

NOTICE AND **AMENDED AGENDA OF SPECIAL MEETING**

GROUNDWATER SUSTAINABILITY AGENCY
FOR THE CENTRAL MANAGEMENT AREA
IN THE SANTA YNEZ RIVER GROUNDWATER BASIN

WILL BE HELD
AT **10:00 A.M.**, MONDAY, APRIL 12, 2021

TELECONFERENCE MEETING ONLY – NO PHYSICAL MEETING LOCATION

PUBLIC PARTICIPATION DIAL-IN NUMBER: 1-267-866-0999

MEETING ID / PASSCODE: 9282 84 1500

Public participants can view presentation materials and live video on their device.

Website: app.chime.aws (or download *Amazon Chime* app),

“Join a meeting without an account”

Meeting ID: 9282 84 1500

You do NOT need to create an Amazon Chime account or login with email for meeting participation.

Public participant phones and microphones will be muted, and webcams disabled.

Live Chat Text (online users only) will be enabled for questions.

If your device does not have a microphone or speakers, you can also call Phone Number & log in with Meeting ID listed above to listen while viewing the live presentation online.

Teleconference Meeting During Coronavirus (COVID-19) Emergency: As a result of the COVID-19 emergency and Governor Newsom’s Executive Orders to protect public health by issuing shelter-in-home standards, limiting public gatherings, and requiring social distancing, this meeting will occur solely via teleconference as authorized by and in furtherance of Executive Order Nos. N-29-20 and N-33-20. **Virtual meeting is in accordance with the SB County Health Office Order 2021-12.2**

Important Notice Regarding Public Participation in Teleconference Meeting: Those who wish to provide public comment on an Agenda Item, or who otherwise are making a presentation to the GSA Committee, may participate in the meeting using the dial-in number and passcode above. **Those wishing to submit written comments instead, please submit any and all comments and materials to the GSA via electronic mail at buelow@syrwcd.com.** All submittals of written comments must be received by the GSA no later than **Friday, April 9, 2021**, and should indicate **“April 12, 2021 GSA Meeting”** in the subject line. To the extent practicable, public comments and materials received in advance pursuant to this timeframe will be read into the public record during the meeting. Public comments and materials not read into the record will become part of the post-meeting materials available to the public and posted on the SGMA website.

In the interest of clear reception and efficient administration of the meeting, all persons participating in this teleconference are respectfully requested to mute their phones after dialing-in and at all times unless speaking.

AGENDA ON NEXT PAGE

GROUNDWATER SUSTAINABILITY AGENCY
FOR THE CENTRAL MANAGEMENT AREA
IN THE SANTA YNEZ RIVER GROUNDWATER BASIN

MONDAY, APRIL 12, 2021, 10:00 A.M.

AMENDED AGENDA OF SPECIAL MEETING

- I. Call to Order and Roll Call
- II. Introductions and review of SGMA in the Santa Ynez River Valley Basin
- III. Additions or Deletions to the Agenda
- IV. Public Comment (Any member of the public may address the Committee relating to any non-agenda matter within the Committee’s jurisdiction. The total time for all public participation shall not exceed fifteen minutes and the time allotted for each individual shall not exceed five minutes. No action will be taken by the Committee at this meeting on any public item.)
- V. Receive Staff Memorandum regarding letter from the Santa Ynez Water Group
- VI. Receive comments from CMA Citizens Advisory Committee on Draft Groundwater Conditions Technical Memorandum
- VII. Receive update from Ad-Hoc CAG Selection Committee and consider appointing two recommended candidates for the CMA Citizen Advisory Group
- VIII. Receive Presentation from Stetson Team on “Draft Water Budget” and “Sustainable Yield Preliminary Determination and Discussion”
- IX. Receive Draft Water Budget Technical Memorandum and consider public comment period.
- X. Next “Special” CMA GSA Meeting: Monday, April 26, 2021, 10:00 AM
- XI. Next “Regular” CMA GSA Meeting: Monday, May 24, 2021, 10:00 AM
- XII. CMA GSA Committee requests and comments
- XIII. Adjournment

[This **AMENDED** agenda was posted 72 hours prior to the scheduled special meeting at 3669 Sagunto Street, Suite 101, Santa Ynez, California, and <https://www.santaynezwater.org> in accordance with Government Code Section 54954. In compliance with the Americans with Disabilities Act, if you need special assistance to review agenda materials or participate in this meeting, please contact the Santa Ynez River Water Conservation District at (805) 693-1156. Notification 72 hours prior to the meeting will enable the GSA to make reasonable arrangements to ensure accessibility to this meeting.]

STAFF MEMORANDUM

DATE: April 12, 2021

TO: WMA, CMA and EMA GSA Committees

FROM: GSA Member Agency Staff

SUBJECT: Santa Ynez Water Group Letter of March 22, 2021

Please see the attached March 22, 2021 letter from Mr. Doug Circle, representing the Santa Ynez Water Group (Water Group).

In the letter, Mr. Circle explains the Water Group's requests to "minimize GSP implementation costs to the maximum extent possible". To date, many of the Water Group's comments have focused on the reduction or elimination of data gaps and additional data acquisition that are not required to implement SGMA or manage groundwater in the Santa Ynez River Valley Groundwater Basin (Basin).

The Water Group further requested that the three GSAs combine to submit one Groundwater Sustainability Plan (GSP) instead of the planned three GSPs, indicating that a single GSP approach would save costs. However, staff advises that submitting one GSP instead of three is not feasible at this time, as it would require changing the three Memorandum of Agreements (MOAs) that established the three GSAs. There is not enough time in the schedule to modify the MOAs with concurrence of the eight agencies and approval by their Boards and Councils, much less revise the current versions of the GSPs into one in the remaining time. It also must be noted that the three GSAs would need to renegotiate the various consulting agreements currently in place for preparing the three GSPs.

The three GSP documents are scheduled to be ready for review this summer. Changing the format of the documents and coordinating with the three GSAs and two consultant teams would put the submission of the GSPs by the SGMA deadline of January 31, 2022 in jeopardy.

- **Staff recommendation:** Maintain current structure under the MOAs to submit three GSPs.

Additionally, the Water Group asked that the three GSAs consider consolidating into a single GSA to further reduce costs for meetings and other administrative requirements. The GSAs will consider potential options for future governance of SGMA in the Basin once the GSPs are submitted.

- **Staff recommendation:** Prior to submittal of the GSPs, Staff from each of the eight agencies in the Basin will discuss various governance options and present the topic to each of the GSA Committees.

Santa Ynez Water Group
c/o Doug Circle
Rancho Cañada de Los Pinos LLC
doug@circlevision.com

March 22, 2021

Board of Directors, Santa Ynez River Valley Basin Eastern Management Area GSA
Chair: Brett Marymee, SYRWCD (Cindy Allan, Alternate)
Brad Joos, SYRWCD Improvement District #1 (Paeter Garcia, Alternate)
Mark Infanti, City of Solvang (Ryan Toussaint, Alternate)
Joan Hartman, County of Santa Barbara (Meighan Dietenhofer Alternate)
Citizens Advisory Group, Santa Ynez River Valley Basin Eastern Management Area

Board of Directors, Santa Ynez River Valley Basin Central Management Area GSA
Chair: Ed Andrisek, City of Buellton (John Sanchez, Alternate)
Art Hibbits, SYRWCD (Cindy Allan, Alternate)
Joan Hartman, County of Santa Barbara (Meighan Dietenhofer Alternate) (*non-voting member*)
Citizens Advisory Group, Santa Ynez River Valley Basin Central Management Area

Board of Directors, Santa Ynez River Valley Basin Western Management Area GSA
Chair: Chris Brooks, Vandenberg Village CSD (Katherine Stewart, Alternate)
Jim Mosby, City of Lompoc (Kristin Worthley, Alternate)
Bruce Nix, Mission Hills CSD (Myron Heavin, Alternate)
Steve Jordan, SYRWCD (Art Hibbits, Alternate)
Joan Hartman, County of Santa Barbara (Meighan Dietenhofer Alternate) (*non-voting member*)
Citizens Advisory Group, Santa Ynez River Valley Basin Western Management Area

c/o William (Bill) Buelow
Santa Ynez River Water Conservation District
3669 Sagunto Street, Suite 101
Santa Ynez, CA 93460

Transmitted via email attachment to bbuelow@syrwcd.com

Re: Request to Consolidate GSPs and GSAs to Mitigate SGMA Implementation Costs

Dear Directors and Staff:

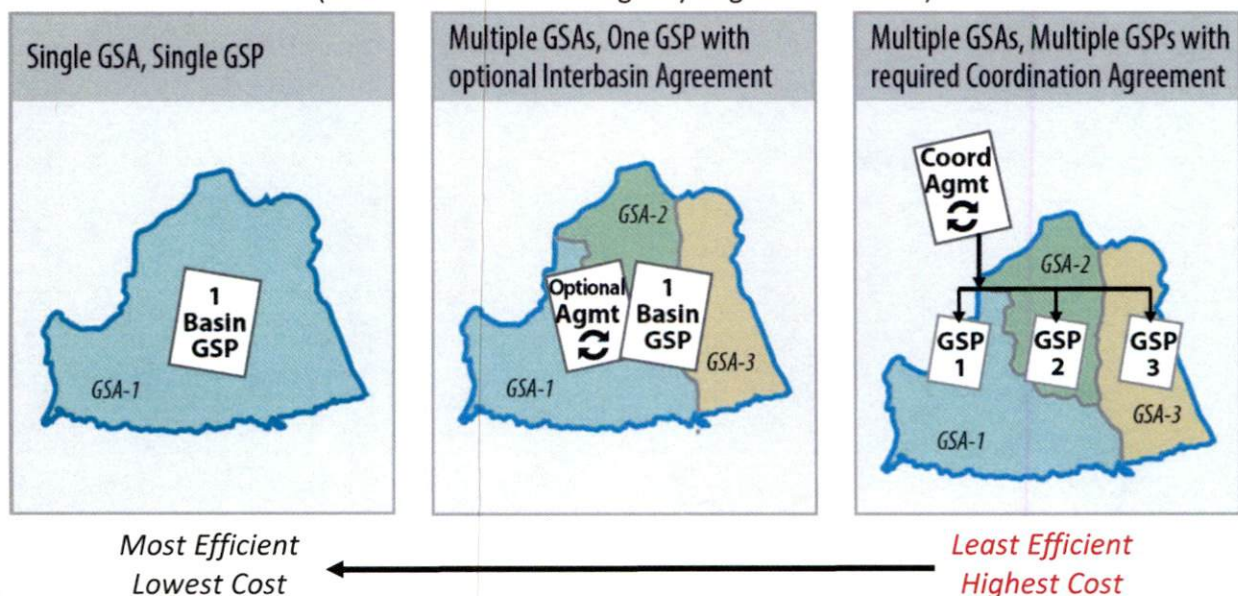
As you know the Santa Ynez Water Group (SYWG) was recently formed to engage on behalf of landowners with the three Groundwater Sustainability Agencies (GSAs) concerning development of the Santa Ynez River Valley Groundwater Sustainability Plans (GSPs). SYWG includes, vineyards, vegetables, and other interests and currently represents 54 landowners and 7,853 acres in the Santa Ynez River Valley Basin. SYWG desires to work cooperatively and collaboratively with the GSAs on planning issues that will impact sustainable management of the groundwater basin and our business.

SYWG is sending this letter to express its concerns about future costs for GSP implementation and to recommend steps that can be taken to reduce those costs. We are very concerned about implementation costs because we assume that those costs will be borne by the groundwater users in the basin through one of the fee mechanisms allowed under SGMA. Given the relatively small amount of pumping in the basin, those costs will result in significant per acre-foot pump fees that will impact our businesses and the local economy. For example, all the SGMA implementation costs for the CMA will be spread across only ~2,500 acre-feet of pumping. Assuming average annual GSP implementation costs of \$200,000, the outlook is a \$80 per acre-foot pump fee, which is very significant.

SYWG desires to minimize GSP implementation costs to the maximum extent reasonably possible. To date, our comments on draft GSP materials have focused on eliminating data collection recommendations that are not necessary for sustainable management of the Basin. We encourage the GSAs to carefully consider data needs and only commit to data collection efforts that will truly be necessary to sustainably manage the Basin. Looking ahead, we are also very concerned about the significant costs for implementing SGMA in a triplicate fashion with three GSAs and three GSPs.

GSP implementation costs will be significant. At a minimum, each GSA must develop and submit annual reports each year and update the GSP at least once every five years. The costs alone will be significant. Given the current management structure (three GSAs and three GSPs), a significant amount of effort will be triplicated. Clearly, preparing three annual reports and updating three GSPs will be significantly more expensive than preparing one annual report each year and updating one GSP. As shown in the DWR graphic below (Figure 1), it is perfectly acceptable for the three GSAs to adopt a single GSP for the Basin, which would eliminate the triplicated efforts going forward. In fact, DWR prefers this approach in basins that have multiple GSAs.

Figure 1
GSA and GSP Options for SGMA Implementation
(Source: DWR GSP Emergency Regulations Guide)



SYWG strongly recommends that the GSAs change their approach to a single GSP. The single GSP would incorporate differential management in WMA, CMA, and EMA by establishing three management areas¹ and specific objectives each, as is provided for in SGMA. A single GSP would reduce annual reporting and GSP update costs going forward because only one annual report and one GSP updated would be needed, instead of three. Additionally, we recommend exploring whether the three GSAs could eventually be consolidated into a single GSA to further reduce costs for meetings and other administrative activities.

It is not too late to decide to adopt a single GSP for the Basin. It is important that a decision to prepare and adopt a single GSP for the Basin be made now, as there is still time to implement this change before GSP adoption deadline in January 2022. If a single GSP is not adopted, it may be difficult or impossible to consolidate the GSPs later.

We respectfully request that the GSAs place an agenda item on the next Board meeting agendas to discuss this and that the three GSA Boards come together in a joint meeting as soon as possible to discuss switching to a single GSP.

Please let us know if there is anything SYWG can do to further the recommendations communicated in this letter.

Sincerely,



Doug Circle

cc: SYWG Members

Bryan Bondy, Bondy Groundwater Consulting, Inc.

¹ GSP Emergency Regulations § 354.20(a): Each Agency may define one or more management areas within a basin if the Agency has determined that creation of management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives than the basin at large, provided that undesirable results are defined consistently throughout the basin.

**CENTRAL MANAGEMENT AREA
CITIZEN ADVISORY GROUP
MEMORANDUM**

DATE: April 12, 2021

TO: CMA GSA Committee

FROM: CMA Citizen Advisory Group
(representative Jeff Newton)

SUBJECT: Review and Discussion Draft Groundwater Conditions Technical Memorandum

Attendees

CMA CAG Members in attendance: Sean Diggins, Jeff Newton, Sharyne Merritt, Cindy Douglas

Consultants and Staff in attendance: Bill Buelow (SYRWCD), Curtis Lawler and Miles McCammon (Stetson Engineers), and Matt Young (County of Santa Barbara)

Purpose

The CMA GSA Committee requested staff for the GSA agencies to coordinate meetings of the CMA CAG. Through a coordinated effort, the CAG held a meeting via teleconference due to the COVID-19 restrictions. The meeting was held on March 18, 2021. The purpose of the meetings was for the CMA CAG (CAG) to review the Draft Groundwater Conditions Technical Memorandum. The Memorandum was prepared by the Stetson Engineer's team. A copy of the documents was made available to the CAG prior to the meeting at www.SantaYnezWater.org.

CAG Comments on the Draft Groundwater Conditions Technical Memorandum:

- Some CAG members suggested that the groundwater levels and storage data appear to indicate that CMA aquifers are in good condition. The consultants generally concurred that the basin appears to be in balance at this time.
- CAG members expressed confusion around whether or not the Upper Aquifer is the river flow only. It is also not clear as to whether there is an interaction between the Upper Aquifer and Lower Aquifer (Buellton Uplands). Perhaps a document edit can clarify these questions. The consultants suggested that there is little interaction between the river alluvium and the Buellton Uplands.
- CAG members agree that additional well data in the Buellton Uplands would be useful.
- CAG members suggested potential GDE's should be screened before adopting the GSP. The consultants indicated screening will be wrapped up prior to finalizing the GSP.
- Some CAG members noted that land subsidence does not appear to be a problem in the CMA and questioned the need for additional study. The consultants indicated that some minimal level of confirmation is required by SGMA guidelines.
- Some CAG members questioned whether water quality is an issue in the CMA. The consultants indicated that water quality is a broad subject including both domestic and agricultural aspects. They indicated that the CMA data doesn't suggest a deterioration of water quality, but that monitoring is on-going.
- The Santa Ynez Water Group has expressed a concern about the future costs of the GSP implementation and recommended steps to reduce those costs. For instance, the three GSA's could adopt a single GSP for the basin.

CENTRAL MANAGEMENT AREA MEMORANDUM

DATE: April 12, 2021
TO: CMA GSA Committee
FROM: CMA Ad-Hoc Committee
SUBJECT: Review CAG Applicants and Recommendation

Ad-Hoc Attendees

CMA Ad-Hoc Members in attendance: GSA Committee Member Art Hibbits (SYRWCD); Bill Buelow (SYRWCD) and Rose Hess (City of Buellton)

Purpose

The CMA Ad-Hoc Committee met on March 1, 2021 to review received applications for two open positions on the CMA Citizen Advisory Group (CAG). After reviewing the five received applications the Ad-Hoc Committee is recommending the following two applicants for the CMA GSA's consideration to fill the open positions:

Ms. Deby Laranjo of Buellton, CA; and
Mr. Len Fleckenstein of Buellton, CA

If the CMA GSA Committee approves the recommendation, Ms. Laranjo and Mr. Fleckenstein are both available to participate in CMA GSA meetings immediately.

CMA

Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

April 12 2021

Stakeholder Workshop



DUDEK

Geosyntec
consultants

engineers | scientists | innovators

1

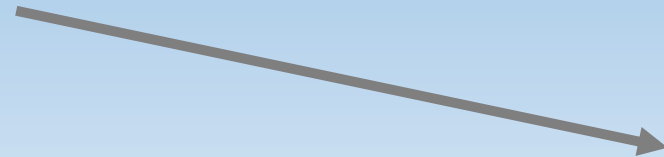
Housekeeping

- Recording the meeting for the purpose of capturing public feedback
- Recording can be made available upon request
- Opportunities for public feedback and questions throughout the workshop
- Website for additional information:



www.santaynezwater.org

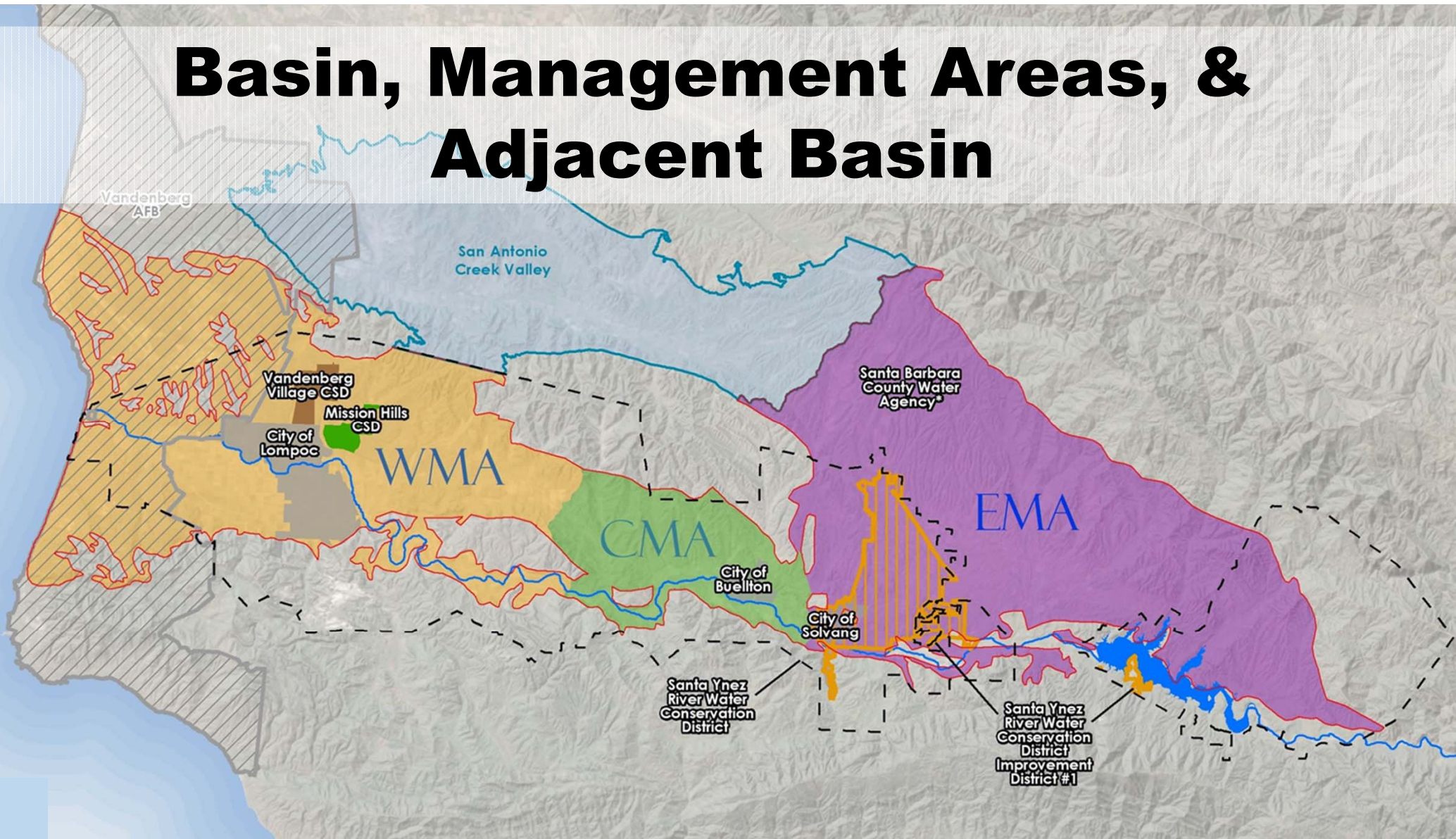
- Slide numbers in lower right



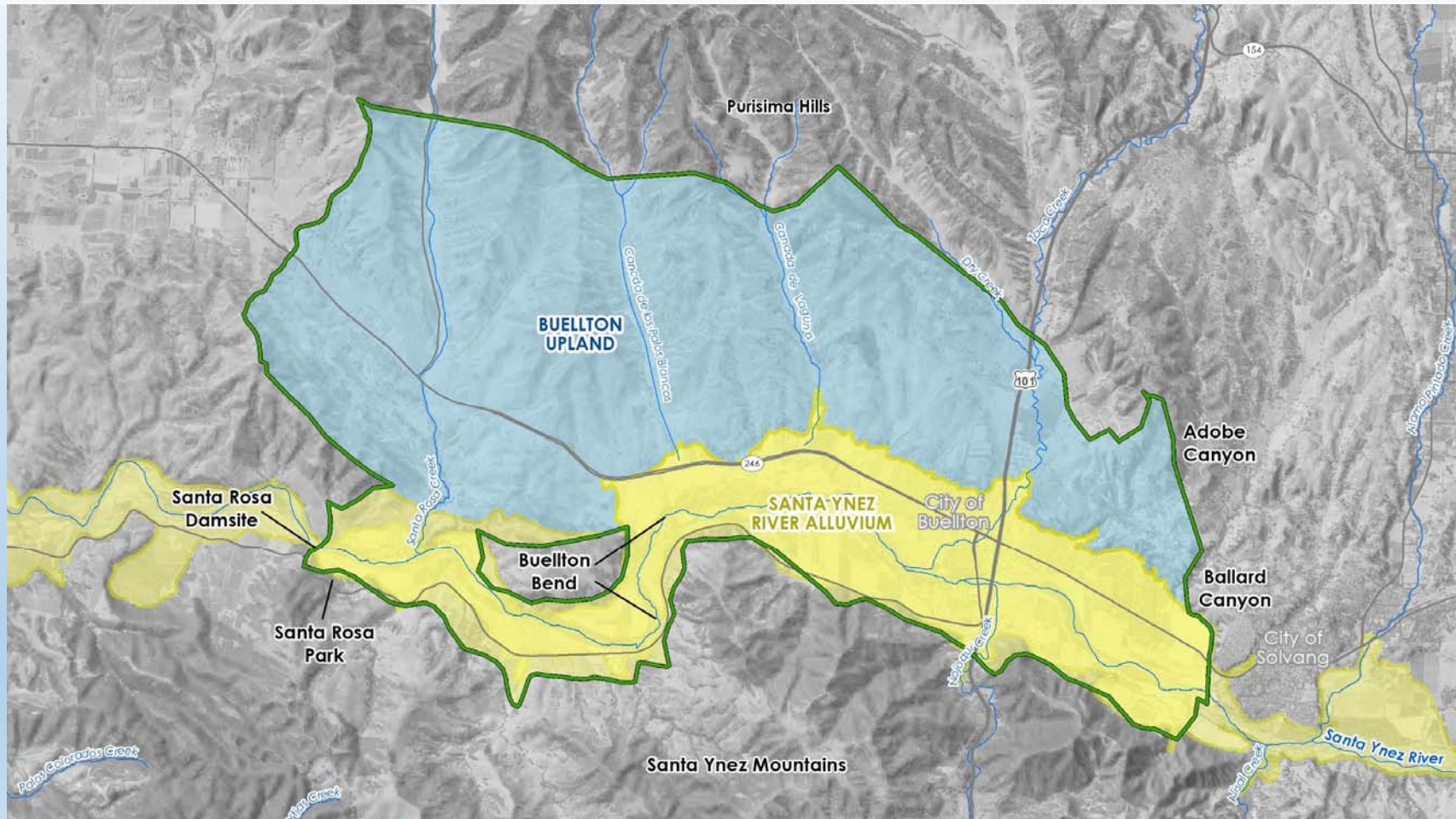
Agenda

1. Water Budget and Sustainable Yield Preliminary Determination and Discussion
 1. Time periods and data sources
 2. Historical and Current Analysis Results
 3. Future Period Assumptions and Analysis Results
2. Way Ahead/ Schedule

Basin, Management Areas, & Adjacent Basin



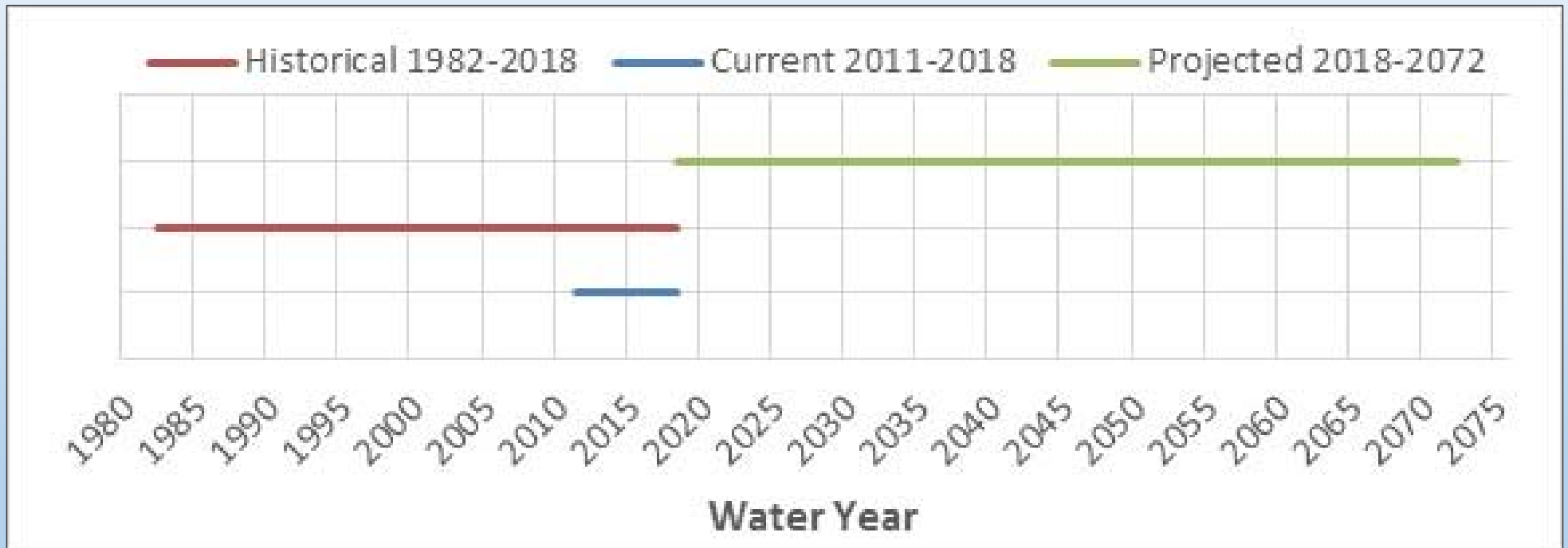
CMA Subareas



Water Budget and SGMA – Background/ Goals

- SGMA requires that the GSP one water budget include: “the total annual volume of groundwater and surface water entering and leaving the basin, including historical, current and projected water budget conditions, and the change in the volume of water stored.” (GSP Regulations 23 CCR 354.18.)
- Other requirements:
 - Coordinated water budget for the basin
 - The water year type associated with the annual supply, demand, and change in groundwater stored.
 - If overdraft conditions occur, as defined in Bulletin 118, quantification of overdraft over average conditions.
 - An estimate of sustainable yield for the basin.

Water Budget Time Periods



Historical Time Period - Baseline

- **Historical – 1982 -2018**

- **37 years, with two major drought periods**

Meets SGMA requirement of extending back at least 10 years.

- **Overall Balanced Average period**

Average precipitation at Buellton Fire Station is 16.6 inches per year for the period of 1955–2020 and 17.0 inches for the period of 1982–2018 (<2% difference).

- **Pumping and Diversion records reported to District starting early 1980s**

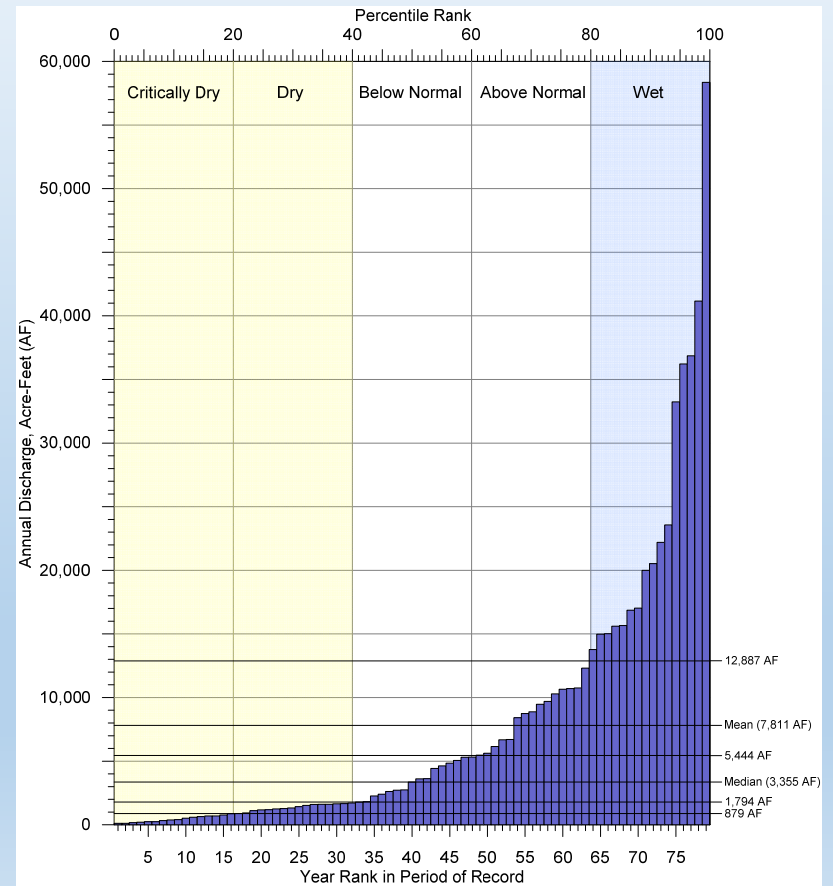
- **Coordinated with EMA and WMA**

Water Year	Buellton Fire Station		Hydrologic Year Type Classification ¹		Climatic Trends ³
	Precipitation (in/year)	% of Average ²	CMA USGS Gage 11132500 (Saksipuedes Creek)	Upper Santa Ynez River SWRCB WRO 2019-148	
1982	14.4	86%	Dry	Below normal	Wet
1983	38.8	233%	Wet	Wet	Wet
1984	10.0	60%	Below normal	Above normal	Dry
1985	12.2	74%	Dry	Dry	Dry
1986	19.3	116%	Above normal	Above normal	Dry
1987	11.2	67%	Dry	Critical	Dry
1988	17.3	104%	Dry	Dry	Dry
1989	7.3	44%	Critical	Critical	Dry
1990	6.7	40%	Critical	Critical	Dry
1991	17.9	107%	Below normal	Above normal	Dry
1992	27.1	163%	Above normal	Wet	Wet
1993	27.4	165%	Wet	Wet	Wet
1994	12.6	76%	Below normal	Below normal	Wet
1995	34.3	206%	Wet	Wet	Wet
1996	13.3	80%	Below normal	Below normal	Wet
1997	13.5	81%	Above normal	Above normal	Wet
1998	40.9	246%	Wet	Wet	Wet
1999	14.5	87%	Above normal	Below normal	Normal
2000	18.4	111%	Above normal	Above normal	Normal
2001	28.4	171%	Wet	Wet	Normal
2002	8.5	51%	Dry	Dry	Normal
2003	17.5	105%	Below normal	Below normal	Normal
2004	9.4	57%	Dry	Dry	Normal
2005	39.6	238%	Wet	Wet	Normal
2006	19.2	115%	Above normal	Above normal	Normal
2007	7.0	42%	Critical	Critical	Normal
2008	19.3	116%	Above normal	Above normal	Normal
2009	10.8	65%	Critical	Dry	Normal
2010	18.5	111%	Below normal	Above normal	Normal
2011	21.4	129%	Wet	Wet	Normal
2012	11.4	68%	Dry	Dry	Dry
2013	7.8	47%	Critical	Critical	Dry
2014	5.9	35%	Critical	Critical	Dry
2015	7.0	42%	Critical	Critical	Dry
2016	10.7	64%	Critical	Dry	Dry
2017	20.4	122%	Above normal	Above normal	Normal
2018	7.9	48%	Critical	Dry	Normal

Water Year Type (1942-2020)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

Water Year Types



Water Year Ranking

Current and Future Time Periods

- **Current – 2011-2018 (8 years)**
 - Includes water year 2015- SGMA's benchmark year for current conditions
 - Dry period 2012-2018.... 2011 included to provide some balance
- **Future – 2018 -2072 (55 years)**
 - 2042: Meet sustainability goal in 20 years
 - 2072: "Projected hydrology shall utilize 50 years"

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Water Budget Keys

Basic Equation for Groundwater Storage:

$$\text{Inflows} - \text{Outflows} = \text{Change in Storage}$$

More inflow than outflow:

Groundwater levels and Storage increase

More outflow than inflow:

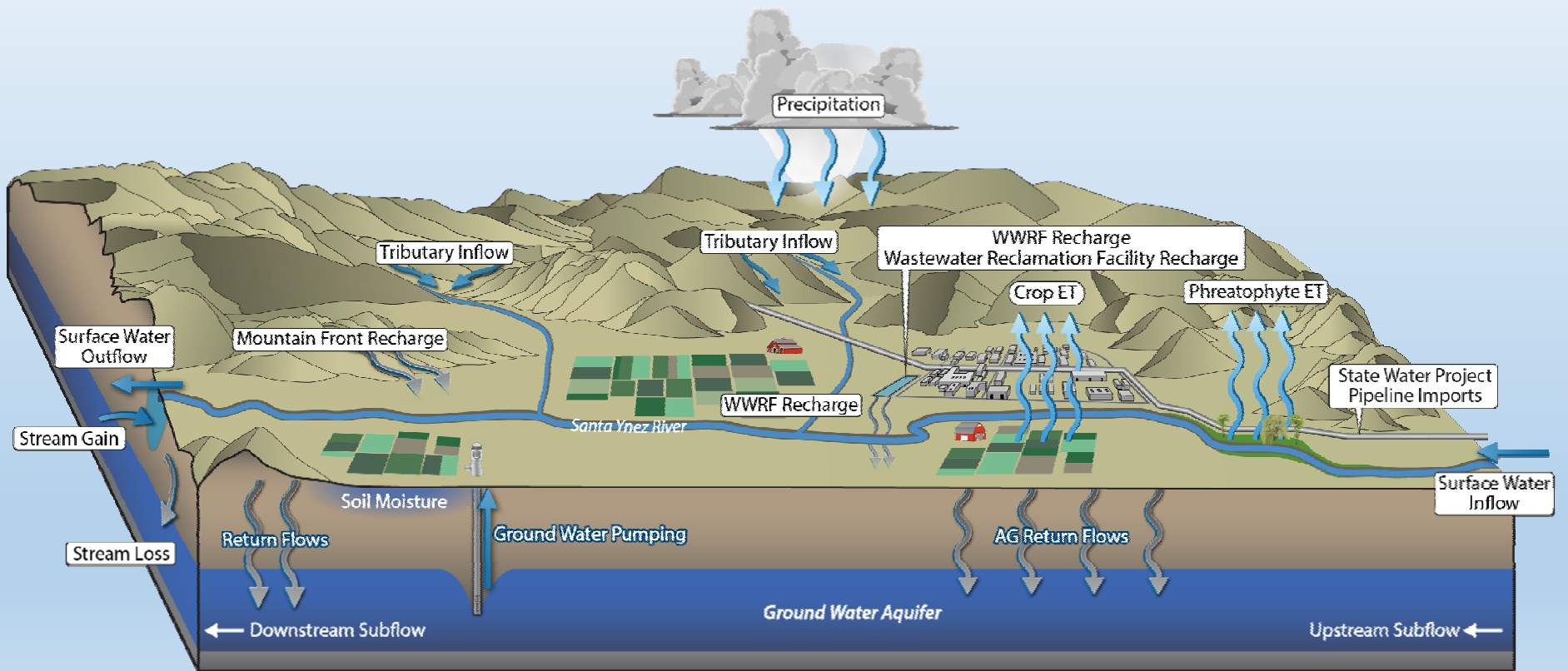
Groundwater levels and Storage decrease

Water Budget will address variability:

- Hydrologic- Droughts 1987-1991, 2012-2018; Floods i.e. 1998
- Changes in Land Use/Demands, quantity and timing
- Climate Change, quantity and timing

CMA Water

CENTRAL MANAGEMENT AREA OF THE SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN



CMA Water Budget Data Sources

TABLE 1-2 WATER BUDGET DATA SOURCES

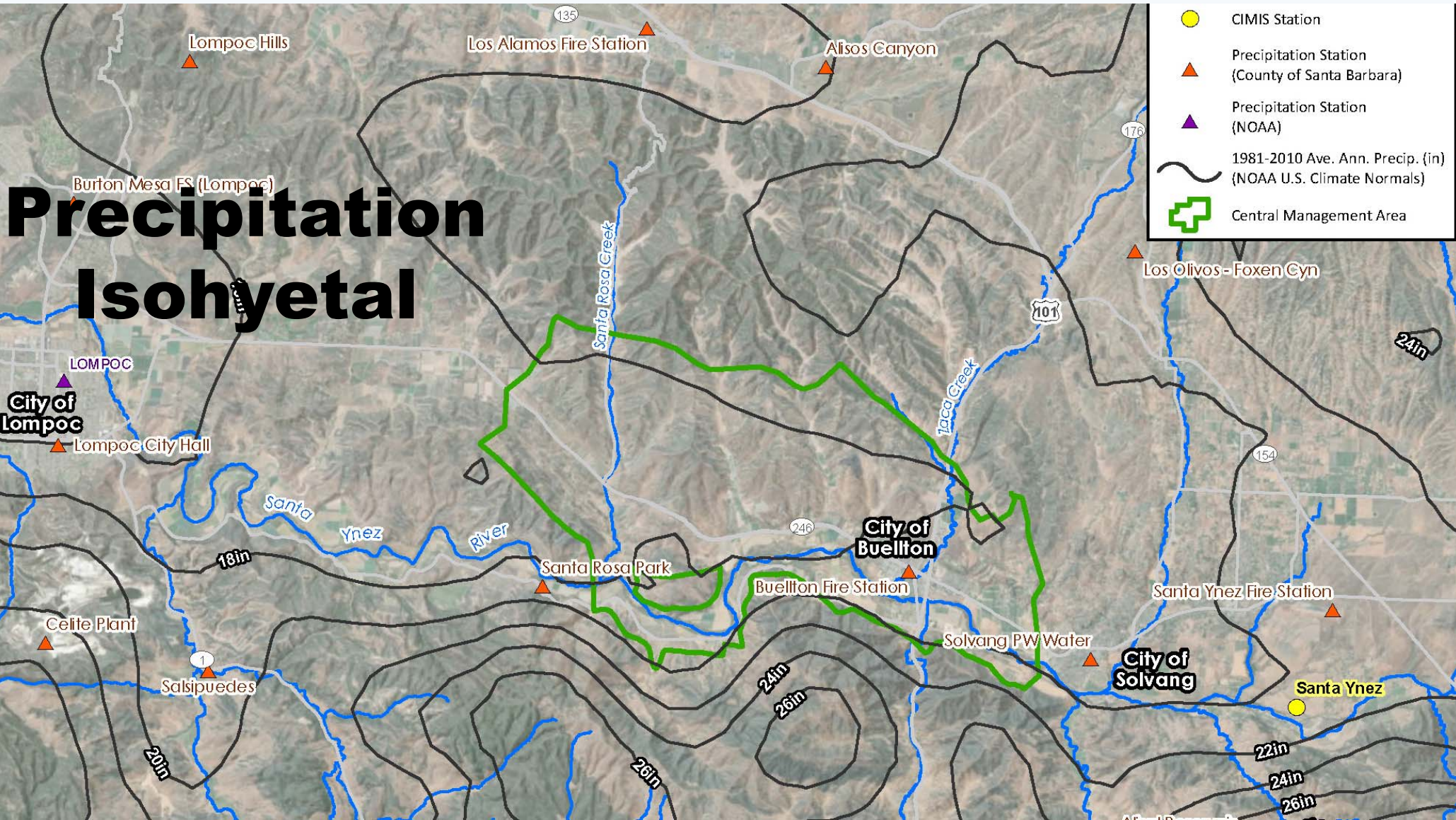
Water Budget Component	Data Source(s)	Comment(s)	Qualitative Data Rating
Surface Water Inflow Components			
Santa Ynez River Inflow	USGS	Solvang Gauge	Gauged – High
Tributary Inflow	Correlation with gauged data	Methods described in text	Calibrated Model – Medium
Imported: SWP	Central Coast Water Authority	—	Metered – High
Groundwater Inflow Components			
Deep Percolation of Precipitation: Overlying and Mountain Front Recharge	USGS BCM Recharge	BCM calibrated to Basin precipitation station data	Calibrated Model – Medium
Streamflow Percolation	Santa Ynez RiverWare Model, USGS BCM	Collaborative Modeling effort: Stetson and GSI	Calibrated Model – Medium
Subsurface inflow	Darcian flux calculation	Collaborative Modeling effort: Stetson and GSI	Estimated – Medium
Irrigation Return Flows	Land use surveys, self-reported pumping data	Basinwide Collaborative Estimation: Stetson and GSI	Estimated – Low
Percolation of Treated Wastewater	City of Solvang and City of Buellton	Received from cities	Metered – High
Percolation from Septic Systems	SYRWCD self-reported data, Santa Barbara County Water Agency return estimates	Methods described in text	Estimated – Low

CMA Water Budget Data Sources

TABLE 1-2 WATER BUDGET DATA SOURCES

Water Budget Component	Data Source(s)	Comment(s)	Qualitative Data Rating
Surface Water Outflow Components			
Santa Ynez River Outflow	USGS	Methods described in text	Calibrated Model - Medium
Streamflow Percolation	Santa Ynez RiverWare Model, USGS BCM	Collaborative modeling effort: Stetson and GSI	Calibrated Model - Medium
Riparian Evapotranspiration	Aerial photography, NCCAG/NWI data sets, CIMIS weather station	Methods described in text	Estimated – Medium/Low
Groundwater Outflow Components			
Agricultural Irrigation Pumping	Land use surveys, self-reported pumping data	Methods described in text	Estimated – Medium/Low
Municipal Pumping	City of Buellton self-reported pumping data	Methods described in text	High/Medium

Precipitation Isohyetal



CMA Tributaries

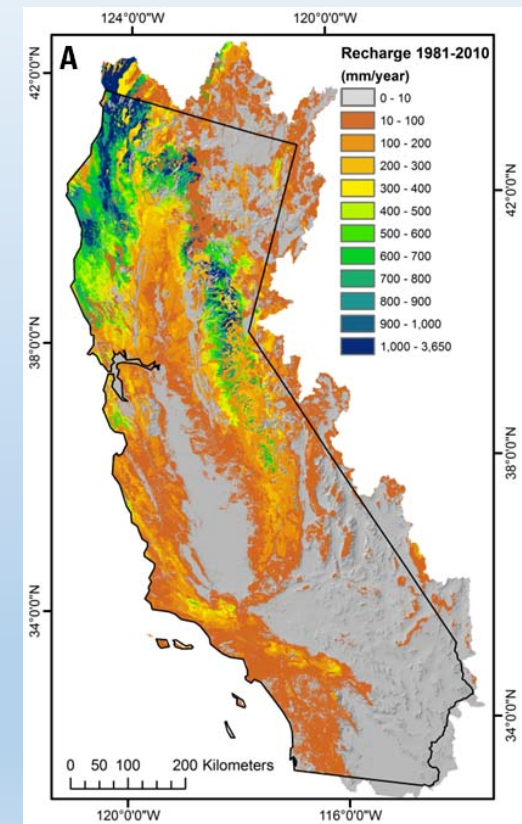
TABLE 1-3 TRIBUTARY CREEKS OF THE CMA

	Drainage Area (mi²)	Average Annual Precipitation (in/year)¹
North of the Santa Ynez River		
Adobe Canyon Creek	2.5	19.2
Ballard Canyon Creek	5.1	19.4
<u>Zaca Creek</u>	36.6	20.7
Canada de Laguna	4.1	18.7
Canada de <u>los Palos Blancos</u>	5.2	18.4
Santa Rosa Creek	8.3	18.6
Unnamed Tributaries	6.0	18.4
South of the Santa Ynez River		
<u>Nojoqui Creek</u>	15.9	25.1
Unnamed Tributaries	9.5	23.4
<u>Salsipuedes Creek</u> USGS Gauge	47.10	23.0

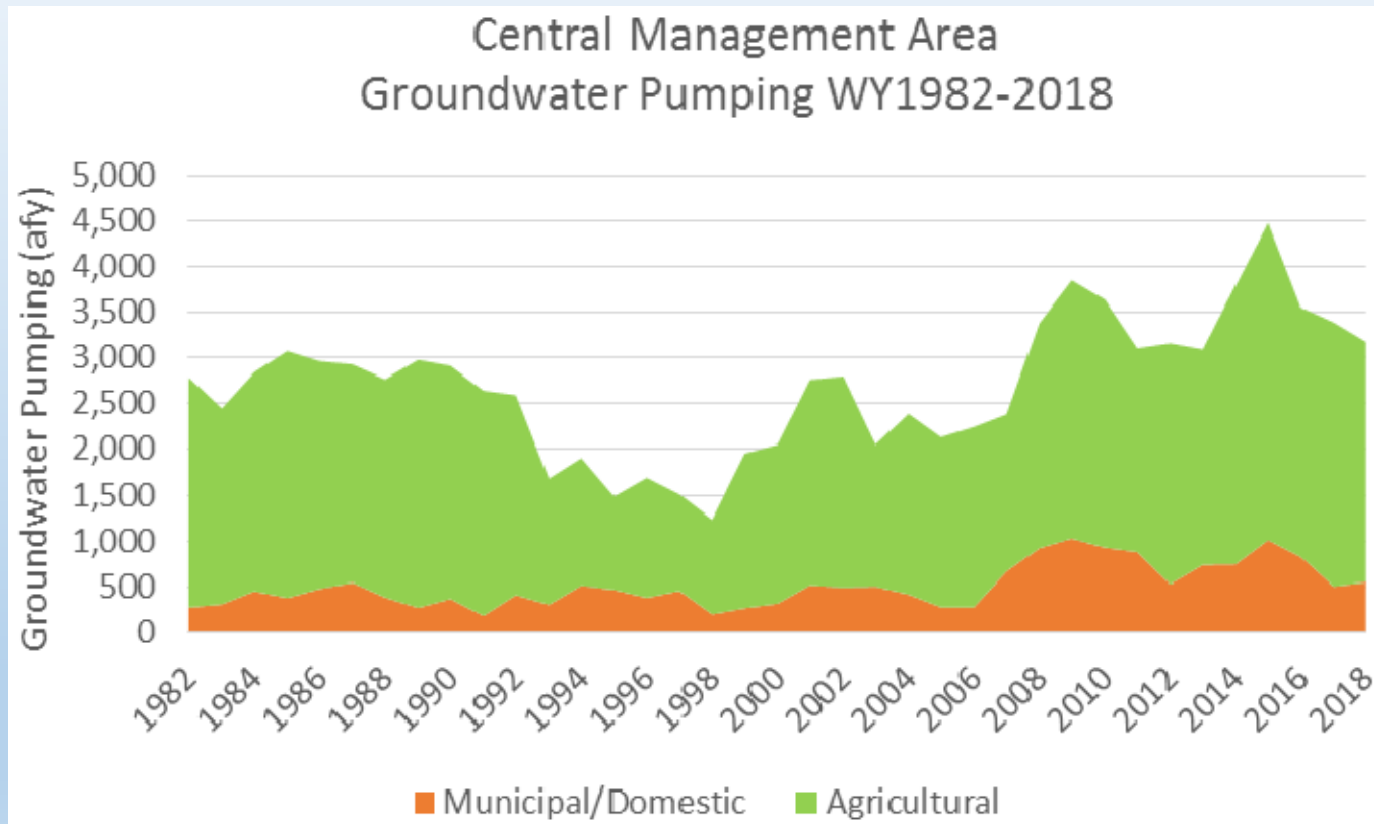
Notes: CMA = Central Management Area; USGS = U.S. Geological Survey.
¹ PRISM 2014.

Recharge – USGS Basin Characterization Model

- **Complex inputs to determine recharge**
 - Precipitation, Temperature, Solar Radiation, Soil Properties
- **20-acre cells**
 - Covers Santa Ynez Basin
 - Integrates State-wide findings (see recharge map on right)
- **Monthly Timesteps**
- **1980-2018**
- **Coordinated and corrected with EMA and WMA**



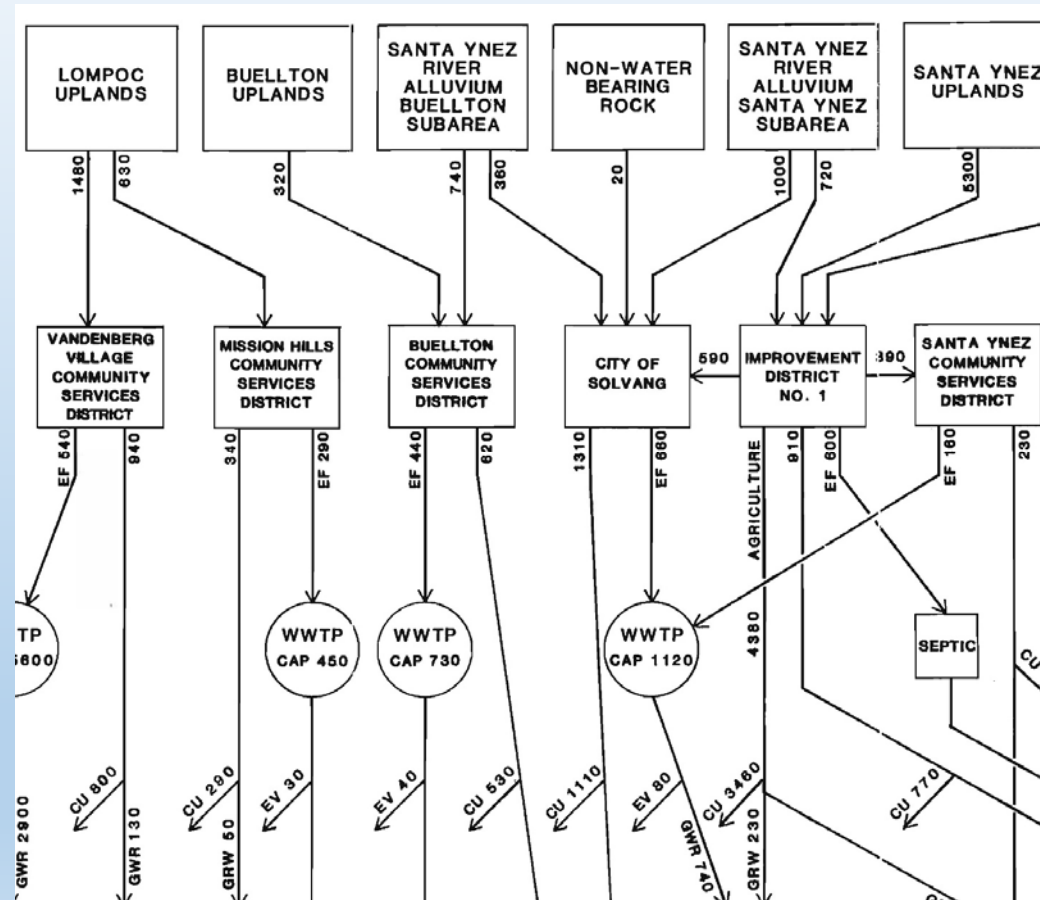
CMA Groundwater Pumping



Annual pumping based on reporting to SYRWCD. Total pumping ranges from about 1,500 to 4,500 afy. Does not include Santa Ynez River underflow diversions (SWRCB).

RETURN FLOWS

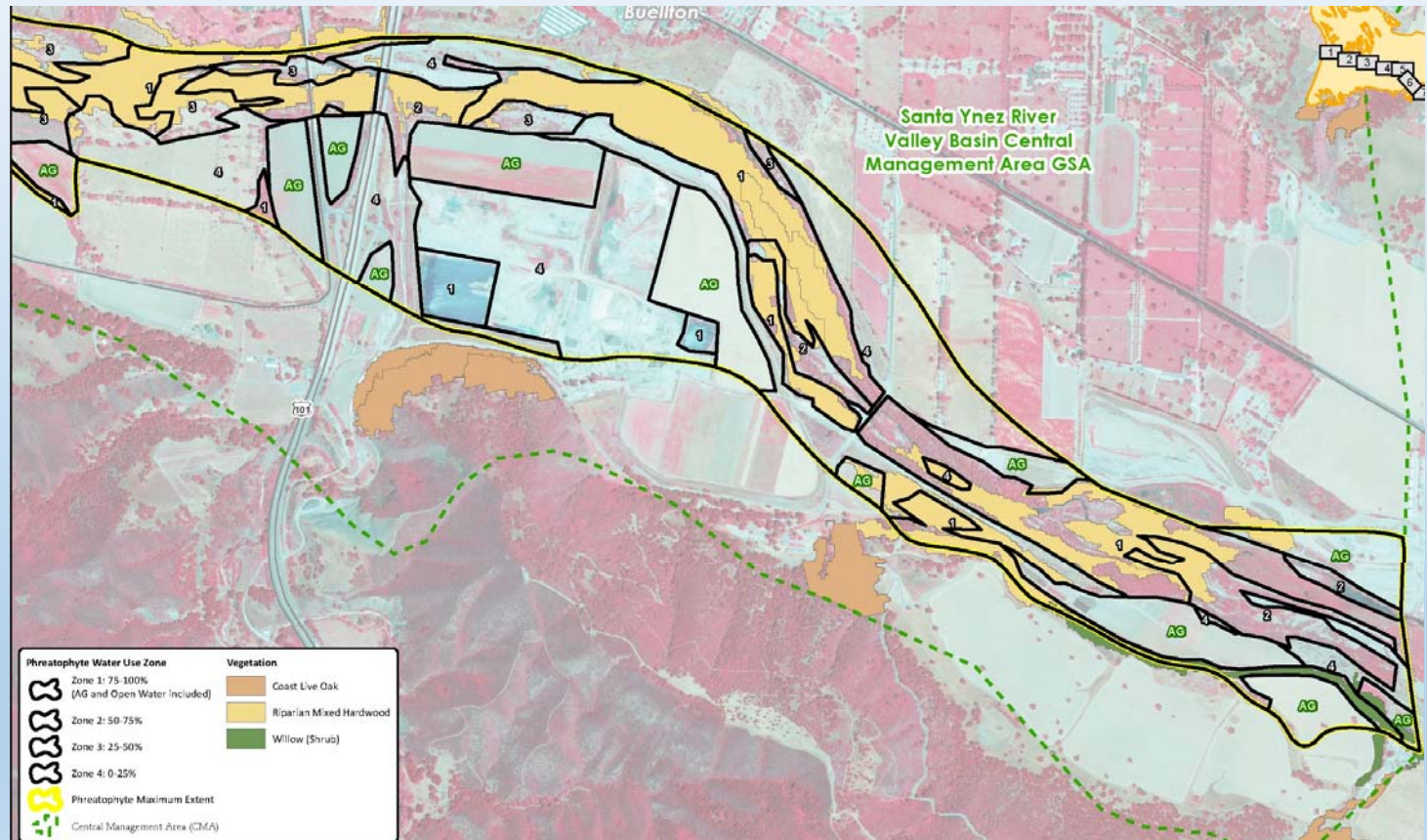
- City of Solvang and City of Buellton Wastewater Treatment Percolation Ponds
 - Historical inflow records available
- Agricultural Return Flows
 - 20% Assumed for all crops except vineyards
 - 5% Assumed for vineyards
- Urban Return Flows
 - Net 44% Assumed
 - Based on 60% Outdoor/ 40% Indoor
- Agrees with available literature and used in EMA and WMA (i.e. District's Water Resources Management Plan, 1992; excerpt of return flow accounting shown in figure on right)



SYRWCD Water Resources Management Plan 1992

Phreatophytes

- Phreatophyte acres reviewed with color infra-red aerial photography
- Consumptive Use based on CIMIS station climate data (California Irrigation Management Information System)



Water Budget – Time Periods and Sources

Questions?

Surface Water Inflow

1982-2018

Surface water inflows dominated by Santa Ynez River and tributary inflows. There is very little interaction with groundwater aquifer.

Surface Water Inflow Component	Average
	AFY
Santa Ynez River Inflow from EMA	85,720
Santa Ynez River Tributary Inflow	9,060
Imported SWP	230
Santa Ynez River Alluvium Subarea (Surface Water Underflow)	
Subflow	2,490
Recharge from Precipitation (Overlying and Mountain Front)	880
Recharge from Agricultural Return Flows to Underflow	480
Recharge from Municipal Return Flows to Underflow	1,240
Recharge from Domestic Return Flows to Underflow	100
TOTAL	100,200

Surface Water Outflow

1982-2018

Surface Water Outflow Component	Average
	AFY
Santa Ynez River Outflow to WMA	91,780
Net Channel Percolation to Groundwater	360
Santa Ynez River Alluvium Subarea (Surface Water Underflow)	
Santa Ynez River Underflow Out	350
River well pumping – Agriculture	2,720
River well pumping – Municipal	470
River well pumping – Domestic	230
Riparian Vegetation Evapotranspiration	4,170
TOTAL	100,080

Ground Water Inflow

1982-2018

Groundwater Inflow Component	Average
	AFY
Subflow	90
Recharge from Precipitation – Overlying	1,870
Recharge from Precipitation – Mountain Front	770
Net Channel Percolation from Surface Water	360
Agricultural Return Flows	380
Municipal/Domestic Return Flows	80
TOTAL	3,550

Ground Water Outflow

1982-2018

Groundwater Outflow Component	Average
	AFY
Pumping – Agriculture	2,220
Pumping – Municipal	370
Pumping – Domestic	170
Riparian Vegetation Evapotranspiration	90
Subflow	690
TOTAL	3,540

Key Groundwater Fluxes -Average 1982-2018

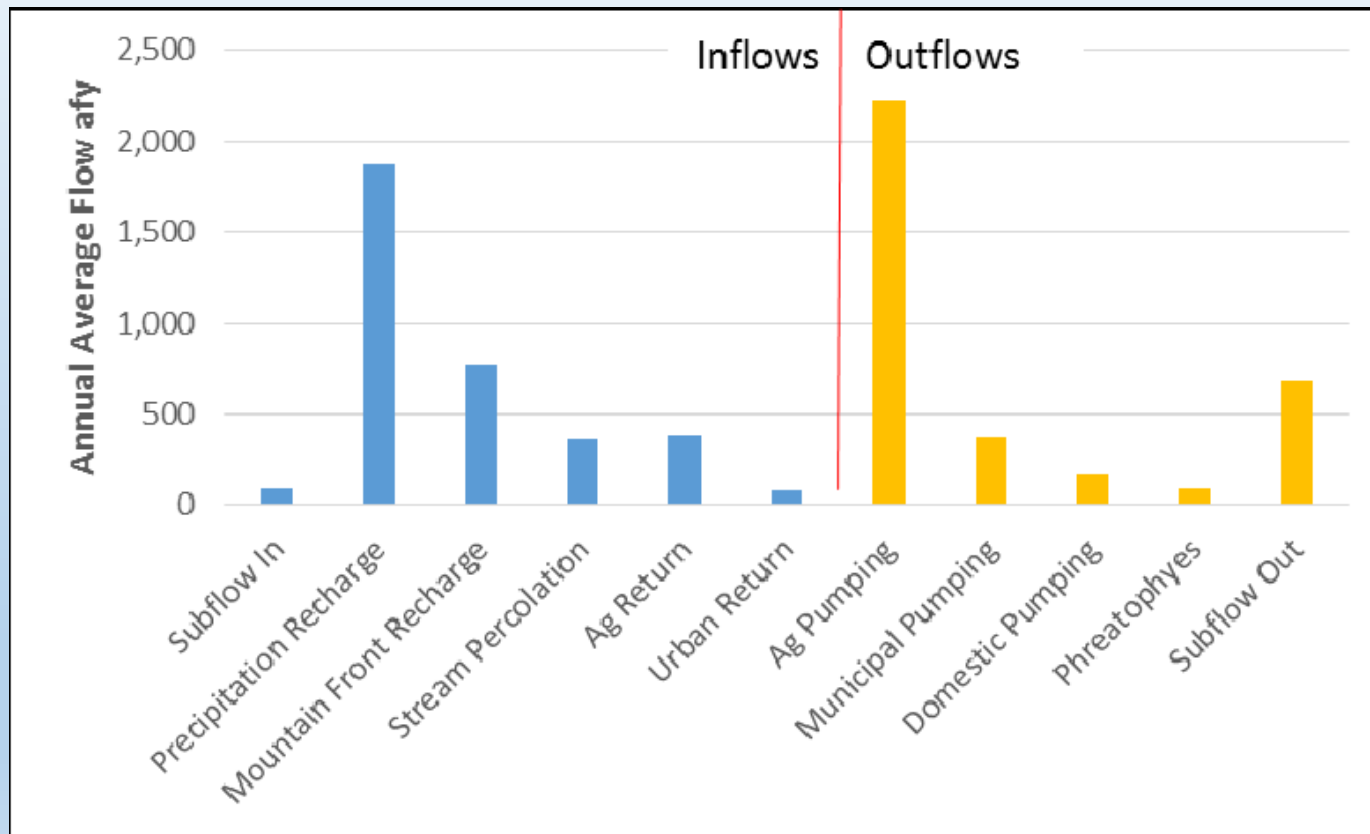
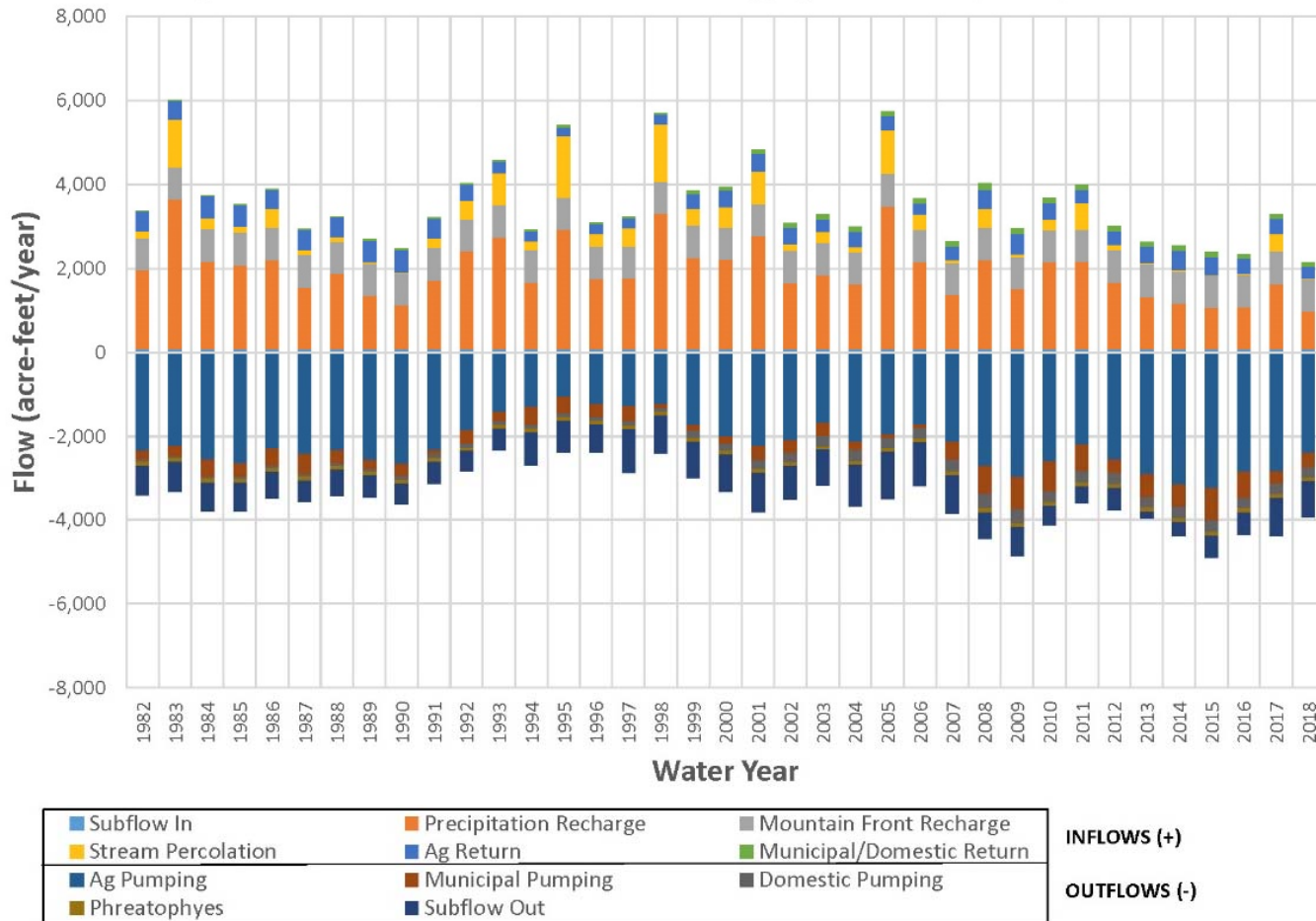
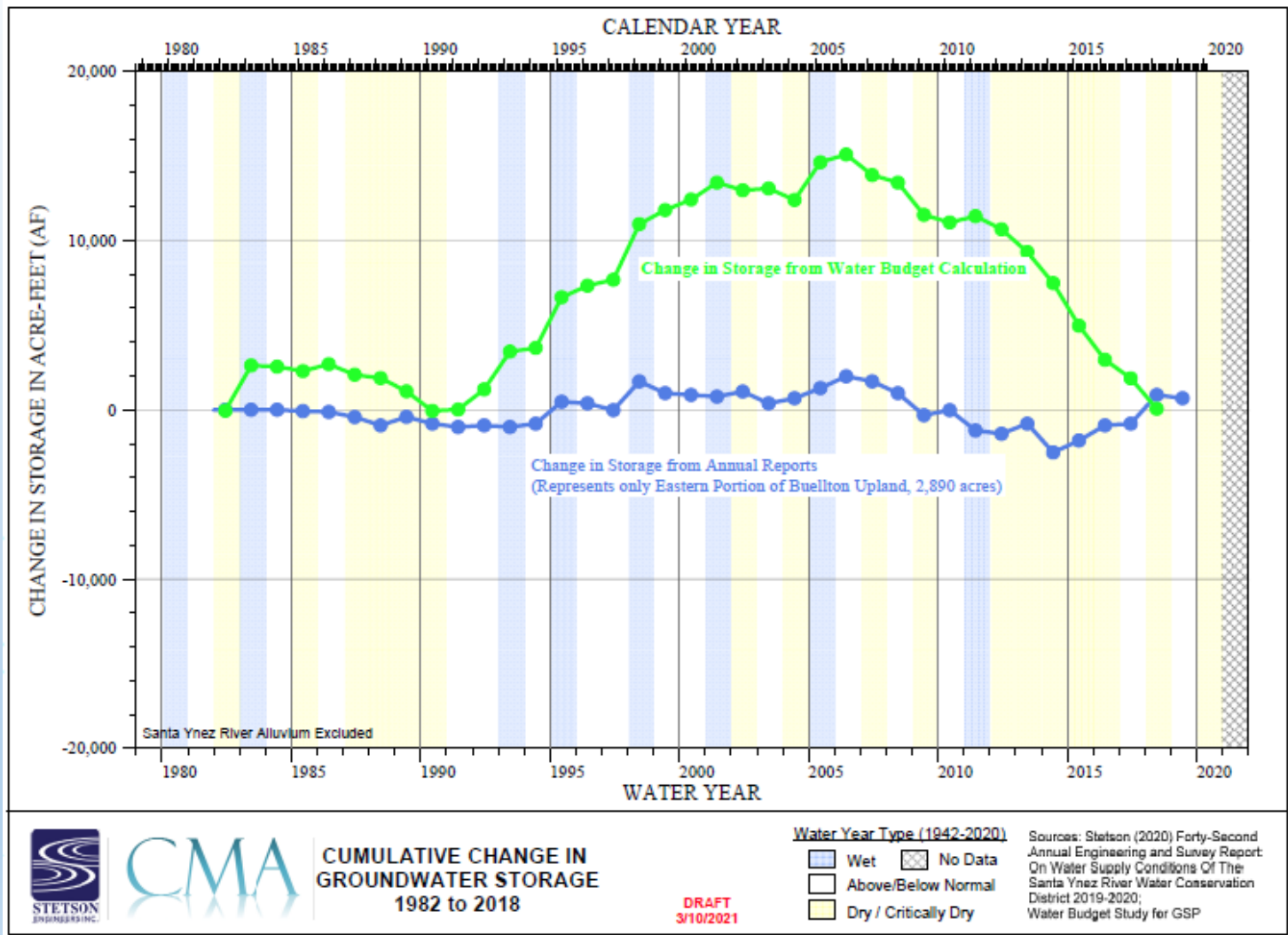
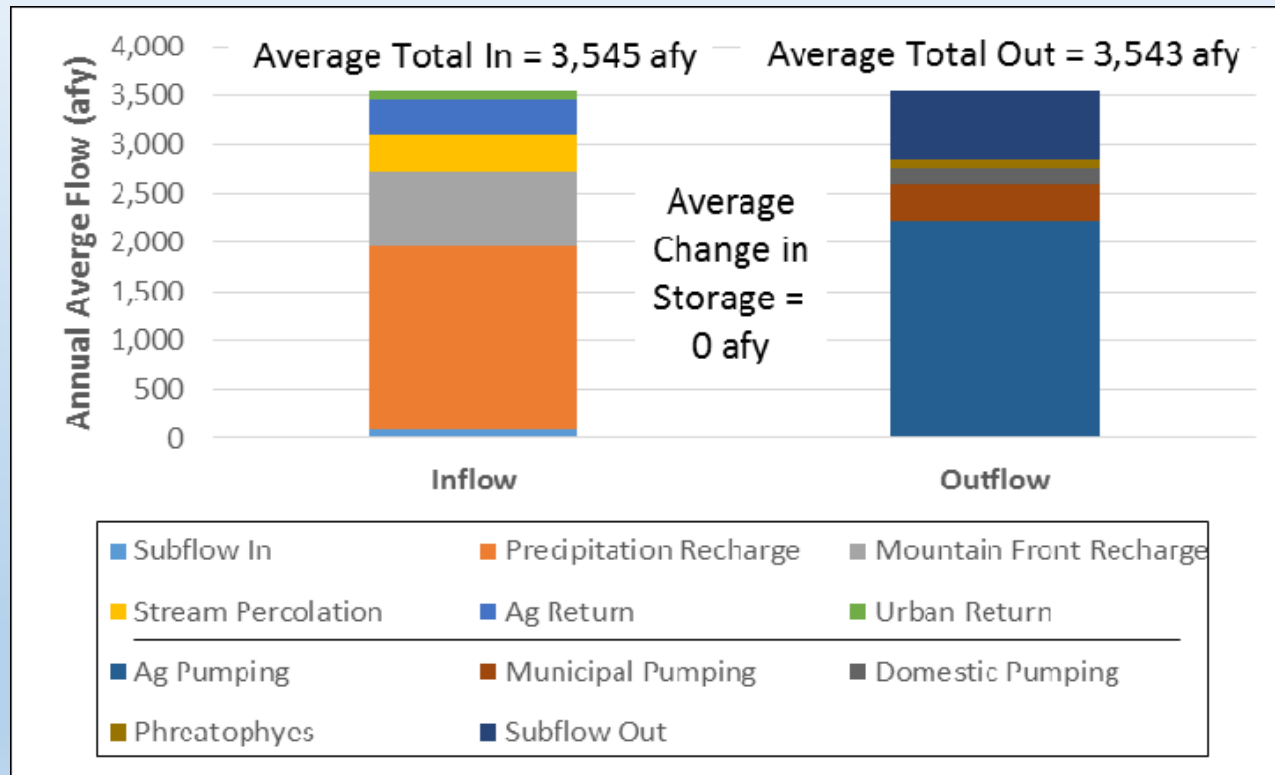


Figure 2-5 Historical Groundwater Budget, Buellton Upland, CMA





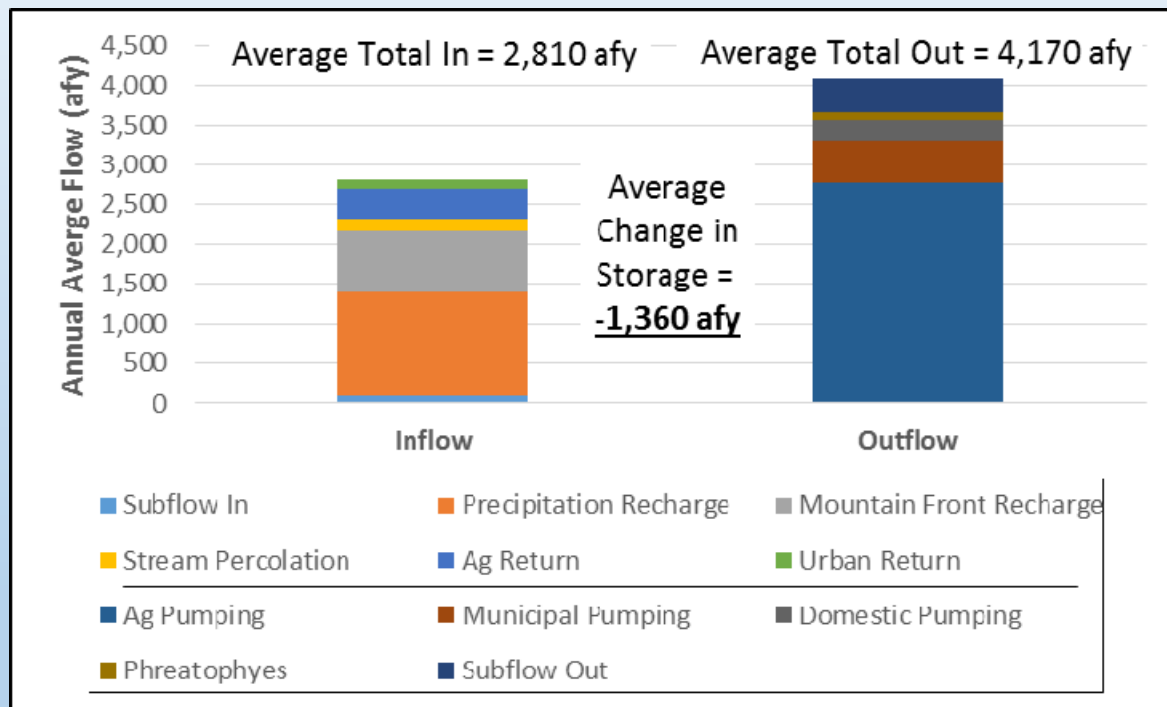
Inflows versus Outflows 1982-2018



Sustainable Yield Estimate

- The average annual groundwater pumping total of 2,760 AFY for the period of 1982–2018 resulted in zero net change in groundwater storage in the Buellton Uplands basin, so this water budget analysis indicates that the perennial yield of the basin is approximately **2,760 AFY**.
- Corroborates the safe yield estimate in the SYRWCD Annual Reports of 2,800 AFY and the range of perennial yields in the Buellton Uplands Groundwater Management Plan (SYRWCD 1995) of 2,650 to 2,900 AFY.

Inflows versus Outflows 2011 - 2018



Total groundwater storage decreased by 10,880 AF over eight year current period (average -1,360 AFY). This negative storage change is due to drought conditions.

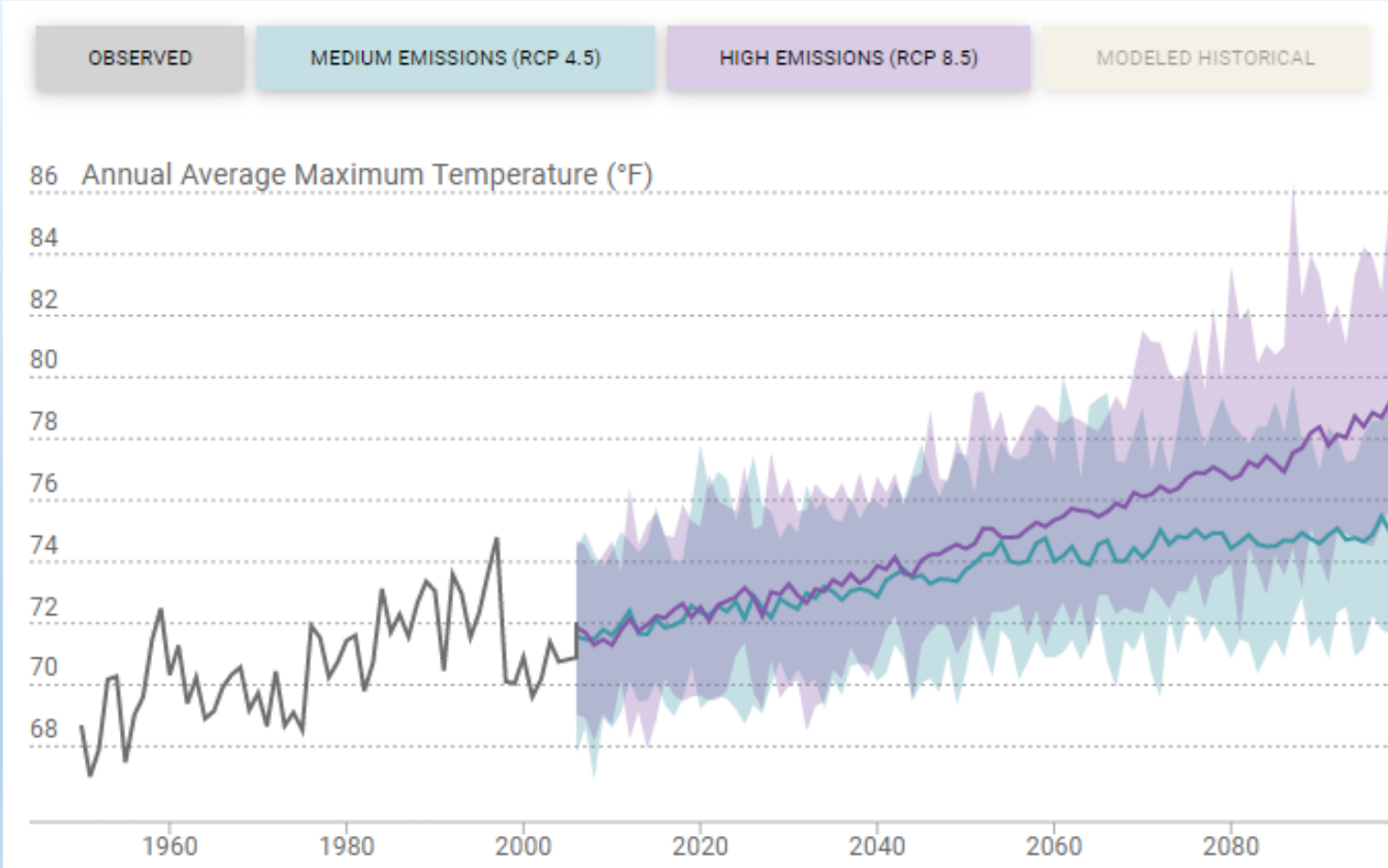
Water Budget – Historical and Current

Questions?

Climate Change and the Santa Ynez River Valley Groundwater Basin 2018 - 2072

- DWR's Climate Change Technical Advisory Group has identified the most applicable and appropriate global circulation model (GCMs) out over 30 models for water resource planning and analysis in California.
- GSP must include the "Central Tendency" Scenario for future hydrologic projections.
 - Reflects the mean of the 20 climate projections.
 - 10 selected GCMs are combined with two emission scenarios for a total of twenty scenarios utilized. The two emissions scenarios include a "middle" scenario (RCP 4.5) with emissions peaking around 2040 and a "business as usual" scenario with emission peaking around 2080 (RCP 8.5).
- Drier/Extreme Warming (2070DEW) and Wetter/Moderate Warming (2070WMW) conditions in GSPs is optional.

Future Projected Hydrology 2018-2072



DWR has provided summaries of climate change.

The 2030 and 2070 precipitation and ET climate change factors are available on 6-kilometer resolution grids.

Buellton CA; <https://cal-adapt.org/tools/local-climate-change-snapshot/>

Implications for CMA Hydrology

- Crop Water Use - By 2040, 3.8 percent increase relative to the baseline period. By 2070 conditions, 8.3 percent relative to the baseline period.
- Precipitation –
 - Seasonal timing changes
 - Sharp decreases are projected early fall and late spring
 - Increases in winter and early summer precipitation.
 - The CMA is projected to experience minimal changes in total annual precipitation.
 - 2030 – no change; 2070 conditions, 3 percent decrease in annual precipitation
- Streamflow - projected to increase slightly by 0.5 percent in 2030 and 3.8 percent in 2070
- Recharge- Assume same changes as precipitation

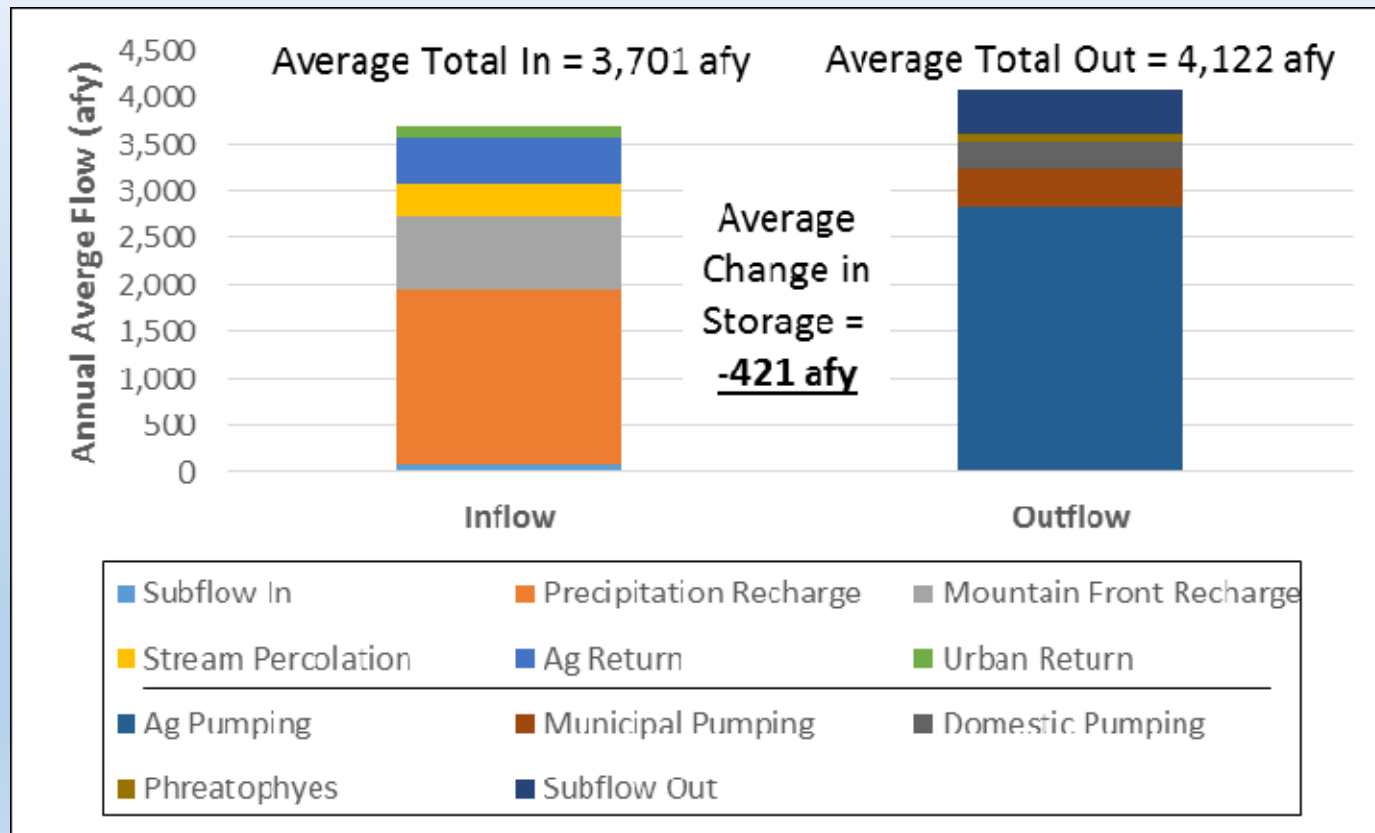
Assumptions for Future Demand

- Agriculture
 - No change in acres/ crop types assumed.
 - Consumptive use increases 3.8 percent relative to the baseline period due to higher ET rates under climate change. By 2070 conditions, 8.3 percent relative to the baseline period.
- Urban
 - Santa Barbara County Association of Governments' Regional Growth Forecasts estimate large increases in population for the Buellton area: 145% by Year 2040
 - This analysis assumes 15% by 2042 and 20% by 2072.

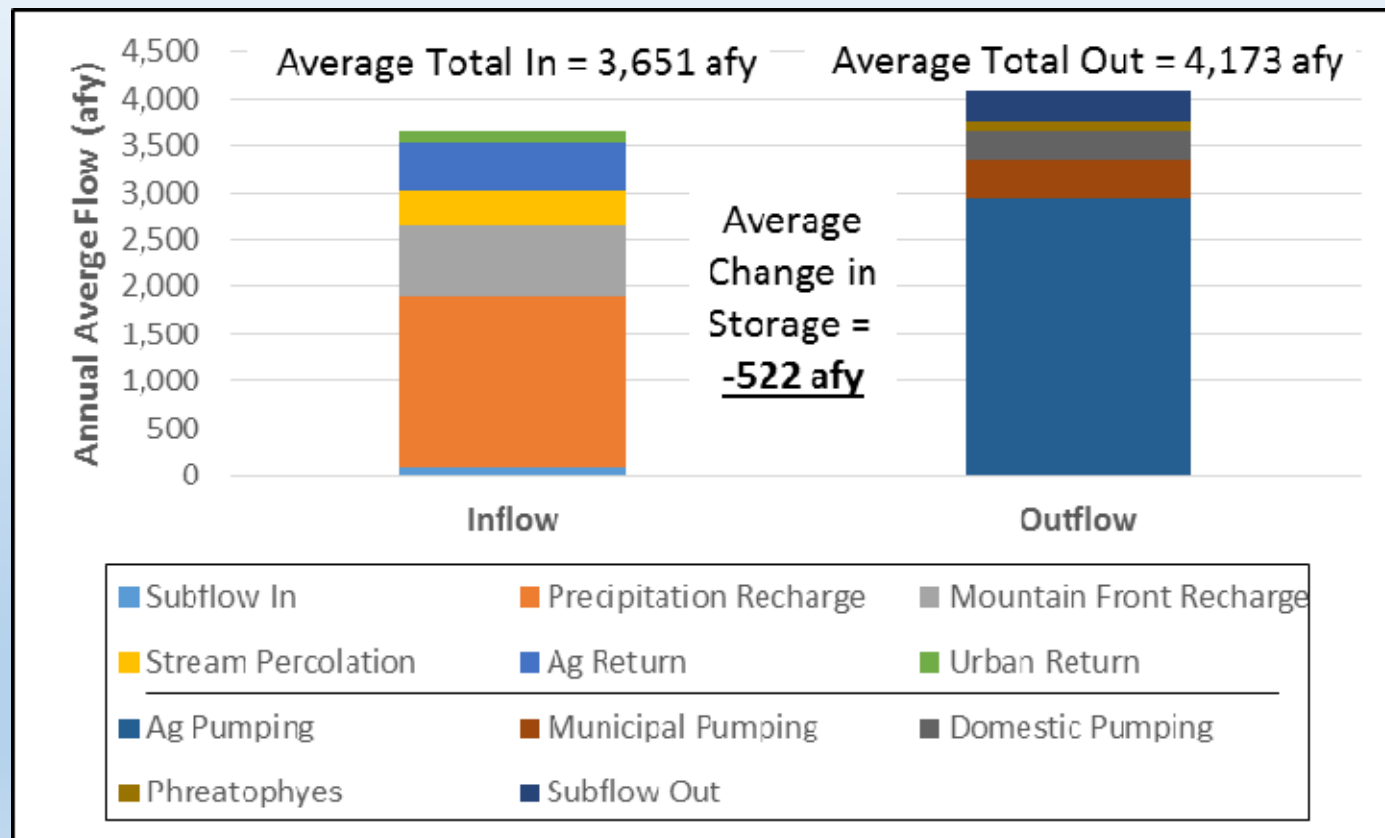
PROJECTED WATER DEMAND FOR CMA

	2018 Demand	Estimated 2042 Demand	Estimated 2072 Demand
	(Acre-Feet per Year)		
Groundwater Demand			
Pumping – Agriculture	2,415	2,840	2,940
Pumping – Municipal	350	403	420
Pumping – Domestic	250	288	293
TOTAL Groundwater Demand	3,015	3,531	3,653
Santa Ynez River Alluvium Subarea			
River well pumping – Agriculture	3,223	3,790	3,924
River well pumping – Municipal and SWP Imports	897	1,033	1,076
River well pumping – Domestic	376	434	441
TOTAL Surface Water Demand	4,497	5,257	5,441
TOTAL	7,512	8,788	9,094

Inflows versus Outflows 2042



Inflows versus Outflows 2072



Water Budget – Future

Questions?

The Way Ahead

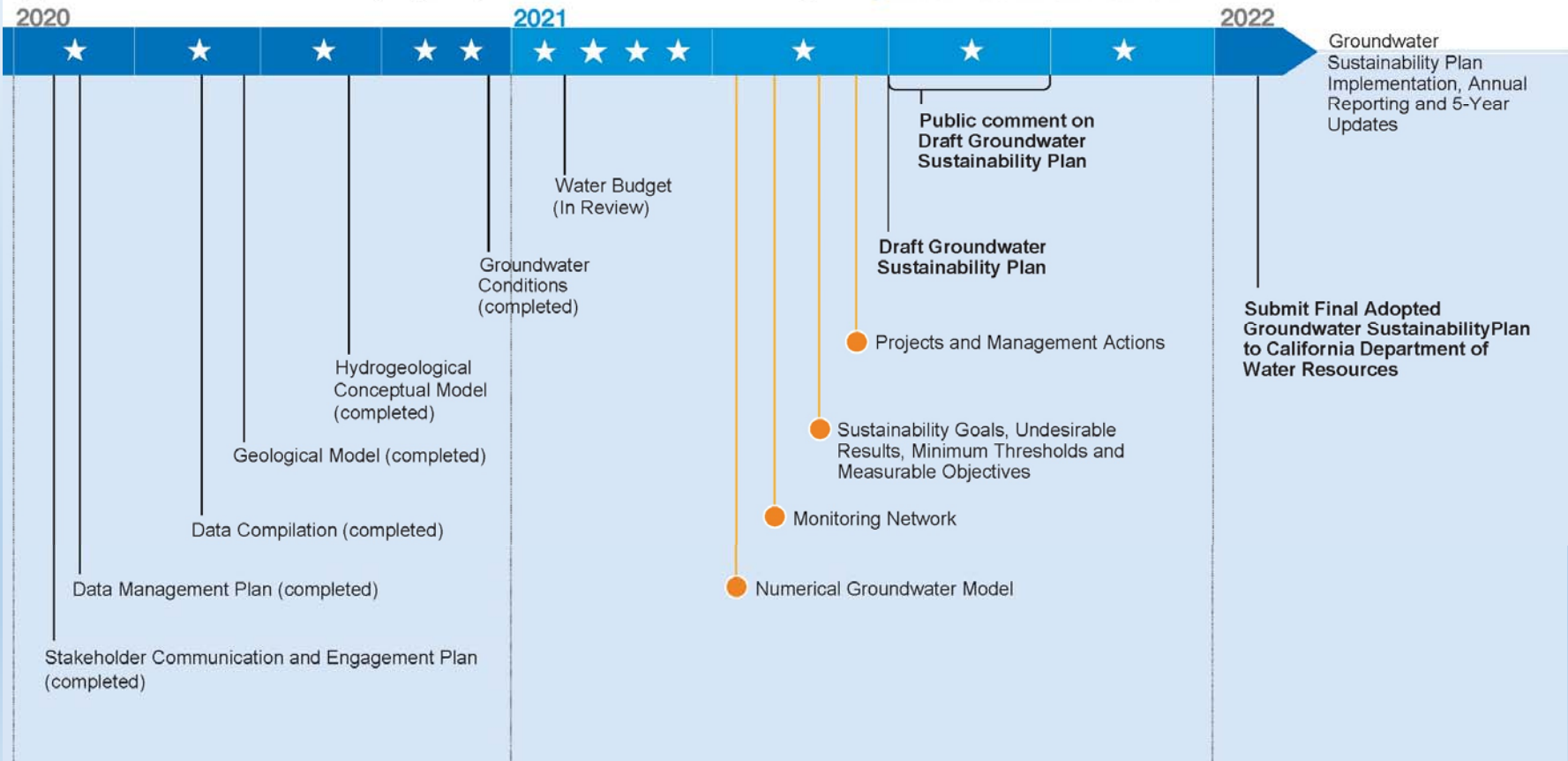
- ~~• Complete the Groundwater Conditions Tech Memo~~
- ~~• Complete the Water Budget~~
- Complete the Groundwater Model
- Establish Monitoring Network
- Establish Sustainable Management Criteria Thresholds
- Identify Projects and Management Actions
- Release DRAFT GSP

The Way Ahead

Groundwater Sustainability Plan Development Milestones

★ Groundwater Sustainability Agency Committee Public Meeting

● Technical Memorandum



Questions?

Comments can be submitted to the website:



www.santaynezwater.org