

Town Hall Presentation
The Cayucos Sustainable
Water Project

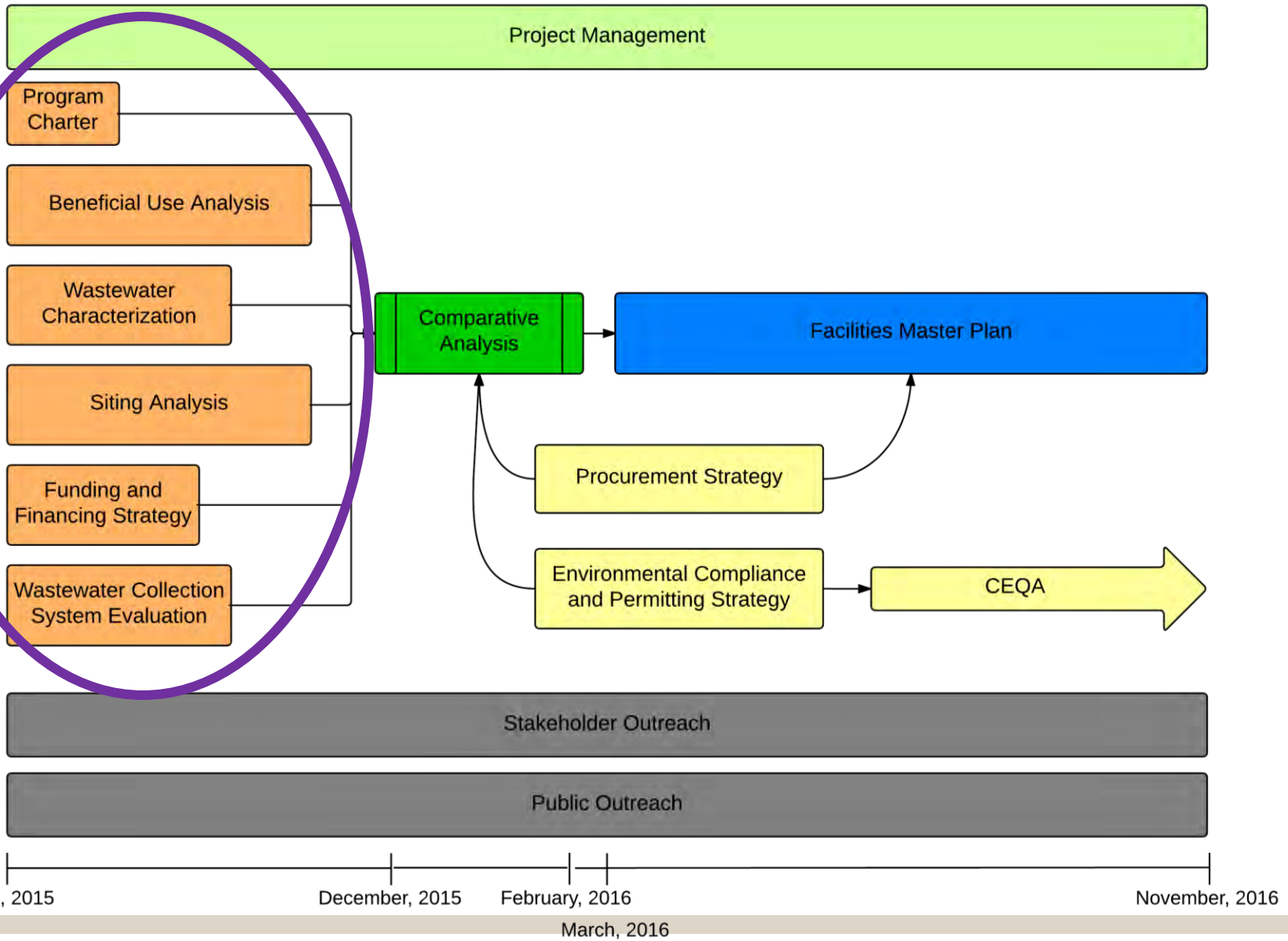
January 14, 2016



Presentation Overview

- Project Introduction & Charter
- Wastewater Characterization
- Beneficial Use
- Site Constraint Analysis
- Wastewater Collection System Evaluation
- Funding & Financing
- Next Steps

Phase 1 Work Plan



Background

- Regional Water Quality Control Board (RWQCB) upgrade requirements for MBCSD WWTP
- California Coastal Commission denial of Coastal Development Permit
- State Water Resource Control Board (SWRCB) Recycled Water Policy
 - Statewide Recycled Water Mandates by 2020
- Cayucos Water Resource Recovery Facility provides:
 - Community Sustainability
 - Ownership
 - Local Governance

Project Charter

Vision – Provide Cayucos with efficient, reliable and adaptable wastewater treatment, while producing a high quality water supply to benefit the community.

Mission - To deliver a sustainable and cost-effective water resource recovery system for the community of Cayucos within a streamlined schedule.



Cayucos Sustainable Water Project

Project Charter

7/23/15

Vision

Provide Cayucos with efficient, reliable and adaptable wastewater treatment, while producing a high quality water supply to benefit the community.

Mission

To deliver a sustainable and cost-effective water resource recovery system for the community of Cayucos within a streamlined schedule.

Objectives and Performance Measures

- Optimize capital investment and life cycle cost
- Maximize value for ratepayers' investment
- Meet the District's schedule
- Obtain grants and low-interest loans to reduce the financial burden on the community
- Provide a facility with appropriate level of automation
- Create professional development opportunities for existing staff
- Design a robust treatment process that minimizes compliance risk
- Communicate with the community to inform and obtain feedback
- Complete the project with full regulatory compliance
- Develop a water resource recovery system that will benefit future generations
- Identify a facility location that benefits the community of Cayucos
- Enhance the community's long-term water supply reliability
- Use proven and dependable technology

Guiding Principles

- Utilize proactive communication to minimize surprises
- Provide decision makers with sufficient documentation and time to support informed decisions
- Provide leadership and share knowledge to benefit the project
- Prepare a detailed schedule and be accountable to it
- Communicate directly and openly amongst the Project Team
- Perform timely and thorough review of project deliverables
- Maintain flexibility to work with members of the project team
- Incorporate sustainability, where practical, in all aspects of the project
- Keep regulatory partners informed and engaged
- Collaborate with internal and external stakeholders to efficiently solve problems
- Utilize cost-conscious decision making
- Inform and listen to the community

Wastewater Characterization



Wastewater Flows

Averaging Period	Historical Flow ¹ , gal/day	Projected Flows ² , gal/day
Average Annual Daily Flow (AADF)	259,000	290,000
Maximum Week	814,000	927,000

¹Based on flows at Lift Station 5 from 2008-2014

²Preliminary analysis based on historical flow contribution by service connection and anticipated future service connections

Water Quality Analysis

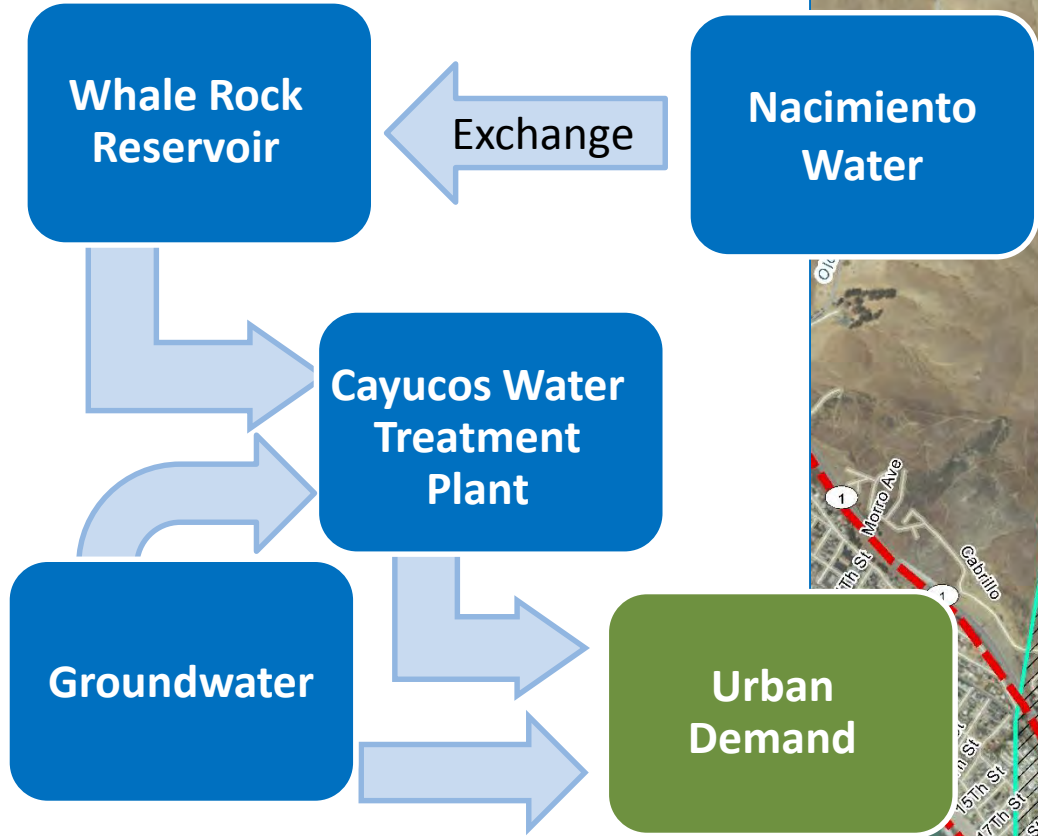
- Key Parameters
 - Biological Oxidation Demand (BOD)
 - Ammonia
 - Total Suspended Solids (TSS)



Beneficial Use

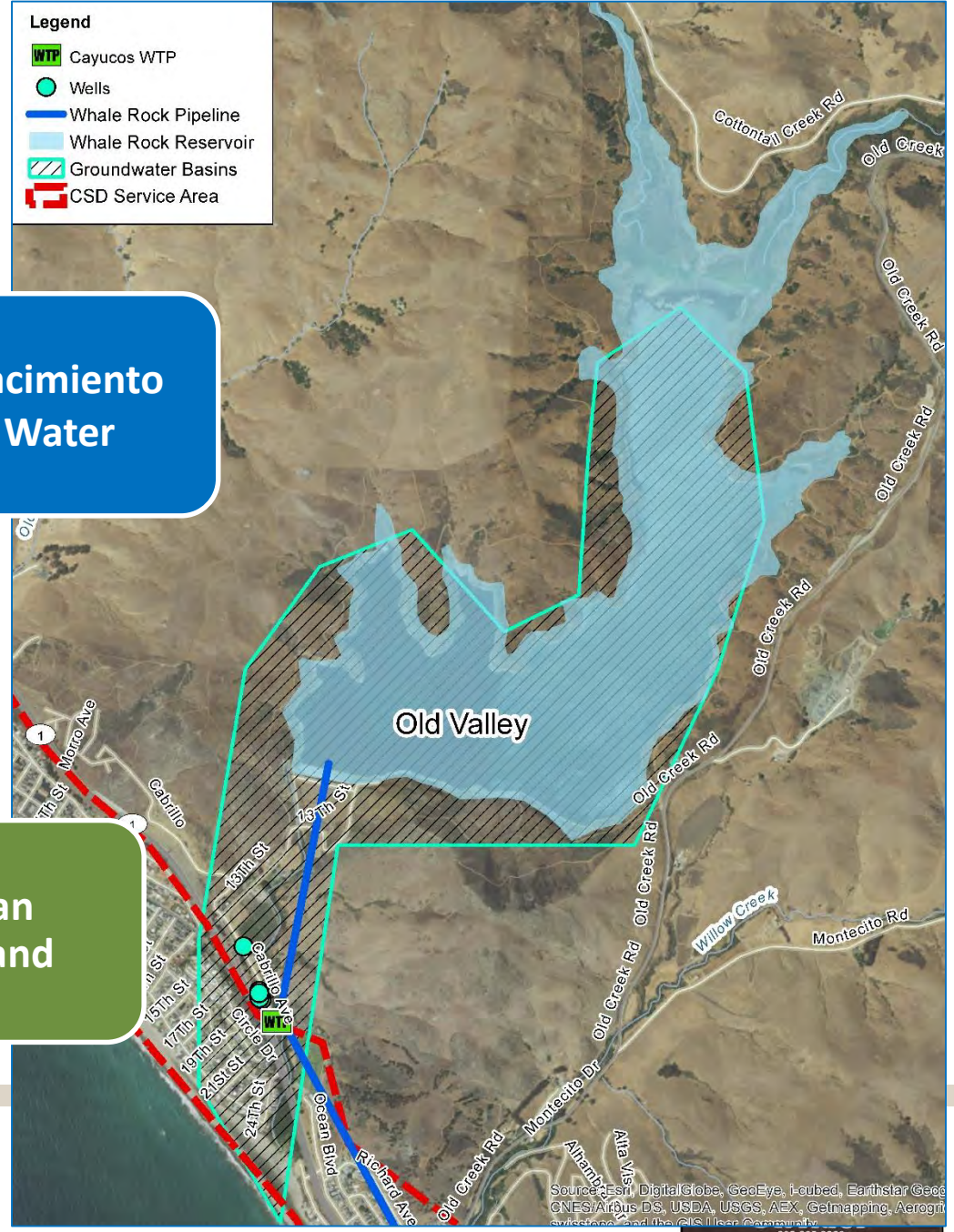


Current Water Supply



Legend

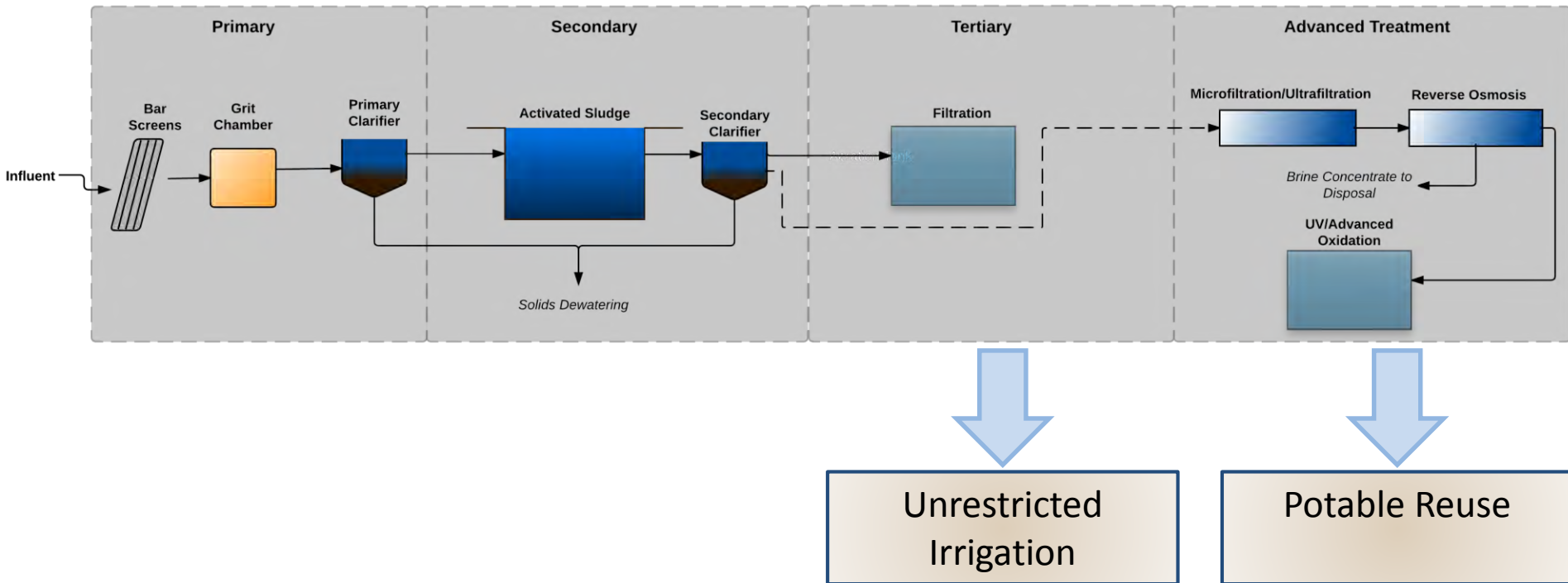
- WTP Cayucos WTP
- Wells
- Whale Rock Pipeline
- Whale Rock Reservoir
- Groundwater Basins
- CSD Service Area



How can we use our recycled water?

	Irrigation	Indirect Potable Reuse (IPR)	Direct Potable Reuse (DPR)
Beneficial Uses	<ul style="list-style-type: none"> Unrestricted Landscape Irrigation Irrigation of Food Crops 	<ul style="list-style-type: none"> Groundwater Replenishment Surface Water Augmentation – Reservoir replenishment 	<ul style="list-style-type: none"> For distribution into the public water system
Treatment Level	Tertiary Treatment	<ul style="list-style-type: none"> Tertiary Treatment + Blending Full Advanced Treatment 	Full Advanced Treatment + Conventional Surface Water Treatment

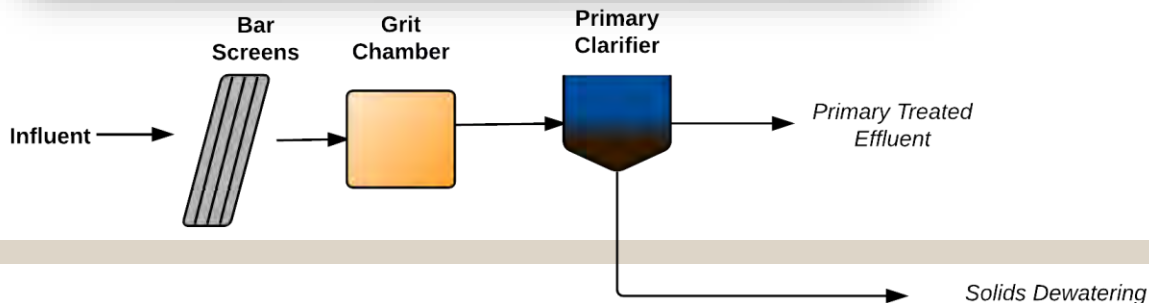
Wastewater Treatment Process Overview



Primary Treatment



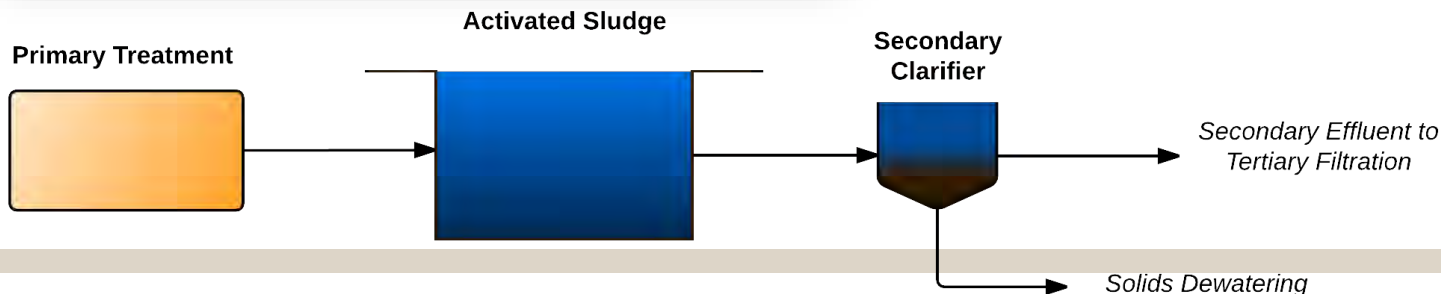
- Headworks to remove large suspended material and grit
- Primary clarification (settling) to remove solids



Secondary Treatment



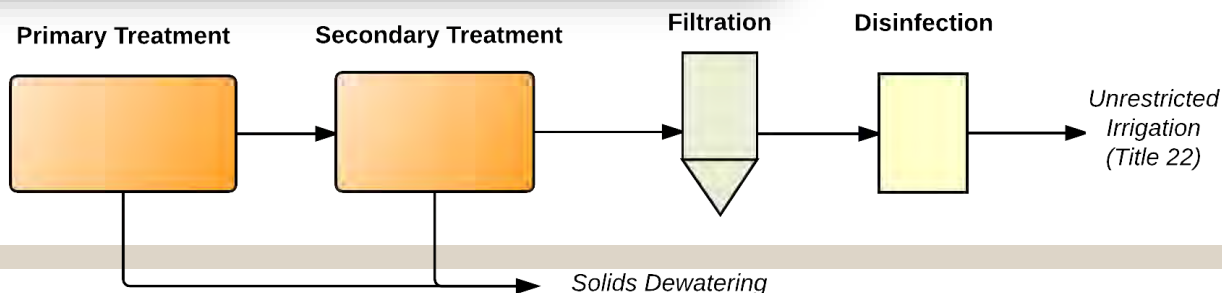
- Biological treatment for removal of organic and inorganic contaminants
- Secondary clarification (settling) to remove biomass



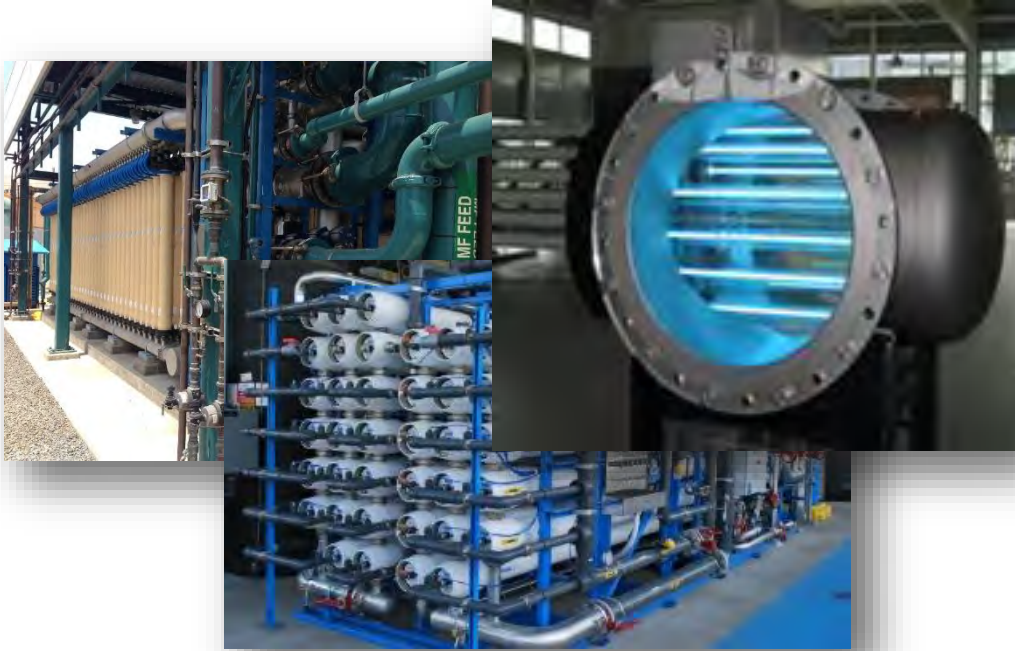
Tertiary Treatment



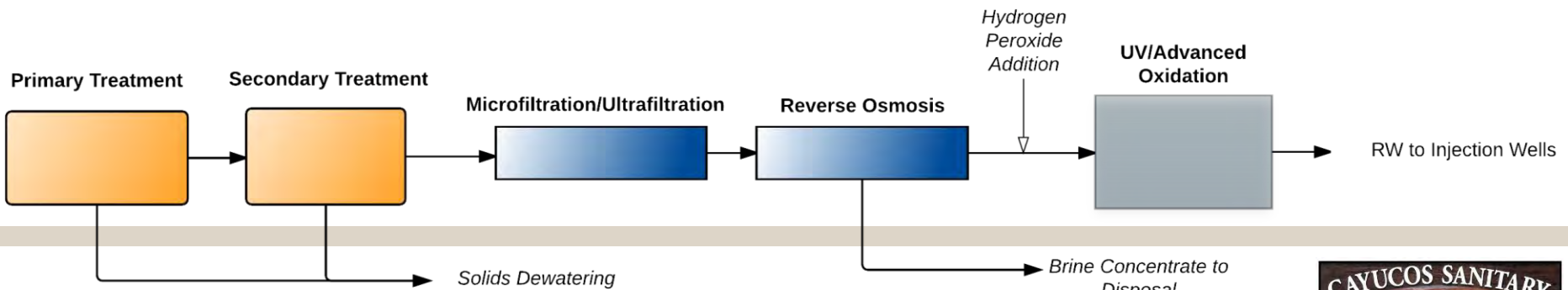
- Filtration to remove suspended particles
- Disinfection to inactivate pathogens



Full Advanced Treatment



- Membrane filtration to remove pathogens and suspended material
- Reverse osmosis to remove dissolved contaminants
- UV + oxidant to oxidize remaining trace organic contaminants



Outfall

- District owns 35% of outfall capacity
- Provides District with operating flexibility to manage:
 - Peak flows
 - Salts & nutrients



Site Constraint Analysis



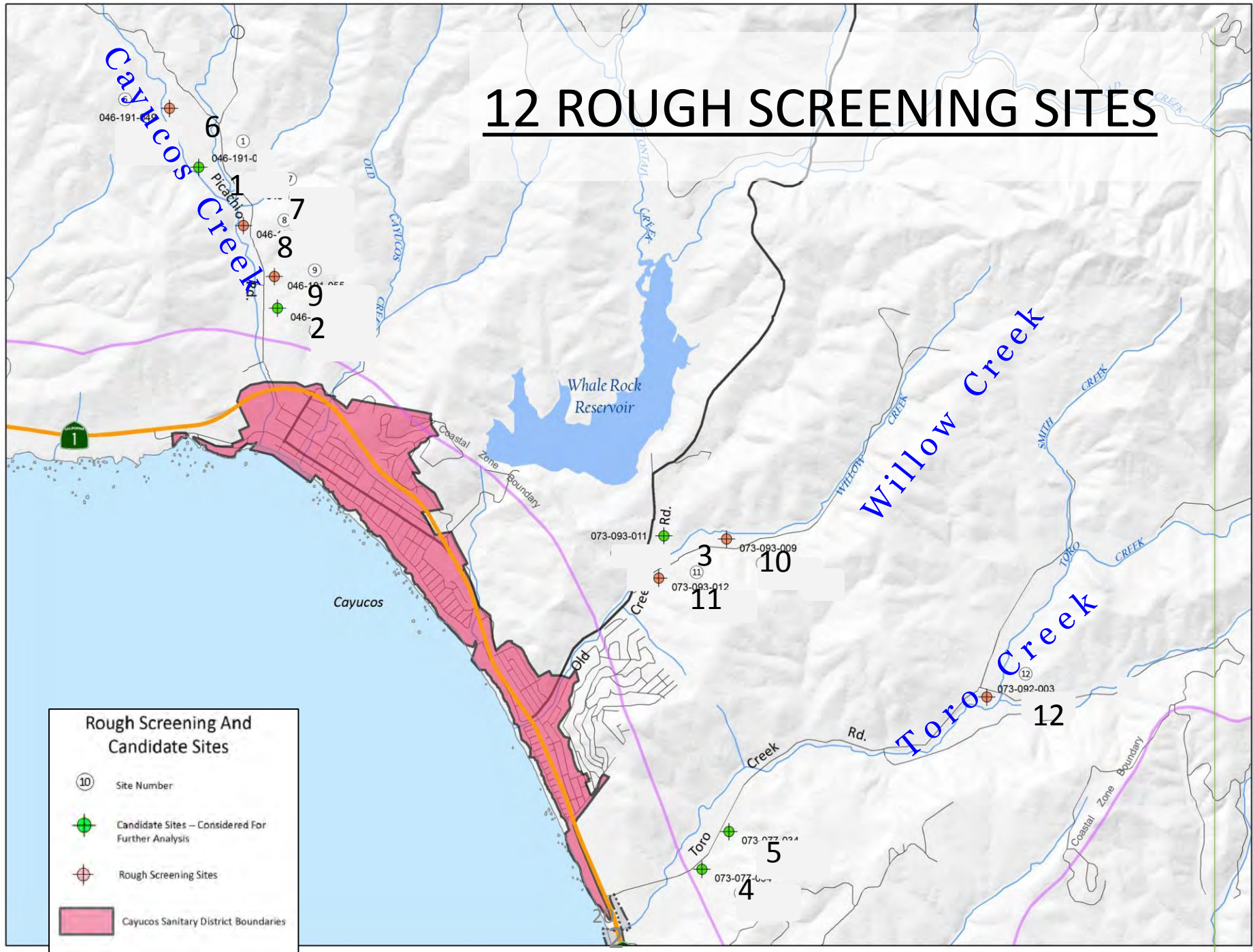
Rough Screening Evaluation

12 Candidate Sites were selected for rough screening evaluation based on:

Primary Site Selection Criteria:

- Outside the Coastal Zone Boundary
- Located in the three creek valleys: Toro Creek, Willow Creek and Cayucos Creek.
- Located Outside FEMA Flood Zone
- Site is not visible from State Route 1

12 ROUGH SCREENING SITES

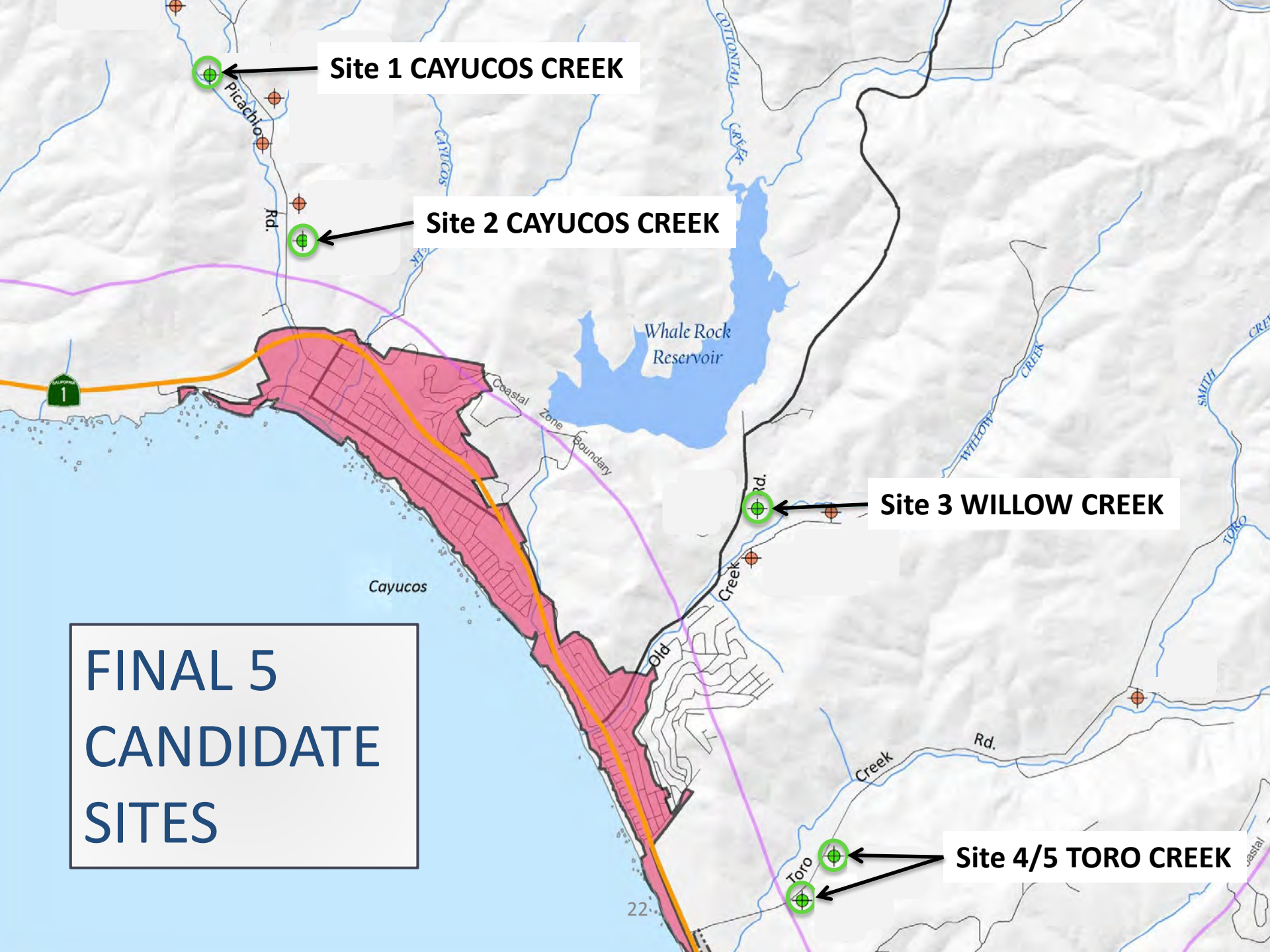


Rough Screening Evaluation

These questions were used to further narrow the candidate sites with the best potential to meet the project objectives.

Rough Screening Criteria

1. Has the property owner shown interest?
2. Does the property lend itself to creation of a site of suitable proportions and slope?
3. Does the site offer a unique opportunity to fulfill the project objectives?
4. Compared to other candidate sites in the same creek canyon, is the site a reasonable distance from existing infrastructure?



Site 1 CAYUCOS CREEK

Site 2 CAYUCOS CREEK

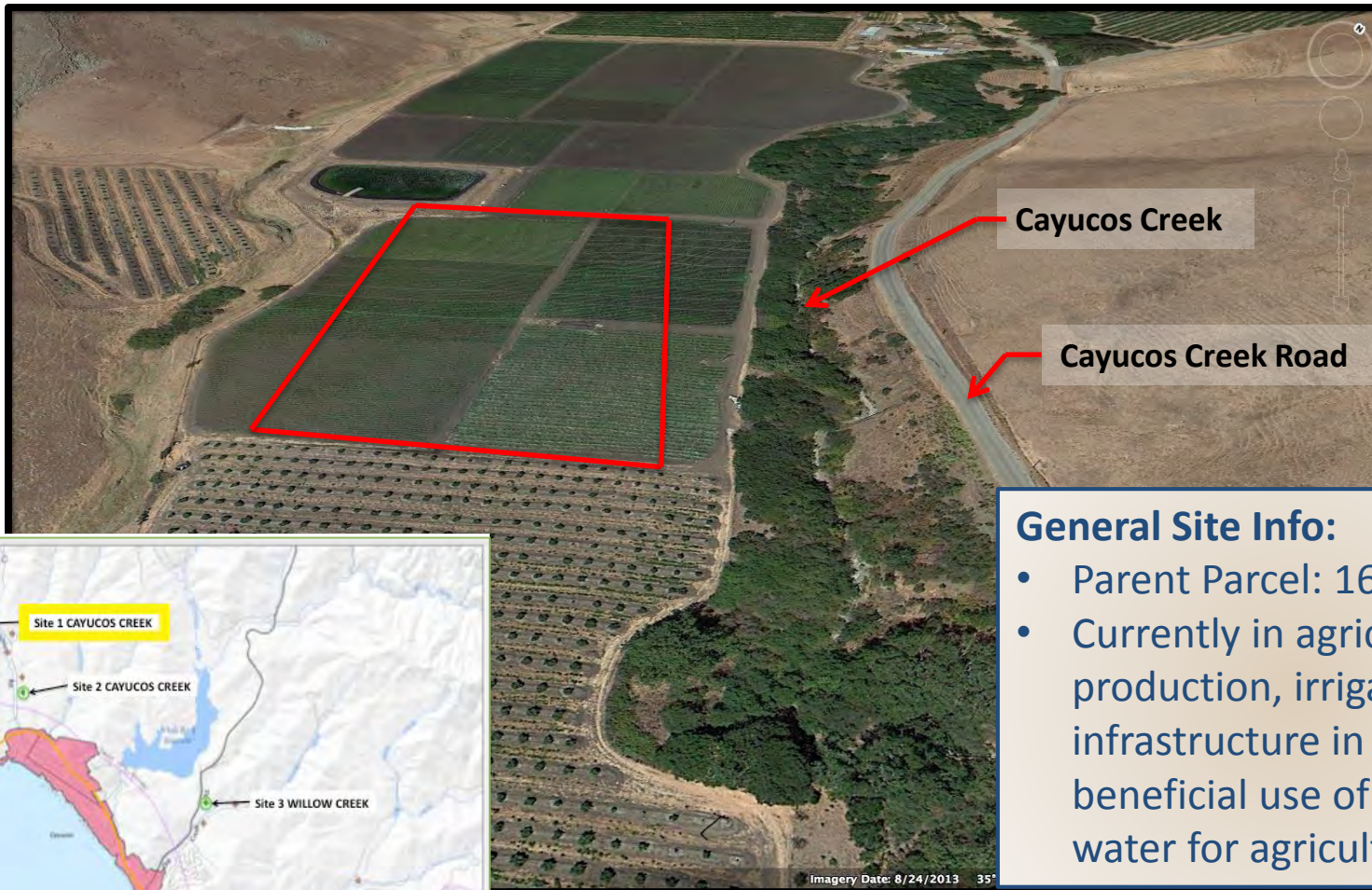
Site 3 WILLOW CREEK

Site 4/5 TORO CREEK

**FINAL 5
CANDIDATE
SITES**

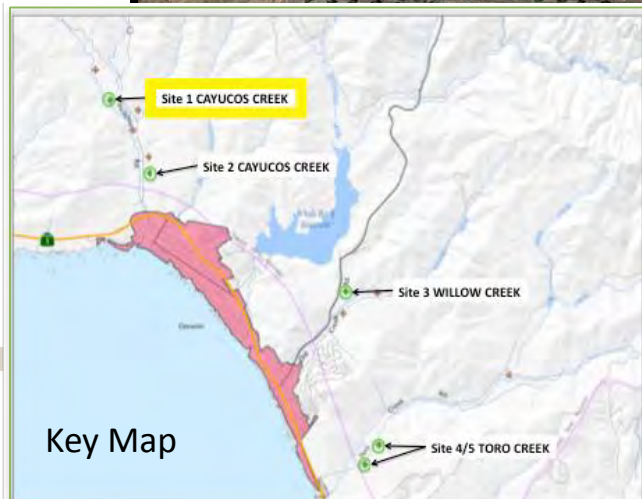
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Site 1: CAYUCOS CREEK



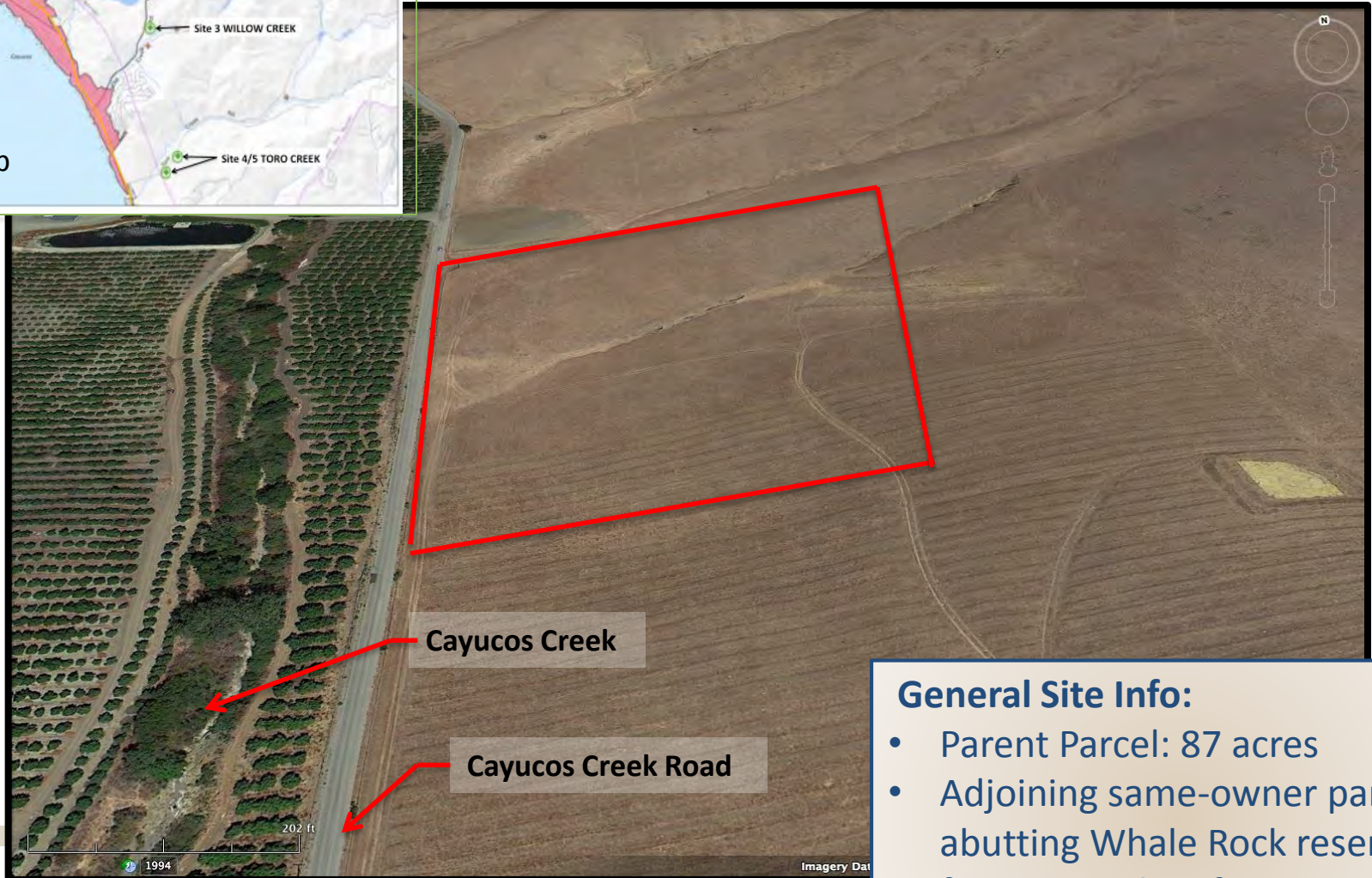
General Site Info:

- Parent Parcel: 161 acres
- Currently in agricultural production, irrigation infrastructure in place for beneficial use of treated water for agriculture.



Key Map

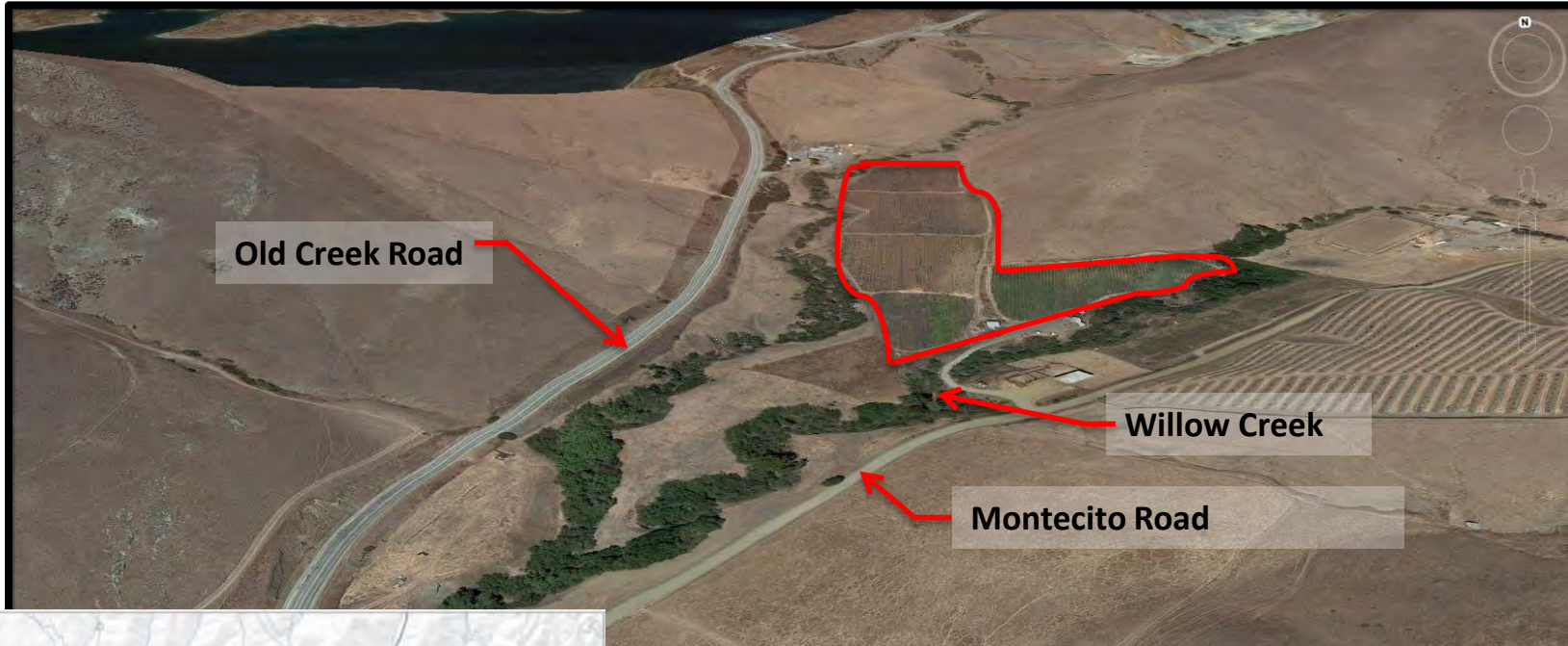
Site 2: CAYUCOS CREEK



General Site Info:

- Parent Parcel: 87 acres
- Adjoining same-owner parcels abutting Whale Rock reservoir for potential surface water augmentation.

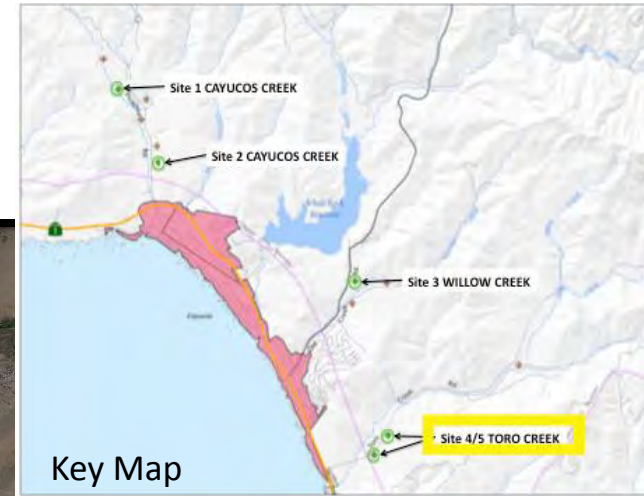
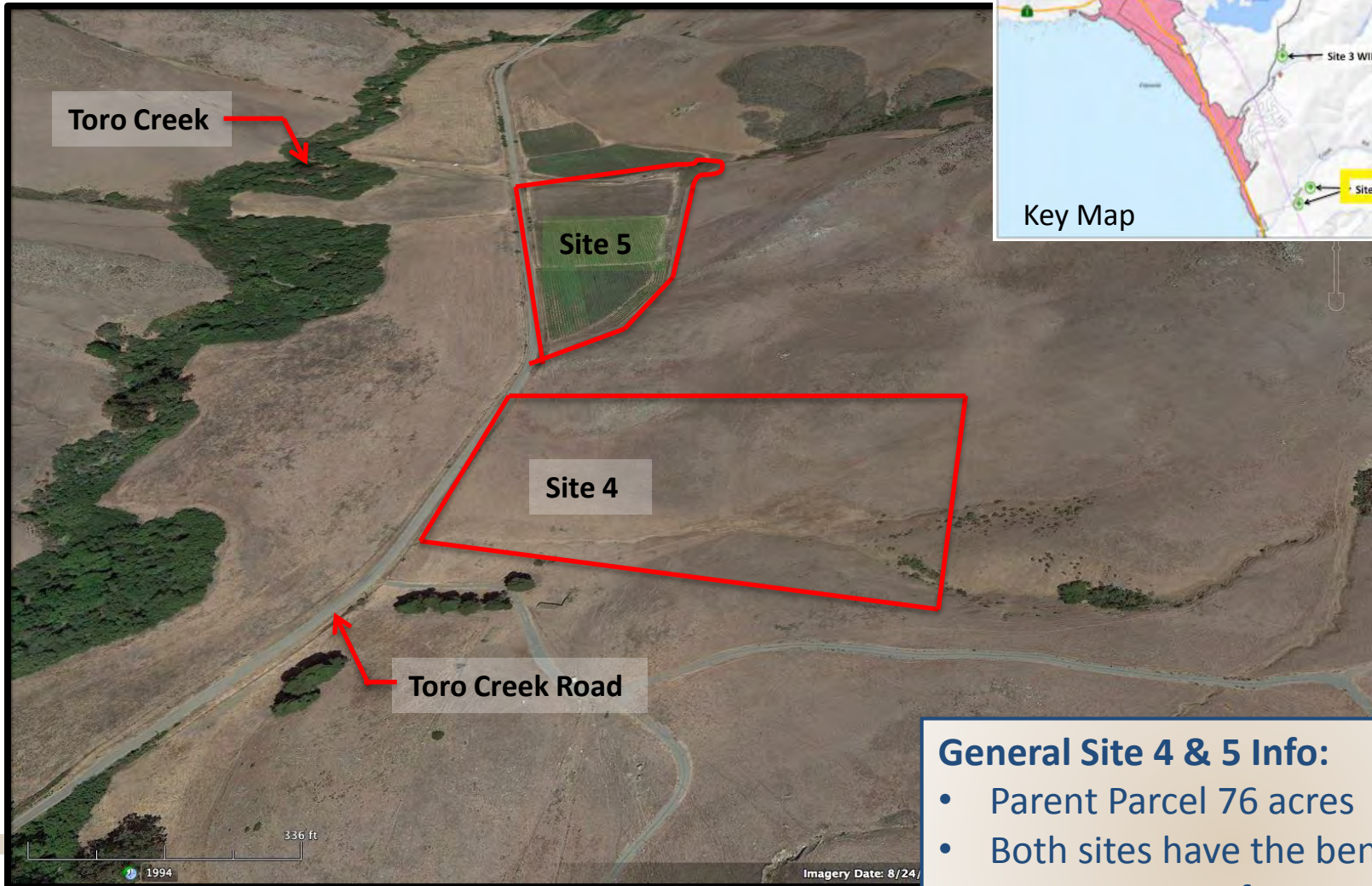
Site 3: Willow Creek



General Site Info:

- Parent Property 215 acres
- Adjoining same-owner parcels abutting Whale Rock reservoir for potential surface water augmentation.
- The site is current agricultural production with irrigation infrastructure in place.

Sites 4 & 5 Toro Creek



General Site 4 & 5 Info:

- Parent Parcel 76 acres
- Both sites have the benefit of using gravity infrastructure for collection.

Key Environmental & Regulatory Issues

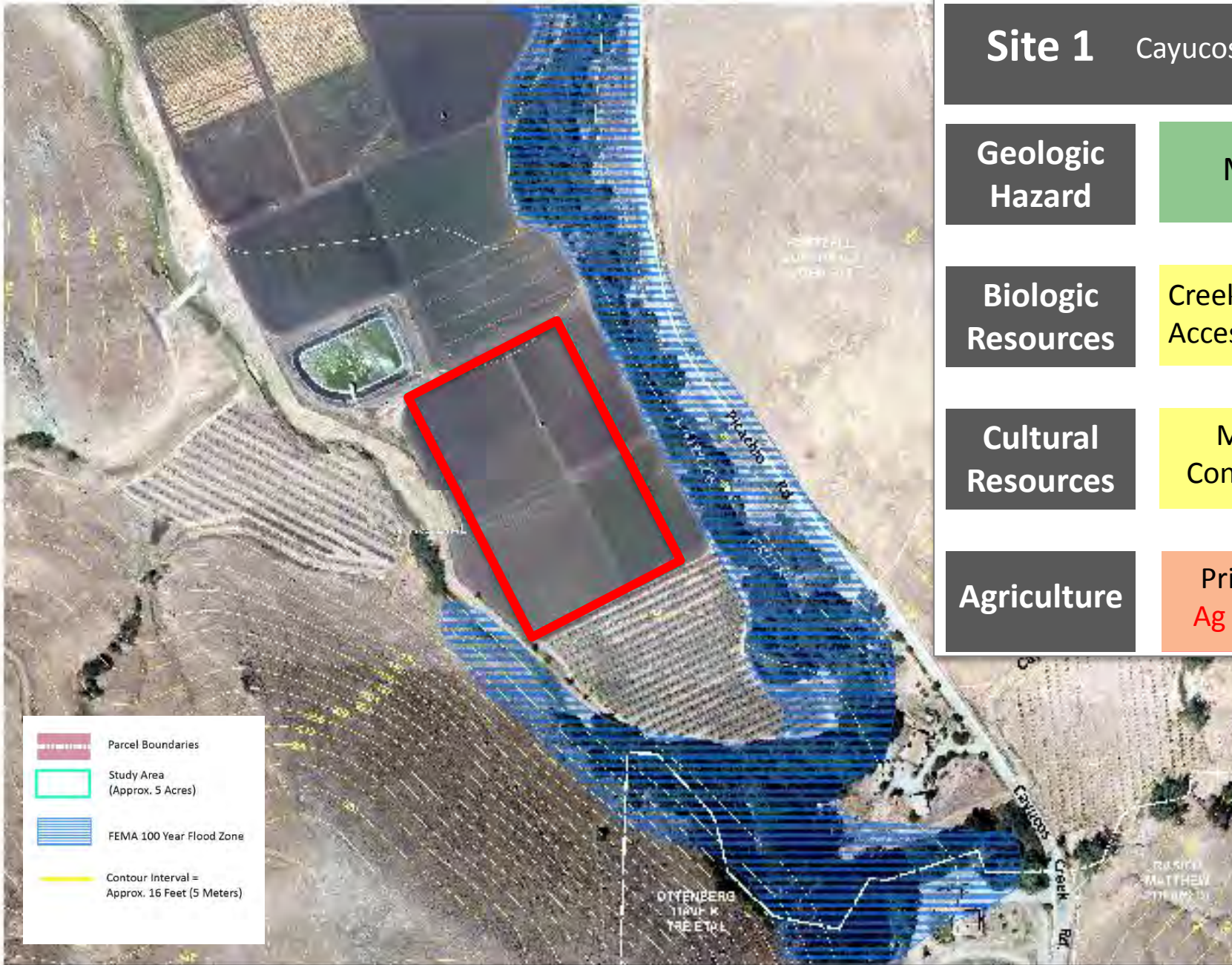
Four factors have been identified in this screening-level stage to determine the relative strengths and weaknesses of the selected five candidate sites.

■ Geologic Hazards

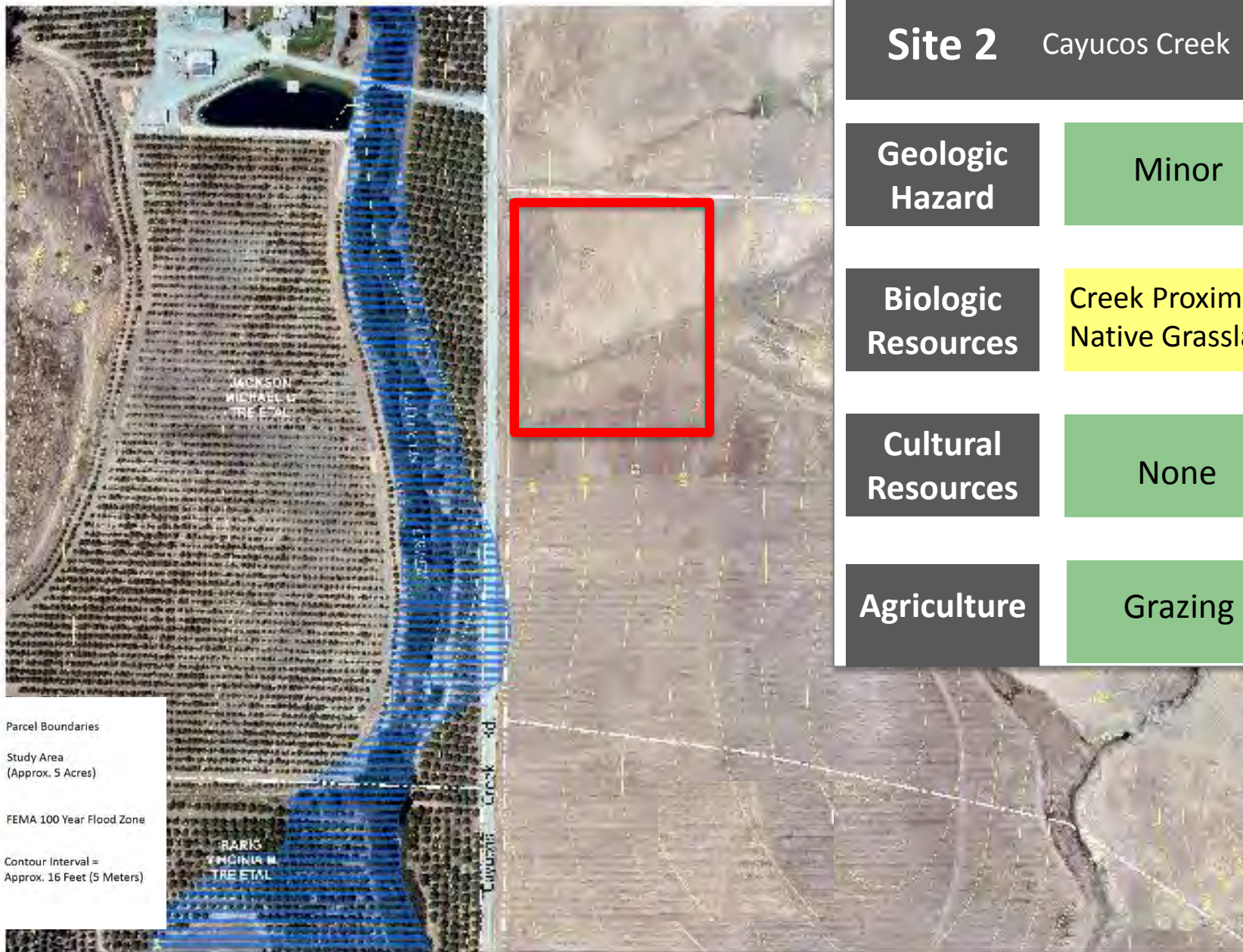
■ Biologic Resources



■ Agricultural Resources

■ Cultural Resources



Site 1 Cayucos Creek	
Geologic Hazard	Minor
Biologic Resources	Creek Proximity, Access
Cultural Resources	Monitor Construction
Agriculture	Prime Soil, Ag Preserve



-  Parcel Boundaries
-  Study Area (Approx. 5 Acres)
-  FEMA 100 Year Flood Zone
-  Contour Interval = Approx. 16 Feet (5 Meters)

Site 2 Cayucos Creek	
Geologic Hazard	Minor
Biologic Resources	Creek Proximity, Native Grassland
Cultural Resources	None
Agriculture	Grazing





Site 3 Willow Creek

Geologic Hazard Minor

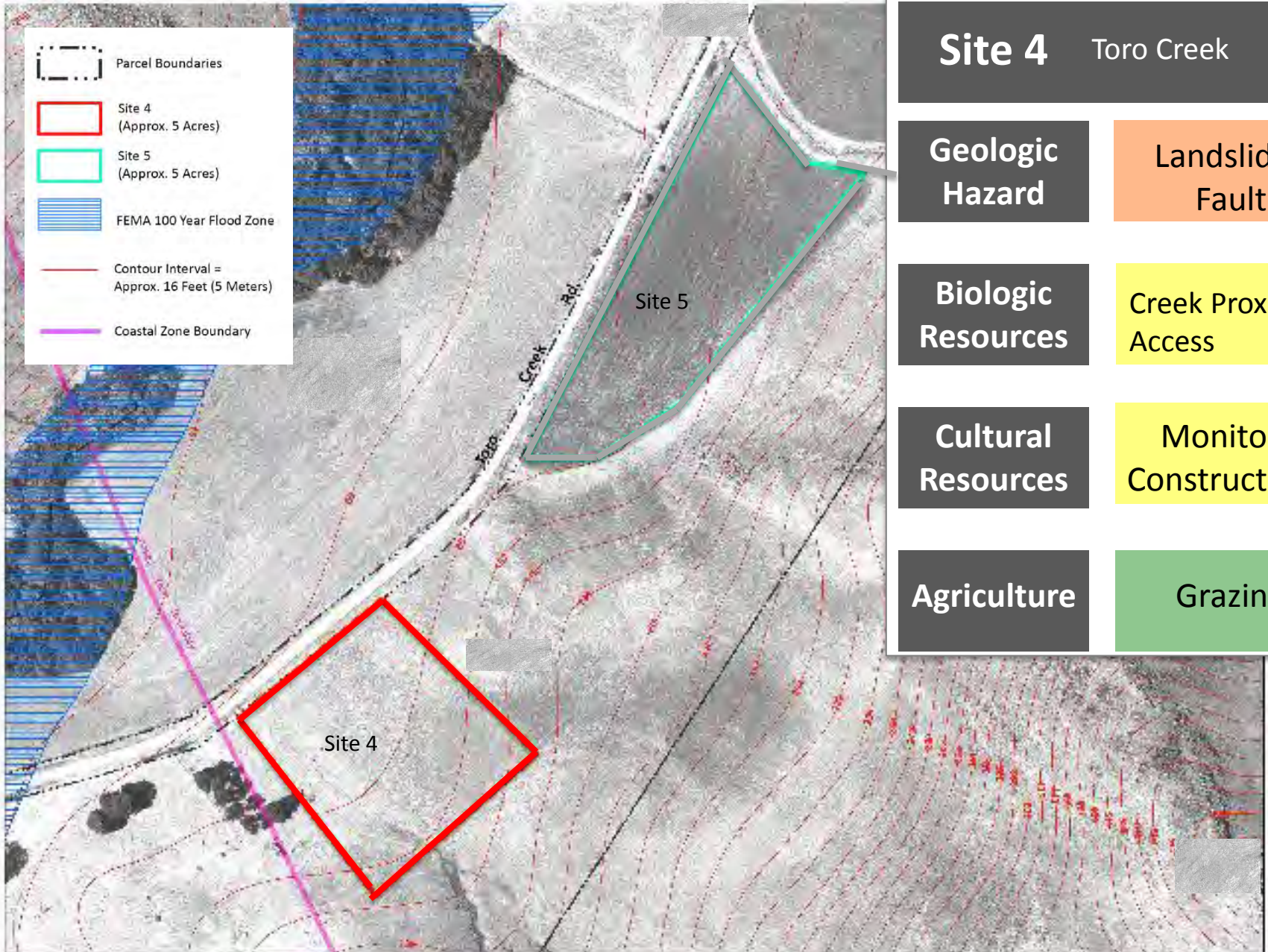
Biologic Resources Creek Proximity, Access







Cultural Resources None

Agriculture Prime Soil

-  Parcel Boundaries
-  Study Area (Approx. 5 Acres)
-  FEMA 100 Year Flood Zone
-  Contour Interval = Approx. 16 Feet (5 Meters)





-  Parcel Boundaries
-  Site 4 (Approx. 5 Acres)
-  Site 5 (Approx. 5 Acres)
-  FEMA 100 Year Flood Zone
-  Contour Interval = Approx. 16 Feet (5 Meters)
-  Coastal Zone Boundary

Site 4 Toro Creek

Geologic Hazard

Landslide, Fault

Biologic Resources

Creek Proximity, Access

Cultural Resources

Monitor Construction

Agriculture

Grazing

Site 5 Toro Creek

Geologic Hazard

Minor

Biologic Resources

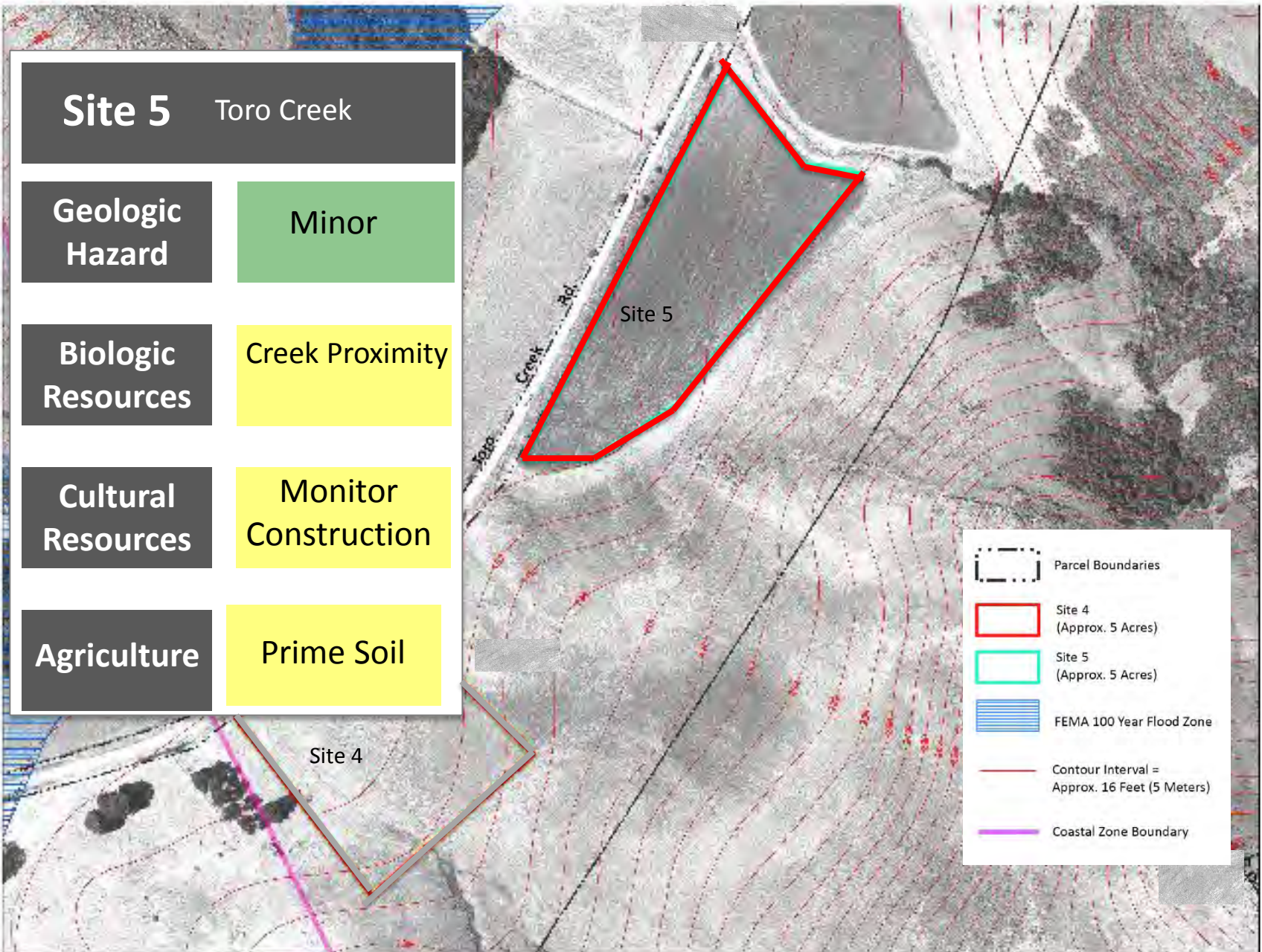
Creek Proximity

Cultural Resources

Monitor Construction

Agriculture

Prime Soil

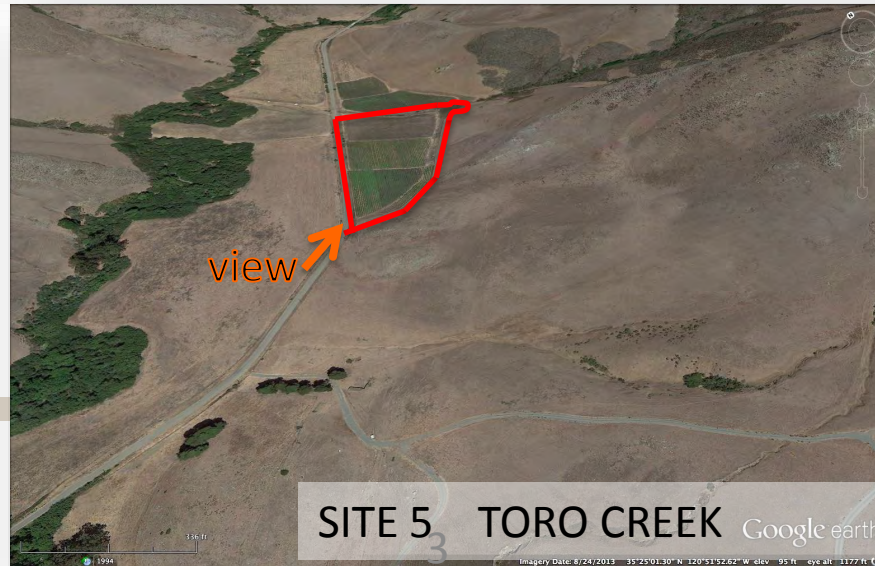
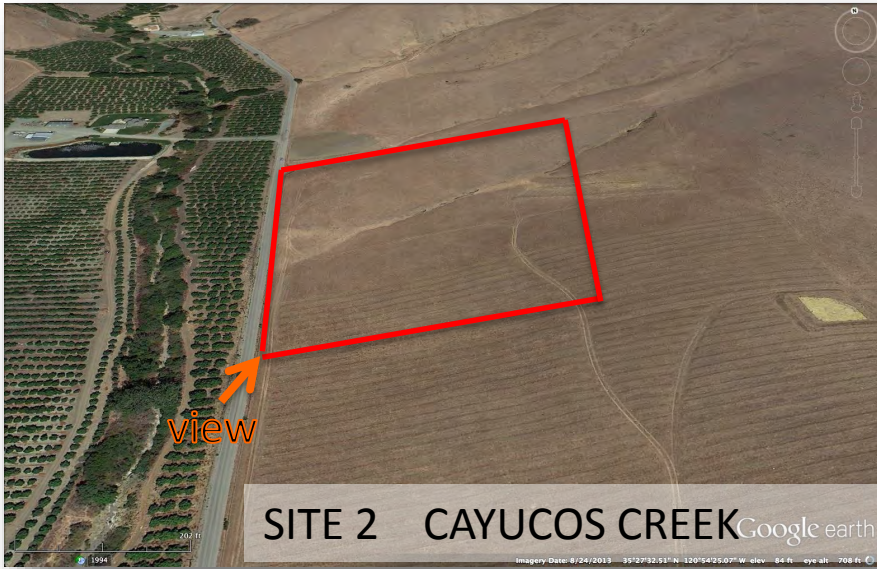


CANDIDATE SITE COMPARISON

	1 Cayucos Creek	2 Cayucos Creek	3 Willow Creek	4 Toro Creek	5 Toro Creek
Geologic Hazard	Minor	Minor	Minor	Landslide, Fault	Minor
Biologic Resources	Creek Proximity, Access	Creek Proximity, Native Grassland	Creek Proximity, Access	Creek Proximity	Creek Proximity
Cultural Resources	Monitor Construction	None	None	Monitor Construction	Monitor Construction
Agriculture	Prime Soil, Ag Preserve	Grazing	Prime Soil	Grazing	Prime Soil



“SHORT LIST” CANDIDATE SITES



Conceptual Rendering Showing Visual Screening of Candidate Sites

Conceptual models have been developed to show how the proposed project may appear in context of Site 2, Site 3 and Site 5.

Concept Rendering Process:

1. Photograph Existing View
2. Develop conceptual model of a prototypical facility and place model into site using proper perspective
3. Simulate landscape screening to provide a view of future conditions and mature screening.



V I S U A L S I M U L A T I O N S I T E 2

EXISTING VIEW



CONCEPTUAL RENDERING SITE 2

FACILITY MODEL VIEW



CONCEPTUAL RENDERING SITE 2

MATURE LANDSCAPE



CONCEPTUAL RENDERING SITE 3

EXISTING VIEW



CONCEPTUAL RENDERING SITE 3

FACILITY MODEL VIEW



CONCEPTUAL RENDERING SITE 3

MATURE LANDSCAPE



CONCEPTUAL RENDERING SITE 5

EXISTING VIEW



CONCEPTUAL RENDERING SITE 5

FACILITY MODEL VIEW



CONCEPTUAL RENDERING SITE 5

MATURE LANDSCAPE

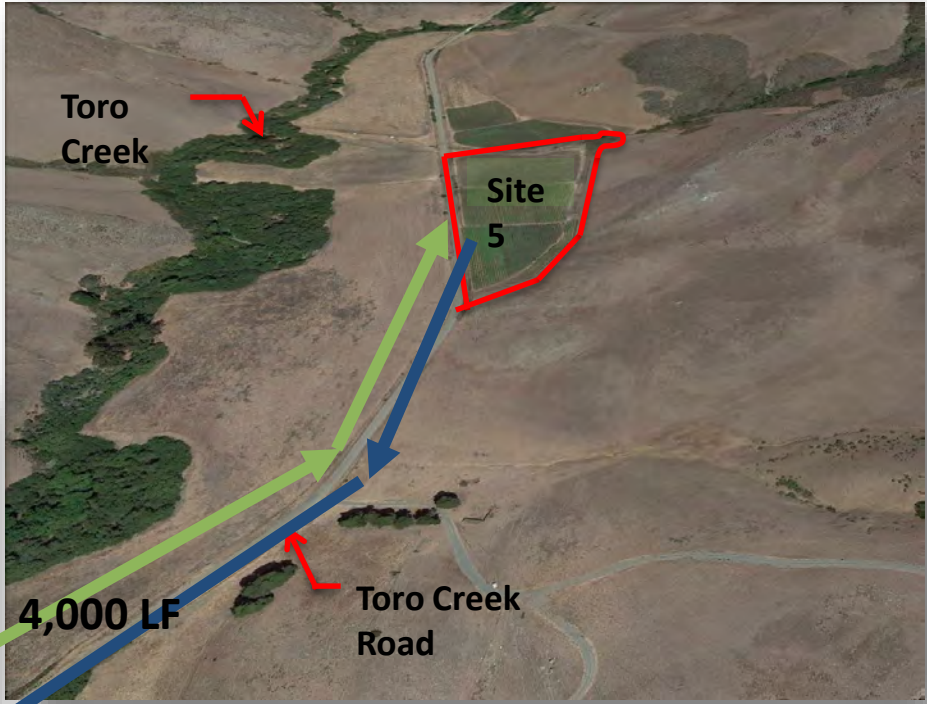


Collection System Evaluation



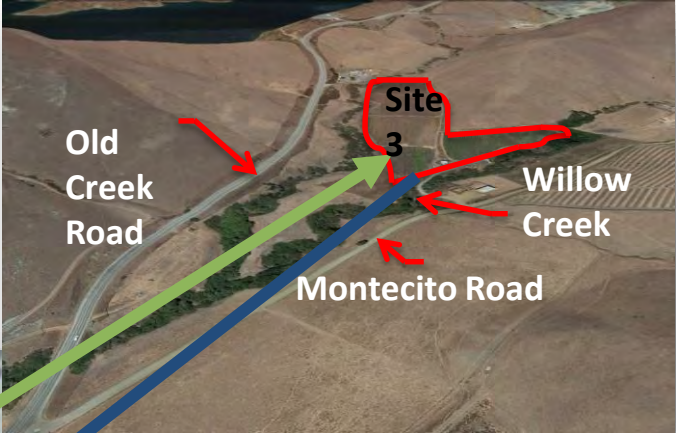
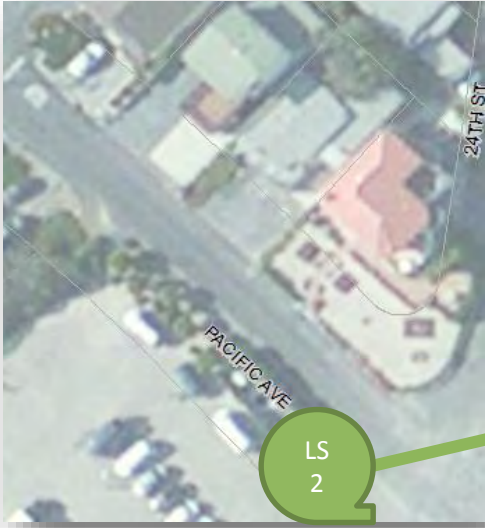
Toro Creek Valley Alternative

New Collection System Piping: ~4,000 LF
New Outfall Return Piping: ~4,000 LF
Total Piping: ~8,000 LF



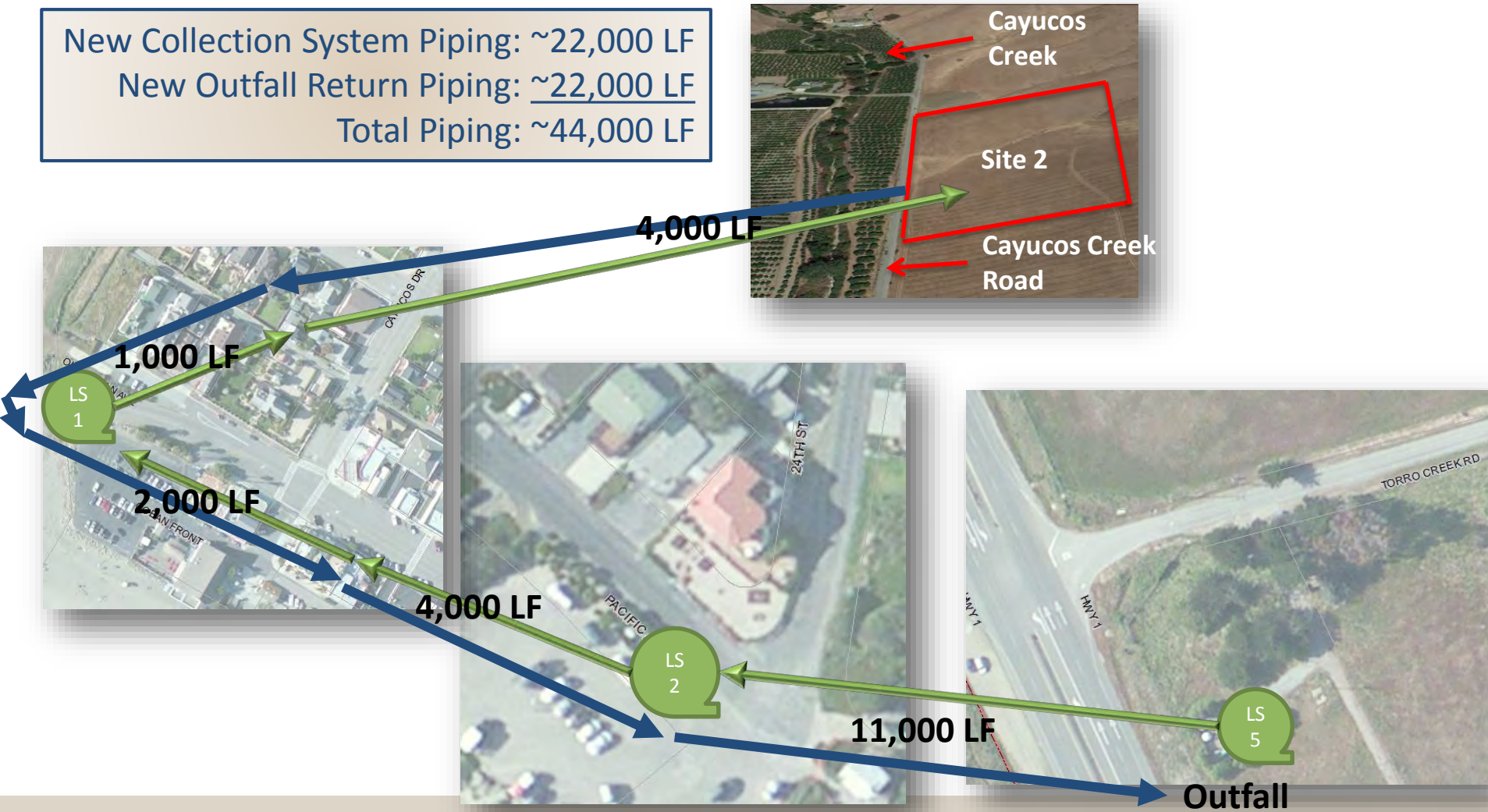
Willow Creek Valley Alternative

New Collection System Piping: ~14,000 LF
New Outfall Return Piping: ~14,000 LF
Total Piping: ~28,000 LF



Cayucos Creek Valley Alternative

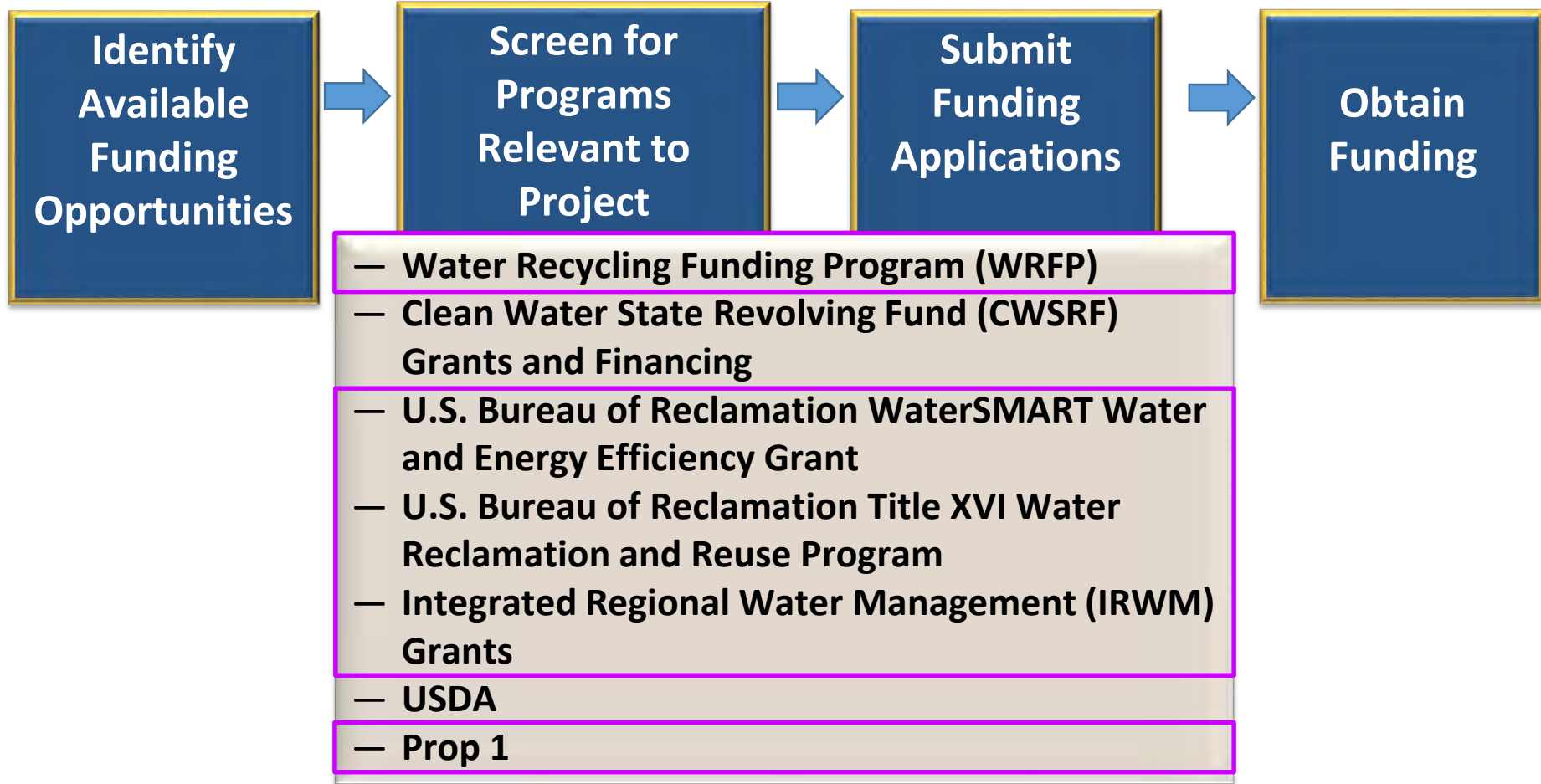
New Collection System Piping: ~22,000 LF
New Outfall Return Piping: ~22,000 LF
Total Piping: ~44,000 LF



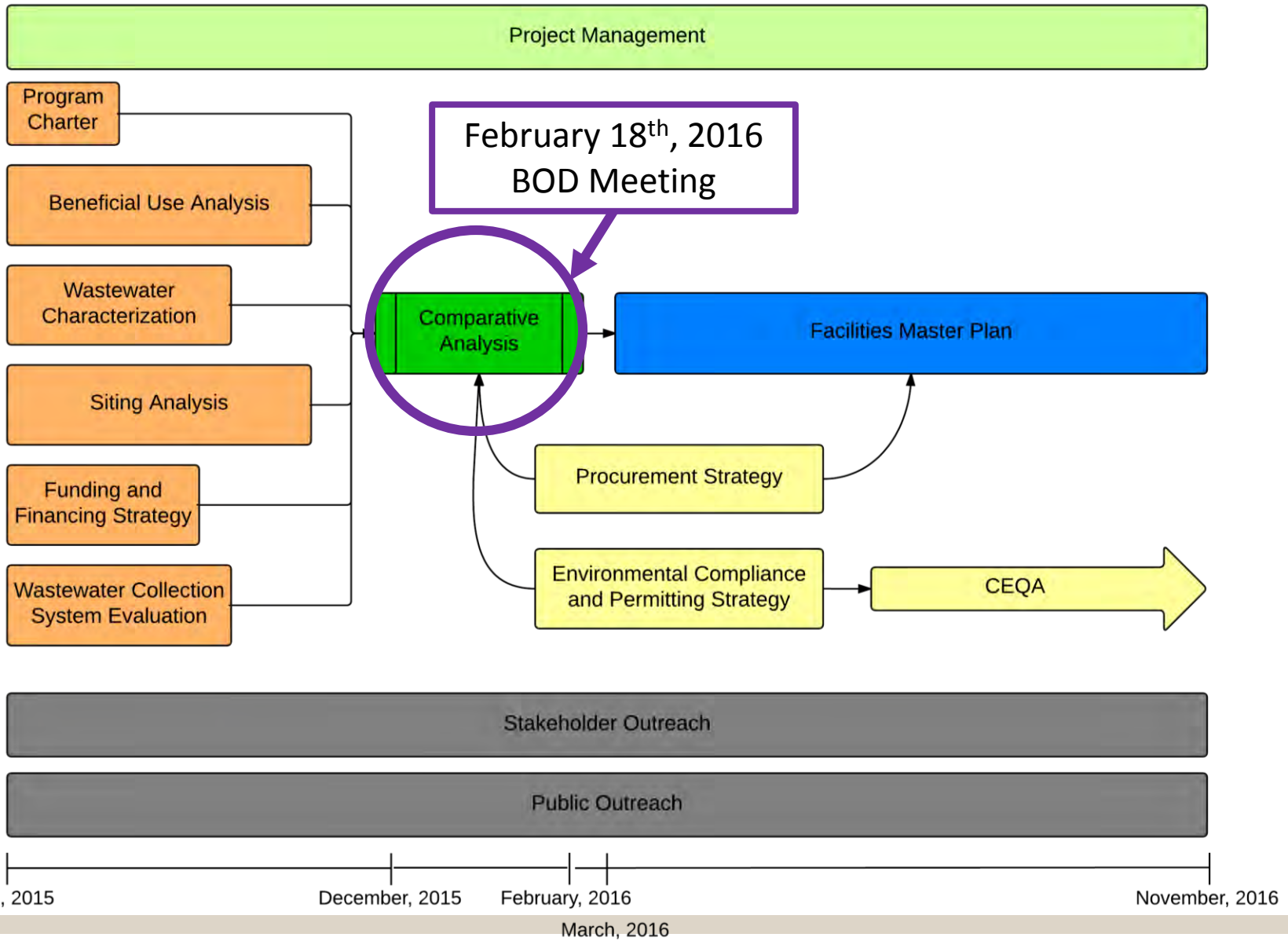
Funding and Financing



Funding & Financing Strategy



Phase 1 Work Plan



Alternatives for the Comparative Analysis

Cayucos Creek Valley

Disinfected
Tertiary

Indirect Potable
Reuse

Direct Potable
Reuse

Willow Creek Valley

Disinfected
Tertiary

Indirect Potable
Reuse

Direct Potable
Reuse

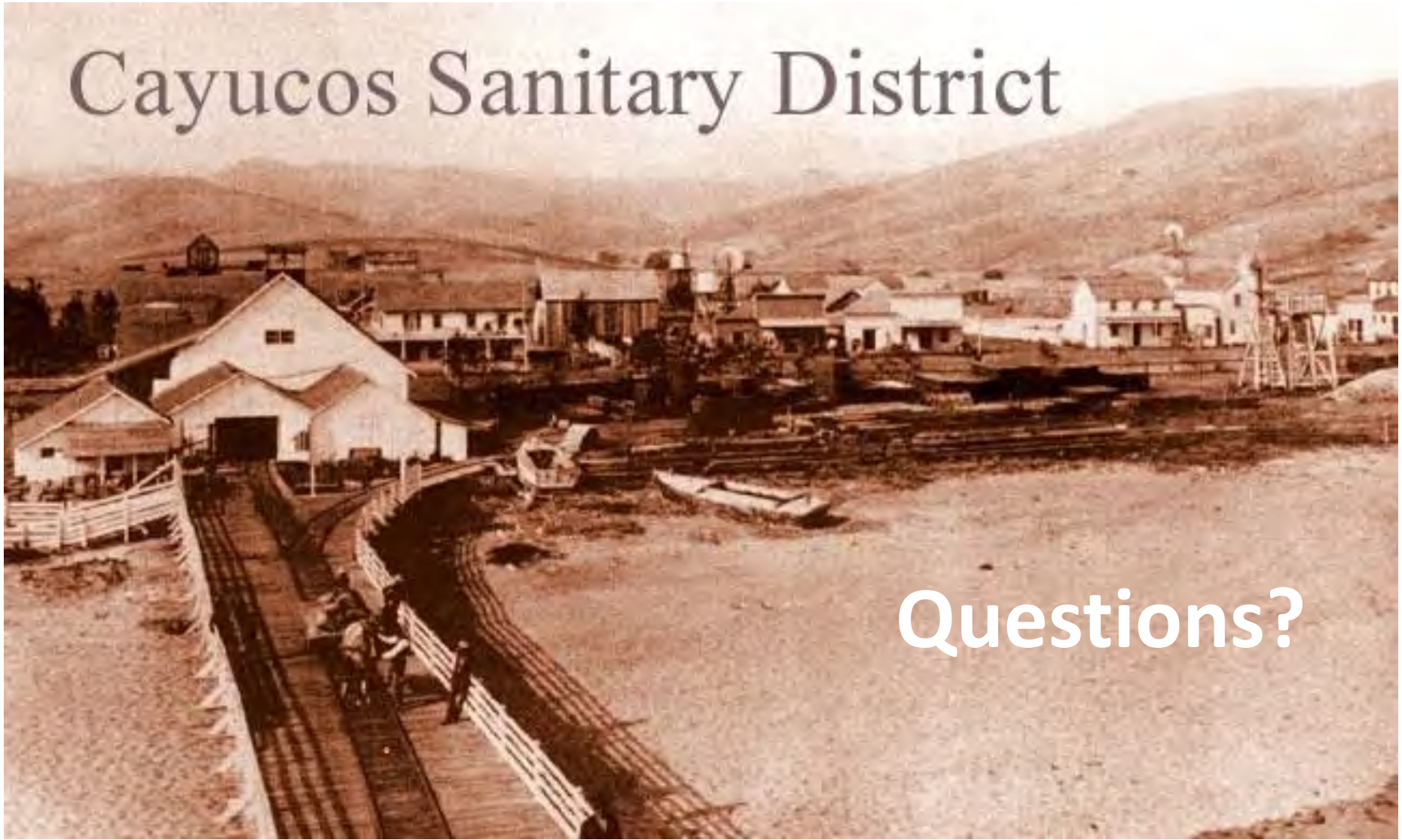
Toro Creek Valley

Disinfected
Tertiary

Indirect Potable
Reuse

Direct Potable
Reuse

Cayucos Sanitary District



Questions?