SCV GSA

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CITY OF SANTA CLARITA

LOS ANGELES COUNTY DEPARTMENT of REGIONAL PLANNING

LACWD

Sustainable Management Criteria Summary

Public Workshop

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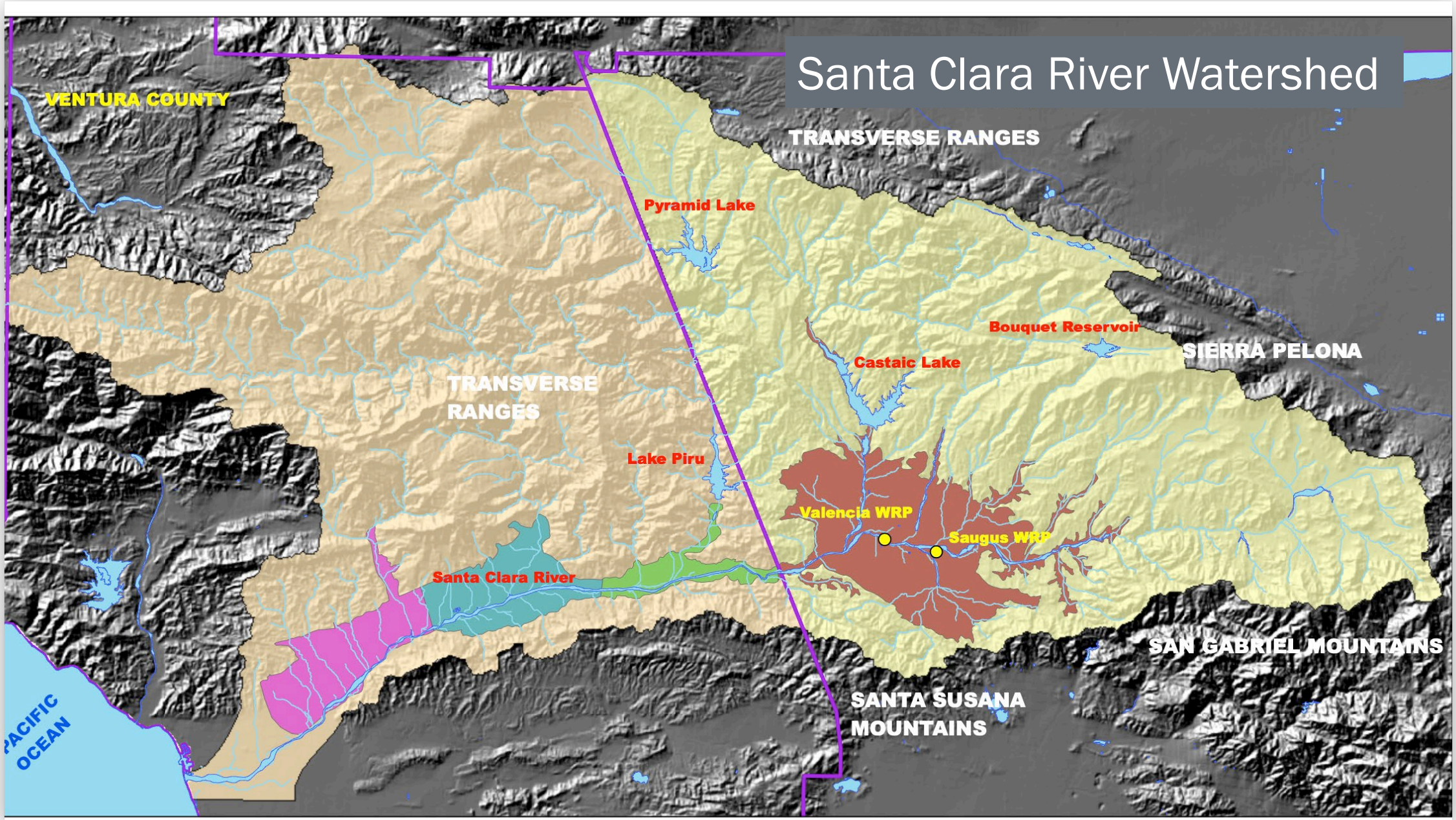
Brief Watershed Overview

- Santa Clara River Watershed: 1,600 square miles
  - Includes largest natural river remaining in Southern California
  - Los Angeles and Ventura Counties

- LA County portion of Watershed 650 square miles
  - Many communities
  - Stakeholder involvement
  - Recreation areas
  - Habitat
  - In the southwest portion, the 100-square-mile Upper Santa Clara River Subbasin

Santa Clara River Watershed



Brief Watershed Overview

- Upper Santa Clara River Groundwater Subbasin.
  - Natural river and creeks- Santa Clara River and Tributaries
  - Developed areas
  - Water Supply
    - Roughly 50:50 groundwater and imported water

- State-Required Groundwater Sustainability Plan
  - Sustainability Goal, along with locally developed ways to measure progress toward sustainability (called Sustainable Management Criteria).

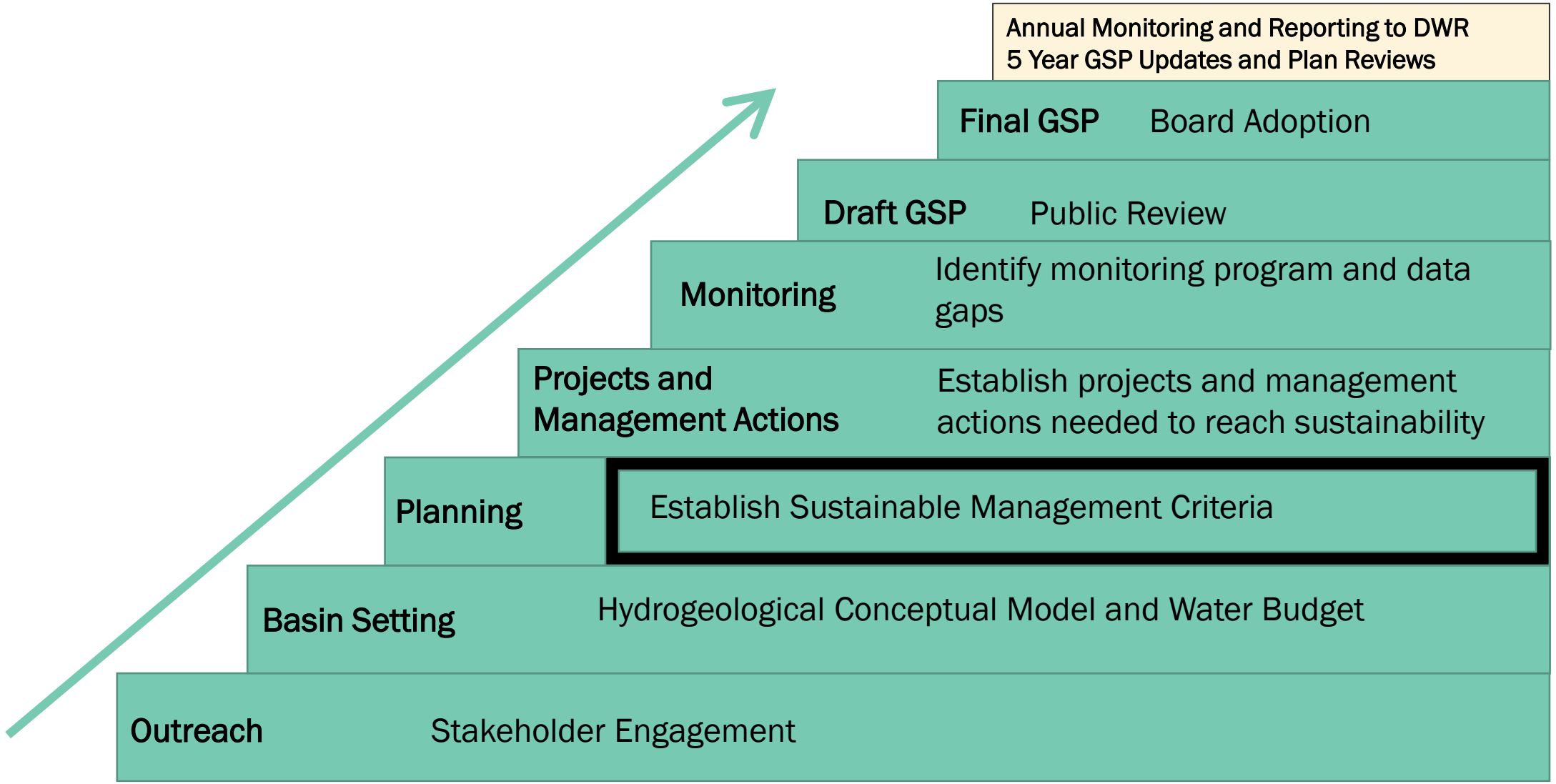
Proposed Sustainability Goal

"The goal of this GSP is to sustainably manage the groundwater resources of the Upper Santa Clara River Basin for current and future beneficial uses of groundwater, including the river environment, through an adaptive management approach that builds on robust science and monitoring and considers economic, social and other objectives of a wide variety of stakeholders."

Today's Meeting Topics

- Review where we are in the GSP development process
- What have we learned so far?
- Purpose of sustainable management criteria (SMC)
- SMC development process
- Summary of SMC for each sustainability indicator
  - Chronic groundwater level decline
  - Chronic reduction of groundwater in storage
  - Degradation of groundwater quality
  - Subsidence
  - Depletion of interconnected surface water
  - Sea water intrusion (not applicable to this basin)

Activities Leading to an Accepted GSP



What We Have Learned

- We have not seen “undesirable results” thus far
- Groundwater levels highly variable in basin but stable over long term
- Water budget analysis indicates that there is sufficient recharge to balance pumping according to operating plan now and in the future
- Water quality has been impacted by contamination in some places – state regulatory agencies oversee investigation and cleanup – wellhead treatment has been employed by SCV Water
- River habitat is supported by groundwater and has been resilient through historic droughts
- Avoiding undesirable results to GDEs from pumping is critical – groundwater trigger levels established for evaluation and response

Purpose of Sustainable Management Criteria (SMCs)

- Avoid undesirable results
- Provide criteria and thresholds for measuring and evaluating sustainability on an ongoing basis
- Anticipate conditions that could lead to undesirable results

Sustainable Management Criteria (SMC) Development Steps for each Sustainability Indicator ( )

Iteration

Implementable? Affordable?

If Necessary

1. Basin Conditions
Need a good understanding of basin conditions. Establish representative wells.

2. Sustainability Goals
Qualitative statements that guide threshold setting process.

3. Undesirable Results
Quantitative set of conditions related to the minimum thresholds that cause significant and unreasonable results

4. Minimum Thresholds
Numeric values for each sustainability indicator used to define undesirable results and sustainability

5. Measurable Objectives and Interim Milestones
Quantifiable goals for the maintenance or improvement of specified groundwater conditions over 20-years

6. Projects and Mgt. Actions
If needed, actions needed to address undesirable results.

How are Undesirable Results Defined?

- There must be significant and unreasonable effects caused by pumping to:
  - Long term/sustainable groundwater production
  - Other beneficial uses, including GDEs, and threatened or endangered species
- Results in exceedance of a minimum threshold in specified numbers of representative wells.
- These criteria may be refined based on monitoring data and analysis.

Example Indicators of Undesirable Results

- **Chronic lowering of groundwater levels in Alluvial Aquifer**
  - Groundwater elevation levels drop below minimum thresholds in 25 percent of representative wells over a two-year period.
  - Magnitude or rate of decline is greater than simulated future drought conditions in 25 percent of representative wells over a two-year period.
  - Potential impacts to GDEs will be considered.

- **Chronic reduction of groundwater in storage in Alluvial Aquifer**
  - Water level declines caused by pumping in 25 percent of wells over a two-year period, reducing the volume of groundwater in storage such that there is insufficient supply to support pumping during extended drought.

Example Indicators of Undesirable Results

- Chronic lowering of groundwater levels and reduction of groundwater in storage in the Saugus Formation
  - Groundwater elevations have dropped below the minimum threshold in 3 consecutive years.
  - For the Alluvial Aquifer and Saugus Formation together, reduction of groundwater in storage results in an inability to meet demand during a multi-year drought.

Example Indicators of Undesirable Results

- Land subsidence that substantially interferes with surface land uses
  - Land surface deformation causing broken pipelines and damaged roads.
  - Pumping results in land subsidence greater than thresholds at 10 percent of monitoring locations.

Example Indicators of Undesirable Results

- Degradation of Groundwater Quality
  - Water management actions interfere with existing groundwater remediation efforts creating permanent loss of groundwater supply.
  - Concentrations of regulated contaminants in untreated groundwater from private domestic or agricultural wells exceed regulatory thresholds.
  - Significant and unreasonable loss of municipal groundwater supply due to migration of contaminant plume and inability to pump and treat groundwater water or reasonably secure an alternative water supply.
  - Groundwater pumping strategies cause concentrations of total dissolved solids (TDS), chloride, nitrate, and sulfate to exceed Water Quality Objectives and basin-wide assimilative capacity described in the Salt and Nutrient Management Plan to the extent new State permits for distribution of recycled water are put at risk.

Example Indicators of Undesirable Results

- Depletion of Interconnected Surface Water and Impacts to GDEs
  - Permanent loss or significant degradation of existing native riparian or aquatic habitat due to lowered groundwater levels caused by pumping
  - Temporary acute loss of aquatic habitat in specific locations critical to sensitive aquatic species due to lowered groundwater levels caused by pumping

SMC Summary for Each Sustainability Indicator

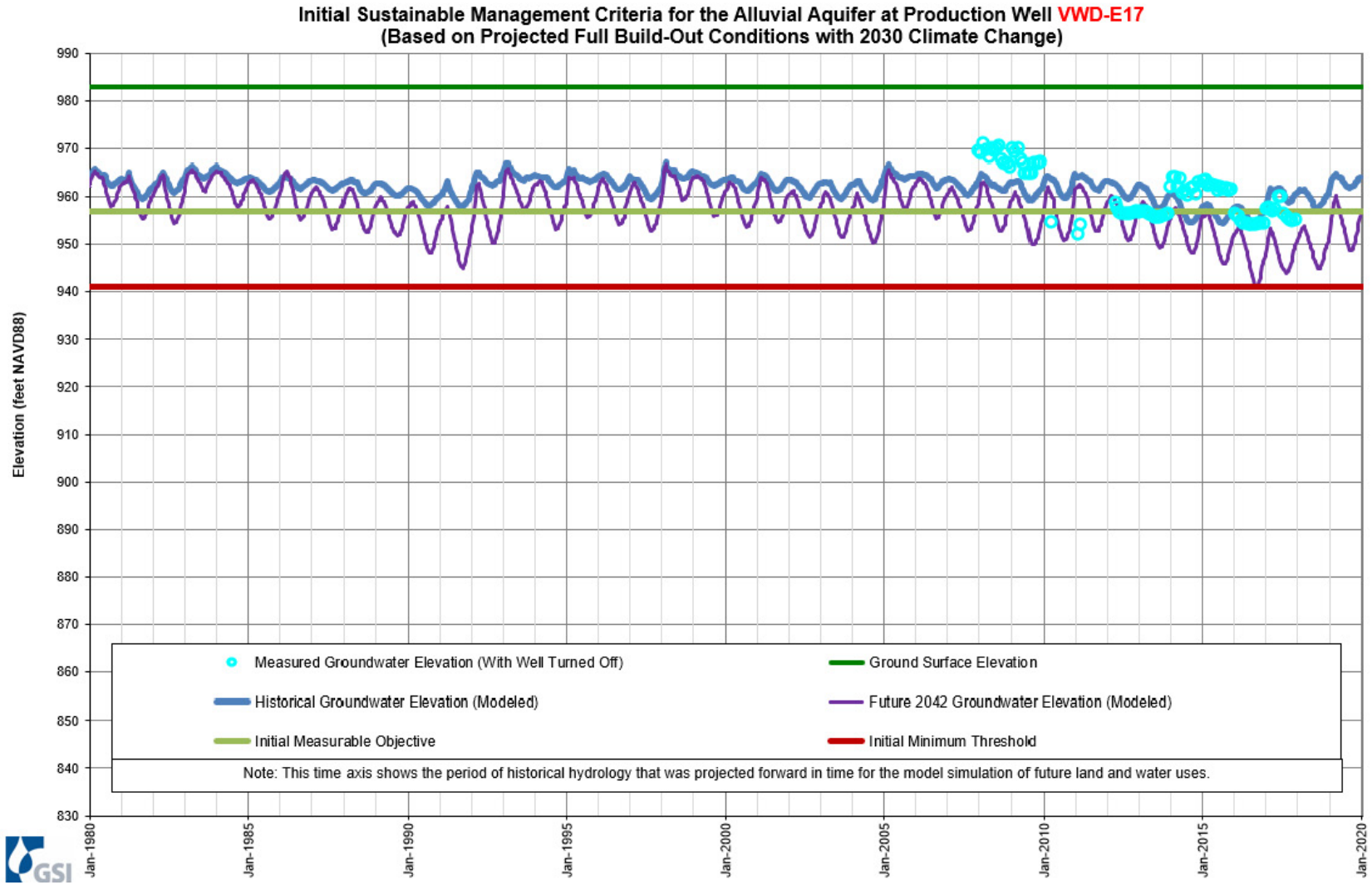
Proposed Minimum Thresholds and Measurable Objectives for Chronic Lowering of Water Levels at Representative Wells

- **Minimum Thresholds**
  - Lowest predicted 2042 future water level at representative well sites.
  - Note: Water levels that go below historical water levels in the alluvial aquifer as a result of groundwater pumping trigger an evaluation of the cause and may include management actions that avoid impacts to GDEs.
- **Measurable Objectives**
  - Water level that provides access to groundwater consistent with the operating plan over historic dry hydrologic periods.

    For example, the dry period from 2006 through 2016.

SMCs at an Existing Alluvial Observation Well

Between Castaic Creek and the Santa Clara River

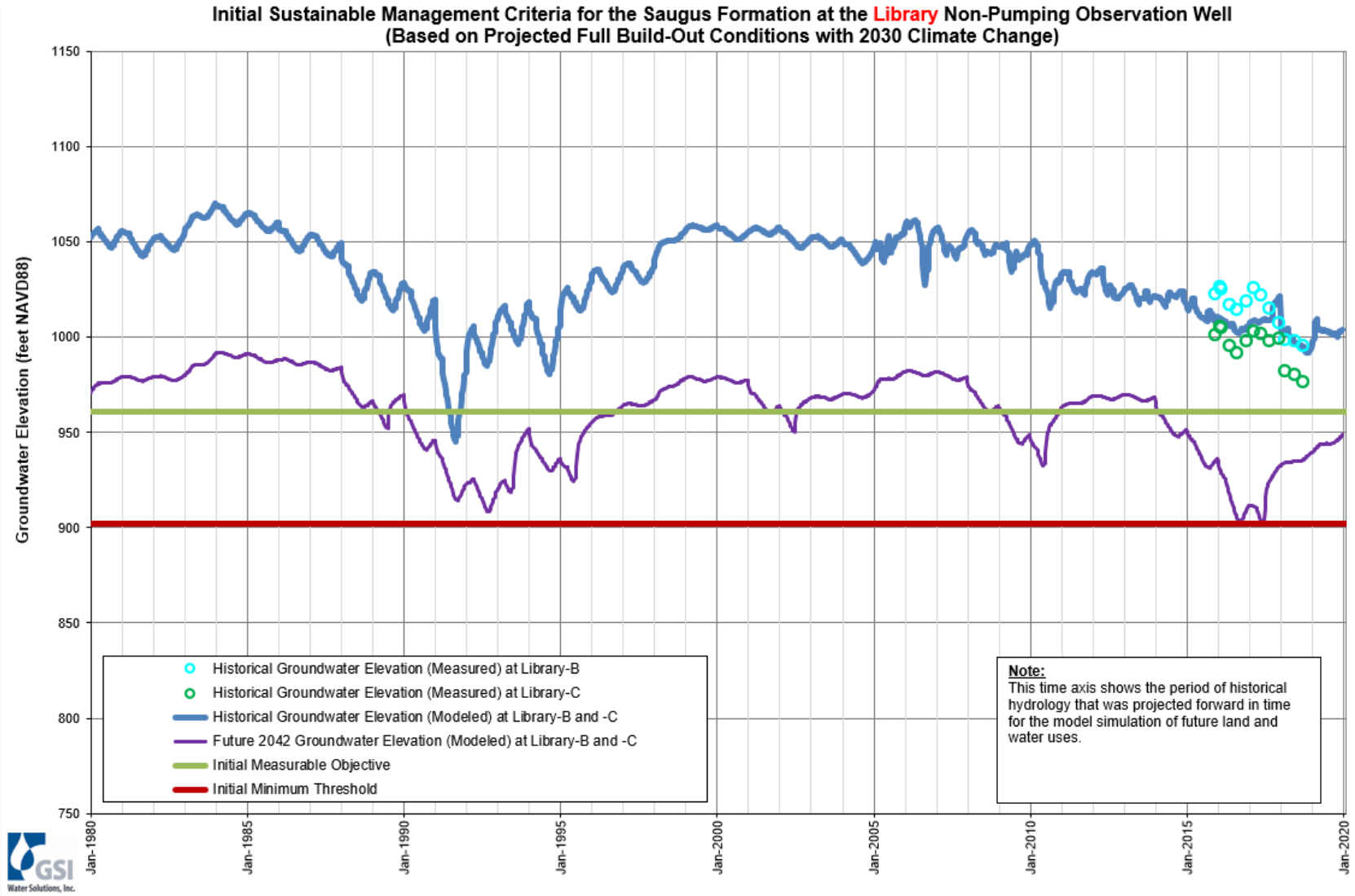


MO represents average predicted water level
MO = 957' NAVD88

MT = 941' NAVD88
MT represents lowest predicted water level

SMCs at an Existing Saugus Observation Well

Along the South Fork Santa Clara River



MO represents average predicted water level

MO = 961' NAVD88

MT = 902' NAVD88

MT represents lowest predicted water level

Proposed Minimum Thresholds and Measurable Objectives for: Reduction of Groundwater in Storage

- **Minimum Thresholds**
  - Addressed by Minimum Thresholds and Measurable Objectives for water level decline indicator.
  - Provides an adequate amount of groundwater in storage to get through extended drought periods.
  - For the Saugus Formation, the minimum threshold is considered interim and subject to change because it may be possible to pump the Saugus more to provide resiliency during drought without causing undesirable results.
- **Measurable Objectives**
  - Addressed by Minimum Thresholds and Measurable Objectives for water level decline indicator.

Proposed Minimum Thresholds and Measurable Objectives for: Subsidence

- Minimum Thresholds
  - Established based on geotechnical evaluation of soils/geology and expected future changes in groundwater levels
  - Maximum amount of subsidence allowable at critical infrastructure without causing damage
- Measurable Objectives
  - No long-term reduction in elevation at monitoring locations

Proposed Minimum Thresholds for: Degradation of Groundwater Quality at Representative Wells

- **Minimum Thresholds for Contaminants**
  - Contaminants including perchlorate, VOCs, and PFAS have been detected over many years in the Basin and pre-date enactment of SGMA in January of 2015.
  - Responsibility for characterization, monitoring, and remediation is being handled by the State Regional Water Quality Control Board, California Department of Toxic Substances Control, and other agencies.
  - SCV Water has proactively collaborated with regulatory agencies, monitored the contamination, and installed wellhead treatment when contamination approaching regulatory thresholds has been detected.
  - Because the GSA has no authority or responsibility for managing the contamination, no minimum thresholds for the regulated contaminants are proposed.

(Cont.) Proposed Minimum Thresholds for: Degradation of Groundwater Quality at Representative Wells

- **Minimum Thresholds for Salts and Nutrients**
  - Concentrations of total dissolved solids (TDS), chloride, nitrate, and sulfate measured in 20% of wells in a management zone that exceed Water Quality Objectives and basin-wide assimilative capacity described in the Salt and Nutrient Management Plan.

(Cont.) Proposed Minimum Thresholds for: Degradation of Groundwater Quality at Representative Wells

- **Measurable Objectives for Contaminants**
  - Maintain municipal pumping for beneficial uses consistent with volumes quantified in the applicable Urban Water Management Plan for wet, normal, dry, and multiple dry years.
  - Maintain non-municipal pumping (agriculture, golf courses, Pitchess Detention Center, Whittaker contaminant remediation, and small-scale domestic) consistent with volumes quantified in the applicable Urban Water Management Plan for wet, normal, dry, and multiple dry years.
  - Groundwater quality from private wells will meet or be better than Basin Plan objectives as verified by a groundwater monitoring program.

(Cont.) Proposed Minimum Thresholds for: Degradation of Groundwater Quality at Representative Wells

- **Measurable Objectives for Salts and Nutrients**
  - Concentrations of total dissolved solids (TDS), chloride, nitrate, and sulfate meet Water Quality Objectives and basin-wide assimilative capacity as described in the Salt and Nutrient Management Plan.

Sustainability Thresholds for:
Interconnected Surface Water

- Significant and unreasonable surface water depletion as a result of pumping has not been observed:
  - There are no known surface water diversions,
  - There is more water in the river now for instream and downstream users than in the past as a result of urbanization,
  - Groundwater levels in wells downstream in the eastern Piru Basin are higher now as a result of urbanization in Santa Clarita.

(Cont.) Sustainability Thresholds for: Interconnected Surface Water

- Avoiding adverse impacts on beneficial uses of interconnected surface water in the Subbasin, namely groundwater dependent ecosystems (GDEs) and associated sensitive aquatic species, is the focus of this sustainability indicator.
- To avoid significant and unreasonable impacts to GDEs, groundwater trigger levels are identified that will result in active monitoring and timely evaluations to inform management actions to avoid permanent loss of habitat or acute impacts to aquatic species.

Criteria for Avoiding Impacts to Groundwater Dependent Ecosystems (GDEs)

Action Trigger Levels

- Groundwater levels within GDE areas at lowest historic low levels (within previous 40 years).
- In sensitive habitat areas (e.g., I-5 Bridge), an intermediate trigger at 2 feet above historic lows (or adjusted depending on characteristic seasonal fluctuations) would ensure that evaluation and management actions are implemented in a timely manner.

Measurable Objective

- Average future groundwater levels that do not result in permanent loss of habitat at monitoring locations within the GDE area.
- Maintain flow in the Santa Clara River where UTS are present (e.g., I-5 Bridge area) to sustain aquatic habitat. Utilize groundwater level data as a surrogate for measuring surface water flow if a stream gage is not present.

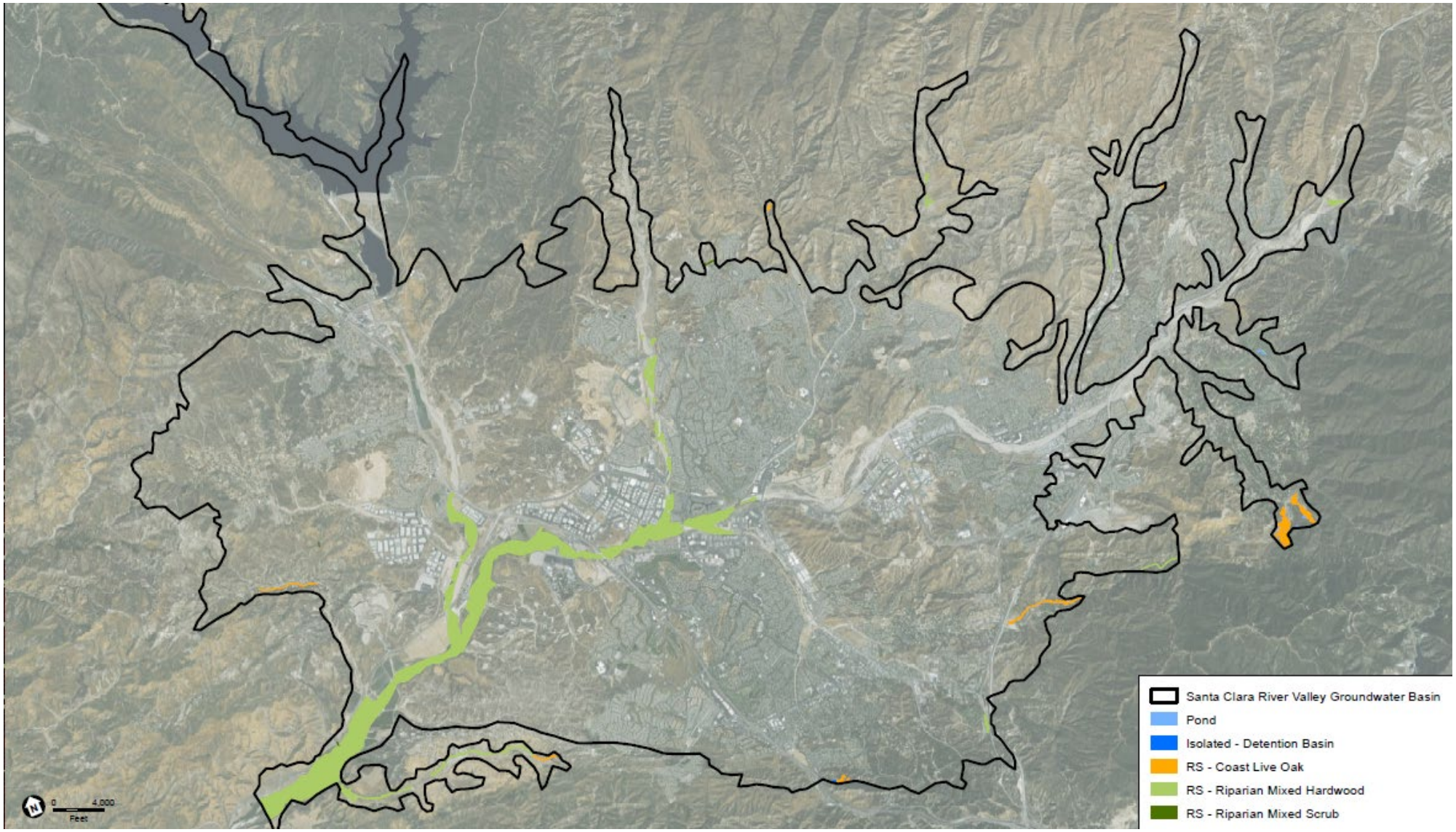
Considerations When Triggers are Reached

- Is the affected river segment supported by surface flow from WRP discharges?
- Is the historic low groundwater level already below the tree/shrub root depths?
- Will the vegetation and sensitive species survive the temporary loss of access to groundwater?
- Has the Management Action Trigger been reached often in recent years, and have water levels recovered quickly?
- Are the declines in groundwater levels resulting from pumping?
- Has new information been obtained that can be used to refine the trigger level?

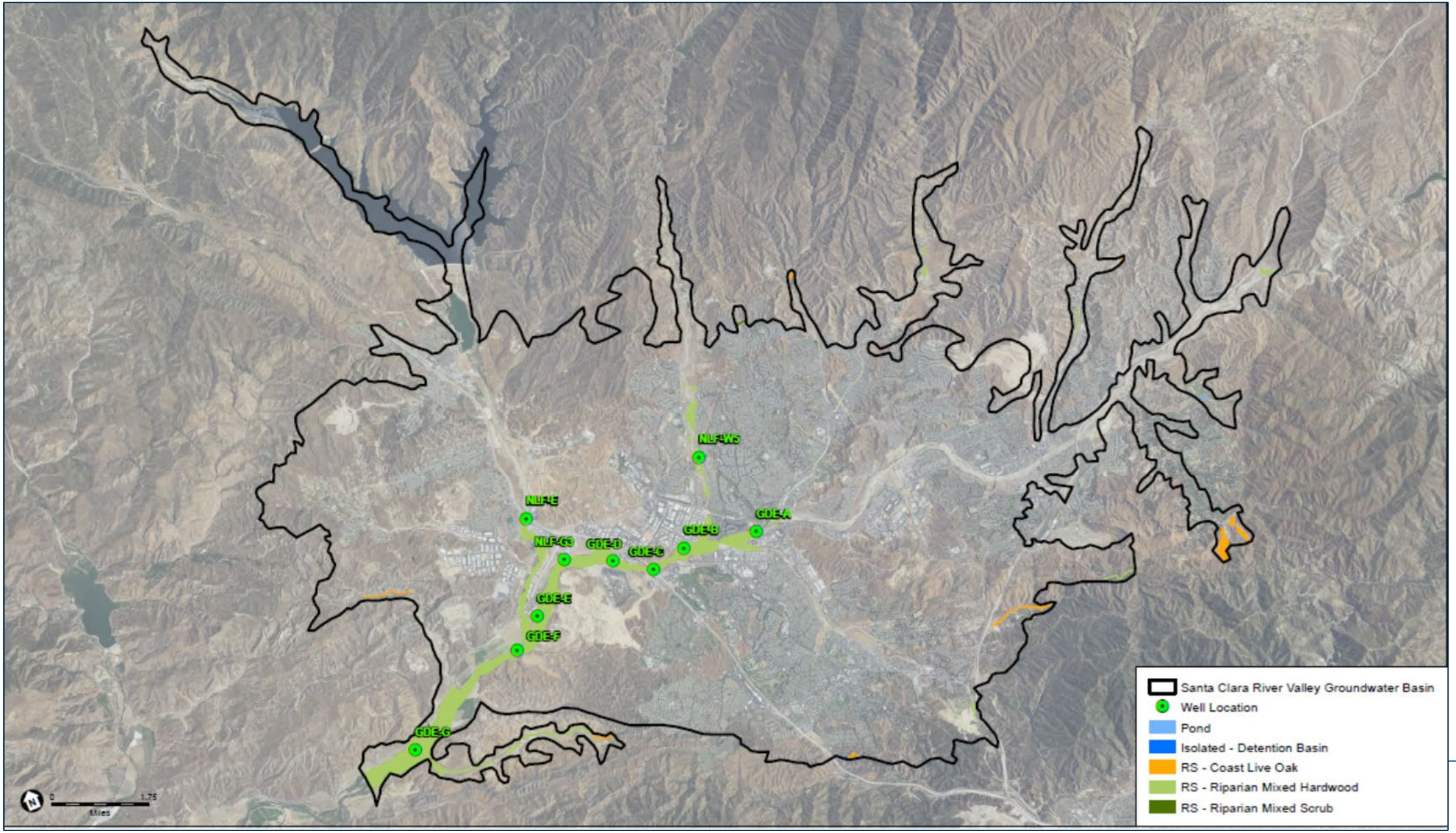
Timely management actions would be implemented including redistributing or reducing pumping, if necessary, to protect GDEs

Identified GDEs

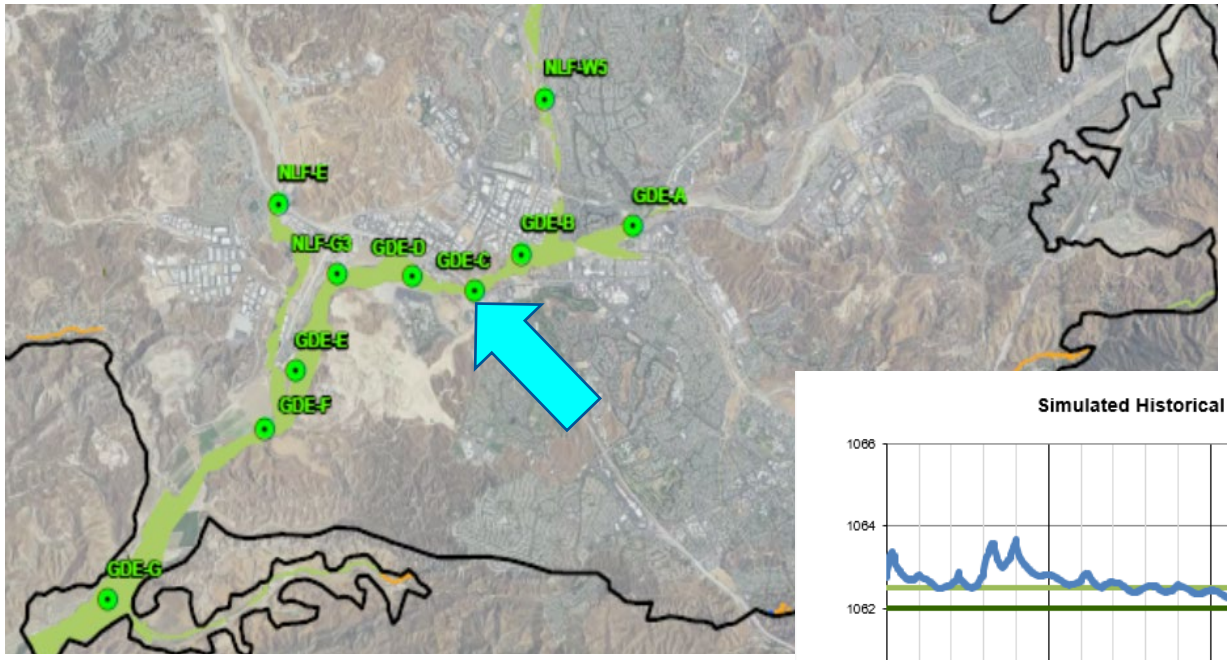
where groundwater is within 30 feet below ground surface (Sept 2011)

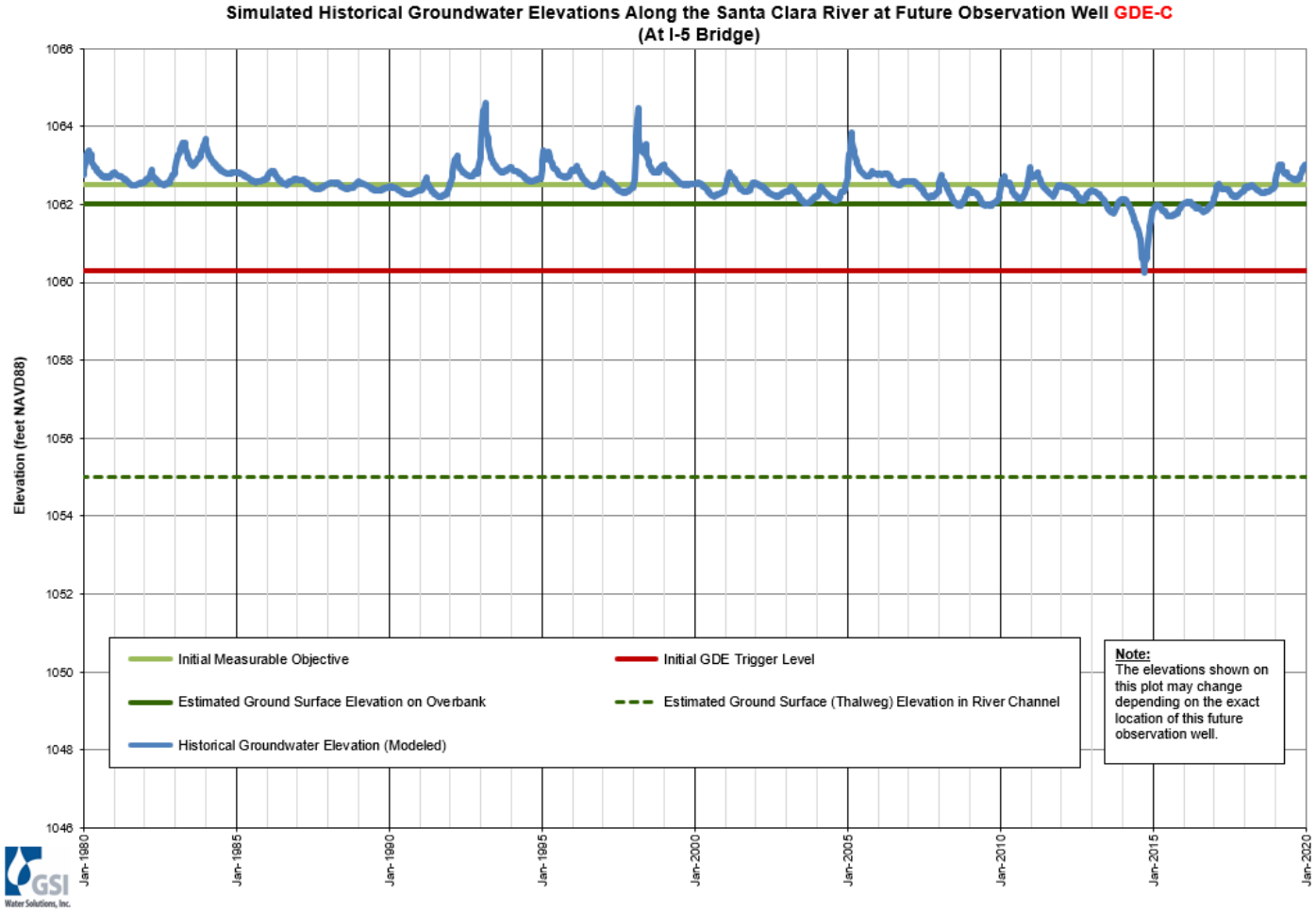


Proposed GDE Monitoring Locations

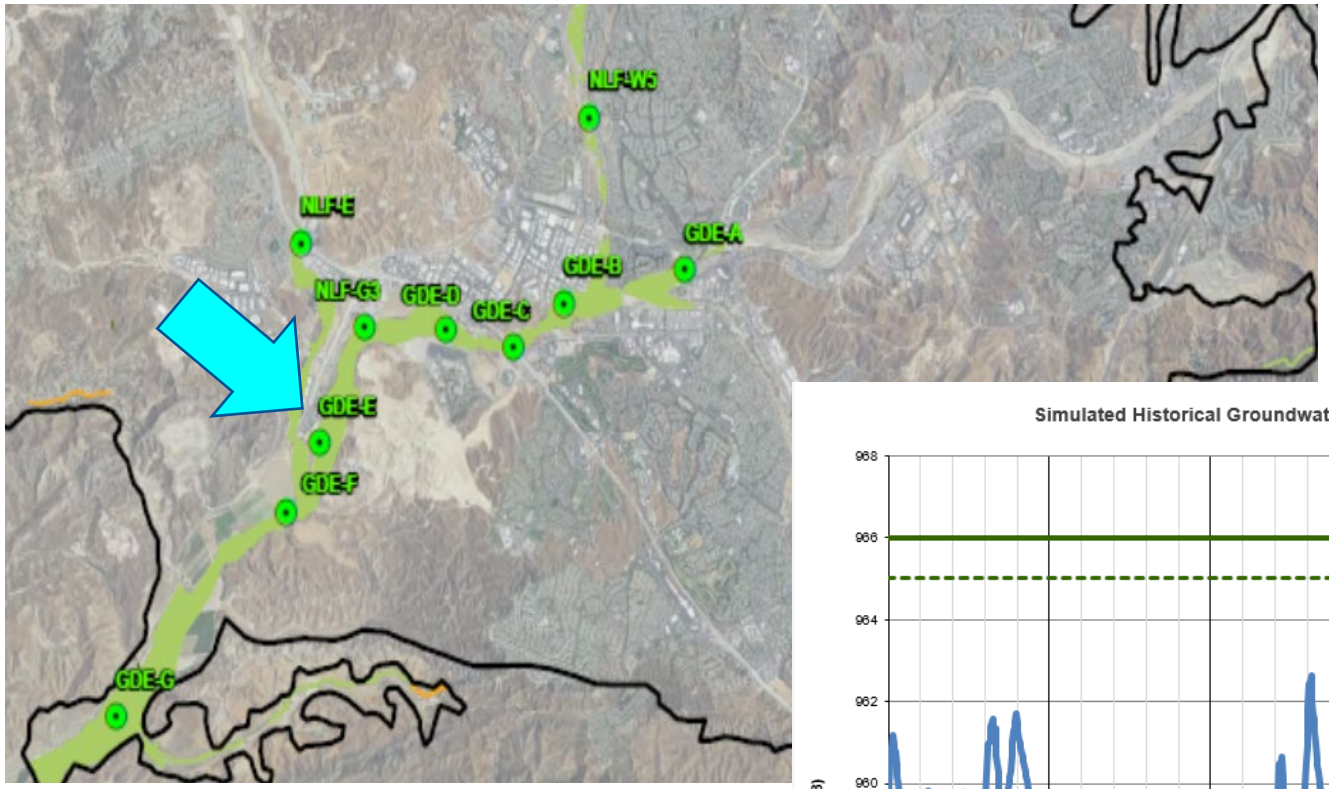


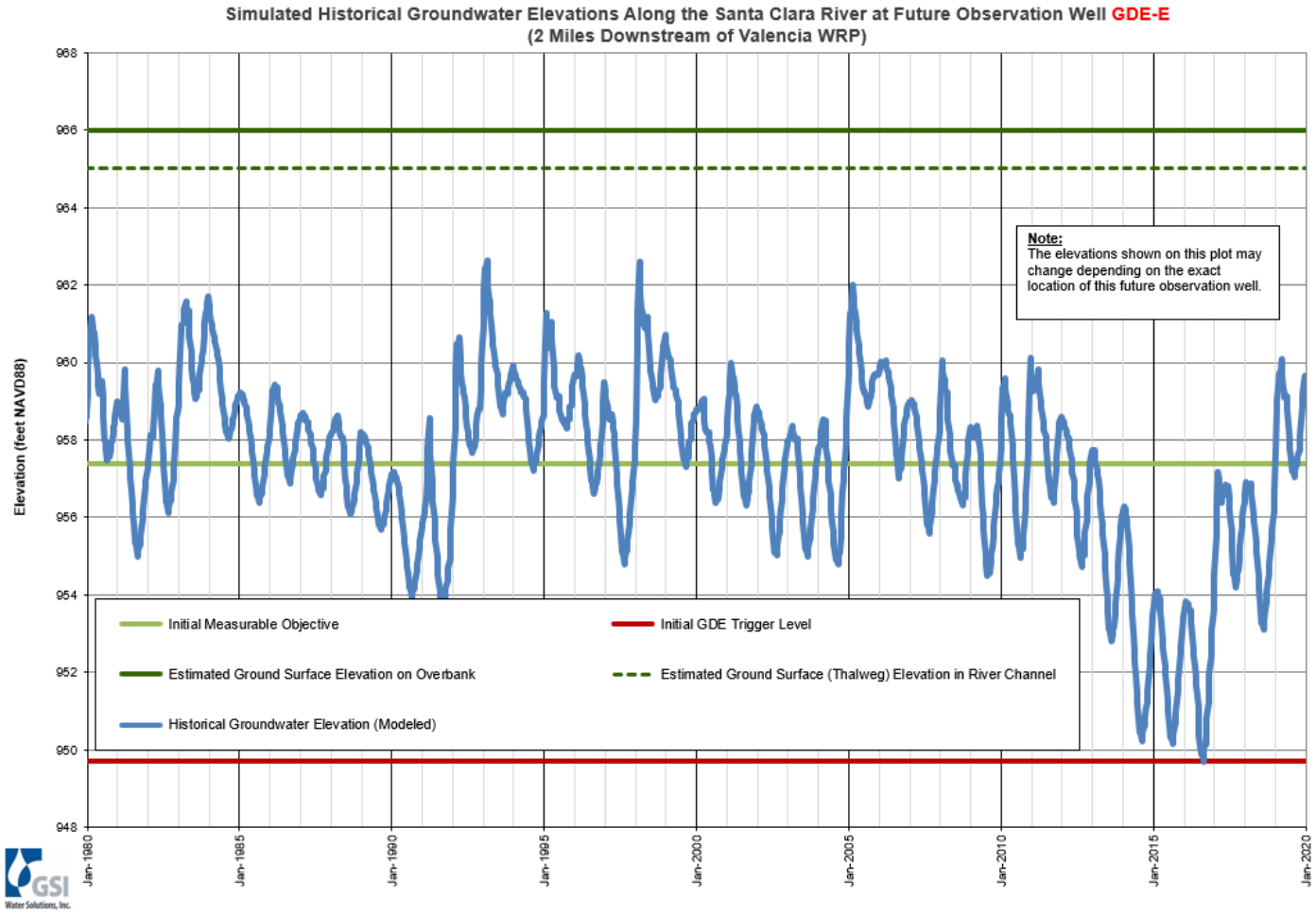
I-5 Bridge (GDE-C)





Two miles Downstream of VWRP (GDE-E)





Next Steps

- Stakeholder Advisory Committee meeting on March 24, 2021 to discuss and consider input from this workshop.

- GSA Meeting on March 25, 2021; SMC presentation and discussion

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Questions?

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