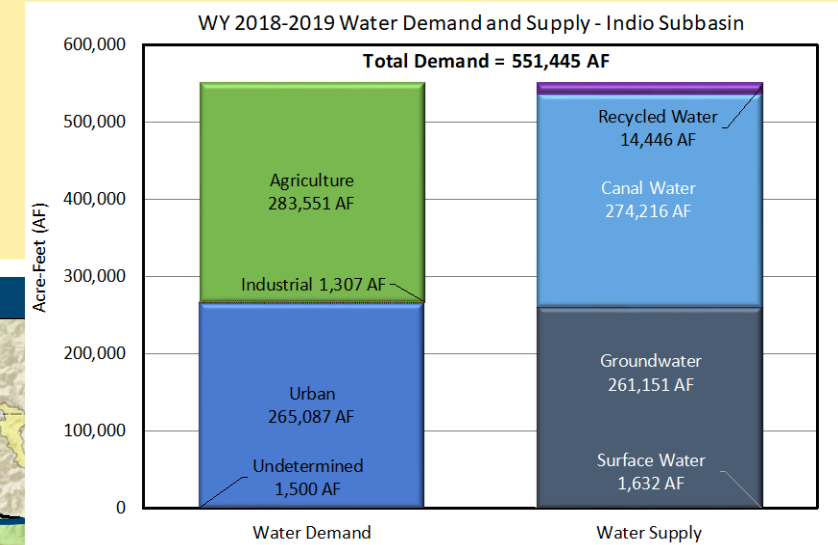
- Water conservation
- Groundwater **Groundwater replenishment**
- State Water Project (SWP) water
- Colorado River water
- Surface water
- Recycled water
- Projected:
 - ❖ Desalinated water from shallow semi-perched aquifer

2010 CVWMP Supply Projection



Groundwater

- Natural recharge of stream runoff and subsurface flow
 - ❖ Long-term average for natural recharge is ~59,000 AFY (11% of WY 2019 water supply)
- Replenishment water and source substitution are key to avoiding overdraft
- 2010 CVWMP Assumption:
 - ❖ 57,400 AFY of natural inflow (excludes direct use of surface water)

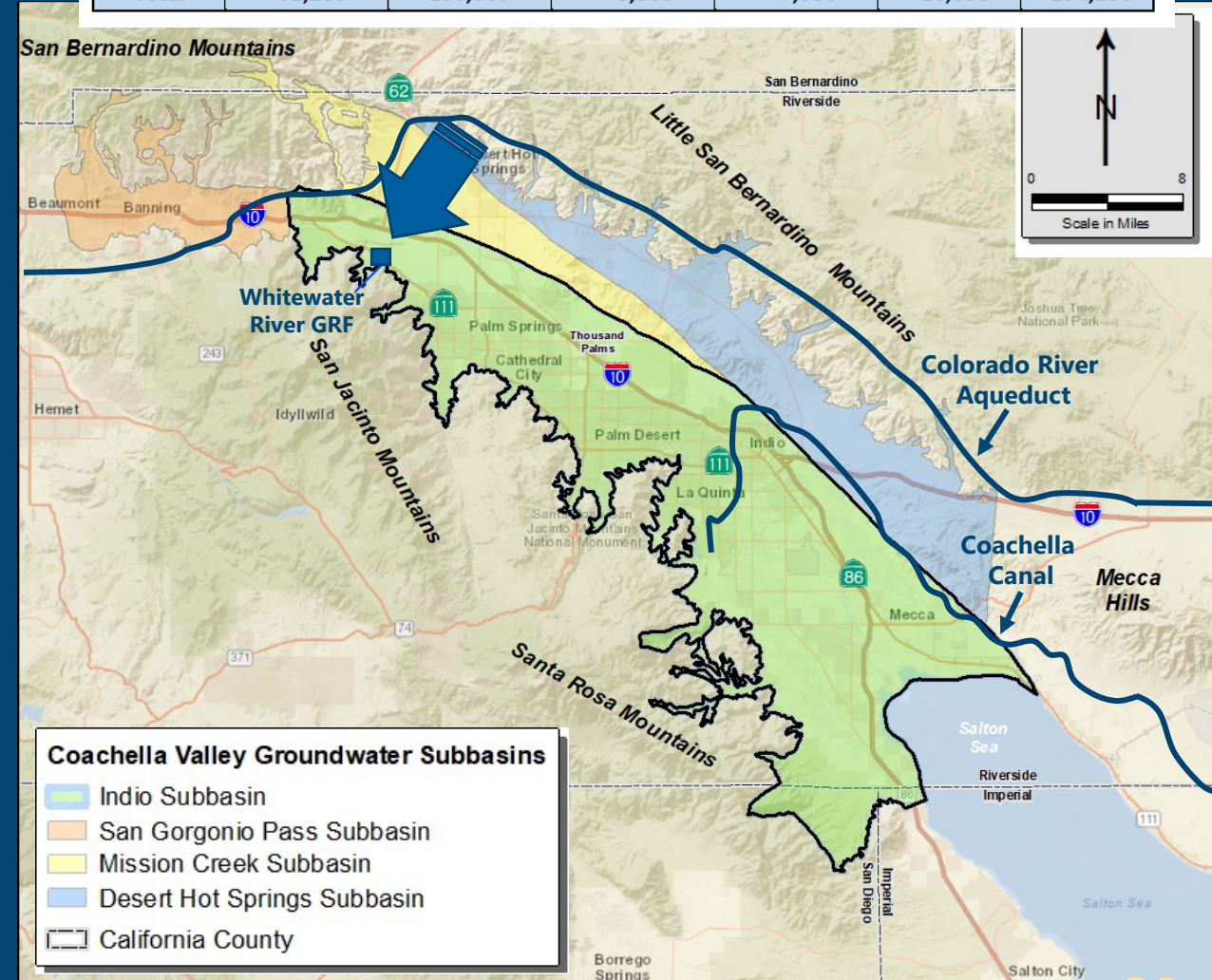


State Water Project (SWP) Water

- SWP water exchanged with MWD for Colorado River water
- Includes Table A Allocation and supplemental water
- Annually variable due to Northern California hydrology, which affects annual SWP supply and allocation
- Can include Advanced Delivery, which is accounted for in the region's SWP delivery balance
- Delivered:
 - ❖ Recharged at Whitewater River GRF
- 2010 Plan Assumptions:
 - ❖ Receive 60% decreasing to 50% by 2045 for Table A Allocation

State Water Project Table A Amounts

Agency	Original SWP Table A (AFY)	Metropolitan Transfer (AFY)	Tulare Lake Basin Transfer #1 (AFY)	Tulare Lake Basin Transfer #2 (AFY)	Berrenda Transfer (AFY)	Total (AFY)
CVWD	23,100	88,100	9,900	5,250	12,000	138,350
DWA	38,100	11,900	-	1,750	4,000	55,750
Total	61,200	100,000	9,900	7,000	16,000	194,100



Colorado River Water

■ QSA Entitlement

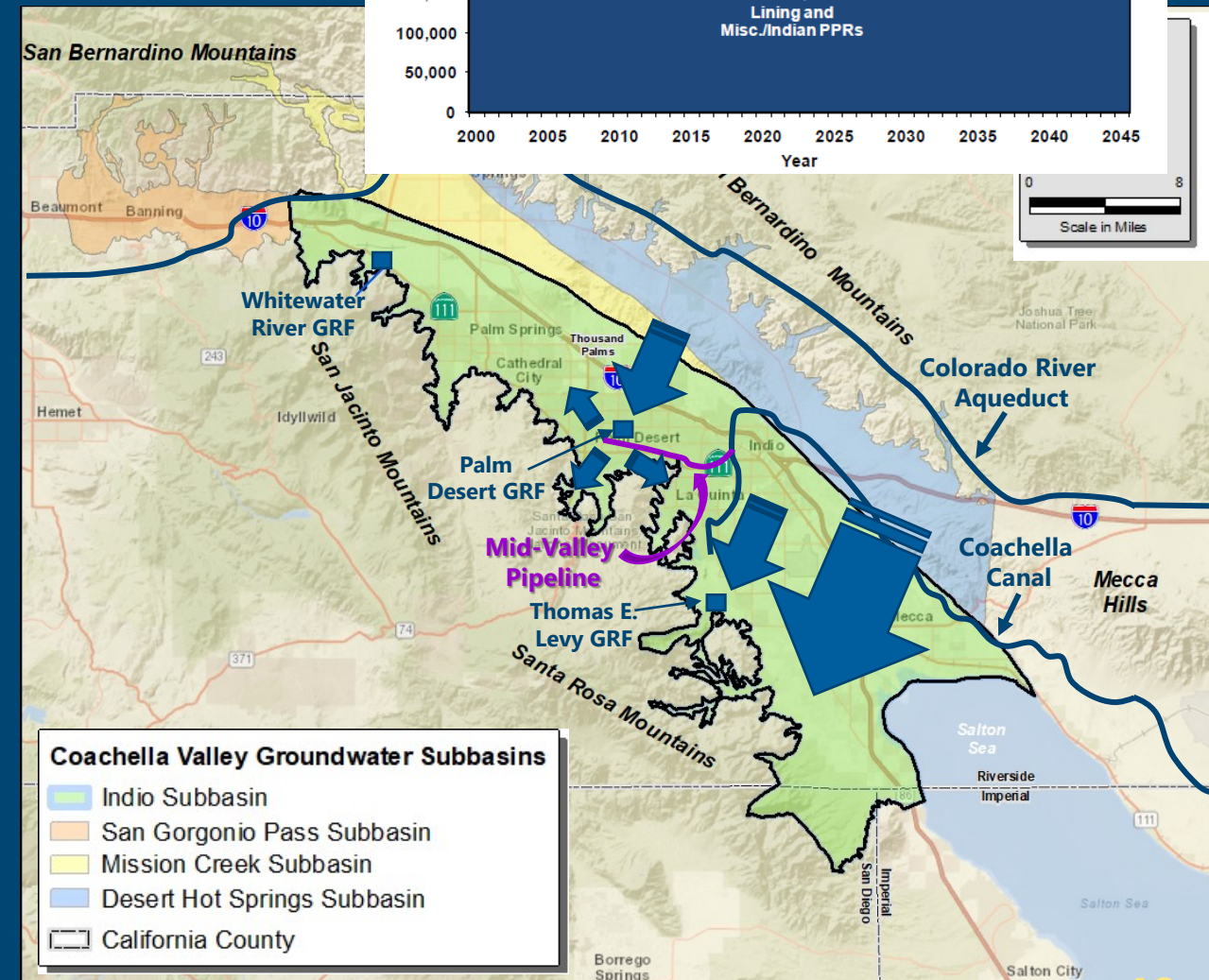
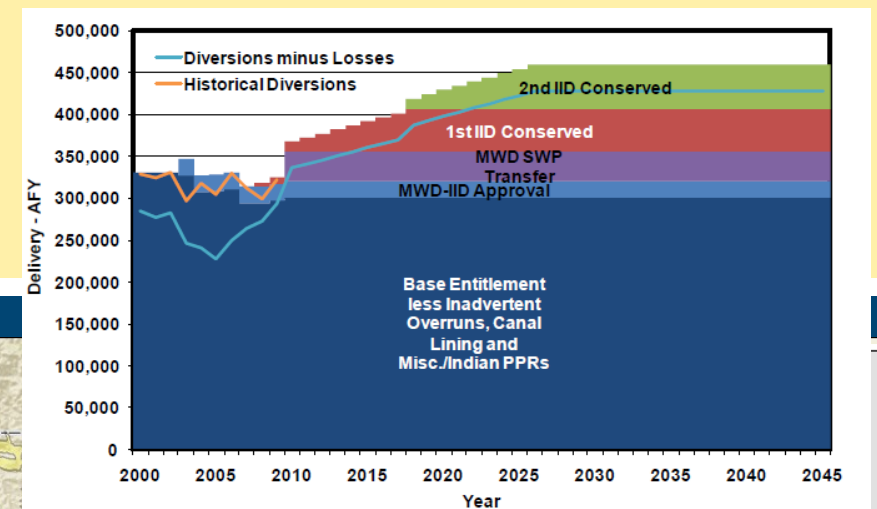
- ❖ Base Allotment – 330,000 AFY
- ❖ With Acquisitions/Reductions– Ramps Up to 424,000 AFY by 2026
- ❖ MWD Table A Transfer – 35,000 AFY

■ Delivered:

- ❖ Direct delivery to agriculture, golf, and urban users
- ❖ Recharged at Thomas E. Levy GRF and Palm Desert GRF
- ❖ MWD Table A Transfer can be delivered at Whitewater GRF or Coachella Canal

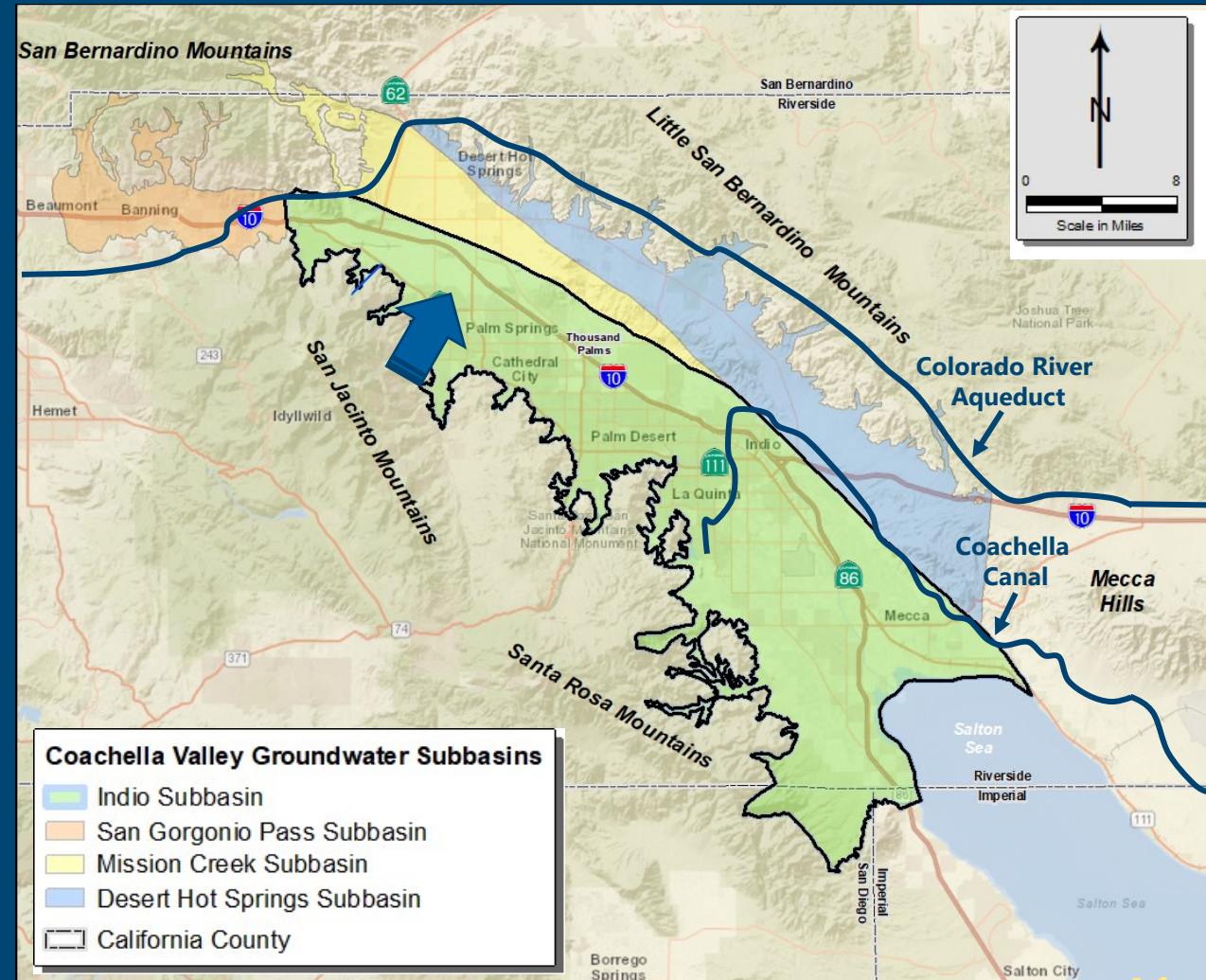
■ 2010 Plan Assumptions:

- ❖ Full allocation minus conveyance losses of 31,000 AFY



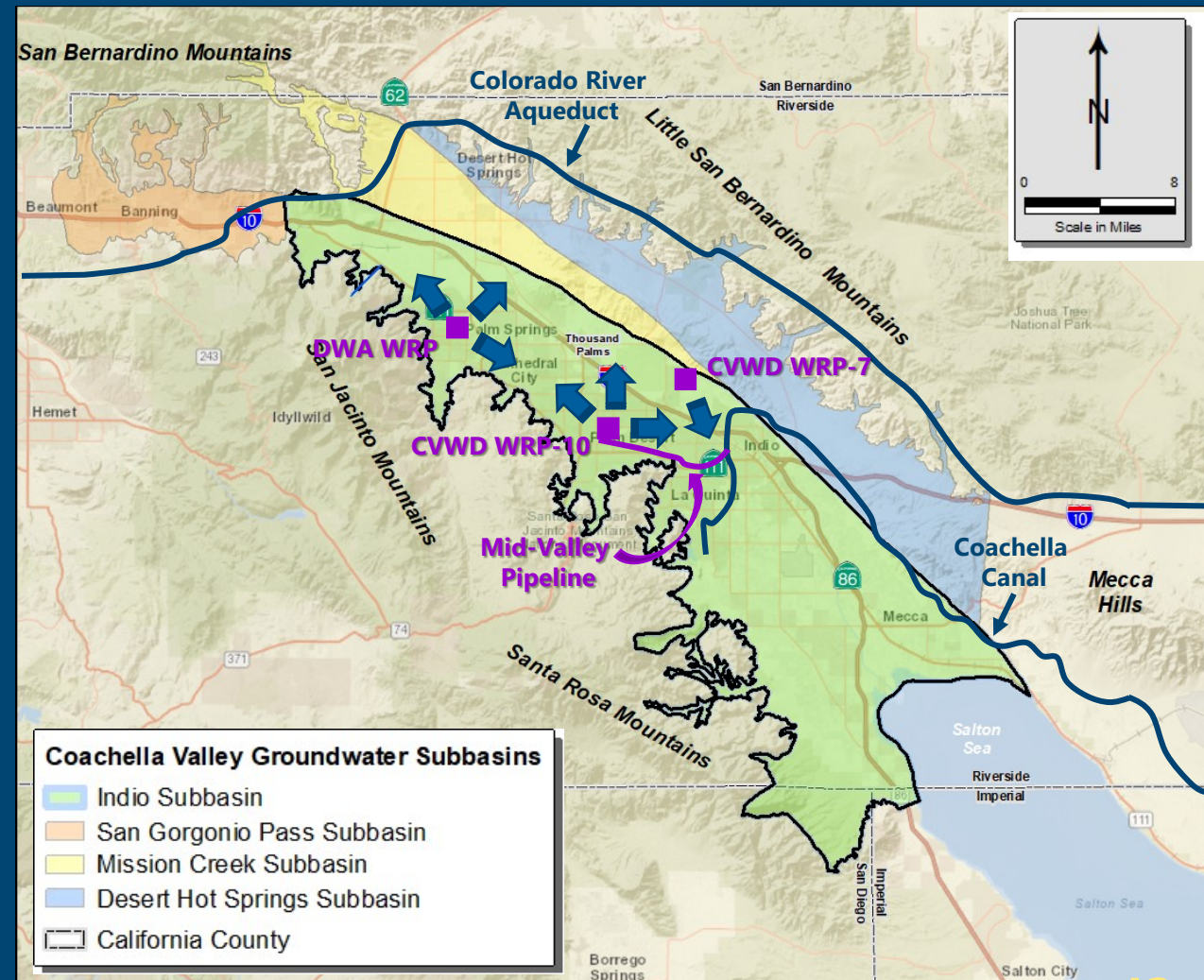
Surface Water Supply

- Diversion of surface water at Snow, Falls, and Chino Creeks in San Jacinto Mountains and Whitewater River Canyon
- Delivered:
 - ❖ Direct delivery to agriculture, golf, and urban users
- 2010 Plan Assumptions:
 - ❖ 3,400 AFY direct use through 2045
 - ❖ 95% of remaining surface flow assumed to naturally recharge



Recycled Water Supply

- Recycled water is produced at CVWD WRP-7 and WRP-10, and DWA WRP
- Reliable local supply
 - ❖ 41,065 AFY wastewater treated, of which 14,446 AFY was recycled in WY 2019
- Delivered:
 - ❖ Direct delivery to golf and urban users
- 2010 Plan Assumptions:
 - ❖ Use of recycled water up to 41,900 AFY – 63,000 AFY by 2045



Agenda

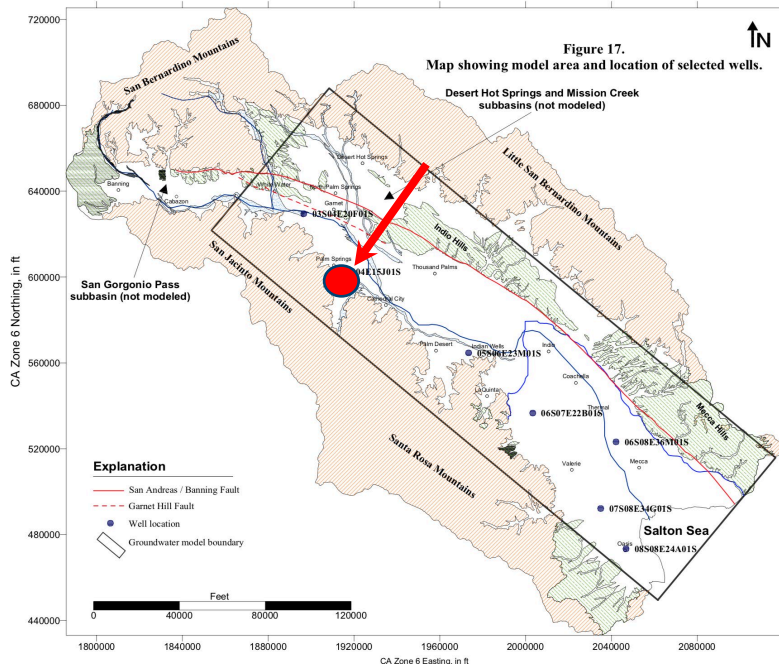
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2010 CVWMP Groundwater Model Approach

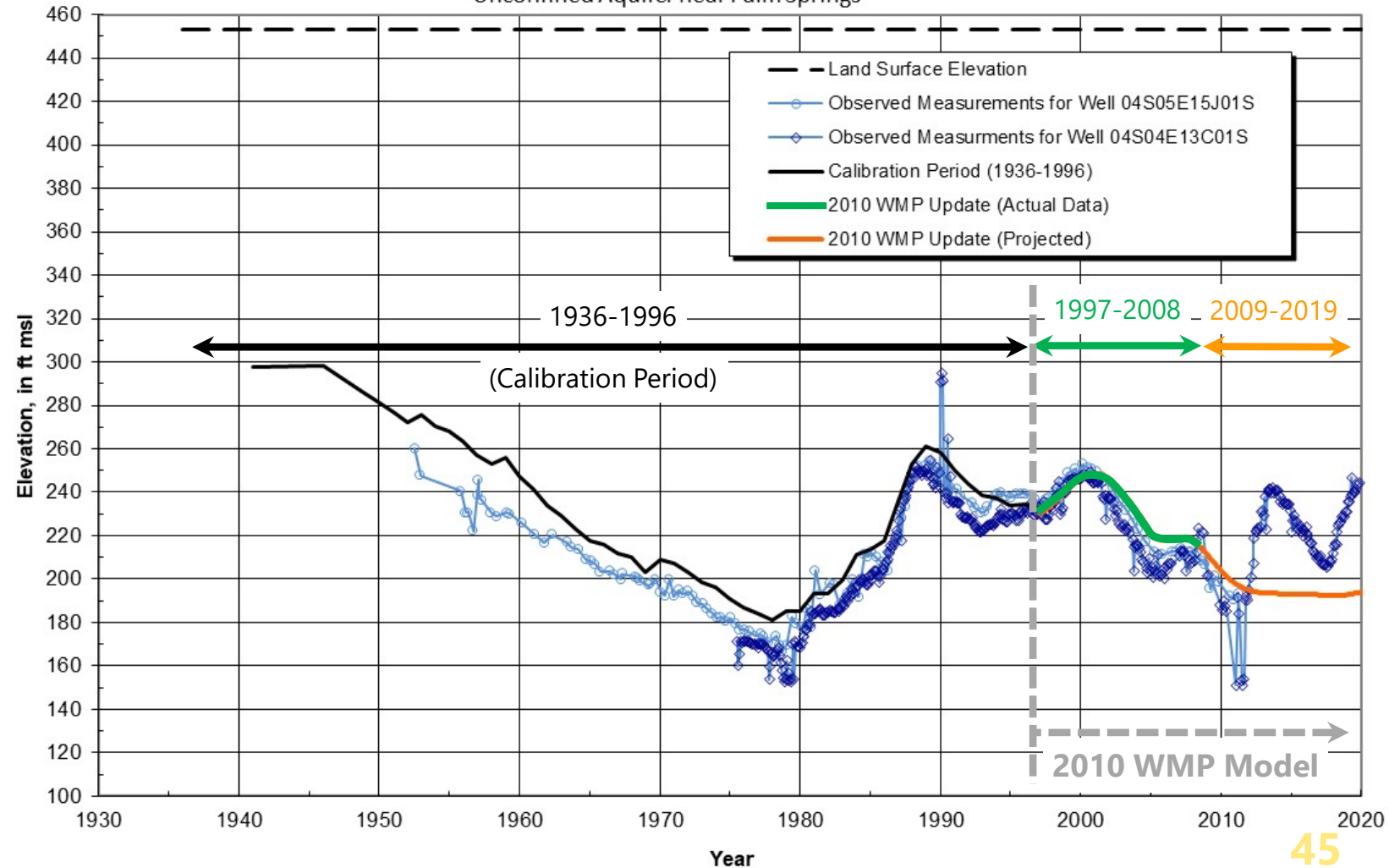
- Original groundwater model developed in the late 1990s
 - ❖ Historical calibration period (1936-1996)
 - ❖ Data through 1999 included for 2002 CVWMP
- 2010 CVWMP groundwater model update
 - ❖ Historical period (1997-2008) – actual data incorporated
 - ❖ Future period (2009-2075) – projections
- Currently reviewing 2010 CVWMP groundwater model
 - ❖ Source data files, analysis methods, and file structure for model inputs
 - ❖ Model performance from 1997-2008 (historical period)
 - ❖ Model performance from 2009-2019 after actual data are incorporated for this period
- Goal is to update the 2010 CVWMP model to...
 - ❖ Estimate current and future water budgets
 - ❖ Evaluate benefits of proposed management actions
 - ❖ Support identification of appropriate sustainability criteria

2010 CVWMP Model Assessment

■ Ex: West Valley Well

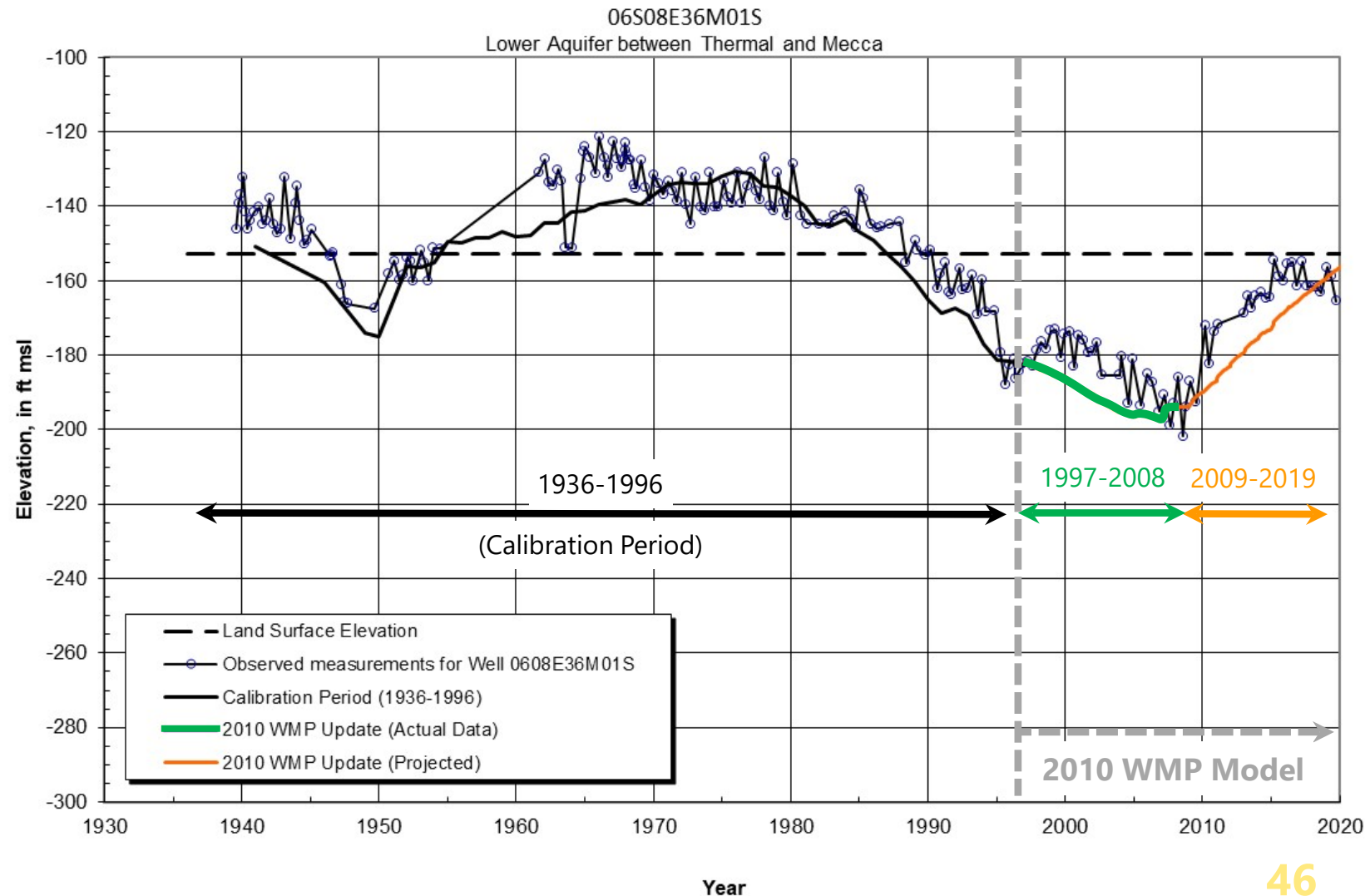
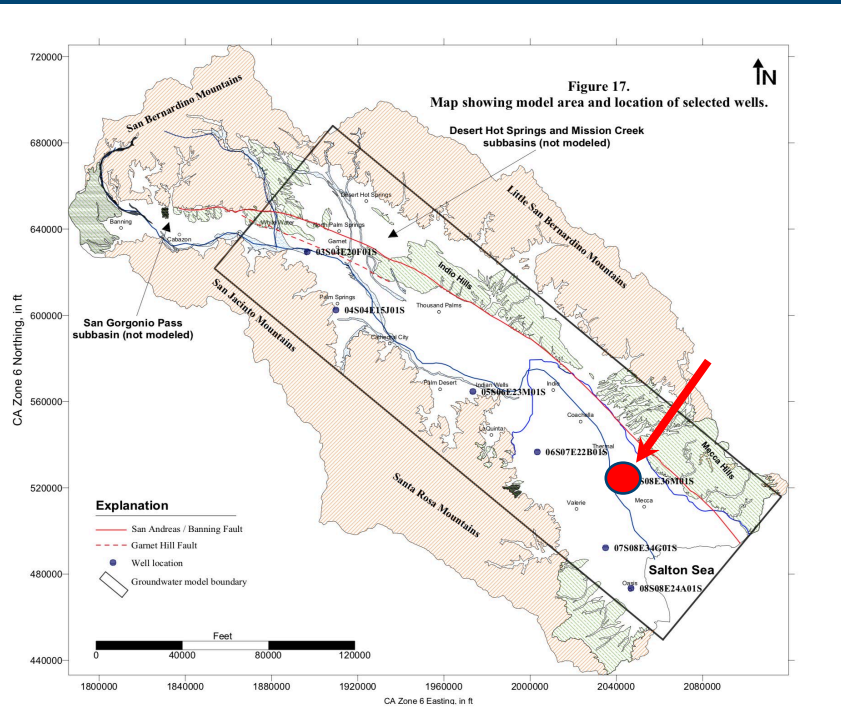


Hydrograph of well 04S04E13C01S.
Unconfined Aquifer near Palm Springs



2010 CVWMP Model Assessment

■ Ex: East Valley Well



Groundwater Model Update Approach

- Develop model inputs for 2009 to 2019
- Run Updated Model (1997 to 2019)
 - ❖ Evaluate model performance
 - ❖ Extract historical water budget
- Recommend and implement improvements to model
- Prepare and append future (2020-2075) model inputs to evaluate alternative management scenarios

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Public Comment

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

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Get Involved – Visit our Website



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Sign up for email invites, updates, and data/report releases at
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Stay Connected

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

Name *

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Submit 

We will never share your information with anyone.

Next Steps

- June – August 2020
 - ❖ Complete Plan Area and HCM analysis
 - ❖ Continue update of groundwater model
 - ❖ Complete urban and agricultural demand forecast
 - ❖ Complete analysis of historical supply and Plan Assessment

Schedule



August 27, 2020



2:00 – 4:00 PM



Location: TBD



For additional information,
please contact:

Rosalyn Prickett

IndioSubbasinSGMA@woodardcurran.com

(858) 875-7420