



Making the San Mateo WWTP the Gem of the Bay

August 19, 2016



Agenda

- Introductions
- Clean Water Program Overview
- WWTP Upgrades
- Potential Water Reuse Opportunities
- Next Steps



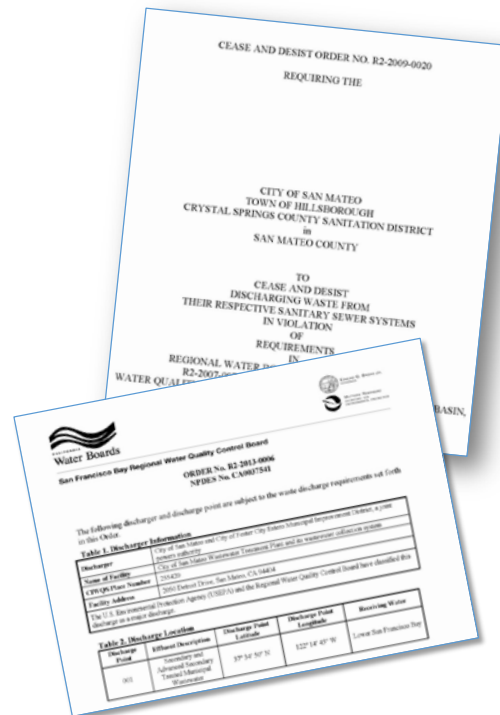
Clean Water Program – Drivers & Objectives

Replace Aging Infrastructure



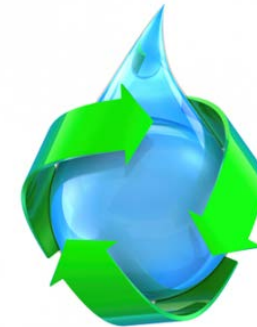
Bundled Collection System

Provide Higher Levels of Treatment & Capacity Assurance



2009 CDO
2013 NPDES Permit

Address Sustainability, Climate Change, & Biosolids/Energy



Water Re-Use Partnerships

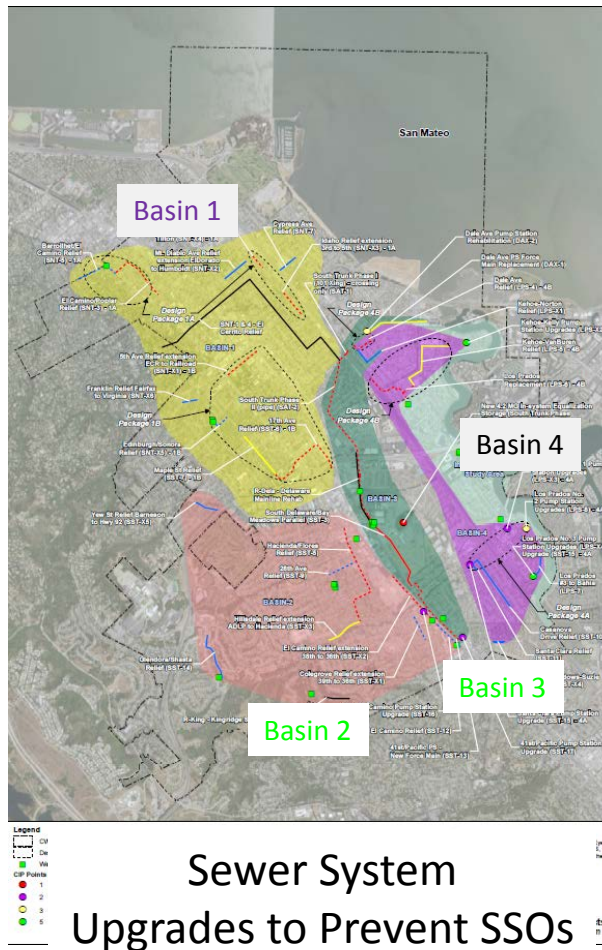


Infrastructure Certification

WWTP



CWP – System Wide Approach



Current Rendering of MBR WWTP – Primary & Secondary Treatment Facilities



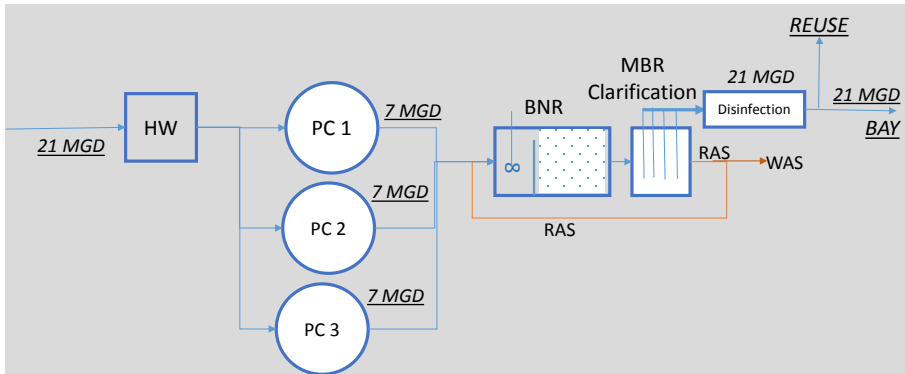
Potential Footprint
For Water Reuse Facility



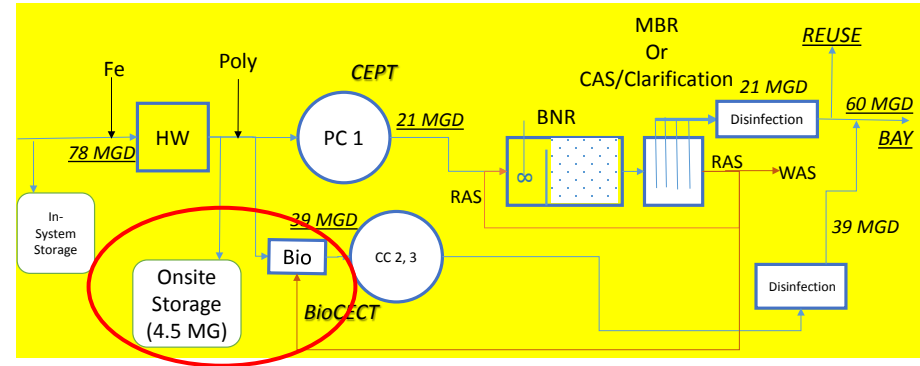
PEIR was Certified in June 2016 & Council Selected this Alternative



Dry & Wet Weather Flow Layouts



Dry Weather Operations



Extreme Wet Weather Operations



CWP WWTP Capacity

● General Treatment Capacity

- *Primary: 60 mgd*
- *Dry Weather with MBRs: 21 mgd*
- *Wet Weather with BioCEPT: 39 mgd*
- *Average Dry Weather Flow: 11 mgd*

Parameter	Max Month (mgd)	Peak Wet Weather (mgd)
Influent	21	78
Headworks	21	78
Primary	21	60
Secondary		
MBR	21	21+
BioCEPT	0	39
Outfall	60	60



Key Water Quality Goals – Target & Stretch

Target Goals:

- TN 6 mg N/L
- TP < 1 mg P/L

Stretch Goals:

- TN < 3 mg N/L
- TP < 0.1 mg P/L

Required For:	Parameter	Unit	Months	Average Dry Weather Flow	Average Annual	Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	Comment
Permit	Permitted Flow as stated in Permit	mgd	Year Round	15.7	--	--	--	40	--	--	NPDES Permit (R2-2013-0006): The 40 is peak wet weather design flow for secondary treatment
Design	Design Flow	mgd	Year Round	15.7	--	--	--	60	--	--	Design flow
Design	Design Flow (discharge)	mgd	May 1 - Sept 30	15.7	N/A	17.9	--	60	--	60	Design flow for secondary (add internal recycle)
Design	Design Flow (discharge)	mgd	Oct 1 - April 30	N/A	N/A	21	--	60	--	60	Design flow for secondary (add internal recycle)
Permit	Carbonaceous Biological Oxygen Demand, 5-day @ 20 C (cBOD) ¹	mg/L	May 1 - Sept 30	--	--	15	25	--	--	--	NPDES Permit (R2-2013-0006)
Permit		mg/L	Oct 1 - April 30	--	--	25	40	--	--	--	NPDES Permit (R2-2013-0006)
Permit	Total Suspended Solids (TSS) ²	mg/L	May 1 - Sept 30	--	--	20	30	--	--	--	NPDES Permit (R2-2013-0006)
Permit		mg/L	Oct 1 - April 30	--	--	30	45	--	--	--	NPDES Permit (R2-2013-0006)
Design	Total Ammonia	mg N/L	May 1 - Sept 30	--	--	--	--	<1	--	--	Effluent Quality Goal
Design		mg N/L	Oct 1 - April 30	--	--	69*	--	120*	--	--	NPDES Permit (R2-2013-0006)
Design	Total N	mg N/L	May 1 - Sept 30	--	--	6	--	--	--	--	Effluent Quality Goal: w/ability to go down to 3 mg N/L in the future w/carbon (allow for sidestream)
Design		mg N/L	Oct 1 - April 30	--	--	N/A*	--	--	--	--	Operate in nutrient removal mode of operation during winter with no limits
Design	Total P	mg P/L	May 1 - Sept 30	--	--	<1	--	--	--	--	Effluent Quality Goal using Bio-P ³ now; Design w/ability to go down to 0.1 mg P/L in the future (allow for chem polishing)
Design		mg P/L	Oct 1 - April 30	--	--	N/A*	--	--	--	--	Operate in nutrient removal mode of operation during winter with no limits
Permit	pH	s.u.	Year Round	--	--	--	--	--	6.0	--	9.0 NPDES Permit (R2-2013-0006)
Permit	Total Chlorine Residual	mg/L	Year Round	--	--	--	--	--	--	--	0.0 NPDES Permit (R2-2013-0006)
Permit	Enterococci	MPN/100 mL	May 1 - Sept 30	--	--	< 35	--	--	--	--	NPDES Permit (R2-2013-0006); Monthly Geometric Mean
Permit	Fecal coliform	cfu/100mL	Year Round, Discharge	--	--	< 200	--	--	--	--	NPDES Permit (R2-2013-0006); The geometric mean fecal coliform density in a calendar month shall not exceed 200 MPN/100 mL; the 90th percentile value of the last 11 values shall not exceed 400 MPN/100 mL
Design	Total Coliform ³	MPN/100 mL	Year Round	--	--	23	2.2	--	--	240	Reuse mode of operation up to 10 mgd; California Title 22 non-restricted reuse criteria

¹ 85% removal required for Average Monthly

² The median number of total coliforms shall not exceed 2.2 MPN/100 mL for the last 7-days samples were taken. No more than one sample shall exceed 23 MPN/100 mL total coliform in any 30-day period. The maximum number of total coliforms in any sample shall not exceed 240 MPN/100 mL.

* During the Winter Season, the MBR will operate under nutrient removal mode



Reuse Opportunities

- Multiple uses possible, CWP currently has interest in
 - *Water partnerships, PPPs*
 - *Irrigation*
 - *Indirect and direct potable reuse*
 - *Groundwater recharge*
 - *Nutrient trading and banking*
 - *And others?*



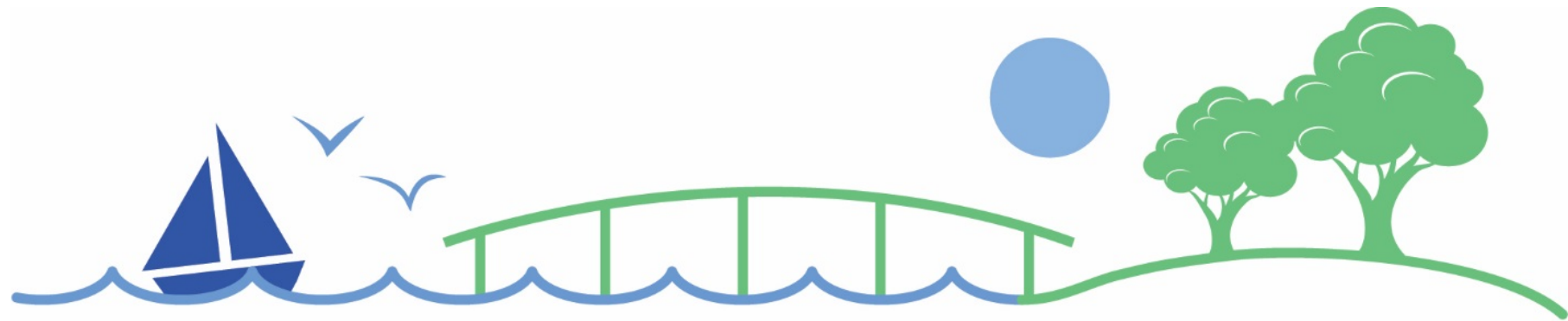
Next Steps

- CWP is interested in finding partners in all tiers of opportunity in order to meet regulatory goals, provide community benefits , and achieve sustainability objectives.
- Considerations moving forward include
 - Have community and Council backing and active support
 - Looking at total resource recovery
 - Pursuing regional solutions versus competition

CONTACT US!

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CLEAN WATER PROGRAM

PROTECTING THE BAY FOR A SUSTAINABLE FUTURE



The Gem of the Bay

