CMA

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

July 26 2021
Projects and Management Actions And Implementation of the Groundwater Sustainability Plan

STETSON ENGINEERS INC.

DUDEK

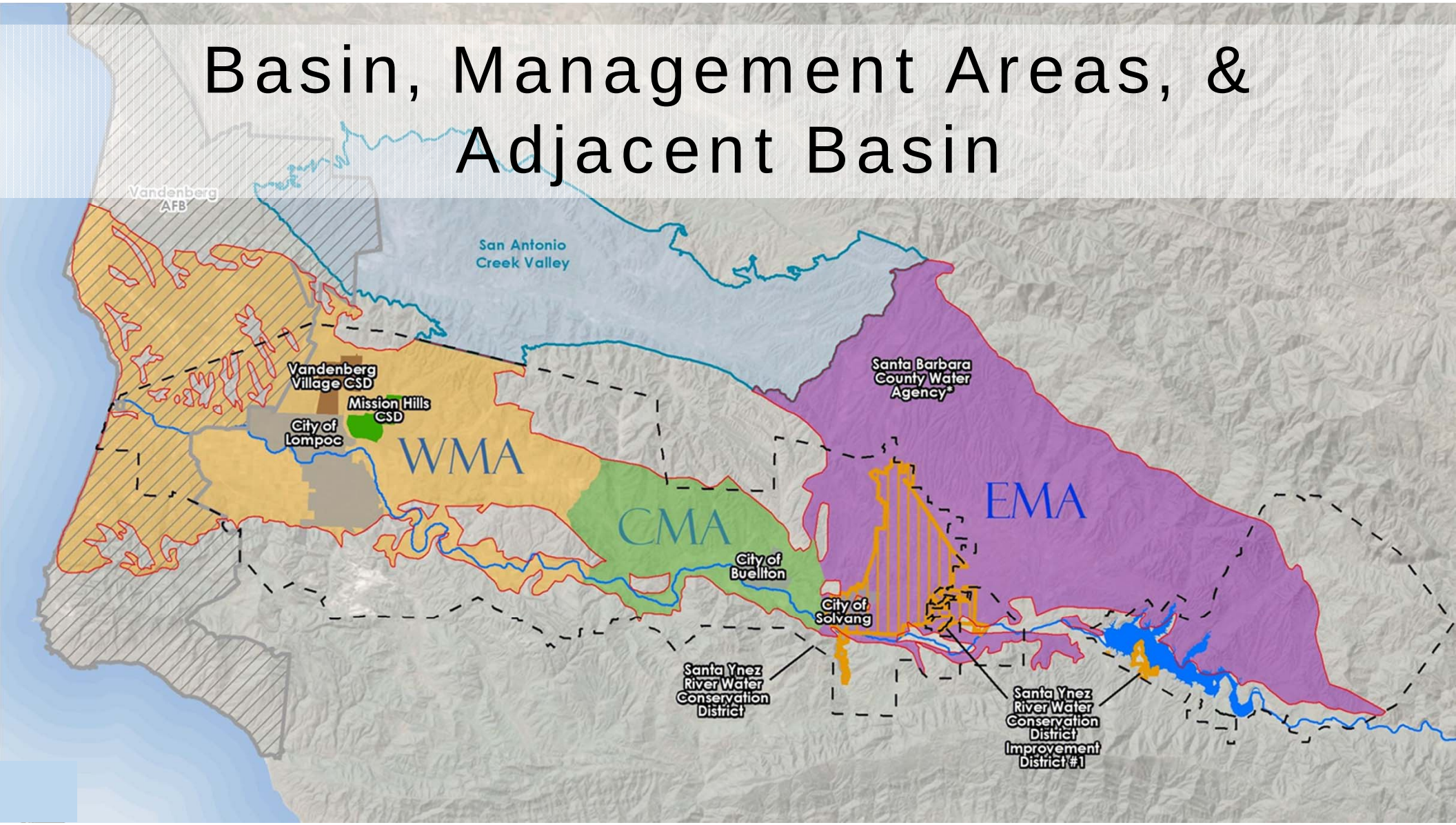
Geosyntec consultants

engineers | scientists | innovators

Agenda

1. Projects and Management Actions
    1. Objective – Maintain sustainability, current and 50-years into future
    2. 4 Groups (General, Early Warning, Minimum Threshold, and Other)
2. Implementation of the GSP
    1. Update Well Registration and Metering for All Wells
    2. Data Gaps
    3. Monitoring/ Data Management System
    4. Annual Reports/ 5- Year Update
3. Way Ahead/ Schedule

Basin, Management Areas, & Adjacent Basin



Projects and Management Actions (PMAs) –Background

- **Basin Setting Summary for Buellton Aquifer (SYRWCD Zone D)**
  - Currently no undesirable results for SMCs!
    - Groundwater levels relatively stable since 1982 (i.e. increases during wet periods, Δ -15 to +15 feet)
  - Total Gross Pumping = 3,000 AF in 2018; Estimated Perennial Yield = 2,800 AF → Currently very close water balance; Recommend implementing PMAs right away to address potential imbalance (need about 200 – 1,000 AFY)
- **Challenges and responsibilities for CMA**:
  - *Climate changes and Future growth*
  - *Building up reserves in droughts*

Projects and Management Actions (PMAs) – Types

1. **Projects vs Management Actions**
   - Projects involve physical infrastructure (i.e. Pipeline and pumps for imported water)
   - Management Actions involve public policy and administration (i.e. restrictions on new wells)

2. **Supply vs Demand**
   - Supply PMAs increase recharge of aquifer or provide alternative sources of water to pumpers of aquifer
   - Demand PMAs decrease demands for pumping of aquifer

PMAs – Organized into Groups on When PMA is Implemented

1. **General Management PMAs (Group 1)**
   - Implemented under all basin conditions.

2. **Early Warning PMAs (Group 2)**
3. **Minimum Threshold PMAs (Group 3)**
   - Implemented when trigger reached for any SMC

4. **Other PMAs (Group 4) - Adaptive and Flexible**
   - Implemented if PMAs in Groups 1-3 not achieving sustainability goal or after additional consideration by GSA

Summary of Projects and Management Actions

	Demand	Supply
Group 1	Water Conservation	Supplemental Imported Water Program
	Tiered Fees	Increased Storm Recharge/Supply
Group 2	Supplemental conditions on New Wells	Water Rights Releases Request
Group 3	Annual Pumping Allocation Plan	Drought Mitigation
	---Voluntary Fallowing Program	---- Deepen Existing Wells
		---- Pumping Optimization
Group 4	Non-native Vegetation Removal	Recycled Water Non-potable Use
	Agricultural Land/ Pumping Allowance Voluntary Retirement	Rainwater Harvesting

GSA Implementation Actions Related to PMAs

Initial	
	Updates to Well Registration
	Well Meters
	Address data gaps
Annual	
	Biannual Data Collection/ Monitoring
	Data Management System Updates and Maintenance
	Annual report
5-Year Update to GSP	

General
Group 1
Projects and Management Actions

PMA 1: General Water Conservation

Addresses the demand side of the water budget.

Relatively inexpensive: new sources of water are expensive.

More efficient water use have less impact to users.

Can be drought-aware.

Water Conservation and the CMA

- Integrate with existing conservation programs
  - California Water Efficiency Partnership (https://calwep.org/)
  - Santa Barbara County (http://www.waterwisesb.org/)
  - Cachuma Conservation Resource District (https://www.rcdsantabarbara.org/)
- Develop water conservation plan for the CMA GSA and dedicate annual fund within CMA GSA to leverage existing programs even further together
  - Water conservation specialist or non-profit organization to develop the program, coordinate logistics, and provide customer outreach and installation services.

Let's Save Together waterwise IN SANTA BARBARA COUNTY

CACHUMA RESOURCE CONSERVATION DISTRICT CRCD

Cachuma Resource Conservation District

Potential Savings for Domestic/ Municipal

Santa Barbara County 2020 Water Use

Agency	Population Served*	M&I** Water (Acre-Feet per year)	Per-Capita Water Use***		Number of Connections by Type				
			(a) Based on Total M & I	(b) Based only on Residential Water	Single Family	Multi-Residential	Commercial Institutional	Industrial	Landscape
City of Buellton	5,464	1,003	164	95	1,230	353	190	37	21
Carpinteria Valley WD	15,996	1,903	106	77	3,265	350	283	58	58
Casmalia CSD	150	8	49	43	49	0	5	0	0
Cuyama CSD	800	112	125	75	212	0	22	0	20
Golden State Water Co.	31,744	5,373	151	127	11,159	142	434	5	71
Goleta Water District	84,462	7,649	81	56	13,374	1,822	984	0	288
City of Guadalupe	8,123	985	108	68	2,202	11	113	0	40
La Cumbre Mutual WC	4,900	1,207	220	220	1,315	63	27	0	37
City of Lompoc	40,759	3,715	81	60	8,128	750	714	5	143
Los Alamos CSD	1,800	272	135	101	471	84	32	0	16
Mission Hills CSD	3,600	500	124	118	1,269	0	10	0	2
Montecito Water Dist	11,441	3,882	303	256	4,261	66	263	0	0
City of Santa Barbara	95,279	9,098	85	65	16,922	6,747	2,706	53	800
City of Santa Maria	107,407	11,638	97	61	19,178	871	1,873	95	617
Santa Ynez RWCD-ID#1	6,737	1,867	247	222	2,341	0	161	0	0
City of Solvang	5,771	1,223	189	134	1,782	71	224	26	87
Vandenberg AFB	18,000	1,291	64	27	1,000	0	41	0	0
Vandenberg Village CSD	7,500	1,231	147	114	2,422	56	66	0	17

* Population as reported by water purveyor

** M&I (Municipal, Commercial & Industrial) refers to all urban use, not including recycled water, agricultural irrigation or wholesale sales.

1 acre-foot=325,851 gallons.

*** Per Capita Use is shown as (a) total M&I water divided by population and (b) Single & Multi-Family Residential use divided by population. Lot size and landscape water usage are major factors affecting Gallons/Person/Day

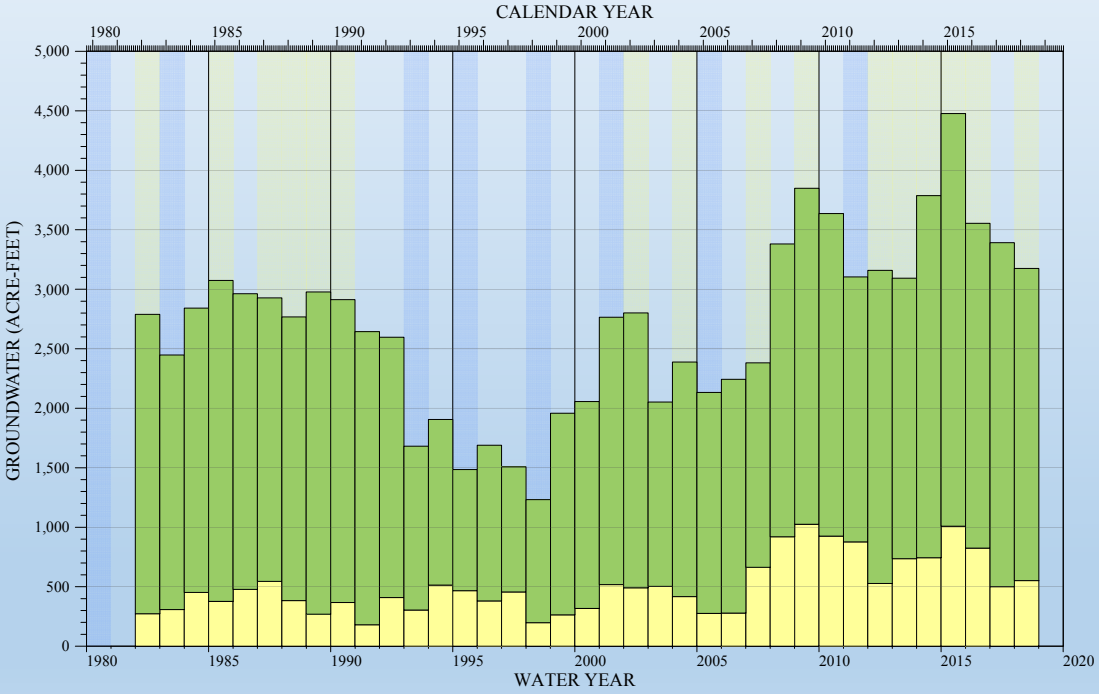
Water Conservation - Domestic/ residential

1. High Water Use Outreach (High Use Reports)
2. Meter Audits to Proactively Detect Leaks (Leak Reports)
3. Rebates on Water-Saving Fixtures (i.e. clothes washers)
4. Rebates on Sustainable Landscape Conversion Programs
5. Water Awareness Outreach Events (Library/Outdoor Market events)
6. U.S. EPA's WaterSense Program Alignment (Fix-a-Leak Week)

Agricultural Water Conservation

- Schedule a turf or agricultural evaluation, call the **Cachuma Resource Conservation District** at (805) 868-4013 or (805) 764-5132.

Water Conservation – Potential AF



Municipal Buellton Aquifer Pumping
500-1000 AFY with 10% Reduction =
50-100 AFY

Agricultural Buellton Aquifer Pumping
2,500 -3,000 AFY with 10% Reduction =
250-300 AFY

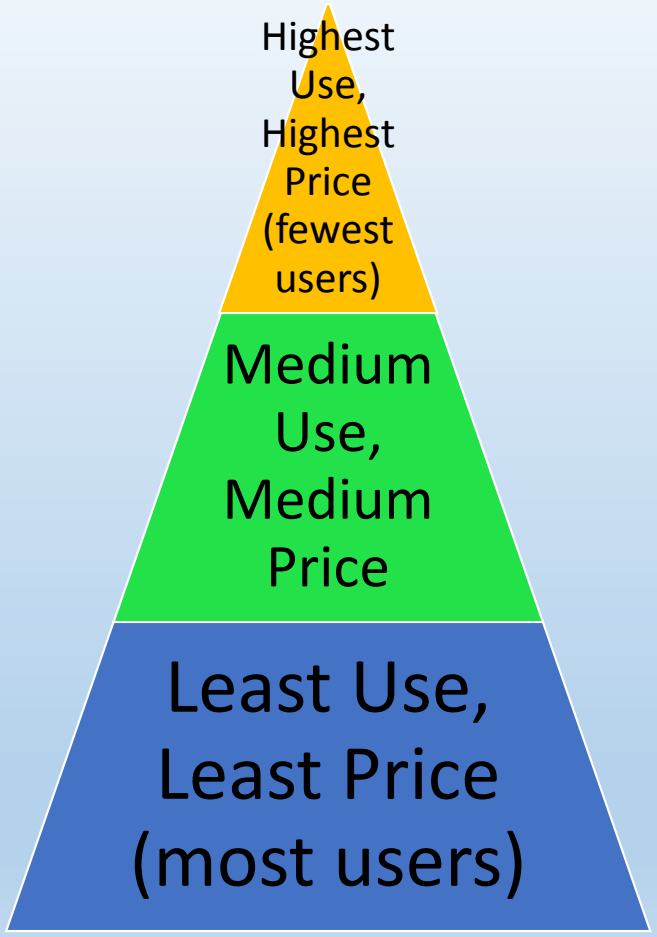
Total Supply @ 10% Reduction
300 to 400 AFY
Annual Investment by CMA GSA $25,000/ year

PMA 2: Tiered Water Usage Fees

Addresses the demand side of the water budget.

Details for the funding structure need to be worked out in first year of GSP Implementation by the GSA Committee (i.e Propositions 26/ 218).

In combination with proposed well meter program, 500 AFY savings can be achieved.



Example for Illustration Purposes Only

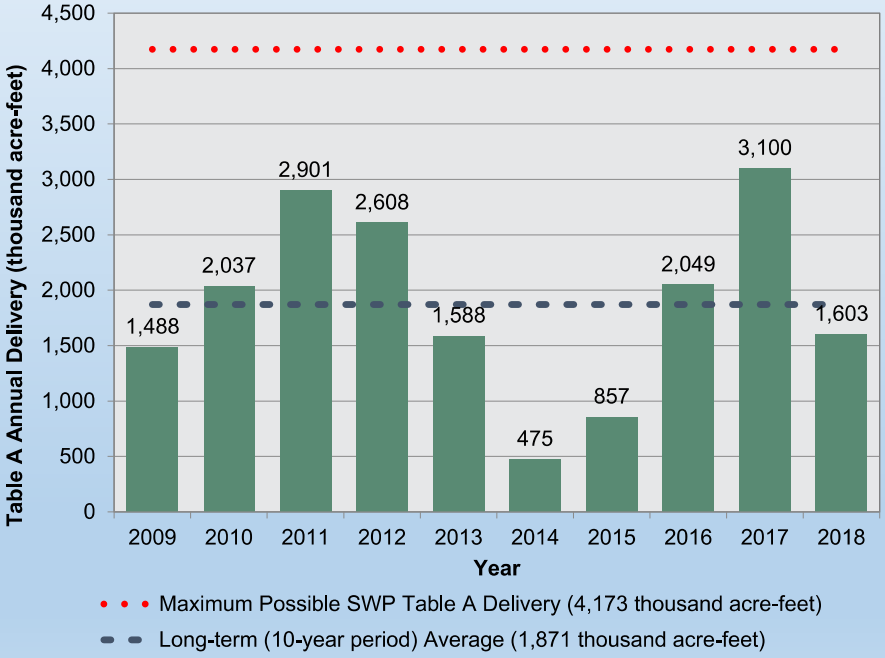
PMA 3: Supplemental Imported Water

Addresses the supply side of the water budget.

Relatively expensive, and supplemental imported water supplies are limited.


Umatilla Oregon Canal

State Water Project Water is oversubscribed:



Source: DWR (2020) The Final State Water Project Delivery Capability Report 2019

SWP Water is unreliable due to changing climate and Bay-Delta environmental regulations. BUT
Currently about 10,000 – 19,000 AFY of Unused SWP water that could be used as **Supplemental** Water Supply.

Summary Imported Water Supply

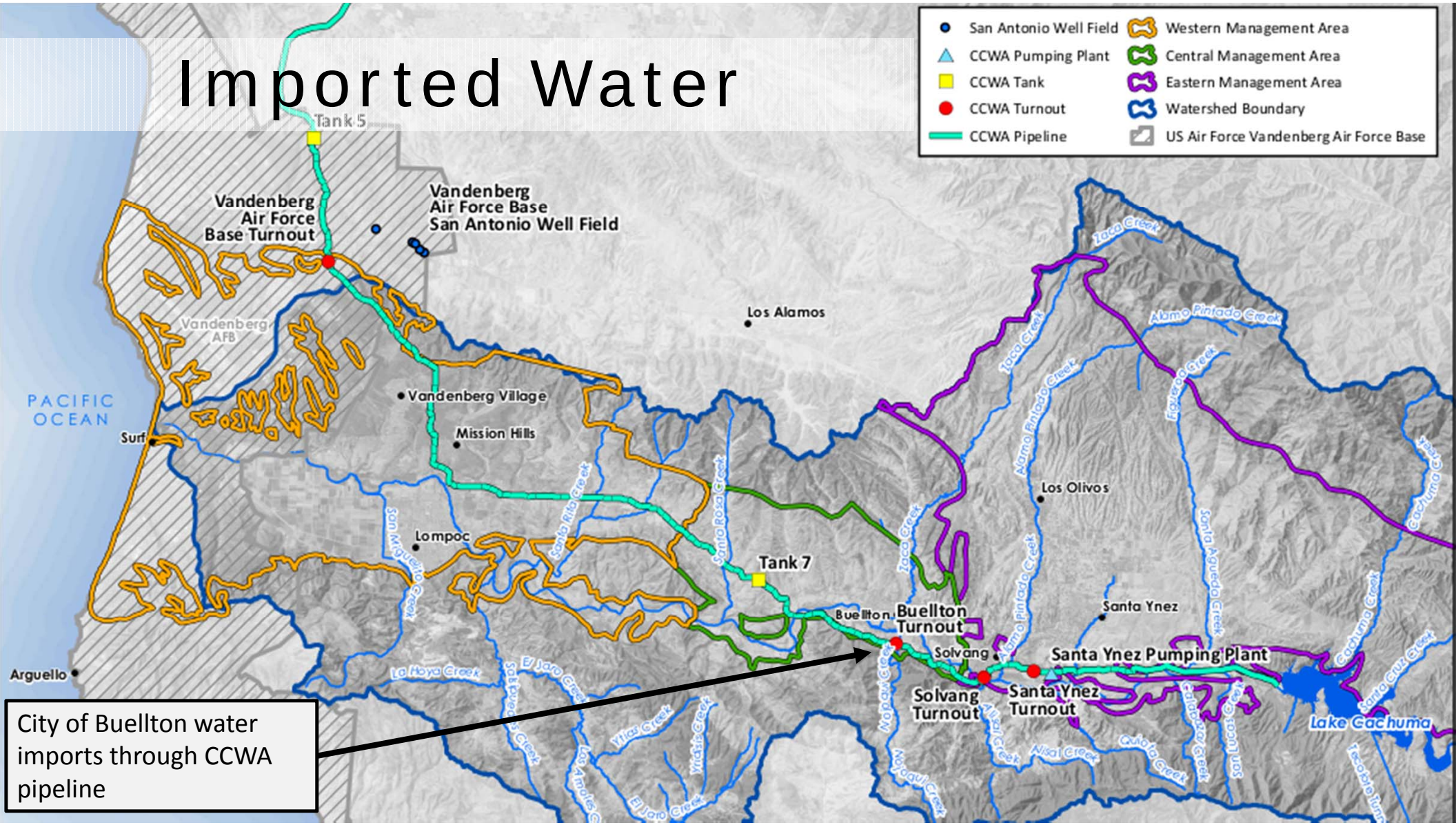
Table 2-11 summarizes the unused imported water supplies estimated for the Region.

Table 2-11: Imported Water Unused Supplies

Supply Source	Unused Supply (AFY)[3]
Undelivered State Water Project Supply – Santa Barbara County (10-year average)	7,500
Undelivered State Water Project Supply –San Luis Obispo County (wet year average)[2]	3,400
Suspended Table A State Water Project Supply	8,000
Non-State Water Project Supplies	Indeterminable
Out-of-State Imported Supplies	2,000 – 6,000[1]

1. Assumes only one out-of-state imported supply would be implemented.
2. Assumes undelivered SWP supply from San Luis Obispo County would only be obtained during wet years.
3. Unused Supply values have been rounded to the nearest 100 AFY

Imported Water



City of Buellton water imports through CCWA pipeline

PMA 4: Increased Storm Water Recharge/ Supply

Example Bioretention Project

Ave. of Flags Bioretention Project Concept
City of Buellton

Santa Barbara County-wide
Integrated Stormwater Resource Plan

Geosyntec consultants

Figure **B-17**

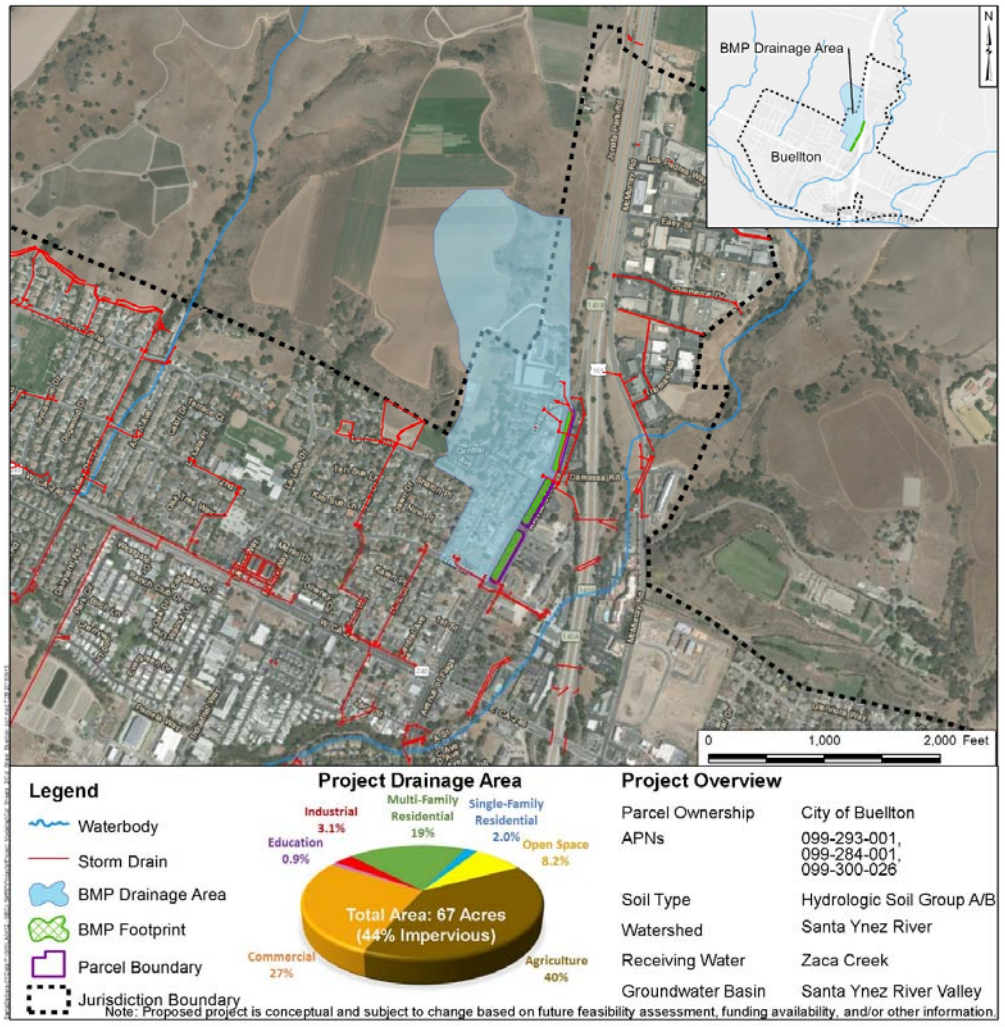
Santa Barbara | June 2018

Addresses the supply side of the water budget.

Keeps water in the Basin and avoids it running out to the Ocean.

Climate Change is expected to increase rainfall intensity.

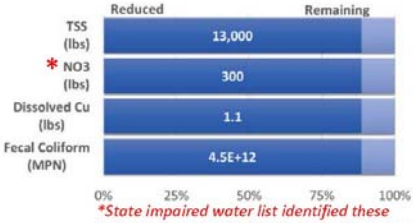
Recommended (*Water Code Section 10633)*



Project Benefits

All benefits are expressed as an average annual estimate based on historical long-term modeling.

Water Quality:
Pollutant load reductions from drainage area



**State impaired water list identified these pollutants as elevated in the receiving waters*

Water Supply:
18 acre-feet of groundwater recharge

Equivalent Households Supplied

Flood Management: 38 acre-feet (89%) of the average annual runoff volume would be captured and treated. A portion of this would then be infiltrated and the rest of the treated volume would gradually be released back into the stormdrain system, assisting with surface flooding near 2nd street. All of the flows generated by an 85th percentile 24-hr storm would be captured and treated.

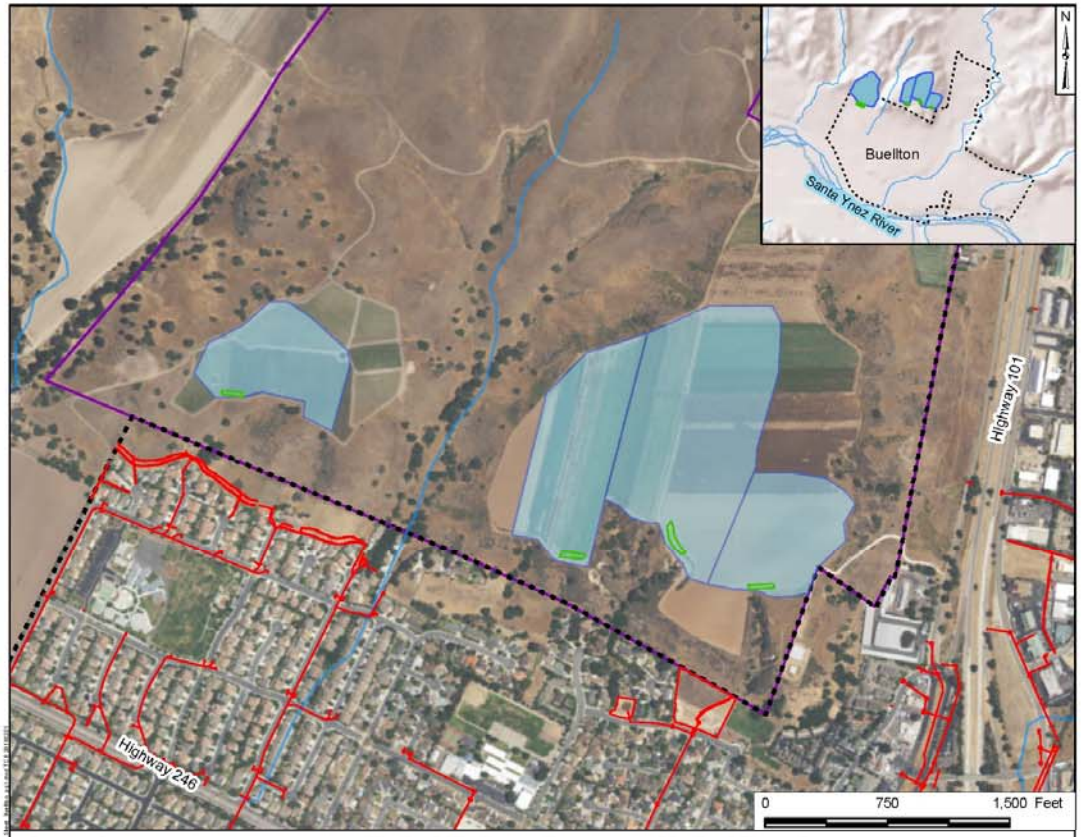
Environmental Enhancements: Infiltrated water would enhance the greenspace and promote nearby vegetation, increasing the habitat value. Existing invasive species would be removed and plants that attract pollinator species may be included.

Community Enhancements: Signage would educate the public about the project's multiple benefits, and native vegetation and landscaping would improve the aesthetics of the parcel.

Volume Capture Analysis

	85th Percentile, 24-hr Storm	Long-Term Average Annual
Precipitation (in)	0.99	16.8
Runoff Volume (ac-ft)	2.5	43
Percent of Runoff Volume Captured (%)	**100**	**89**
Total Volume Captured (ac-ft)	**2.5**	**38**

Estimated Yield = 38 AFY



Legend

- Waterbody
- Storm Drain
- BMP Drainage Area
- BMP Footprint
- Parcel Boundary
- City/County Unincorporated

Project Drainage Area

Project Overview

Parcel Ownership	Buellton Ranch LP
APN	099-400-069
Soil Type	Hydrologic Soil Group D & B
Watershed	Santa Ynez
Groundwater Basin	Santa Ynez River Valley
Jurisdiction(s)	County of Santa Barbara

Note: Proposed project is conceptual and subject to change based on future feasibility assessment, funding availability, and/or other information.

Project Description

Opportunities to implement infiltration basins were identified just north of the City boundary on agricultural fields. This project will provide infiltration of runoff captured from a total of 63 acres of agricultural land uses. The fields are located at the top of a hill and may have contributed to flooding along the northern boundary of the City. Decreasing the runoff will also reduce erosion in the southern portion of the agricultural fields. If landowner apporval is received, portions of the southern part of the privately owned agricultural fields will be used to construct these BMPs.The basins are sized to capture the 85th percentile 24 hour storm event and will infiltrate stormwater and improve water quality in the runoff from the agricultural fields.

Potential Site Constraints:
Information for underlying soils is currently unavailable for the project site in entirety. However, currently available information shows that the western agricultural field is located on hydrologic soil group D soils and the eastern agricultural field where the BMPs are proposed is surrounded by hydrologic soil group B soils. Therefore, site-specific percolation testing will be needed to ensure adequate infiltration rates. Since the fields are located on a hill, a slope stability evaluation is also necessary.

Example Infiltration Basin (proposed concept)

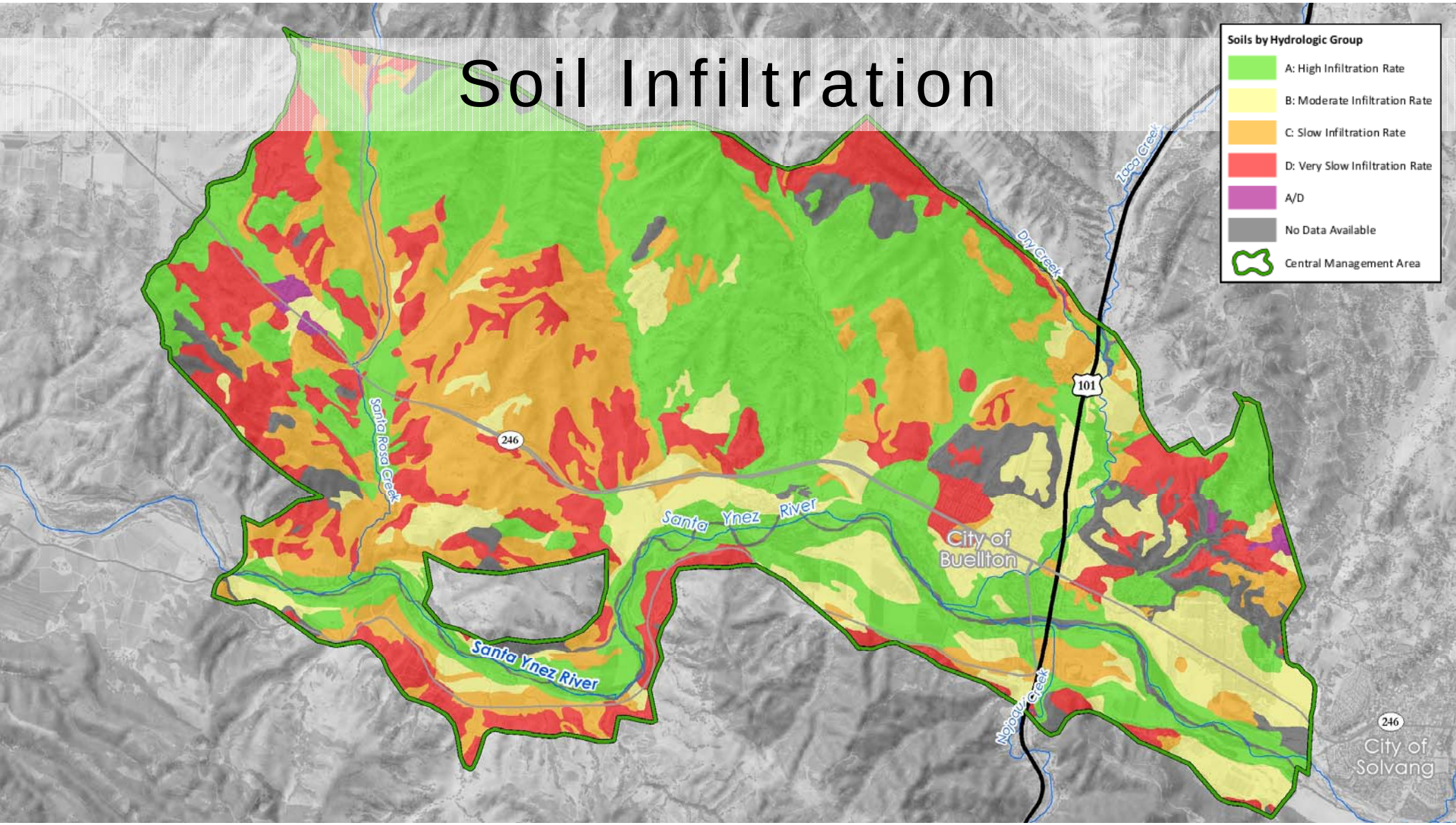
Infiltration Basin Project Concept
Agriculture Fields
City of Buellton
Santa Barbara County-wide
Integrated Stormwater Resource Plan

Geosyntec consultants

Santa Barbara | February 2018

Figure B-1

Soil Infiltration

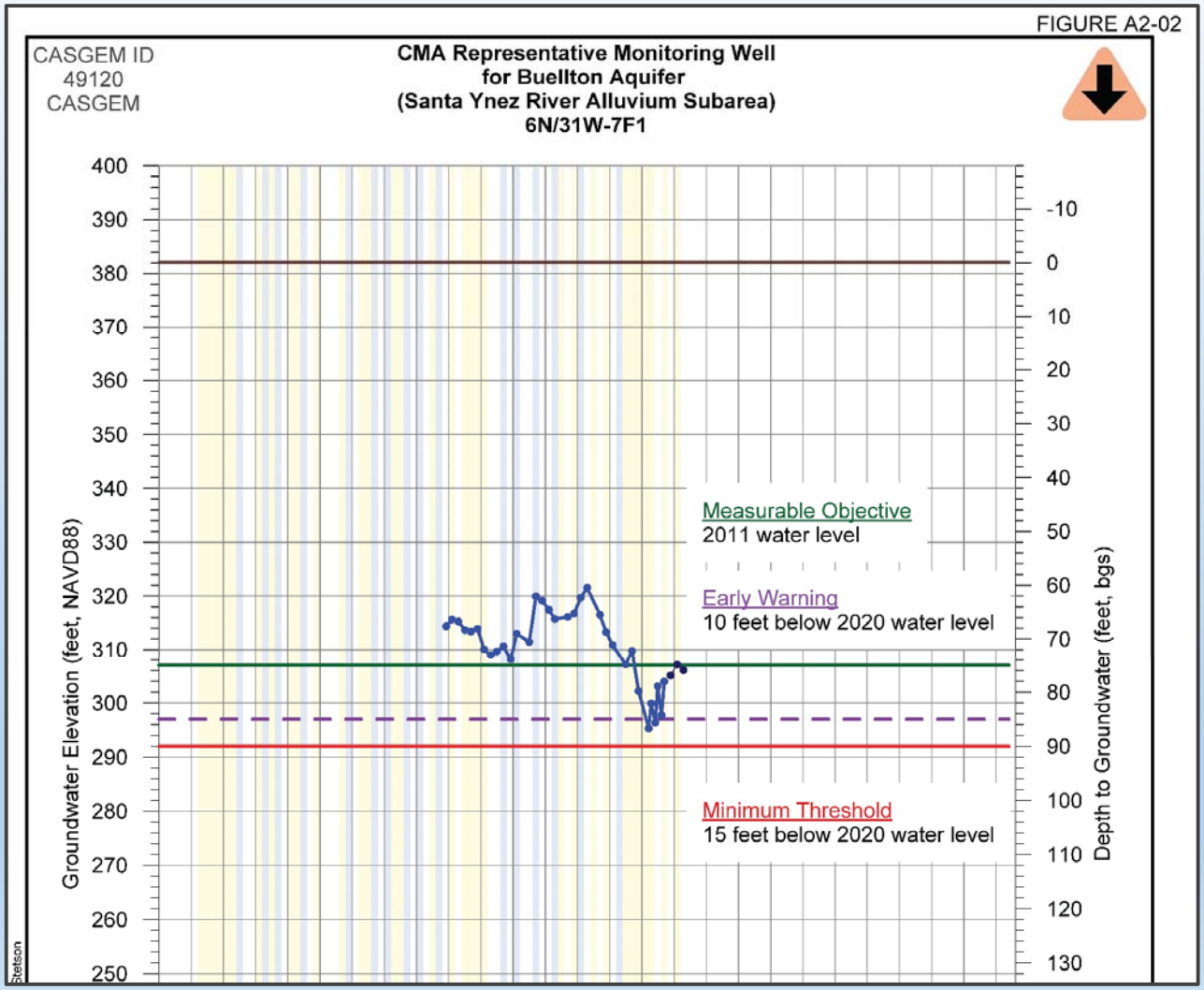


Summary of General PMAs 1-4

- CMA GSA can achieve goal of obtaining additional 100- 1,000 AFY of supply for CMA and keep groundwater aquifer sustainable!

ANNUAL SUMMARY						
	AF Per Year		$ Per Year		$/AF	
1. Water Conservation	300	400	20,000	25,000	$50	$83
2. Tiered Fees	0	500	-	30,000	$0	$60
3. Supplemental Imported Water Program	500	1000	1,500,000	2,000,000	$1,500	$2,000
4. Increased Storm Recharge/Supply:	50	500	40,000	100,000	$80	$2,000

Early Warning
Group 2
Projects and Management Actions



If 50% of Representative Monitoring Wells reach Early Warning Trigger,
early warning PMAs will be implemented.

If 50% of Representative Monitoring Wells reach Minimum threshold in two consecutive non-drought years,
minimum threshold PMAs will be implemented

PMA 5: Supplemental Conditions on New Wells

Addresses the demand side by reserving existing groundwater supplies for current users who have been paying fees into the GSP. Permits for new well production would have conditions about impacting existing users.

Well Screen from Stetson Engineers 2021 Well Drilling Project

PMA 6: Water Rights Releases Request

Dry Santa Ynez River bed

Addresses the supply side of the water budget by releasing water from Lake Cachuma.

Limited by water availability in Lake Cachuma and environmental restrictions.

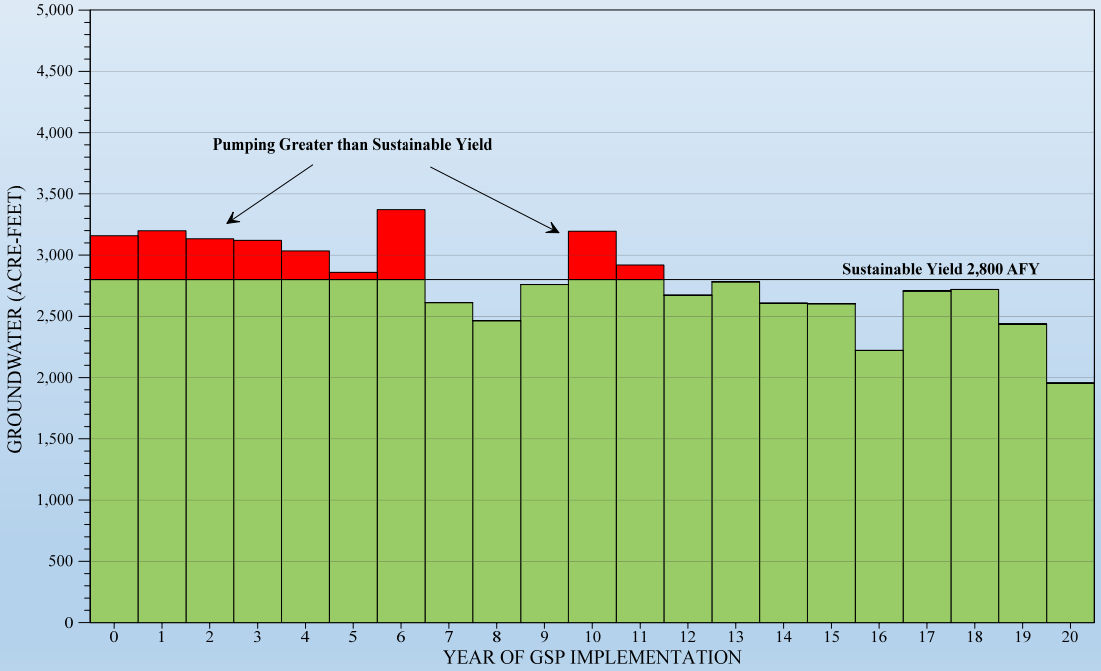
Mitigation and Resiliency
Group 3
Projects and Management Actions

These are how the GSA plan to mitigate the future challenges to the groundwater system.

Crawfish in dry Santa Ynez River riverbed

PMA 7: Annual Pumping Allocation Plan/ Voluntary Fallowing Program

Example where historical pumping data that exceeded Sustainable Yield.



Addresses the supply side of the water budget by limiting water use when pumping is greater than the sustainable yield.

Voluntary Fallowing

-Dust control mitigation

-At 10% fallowing, could yield up to 3,000 AFY

PMA 8a: Deepen Existing Wells

This is a mitigation measure to lessen the impact of declining water levels on beneficial users.

Does not improve the water balance.

Stetson Engineers 2021 Well Drilling Project in AZ

PMA 8b: Pumping Optimization

This is a mitigation measure to lessen the impact of declining water levels on beneficial users.

Requires additional infrastructure to moving water throughout the basin. Does not improve the overall water balance.

Pumping with wells with bad water quality would be suspended and supplied with water from wells further upstream.

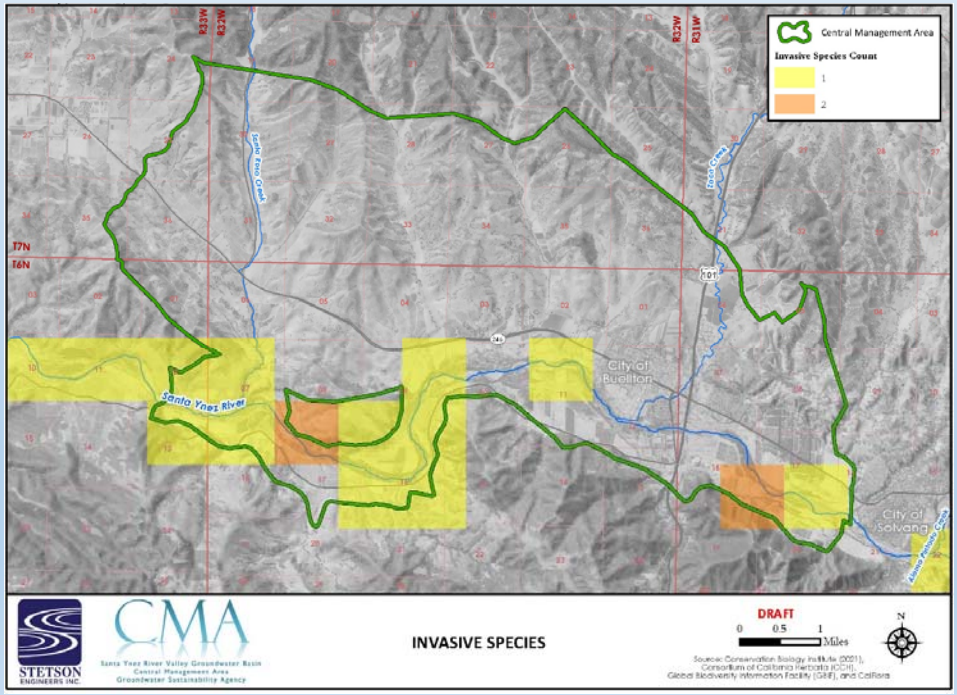
Other Projects
Group 4
Projects and Management Actions

PMA 9: Non-Native Vegetation Removal

Non-native vegetation may be a non-beneficial use of water. Removal of this vegetation may result in more water for other uses.

Pampas grass (*Cortaderia selloana*)
Invasive Species
Photo from Wikipedia

Giant cane (*Arundo donax*)
Invasive Species
Photo from US Forest Service



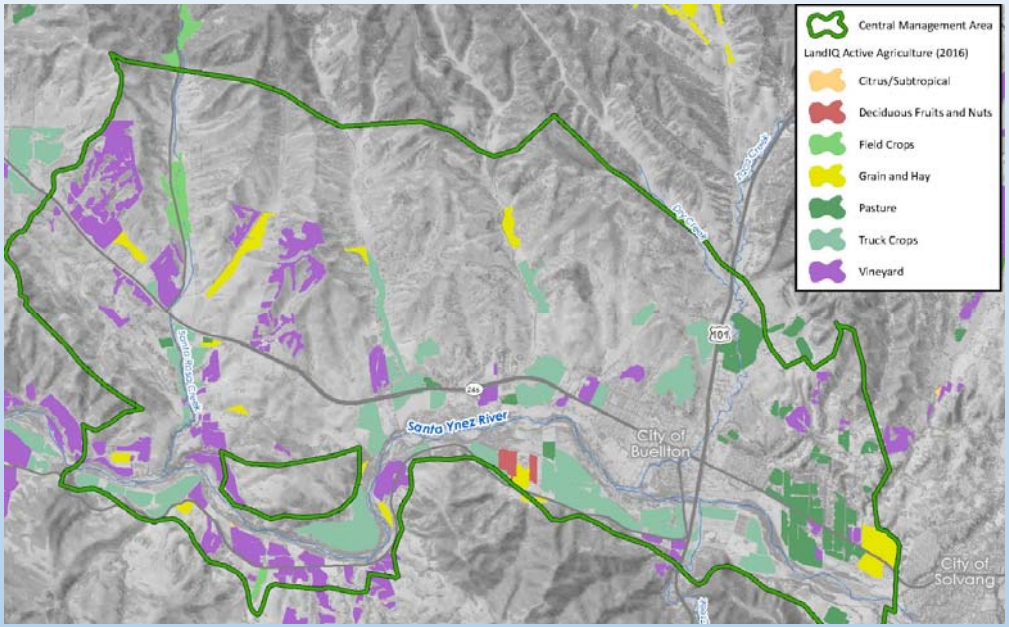
PMA 10: Rainwater Harvesting

Addresses the supply side of the water budget by improving recharge (i.e. a rain barrel reduces pumping).

Removal of impermeable surfaces as well as installation of French drains and swells to capture rainwater and increase percolation rather than allowing surface runoff.

PMA 11: Agricultural Land / Pumping Allowance Retirement

Addresses the demand side of the water budget by voluntary reductions in irrigation water use (i.e. land use change).

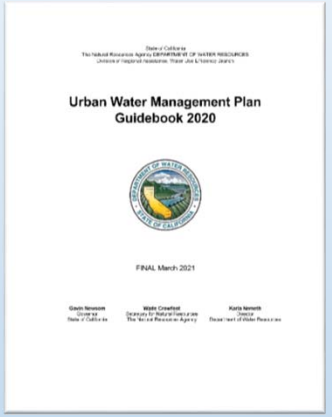


PMA 12: Recycled Non-Potable Reuse

Addresses the supply side of the water budget by by creating a new (unused) supplemental source.

Limited by water availability from wastewater treatment. Also costs involved with greywater systems.

Recommended (*Water Code Section 10633)*



Urban Water Management Plan
Demand Management Measure
(Water Code Section 10633)

Summary of Projects and Management Actions

	Demand	Supply
Group 1	Water Conservation	Supplemental Imported Water Program
	Tiered Fees	Increased Storm Recharge/Supply
Group 2	Supplemental conditions on New Wells	Water Rights Releases Request
Group 3	Annual Pumping Allocation Plan	Drought Mitigation
	---Voluntary Fallowing Program	---- Deepen Existing Wells
		---- Pumping Optimization
Group 4	Non-native Vegetation Removal	Recycled Water Non-potable Use
	Agricultural Land/ Pumping Allowance Voluntary Retirement	Rainwater Harvesting

Implementation

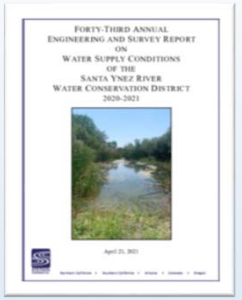
- Reporting and Updates
  - Annual Reports
  - 5-Year Updates
- Initial Implementation Actions
  - Update Well Registration
  - Require Meters for Groundwater Pumping
  - Coordination Agreement
- Ongoing Data Gap Resolutions
  - Well Measuring Point Survey
  - Well Sounding and Video Logging
  - New Monitoring Wells
  - Geophysics Data Analysis

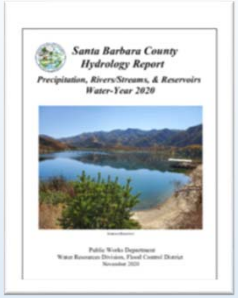
Reporting and Updates
SGMA Annual Reports

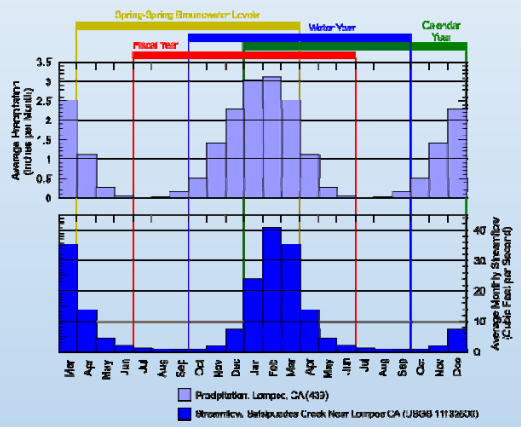
- For each Water Year (Oct 1-Sept 30)
  - Due April 1st (six months to complete)
  - Half year out of phase with District Annual Report

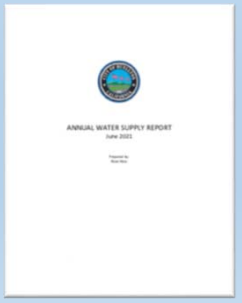
- Will Include:
  - Groundwater Elevations including contours
  - Groundwater Production
  - Surface Water supply
  - Total Water Use
  - Change in Groundwater Storage
  - Progress towards GSP implementation

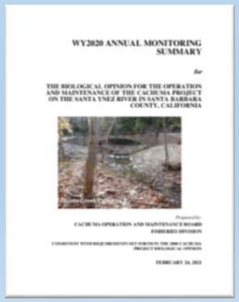
- Due to DWR by April 1











Other Annual Reports in SYRVGB:
District Engineering and Survey, County Hydrology,
COMB Biological Survey, Buellton Water Supply

Ref. 23 CCR § 356.2. Annual Reports

Reporting and Updates
1st Year Annual Report: WY 2021

- Due to DWR April 1st 2022
  (two months after GSP document)

- Address updates in the basin through end of September 2021.
  - Some basin GSP document only extend to 2015 or 2018.
  - CMA GSP draft document includes data through spring 2021.

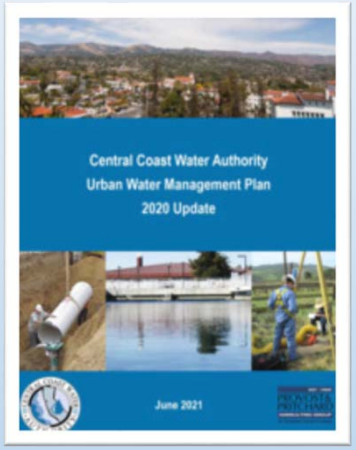
Ref. 23 CCR § 356.2. Annual Reports

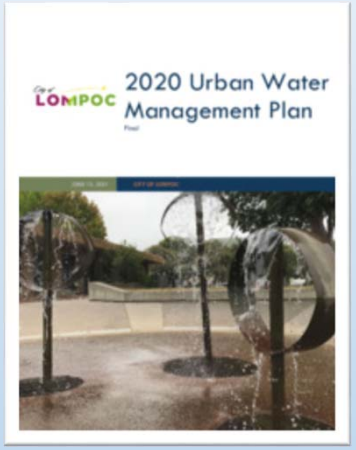
Reporting and Updates
5-Year Plan Assessment

- Evaluation and Update of GSP, due in 2027

- Includes:
  - Updated Groundwater Conditions
  - Description of implementation of any projects or management actions, and results
  - Review and update of plan elements (including undesirable results and minimum thresholds)
  - Address any major changes to the basin
  - Review of monitoring network

- Two year project starting in 2025



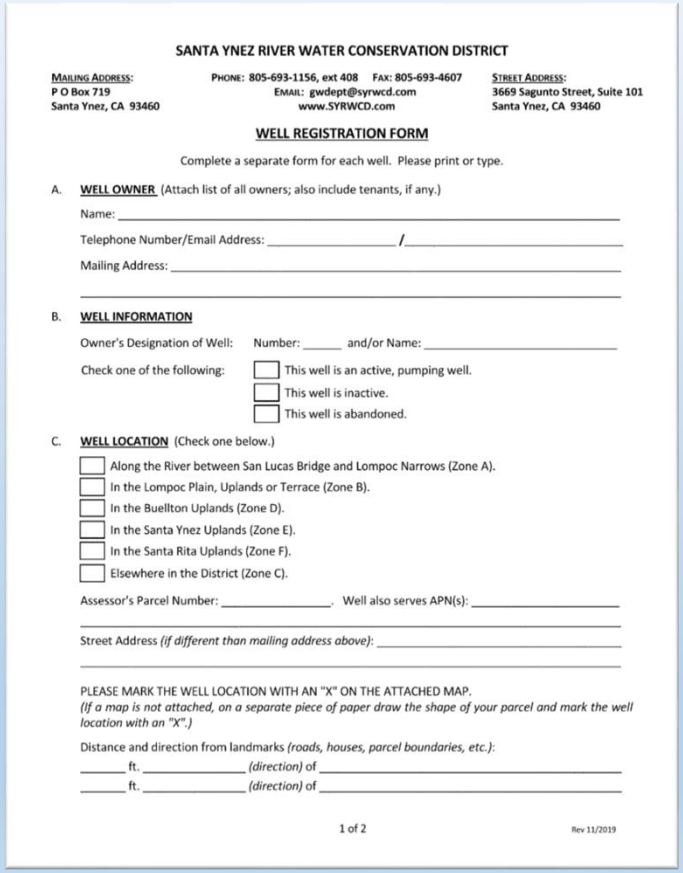


Urban Water Management Plans (UWMP) are also on a 5 year update schedule and include projections of population growth and water efficiency. Updates to UWMP (2025 updates due in 2026) and will be included in updates to GSP.

Ref. 23 CCR § 356.4. Periodic Evaluation by Agency.

Update Well Registration

- Santa Ynez River Alluvium Wells
  - Need to identify which wells are pumping from the shallow subflow of the Santa Ynez River (subject to the SWRCB) and which wells are pumping from the deeper Buellton Aquifer (subject to SGMA) in the reach between Solvang and Buellton Bend and which wells are pumping from both
- Establish baseline condition of current active wells for potential future evaluation of undesirable results
- Coordination between GSA, SYRWCD, County, and SWRCB; Procedure for notification of new wells



SANTA YNEZ RIVER WATER CONSERVATION DISTRICT

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P O Box 719
Santa Ynez, CA 93460

PHONE: 805-693-1156, ext 408 FAX: 805-693-4607
EMAIL: gwdept@syrwcd.com
www.SYRWCD.com

STREET ADDRESS:
3669 Sagunto Street, Suite 101
Santa Ynez, CA 93460

WELL REGISTRATION FORM

Complete a separate form for each well. Please print or type.

A. **WELL OWNER** (Attach list of all owners; also include tenants, if any.)

Name: _____

Telephone Number/Email Address: _____ / _____

Mailing Address: _____

_____

B. **WELL INFORMATION**

Owner's Designation of Well: Number: _____ and/or Name: _____

Check one of the following:
- ☐ This well is an active, pumping well.
- ☐ This well is inactive.
- ☐ This well is abandoned.

C. **WELL LOCATION** (Check one below.)
- ☐ Along the River between San Lucas Bridge and Lompoc Narrows (Zone A).
- ☐ In the Lompoc Plain, Uplands or Terrace (Zone B).
- ☐ In the Buellton Uplands (Zone D).
- ☐ In the Santa Ynez Uplands (Zone E).
- ☐ In the Santa Rita Uplands (Zone F).
- ☐ Elsewhere in the District (Zone C).

Assessor's Parcel Number: _____. Well also serves APN(s): _____

_____

Street Address *(if different than mailing address above)*: _____

_____

PLEASE MARK THE WELL LOCATION WITH AN "X" ON THE ATTACHED MAP.
(If a map is not attached, on a separate piece of paper draw the shape of your parcel and mark the well location with an "X".)

Distance and direction from landmarks *(roads, houses, parcel boundaries, etc.)*:

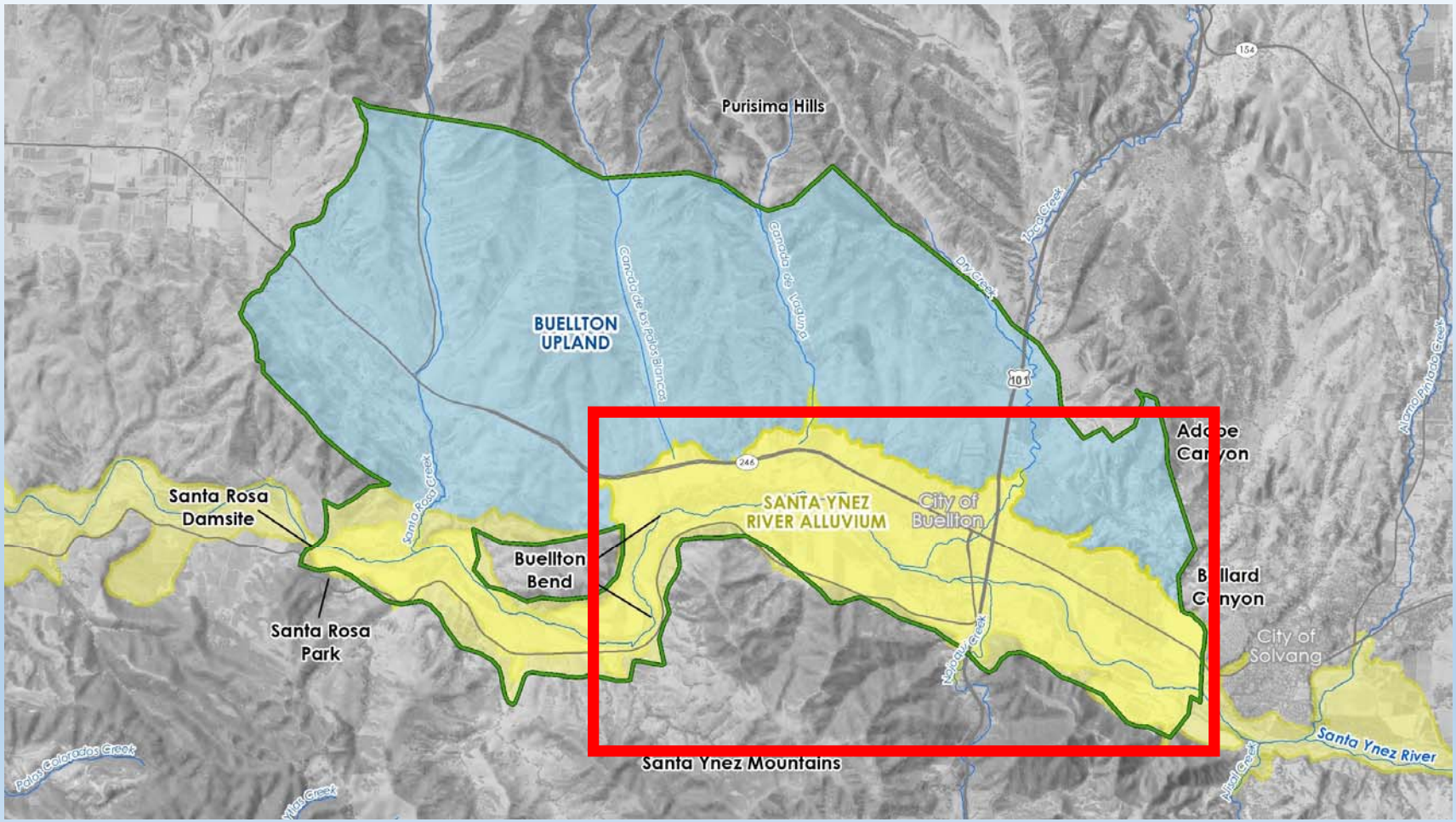
_____ ft. _____ *(direction)* of _____

_____ ft. _____ *(direction)* of _____

1 of 2 Rev 11/2019

2019 SYRWCD Well Registration Form

Area with Shallow and Deep Wells



Well Meters

- Will substantially improve accuracy of water use
- Coordination between well owners, GSA, SYRWCD, County, and SWRCB on plan to install, calibrate, and report
- GSA: create incentives or make mandatory?
- Explore potential Santa Barbara County financial assistance

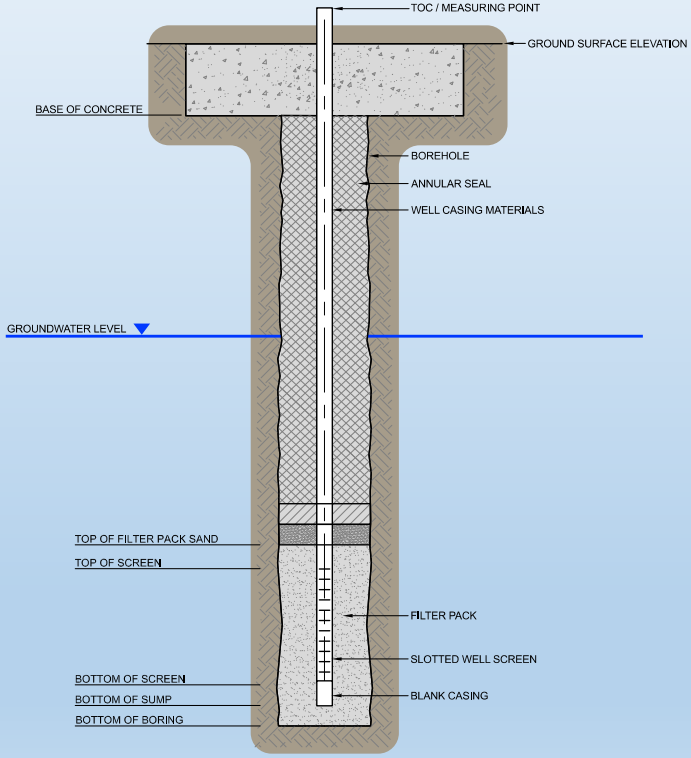
Santa Cruz County Well Meter

Urban Water Management Plan
Recommended as part of
Demand Management Measure
(Water Code Section 10631)

Ongoing Data Gap Resolution

Sound and Video Logging

- During GSP development some representative wells were determined to have missing well construction information
- Project is sound and video log these wells to verify depth of well and location of well perforations.
- Will verify formations represented by measured water levels and associated with well pumping
- Apply for TSS Grants
- Timeline: Two years, December 2023



The Way Ahead

- Revise Projects and Management Actions
- Revise Implementation Actions
- Release DRAFT GSP
- Comments on DRAFT GSP
- Submit DRAFT GSP (January 2022)
- SGMA Annual Report Water Year 2021 (March 2022)

The Way Ahead

Santa Ynez River SGMA Project Schedule	
Administrative Draft GSP	August 11, 2021
Public Draft GSP	September 1, 2021
Public Comment Period	September 1 - October 15
GSA Meetings to discuss draft GSP	8/23/2021, 9/27/2021
Final Draft GSP to Staff	October 29, 2021
Final Draft GSP to Public	December 3, 2021
GSA Committee Adopt GSP	12/15/2021
Submit GSP to DWR on or before	January 14, 2022

Questions?

Comments can be submitted to the website:

www.santaynezwater.org