Corning Subbasin
Groundwater Sustainability Plan
Technical Presentation

Presented to Corning Subbasin Advisory Board
08/04/2020 | Teleconference

Prepared by
MONTGOMERY & ASSOCIATES

Today's Meeting

- Discuss priority actions for plan implementation, including GSA Administration and data gaps
- Continue to evaluate funding mechanisms
- Review upcoming DWR and other grant opportunities
- Feedback on Sections 5 and 6

Corning Subbasin GSP Development Update

GSP Section	Status	Next Draft for Review
1 - Introduction	Draft complete, incorporating comments	Public review draft, Sept. 2021
2 - Plan Area	Draft complete, incorporating comments	Public review draft, Sept. 2021
3 - Basin Setting	Draft complete, incorporating comments	Public review draft, Sept. 2021
4 – Water Budgets	Draft complete, incorporating comments	Public review draft, Sept. 2021
5 - Monitoring Network	**CSAB review complete, public feedback**	**Public review draft, Sept. 2021**
6 – Sustainable Management Criteria	**CSAB review complete, public feedback**	**Public review draft, Sept. 2021**
7 - Projects and Management Actions	Initial draft complete; reviewed PMAs at July 7th CSAB meeting	Ready for CSAB review
8 – Plan Implementation	Initial draft reviewed by GSA staff	Discussion at August meeting; include in Public review draft, Sept. 2021
Executive Summary and Draft GSP		Draft to public: Sept 10, 2021 (CSAB will review complete draft during public review)

Plan Implementation (Section 8)

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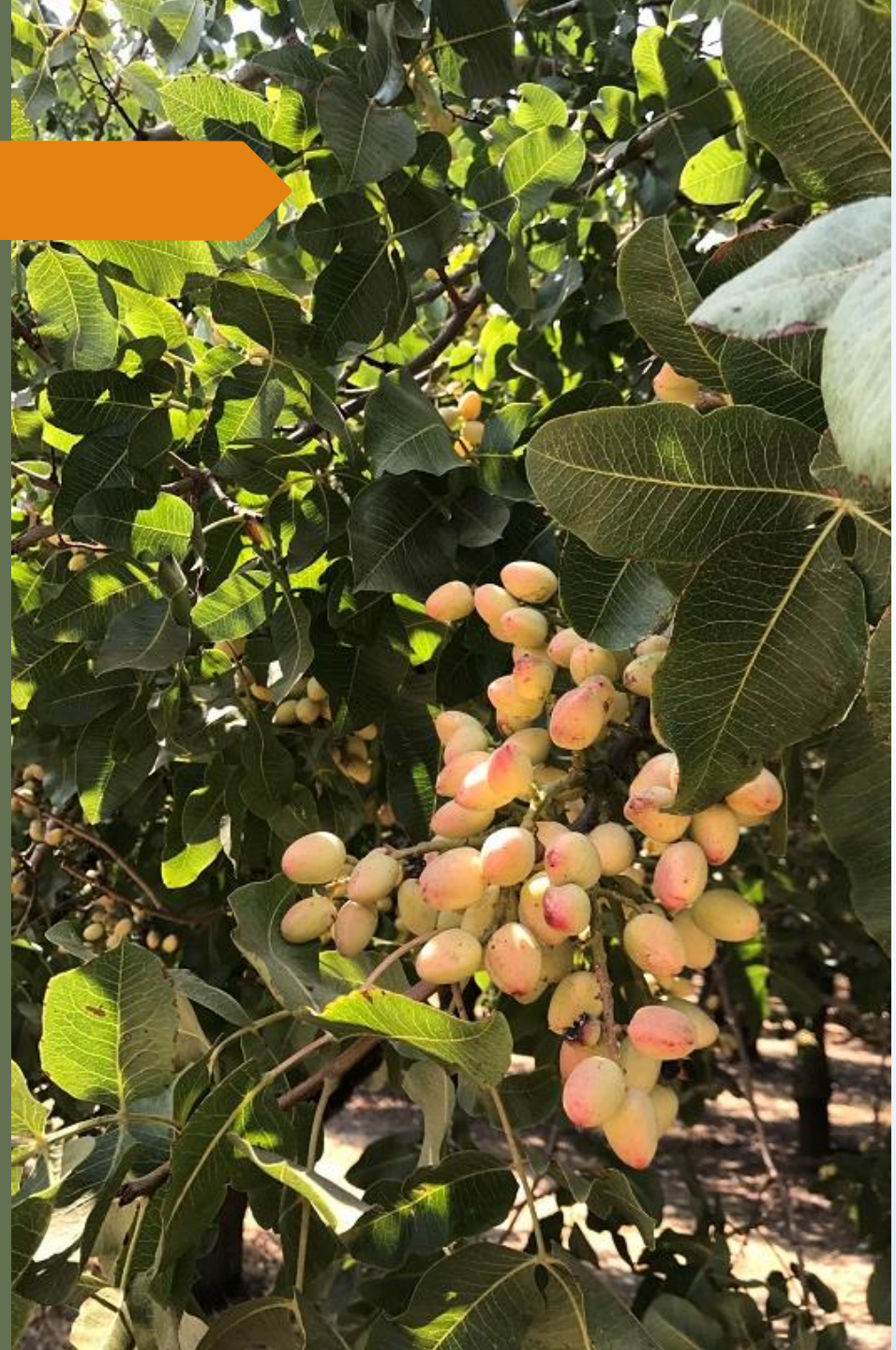


Plan Implementation Activities

- Description of GSP implementation focusing on first 5 years
- Development of approximate costs and funding plan
- Required elements for all GSAs (outreach, monitoring, reporting, and day-to-day GSA operations)
- Plan to address data gaps identified in GSP
- Refine development of feasible projects and management actions to address current and potential future unsustainable conditions

Identified Implementation Tasks

Activity	Tasks
1 – GSA Administration	GSA Administration, Program Management, and Outreach Activities
2 – GSA Funding	Refine Funding Sources (incl. grants) and implement Funding Mechanisms as needed
3 – Monitoring and Reporting	Groundwater Conditions Monitoring
	Annual Reports
	GSP 5-year Updates
4 – Address Data Gaps	AEM and aquifer testing to refine hydrogeologic conceptual model
	GDE mapping
5 – Expand Monitoring Networks	Videologging of wells with unknown screen intervals
	Install 5 new observation wells
	Coordinate with DWR to continue groundwater levels and quality monitoring
	Assess modification or replacement of stream gages on Thomes Creek
6 – Update Data Management System	Upload routine data
	Update well database
	Well registration program
7 – Update and Refine Hydrologic Model	Integrated Hydrologic Model Updates for 5-year GSP Assessment with new data collected
8 – Projects and Management Actions	Evaluate and Refine Potential Projects and Management Actions

GSA Administration and Activities

- Subbasin GSA Coordination
- Interbasin Coordination
- Public Outreach and Notifications
- Advisory Board and GSA Committee and Board Meetings
- Budget Planning and Funding Oversight
- Grant applications and management
- Oversight of consultants or contractors
- Coordination with DWR

The Corning Subbasin Advisory Board will continue to function as an appointed advisory board comprised of members of both GSAs to advise the GSAs during Plan Implementation.

Summary of Funding Needs and General Initial Start-Up Cost

Activity	Annual Costs	Lump Sum Items (First 5 years)	Total Cost (First 5 years)	Annualized Cost (over 5 years)
GSA Admin	$621,500	--	$3,107,500	$621,500
Grants & Funding	$55,000	$88,000	$363,000	$72,600
Monitoring/Reporting	$84,000	$150,000	$570,000	$114,000
Address Data Gaps	--	$350,000	$350,000	$70,000
Expand Monitoring & Update DMS	$12,000	$200,000	$260,000	$52,000
Update GW Model	--	$150,000	$150,000	$30,000
Refine PMAs	$60,000	--	$300,000	$60,000
Contingency (10%)	$83,250	$98,800	$416,250	$103,010
Total	**$915,750**	**$1,031,800**	**$5,610,550**	**$1,122,110**

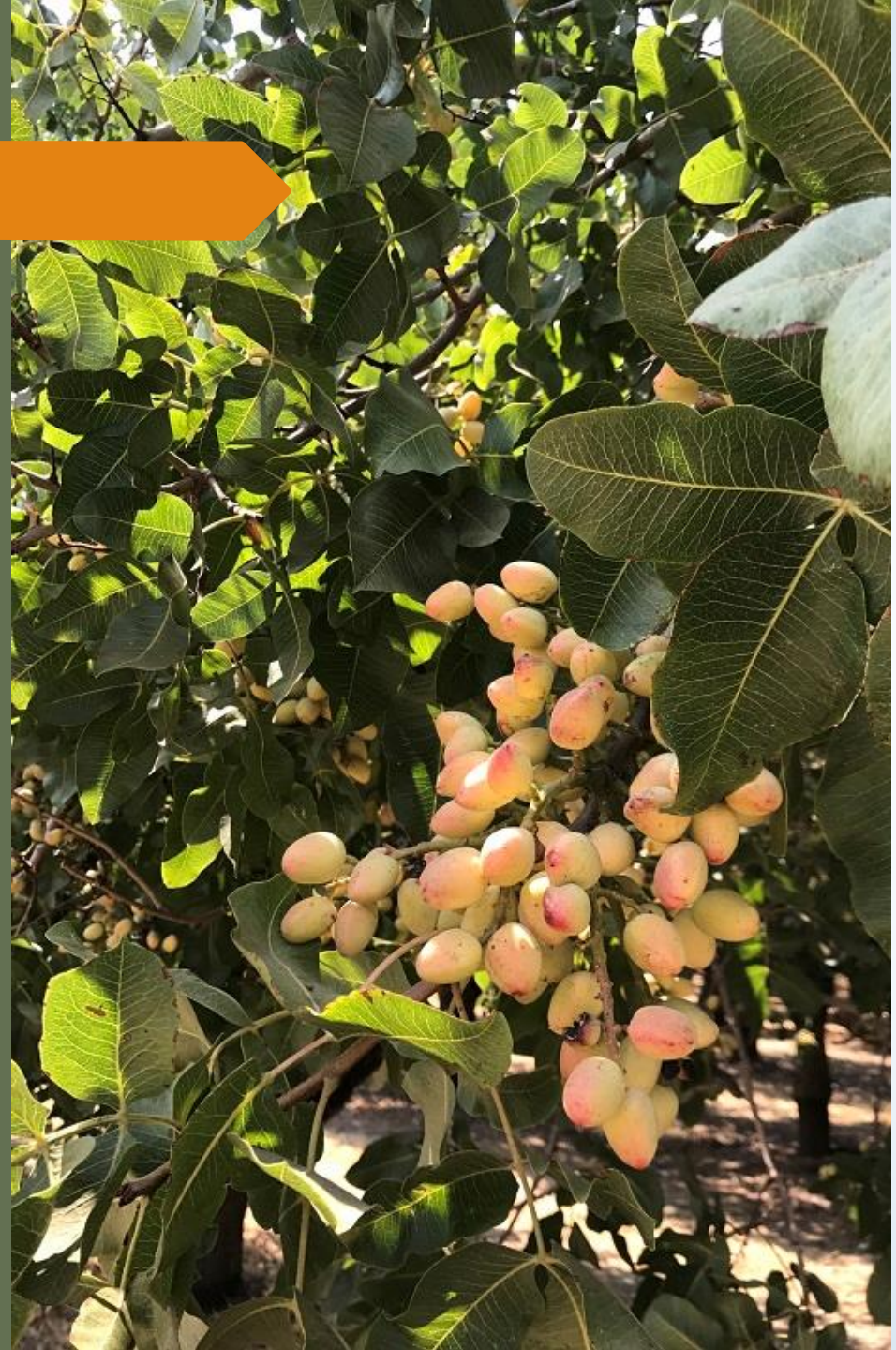
Note: this level of detail is all we need in the GSP for DWR approval; even if the numbers change during implementation, that is fine. For now, just need to have overall estimate of cost to implement GSP in order to develop adequate funding approaches; this will all be refined during the early stages of GSP implementation.

Summary of Priority Management Actions and Costs – Preliminary

Action Name	Location	Description	Cost	Implementation Timeline
Well Management Program	Entire Subbasin	1. Compile well inventory	TBD	Upon GSP adoption
		2. Provide education and outreach to well owners	$100k/yr	Upon GSP adoption
		3. Develop a well issue reporting system	$150k	Within 2 years of GSP adoption
		4. Establish a well mitigation program	$500k/yr	As needed based on items 1-3
Grower Education	Focus on Corning, Thomes Creek, and Kirkwood WDs and other irrigated areas	Promote conjunctive use and other BMPs for groundwater sustainability. Organize an irrigation cooperative to coordinate pumping schedules	$100k/yr	Upon GSP adoption
Policies and Ordinances	Both Counties, start with Tehama County	Primary objective: Establish or revise County well permitting (Tehama Co.) Secondary objectives: develop water use and land use ordinances or policies to align with GSP	TBD (County-led activity due to well permitting and land-use authority; potential minor costs to GSAs to support coordination)	Upon GSP implementation and ongoing
Promote Use of Full Surface Water Allocation	Water Districts	Implementation-Ready project in Corning WD. Needs infrastructure improvements in OUWUA, Thomes Creek WD, and Kirkwood WD	Likely no cost to GSA. Requires incentives b/c the cost of surface water is about equal to groundwater, and groundwater is preferred for multiple reasons.	Upon GSP implementation and ongoing

Summary of Priority Projects and Costs - Preliminary

Project Name	Location	Description	Cost	Implementation Timeline
OUWUA Infrastructure Improvements for In-Lieu Recharge	OUWUA	Improve surface water conveyance and irrigation infrastructure for surface water use in lieu of groundwater pumping	Capital: $15M to $23M Annual: $350K to 500K	Upon GSP adoption, start with planning and study; implement within 6 years
Regional Surface Water Transfers for In-Lieu Recharge	Water Districts	Incentivize the use of surface water by transferring water into the Subbasin from other CVP districts	TBD (incentives needed to promote SW use)	Upon GSP adoption, as SW supply allows
Invasive Plant Removal	Focus on Stony Creek	Invasive plan removal to reduce shallow groundwater use and restore native habitat; coordinate with RCD	$21M to remove all arundo in Subbasin ($35K/acre)	Within 3 years of GSP adoption
Groundwater Recharge through Unlined Conveyance Features	Tehama County	Groundwater recharge through unlined canals and natural drainages	TBD (conceptual project)	TBD – needs coordination with TCC and USBR
Off-stream Surface Water Storage	Outside District Areas - Tehama County	Off-stream temporary storage of flood waters on private lands	TBD (conceptual project)	TBD – incentivize growers
Recycled Water Use for Irrigation	Tehama County	Import recycled water from other Tehama County Subbasins	TBD (conceptual project)	TBD
Recycled Water Use for Irrigation	City of Corning/ Hamilton City	Recycled water program for treated wastewater in the Subbasin	TBD (conceptual project)	TBD
Groundwater Substitution Transfers	Tehama County	Import water from other Tehama County Subbasins	TBD (conceptual project)	TBD
City of Corning Stormwater Recharge	City of Corning	City of Corning stormwater improvements/groundwater recharge	TBD (conceptual project)	Within 3 years of GSP adoption



Questions on Plan Implementation?

- CSAB feedback
- Public comment

Funding Mechanisms

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Corning Subbasin Advisory Board

Corning Subbasin Funding Mechanisms

August 4, 2021 - Teleconference

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Agenda & Objectives

1. Review July CSAB Questions
2. Consider Funding Needs & Mechanisms
3. Discuss Next Steps & Feedback

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1. July CSAB Questions

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Background

The following slides provide information and considerations addressing several questions received during the July CSAB Meeting on the following topics:

- **Corning Subbasin Land Use**
- **Corning Subbasin Groundwater Use**
- **De Minimis (Minor) Groundwater Users and Fees**

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July CSAB Questions

Corning Subbasin Land Use

- Approximately 30% of Corning Subbasin's land area is Irrigated
- Nearly ¼ of irrigated ground has access to Surface Water
- A minimal portion of the Subbasin is urbanized (~3%)
- Most of the Corning Subbasin is presently unirrigated (70%)

Water Use Type	Tehama, Acres (% total)	Glenn, Acres (% total)	Total, Acres (% total)
Surface Water, Access	9,416 (5%)	5,650 (3%)	**15,066** (7%)
Groundwater, Exclusive	31,580 (15%)	15,897 (8%)	**47,477** (23%)
Irrigated, All	40,997 (20%)	21,548 (10%)	**62,544** (30%)
Urban & Rural Residential	~6,000 (~3%)	~1,200 (<1%)	**~7,200** (~3%)
Non-Irrigated	114,308 (55%)	22,968 (11%)	**137,276** (66%)
Total Acreage	**161,305** (78%)	**45,715** (12%)	**207,020** (100%)

Note: Land Use estimates may differ based on data source (e.g. USDA CropScape, DWR Land Use Surveys, etc.) and categorization.

Note: Irrigated Acreage count excludes ~9,500 acres of Eucalyptus groves that had historically relied on groundwater.

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Corning Subbasin Groundwater Use

- Total groundwater pumping under current conditions averages 157,900 acre-feet per year (AFY)
- Approximately 97% of groundwater is estimated to be used for Agricultural purposes
- The difference in pumping between wet years and dry or critical years is about 19,100 acre-feet (AF)

Year Type (Current Conditions)	Urban & Domestic Pumping	Agricultural Pumping	Total Pumping
Average Pumping for All Year Types	4,900 AFY	153,000 AFY	**157,900 AFY**
Wet	4,900 AFY	145,000 AFY	**149,900 AFY**
Above/Below Normal	4,900 AFY	147,750 AFY	**152,650 AFY**
Dry/Critically Dry	4,900 AFY	164,100 AFY	**169,000 AFY**

Note: Based on Corning Subbasin Draft GSP Section 4, Table 4-10 (Current Groundwater Budget Summary)

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De Minimis Users & Fees

- ***De Minimis Extractor:*** SGMA term found in the legislation referring to minor users that extract 2 AFY or less per year for domestic purposes.
- ***WAT § 10730(a)*** *… A groundwater sustainability agency shall not impose a fee pursuant to this subdivision on a de minimis extractor unless the agency has regulated the users pursuant to this part.*
- ***Key Question***: What is a "regulated user" and how does this apply to potentially charging or not charging "de minimis extractors"?
  - **Regulated User:** Undefined in SGMA. GSAs must determine who is a regulated user, which may mean…
    - Noticed
    - Monitored/Extractions Reported
    - Implement Policies, Projects, and/or Management Actions that affect De Minimis Extractors
- **Other Considerations**
  - **Cost/Benefit:** What is the relative benefit of recovering costs from de minimis users? May depend on fee structure (i.e. acreage, well count, volume extracted, etc.)
  - **State Intervention:** $100/de minimis well fee for probationary basins (if extraction reporting is required)

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2. Funding Needs & Mechanisms

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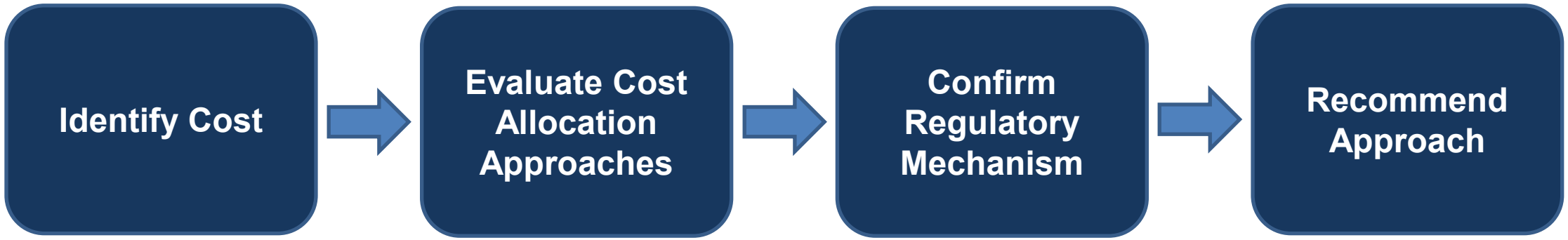
Developing Funding Mechanisms



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Funding Needs

Type	Estimated Cost (2022 – 2026)	Cost Activities	Implementing Entities
General Program Administration	**Operations (TC)**: $319,000/year **Operations (GC)**: $375,100/year **Other (Shared)**: $428,010/year	• Staff • Accounting • Legal and Consultants • Monitoring • Reporting • Outreach • Studies	• GSAs
Management Actions	$850,000/year	• Education • Well Management Programs • Ordinances • Surface Water Use	• GSAs • Counties • Water Districts
Projects	*Capital*: $36M to $44M total *O&M*: $350,000 to $500,000/year	• OUWUA Infrastructure • Invasive Plant Removal • Others (TBD)	• GSAs • Water Districts • Cities/Communities

Note: Costs based on initial estimates and subject to future refinements.

Note: Costs for Management Actions and Projects will be primarily borne by partner agencies (e.g. Water Districts, Cities).

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Example Approaches (General Program Administration)

The following slides demonstrate how the costs of the GSAs' general program administration could be allocated based on a variety of potential approaches. The approaches presented are not exhaustive, and all example costs are hypothetical assumptions.

- **Member Agency Cost-Share**
  - Shared by Gross Acres ($/acre, pro-rata)
  - Shared by Irrigated, Municipal Acres, and Residential ($/acre, pro-rata)
- **Acreage-Based Fees or Assessments**
  - Charged by Gross Acres ($/acre, pro-rata)
  - Charged by Irrigated, Municipal Acres, and Residential ($/acre, pro-rata or separate fee type)
- **Groundwater Use-Based Fee**
  - Charged by Volume ($/AF extracted)
  - Charged by Volume ($/AF extracted, agricultural and municipal fees)
- **Well-Based Fee**
  - Charged by Well ($/well)
  - Charged by Well Type ($/well, schedule of fees by well type)

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Member Agency Cost-Share (Example)

Example $600,000/yr Budget for General Program Administration

Method: Gross Acres		
Entity	**Acres (% of Total)**	**Annual Cost ($/total)**
TCFCWCD GSA	161,305 (78%)	$467,504
CSGSA	45,715 (22%)	$132,496

Method: Irrigated, Urban, & Residential Acres		
Entity	**Acres (% of Total)**	**Total Annual Cost**
TCFCWCD GSA	46,997 (67%)	$404,306
CSGSA	22,748 (33%)	$195,694

Note: Assumes 6,000 municipal acres in TCFCWCD GSA, and 1200 acres in CSGSA

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Acreage-Based Fee/Assessment (Example)

Example $600,000/yr Budget for General Program Administration

Method: Gross Acres	
Acres	Annual Cost ($/acre)
207,020	$2.90

Method: Irrigated, Urban, & Residential Acres	
Acres	Annual Cost ($/acre)
69,744	$8.60

Note: Assumes 7,200 urban and residential acres.

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Groundwater Use-Based Fee (Example)

Example $600,000/yr Budget for General Program Administration

Method: Per AF Extracted		
Year Type	Extraction (AF)	Annual Cost ($/AF)
Average Pumping for all Years	157,900	$3.80
Dry/Critical	169,000	$3.55
Above/Below Normal	152,650	$3.93
Wet	149,900	$4.00

Note: Extraction estimates are based on Water Budget for Current Period as described in Corning Subbasin Draft GSP Section 4, Table 4-10.

Method: Per AF Pumped by Type		
Extraction Type	Extraction (AF - Average)	Annual Cost ($/AF)
Agriculture	153,000 (97% of Total)	TBD
Municipal & Domestic	4,900 (3% of Total)	TBD

Note: Municipal pumping includes domestic pumping estimate.

Note: Cost not estimated at this time as rate structure may vary.

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Well-Based Fee (Example)

Example $600,000/yr Budget for General Program Administration

Method: Per Well	
Well Count	Annual Cost ($/Well)
4,297	$139.63

Method: Per Well by Type		
Well Type	Count	Annual Cost ($/Well)
Domestic	2,842	TBD
Production	1,434	TBD
Public Supply	21	TBD

Note: Cost not estimated at this time as rate structure may vary.

Note: Production wells refer primarily to ag irrigation wells (and some industrial)

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Approaches Comparison

Approach Type	Benefit Logic	Revenue Stability	Data Requirements	Other Considerations	Cost Summary (Example Budget $600k/yr)
Cost-Share	n/a	High	Low	• Burdens existing revenue sources • Not a new source of funding • Agencies have various obligations and are involved in other basins	• TCFCWCD: 67%-78% of total • CSGSA: 22% - 33% of total
Acreage-Based	General Benefit	High	Low	• Simple to administer • Irrigated and municipal acres can serve as proxy for groundwater use • SGMA compliance required for entire basin	• $2.90/acre (gross acreage) • $8.60/acre (irrigated, urban, and residential acres)
Groundwater Use-Based	Users Pay	Low	High	• Revenue would vary by water year type • Requires monitoring or reliable estimates • Potentially higher cost of administration and data collection • SGMA compliance required for entire basin	• $3.55/AF - $4.00/AF, depending on hydrology and total pumping conditions
Well-Based	Users Pay	High	High	• Requires substantial data collection • Potentially higher cost of administration • Equity of charges by well type • SGMA compliance required for entire basin	• $139.63 per Well

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Self-Funding (Regulatory Mechanisms)

Fees or assessments levied by GSAs are governed by the provisions of SGMA, Proposition 13, Proposition 218, and/or Proposition 26. The below mechanisms have been previously implemented by GSAs.

Regulatory Process	Mechanism	General Applicability	Approval	Public Hearing	Collection Method(s)	Fee Study
Proposition 218	Assessment	Special benefit of public improvement or property-related service	Affirmative Vote, Majority Protest, & Board Approval	Yes	County Assessor	Engineer's Report
	Cost of Service Fee (Water)	Property-related water service	Majority Protest & Board Approval	Yes	County Assessor or GSA	n/a (Demonstrate Cost of Service)
Proposition 26	Regulatory Fee	Reasonable regulatory costs	Board Approval	Yes	County Assessor or GSA	n/a (Demonstrate Reasonable Cost)

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Anticipated Sources of Funding

Multiple Sources: GSAs can utilize multiple sources of funding to support GSP Implementation.

Flexibility: GSAs have the flexibility to adjust or adopt new funding approaches over time as new data becomes available, new needs are established, and new opportunities are identified.

Timing: Not all activities need to be fully funded and implemented starting in 2022.

Implementer: Cost burden will depend on the implementing entity (e.g. GSA, County, District).

General Program Administration	Management Actions	Projects
• GSA Self-Funding (i.e. Fees, Assessments)	• Grants • Partner Funding (i.e. implementing agency) • GSA Self-Funding (i.e. Fees, Assessments)	• Grants • Partner Funding (i.e. implementing agency) • GSA Self-Funding (i.e. Fees, Assessments) • Bonds and Borrowing

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3. Next Steps & Feedback

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Next Steps

- *Receive Feedback*
- *Refine Cost Estimates*
- *Develop Recommendations*
- *Describe Funding Approaches in GSP*

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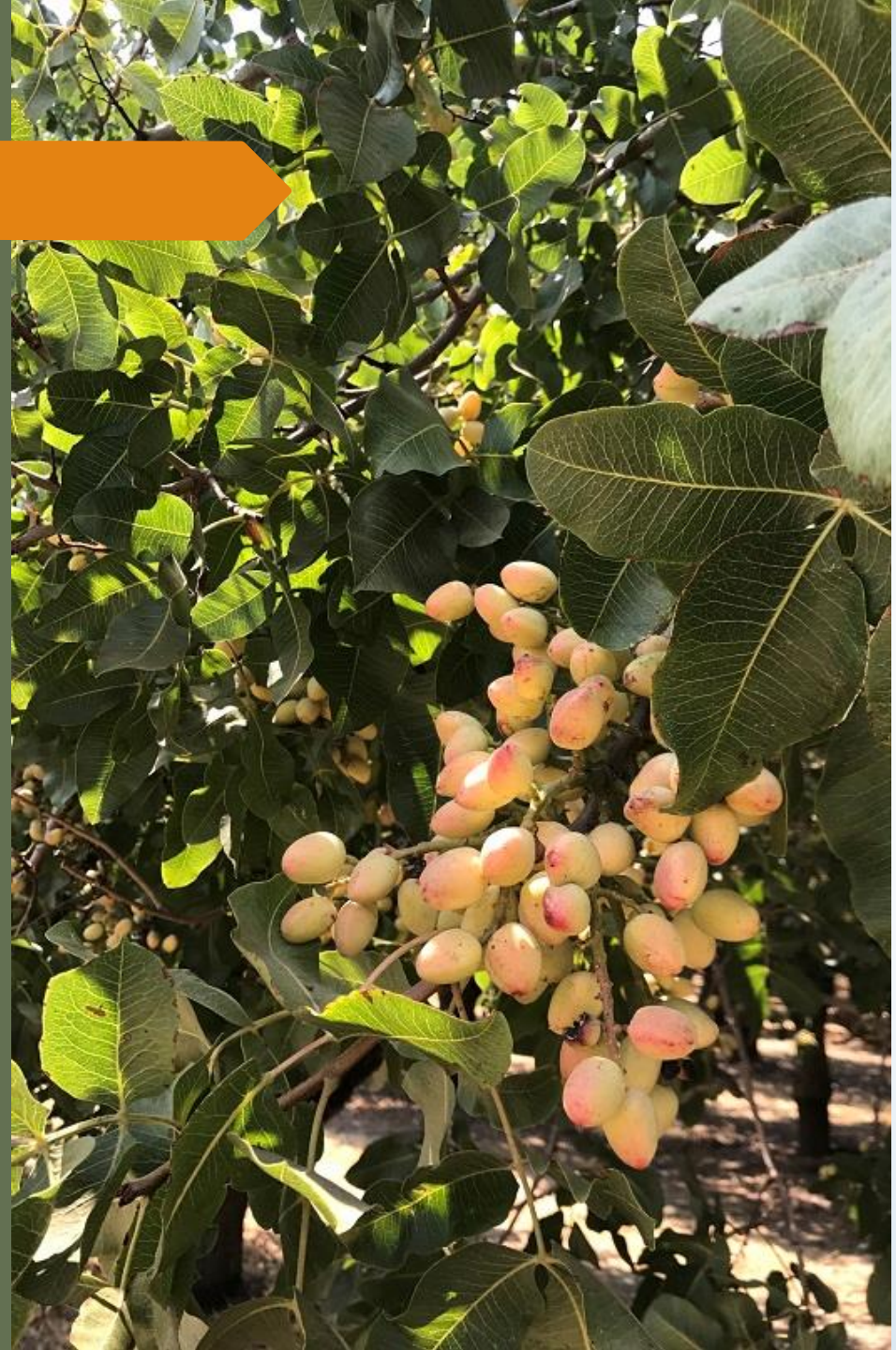

Questions on Funding Mechanisms?

- CSAB feedback
- Public comment

Potential Grant Opportunities

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Upcoming DWR Grant & Funding Opportunities

- Round 2, SGM Implementation Grant Program (Prop 68)
  - ~$77M for the construction of projects that support GSP implementation; solicitation opens Spring 2022
- Governor's Budget (May 2021)
  - $300M for SGMA implementation
    - Infrastructure projects to improve water supply, water quality, and/or the reliability of drinking water wells
    - Technical assistance grants to ensure engagement of underrepresented communities
    - Provide underrepresented communities with direct and tangible drinking water quality and supply benefits
  - $10 million to accelerate collection and reporting of subsidence data
  - $49 million for critical data collection, enhanced groundwater monitoring, and groundwater accounting
  - $12 million for drought-related drinking water emergencies
  - $60 million grants to incentivize agricultural water use efficiency
- Ongoing funding available for Technical Support Services (TSS) for well installations and similar projects

Potential USBR Grants

- USBR CalFED Bay Delta Restoration Program
  - Up to $500k for water use efficiency
- WaterSMART
  - Drought Response Program - Up to $1.5M for on-the-ground projects and modeling tools that will increase water reliability, improve water management, and/or provide benefits for fish, wildlife and the environment.
  - Water Efficiency Program - Up to $2M for on-the-ground water management improvement projects
  - Small-Scale Water Efficiency Program - Up to $75K for small-scale projects that conserve and use water more efficiently
  - Grant Program for Water Markets - Up to $400K to develop water marketing strategies

Potential USBR Grants

- Cooperative Watershed Management Program (i.e. watershed restoration in fire impacted western Subbasin)
  - Up to $200K for watershed restoration planning and management
- Basin Study Program (i.e. AEM or other geophysical data collection)
  - Up to $300K to develop hydrologic information and water management tools and to improve modeling and forecasting capabilities.
- Title XVI Authorized Projects (Water reclamation and reuse, i.e. City of Corning WWTP)
  - Up to $6M for planning, design, and construction of specific congressionally authorized water recycling and reuse projects

Any Questions or Thoughts on the Grant Opportunities?

- CSAB feedback
- Public comment

GSP Section Reviews: Monitoring Network and Sustainable Management Criteria (Sections 5 and 6)

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Section 5 – Monitoring Network

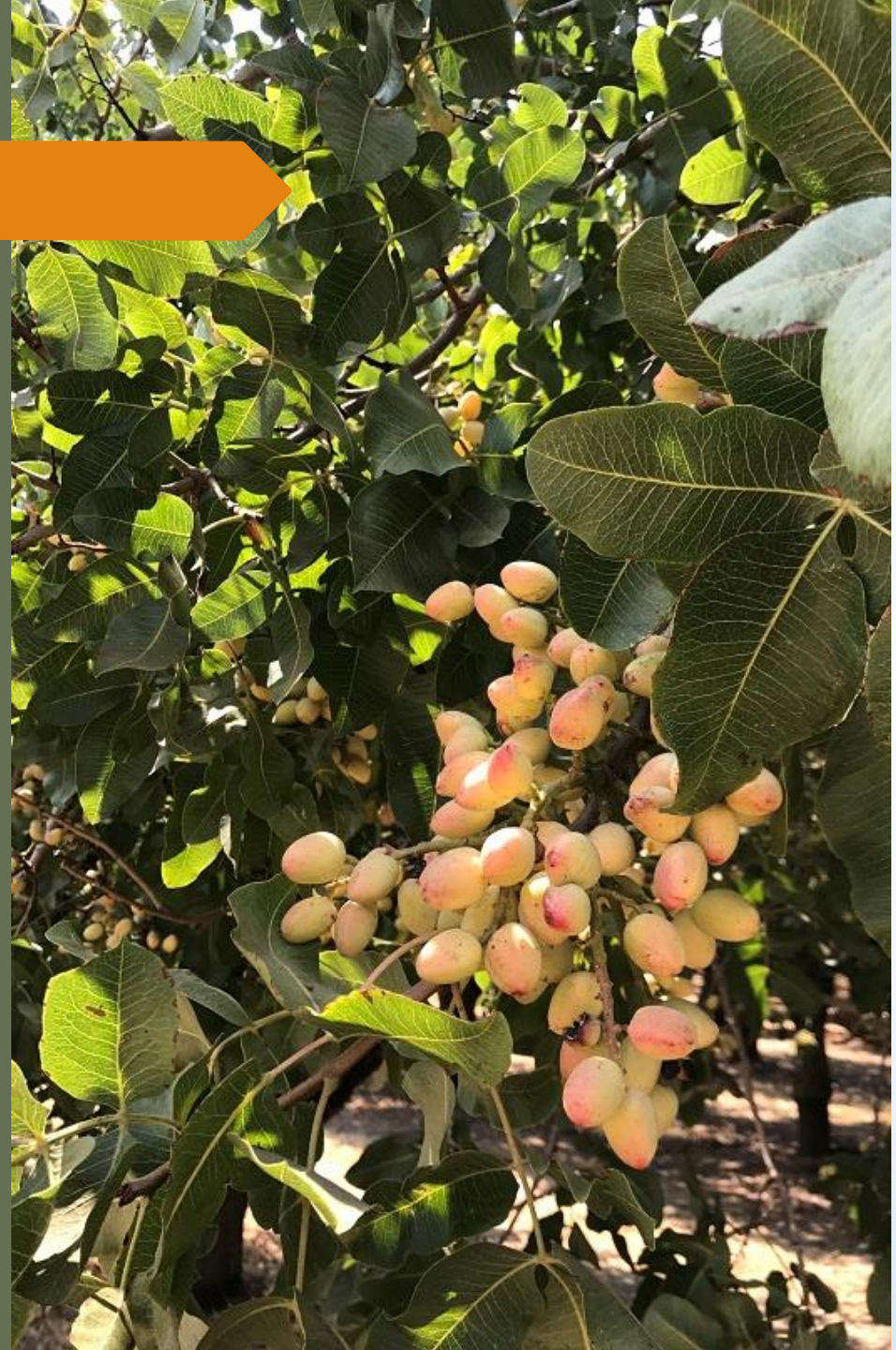
- Provides general description of the monitoring networks to assess 5 sustainability indicators.
- SMC will be assessed at representative monitoring points (RMPs)
- Existing groundwater level monitoring wells are used to assess SMC for 3 sustainability indicators:
  - Groundwater Levels
  - Groundwater Storage
  - Interconnected Surface Water
- Groundwater quality RMPs are the public supply wells that are sampled for total dissolved solids
- Subsidence monitored by DWR using InSAR satellite data (and subsidence monuments)
- Importance of inter-agency coordination for monitoring and data review, especially for water quality and Central Valley Water Quality Control Board Programs
- Data gaps and monitoring protocols identified for each sustainability indicator
- Data management system for storing and reporting data

Section 6 – Sustainable Management Criteria

- Defines the Sustainable Management Criteria (SMC) used to assess the 5 applicable Sustainability Indicators (SI) during GSP implementation.
- SMCs defined for each SI:
  - Significant and Unreasonable Conditions
  - Minimum Thresholds
  - Measurable Objectives
  - Interim Milestones
  - Undesirable Results
- Describes effects on beneficial users and uses and on neighboring subbasins

Summary of CSAB Comments on Section 6

- Clarifications regarding domestic well impacts analysis assumptions and data discrepancies
- Revised text in GWL contour maps explanation boxes
- Clarification on process for isolation of elastic from inelastic subsidence
- Clarifications on approach to develop GWL Minimum Thresholds (MT)
- Clarification of domestic well 25-ft operation safety factor versus MT buffer
- Clarification on land use impacts and management during drought
- Suggested revisions to Appendix 6A



Public Feedback for GSP

- Feedback on Sections 5 and 6
  - Any questions?
  - Clarifications needed?
- Other general GSP questions?

CSAB Meeting Schedule and Topics

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Upcoming CSAB Meetings and Proposed Topics

Date	Key Meeting Topics	CSAB Meeting Objectives
Sept 1	• Review final draft GSP • Remaining questions and comments • Moving towards GSP implementation	• **Approve release of Draft GSP for public review**
October	**No CSAB meeting - Public Workshop on Draft GSP**	
Nov 10	• Review public comments on GSP	• Recommendations on incorporation of policy-based comments • **Potential recommendations to GSA Boards:** *Recommendations for Adoption of Groundwater Sustainability Plan to Groundwater Sustainability Agencies*
Dec 1 (if needed)	• Recommendation for Adoption of Groundwater Sustainability Plan to Groundwater Sustainability Agencies	• Recommendations for Adoption of Groundwater Sustainability Plan to Groundwater Sustainability Agencies *(if consensus not reached in Nov.)*

Public Comment at each meeting

End of Meeting

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