

Project Summary

- **o** Design Flows
- **o** Offsite Pipeline Route Study
- Pump Station Alternatives
 Assessment
- Preferred Alternative
- Total Project Cost





WRFCAC Status Update

Water Reclamation Facility (WRF) Lift Stations and Offsite Pipelines

December 17, 2018





Project Design Flows



OneWater: 2040 Future Conditions					
Flow Regime	Hourly (MGD)	Hourly (gpm)			
High Winter	8.14	5,650			
* Cayucos Sanitary District existing flows are not incorporated in the WRF project					

Pipeline	Brine Pipeline	IPR
Max Flow (mgd)	8.14	0.80



Offsite Pipelines



Sewer Forcemains

$\circ \quad \text{Dual forcemains} \quad$

- Size: 12" and 16" diameter pipelines
- Material: Competitively bid HDPE and FPVC

Indirect Potable Reuse (IPR) Pipeline

- Size: 8" diameter pipelines
- Material: Competitively bid HDPE and FPVC

Brine (Outfall) Pipeline

- Size: 16" diameter pipelines
- Material: Competitively bid HDPE and FPVC

Communication Conduit (Fiber Optic)

o 4" diameter PVC Conduit











Working Alignments Assessment



FF: Fatal Flawed

Preferred

		Embarcadero	East	Hills			
Key Criteria and Constraints	West			Open Cut	Long HDD Radcliff	Long HDD Little MorroCrk	
Hydraulics (Total Dynamic Head)	+	-	FF/ 0*	FF	+	+	
Environmental / Schedule Risks	0	+	FF	FF	0	-	
Geotechnical	+	-	-	-	-	-	
Cultural Resources	+	-	0	-	-	-	
Accessibility / O&M	+	+	-	-	-	-	
Dual Pump Station Integration	+	-	0	-	-	-	
Constructability	0	+	FF/-	0	FF	FF	
Right of Way Acquisition	0	+	-	-	-	-	
Traffic Impacts	-	-	0	+	+	+	

*Hybrid alignment East - West



Final Alignments Assessment



Working Alignments

West
Embarcadero
East 🗴
Hills (Open Cut) 🗴
Hills (Long HDD – Little Morro Crk) 🗴
Hills (Long HDD – Radcliff) 🗴

Final Alignments

- West Alignment Alternative
- o Embarcadero Alignment Alternative

Total Offsite Pipelines Project Costs*					
Alignment	Pipeline Option	Forcemains + Brine	West IPR	East IPR	Communication Conduit
10/	12"FM + 16"FM + 16"Brine DR 18 FPVC or	642 FN4	62 2N4	62.214	ĆO 4114
west	14"FM + 20"FM + 20"Brine DR 13.5 HDPE	\$13.5M \$2.3M	\$3.3IVI	ŞU.41IVI	
Fuchavardava	12"FM + 16"FM + 16"Brine DR 18 FPVC or	с <u>аг</u> 114	62 OM	Ċ4 1N4	<u>¢0.4014</u>
Emparcadero	14"FM + 20"FM + 20"Brine DR 13.5 HDPE	\$12.1IVI	\$3.0IVI	\$4.1IVI	ŞU.49IVI
*Reflects 20% construction & 10% design contingency applied to direct construction costs					

Preferred Alignment Alternative

• West Alignment – Dual FM – HDPE/FPVC

WATER RECLAMATION

Existing System









Single Pump Station







Dual Pump Station







WRFCAC Status Update – WRF Lift Stations and Offsite Pipelines 12



Preliminary Architectural Finishes











Single vs. Dual Pump Stations



Scenario	Single	Dual PS
Facility Maint		
# of New Stations	1	2
PS-A Footprint	Large	Medium
PS-B Footprint	None	Medium
Odor Control	One Site	Two Sites
Pump Maintene	ance & Reliability	
# of New Pumps		
PS-A (Small)	2 (60 HP)	3 (60 HP)
PS-A (Large)	6 (250 HP)	n/a
PS-B (Large)	n/a	3 (250 HP)
Total	8	6
# of Idle Pumps 99.9% of Yr	5 - PS-A Large	None
Size of Duty Pumps	Smaller	Smaller
Pump Cycling	Less	More
Control Complexity	Medium	Simple
Forcema		
Forcemain Velocities	Low	Higher
Pipe Length for Pigging	Longer	Shorter
LS-2 FM Redundancy	No	Preferred





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PS-A Configuration and Location



	Single Pump Station/PS-A Options Project Constraints					
		PS-A Site 1	PS-A Site 2	PS-A Site 3	Discussion	
	Property Procurement	+	-	+	PS-A Site 1 and 3 are City Property and do not require permitting	
PS-A Site 2	Future use of existing WWTP	-	+	0	PS-A Site 2 – North of Atascadero would allow for the largest sale of contiguous existing WWTP property.	
Atascadero Ru.	WWTP Impacts during Construction	-	+	+	Re-using the existing influent PS would be the most disruptive to WWTP operations. PS Site 3 would require the demolition of an existing building but would not affect the operations of the WWTP.	
	Aging Infrastructure / Retrofit Effort	-	+	+	The existing influent PS (PS Site 1) is approaching 40 years old.	
PS-A Site 1: Existing Influent PS	Environmental	+	-	+	The site north of Atascadero would require property procurement as well as permitting for construction. Protective fencing may be needed along the northern construction limit.	
	Emergency Storage	-	+	+ Preferred	Existing structure is not equipped for emergency storage, new facility storage can be built in.	

PS-B Configuration and Location





WATER RECLAMATION



PS-B Options Project Constraints				
	W1A & W1B	W2	Discussion	
Property Procurement	-	+	W2 is currently owned by the City.	
Elevation	+/-	+	W1B Significantly higher than Quintana Road which adds static head to PS-A.	
Construction Impacts / Public Visibility	+	+	The sites along Embarcadero are surrounded by businesses and would likely be surrounded by public parking.	
Environmental	+/-	n	West Sites 1A and 2 are bordered by unnamed drainage ditch that parallels Highway 1 and would require protection during construction.	
	F	rejerre	20 WARCAC Status Opuate – WAR Lift Stations and Offsite Pipeline	



Preferred Pump Station Scenario Selection



Total Offsite Pump Stations Project Costs*						
Scenario	Single	Dual				
Estimated Capital Cost	\$11.0M	\$8.4M				
Estimated 20-yr NPW (O&M + Replacement Funds)	\$3.6M	\$3.0M				
20YR NPW \$14.6M \$11.4M						
*Reflects 20% construction & 10% design contingency applied to direct construction costs						

Preferred

Dual Pump Stations

- Simplifies mechanical valving and reduces complexity of operations during wet weather events
- o Fewer pumps to maintain than a single station
- o Eliminates idle pumps/infrastructure during 99.9% of year

Preferred PS-A Location: PS Site 2 - South of Atascadero

o Eliminates need for property procurement and permitting

Preferred PS-B Location: West Site 3 - Main Street at Hwy 1

o Eliminates need for property procurement





Questions

