PROTECTING RESOURCES
PARTNERING IN SOLUTIONS

SPADRA BASIN
GROUNDWATER SUSTAINABILITY
AGENCY

Review of Final Technical Memorandum No. 5 Part 2 - Sustainability of Basin Optimization Scenarios

Groundwater Sustainability Plan Advisory Committee Meeting

November 10, 2021

Final TM 5 Part 2 – Appendix D Comments and Response to Comments

Received comments from:

- Los Angeles County Sanitation Districts
- California Department of Fish and Wildlife

- **Final TM 5 part 2 - November 2021 – Spadra GSA website on Resources tab at** http://spadrabasin.com/wp-content/uploads/2021/11/TM-954-TM5p2-Basin-Optimization-Scenarios-FINAL-wApps.pdf

SPADRA BASIN
GROUNDWATER SUSTAINABILITY AGENCY

Final TM 5 Part 2 – Appendix D Comments and Response to Comments

Los Angeles County Sanitation Districts (LACSD) – Comment Letter:

- Two comments on general implementation requirements or potential challenges.
  - General response:
    - Describes that the proposed projects have been described and evaluated on a conceptual level
    - The next steps towards implementing the proposed projects in Scenario 3 is a **planning process** to take from **concept to design and then to construction**. Included in the GSP Section 6.
    - The impediments and challenges listed are valid. These types of issues and details will be the considered during the **planning process.**

- One comment to add language to note that it is an extensive process for groundwater recharge permitting, and potentially the development of and SNMP

Final TM 5 Part 2 – Appendix D Comments and Response to Comments

CA Department of Fish and Wildlife (CDFW) – Comment Letter

- Two comments on concerns on the effect of altering hydrologic patterns to adversely impact biological resources, especially fish.
  - General response:
    - All projects to be implemented, will be evaluated through the appropriate CEQA analyses including impacts to biological resources.
    - Cost and schedule to perform CEQA analyses is considered in the project budgets and timelines in the GSP.
- One comment on looking forward to the final GSP and contingency plan for the uncertainty of the recycled water for recharge.
  - General response noted that the development of a contingency plan will be developed during the planning phases described in the GSP for the implementation of projects and management actions

SPADRA BASIN GROUNDWATER SUSTAINABILITY AGENCY

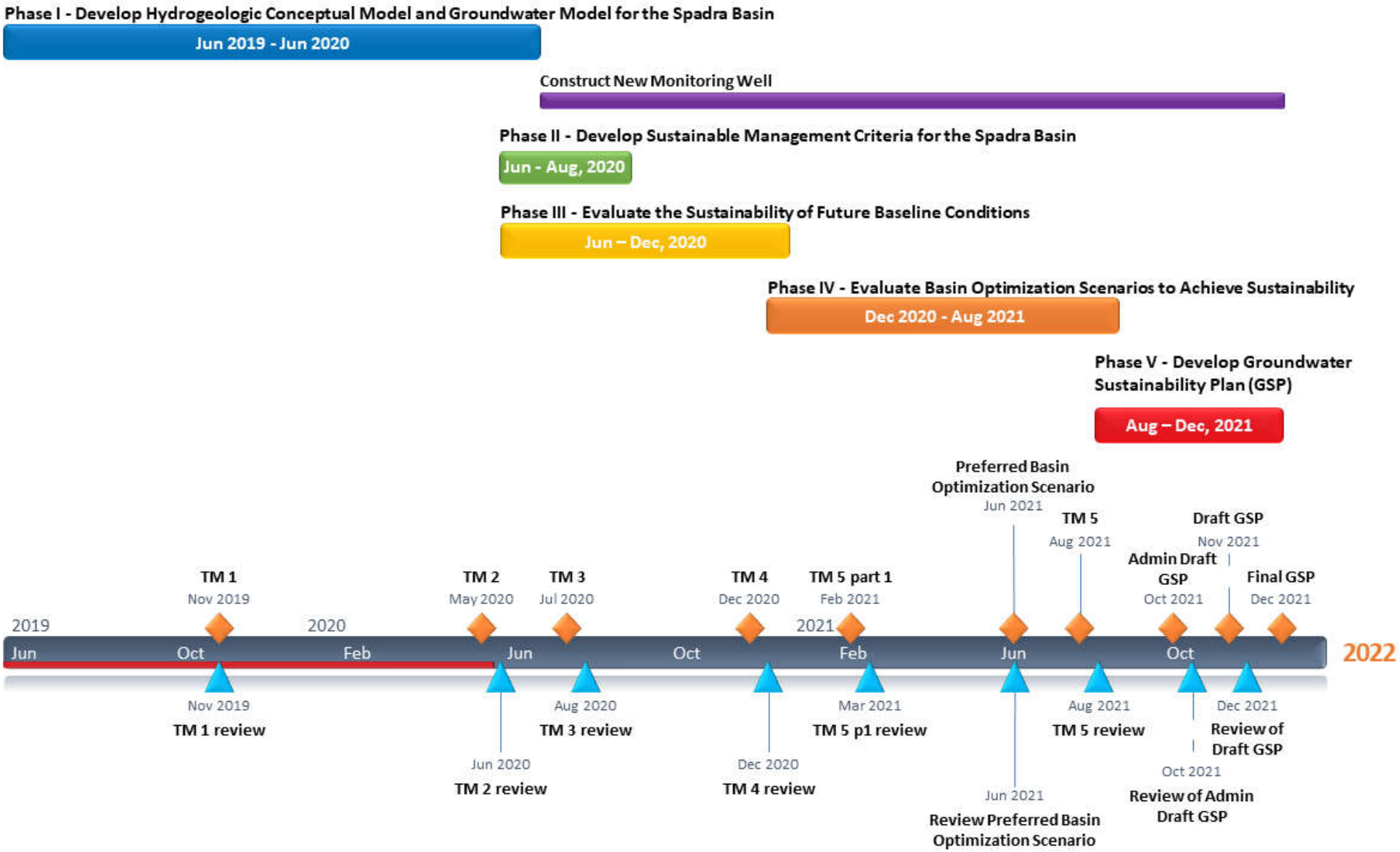
PROTECTING RESOURCES
PARTNERING IN SOLUTIONS

SPADRA BASIN
GROUNDWATER SUSTAINABILITY
AGENCY

Review of Draft Groundwater Sustainability Plan (GSP) for the Spadra Basin

Groundwater Sustainability Plan Advisory Committee Meeting

November 10, 2021


Phase I - Develop Hydrogeologic Conceptual Model and Groundwater Model for the Spadra Basin
Jun 2019 - Jun 2020
Construct New Monitoring Well
Phase II - Develop Sustainable Management Criteria for the Spadra Basin
Jun - Aug, 2020
Phase III - Evaluate the Sustainability of Future Baseline Conditions
Jun – Dec, 2020
Phase IV - Evaluate Basin Optimization Scenarios to Achieve Sustainability
Dec 2020 - Aug 2021
Phase V - Develop Groundwater Sustainability Plan (GSP)
Aug – Dec, 2021
Preferred Basin Optimization Scenario
Jun 2021
TM 5
Aug 2021
Draft GSP
Nov 2021
Admin Draft GSP
Oct 2021
Final GSP
Dec 2021
TM 1
Nov 2019
TM 2
May 2020
TM 3
Jul 2020
TM 4
Dec 2020
TM 5 part 1
Feb 2021
2019
2020
2021
Jun
Oct
Feb
Jun
Oct
Feb
Jun
Oct
2022
Nov 2019
TM 1 review
Jun 2020
TM 2 review
Aug 2020
TM 3 review
Dec 2020
TM 4 review
Mar 2021
TM 5 p1 review
Jun 2021
Review Preferred Basin Optimization Scenario
Aug 2021
TM 5 review
Oct 2021
Review of Admin Draft GSP
Dec 2021
Review of Draft GSP

Spadra Basin GSP Contents

Executive Summary

Section 1: Introduction (new)

Section 2: Plan Area and Basin Setting **(TM 1 and TM 2)**

Section 3: Sustainable Management Criteria **(TM 3)** (partial new)

Section 4: Monitoring Program (new)

Section 5: Projects and Management Actions **(TM 4 and TM 5)**

Section 6: GSP Implementation Plan (new)

Section 7: References

DWR's GSP Regulations for the "Plan Contents" (California Code of Regulations, Title 23, Division 2, Chapter 1.5, Subchapter 2, Article 5)

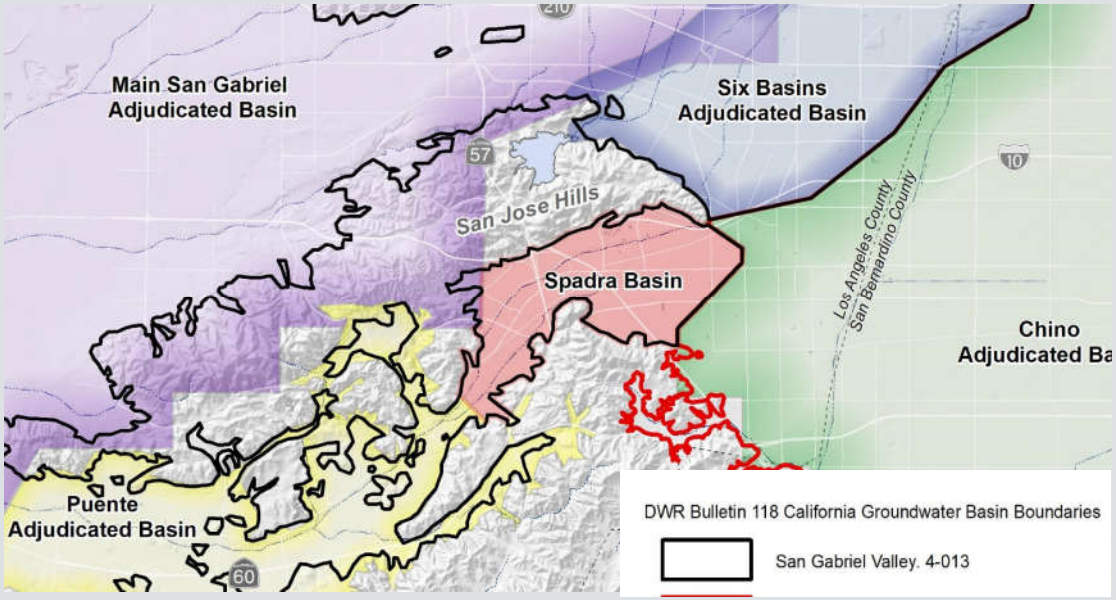
PROTECTING RESOURCES PARTNERING IN SOLUTIONS

SPADRA BASIN GROUNDWATER SUSTAINABILITY AGENCY

Section 1 – Introduction

Section 1.1 – Purpose of the GSP

- Spadra Basin – Part of San Gabriel Valley Basin (4-013) designated as "very low priority" – except from SGMA requirements to prepare GSP



- Walnut Valley Water District and City of Pomona collectively formed the Spadra Basin GSA – Feb 2017 → secured Prop 1 Sustainable Groundwater Planning Grant in 2018

- Objective: to encourage collaborative management of the Spadra Basin between all pumpers and make maximum beneficial use of the basin in a sustainable fashion.

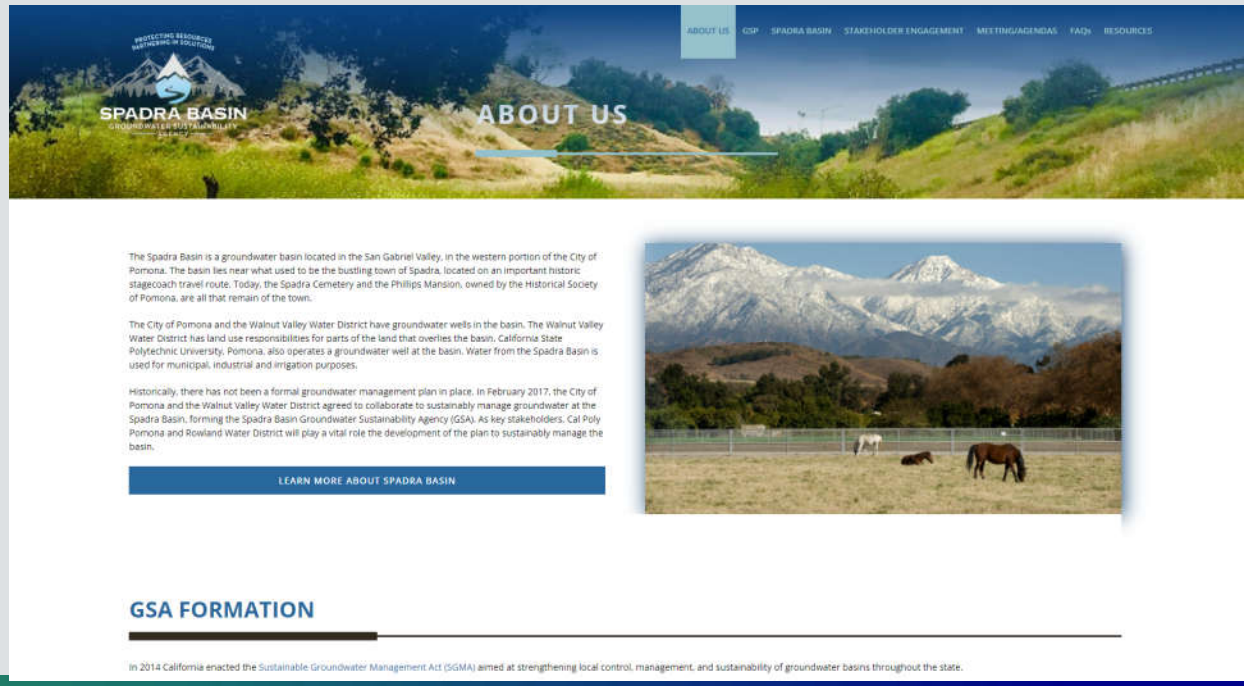
Section 1.2 – Agency Information

- February 28, 2017, Memorandum of Agreement (MOA)
- Organization and Management Structure:
  - ***Executive Committee*** - governing body (WVWD/Pomona)
  - ***Implementation Team*** – coordinates (WVWD/Pomona)
  - ***Advisory Committee*** – stakeholder representation; provides feedback on GSP
- Legal Authority of the GSA - SGMA statues provide the powers/authorities to the GSA:
  - Adopting rules, regulations, ordinances, and resolutions policies and procedures to support GSP implementation and sustainable groundwater management
  - Financial authorities to propose and collect fees on groundwater production to fund GSP
  - Enforcement powers

Section 1.3 – Notice and Communication

- DWR Notice: Formation of GSA / Beneficial Uses and Users of Groundwater
- Notice: Public Notices; Website
- Stakeholder Involvement:
  - Engagement Plan
  - List of Stakeholders
  - Opportunity for participation by public and stakeholders - Advisory Committee meetings → Interim TMs towards GSP → Comments

Spadra Basin website: http://spadrabasin.com

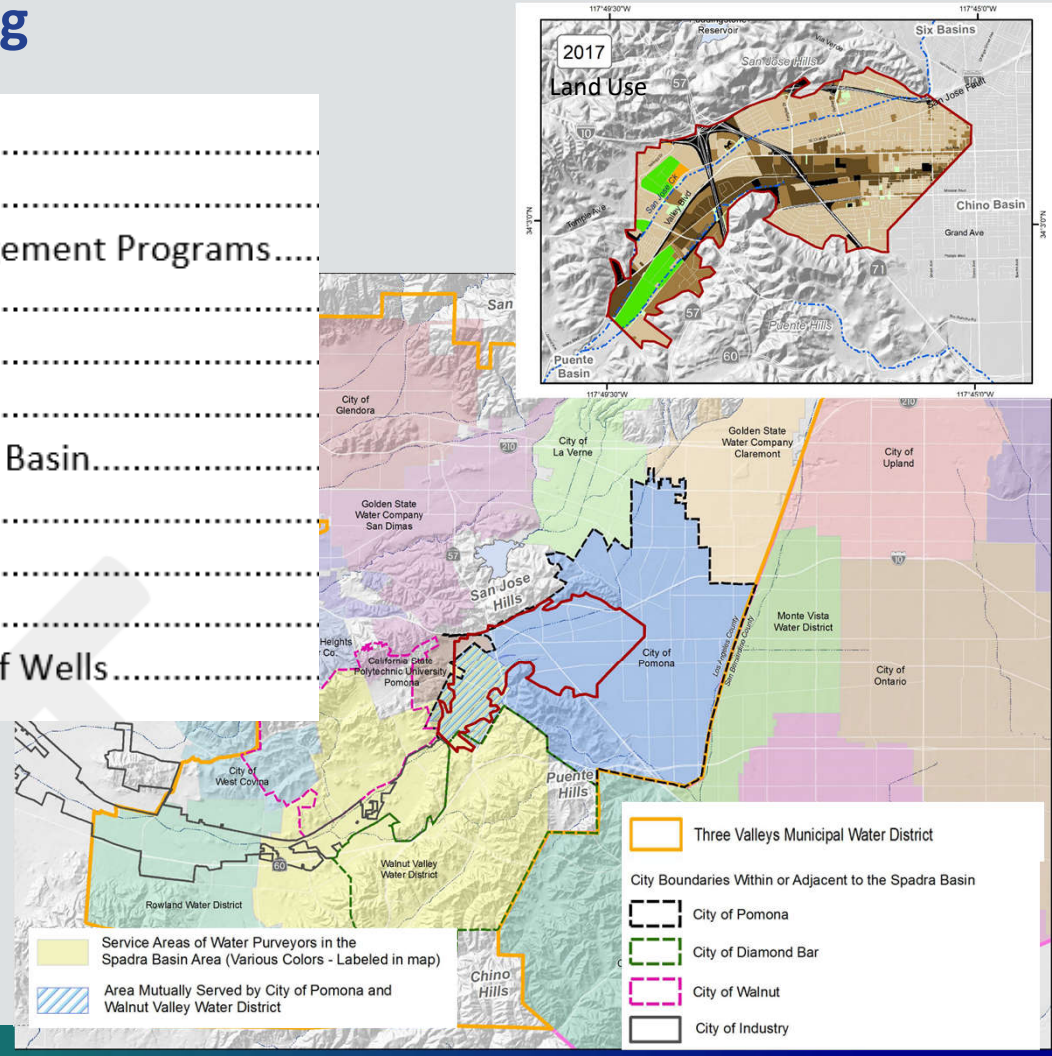


Section 1.4 – GSP Organization

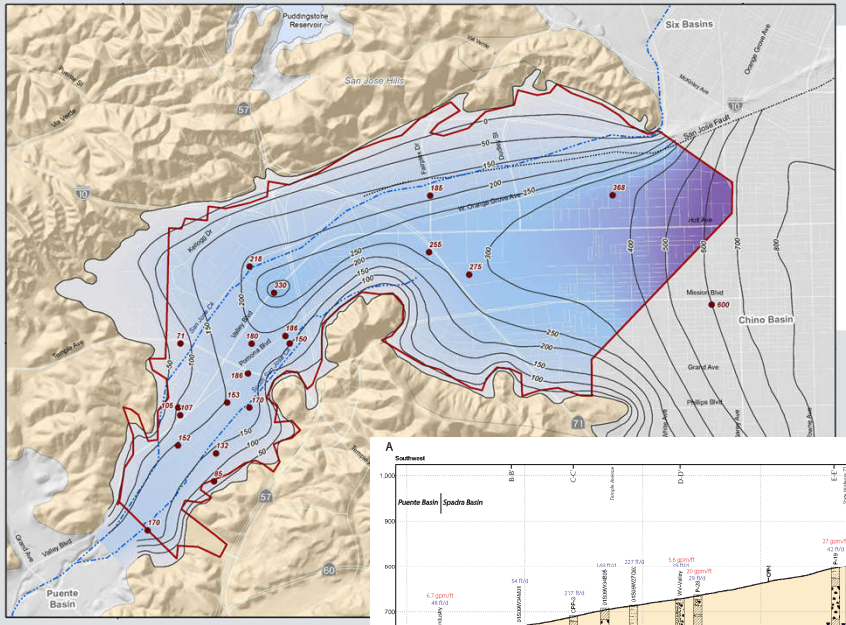
Table 1-3. Preparation Checklist for Spadra Basin GSP

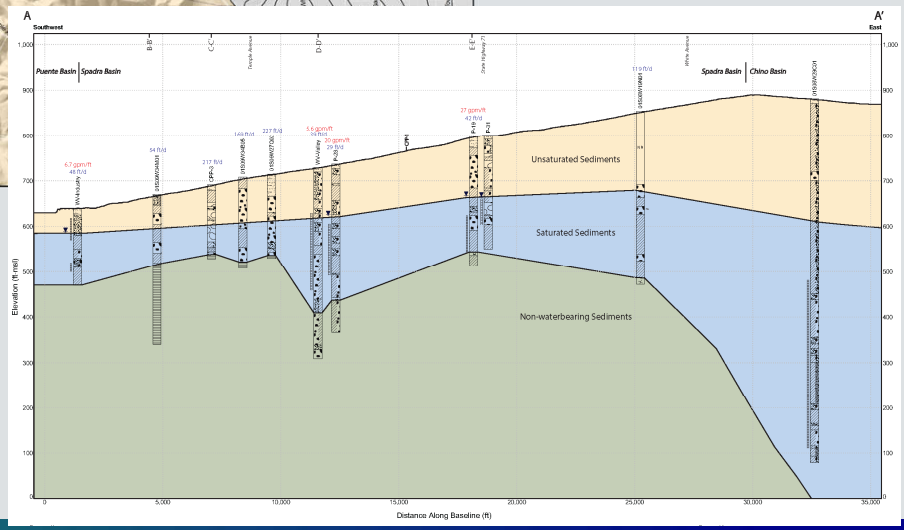
GSP Regulations Section	Requirement	Description	Section Number, or other location in the GSP
Article 3. Technical and Reporting Standards			
352.2	Monitoring Protocols	Monitoring protocols adopted by the GSA for data collection and management	Section 4.1
		Monitoring protocols that are designed to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence for basins for which subsidence has been identified as a potential problem, and flow and quality of surface water that directly affect groundwater levels or quality or are caused by groundwater extraction in the basin	Section 4.1
Article 5. Plan Contents, Subarticle 1. Administrative Information			
354.4	General Information	Executive Summary	Executive Summary
		List of references and technical studies	Section 7
354.6	Agency Information	GSA mailing address	Section 1.2
		Organization and management structure	Section 1.2.1
		Contact information of Plan Manager	
		Legal authority of GSA	Section 1.2.2
		Estimate of implementation costs	Section 6.2
354.8(a)	Map(s)	Area covered by GSP	Section 2.1.1
		Adjudicated areas, other agencies within the basin, and areas covered by an Alternative	
		Jurisdictional boundaries of federal or State land	
		Existing land use designations	Section 2.1.3.1

Section 2 – Plan Area and Basin Setting

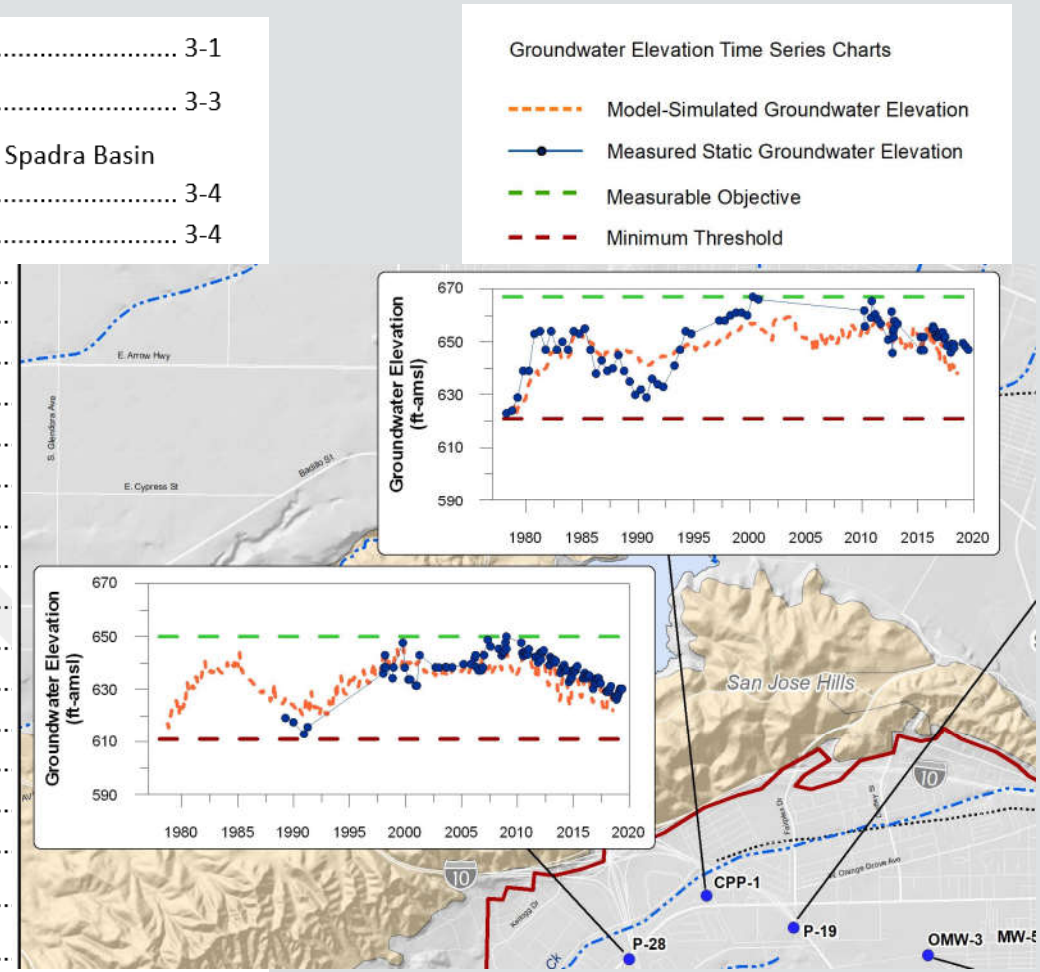


Section 2 – Plan Area and Basin Setting





Section 3 – Sustainable Management Criteria

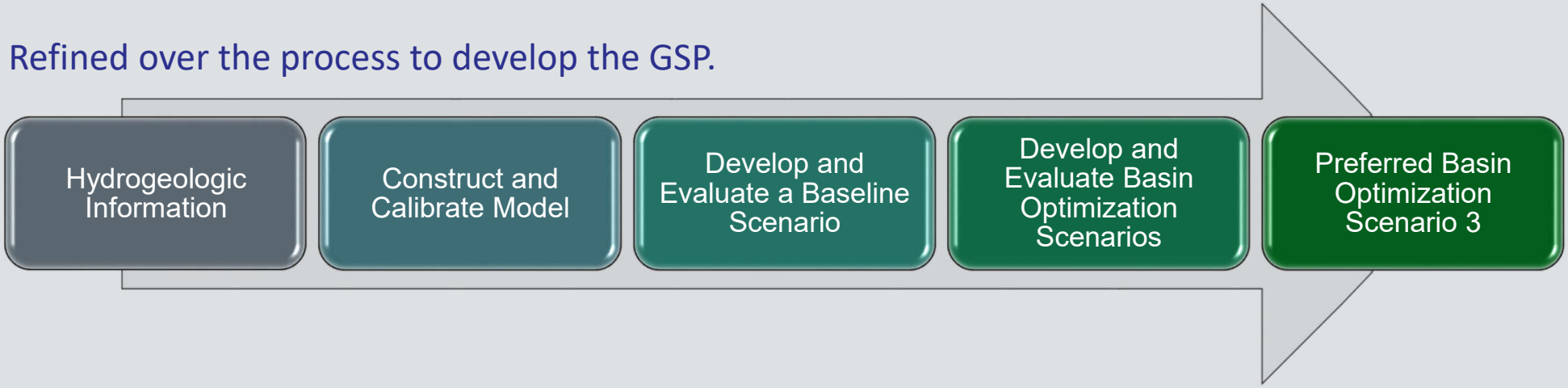


Section 3.4 – Sustainability Goal

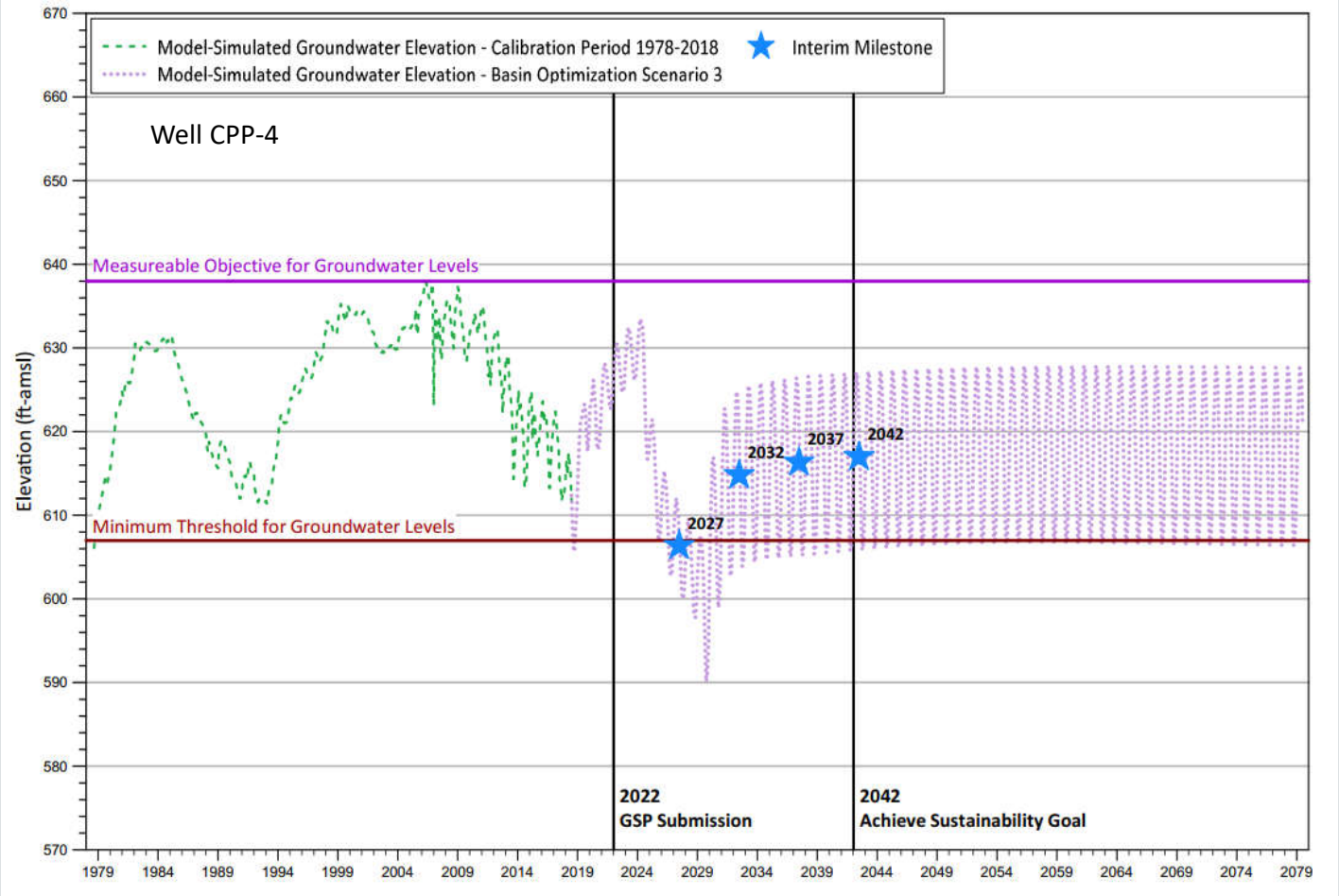
Sustainable conditions for the basin and the implementation measures that the GSA will implement to ensure the basin is operated within its Sustainable Yield within 20 years.

"The Sustainability Goal of the Spadra Basin is to conjunctively use all water supplies available to the Spadra Basin water purveyors to achieve and maintain groundwater sustainability, avoid Undesirable Results, maximize the beneficial use of the basin, and minimize cost".

Refined over the process to develop the GSP.



Section 3.4 – Sustainability Goal



Preferred Basin Optimization Scenario 3

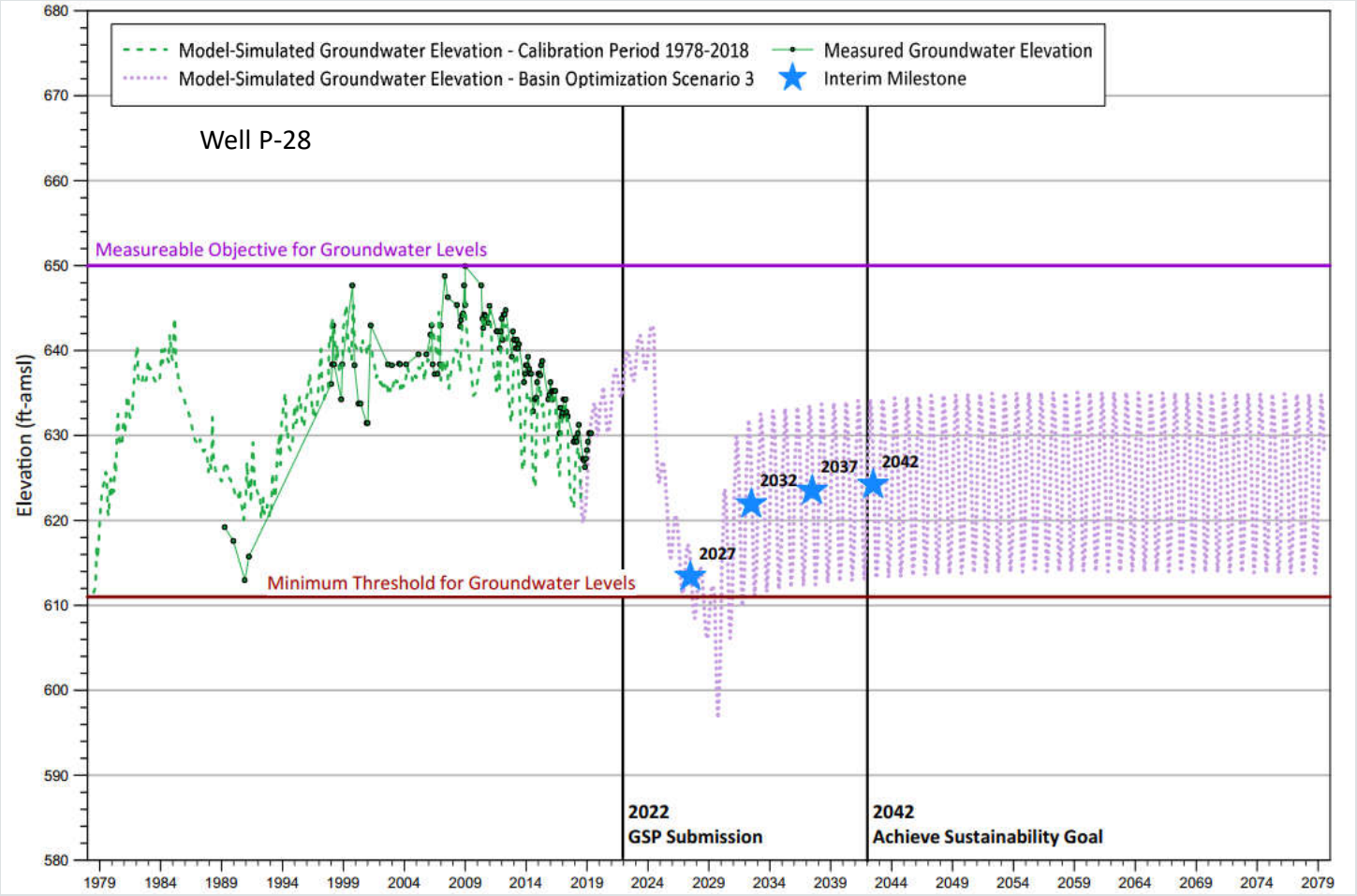
- Utilization of available local supply of recycled water for artificial recharge

- Sustainable Yield – 4,800 afy

- Achieves the Sustainability Goal in 20 years

Periodic updates of the Spadra model (minimum of ten years) → Inform is updates are required to the GSP to achieve the Sustainability Goal

Section 3.5 – Interim Milestones



Interim Milestones - in five-year increments for each relevant Sustainability Indicator to describe a reasonable path to achieve the Sustainability Goal for the basin within 20 years of GSP implementation.

Interim Milestones developed for the representative monitoring sites for groundwater levels, by proxy groundwater storage and land subsidence.

Section 4 – Monitoring Program

Monitoring Objectives:

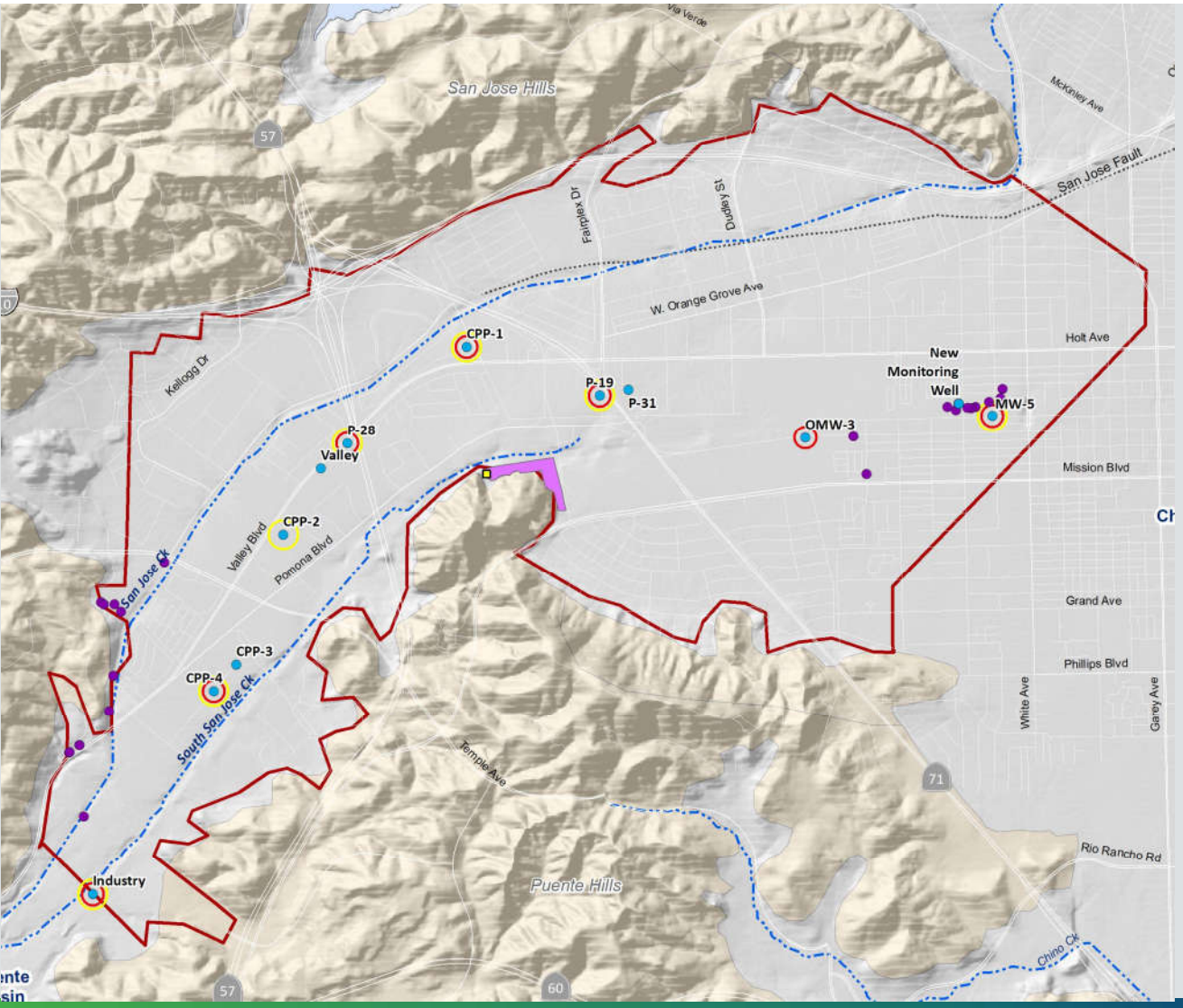
- Provide data on the Sustainability Indicators for the Spadra Basin to demonstrate that the basin is being sustainably managed. Sustainability Indicators include:
  - Chronic lowering of groundwater levels
  - Reduction in groundwater storage
  - Degraded water quality
  - Land subsidence
- Demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions.
- Track changes in groundwater conditions relative to Minimum Thresholds.

Section 4 – Monitoring Program

Monitoring Objectives:

- Detect impacts to the beneficial uses and users of groundwater.
- Demonstrate progress toward achieving Interim Milestones and Measurable Objectives.
- Collect data to be used in future updates to the groundwater model that can be used to evaluate groundwater conditions and quantify changes in water budget.

Historically there has been no formal coordained monitoring effort implanted in the Spadra Basin



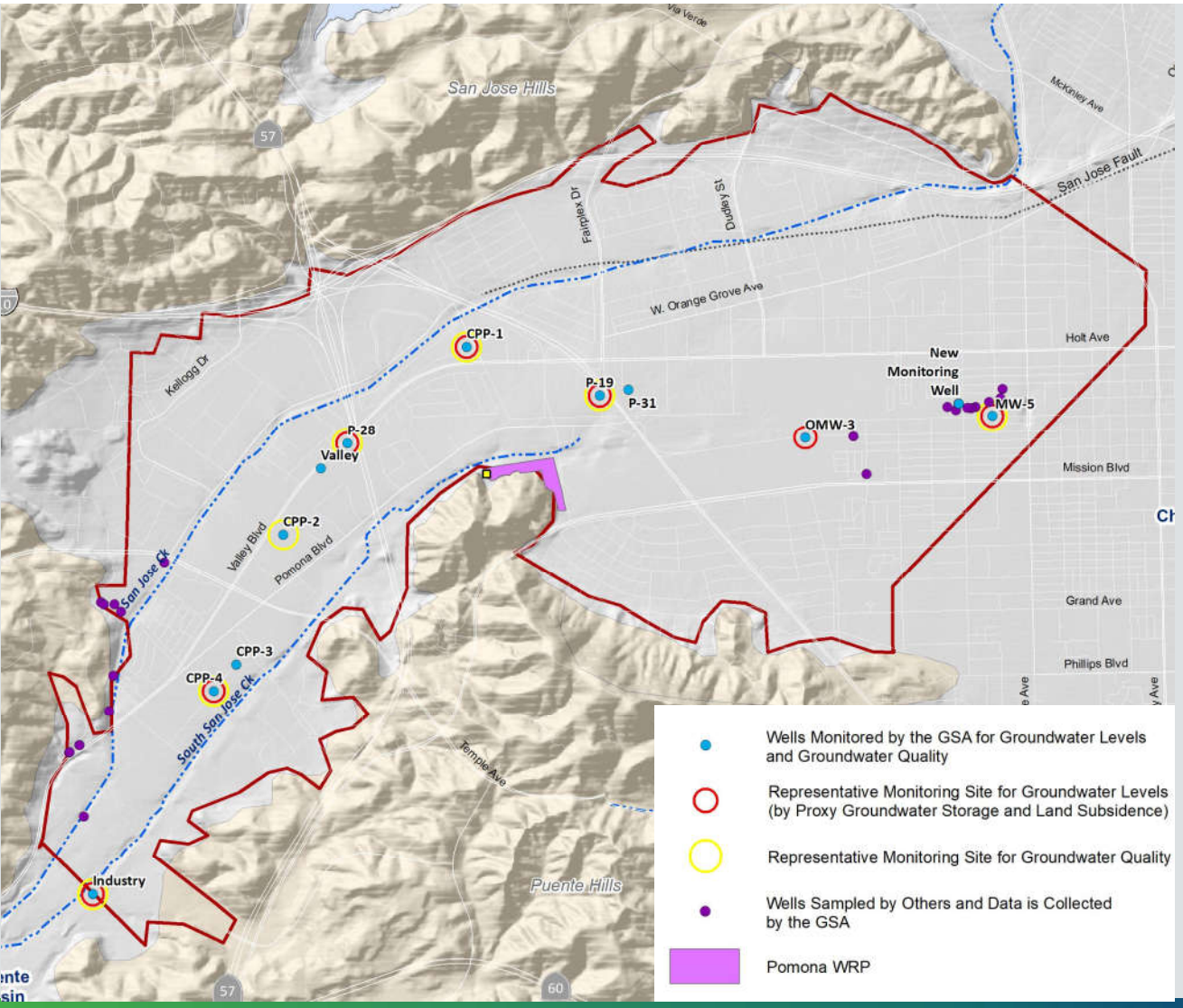
Groundwater Monitoring

Includes:

- Groundwater-level
- Groundwater Quality
- Groundwater Production

Collecting data at all existing wells in the basin.

New monitoring well planned for construction in 2022



Groundwater-Level Monitoring

- 12 wells to be monitored by the GSA using pressure transducers
- The high-frequency data → understand the seasonal and long-term trends in groundwater levels to evaluate conditions, including:
  - Response to GSP implemented projects
  - Comparison to the Sustainable Management Criteria
- All groundwater-level data collected at remaining wells by others will be collected by the GSA annually.

Groundwater-Quality Monitoring

- 12 wells to be monitored by the GSA. Minimum of every three years

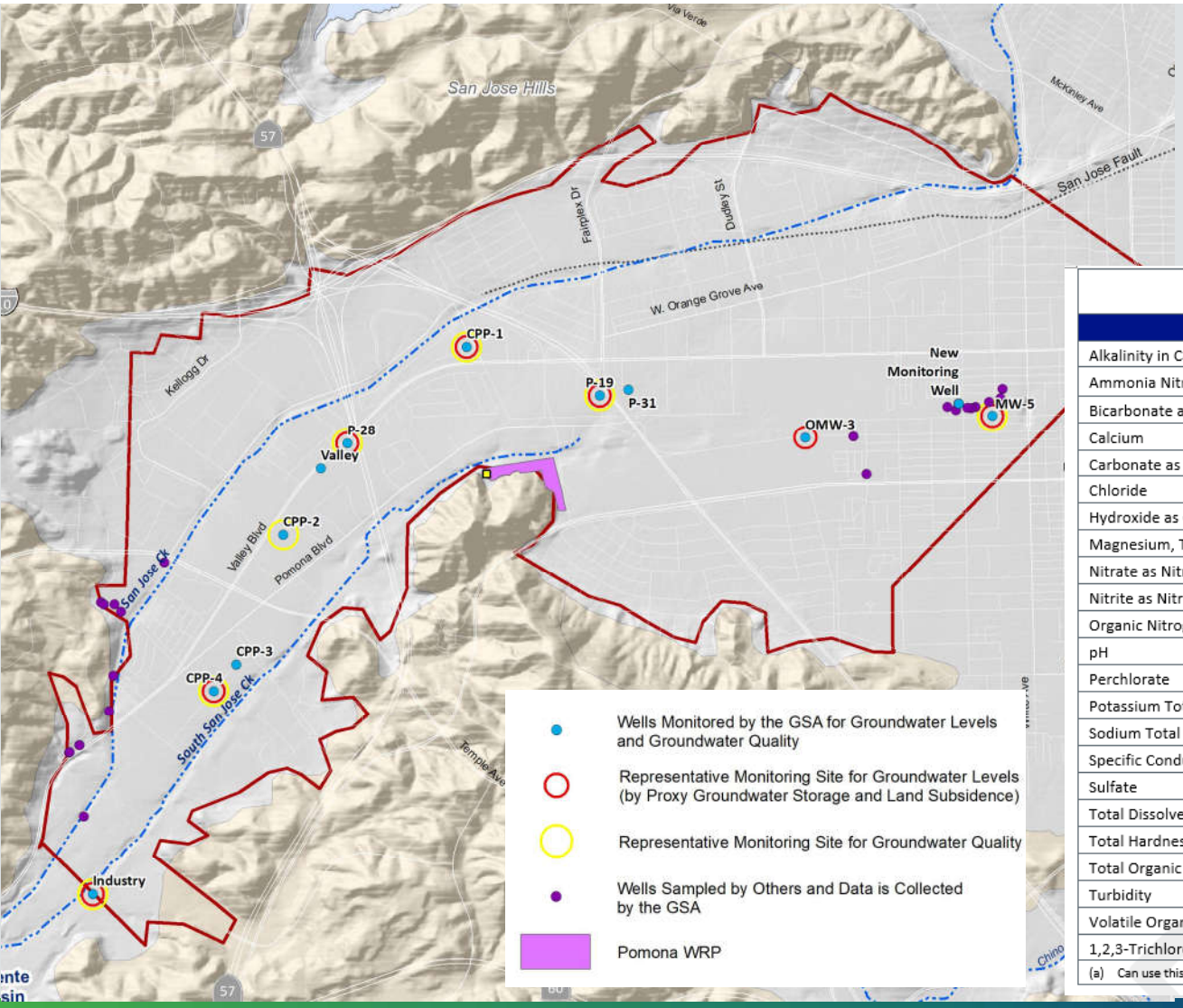
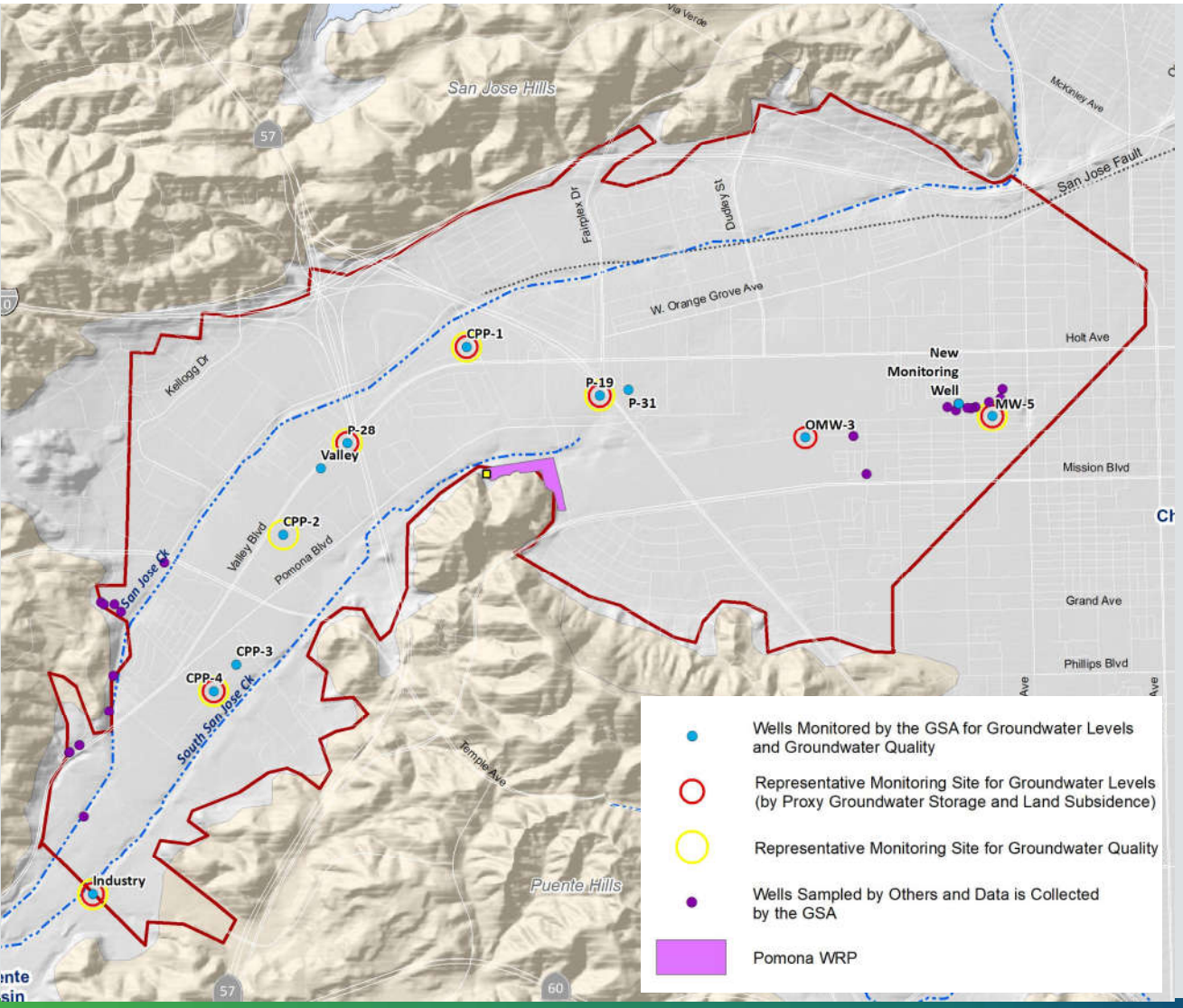


Table 4-2. Analyte List for Groundwater Quality Monitoring

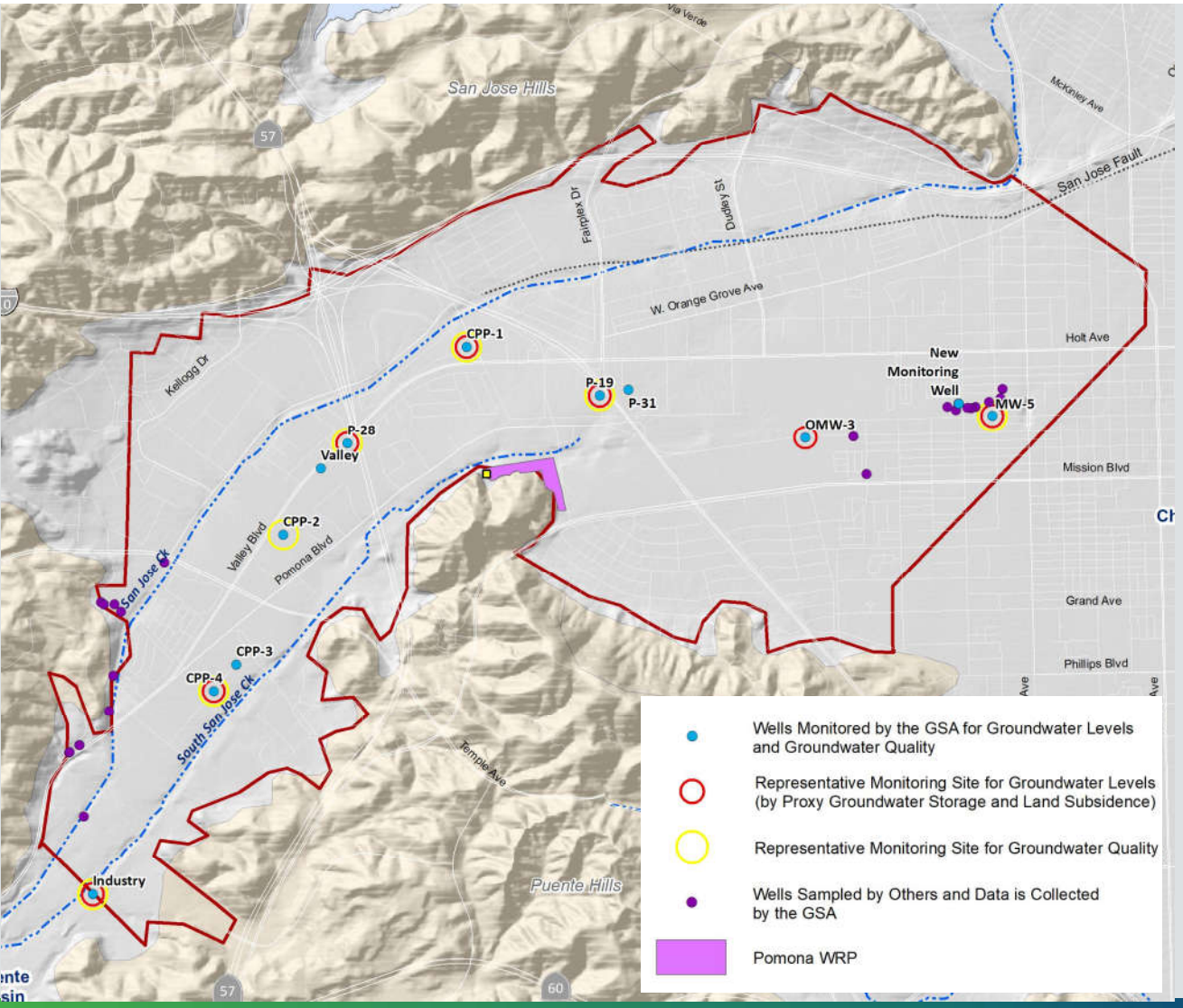
Analyte	Method Detection Limit	Laboratory Analysis Method
Alkalinity in CaCO3 units	2 mgl	SM 2320B
Ammonia Nitrogen	0.05 mgl	EPA 350.1
Bicarbonate as HCO3	2 mgl	SM2330B
Calcium	1 mgl	EPA 200.7
Carbonate as CO3	2 mgl	SM2330B
Chloride	0.5 mgl	EPA 300.0
Hydroxide as OH	2 mgl	SM2330B
Magnesium, Total	0.1 mgl	EPA 200.7
Nitrate as Nitrogen	0.1 mgl	EPA 300.0
Nitrite as Nitrogen	0.05 mgl	EPA 300.0
Organic Nitrogen	0.2 mgl	EPA 351.2
pH	0.1	SM4500
Perchlorate	2 µgl	EPA 314.0
Potassium Total	1 mgl	EPA 200.7
Sodium Total	1 mgl	EPA 200.7
Specific Conductance, 25 C	10 umhos/cm	SM2510B
Sulfate	0.05 mgl	EPA 300.0
Total Dissolved Solids (TDS)	10 mgl	E160.1/SM2540C
Total Hardness as CaCO3	3 mgl	SM 2340B
Total Organic Carbon	0.2 mgl	SM 5310C
Turbidity	0.1 NTU	EPA 180.1
Volatile Organic Compounds (VOCs)	Variable	EPA 524.2
1,2,3-Trichloropropane (low detection of 0.005 µgl)	0.005 µgl	CASRL 524M-TCP[a]

(a) Can use this method or a comparable laboratory specific method with a method detection limit of 0.005 µgl



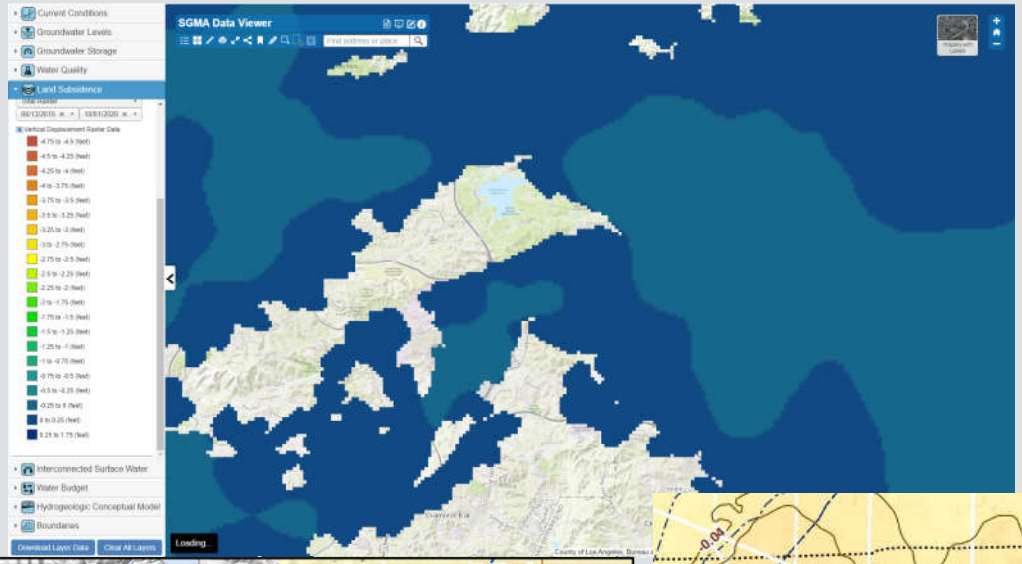
Groundwater-Production Monitoring

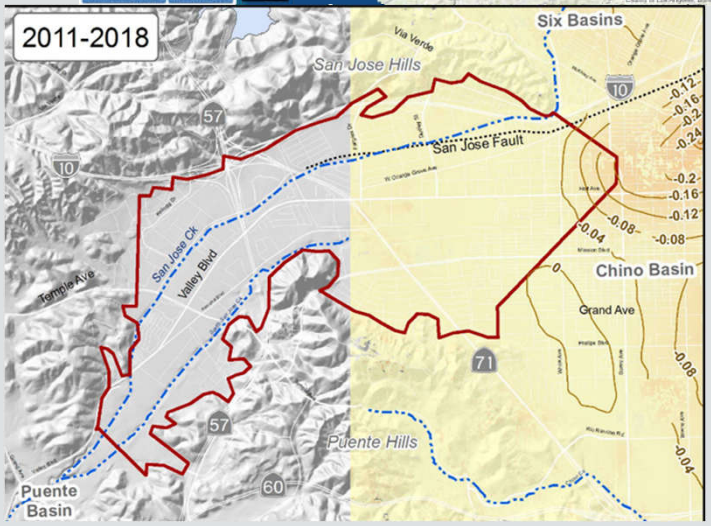
- Production data measured at all active wells in the basin using a flow meter by well owners.
- Currently eight active wells
- Monthly measurements at a minimum. GSA will collect this data annually including:
  - Meter model/ID
  - Beginning and end meter reads
  - Meter units
  - Production volume in acre-feet

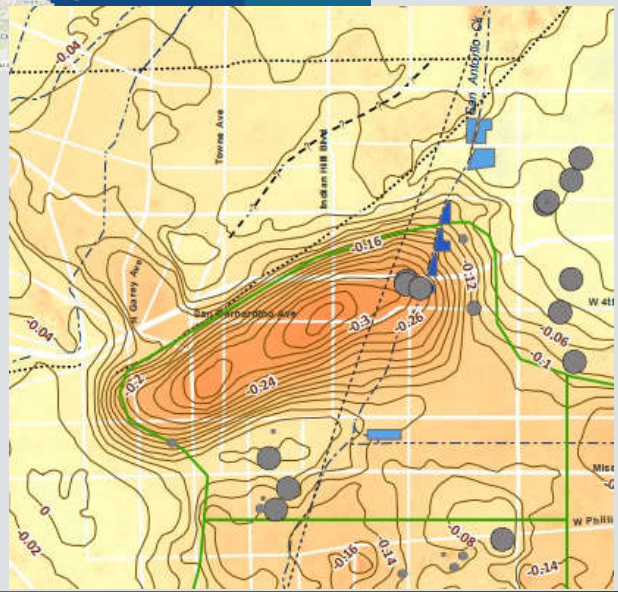


Surface Water Monitoring

- No active surface water discharge monitoring in concrete-lined San Jose and South San Jose Creeks.
- Only monitoring is by LACSD for the Pomona WRP discharge to South San Jose Creek. GSA will collect annually.
- Monitoring is not related to any Sustainable Management Criteria. But important for GSA to track:
  - Use by downstream entities for groundwater recharge or consumptively used by riparian vegetation
  - Surplus recycled water from the Pomona WRP considered for artificial recharge by GSA







Land Subsidence Monitoring

- Monitoring for the Sustainability Indicator of land subsidence will be done by proxy through the groundwater-level monitoring network.
- There are two sources of vertical ground motion data measured by InSAR for the Spadra Basin area that will be periodically reviewed to compare to the water-level assessment:
  - ***The TRE Altamira InSAR data made available by DWR.*** https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#landsub
  - ***The CBWM's InSAR data as part of their subsidence management plan.***

Chino Basin Watermaster 2020/21 Annual Report of the GLMC (West Yost, 2021)

Section 4.2 – Data Management

- Pursuant to the GSP Regulations (CCR § 352.6), each GSA shall develop and maintain a **data management system** capable of storing and reporting information relevant to the development or implementation of the GSP and the monitoring of the basin.
- All data collected from the GSA monitoring program will be routinely processed, checked for QA/QC to ensure data validity, and uploaded to the GSA's data management system.

Section 4.3 – Assessment and Improvement of Monitoring Network

Some additional actions that can be taken by the GSA upon GSP implementation to fill data gaps are:

- Continuing **efforts** with the owner of the only known **private production well** in the basin (Walnut Hills Mobile Home Park) for inclusion in the GSP monitoring program.
- Perform a **well canvas** for any other unknown **private wells in** the basin, and work with well owners for inclusion in the GSP monitoring program.
- Execute **data sharing agreements** with the CBWM and PVWA for sharing data with the neighboring and hydrologically connected Chino and Puente Basins.
- The initiation of a program to collect **high-resolution production data** at the active production wells to understand how pumping patterns related to observed groundwater levels, better understand aquifer parameters, and improve the hydrogeologic conceptual model. This may include leveraging the water purveyors' existing SCADA systems.
- The addition of **surface water gaging stations** at upstream and downstream locations along San Jose Creek to monitor storm water and dry-weather runoff better understand and characterize these potential sources of recharge to the basin.

Section 4.3 – Assessment and Improvement of Monitoring Network

Future updates and adjustments to the GSP monitoring program could include:

- The **addition** of any **newly constructed wells** into the monitoring program.
- The **addition of existing wells that are monitored by others**, to the group of designated wells where frequent and coordinated monitoring is performed by the GSA, to fill spatial data gaps to achieve the objectives of the monitoring program.
- The **construction of additional monitoring well/s** to fill spatial data gaps in the hydrogeologic conceptual model and/or achieve the objectives of the monitoring program.
- The addition **subsidence monitoring** in the basin in addition to the use of available InSAR datasets.

Section 5 – Projects and Management Actions to Achieve Sustainability

5.1 Development of the Baseline Scenario

5.2 Evaluation of the Baseline Scenario

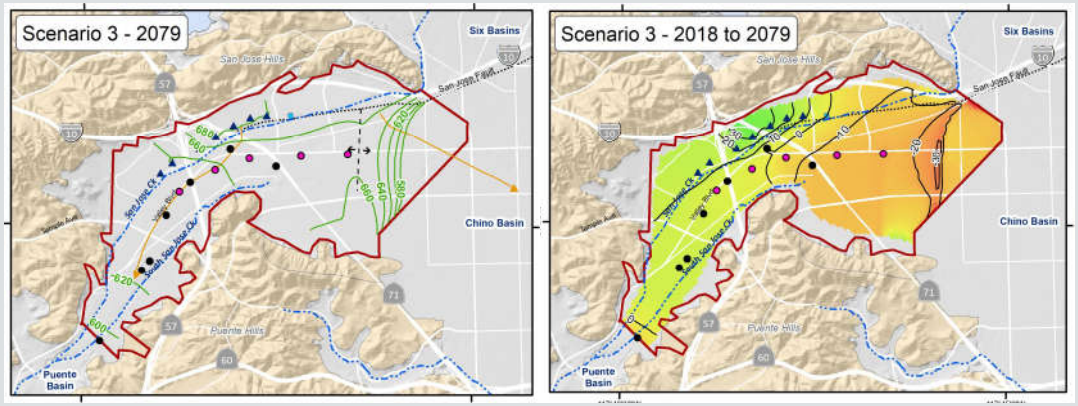
5.3 Development of the Basin Optimization Scenarios

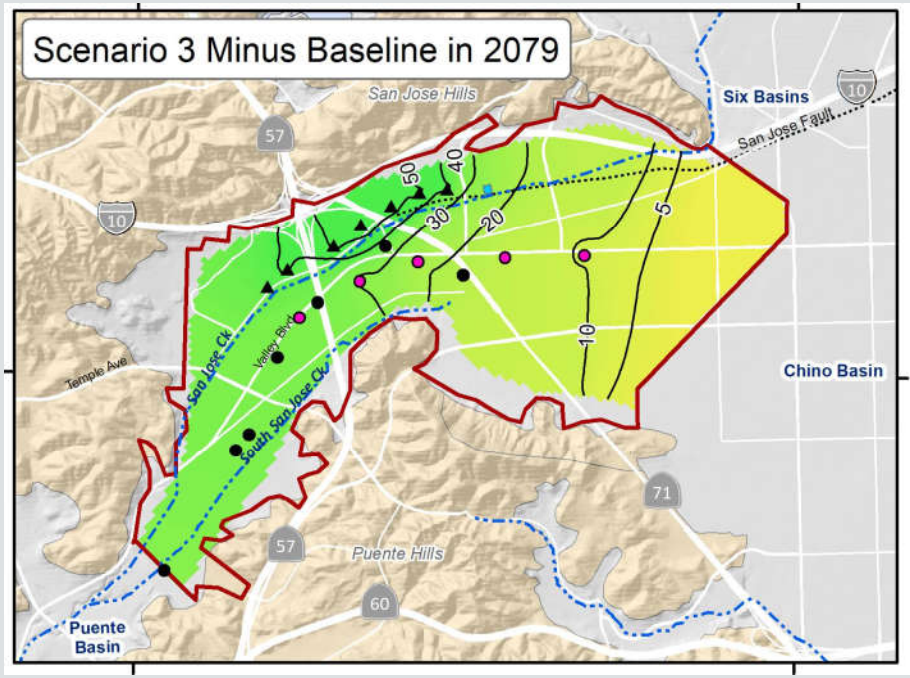
5.4 Evaluation of the Basin Optimization Scenarios

5.5 Cost analyses of the Baseline and Basin

5.6 Conclusions and Recommendations

* Preferred Basin Optimization Scenario 3





Section 6 – GSP Implementation

Section 6.1 – GSP Implementation

1) **Administrative and Legal Services:**

- ***GSA Administration and Operations*** - administrative staff support, finance staff support and related expenses.
- ***Coordination and Management of GSP*** - for continuation of Stakeholder outreach and conducting Advisory Committee meetings; conducting Executive Committee meetings; tracking and prioritizing grant funding and completing grant applications; coordination with technical consultants on monitoring and reporting; review of annual reports and other work products; and ad-hoc tasks to support GSP implementation
- ***Legal Services -*** reviewing reports and other work products; preparing for and attending Executive Committee and Advisory Committee meetings; drafting agreements and documents as needed for the GSA; and ad-hoc legal needs for administrating and implementing the GSP

- 2) **Monitoring -** Conducting the monitoring program described in Section 4

Section 6.1 – GSP Implementation

3) **Annual Reporting** - a requirement to the DWR. Includes the following:

- **General information**, including an executive summary and a location map depicting the area.
- **Groundwater elevation data**, including:
    - Groundwater elevation contour maps illustrating, at a minimum, the seasonal high and seasonal low
    - Hydrographs of groundwater elevations for a historical period through the current reporting year.
- **Groundwater extraction**, including:
    - Extractions by water use sector, method and accuracy of measurements
    - Map that illustrates the location and volume of groundwater extractions.
- **Annual volume of surface water supply** used, or available for use, for groundwater recharge or in-lieu use.
- **Annual volumes of total water use,** including use by water use sector, water source type, and identifies the method and accuracy of measurements
- **Annual change in groundwater in storage**, including change in groundwater in storage maps and graphs for a historical period through the current reporting year.
- **A description of progress towards implementing the GSP**, including achieving Interim Milestones, and implementation of projects or management actions since the previous annual report.

Section 6.1 – GSP Implementation

4) **Five-Year Evaluation Reporting** - a requirement to the DWR (minimum five-years).

CCR §356.4 list the description and evaluation requirements:

- Groundwater conditions - **Measurable Objectives, Interim Milestones, and Minimum Thresholds.**
- Implementation of any **projects or management actions**, and their effect on groundwater conditions
- **All elements of the GSP** shall be reconsidered, and revisions proposed if determined necessary.
- An evaluation of the **Basin Setting** in light of new information or changes in water use, and an explanation of any significant changes → If the evaluation shows that the basin is experiencing overdraft conditions, the GSA shall include an assessment of **measures to mitigate the overdraft**.
- Evaluation of the **monitoring program**; data gaps.
- **Significant new information**, since adoption/evaluation.
- **Actions taken by the GSA**, including regulations or ordinances related to GSP

SPADRA BASIN
GROUNDWATER SUSTAINABILITY AGENCY

Section 6.1 – GSP Implementation

4) **Five-Year Evaluation Reporting** - a requirement to the DWR (minimum five-years).

CCR §356.4 list the description and evaluation requirements (cont.):

- Information on **enforcement or legal actions** taken by GSA
- Completed or proposed **GSP amendments**, if applicable
- Summary of **coordination with other agencies** with the basin or hydrologically connected basins
- **Other information** the GSA deems appropriate

* Beneficial if five-year evaluations coincided with periodic model updates to support the various components required in the evaluations.

Section 6.1 – GSP Implementation

5) **Planning and Implementation of Projects and Management Actions –**

Basin Optimization Scenarios are described at a conceptual level for location, size, and operating schemes (i.e. facilities).

Taking the projects in Basin Optimization Scenario 3 from the concepts to final design and then through construction, will be done in phases:

- **Phase 1 – Identify Project Alternatives** – how to do projects, more information
- **Phase 2 – Project Screening Assessment** – refine projects, draft implementation plan, address major implementation requirements and challenges
- **Phase 3 – Feasibility Assessment** – preliminary design report, address all implementation requirements and challenges, perform CEQA and investigations
- **Phase 4 – Project Implementation** – final design, permitting, etc.

SPADRA BASIN
GROUNDWATER SUSTAINABILITY AGENCY

Section 6.2 - Estimate of GSP Implementation Cost, Administrative, Monitoring/Reporting

Category	Cost	Frequency
Administrative		
GSA Administration and Operations	$9,000	annually
Coordination and Management of GSP	$31,000	annually
Legal Services	$6,000	annually
Contingency (15 percent)	$7,000	annually
Administrative - Annual Cost:	**$53,000**	
Monitoring/Reporting		
Monitoring, Data Collection, and Database Maintenance		
Setup of monitoring network	$18,000	one-time annual event 1st year
Groundwater-level monitoring	$22,000	annually
Groundwater-quality monitoring	$22,000	annually
Production monitoring	$5,000	annually
Surface water monitoring	$5,000	annually
Subsidence monitoring	$3,000	annually
Data Gap Filling Efforts - Private Well Canvas and Outreach	$11,000	one-time annual event 1st year
Reporting		
Annual Reporting - first year	$100,000	one-time annual event 1st year
Annual Reporting - subsequent years	$80,000	annually
Model Update and Five-Year Evaluation of the GSP [(a)]	$250,000	every five years
Monitoring/Reporting - Annual Cost - First Year Only:	$186,000	
Monitoring/Reporting - Annual Cost:	$137,000	
Monitoring/Reporting - Annual Cost - With Five-Year Evaluation:	$387,000	
Administrative & Monitoring/Reporting - Annual Cost - First Year:	$239,000	
Administrative & Monitoring/Reporting - Annual Cost:	$190,000	
Administrative & Monitoring/Reporting- Annual Cost - With Five-Year Evaluation:	$440,000	

Section 6.2 - Estimate of GSP Implementation Cost, Projects and Management Actions

Category	Cost	Frequency
Administrative & Monitoring/Reporting- Annual Cost - With Five-Year Evaluation:	$440,000	
3. Projects and Management Actions		
Basin Optimization Scenario 3 - Recommended/Preferred Scenario		
Construction	$160,000,000	Assume 30 years for planning, construction, and payoff of capital improvement loans
Operations and Maintenance	$472,000	annually after construction
Annual Cost Range[b]	$5,300,000 to 5,800,000	
Basin Optimization Scenario 2		
Construction	$23,000,000	Assume 30 years for planning, construction, and payoff of capital improvement loans
Operations and Maintenance	$43,000	annually after construction
Annual Cost Range[b]	$767,000 to $810,000	
Basin Optimization Scenario 1		
Construction	$1,100,000	Assume 30 years for planning, construction, and payoff of capital improvement loans
Operations and Maintenance	$4,000	annually after construction
Annual Cost Range[b]	$37,000 to $ 41,000	

(a) The cost for the five-year elevation assumes that the concurrence of a periodic update and recalibration of the Spadra groundwater-flow model to evaluate sustainability and inform the evaluation and any updates required to the GSP.
(b) The annual cost range: Low end is cost for a 30-year loan for the lump sum costs for planning and construction divide by 30 years; High end is cost for a 30-year loan for the lump sum costs for planning and construction divide by 30 years plus annual O&M

The GSA will develop a funding structure.

Potential sources: member agencies contributions; **grant funding**, use of the GSA's authority to impose certain fees on assessments and pumping

SPADRA BASIN
GROUNDWATER SUSTAINABILITY AGENCY

Section 6.4 Schedule for Implementation

Table 6-2. General Schedule for Spadra Basin GSP Implementation - 20 Years

Task	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Administrative																					
-- Ongoing GSA Administration and Operations, Coordination and Management of GSP, and Legal Services																					
Monitoring																					
-- Ongoing Monitoring, Data Collection, and Database Maintenance																					
-- Setup of monitoring network																					
-- Private Well Canvas and Outreach																					
-- Filling Other Data Gaps																					
Reporting																					
-- Annual Reporting																					
-- Five-Year Evaluation Reports																					
Planning and Implementation of Projects and Management Actions																					
Implementation of Projects and Management Actions in the Preferred Basin Optimization Scenario 3 [(a)]																					
-- Planning/Permitting/CEQA																					
-- Construction																					
-- Operation and Maintenance																					

(a) Basin Optimization Scenario 3 is assumed operational in fiscal year 2030 (July 1, 2029 - June 30, 2030)

Next Steps:

- Through **December 9, 2021** –review and comment of Draft GSP
  - Send comments to vweamer@westyost.com
- **Late December/ Early January 2022 –** Publish Final GSP
  - A four-week review period
- Go through **February/March 2022** Advisory and Executive Committee meetings for approval
- **Late March/Early April 2022** – Public hearing to adopt GSP

SPADRA BASIN GROUNDWATER SUSTAINABILITY AGENCY