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

Identify areas of chronic lowering groundwater elevations

Inferred Groundwater Flow Direction
Other Sustainability Indicators

- Changes in Groundwater Storage
  - Long term loss of groundwater in storage
  - Consistent with DWR assessment of basin conditions
  - Subbasin is hydrologically in overdraft

- Subsidence
  - Satellite data suggest small historical ground surface elevation changes
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:

<table>
<thead>
<tr>
<th>Groundwater Budget</th>
<th>Groundwater Storage Deficit</th>
<th>Sustainable Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical (1981 – 2011)</td>
<td>12,600 AFY</td>
<td>59,800 AFY</td>
</tr>
<tr>
<td>Current (2012 – 2016)</td>
<td>65,400 AFY</td>
<td>20,400 AFY</td>
</tr>
<tr>
<td>Future (2020 – 2040)</td>
<td>13,700 AFY</td>
<td>61,100 AFY</td>
</tr>
</tbody>
</table>

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 |
## MONITORING NETWORKS

<table>
<thead>
<tr>
<th>Category</th>
<th>Actions</th>
</tr>
</thead>
</table>
| 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
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
## Estimated $1.5M avg per year (does not include projects/optional actions)

<table>
<thead>
<tr>
<th>GSP Implementation Activity</th>
<th>Description</th>
<th>Estimated Costs</th>
<th>Cost Unit</th>
<th>Anticipated Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Administration and Finance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration development</td>
<td>Update agreements; hire staff (GSP manager and staff); update website; conduct public outreach and meeting protocols</td>
<td>$100,000</td>
<td>lump sum</td>
<td>Quarters 1-2, 2020</td>
</tr>
<tr>
<td>Ongoing GSP implementation administration</td>
<td>Routine operating costs (salaries, office space, equipment, etc.)</td>
<td>$500,000</td>
<td>annual</td>
<td>Starting in 2020</td>
</tr>
<tr>
<td>Fee study for GSP implementation</td>
<td>Study to develop and justify funding mechanism for GSP implementation</td>
<td>$250,000</td>
<td>lump sum</td>
<td>Quarter 2, 2020 through Quarter 2, 2021</td>
</tr>
</tbody>
</table>

| 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 infrastructures; prepare and submit annual report to DWR | $250,000        | annual    | Starting in 2020      |

| Data gaps                                         |                                                                             |                 |           |                       |
| Supplemental hydrogeologic study                  | Refine hydrogeologic conceptual models; address data gaps                   | $360,000        | lump sum  | 2020 to 2024          |
| Monitoring networks - groundwater levels          |                                                                             |                 |           |                       |
| Verify 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    |
| Monitoring networks - groundwater storage         |                                                                             |                 |           |                       |
| 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    |
| Monitoring networks - water quality               |                                                                             |                 |           |                       |
| Verify network                                    |                                                                             | $20,000         | lump sum  | 2020 to 2024          |
| Monitoring networks - land subsidence             |                                                                             | $20,000         | lump sum  | 2020 to 2024          |
| Monitoring networks - interconnected surface water |                                                                             | $20,000         | lump sum  | 2020 to 2024          |
| 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 | $440,000        | lump sum  | 2020 to 2024          |
| 5-year GSP updates & amendments                  |                                                                             |                 |           |                       |
| GSP assessment and amendments                     | Prepare report/attend GSP                                                   | $360,000        | lump sum  | 2023 to 2024          |
| Groundwater modeling                              | Reline, update, and recalibrate groundwater model                          | $250,000        | lump sum  | 2023                 |

**Promoting**
- Best water use practices
- Stormwater capture
- Voluntary following of agricultural land

Costs included in monitoring, reporting, and outreach for ongoing GSP implementation.

**Mandatory pumping limitations in specific areas**
- **Baseline pumping determination**
  - Develop structure; public outreach; meetings; legal fees | $350,000 | lump sum | 2020 to 2022
- **Timeline established for pumping limitations**
- **Pumping limitations regulations approval process**
- **Regulation implementation**
  - Oversight and enforcement | $250,000 | annual | Starting in 2023
Questions?
### Schedule – Public Draft GSP

<table>
<thead>
<tr>
<th>GSP Development Steps</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan '20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Complete GSP - Public Draft</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overview at CC Meeting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7/24</td>
</tr>
<tr>
<td><strong>Published -FINAL Public Comment Period</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8/14 - 9/29</td>
</tr>
<tr>
<td>Updated considering final public comment period</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9/30 - 11/12</td>
</tr>
</tbody>
</table>
## GSP Development Steps

<table>
<thead>
<tr>
<th>Step</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan '20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Complete GSP - Final</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Published</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11/13</td>
</tr>
<tr>
<td>Recommended for Adoption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11/20</td>
</tr>
<tr>
<td>Submitted to DWR (deadline)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1/31</td>
</tr>
</tbody>
</table>
## Schedule

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FINAL Public Comment Period</strong></td>
<td>8/14/19 – 9/29/19</td>
</tr>
<tr>
<td>CC Meeting - GSP Release</td>
<td>8/21/19</td>
</tr>
<tr>
<td>Final GSP Published</td>
<td>11/13/19</td>
</tr>
<tr>
<td>CC Meeting - Recommend GSAs Adopt</td>
<td>11/20/19</td>
</tr>
<tr>
<td>Deadline to submit GSP to DWR</td>
<td>1/31/20</td>
</tr>
</tbody>
</table>
Questions?