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SPADRA BASIN
GROUNDWATER SUSTAINABILITY
AGENCY

Implementation of the Groundwater Sustainability Plan (GSP) for the Spadra Basin

Proposal to Perform the Monitoring and Reporting Services for the First Year of GSP Implementation

Groundwater Sustainability Agency (GSA) Executive Committee Meeting

September 14, 2022

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GSP Implementation (First Year):

- **Monitoring, Data Collection, and Database Maintenance**
  - Setup of monitoring network
  - Monitoring of groundwater levels, quality, production, surface water
  - Filling Data gaps identified in the GSP – private well canvas and outreach
- **Annual Reporting**
  - First Annual Report due April 1, 2023 for Water Year 2022
- **Implementation of Projects and Management Actions**
  - Begin the planning stages to implement projects for Scenario 3

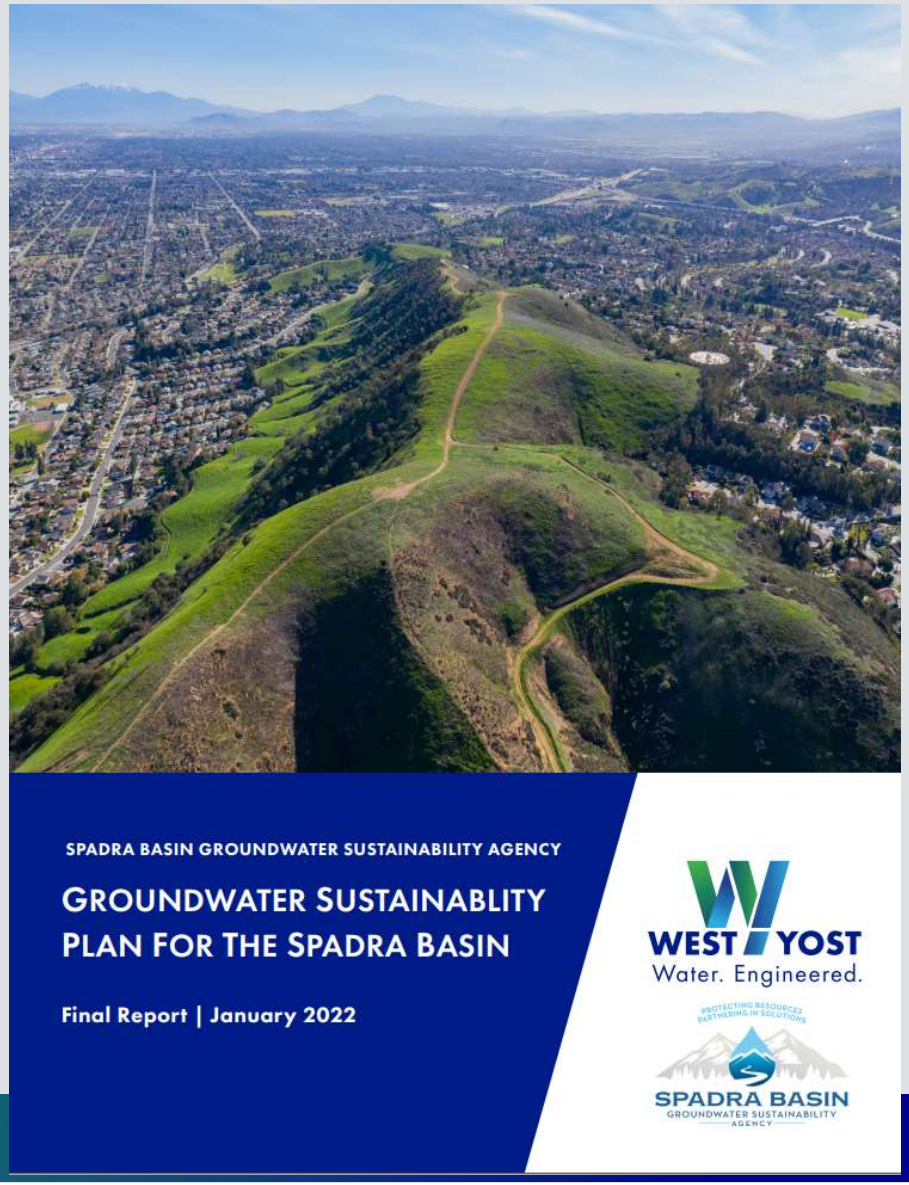
  - Phase 1 Feasibility

SPADRA BASIN
GROUNDWATER SUSTAINABILITY AGENCY

Final Groundwater Sustainability Plan (GSP) for the Spadra Basin

- **May 2, 2022 -** Adopted – public hearing at Executive Committee meeting
- **August 1, 2022 –** Submitted to DWR – SGMA portal. Initiated a 75-day review period
- **October 15, 2022** – End of 75-day period and will go to the DWR for review.

- SGMA requires annual reports are submitted the first year after adoption



Proposal - Monitoring and Reporting Services for the First Year of GSP Implementation

Objective:

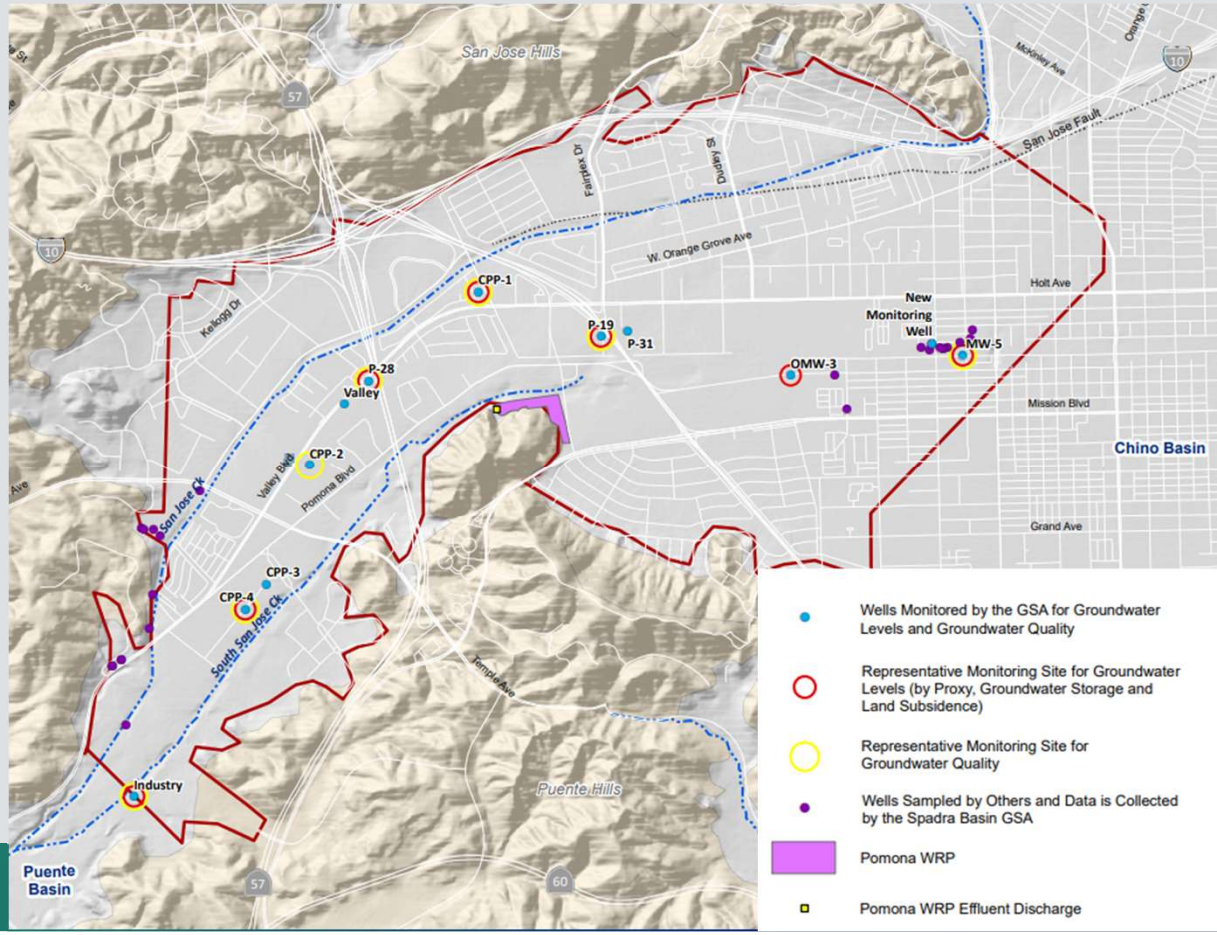
- Set up and implement the Monitoring Program in Section 4 of the GSP
- Prepare first annual report of the GSP (Water Year 2022) due April 1, 2023

Tasks:

1. Setup and Conduct the Monitoring Program for the First Year
2. Prepare the Spadra Basin GSP Annual Report for 2022
3. Project Management and Ad Hoc Meetings

Task 1 - Setup and Conduct the Monitoring Program for the First Year

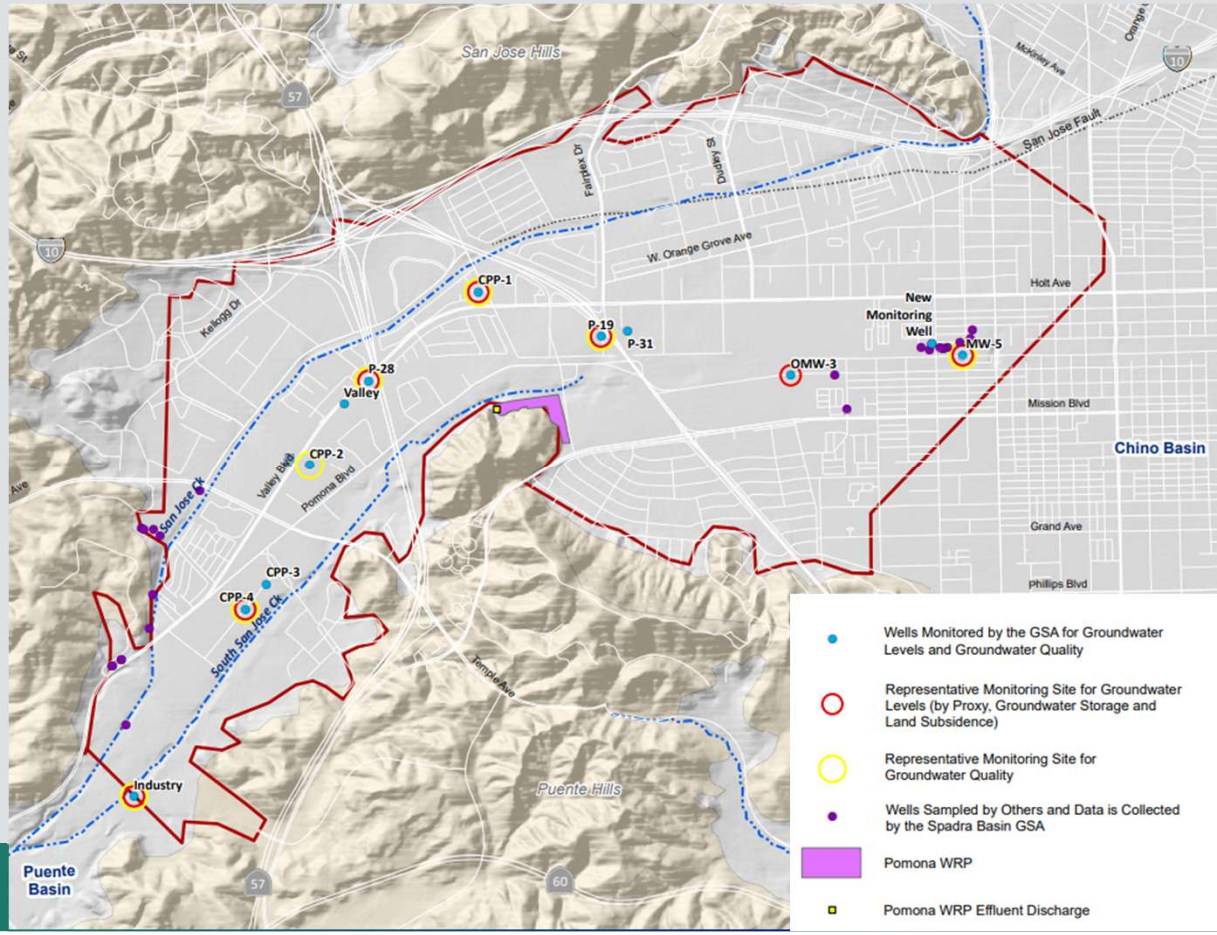
- **1.1 – Set up and Maintenance of Monitoring Network**
  - Set up of the monitoring at the 12 GSP monitoring wells (blue circles)
    - Coordination with well owners, well site visits, purchase and install equipment, database set up of well sites, and follow-up site visits
  - WLs measured using transducers – record measurements every 15 min.
  - WQ measured by well owners – minimum every 3 years for the analytes listed in GSP Table 4-2



Task 1 - Setup and Conduct the Monitoring Program for the First Year

- **1.2- Monitoring of Groundwater Levels**

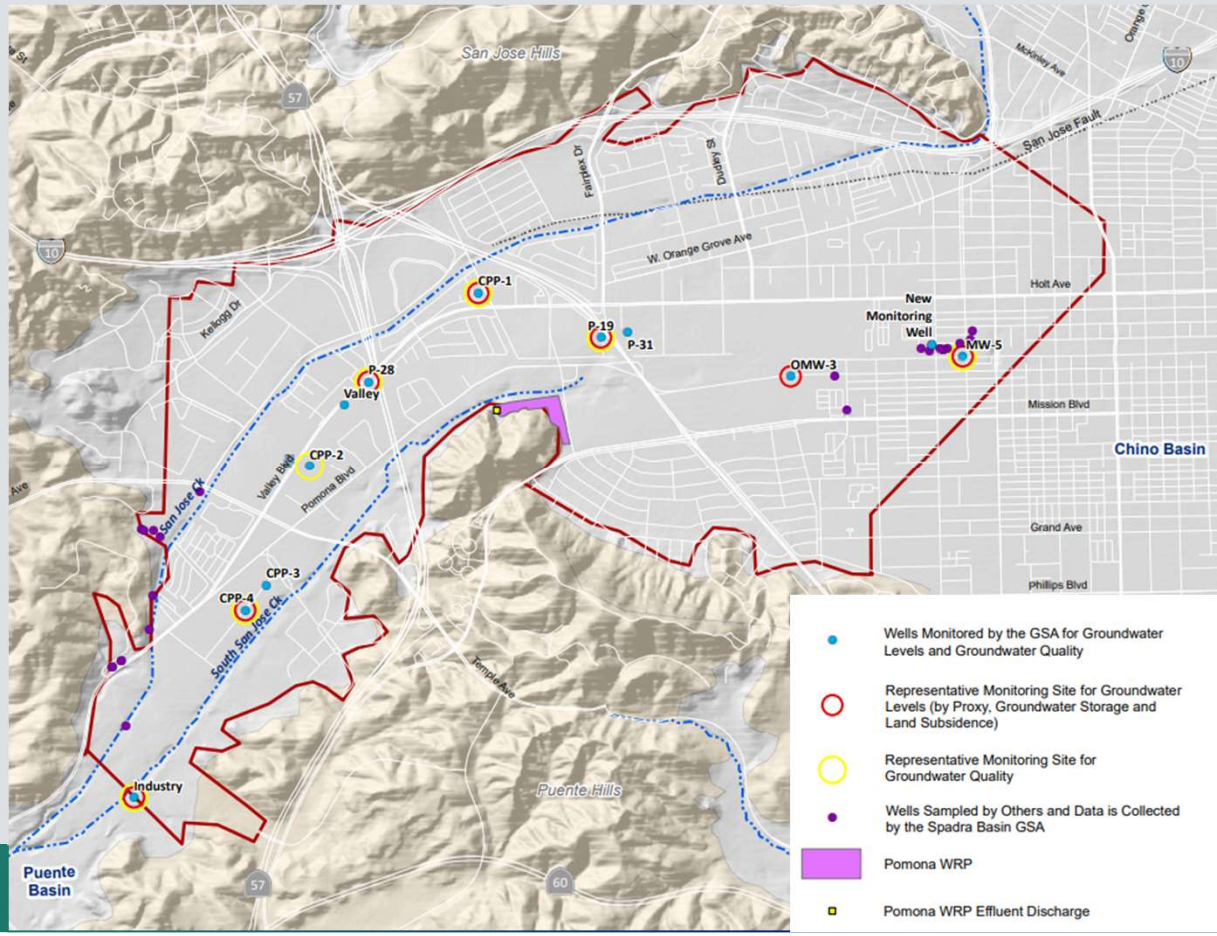
  - Collected all historical measurements of WL for June 2019 to September 2022
  - Quarterly downloads of the transducers, and processing, QA/QC, and upload of the data



Task 1 - Setup and Conduct the Monitoring Program for the First Year

- **1.3- Monitoring of Groundwater Quality**
- **1.4- Monitoring of Groundwater Production**
- **1.5- Monitoring of Surface Water**

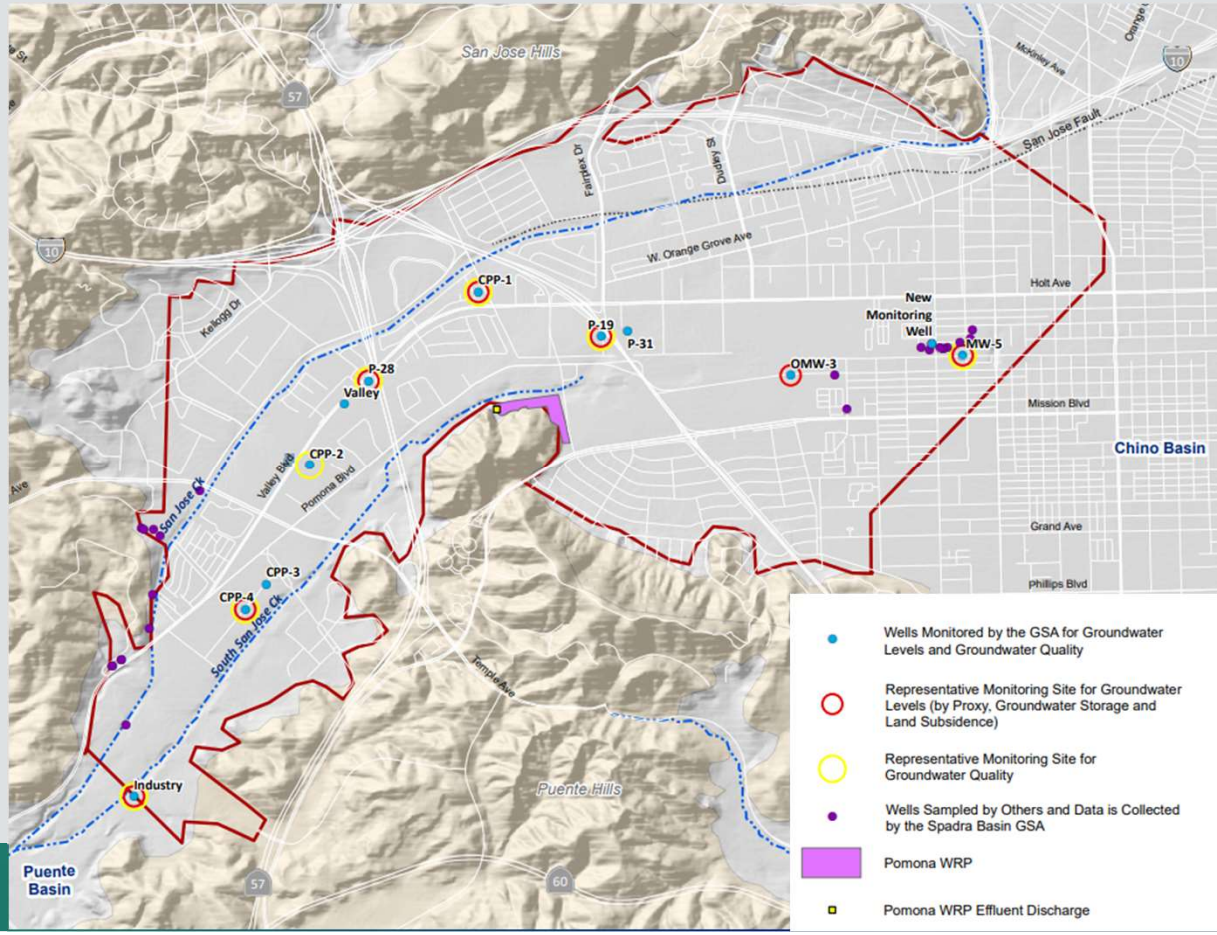
- Collected all historical data for the June 2019 to September 2022 period
- All data will be processed, uploaded to the database, and reviewed for QA/QC.



Task 1 - Setup and Conduct the Monitoring Program for the First Year

- **1.6- Data Gaps to Address in the First Year – Private Well Canvas**

- Perform a well canvas to identify unknown private wells, and work with well owners for inclusion into monitoring
- Existing resources will be obtained and reviewed for information that would provide a lead to discover any unknown private production wells
- Field visits will be conducted to try and locate the wells.



Task 2 – Prepare the Spadra Basin GSP Annual Report for 2022

Pursuant to the 23 CCR §354.40 and §356.2, the annual report must include the following:

- General information about the basin,
- Graphics showing groundwater-elevation contours and well hydrographs,
- Table and map of groundwater pumping,
- Tables of surface water supplies and total water use within the basin,
- Map and time-history charts of change in storage,
- Description of progress made towards implementation of the GSP, and
- Monitoring data submitted electronically.

GSP Annual Report Elements Guide

California Code of Regulations - GSP Regulation Sections	*Groundwater Sustainability Plan Elements*
Article 5	**Plan Contents**
Subarticle 4	***Monitoring Networks***
§ 354.40	**Reporting Monitoring Data to the Department**
	Monitoring data shall be stored in the data management system developed pursuant to Section 352.6. A copy of the monitoring data shall be included in the Annual Report and submitted electronically on forms provided by the Department.
	Note: Authority cited: Section 10733.2, Water Code. Reference: Sections 10728, 10728.2, 10733.2 and 10733.8, Water Code.
Article 7	**Annual Reports and Periodic Evaluations by the Agency**
§ 356.2	**Annual Reports**
	Each Agency shall submit an annual report to the Department by April 1 of each year following the adoption of the Plan. The annual report shall include the following components for the preceding water year:
	(a) General information, including an executive summary and a location map depicting the basin covered by the report.
	(b) A detailed description and graphical representation of the following conditions of the basin managed in the Plan:
	(1) Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:
	(A) Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.
	(B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.
	(2) Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.
	(3) Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.
	(4) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.
	(5) Change in groundwater in storage shall include the following:
	(A) Change in groundwater in storage maps for each principal aquifer in the basin.
	(B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.
	(c) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.

Task 2 – Prepare the Spadra Basin GSP Annual Report for 2022

Three Sub Tasks:

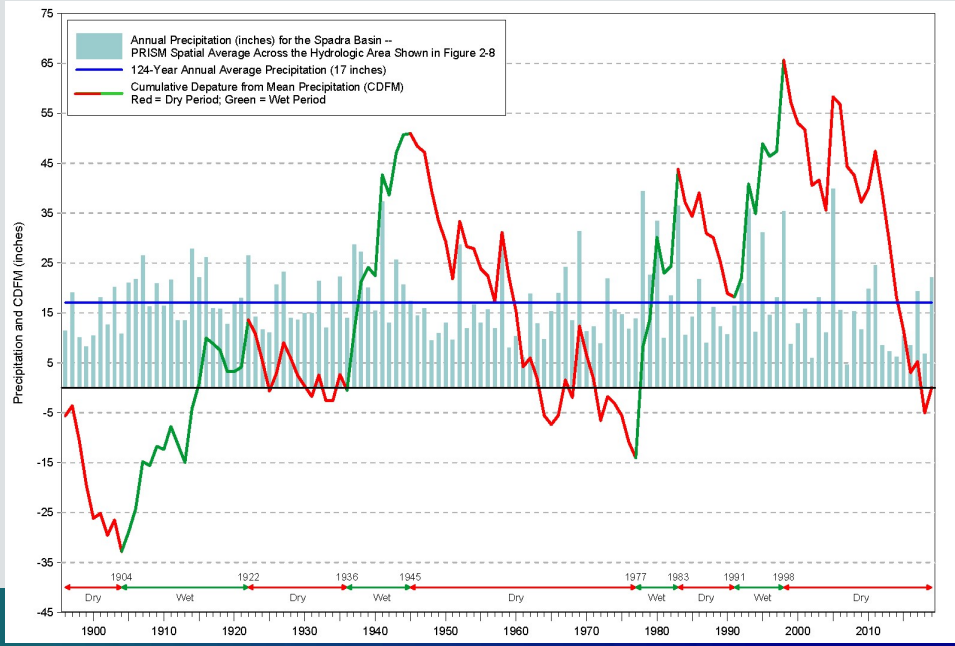
- Task 2.1. Compile Data for the Annual Report
- Task 2.2. Prepare Maps, Tables, and Data Graphics
- Task 2.3. Prepare the 2022 Annual Report and Data Submittals

Task 2 – Prepare the Spadra Basin GSP Annual Report for 2022

Task 2.1. Compile Data for the Annual Report

Data needed for the Annual Report and Data submittals:

- **Groundwater elevation** (collected in Task 1)
- **Groundwater quality** (collected in Task 1)
- **Groundwater pumping** (collected in Task 1)
- **Precipitation** *need to collect
- **Surface water** (collected in Task 1)
- **Water use** *need to collect



Task 2 – Prepare the Spadra Basin GSP Annual Report for 2022

Task 2.2. Prepare Maps, Tables, and Data Graphics (Graphic letter) **– these include:**

A. Map of location covered by report
B. Map of the monitoring program
C. Graphic depicting annual precipitation and a cumulative departure from the mean precipitation plot
D. Table of monthly groundwater pumping for water year 2022
E. Map of groundwater pumping for water year 2022
F. Maps of groundwater elevation contours for fall 2021 and spring 2022
G. Hydrographs of groundwater elevations and water year type through water year 2022
H. Map of change in groundwater storage from water year 2021 to 2022
I. Graphic depicting water year type, groundwater use, the annual change in groundwater storage, and cumulative change in groundwater in storage for the basin, from 2015 to current year
J. Table of annual volumes of surface water supply used or available for use for groundwater recharge or in-lieu use for water year 2022
K. Table of annual volumes of total water use for water year 2022
L. Graphics that show the monitoring data at the representative monitoring wells in relation to Sustainable Management Criteria

Task 2 – Prepare the Spadra Basin GSP Annual Report for 2022

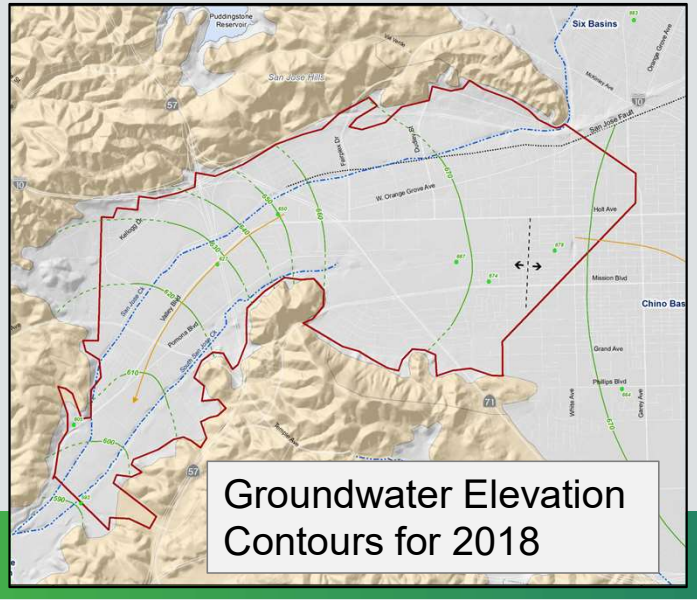
Task 2.2. Prepare Maps, Tables, and Data Graphics (cont.)

F. Maps of groundwater elevation contours for fall 2021 and spring 2022 – Representative Data and ArcMap tools

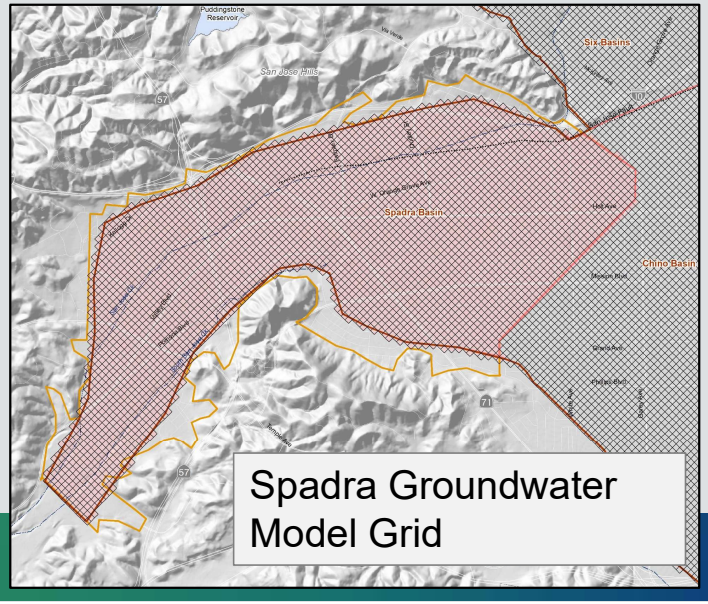
H. Map of change in groundwater storage from water year 2021 to 2022

I. Graphic depicting water year type, groundwater use, the annual change in groundwater storage, and cumulative change in groundwater in storage for the basin, from 2015 to current year

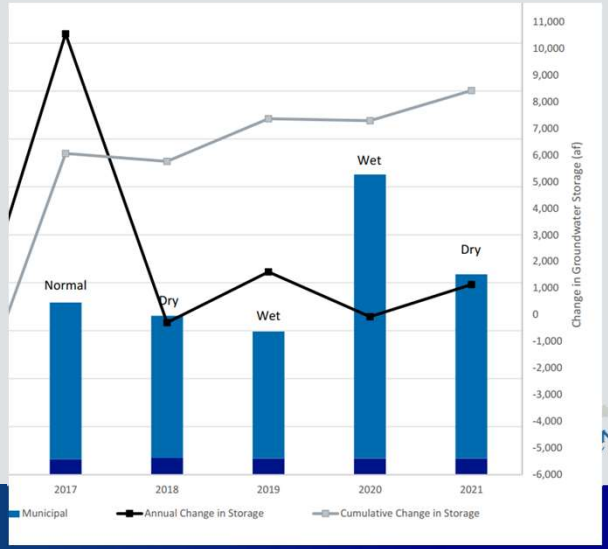
Change in Storage:
Estimated with Spadra Basin Groundwater Model → update model with actual production and recharge through WY 2022



Groundwater Elevation Contours for 2018



Spadra Groundwater Model Grid

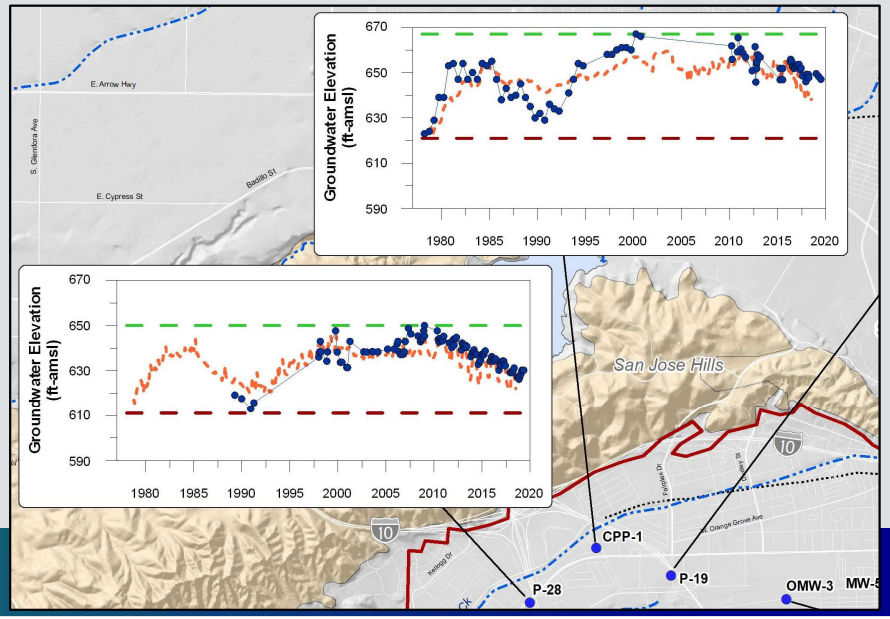


Task 2 – Prepare the Spadra Basin GSP Annual Report for 2022

Task 2.3. Prepare 2022 Annual Report and Data Submittals

Report Outline:

- **Executive Summary**
- **Section 1 – Introduction.** Area, GSP, monitoring program, annual report. Graphics A, B
- **Section 2 – Basin Conditions.** Precipitation and climate, groundwater pumping, elevation, change in storage. Graphics C, D, E, F, G, H, I
- **Section 3 – Water Use.** Total water use, including surface water. Graphics J, K
- **Section 4 - GSP Implementation and Progress.** Sustainable management criteria and status; activities status. Graphics L



Task 2 – Prepare the Spadra Basin GSP Annual Report for 2022

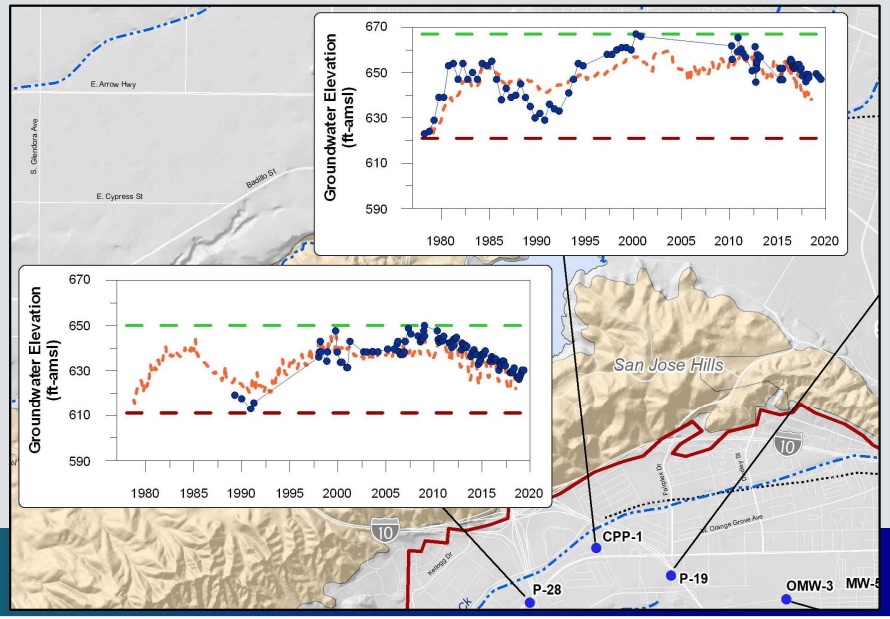
Task 2.3. Prepare 2022 Annual Report and Data Submittals

Deliverables for Task 2.3:

- Draft Annual Report – Review period by GSA
- Final Annual Report – Submitted to DWR <u>by April 1, 2023</u>
- Excel Files in the DWR required format for groundwater level, groundwater pumping, surface water supply, and total water use for water year 2022

Task 3. Project Management and Ad Hoc Meetings

- Project administration and financial reporting
- Prepare and conduct up to three ad-hoc meetings



Proposal - Monitoring and Reporting Services for the First Year of GSP Implementation

Table 4. General Schedule for Spadra Basin GSP Monitoring and Report for the First Year

Task	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23
Task 1. Setup and Conduct Monitoring Program for the First Year												
1.1 Set up of the Monitoring Network												
1.2 Monitoring of Groundwater Levels - Collection												
1.2 Monitoring of Groundwater Levels - Quarterly Downloads												
1.3 Monitoring of Groundwater Quality												
1.4 Monitoring of Groundwater Production												
1.5 Monitoring of Surface Water												
1.6 Data Gaps to Address in the First Year - Private Well Canvas												
Task 2. Prepare the Spadra Basin GSP Annual Report for 2022												
2.1 Compile Data for the Annual Report												
2.2 Prepare Maps, Tables, and Graphics												
2.3 Prepare the Annual Report and Data Submittals				Draft		Final						
Task 3. Project Management and Ad Hoc Meetings												
3.1 Project Management												
3.2 Ad-hoc GSA Meetings												

SPADRA BASIN
GROUNDWATER SUSTAINABILITY AGENCY

Table 2. Line-Item Fee Estimate to Perform the Monitoring and Reporting Services for the Spadra Basin Groundwater Sustainability Plan for the First Year of GSP Implementation

	Task and Subtask Descriptions	Labor, *days and dollars*												Other Direct Expenses *dollars*				Total Costs *dollars*	
		Principal Engineer/Geologist II	Senior Scientist II	Associate Scientist/Engineer II	Scientist/Engineer II	Scientist/Engineer I	Field Services	Administrative IV	Task Repetition Multiplier	Total Person Days	Labor Cost Totals *dollars*			Travel	Equipment	Total		Sub-Task 2	Sub-Task 1, Task, and Project
											Sub-Task 2	Sub-Task 1	Task			Sub-Task 2	Sub-Task 1 and Task		
Task 1. Setup and Conduct Monitoring Program for the First Year										36.0			$51,762				$14,410		$66,172
1.1	Set up and Maintenance of the Monitoring Network [a]								1	11.5		$13,975					$13,420		$27,395
	Coordination with well owners and conducting well site visits		0.25		1.25		2.25		1	3.8	$4,631			$240	$80	$320		$4,951	
	Purchase of transducers, direct read cables, and installation hardware		0.20		1.00				1	1.2	$2,030				$12,700	$12,700		$14,730	
	Installation of transducers and direct read cables, and set up of well information in HydroDaVE data management system		0.25		0.75		3.50		1	4.5	$4,989			$240		$240		$5,229	
	Well site follow-up visit to ensure well access and that the transducers are working properly.		0.25		0.25		1.50		1	2.0	$2,325			$120	$40	$160		$2,485	
1.2	Monitoring of Groundwater Levels								1	14.6		$22,184					$880		$23,064
	Collection of all groundwater level measurements at all wells in the basin through water year 2022; and process, QA/QC, and upload into HydroDaVE data management system [a]		0.50		1.00	0.75			1	2.3	$3,702					$0		$3,702	
	Quarterly downloads of transducers at the 12 GSP monitoring wells; QA/QC, and upload in HydroDaVE data management system [b]		0.60		2.00		1.50		3	12.3	$18,482			$520	$360	$880		$19,362	
1.3	Monitoring of Groundwater Quality [a]		0.75			1.25			1	2.0		$3,314					$0		$3,314
1.4	Monitoring of Groundwater Production [a]		0.25			0.75			1	1.0		$1,566					$0		$1,566
1.5	Monitoring of Surface Water [a]		0.50			1.25			1	1.8		$2,786					$0		$2,786
1.6	Data Gaps to Address in the First Year - Private Well Canvas [b]	0.25	1.00			2.50	1.50		1	5.3		$7,937		$220			$110		$8,047
Task 2. Prepare the Spadra Basin GSP Annual Report for 2022 [b]										36.3			$70,141				$0		$70,141
2.1	Compile Data for the Annual Report		0.25			0.75			1	1.0		$1,646					$0		$1,646
2.2	Prepare Maps, Tables, and Data Graphics								1	19.3		$37,299					$0		$37,299
	Prepare maps on location and monitoring program, and graphic depicting precipitation and water year type		0.30		1.00	0.25			1	1.6	$2,717					$0			
	Prepare map and table on groundwater pumping		0.30		0.75				1	1.1	$1,931					$0			
	Develop spring and fall 2022 groundwater elevation contours and prepare maps	0.75	0.50		2.50				1	3.8	$7,206					$0			
	Develop Hydrographs for 12 GSP Monitoring Wells		0.50	1.25					1	1.8	$3,528					$0		$0	
	Estimate water year change in storage through 2022, and prepare graphic showing annual and cumulative change in storage, groundwater pumping, and water year type	0.25	1.50	3.00	1.25				1	6.0	$11,868					$0		$0	
	Estimate spatial change in storage for water year 2021 to 2022 and prepare map	0.25	0.50		1.25				1	2.0	$3,844					$0		$0	
	Prepare tables of annual surface water and water use for water year 2022		0.20		0.25				1	0.5	$865					$0			
	Prepare graphics of monitoring data in relation to Sustainable Management Criteria		0.50	1.75	0.50				1	2.8	$5,340					$0		$0	
2.3	Prepare the 2022 Annual Report and Data Submittals								1	16.0		$31,196					$0		$31,196
	Prepare Draft Report	1.00	4.75		4.00			1.00	1	10.8	$21,030					$0		$0	
	Prepare Final Report	0.25	1.25		1.00			0.50	1	3.0	$5,708					$0		$0	
	Prepare data files and other submittals for the Annual Report		1.25		1.00				1	2.3	$4,458					$0		$0	
Task 3. Project Management and Ad Hoc Meetings [c]										9.2			$21,451				$0		$21,451
3.1	Project Management		0.30						13	3.9		$9,385					$0	$9,385	
3.2	Ad-hoc GSA Meetings	0.50	1.25						3	5.3		$12,066					$0	$12,066	
	Project Totals	**3**	**17**	**6**	**20**	**8**	**10**	**2**		**80.5**			**$143,353**				**$14,410**		**$157,763**

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Implementation of the Groundwater Sustainability Plan (GSP) for the Spadra Basin

Program Management

Groundwater Sustainability Agency (GSA) Executive Committee Meeting

September 14, 2022

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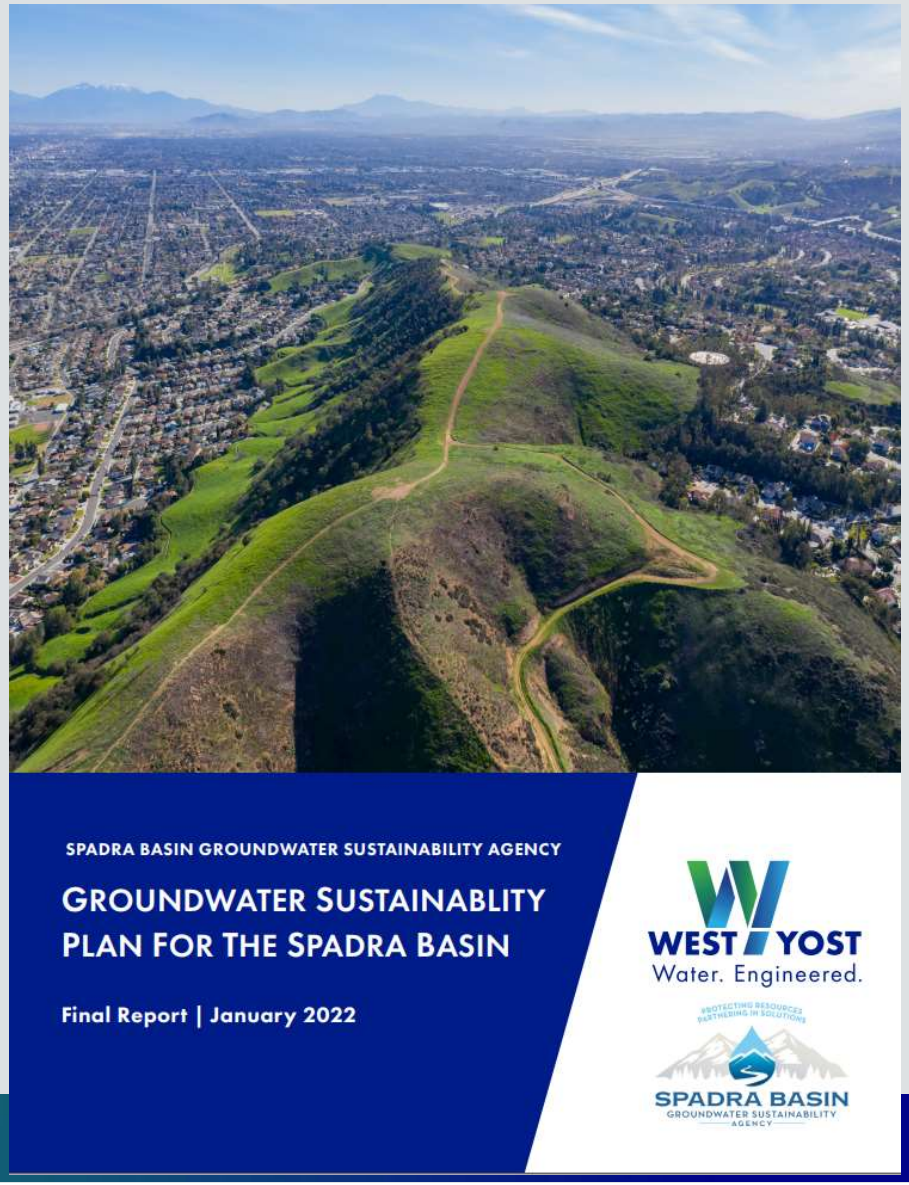
Program Management

Purpose:

Create and Maintain Momentum to Achieve Implementation

Implementation:

Construct Facilities for a More Resilient Water Supply



Program Phases

Task	2022	2023	2024	2025	2026	2027	2028	2029	2030
-- Planning/Permitting/CEQA									
-- Design/Construction									
-- Operation and Maintenance									

Phase 1: Feasibility
Phase 2: Project Alternatives
Phase 3: Preliminary Design & Environmental
Phase 4: Design and Construction

SPADRA BASIN
GROUNDWATER SUSTAINABILITY AGENCY

Program Management Scoping – Phase 1

Objectives:

- Initiate steady progress toward construction
- Chart the regulatory path (RWQCB and DDW)
- Identify and define the studies and field investigations
- Identify funding sources and begin pursuit of funding

Tasks:

1. Program Management
2. Project Partner MOU
3. Regulatory Outreach
4. Program Challenges and Mitigation
5. As-Needed Services

Task 1 – Program Management

- Maintain the Executive Committee as the Driving Force
- Maintain the Advisory Committee for Stakeholder Input and Support
- Guide and Manage the Process
  - Prepare and maintain a master “Program Work Plan”
  - Guide Executive Committee through the necessary leadership decisions
  - Keep the governing bodies informed and engaged
  - Create a funding matrix and track progress

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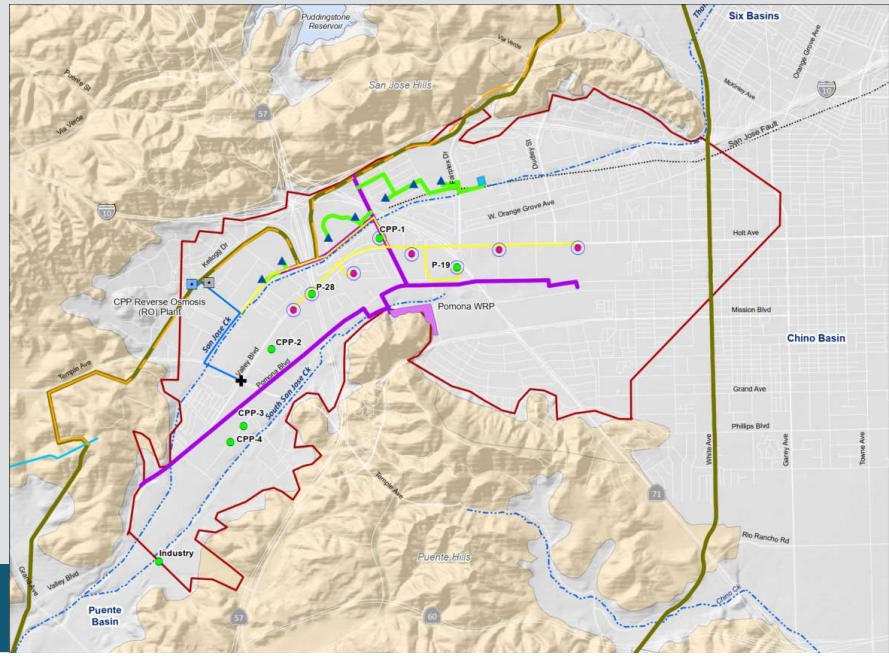
GROUNDWATER SUSTAINABILITY AGENCY

Task 4 – Program Challenges and Mitigation

- Assess Risks and Mitigation Strategies
- Prepare Updated/Refined Future Water Supply and Demand Projections Tech Memo
- Prepare Work Plans for Studies and Field Investigations
- Prepare a Program Strategy Report to Document and Communicate Decision and Activities



Timeline and Budgeting

Task	2022	2023	2024	2025	2026	2027	2028	2029	2030
-- Planning/Permitting/CEQA									
-- Design/Construction									
-- Operation and Maintenance									

- Phase 1: Feasibility
  - November 2022 – December 2023
- Phase 2: Project Alternatives
  - August 2023 (Field Investigations)
  - January – December 2024 (Alternatives Evaluation)
- Phase 3: Preliminary Design & Environmental
  - 2025 - 2026
- Phase 4: Design and Construction
  - 2026 - 2029

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