Projects and Management Actions (PMAs)

Sierra Ryan, County of Santa Cruz

Objectives

- Understand the types of projects in our toolbox and how they relate to SMCs
- Provide feedback on the types of projects– does anything seem especially good or bad?
- Understand the next steps
- Detailed evaluation of PMAs will be beginning soon.

What are PMAs?

- PMAs = Projects and Management Actions
- Under SGMA, we are required to define what we are trying to achieve, and how we will achieve it
  - Sustainability Management Criteria are the *WHAT*
  - Projects and Management Actions are the *HOW*
- PMAs can also be thought of as actions to increase water supply, or improve efficiencies within existing supplies
- Section 4 of the GSP will focus on PMAs

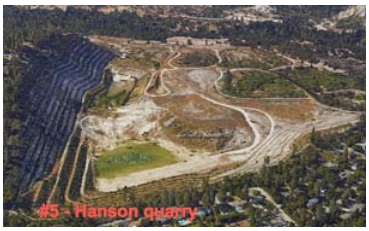
3

Management Measures Already Implemented

- Water use efficiency and conservation - All
- Recycled water reuse for irrigation – SVWD
- Stormwater capture and recharge – SVWD
- Conjunctive use - SLVWD
- Surface water storage – Loch Lomond, Felton Diversion, City of Santa Cruz

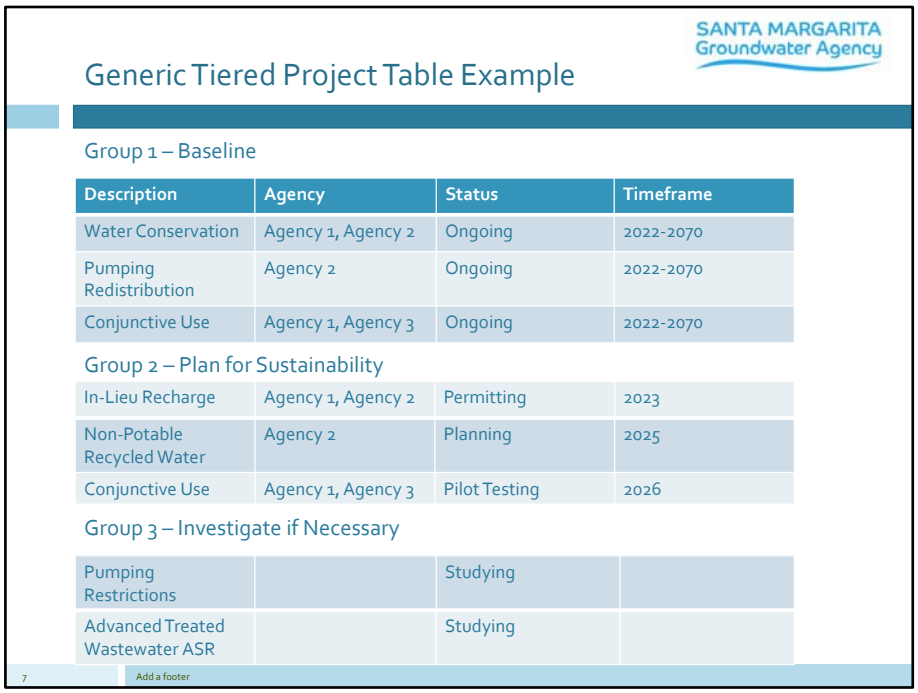
Measures Evaluated but not Pursued

- Additional surface storage
  - Zayante Dam: cost, geologic issues, environmental impact
  - Raising Loch Lomond: dam safety, geologic issues
  - Quarry storage: limited storage, geologic issues, endangered species, water rights challenges
- Water use restriction: legal issues, water rights, equitability



Which PMAs are Being Considered?

- The meeting packet contained a list of 24 PMAs in various stages of development
- Some project components may appear in multiple PMAs
- Many of the projects are conceptual and not currently being evaluated
- This list is a working document and is expected to change



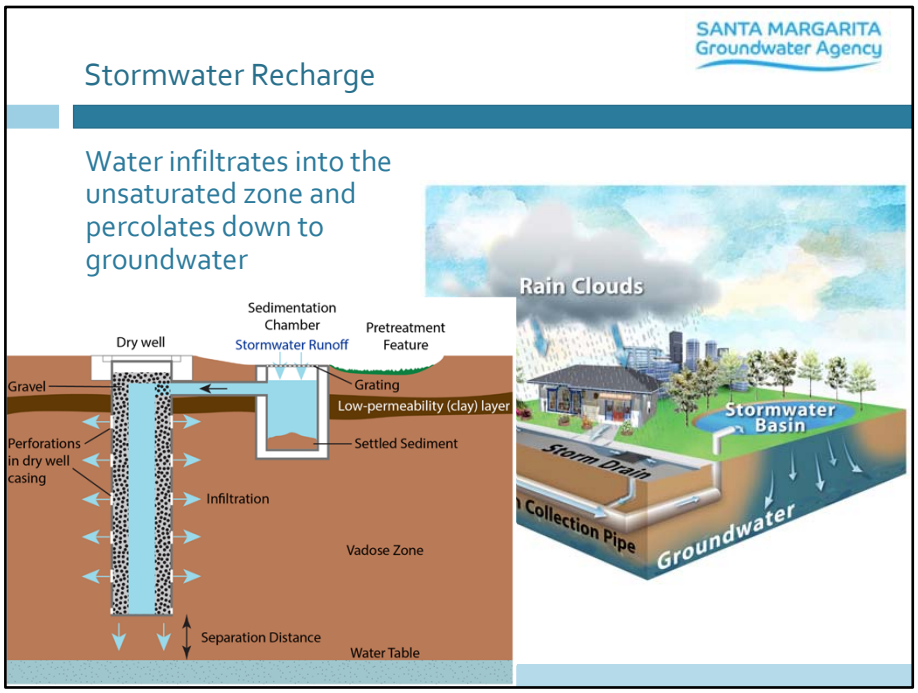
Project decisions can be made with flexibility. This slide presents a generic approach to grouping projects by different agencies to outline an implementation plan. Group 1 are ongoing baseline projects. Group 2 are the projects that are expected to be implemented and reach sustainability. There is also a Group 3 with a whole host of other projects that are not currently planned, but that can be turned to in the event that planned projects do not meet the sustainability goals.

Project Types and Benefits

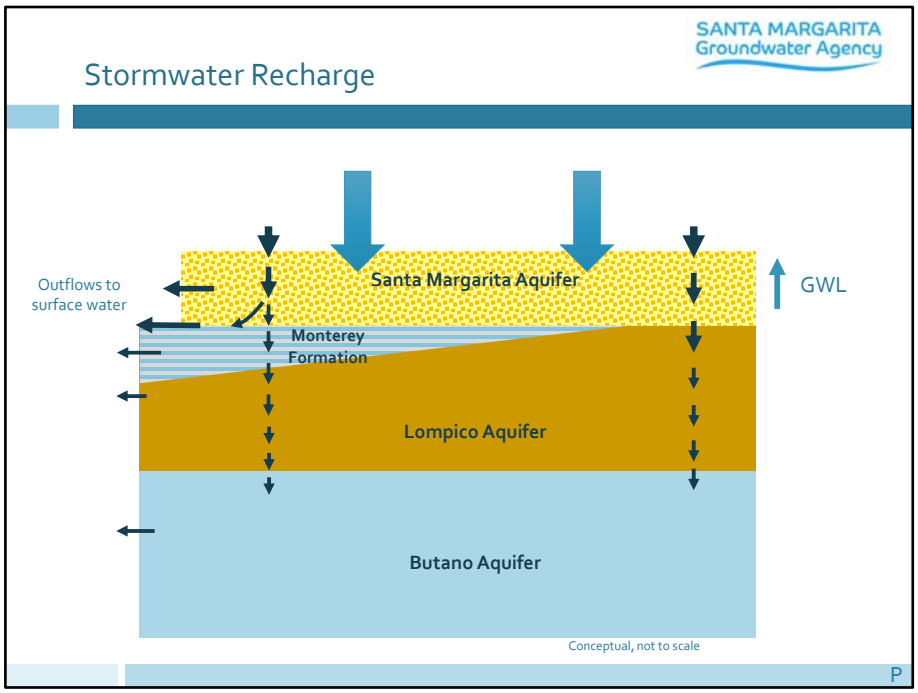
Types of Projects

SANTA MARGARITA Groundwater Agency

- Stormwater Recharge
- In-Lieu Recharge
- Conjunctive Use
- Aquifer Storage & Recovery (ASR)
- Indirect Potable Reuse (IPR)



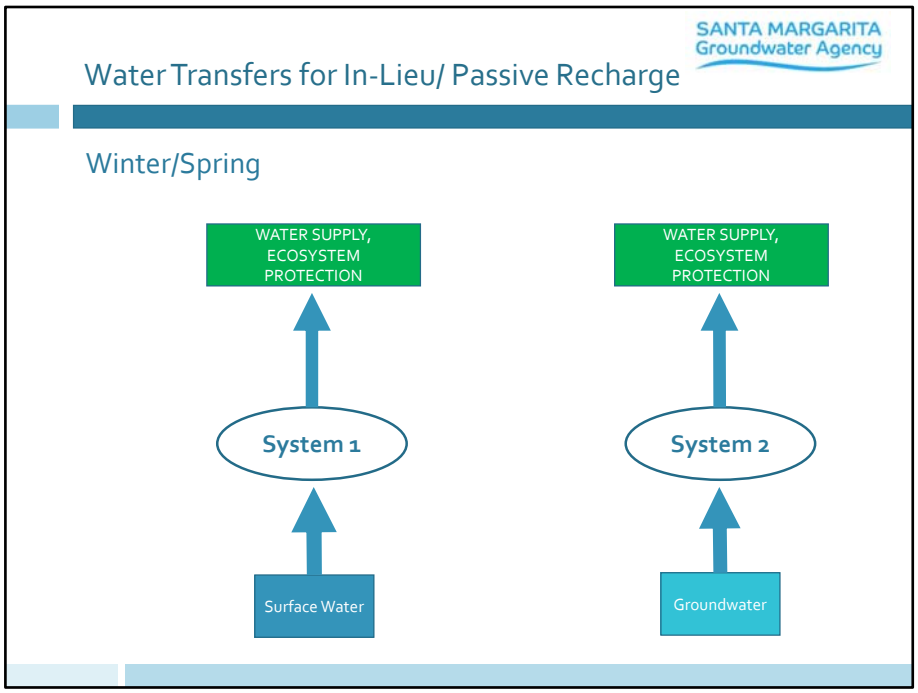
Stormwater Recharge systems are passive so the rate of infiltration is determined solely by the geology



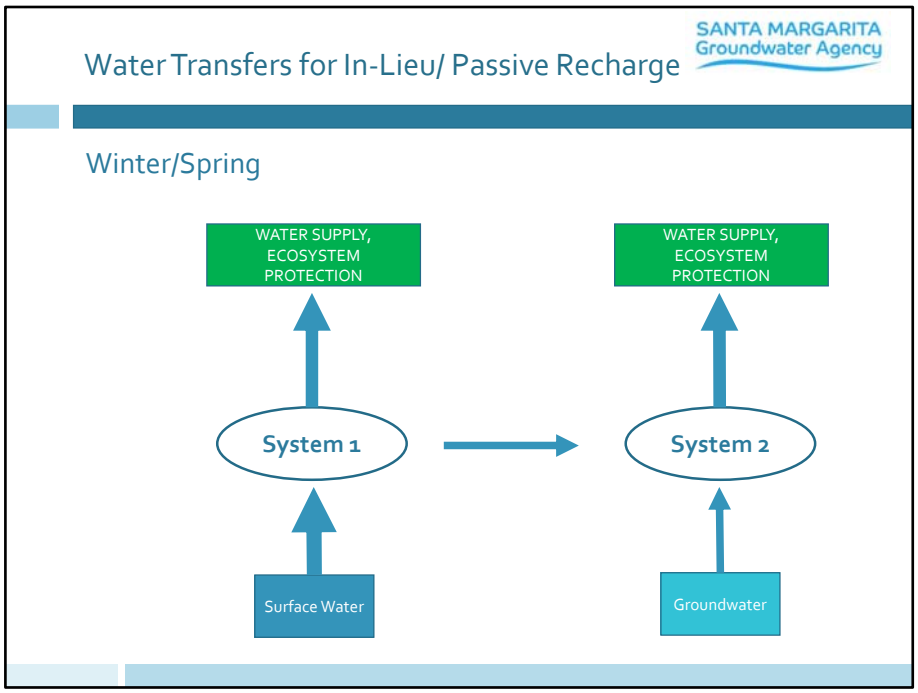
Most likely to benefit the Santa Margarita Aquifer
Improve Groundwater Levels in the Santa Margarita Aquifer
Improve Groundwater Storage in the Santa Margarita Aquifer
Improve Depletion of Interconnected Surface Water and GDEs
Water quality impacts would have to be monitored

Stormwater Recharge Evaluation

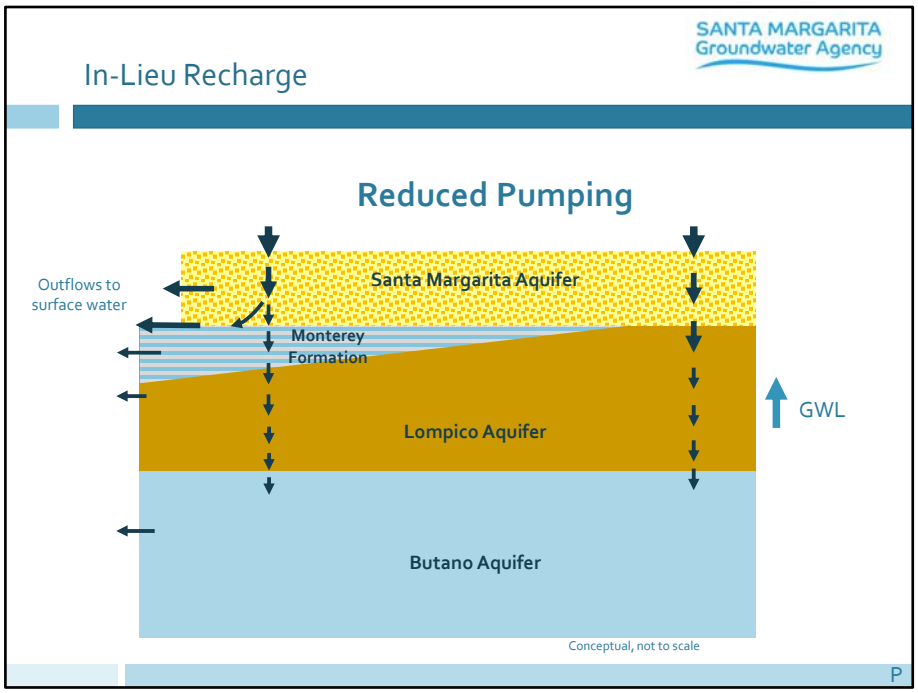
- Project costs are typically low but the cost per acre-foot can be high
- Water supply reliability is highly variable
- Amount of water captured per project is small
- In the last decade three stormwater infiltration systems have been constructed in Scotts Valley by SVWD and other parties. SVWD monitors all three systems, the combined infiltration was 83 AF over Water Years 2018-2020
- It's a valuable tool but not a silver bullet



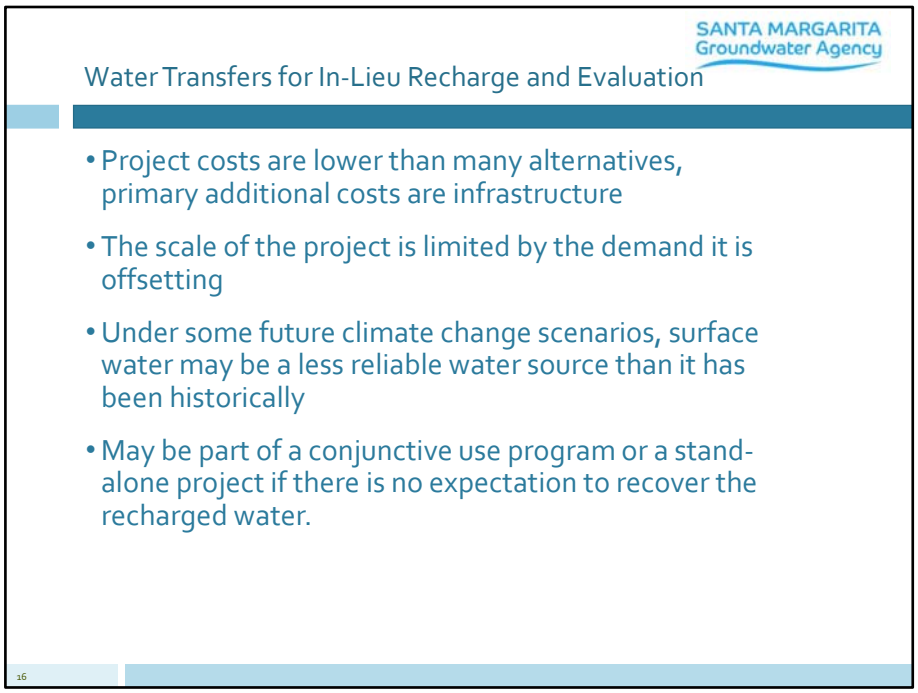
Add note to help describe this slide



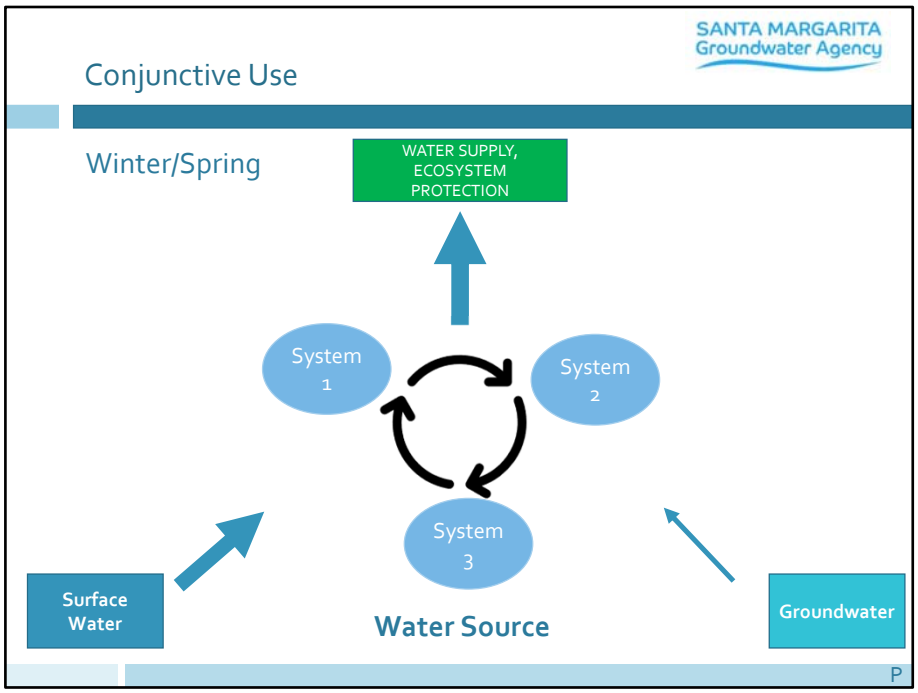
A system with excess surface water supply in the winter is able to provide some of that surface water to a system reliant on groundwater, allowing that system to rest it's wells.



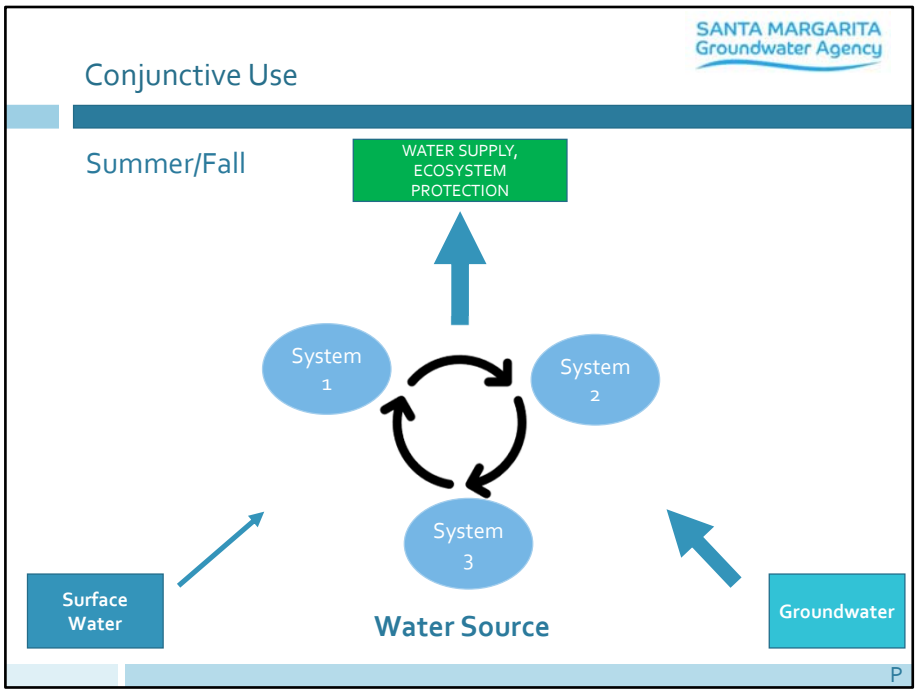
Improve Groundwater Levels in the Lompico
Improve Groundwater Storage in the Lompico



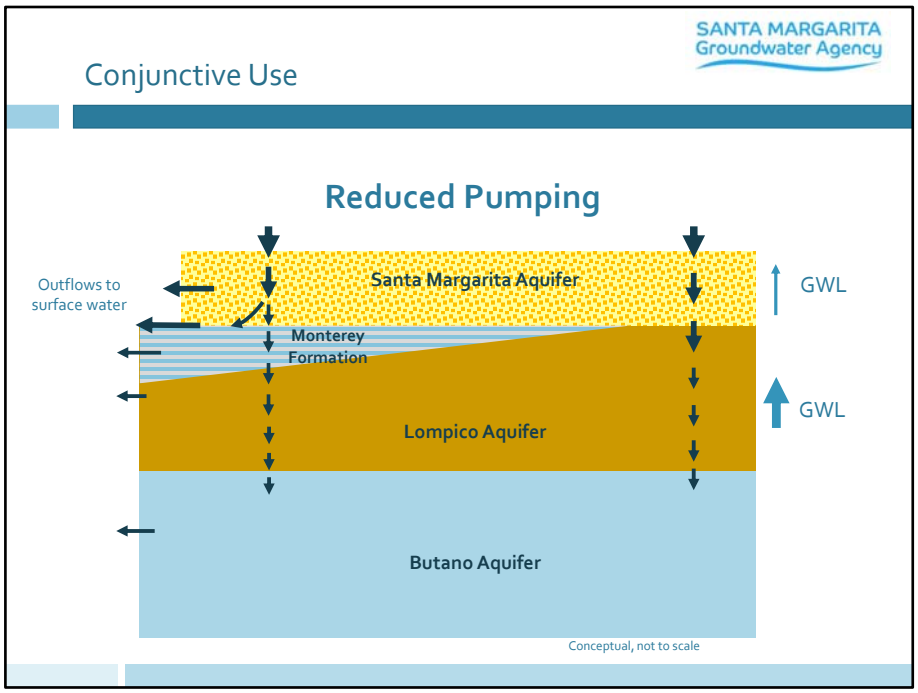
The project is limited by the winter demand of the system receiving the excess water. If 200 AF are available for the season, but the system receiving the water only uses 100 AF, the project is limited to 100 AF.



Conjunctive Use is a way to optimize the source of water by using excess surface water to the greatest extend possible when it is available. This is one of the guiding principles.
In addition to supply, it requires infrastructure and relationships



Groundwater is only heavily utilized when surface water is less abundant.



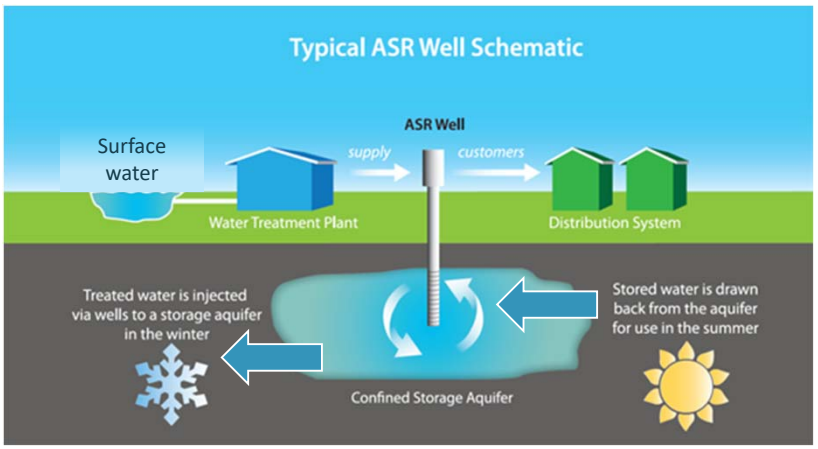
Improve Groundwater Levels in the Santa Margarita and/or Lompico Aquifers
Improve Groundwater Storage in the Santa Margarita and/or Lompico Aquifers
Potential to improve Depletion of Interconnected Surface Water and GDEs

Conjunctive Use Evaluation

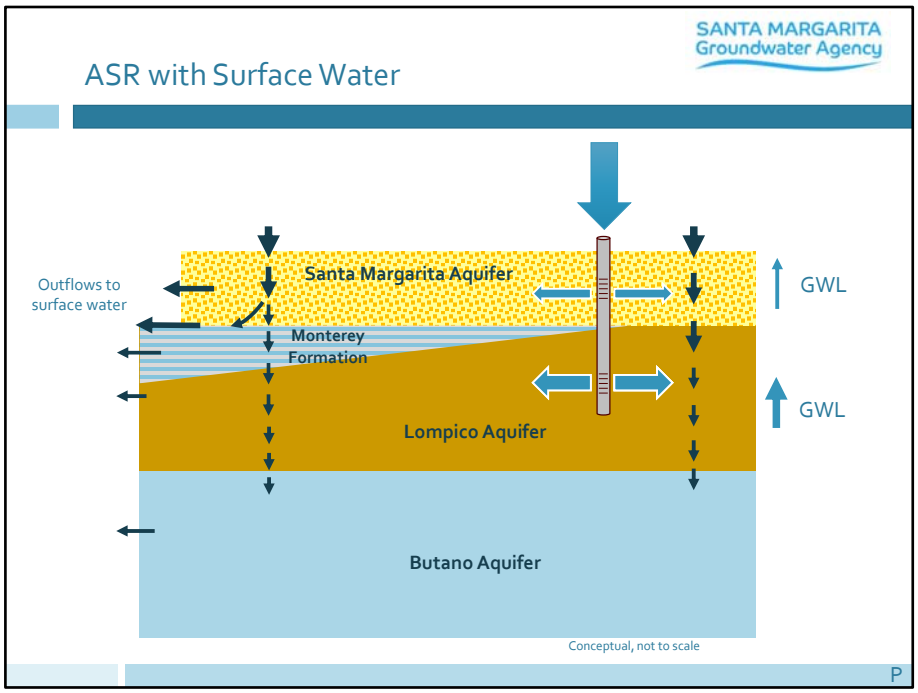
- Already in practice in the SLVWD North System
  - 2014: 911 AF Groundwater; 421 AF Surface Water
  - 2017: 404 AF Groundwater; 1080 AF Surface Water
- Project costs are lower than many alternatives
- Projects depend on surface water resources, already limited, that may be less available in the future due to climate change
- Amount of benefit to the basin depends on the scale of the project and partners involved.
- SLVWD and the County are working on a grant to evaluate expanding use in the Basin
- Projects must be monitored if they involve excessive pumping during the dry season

Aquifer Storage & Recovery (ASR) with Surface Water

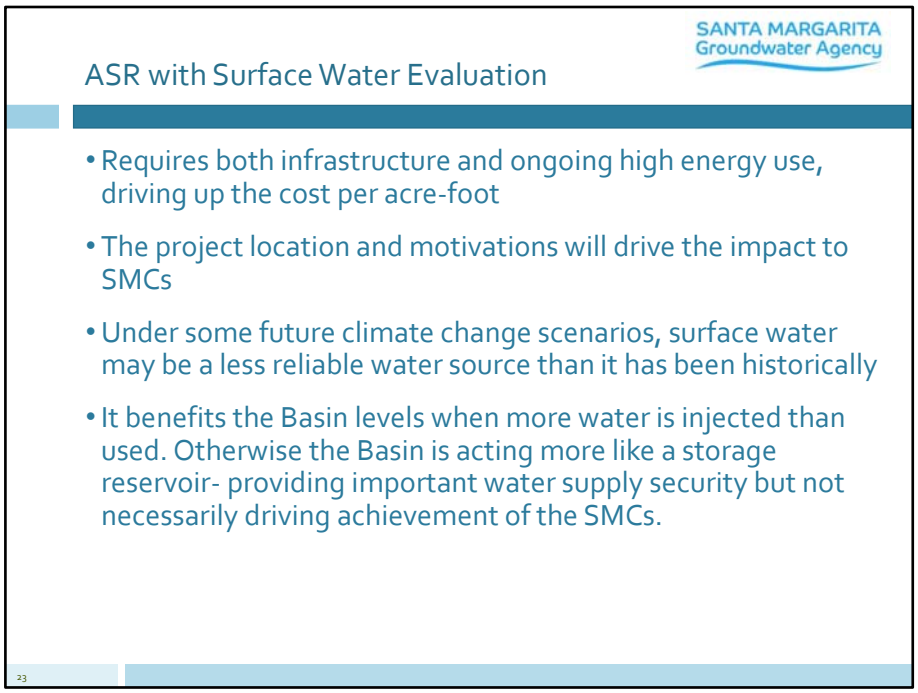
SANTA MARGARITA Groundwater Agency



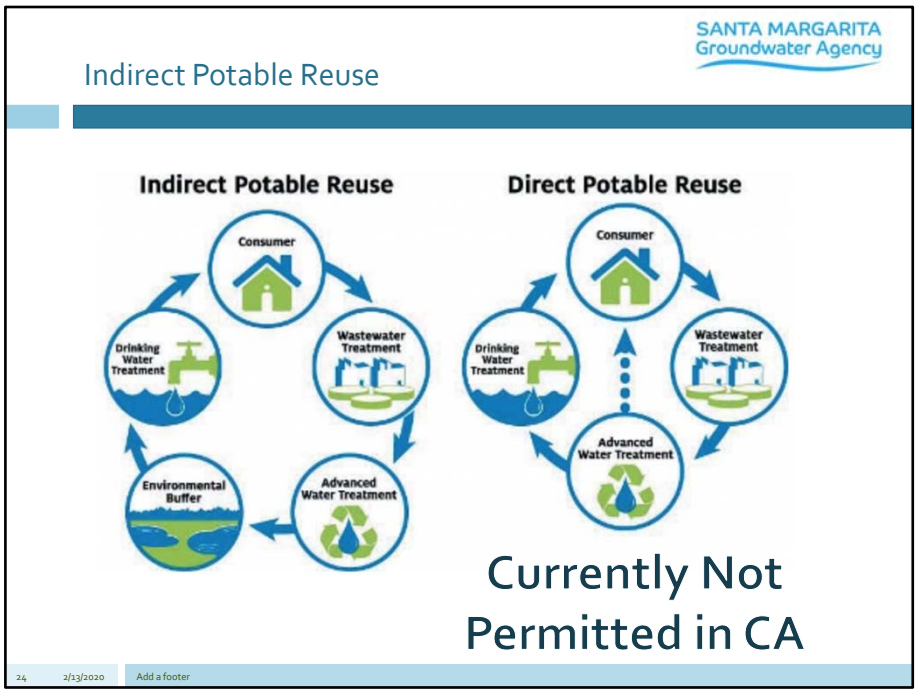
The key to success will be the project location, water rights.



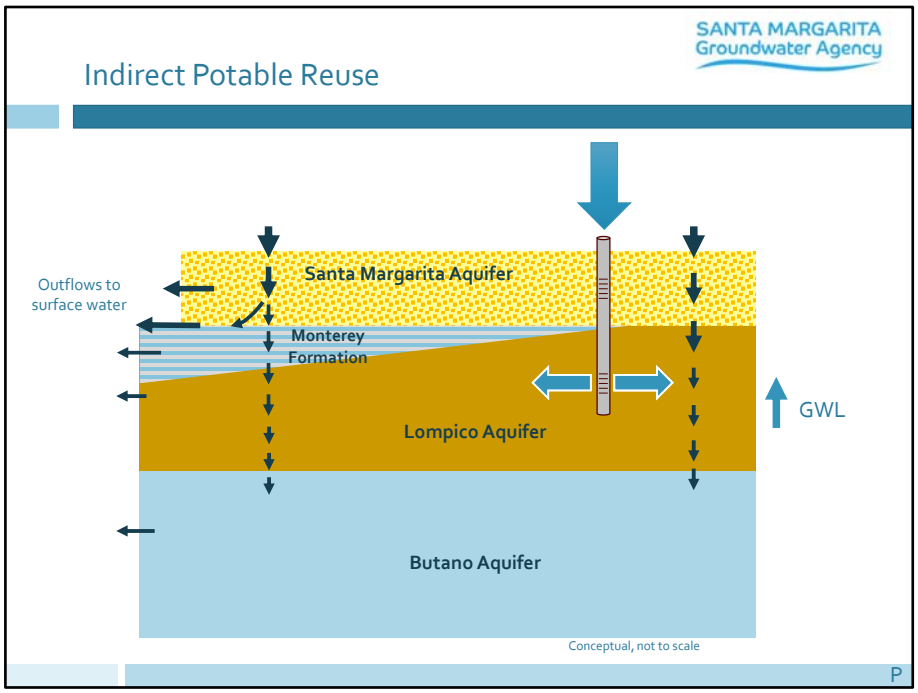
The Lompico aquifer has more confinement and available space than the Santa Margarita.
Improve Groundwater Levels in the Santa Margarita and/or Lompico
Improve Groundwater Storage in the Santa Margarita and/or Lompico
Improve Depletion of Interconnected Surface Water and GDEs if project is in the Santa Margarita
Water Quality impacts would have to be monitored.



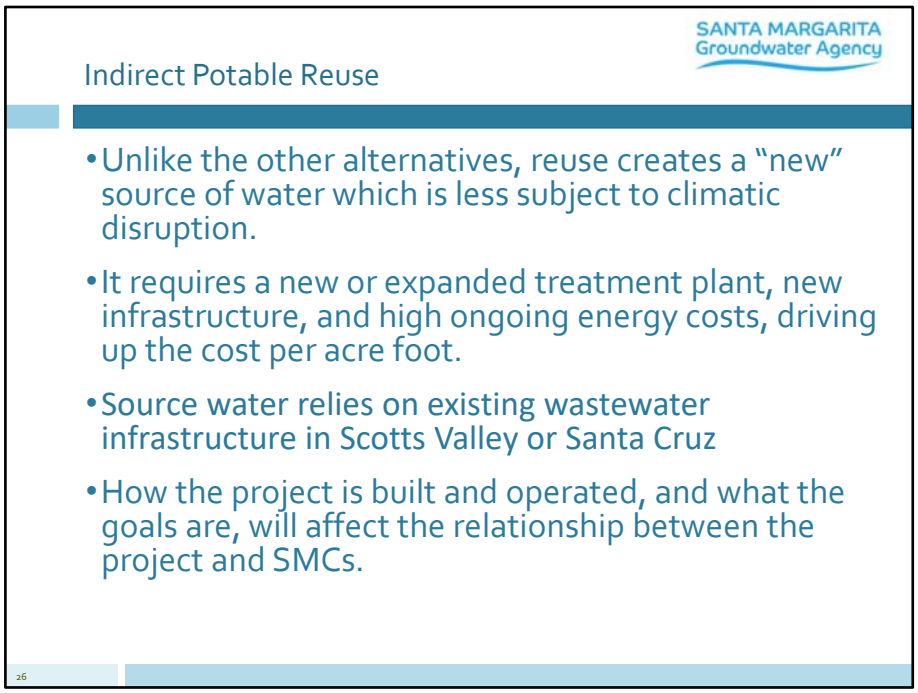
A large scale water supply project would be more likely to be done in the Lompico, with little if any benefit to the Santa Margarita and surface users. A project in the Santa Margarita would benefit GDEs and surface users but may not be able to yield large water supply benefits.



While currently the State does not allow Direct Potable Reuse, it is important to understand the difference. IPR requires an “environmental buffer” which is either a surface water reservoir or a groundwater basin.



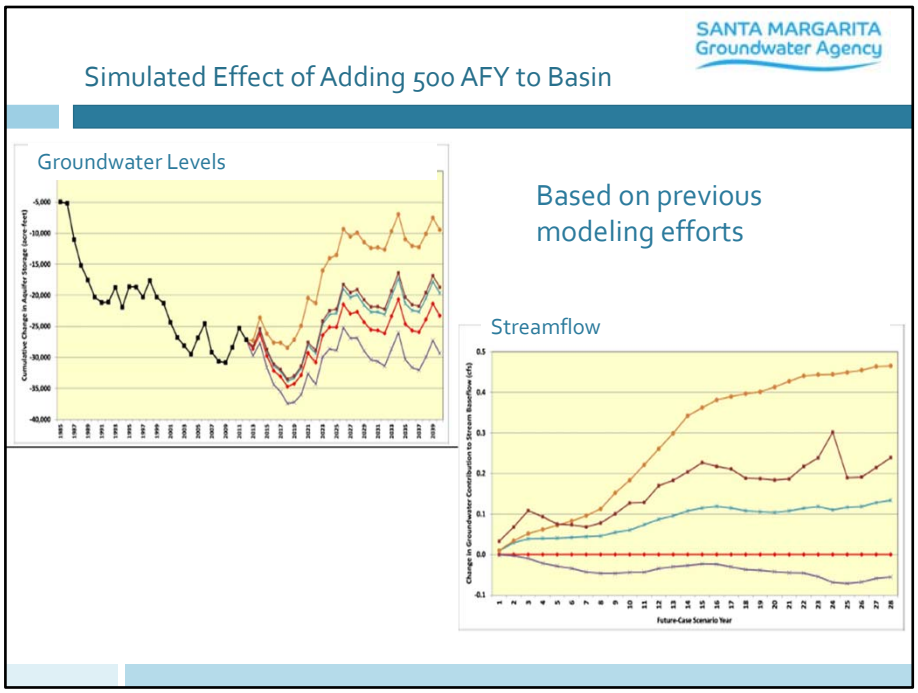
It is unlikely that a project would be placed in the Santa Margarita. This cartoon reflects a project where the environmental buffer is the Basin, while it could also potentially be Loch Lomond.
Improve Groundwater Levels in the Lompico
Improve Groundwater Storage in the Lompico
Water Quality impacts would have to be monitored.



It is important to understand that the Basin already has recycled water from septic systems, so while it seems new, it's really not.

Next Steps

- Continue establishing SMCs
- Using the updated groundwater model, evaluate the effect of projects to achieve SMCs start with projects under consideration
- Evaluate costs, energy, environmental factors and determine most feasible projects
  - Grant money to help
- Work with partner agencies to select projects to meet SMCs



This is an output from the old groundwater model, we have not run any refined simulations using the new model yet. It is meant to demonstrate the impact that projects could have on both groundwater storage and depletion of interconnected surface water. When we model projects, the input is the amount of water that is being added or subtracted from the Basin, not the source of the water.

Challenges for Future Discussion

- How much will the projects cost?
- How will the costs for the project be allocated?
- Which, and how many PMAs need to be implemented to meet the SMCs?
- Where will they be located?
- Who will own and manage the project?
- Who will conduct the ongoing maintenance?

Discussion

- Any initial thoughts or concerns
- What do you think would work and why?
- What information do you need us to provide in future conversations?