



Stanislaus & Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency

1231 11th Street | Modesto, CA 95354
Phone: (209) 526-7564 | Fax: (209) 526-7352
Email: John.Davids@mid.org

AGENDA

December 9, 2020 (1:30 p.m. – 2:00 p.m.)

Webinar Digital Platform or Phone Meeting

<https://us02web.zoom.us/j/87846141611>

By phone: 1-669-900-9128

Webinar ID: 878 4614 1611

This meeting is being conducted via webinar for all seven member agencies, pursuant to Executive Orders signed by Governor Gavin Newsom related to the ongoing COVID-19 pandemic, including provisions regarding the Brown Act. Members of the public and member agency staff may join the meeting utilizing Zoom's webinar feature if desired, or a phone number as provided in this Agenda. Members of the public will continue to have the opportunity to provide public input via the webinar or phone features. Members of the public may also email public comments by 3:00 p.m. on the day preceding the GSA meeting to: strgba.org. If public comments are timely submitted by email, then those comments will be identified during the public input section of the Agenda or during a specific agenda item if the agenda item is identified in the email. The Brown Act does not require a member of the public to state her or his name; please indicate in your email if you would like your name stated or if you want to remain anonymous.

PUBLIC PARTICIPATION

The public may participate in this meeting in the two ways described below.

Instructions for Participating in STRGBA GSA & Technical Advisory Meeting via Zoom Webinar or Phone

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1. Call to Order/Welcome and Introductions
(Four agencies needed for a quorum)
2. Business from the Public
Who: Public
Expected Outcome: Interested persons are welcome to introduce any topic within the Agency's jurisdiction. Matters presented under this heading may be discussed but no action will be taken by the Agency at this meeting.
3. Topic: Approve 10/14/20 Meeting Minutes [[Action Item](#)]
Who: John Davids, Committee
Expected Outcome: Approval
4. Topic: Budget and Schedule Update
Who: Gordon Enas, Committee
Expected Outcome: Discussion
5. Topic: Valley Water Collaborative
Who: Parry Klassen, Committee
Expected Outcome: Discussion
6. Topic: Monitoring Well Update
Who: Todd Groundwater, Committee
Expected Outcome: Discussion
7. Next Meeting
January 13, 2021 at 1:30 p.m. via Zoom
8. Items too late for the agenda



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MEETING MINUTES

October 14, 2020 (1:30 p.m. – 3:00 p.m.)

The meeting was called to order at 1:31 p.m.

1. Welcome and Introductions

The following members of the Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency (STRGBA GSA) attended via Zoom:

Modesto Irrigation District (MID): John Davids
Oakdale Irrigation District (OID): Eric Thorburn
City of Modesto: Miguel Alvarez
Stanislaus County: Walt Ward
City of Oakdale: Michael Renfrow

Other Attendees

Public: Phyllis Stanin, Todd Groundwater
Liz Elliott, Todd Groundwater
Alexis Stevens, Somach, Simmons and Dunn
Hilary Reinhard, Provost & Pritchard
Samantha Wookey, MID
Gordon Enas, MID
Stacy Henderson, Terpstra Henderson Law
Claudia Hidahl
Dana Ferreira, MID
David Orth
Dane Mathis
Suzy Powell

2. Business from the Public

N/A

3. Approve 9/9/20 Minutes [**Action item**]

Alvarez moved, 2nd by Ward, to approve 9/9/20 meeting minutes. Motion carried.



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4. GSP Budget and Schedule

Enas reported that Todd Groundwater has expended approximately 46% of the budget and 56% of the time scheduled through August 31, 2020.

5. Public Outreach

Wookey gave an update on current public outreach efforts. GSA informational postcards was mailed out the week of September 28 to roughly 300 landowners within the subbasin but not a part of the Districts. STRGBA GSA Fall newsletter was also mailed out via email and posted to the website on October 2. Davids asked if there was any feedback from non-jurisdictional landowners, Wookey stated she has not received any communication from anyone. Wookey also mentioned that Constant Contact was used this month and will be the principal method for distributing meeting information from now on. Several participants mentioned that they didn't receive a Constant Contact notification this month. Wookey will re-check the email distribution list for meeting participants.

6. GSP Update

Stanin gave an update on the zone budget modeling. The modeling is not yet complete as the modelers continue to pull in additional information and quality check the results. The main reason for the delay is due to the model complexity. The model covers roughly 250,000 acres and it has been difficult to align district boundaries with the model elements. Also, the model doesn't assign ownership of the water inputs/outputs. To resolve this, the modelers use a combination of the model runs and make manual adjustments to the results with respect to the water sources around the boundary edges. Stanin stated they are compiling the zone budget results and they should be available in November. Davids mentioned that getting the zone budgets correct is the most important task to date and we don't want to rush forward until the results are right.

Stanin also stated that development of the 50-year projected future water budgets is moving forward and results should be available in December. Ward asked if the modeling delays will impact the schedule. Stanin stated we are a little behind schedule but are still on track to release the Administrative Draft by mid-summer.



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7. Monitoring Well Update

Elliot gave an update on the planning effort for the monitoring well construction. Elliott stated the final 10 well locations have been chosen, with 6 locations having 2 wells and 4 locations with one well. Plans and specifications for the well construction were submitted to DWR two weeks ago, but haven't received any comments yet. The next step is to send the Plans and Specifications out for contractor bids. Davids asked if there was a deadline for DWR to approve the plans, Elliot responded no.

8. Next meeting:

November 18, 2020 at 1:30 p.m. via Zoom webinar

9. Items too late for the agenda

Davids mentioned the recent California Supreme Court decision involving Stanislaus County's well permitting process. Ward stated no update to the impact of the ruling yet, since the case was remanded from the Supreme Court back to the Appellate Court.

Modesto-Turlock Management Zone Coordination with GSAs

December 9, 2020

*Parry Klassen
Executive Director
Valley Water Collaborative*



NITRATE CONTROL PROGRAM (“PROGRAM”)

- Program became effective on January 17, 2020
- Program Goals
 - Provide safe drinking water to residents impacted by high nitrate in their drinking water
 - Reduce nitrate impacts so that permitted dischargers do not cause or contribute to exceedances of the nitrate water quality objective in groundwater
 - Restore groundwater quality (where reasonable, feasible and practicable) so that it meets the nitrate water quality objective
- Program Implementation
 - Central Valley groundwater subbasins prioritized
 - Modesto and Turlock Subbasins two of six groundwater subbasins designated Priority 1
 - Permitted dischargers mailed a Notice to Comply with Program May 29, 2020

Priority 1 Groundwater Subbasins	
No.	Name
5.22.02	Modesto
5.22.03	Turlock
5-22.05	Chowchilla
5-22.08	Kings
5-22.11	Kaweah
5-22.13	Tule

RESPONSE TO NOTICE TO COMPLY – SELECT COMPLIANCE PATHWAY

- Select compliance pathway and prepare required materials for submittal to the Regional Board:
 - **Path A** – Discharger elects to comply with Nitrate Control Program requirements as an individual entity
 - **Path B** – Through establishment of a Management Zone, permitted dischargers opt to work collectively to comply with Nitrate Control Program requirements



RESPONSE TO NOTICE TO COMPLY – SUBMIT NOTICE OF INTENT (NOI) TO REGIONAL BOARD

- All permittees that received a Notice to Comply must submit their NOI regarding their compliance pathway selection to the Regional Board by May 7, 2021:
 - **Path A** - NOI includes demonstration showing discharger can comply with Program requirements, including providing safe drinking water, where needed
 - **Path B** –
 - Preliminary Management Zone Proposal (PMZP) due by March 8, 2021 will identify permittees that have selected Path B. The PMZP is the NOI for these permittees.
 - Permittees not included in the PMZP may opt to still join the Management Zone by (a) submitting an individual NOI by the required May 7, 2021 date; and (b) working with the Management Zone to satisfy requirements to be incorporated

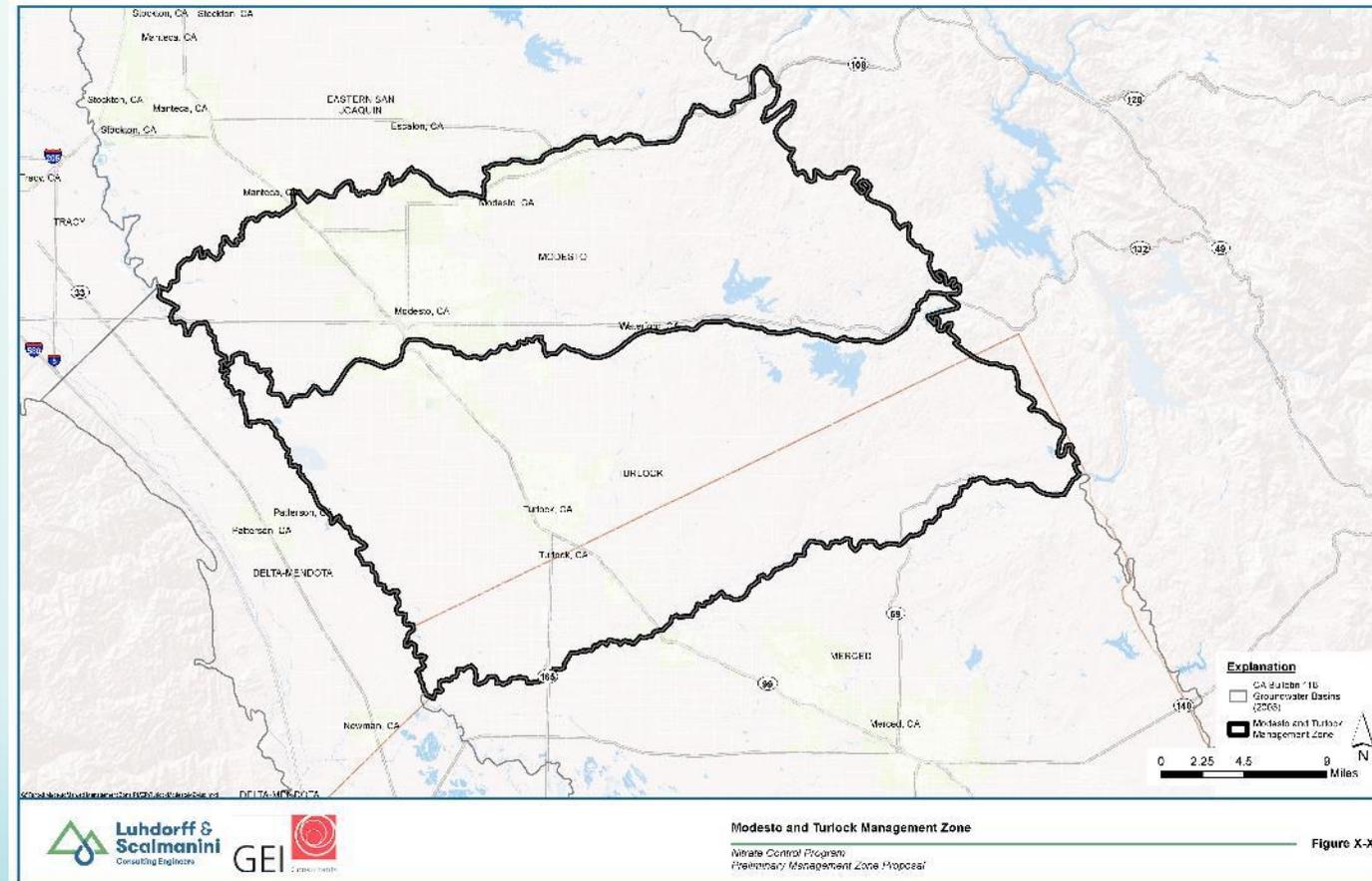
For more information regarding regulatory requirements:

<https://www.cvsalinity.org/nitrate-control-program>

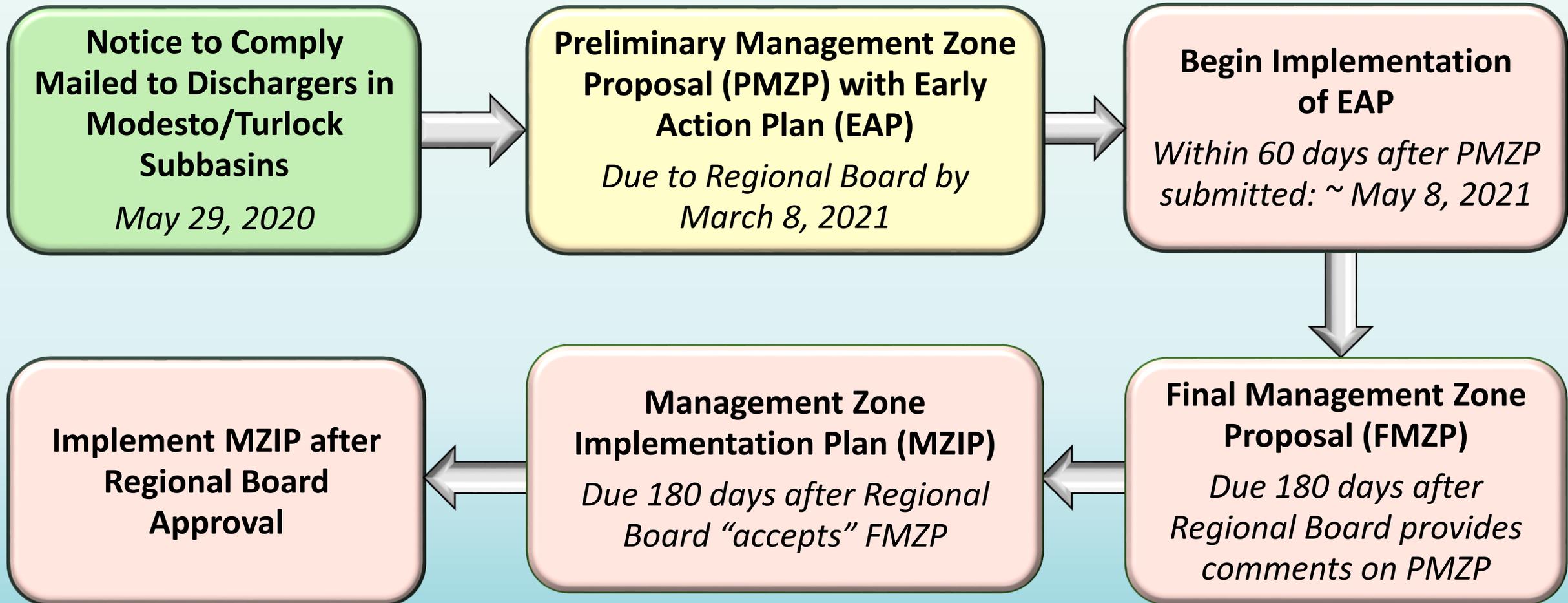
WHAT IS A MANAGEMENT ZONE?

Key Elements of the Basin Plan Regulatory Definition

- A discrete and generally hydrologically contiguous area...
- Permitted discharger(s)...collectively work to meet the goals of the Nitrate Control Program...
- Regulatory compliance evaluated based on the permittees collective impact...
- Where Management Zones cross groundwater basin or subbasin boundaries, regulatory compliance is assessed separately for each basin or subbasin.

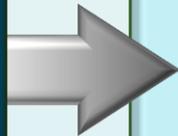


MANAGEMENT ZONE DELIVERABLE SCHEDULE



PRELIMINARY MANAGEMENT ZONE PROPOSAL

**Preliminary Management
Zone Proposal (PMZP) with
Early Action Plan (EAP)**
Due by March 8, 2021



Key Elements

- ✓ Proposed Management Zone Boundary
- ✓ Identification of participating permitted dischargers
- ✓ Initial assessment of nitrate conditions in groundwater
- ✓ Potentially impacted public water supplies/domestic wells where nitrate exceeds water quality objectives
- ✓ Existing nitrate management practices of participating permitted dischargers
- ✓ **Early Action Plan** to assure safe drinking water in the short-term while long-term solutions developed and implemented

VALLEY WATER COLLABORATIVE (VWC)

- **Organization Structure**

- A non-profit, public benefit California corporation, established July 7, 2020
- The corporation's activities and affairs are managed, and all corporate powers are exercised, by or under the direction of the VWC Board of Directors
- Based in Modesto, CA

- **Mission**

The mission of Valley Water Collaborative is to maintain and improve the quality of life in the northern San Joaquin Valley by implementing programs that provide access to safe drinking water for residents, and by engaging in activities with the goal of protecting or enhancing the quality of groundwater used as drinking water for residents in the region.

Central Valley Water Board Nitrate Permitting Program: Multiple Management Zone Governance and Implementation Approach

Modesto Subbasin
(Priority 1)

Turlock Subbasin
(Priority 1)

Merced Subbasin
(Priority 2)

Valley Water Collaborative (VWC)

Business Management

Board of Directors

Implementation

Modesto Subbasin
Committee

Turlock Subbasin
Committee

Merced Subbasin
Committee
(Priority 2)

- ### Committee Roles
- Provide budgets, localized input on plans to Board of Directors
 - Facilitate: local outreach; water delivery activities
 - Committee includes EJ / other stakeholders on committee

ADVANTAGES OF COLLABORATIVE APPROACH

1. Coordinated nitrate management strategies
2. Reduces duplication of efforts in:
 - a. Administrative management
 - b. Management zone planning with similar hydrology and water needs
 - c. Outreach
3. Provides economies of scales for purchasing water/installing fill stations
4. Optimizes services for ongoing O&M of water deliveries
5. Larger assisted populations can be named when pursuing public grant funds
6. Potential for joint projects to address nitrate impacts, especially where Management Zones are contiguous
7. More efficient use of time for those representing WDR holders and impacted communities

Management Approach for Valley Water Collaborative (VWC)

VWC Management

- Board of Directors (WDR Holders)
 - Executive Director
 - Staff
 - Consultants
 - Committees

Board of Directors

- Agriculture
- Dairy
- Cities
- Poultry
- Food Processors
- Wineries

Executive Director

- Appointed by Board of Directors
- Manages staff
- Manages consultants
- Oversees committees

Board Committees

- Budget and Finance
- Planning and Compliance
- Operations
- Public Outreach

Organization Responsibilities/Activities

- Develop overall plans for 3 priority basins
 - Preliminary/Final Management Zone Implementation Proposals and Final Plans
 - Early Action Plans
- Prioritize areas within Management Zones for implementation of nitrate management activities
 - Coordinate water providers in regions
 - Coordinate ongoing O&M
- Pursue grant funding for priority basin activities

VALLEY WATER COLLABORATIVE BOARD

- **Board Officers**

- Alan Reynolds, Chair (Gallo Vineyards/ East San Joaquin Water Quality Coalition)
- David Brush, Secretary (Grower/Mid-Valley Agricultural Services/East San Joaquin Water Quality Coalition)
- Ray Prock, Treasurer (Ray-Lin Dairy)

- **Board Members**

- David Belt (California Poultry Federation)
- Jeremy Damas (City of Ceres)
- Justin Gioletti (Robert Gioletti and Sons Dairy)
- Paul Huckaba (Bronco Wine Company)
- Ben Koehler (City of Modesto)
- Art Riddick (Darling Ingredients)
- Tom Roduner (Grower/East San Joaquin Water Quality Coalition)
- Antonio Tovar (Salida Sanitary District)
- Michael Wood (Hilmar Cheese Company)

VALLEY WATER COLLABORATIVE STAFF AND CONSULTANTS

- **Staff**
 - Parry Klassen, Executive Director
 - Courtney Jallo, Program Manager
 - Maureen Thompson, Program Manager
- **Consultants**
 - Richard Meyerhoff, GEI Consultants Inc.
 - Vicki Kretsinger, Luhdorff and Scalmanini Consulting Engineers, Inc.
- **Affiliated Organizations**
 - California League of Food Producers
 - California Poultry Federation
 - Central Valley Dairy Representative Monitoring Program
 - Central Valley Salinity Coalition
 - East San Joaquin Water Quality Coalition
 - Pacific Egg and Poultry Association

MANAGEMENT ZONE OUTREACH RESPONSIBILITIES

- Goal is to obtain as many commitments to the Management Zone as possible prior to submittal of the Preliminary Management Zone Proposal (PMZP)
 - Permittees participating in the Management Zone will have their current nitrate management practices summarized in the PMZP
- Management Zone responsibility to outreach to dischargers:
 - We will conduct a reasonable amount of outreach to gauge your interest in joining the Management Zone...
 - However, it is not the responsibility of the Management Zone to obtain a compliance pathway decision from any discharger
- We will document our efforts to outreach to dischargers during development of the PMZP

DISCHARGER OUTREACH

- Irrigated Lands Regulatory Program – Outreach to growers conducted by the East San Joaquin Water Quality Coalition
- Permittees Under General Orders – Outreach being conducted by industry representatives
- Dischargers Permitted Under Individual Permit

Groundwater Subbasin	General Order			Individual Permits (WDR and NPDES)			
	Dairies ¹	Confined Bovine Feeding ¹	Poultry ¹	Non15 ²	Composting	NPDES	Other ³
Turlock	264	57	62	20 ⁴	1	1	2 ⁴
Modesto	78	30	31	12	1	1	2

¹ Current estimate of number of dischargers; ² Wastewater treatment facilities, food processors, wineries, other; ³ Includes individual WDR to dairy and/or poultry; ⁴ Includes 3 facilities under applicability review by Board

COMMUNITY OUTREACH

- Provide Well Data
 - Do you own a domestic well? Do you know the nitrate level in your well water?
- Provide Input to the Management Zone
 - Participate in development of Early Action Plan
 - Review and comment on Management Zone Documents as they develop
- Tell Your Neighbors about the Project
- Sign-up to receive program updates at www.valleywaterc.org



COMMUNITY OUTREACH

What Outreach Activities are Planned in the Coming Months?

- Community Outreach meetings will be held in December and again in January/February
 - Upcoming meetings will provide opportunity to voice your opinion
- Review and comment on Early Action Plan ideas to provide safe drinking water during their development
- Continue to collaborate with the Management Zone during Early Action Plan implementation which will begin in Spring 2021

Sign-up to receive program updates at
www.valleywaterc.org



CHARACTERIZATION OF MANAGEMENT ZONE

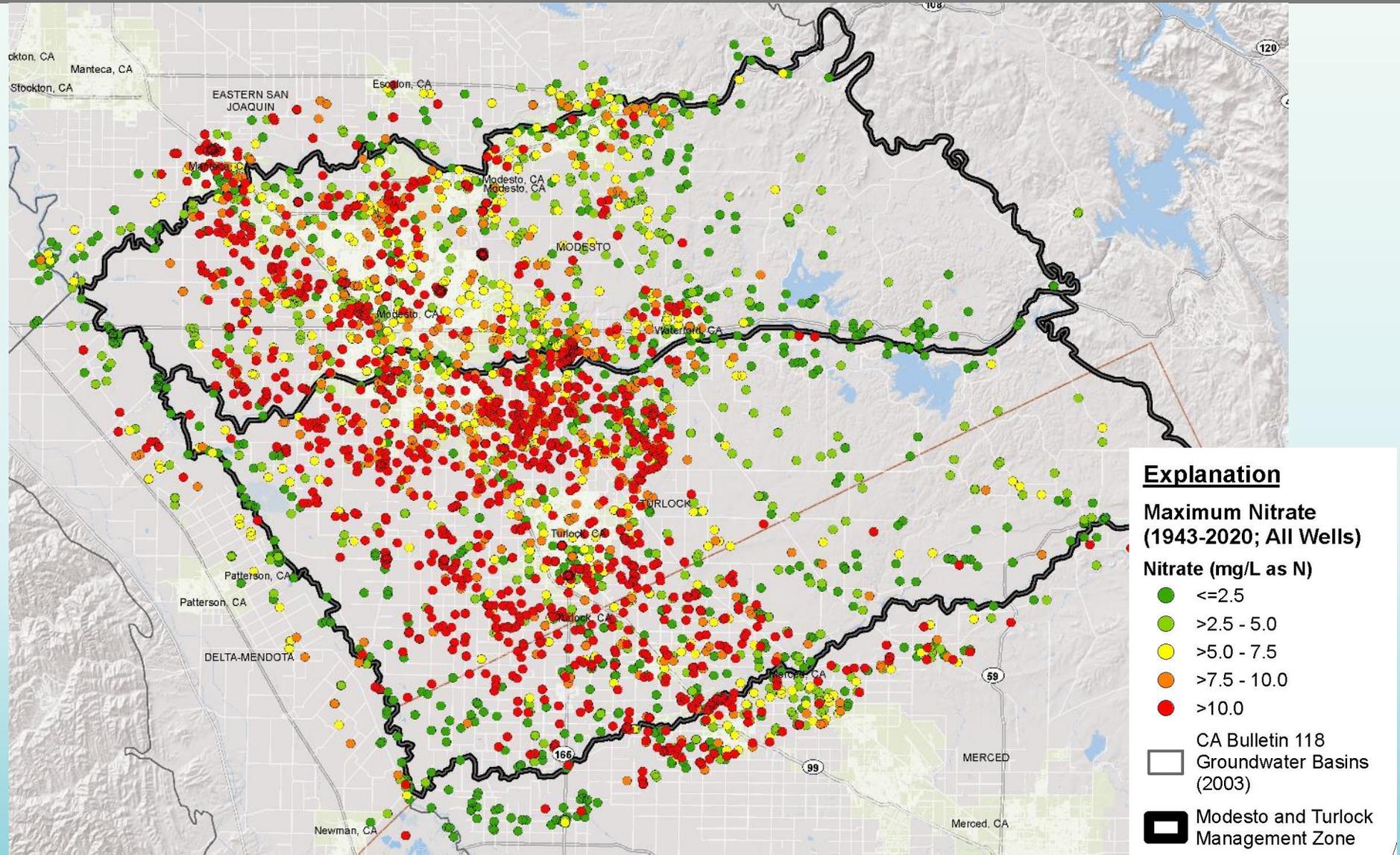
- Lean heavily on existing documents (GSPs, etc.)
 - Geography
 - Jurisdictions
 - Groundwater Sustainability Agencies
 - Water Management Entities
 - Drinking Water Systems
 - Disadvantaged Communities
 - Land Use
- Initial Assessment of Groundwater Conditions

INITIAL ASSESSMENT OF GROUNDWATER CONDITIONS

- Hydrogeology – Source: Groundwater Sustainability Plan (GSP)
- Groundwater Elevations and Flow Directions – Source: GSP, Department of Water Resources
- Upper Zone Delineation – Source: Central Valley Salinity Alternatives for Long-term Sustainability (CV-SALTS)
- Nitrate Water Quality
 - Publicly available data (DWR, Division of Drinking Water (DDW), US Geological Survey (USGS), Geotracker, Groundwater Ambient Monitoring Assessment (GAMA), etc.)
 - County-specific data (well permit tests, small water systems)
 - Stakeholder input

PRELIMINARY DRAFT MAP OF NITRATE WATER QUALITY (AS OF 10/27/20)

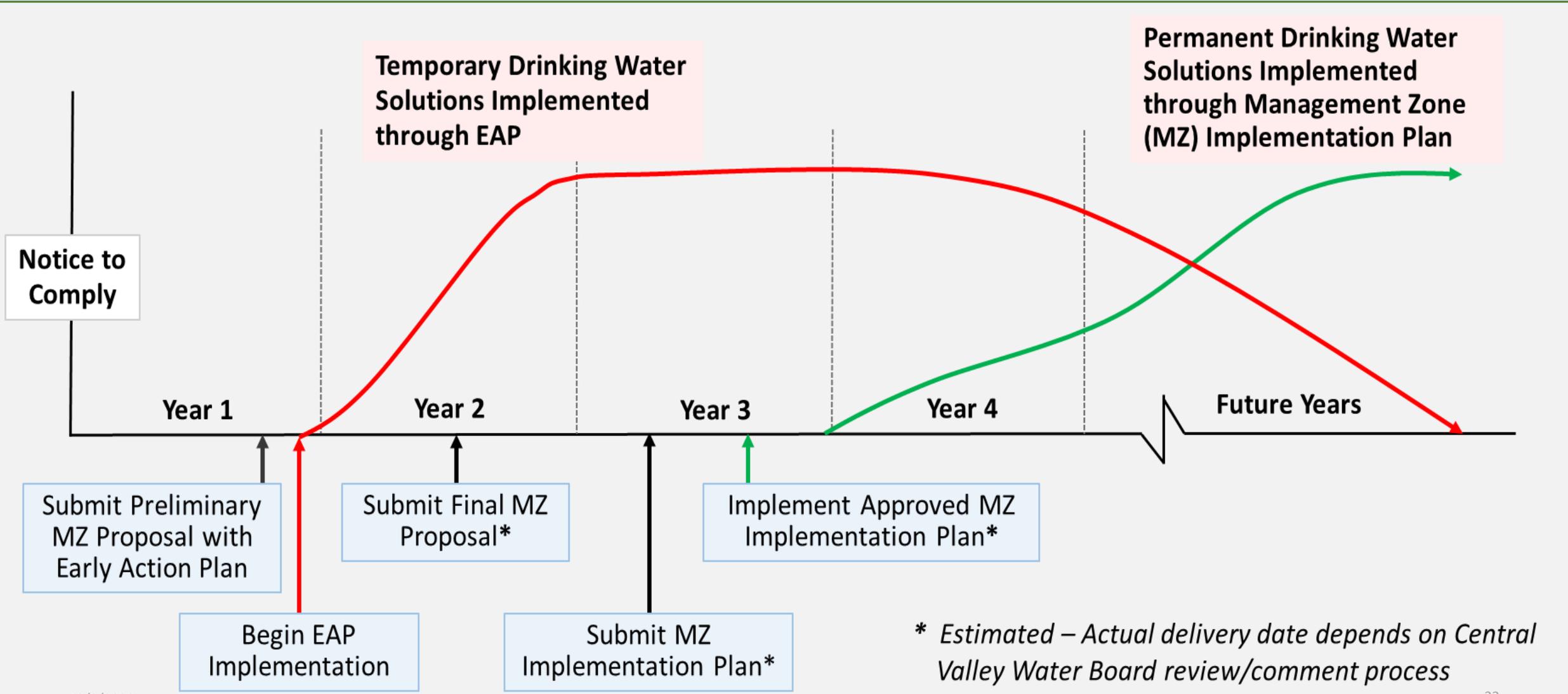
Maximum
Nitrate
from All
Times in
All Wells



INITIAL ASSESSMENT: NEXT STEPS

- Refine maps and nitrate coverage with any non-public data received
 - Cutoff data request - Friday October 30
- Identify areas of elevated nitrate to estimate the following:
 - Number of domestic wells with potentially elevated nitrate concentrations
 - Population of people potentially impacted by elevated nitrate concentrations
- Identify Public Water Systems and Public Supply Wells with nitrate exceedances

PURPOSE OF EARLY ACTION PLAN (EAP) WITHIN CONTEXT OF OVERALL NITRATE CONTROL PROGRAM



* Estimated – Actual delivery date depends on Central Valley Water Board review/comment process

EARLY ACTION PLAN: KEY ELEMENTS

- Local input on EAP development
- Input on identification of proposed solutions

Community Engagement

Non-Discharger Coordination

- Processes to ensure coordination with other local, regional and state agencies

Temporary Replacement Drinking Water

Schedule & Funding

- Well testing program
- Provide replacement water, e.g., filling stations, bottled-water, point-of-use systems

- Funding mechanisms identified
- Implementation milestones

EARLY ACTION PLAN: COMMUNITY ENGAGEMENT

- State Water Board developed Guidance to support EAP Development
- Community outreach key component to development of replacement water solutions tailored to local community needs
- Management Zone will hold community outreach meetings to obtain local input:
 - First meetings planned for November 4 (3-4 pm) and November 5 (6-7 pm)
 - First notice for meetings sent out October 28
- We encourage stakeholders to assist with publicizing these meetings



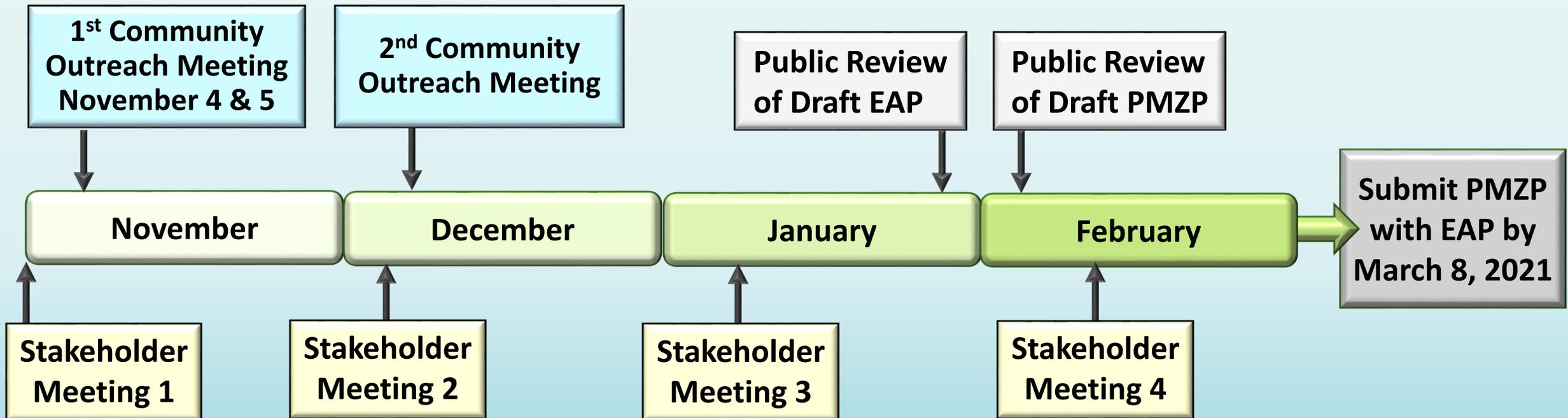
GUIDANCE FOR ENGAGING COMMUNITIES DURING DEVELOPMENT OF EARLY ACTION PLANS

Central Valley Nitrate Control Program

OFFICE OF PUBLIC PARTICIPATION
State Water Resources Control Board
June 2020

MANAGEMENT ZONE DEVELOPMENT SCHEDULE

Preliminary Management Zone Proposal (PMZP) with Early Action Plan (EAP) is due to the Central Valley Water Board by March 8, 2021



POTENTIAL AREAS OF COLLABORATION

1. Need to evaluate and monitor groundwater conditions and quality as related to the purposes of the program in question (i.e., SGMA and Nitrate Control Program).
2. Need to engage with community organizations and local residences in the development and implementation of GSPs and Management Zone Implementation Plans.
3. Common set of stakeholders impacted by both programs, fiscally and otherwise.

POTENTIAL AREAS OF COLLABORATION

1. Costs to implement both programs largely assessed on same groups of businesses/individuals (e.g., dairies, farmers).
2. Long term goals for ensuring sustainability of groundwater supplies that are safe for municipal drinking water uses.
3. Solutions for sustainability and managed restoration for nitrate contamination may be the same or similar.

POTENTIAL APPROACH TO WORK OUT COLLABORATION

- 1) Create a small working group that includes representatives from Valley Water Collaborative and relevant GSAs. Working group should consist of upper-level staff from the programs.
 - 1) Additional staff or counsel to participate as determined necessary or appropriate depending on the issue for discussion.
- 2) Set a schedule for working group meetings/calls
- 3) Working group to first identify list of common issues, objectives and purposes for working group discussion.

Examples may include as follows:

- a. Form of agreement or arrangement between programs (i.e., constraints and options)
- b. Cost sharing arrangements (e.g., monitoring of groundwater wells)
- c. Information sharing arrangements (e.g., data and related information)
- d. Monitoring requirements for each program
- e. Community engagement requirements and efforts
- f. Content of implementation plans (i.e., GSPs and Management Zone Implementation Plans)
- g. Shared or coordinated communications to rate/fee payers
- h. Coordination for implementation of projects that are common to both implementation programs

PURPOSE OF THE CENTRAL VALLEY GROUNDWATER MONITORING COLLABORATIVE (CVGMC)

Key Objectives:

- Collaboration among the coalitions to characterize groundwater quality across the Central Valley
- Streamline monitoring, data management and reporting associated with the Groundwater Quality Trend Monitoring Plans
- In depth regional characterization of groundwater quality
- Model for SAMP



1. Buena Vista Coalition
2. Cawelo Water District Coalition
3. East San Joaquin Water Quality Coalition
4. Grassland Drainage Area Coalition
5. Kaweah Basin Water Quality Association
6. Kern River Watershed Coalition Authority
7. Kings River Water Quality Coalition
8. Westlands Water Quality Coalition
9. Westside San Joaquin River Watershed
10. Westside Water Quality Coalition

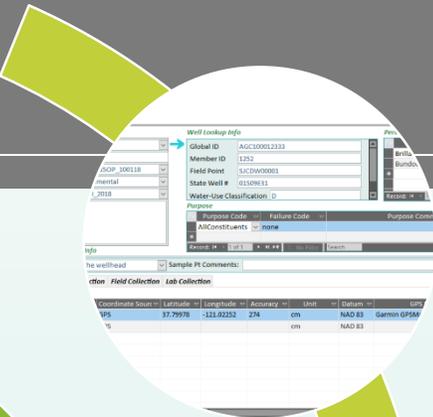
GSA's



Management Zones



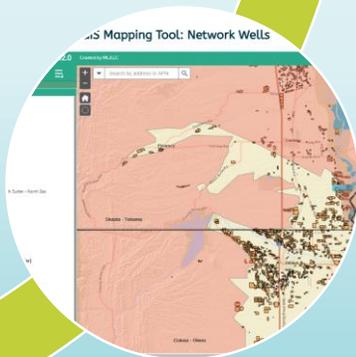
CVGMC DMS



Online Field Sheet Data Entry



Online Query & Export Tool



GIS Applet

MORE INFORMATION...

- Nitrate Control Program
 - <https://www.cvsalinity.org/nitrate-control-program>
- Valley Water Collaborative
 - www.valleywaterc.org
- Contact Parry Klassen
 - klassenparry@gmail.com
- Go to website www.valleywaterc.org for:
 - Today's and future presentations; related information about Management Zone activities in the Central Valley
 - Sign up for program updates



Questions

Valley Water Collaborative: www.valleywaterc.org

Contact Parry Klassen: klassenparry@gmail.com



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 - a. Wait until the last four digits of your phone number is called by the Host.



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3. Topic: Approve 10/27/20 Meeting Minutes [[Action Items](#)]
Who: John Davids, Committee
Expected Outcome: Approval

4. Topic: Revised Zone Budget Analysis
Who: Todd Groundwater, Committee
Expected Outcome: Discussion

5. Topic: Preliminary Projected Future Water Budget
Who: Todd Groundwater, Committee
Expected Outcome: Discussion

6. Next Meeting
TBD

7. Items too late for the agenda



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**TECHNICAL ADVISORY COMMITTEE
MEETING MINUTES**

October 27, 2020 (2:00 p.m. – 3:00 p.m.)

The meeting was called to order at 2:00 p.m.

1. Welcome and Introductions

The following members of the Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency (STRGBA GSA) attended via Zoom:

Modesto Irrigation District (MID): John Davids
Oakdale Irrigation District (OID): Eric Thorburn
City of Modesto: Miguel Alvarez
Stanislaus County: Walt Ward
City of Oakdale: Michael Renfrow
City of Riverbank: Michael Riddell

Other Attendees

Public: Alexis Stevens, Somach, Simmons & Dunn
Stacy Henderson, Terpstra Henderson
Hilary Reinhard, Provost & Pritchard
Gordon Enas, MID
Samantha Wookey, MID
John Mensinger, MID
Stu Gilman, MID
Liz Elliott, Todd Groundwater
Phyllis Stanin, Todd Groundwater
Linda Santos
David Orth
Jim Ferrera
Tom Orvis
Dominick Amador, Woodard & Curran, Inc.
Ali Taghavi, Woodard & Curran, Inc.
John Brichetto
Mike Albers
Sierra Byrd



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2. Business from the Public

None

3. Approve 8/12/20 Minutes [[Action item](#)]

Renfrow moved, 2nd by Riddell, to approve 8/12/2020 meeting minutes. Motion carried.

4. Technical Workshop #8 – Zone Budgets

Amador presented the historical water budgets for both the Modesto Subbasin level and the operational zone level. The subbasin is split into 4 operational zones, Modesto Irrigation District, Oakdale Irrigation District, Non-District Agriculture, and Municipal/Private Domestic. The historic period covers 25-years from 1991-2015 and represents average annual hydrologic conditions in the subbasin. . Amador's presentation can be accessed at the STRGBA GSA website; www.strgba.org.

Meeting participants asked the following questions of the consultant team:

- Henderson asked if the canal recharge component of the budget covers the entire system. Yes, it covers the MID and OID portion, but it is not attributed to the Non-District Ag zone.
- Director Mensinger asked if the 150 TAFY groundwater pumping attributed to the MID zone makes sense, since MID doesn't pump that much groundwater annually? The 150 TAFY represents the groundwater pumping by private wells needed to meet crop demands.
- Orth asked why the model analysis doesn't include the deep percolation of precipitation for each zone? The overall amounts of deep percolation of precipitation are currently allocated as a shared resource over the entire Subbasin for the purposes of this analysis. The amounts could be broken out by zone.
- Stevens asked why 2016-2017 was not included in the historical zone budgets since they are drier years? The 1991-2015 period includes a range of water year types, represents average hydrologic conditions, and also reflects the model calibration period used by the adjacent Turlock Subbasin. Also, the 2016-2017 time period will be included in the projected future water budgets.
- Why would you include 2016-2020 in the projected water budget when they already occurred in the past? SGMA requires a continuous 50-year look forward beginning at 2015 (end of the historical/current study period).
- Davids asked where does most of the riparian water use occur? Most riparian diversions take place along the rivers on the westside of the basin.



**Stanislaus & Tuolumne Rivers Groundwater Basin Association
Groundwater Sustainability Agency**

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- Davids also asked if the model assumes that canal recharge is put back into the conveyance system? The model includes an aggregated seepage estimate of about 20 TAF mainly from unlined conveyance systems.
- Stevens asked if canal recharge is attributed solely to riparian users on the westside of the subbasin? Yes, it generally occurs along rivers on the westside.
- Stevens also asked which areas on the eastside and westside does percolation of applied water typically occur? This isn't currently broken out but the water budget components can be divided between the Non-District east and the Non-District west zones. This information will be provided at a future meeting.
- Reinhard asked if land use changes in the eastside have tripled the amount of groundwater pumping? Previous estimates of acreage and pumping from the Non-District East zone were estimated from County land use maps and simplified assumptions prior to the development of the model. Changes in ag acreage and crop conversions and differences between the previous analytical methods and the modeling methods will be discussed at the next meeting.
- Orth asked if further analyses of the MID and OID zone budgets will be conducted? There is not much value in further analysis of historical budgets. The team can address the primary issues raised today on the historical budgets, but the future focus will be on the projected water budgets. We will look at the information and decide how best to move forward.

5. Next Meeting

TBD

6. Items too late for the agenda

N/A



MODESTO SUBBASIN GSP PROJECTED CONDITIONS BASELINE

TECHNICAL ADVISORY COMMITTEE (TAC) MEETING

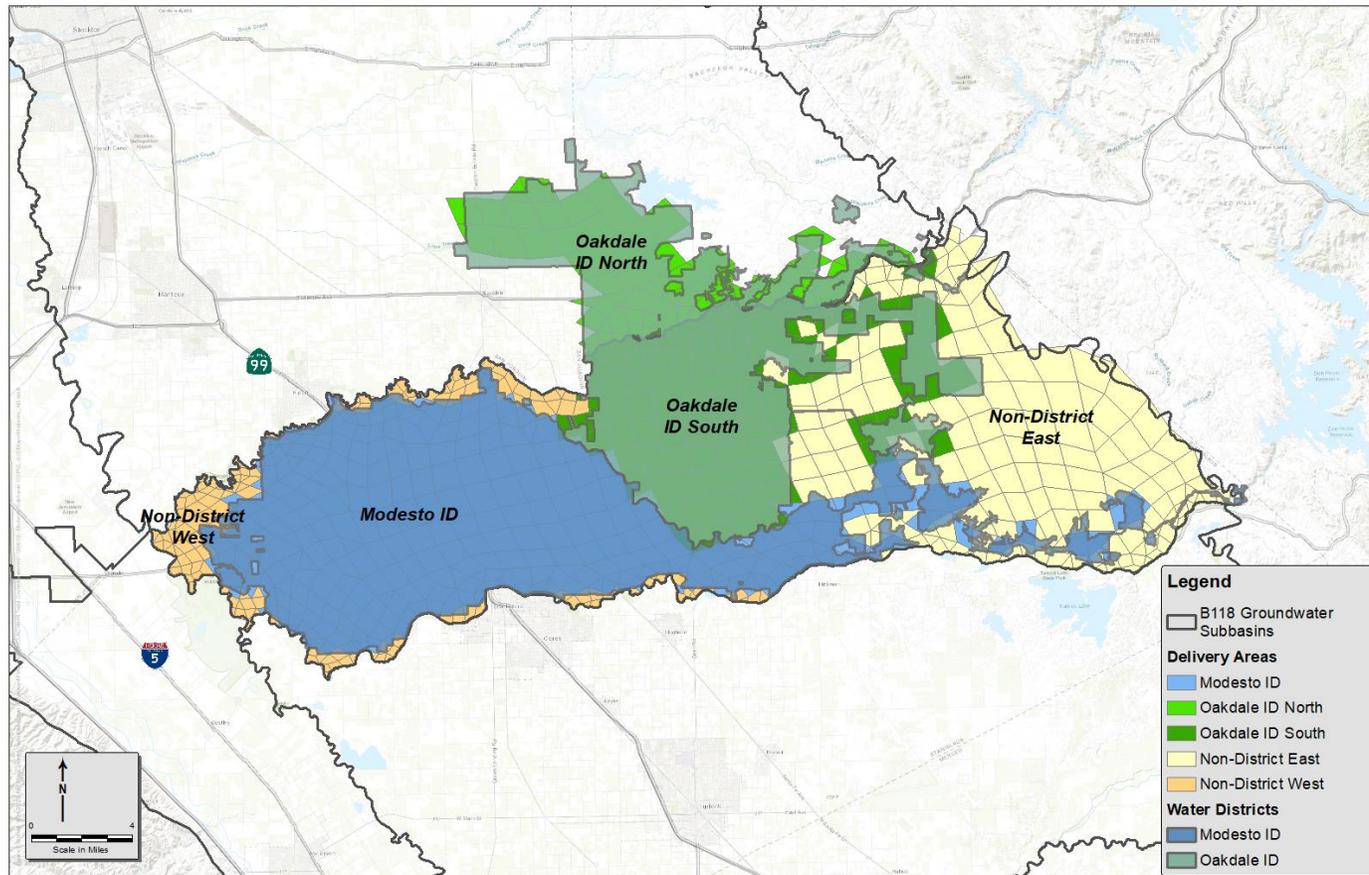
Presented on December 9, 2020



AGENDA

- Historical Simulation Update
 - Land and Water Use Budget (Zonal)
 - Operational Water Budgets (Zonal)
- Projected Conditions Baseline
 - Modeling Approach
 - Land and Water Use Budget (Subbasin)
 - Operational Water Budgets (Zonal)
 - Groundwater Budget (Subbasin)

LOCAL WATER AGENCIES – ZONE BUDGETS

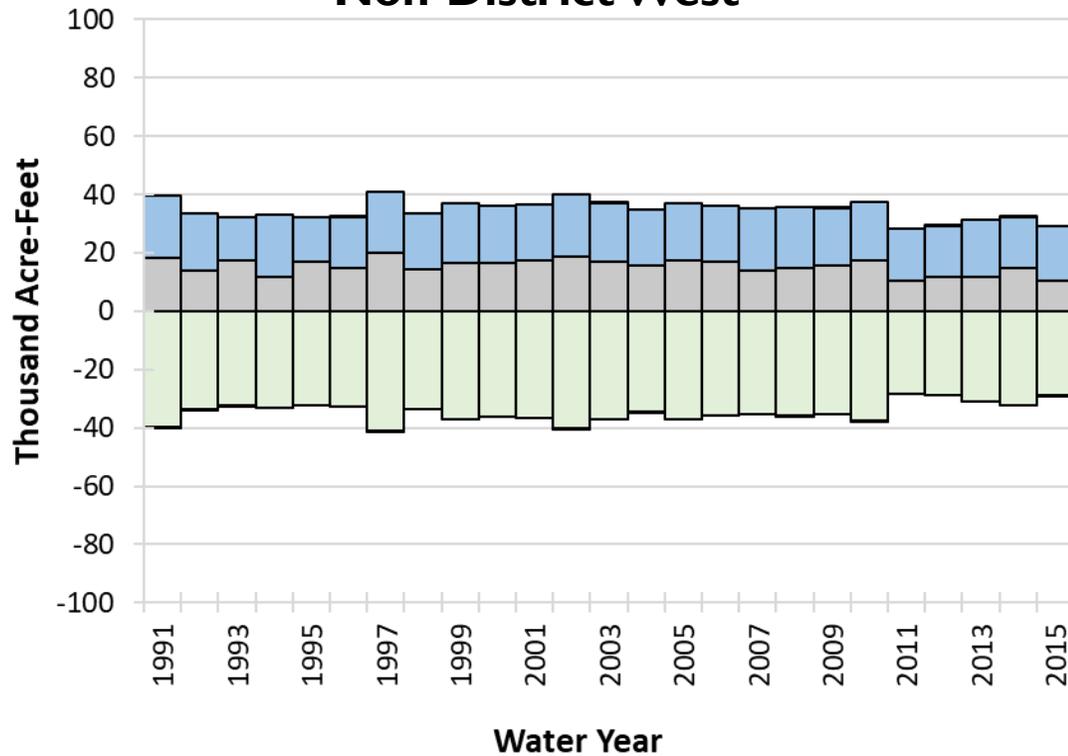


Designated Zones

- Modesto ID
- Oakdale ID
- Non-District West
- Non-District East

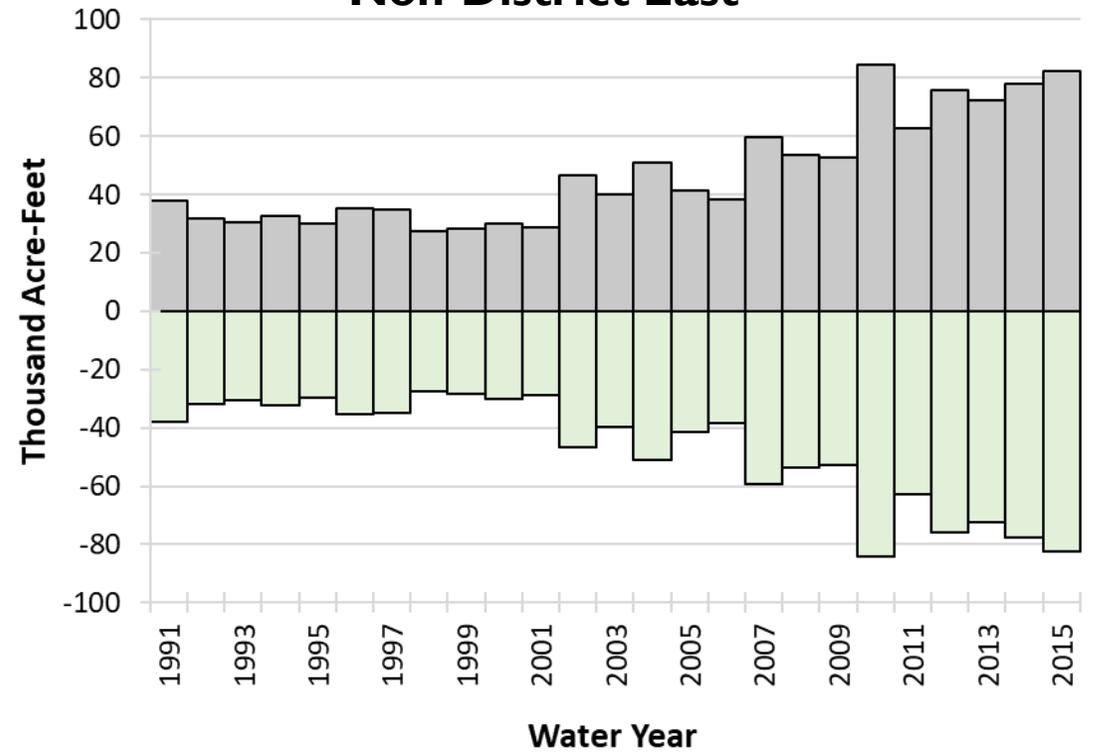
OPERATIONAL BUDGET: NON-DISTRICT AREAS

Non-District West



- Ag. Demand
- Ag. Pumping
- Ag. SW Deliveries
- Ag. Shortage/Surplus

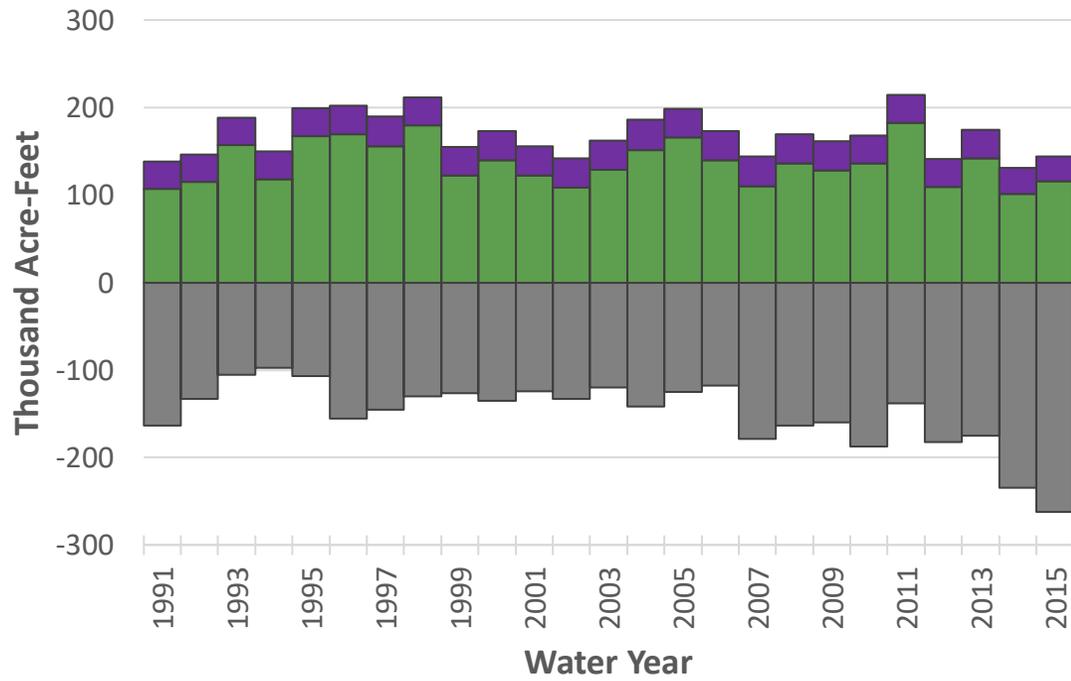
Non-District East



- Ag. Demand
- Ag. Pumping
- Ag. SW Deliveries
- Ag. Shortage(+)/ Surplus (-)

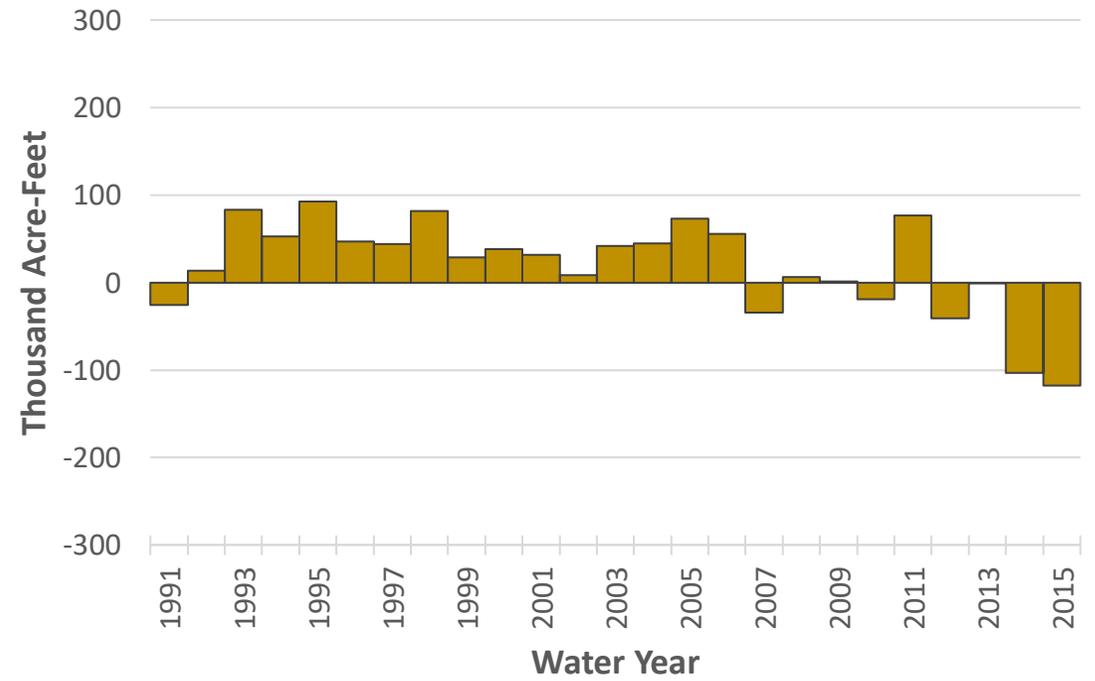
OPERATIONAL WATER BUDGETS

Modesto Irrigation District



GW Production
 Percolation
 Canal & Res. Recharge

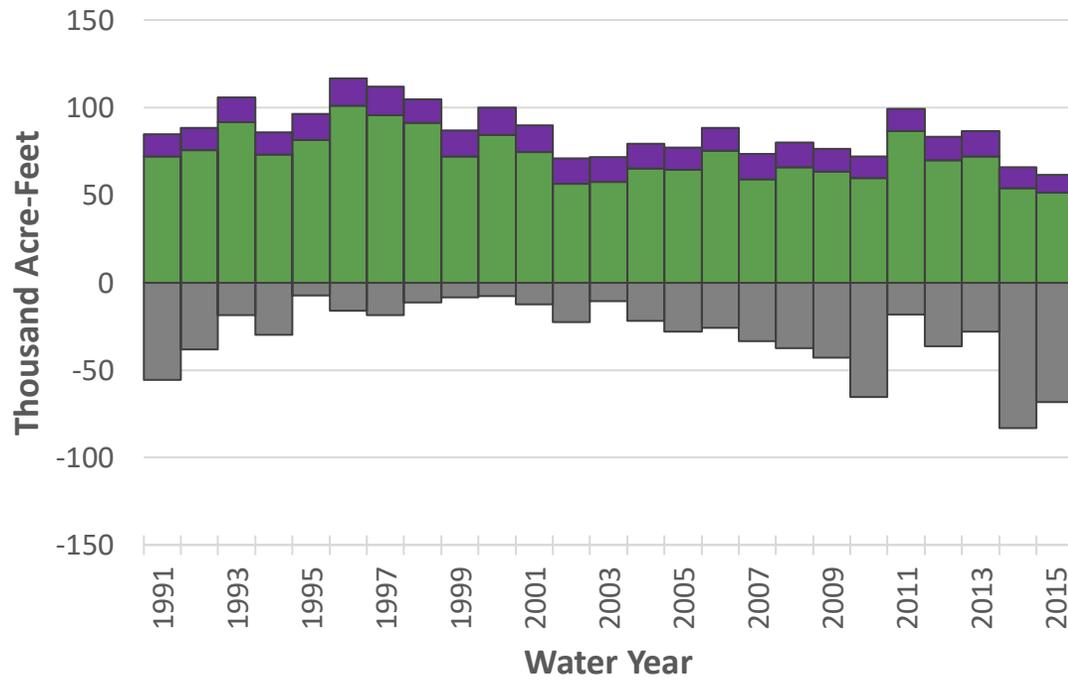
Modesto Irrigation District



Net Groundwater Recharge

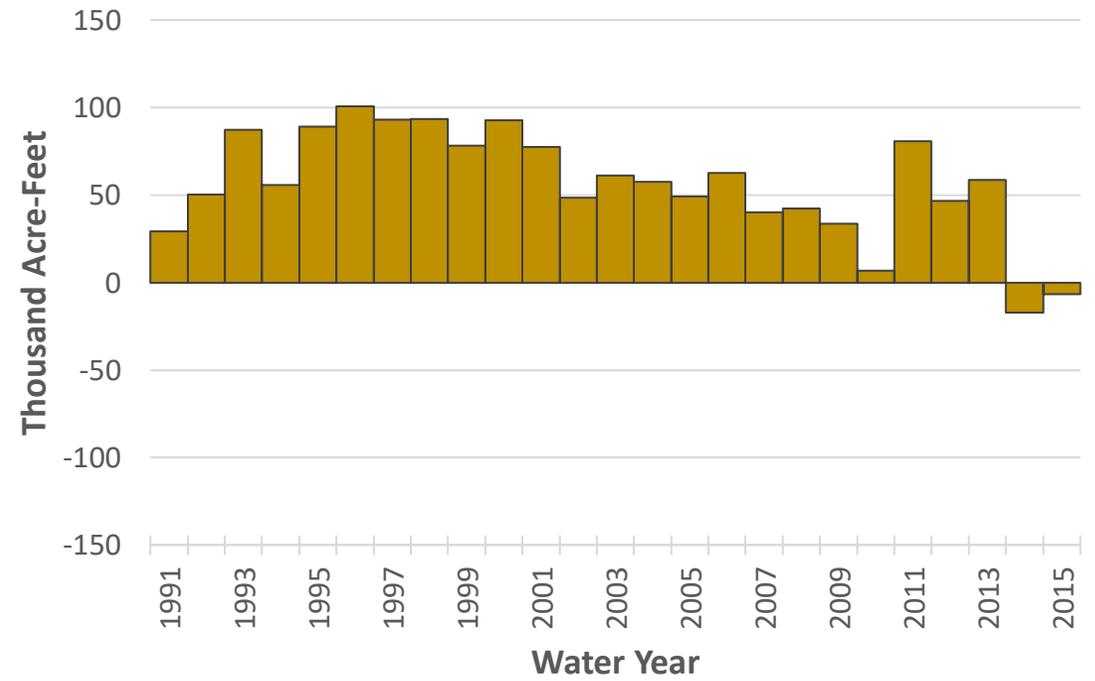
OPERATIONAL WATER BUDGETS

Oakdale Irrigation District



GW Production
 Percolation
 Canal & Res. Recharge

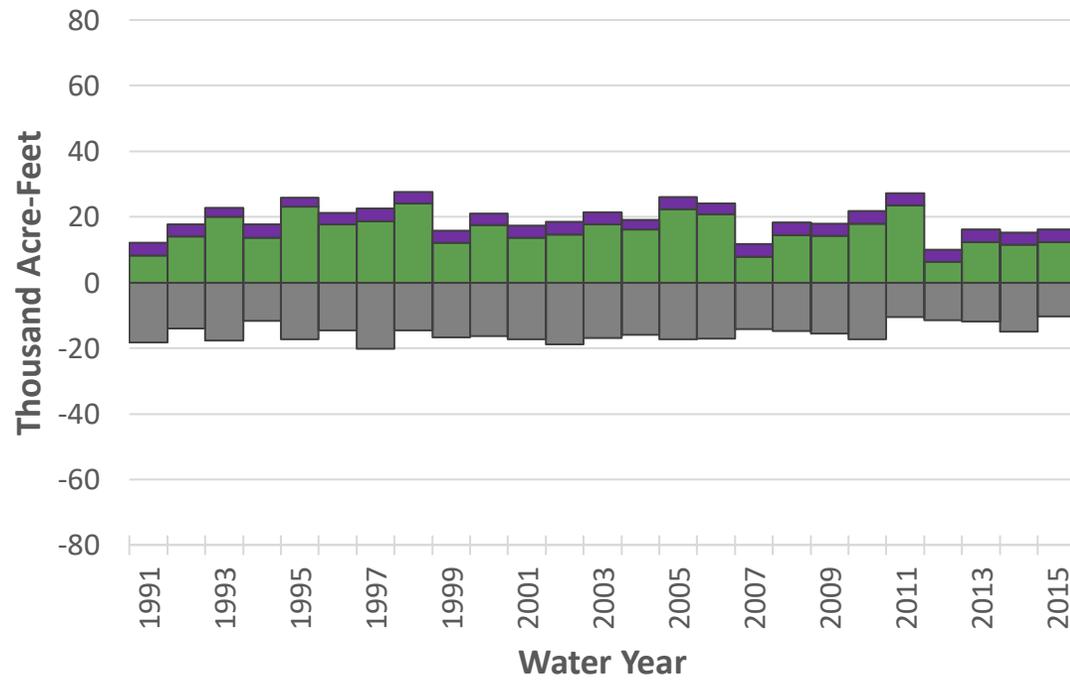
Oakdale Irrigation District



Net Groundwater Recharge

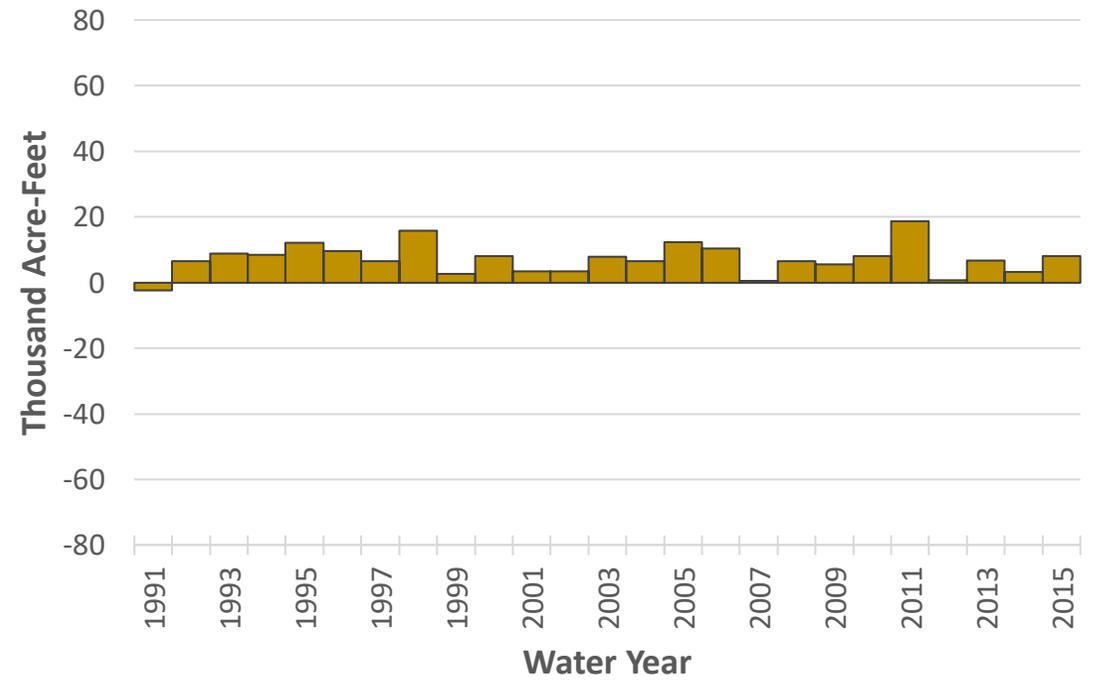
OPERATIONAL WATER BUDGETS

Non-District West



GW Production
 Percolation
 Canal & Res. Recharge

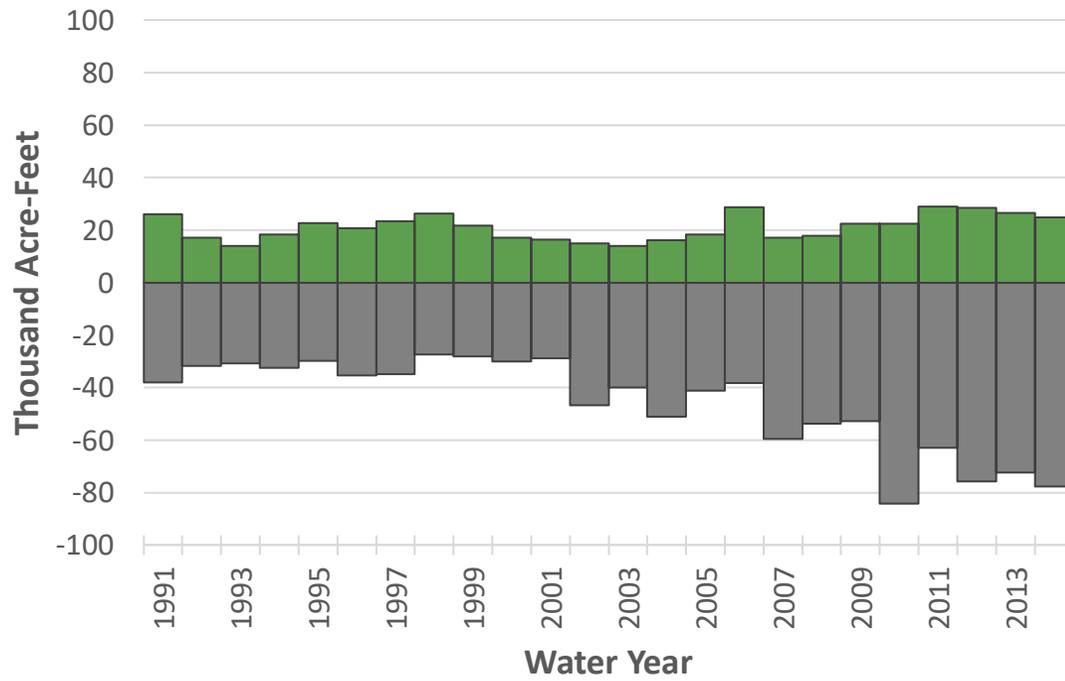
Non-District West



Net Groundwater Recharge

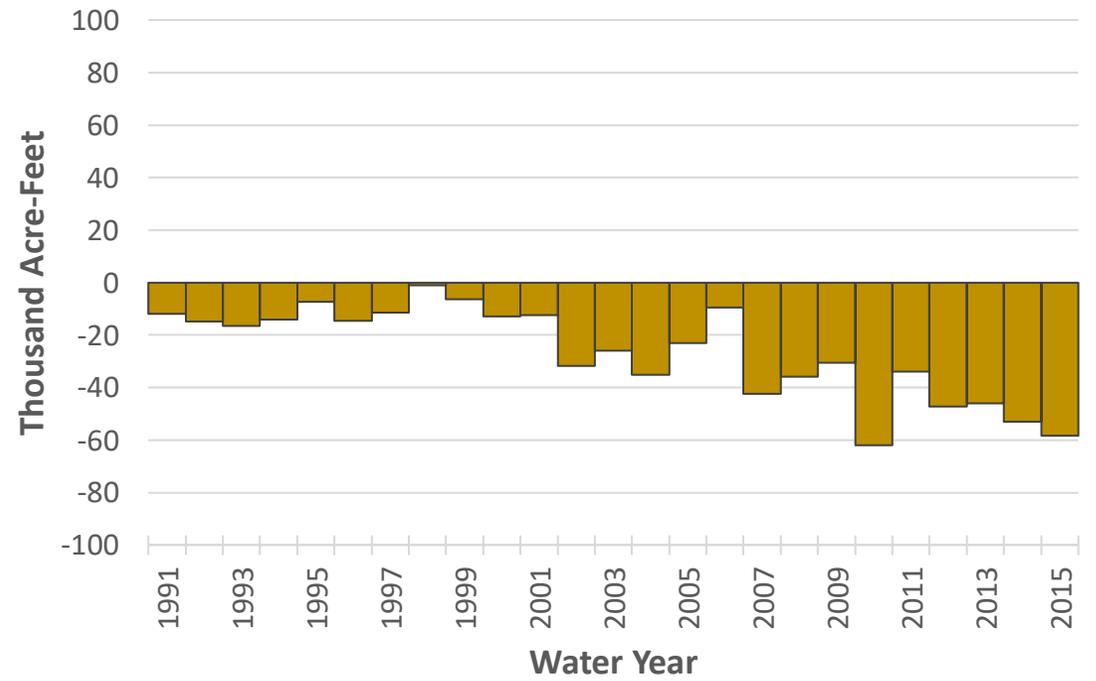
OPERATIONAL WATER BUDGETS

Non-District East



GW Production
 Percolation
 Canal & Res. Recharge

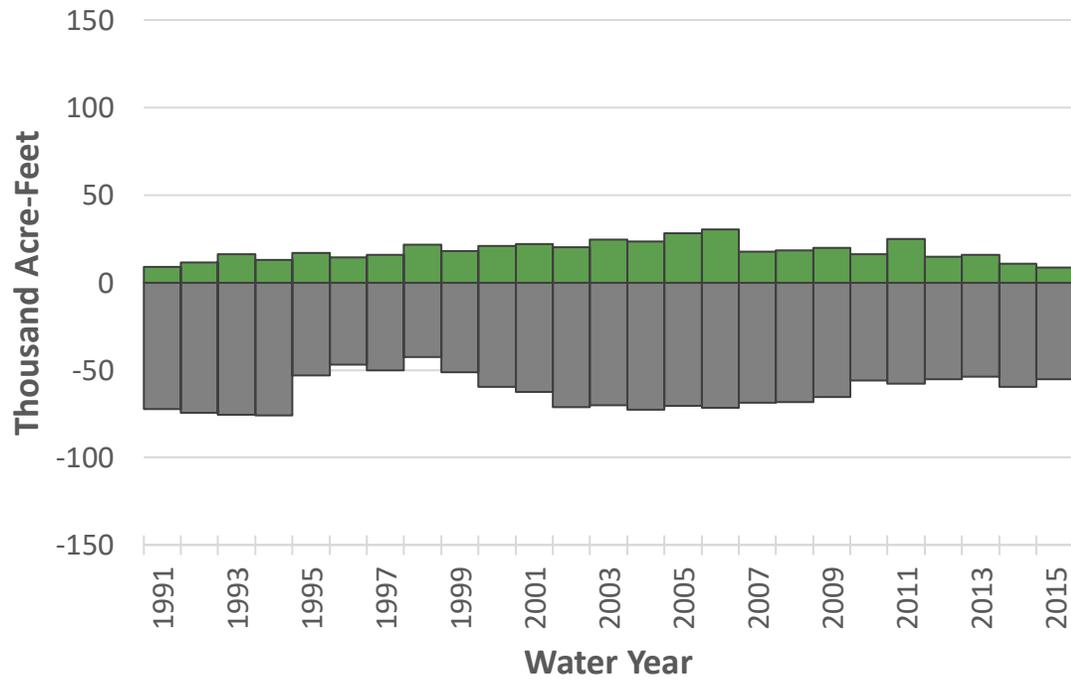
Non-District East



Net Groundwater Recharge

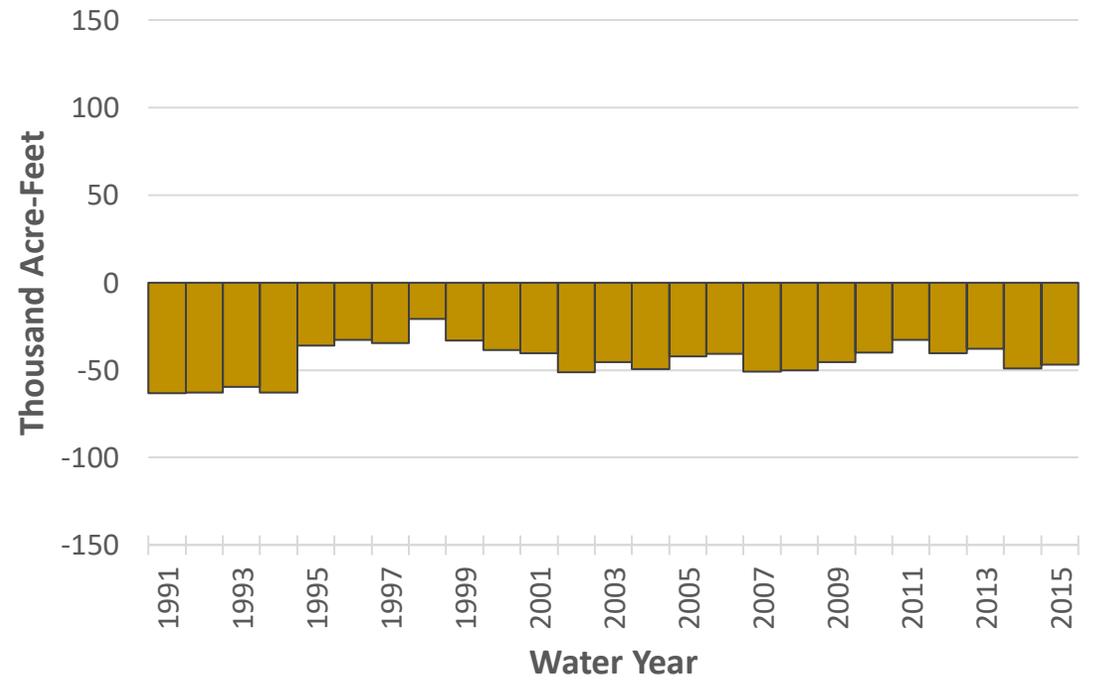
OPERATIONAL WATER BUDGETS

Municipal & Private Domestic



GW Production
 Percolation
 Canal & Res. Recharge

Municipal & Private Domestic



Net Groundwater Recharge

AGENDA: BASELINE WATER BUDGETS

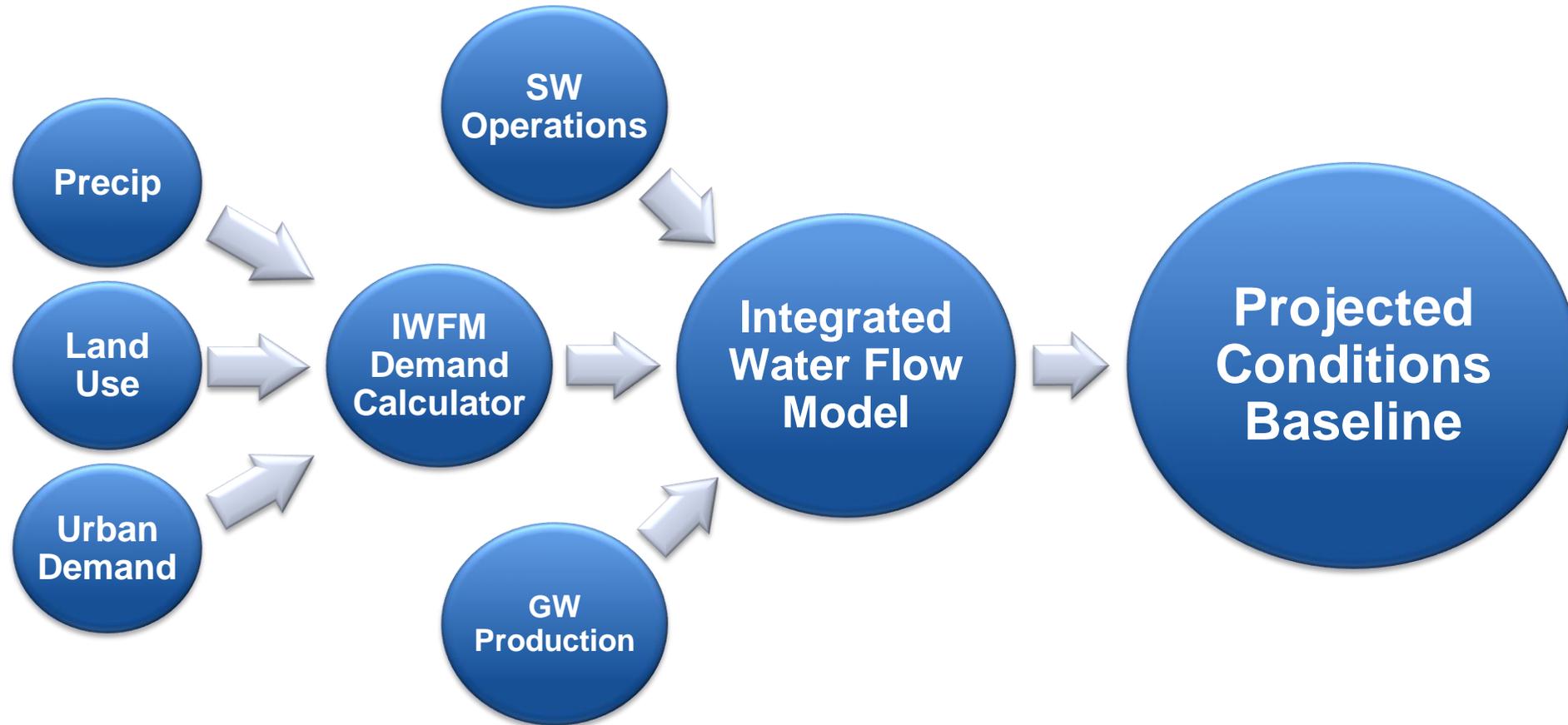
- Modeling Approach
 - Simulation Period
 - Hydrology
 - Water Demand
 - Agricultural Water Use
 - Urban Water Use
 - Water Supply
 - Surface Water Supply
 - Groundwater Supply (Agency)
 - Groundwater Supply (Private)
- Subbasin Level Water Budgets
 - Land and Water Use Budget
 - Groundwater Budget

THINGS **NOT** IN THE PROJECTED CONDITIONS

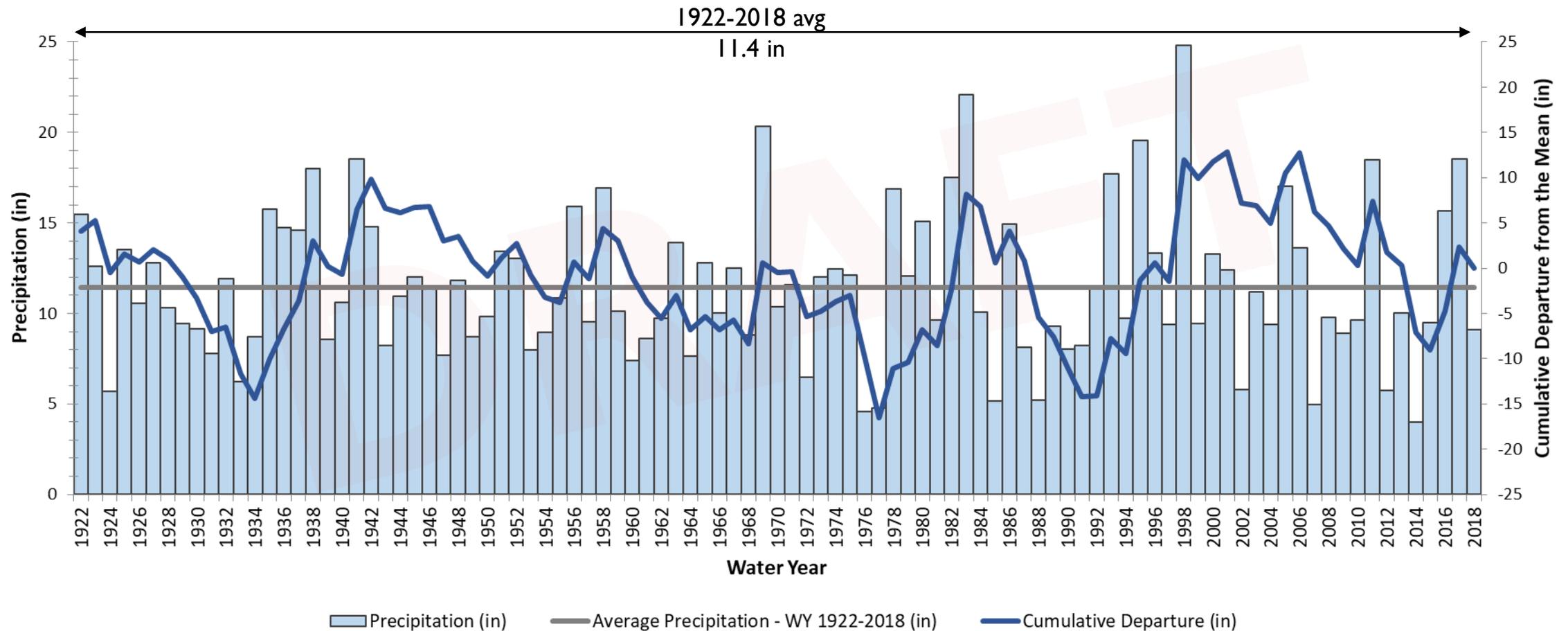
- Major shifts in cropping patterns
- FERC Relicensing
- Climate Change
- California Water Resources Control Board Regulations
 - Supplemental Environmental Document (SED)

- Additional items to be evaluated later in the GSP process
 - Projects and Management Actions

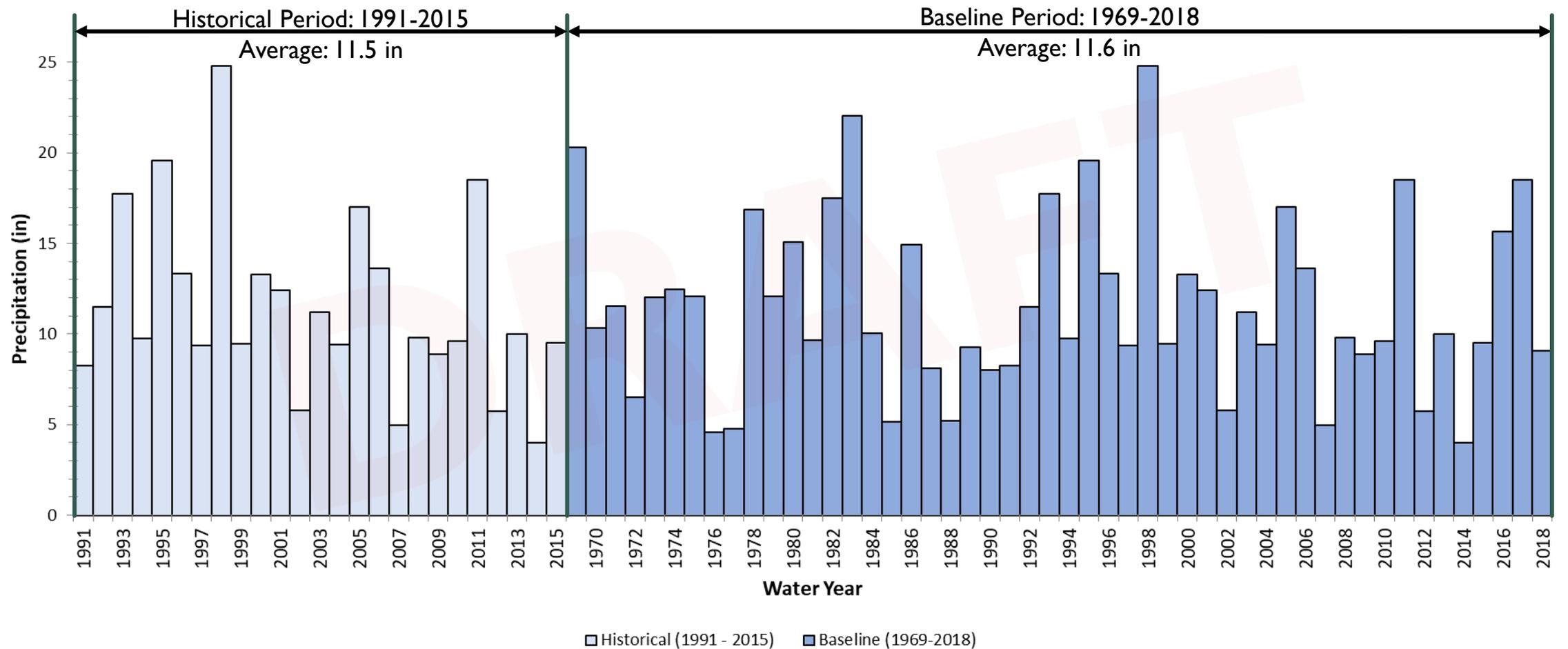
C2VSIM™ BASELINE DEVELOPMENT



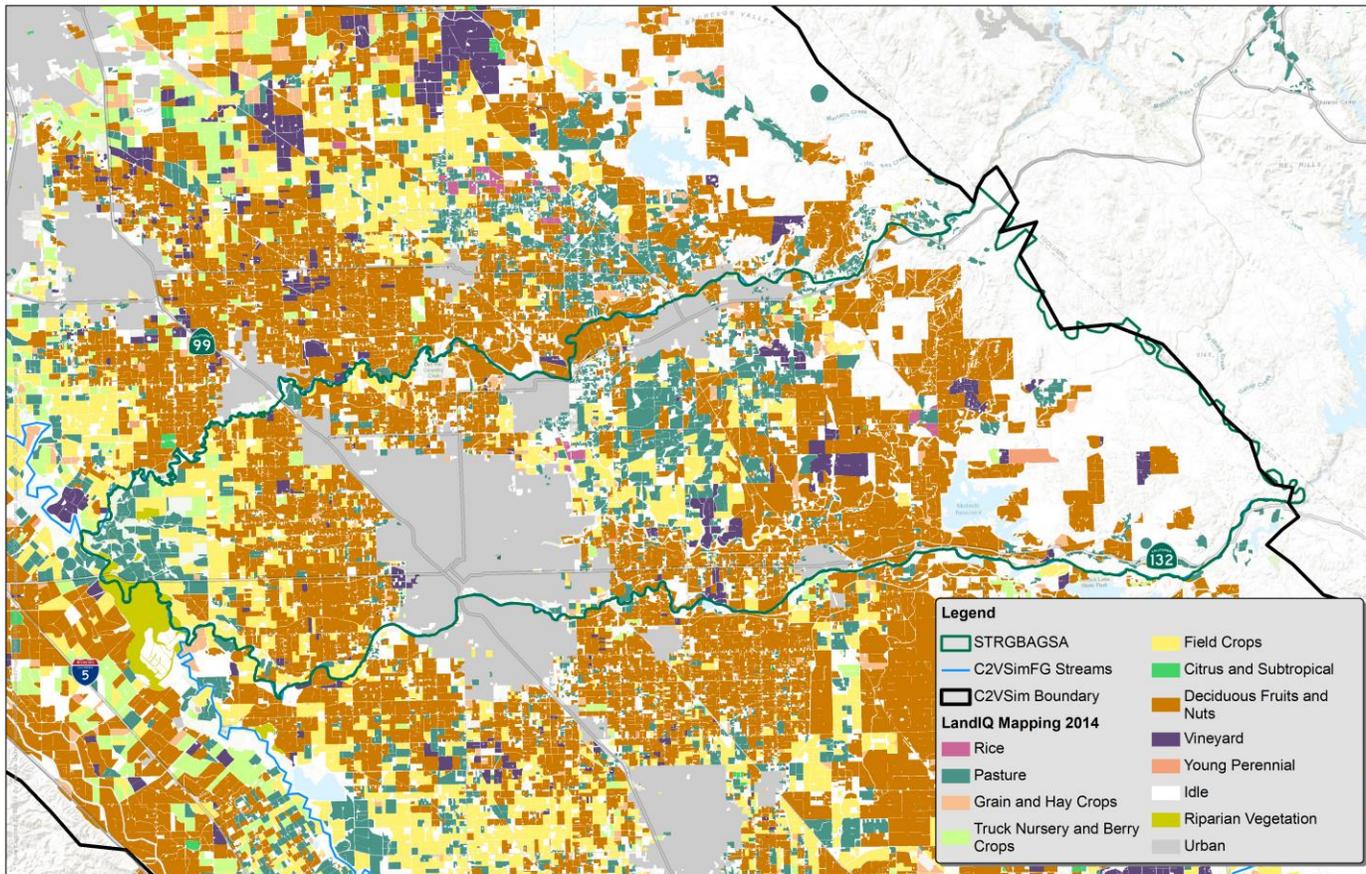
HYDROLOGIC PERIOD - PRECIPITATION



HYDROLOGIC PERIOD - PRECIPITATION



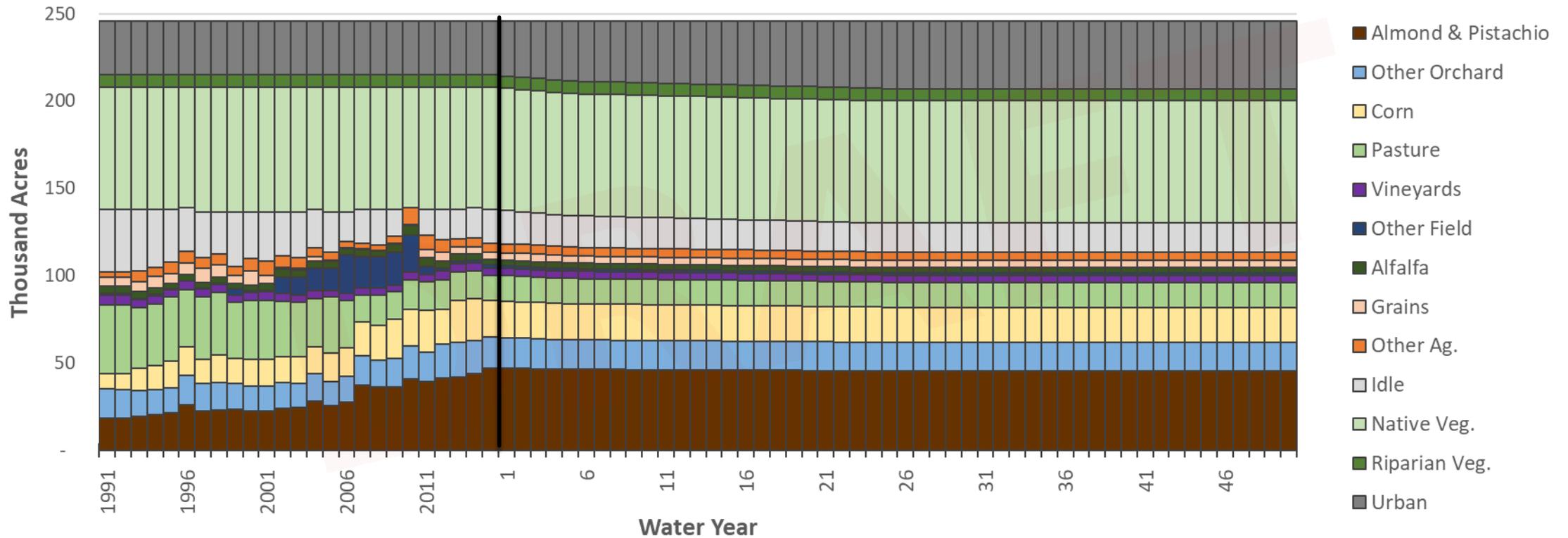
LAND USE AND CROPPING PATTERNS



Available Data

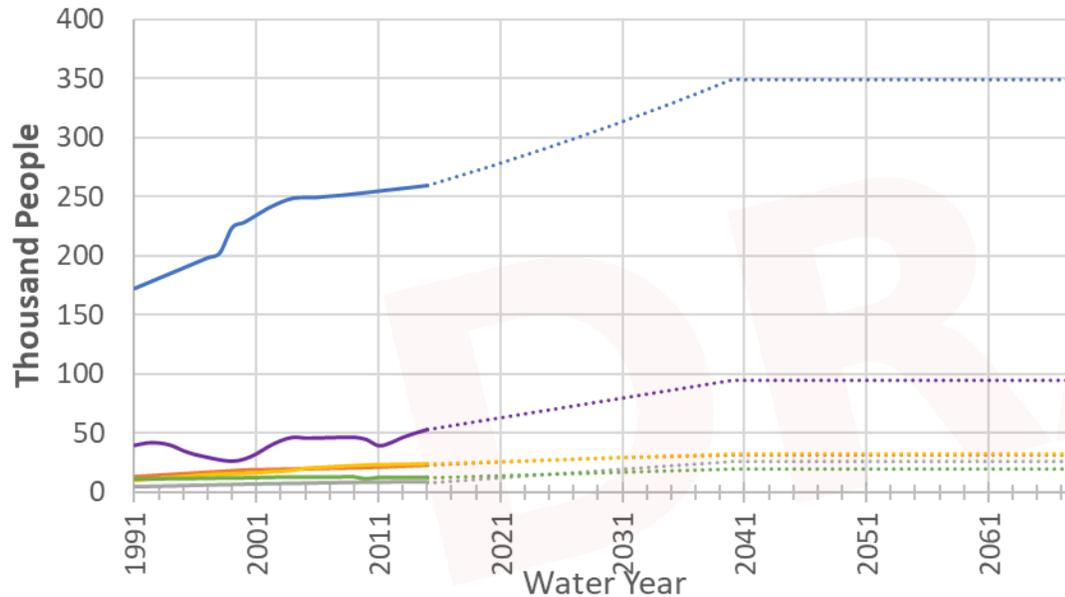
- DWR Statewide (LandIQ)
- DWR County Surveys
- MID/OID AWMP
- MOD UWMP

LAND USE AND CROPPING PATTERNS



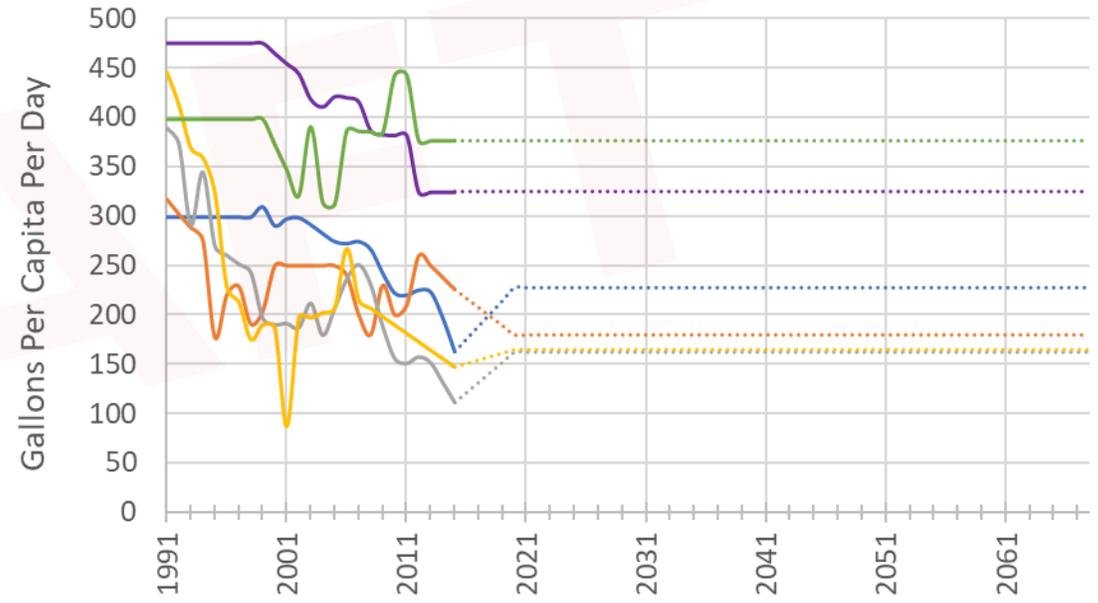
URBAN WATER DEMAND

Population



- Modesto
- Waterford
- West Modesto Uninc.
- Oakdale
- Riverbank
- East Modesto Uninc.

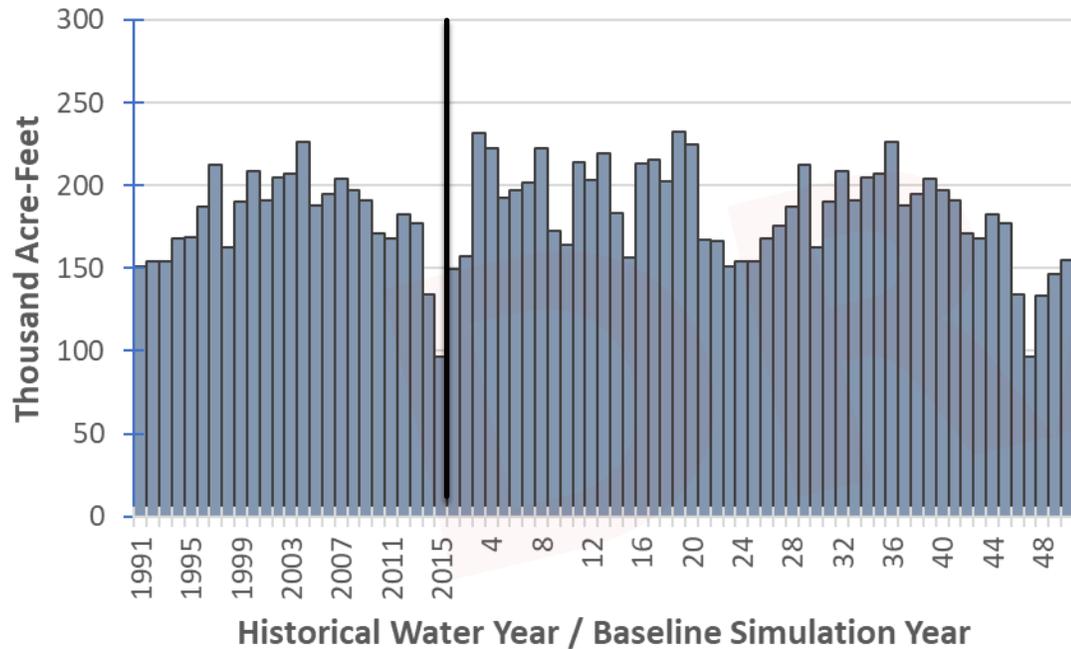
Per Capita Water Use



- Modesto
- Waterford
- West Modesto Uninc.
- Oakdale
- Riverbank
- East Modesto Uninc.

SURFACE WATER SUPPLY – FARM GATE DELIVERIES

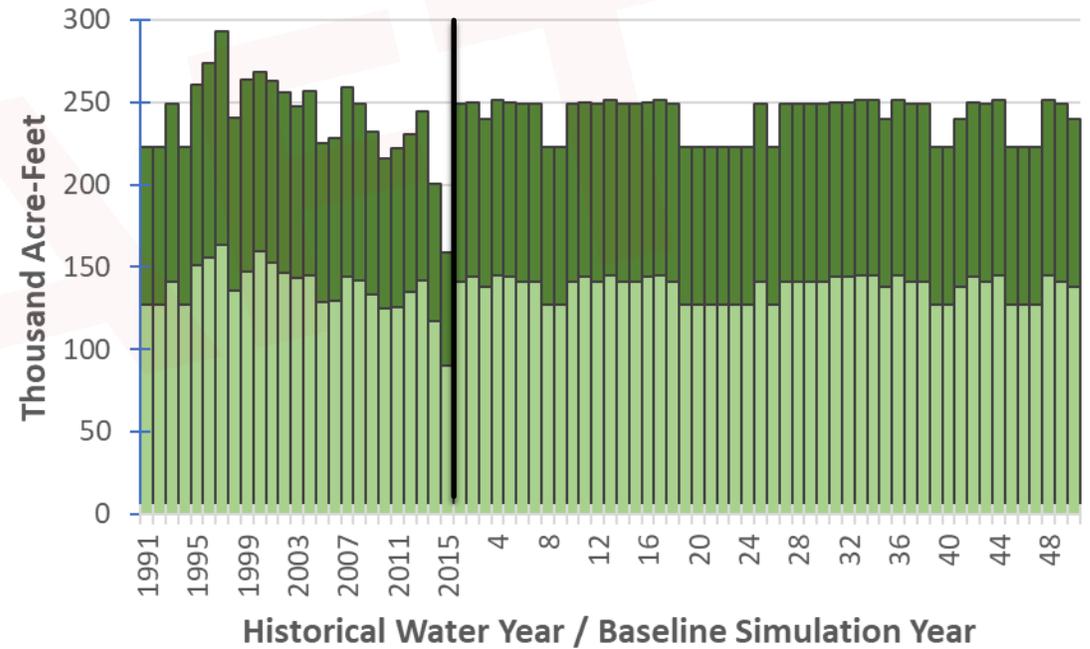
Modesto Irrigation District



■ MID

MID Deliveries include water for both ag and urban use.

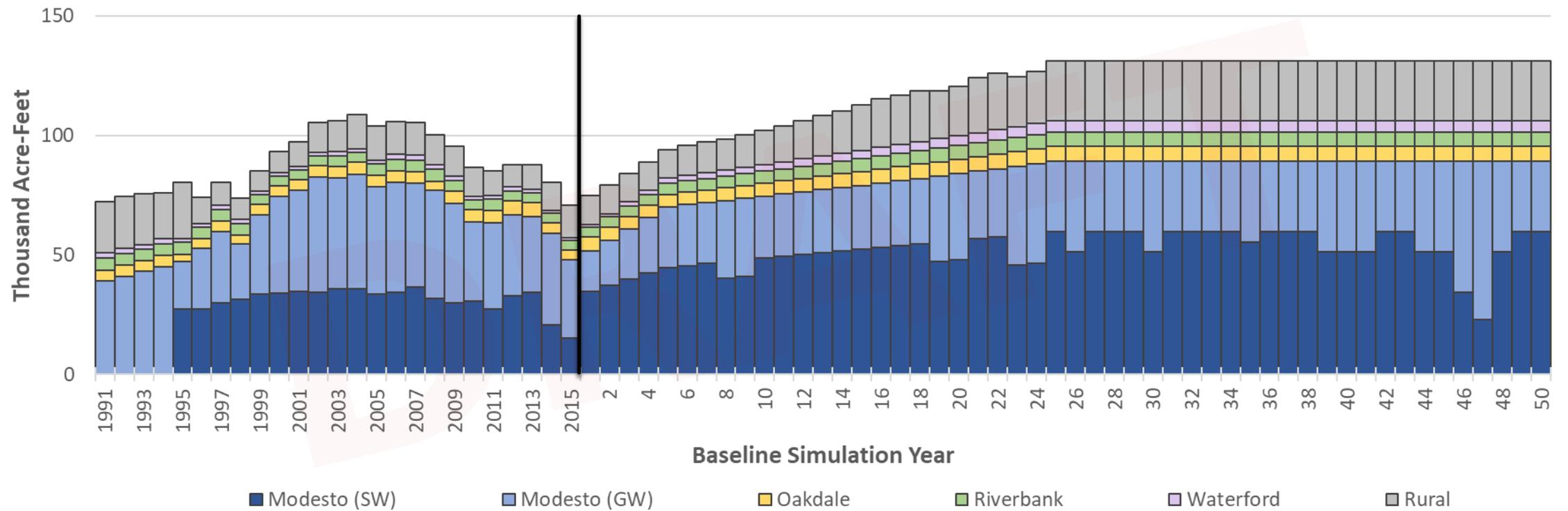
Oakdale Irrigation District



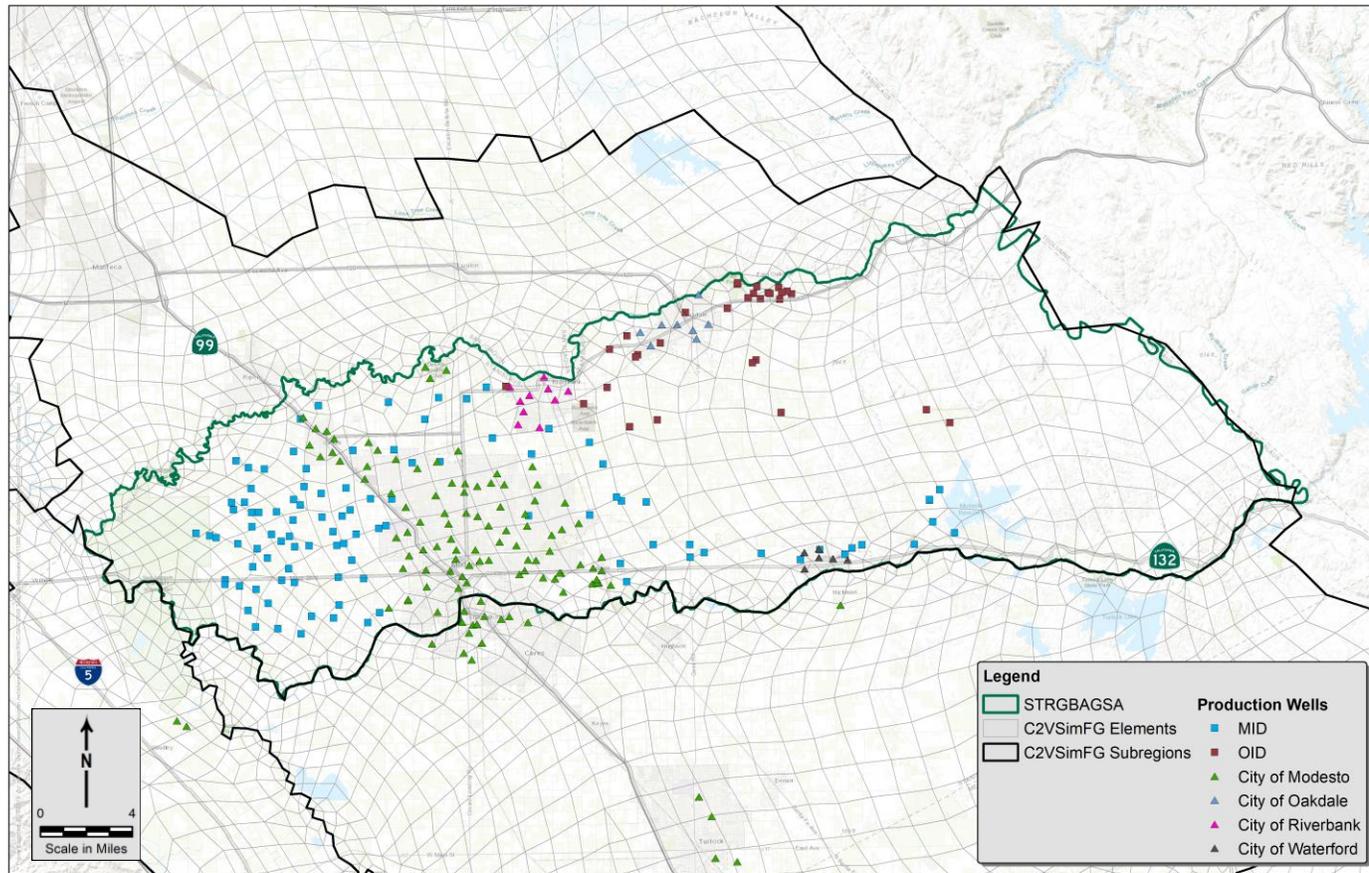
■ OID-South
(Modesto Subbasin)

■ OID-North
(ESJ Subbasin)

URBAN WATER SUPPLY

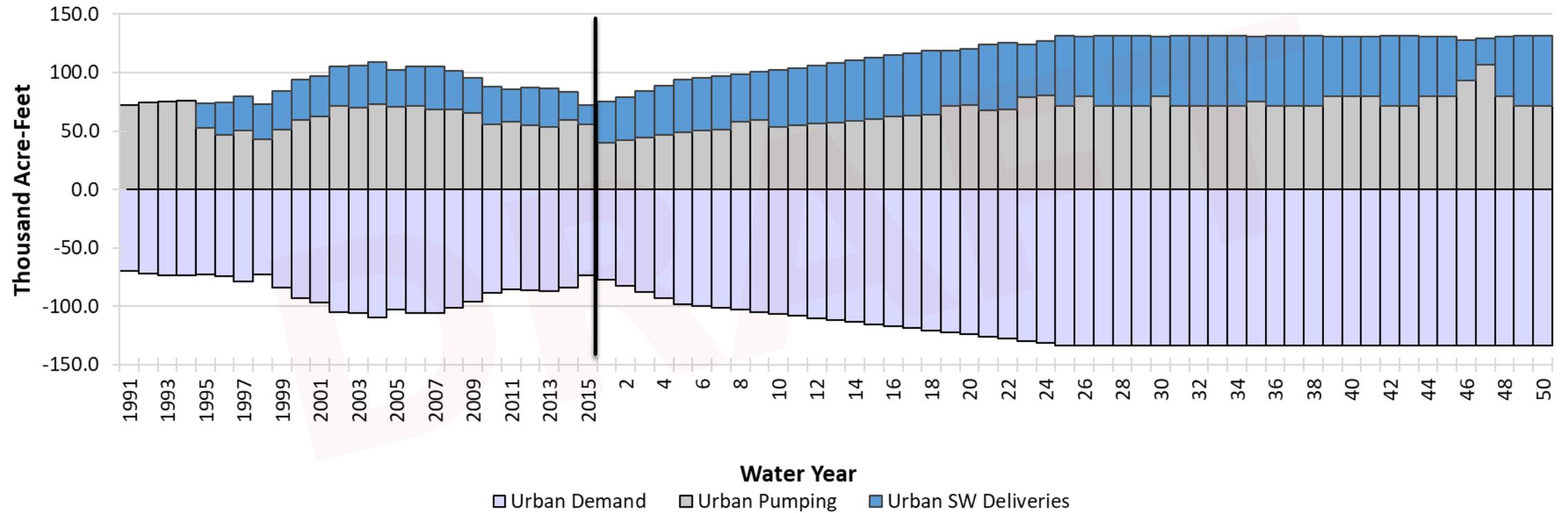


AGENCY WELLS IN THE MODESTO SUBBASIN

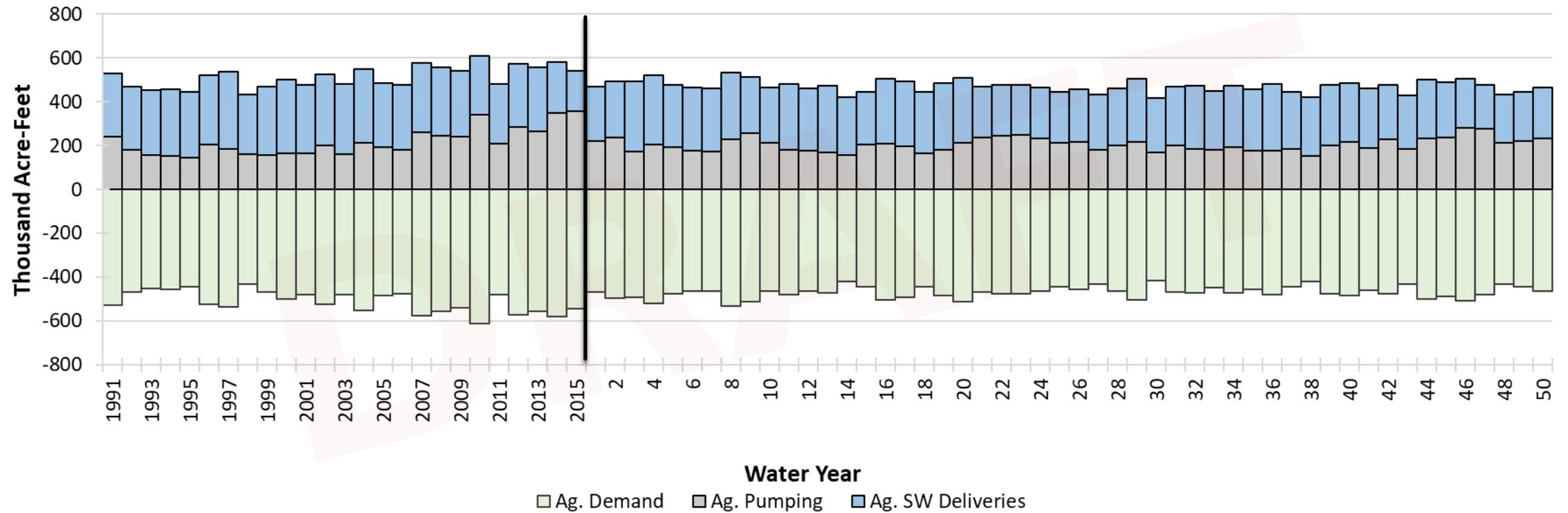


- MID/OID Ag Wells
 - Monthly historical records from each well
 - Accounting for any instillation/removal
- Urban Wells
 - Monthly historical Records from each well
 - Adjusted to meet urban demand

LAND AND WATER USE BUDGET

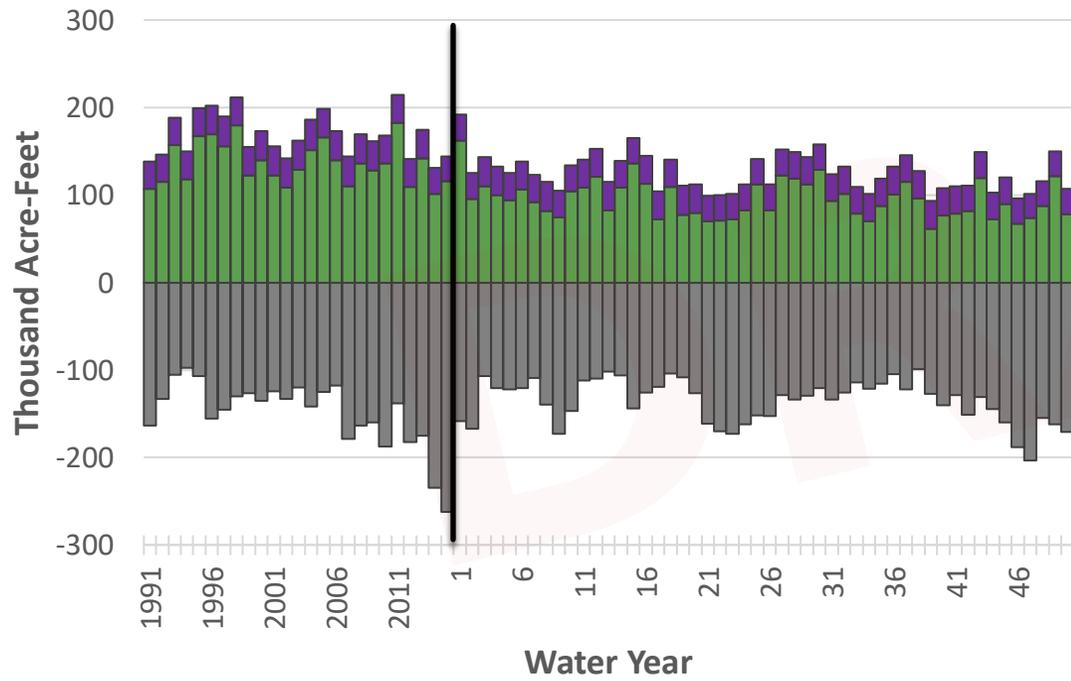


LAND AND WATER USE BUDGET



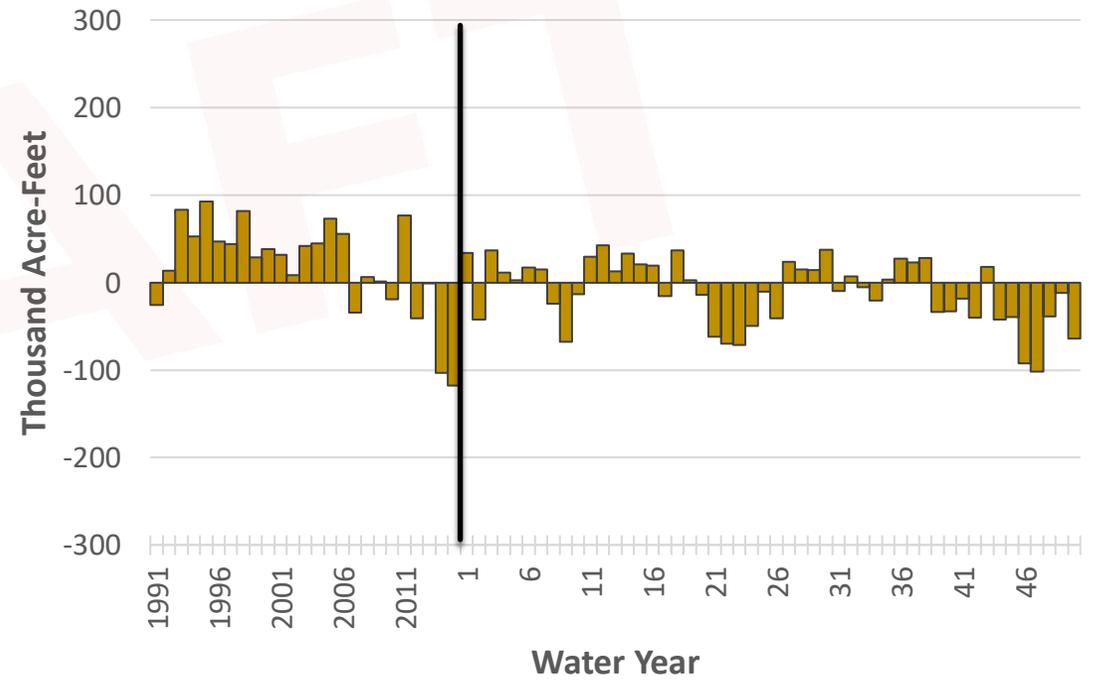
OPERATIONAL BUDGET: AGRICULTURE

Modesto Irrigation District



■ GW Production ■ Percolation ■ Canal & Res. Recharge

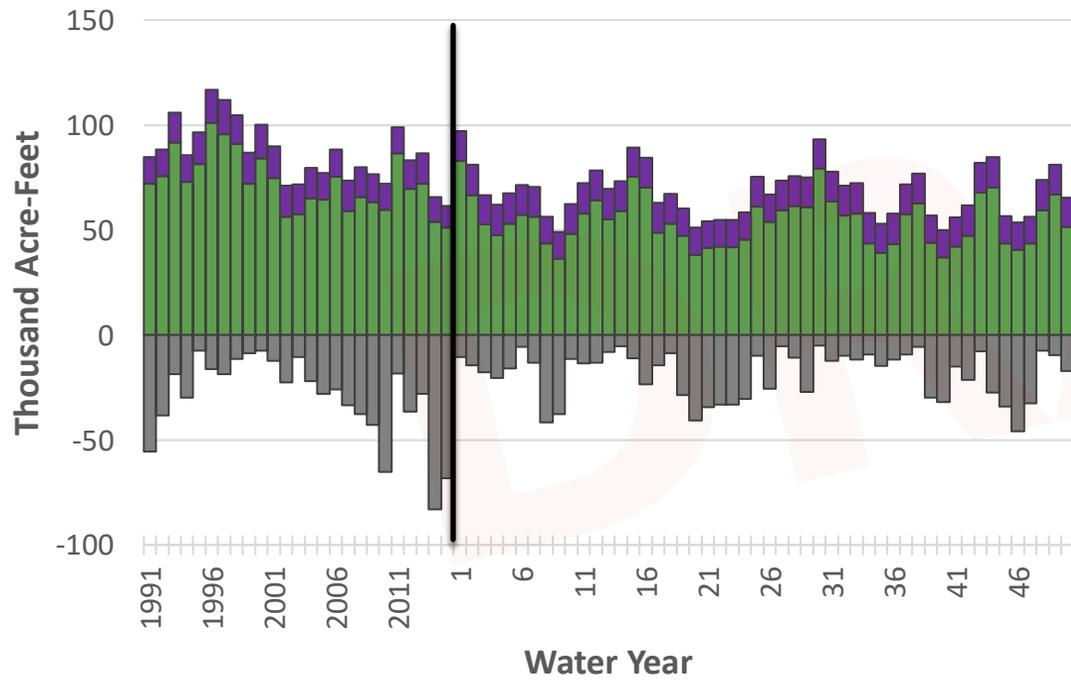
Modesto Irrigation District



■ Net Groundwater Recharge

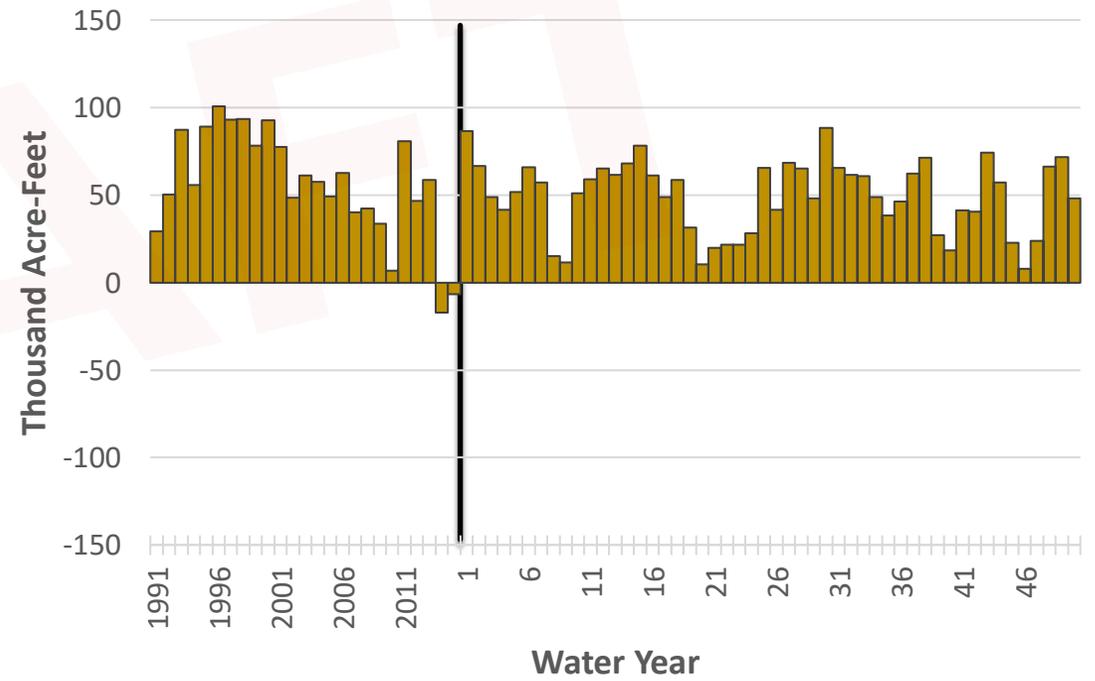
OPERATIONAL BUDGET: AGRICULTURE

Oakdale Irrigation District



■ GW Production ■ Percolation ■ Canal & Res. Recharge

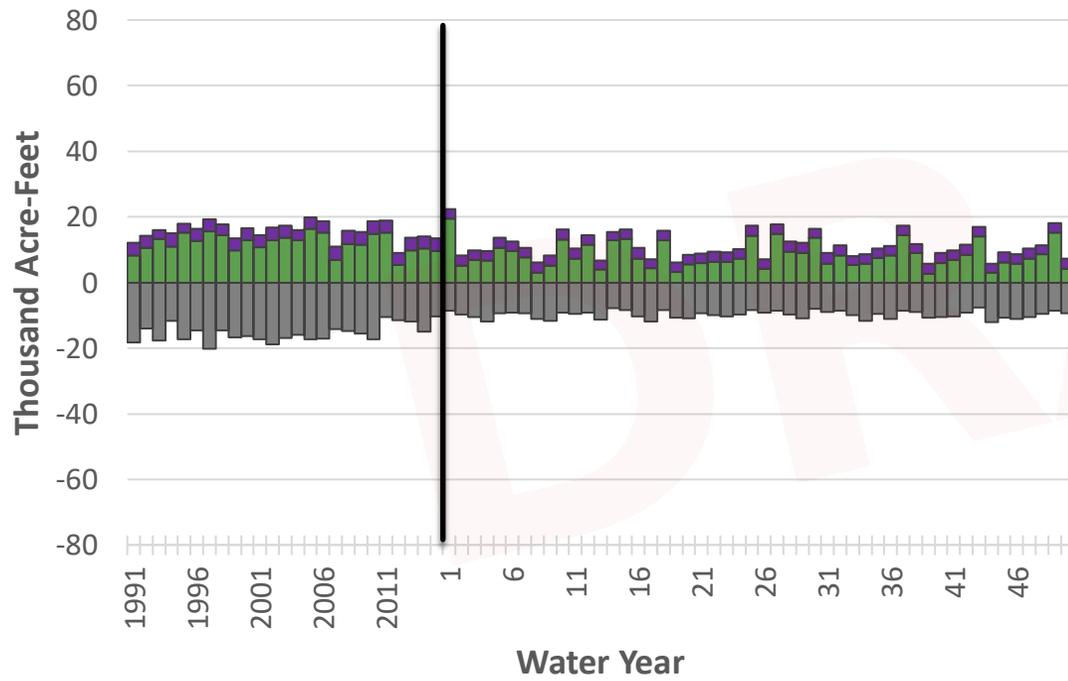
Oakdale Irrigation District



■ Net Groundwater Recharge

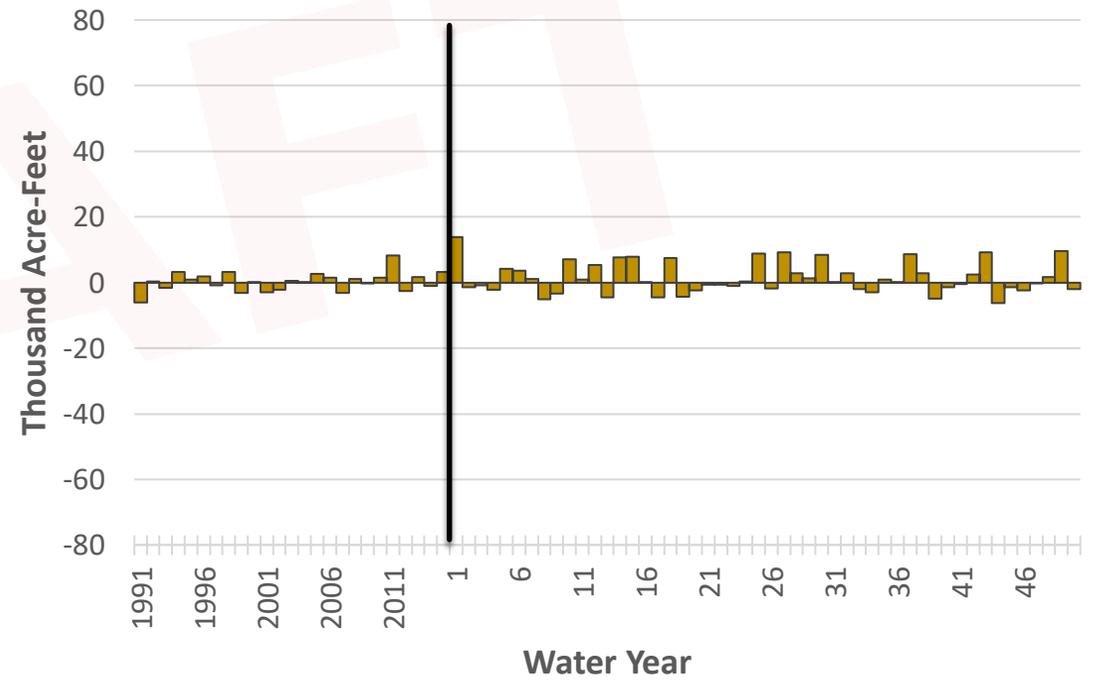
OPERATIONAL BUDGET: AGRICULTURE

Non-District West



■ GW Production ■ Percolation ■ Canal & Res. Recharge

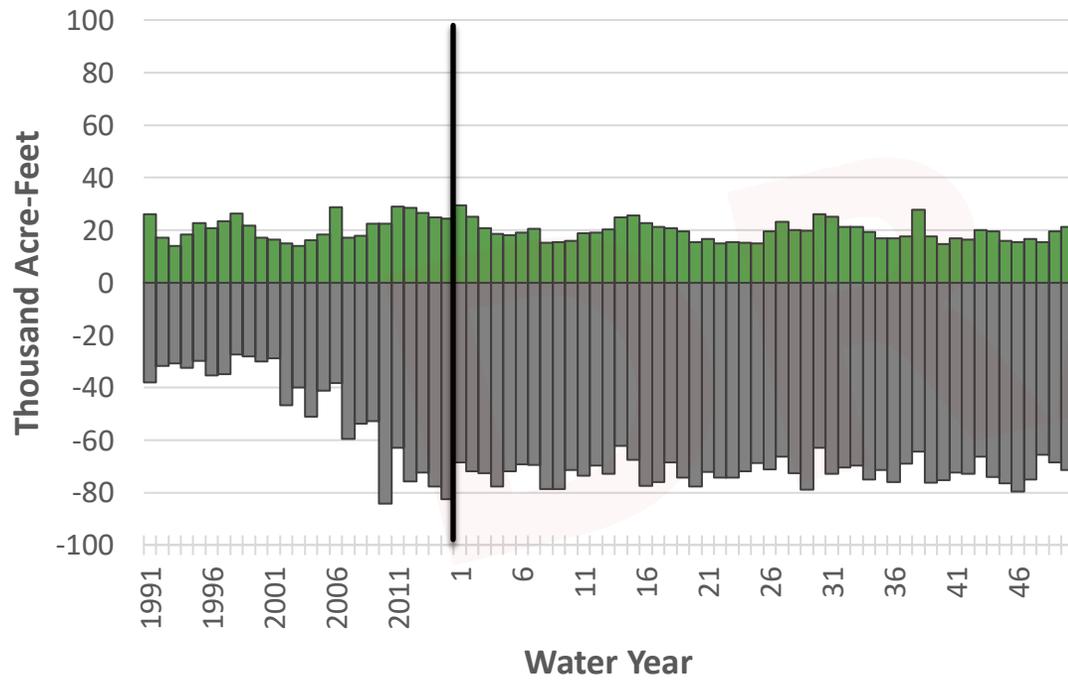
Non-District West



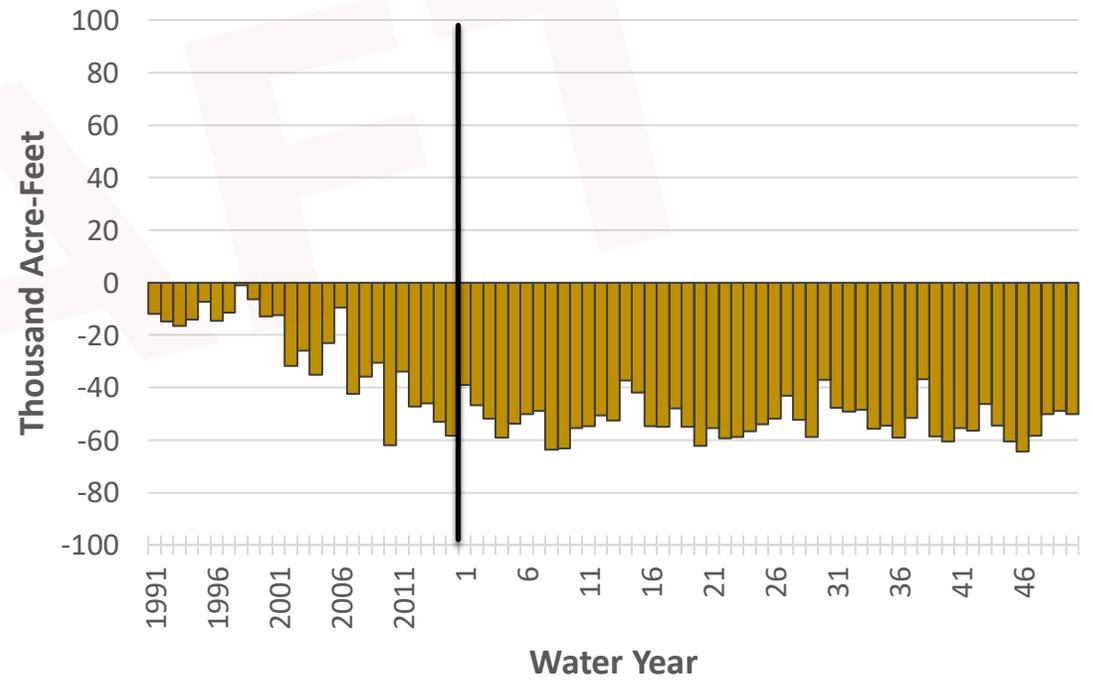
■ Net Groundwater Recharge

OPERATIONAL BUDGET: AGRICULTURE

Non-District East



Non-District East

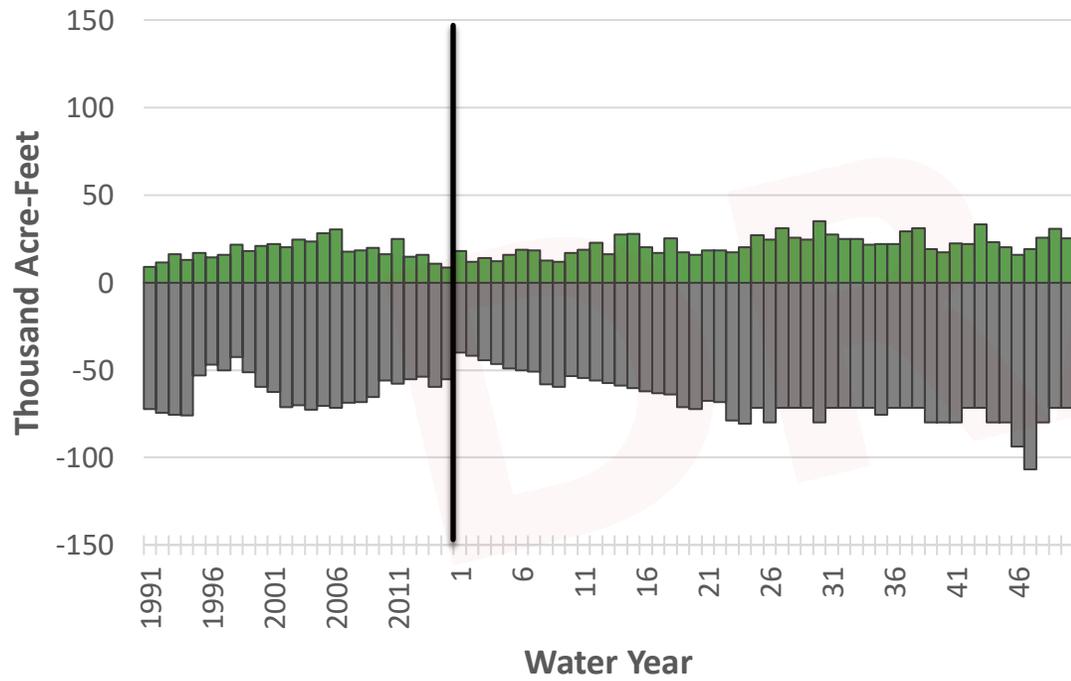


■ GW Production ■ Percolation ■ Canal & Res. Recharge

■ Net Groundwater Recharge

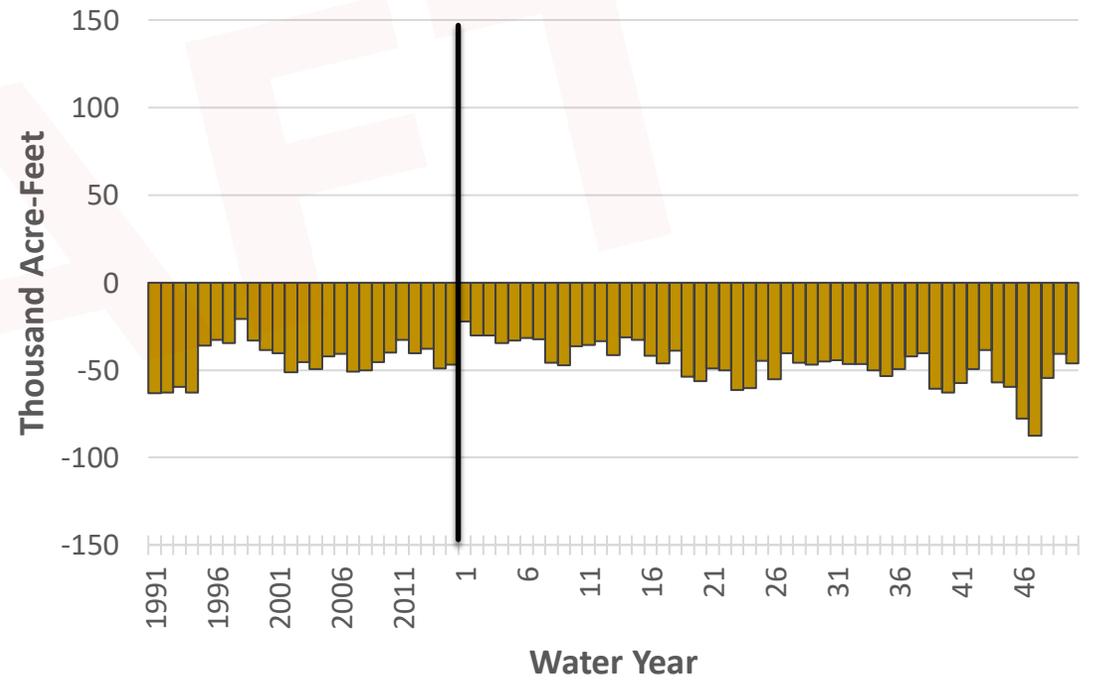
OPERATIONAL BUDGET: URBAN

Municipal & Private Domestic



■ GW Production ■ Percolation ■ Canal & Res. Recharge

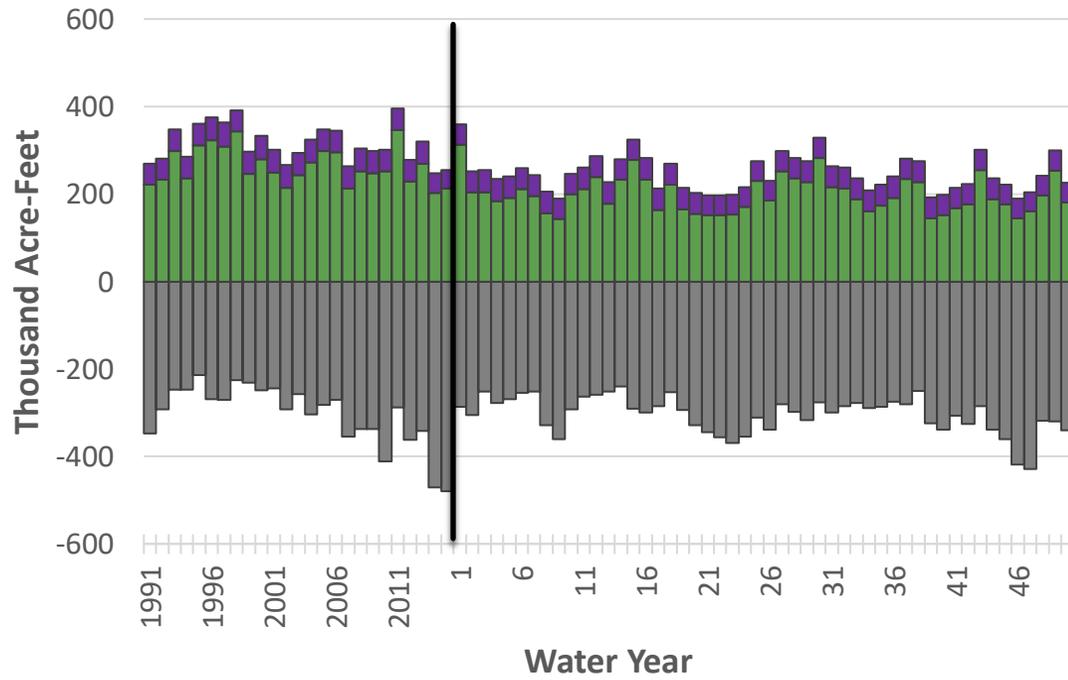
Municipal & Private Domestic



■ Net Groundwater Recharge

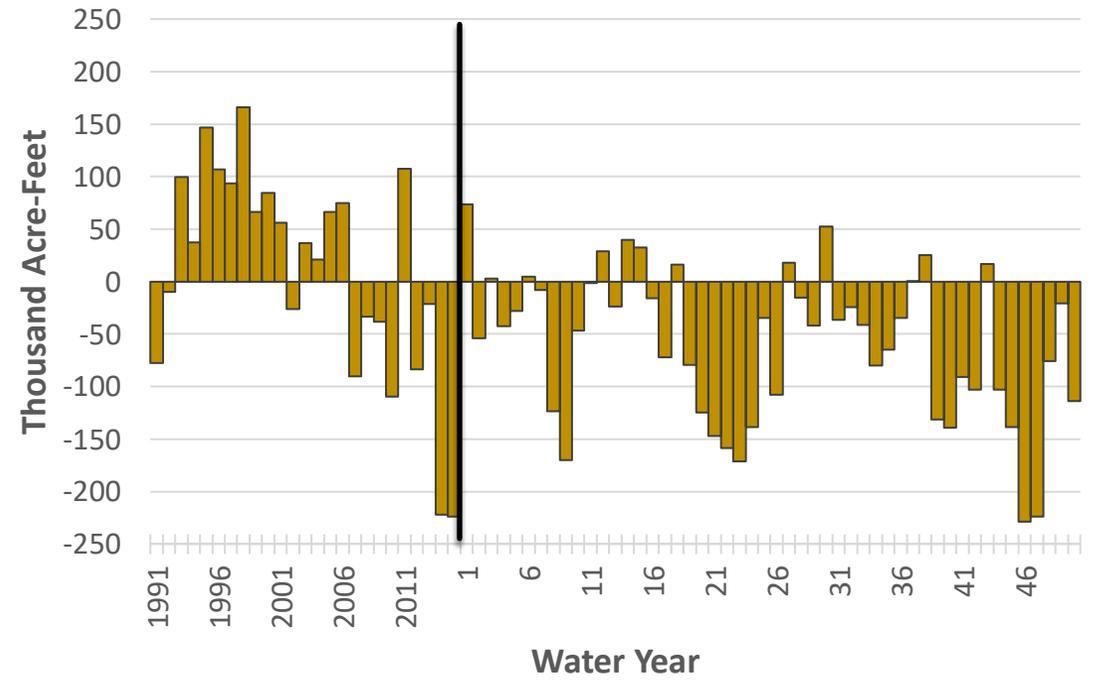
OPERATIONAL BUDGET: AG & URBAN

Modesto Subbasin



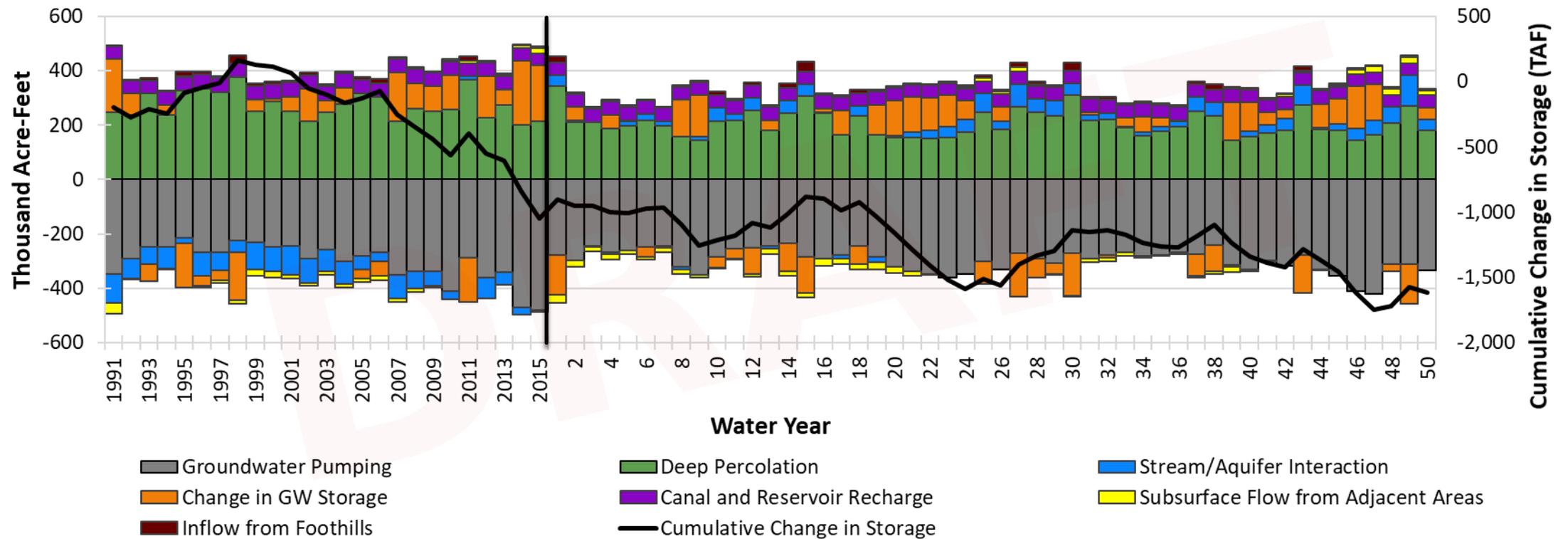
■ GW Production ■ Percolation ■ Canal & Res. Recharge

Modesto Subbasin



■ Net Groundwater Recharge

GROUNDWATER BUDGET: MODESTO SUBBASIN





QUESTIONS

