City of Santa Cruz

REGIONAL RECYCLED WATER FACILITIES PLANNING STUDY

Presentation for City of Santa Cruz
Water Commission
August 7, 2017

Photo of San Lorenzo River at Water Street Bridge on February 7, 2017

PRESENTATION TOPICS

- The Study Overview
- Objectives
- Recommended Projects
- Summary of Costs
- Next Steps

Loch Lomond Reservoir
November 2014

THE STUDY OVERVIEW

- Cost: $588,000
- Duration: 18 Months
- Prime Consultant
  - Kennedy/Jenks
- Sub consultants
  - *Trussel Technologies*
  - *Merrit Smith Consulting*
  - *Bob Raucher*
  - *GHD Inc.*
  - *Michael Welch, PhD.*
- *State Water Resources Control Board*
- *Regional Collaboration*

Kennedy/Jenks Consultants
Engineers & Scientists

CALIFORNIA Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

Trussell TECHNOLOGIES INC

STREETS · TRAFFIC & PARKING · REFUSE & RECYCLING
PUBLIC WORKS
SEWERS & STORM DRAINS

THE COUNTY OF SANTA CRUZ
SINE PRAEJUDICIO
·1850·

SCOTTS VALLEY WATER DISTRICT

SOQUEL CREEK WATER DISTRICT

OBJECTIVES

- Assess beneficial reuse of wastewater from a resource recovery perspective
- Identify a phased approach to reuse in Santa Cruz
- Identify potential impacts to Santa Cruz WWTF operations
- Meet or reduce the water supply gap as identified by the WSAC (1.2 BGY)
- Meet schedule of Water Supply Advisory Committee (WSAC) Element #3
- Evaluate local and regional recycled water projects
- Initiate plan for continued recycled water outreach and education
- Meet State Water Resource Control Board (SWRCB) grant requirements

RECOMMENDED PROJECTS

- **SCPWD Title 22 Project** – implement a near-term non-potable reuse project to meet in-plant demands, develop a bulk water station and serve the near-by La Barranca Park and Neary Park.

- **BayCycle Project** – expand SCPWD Title 22 Project to increase production and non-potable reuse to serve customers along Bay Street including UCSC and other City customers

SCPWD = Santa Cruz Public Works Department

OTHER REUSE OPPORTUNITIES

- **Coordination with Pure Water Soquel** – continue to work closely with SqCWD to support the evaluation of Pure Water Soquel

- **Explore Groundwater Reuse Replenishment in Santa Cruz Mid-County Basin** – through a collaborative project with Pure Water Soquel or as an independent City led project

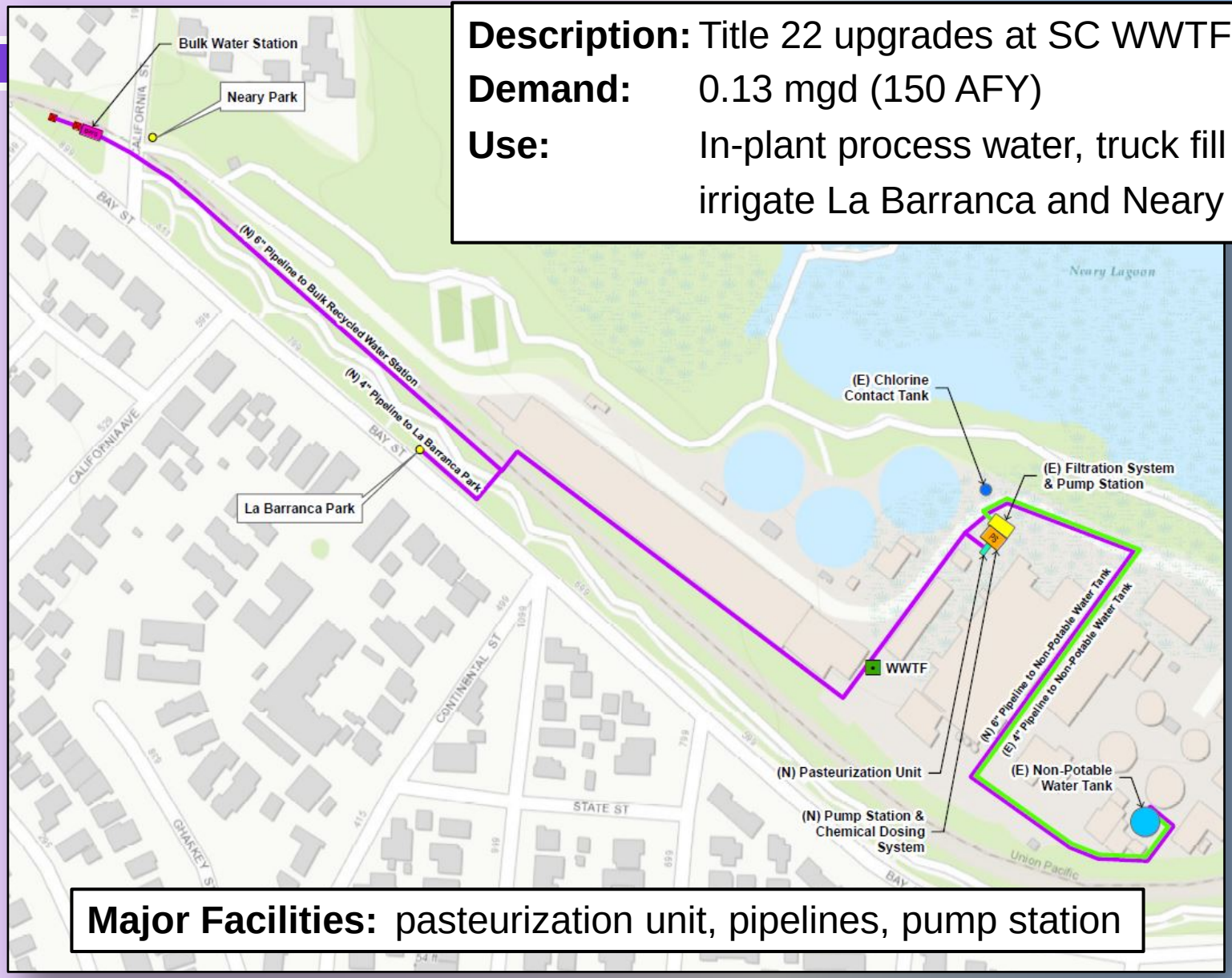
- **Explore Groundwater Reuse Replenishment in Santa Margarita Basin** – through a regional project which has the potential to make the region more resilient in the long term

SCPWD TITLE 22 PROJECT

Description: Title 22 upgrades at SC WWTF

Demand: 0.13 mgd (150 AFY)

Use: In-plant process water, truck fill station, irrigate La Barranca and Neary Park



LEGEND

(N) = New
(E) = Existing

Purple Line = New Pipeline

Green Line = Existing Pipeline

Major Facilities: pasteurization unit, pipelines, pump station

SCPWD Title 22 Project
SUMMARY OF COSTS

Facility Component	Est. Loaded Cost ($)
Treatment	730,000
Pipelines	380,000
Pump Stations	130,000
Storage	0
Site Retrofit Costs	20,000
Total Construction Cost ($)	**1,260,000**
Annual O&M Costs ($/year)	**$250,000**

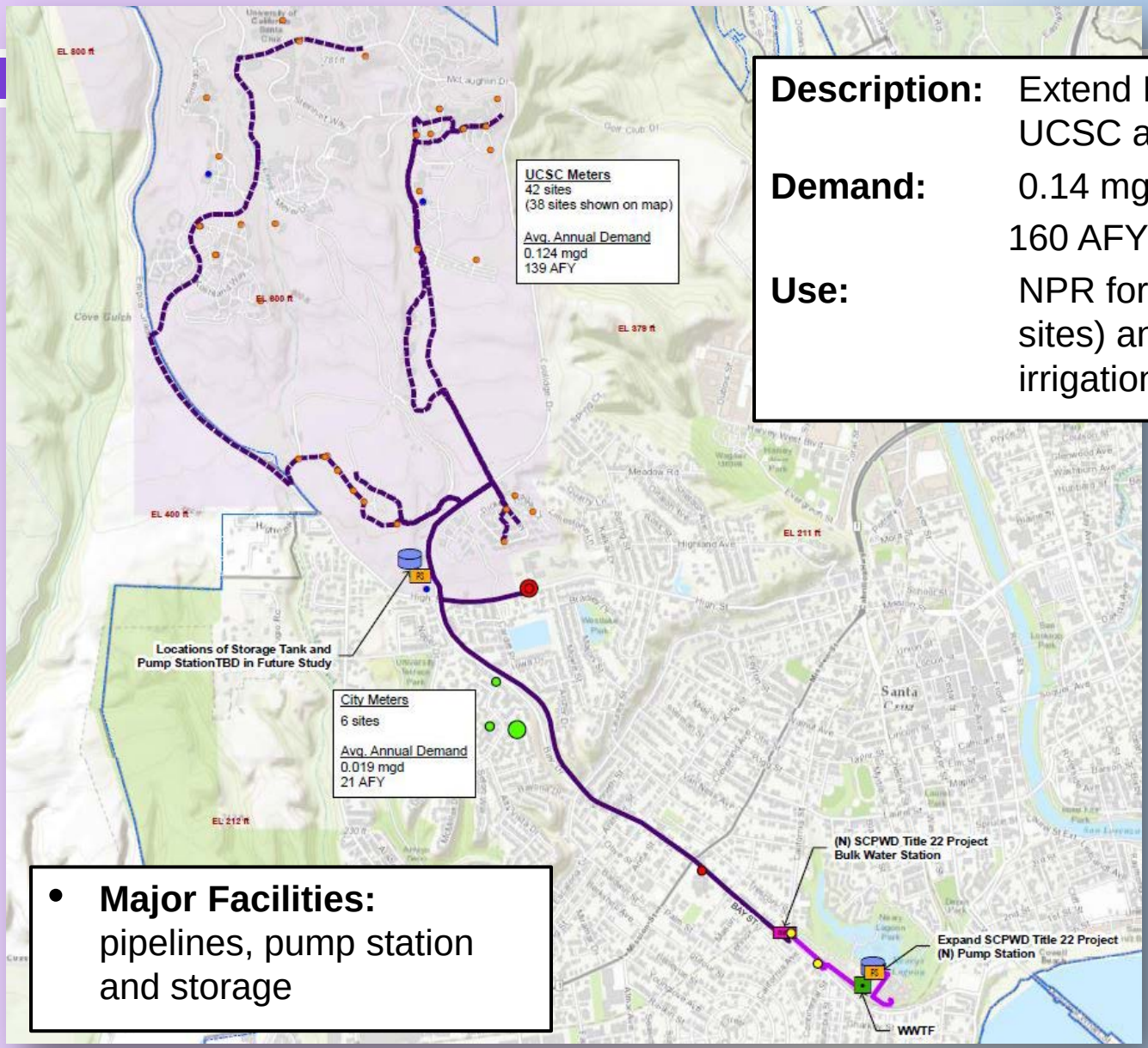
Considerations

- Financing
- Partnerships
- Outreach

Annual Life Cycle Unit Cost
($/AFY) = $2,200
($/CCF) = $5.20

* Based on reuse of 0.13 mgd (150 AFY) of Title 22 water

BayCycle PROJECT



Description: Extend RW up Bay St to serve UCSC and other City customers

Demand: 0.14 mgd

160 AFY

Use: NPR for City customers (6 irrigaiton sites) and at UCSC (42 sites for irrigation/commercial)

- **Major Facilities:** pipelines, pump station and storage

BayCycle: SUMMARY OF COSTS

Facility Component	Est. Loaded Cost ($)
Treatment	220,000
Pipelines	7,380,000
Pump Stations	690,000
Storage	380,000
Site Retrofit Costs	3,030,000
Total Construction Cost ($)	**11,700,000**
Annual O&M Costs ($/year)	**$320,000**

Considerations

- Value
- Investment
- Supply

Annual Life Cycle Unit Cost

$/AFY = $5,400

$/CCF = 12.60

* Based on annual demand of 0.14 mgd (160 AFY) for City and UCSC customers

RELATIVE $/CCF FOR IRRIGATION CUSTOMERS

	FY18	FY19	FY20	FY21
Tier 1 Irrigation ($/CCF)	$7.44	$7.95	$8.36	$8.80
Tier 2 Irrigation ($/CCF)	$9.93	$10.62	$11.16	$11.74

SCPWD Title 22	Total Project	WWTF use	City Use (Parks/Bulk Water)
$/CCF	$5.20	$4.50	$18.00
RW Demand (AFY)	148	141	7

BayCycle	Total Project	City Use	On-Campus use
$/CCF	$12.60	$8.20	$13.30
RW Demand (AFY)	160	21	139

NOTES

- Tier 1 Irrigation: ≤100% of Water Budget
- Tier 2 Irrigation: 101% - 150% of Water Budget
- Stage 3 Rationing requires a 33% reduction of the Water Budget

RELATIVE PUBLISHED COSTS OF RECYCLED WATER

Project / Use	Cost ($/AF)
SCPWD Title 22 Project / Non-Potable Reuse	**$2,200**
BayCycle Project / Non-Potable Reuse	**$5,400**
[1] Pure Water Soquel (AWPF at SC WWTF) / Indirect Potable Reuse	$2,690
[1] Pure Water Soquel (AWPF at SqCWD)/ Indirect Potable Reuse	$2,860 - $2,950
[2] City-only Desalination	$3,300 - $5,200
[3] Non-Potable Reuse	$310 - $1,960
[3] Indirect Potable Reuse	$820 - $2,000
[3] Direct Potable Reuse	$820 - $2,000

Sources

[1] SqCWD Groundwater Replenishment Feasibility Study

[2] scwd[2] Regional Seawater Desalination Project Draft EIR

[3] Water Reuse Foundation White Paper – The Opportunities and Economics of Direct Potable Reuse

NEXT STEPS

- **SCPWD Title 22 Project**
  - Continue discussions with Public Works and Parks
- **BayCycle Project**
  - Continue to explore feasibility with other potential project partners
- **Other Reuse Opportunities**
  - Consider how these larger projects may fit with other water supply alternatives (In-lieu, ASR, desal) to form a water supply portfolio