

PASO ROBLES SUBBASIN GSP DEVELOPMENT

Overview of GSP Chapters 1 through 8

Paso Robles Basin GSAs

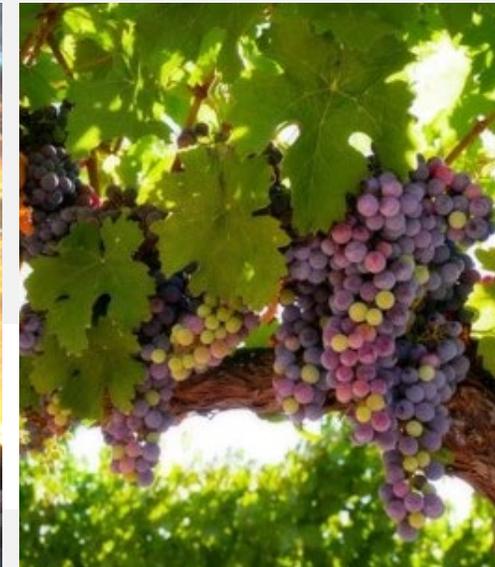
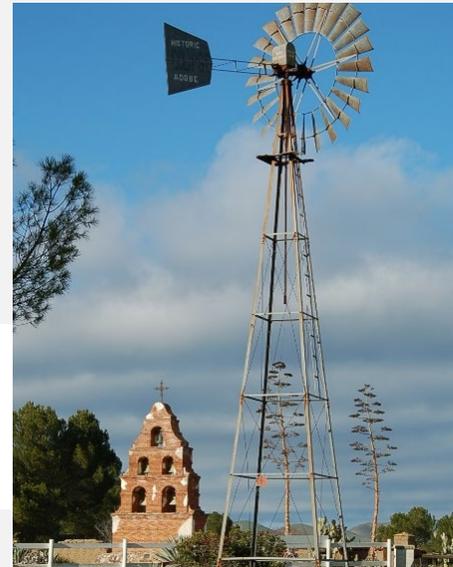
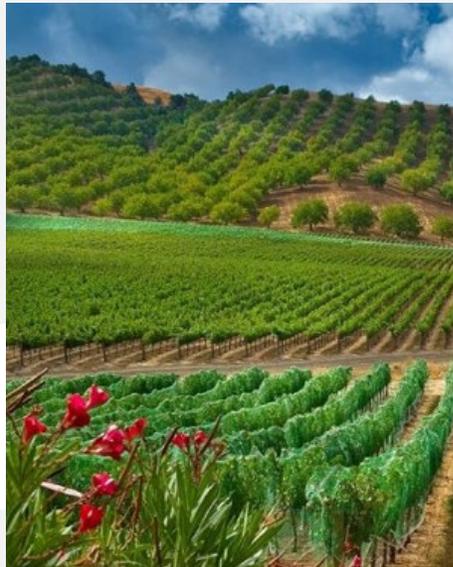
City of Paso Robles

County of San Luis Obispo

San Miguel CSD

Shandon-San Juan Water District

July 24, 2019



GSP Chapters

- CHAPTER 1. Introduction to Paso Robles Subbasin GSP
- CHAPTER 2. Agency Information
- CHAPTER 3. Description of Plan Area
- CHAPTER 4. Hydrogeologic Conceptual Model
- CHAPTER 5. Groundwater Conditions
- CHAPTER 6. Water Budgets
- CHAPTER 7. Monitoring Networks
- CHAPTER 8. Sustainable Management Criteria

- CHAPTER 9. Projects and Management Actions
- CHAPTER 10. Plan Implementation
- CHAPTER 11. Notice and Communications
 - Appendix F Communications and Engagement Plan
- CHAPTER 12. Interagency Agreements

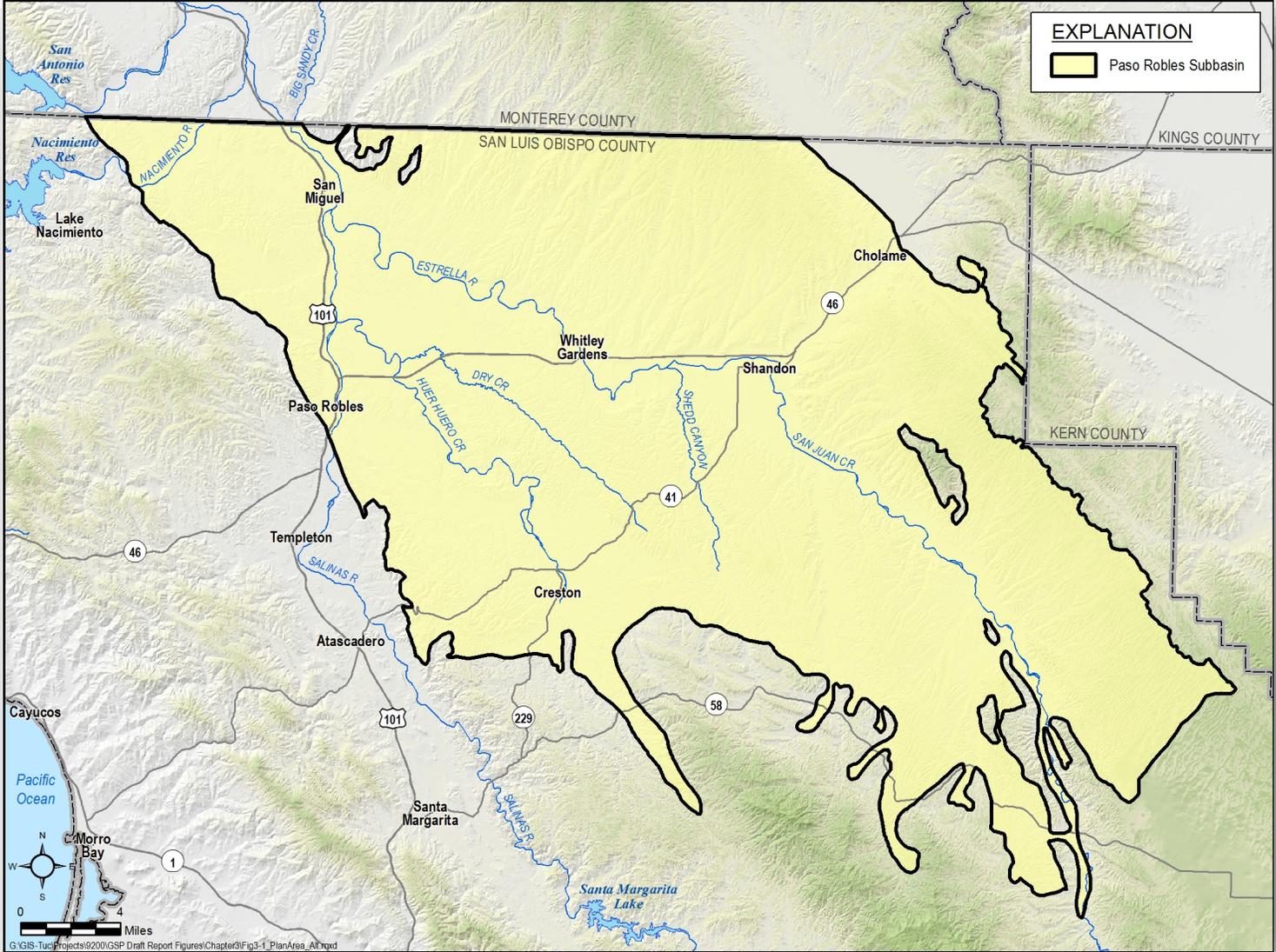


**Build from
known data
into
groundwater
management**

Chapters 1 through 3

- Primarily administrative information
- Chapter 1 – Introduction to Paso Robles Subbasin Groundwater Sustainability Plan (SGMA reg §354.2)
- Chapter 2 – Agencies' Information (SGMA reg §354.6)
- Chapter 3 – Description of Plan Area (SGMA reg §354.8)

Chapters 1 through 3

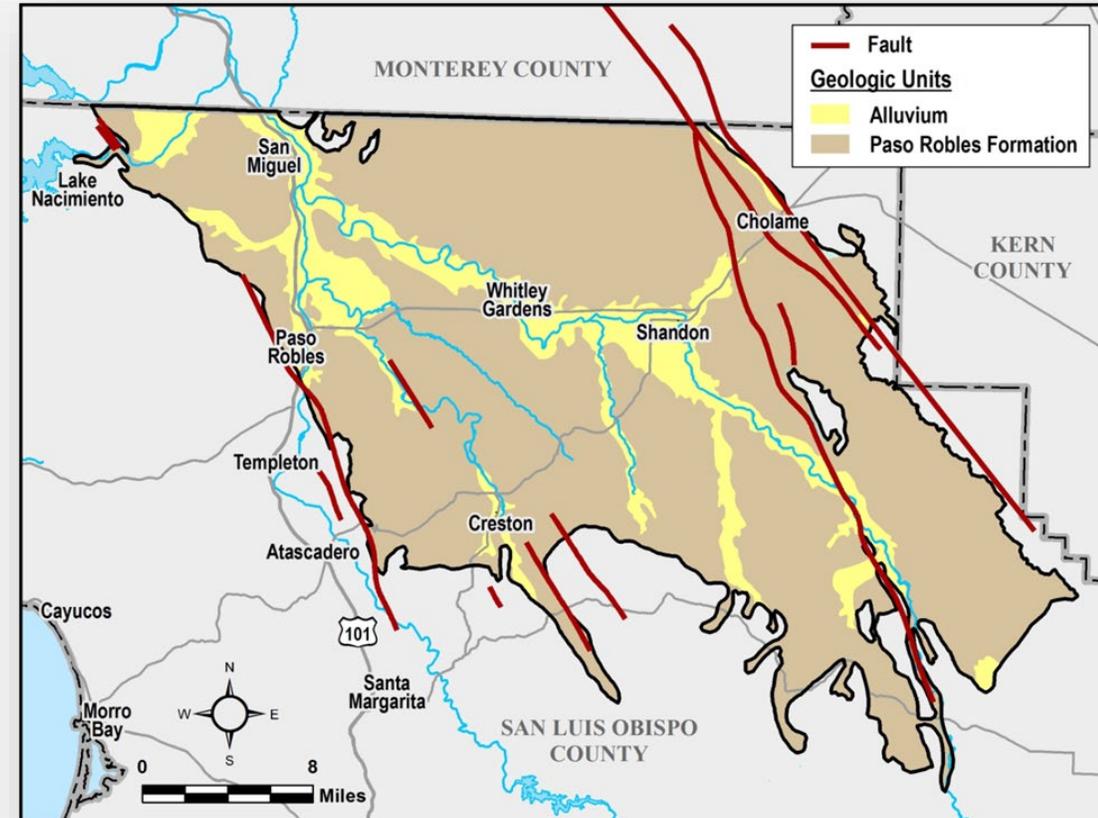


Chapter 4 – Hydrogeologic Conceptual Model

- Satisfies GSP Regulations §354.14
- A description of the physical characteristics of the Subbasin
- Not mathematical description
- Basis for groundwater/watershed model
- Includes things like:
 - Number and description of aquifers
 - Areas of natural recharge
 - Areas of natural discharge
 - Groundwater/river interactions

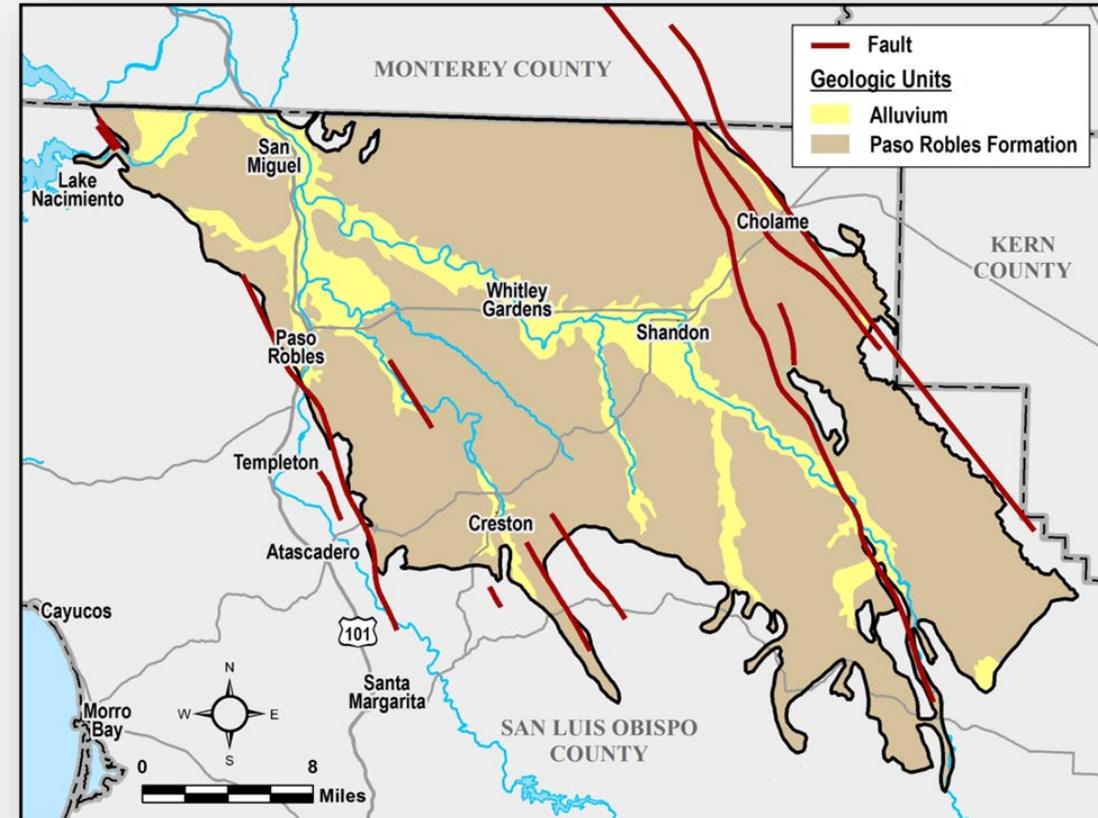
Summary of Hydrogeologic Conceptual Model

- Two principal aquifers
 - Paso Robles Aquifer and Alluvial Aquifer
 - Must manage each identified principal aquifer
- Basin Structure
 - No agreed to internal structures
 - All GSA areas are interconnected
 - Can be modified with additional data



Summary of Hydrogeologic Conceptual Model

- Potential GDEs (TNC methodology)
 - Only identified potential GDEs
- General water quality
- Data gaps
 - Commit to filling data gaps



Chapter 5 - Groundwater Conditions

- Satisfies GSP Regulations §354.16
- Content aligns with sustainability indicators:

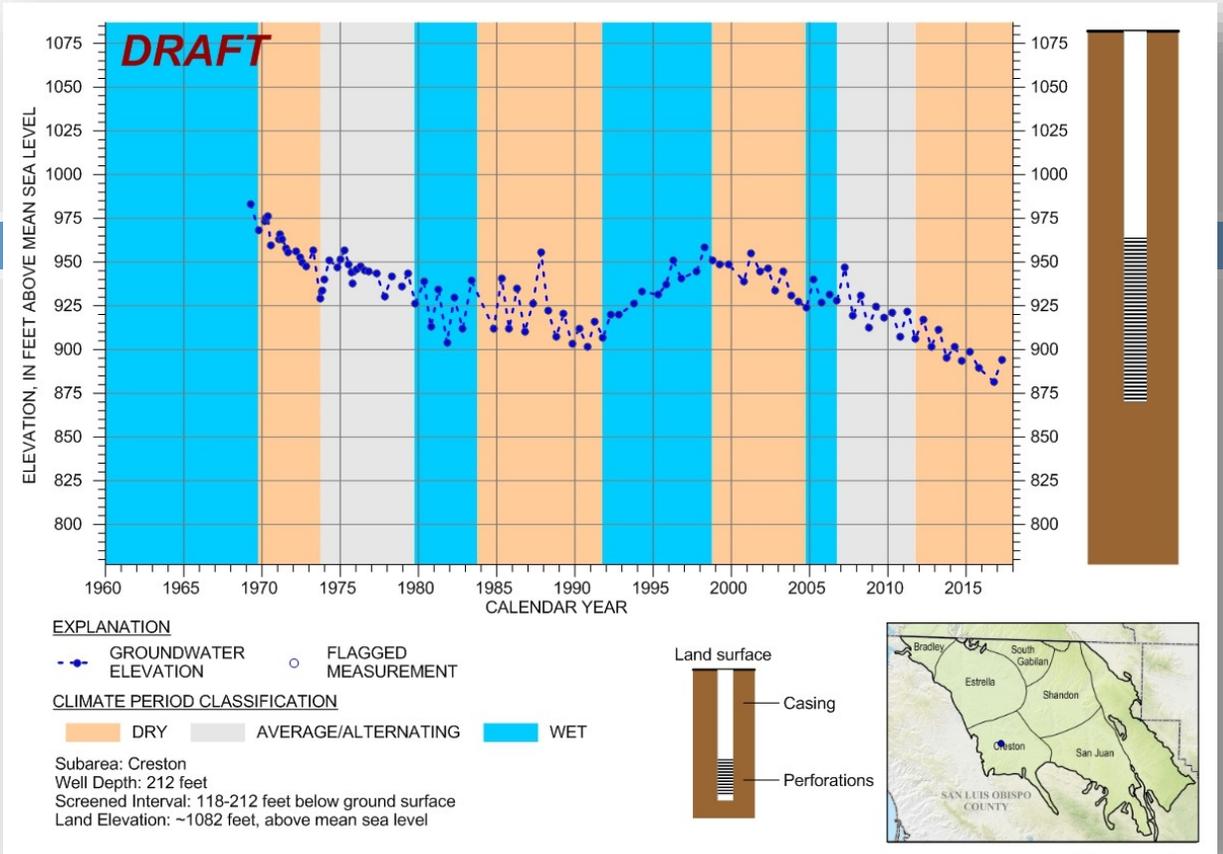
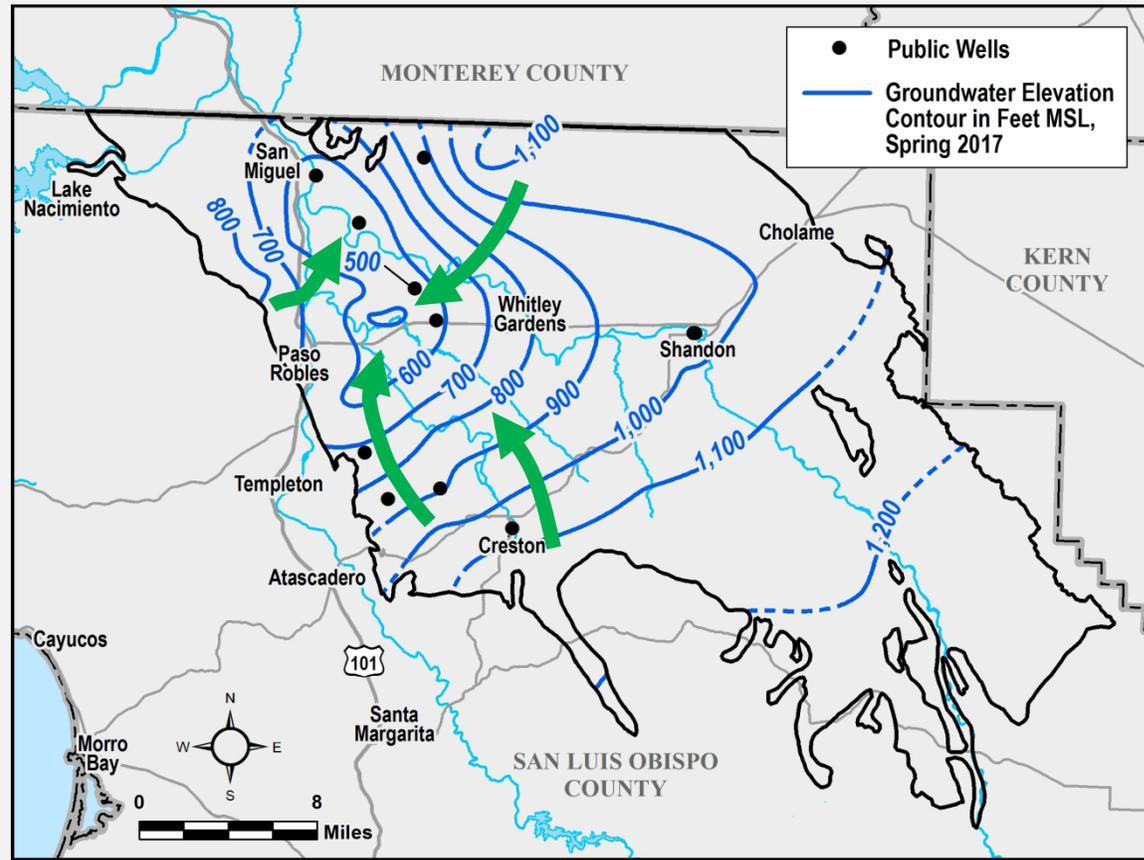


Groundwater conditions are based on available data and groundwater model

Groundwater Elevations

Paso Robles Formation Aquifer

2017



Identify areas of chronic lowering groundwater elevations

→ Inferred Groundwater Flow Direction

Other Sustainability Indicators

- Interconnected Surface Water/Groundwater
 - Unclear if it exists; need additional data to determine interconnection
- Groundwater Quality
 - Based on previous studies and available data
 - Historical data identifies constituents to monitor

Summary of Groundwater Conditions/Management Issues

- Groundwater elevations: Declining in pumping areas
- Groundwater in storage: Decreasing
- Subsidence: Not a significant problem
- Interconnected surface water: Need additional data
- Groundwater quality: No new concerns

Chapter 6 – Water Budgets

- Surface and groundwater budgets (SGMA regulation §354.18)
- Three water budgets for GSP:
 1. Historical (1981-2011) - What we have seen and how we arrived at today's condition
 2. Current (2012-2016)
 3. Future (2020-2070) – Most informative water budget. Used for planning purposes

Summary of GSP Groundwater Budgets

Key terms

- **Groundwater Storage Deficit**
 - Amount of long-term groundwater outflow that exceeds groundwater inflow
- **Sustainable Yield**
 - Estimated with total pumping minus storage deficit

Summary of GSP Groundwater Budgets

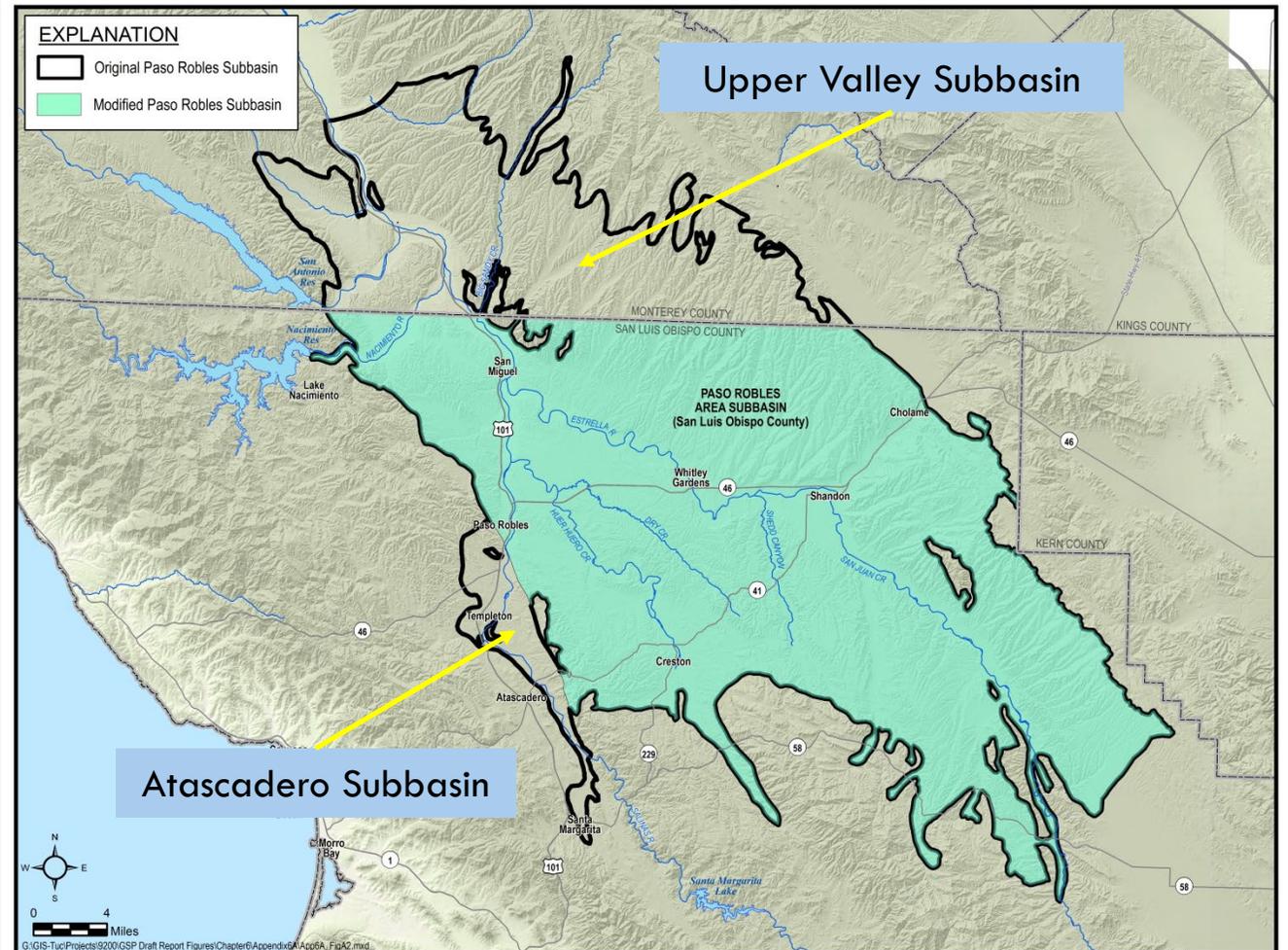
- Estimated groundwater budgets – different than previous studies:

Groundwater Budget	Groundwater Storage Deficit	Sustainable Yield
Historical (1981 – 2011)	12,600 AFY	59,800 AFY
Current (2012 – 2016)	65,400 AFY	20,400 AFY
Future (2020 – 2040)	13,700 AFY	61,100 AFY

Future groundwater budget will change with more data and more accurate models. This is for initial planning.

Changes in Subbasin Boundary

- Previous groundwater budgets:
 - Entire Paso Robles Subbasin (outlined by black line)
 - Included Atascadero Subbasin & Upper Valley Subbasin
- GSP groundwater budgets:
 - Newly Defined Paso Subbasin by DWR (in green)



Chapter 7 – Monitoring Networks

- Leverage existing monitoring programs wherever possible
 - No new monitoring programs unless needed to demonstrate sustainability
 - Expand programs if needed
- Leverage DWR data
 - Subsidence

Chapter 7 – Monitoring Networks

MONITORING NETWORKS

Chronic Lowering of
Groundwater Levels

- 30 wells; chapter being updated
- Limited by confidentiality agreements
- Expand after GSP adoption

Depletion of Groundwater
Storage

- Same as groundwater level network
- Use groundwater level proxy

Chapter 7 – Monitoring Networks

MONITORING NETWORKS

Subsidence

- Use data provided by DWR
- No data gaps

Groundwater Quality

- Use municipal and ag supply wells
- Rely on established regulatory standards
- No significant data gaps

Interconnected Surface Water/Groundwater

- Insufficient data to determine occurrence
- Investigate after GSP adoption

Chapter 8 - Sustainable Management Criteria

- Define what sustainability looks like
- Informed by the descriptive hydrogeology in Chapter 5
- Reflect the water budget in Chapter 6
- Quantitative metrics monitored by networks developed in Chapter 7
- Develop for each applicable sustainability indicator



Lowering
GW Levels



Reduction
of Storage



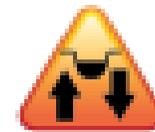
~~Seawater
Intrusion~~



Degraded
Quality



Land
Subsidence



Surface Water
Depletion

Chapter 8 - Sustainable Management Criteria

- Include:
 - Locally defined significant & unreasonable conditions
 - Minimum thresholds – line we don't want to cross
 - Measurable objectives – goal
 - Lack of Undesirable Result = proof of sustainability
- Projects and actions must avoid undesirable results
- Projects and actions shoot for achieving measurable objectives

Basis for Sustainable Management Criteria

- Available data and Subbasin hydrogeologic conditions
- Public preferences
- Public outreach meetings
- Input and guidance from GSAs

Current Sustainable Management Criteria are initial values and will likely change in future based on new data

SMC Generalized Concepts

- No more long-term groundwater level declines
- No more long-term loss of groundwater in storage
- No long-term subsidence
- No significant groundwater quality impacts from our actions
- Surface water criteria to be determined

All of This Information Drives the Projects and Actions

Questions?

Chapters 9 - 12

- Management Actions and Projects
- Implementation
- Communication and Outreach
- Memorandum of Agreement

Chp 9 - Management Actions and Projects

- Basin-Wide Management Actions
 - Monitoring, Reporting and Outreach
 - Includes developing a metering and reporting regulation
 - Includes accounting for project and land fallowing actions
 - Promoting Best Water Use Practices
 - Promote Stormwater Capture
 - Promote Voluntary Fallowing of Agricultural Land

Chp 9 - Management Actions and Projects

- Area Specific Management Actions
 - Mandatory pumping limitations in specific areas
- GSA Authorities
 - To regulate groundwater extractions
 - To impose civil penalties for violation of regulations

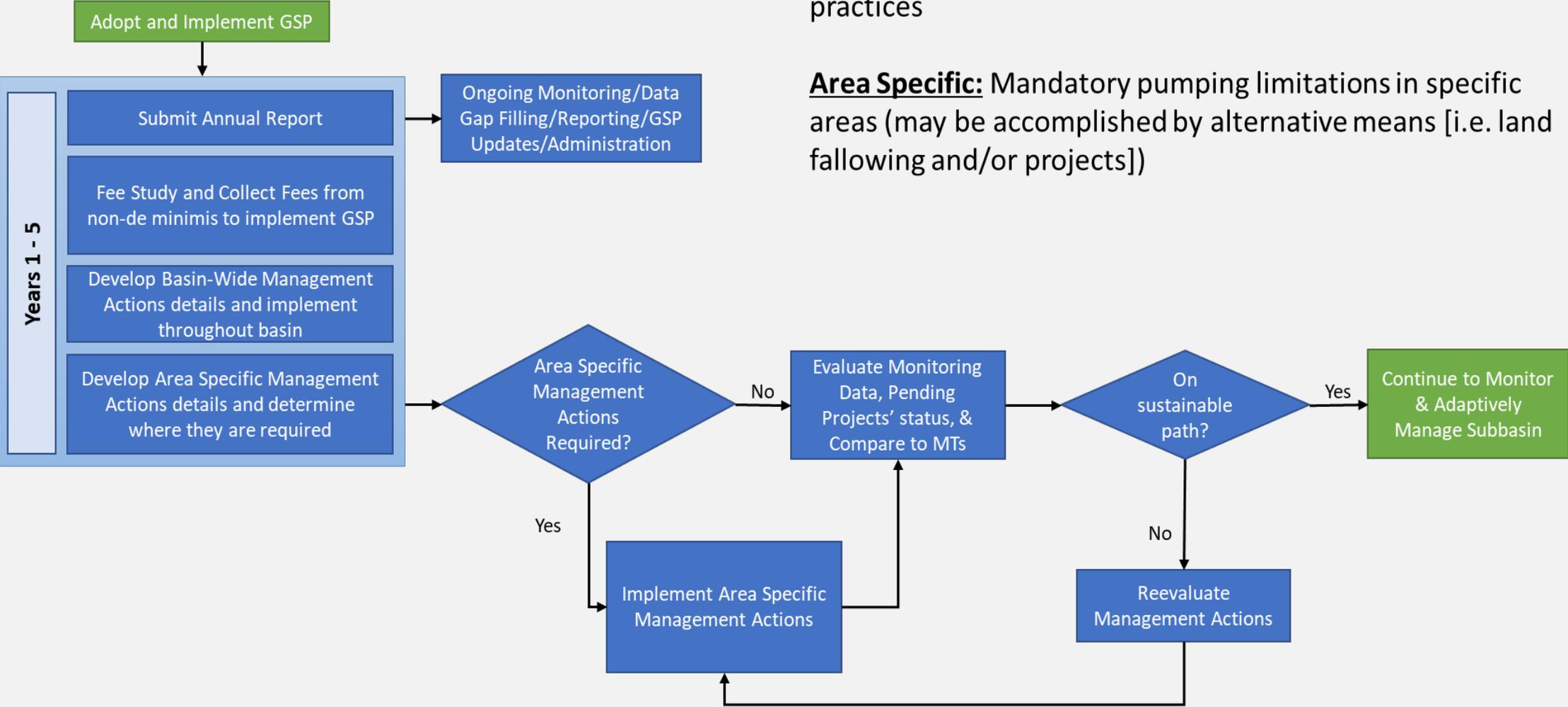
Chp 9 - Management Actions and Projects

- Projects
 - General Project Provisions
 - Direct Delivery and Stormwater Capture

- Projects in Process
 - Recycled Water
 - Nacimiento Water
 - Salinas Dam

Basin-Wide: De Minimis self-cert program, Non-De Minimis metering/monitoring and basin-wide water use efficiency practices

Area Specific: Mandatory pumping limitations in specific areas (may be accomplished by alternative means [i.e. land fallowing and/or projects])

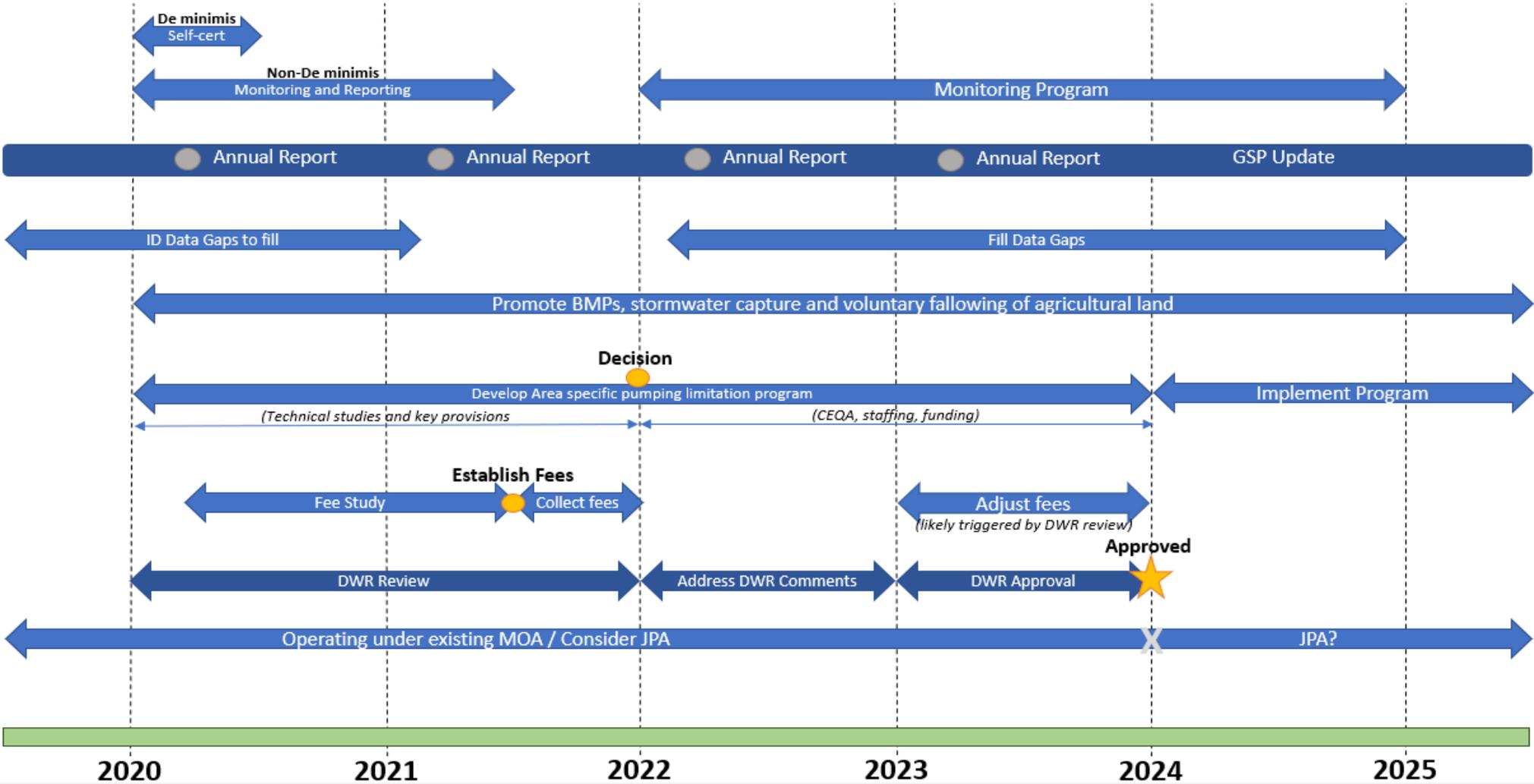


Chp 9 - Appendices

- Plan for Addressing Data Gaps
- Other Optional/Conceptual Management Actions
 - Well Interference Mitigation Program
 - Groundwater Conservation Program
- Other Project Concepts

Chp 10 - Implementation

5 YEAR START UP PLAN (COLLECTIVE ACTIONS)



Estimated
 \$1.5M avg per year
 (does not include
 projects/optional
 actions)

GSP Implementation Activity	Description	Estimated Costs	Cost Unit	Anticipated Timeframe
Administration and Finance				
Administration development	Update agreements; hire staff (GSP manager and staff); update website; conduct public outreach and meeting protocols	\$ 100,000	lump sum	Quarters 1-2, 2020
Ongoing GSP implementation administration	Routine operating costs (salaries, office space, equipment, etc.)	\$ 500,000	annual	Starting in 2020
Fee study for GSP implementation	Study to develop and justify funding mechanism for GSP implementation	\$ 250,000	Lump Sum	Quarter 2, 2020 through Quarter 2, 2021
Basin-wide Management Actions				
Monitoring, reporting & outreach				
De minimis self certification	Evaluate existing programs; develop new program for GSP	\$ 30,000	lump sum	Quarters 1-2, 2020
Non-de minimis metering & reporting program	Develop new metering and reporting program, land following/project accounting	\$ 100,000	lump sum	Quarters 1-2, 2020
Annual reports	Collect and analyze groundwater level data; apply groundwater level - storage proxy, evaluate water quality data, download and evaluate land subsidence data; update data management system (DMS); maintain monitoring network infrastructure; prepare and submit annual report to DWR	\$ 250,000	annual	Starting in 2020
Data gaps				
Supplemental hydrogeologic study	Refine hydrogeologic conceptual model; address data gaps	\$ 300,000	lump sum	2020 to 2024
<i>Monitoring networks - groundwater levels</i>				
Verify network	Verify proposed network	\$ 30,000	lump sum	Quarters 1-2, 2020
Expand network - add existing wells	Identify/inspect wells, video-logging, access agreements	\$ 100,000	lump sum	Quarters 1-2, 2020
Expand network - drill new wells	Add new wells in key data gap areas	\$ 100,000	per well	Quarters 1-2, 2020
<i>Monitoring networks - groundwater storage</i>				
Develop groundwater level - storage proxy	Quantitative relationship between changes in groundwater level, changes in storage, and amount of groundwater pumping	\$ 50,000	lump sum	Quarters 3-4, 2020
<i>Monitoring networks - water quality</i>				
Verify network	Verify proposed network	\$ 20,000	lump sum	2020 to 2024
<i>Monitoring networks - land subsidence</i>				
Verify network	Verify proposed network	\$ 20,000	lump sum	2020 to 2024
<i>Monitoring networks - interconnected surface water</i>				
Conduct surface water/groundwater investigation	Focused surface and groundwater investigations in areas of potentially interconnectivity; conduct monitoring; cost depends on availability of existing wells and number of new wells needed; cost assumes 5 new wells needed	\$ 400,000	lump sum	2020 to 2024
5-year GSP updates & amendments				
GSP assessment and reporting	Prepare report/amend GSP	\$ 300,000	lump sum	2023 to 2024
Groundwater modeling	Refine, update, and recalibrate groundwater model	\$ 250,000	lump sum	2023
Promoting				
Best water use practices	Costs included in monitoring, reporting and outreach for ongoing GSP implementation			
Stormwater capture				
Voluntary following of agricultural land				
Area Specific Management Actions				
Mandatory pumping limitations in specific areas				
Baseline pumping determination	Develop structure; public outreach; meetings; legal fees	\$ 350,000	lump sum	2020 to 2022
Pumping limitations determination				
Timeline established for pumping limitations				
Pumping limitations regulations approval process				
Regulation implementation	Oversight and enforcement	\$ 250,000	annual	Starting in 2023

Questions?

Schedule

Schedule – Public Draft GSP

GSP Development Steps	June	July	Aug	Sept	Oct	Nov	Dec	Jan '20
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Complete GSP - *Public Draft*

Overview at CC Meeting

7/24

Published -FINAL Public Comment Period 8/14 - 9/29

Updated considering final public comment period

9/30 - 11/12

Schedule – Final GSP

GSP Development Steps	June	July	Aug	Sept	Oct	Nov	Dec	Jan '20
Complete GSP - <i>Final</i>								
Published						11/13		
Recommended for Adoption						11/20		
Submitted to DWR (deadline)								1/31

Schedule

FINAL Public Comment Period	8/14/19 – 9/29/19
CC Meeting - GSP Release	8/21/19
Final GSP Published	11/13/19
CC Meeting - Recommend GSAs Adopt	11/20/19
Deadline to submit GSP to DWR	1/31/20

Questions?