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DATE: July 20, 2015

MEMO TO: Board of Directors - Union Sanitary District

- FROM:Paul R. Eldredge, General Manager/District EngineerSami E. Ghossain, Manager of Technical ServicesRaymond Chau, CIP CoachCurtis Bosick, Associate Engineer
- SUBJECT:Agenda Item No. 11 Meeting of July 27, 2015Accept the Final Report for the Alvarado Wastewater Treatment Plant Site Use
Study from RMC Water and Environment

Recommendation

Staff recommends the Board accept the Final Report, dated June 2015, prepared by RMC Water and Environment (RMC) for the Alvarado Wastewater Treatment Plant Site Use Study (Project).

Background

On August 11, 2014, the Board authorized the General Manager to execute an Agreement and Task Order No. 1 with RMC in the amount of \$199,681 for the Project. The purpose of this Project was to develop a high-level planning tool to guide the optimization of USD's Alvarado Wastewater Treatment Plant (WWTP) to meet future operational and maintenance needs.

On June 25, 2015, staff presented the findings of this report at a Board workshop and received direction to bring the report for consideration of acceptance at a future Board meeting. It was also determined that a property acquisition plan should be developed in the event the District would need to acquire any property in the future and that a life cycle cost analysis should be prepared for the preferred future development alternative to get a better understanding of the total cost implications. As of right now, it is anticipated that this work will be completed by spring of 2016, and the results will be presented to the Board at a future Board meeting or workshop.

Agenda Item No. 11 Meeting of July 27, 2015 Page 2

The Alvarado WWTP currently treats approximately 23 million gallons of wastewater per day and contains a total of 53 facilities located within the 33-acre site. Over the next ten years, the District has planned the construction of several process, electrical, maintenance, storage, and greenengy facilities. In addition, staff anticipates that future environmental regulations will reduce the ammonia discharge limits in the Plant's final effluent that will require new process facilities.

The planned facilities are summarized below:

- 1. Future Process Facilities
 - a. Effluent Equalization Storage
 - b. Biological Nutrient (Nitrogen) Removal
 - c. Organics Process Facility
 - d. Storm Water Diversion Pump Station
 - e. Primary Digester No. 7
 - f. Secondary Clarifier Nos. 7 and 8
 - g. Recycled Water Facilities
 - h. Degritting System (Headworks)
- 2. Future Maintenance Facilities
 - a. Facilities Maintenance Building, including maintenance shop areas for the mechanics, electricians, and instrument technicians
 - b. Paint Shop
- 3. Future Storage Facilities
 - a. Collection Services Vehicle/Material Storage
 - b. Facilities Maintenance Storage
- 4. Future Green Energy Facilities
 - a. Additional Solar Panels at Alvarado
- 5. Future Electrical Projects
 - a. 12-kilovolt and 5-kilovolt Switchgear Replacement
 - b. Backup Diesel Generator Replacement
 - c. Future PG&E Substation
- 6. Provisions for Studies
 - a. USD Seismic Study
 - b. USD Rising Tides Study

Agenda Item No. 11 Meeting of July 27, 2015 Page 3

Prior to further evaluating these facilities, staff deemed it necessary and prudent to properly plan for the long term site layout of the plant. The scope of work for this Project involved four steps:

- 1. Estimate the land area needed for the expected buildout treatment plant process and operations & maintenance (O&M) and administration needs.
- 2. Assess the cost and requirements associated with purchasing land adjacent to the Alvarado WWTP in order to provide the District with a point of comparison relative to the effort that would be required to optimize and redevelop the existing site.
- 3. Develop and evaluate five alternatives for future development of the site in relation to the avoided cost baseline developed in step two.
- 4. Develop an implementation plan based on the results of the alternatives evaluation.

Staff provided hard copies of the Final Report during the workshop held on June 15, 2015; and RMC completed all work under Task Order No. 1 by June 30, 2015.

Staff recommends the Board accept the Final Report, dated June 2015, prepared by RMC Water and Environment for the Alvarado Wastewater Treatment Plant Site Use Study.

PRE/SEG/RC/CB:ks

Attachment: Alvarado WWTP Site Use Study Final Report, dated June 2015



Alvarado Wastewater Treatment Plant Site Use Study

FINAL

Prepared by:



In Association with:





June 2015

Table of Contents

Execut	ive SummaryE	S-1
ES-1	IntroductionE	S-1
ES-2	Future Site RequirementsE	S-1
ES-3	Land Purchase EvaluationE	S-1
ES-4	Site Use AlternativesE	S-3
ES-5	Capital Cost EstimatesE	S-5
ES-6	Evaluation of AlternativesE	S-5
ES-7	RecommendationsE	S-6
.		
Chapte	er 1 Introduction	1-1
1.1 Pro	oject Drivers	. -
	ICIEdSIII FIOWS	. 1-1
	uture Regulations	. 1-2
1.1.3 V	Veter Deuse	.1-2
1.1.4 V	valer Reuse	.1-3
1.1.5 5	ed Level Rise	.1-3
1.2 EXI	Sting Facilities and Features	.1-4
1.2.1 P	G&E Easement	.1-5
	er 2 Future Site Requirements	2-1
	Ject Descriptions	.2-1
2.1.1 E	Influent Equalization Storage	.2-1
2.1.2 N	lutrient Removal	.2-2
2.1.3 C	Viganics Processing Facility	.2-3
2.1.4 5	storm water Diversion Pump Station	.2-3
2.1.5 P	rimary Digester No. 7	.2-3
2.1.6 5	econdary Clarifiers Nos. 7 and 8	.2-3
2.1.7 K	(ecycled water Facilities	.2-4
2.1.8 D	vegritting System (Headworks)	.2-4
2.1.9 F	abrication, Maintenance and Construction Building / Paint Shop	.2-4
2.1.10	Collection Service and FINC Venicle / Material Storage	.2-4
2.1.11	Aivarado Solar Paneis – Phase II	.2-4
2.1.12	Replacement of 12kV and 5kV Switchgear	.2-5
2.1.13	Replacement of Backup Diesel Generators	.2-5
2.1.14		.2-5
2.1.13	Levees	.2-3
	er 5 Land Purchase Evaluation	3 -1
3.1 Sul	Inmary of Investigation	.3-1
3.1.12	Oning	.J-1
3.1.2 K	ledevelopment	.3-2 2 2
3.1.3 3	Jamada County Eload Control and Water Concervation District	.ວ-∠ ວີວ
3.1.4 A	ree Dreporty Information	.3-Z
3.1.5 A	I ea Property Information	.3-5
3.2 Lar	10 Value Analysis	.3-0
3.3 Lar	a Acquisition Findings and Suggested Strategy	.3-9
	er 4 Jile Use Allematives	4-1
4. I AIte	striative 1 - All New Midtil	.4-5 4 0
4.2 AI	smalive 2 - Uniulu Existing Pidni	.4-9
4.3 AIL	ernative 3 - Implement Compact Mant	+-13 1 1 E
4.4 AIT	ernative 4 – All New Plant with Compact Technology Alternative	CI-+
4.5 Alte	emative 5 - Baseline Plant Expansion	+-19

June 2015

Chapter 5 Capital Cost Estimates	5-1
Chapter 6 Evaluation of Alternatives	6-1
6.1 Descriptions of Criteria	6-1
6.2 Evaluation Results	6-2
Chapter 7 Recommendations	

List of Tables

Table ES-1.	Site Use Alternative Summary	4
Table ES-2.	Capital Cost Comparison of Site Use Alternatives10	C

Table 3-1. Potentially Available Tracts North of USD	3-5
Table 3-2. Land Value of Tracts North of USD (as of October 2014)	3-7
Table 3-3. Summary of Parcels North of the Alvarado WWTP	. 3-10
Table 4-1. Site Use Alternative Summary	4-1
Table 4-2. Facility Prioritization	4-2
Table 5-1. Capital Cost Comparison of Site Use Alternatives	5-3
Table 6-1. Weighted Scores of the Site Use Study Alternatives	6-2

List of Figures

Figure ES-1. Potentially Available Tracts North of USD's Current Alvarado WWTP Property	2
Figure ES-2. All New Plant Alternative Layout	5
Figure ES-3. Alternative 2 - Unfold Existing Plant	6
Figure ES-4. Alternative 3 - Implement Compact Plant	7
Figure ES-5. Alternative 4 – All New Plant with Compact Technology	8
Figure ES-6. Alternative 5 - Baseline Plant Expansion	9

Figure 3-1. Area of Interest Surrounding USD	3-4
Figure 3-2. Potentially Available Tracts North of USD	3-8
Figure 4-1. Phase 1 for All Alternatives	4-4
Figure 4-2. Alternative 1 - All New Plant (Phase 2)	4-7
Figure 4-3. Alternative 1 - All New Plant (Phase 3)	4-8
Figure 4-4. Alternative 2 - Unfold Existing Plant (Phase 2)	4-11
Figure 4-5. Alternative 2 - Unfold Existing Plant (Phase 3)	4-12
Figure 4-6. Alternative 3 - Implement Compact Plant (Phase 2)	4-14
Figure 4-7. Alternative 4 – All New Plant with Compact Technology (Phase 2)	4-17
Figure 4-8. Alternative 4 - All New Plant with Compact Technology (Phase 3)	4-18
Figure 4-9. Alternative 5 - Baseline Plant Expansion (Phase 2)	4-20

Appendices

Appendix A – Site Layouts of All Phases of the Alternatives Appendix B – Land Analysis Report by PPC Appendix C – Detailed Cost Estimates

Acknowledgements

Union Sanitary District

Curtis Bosick Andy Morrison Mike Gill Raymond Chau Ric Pipkin Sami Ghossain David Livingston Tim Grillo Robert Simonich Paul Eldredge Armando Lopez James Schofield Rich Czapkay

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Subconsultants

PPC Land Consultants, Property Research

List of Abbreviations

ACFCD	Alameda County Flood Control & Water Conservation District		
ACWD	Alameda County Water District		
ADWF	average dry weather flow		
APN	assessor's parcel number		
AWTF	Advanced Water Treatment Facilities		
BACWA	Bay Area Clean Water Agencies		
CAS	Conventional Activated Sludge		
CCT	Chlorine Contact Tank		
CIP	Capital Improvement Program		
CS	Collection Services		
District	Union Sanitary District		
EBDA	East Bay Discharger's Authority		
EQ	Equalization		
FMC	Fabrication, Maintenance and Construction		
FOG	Fats, Oil and Grease		
ft	foot		
gpd	gallons per day		
gpm	gallons per minute		
in	inches		
in/hr	inches per hour		
IPR	indirect potable reuse		
kV	kilovolts		
L	liter		
MBBR	Moving Bed Bioreactor		
MBR	Membrane Bioreactor		
mg	milligrams		
MG	million gallons		
MGD	million gallons per day		
MLSS	mixed liquor suspended solids		
Ν	nitrogen		
NAVD88	North American Vertical Datum of 1988		
NPDES	National Pollutant Discharge Elimination System		
NPR	nonpotable reuse		
NRC	National Research Council		
O&M	Operations and Maintenance		
OPC	Ocean Protection Council		
PDWF	peak dry weather flow		
PG&E	Pacific Gas & Electric		
PPC	PPC Land Consultants		

June 2015

PS	Pump Station	
PWWF	peak wet weather flow	
RMC	RMC Water and Environment	
SF	square feet	
Study	Site Use Study	
USD	Union Sanitary District	
WWTP	Wastewater Treatment Plant	

Executive Summary

ES-1 Introduction

The purpose of the Alvarado Wastewater Treatment Plant (WWTP) Site Use Study (Study) is to provide a high-level planning tool to guide the optimization of the WWTP to meet future operational and maintenance needs. Although there are no current regulatory requirements forcing Union Sanitary District (USD or District) to expand its current wastewater treatment operation, the District is currently planning several capital improvement projects and anticipating potential regulatory changes that could impact the long-term uses of the site. The work specifically involved developing and evaluating alternative site layout scenarios based on estimated land area needs for identified near- and long-term projects.

The Study is organized as follows:

- Chapter 1 Introduction
- Chapter 2 Future Site Requirements
- Chapter 3 Land Purchase Evaluation
- Chapter 4 Site Use Alternatives
- Chapter 5 Capital Cost Estimates
- Chapter 6 Evaluation of Alternatives
- Chapter 7 Recommendations

The key project drivers for the Study include increasing flows to the WWTP, future nutrient regulations for the San Francisco Bay, facility improvements, water reuse and sea level rise.

ES-2 Future Site Requirements

The Alvarado WWTP currently meets the National Pollutant Discharge Elimination System (NPDES) permit requirements for secondary treatment by using activated sludge as its biological liquid treatment process. USD's treatment also includes primary and secondary clarification, and chlorination. The solids are handled on site through sludge thickening, digestion, and dewatering. The WWTP has a cogeneration facility located next to the primary digesters, which uses the digesters' biogas to produce electricity and heat.

As part of the Study, USD identified a need for the following: 8 process facilities, 3 electrical facilities, a new Fabrication, Maintenance and Construction (FMC) Building, new storage facilities, and Phase II of its solar panel implementation in order to address the project drivers previously mentioned. The estimated land area needed for all projects was developed based on buildout flows. Each of the 14 projects identified by USD is described in the Study.

ES-3 Land Purchase Evaluation

PPC Land Consultants (PPC) performed a land analysis of parcels near Alvarado WWTP. The analysis included examining zoning, redevelopment plans, environmental layers, title reports for nearby properties, and performing a fenceline evaluation of immediate area lands and estimating their values. Based on the land acquisition review, it was determined that it would be very problematic to expand the existing plant to the west, east or south due to development restrictions and potential environmental issues. Accordingly the focus of the evaluation was ultimately centered on the mixed-use, light industrial area immediately north of the current WWTP footprint. This area contains 17 tracts of land owned by 13 different parties. The 17 tracts and their associated estimated costs are presented in Figure ES-1.



Figure ES-1. Potentially Available Tracts North of USD's Current Alvarado WWTP Property

June 2015

Executive Summary

FINAL

ES-4 Site Use Alternatives

Five future site use alternatives were developed based on future facility requirements and land purchase evaluation, and are summarized in Table ES-1 and shown as Figure ES-2 through Figure ES-6. Each alternative was configured with two or three phases based on USD's prioritization of the new facilities. The Study (Site Use Alternatives Chapter 4) and Appendix A contain maps of the alternatives.

In order to maximize future flexibility, the same layout (with minor variations) for Phase 1 for all five alternatives was used. Having the same Phase 1 configuration would allow USD to implement near term priorities, without blocking future structures and while preserving the District's ability to reevaluate or modify the ultimate buildout site plan, if needed in the future. In Phase 1, the FMC building would be constructed on the northwest side of the plant. A temporary, 6-ft deep, earthen equalization basin would be placed in the open space on the northeast side of the plant. Other facilities needed by USD in the near-term include, replacement of the 12kV and 5kV switchgear, a PG&E substation, and the replacement of the backup diesel generators. An Organics Process Facility may be implemented in the near-term depending on the co-digestion pilot study, which is currently underway.

FINAL

			Use of	
		Required	Compact Technology	Number
Alternative	Summary Description	Acquisition	?	Phases
1 - All New Plant	An all new liquid process on the north side of the site. Main process train would be activated sludge with biological nutrient removal and secondary clarifiers. Once completed the new process train would receive all of the buildout flow and the two existing trains at the south side of the plant can be taken out of service.	Tracts 2 through 7, 16 and 17	No	3
2 - Unfold Existing Plant	Expands the existing liquid process trains in a linear fashion within the existing treatment plant site. Administration Building and Control Building would be demolished and reconstructing them on the northeast corner of the existing site when the liquid process train is expanded.	Tract 3	No	3
3 - Implement Compact Plant	Convert the plant from a conventional activated sludge (CAS) process into a membrane bioreactor (MBR) system, while keeping the existing headworks, primary clarifiers, and aeration basins running. The Compact Plant alternative fits within the existing site and does not require the relocation of existing facilities.	None	Yes	2
4 - All New Plant with Compact Technology	Similar to the All New Plant alternative with the exception that a compact technology (e.g. MBR) would be used instead of CAS. The all new liquid process train would be located the north side of the treatment plant site. Once completed the new process train would receive all of the buildout flow and the two existing trains at the south side of the plant can be taken out of service.	Tracts 2 and 3	Yes	3
5 - Baseline Plant Expansion	Baseline option for USD that does not remove or relocate any existing structures and only adds new facilities that are on the project priority list. Although the Baseline Plant alternative avoids the use of compact technologies and maximizes the use of existing facilities, the location of the new process structures would require the installation of complex, large diameter yard piping to connect the new structures into the existing flow path. In addition, the discontinuous arrangement would result in significant operational challenges.	Tract 3	No	2

Table ES-1. Site Use Alternative Summary

Page 147 of 316



Figure ES-2. All New Plant Alternative Layout

Executive Summary

FINAL



Figure ES-3. Alternative 2 - Unfold Existing Plant

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Figure ES-4. Alternative 3 - Implement Compact Plant

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Figure ES-5. Alternative 4 – All New Plant with Compact Technology

Executive Summary

FINAL



Figure ES-6. Alternative 5 - Baseline Plant Expansion

Executive Summary

FINAL

ES-5 Capital Cost Estimates

Preliminary capital cost estimates were developed for each of the five site use alternatives. The total capital cost includes basic demolition costs for removing the existing facilities that would be replaced or removed. Three of the alternatives also include costs for select large diameter yard piping, and the four alternatives that require additional land include land purchase costs. A summary of the capital costs are listed in Table ES-2.

Phase	All New Plant	Unfold Existing Plant	Implement Compact Plant	All New Plant with Compact Technology	Baseline Future Expansion
Dhace 1	¢ 42,000,000	¢42,000,000	¢42,000,000	¢42,000,000	¢42,000,000
Phase 1	\$43,000,000	\$43,000,000	\$43,000,000	\$43,000,000	\$43,000,000
Phase2	\$233,000,000	\$96,000,000	\$150,000,000	\$227,000,000	\$130,000,000
Phase 3	\$54,000,000	\$92,000,000	-	\$70,000,000	-
Total Capital Cost	\$330,000,000	\$231,000,000	\$193,000,000	\$340,000,000	\$173,000,000

Table ES-2. Capital Cost Comparison of Site Use Alternatives

It is important to note that the capital costs presented in Table ES-2, do not account for all capital improvement costs for the future USD facility. For example, the Compact Plant alternative relies heavily on the continued use of the existing process structures and facilities. Rehabilitation and replacement of some of the existing processes may be required in the future.

Facilities associated with nutrient removal (aeration basins, MBBR, and/or MBR) represent the largest percentage of costs for all five alternatives. Depending on the alternative, nutrient removal represents 37% to 60% (\$47M to \$104M) of the total raw construction cost. Costs associated with nutrient removal facilities are not currently included in USD's 10 year CIP. The costs associated with nutrient removal in this study were developed based on the assumption that the future nutrient effluent limit would be 15 mg N/L.

The capital cost for an Advanced Water Treatment Facility (AWTF) designed to provide water quality suitable for indirect potable reuse by Alameda County Water District ranges from \$90,000,000 for a 10 MGD facility to \$295,000,000 for a 40 MGD facility, and is not included in the capital cost estimates presented in Table ES-2.

ES-6 Evaluation of Alternatives

A weighting and scoring system was used to compare and evaluate the five alternatives. Eight different criteria were used to evaluate the alternatives: capital cost, life cycle cost, land purchase requirements, flexibility, ease of operation, reliability/longevity, impacts to neighbors, and complexity/sequencing. Each alternative was scored and weighted by USD, based on the evaluation criteria.

The All New Plant alternative is the second most expensive out of the five, but it is viewed as the most reliable and would ultimately provide USD with an all new, consolidated liquid treatment process. The alternative would continue meeting NPDES permit requirements using an activated sludge process, a highly-proven technology that the District has experience running.

June 2015

FINAL

The Unfold Existing Plant alternative would allow USD to extend its existing liquid process train in a linear fashion; however, there would be no room for future expansion on site after construction of the ultimate buildout configuration.

The Implement Compact Plant alternative is the only alternative that does not require USD to purchase land. The alternative receives a low reliability score, however, because it involves retrofitting an existing basin in order to install membranes. The USD O&M staff does not have the same experience working with an MBR technology as they do working with the conventional activated sludge technology.

The All New Plant with Compact Technology alternative not only has a high cost, similar to the All New Plant alternative, but it also implements MBR technology which does not have the same operational history of CAS, especially at larger facilities. At buildout capacity, a MBR process at USD would be one of the largest MBR treatment plants in the United States.

The Baseline Plant Expansion is the least expensive alternative, but it does not provide flexibility for future plant needs. The placement of the new aeration basins and secondary clarifiers in this alternative would disrupt the linear flow of the liquid process facilities and would be difficult to operate. The arrangement of the Baseline Plant Expansion would also present significant constructability issues, which could result in higher construction costs.

ES-7 Recommendations

Based upon a review of the alternative evaluation results along with follow-on discussion, the alternative that best addresses the future site needs for USD appears to be the All New Plant alternative (based on the most current and available information). Though the All New Plant is recommended for implementation, because the initial Phase 1 facilities are the same for all five alternatives, USD can revisit or reconfirm the All New Plant alternative prior to the start of Phase 2.

Additional land would be required to implement Phase 2 of the All New Plant alternative; therefore USD should immediately develop and implement a land acquisition strategy, and continue to actively involve itself in the update to the Union City General Plan that is occurring now. It is recommended that USD communicate with the current land owners north of the WWTP, who are actively planning permanent improvements.

Regardless of the alternative, the potential financial impacts of more stringent nutrient limits are significant (\$147M of the \$330M capital cost for the All New Plant alternative). USD should begin evaluating financing and funding options for implementation of nutrient removal facilities.

It is important that USD uses this Study in combination with other key studies, including the Hayward Marsh Study, Potable Reuse Evaluation (with Alameda County Water District), the Seismic Vulnerability Assessment, and other projects and studies which may bear on the results of this Study.

Chapter 1 Introduction

The purpose of the Alvarado Wastewater Treatment Plant (WWTP) Site Use Study (Study) is to provide a high-level planning tool to guide the optimization of the WWTP site to meet future operational and maintenance needs. Although there are no current regulatory requirements forcing Union Sanitary District (USD or District) to expand its current wastewater treatment operation, the District is currently planning several capital improvement projects and anticipating potential regulatory changes that could impact the long-term uses of the site. In addition, the District is interested in exploring alternative land layouts that support sustainability initiatives, and that will meet predicted future nutrient regulations. Potential impacts from sea level rise were considered as well. Offsite/remote facilities were initially considered; however after it was determined that the availability/price of land did not preclude expansion at current site, offsite facilities were eliminated from consideration. This Study was prepared by RMC Water and Environment (RMC), as a consultant to USD. The goals of this Study were to:

- Identify near- and long-term projects based on a range of project drivers;
- Estimate land area requirements for identified projects;
- Assess the cost and requirements associated with purchasing land adjacent to the Alvarado plant site;
- Develop and evaluate alternative layout scenarios and;
- Recommend preferred layouts for short- and long-term development of the WWTP site.

This Study will serve as a guidance document as individual projects are implemented. The Study, however, does not evaluate utility or infrastructure development requirements for the alternative layouts.

The Study involved four steps:

- 1. Estimate the land area needed for the expected buildout treatment plant process and operations & maintenance (O&M) and administration needs.
- 2. Assess the cost and requirements associated with purchasing land adjacent to the Alvarado WWTP in order to provide USD with a point of comparison relative to the effort that would be required to optimize and redevelop the existing site.
- 3. Develop and evaluate five alternatives for future development of the site in relation to the avoided cost baseline developed in step two.
- 4. Develop an implementation plan based on the results of the alternatives evaluation.

1.1 Project Drivers

The key project drivers for this Site Use Study include issues that need to be addressed in the near-future and those that require more long-term planning. The section below describes each driver in detail.

1.1.1 Increasing Flows

USD's Alvarado WWTP receives wastewater from a total population of approximately 340,000 people from the cities of Fremont, Newark, and Union City, treating an average of 24 million gallons per day (MGD)¹ in 2014.

According to a 2013 update of the Wastewater Equalization Storage Facilities Pre-Design Report (Brown and Caldwell), the future average dry weather flow (ADWF) at the Alvarado WWTP is projected to be 41.5 MGD². This number is based on the Master Plan Reports for the Irvington Pump Station (2004), Newark

¹ Union Sanitary District, 2014. <u>http://www.unionsanitary.com/mission.htm</u>.

² Brown and Caldwell. Flow Equalization Report Update, November 2013.

Pump Station (2011), and Alvarado Pump Station (2008). In order to process the flows projected at buildout, USD will need additional primary digester and secondary clarifier capacity³.

1.1.2 Future Regulations

Nutrients in the San Francisco Bay are becoming a major area of interest for the San Francsico Bay Area water quality community. A new regional permit, *Waste Discharge Requirements for Nutrients from Municipal Wastewater Dischargers to San Francisco Bay*, was issued on April 9, 2014 by the San Francisco Regional Water Quality Control Board. This permit sets forth a regional framework to facilitate collaboration on studies that will inform future management decisions and regulatory strategies. The permit does not explicitly state nutrient removal goals, but future regulations will likely be more stringent than existing regulations.

As part of an ongoing nutrient management evaluation, the Bay Area Clean Water Agencies (BACWA) has developed a work plan, including potential nutrient removal levels for Bay Area treatment plants. The evaluation plan, which was submitted to the San Francisco Regional Water Quality Control Board in November 2014, includes three potential levels of nutrient removal; one qualitative target based on optimizing nutrient removal and two quantitative total nitrogen effluent limits, 15 mg N/L and 6 mg N/L. Total nitrogen includes ammonia, nitrite, nitrate, particulate organic nitrogen, and soluble organic nitrogen. The 15 mg N/L limit is noted in the BACWA work plan as being achievable with conventional nutrient removal processes without adding an external carbon source or effluent filtration. The more stringent 6 mg N/L limit would require an external carbon source for nitrogen removal and metal salt addition with filtration for most plant configurations⁴. The focus of this first phase on nutrient limits is nitrogen; regional permitting of phosphorus is possible in the future.

The average total nitrogen in USD's WWTP effluent from July 2012 to March 2014 was approximately 37 mg/L. To prepare for potentially more stringent nutrient removal limits in the future, USD is examining potential site impacts resulting from increased nutrient limits.

1.1.3 Wet Weather Peaks

Alvarado WWTP has a rated peak hydraulic capacity of 85 MGD³; however, the combined capacity of its three effluent disposal options is less than the rated capacity. USD is a member agency of the East Bay Discharger's Authority (EBDA) and USD's contract allows the District to discharge to the EBDA outfall. In addition to the EBDA outfall, the District has the ability to discharge up to 20 MGD to Hayward Marsh via the EBDA pipeline, however an ongoing Hayward Marsh Rehabilitation Options Study is looking into the long-term viability of the marsh as a disposal venue for USD, among other considerations. USD can also use Old Alameda Creek as an emergency outfall during peak wet weather flow conditions when the capacity of the EBDA system is maximized. The discharge to the Creek is limited to 8.4 million gallons (MG) per event, but no maximum discharge rate is specified in the permit.

The current peak hourly effluent flow resulting from a 10-year event is 56.9 MGD⁵. This flow would exceed USD's EBDA capacity in the EBDA pipeline for brief periods of time; however it was concluded in the 2013 update of the Wastewater Equalization Storage Facilities Pre-Design Report, that the excess flow could be discharged to Old Alameda Creek without the need for additional storage. It is expected that storage requirements will change in the future however. For the full buildout condition of USD's service area, the 10-year event would result in a projected peak hourly effluent flow of 73.3 MGD⁵. Under this

³ Carollo Engineers. Final Report Capacity Testing Program Raymond A. Boege/Alvarado Wastewater Treatment Facility, June 1998.

⁴ HDR, Brown and Caldwell. Potential Nutrient Reduction by Treatment Optimization and Treatment Upgrades, November, 2014

⁵ Brown and Caldwell. Flow Equalization Report Update, November 2013.

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condition, effluent equalization storage would be required even with discharge to Hayward Marsh and 8.4 MG of discharge through Old Alameda Creek.

1.1.4 Water Reuse

Alameda County Water District (ACWD) and USD partnered to investigate potential recycled water projects in their joint service area in 1993, 2000, 2003, and 2010. However, implementation of large-scale recycling facilities was deferred, as they were not considered the best approach to achieve ACWD's and USD's water and wastewater management needs at the time. Presently however, ACWD has been unable to acquire its allocation of water from the State Water Project due to drought conditions and regulatory restrictions. ACWD and USD are therefore in the process of deciding when and how they should move forward with a large-scale recycled water program.

ACWD currently imports 60% of its water supplies (40% from the State Water Project; 20% from San Francisco Public Utilities Commission Regional Water System). The remaining 40% of ACWD water supplies are local supplies, including local groundwater/surface water and desalination of brackish groundwater⁶. Senate Bill X7-7 (adopted November 2009) requires ACWD to develop targets for reduced water usage to aid the State in reducing total water usage by 20% by the year 2020⁶.

USD is interested in being good stewards for the environment by making use of available resources where practical, therefore this Study investigated the footprint of potential advanced treatment facilities for future non-potable reuse (NPR) or indirect potable reuse (IPR).

1.1.5 Sea Level Rise

There is potential for accelerated sea level rise over the next fifty years and beyond, in the San Francisco Bay. USD's Alvarado WWTP is located along the Bay's eastern shoreline, which places the wastewater operations and infrastructure in a critical position relative to sea level rise. Direct impacts can include increased wave action and flooding, while indirect impacts can include rising groundwater levels and corrosivity.

In June 2013, ESA PWA prepared a report, Preliminary Study of the Effect of Sea Level Rise on District Infrastructure, for USD. The report states the WWTP is at an average elevation of approximately 9.5 ft NAVD88. The north side of the WWTP is protected by the 13.5 ft NAVD88 flood risk management levees located along Old Alameda Creek. USD has its own western levee with a levee crest elevation of approximately 12 ft NAVD88, and levees to the south and east with a levee crest elevation of approximately 7 ft NAVD88. The ESA PWA study used sea level rise projections relative to the year 2000, based on high-end estimates from the California Ocean Protection Council (OPC) in 2011 that were consistent with the National Research Council (NRC) 2012 values, OPC (2013) and the South San Francisco Bay Shoreline Study. The projections were 14 inches of sea level rise by 2050 and 55 inches by 2100⁷. The ESA PWA study also reported that the height of the stillwater of the 100 year storm in 2050 will be 13.0 ft NAVD88, which is higher than all of USD's existing levees⁷. Recently completed research on sea level rise estimate a lower amount of sea level rise, than was used in the ESA PWA report. The National Research Council estimates of sea level rise by 2050 and 36 inches by 2100.⁸

Flooding at Alvarado WWTP could lead to failure of mechanical and electrical equipment located in below grade structures, such as the influent pump station and wet wells. All below grade structures in the plant have sumps and sump pumps. However, inundation of the site would overwhelm the capacity of these

⁶ RMC. Alameda County Water District and Union Sanitary District Recycled Water Feasibility Study Update, October 2010.

⁷ ESA PWA. Union Sanitary District Preliminary Study of the Effect of Sea Level Rise on District Infrastructure, June 2013.

⁸National Research Council. Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future. Washington, DC: The National Academies Press, 2012.

FINAL

pumps and the onsite drainage system, thereby preventing reliable operation of the WWTP. Footprint requirements for raising USD's levees up to 13 ft, to protect against sea level rise, were incorporated into the Study.

There are existing levees located to the west, outside the USD WWTP property boundary. Theses levees are owned and maintained by the Alameda County Flood Control District (ACFCD). USD should engage and coordinate with ACFCD to determine if a regional approach could provide flood and sea level rise protection, instead of increasing the height of the levees located on the WWTP site.

1.2 Existing Facilities and Features

The Alvarado WWTP currently meets the National Pollutant Discharge Elimination System (NPDES) permit requirements for secondary treatment by using activated sludge as its biological liquid treatment process. USD's treatment also includes primary and secondary clarification, and chlorination. The solids are handled on site through sludge thickening, digestion, and dewatering. The WWTP has a cogeneration facility located next to the primary digesters, which uses the digesters' biogas to produce electricity and heat. The recommended average dry weather flow (ADWF) capacities for each of the existing unit process facilities at the Alvarado WWTP are summarized in Table 1-1. The recommended capacities came from a field capacity testing program completed at USD in 1997. The program assumed a future ADWF of 38 MGD⁸. Although the assumed flow is less than the 41.5 MGD projected future ADWF, the difference is small enough to ignore for the purpose of this study. An aerial shot of the existing facilities at the WWTP is shown in Figure 1-1.

Unit Process	Description	Total Recommended ADWF Capacity (MGD) ^{a,b}
Headworks	2 – Mechanical Bar Screens	85
Primary Clarifiers	4 – 75'x75'x'11' Clarifiers 2 – 90'x90'x 11' Clarifiers	44
Aeration Basins	4 – 130'x65'x17.4' Basins 3 – 150'x60'x17.4' Basins	39
Secondary Clarifiers	4 – 90'x90'x12' Clarifiers 2 – 120'x120'x13' Clarifiers	33
Sludge Thickeners	3 – Gravity Belt Thickeners 4 – 15,900 ft ³ Gravity Thickeners	51 38
Sludge Dewatering	5 – Belt Filter Presses	42
	3 – 76,340 ft ³ Digesters 2 – 123,150 ft ³ Digesters	
Primary Anaerobic Digesters	1 – 194,620 ft ³ Digester	33
Secondary Digesters	2 – 110,000 ft ³ Digesters	-
Disinfection Facilities	5 – 114'x1-'x14.5' Contact Channels	89
EBDA Pump Station	1 – Pump Station	53.3

Table 1-1. Current Reliable Average Dry Weather Flow Capacity for Unit Processes

Footnotes:

a. Reliable capacity is based on the largest unit being out of service.

b. Capacities came from USD Capacity Testing Program, June 1998⁹.

⁹ Carollo Engineers. Final Report Capacity Testing Program Raymond A. Boege/Alvarado Wastewater Treatment Facility, June 1998.

1.2.1 PG&E Easement

A 140-foot wide Pacific Gas & Electric (PG&E) easement for an 115kv transmission line runs through the southwest side of the plant, as shown in Figure 1-1. As part of an agreement between PG&E and USD, the District cannot build permanent facilities within the easement. The existing Odor Control Building situated inside the easement has been approved by PG&E, but no other permanent facilities are allowed. The District can potentially store materials and equipment temporarily within the easement. RMC contacted PG&E to discuss a possible realignment of the HV power lines running through the Plant; however, PG&E said they are not aware of any viable alternate alignments; therefore, this Study assumed no new facilities would be built within the easement.



Figure 1-1. Existing Alvarado WWTP

Chapter 1 Introduction

FINAL

Chapter 2 Future Site Requirements

As part of the Study, USD identified a need for the following: 8 process facilities, 3 electrical facilities, a new Fabrication, Maintenance and Construction Building, new storage facilities, and Phase II of its solar panel implementation in order to address the project drivers previously described. The estimated land area needed for all projects was developed based on buildout flows. The estimated land area needed for each of the regulatory compliance driven projects are based on anticipated future changes to regulatory requirements. The specific treatment process required to meet more stringent regulatory requirements is based on our current understanding of the most probable process technology that would be employed within today's context, and could be subject to change as technology evolves.

2.1 Project Descriptions

Brief project descriptions and estimated land area requirements are provided in this section for each of the following projects that USD has listed as potential facilities needed at the WWTP.

- 1. Effluent Equalization Storage
- 2. Nutrient (Nitrogen) Removal
- 3. Organics Processing Facility
- 4. Storm Water Diversion Pump Station
- 5. Primary Digester #7
- 6. Secondary Clarifiers #7 and #8
- 7. Recycled Water Facilities
- 8. Degritting System (Headworks)
- 9. Fabrication, Maintenance and Construction Building / Paint Shop
- 10. Collection Systems and FMC Vehicle / Material Storage
- 11. Alvarado Solar Panels Phase II
- 12. Replacement of 12 kV and 5kV Switchgears
- 13. Replacement of Backup Diesel Generators
- 14. PG&E Substation
- 15. Levees

2.1.1 Effluent Equalization Storage

As previously noted, the 10-year event would result in a peak flow of 73.3 MGD for full buildout of USD's service area. Under this condition, 53.6 MG of equalization (EQ) storage would be required to supplement the EBDA system and the emergency 8.4 MG of capacity through Old Alameda Creek, if there were no discharge to Hayward Marsh¹⁰. Although an exact time frame for buildout is not defined, it is believed that buildout conditions would occur at least 20 years from now, probably later¹⁷. It is also worth noting that in recent years, influent flow to USD has actually slightly decreased, likely due to water conservation.

This Study investigated three options for EQ storage: a 13.4 MG storage facility with 22 ft high walls, a 13.4 MG deep well EQ basin, and a 4.8 MG earthen EQ basin that is 6 ft deep. The first option was a layout taken from the Brown and Caldwell (B&C) *USD Flow Equalization Update Project* completed in 2013. In the 2013 report, approximately 2 acres (~87,000 SF) of space was determined to be available for effluent storage and a preliminary layout was developed for a facility with walls 22 ft high and a bottom that would be about 5 ft below the existing grade.

In order to address the tight site constraints, RMC investigated the space requirements for a deep well EQ basin to compare its smaller footprint, a result of constructing below ground. Deep well basins can be constructed up to 100 feet deep with an available water storage depth of 85 ft. The diameter and surface

¹⁰ Brown and Caldwell. Flow Equalization Report Update, November 2013.

FINAL

area of a below-grade facility needed to provide 13.4 MG of storage is 168 ft and approximately 21,000 SF. This footprint is 76% smaller than the 2 acres required for the B&C layout. The deep well EQ basin would require a cover, which would allow other structures to be built on top of it. Due to the high costs associated with the construction of both of the 13.4 MG capacity facilities, a third effluent EQ storage option was developed.

A temporary 6 ft deep, earthen equalization basin could be sited in the open space located on the northern side of the WWTP site. The available space is 112,260 SF which would provide a capacity of 4.8 MG. USD is still considering options for long-term equalization storage and ongoing studies will provide further guidance and options. The Old Alameda Creek is considered a shallow water discharge; thus, there is a possibility that its discharge capacity could be increased long-term with some increase in treatment level at the WWTP. For the near-term, the on-site earthen basin will provide enough storage capacity to prevent USD from exceeding its permitted discharge to Old Alameda Creek. Additional storage or discharge options can be implemented when future flows actually increase.

2.1.2 Nutrient Removal

In order to meet future nutrient removal requirements that may be promulgated after a comprehensive evaluation of the effects of nutrient loading in the San Francisco Bay has been completed, USD may need to update its processes. Based on the 15 mg N/L effluent limit identified in the BACWA evaluation plan, the space required for two separate nutrient removal processes were calculated.

The first option would involve adding more aeration basin capacity, while also installing anoxic basins for the denitrification step of a biological nitrification/denitrification process. USD's existing aeration basins have an approximate capacity of 7.9 MG. In order to achieve a 15 mg N/L effluent limit, a total aeration tank volume of approximately 17.2 MG is needed, requiring approximately 9.3 MG more aeration basin capacity at Alvarado WWTP. An anoxic tank volume of approximately 0.86 MG is needed in addition to the aeration basins.

The second option for achieving the target effluent limit is the use of a compact technology like a membrane bioreactor (MBR) system, which can handle a higher mixed liquor suspended solids (MLSS) concentration and thus does not need as much aeration basin volume. With a MBR system installed, USD would need a total aeration basin capacity of approximately 6 MG and an anoxic basin capacity of approximately 0.86 MG in order to achieve an effluent limit below 15 mg N/L. For this study, MBR was used as an example of a compact technology; however, there are several other biological processes and technologies that could be implemented. In general, reducing the footprint for biological nutrient removal requires a denser biological population (i.e. higher MLSS). Other compact options include Moving Bed BioReactors (MBBR) or Integrated Fixed-Film Activated Sludge (IFAS). There is also the potential that newer technologies, currently in development, such as Anammox could be commercially viable for main stream nutrient removal by the time USD is ready to add nutrient removal facilities.

In order to achieve a 6 mg N/L effluent limit, the lower limit identified in the BACWA evaluation plan, a total aeration and anoxic tank volume of approximately 25.6 MG is needed. The 6 mg N/L limit requires approximately 42% more aeration and anoxic tank capacity than the 15 mg N/L limit.

In order to decrease the loading on the main nutrient removal process, USD could install a small nutrient side stream treatment process as a supplement to both of the options described above. The side-stream process can remove nutrients in the reject streams from the supernatant liquid from sludge digesters or in the centrate/filtrate return steam from sludge dewatering processes, before it is returned to the headworks of the plant. Several processes have been developed to remove nitrogen in high-concentration side streams from biosolids, but the one USD focused on for the Alvarado WWTP was an anammox process. The facilities needed would include a Moving Bed BioReactor (MBBR) tank, a small equalization tank, and a building to house any necessary MCCs, blowers, and pumps. The total footprint would be approximately 4,000 SF and it was proposed to be located near the existing Centrifuge Building on site. This study did not

FINAL

take credit for the nitrogen removal provided by the side stream treatment process in terms of reaching the 6 or 15 mg N/L effluent limit. Thus, the aeration and anoxic tank volumes could be reduced if a side-stream system is implemented.

This Study focuses on the potential new nitrogen limits for the San Francisco Bay and does not address potential phosphorus limits.

2.1.3 Organics Processing Facility

USD is interested in adding an Organics Processing Facility, which would allow the District to accept Fats, Oils, and Grease (FOG) and other co-digestible materials at the Alvarado WWTP. The processing facility would have the ability to process the incoming waste and then inject it directly into the existing anaerobic digesters in order to increase production of methane biogas and produce electrical power using the existing Cogeneration System. The ability to implement an Organics Processing Facility would also be dependent on available spare digester and cogeneration capacity. Truck traffic and proximity to neighbors are important factors in the placement of these facilities. An Organics Process Facility may be implemented in the near-term depending on the co-digestion pilot study, which is currently underway.

The footprints for FOG receiving and food processing facilities were initially sized to be 1,000 SF and 7,000 SF, respectively, based on the size of these facilities at the Central Marin Sanitation Agency¹¹; however, due to tight site constraints, the facilities are planned to be combined as the Organics Processing Facility and located in open areas within the existing degritting building. The degritting building was formerly a sludge dewatering building and therefore is already setup for truck hauling.

2.1.4 Storm Water Diversion Pump Station

The District is in the process of evaluating the possibility of treating dry weather storm water flow from the storm water channel adjacent to the treatment plant. A new pump station would be needed in order to divert and treat 1–2 MGD of storm water from the nearby flood control channel during dry weather conditions. It is assumed treatment would be accomplished through the existing wastewater treatment process. The footprint for the Storm Water Diversion Pump Station is sized to be half the size of the existing Site Waste Pump Station at the Alvarado WWTP, which has a firm capacity of 10 MGD. The District indicated that it is unlikely that the Storm Water Diversion Pump Station will be implemented; however space was included in the study in case the pump station is needed.

2.1.5 Primary Digester No. 7

The 1998 Final Report Capacity Testing Program concluded that an additional digester, Digester No.7, is required, in order for the Plant to have sufficient capacity for an average dry weather flow of 41.5 MGD. The existing primary digesters have an equivalent flow maximum capacity of 33 MGD¹². Primary Digester No. 7 will be the same size as existing Primary Digester No. 6 (88-ft diameter). The capacity of the existing digesters will be evaluated by the upcoming Plant Solids System Capacity Assessment, which will take place in the 2015/2016 fiscal year.

2.1.6 Secondary Clarifiers Nos. 7 and 8

To meet effluent limits at buildout flows, two 85-foot diameter clarifiers or one 120-foot diameter clarifier will need to be constructed to reduce the average surface overflow rate from 705 gpd/SF to 650 gpd/SF¹⁹.

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June 2015
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¹¹ Central Marin Sanitation Agency. Basic Treatment Plant Design Data. May 2014. http://www.cmsa.us/assets/documents/CMSA%20PlantDataSheet%2005%202014.pdf

¹² Carollo Engineers. Final Report Capacity Testing Program Raymond A. Boege/Alvarado Wastewater Treatment Facility, June 1998.

2.1.7 Recycled Water Facilities

The project team investigated two types of water reuse, nonpotable reuse (NPR) and indirect potable reuse (IPR). The ACWD-USD Recycled Water Feasibility Study, updated in 2010, which provided a preliminary site plan for tertiary facilities at the Alvarado WWTP, was used as the basis for sizing a NPR facility. The NPR treatment facilities were sized in the site plan to treat a constant flow of 0.6 MGD initially and 1.1 MGD at buildout, requiring 27,400 SF of space for nonpotable reuse¹³.

The sizing of an indirect potable reuse facility was based on the Advanced Water Purification Facility for the City of Los Angeles (RMC/CDM 2012). The capacity for the City of Los Angeles IPR study is 40 MGD, which is approximately the flowrate USD will be expecting at buildout flow. The IPR treatment processes include microfiltration, ultrafiltration, reverse osmosis, advanced oxidation process using ultraviolet light with hydrogen peroxide, and post-treatment for purified recycled water stabilization. The footprint for the IPR facilities, including an effluent pump station, is approximately 90,000 SF.

2.1.8 Degritting System (Headworks)

Grit at the Alvarado WWTP is currently removed from the primary sludge. USD is looking for more process reliability and a new degritting system that would remove grit from the main process flow. For the purposes of this study, it was assumed that a vortex grit system would be used; however, a detailed evaluation of grit removal options will be performed by USD at a later date. The new facility would also need space for odor control. After completion of the new facility, the existing degritting building will be available for redevelopment. The new facility footprint is 6,000 SF, which was scaled from the 25 MGD headworks predesign at Delta Diablo Sanitation District's (DDSD) WWTP. The area for the grit removal system area assumes two grit removal units, each with an approximate capacity of 25 MGD.

2.1.9 Fabrication, Maintenance and Construction Building / Paint Shop

USD's existing maintenance building and paint shop are nearing the end of their useful lives. The new Fabrication, Maintenance, and Construction (FMC) Building will include maintenance shop areas for the mechanics, electricians, and instrument technicians, and also a new paint shop. The proposed area for the building is approximately 18,500 SF. The space requirements will be further evaluated during the predesign phase for the new FMC Building.

2.1.10 Collection Service and FMC Vehicle / Material Storage

USD is interested in increasing the amount of storage space for vehicles and materials. The new facilities would be placed in a convenient location for USD employees. The FMC Building requires parking for 16 utility trucks, 4 electrician trucks, 1 water truck and 1 crane truck; the area needed is approximately 7,680 SF. USD needs a storage space of 5,350 SF for FMC materials. The Collection Services (CS) vehicles require a parking area of 7,250 SF and the CS materials need a 4,875 SF building.

2.1.11 Alvarado Solar Panels – Phase II

USD has a goal to expand its production of renewable energy on site. New solar panels would be placed in open spaces and/or on top of appropriate buildings after the new site layout is firmed up. The solar panel siting and layout are flexible at this stage of planning and therefore were not specifically sited as part of this study.

¹³ RMC. Alameda County Water District and Union Sanitary District Recycled Water Feasibility Study Update, October 2010.

2.1.12 Replacement of 12kV and 5kV Switchgear

The new 12kV and 5kV switchgear will be sized to match the existing system, but will need to be sited in a new location due to constructability issues (i.e. the existing switchgear cannot be removed from service until the new switchgear is installed).

2.1.13 Replacement of Backup Diesel Generators

USD is currently completing a Generator Controls Upgrade Project predesign that is set to be finished in March 2015. For this study, the new generators were sized based on preliminary information and scaled based on the existing generator buildings.

2.1.14 PG&E Substation

Implementing additional treatment facilities at USD, including nutrient removal and/or recycled water facilities, could result in the District needing additional power. A new PG&E substation will be located next to the new 12kV and 5kV switchgears.

2.1.15 Levees

According to a preliminary study on the effect of sea level rise on infrastructure at USD, the elevation of the 100 year storm stillwater will be 13.00 in the year 2050, 14.08 ft in the year 2070, and 16.42 ft in the year 2100¹⁴. The elevations of the 100 year storm Stillwater in 2050 and 2100 may be lower than the estimates from the ESA PWA Study, based on sea level rise estimates from the National Research Council.¹⁵ To protect land and infrastructure at USD's WWTP from erosion, inundation, and flooding in the future, the levees surrounding the plant need to be raised to 13.00 ft plus freeboard. The western levee has a current levee crest elevation of approximately 12 ft NAVD88, and the southern and eastern levees have a levee crest elevation of approximately 7 ft NAVD88. Therefore, the western levee will need to be raised 1 ft and the southern and eastern levees will need to be raised 5 ft. In order to raise the height of the levee, the land will need to be cut horizontally towards the plant for sloping reasons. In Figure 4-3Figure 4-1, the blue cross-hatched area shows the additional area needed in order to raise the levees. The blue area shows where the future inside toe of the levee would need to be moved to in order to protect the plant against projected sea level rise.

The Alameda County Flood Control & Water Conservation District (ACFWD) owns and operates a series of levees around USD, which falls into ACFWD's Zone 3A. ACFWD's levees along Old Alameda Creek vary in height from 10-14 ft NAVD88 to the north, south, and west of USD. If ACFWD raises its levees to protect against future sea level rise, then USD would be protected without needing to raise its own levees. USD should coordinate with ACFWD to plan for future sea level rise.

¹⁴ ESA PWA. Union Sanitary District Preliminary Study of the Effect of Sea Level Rise on District Infrastructure, June 2013.

¹⁵ National Research Council. Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future. Washington, DC: The National Academies Press, 2012.

Chapter 3 Land Purchase Evaluation

3.1 Summary of Investigation

PPC Land Consultants (PPC) performed a land analysis of parcels near Alvarado WWTP as part of this study. The analysis included examining zoning, redevelopment plans, the surrounding environment, title reports for nearby properties, and performing a fenceline evaluation of immediate area lands and estimating their values.

3.1.1 Zoning

The Union City General Plan is the local government's long-term blueprint for future development. The current General Plan was adopted in 2002. It recognized that the facilities for wastewater treatment capacity, which were not expected to meet future growth projections over the lifetime of the General Plan, may require expansion¹⁶. The Plan is being updated to address growth and development through 2040. It is anticipated that it will be completed in the spring of 2016. Union Sanitary District is a stakeholder in this planning process.

The current zoning for the area around Alvarado WWTP is a mix of "Civic Facilities", "511 Area, Open Space", "Light Industrial", and "Agricultural, Open Space". A map of the area of interest is presented in Figure 3-1.

Civic Facility

The purpose and intent of the Civic Facilities district is to provide a procedure for orderly establishment of public and quasi-public uses, expansions of their operations, and/or change in the use of lands owned by government and public agencies¹⁷. The Alvarado WWTP site is designated for use as a civic facility.

511 Area Districts

Union City developed a specific plan in 1987 for a 900-acre site located on the south side of the Alvarado WWTP. Over two-thirds of the area is recognized as wetlands, and the specific plan designates 600 of the total acres to open space in order to prevent development in the area. A 200-acre portion of the 511 Area was originally proposed for residential use¹⁸. 511 Area Districts are intended to implement the goals, objectives and policies of the Specific Plan adopted for the 511 Area. The development standards for a 511 area provide that "diking, filling or dredging of wetlands shall not be permitted unless it is consistent with the provisions of the 511 Area Specific Plan"¹⁹.

Light Industrial Districts

Light Industrial Districts are intended to provide space for manufacturing and industrial uses which evidence no or very low nuisance characteristics²⁰.

Agricultural Districts

Agricultural Districts are intended to preserve lands best suited to agriculture use from encroachment of incompatible uses, to preserve agriculture use land suited to eventual development in other uses, to prevent premature development of certain lands, including lands within the "flood plain," which will eventually be

¹⁶ Public Facilities and Services Element, PF-1, February 2002.

¹⁷ Union City Municipal Code, Chapter 18.50 Civic Facilities (CF) District.

¹⁸ Union City, 511 Area Specific Plan, September 1987.

¹⁹ Union City Municipal Code, Chapter 18.100 511 Area District, Section 18.100.060 Development standards and requirements-General.

²⁰ Union City Municipal Code, Chapter 18.40 Industrial Districts, Article II. ML (Light Industrial) District Regulations, Section 18.40.210 Purpose.

appropriated for urban uses, until the installation of streets, drainage improvements, utilities and community facilities makes orderly development feasible and possible²¹.

Open Space Districts

Open space zoning is intended to provide recreation and open space lands, discourage premature and unnecessary conversion of open space land to urban areas in order to discontinue noncontiguous patterns of development, prevent incompatible development of areas and insure the retention of certain lands in their natural or near natural state²².

3.1.2 Redevelopment

PPC has confirmed that redevelopment plans apply to the area under study to the north of the USD site. The 2002 Union City General Plan's Economic Development Element identified the Horner/Veasy Area (added April 28, 2009) and described it as within the Redevelopment Project Area, consisting of approximately 19-acres of underutilized land (including two acres of public streets) on the west side of Union City north of the Union Sanitary District plant. The goal of the plan was to "attract job-intensive, revenue enhancing, light industrial/manufacturing uses to the Horner/Veasy area". . . "once site and infrastructure restraints are overcome"²³.

3.1.3 Surrounding Environment

The USD site is surrounded by tidal and non-tidal wetlands. The tidal wetlands are situated to the west of the USD site in the City of Hayward, and the non-tidal wetlands surround the east and south sides of the plant. The presence of non-tidal wetlands near the USD site, in lands owned by Alameda County Flood Control District, could limit development.

3.1.4 Alameda County Flood Control and Water Conservation District

Development on or near lands controlled by ACFCD would likely require federal and state regulatory permits from a variety of agencies before project construction can begin. The federal agencies involved can be expected to include the U.S. Army Corps of Engineers (USACE, San Francisco District) and the Federal Emergency Management Agency (FEMA). Other agencies that could potentially be involved include the Natural Resources Conservation Service, the U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Geological Survey (USGS).

ACFCD owns lands to the east, west and south of the USD site. The office of Beth Perrill at ACFCD confirmed that APN 482-40-13-7, 77.16 acres, directly to the south of the WWTP is fully leased. Visual inspection reveals that certain leases are for the keeping of livestock and there is a lease to a model airplane facility. The leases are year-to-year leases. Such leases are granted at the discretion of ACFCD. Lease applications are held until the property becomes available, at which point the applicant is notified. ACFCD expressed a preference to keep its property undeveloped and under its ownership. USD referred to this property as "very sensitive" due to the presence of drainage channels and wetlands²⁴.

PPC contacted the office of Beth Perrill to understand the potential of USD being able to lease out land from ACFCD, specifically with regard to the desilting facility located to the north of the WWTP for potential use as effluent equalization storage space. PPC received a fairly definitive "no" from ACFCD. ACFCD contends that it needs all of the land for its de-silting operation and will not allow any permanent

²¹ Union City Municipal Code, Chapter 18.48 Agricultural (A) District, Section 18.48.010 Purpose.

²² Union City Municipal Code, Chapter 18.92 Open Space (OS) Zoning District, Section 18.92.010 Purpose.

²³ Economic Development Element, ED-15 and ED-16, February 2002.

²⁴ PPC Landman Jonathan Lofgren's conversation with Michael Tadesse, Assistant Right of Way Agent at the Alameda County Flood Control District under Beth Perrill, October 9, 2014.

construction on top of it. The main concerns include contamination and sacrificing any of their already limited area to lay down silt.



Figure 3-1. Area of Interest Surrounding USD

Union Sanitary District Alvarado WWTP Site Use Study **RMC** 0.3 ___Miles 0.15 Legend ----- City Limits Electrical Transmission ///// Redevelopment Parcels Zoning/Land Use 511 Area District, Open Space Agricultural, Open Space **Civic Facility** Flood Plain, Baylands Light Industrial
3.1.5 Area Property Information

PPC conducted research into real estate ownership, values and sales in the area of interest. The evaluation focused on the tracts of land zoned "Light Industrial" to the north of the WWTP. The tracts detailed in Table 3-1 are labeled 1 through 17 on Figure 3-2.

Tract	Address	Acreage	Potential for Contamination	Present use		
1	31251 Veasy St., Union City, CA 94587	2.227	х	Bertelson Pre Cast Steps Inc.		
2	31216 Veasy St., Union City, CA 94587	1.9		Vacant residential		
3	5098 Benson Rd., Union City, CA 94587	3.208	х	Trucking operation		
4	31216 Veasy St., Union City, CA 94587	0.212		Residential		
5	4700 Horner St., Union City, CA 94587	1.7		Vacant		
6	4862 Horner St., Union City, CA 94587	2.59	Х	Cal Pack Crating Inc.		
7	4600 Horner St., Union City, CA 94587	0.987	Х	Lally Tire Service		
8	31251 Veasy St., Union City, CA 94587	0.147		Bertelson Pre Cast Steps Inc.		
9	4995 Horner St., Union City, CA 94587	0.426		Former apartments		
10	4915 Horner St., Union City, CA 94587	0.465	Х	Truck parking		
11	4915 Horner St., Union City, CA 94587	0.099	Х	Truck parking		
12	4849 Horner St., Union City, CA 94587	0.873	Х	Residential		
13	4849 Horner St., Union City, CA 94587	0.495		Residential		
14	4837 Horner St., Union City, CA 94587	0.236		Residential		
15	4813 Horner St., Union City, CA 94587	0.755		Residential		
16	4890 Horner St., Union City, CA 94587	0.257		Residential		
17	4862 Horner St., Union City, CA 94587	0.242		Cal Pack Crating Inc.		

Table 3-1. Potentially Available Tracts North of USD

June 2015

The two properties that would be the most convenient for the expansion of the Alvarado WWTP are Tract 2, directly north of the plant, and Tract 3, adjacent to the northeast corner of the plant. Tract 2 has a one story warehouse on the property of 5,600 SF built in 1961 but it is classified as vacant by the assessor. The property was most recently sold in January 2011 for \$600,000. The total assessed value is \$626,072 as of October 2014. It is owned by Shri Guru Ravidas Sabha Bay Area California ("Shri Guru"), a Sikh religious organization. PPC spoke with Amrik Chand²⁵, the original agent for the group. He stated that the group has requested a zoning change from the city in order to construct a Sikh Gurudarwa (a place of worship).

PPC contacted the Union City Planning Department²⁶ which confirmed that the group submitted an application for development and a zoning change nearly two years ago. The group is in the process of completing due diligence for infrastructure improvements. The application has not been approved. The due diligence must be completed before the application would be considered by the Planning Commission. After Planning Commission approval, the application would be considered by the City Council. The City does not maintain a list of zoning changes and development permits but rather publishes that information in the local newspaper in advance of a City Council or Planning Commission meeting. It is recommended that USD, on some level, participate in this process in order to protect its future interest.

Tract 3 is the triangular lot to the northeast of the Alvarado WWTP. It is 3.208 acres and is classified as vacant. It is owned by The Antonio M and Alice T Goncalves Trust. PPC called Alice Goncalves and she explained that her husband "doesn't sell anything" but committed to speak to him about a possible sale²⁷. PPC pressed her to provide a value amount for the property but did not get an initial offer. Ms. Goncalves has real estate knowledge, having previously worked for ten years at Coldwell Banker.

3.2 Land Value Analysis

PPC has developed fenceline information that supports a range in area land value from \$8 to \$15 per square foot as of October 2014. It appears that the lack of infrastructure in the area under study will keep downward pressure on value. The value of the 17 tracts of potential interest to USD based on the conservative estimate of \$15 per square foot as of 2014 is listed in Table 3-2 and should be re-evaluated periodically.

²⁵ Amrik Chand, (510) 329-3215. Shri Guru Ravidas Sabha Bay Area California holds meetings at 5785 Robertson Avenue, Newark, CA 94560-4637. The mailing address for tax assessments is 42641 Queens Park Court, Fremont, CA 94538-3946.

²⁶ Jonathan Lofgren, PPC Landman, spoke with Nancy Hutar, Contract Planner for the Union City planning Department on October 9, 2014.

²⁷ The Goncalves home number is (510) 582-5357. The Goncalves have a business, ANG Pipeline, which is not registered as either a corporation or LLC with the State of California.

FINAL

Tract	Land Value at \$15/SF
1	\$1,455,120
2	\$1,241,460
3	\$2,096,100
4	\$138,521
5	\$1,110,780
6	\$1,692,300
7	\$644,910
8	\$96,045
9	\$278,355
10	\$303,825
11	\$64,680
12	\$570,420
13	\$323,430
14	\$154,200
15	\$493,320
16	\$167,925
17	\$158,130

Table 3-2. Land Value of Tracts North of USD (as of October 2014)



Figure 3-2. Potentially Available Tracts North of USD

June 2015

Chapter 3 Land Purchase

3.3 Land Acquisition Findings and Suggested Strategy

Based on the land acquisition review, it has been determined that it would be very problematic to expand the existing plant to the west, east or south. Accordingly, the focus of the evaluation was ultimately centered on the mixed-use, light industrial area immediately north of the current WWTP footprint. This area contains 17 tracts of land owned by 13 different parties. Six of the parcels are improved with single family dwellings, all inhabited.

Present and future zoning was a common thread to this investigation. As noted in Section 3.1.1, the City of Union City is currently involved in the public process to amend the City's General Plan. All areas of an industrial nature are under careful scrutiny and, in fact there is currently a moratorium in place prohibiting any change from industrial land use during this process (City of Union City Ordinance No. 794-14). It is very important that the interest of the District continue to be represented in this ongoing process.

With reference to Figure 3-2, the consensus of the project team was that any physical expansion of the current plant site would be north into the area bounded by Veasy Street on the west, Horner Street on the north, Whipple and Benson Roads on the east and the existing plant on the south. This area consists of eight parcels of land owned by seven interests (Tracts 2 through 7, 16, and 17). Further expansion could continue northerly across Hoerner St. (7 parcels, six owners – Tracts 9 through 15) and/or westerly to include the two tracts of land on the opposite side of Veasy St. (Tracts 1 and 8). A summary of the tracts to the north of the WWTP is presented in Table 3-3.

FINAL

Tract	Notes				
1	Tract 1 and 8 are owned and being actively operated by Bertelson Pre Cast Steps, Inc.				
2	Tract 2 owners are presently seeking a general plan amendment in order to build and operate a temple, or house of worship. This tract is specifically exempted from the force and effect of the city ordinance regarding zoning changes. This would be a sensitive negotiation and would need to be approached carefully.				
3	Tract 3 is occupied by a working truck yard. When trying to acquire land occupied by a working business there will be an impact to acquisition costs possibly including a relocation effort.				
4	Tract 4 is a single family rental property last purchased at auction				
5	Tract 5 is vacant and available for sale or lease.				
6	Tracts 6 and 17 are commonly owned and host a fabricating business.				
7	Tract 7 is a truck repair facility.				
8	Tract 1 and 8 are owned and being actively operated by Bertelson Pre Cast Steps, Inc.				
9	Tract 9 is owned by the now defunct City Redevelopment Agency and should be considered available.				
10	The owners of Tracts 10 and 11 are currently in a legal fight with the city over the contemplated zoning change and seek to keep their property in the same zoning for at least eight more years or until they recoup their invested improvement costs; this could be a problematic acquisition should it bear true the property is upside down in value.				
12	Tract 12 is a trucking business.				
13	Tracts 13, 14 and 15 are all homes, 13 and 14 appear to be owner occupied and 15				
14	does not.				
15					
16	Tract 16 is a single family dwelling that is not owner occupied.				
17	Tracts 17 and 6 are commonly owned and host a fabricating business.				

Table 3-3. Summary of Parcels North of the Alvarado WWTP

The next steps for land acquisition would involve the development of an acquisition program, which should follow typical public agency acquisition protocol. USD is already vested with the authority of eminent domain; however that mechanism would only be used if all other means have been exhausted. Accordingly, the acquisition program should contain the protocols necessary for the utilization of condemnation without applying the process unless it should become absolutely necessary. A preferred approach would be to obtain an appraisal of any property sought and fashion an offer to either purchase, or option to purchase, therefrom.

Tracts 2 and 3 would be the first parcels of interest for a site expansion. Tract 3 is occupied by a working truck yard. When trying to acquire land occupied by a working business there will be an impact to acquisition costs. Tract 2 is the biggest concern inasmuch as the owners are presently seeking a general plan amendment in order to build and operate a temple, or house of worship. This tract is specifically exempted from the force and effect of the above referenced city ordinance regarding zoning changes. This could be a sensitive negotiation and would need to be approached carefully. Remaining on the south side of Horner Street, would be two single family dwellings; Tract 4 is a rental property last purchased at auction and the other, Tract 16, is not owner occupied. Tract 5 is vacant and available for sale or lease. Tracts 6 and 17 are commonly owned and host a fabricating business. Tract 7 is a truck repair facility.

Based on information available as of 2014, Tract 9 is owned by the now defunct City Redevelopment Agency and should be considered available. The owners of Tracts 10 and 11 are currently in a legal fight with the city over the contemplated zoning change and seek to keep their property in the same zoning for at least eight more years or until they recoup their invested improvement costs; this could be a problematic acquisition should it bear true the property is upside down in value. Tract 12 is also a trucking business. Tracts 13, 14 and 15 are all homes. Tracts 13 and 14 appear to be owner occupied and Tract 15 does not.

The two parcels to the west of Veasy Street consists of two commonly owned tracts and host perhaps a small manufacturing facility but seems to be mostly occupied by remnant materials. This area should be considered as potentially having some existing contamination.

Given the importance of acquiring land, it is recommended that USD communicate with the current land owners north of the WWTP, who are actively planning permanent improvements. The development of these areas would make future land acquisition more difficult. It would be appropriate to approach these specific land owners, through personal meetings, in a neighborly fashion and formally determine their plans with regard to permanent improvements at this point in time. Conversely, these specific land owners could be advised personally of the necessity the District is facing to expand its capacities. This communication would be instrumental to the advancement of any plans to expand.

Chapter 4 Site Use Alternatives

Five future site use alternatives were developed based on future facility requirements and the land purchase evaluation. The following key findings from the future site requirements and land purchase evaluation were used to formulate the five site use alternatives:

- Accommodating all future facilities within the existing plant fenceline is not feasible without the use of compact technologies, such as membrane bioreactors (MBR).
- Purchasing additional land and expanding the WWTP is a viable option. The land directly to the north of the WWTP site is the most viable for facility expansion.
- It may take several years before additional land may be available for site expansion due to current zoning restriction, implementation of a land acquisition program, and environmental permitting requirements.
- The timing and amount of on-site equalization required will be dependent upon several factors including the capacities and availability of USD's existing discharge options, IPR, and the rate at which influent flow to the treatment plant increases. For the near-term, it is assumed that a temporary earthen equalization basin would be constructed in the undeveloped area in the northeast corner of the treatment plant.
- In order to protect against sea level rise, future permanent structures located on the north side of the treatment plant would be raised above the current ground elevation to protect against future flooding. Protection for existing facilities and new facilities constructed as in-fill with the current plant site would be provided by reinforced levees around the treatment plant site.

Due to development restrictions and potential environmental issues associated with expanding to the west, south and east, alternatives that require additional land assumed expansion to the north of the WWTP site. Alternatives that made use of the space available on the existing site using compact technology were also developed. Based on the key findings, five future site use alternatives were developed and are summarized in Table 4-1.

	Alternative	Required Land Acquisition	Use of Compact Technology?	Number of Phases
		Tracts 2 through 7,		
1.	All New Plant	16 and 17.	No	3
2.	Unfold Existing Plant	Tract 3	No	3
3.	Implement Compact Plant	None	Yes	2
4.	All New Plant with Compact	Tracts 2 and 3	Yes	3
5.	Baseline Plant Expansion	Tract 3	No	2

Table 4-1. Site Use Alternative Summary

Facility Prioritization and Phasing of Alternatives

Each alternative was configured with two or three phases based on USD's prioritization of the new facilities. The priority of each facility and its associated implementation trigger is shown in Table 4-2. Near-term is defined as 0 to 5 years, medium-term is 5 to 10 years, and long-term is beyond 10 years. The medium-term priority facilities can be extended beyond 5 to 10 years if the flow rates do not increase and/or other drivers are delayed or deferred.

Facility	Implementation Trigger	Priority				
Future Process Facilities						
Effluent Equalization Storage	Buildout flow and EBDA wet weather capacity	Near-term				
Organics Processing Facility	Spare cogeneration capacity	Near-term				
Storm Water Diversion Pump Station	Storm water/water quality requirement	Near-term				
Nutrient Removal (Mainstream/Side Stream Treatment)	Bay discharge NPDES requirement	Medium-term				
Secondary Clarifiers Nos. 7 and 8	Buildout capacity	Medium-term				
Recycled Water Facilities	Water supply	Medium-term				
Primary Digester No. 7	Buildout capacity	Medium-term				
Degritting System (Headworks)	Process reliability	Long-term				
Future Maintenance Facilities						
Fabrication, Maintenance, and Construction Building, including maintenance shop areas for the mechanics, electricians, and instrument technicians	Age of existing facilities	Near-term				
Paint Shop	Age of existing facilities	Near-term				
Future Storage Facilities						
Collection Services Vehicle/Material Storage	Age of existing facilities	Near-term				
Facilities Maintenance Storage	Age of existing facilities	Near-term				
Future Green Energy Facilities						
Alvarado Solar Panels – Phase II	District goals	Near-term				
Future Electrical Projects						
Replacement of Backup Diesel Generators	Age of existing facilities	Near-term				
Replacement of the 12kV and 5kV switchgears and New PG&E Substation	Age of existing facilities	Medium-term				
Facilities/upgrades from USD Seismic Study	Risk management	Medium-term				
USD Rising Tides Study	Sea level rise/flooding	Long-term				

In general, phasing of the alternatives is defined as follows:

- Phase 1: Includes siting of all the near-term facilities within the existing treatment plant fenceline.
- Phase 2: Phase 2 in some alternatives is the ultimate buildout configuration for all facilities, or in other alternatives it is used as an intermediate phase to aid in the transition to the ultimate buildout site plan.
- Phase 3: Ultimate buildout site, if an intermediate phase was required.

Table 4-1 presents which alternatives would reach ultimate buildout in two phases, and which alternatives would take three phases.

Phase 1 for All Alternatives

In order to maximize future flexibility, the same layout (with minor variations) was used for Phase 1 (Figure 4-1) for all five alternatives. Having the same Phase 1 configuration will allow USD to implement near term priorities, without blocking future structures. This approach will also preserve the District's ability to reevaluate, or modify, the ultimate buildout site plan, if needed in the future.

In Phase 1, the FMC building would be constructed on the northwest side of the plant next to the existing vehicle storage and training facility. Placing the FMC building in this corner of the plant is convenient for USD employees and vehicle access, and would not impede future expansion. The FMC Building is currently shown in Figure 4-1 as a one-story building, however the building can be designed as a two-story building that would have a smaller footprint. A temporary, 6-ft deep earthen equalization basin would be placed in the open space on the northeast side of the plant and would hold approximately 4.8 MG of treated effluent. USD is still considering options for long-term equalization storage and ongoing studies will provide further guidance and options. However for Phase 1 the on-site earthen basin would provide sufficient storage capacity to prevent USD from exceeding its permitted discharge to Old Alameda Creek.

Other facilities needed by USD in the near-term include an Organics Processing facility which would include a FOG receiving station and a Food Processing Facility. These facilities were initially sized to be 1,000 SF (FOG) and 7,000 SF (Food Processing) based on the size of similar capacity facilities at the Central Marin Sanitation Agency; however, due to tight site constraints, the facilities are planned to be combined into the Organics Processing Facility and placed inside the existing degritting building at the south side of the WWTP instead. The degritting building already contains piping to convey material to the digesters, as well as an odor control system. A truck path already exists to access the south side of the plant and there is a wide area in the PG&E easement that would allow trucks to unload the organics and then circle back to exit the plant.

Phase 1 priorities also include the replacement of the 12kV and 5kV switchgear, the replacement of the backup diesel generators, and the installation of a new PG&E substation. The new switchgear and PG&E substation would be placed inside the existing Maintenance Building. The space needed for one additional standby generator is estimated to be approximately 1,000 SF. USD staff would like to consolidate all backup generators in one location. A convenient way to do that is by expanding the existing generator building that is east of the cogeneration facility. All replacement generators would be placed inside the expanded building, while the two other existing generator buildings would be demolished or used for storage.

Material and vehicle storage for both the FMC Building and Collection Services (CS) is a high priority for USD. In Phase 1, the material and vehicle storage is placed in open and convenient spots on the site. The FMC storage would be placed inside the old Maintenance Building with the new switchgear and substation, while the vehicles would be parked next to the new FMC Building. The CS materials and vehicles would be placed next to the temporary EQ basin on the north side of the property in Phase 1, and in future phases they would either remain at that location or be relocated depending on the alternative.

June 2015



Figure 4-1. Phase 1 for All Alternatives

June 2015

Chapter 4 Site Use Alternatives

4.1 Alternative 1 - All New Plant

The All New Plant alternative would establish an all new liquid process train on the north side of the site. The alternative assumes the main process train would be activated sludge with biological nutrient removal and secondary clarifiers.

This alternative requires land purchase to the north side of the existing plant. The land purchase can occur in the following phases:

Phase 2: Tracts 2-5 and 7 Phase 3: Tracts 6, 16, and 17

Phase 1

Phase 1 of the All New Plant alternative is described in the previous section and shown in Figure 4-1.

Phase 2

The implementation of Phase 2 would likely be triggered by a regulatory requirement to reduce nutrient concentrations in USD's discharge to EBDA. In Phase 2, the first portion of the new liquid process train with nutrient removal and the capacity to treat 33 MGD would be constructed on the north side of the existing plant, and would require the purchase of Tracts 2-5 and 7. The capacity of the new liquid process train is based on matching the 33 MGD capacity of USD's existing aeration basins. The collection services material and vehicle storage would be moved out of the way of the new liquid process train to the west of the Field Operations Building. Phase 2 is shown in Figure 4-2.

The new process train would begin with a two-story headworks and grit removal facility. The headworks would be followed by five 86-foot diameter circular primary clarifiers that would have a capacity of 33 MGD with one unit out of service. A 14.5 MG aeration basin, including anoxic zones comprising 6% of the basin volume, would be constructed to treat 33 MGD and would be capable of reaching a nutrient limit of 15 mg N/L. A blower building is included along the west side of the aeration basins. Five 124-foot diameter secondary clarifiers would be constructed in line after the aeration basin with a capacity of 33 MGD with one unit out of service. An odor control building would be constructed to the north of the new primary clarifiers in Tract 5 to provide odor control for the new liquid process train. A new raw influent pipeline would need to be constructed from the existing influent pump station to the headworks of the new process train. Waste sludge from the new secondary process train would be conveyed through a new pipeline to the existing solids thickening process area.

Advanced water treatment facilities (AWTF) with the capacity to produce 12 MGD of product water would be built in Tract 7. The AWTF would include a MF/UF system, a MF/RO break tank, RO transfer pumps, cartridge filters, a RO system, a UV system, decarbonators and RO flush tanks, a lime system, and storage and feed systems for ammonia, anti-scalant, sulfuric acid, hydrogen peroxide, caustic soda, and citric acid. The layout and required area for the AWTF was calculated by referencing a site assessment of a 40 MGD product water capacity advanced water treatment facility for the City of Los Angeles²⁸. The AWTF at Alvarado would be expanded in Phase 3 to 40 MGD, thus similar dimensions of the City of Los Angeles facilities are applicable at USD.

A new chlorine contact tank (CCT) and EBDA pump station would be constructed to the east of the new secondary clarifiers within Tract 3. After the new liquid process train is completed and receiving all of the incoming raw sewage flow, the two existing liquid process trains on the south side of the plant that would no longer be receiving raw sewage flow can be converted into wet weather storage. The new CCT, EBDA PS, headworks and grit removal system would each be sized to treat the full buildout flow of 41.5 MGD.

²⁸ RMC Water & Environment, CDM Smith. City of Los Angeles Groundwater Replenishment Master Planning Report. Volume 2. March 2012.

In addition, a side-stream nutrient removal facility would be constructed on the south side of the centrifuge building to treat high concentrations of ammonia in the centrate. The side-stream nutrient removal facility would include a Moving Bed Biofilm Reactor (MBBR), a blower building, and a small equalization tank. Primary Digester No. 7 would be built to match the size of Primary Digester No. 6 and would be located just north of the Heat Building No. 4.

Phase 3

In Phase 3, the new liquid process train would be expanded on the north side in order to treat a buildout ADWF of 41.5 MGD. This would require USD to purchase Tracts 6, 16, and 17. A sixth primary clarifier and a sixth secondary clarifier would be constructed to provide process capacities of 41.5 MGD with each having one unit out of service. The aeration basin would be expanded to the north by 3.5 MG, for a total basin size of 18.0 MG, in order to meet the 15 mg N/L nutrient effluent limit. In the case where future nutrient requirements set a limit of 6 mg N/L, the aeration basin would need to have a total volume of 25.6 MG to treat a 41.5 MGD ADWF. The AWTF would also be expanded to have a product water capacity of 40 MGD. The existing headworks, the existing CCT, and the existing EBDA PS could be demolished. Phase 3 is presented in Figure 4-3.

To protect land and infrastructure at USD's WWTP from sea level rise, the levees surrounding the plant would be raised to 13.00 ft plus freeboard in Phase 3. The raised levees would protect the plant against the 100 year storm stillwater in the year 2050. The western levee has a current levee crest elevation of approximately 12 ft NAVD88, and the southern and eastern levees have a levee crest elevation of approximately 7 ft NAVD88. Therefore, the western levee will need to be raised 1 ft and the southern and eastern levees will need to be raised 5 ft. In order to raise the height of the levee, the land will need to be cut horizontally towards the plant for sloping reasons. In Figure 4-3, the blue cross-hatched area shows the additional area needed in order to raise the levees. The blue area shows where the future inside toe of the levee would need to be moved to in order to protect the plant against projected sea level rise. Since the inside toe of the raised levee would encroach on USD property and interfere with existing facilities, another option for the southern and western levees would be to construct an engineered flood protection wall in the footprint of the existing levee.



Figure 4-2. Alternative 1 - All New Plant (Phase 2)

Chapter 4 Site Use Alternatives FINAL



Figure 4-3. Alternative 1 - All New Plant (Phase 3)

4.2 Alternative 2 - Unfold Existing Plant

The Unfold Existing Plant (Unfolding Plant) alternative expands the existing liquid process trains in a linear fashion within the existing treatment plant site. The Unfolding Plant alternative would involve demolishing the Administration Building and Control Building and reconstructing them on the northeast corner of the existing site when the liquid process train is expanded. This alternative requires the purchase of Tract 3 by Phase 2 of the project. Three phases would be required for the Unfolding Plant alternative to allow for relocation of existing buildings and process structures. In addition, the configuration of the Unfolding Plant alternative for untrients.

Phase 1

Phase 1 of the Unfolding Plant alternative is described at the beginning of the chapter (Figure 4-1).

Phase 2

In Phase 2, a new Administration Building and a new Control Building, both with similar square footages as the originals, would be built along the northeastern property line, along with a new parking lot for USD employees. The seismic reliability of the existing Administration Building is currently being evaluated as part of USD's Seismic Reliability Study. USD is also evaluating options to address a reoccurring leak in the Administration Building roof. The outcomes of these may impact USD's decision on whether the existing Administration Building should be replaced and potentially relocated.

Eight new, 111-foot diameter secondary clarifiers would be constructed in two trains where the Administration Building is currently located. In this phase, a new chlorine contact tank and a new EBDA pump station would be built on the eastern property line next to the new secondary clarifiers. As in the All New Plant alternative, a side-stream nutrient removal facility would be constructed on the south side of the centrifuge building. The side-stream nutrient removal facility would include a MBBR, a blower building, and a small equalization tank. Primary Digester No. 7 would be built to match the size of Primary Digester No. 6 and will be located just north of the Heat Building No. 4.

Advanced water treatment facilities (AWTF) with the capacity to produce 40 MGD of product water would be built in Tract 3. The AWTF would include a MF/UF system, a MF/RO break tank, RO transfer pumps, cartridge filters, a RO system, a UV system, decarbonators and RO flush tanks, a lime system, and storage and feed systems for ammonia, anti-scalant, sulfuric acid, hydrogen peroxide, caustic soda, and citric acid. Phase 2 is presented in Figure 4-4.

Phase 3

In Phase 3 (Figure 4-5), the existing secondary clarifiers would be demolished and additional aeration and anoxic tanks would be constructed in their place. The 9.4 MG of additional aeration and anoxic tanks, along with the existing aeration basins would have enough volume to treat buildout flows and provide nutrient removal to a level of 15 mg N/L. Additional grit removal and coarse screens would be added in this phase in a new building that would be adjacent to the existing headworks/organics processing building. After the completion of Phase 3, there would be little or no room on-site for additional buildings or process structures, if needed in the future. There would be no space to add additional aeration basin capacity to meet more stringent nutrient removal requirements.

To protect land and infrastructure at USD's WWTP from sea level rise, the levees surrounding the plant would be raised to 13.00 ft plus freeboard in Phase 3. The raised levees would protect the plant against the 100 year storm stillwater in the year 2050. The western levee has a current levee crest elevation of approximately 12 ft NAVD88, and the southern and eastern levees have a levee crest elevation of approximately 7 ft NAVD88. Therefore, the western levee will need to be raised 1 ft and the southern and eastern levees will need to be raised 5 ft. In order to raise the height of the levee, the land will need to be

cut horizontally towards the plant for sloping reasons. In Figure 4-5, the blue cross-hatched area shows the additional area needed in order to raise the levees. The blue area shows where the future inside toe of the levee would need to be moved to in order to protect the plant against projected sea level rise. Since the inside toe of the raised levee would encroach on USD property and interfere with existing facilities, another option for the southern and western levees would be to construct an engineered flood protection wall in the footprint of the existing levee.



Figure 4-4. Alternative 2 - Unfold Existing Plant (Phase 2)



Figure 4-5. Alternative 2 - Unfold Existing Plant (Phase 3)

Chapter 4 Site Use Alternatives

4.3 Alternative 3 - Implement Compact Plant

The Implement Compact Plant (Compact Plant) alternative would involve converting the plant from a conventional activated sludge (CAS) process into a membrane bioreactor (MBR) system, while keeping the existing headworks, primary clarifiers, and aeration basins running. The Compact Plant alternative fits within the existing site and does not require the relocation of existing facilities. The Compact Plant would require only two phases to implement and would not require the purchase of any additional land.

Phase 1

Phase 1 of the Compact Plant alternative is described at the beginning of the chapter (Figure 4-1).

Phase 2

In Phase 2 (Figure 4-6), two of the existing aeration basins would be repurposed to house MBR membranes. These membranes would have the capacity to treat the buildout flow and would take over the role that the existing secondary clarifiers play in the treatment process. After the membranes are installed, the existing secondary clarifiers can be converted into wet weather storage. The MBR membranes and the existing aeration basins would be able to meet the 15 mg N/L nutrient limit.

Additional grit removal and coarse screens would be added in this phase in a new building that would be adjacent to the existing headworks building. A second story to the new headworks would be constructed for fine screens, which would be required to protect the MBR membranes. The Chlorine Contact Tank would be expanded and a side-stream nutrient removal facility would be constructed on the south side of the centrifuge building. The side-stream nutrient removal facility would include a MBBR, a blower building, and a small equalization tank. Primary Digester No. 7 would be built to match the size of Primary Digester No. 6 and would be located just north of the Heat Building No. 4.

Advanced water treatment facilities with the capacity to produce 40 MGD of product water would be built in northeast corner of the property. The AWTF would include a MF/UF system, a MF/RO break tank, RO transfer pumps, cartridge filters, a RO system, a UV system, decarbonators and RO flush tanks, a lime system, and storage and feed systems for ammonia, anti-scalant, sulfuric acid, hydrogen peroxide, caustic soda, and citric acid. It may be possible to use the MBR membranes as pretreatment for the RO process at the AWFT which would eliminate the need for a MF system; however this configuration would require regulatory approval. If USD received approval to use the MBR membranes as the pretreatment to the RO process, the total area and cost of the AWTF would be reduced.

To protect land and infrastructure at USD's WWTP from sea level rise, the levees surrounding the plant would be raised to 13.00 ft plus freeboard in Phase 2. The raised levees would protect the plant against the 100 year storm stillwater in the year 2050. The western levee has a current levee crest elevation of approximately 12 ft NAVD88, and the southern and eastern levees have a levee crest elevation of approximately 7 ft NAVD88. Therefore, the western levee will need to be raised 1 ft and the southern and eastern levees will need to be raised 5 ft. In order to raise the height of the levee, the land will need to be cut horizontally towards the plant for sloping reasons. In Figure 4-6, the blue cross-hatched area shows the additional area needed in order to raise the levees. The blue area shows where the future inside toe of the levee would need to be moved to in order to protect the plant against projected sea level rise. Since the inside toe of the raised levee would encroach on USD property and interfere with existing facilities, another option for the southern and western levees would be to construct an engineered flood protection wall in the footprint of the existing levee.



Figure 4-6. Alternative 3 - Implement Compact Plant (Phase 2)

Chapter 4 Site Use Alternatives

4.4 Alternative 4 – All New Plant with Compact Technology Alternative

The All New Plant with Compact Technology alternative is similar to the All New Plant alternative with the exception that a compact technology (e.g. MBR) would be used instead of CAS. The all new liquid process train would be located on the north side of the treatment plant site. Once completed through three phases, the new process train would receive all of the buildout flow and the two existing trains at the south side of the plant can be taken out of service. This alternative requires the purchase of Tracts 2 and 3 by Phase 2 of the project, but does not require the relocation of existing facilities.

Phase 1

Phase 1 of the All New Plant with Compact Technology alternative is described at the beginning of the chapter (Figure 4-1).

Phase 2

In Phase 2 (Figure 4-7), the first portion of an all-new liquid process train would be constructed with the capacity to treat 33 MGD. The capacity of the new liquid process train is based on the 33 MGD capacity of USD's existing aeration basins. The process train would consist of a two-story headworks facility with grit removal, coarse screens, and fine screens. Five 86-foot diameter primary clarifiers, with a capacity to treat 33 MGD with one unit out of service, would be constructed east of the headworks. A 5.65 MG aeration and anoxic basin for nutrient removal would be built and followed by three MBR membrane trains. After the construction of the new northern process train, the existing southern trains can be converted into wet weather storage, and the full existing flow would be treated in the new MBR liquid process train. A new Chlorine Contact Tank and EBDA pump station would be constructed in Tract 2, along with an odor control building. The headworks facility, CCT, and EBDA PS would all be sized to treat the full buildout flow of 41.5 MGD.

A side-stream nutrient removal facility would be constructed on the south side of the centrifuge building. The side-stream nutrient removal facility would include a MBBR, a blower building, and a small equalization tank. The collection services material and vehicle storage would be moved out of the way of the new liquid process train to the west of the Field Operations Building. Also in this phase, Primary Digester No. 7 would be built to match the size of Primary Digester No. 6 and would be located just north of the Heat Building No. 4.

Advanced water treatment facilities with the capacity to produce 40 MGD of product water would be built in Tract 3. The AWTF would include a MF/UF system, a MF/RO break tank, RO transfer pumps, cartridge filters, a RO system, a UV system, decarbonators and RO flush tanks, a lime system, and storage and feed systems for ammonia, anti-scalant, sulfuric acid, hydrogen peroxide, caustic soda, and citric acid. It may be possible to use the MBR membranes as pretreatment for the RO process at the AWFT which would eliminate the need for a MF system; however this configuration would require regulatory approval. If USD received approval to use the MBR membranes as the pretreatment to the RO process, the total area and cost of the AWTF would be reduced.

Phase 3

In Phase 3 (Figure 4-8), the new liquid process train would be expanded on the north side to 41.5 MGD, future ADWF. A sixth primary clarifier would be constructed, resulting in a total primary clarifier capacity of 41.5 MGD with one unit out of service. An additional 1.23 MG of aeration basin capacity would be added to achieve a total aeration and anoxic basin capacity of 6.88 MG. This would allow USD to meet a nutrient limit of 15 mg N/L for a flow of 41.5 MGD. A fourth MBR membrane train would be built as a standby to the three duty trains constructed in Phase 2. The existing CCT, and the existing EBDA PS could be demolished.

To protect land and infrastructure at USD's WWTP from sea level rise, the levees surrounding the plant would be raised to 13.00 ft plus freeboard in Phase 3. The raised levees would protect the plant against the 100 year storm stillwater in the year 2050. The western levee has a current levee crest elevation of approximately 12 ft NAVD88, and the southern and eastern levees have a levee crest elevation of approximately 7 ft NAVD88. Therefore, the western levee will need to be raised 1 ft and the southern and eastern levees will need to be raised 5 ft. In order to raise the height of the levee, the land will need to be cut horizontally towards the plant for sloping reasons. In Figure 4-8, the blue cross-hatched area shows the additional area needed in order to raise the levees. The blue area shows where the future inside toe of the levee would need to be moved to in order to protect the plant against projected sea level rise. Since the inside toe of the raised levee would encroach on USD property and interfere with existing facilities, another option for the southern and western levees would be to construct an engineered flood protection wall in the footprint of the existing levee.



Figure 4-7. Alternative 4 – All New Plant with Compact Technology (Phase 2)



Figure 4-8. Alternative 4 - All New Plant with Compact Technology (Phase 3)

4.5 Alternative 5 - Baseline Plant Expansion

The Baseline Plant alternative is the baseline option for USD that does not remove or relocate any existing structures and only adds new facilities that are on the project priority list. The alternative requires the purchase of Tract 3 by the beginning of Phase 2. Although the Baseline Plant alternative avoids the use of compact technologies and maximizes the use of existing facilities, the location of the new process structures would require the installation of complex, large diameter yard piping to connect the new structures into the existing flow path. The Baseline Alternative would require on two phases to fully implement.

Phase 1

Phase 1 of the Baseline Future Expansion Plant alternative is described at the beginning of the chapter (Figure 4-1).

Phase 2

In Phase 2 (Figure 4-9), 9.4 MG of additional aeration and anoxic tanks would be constructed on the north side of the plant, along with two new 85-foot diameter secondary clarifiers. The Chlorine Contact Tank would be expanded and a side-stream nutrient removal facility would be constructed on the south side of the centrifuge building. The side-stream nutrient removal facility would include a MBBR, a blower building, and a small equalization tank. Primary Digester No. 7 would be built to match the size of Primary Digester No. 6 and would be located just north of the Heat Building No. 4. Additional grit removal and coarse screens would be added in this phase in a new building that will be adjacent to the existing headworks/organics processing building.

Advanced water treatment facilities with the capacity to produce 40 MGD of product water would be built in Tract 3. The AWTF would include a MF/UF system, a MF/RO break tank, RO transfer pumps, cartridge filters, a RO system, a UV system, decarbonators and RO flush tanks, a lime system, and storage and feed systems for ammonia, anti-scalant, sulfuric acid, hydrogen peroxide, caustic soda, and citric acid.

To protect land and infrastructure at USD's WWTP from sea level rise, the levees surrounding the plant would be raised to 13.00 ft plus freeboard in Phase 2. The raised levees would protect the plant against the 100 year storm stillwater in the year 2050. The western levee has a current levee crest elevation of approximately 12 ft NAVD88, and the southern and eastern levees have a levee crest elevation of approximately 7 ft NAVD88. Therefore, the western levee will need to be raised 1 ft and the southern and eastern levees will need to be raised 5 ft. In order to raise the height of the levee, the land will need to be cut horizontally towards the plant for sloping reasons. In Figure 4-9, the blue cross-hatched area shows the additional area needed in order to raise the levees. The blue area shows where the future inside toe of the levee would need to be moved to in order to protect the plant against projected sea level rise. Since the inside toe of the raised levee would encroach on USD property and interfere with existing facilities, another option for the southern and western levees would be to construct an engineered flood protection wall in the footprint of the existing levee.



Figure 4-9. Alternative 5 - Baseline Plant Expansion (Phase 2)

Chapter 5 Capital Cost Estimates

Preliminary capital cost estimates were developed for each of the five site use alternatives. In addition to the costs of the facilities, the total capital cost includes basic demolition costs for removing the existing facilities that would be replaced or removed. Three of the alternatives also include costs for select large diameter yard piping. Both of the All New Plant alternatives define a new headworks location on the north side of the plant that would require the construction of a large pipeline to deliver raw sewage from the influent pump stations to the new headworks. The baseline future expansion alternative does not maintain a linear treatment train and thus will require three new large pipes: a primary effluent pipe, a mixed liquor pipe, and a secondary effluent pipe. A summary of the capital costs are listed in Table 5-1.

Contractor costs, professional services costs, and project contingency costs were added as fixed percentages to the estimated raw construction costs. The contractor cost was calculated as 25% of the raw construction cost. The professional services cost was calculated as 22% of the raw construction cost. The project contingency was calculated at 25% of the sum of the raw construction cost, contactor cost, professional services cost, and land cost.

The facility costs were generated using a range of references. The USD Ten Year Capital Improvement Program (CIP) for the years 2015 to 2024 provided the basis for many of the unit costs of the facilities. For the facilities not included in the CIP, RMC used previous projects to create the estimates.

The Advanced Water Treatment Facilities, with a 40 MGD capacity, are estimated to cost a combined \$295,000,000. A smaller, 12 MGD AWTF could be implemented in the near term for \$90,000,000. The cost was generated by performing a cost escalation on the cost reported in a site assessment of a 40 MGD product water capacity advanced water treatment facility for the City of Los Angeles²⁹. The AWTF cost is not included in Table 5-1 because the total cost to USD is unknown. The AWTF would produce water that could be sold to customers, but at this stage of planning, potential profits have not been estimated. ACWD is expected to participate in a joint recycled water project with USD, and could cover a portion of the cost.

It is important to note that the capital costs presented in Table 5-1, do not account for all capital improvement costs for the future USD facility. For example, the Compact Plant alternative relies heavily on the continued use of the existing process structures and facilities. Rehabilitation and replacement of some of the existing processes may be required in the future. Alternatively, the All New Plant alternatives include an all new liquid process facility, which would not need to be rehabilitated until many years after it has been completed. The cost discrepancy amongst the alternatives is partially due to the degree existing facilities were (i.e. more new facilities resulted in higher capital cost). The difference in useful life of facilities was factored in as part of the alternative evaluation presented in Chapter 6.

Facilities associated with nutrient removal (aeration basins, MBBR, and/or MBR) represent the large percentage costs for all five alternatives. Depending on the alternative, nutrient removal represents 37% to 60% (\$47M to \$104M) of the total raw construction cost for each alternative. Costs associated with nutrient removal facilities are not currently included in USD's 10 year CIP. The costs associated with nutrient removal in this study were developed based on the assumption that the future nutrient effluent limit would be 15 mg N/L. If the future nutrient effluent limit is 6 mg N/L, the costs associated with nutrient removal would be higher.

The cost estimates provided in this section are based on the information available at the time of the estimate and are prepared for guidance in project evaluation and implementation. The final costs of the project and resulting feasibility will depend on a variety of factors, including actual labor and material

June 2015

²⁹ RMC Water & Environment, CDM Smith. City of Los Angeles Groundwater Replenishment Master Planning Report. Volume 2. March 2012.

costs and competitive market conditions; therefore, the final project costs will vary from the estimate developed in this document.

The Association for the Advancement of Cost Engineering International (AACEI) developed metrics to classify estimating accuracy thru project development. The cost estimates presented in this document are considered planning-level estimates and represent a 5% to 10% level of project development. Based on AACEI guidelines, actual project costs are typically within +40% to -30% of the planning-level cost estimate. Project feasibility and funding should consider the inherent level of uncertainty associated with planning-level cost estimates.

Facility	1 - All New Plant	2 - Unfold Existing Plant	3 - Implement Compact Plant	4 - All New Plant with Compact Technology	5 - Baseline Plant Expansion
Headworks	\$9,000,000	\$1,000,000	\$7,000,000	\$15,000,000	\$1,000,000
Primary Clarifiers	\$16,000,000	-	-	\$16,000,000	-
Aeration Basins	\$77,000,000	\$44,000,000	-	\$31,000,000	\$44,000,000
Secondary Clarifiers	\$22,000,000	\$26,000,000	-	-	\$3,000,000
Chlorine Contact Tank	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000
Primary Digester	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000
Equalization Basin: Earthen Basin (4.8 MGD)	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000
Odor Control	\$3,000,000	-	-	\$3,000,000	-
MBBR (side stream nutrient removal)	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000
MBR System	-	-	\$60,000,000	\$70,000,000	-
Organics Processing Facility	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000
EBDA Pump Station	\$5,000,000	\$5,000,000	-	\$5,000,000	-
Storm Water Diversion Pump Station	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Intermediate Pump Station	-	-	-	-	\$2,000,000
FMC Building + Paint	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000
Relocated Administration Building	-	\$6,000,000	-	-	-
Relocated Control Building	-	\$3,000,000	-	-	-
Storage/Parking	\$800,000	\$800,000	\$500,000	\$800,000	\$500,000
Electrical Projects	\$7,000,000	\$7,000,000	\$7,000,000	\$7,000,000	\$7,000,000
Solar Panels at Alvarado	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
Levee	\$3,000,000	\$2,000,000	\$3,000,000	\$3,000,000	\$3,000,000
Select Large Diameter Yard Piping	\$4,000,000	-	-	\$4,000,000	\$5,000,000
Demolition	\$200,000	\$2,000,000	\$300,000	\$400,000	\$200,000
Raw Construction Cost Total	\$174,000,000	\$124,000,000	\$105,000,000	\$182,000,000	\$93,000,000
Contractor Cost (25%)	\$44,000,000	\$31,000,000	\$26,000,000	\$46,000,000	\$23,000,000
Professional Services Cost (22%)	\$38,000,000	\$27,000,000	\$23,000,000	\$40,000,000	\$20,000,000
Construction Subtotal	\$256,000,000	\$182,000,000	\$154,000,000	\$269,000,000	\$136,000,000
Project Contingency (25% of Subtotal)	\$64,000,000	\$45,500,000	\$38,500,000	\$67,000,000	\$34,000,000
Land Purchase Subtotal	\$7,000,000	\$2,000,000	-	\$3,000,000	\$2,000,000
Land Purchase Project Contingency (40%)	\$2,800,000	\$800,000	-	\$1,200,000	\$800,000
Total Capital Cost	\$330,000,000	\$231,000,000	\$193,000,000	\$340,000,000	\$173,000,000

Table 5-1. Capital Cost Comparison of Site Use Alternatives

Chapter 5 Costs FINAL

Chapter 6 Evaluation of Alternatives

A weighting and scoring system was used to compare and evaluate the five alternatives. Eight different criterions were used to evaluate the alternatives, and each is discussed in the section below.

- Capital Cost
- Life Cycle Cost
- Land Purchase Requirements
- Flexibility
- Ease of Operation
- Reliability/Longevity
- Impacts to Neighbors
- Complexity/Sequencing

The criteria scoring scale used in the evaluation was: 5 = Excellent, 4 = Above Average, 3 = Average, 2 = Below Average, and 1 = Poor.

6.1 Descriptions of Criteria

Capital Cost

This criterion has no subjective score and is used as a straight comparison of the capital cost of each alternative.

Life Cycle Cost

This criterion is a semi-quantitative comparison of the alternatives. A full life cycle cost was not developed for the alternatives; however the only significant difference in operations and maintenance (O&M) costs between the site layouts is the membrane bioreactor process as opposed to the conventional activated sludge process. Typically the cost for MBR O&M is 20% more than CAS O&M. Thus, the alternatives that use conventional activated sludge received a 20% higher score for "Life Cycle Cost".

Land Purchase Requirements

For this criterion, a score was given to each alternative based on the requirements for purchasing land sufficient to accommodate the facilities to be constructed for that alternative. The land purchase requirements include the difficulty associated with acquiring land, the likelihood of a potential zoning change, and the potential for contaminated sites.

Flexibility

This criterion is a qualitative comparison on the flexibility of each alternative. The score is based on how adaptable the alternative is to unanticipated regulatory requirement or other unforeseen changes. The alternatives with implementation plans that allow for modifications to process or layouts due to changes in USD priorities were given a higher score.

Ease of Operation

A score was given for this criterion based on potential changes to existing plant operations at Alvarado WWTP, such as operating a more complex process.

Reliability/Longevity

Each alternative was evaluated for reliability/longevity based on the expected useful life of facilities, improved process performance, and the increase or decrease in equipment/process redundancy.

June 2015

Impacts to Neighbors

This criterion compared the potential impacts each alternative's future facilities could have on neighbors. Impacts include proximity of odor-producing process facilities, proximity of new facilities relative to the status quo (i.e. buffer zone), and change to visual landscape (i.e. aesthetic impacts).

Complexity/Sequencing

All process, storage, and personnel facilities would be required to remain in operation during construction of new facilities, and only after replacements have been made can the existing facilities be demolished. The alternatives were evaluated based on the degree of disruption to the operation of the plant that would occur during construction.

6.2 Evaluation Results

An alternative evaluation discussion was held between RMC, PPC Land Consultants, and USD staff. Based on the evaluation discussion and review of the project alternatives, USD staff met internally and provided weighting factors and scoring. The results of USD's alternative scoring are presented in Table 6-1.

Normalized and Weighted Alternative Score							
Evaluation Criteria	Weight	Max Score	All New Plant	Unfold Existing Plant	Compact Plant	All New Plant w/ Compact Technology	Baseline Plant Expansion
Capital Cost	5	5	2.1	3.0	3.6	2.0	4.0
Life Cycle Cost	5	5	4.0	4.0	3.0	3.0	4.0
Land Purchase Requirements	2	5	0.8	1.6	2.0	1.4	1.6
Flexibility	3	5	2.4	2.4	2.4	1.8	1.2
Ease of Operation	4	5	3.2	3.2	0.8	1.6	2.4
Reliability/Longevity	4	5	4.0	2.4	1.6	3.2	1.6
Impacts to Neighbors	4	5	2.4	2.4	2.4	2.4	2.4
Complexity/ Sequencing	3	5	3.0	0.6	1.8	2.4	1.8
Total	30		21.9	19.6	17.6	18.0	19.0
% of Best Possible Score			73%	65%	59%	60%	63%

Table 6-1. Weighted Scores of the Site Use Study Alternatives

The All New Plant alternative is the second most expensive out of the five, but it is viewed as the most reliable and would ultimately provide USD with an all new, consolidated liquid treatment process. The alternative would continue meeting NPDES permit requirements using an activated sludge process, a highly-proven technology that the District has experience running. Although purchasing neighboring tracts of land could be a difficult task, accomplishing this task in the near-future would allow for easier long-term future expansion at USD.

June 2015

The Unfold Existing Plant alternative would allow USD to extend its existing liquid process train in a linear fashion. Although the alternative would only require the purchase of one tract of land, there would be no room for future expansion on site after construction of the ultimate buildout configuration.

The Implement Compact Plant alternative is the only alternative that does not require USD to purchase land. Treatment plants that use compact technology, such as MBR, typically have smaller footprints than CAS plants. The alternative receives a low reliability score, however, because it involves retrofitting an existing basin in order to install membranes. The District would need to rely on the functionality of the existing primary clarifiers and aeration basins for the long-term. The USD O&M staff does not have the same experience working with an MBR technology as they do working with the conventional activated sludge technology.

The All New Plant with Compact Technology alternative not only has a high cost, similar to the All New Plant alternative, but it also implements MBR technology which does not have the same operational history of CAS, especially at larger facilities. At buildout capacity, a MBR process at USD would be one of the largest MBR treatment plants in the United States.

The Baseline Plant Expansion is the least expensive alternative, but it does not provide flexibility for future plant needs. The placement of the new aeration basins and secondary clarifiers in this alternative would disrupt the linear flow of the liquid process facilities and would be difficult to operate. The arrangement of the Baseline Plant Expansion would also present significant constructability issues, which could result in higher construction costs.

Chapter 7 Recommendations

Based upon a review of the alternative evaluation results along with follow-on discussion, the alternative that best addresses the future site needs for USD appears to be the All New Plant alternative (based on the most current and available information). Although the alternative is the second most expensive out of the five, it is viewed as the most reliable and would ultimately provide USD with an all new, consolidated liquid treatment process.

Even though the All New Plant was identified as the preferred alternative for implementation, because the initial Phase 1 facilities are the same for all five alternatives, USD can revisit or reconfirm the All New Plant alternative prior to the start of Phase 2. The ultimate placement of the Phase 1 facilities within USD's existing site was determined through mutual discussions between USD and RMC. It is recommended that Phase 1 facilities be implanted in accordance with the configuration discussed in this Study to maintain compatibility with the execution of long-term plans. Additional land would be required to implement Phase 2 of the All New Plant alternative; therefore USD should immediately develop and implement a land acquisition strategy, and continue to actively involve itself in the update to the Union City General Plan that is occurring now. It is recommended that USD communicate with the current land owners north of the WWTP, who are actively planning permanent improvements. The development of these areas would make future land acquisition more difficult. It would be appropriate to approach these specific land owners, through personal meetings, in a neighborly fashion and formally determine their plans with regard to permanent improvements at this point in time. Conversely, these specific land owners could be advised personally of the necessity the District is facing to expand its capacities. This communication would be instrumental to the advancement of any plans to expand.

Regardless of the alternative, the potential financial impacts of more stringent nutrient limits are significant (\$147M of the \$330M capital cost for the All New Plant alternative). USD should begin evaluating financing and funding options for implementation of nutrient removal facilities.

It is important that USD uses this Study in combination with other key studies, including the Hayward Marsh Study, Potable Reuse Evaluation (with Alameda County Water District), which will bear on the results of this Study and vice versa. Maintaining discussions with ACWD on a joint recycled water facility could make implementation of a project an easier task. It is recommended that USD stay updated on the regional conversation regarding new San Francisco Bay nutrient requirements to best prepare for future.

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Appendix A: Site Layouts of All Phases of the Alternatives

FINAL

Prepared by:



In Association with:



June 2015
List of Figures

Figure 1: All New Plant Phase 1	. 1
Figure 2: All New Plant Phase 2	. 2
Figure 3: All New Plant Phase 3	. 3
Figure 4: Unfold Existing Plant Phase 1	. 4
Figure 5: Unfold Existing Plant Phase 2	. 5
Figure 6: Unfold Existing Plant Phase 3	6
Figure 7: Implement Compact Plant Phase 1	7
Figure 8: Implement Compact Plant Phase 2	8
Figure 9: All New Plant with Compact Technology Phase 1	9
Figure 10: All New Plant with Compact Technology Phase 2	10
Figure 11: All New Plant with Compact Technology Phase 3	11
Figure 12: Baseline Future Expansion Phase 1	12
Figure 13: Baseline Future Expansion Phase 2	13













June 2015 Page 209 of 316



Figure 4: Unfold Existing Plant Phase 1





Figure 5: Unfold Existing Plant Phase 2





Figure 6: Unfold Existing Plant Phase 3





Figure 7: Implement Compact Plant Phase 1





Figure 8: Implement Compact Plant Phase 2





Figure 9: All New Plant with Compact Technology Phase 1





Figure 10: All New Plant with Compact Technology Phase 2





Figure 11: All New Plant with Compact Technology Phase 3





Figure 12: Baseline Future Expansion Phase 1





Figure 13: Baseline Future Expansion Phase 2





Appendix B: Plant Expansion Land Analysis

FINAL

Prepared by:

Douglas Pollak Dana Lofgren



June 2015

Table of Cont	<u>ents</u>
SCOPE OF WC	DRK
SECTION 1:	INTRODUCTION
SECTION 2:	MAPS
SECTION 3:	ZONING & REDEVELOPMENT7
Sectio	n 3. A. Redevelopment7
Sectio	n 3. B. The General Plan
Sectio	n 3. C. Zoning
Sectio	n 3. D. Deviations from the General Plan11
SECTION 4:	ALAMEDA COUNTY FLOOD CONTROL AND WATER
	CONSERVATION DISTRICT
Sectio	n 4. A. Lands In Alameda Flood Control Jurisdiction14
Sectio	n 4. B. Lands Owned by Alameda Flood Control15
SECTION 5:	ENVIRONMENT & CULTURE
SECTION 6:	TITLE REPORT & EASEMENT ANALYSIS
Sectio	n 6. A. Title Reports
Sectio	n 6. B. Easement Analysis
SECTION 7:	AREA PROPERTY INFORMATION & VALUES

Table of Maps

Map 1: Alvarado Expansion - Project Overview Map	19
Map 2: Alvarado Expansion - Lot Detail	20

Guide to Acronyms

Alameda County Flood Control and Water Conservation District	Alameda Flood Control
Federal Emergency Management Agency	FEMA
Geographic Information System	GIS
National Oceanic and Atmospheric Administration	NOAA
National Pollutant Discharge Elimination System	NYPDES
Pacific Gas & Electric	PG&E
PPC Land Consultants	РРС
RMC Water and Environment	RMC
Union Sanitary District	USD
U.S. Army Corps of Engineers	USACE
U.S. Geological Survey	USGS

SCOPE OF WORK:

This was the scope of work given to PPC to perform:

"PPC Land Consultants will perform a land analysis of parcels near the Union Sanitary District Alvarado Wastewater Treatment Plant. The land analysis shall include the following:

• Prepare and provide project maps using ArcView GIS mapping. Zoning, flood and environmental layers will be depicted where information is available. (*See* Section 2)

 Zoning analysis which will include confirmation whether or not any change is being considered and a determination of whether or not special layers such as specific plans or redevelopment plans apply to the area under consideration. (See Section 3)

• Evidence of environmental contamination and cultural sensitivities will be considered as appropriate. (*See* Section 5)

• Prepare or secure for project purposes, Preliminary Title Reports for as many as 10 properties that are within the potential expansion sites. Provide in-depth title analysis for each property under consideration which will include, among other things, identity of all third party interests, including easements, lienholders, covenants, conditions and restrictions. The easement analysis will include the existing PG&E tower line easement. (*See* Section 6)

 Perform a fence line evaluation of immediate area land values. Completed by examining comparable sales, listings and discussion with area real estate persons with knowledge. (See Section 7)

• Approach owners of parcels APN 482-27-4-3 and 482-27-7-19 and ascertain their receptiveness to selling. PPC, in consultation with RMC, will consider inquiring of additional northern property owners. (*See* Section 7)"

SECTION 1: INTRODUCTION

The Union Sanitary District ("USD") provides wastewater collection and treatment services for Union City and the Cities of Fremont and Newark. USD operates the Alvarado Wastewater Treatment Plant, which is located within Union City limits just west of Union City Boulevard and south of Horner Street. USD has retained the services of RMC Water and Environment ("RMC") for a site use study to identify land area requirements and optimize the plant site to meet future operational and maintenance needs. PPC Land Consultants ("PPC") was requested to serve as a subconsultant to RMC to assist with the land analysis. This report contains PPC's findings, analysis and opinions.

SECTION 2: MAPS

Maps have been prepared to support visualization of the data that has been collected and reviewed. The Project Overview Map and Lot Detail Map show Alameda County parcel boundaries; project parcel ownership, zoning and redevelopment; City boundary; Alameda County Flood Control District (Zone) boundary; existing PG&E 115kV transmission line and natural gas pipeline; and aerial imagery. The maps are at the end of the Appendix.

The data used to represent the Parcel boundaries, City boundary, and Flood Control District boundary was acquired from the Alameda County Geospatial Website.¹ This data is current as of September 8, 2014. PPC cannot speak to the specific method or accuracy employed during the creation of the Alameda County Geographic Information System ("GIS") data, however, the parcel data is the Cadastral basemap layer for Alameda County. It is typically derived from County Plat maps that were prepared using land surveyor data which has a high degree of accuracy.

Parcel Ownership, Zoning and Redevelopment data was acquired from the City of Hayward Information Technology Department website² and the City of Union City.³ Existing transmission and natural gas pipeline data on file with PPC was updated using Platts data.⁴ The transmission line and pole locations were then verified on the aerial imagery. The aerial image source is courtesy of USGS and NASA Earthstar Geographics SIO 2014 Microsoft Corporation.⁵ PPC has a registered account license with Microsoft Corporation to use this imagery.

The Project Overview (Wetlands) Map shows tidal and non-tidal wetlands and wetlands related water channels. The data used to represent the wetlands and water channels was acquired from the San Francisco Estuary Institute, Bay Area Aquatic Resource Inventory.⁶ It is current as of October 6, 2014.

¹<u>https://www.acgov.org/government/geospatial.htm.</u>

² <u>http://www.hayward-ca.gov/CITY-GOVERNMENT/DEPARTMENTS/TECHNOLOGY-SERVICES/index.shtm?tab=1</u>.

³ http://maps.digitalmapcentral.com/production/vecommunityview/cities/unioncity/index.aspx.

⁴ <u>http://www.platts.com/products/gis-data</u>.

⁵ PPC has a registered account license with Microsoft Corporation to use this imagery.

⁶ <u>http://www.sfei.org/BAARI</u>. A detailed description of the methodology used for generation of this data can be downloaded from <u>http://www.sfei.org/BAARI</u>.

SECTION 3: ZONING & REDEVELOPMENT

Section 3. A. Redevelopment

PPC has confirmed that redevelopment plans apply to the area under consideration. The redevelopment parcels are depicted in the map entitled "Project Overview Map" with diagonal shading. They comprise the entire area under study to the north of the USD site. The California Legislature created redevelopment by statute in 1945 to enable cities to rehabilitate blighted areas. Union City created its Redevelopment Agency in 1988.⁷ The 2002 Union City General Plan's Economic Development Element identified the Horner/Veasy Area (added April 28, 2009) and described it as within the Redevelopment Project Area and consisting of approximately 19-acres of underutilized land (including two acres of public streets) on the west side of Union City north of the Union Sanitary District plant. The goal of the plan was to "attract job-intensive, revenue enhancing light industrial/manufacturing uses to the Horner/Veasy area"... "once site and infrastructure restraints are overcome." To achieve this goal the "City shall encourage the conversion of underutilized lands to job-intensive, revenue enhancing light industrial/manufacturing uses that do not support goals for employment and productive infill development."⁸

An August 30, 2011 Agenda of the City of Union City Special City Council/Redevelopment Agency Joint Meeting with New Haven Unified School District identified the Horner/Veasy area as the most blighted area remaining in the redevelopment project area, the properties bounded by Horner Street, Veasy Street and Benson Road.⁹ "The Redevelopment Agency funded an engineering study to determine the infrastructure improvements needed to make the area attractive to light industrial development. The Agency also purchased a blighted property with ten substandard residential units and relocated the residents to decent housing." It was noted that "With the loss of redevelopment funds, the Agency will not have the resources to fund infrastructure improvements in the Horner Veasy area." ¹⁰

⁷ The City Council of the City of Union City adopted the Redevelopment Plan for the City of Union City Community Redevelopment Project Area by Ordinance No. 302-88 on June 20, 1988, amended the plan by Ordinance No. 445-94 on December 13, 1994, and further amended the plan by Ordinance No. 535-99 on May 11, 1999. Resolution No. 207-00. A RESOLUTION OF THE COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF UNION CITY RESCINDING APPROVAL OF THE FIRST AMENDED AND RESTATED PRELIMINARY PLAN FOR THE CITY OF UNION CITY COUMMUNITY REDEVELOPMENT PROJECT AND SUSPENDING PROCEEDNIGS TOWARD ADOPTION OF AN AMENDED REDEVELOPMENT PLAN PENDING FURTHER COMMUNITY CONSULTATIONS.

⁸ Economic Development Element, ED-15 and ED-16, February 2002.

⁹ Union City City Council, New Haven Unified School District Board of Education, Joint Meeting on Redevelopment, August 30, 2011, p. 11.

¹⁰ Union City City Council, New Haven Unified School District Board of Education, Joint Meeting on Redevelopment, August 30, 2011, p. 11.

Effective February 1, 2012, the California Legislature dissolved redevelopment agencies and provided for the establishment of successor agencies to oversee the dissolution process. The Dissolution Act (AB 26 x1) provided that successor agencies were to dispose of property held by the former redevelopment agencies "expeditiously and in a manner aimed at maximizing value."¹¹ By Resolution No. 15-2013, the oversight board to the successor agency of the Community Redevelopment Agency of the City of Union City adopted a revised long-range property management plan. The former Redevelopment Agency purchased the Horner/Veasy parcel (item 17 on the Inventory) in order to create a unified development area. The Resolution notes that:

"The Horner/Veasy Area faces significant impediments to development. It is located in the flood plain, the soils are vulnerable to liquefaction, the area lacks drainage capacity such that all storm water runoff must be held on site, the sewer lines are substandard, and the streets lack sidewalks, curbs and gutters. Several properties will need to be assembled to facilitate development, and multi-million dollar infrastructure improvements will be needed before the properties can be developed."

"In order to facilitate development of the Horner/Veasy area, this Plan proposes the conveyance of the Horner/Veasy parcel to the City pursuant to Health & Safety Code Section 34191.5(c)(2)(A) so that the parcel can be subsequently conveyed for development consistent with the Redevelopment Plan, the Implementation Plans and the City General Plan."

These parcels appear on Assessor's Map 482 and the property is directly north of the existing treatment facility. APN 482-0020-009, 0.43 acres. PPC has confirmed that the property has not been conveyed and remains in the ownership of the City of Union City Redevelopment Agency.

Section 3. B. The General Plan

The Union City General Plan is the local government's long-term blueprint for future development. The current General Plan was adopted in 2002. It recognized that the facilities for wastewater treatment capacity, which was not expected to meet future growth over the lifetime of the General Plan, may require expansion.¹² The Plan is being updated to address growth and development through 2040. It is anticipated that it will be completed in the spring

¹¹ County Administrator Susan S. Muranishi, letter to Board of Supervisors, February 11, 2014, subject: Approval of Master Agreement for Taxing Entity Compensation With the City of Union City.

¹² Public Facilities and Services Element, PF-1, February 2002.

of 2016. The City is holding meetings to solicit public comment on the General Plan update. The next meeting will be held on October 15th at City Hall.¹³

Section 3. C. Zoning

The current zoning for the area of interest is mixed and is depicted in the map, "Project Overview Map." The USD facility is zoned "Civic Facility" and occupies two parcels (APN 482-97-1, 32.87 acres and 482-22-9-1, 0.15 acres). The property to the west, east and south is zoned, "511 Area, Open Space." The properties directly to the north are zoned "Light Industrial" and consist of twenty parcels totaling 18.03 acres. ¹⁴ The property to the north of that section (APN 482-20-19-5, 40.65 acres) is zoned "Agricultural, Open Space".

<u>Civic Facility</u> The purpose and intent of the Civic Facilities district is to provide a procedure for orderly establishment of public and quasi-public uses, expansions of their operations, or change in the use of lands owned by government and public agencies. Utilities are a permitted use in Civic Facility districts under section 18.50.020. Sewage treatment plants are conditional uses under section 18.50.030.¹⁵

The Union Sanitary District is an independent special district which provides wastewater collection, treatment and disposal services to the residents and businesses of the cities of Fremont, Newark and Union City, in Southern Alameda County, California. Independent special districts are voted into existence by the citizens they serve and are sanctioned under California law to perform specific local government functions within certain boundaries. The District was formed in 1918 and reorganized under the Sanitary District Act of 1923. It derives its authority from the California Health & Safety Code (Sections 6400-6830). The District is governed by an elected Board of Directors which is accountable to the public.¹⁶

<u>511 Area Districts</u> These are intended to implement the goals, objectives and policies of the Specific Plan adopted for the 511 Area. PPC obtained a copy of the Union City 511 Area Specific Plan.¹⁷ Any applicant who wishes to undertake development in the 511 area shall follow the applicable procedures established by Chapters 18.56, 18.60, 18.72, and 18.76 of the Union City

¹⁵ Union City Municipal Code, Chapter 18.50 Civic Facilities (CF) District.

http://www.unionsanitary.com/mission.htm, retrieved September 18, 2014.

¹⁷ Union City 511 Area Specific Plan, Approved by City Council September 14, 1987.

 ¹³ GPAC Meeting, October 15, 2014 from 6:30pm – 8:30pm, Location: City Council Conference Room of City Hall:
 34009 Alvarado-Niles Blvd.

¹⁴ APN 482-22-6-5, 1.18 acres, 482-22-7, 0.15 acres, 482-22-1-2, 2.23 acres, 482-27-4-3, 1.9 acres, 482-27-7-19, 3.21 acres, 482-27-14, 2.59 acres, 482-20-9, 0.43 acres, 482-20-8-2, 0.47 acres, 482-20-2-3, 0.1 acres, 482-27-6-1, 0.21 acres, 482-27-13, 1.7 acres, 482-27-2, 0.26 acres, 482-27-3, 0.24 acres, 482-27-1-10, 0.99 acres, 482-20-7, 0.87 acres, 482-20-6, 0.5 acres, 482-20-5, 0.24 acres, 482-20-18, 0.76 acres.

¹⁶Union Sanitary District website, About Us, Mission, Facts and History,

FINAL

Municipal Code and Title 17, Subdivisions of the Municipal Code. The Specific Plan and General Plan may be amended pursuant to Section 65350 et seq. of the State Government Code. Any application for development in the 511 Area shall be accompanied by a fee for the applicable permits in the amount established by resolution of the City Council sufficient to cover the cost of processing the application.¹⁸ The development standards for a 511 area provide that "diking, filling or dredging of wetlands shall not be permitted unless it is consistent with the provisions of the 511 Area Specific Plan."¹⁹ And "prior to approval of any application for development, a geologic and soils report consistent with the requirements of Section 18.92.110 shall be submitted as part of any application." It further provides that "a wetland preservation plan shall be submitted where a development will be adjacent to a wetland area" and that comments on the plan shall be requested by the U.S. Army Corps of Engineers and Regional Water Quality Control Board. No development, grading or other land modification shall take place in an area of endangered species habitat.²⁰

<u>Light Industrial Districts</u> These are intended to provide space for manufacturing and industrial uses which evidence no or very low nuisance characteristics. The District is applied where nuisance characteristics of noise, odor, traffic, congestion, unsightliness or hazardous materials manufacturing or storage are undesirable.²¹ The Municipal Code specifies the uses permitted and the USD's potential intended use is not included. There is a category of conditional uses permitted upon the granting of a use permit under Chapter 18.56 which includes public utilities.²² Only the specific uses listed under each category may be considered for a use permit in the District. Other uses that may fall within the category heading may not be considered unless they are found similar to the listed uses as provided for in subsection K ("Any other use determined by the Planning Commission to be essentially the same or very similar to the above conditional uses.").²³

<u>Agricultural Districts</u> These are intended to preserve lands best suited to agriculture use from encroachment of incompatible uses, to preserve in agriculture use land suited to eventual development in other uses, to prevent premature development of certain lands, including lands

¹⁸ Fees required by Ordinance No. 258-86, shall be paid at the time a development application is filed with the City. Union City Municipal Code, Chapter 18.100 511 Area District, Section 18.100.020 Relationship to Specific Plan.

¹⁹ Union City Municipal Code, Chapter 18.100 511 Area District, Section 18.100.060 Development standards and requirements-General.

²⁰ Union City Municipal Code, Chapter 18.100 511 Area District, Section 18.100.060 Development standards and requirements-General.

²¹ Union City Municipal Code, Chapter 18.40 Industrial Districts, Article II. ML (Light Industrial) District Regulations, Section 18.40.210 Purpose.

²² Union City Municipal Code, Chapter 18.40 Industrial Districts, Article II. ML (Light Industrial) District Regulations, Section 18.40.230 Conditional Uses Permitted.

²³ Union City Municipal Code, Chapter 18.40 Industrial Districts, Article II. ML (Light Industrial) District Regulations, Section 18.40.230 Conditional Uses Permitted.

FINAL

within the "flood plain," which will eventually be appropriated for urban uses, until the installation of streets, drainage improvements, utilities and community facilities makes orderly development feasible and possible. Change of zoning district from agriculture to any other zoning district shall only be made in general accord with the General Plan.²⁴

<u>Open Space Districts</u> This type of zoning is intended to provide recreation and open space lands, discourage premature and unnecessary conversion of open space land to urban areas in order to discontinue noncontiguous patterns of development, prevent incompatible development of areas and insure the retention of certain lands in their natural or near natural state.²⁵ The enumerated conditional uses of open space lands include utility use, defined as "small substations and/or transmission easements, which are low intensity (vehicle activity, land coverage, structural) and expressly conform to the purpose of the Open Space District."²⁶ The maximum impervious area and building coverage shall be six percent.²⁷ All applications for a use permit shall be accompanied by a combined in-depth geologic and soil investigation report²⁸ prepared by a registered geologist, who is certified by the State of California as an engineering geologist. Removal of live trees of six inches or more in diameter at the base, shall be prohibited, except with the granting of site development review, use permit or approval of the Director as applicable.²⁹

Section 3. D. Deviations from the General Plan

<u>Variance Permits</u> The Planning Commission is empowered to grant variances in order to prevent or to lessen such practical difficulties and unnecessary hardships inconsistent with the purposes of the zoning title as would result from a strict or literal interpretation and enforcement of certain of the regulations. The power to grant a variance <u>does not extend to</u> <u>use regulations</u> because the flexibility necessary to avoid results inconsistent with the purposes of the zoning title is provided by the conditional use provisions.³⁰

²⁴ Union City Municipal Code, Chapter 18.48 Agricultural (A) District, Section 18.48.010 Purpose.

²⁵ Union City Municipal Code, Chapter 18.92 Open Space (OS) Zoning District, Section 18.92.010 Purpose.

 ²⁶ Union City Municipal Code, Chapter 18.92 Open Space (OS) Zoning District, Section 18.92.050 Conditional Uses.
 ²⁷ Union City Municipal Code, Chapter 18.92 Open Space (OS) Zoning District, Section 18.92.080 Maximum building coverage.

²⁸ The report must be prepared by a registered geologist, certified by the State of California as an engineering geologist, and by a licensed soils engineer. Union City Municipal Code, Chapter 18.92 Open Space (OS) Zoning District, Section 18.92.110 Geologic and soils investigation report.

 ²⁹ Union City Municipal Code, Chapter 18.92 Open Space (OS) Zoning District, Section 18.92.150 Tree Removal.
 ³⁰ Union City Municipal Code, Chapter 18.60 Variance Permits, Section 18.60.010 Purpose.

Variances may be granted to the regulations with respect to fences and walls, site area, width, frontage, depth, coverage, front yard, rear yard, side yards, height of structures, distances between structures, off-street parking facilities and off-street loading facilities.³¹

<u>Use Permits</u> Use permits are available for the review of land uses that are not clearly permitted or clearly prohibited in certain districts. Because of their unusual characteristics, conditional uses, including related structures and improvements, require special consideration so that they may be located properly and compatibly with respect to the objectives of the zoning title and with respect to their effects on surrounding properties and uses.³² The Planning Commission holds a public hearing for any application for a use permit.³³ When a use permit is required for a project that is also subject to a site development review, zoning ordinance amendment, specific plan, specific plan amendment, or General Plan amendment, the permit shall be approved, conditionally approved, or denied by the same decision maker as for those decisions. In these instances, the Planning Commission shall review the permit at a public hearing and shall forward a recommendation of approval, conditional approval or denial to the City Council.³⁴

<u>Amendments</u> Chapter 18.64 provides for amendments including changes in the boundaries of any district or changes to any district regulation, exception or other regulatory provision. A change in the boundaries of any district may be initiated by the owner of the property within the area for which a change of district is proposed. If the area for which a change of district is proposed is in more than one ownership, all the property owners shall join in filing the application.³⁵ The Planning Commission holds a public hearing and then makes a recommendation to the City Council.³⁶ The City Council then holds a public hearing on the matter. The City Council shall make a specific finding as to whether the change is necessary or desirable to achieve the purposes of the zoning title.³⁷ If the Council finds that the change is necessary or desirable, it shall enact an ordinance amending the zoning map or an ordinance amending the regulations, whichever is appropriate.³⁸ If the Council finds that a change is not

³¹ Union City Municipal Code, Chapter 18.60 Variance Permits, Section 18.60.020 Power to grant.

³² Union City Municipal Code, Chapter 18.56 Use Permits, Section 18.56.010 Purpose.

³³ Union City Municipal Code, Chapter 18.56 Use Permits, Section 18.56.050 Public Hearing-Notice.

³⁴ Union City Municipal Code, Chapter 18.56 Use Permits, Section 18.56.070 Planning Commission decision and appeals.

³⁵ Union City Municipal Code, Chapter 18.64 Amendments, Section 18.64.020 Initiation.

³⁶ Union City Municipal Code, Chapter 18.64 Amendments, Section 18.64.050 Planning Commission public hearing-Notice.

³⁷ Union City Municipal Code, Chapter 18.64 Amendments, Section 18.64.070 City Council public hearing-Notice.

³⁸ Union City Municipal Code, Chapter 18.64 Amendments, Section 18.64.075 City Council decision.

necessary or desirable, it shall deny the application and no application for the same or substantially the same change shall be filed within one year of the date of denial.³⁹

³⁹ Union City Municipal Code, Chapter 18.64 Amendments, Section 18.64.090 New Application.

SECTION 4: ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Section 4. A. Lands In Alameda County Flood Control Jurisdiction

The area under examination for purposes of USD's expansion is located within the Alameda County Flood Control and Water Conservation District ("Alameda Flood Control") Flood Control Zone 3a. Alameda Flood Control is a separate legal entity from the County of Alameda. Alameda Flood Control relies on the staff of the Alameda County Public Works Agency to carry out its mission but there is no legal link between the two.

Development on or near lands controlled by Alameda Flood Control will likely require federal and state regulatory permits from a variety of agencies before project construction can begin. The federal agencies involved can be expected to include the U.S. Army Corps of Engineers (USACE)(San Francisco District) and the Federal Emergency Management Agency (FEMA) (National Flood Insurance Program). Other agencies that could potentially be involved include the Natural Resources Conservation Service, the U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration (NOAA), and the U. S. Geological Survey (USGS).

Any development with the Alameda Flood Control could also require collaboration with a variety of California State Departments such as the Department of Fish and Wildlife, Department of Water Resources, State Water Resources Control Board, Wildlife Conservation Board, State Coastal Conservancy, the San Francisco Bay Conservation and Development Commission and others to ensure that state environmental laws and mandates are followed.

The Clean Water program may also be a factor. It is a collaborative effort with the California Regional Water Quality Control Board of the San Francisco Bay Region, and 60 other regional agencies who are co-permittees on the new joint "Municipal Regional Stormwater Permit" issued under the National Pollutant Discharge Elimination System (NPDES).

Encroachment and other permits are issued by the Director of the Public Works Agency of the County according to the terms of the Permit Ordinance of the Alameda County Flood Control and Water Conservation District. Unless otherwise specified, work should be initiated within ninety (90) days of the date of the issuance of the permit. The County of Alameda and the Alameda Flood Control District and their contractors are exempt from the encroachment permit requirement. Because USD is an independent special district it should be expected to be held to permit requirements.

There is a Drainage Master Plan for Zone 3A that was supposed to have been completed in 2010. It reportedly outlines nearly \$75 million worth of improvement projects and expected maintenance activities for the next 30 to 50 years. Most projects are intended to increase the

flood-carrying capacity of channels. PPC requested a copy of the Plan from Alameda Flood Control but was told that it is not in final form available for release.⁴⁰

Section 4. B. Lands Owned by Alameda Flood Control

Alameda Flood Control owns lands to the east, west and south of the USD site. The office of Beth Perrill at Flood Control confirmed that APN 482-40-13-7, 77.16 acres, directly to the south is fully leased. Visual inspection reveals that certain leases are for the keeping of livestock and there is a lease to a model airplane facility. The leases are year-to-year leases. Such leases are granted at the discretion of the Flood District. Lease applications are held until the property becomes available, at which point the applicant is notified. The Flood District expressed a preference to keep their property undeveloped and under their ownership. The District referred to this property as "very sensitive" due to the presence of drainage channels and wetlands.⁴¹

⁴⁰ PPC's request was made to Frank Codd, an engineer/project manager, <u>FrankC@acpwa.com</u>, (510) 670-5783. His supervisor, who was the lead on the study responded as well, Rohin Saleh.

⁴¹ PPC Landman Jonathan Lofgren's conversation with Michael Tadesse, Assistant Right of Way Agent at the Alameda County Flood Control District under Beth Perrill, October 9, 2014.

FINAL

SECTION 5: ENVIRONMENT & CULTURE

The USD site is surrounded by tidal and non-tidal wetlands as depicted in the map "Project Overview (Wetlands)". The tidal wetlands are situated to the west of the USD site in the City of Hayward. Tidal wetlands consist of wetlands, aquatic areas, and terrestrial areas open to tidal influence below the topographic contour that corresponds to the maximum possible extent of the tides, which is the tidal boundary that would be observed during the highest tide of the current tidal epoch, if there were no levees, dikes, flood gates, or other unnatural obstructions to the landward flow of tidal water. The boundary is called the "historical high tide line." These wetlands exist along the margins of tidal sloughs, bays and estuaries.⁴²

The non-tidal wetlands are much more extensive and appear to the north, south and east of the USD site. Non-tidal wetlands consist of all of the wetlands that are not influenced by tidal movements. These features can be created by levees, within baylands which exclude these features from being influenced by tidal activity. ⁴³ The presence of non-tidal wetlands near the USD site, in lands owned by Flood Control, could limit development to the east and south. The closest non-tidal wetlands are depressional wetlands. These exist in topographic lows that may or may not have outgoing surface drainage. The closest depressional wetland is approximately 300 feet to the east of the existing USD site, the next closest are approximately 500 and 580 feet away. In addition, there are water channels/drainage channels that border the USD site and that bisect the surrounding lands as shown in the map. These may be susceptible to or candidates for relocation.

PPC sought publicly available information on environmental contamination, habitat and cultural sensitivities but none was available.⁴⁴ PPC recognizes that RMC will need to obtain biological and cultural surveys of the area under consideration. Given that the property is within tidal areas and wetlands there is a strong possibility that some native artifacts could be uncovered by a survey dig and that listed, threatened or endangered species may be identified.

⁴² Bay Area Aquatic Resource Inventory ("BAARI"), <u>http://www.sfei.org/BAARI</u>, retrieved October 9, 2014.

⁴³ Bay Area Aquatic Resource Inventory ("BAARI"), <u>http://www.sfei.org/BAARI</u>, retrieved October 9, 2014.

⁴⁴ PPC searched USFWS, State of California Geoportal, California Department of Fish and Wildlife, and EPA databases. This data is typically developed on a project specific basis, and rarely made publically available at a project (local) scale. The National Audubon Society includes the flood plain and open space parcel as being included in "Conservation Action" area, but the link to further information is not functional.

SECTION 6: TITLE REPORT & EASEMENT ANALYSIS

Section 6. A. Title Reports

For this, the initial stage of siting and in the interest of cost, it was determined to obtain and review a sampling of title reports covering certain parcels within the present facility boundary and the light industrial area to the north. PPC was provided four title reports prepared by Northwestern Title Company in 1994 for properties along Veasy Street in an area that now comprises a portion of the existing facility. In addition, PPC ordered and obtained a Title Report from Placer Title for APN 482-0027-13 to the north (Tract #6 evaluated in Section 7 below).

The Title Report for 31275 Veasy Street is dated November 23, 1994.⁴⁵ The property has multiple recorded easements. There were two easements in favor of Pacific Gas & Electric ("PG&E"). The first is for towers (exception #5), the second is for tower lines (exception #10); their locations are not disclosed of record. There is an easement in favor of Alameda County Flood Control (exception #8) affecting the northerly portion of the property. A second easement in favor of Alameda County Flood Control is for monitoring levees (exception #9). There are two easements in favor of USD for sewers (exceptions #11 and #12), these easements would have been eliminated by the merger of title when USD acquired the property, and one between Alvarado Sanitary District and Lesile Salt Co. for maintaining sewer lines (exception #7). The Report makes an exception for "any easement for water course over that portion of the herein described property lying within the lines of Alameda Creek, and any changes in the boundary lines of said property that have occurred or may hereafter occur from natural causes and by imperceptible degrees (exception #3)." There existed an agreement for water rights with the Alameda County Water District dating from 1948 (exception #6) that reserved the right to take water from beneath the lands conveyed for the irrigation of said lands or for domestic or other use upon said lands but not the right to take water for irrigation or use on other lands.

Mineral rights were reserved in a portion of the lands by the Lesile Salt Co. in 1954, together with the right to enter upon and remove such substances, "...all oil, gas and other mineral substances lying in or under the above described parcel [parcel 3] of real property, together with the right to enter upon and remove from said parcel any such substances."⁴⁶

The Title Report for 31266 Veasy Street is dated November 28, 1994.⁴⁷ A single easement was included and it affects the easterly portion of the property and was for roadway purposes in favor of Roland L. Kelly and Sharon M. Kelly (item #4).

⁴⁵ Title was vested in Walter H. Fowler and Etta Mae Fowler, his wife, as joint tenants.

 ⁴⁶ It is unlikely that there is any hydrocarbon or mineral development potential for this property other than salt.
 ⁴⁷ Title was vested in Horace E. Fite, a married man, as his separate property.

The third and fourth Title Reports for 31290⁴⁸ and 31280 Veasy Street⁴⁹, respectively, were both dated November 28, 1994 and neither disclosed easements or mineral reservations.

The Preliminary Title Report for 4700 Horner Street was prepared by Placer Title Company and is dated September 25, 2014. Title to the property is vested in Pro-Max Renaissance Parc, LLC. The property was purchased through a Trustees Deed of sale, recorded May 1, 2013.⁵⁰ The Title Report notes that the property lies within the boundaries of the Union City Community Redevelopment Project Area. The Report includes easements for public utilities and incidental purposes (exception #5) affecting the northerly 6 feet of parcel one and the northerly and westerly 6 feet of parcel three. An easement for public utilities and incidental purposes granted to the City of Union City affects the northerly 6 feet of parcel two (exception #6).

Section 6. B. Easement Analysis

The map entitled "Lot Detail" depicts the existing easement that is in place for the tower line currently crossing the present facility. This PG&E 115kv Transmission line crosses the far west corner of the USD property and continues south through the entire Alameda Flood Control property. This tower line was constructed in the late 1950s. The supporting real estate was acquired in and around 1958 in a series of patchwork acquisitions. The width of the easement seems to vary between 175 and 250 feet in width. As is typical with PG&E tower lines, the easements are non-exclusive and the property owner retains certain rights; however they also include the common PG&E covenant "First Party shall have the right to use said strip for purposes not inconsistent with Second Parties full enjoyment of the rights hereby granted, provided that the first party shall not erect or construct any building or other structure or drill or operate any well, within said strip."

The closest natural gas transmission pipeline is to the east along Union City Boulevard and is owned by PG&E. It can be expected that smaller distribution gas and electric lines are located throughout the residential neighborhood to the east between Union City Boulevard and the Flood Control lands and to the north within the light industrial area.

⁴⁸ Title was vested in Wanda P. Gonfiotti.

⁴⁹ Title is vested in Paul P. Garcia and Maria B. Garcia, as Trustee of the Paul and Maria Garcia Living Trust, dated May 22, 1991.

⁵⁰ Instrument No. 2013-153174, Alameda County Records.

SECTION 7: AREA PROPERTY INFORMATION & VALUES

PPC conducted research into real estate ownership, values and sales in the area of interest. Our evaluation included the area that is zoned Light Industrial and depicted in purple on the project map (north of the USD site to Horner Street), with the exception of APNs 482-22-6-5⁵¹ and 482-22-7-00⁵² which are located within the City of Hayward. The tracts detailed below are labeled 1 through 7 on the map "Alvarado Expansion-Lot Detail".

PPC interviewed two local realtors to gain insight into the local market. Joe Yamin, Senior Vice President of Colliers International, was very knowledgeable.⁵³ He explained that it will be very difficult to find properties of 1-3.5 acres in our area of interest. He noted that almost all industrial lots are now infill lots. He estimates the value of such industrial properties to be approximately \$20 per square foot. He also explained that it would be difficult to obtain city approval for industrial uses because the city is "going green" and is very sensitive to development that involves odors, chemicals, potential spills and disruption to traffic.

Mr. Yamin provided information on a 5.11 acre property located at 31702 Hayman Street in Hayward, CA (outside of the area of interest) that is currently for lease but could be purchased. The sale price would be \$15 per square foot. The property is currently owned and formerly occupied by Univar/Chem Central Corporation. It includes a 5,225 square foot office building and 49,700 square feet of distribution buildings and a rail spur. Underground storage tanks are being removed from the property in advance of a sale listing.

There is a residential property with an undisclosed address that appears on Zillow.com on Veasy Street. It is 0.9 acres with a single family home built in 1935. The MLS # is 40642129 and it has been listed for 273 days as of October 10, 2014. The listing agent is Pauli Singh.⁵⁴ It is reportedly zoned Light Industrial. The asking price is \$599,950 with the house sold "as-is." The asking price equates to \$15.30 per square foot (39,204 square feet) discounting any square footage of the residence which may be in very poor condition.

⁵¹ APN 482-22-6-5 is 1.18 acres and is owned by Alameda Flood Control. It is zoned Light Industrial and is within the flood plain. The East Bay Trail likely occupies a portion of this property and has an easement.

⁵² APN 482-22-7-00 is 0.15 acres. Its street address is 31251 Veasy Street. It is owned by Bertelson Pre Cast Steps, Inc. The lot is zoned Light Industrial and is within the flood plain. Bertelson Pre Cast Steps also owns the adjacent parcel, APN 482-22-1-2, 2.23 acres.

⁵³ Joe Yamin, joe.yamin@colliers.com, (510) 433-5812. License No. 01327666. Colliers International, 1999 Harrison Street, Suite 1750, Oakland, CA 94612.

⁵⁴ Pauli Singh, (510) 388-4253. Found on <u>www.zillow.com</u> at <u>http://www.zillow.com/homedetails/(undisclosed-Address)-Union-City-CA-94587/2111513207_zpid/</u>, retrieved October 10, 2014.

PPC has developed fenceline information that supports a range in area land value of \$8 to \$15 per square foot. It seems the lack of infrastructure in the area under study will keep downward pressure on value.

Tract 1: APN 482-22-1-2, 2.23 acres is directly north of the property owned by USD and to the west of Veasy Street. The street address is 4735 Loretta Way. The property is identified as vacant by the tax assessor but PPC verified that there is an active business on the property, operated by the owner, Bertelson Pre Cast Steps, Inc. The assessed tax value is \$238,308.

Tract 2: APN 482-0027-004-03, 1.9 acres is directly to the north of the property owned by USD. The street address is 31252 Veasy Street. There is a one story warehouse on the property of 5,600 square feet built in 1961 but it is classified as vacant by the assessor. The property was most recently sold in January 2011 for \$600,000. The total assessed value is \$626,072. It is owned by Shri Guru Ravidas Sabha Bay Area California ("Shri Guru"), a Sikh religious organization.⁵⁵ PPC was directed by RMC to contact the owner of this property. PPC spoke with Amrik Chand,⁵⁶ the original agent for the group. He stated that the group has requested a zoning change from the city in order to construct a Sikh Gurudarwa (a place of worship).

PPC contacted the Union City Planning Department⁵⁷ which confirmed that the group submitted an application for development and a zoning change nearly two years ago. The group is in the process of completing due diligence for infrastructure improvements. The application has not been approved. The due diligence must be completed before the application will be considered by the Planning Commission. Finally, it would be considered by the City Council. The City does not maintain a list of zoning changes and development permits but rather publishes that information in the local newspaper in advance of a City Council or Planning Commission meeting. It is recommended that USD, on some level, participate in this process in order to protect their future interest.

Tract 3: APN 482-0027-007-19, is the triangular lot to the east. It is 3.208 acres and is classified as vacant. The street address is Benson Road. The total assessed value is \$316,076. It is owned by The Antonio M and Alice T Goncalves Trust. PPC was directed by RMC to contact the owner of this property. PPC's calls to Mr. Goncalves went unanswered but PPC did speak with his wife,

⁵⁵ They are classified as a religious organization with an unconditional exemption.

⁵⁶ Amrik Chand, (510) 329-3215. Shri Guru Ravidas Sabha Bay Area California holds meetings at 5785 Robertson Avenue, Newark, CA 94560-4637. The mailing address for tax assessments is 42641 Queens Park Court, Freemont, CA 94538-3946.

⁵⁷ Jonathan Lofgren, PPC Landman, spoke with Nancy Hutar, Contract Planner for the Union City planning Department on October 9, 2014.

FINAL

Alice Goncalves.⁵⁸ She explained that her husband "doesn't sell anything" but committed to speak to him about a possible sale.⁵⁹ PPC pressed her to provide a value amount for the property and did not give an initial offer. Ms. Goncalves has real estate knowledge, having previously worked for ten years at Coldwell Banker. (Value at \$15 square foot would be \$2,096,107).

Tract 4: APN 482-0027-006-01 is 0.212 acres and is occupied by a single story residence built in 1945 of 1,356 square feet. The street address is 31216 Veasy Street, Union City, CA 94587. It is owned and apparently occupied by Miguel C. Ramirez. He purchased it in May of 2000 for \$260,000.

Tract 5: APN 482-0027-013-00, is a 1.7 acre vacant lot to the north. The street address is 4700 Horner Street. The lot was most recently sold in May 2013 at auction. Its tax assessment is \$200,908. It is owned by Pro- Max Renaissance Parc LLC. The company is registered in the state of California and has an "active" status. Its agent is Richard Mao.⁶⁰ PPC spoke with Mr. Mao. He is the listing agent for the property and has it listed for sale for \$680,000, brokered by Promax Invest & Develop⁶¹ (MLS ID 40655399). This listing price equates to \$9.18 per square foot (74052 square feet). The price was increased by \$200,000 on September 14, 2014, from \$480,000.

Tract 6: APN 482-0027-014-00 is a 2.590 acre lot. The street address is 4700 Horner Street. The lot is 8% improved according to the tax assessment which places its tax value at \$1,616,324 (\$1,474,172 land and \$142,152 improvements). It was last sold and transferred in 2008. It is owned by UMO Steel LLC, a registered "active" limited liability company in the state of California. Its agent is Juan Romero.⁶² PPC obtained a Preliminary Title Report for this property which is evaluated in Section 6.

Tract 7: APN 482-0027-001-10 is a 0.987 acre lot. The street address is 4600 Horner Street. The lot is 50% improved according to the tax assessment which places its tax value at \$1,634,022 (\$817,011 land, \$817,011 improvements). It was transferred in 2007 with a transfer amount of \$1,525,000. It is owned by Pattar and Maninder Gurlal.

⁵⁸ The Goncalves home number is (510) 582-5357. The Goncalves have a business, ANG Pipeline, which is not registered as either a corporation or LLC with the State of California.

⁵⁹ In PPC's experience, unwilling sellers may be motivated by a trade for a piece of property due to tax implications of a sale.

⁶⁰ <u>Promax888@hotmail.com</u>, Mr. Mao's cell phone (510) 552-1687.

⁶¹ The number for Promax Invest & Develop is (510) 552-1687.

⁶² Juan Romero's address is 4700 Horner Street, Union City, CA 94587.



Map 1: Alvarado Expansion - Project Overview Map | Alameda County, California | T04S R02W, Section(s) 9,16, Mount Diablo Meridian





June 2015
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June 2015

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October 30, 2014

Mark Takemoto Senior Wastewater Engineer RMC Water and Environment 2175 North California Boulevard, Suite 315 Walnut Creek, CA 94596

RE: Alvarado Expansion Supplemental investigation Light industrial Area PPC No. 647-03

Dear Mark,

Partially in addition to the original scope of work, PPC as requested has investigated historical uses inside the area currently zoned Light Industrial. The investigation looked for historical uses that could have an impact on future development, including but not perhaps limited to various types of contamination.

This area appears to have served primarily as a ship landing because of its location near to Alameda Creek. It has been learned that in 1878 there was an operating foundry where Tracts 1 and 8 are located (see land map attached). According to information discovered while researching Eden Landing (nearby) it was determined that Stokes Landing was servicing the area that is presently our area of interest. The foundry reportedly burnt down. We don't know that this would leave a contaminated area but are wont to ask the question. Beyond the foundry the area seems to have been a single line of residences (North side of the present Hoerner St.) and then primarily agricultural or salt harvesting.

The first evidence of modern industry is the sanitation facility, circa 1962. The light industry currently spotted throughout stems from, we think, the late seventies to early eighties. We have included spreadsheet (attached) containing line item information for each of the tracts. We have given an "X" mark to those properties that based upon physical inspection run the risk of some type of contamination. Of 17 parcels total, 7 are residential (Tracts 2, 4, 12, 13, 14, 15, and 16). 2 of the 17 are vacant (Tracts 5 & 9). Tracts 1 and 8 are home to the Bertelson Pre Cast Steps manufacturing company. Tracts 6 and 17 are home to the Cal Pack Crating company. Tract 7 is home to the Lally Tire Service business. Tract 3 is operating as a trucking facility.

Tract 5 is currently of great interest to USD and it may or at least was listed recently for sale or lease. In the early eighties this land was part of the lands adjacent easterly, a Parcel map

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was filed, conditions to development were issued and a Building permit applied for. It is undetermined if the permit was issued or if anything was ever constructed on the property. We recommend speaking only with the landowner in regard to this property; if it is not formally listed we can usually realize a more favorable price and term if an Agent isn't entitled to a part of the proceeds. Further, no conversation should be had until it is determined how the project would like to proceed.

Tracts 10 and 11 are being used as a truck parking lot. The owners are currently at odds with the city regarding an appropriate amortization period, by which to recover city mandated improvement costs, prior to a zoning change taking effect. A letter from the attorney representing the property owners of tracts 10 & 11, Mr. and Mrs. Kirby, has been obtained and included with this report. In the letter the attorney accuses the city of 'spot zoning' and outlines an ongoing battle with the city

Research was conducted into the California Department of Toxic Substances Control to determine if there are any instances of contamination in our area of interest that is on record. According to the Department of Toxic Substances Control, there are 24 cases of contamination in the limits of Union City, but none are within our area of interest. Typically the only way to confirm the presence of contaminants is through physical investigation and/or affidavits from those with personal knowledge. On this level of cursory investigation we don't find evidence of misuse of the land or environmental contamination beyond the possibility presented by the 19th century foundry, long term agriculture and 35-40 years of spotted light industry. It is expected any proposal to acquire lands will consider Owner's Affidavits and possibly a Phase One Environmental Survey.

The reader will note present and future zoning is a common thread to this investigation. As originally reported, we are aware the City of Union City is currently involved in the public process to amend the City's General Plan. All areas of an industrial nature are under careful scrutiny and, in fact there is currently a moratorium in place prohibiting any change from industry during this process (see attached ordinance). We cannot stress enough the importance of becoming vested in this process. It is now confirmed there are at least two landowners that want to be here for a long time (Sikh Temple and the Truck Parking Lot) and are currently

lobbying their interests.

Regards, Douglas Pollak

DP/cf



Appendix C: Detailed Cost Estimates

FINAL

Prepared by:



In Association with:



June 2015



Date: June 11, 2015

Aspect:

Project:

Phase 1 - All Alternatives

	Item	Size	Units	Qty	Units		Unit Cost		Cost	Comments
Capital Costs										
CONSTRUCTION										
Facilities not included in USD's 10 yr C	IP									
Process Facilities										
Electrical / Gas Projects										
	PG&E Substation	4	80 V		1		\$200,000		\$200,000	
	Switchgear		12 kV		1	\$	1,690,000	\$	1,690,000	
	Switchgear		5 kV		1	\$	1,690,000	\$	1,690,000	
				NON C	IP FACILIT	Y RAW CONSTF	RUCTION COST		\$3,580,000	
					Contractor	Costs	25%		\$895,000	of raw construction cost subtotal
				Pro	fessional Se	ervices	22%		\$787,600	of raw construction cost subtotal
							SUBTOTAL		\$5,262,600	
				Design/Constru	ction Contin	agency	25%		\$1 315 650 v	of above subtotal
									\$6,578,250	
Facilities included in USD's 10 vr CIP				SOBIOTAL COL					ψ0,570,200	
Personnel / Maintenance Facilities									,	*Unit Costs in the CIP are capital costs,
	Maintenance Building	15,00	00 SF		1	\$	7,050,000	\$	7,050,000	which already include project
	Paint Shop	3,00	00 SF		1	\$	2,300,000	\$	2,300,000	contingencies and other associated costs
Process Facilities										
Effluent Equalization Storage						<u>^</u>		^		
	Earthen Basin	2	1.8 mgd		1	\$	9,200,000	\$	9,200,000	
Storm Water Diversion Pump Station	Other and the	0			4	¢	4 700 000	¢	4 700 000	
Floatrical / Cas Drainate	Structure	3	00 SF		1	Ф	1,700,000	\$	1,700,000	
Electrical / Gas Projects	Deale un Diagel Constatore				4	¢		¢	0 050 000	
500	Back-up Diesel Generators				1	φ	6,850,000	Ф	6,850,000	
FOG	Ctru oturo				4	¢	E E00.000	¢	E E00 000	
Storage	Siluciule				I	Φ	5,500,000	Φ	5,500,000	
Storage	ENA Motorial			E		¢	47	¢	250,000	
	FM Material			D,C 4 C		ው ወ	47	Ф Ф	250,006	
				4,8	010 OF	ው ወ	47 25	Φ Φ	221,009	
				7,0	000 OF	ወ ድ	30 25	¢	200,000	
				1,2	200 SF	Ф	35	Φ	203,700	



	Item	Size	Units	Qty	Units		Unit Cost	
Solar Panels at Alvarado								
	Replacement + Phase II				2	\$	1,650,000	\$
				SUBTOTAI	_ CONSTRUC	TION COST	CIP FACILITIES	ç
					то	TAL CONST	RUCTION COST	ļ
						TOTAL	CAPITAL COST	



Cost

Comments

3,300,000 \$36,900,364 \$43,478,614

\$43,000,000 *Total Capital Cost is rounded to the nearest million



Date: June 11, 2015

Project:

Aspect:

Alternative 1 - All New Plant (Phase 2)

	Item	Size	Units	Qty	Units		Unit Cost	Cost	Comments
Capital Costs									
CONSTRUCTION									
Facilities not included in USD's 10 yr Cl	Р								
Process Facilities									
Headworks									
	Grit Removal + Coarse Screens				1	\$	5,000,000 \$	5,000,000	
	Building				1	\$	4,000,000 \$	4,000,000	
Primary Clarifiers			<i>c.</i>		_	<u>^</u>	0 740 000 \$		
	Structures + Pumps	84' diamter	ft		5	\$	2,710,000 \$	13,550,000	*Nutriant ramaval cast is based on a
Nutrient Removal	Acception Desig Connector					¢	CO 470 000 M		nutrient removal effluent limit of 15 mg
	Aeration Basin Capacity	c	33 MGD	(1.80	¢	69,170,000 \$	55,002,651	N/L. The cost would be greater if the
Secondary Clarifiers	Blower Building				I	Φ	<u></u> 3,120,021 ф	5,120,021	future limit is 6 mg N/L.
Secondary Claimers	Structures + Pumps	125' diameter	ft		5	\$	3 680 000 \$	18 400 000	
Primary Digester			it.		0	Ψ	3,000,000 φ	10,400,000	
	Structure				1	\$	5.420.000 \$	5,420,000	
Pump Station					·	÷	c,:_c,ccc	0,120,000	
	EBDA PS		3 duty pumps		750 hp	\$	6,500 \$	4,875,000	
Chlorine Contact Tank			21 1				, .		
	Structure	16,3	00 SF		1	\$	3,000,000 \$	3,000,000	
				NONC	CIP FACILITY	RAW CONST	RUCTION COST	\$114,376,472	
					Contractor	Costs	25%	\$28,594,118	of raw construction cost subtotal
				Pro	fessional Se	rvices	22%	\$25,162,824	of raw construction cost subtotal
							SUBTOTAL	\$168,133,414	
								. , ,	
				Design/Constru	uction Contin	gency	25%	\$42,033,353	of above subtotal
				SUBTOTAL CO	NSTRUCTIO	N COST NON (CIP FACILITIES	\$210.166.767	
Facilities included in USD's 10 yr CIP								÷ -,, -	
Anammox (side stream nutrient removal)									*Unit Costs in the CIP are capital costs,
	MBBR				1	\$	6,000,000 \$	6,000,000	which already include project
Odor Control									
	Chemical Scrubber			115,	000 cfm	\$	41 \$	4,738,000	
Storage									
	CS Material			4,	875 SF		\$47	\$227,809	



	Item	Size Units	Qty Units	Unit Cost	
	CS Vehicle		7,250 SF	\$35	
			SUBTOTAL CONSTRUCTIO	N COST CIP FACILITIES	\$
			TOTAL	CONSTRUCTION COST	\$2
PIPING (only large scale pipes)					
<u>Microtunneling</u>					
	Newark + Irvington Raw Sewage to IPS	54 in	1,150 LF	\$ 1,350	
	Total Raw Sewage (IPS> Headworks)	48 in	950 LF	\$ 1,200	
				RAW PIPING COST	
			Contractor Costs	25%	
			Professional Services	20%	
			i Tolessional Services		
				SUBTUTAL	
			Design/Construction Contingency	25%	
				TOTAL PIPING COST	
LAND					
	USD Purchase Adjacent Properties	8.007 acres	348,785 SF	\$15	9
				RAW LAND COST	Ş
			Professional Services	40%	{
				TOTAL LAND COST	\$
				TOTAL CAPITAL COST	\$2



Comments

Cost \$253,750 \$11,219,559 221,386,326

\$1,552,500 \$1,140,000 \$2,692,500

\$673,125 of raw construction cost subtotal \$592,350 of raw construction cost subtotal \$3,957,975

\$989,494 of above subtotal \$4,947,469

\$5,231,774 Tracts 2-5, and 7 \$5,231,774

\$2,092,710 **\$7,324,483**

34,000,000 *Total Capital Cost is rounded to the nearest million



Aspect:

Project:

Alternative 1 - All New Plant (Phase 3)

Size Units Qty Units Unit Cost ltem **Capital Costs** CONSTRUCTION Process Facilities **Primary Clarifiers** Structures + Pumps 1 \$ 2,710,000 \$ 84' diamter ft 2, Nutrient Removal \$ Aeration Basin Capacity 8.5 MG 0.20 69,170,000 \$ 14, Addition to Phase 2 Blower Building \$ 3,045,267 \$ 3, 1 Secondary Clarifiers \$ Structures + Pumps 125' diameter ft 1 3,680,000 \$ 3, Levee Medium Cost Clay 3.7 MLF \$ 556,000 \$ 13 ft high 2, Clay Delivery 44,000 CY \$ 12.95 \$ Compaction 44,000 CY \$ 1.26 \$ FACILITY RAW CONSTRUCTION COST \$26 **Contractor Costs** 25% \$6,57 **Professional Services** 22% \$5,78 \$38 SUBTOTAL Design/Construction Contingency 25% \$9 TOTAL CONSTRUCTION COST \$48 PIPING (only large scale pipes) Microtunneling 950 LF Raw Sewage 48 in \$ 1,200 \$1 RAW PIPING COST \$1 **Contractor Costs** 25% \$28 **Professional Services** 22% \$25 \$1 SUBTOTAL **Design/Construction Contingency** 25% \$4⁻ **TOTAL PIPING COST** \$2

Date: June 11, 2015



Cost	Comments
710 000	
.,710,000	*Nutrient removal cost is based on a
.167.349	nutrient removal effluent limit of 15 mg
,045,267	N/L. The cost would be greater if the future limit is 6 mg N/l
,680,000	
,057,200	*The construction cost of the levee asumes the 13 ft high levee would be
569,800	constructed from scratch.
55,440	
5,265,057	
71,264.19	of raw construction cost subtotal
82,712.49	of raw construction cost subtotal
8,639,033	
9,659,758	of above subtotal
8,298,792	
1,140.000	
1,140,000	
85,000.00	of raw construction cost subtotal
50,800.00	of raw construction cost subtotal
1,675,800	
19 050 00	of above subtotal
10,950.00 2 004 750	
≤,03 4 ,730	

	Item	Size Units	Qty Units	Unit Cost	Cost Comments
DEMOLITION					
<u>Facilities</u>					
	Chlorine Contact Tank	3,300 CY	1	\$ 29.99	\$98,960
	Headworks	1,711 CY	1	\$ 29.99	\$51,312
<u>Disposal</u>					
	Disposal (offsite)	1,711 CY	1	\$ 19.01	\$32,520
				RAW DEMOLITION COST \$	182,793
			Contractor Cos	its 25%	\$45,698.17 of raw construction cost subtotal
			Professional Service	es 22%	\$40,214.39 of raw construction cost subtotal
				SUBTOTAL	\$268,705
			Design/Construction Contingen	cy 25%	\$67,176 of above subtotal
			T	OTAL DEMOLITION COST	\$335,882
LAND					
	USD Purchase Adjacent Properties	3.089 acres	134,557 SF	\$ 15 \$	2,018,353 Tracts 6, 16, 17
				RAW LAND COST \$	2,018,353
			Professional Service	es 40%	\$807,341
				TOTAL LAND COST	\$2,825,694
				TOTAL CAPITAL COST	\$54,000,000 *Total Capital Cost is rounded to

Appendix C FINAL

tal Cost is rounded to the nearest million



Date: June 11, 2015

Project:

Aspect:

Alternative 2 - Unfold Existing Plant (Phase 2)

	Item	Size Units	Qty Units		Unit Cost	Cost	Comments
Capital Costs							
CONSTRUCTION							
Facilities not included in USD's 10 yr C	P						
Personnel / Maintenance Facilities							
	Administration Building		16,650 SF	\$	350 \$	5,827,500	
Process Facilities	Control Building		8,000 SF	\$	350 \$	2,800,000	
<u>Process Facilities</u> Secondary Clarifiers							
Secondary Claimers	Structures + Pumps	111' diameter	8	\$	3 267 260 \$	26 138 078	
Primary Digester			0	Ψ	0,201,200 \$	20,100,010	
	Structure		1	\$	5,420,000 \$	5,420,000	
Chlorine Contact Tank							
	Structure	16,300 SF	1	\$	3,000,000 \$	3,000,000	
Pump Station							
	EBDA PS	3 duty pumps	750 hp	\$	6,500 \$	4,875,000	
Storage	5			<u>,</u>			
	Parking		49,500 SF	\$ 2414/ 004/0T	4.38 \$	216,748	
			NON CIP FACILITY F	RAW CONST	RUCTION COST	\$48,277,326	
			Contractor C	osts	25%	\$12.069.332	of raw construction cost subtotal
			Professional Serv	ices	22%	\$10,621,012	of raw construction cost subtotal
					SUBTOTAL	\$70,967,670	
		De	sign/Construction Continge	ency	25%	\$17,741,917	of above subtotal
		SUB	STOTAL CONSTRUCTION	COST NON	CIP FACILITIES	\$88,709,587	
Facilities included in USD's 10 yr CIP							
Anammox (side stream nutrient removal)				•			*Unit Costs in the CIP are capital costs, which already include project
	MBBR Tank				6,000,000 \$	6,000,000	contingencies and other associated costs
			SUBTOTAL CONSTRUC	TION COST	CIP FACILITIES \$	6,000,000	
			10	TAL CONST	RUCTION COST \$	94,709,587	
Facilities							
<u>r domaoo</u>	Administration Building	16.621 SF	1	\$	4.66	\$77.394	
	Control Building	7,955 SF	1	\$	4.66 \$	37,042	
<u>Disposal</u>	-						



Item	Size	Units	Qty	Units		Unit Cost	Cost	Comments
Disposal (offsite)	15,390	CY		1	\$	19.01 \$	292,490	
					RAW DEM	IOLITION COST \$	406,925	
			C	ontractor C	osts	25%	\$101,731 of r	aw construction cost subtotal
			Profes	sional Serv	ices	22%	\$89,524 of r	aw construction cost subtotal
						SUBTOTAL	\$598,180	
			Design/Constructi	on Continge	ency	25%	\$149,545 of a	bove subtotal
					TOTAL DEM	IOLITION COST	\$747,725	
					TOTAL	CAPITAL COST	\$95,000,000 *To	tal Capital Cost is rounded to the



\$95,000,000 * I otal Capital Cost is rounded to the nearest million



Date: June 11, 2015

Aspect:

Project:

Alternative 2 - Unfold Existing Plant (Phase 3)

	Item	Size Un	nits Q	ty Un	its	Unit Cost	Cost	Comments
Capital Costs								
CONSTRUCTION								
Facilities not included in USD's 10 yr Cl	P							
Process Facilities								
Nutrient Removal								*Nutrient removal cost is based on a
	Additional Aeration Basin Capacity	123,300 SF		1	\$	38,860,000	\$ 38,860,000	N/L. The cost would be greater if the
	Blower Building			1	\$	5,128,821	\$ 5,128,821	future limit is 6 mg N/L.
Levee								
	Medium Cost Clay			2.8 ML	.F \$	556,000	\$ 1,556,800	*The construction cost of the levee
	Clay Delivery			32,600 CY	\$	12.95	\$ 422,170	constructed from scratch.
	Compaction			32,600 CY	′ \$	1.26	\$ 41,076	-
			Ν	ON CIP FAC	CILITY RAW CON	STRUCTION COST	\$46,008,867	
				Contr	actor Costs	25%	\$11,502,216.82	of raw construction cost subtotal
				Professior	al Services	22%	\$10,121,950.80	of raw construction cost subtotal
						SUBTOTAL	\$67,633,035	
			Design/Co	onstruction C	Contingency	25%	\$16,908,259	of above subtotal
			SUBTOTA	CONSTRU	CTION COST NC	ON CIP FACILITIES	\$84,541,294	-
Facilities included in USD's 10 yr CIP								
Process Facilities								
Headworks								*Unit Costs in the CIP are capital costs,
	Coarse Screens			1	\$	1,600,000	\$ 1,600,000	which already include project
	Grit Removal			1	\$	600,000	\$ 600,000	
			SUBT	TOTAL CON	STRUCTION COS	ST CIP FACILITIES	\$ 2,200,000	-
					TOTAL CON	STRUCTION COST	\$ 86,741,294	
DEMOLITION								
Facilities								
	Secondary Clarifiers 1-4	3,600 CY	/	4	\$	29.99	\$431,825	
	Secondary Clarifiers 5-6	6,930 CY	/	2	\$	29.99	\$415,631	
	Chlorine Contact Tank	3,300 CY	/	1	\$	29.99	\$98,960	1
	EDBA Pump Station	555 CY	/	1	\$	29.99	\$16,643	i
<u>Disposal</u>								
	Disposal (offsite)	14,385 CY	/	1	\$	19.01	\$ 273,393	_



	Item	Size	Units	Qty Units	Unit Cost	
				RAV	V DEMOLITION COST \$	
				Contractor Costs	25%	
				Professional Services	22%	
					SUBTOTAL	
				Design/Construction Contingency	25%	
				ΤΟΤΑ	L DEMOLITION COST	
LAND						
	USD Purchase Adjacent Properties	3.208	acres	139,740 SF	\$15	
					RAW LAND COST	
				Professional Services	40%	
					TOTAL LAND COST	
				T	OTAL CAPITAL COST	



Cost

Comments

1,236,452

\$309,113 of raw construction cost subtotal \$272,019 of raw construction cost subtotal \$1,817,584

\$454,396 of above subtotal \$2,271,980

\$2,096,107 Tract 3 \$2,096,107

\$838,443 **\$2,934,550**

\$92,000,000 *Total Capital Cost is rounded to the nearest million



Date: June 11, 2015

Project:

Aspect:

Alternative 3 - Implement Compact Plant (Phase 2)

	Item	Size	Units	Qtv	Units		Unit Cost	C	ost Comments
Capital Costs									
CONSTRUCTION									
Facilities not included in USD's 10 yr Cl	P								
Process Facilities									
Headworks									
	Fine Screens				1	\$	2,000,000	\$ 2,000,0	000
	Building				1	\$	4,000,000	\$ 4,000,0	000
Chlorine Contact Tank									
	Structure				1	\$	3,000,000	\$ 3,000,0	000
MBR System									
	Membranes			40,000,000		\$	1.50	\$ 60,000,0	000
Primary Digester						-		. ,	
	Structure				1	\$	5,420,000	\$ 5,420,0	000
Levee									
	Medium Cost Clay			3.1	7 MLF	\$	556,000	\$ 2,057,2	200 *The construction cost of the levee
	Clay Delivery			44,000	CY	\$	12.95	\$ 569,8	asumes the 13 ft high levee would be
	Compaction			44,000	CY	\$	1.26	\$ 55,4	440
				NON CIP	FACILITY R	AW CONSTR	RUCTION COST	\$77,102,	440
				C	ontractor Co	osts	25%	\$19,275,	610 of raw construction cost subtotal
				Profes	sional Servi	ices	22%	\$16,962,	537 of raw construction cost subtotal
							SUBTOTAL	\$113,340,	587
				Design/Constructi	on Continge	ency	25%	\$28,335,	147 of above subtotal
				SUBTOTAL CONS	TRUCTION	COST NON (CIP FACILITIES	\$141,675,	734
Facilities included in USD's 10 yr CIP									
Process Facilities									*Unit Costs in the CIP are capital costs,
Headworks	Coarse Screens				1	\$	1,600,000	\$ 1,600,0	which already include project
	Grit Removal				1	\$	600,000	\$ 600,0	000
Anammox (side stream nutrient removal)									
	MBBR Tank				1	\$	6,000,000	\$ 6,000,0	000
				SUBTOTAL C	ONSTRUC	TION COST (CIP FACILITIES	\$8,200,	000
					TO	TAL CONSTR	RUCTION COST	\$149,875,	734



	Item	Size	Units	Qty Units		Unit Cost	
DEMOLITION							
<u>Facilities</u>							
	Chlorine Contact Tank	3,300	CY	1	\$	29.99	
	Repurpose 2 Aeration Basins	8,900	SF	2	\$	4.66	
<u>Disposal</u>							
	Disposal (offsite)	3,300	CY	1	\$	19.01	\$
					RAW DEN	MOLITION COST	\$
				Contractor C	Costs	25%	
				Professional Ser	vices	22%	
						SUBTOTAL	
				Design/Construction Conting	ency	25%	
					-		
					TOTAL DEM	MOLITION COST	
					TOTAL	CAPITAL COST	\$15



Cost

Comments

\$98,960 \$82,884

62,718 244,561

\$61,140 of raw construction cost subtotal \$53,804 of raw construction cost subtotal \$359,505

\$89,876 of above subtotal

\$449,382

\$150,000,000 *Total Capital Cost is rounded to the nearest million



Date: June 11, 2015

Project:

Aspect:

Alternative 4 - All New Plant with Compact Technology (Phase 2)

Capital Costs	
CONSTRUCTION	
Facilities not included in USD's 10 yr CIP	
Process Facilities	
Headworks	
Grit Removal + Coarse Screens 1 \$ 5,000,000 \$ 5,000,000	
Grit Removal + Coarse Screens Building 1 \$ 4,000,000 \$ 4,000,000	
Fine Screens 1 \$ 2,000,000 \$ 2,000,000	
Fine Screens Building 1 \$ 4,000,000 \$ 4,000,000	
Primary Clarifiers	
Structures + Pumps 84' diamter ft 5 \$ 2,710,000 \$ 13,550,000	
Nutrient Removal	d on a
Aeration Basin Capacity 33 MGD 0.80 \$ 26,350,000 \$ 20,953,012 Indirent removal endertaint of N/L. The cost would be greater	r if the
Blower Building 1 \$ 5,128,821 \$ 5,128,821 future limit is 6 mg N/L.	
Primary Digester	
Structure 1 \$ 5,420,000 \$ 5,420,000	
Chlorine Contact Tank	
Structure 1 \$ 3,000,000 \$ 3,000,000	
Pump Station	
EBDA PS 3 duty pumps 750 hp \$ 6,500 \$ 4,875,000	
MBR System	
Membranes 25,000,000 gal \$ 1.50 \$ 37,500,000	
Tank 0.6 \$ 9,000,000 \$ 5,625,000	
NON CIP FACILITY RAW CONSTRUCTION COST \$111,051,833	
Contractor Costs 25% \$27,762,958 of raw construction cost subt	ototal
Professional Services 22% \$24.431.403 of raw construction cost subt	ototal
SUBTOTAL \$163.246.195	
Design/Construction Contingency 25% \$40,811,549 of above subtotal	
SUBTOTAL CONSTRUCTION COST NON CIP FACILITIES \$204,057,744	
Facilities included in USD's 10 yr CIP	
Process Facilities	
Anammox (side stream nutrient removal) *Unit Costs in the CIP are capita	tal costs,
MBBR Tank 1 \$ 6,000,000 \$ 6,000,000 which already include project	iated costa
Odor Control	100000000000000000000000000000000000000



	Item	Size Units	Qty Un	its	Unit Cost	
	Chemical Scrubber		115,000 cfm	า \$	41	\$ 4
Storage						
	CS Material		4,875 SF		\$47	
	CS Vehicle		7,250 SF		\$35	
			SUBTOTAL CONS	STRUCTION COST	T CIP FACILITIES	\$1 [.]
				TOTAL CONS	TRUCTION COST	\$21
PIPING (only large scale	pipes)					
<u>Microtunneling</u>						
	<u>1 Pipe:</u> Newark + Irvington Raw Sewage to IPS	54 in	1,150 LF	\$	1,350	\$
	<u>2 Pipes:</u> Total Raw Sewage (IPS> Headworks)	48 in	1900 LF	\$	1,200	\$2
				RA	W PIPING COST	\$3
			Contra	actor Costs	25%	
			Profession	al Services	20%	
			1 10165310116	al Oel Vices		¢
					SUBTUTAL	φ
			Design/Construction Co	ontingency	25%	\$
				тот	AL RAW PIPING	\$
LAND	USD Purchase Adjacent Properties	5.108 acres	222,504 SF		\$15	\$3
				R	RAW LAND COST	\$3
			Profession	al Services	40%	\$1
				TO	TAL LAND COST	\$4
				TOTAL	CAPITAL COST	\$22

Appendix C FINAL

Cost

Comments

1,738,000

\$227,809 \$253,750 1,219,559 **5,277,302**

1,552,500 2,280,000 3,832,500

\$958,125 of raw construction cost subtotal \$843,150 of raw construction cost subtotal 5,633,775

1,408,444 of above subtotal

7,042,219

3,337,567 Tracts 2 and 3 3,337,567

1,335,027 **1,672,594**

7,000,000 *Total Capital Cost is rounded to the nearest million



Date: June 11, 2015

Project: Aspect:

Alternative 4 - All New Plant with Compact Technology (Phase 3)

	Item	Size	Units	Qty	Units		Unit Cost	Cost	Comments
Capital Costs									
CONSTRUCTION									
Facilities not included in USD's 10 y	/r CIP								
Process Facilities									
Primary Clarifiers									
	Structures + Pumps	84' diamter	ft		1	\$	2,710,000	\$ 2,710,000	
Nutrient Removal									*Nutrient removal cost is based on a
	Aeration Basin Capacity	8.5	MG	0.2	20	\$	26,350,000	\$ 5,396,988	N/L. The cost would be greater if the
MBR System									future limit is 6 mg N/L.
	Membranes			15,000,00	0 gal	\$	1.50	\$ 22,500,000	
	Tank			0.	5	\$	9,000,000	\$ 4,275,000	
Levee									
	Medium Cost Clay			3	.7 MLF	\$	556,000	\$ 2,057,200	* The construction cost of the levee
	Clay Delivery			44,00	0 CY	\$	12.95	\$ 569,800	constructed from scratch.
	Compaction			44,00	0 CY	\$	1.26	\$ 55,440	
				NON CIP	P FACILITY	' RAW CONSTF	RUCTION COST	\$37,564,428	
				(Contractor	Costs	25%	\$9,391,107	of raw construction cost subtotal
				Profe	ssional Se	ervices	22%	\$8,264,174	of raw construction cost subtotal
							SUBTOTAL	\$55,219,709	
				Design/Construct	tion Contin	igency	25%	\$13,804,927	of above subtotal
				SUBTOTAL CONS	STRUCTIO	N COST NON (CIP FACILITIES	\$69,024,636	
					т			¢60.024.636	
					•	UTAL CONSTI		φ 0 9,024,030	
racinues	Chloring Contact Tank	2 200			4	¢	20.00	¢00.000	
		3,300			1	ф Ф	29.99	\$98,960	
		1,711			1	¢	29.99	01,312 ¢74,007	
Disposal	Degin	∠,409	UT		I	Φ	29.99	Φ/4,03 /	
<u>Dispusai</u>	Disposal (offsite)	7,480	CY		1	\$	19.01	\$ 142,161	
						RAW DEM	OLITION COST	\$ 366,469	



Item	Size	Units	Qty Units	Unit Cost	
			Contractor Costs	25%	
			Professional Services	22%	
				SUBTOTAL	\$
			Design/Construction Contingency	25%	\$
			TOTAL DE	EMOLITION COST	\$
			ΤΟΤΑ	L CAPITAL COST	\$70,



CostComments\$91,617 of raw construction cost subtotal\$80,623 of raw construction cost subtotal\$538,710

\$134,678 of above subtotal

\$673,388

,000,000 *Total Capital Cost is rounded to the nearest million



Date: June 11, 2015

Aspect:

Project:

Alternative 5 - Baseline Future Expansion Plant (Phase 2)

	Item	Size Units	Qty	Units		Unit Cost	Cost	Comments
Capital Costs								
CONSTRUCTION								
Facilities not included in USD's 10 yr Cl	P							
Process Facilities								
Nutrient Removal								*Nutrient removal cost is based on a
	Additional Aeration Basin Capacity	123,300 SF		1	\$	38,860,000	\$ 38,860,000	N/L. The cost would be greater if the
	Blower Building			1	\$	5,128,821	\$ 5,128,821	future limit is 6 mg N/L.
Primary Digester #7								
	Structure			1	\$	5,420,000	\$ 5,420,000	
Secondary Clarifiers # 7 and 8								
	Structure			2	\$	1,701,330	\$ 3,402,660	
Chlorine Contact Tank				4	٠	0 000 000	¢ 0.000.000	
Dump Station	Structure	16,300 SF		1	Ф	3,000,000	\$ 3,000,000	
Pump Station	Primany Effluent	2 duty nump	2	250 hr		¢6 500	¢1 625 00	0
	Filinary Endent	z duty pumps	5	250 Hp		\$0,500	\$1,025,000	5
Levee	Madium Cast Clay			2 7 MI E	¢	556 000	¢ 2.057.200	*The construction cost of the levee
			1		¢	12 95	\$ 2,007,200 \$ 569,800	asumes the 13 ft high levee would be
	Compaction		- 4	4,000 CY	Ψ ¢	12.95	\$ 55.440	constructed from scratch.
	Compaction		-	Y CIP FACILITY			φ 00,440 \$60 118 02	1
			NO	V OIF T AOILIT T	NAW CONSTR	0011010 0031	\$00,110,92	I
				Contractor (Costs	25%	\$ 15,029,730	of raw construction cost subtotal
				Professional Ser	vices	22%	\$ 13,226,163	of raw construction cost subtotal
						SUBTOTAL	\$ 88,374,814	
			Design/Con	struction Conting	jency	25%	\$ 22,093,703	of above subtotal
			SUBTOTAL (CONSTRUCTION	N COST NON C	IP FACILITIES	\$ 110,468,517	.
Facilities included in USD's 10 yr CIP								
Process Facilities								
Headworks								*Unit Costs in the CIP are capital costs,
	Coarse Screens			1	\$	1,600,000	\$ 1,600,000	which already include project
	Grit Removal			1	\$	600,000	\$ 600,000	
Anammox (side stream nutrient removal)								
	MBBR			1	\$	6,000,000	\$ 6,000,000	
			SUBTO	TAL CONSTRU	CTION COST C	IP FACILITIES	\$ 8,200,000	-
TOTAL CONSTRUCTION COST								7



	Item	Size Units	Qty Units		Unit Cost	Cost	Comments
PIPING (only large sca	le pipes)						
<u>Microtunneling</u>							
	<u>2 Pipes:</u> Primary Effluent	36 in	2700 LF	\$	900	\$2,430,000	
	<u>2 Pipes:</u> Mixed Liquor	28 in	2230 LF	\$	700	\$1,561,000	
	<u>1 Pipe:</u> Secondary Effluent	30 in	1100 LF	\$	750	\$825,000	
				RA	N PIPING COST	\$4,816,000	
			Contractor	Costs	25% \$	1,204,000	of raw construction cost subtotal
			Professional Se	ervices	22% \$	1,059,520	of raw construction cost subtotal
					SUBTOTAL \$	7,079,520	
			Design/Construction Contin	igency	25% \$	1,769,880	of above subtotal
				ΤΟΤΑ	L PIPING COST \$	8,849,400	
DEMOLITION							
Facilities							
	Chlorine Contact Tank	3,300 CY	1	\$	29.99	\$98,960	
<u>Disposal</u>							
	Disposal (offsite)	3,300 CY	1	\$	19.01 \$	62,718	
				RAW DEN	IOLITION COST \$	161,678	
			Contractor	Costs	25% \$	40 419	of raw construction cost subtotal
			Professional Se	ervices	22% \$	35.569	of raw construction cost subtotal
					SUBTOTAL \$	237,666	
			Design (Construction Contin		<u>محمر ۴</u>	F0 447	
			Design/Construction Contin			59,417	or above subtotal
				IOTAL DEN	OLITION COST \$	297,083	
LAND							
	USD Purchase Adjacent Properties	3.208 acres	139,740 SF		\$15	\$2,096,107	Tract 3
				R	AW LAND COST	\$2,096,107	
			Professional Se	ervices	40%	\$838,442.88	
				тот	AL LAND COST	\$2,934,550	-
				TOTAL	CAPITAL COST	\$131,000,000	*Total Capital Cost is rounded to the
*The total capital costs i	n this Appendix vary slightly from those in the Study due to round	dina					nearest million

*The total capital costs in this Appendix vary slightly from those in the Study due to rounding

Appendix C FINAL



Aspect:

Project:

Advanced Water Treatment Facilities

	Item	Size	Units	Qty	Units		Unit Cost	
Capital Costs								
CONSTRUCTION								
Advanced Treatment	Indirect Potable Reuse		12 mgd		1	\$	48,177,000	\$
(Includes: ME/LIE system a ME/RO brook tank					FACILITY F	RAW CONS	TRUCTION COST	9
RO transfer pumps, cartridge filters, a RO					Contractor C	osts	25%	9
system, a UV system, decarbonators and RO flush tanks, a lime system, and storage and				Pro	ofessional Serv	ices	22%	9
eed systems for ammonia, anti-scalant, sulfuric acid, hydrogen peroxide, caustic soda, and citric acid. Also includes a finish water pump station.)							SUBTOTAL	0
station.)				Design/Constru	uction Continge	ency	25%	9
				TOTAL	ADV TREATM	ENT CONS	TRUCTION COST	9
Advanced Treatment	Indirect Potable Reuse		40 mgd		1	\$	160,590,000	\$ 1
(Includes: ME/LIE system, a ME/RO break tank					FACILITY F	RAW CONS	TRUCTION COST	\$1
RO transfer pumps, cartridge filters, a RO					Contractor C	osts	25%	9
system, a UV system, decarbonators and RO flush tanks, a lime system, and storage and				Pro	ofessional Serv	ices	22%	9
feed systems for ammonia, anti-scalant, sulfuric acid, hydrogen peroxide, caustic soda, and citric acid. Also includes a finish water pump							SUBTOTAL	\$2
station.)				Design/Constru	uction Continge	ency	25%	9
				TOTAL	ADV TREATM	ENT CONS	TRUCTION COST	\$2

Date: June 11, 2015



Cost

Comments

48,177,000

\$48,177,000

- \$12,044,250 of raw construction cost subtotal
- \$10,598,940 of raw construction cost subtotal

\$70,820,190

\$17,705,048 of above subtotal

\$89,000,000 *Total Capital Cost is rounded to the nearest million

60,590,000

160,590,000

\$40,147,500 of raw construction cost subtotal \$35,329,800 of raw construction cost subtotal 236,067,300

\$59,016,825 of above subtotal

295,000,000 *Total Capital Cost is rounded to the nearest million



Directors Manny Fernandez Tom Handley Pat Kite Anjali Lathi Jennifer Toy

Officers Paul R. Eldredge General Manager/ District Engineer

David M. O'Hara Attorney

DATE: July 27, 2015

MEMO TO: Board of Directors - Union Sanitary District

FROM:Paul R. Eldredge, General Manager/District EngineerJudi Berzon, Human Resources Administrator

SUBJECT:Agenda Item No. 12 - Meeting of July 27, 2015APPROVE MODIFICATION OF JOB TITLE FROM COMMUNICATIONS COORDINATORTO COMMUNICATIONS AND INTERGOVERNMENTAL RELATIONS COORDINATORAND REVISIONS TO JOB DESCRIPTION AND SALARY SCHEDULE

Recommendation: Approve Communications and Intergovernmental Relations Coordinator class description and salary.

Background: The Board of Directors has communicated their desire to receive legislative updates on a periodic basis. In order to address the Board's request, The General Manager has determined that the appropriate classification in the District to perform the necessary staff work is the Communications Coordinator.

The current Communications Coordinator class description has been modified to add duties that involve tracking, summarizing, and reporting on state, local and federal ordinances, regulations, and legislation. The revised classification is now proposed to be titled "Communications and Intergovernmental Relations Coordinator." This draft also more accurately captures the duties involving community outreach activities which are currently being performed by the Communications Coordinator.

Because this job is unique, both in its current duties as Communications Coordinator and with the added duties relating to legislation, there really are almost no salary matches. Staff reviewed class descriptions from Central Contra Costa Sanitary District and Contra Costa Water District, which provide the closest matches to the District's revised class description. Based on the data, we are proposing a salary increase of 5.77% to the salary range. The current top step of the salary range is \$106,547. The new top step annual salary would be \$112,694.

Attachments: Job Description with red-line changes Job Description with accepted changes

COMMUNICATIONS COORDINATOR

Class Description

Definition

Under general supervision in a team environment, coordinates the District's internal and external communications efforts including the development and production of communications about the District and its programs and services; manages and maintains District website; participates in a variety of community outreach activities and public education programs; tracks federal and state legislation and provides General Manager with updates on proposed legislation; and advises and assists various departments in the development of appropriate communications methods and materials.

Examples of Duties (Illustrative Only)

- Develops, writes, edits, designs and produces press releases, presentations, videos, brochures, fact sheets or talking points, newsletters, public service announcements, customer communications, web pages and a variety of documents to disseminate information and create public awareness of District goals and activities.
- Provides creative writing and other technical assistance for a variety of materials; researches, writes copy and edits the copy of others.
- Acts as internal consultant to various departments, committees and task forces on presentations, internal and external information methods and procedures to better communicate with staff, audiences, and District customers.
- Coordinates with local newspaper for coverage and publication of District information, activities and events and facilitates interface with appropriate contacts.
- Develops and maintains contacts with local and regional governments, industry associations, community organizations and media representatives in support of the District's programs and services.
- Participates in a variety of community outreach activities; and participates in designated community organizations, industry specific committees, and special interest groups.
- Monitors progress of ordinances, regulations, and legislation proposed or under consideration by federal, state, and local governments and regulatory agencies, providing timely verbal and written reports to the General Manager.
- Responds to inquiries related to District programs, as requested.
- Produces artwork, documents and presentations for special events including posters, invitations, photos, and specialty items such as Safety Bucks and FOG outreach program, newsletter and other customer communications, utilizing production software. A variety of graphics and software such as InDesign, Photoshop, Illustrator, PowerPoint, publisher, and Irfanview.

- Manages District website which includes working with design consultant and web host to ensure consistency of design; uploading and updating information onto website; deciding on information and/or topics to add to site; designing and creating new web pages; and coordinating with consultant on revising home page and adding new pages.
- Coordinates Manages the preparation, publication and distribution of printed materials with outside printers and suppliers vendors. This includes assisting with preparation of requests for proposals, selection of consultants, negotiating consultant contracts and administering the contracts during the course of the work.
- Assists in planning strategies to disseminate information to customers and the public in an effective and positive manner; assists in designing programs and materials to enhance the District's image and maximize public awareness of programs and services.
- Serves as facilitator, upon request, of complex meetings, task forces, committees (including labor/management interest-based concerns) to ensure goals are met; may assist in development of curriculum and agendas.
- Represents the District as member of City/County Communications and Marketing Association.
- Responds to inquiries related to District programs, as requested.
- May plan events, including promotion of the event; planning for catering, decorations, chairs, tables, etc. and arranging for site-specific needs.
- May assist the General Manager or other Executive Team staff with public information duties as they relate to the Emergency Operations Command Center.
- Provides administrative support to Customer Service Team, including preparation of documents, back-up of front desk, and fulfillment of other administrative duties, as needed
- If no other staff is available, may back up front desk.
- This class may be assigned to special projects.
- Performs additional duties as assigned Incumbents will perform any other duties that are appropriate for the scope and level of responsibility of this classification.

Qualifications

<u>Education and Experience</u>: Any combination of education and experience that provides the knowledge, skills, and abilities indicated below. A typical way of gaining the knowledge, skills, and abilities is:

Associate degree in marketing, journalism, communications, graphics or a related field and three years experience in communications and/or public relations/information <u>Knowledge of</u>: **p**Principles and practices of preparing and disseminating communications and public information and community relations materials techniques through different media including print, social media, internet and PowerPoint,;writing and editing techniques; working with graphic design software; research, analysis, and problem solving techniques; and group facilitation techniques; standard office practices and procedures, including filing, business letter writing, data base andEngish usage, grammar, spelling, vocabulary, and punctuation; spreadsheet programs, records management and report preparation procedures

<u>Skill in</u>: Providing high quality communications materials in a variety of media; operating complex software to create desired results; advising internal customers of effective methods for communicating information; researching to find information relevant to communications assignments; facilitating a variety of group sessions in order to reach stated goals; performing administrative support duties

<u>Ability to</u>: eCoordinate the District-wide communications, community outreach, and intergovernmental relations functions; understand and communicate technical data to the public; write effective copy, press releases, articles, reports and other written documents; prepare presentations; make effective public presentations; research, read, analyze and summarize technical information, including legislation and regulations; design and lay-out electronic and print newsletters and website pages; use desktop publishing and printing techniques; learn the use of specialized computer software applicable to the position; work effectively with diverse groups of people; organize and prioritize a variety of projects and multiple tasks in an effective and timely manner; organize own work, set priorities, and meet critical deadlines; use tact, initiative, prudence, and independent judgment with general policy; and work independently with limited supervision.

Interpersonal Effectiveness: work effectively in a team-based organization focused on continuous improvement; establish and maintain a positive customer service attitude and effective working relationships with customers, including staff, agencies, organizations and vendors; demonstrate strong two-way communication skills, including the ability to listen, explain, and facilitate; ask for input; offer help without being asked; accept suggestions; work with others to solve problems; and provide recognition and encouragement

<u>Licenses, Certificates, or Credentials</u>: Must possess a valid Class C California driver's license, have and maintain a satisfactory driving record, and be insurable by the District to operate District vehicles.

<u>Other Requirements</u>: Must possess the physical characteristics to perform the critical and important duties of the class- and work evenings or weekends on occasion to make presentations or attend special events.

Disaster Service Worker

Employees of Union Sanitary District are, by State and Federal law, Disaster Service Workers. In the event of a declaration of emergency, any employee may be assigned activities that promote the protection of public health and safety or the preservation of lives and property, either at the District or within the local or their own community.

Approved Board of Directors: January 8, 2007

Position Status: Classified, Non-exempt (Technician, Journey-level-Technical Specialist) Recruitment: Internal and External

Union Sanitary District

DRAFT COMMUNICATIONS AND INTERGOVERNMENTAL RELATIONS COORDINATOR

Class Description

Definition

Under general supervision in a team environment, coordinates the District's internal and external communications efforts including the development and production of communications about the District and its programs and services; manages and maintains District website; participates in a variety of community outreach activities and public education programs; tracks federal and state legislation and provides General Manager with updates on proposed legislation; and advises and assists various departments in the development of appropriate communications methods and materials.

Examples of Duties (Illustrative Only)

- Develops, writes, edits, designs and produces press releases, presentations, videos, brochures, fact sheets or talking points, newsletters, public service announcements, customer communications, web pages and a variety of documents to disseminate information and create public awareness of District goals and activities.
- Provides creative writing and other technical assistance for a variety of materials; researches, writes copy and edits the copy of others
- Acts as internal consultant to various departments, committees and task forces on presentations, internal and external information methods and procedures to better communicate with staff, audiences, and District customers
- Coordinates with local newspaper for coverage and publication of District information, activities and events and facilitates interface with appropriate contacts
- Develops and maintains contacts with local and regional governments, industry associations, community organizations and media representatives in support of the District's programs and services.
- Participates in a variety of community outreach activities; and participates in designated community organizations, industry specific committees, and special interest groups.
- Monitors progress of ordinances, regulations, and legislation proposed or under consideration by federal, state, and local governments and regulatory agencies, providing timely verbal and written reports to the General Manager.
- Produces artwork, documents and presentations for special events including posters, invitations, photos, and specialty items such as FOG outreach program, newsletter and other customer communications, utilizing production software.
- Manages the District's website which includes working with design consultant and web host to ensure consistency of design; uploading and updating information onto website;

deciding on information and/or topics to add to site; designing and creating new web pages; and coordinating with consultant on revising home page and adding new pages.

- Manages the preparation, publication and distribution of printed materials with outside vendors. This includes assisting with preparation of requests for proposals, selection of consultants, negotiating consultant contracts and administering the contracts during the course of the work.
- Assists in planning strategies to disseminate information to customers and the public in an effective and positive manner; assists in designing programs and materials to enhance the District's image and maximize public awareness of programs and services.
- Serves as facilitator, upon request, of complex meetings, task forces, committees (including labor/management interest-based concerns) to ensure goals are met; may assist in development of curriculum and agendas.
- Responds to inquiries related to District programs, as requested.
- May plan events, including promotion of the event; planning for catering, decorations, chairs, tables, etc., and arranging for site-specific needs.
- May assist the General Manager or other Executive Team staff with public information duties as they relate to the Emergency Operations Command Center.
- If no other staff is available, may back up front desk.
- This class may be assigned to special projects.
- Incumbents will perform any other duties that are appropriate for the scope and level of responsibility of this classification.

Qualifications

<u>Education and Experience</u>: Any combination of education and experience that provides the knowledge, skills, and abilities indicated below. A typical way of gaining the knowledge, skills, and abilities is:

Associate degree in marketing, journalism, communications, graphics or a related field and three years experience in communications and/or public relations/information

<u>Knowledge of</u>: Principles and practices of preparing and disseminating public information and community relations materials through different media including print, social media, and Power Point; writing and editing techniques; working with graphic design software; research, analysis, and problem solving techniques; and group facilitation techniques, English usage, grammar, spelling, vocabulary, and punctuation; spreadsheet programs, records management and report preparation procedures

<u>Skill in</u>: Providing high quality communications materials in a variety of media; operating complex software to create desired results; advising internal customers of effective methods for communicating information; researching to find information relevant to communications

assignments; facilitating a variety of group sessions in order to reach stated goals; performing administrative support duties

<u>Ability to</u>: Coordinate the District-wide communications, community outreach, and intergovernmental relations functions; understand and communicate technical data to the public; write effective copy, press releases, articles, reports and other written documents; prepare presentations; make effective public presentations; research, read, analyze and summarize technical information, including legislation and regulations; design and lay-out electronic and print newsletters and website pages; use desktop publishing and printing techniques; learn the use of specialized computer software applicable to the position; work effectively with diverse groups of people; organize and prioritize a variety of projects and multiple tasks in an effective and timely manner; organize own work, set priorities, and meet critical deadlines; use tact, initiative, prudence, and independent judgment with general policy; and work independently with limited supervision.

Interpersonal Effectiveness: work effectively in a team-based organization focused on continuous improvement; establish and maintain a positive customer service attitude and effective working relationships with customers, including staff, agencies, organizations and vendors; demonstrate strong two-way communication skills, including the ability to listen, explain, and facilitate; ask for input; offer help without being asked; accept suggestions; work with others to solve problems; and provide recognition and encouragement

<u>Licenses, Certificates, or Credentials</u>: Must possess a valid Class C California driver's license, have and maintain a satisfactory driving record, and be insurable by the District to operate District vehicles.

<u>Other Requirements</u>: Must possess the physical characteristics to perform the critical and important duties of the class and work evenings or weekends on occasion to make presentations or attend special events.

Disaster Service Worker

Employees of Union Sanitary District are, by State and Federal law, Disaster Service Workers. In the event of a declaration of emergency, any employee may be assigned activities that promote the protection of public health and safety or the preservation of lives and property, either at the District or within the local or their own community.

Approved Board of Directors: January 8, 2007 Position Status: Classified, Non-exempt (Technician, Technical Specialist) Recruitment: Internal and External

Check No.	Date	Invoice No.	Vendor	Description	Invoice Amt	Check Amt
158173	7/9/2015	141883	CAROLLO ENGINEERS	THICKENER CONROL BUILDING IMPROVEMENTS PHASE II	\$27 572.03	\$31,718.33
	7/9/2015	142282		COGENERATION PROJECT	£4.140.00	
158198	7/9/2015	224720150624	PACIFIC GAS AND ELECTRIC	SERV TO 06/23/15 CS TRAINING TRAILER	\$4,140.3 0	\$21,196,11
	7/9/2015	761520150626		SERV TO 06/26/15 NEWARK PS	\$30.43	
158176	7/0/2015	12452160		JUNE 2015 DENTAL	\$21,165.68	
130170		12402100			\$18,473.28	\$20,837.86
	7/9/2015	1245216A		JUNE 2015 DENTAL	\$2,364.58	
158216	7/16/2015	352372	ALLIANT INSURANCE SERVICES INC	MISC. COMMERCIAL INSURANCE 07/15-07/16	\$18,867.00	\$18,867.00
158254	7/16/2015	533620150622	US BANK CORP PAYMENT SYSTEM	MONTHLY CAL-CARD STMT - JUNE 2015	\$17.530.41	\$17,530.41
158235	7/16/2015	68688	JWC ENVIRONMENTAL LLC	CHERRY ST GRINDER EXCHANGE	\$13 503 90	\$13,593.80
158224	7/16/2015	535207	BRENNTAG PACIFIC, INC.	13800 LBS SODIUM HYDROXIDE	\$10,000.00	\$11,491.92
	7/16/2015	534832		6900 LBS SODIUM HYDROXIDE	\$7,661.28	
158192	7/9/2015	37432220150701	LINCOLN NATIONAL LIFE INS COMP	LIFE & DISABILITY INSURANCE - JULY 2015	\$3,830.64	
150001	7/10/0015	076760		ADS. ODEN HOUSE & TOLOTY INDUSTRIES	\$7,601.38	\$7,601.38
130221	//10/2015	870700	BAT AREA NEWS GROUP LAST BAT		\$4,735.20	\$5,673.54
	7/16/2015	879675		MISC SPOT REPAIRS PHASE VI	\$938.34	
158234	7/16/2015	20542	IEDA INC	LABOR RELATIONS CONSULTING 07/01/15 - 09/30/15	\$5,651.00	\$5,651.00
158212	7/9/2015	6920	WARM SPRINGS CONSTRUCTORS	REFUND # 18234	\$5,000,00	\$5,000.00
158236	7/16/2015	9017455502	KEMIRA WATER SOLUTIONS, INC.	7.52 DRY TONS FERROUS CHLORIDE		\$4,940.64
					\$4,940.64	-

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Check No.	Date	Invoice No.	Vendor	Description	Invoice Amt	Check Amt
158229	7/16/2015	233354	FRANK A OLSEN COMPANY	2 BLOWER 7 EXPANSION JOINTS	\$3 195 97	\$4,425.97
	7/16/2015	233333		HEADWORKS ACTUATOR MACHING AND COMMISSIONING	¢0,100.07	
168225	7/16/2015	44083192	CINTAS FIRE PROTECTION	INSPECTION SEMI ANNUAL ALARM SYSTEM	\$1,230.00	
130223	//10/2015	71003192	CINING FIRE PROTECTION		\$160.00	\$4,210.00
	7/16/2015	44083216		ELEVATOR INSPECTION WITH ELEVATOR COMPANY		
	7/16/2015	44082939		SERVICE CALL FALSE ALARM ON SMOKE DETECTOR	\$525.00	
					\$285.00	
	7/16/2015	44083191		INSPECTION, ANNUAL ALARM SYSTEM		
450050		400000			\$3,240.00	
158252	//16/2015	130779	TOTAL WASTE SYSTEMS INC	JUNE 2015 GRTT DISPOSAL	\$4,107,53	\$4,107.53
158171	7/9/2015	533023	BRENNTAG PACIFIC, INC.	6900 LBS SODIUM HYDROXIDE	•	60 000 04
					\$3,830.64	\$3,630.64
158203	7/9/2015	7547664123	ROYAL WHOLESALE ELECTRIC	1 2MB CONTROLLER		\$3,383.55
158172	7/9/2015	7423	CALSTR'S	REFUND # 18213	\$3,383.55	
100172		1420	UNLOTTIC .		\$3,312.50	\$3,312.50
158197	7/9/2015	7642	PACIFIC BUILDING INC	REFUND # 18214	-	\$2 200 00
					\$3,300.00	\$3,300.00
158205	7/9/2015	7566	SAKOON	REFUND # 18216	¢0,000,00	\$3,300.00
158210	7/9/2015	7470	TOMATINA RESTAURANT LLC	REFUND # 18215	\$3,300.00	
					\$3,300.00	\$3,300.00
158186	7/9/2015	9713372	HILTON FARNKOPF & HOBSON LLC	SEWER SERVICE CHARGE PEER REVIEW		\$3 293 75
450040	7400045				\$3,293.75	••,=•••
100242	110/2013	0100094	NDO	SEWER SERVICE CHARGE DATA SERV JUL - SEPT 2015	\$2,795.63	\$2,795.63

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Check No.	Date	Invoice No.	Vendor	Description	Invoice Amt	Check Amt
158243	7/16/2015	096020150702	PACIFIC GAS AND ELECTRIC	SERV TO 07/01/15 CATHODIC PROJECT	\$61.4 0	\$2,733.02
	7/16/2015	140120150707		SERV TO 07/05/15 IRVINGTON PS	\$26 60	
	7/16/2015	892820150702		SERV TO 07/01/15 HAYWARD MARSH	Ψ20.00	
	7/16/2015	898220150702		SERV TO 07/01/15 FREMONT PS	\$55.05	
	7/16/2015	013720150707		SERV TO 07/06/15 BOYCE RD PS	\$269.01	
	7/10/2015	000700460800			\$2,103.14	
	7/16/2015	666720150702		SERV TO 07/01/15 PASEO PADRE PS	\$217.82	
158219	7/16/2015	6727946	AT&T	SERV: 05/20/15 - 06/19/15	\$17.01	\$2,506.02
	7/16/2015	6722234		SERV: 05/20/15 - 06/19/15	60 490 01	
158195	7/9/2015	20150630	NAPA AUTO PARTS	MONTHLY AUTO PARTS STMT - JUNE 2015	φ ∠, 403.01	\$2,500.53
158181	7/9/2015	7704	ENDVRCORP	REFUND # 18222	\$2,500.53	\$2,500,00
158199	7/9/2015	7955	PACIFIC PLUMBING & SEWER SERV	REFUND # 18219	\$2,500.00	\$ 2, 300.00
450044	7/4 0/0045	500070			\$2,500.00	\$2,500.00
158241	//10/2015	538873	MISSION CLAY PRODUCTS LEC	ASTD CLAY COUPLINGS	\$2,405.28	\$2,405.28
158249	7/16/2015	20150715	JOHN SEO	EXP REIMB: FILAMENT ID & ADV FILAMENT WORKSHOP REGISTR/	\$2,090.00	\$2,090.00
158257	7/16/2015	20150101	WATERISAC	2015 WATERISAC PRO MEMBERSHIP	\$1 999 00	\$1,999.00
158247	7/16/2015	916002452770	REPUBLIC SERVICES #916	RECYCLE & ROLL OFF - JUNE 2015	¢1,000.00	\$1,977.27
158256	7/16/2015	4420	VON EUW TRUCKING	49.13 TONS 3/4 CLASS II AB & 24.61 TONS 3/4 CRUSH	\$1,977.27	\$1 046 70
158179	7/9/2015	1545	DUBLIN SAN RAMON SVCS DISTR	FY15-16 BAY AREA CHEMICAL CONSORTIUM BIDDING PARTICIPAT	\$1,946.79	₽1,340./3
					\$1,448.00	\$1,448.00

Check No.	Date	Invoice No.	Vendor	Description	Invoice Amt	Check Amt
158193	7/9/2015	33606799	MCMASTER SUPPLY INC	ASTD PARTS & MATERIALS	\$55.04	\$1,265.66
	7/9/2015	33355921		1 EA SINGLE TANK PORABLE AIR COMPRESSOR	\$231.67	
	7/9/2015	33760788		ASTD PARTS & MATERIALS		
	7/9/2015	33486179		ASTD PARTS & MATERIALS	\$023.75 \$61.06	
	7/9/2015	33486180		20 EA STRUT-MOUNT CLAMPS	401.20	
	7/0/2015	00574075			\$120.96	
	719/2015	33571075		ASID FARIS & WATERIALS	\$257.22	
	7/9/2015	33588463		ASTD PARTS & MATERIALS	¢15 70	
158222	7/16/2015	10737721	BLAISDELL'S	ASTD OFFICE SUPPLIES	\$15.70	\$1,125.70
	7/16/2015	10737720		ASTD OFFICE SUPPLIES	••••••	
	7/16/2015	10737721C		ASTD OFFICE SUPPLIES CREDIT	\$1,035.64	
					\$-89.88	
158204	7/9/2015	7576820100	RS HUGHES CO INC	ASTD PPE & SAFETY SUPPLIES	\$1.024.67	\$1,024.67
158162	7/9/2015	7482	ACACIA CREEK	REFUND # 18223	••••	\$1.000.00
158246	7/16/2015	7946	PRO ROOTER	REFUND # 18237	\$1,000.00	• • • • • • • • • • • • • • • • • • • •
					\$500.00	\$1,000.00
	7/16/2015	7945		REFUND # 18236	\$500.00	
158251	7/16/2015	7927	STREAMLINE PLUMBING & DRAIN	REFUND # 18254 & 18255		\$1,000.00
158227	7/16/2015	8592	EAST BAY MUNI UTILITY DISTRICT	21 LAB SAMPLE ANALYSIS	\$1,000.00	
450000	7/0/00/5				\$999.70	\$999.70
158208	7/9/2015	3270266580	STAPLES CONTRACT & COMMERCIAL	ASTD JANITORIAL & BREAKROOM SUPPLIES - INVENTORY	\$372.10	\$953.44
	//9/2015	32/0266576		AS ID JANITURIAL & BREAKKUOM SUPPLIES - INVENTORY	\$581.34	

Check No.	Date	Invoice No.	Vendor	Description	Invoice Amt	Check Amt
158167	7/9/2015	6696106	AT&T	SERV: 05/13/15 - 06/12/15	\$607.0 7	\$818.90
	7/9/2015	6705277		SERV: 05/13/15 - 06/12/15	\$007.27	
	7/9/2015	6709372		SERV: 05/13/15 - 06/12/15	\$96.27	
					\$41.93	
	//9/2015	6713694		SERV: 02/10/15 - 00/12/15	\$1.50	
	7/9/2015	6709243		SERV: 05/13/15 - 06/12/15	\$41.93	
158214	7/16/2015	9040755459	AIRGAS NCN	2 CYL ARGON	•••••	\$801.49
158217	7/16/2015	7189	AMERICAN DISCOUNT SECURITY	JUNE SECURITY GUARD SERVICES	\$801.49	6760.00
158166	7/0/2015	8780658120625201	15 AT&T	SERV: 05/18/15 - 06/17/15	\$759.00	\$759.00
130100	13/2013	0703030120020201			\$677.25	\$677.25
158189	7/9/2015	902603	INTERNATIONAL PAINT LLC	ASTD PAINT SUPPLIES	\$148.30	\$604.96
	7/9/2015	893870		ASTD PAINT SUPPLIES	\$220.06	
	7/9/2015	887625		ASTD PAINT & SUPPLIES	•====	
158190	7/9/2015	6050000299343	KELLY-MOORE PAINT COMPANY	ASTD PAINT SUPPLIES - STMT - JUNE 2015	\$236.60	8670 03
	7/9/2015	61400000465989		ASTD PAINT SUPPLIES - STMT - JUNE 2015	\$67.48	4379.03
					\$511.55	
158220	7/16/2015	67975	BARNETT MEDICAL SERVICES LLC	120 LBS PHARMACEUTICAL WASTE REMOVAL	\$164.00	\$577.00
	7/16/2015	67661		40 LBS PHARMACEUTICAL WASTE REMOVAL	\$85.00	
	7/16/2015	68276		150 LBS PHARMACEUTICAL WASTE REMOVAL		
	7/16/2015	67276		30 LBS PHARMACEUTICAL WASTE REMOVAL	\$243.00	
158255	7/16/2015	98666	VANDERLANS & SONS INC	1 CUSTOM SEAL	\$85.00	
	7/7/2015	4040000			\$568.46	\$568.46
158188	//9/2015	1013033	INDUSTRIAL SAFETY SUPPLY	AS ID CAL GAS FOR ELECTRICIANS	\$526.75	\$526.75

Date	Invoice No.	Vendor	Description	Invoice Amt	Check Amt
7/9/2015	9747671132	VERIZON WIRELESS	WIRELESS SERV 05/21/15-06/20/15	\$524.23	\$524.23
7/9/2015	7943	A GOOD PLUMBER	REFUND # 18209	\$500.00	\$500.00
7/9/2015	7844	AAA AFFORDABLE PLUMBING	REFUND # 18228	\$500.00	\$500.00
7/9/2015	7835	ABOVE ALL PLUMBING, INC.	REFUND # 18225	00.006¢	\$500.00
7/9/2015	7833	MUKESH ADVANI	REFUND # 18212	\$500.00	\$500.00
7/9/2015	7882	DRAIN DOCTOR	REFUND # 18208	\$500.00	\$500.00
7/9/2015	7828	FAST BAY ROOTER	REFUND # 18211	\$500.00	\$500.00
7/0/2015	7000			\$500.00	\$500.00
7/9/2015	7802	TARSEM GARG	REFUND # 18224	\$500.00	\$500.00
7/9/2015	7658	KAIRU LIN	REFUND # 18221	\$500.00	\$500.00
7/9/2015	7847	PLUMBING CONNECTION	REFUND # 18218	\$500.00	\$500.00
7/9/2015	7745	PLUMBING TECH INC	REFUND # 18217	\$500.00	\$500.00
7/9/2015	7962	CHARLENE QIAN	REFUND # 18227	\$500.00	\$500.00
7/9/2015	7471	RISHI SHARMA	REFUND # 18220	\$200.00	\$500.00
7/9/2015	7928	STREAMLINE PLUMBING & DRAIN	REFUND # 18226	\$500.00	\$500.00
7/16/2015	7686	ADVIK INVESTMENTS LLC	REFUND # 18244	\$500.00	\$300.00
7/16/2015	7577		DEELIND # 19243	\$500.00	\$500.00
7102010	7000			\$500.00	\$500.00
//16/2015	7938	GO GO ROUTER	REFUND # 18245	\$500.00	\$500.00
7/16/2015	7940	KING TRENCHLESS	REFUND # 18256	\$500.00	\$500.00
7/16/2015	7964	LALO'S SEWER & DRAIN	REFUND # 18257	\$500.00	\$500.00
	Date 7/9/2015 7/16/2015 7/16/2015 7/16/2015 7/16/2015	DateInvoice No.7/9/201597476711327/9/201579437/9/201578447/9/201578357/9/201578327/9/201578287/9/201578027/9/201576587/9/201578477/9/201579437/9/201579437/9/201579457/9/201579627/9/2015797457/9/201579727/9/201579727/9/201579787/16/201579387/16/201579407/16/20157964	DateInvoice No.Vendor7/9/20159747671132VERIZON WIRELESS7/9/20157943A GOOD PLUMBER7/9/20157844AAA AFFORDABLE PLUMBING7/9/20157835ABOVE ALL PLUMBING, INC.7/9/20157833MUKESH ADVANI7/9/20157882DRAIN DOCTOR7/9/20157802TARSEM GARG7/9/20157802TARSEM GARG7/9/20157863KAIRU LIN7/9/20157862CHARLENE QIAN7/9/20157962CHARLENE QIAN7/9/20157962STREAMLINE PLUMBING & DRAIN7/9/20157686ADVIK INVESTMENTS LLC7/16/20157938GO GO ROOTER7/16/20157940KING TRENCHLESS7/16/20157940KING TRENCHLESS	DateInvoice No.VendorDescription7/9/20159747671132VERIZON WIRELESSWIRELESS SERV 05/21/15-06/20/157/9/20157443A GOOD PLUMBERREFUND # 182097/9/20157644AAA AFFORDABLE PLUMBINGREFUND # 182287/9/20157633MUKESH ADVANIREFUND # 182127/9/20157682DRAIN DOCTORREFUND # 182087/9/20157682RAST BAY ROOTERREFUND # 182247/9/20157682KAIRU LINREFUND # 182247/9/20157682KAIRU LINREFUND # 182247/9/20157682KAIRU LINREFUND # 182217/9/20157682KAIRU LINREFUND # 182217/9/20157682KAIRU LINREFUND # 182217/9/20157692KAIRU LINREFUND # 182217/9/20157943PLUMBING CONNECTIONREFUND # 182217/9/20157942KIARLENE QIANREFUND # 182277/9/20157942RISH SHARMAREFUND # 182267/9/20157923RISH SHARMAREFUND # 182267/9/20157924STREAMLINE PLUMBING & DRAINREFUND # 182267/9/20157934GO GO ROOTERREFUND # 182457/10/20157940KING TRENCHLESSREFUND # 182457/10/20157940KING TRENCHLESSREFUND # 182457/10/20157940KING TRENCHLESSREFUND # 182457/10/20157940KING TRENCHLESSREFUND # 18256	Date Invoice No. Vendor Description Invoice Ant 78/201 947871132 VERIZON WIRELESS WIRELESS SERV 05/21/15-08/20/15 S524.23 78/2015 78/30 A GOOD PLUMBER REFUND # 18209 S500.00 78/2015 78/40 AAA AFFORDABLE PLUMBING, INC. REFUND # 18226 S500.00 78/2015 78/30 ABOYE ALL PLUMBING, INC. REFUND # 18226 S500.00 78/2015 78/30 ABOYE ALL PLUMBING, INC. REFUND # 18226 S500.00 78/2015 78/30 RADEY ALL PLUMBING, INC. REFUND # 18226 S500.00 78/2015 78/30 RADEY ALL PLUMBING, INC. REFUND # 18226 S500.00 78/2015 78/30 RADEY ALL PLUMBING, INC. REFUND # 18226 S500.00 78/2015 78/30 REAN ADOCTOR REFUND # 18226 S500.00 78/2015 78/30 RASEN GARG REFUND # 18226 S500.00 78/2015 78/30 RATULIN REFUND # 18226 S500.00 78/2015 78/30 RUMBING ECH INC REFUND # 18226 S500.00 78/2015 78/30 REFUND # 18226 S500.00 S500.00 78/2015 78/30 REFUND # 18226 S500.00 S500.00
UNION SANITARY DISTRICT CHECK REGISTER 7/04/2015-7/17/2015

Check No.	Date	Invoice No.	Vendor	Description	Invoice Amt	Check Amt
158244	7/16/2015	7912	PLUMBING CONNECTION	REFUND # 18242	\$500.00	\$500.00
158245	7/16/2015	7809	PLUMBING TECH INC	REFUND # 18241	\$500.00	\$500.00
158258	7/16/2015	7722	CHRIS YOUNG	REFUND # 18258	\$500.00	\$500.00
158194	7/9/2015	759133	MOBILE MODULAR MANAGEMENT CORP	FMC TRAILER RENTAL - JULY 2015	\$500.00	\$493.90
158232	7/16/2015	1579567	HANSON AGGREGATES INC	1/2 MED TYPE A AC-R	\$493.90	6401.00
158233	7/16/2015	19811		ASTD PIPE & FITTINGS	\$481.03	\$481.03
100200					\$479.25	\$479.25
158187	7/9/2015	944720150626	HOME DEPOT CREDIT SERVICES	MONTHLY HARDWARE STMT - JUNE 2015	\$419.46	\$419.46
158184	7/9/2015	20150707	MICHAEL GILL	EXP REIMB: MAIL SERVER EXTERNAL MONITORING ANNUAL RENE	\$360.00	\$360.00
158223	7/16/2015	20150709	CURTIS BOSICK	TUITION REIMBURSEMENT SPRING SEMESTER 2015	\$358.57	\$358.57
158196	7/9/2015	104192	NEOPOST INC	1 EA INK CARTRIDGE FOR POSTAGE MACHINE	\$204 70	\$294.79
158218	7/16/2015	463091	ARCHER NORRIS	LEGAL SERVICES MAY 2015		\$288.00
158240	7/16/2015	33928381	MCMASTER SUPPLY INC	ASTD PARTS & MATERIALS	\$288.00	\$274.63
158228	7/16/2015	902218198	EVOQUA WATER TECHNOLOGIES	DI WATER SYSTEM	\$274.63	5050.04
158164	7/9/2015	1332	ALAMEDA COUNTY TREASURER	84 ASSESSOR'S MAPS	\$252.04	əzəz.04
159169	7/0/2015	899673			\$252.00	\$252.00
100100	119/2013	005070	BAT AREA NEWS GROUP EAST BAT		\$212.94	\$212.94
158185	7/9/2015	601650444	HILLYARD/SAN FRANCISCO	12 EA DUSTERS	\$193.61	\$1 93.61
158239	7/16/2015	20150715	DAVID LEATH	EXP REIMB: CASH FOR DAVE PORT'S RETIREMENT GIFT	\$180.00	\$180.00
158248	7/16/2015	20150715	THERESA RODRIGUEZ	EXP REIMB: RETIREMENT PARTY - DAVE PORT	\$180.00	\$180.00
158175	7/9/2015	300000502	СМТА	MEMBERSHIP RENEWAL: D. KULL & M. SCOTT	£155.00	\$155.00
					\$155.00	

UNION SANITARY DISTRICT CHECK REGISTER 7/04/2015-7/17/2015

Check No.	Date	Invoice No.	Vendor	Descript	tion	Invoice Amt	Check Amt
158169	7/9/2015	17979900	BECK'S SHOES	SAFETY SHOES: K. SILVA		\$135.88	\$135.88
158170	7/9/2015	20150709	LAURIE BRENNER	TRAVEL REIMB: WEF LEADER	SHIP INSTITUTE MEALS/TAXI	\$100.00	\$122.52
158207	7/9/2015	869289541	SHARP BUSINESS SYSTEMS	MTHLY MAINTENANCE BASED	ONUSE	\$115.88	\$115.88
158253	7/16/2015	9853255.0	UPS - UNITED PARCEL SERVICE	SHIPPING CHARGES W/E 06/2	0/15	\$89.57	\$89.57
158174	7/9/2015	445428	CENTERVILLE SAW AND TOOL	6 TURBO BLADE 4 INCH		\$84.69	\$84.69
158250	7/16/2015	20150709	JENNIFER SIO-KWÓK	PROJ 453 LUNCH MEETING		\$54.97	\$54.97
158177	7/9/2015	615320150618	DISH NETWORK	JUL 2015 - SERVICE FEE		\$50.90	\$50.90
158165	7/9/2015 4088644120150624 ALAMEDA COUNTY WATER DISTRIC		ALAMEDA COUNTY WATER DISTRICT	SERV TO: 06/24/15 - BOYCE R	OAD	\$48.26	\$48.26
158215	7/16/2015 4017420220150702 ALAMEDA COUNTY WATER DISTRICT		ALAMEDA COUNTY WATER DISTRICT	SERV TO: 07/02/15 - FREMONT	BLVD	\$45.37	\$45.37
158182	7/9/2015	146791	FREMONT RUBBER STAMP CO INC	1 SELFT INKING STAMP · CER	T TRUE COPY OF ORIG DOCU	\$39.49	\$39.49
158226	7/16/2015	256718	CURTIS & TOMPKINS LTD	1 LAB SAMPLE ANALYSIS		\$20.00	\$20.00
Invoices:				С	hecks:		
Credit	Memos :	1	-89.88				
\$0 - \$1,	,000 :	94	31,604.22		\$0 - \$1,000 :	63	27,572.96
\$1,000	- \$10,000 :	34	110,239.92		\$1,000 - \$10,000 :	30	96,148.07
\$10,000	0 - \$100,000	6	117,202.20		\$10,000 - \$100,000 :	7	135,235.43
Over \$	100,000 :	0			Over \$100,000 :		
Total:		135	258,956.46		Total:	100	258,956.46



Directors

Manny Fernandez Tom Handley Pat Kite Anjali Lathi Jennifer Toy

Officers

Paul R. Eldredge, P.E General Manager/District Engineer

David M. O'Hara Attorney

DATE: July 20, 2015

- **MEMO TO**: Board of Directors Union Sanitary District
- FROM:Paul R. Eldredge, General Manager/District EngineerRich Cortés, Business Services ManagerRoslyn Fuller, Purchasing AgentKim Truong, Administrative Specialist II
- SUBJECT:Agenda Item No. 13b. July 27, 2015Information item:CAL-CARD QUARTERLY MERCHANT ACTIVITY REPORT

Recommendation

Information Only

Information

The attached CAL-Card Merchant Spend Analysis details the CAL-Card activity for the fourth quarter of FY 2015. This covers transactions for the CAL-Card billing period March 23, 2014 through June 22, 2015. During this quarter, we had 253 transactions totaling \$53,203.10.

MCCG	Merchant Category Code Group Description	MCC	Merchant Name	Merchant City	Merchant State/ Province	Debit Amount	Nbr of Debit Trans	Average Spend per Debit Trans	Credit Amount	Nbr of Credit Trans	Total Spend	% of Total Spend	Nbr of Trans	Total Sales Tax
47963	BUSINESS EXPENS	8398	<u>CA WATER ENV</u> <u>ASSN</u>	510-382-7800	CA	\$ 5,028.00	22	\$ 228.55	\$ 0.00	0	\$ 5,028.00	9.60%	22	\$ 0.00
137510	Rialto	9399	CITY OF FREMONT DEV SVCS	FREMONT	CA	4,320.00	3	1,440.00	0.00	0	4,320.00	8.25%	3	0.00
47961	AUTO/RV DEALERS	5511	MISSION VALLEY FORD PARTS	408-933-2300	CA	2,974.93	2	1,487.47	0.00	0	2,974.93	5.68%	2	0.00
47971	OFFICE SUPPLIES	5734	ROK*RSTECHED	414-321-8000	WI	2,398.00	2	1,199.00	0.00	0	2,398.00	4.58%	2	0.00
47971	OFFICE SUPPLIES	5942	<u>AMAZON</u> MKTPLACE PMTS	AMZN.COM/BILL	WA	2,025.62	27	75.02	99.95	1	1,925.67	3.68%	28	18.07
217413	Prohibited Tran	5947	<u>1-800-GIFTCARD.C</u> OM, IN	888-8868869	ТΧ	1,889.95	1	1,889.95	0.00	0	1,889.95	3.61%	1	0.00
47979	WHOLESALE TRADE	5039	GRANITEROCK #211	831-7682000	CA	1,635.00	1	1,635.00	0.00	0	1,635.00	3.12%	1	135.00
47979	WHOLESALE TRADE	5072	CELEBRATION PARTY EQUIP	510-887-2729	CA	1,448.64	4	362.16	0.00	0	1,448.64	2.77%	4	0.00
141822	Hardware Supply	5200	LOWES #01132*	510-476-0600	NC	1,422.05	1	1,422.05	0.00	0	1,422.05	2.71%	1	128.45
47979	WHOLESALE TRADE	5251	SOL*SNAP-ON INDUSTRIAL	877-740-1900	GA	1,192.54	6	198.76	0.00	0	1,192.54	2.28%	6	108.41
47979	WHOLESALE TRADE	5085	ELCOMETER, INC.	248-6500500	MI	1,044.27	1	1,044.27	0.00	0	1,044.27	1.99%	1	0.00
47972	OTHER	5732	<u>BEST BUY</u> 00001446	UNION CITY	CA	1,234.30	6	205.72	218.19	2	1,016.11	1.94%	8	122.10
47963	BUSINESS EXPENS	8299	<u>WEST</u> VALLEY-MISSIONC CD	408-741-2089	CA	900.00	2	450.00	0.00	0	900.00	1.72%	2	0.00
47962	BUILDING SERVIC	7349	<u>UNITED SITE</u> SERVICE	800-864-5387	MA	800.58	1	800.58	0.00	0	800.58	1.53%	1	0.00
47970	OFFICE SERVICES	8931	<u>PAYPAL</u> <u>*SP-PRODUCTS</u>	402-935-7733	CA	800.00	1	800.00	0.00	0	800.00	1.53%	1	0.00
212656	SCCLD AUTO	7549	<u>BERRY BROS</u> TOWING AND TRA	800-4647215	CA	770.00	1	770.00	0.00	0	770.00	1.47%	1	0.00
47979	WHOLESALE TRADE	5047	IDEXX DISTRIBUTION INC	800-814-1147	ME	752.37	2	376.19	0.00	0	752.37	1.44%	2	47.49

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47979	WHOLESALE TRADE	5085	ZORO TOOLS INC	855-2899676	IL	\$ 659.18	1	\$ 659.18	\$ 0.00	0	\$ 659.18	1.26%	1	\$ 0.00
47979	WHOLESALE TRADE	5072	BAY HYDRAULICS	SAN JOSE	CA	654.27	2	327.14	0.00	0	654.27	1.25%	2	0.00
47979	WHOLESALE TRADE	5047	<u>VWR</u> INTERNATIONAL INC	800-932-5000	PA	634.23	2	317.12	0.00	0	634.23	1.21%	2	57.66
47979	WHOLESALE TRADE	5046	AHERNRENTALS FREMONT	702-6318400	CA	613.12	1	613.12	0.00	0	613.12	1.17%	1	53.20
47971	OFFICE SUPPLIES	5942	AMAZON.COM	AMZN.COM/BILL	WA	584.52	9	64.95	0.00	0	584.52	1.12%	9	53.18
47966	MAIL/TELEPHON E	5965	OFFICE DEPOT 1135	800-463-3768	CA	565.97	3	188.66	0.00	0	565.97	1.08%	3	50.55
47972	OTHER	7299	SQ *COLD STONE CREAMERY G	MILPITAS	CA	544.50	1	544.50	0.00	0	544.50	1.04%	1	0.00
235401	REGISTRATION	8111	PAYPAL *LIEBERTCASS	402-935-7733	CA	505.00	3	168.33	0.00	0	505.00	0.96%	3	0.00
47963	BUSINESS EXPENS	8999	IN *KEN GRADY COMPANY, IN	415-8835924	CA	492.42	1	492.42	0.00	0	492.42	0.94%	1	43.40
47966	MAIL/TELEPHON E	5964	CDW GOVERNMENT	800-800-4239	IL	490.12	1	490.12	0.00	0	490.12	0.94%	1	42.68
217413	Prohibited Tran	8699	<u>NATIONAL</u> <u>PROCUREMENT</u> INST	702-989-8095	NV	490.00	2	245.00	0.00	0	490.00	0.94%	2	0.00
47972	OTHER	5999	<u>TRAFFIC SAFETY</u> STORE	610-701-9366	PA	474.95	1	474.95	0.00	0	474.95	0.91%	1	0.00
47979	WHOLESALE TRADE	5085	ALLIED PACKING & SUPPLY	510-654-3274	CA	465.29	2	232.65	0.00	0	465.29	0.89%	2	0.00
119156	MCC001	1520	BAILEY FENCE COMPANY INC	510-783-2980	CA	450.00	1	450.00	0.00	0	450.00	0.86%	1	0.00
47979	WHOLESALE TRADE	5085	TIFCO INDUSTRIES	281-5716000	ТХ	447.58	1	447.58	0.00	0	447.58	0.85%	1	29.43
137510	Rialto	9399	CALIFORNIA SPECIAL DISTR	916-442-7887	CA	432.00	4	108.00	0.00	0	432.00	0.82%	4	0.00

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47970	OFFICE SERVICES	8911	BROWN AND CALDWELL	925-2102277	со	\$ 400.00	2	\$ 200.00	\$ 0.00	0	\$ 400.00	0.76%	2	\$ 0.00
150085	MCC5969	5969	AMERICAN PUBLIC WORKS	8164726100	MO	395.00	1	395.00	0.00	0	395.00	0.75%	1	0.00
137510	Rialto	9399	PAYPAL *3CMA	402-935-7733	CA	390.00	1	390.00	0.00	0	390.00	0.74%	1	0.00
47979	WHOLESALE TRADE	5099	ROXY DISPLAY INC.	732-246-7058	NJ	386.42	1	386.42	0.00	0	386.42	0.74%	1	0.00
47979	WHOLESALE TRADE	5074	FRAN A. OLSEN	925-961-8888	CA	381.66	2	190.83	0.00	0	381.66	0.73%	2	0.00
47979	WHOLESALE TRADE	5099	LANDTEC NORTH AMERICA IN	909-783-3636	CA	346.09	2	173.05	0.00	0	346.09	0.66%	2	26.60
47972	OTHER	5999	VYNCKIER ENCLOSURE SYS	713-374-7850	тх	312.29	1	312.29	0.00	0	312.29	0.60%	1	0.00
47972	OTHER	5732	EPASALES	866-448-5547	TN	292.90	1	292.90	0.00	0	292.90	0.56%	1	0.00
47972	OTHER	5999	VIECO/858-487-5321	858-487-5321	CA	285.19	2	142.60	0.00	0	285.19	0.54%	2	0.00
47972	OTHER	7299	ELEMENTAL ANALYSIS INC	869-2545150	KY	280.00	1	280.00	0.00	0	280.00	0.53%	1	0.00
47971	OFFICE SUPPLIES	5734	BAMBOO SOLUTIONS	877-226-2662	VA	273.00	1	273.00	0.00	0	273.00	0.52%	1	0.00
47979	WHOLESALE TRADE	5085	BALLUFF INC	859-7272200	KY	272.17	1	272.17	0.00	0	272.17	0.52%	1	0.00
47979	WHOLESALE TRADE	5065	<u>SCHNEIDERELECT</u> RIC IT C	401-398-8450	RI	271.69	1	271.69	0.00	0	271.69	0.52%	1	0.00
217413	Prohibited Tran	7216	<u>GREEN LEAF</u> CLEANERS	FREMONT	CA	270.00	3	90.00	0.00	0	270.00	0.52%	3	0.00
47970	OFFICE SERVICES	5968	SURVEYMONKEY.C	971-2445555	CA	268.14	1	268.14	0.00	0	268.14	0.51%	1	0.00
47971	OFFICE SUPPLIES	4812	WISCOMM COM	262-649-1041	WI	253.37	2	126.69	0.00	0	253.37	0.48%	2	0.00
47979	WHOLESALE TRADE	5310	WAL-MART #2031	UNION CITY	CA	252.59	5	50.52	0.00	0	252.59	0.48%	5	21.64
47970	OFFICE SERVICES	7361	BOXWOOD TECH	888-491-8833	MD	250.00	1	250.00	0.00	0	250.00	0.48%	1	0.00
47979	WHOLESALE	5072	THE LIGHTHOUSE	HAYWARD	CA	245.85	2	122.93	0.00	0	245.85	0.47%	2	0.00

Merchant Spend Analysis - Detail / troung1 / 07/09/2015 11:20:24

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47979	TRADE													
47960	AIRLINE	3066	<u>SOUTHWES</u> 5262103915354	800-435-9792	ТХ	243.00	1	243.00	0.00	0	243.00	0.46%	1	0.00
141822	Hardware Supply	5200	LOWES #01132*	UNION CITY	CA	230.74	5	46.15	0.00	0	230.74	0.44%	5	20.97
47960	AIRLINE	3066	<u>SOUTHWES</u> 5262103762881	800-435-9792	ТХ	229.00	1	229.00	0.00	0	229.00	0.44%	1	0.00
141822	Hardware Supply	5200	THE HOME DEPOT 6636	FREMONT	CA	227.01	2	113.51	0.00	0	227.01	0.43%	2	19.69
212656	SCCLD AUTO	5599	PETERSON POWER SYSTEMS	510-3576200	CA	221.41	1	221.41	0.00	0	221.41	0.42%	1	0.00
47972	OTHER	4816	<u>DRI*WWW.ELEMEN</u> <u>T5.INFO</u>	ELEMENT5.INFO	MN	220.00	1	220.00	0.00	0	220.00	0.42%	1	0.00
47979	WHOLESALE TRADE	5065	ATLAS COPCO COMPRSSR - W	775-331-8080	CA	204.05	1	204.05	0.00	0	204.05	0.39%	1	17.16
47979	WHOLESALE TRADE	5045	<u>DMI* DELL</u> <u>K-12/GOVT</u>	800-981-3355	ТХ	201.33	1	201.33	0.00	0	201.33	0.38%	1	17.94
47979	WHOLESALE TRADE	5311	SEARS ROEBUCK 1019	PLEASANTON	CA	200.82	1	200.82	0.00	0	200.82	0.38%	1	17.42
47972	OTHER	5999	PAYPAL EBAY MARKTPLC USD	402-935-7733	NE	199.96	1	199.96	0.00	0	199.96	0.38%	1	0.00
47963	BUSINESS EXPENS	8299	<u>FREDPRYOR</u> CAREERTRACK	800-5563012	KS	199.00	1	199.00	0.00	0	199.00	0.38%	1	0.00
47960	AIRLINE	3066	<u>SOUTHWES</u> 5262496426744	800-435-9792	ТХ	196.00	1	196.00	0.00	0	196.00	0.37%	1	0.00
47979	WHOLESALE TRADE	5047	CPI*COLEPARMERI NSTRUMT	800-323-4340	IL	184.91	1	184.91	0.00	0	184.91	0.35%	1	14.85
217413	Prohibited Tran	8699	<u>NATL INST CERT</u> <u>ENGR TE</u>	703-684-2800	VA	180.00	1	180.00	0.00	0	180.00	0.34%	1	0.00
47972	OTHER	5999	PARTY CITY	UNION CITY	CA	170.28	3	56.76	0.00	0	170.28	0.33%	3	15.48
47963	BUSINESS EXPENS	8999	PUBLIC WORKS CAREERS	607-3512331	NY	170.00	1	170.00	0.00	0	170.00	0.32%	1	0.00
217413	Prohibited Tran	8699	ASQ ECOMMERCE	414-2728575	WI	169.00	1	169.00	0.00	0	169.00	0.32%	1	0.00
47970	OFFICE SERVICES	7399	NEWARK CHAMBER OF	510-744-1000	CA	168.00	2	84.00	0.00	0	168.00	0.32%	2	0.00

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47970	OFFICE SERVICES		<u>COMMERC</u>											
47960	AIRLINE	3066	<u>SOUTHWES</u> 5262498421761	800-435-9792	ТХ	166.99	1	166.99	0.00	0	166.99	0.32%	1	0.00
47960	AIRLINE	3066	<u>SOUTHWES</u> 5262116924791	800-435-9792	ТХ	157.00	1	157.00	0.00	0	157.00	0.30%	1	0.00
47979	WHOLESALE TRADE	5099	<u>CLEAR</u> LITERATURE DISPLAY	CLEARLDS.COM	FL	153.98	1	153.98	0.00	0	153.98	0.29%	1	0.00
47963	BUSINESS EXPENS	8299	<u>NCS*ITL CDE</u> COUNCIL EX	800-511-3478	MN	150.00	2	75.00	0.00	0	150.00	0.29%	2	0.00
138753	SEMINAR/CONF.	8641	<u>PAYPAL *MSA SF</u> <u>BAY</u>	402-935-7733	CA	140.00	3	46.67	0.00	0	140.00	0.27%	3	0.00
47972	OTHER	4816	DROPBOX*DFDHZC <u>V9XD7C</u>	DB.TT/CCHELP	CA	138.00	1	138.00	0.00	0	138.00	0.26%	1	0.00
47972	OTHER	4816	DRI*PINNACLESYS. COM	ORDERFIND.COM	MN	129.95	1	129.95	0.00	0	129.95	0.25%	1	0.00
		5661	MUCKANDSTUFF	817-326-5470	ТХ	129.95	1	129.95	0.00	0	129.95	0.25%	1	0.00
47971	OFFICE SUPPLIES	5734	ESRI INC	888-377-4576	CA	128.00	1	128.00	0.00	0	128.00	0.24%	1	0.00
47964	EATING/DRINKIN G	5814	CHIPOTLE 1529	UNION CITY	CA	127.66	3	42.55	0.00	0	127.66	0.24%	3	0.00
217413	Prohibited Tran	8699	CAL CHAMBER OF COMMERCE	8003318877	CA	126.00	1	126.00	0.00	0	126.00	0.24%	1	0.00
141822	Hardware Supply	5200	<u>BUILD-CHARGE.CO</u> <u>M</u>	800-375-3403	CA	119.50	1	119.50	0.00	0	119.50	0.23%	1	0.00
47970	OFFICE SERVICES	5968	AMAZONPRIME MEMBERSHIP	AMZN.COM/PRME	NV	108.90	1	108.90	0.00	0	108.90	0.21%	1	0.00
47970	OFFICE SERVICES	7399	<u>NETBRANDS MEDIA</u> <u>CORP.</u>	877-508-4569	ТХ	108.34	2	54.17	0.00	0	108.34	0.21%	2	0.00
47970	OFFICE SERVICES	2741	BUS MGMT DAILY BMD CONF	800-543-2055	VA	100.00	1	100.00	0.00	0	100.00	0.19%	1	0.00
137510	Rialto	9399	<u>PAYPAL *NCC IPMA</u> <u>HR</u>	402-935-7733	CA	99.00	1	99.00	0.00	0	99.00	0.19%	1	0.00

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47971	OFFICE SUPPLIES	5734	KERRY SHEARER	COMMUNICATOR S	CA	\$ 97.00	1	\$ 97.00	\$ 0.00	0	\$ 97.00	0.19%	1	\$ 0.00
212656	SCCLD AUTO	5599	<u>PETERSON</u> <u>TRACTOR CO</u>	510-3576200	CA	96.95	1	96.95	0.00	0	96.95	0.19%	1	0.00
47979	WHOLESALE TRADE	5169	CHEMETRICS COM	540-7889026	VA	96.35	1	96.35	0.00	0	96.35	0.18%	1	0.00
141822	Hardware Supply	5200	LOWES #01895*	FREMONT	CA	95.43	1	95.43	0.00	0	95.43	0.18%	1	8.28
47970	OFFICE SERVICES	7399	<u>TRI STATE</u> <u>SEMINAR</u>	510-3827800	CA	95.00	1	95.00	0.00	0	95.00	0.18%	1	0.00
47979	WHOLESALE TRADE	5065	SEW EURODRIVE	864-439-8792	SC	92.41	1	92.41	0.00	0	92.41	0.18%	1	7.80
47972	OTHER	5999	PARTY CITY	FREMONT	CA	91.78	1	91.78	0.00	0	91.78	0.18%	1	7.96
47979	WHOLESALE TRADE	5065	<u>STEVEN</u> ENGINEERING	650-7459147	CA	90.97	1	90.97	0.00	0	90.97	0.17%	1	0.00
47964	EATING/DRINKIN G	5812	<u>CHAAT BHAVAN</u>	FREMONT	CA	89.88	2	44.94	0.00	0	89.88	0.17%	2	0.00
217413	Prohibited Tran	8699	<u>GOVERNMENT</u> <u>FINANCE</u>	312-977-9700	IL	85.00	1	85.00	0.00	0	85.00	0.16%	1	0.00
47970	OFFICE SERVICES	8911	CA SURVEYING AND DRAFTING	DUBLIN	CA	84.60	1	84.60	0.00	0	84.60	0.16%	1	6.65
47972	OTHER	5970	<u>TRENDYWALLDESI</u> <u>GNS</u>	877-657-8442	CA	83.65	1	83.65	0.00	0	83.65	0.16%	1	0.00
47979	WHOLESALE TRADE	5046	<u>PAPE MATERIAL</u> <u>HANDLING</u>	FREMONT	CA	81.65	1	81.65	0.00	0	81.65	0.16%	1	0.00
47964	EATING/DRINKIN G	5812	DRAGON HOUSE CHINESE RES	UNION CITY	CA	77.29	2	38.65	0.00	0	77.29	0.15%	2	0.00
47970	OFFICE SERVICES	7311	CRAIGSLIST.ORG	415-399-5200	CA	75.00	1	75.00	0.00	0	75.00	0.14%	1	0.00
47961	AUTO/RV DEALERS	5511	<u>FREMONT</u> <u>CHEVROLET</u>	FREMONT	CA	66.53	2	33.27	0.00	0	66.53	0.13%	2	0.00
141822	Hardware Supply	5200	ORCHARD SUPPLY #070	LIVERMORE	CA	65.66	1	65.66	0.00	0	65.66	0.13%	1	5.70
47970	OFFICE SERVICES	2741	CARBONLESS FORMS PRINT	330-3887283	OH	64.00	1	64.00	0.00	0	64.00	0.12%	1	0.00

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47979	WHOLESALE TRADE	5072	INDUSTRIAL HARDWARE DISTR	330-7628836	ОН	\$ 62.32	1	\$ 62.32	\$ 0.00	0	\$ 62.32	0.12%	1	\$ 0.00
47971	OFFICE SUPPLIES	5943	OFFICEMAX/OFFIC EDEPOT6177	UNION CITY	CA	61.48	2	30.74	0.00	0	61.48	0.12%	2	5.59
47979	WHOLESALE TRADE	5310	WALMART.COM	800-966-6546	AR	59.69	1	59.69	0.00	0	59.69	0.11%	1	0.00
47964	EATING/DRINKIN G	5812	<u>MW THAI CUISINE</u> LL	UNION CITY	CA	57.88	1	57.88	0.00	0	57.88	0.11%	1	0.00
47971	OFFICE SUPPLIES	4812	VERIZON WRLS 729006-01	UNION CITY	CA	57.49	1	57.49	0.00	0	57.49	0.11%	1	5.01
47972	OTHER	5999	WWW.NORTHERNS AFETY.COM	800-625-1591	NY	55.97	1	55.97	0.00	0	55.97	0.11%	1	0.00
47978	VEHICLE EXPENSE	5533	PEPBOYS STORE 816	UNION CITY	CA	54.71	1	54.71	0.00	0	54.71	0.10%	1	4.75
47971	OFFICE SUPPLIES	5943	JAM PAPER <u>&</u> ENVELOPE	201-567-6666	NJ	52.21	1	52.21	0.00	0	52.21	0.10%	1	0.00
47964	EATING/DRINKIN G	5814	<u>ANDERSEN</u> BAKERY -UNION LA	UNION CITY	CA	51.35	1	51.35	0.00	0	51.35	0.10%	1	0.00
211845	MCC5733	5733	<u>GCI*MSCN-FRND-W</u> <u>B</u>	800-776-5173	CA	49.12	1	49.12	0.00	0	49.12	0.09%	1	0.00
141822	Hardware Supply	5200	ORCHARD SUPPLY #120	DUBLIN	CA	48.14	1	48.14	0.00	0	48.14	0.09%	1	4.18
47966	MAIL/TELEPHON E	5964	ALLIED ELECTRONICS INC	800-433-5700	ТХ	45.83	1	45.83	0.00	0	45.83	0.09%	1	3.56
217413	Prohibited Tran	8699	CAL CHAMBER OF COMMERCE	800-331-8877	CA	42.00	1	42.00	0.00	0	42.00	0.08%	1	0.00
47972	OTHER	4816	<u>YAHOO</u> *BAYAREABIOSOLI	408-916-2149	CA	41.82	3	13.94	0.00	0	41.82	0.08%	3	0.00
47979	WHOLESALE TRADE	5111	<u>FREMONT RUBBER</u> STAMP	510-6568891	CA	39.49	1	39.49	0.00	0	39.49	0.08%	1	3.14
212656	SCCLD AUTO	5599	PETERSON SAN LEANDRO	SAN LEANDRO	CA	36.46	1	36.46	0.00	0	36.46	0.07%	1	0.00
217413	Prohibited Tran	8699	ARMA INTERNATIONAL	800-422-2762	KS	35.00	1	35.00	0.00	0	35.00	0.07%	1	0.00

MCCG	Merchant Category Code Group Description	MCC	Merchant Name	Merchant City	Merchant State/ Province	Debit Amount	Nbr of Debit Trans	Average Spend per Debit Trans	Credit Amount	Nbr of Credit Trans	Total Spend	% of Total Spend	Nbr of Trans	Total Sales Tax
150085	MCC5969	5969	AMERICAN PUBLIC WORKS	DAN.PAVLICH@C	MO	\$ 34.00	1	\$ 34.00	\$ 0.00	0	\$ 34.00	0.06%	1	\$ 0.00
47979	WHOLESALE TRADE	5251	HARBOR FREIGHT TOOLS 38	NEWARK	CA	17.48	1	17.48	0.00	0	17.48	0.03%	1	1.52
141822	Hardware Supply	5200	THE HOME DEPOT 635	UNION CITY	CA	16.43	1	16.43	0.00	0	16.43	0.03%	1	1.49
47972	OTHER	5970	MICHAELS STORES 2076	UNION CITY	CA	16.39	1	16.39	0.00	0	16.39	0.03%	1	0.00
47979	WHOLESALE TRADE	5199	TAP PLASTICS # 20	FREMONT	CA	14.84	1	14.84	0.00	0	14.84	0.03%	1	0.00
47979	WHOLESALE TRADE	5251	FASTENAL COMPANY01	507-453-8920	CA	60.31	1	60.31	60.31	1	0.00	0.00%	2	5.48
137510	Rialto	9399	<u>CALIFORNIA</u> SPECIAL DISTR	SACRAMENTO	CA	0.00	0	0.00	44.00	1	(44.00)	0.00%	1	0.00
47979	WHOLESALE TRADE	5072	CELEBRATION PARTY EQUIP	HAYWARD	CA	0.00	0	0.00	50.10	2	(50.10)	0.00%	2	0.00
47963	BUSINESS EXPENS	8249	NATL/PADGET 8006825061	913-432-7755	KS	0.00	0	0.00	169.00	1	(169.00)	0.00%	1	0.00
47972	OTHER	5999	VIECO/858-487-5321	858-487-5321	CA	0.00	0	0.00	182.77	1	(182.77)	0.00%	1	0.00
Total						\$53,203.10			\$ 824.32		\$52,378.78		253	\$ 1,132.48
Total Numb	ber of Records: 1	31												

End of Report

Merchant Spend Analysis - Detail / troung1 / 07/09/2015 11:20:24

Page 8

Page 9

Merchant Spend Analysis - Detail Output Parameter Page

Cycle Close Date Range: 04/2015 to 06/2015 Report Type: Detail Merchant Profile Source: Association Merchant Names: All Merchant Category Code Group: All Merchant States: All

> Sort Report By: (1) Total Spend, (2) No Sort, (3) No Sort, (4) No Sort Break/Subtotal Level: No Break/Subtotal

 Processing Hierarchy Position:
 Bank
 Agent
 Company
 Division
 Department

 1425
 3135
 51756
 All
 All

Merchant Spend Analysis - Detail / troung1 / 07/09/2015 11:20:24 / MerchantSpendAnalysisReport1436458820937_33600_690147820839074



Directors Manny Fernandez Tom Handley Pat Kite Anjali Lathi Jennifer Toy

Officers Paul R. Eldredge General Manager/ District Engineer

David M. O'Hara Attorney

- **DATE:** July 14, 2015
- **MEMO TO:** Board of Directors Union Sanitary District
- FROM: Paul R. Eldredge, P.E., General Manager/District Engineer Richard Cortes, Business Services Manager Deborah Kull, Sr. Accountant
- SUBJECT: Agenda Item No. 13c Meeting of July 27, 2015 Information Item: Status Report on Computer Purchase and Student Loan Program
- Reporting Period: January 1, 2015 June 30, 2015

Maximum USD Commitment for Computer Loans Maximum USD Commitment for Student Loans										
Outstanding Loans January 1, 20)15 \$16,398									
Computer	\$16,398									
Student	\$ 0									
Add: New Loan Disbursements										
Computer										
Student	\$ 0									
Less: Payroll Deduction Payment	s \$ 7,629									
Computer	\$ 7,629									
Student	\$ 0									
Loans Outstanding	\$16,117									
Computer	\$16.117									
Student	\$ 0									
Funds Available - Computer and Student										

Statistics – Computer Purchase Loans	
Current average loan balance	\$ 895
Employees currently participating	18
Number of current employees who have participated	68
Current period average original loan	\$ 2,449



Directors Manny Fernandez Tom Handley Pat Kite Anjali Lathi Jennifer Toy

Officers Paul R. Eldredge General Manager/ District Engineer

David M. O'Hara Attorney

DATE: July 20, 2015

MEMO TO: Board of Directors - Union Sanitary District

FROM: Paul Eldredge, General Manager

SUBJECT:Agenda Item No. 13d - Meeting of July 27, 2015Board of Directors Internal Committee Assignments for FY16

Recommendation

Information only.

Background

Directors provided their preferences for internal committee assignments prior to the July 13, 2015, Board of Directors meeting. Director preferences and a history of internal committee assignments were forwarded to President Toy. Per Board Policy 3070.2, the President of the Board of Directors is responsible for assigning members and alternates for internal committees. The assignments received from President Toy are as follows:

Committee	Board Member	Alternate
Audit	Anjali Lathi	Manny Fernandez
	Jennifer Toy	
Budget & Finance	Manny Fernandez	Jennifer Toy
	Pat Kite	
Construction	Tom Handley	Pat Kite
	Jennifer Toy	
Legal/Community Affairs	Pat Kite	Tom Handley
	Anjali Lathi	
Legislative	Manny Fernandez	Pat Kite
	Tom Handley	
Personnel	Manny Fernandez	Anjali Lathi
	Jennifer Toy	



Directors Manny Fernandez Tom Handley Pat Kite Anjali Lathi Jennifer Toy

Officers Paul R. Eldredge General Manager/ District Engineer

David M. O'Hara Attorney

DATE: July 20, 2015

MEMO TO: Board of Directors - Union Sanitary District

FROM: Paul R. Eldredge, General Manager

SUBJECT:Agenda Item No. 13e - Meeting of July 27, 2015Discuss and Provide Direction to StaffRegarding Additional Communications on District Hearings and WebsiteInformation on Email Addresses

Recommendation

Discuss and provide direction to staff (as necessary) regarding additional communications on District hearings and website information on email addresses

Background

Additional Communications on Hearings

On July 13, 2015 the District held a public hearing regarding the proposed sewer service charges for FY16. In conjunction with this public hearing, the District received several communications from constituents, which were incorporated into the record and attached to item #9 of the July 13th agenda. In addition, a constituent wrote letters to the editors of the Tri-City Voice and the Bay Area News Group publications. Direction was also provided to staff at this last meeting to further explore opportunities for transparency and future notifications from the District, which will be considered as a separate item at a future meeting.

As referenced, the emails were incorporated in the staff report and record for consideration by the Board. With respect to these emails and the letters to the editor, the Board may desire to submit a formal response from the District or to provide additional information. Should the Board wish to proceed in this fashion, there are a number of options the Board could consider:

• The Board could authorize the President to work with the GM to draft a response.

- If the entire Board desires to submit a response, and individual Board members would like to review and possibly edit the response prior to submission, then a future Board meeting would be required to receive input on the draft letter.
- The Board can elect two of its members to an Ad-Hoc committee specifically charged with working directly with the GM to prepare a response on behalf of the Board.

Staff is requesting the Board discuss this matter and provide direction accordingly.

Website Information on Email Addresses

The Board of Directors recently received an email inquiry from a constituent inquiring if "all Board Member Emails" were also directed to staff members and the confidentiality of such communications. District email communications are governed by the California Public Records Act. Therefore, email communications to individual members, or the entire Board of Directors, on District business and directed to official email addresses are typically public records. Further, it is not uncommon for certain agency employees to receive copies of emails sent to the governing body. More often than not it is to ensure that any time sensitive emails are brought to everyone's attention in a timely fashion and that correspondence on agenda items are properly incorporated in the record. Some agencies also place a "Disclaimer" on the appropriate section of the website indicating that emails sent to the Board of Directors are subject to disclosure. An example of a similar disclosure is below from San Francisco's website.

Personal information that is provided in communications to the Board of Supervisors is subject to disclosure under the California Public Records Act and the San Francisco Sunshine Ordinance. Personal information provided will not be redacted.

Members of the public are not required to provide personal identifying information when they communicate with the Board of Supervisors and its committees. All written or oral communications that members of the public submit to the Clerk's Office regarding pending legislation or hearings will be made available to all members of the public for inspection and copying. The Clerk's Office does not redact any information from these submissions. This means that personal information—including names, phone numbers, addresses and similar information that a member of the public elects to submit to the Board and its committees—may appear on the Board of Supervisors' website or in other public documents that members of the public may inspect or copy.

Staff is requesting that the Board discuss this matter and provide direction to staff if a disclosure or additional information is desired by the Board on the appropriate pages of the District website.

East Bay Residents Fill up on Recycled Water in Dublin

Sunday, July 12, 2015 05:59PM DUBLIN, Calif. (KGO)

New restrictions are now in place for greywater giveaways after overwhelming demand in the East Bay. On Sunday, Pleasanton residents were busy filling up.

Most of the lawns on Melanie Circle are green because they're being watered from a tank that holds free recycled water from the Dublin San Ramon Services District. The giveaway that was once available to everybody now has some new local restrictions.

"I'm going to keep my garden alive," said Pleasanton resident Ed Rutter.

Rutter filled up 20 orange buckets with free recycled water. He says it's worth the trip and the trouble.

"The toughest part is waiting in line, which they have improved upon recently," he said. "The other thing is you get a good workout."

And those lines have been epic outside the Dublin San Ramon Services District headquarters, with people hauling in giant 300 gallon water tanks most every day.

Spokesperson Sue Stephenson says the water giveaway started last year to help residents cope with the drought. But recently, folks from all across the Bay Area have come to fill up. So now there are some new rules.

"We're almost too successful," she said. "Now we are limiting it to residents who live in Dublin, San Ramon, and Pleasanton," she said. "That's the areas we serve."

You must show ID to get a registration card for free water.

San Ramon resident Travis Valpoon filled up his tank. He invited ABC7 News back to his house to see the secret to his emerald green lawn. He's even got a sign that says, "Recycled water keeps this water green" to prove he's not a water waster.

"Free green lawn and you don't even have to pay for it. So, you know, what could be better?" he asked.

Pleasanton resident Tony Morris says he often makes eight trips a day for free water just to help his neighbors out during the drought.

"We co-oped and bought everything and they just pay the gas," he said. "Just to keep the neighborhood green."

Free recycled water; a pretty good deal during these hard times.

Cal Water to study Bay drilling: Proposal to test brackish groundwater for desalinization requires CPUC approval

July 13, 2015, 05:00 AM By Samantha Weigel The Daily Journal, The Peninsula's homepage

With water providers across the state seeking to diversify their resource portfolios as reservoirs continue to lower in the fourth year of drought, one utility is setting its sights on possibly making San Mateo home to the Peninsula's first desalinization plant.

The California Water Service Company is seeking the state's approval to investigate the efficacy of drilling for brackish groundwater and possibly, even dipping in to the Bay's floor. Should officials find a fruitful aquifer in San Mateo, Cal Water will consider constructing a treatment plant capable of converting it into drinkable water.

"It's not like you're drawing Bay water in, you're drawing water from an aquifer that has undergone some degree of degradation and we can run that through various types of treatment — reverse osmosis, membrane filters, whatever — and clean that water up. But we need to find out if there's water there and how much water is there and what's the water quality level. Because we can't go any further with designing a plant or how big it's going to be; there's so many questions that need to be answered. You have to do preliminary research first, and that's what we're proposing," said Tom Salzano, water resources planning supervisor for Cal Water. "The ultimate goal would be to add to our local supply of water so we're not as reliant on imported supplies."

Cal Water purchases wholesale water from the San Francisco Public Utilities Commission — most of which comes from the Hetch Hetchy reservoir system that transports millions of gallons more than 100 miles every day.

Cal Water customers include thousands of residents in San Mateo, San Carlos, South San Francisco, Colma, Woodside, Portola Valley, Atherton and unincorporated portions of the county, Redwood City as well as Menlo Park.

Yet it could be years before officials determine whether a desalinization plant is financially feasible, as the state-managed utility must first seek approval from the California Public Utilities Commission to spend \$2.5 million of ratepayer funds on its investigative drilling research project.

Should it find a reliable brackish groundwater basin capable of producing at least 5 million gallons per day, constructing a treatment plant is estimated to cost about \$111 million to \$141 million, said Nicole Sandkulla, CEO of the Bay Area Water Supply and Conservation Agency. BAWSCA represents the interests of 24 cities and water districts as well as two utility companies throughout San Mateo, Santa Clara and Alameda counties.

Ideally, a sustainable plant would need to produce between 5 million and 10 million gallons of water a day, Salzano said.

BAWSCA first identified San Mateo as a potential for a groundwater desalinization project as part of its Long-term Reliable Water Supply Strategy, a multi-year study that culminated this year, Sandkulla said.

Water treatment

Tapping into a groundwater basin under the Bay could help relieve local communities that are dependent on imported water from the SFPUC. Plus, treating brackish water is more cost as well as

energy efficient than treating water straight from the Bay or ocean — which has salt content that could be up to two times higher, Sandkulla said.

While the project will involve an environmental review, similar projects like one managed by the Alameda County Water District tend to have fewer impacts that pulling directly from the Bay, Salzano and Sandkulla said.

"The nice thing with the horizontal wells and the idea of a brackish groundwater project is you're accessing water underground. So you're minimizing the impacts on the environment as compared to an open-bay desal project where you're taking water directly from an open body of water," Sandkulla said.

While BAWSCA has historic data from other wells and surveyors determined the local geology could support such a project, Salzano said they won't know whether a treatment plant is feasible until new wells are installed.

Other unknowns include how many wells may need to be drilled, whether vertical or horizontal ones would be more productive or how deep they may need to dig; Salzano said they would likely need to go at least 100 feet down.

Another challenge is what to do with the leftover material, or brine, that's unable to be treated into potable water. Disposing of the brine has prompted Cal Water and BAWSCA to consider setting up near San Mateo's wastewater treatment plant, Sandkulla said.

"When you run this brackish groundwater, you have to run it through a reverse osmosis treatment. You get a certain amount of available drinking water, then you have a brine, a very salty concentrated portion leftover. So then you have to figure out what to do with this brine. The nice thing is you can often mix it in with the existing outfalls [from a treatment plant] because the quality is often fresher than what they're putting into the Bay," Sandkulla said. "It's a nice way to take advantage of existing infrastructure and get rid of this in a cost effective manner."

The pipes that disperse the treated wastewater into the Bay are also extremely difficult to install due to the environmental permit and costs associated, Sandkulla said.

Salzano said Cal Water is in the very early stages of approaching San Mateo city officials to consider what kind of arrangement could be made.

Expanding resources

While thirsty consumers may find the idea of drinking treated groundwater more palatable than treated wastewater, Sandkulla said one shouldn't underestimate the need for expanding resources.

"What we know is that we need to invest more in sources that provide drought reliable supply. Both the brackish groundwater provides that and direct or indirect potable reuse (treated wastewater) provides that. And it may well be that there's some combination that works well for this entire region," Sandkulla said.

Although the brackish groundwater would be sourced from San Mateo, which is part of Cal Water's Mid-Peninsula District, this supplemental supply would have a benefit for its neighboring districts in the county, Salzano said. Because the SFPUC gives Cal Water an allotted supply for its Bay Area customers, subsidizing the Hetch Hetchy water with treated brackish water would bolster its

http://www.smdailyjournal.com/articles/Inews/2015-07-13/cal-water-to-study-bay-drilling-proposal-totest-brackish-groundwater-for-desalinization-requires-cpuc-approval/1776425146604.html Page 297 of 316 portfolio. As such, Cal Water may consider passing on the cost of the project to all of its San Mateo County customers, Salzano said.

Funding a multi-million-dollar treatment plant will undoubtedly be a challenge and identifying grants will be key. Because Cal Water is a private company, BAWSCA could have greater access to statewide grant opportunities and will work with the utility in any way possible, Sandkulla said.

"It is very exciting to go through this planning process. For drought reliable supplies that are local, there's not a lot of options. And the fact that this was viable and worthy of going to the next step of investigation was an excellent result of the [supply strategy study]," Sandkulla said.

Salzano agreed, adding although Cal Water may not receive approval from the state to proceed with the drill project for another year, identifying local sources is key for a rapidly growing region.

"Our communities want to redevelop and they're going up and as population increases and development occurs, additional supplies are needed," Salzano said. "We're up against our supply limit from [the SFPUC], additional supplies are needed."

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(650) 344-5200 ext. 106

California drought

Water conservation hitting record levels

East Bay residents cut back in June, told to not let up

By Denis Cuff

dcuff@bayareanewsgroup.com

OAKLAND — Droughtconscious East Bay residents conserved water at record levels during June as they braced for the onset of hot summer weather, higher drought rates and penalties for guzzlers.

Many East Bay areas were cool to conservation calls in winter and spring. But they are warming up as water districts statewide face state orders to cut back by an average 25 percent — with stricter limits in some areas and more liberal in others.

Customers in the East Bay's three largest suppliers stepped up in June. \\

The Contra Costa Water District reported an eyecatching 40 percent drop in water use in June among its nearly 200,000 treated-water customers in Concord, Clayton, Pacheco and parts of Walnut Creek and Pleasant Hill. The state has ordered Contra Costa Water to cut 28 percent cutback below 2013 consumption. \\

The neighboring East Bay Municipal Utility District achieved a 31 percent reduction in June among its nearly 1.4 million customers in Contra Costa and Alameda counties. The state has demanded a 16 percent reduction, while the district set its own goal of 20 percent.

■ The Alameda County Water District reported a 36 percent reduction level in June, matching its May performance but ahead of its 26 percent conservation rate in May. The state requires it to cut 16 percent in the water used by 330,000 people in Fremont, Union City and Newark.

Contra Costa Water District officials were heartened by its 40 percent saving for June after customers saved 6 percent in March, 15 percent in April, and 27 percent in May.

"Our customers are getting the message," said Jennifer Allen, a Contra Costa Water District spokeswoman. "People should be proud of their saving, but they need to keep it up." To escape state fines, CCWD customers need to cut usage by more than the 28 percent in the summer, when there is more potential to save by reducing outdoor irrigation, the single biggest water use in homes, she said.

"It is harder to get reductions" in the winter, she said.

Concord resident Robb Kingsbury let his lawn go last summer, and he collects sink water and rain in containers to irrigate fruit trees and crops at his permaculture farm that schoolchildren visit.

"We have cut back watering a lot, and many of my neighbors have let their lawns go brown," said Kingsbury, a CCWD customer.

East Bay Municipal Utility District officials say customers cannot let up on saving.

"We don't know when the drought will end," said district spokeswoman Abby Figueroa.

Page 299 of 316

http://fremontargus.ca.newsmemory.com/ee/_nmum/_default_bb_include_inframe.php?tok... 7/15/2015

Both the East Bay and Contra Costa Water Districts will impose higher drought rates, effective July 1, as an incentive for customers to save.

The Alameda County Water District set higher rates and water use restrictions last year, achieving a higher water conservation rate earlier than many water districts that waited longer to act.

15.07.2015 Pag.B06

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State softens approach to curtailing water use in drought

SCOTT SMITH, The Associated Press Published: July 15, 2015, 5:40 pm Updated: July 15, 2015, 5:50 pm

FRESNO, Calif. (AP) — State water officials on Wednesday softened their approach to telling thousands of California farmers to stop pumping from rivers to irrigate crops during the drought but warned that stiff penalties still await anybody who takes water they don't have a right to use.

The state changed its tack just days after a Sacramento County judge sided with an irrigation district that challenged previous curtailment notices, saying the letters amounted to an unconstitutional command to stop pumping.

Superior Court Judge Shelleyanne Chang indicated the State Water Resources Control Board can only advise water rights holders to curtail use and fine them if the agency determines use exceeded the limit.

David Rose, an attorney for the water board, said the revised notice to farmers amounts to an advisory that river levels are critically low and there is not enough water, even for those who hold some of the strongest rights.

"The facts underlying the notice remain true and perhaps even more so as time has passed because it's only drier," Rose said.

Farmers shouldn't be surprised if they receive stiff penalties for using water they don't have the right to pump, he said.

Attorney Steven Herum, who represents the West Side Irrigation District in the case challenging the previous notices, said the ruling on Friday amounted to vindication.

Farmers had stopped directly pumping river water and are now considering if they will resume in light of the ruling, he said.

In recent months, the water board sent curtailment notices to 4,600 farmers and other water users. Farmers were told to stop irrigating fields as the state struggles through its fourth year of the drought.

The letters noted that anyone who illegally takes water could face fines of \$1,000 a day or \$2,500 per acre-foot of water.

Also on Wednesday, state officials approved stringent water limits on landscapes for new homes and businesses to further California's push for water-conscious development.

The new rules approved by the California Water Commission would essentially eliminate grass from future office and commercial buildings and reduce turf at new homes from a third of landscaped area to a quarter.

In order to comply, developers would have to install drought-tolerant features such as rocks, shrubs or cacti, or have irrigation systems that use water recycled from drains and home appliances instead of drinking-quality water.

Homeowner's won't have to rip out existing lawns unless they're going through major renovation requiring government permits.

Barnidge: Drought has forced California to rethink water management

Updated: 07/15/2015 10:06:07 PM PDT

ContraCostaTimes.com

But maybe the most important thing to come out of dry times, Lester Snow said, is the harsh realization that the state needs to rethink its water policies.

Snow is executive director of the California Water Foundation, a 5-year-old Sacramento nonprofit that's part think tank, part policy advocate and wholly dedicated to sustainable water management. Snow, the former secretary of natural resources for the state, is uniquely qualified to oversee it.

"We sometimes seem to believe we can meet our needs with the next big project, adding a dam or a pipeline," he said. "We need to focus more on other issues, on a diversified approach."

He points out that California discharges 1.5 million acre-feet of treated wastewater into the ocean every year. That could be repurposed. He said cities treat stormwater runoff to meet permit requirements but then let it wash away. That could be captured for reuse.

"There's kind of a famous project -- in the water world, anyway -- in Sun Valley, in northern Los Angeles County," he said. "They used to have flooded streets during rainstorms, and the first thought was to build a bigger pipe and run it to the Los Angeles River. Instead, the water now flows to a huge cistern under a local park. They use that water to irrigate the park."

Snow also talks about the need for groundwater recharge -- redirecting runoff to permeable surfaces where it can seep into the groundwater basin. That's done during storms in Orange County, where water is diverted to gravel-bottom ponds on both sides of the Santa Ana River.

He said there also are lessons to be learned in the San Joaquin Valley, where some farms are equipped with state-of-the-art irrigation systems. "There's an expression -- more crop to the drop -- and we need to spread that technology so it's more widely used."

What of desalination? Too expensive, energy-demanding and environmentally challenging, except for sites where few alternatives exist, such as Monterey.

Snow said many complexities make water management tricky in California, not the least of which is the enormous number of water agencies that operate independently and at different efficiency levels. Consolidating these fragmented parts would be a wise move, he said.

Then there's the matter of water rights, often determined years ago and kept in file cabinets. ("It's important to understand who has them and how much they're used, but they're not available online.") It's equally hard to track water sales.

"One of the things this drought has brought attention to is development of better databases and understanding of where our water is and who has it," he said. "We've lagged behind other Western states in transparency."

For now, he suggests less finger-pointing -- don't blame almond growers or environmentalists -- and more investments to deal with droughts. That doesn't mean periodic water bonds but sustained investments in diversified solutions.

Complacency brought us where we are today, he said. We were lulled into a sense of security -- until an emergency arose.

Maybe the drought wasn't such a bad thing.

Contact Tom Barnidge at tbarnidge@bayareanewsgroup.com.

BUSINESS INSIDER California drought gives new impetus to wastewater recycling



REUTERS JUL. 16, 2015, 7:48 AM



Jacob Rodriguez, 8, drinks recycled wastewater at the Edward C. Little Water Recycling Facility during the West Basin Municipal Water District's tour of a water recycling facility in El Segundo, California

By Steve Gorman

LOS ANGELES (Reuters) - In the sprawling Orange County suburbs south of Los Angeles, home to Disneyland and upscale beach towns, much of the drinking supply for more than 2 million people originates from the sewer. And that number is about to grow - on purpose.

The recycling of wastewater for human consumption is gaining greater credence in drought-stricken California, where scarce drinking supplies, changing economics and a newly proven technology has led more local leaders to embrace a concept once derided by critics as "toilet-to-tap."

But experts warn that regulators and politicians must take care to educate and reassure a wary public in casting wastewater as a largely squandered resource.

"The yuck factor is still an issue," said Frances Spivy-Weber, vice chair of the state Water Resources Control Board. "You have to be quite straightforward with the public ... so they don't feel like they're being tricked."

By all accounts, the tide of public opinion appears to be turning. A number of cities, including Los Angeles and San Diego, have moved to emulate Orange County's advanced purification system, the largest of its kind in the world, which has been producing 70 million gallons of fresh water daily from sewer effluent since 2008.

That system puts pre-treated waste discharge through a process of microfiltration, reverse osmosis, ultraviolet light and hydrogen peroxide disinfection to render enough potable water, nearly distilled in quality, for over 500,000 people.

Yet this water does not go directly to homes. It is first pumped into the county's groundwater basin to recharge depleted aquifers, receiving another, natural level of filtration before being drawn back to the surface for drinking and bathing.

In May, daily output was increased to 100 million gallons. The groundwater basin as a whole, a third of it now derived from recycled waste, is the principal drinking source for 2.4 million people in northern and central Orange County.

INDIRECT VS. DIRECT

This "indirect potable reuse" of wastewater, in the parlance of engineers and regulators, is seen as a promising new approach for ensuring dependable water supplies as California struggles through a fourth straight year of drought.

The state water board last year formalized the first regulations for the type of recycling operation pioneered in Orange County.

The agency has until December 2016 to adopt new rules for indirect potable reuse of highly purified wastewater that gets blended with and stored in large freshwater surface basins, such as reservoirs or lakes, rather than groundwater, before people drink it.

Even then, the water would make one last stop at a conventional treatment plant en route to household taps, as it does now in Orange County.

Regulators will turn next to "direct potable reuse," in which purified wastewater would be fed straight into a traditional treatment plant without first pausing in some kind of environmental holding buffer. A feasibility study is due by the end of next year.

Texas is the only U.S. state so far to approve direct potable recycling, with two smallscale systems in towns that went online last year amid severe drought and water shortages there. The success of Orange County's Groundwater Replenishment System, a name that conspicuously omits the words "waste" or "sewage," has gone a long way toward winning greater support for potable reuse.

SUPPLY AND DEMAND

A record dry spell that has left reservoirs badly drained, forced irrigation cutbacks by farmers and led to drastic new mandatory conservation measures for homes and industry is also driving support.

At the same time, the drought has raised the costs of piping in fresh water from the Colorado River and elsewhere, making capital investments in recycling plants more attractive by comparison.

"You can build one of these types of water plants for about the same cost as purchasing imported water," said Michael Marcus, general manager of the Orange County Water District.

Cost considerations also give recycled wastewater an edge over desalination, the process of distilling fresh water from the sea, as ocean water contains 30 times more dissolved impurities than pre-treated sewer effluent and requires much more energy to purify.

The Pacific Ocean does offer a theoretically unlimited raw supply of water. But the amount of unused wastewater currently flushed into the ocean is staggering, an estimated 1.3 billion gallons daily off Southern California alone, Marcus said.

For those who may still be squeamish, he points to an oft-overlooked fact: The Colorado River has long contained large volumes of treated waste discharged by Las Vegas and other cities upstream of Southern California's water intakes.

"People have been drinking wastewater their entire lives; they just haven't realized it," he said.

(Reporting by Steve Gorman; Editing by Cynthia Johnston and Leslie Adler)

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SAN FRANCISCO CHRONICLE AND SFCHRONICLE.COM | Thursday, July 16, 2015 | Section D EB



A worker welds a floating cover on a biosolids digester at the Southeast Water Pollution Control Plant in S.F.

A whiff of progress

S.F. starts sewer project many hope will clear neighborhood's air

By Lizzie Johnson

Every time Tracy Zhu turned onto Third Street in Bayview-Hunters Point, the stench hit her — an odor akin to rancid laundry or standing sewer water.

"All I could smell was the wafting sewage in the air," said Zhu, who used to bike to work at Heron's Head Park, where she was the Eco-Center's program manager. "If it was a hot day or the wind was blowing in a particular direction, you couldn't escape it."

It's the stench, she said, that puts a stigma on the neighborhood.

But that could soon change. This month, the city Planning Department begins the design and environmental review process for new biosolids digesters, which treat and neutralize solids, at the Southeast Water Pollution Control Plant. The \$1.2 billion project is the first and biggest — phase of \$2.7 billion in planned *Sever continues on D6*



Andy Clark, San Francisco Public Utilities Commission chief stationary engineer, holds a handful of biosolids.

improvements for the sewer system citywide. It will kick off phase one of the city's sewer system improvement program.

"We are in a neighborhood that could use some improvement," said Carolyn Chiu, senior project manager for the San Francisco Public Utilities Commission. "I think this project could be a catalyst for that. There's a lot of change happening with new businesses and homes coming in. We just want to be sure that we blend in with it."

Residents and business owners are excited about the opportunity to eliminate odor, but also frustrated by the project's lengthy timeline. Construction on the new digesters will break ground in 2018 and will finish in 2022.

"It's frustrating that the city's largest treatment plant has taken this long to be replaced," Zhu said. "I do acknowledge that it is an aggressive timeline for being replaced. But I wish it was happening faster. There's a sense that this has been a long time coming."

More than 80 percent of San Francisco's storm and wastewater now flows into the treatment plant. But the 1940s-era technology can't keep up. The massive, cylindrical structures have been patched and repaired for more than 50 years. Construction will improve seismic safety, capacity and eliminate odor.

Antiquated equipment

"The old biosolids digesters are really antiquated," said Maureen Barry, communications manager for the SFPUC. "It's harder to keep up with the facilities the older it gets. As we say, who is still driving a 1952 sedan? No one. It really is just too old, and it's time for something new."

In the past few years, Bayview-Hunters Point has experienced a surge in gentrification. Housing prices continue to rise, and businesses have opened in the formerly lowincome area. Nearby, Candlestick Park has been demolished in favor of a planned mixed-use mega development, complete with hotels, apartments and a shopping mall. Page 309 of 316

Chiu says that while the plant is the source of pungent odors, moving it out of the changing neighborhood was never an option.

"We can't just take it out and move it far away into some dense trees or unpopulated area," she said. "We live

in a dense city, and that's just not possible. It's so unusual that it is here in the middle of the community, but every city has one. Ours is just more visible."

The new digesters will, however, be relocated from the original site on Phelps Street and closer to the Caltrain tracks. The digesters are now less than 100 feet away from residences. After the move, they will be 1,000 feet from the closest home. The six new

structures will be 65 feet tall and have fixed roofs, as opposed to the current floating covers, to eliminate odor.

New technology will make the process more efficient and create more methane gas, which is used to power the plant. Digesters, which act like giant stomachs, are now heated anywhere from 95 to 100 degrees to break down waste. Thermal hydrolysis will increase that temperature, making it easier to break down sludge and requiring fewer digesters.

The Southeast Plant now has 10 2-million-gallon digesters. After construction, there will be six 1.33-million-gallon digesters. They will be more efficient than the originals. The old digesters will continue to operate during construction.

Looking ahead

"The beauty of starting from the ground up is that you get a blank page," Chiu said. "We are designing for the future. What we've done is size the new facility for anticipated future wastewater flows for population up to 2045, but obviously they will last longer than that. In the beginning, we may not use all of the biosolids digesters. But we will eventually."

The \$1.2 billion required for the project is subsidized by increases in sewer rates. The combined water and sewer bill will increase by 9 percent annually until 2018. On average, a household of four will pay \$7 to \$10 more each year.

"Anyone who pays a sewer or water bill will be impacted," said Harlan Kelly, general manager of the SFPUC. "We want to make sure our sewer system is in good repair and can handle anything. For example, if there is a seismic event, we don't want to have raw sewage floating everywhere. So it's a price everyone has to pay."

Mark Klaiman, who owns the Pet Camp animal day care center in the Bayview, said the new digesters are necessary for the people who live and work around them.

The folks who run the plant, they're facing a problem," he said. "With more money, they can solve that problem. It's ridiculous that there are odor issues, but we are across the street from a sewage treatment plant. It's a work in progress; there's no two ways about it."

Lizzie Johnson is a San Francisco Chronicle staff writer. E-mail: ljohnson@sfchronicle.com Twitter: @lizziejohnsonnn



Source: San Francisco Public Utilities Commission

John Blanchard / The Chronicle



Fields of irrigated alfalfa? Don't be alarmed



18 HOURS AGO • REGISTER STAFF

Motorists traveling on Jameson Canyon/Highway 12 near Highway 29 and North Kelly Road this summer will observe large quantities of water being sprayed onto green fields.

What might be construed as a waste of water in a drought year is actually something far more benign, Napa Sanitation District reports.

The district is spraying treated recycled water that is not suitable for human drinking, the agency said in a news release. The tertiary-treated, disinfected recycled water comes from the district's wastewater treatment plant south of the Butler Bridge on Highway 29.

The district sells recycled water to several golf courses, a cemetery, a large city park, Napa Valley College, surrounding business parks, construction firms for dust control, and some vineyards, but still has a surplus to dispose of.

During winter and spring, treated water can be discharged into the Napa River, but regulations prohibit that discharge from May through October. The district produces recycled water during this time for its customers, and the surplus is used to irrigate alfalfa or other crops in its fields.

Napa Sanitation contracts with a farmer to plant and harvest the crops, which are typically used as feed for animals.

The district is working to expand and improve its treatment facilities to nearly double the amount of recycled water it can produce by the end of the 2015. To better utilize this natural resource, the district is building 14 miles of recycled water distribution pipelines in partnership with Napa County and the Los Carneros Water District.

Upon completion, the customer base for recycled water will be large enough to greatly reduce the discharge of water on district property. In 2016, most of the treatment plant's recycled water will be delivered to customers, thus saving many millions of additional gallons of drinking water for residents' use.

For further information about the district, visit www.NapaSan.com.

Novato water district offers free recycled water to combat drought

By Mark Prado , Marin Independent Journal

marinij.com

With the state's drought in full force, the North Marin Water District opened spigots Thursday to allow its residential customers access to free recycled water for landscape use.

The water is stored in a 12,000-gallon tank at the district's corporation yard where it is ready to be dispensed from six hoses into containers brought by customers. From there residents can use it on drying and dying landscapes to make them green again.

"Since 2007 the recycled water has been used by commercial customers with large irrigation needs: parks, school grounds, golf courses, roadway medians," said Drew McIntyre, the district's chief engineer. "Now we are excited to provide recycled water to residential customers, especially during California's extreme drought."

The recycled water fill station at 999 Rush Creek Place in Novato is open Thursdays and Fridays from 4 to 7 p.m. and Saturdays from 8 a.m. to noon. Water officials believe this is the first such residential recycled water program in the North Bay.

Customer Jack Butler was one of the first through the gates Thursday to fill a 275-gallon tank with more than a ton of recycled water that will be used on his yard at his Novato home.

"We just re-did our front yard and we ended up planting a lot of flowers," said Butler. "We have been in our house for 35 years; we have our backyard to water too. I think this is great, it's the way to go."

While the water is free, residents must complete a short training and sign a "Recycled Water Use Agreement" form. That gets them a wallet-sized card that must be presented at each visit to refill recycled water containers. The water is only for North Marin Water District customers.

The district is allowing water containers that can hold from 5 to 300 gallons. The containers must have water-tight lids, not leak and be safely secured for safe transport. Residents may only take amounts of recycled water that can be used immediately.

Customers are advised to be aware of how heavy water is: one gallon of water weighs 8.34 pounds; 100 gallons weighs 834 pounds.

Recycled water is wastewater that has received treatment by the Novato Sanitary District and the Las Gallinas Valley Sanitary District and is ideal for hand-watering trees, lawns, fruit and vegetable gardens, and other outdoor plants, district officials said. It is the same type of water used for parks, school grounds, roadway medians and golf course irrigation in Marin.

"If it gets on yours hands or your body, you don't want go eat until you wash your hands," said Robert Clark, maintenance superintendent for the district. "You certainly can't drink it or

cook with it. It is disinfected so there is no biological matter, but it does have a lot of minerals and salts in it. That adds to the nutrition of plants. It acts as a fertilizer."

The Marin Municipal Water District — which serves residents from Sausalito to San Rafael — is looking at such a program as well, but is waiting to hear from state regulators.

The recycled water program is expected to help address state mandates issued in May that require the North Marin Water District to cut use by 24 percent beginning June 1. Preliminary June data for the North Marin Water District's Novato service area showed a 37 percent reduction from the same month in 2013, the baseline year. The North Marin Water District serves 60,000 customers in Novato and West Marin.

The district has spent about two months and \$100,000 putting the recycled water program together. Even if the rains come this fall, the fill station is expected to keep operating into the future.

"This is a drought-proof source of water," Clark said.

Reach the author at mprado@marinij.com or follow Mark on Twitter: @MarkPradolJ.

Ross Valley sanitary moves forward with former treatment plant cleanup

By Adrian Rodriguez , Marin Independent Journal

marinij.com

The Ross Valley Sanitary District board this week moved forward with plans to clean up its former wastewater treatment plant in Larkspur for future use.

The board voted 5-0 Wednesday to develop a plan that allows the Environmental Protection Agency to sign off on the 9.5-acre site at 2000 Larkspur Landing Circle. The land is contaminated with polychlorinated biphenyls, commonly known as PCBs. Future plans beyond cleanup have not been determined.

San Francisco-based consultant Kennedy Jenks will help develop a cleanup plan not to exceed \$50,000. With EPA review, the entire project is estimated to take one to two years and cost \$1 million.

"At some point we have to do something" to move forward with the land, board member Michael Boorstein said.

Board member Pam Meigs added an amendment to cap the cost of planning and review at \$50,000. Further expenses would require board approval.

Meigs said she wanted to make sure the board knew how much was being spent before any work was done, "We have had issues where we have exceeded and then we get the bill," she said.

The land has cost the district a great deal of money already. Ross Valley sanitary was sued for \$15 million when development partners Campus St. James Larkspur LLC backed out of an 11-year-old deal with the district to build housing, a hotel and new headquarters. Campus asserted that the sanitary district contaminated the property with PCBs while conducting demolition and grading operations. The lawsuit was settled for \$4.75 million in 2011.

In 2013, the EPA fined the district \$16,250 for improper disposal of toxic material.

Speaking during open time, Mill Valley resident Bob Silvestri of the nonprofit Community Venture Partners proposed a possible money-saving solution to clean up the site.

He pitched an aquaponic greenhouse farm, affordable senior housing and an education center for the land, to be developed through a public-private partnership in which the cost of decontaminating and preparing the site could be shared.

"When it comes to the advantages financially, as a nonprofit we can work with government agencies, nonprofit foundations and take advantage of tax credits and government programs," he said.

Some members of the public had concerns other than money, however.
Clayton Smith of Tam Valley said he wanted the sanitary district staff to curb the cleanup's effect on traffic, and to be "candid" in the decision making.

"It's what's creating a lack of trust," he said. "We as a community deserve some direct answer on how this will impact us."



Drought-Stricken California Farmers Look To Tap Urban Wastewater

July 20, 2015 5:16 AM ET

Lauren Sommer

Many California farmers are in a tight spot this summer, because their normal water supplies have dried up with the state's extreme drought. In the state's Central Valley, that's driving some farmers to get creative: They're looking at buying water from cities — not freshwater, but water that's already gone down the drain.

The parched conditions in the valley, the state's farming hub, have been crazy. Actually, "crazy wouldn't adequately describe what we're going through here," says Anthea Hansen, who runs the Del Puerto Water District in the Central Valley. "Having zero water available — we've been in survival and crisis mode for literally 24 months now," she says.

The evidence is right across the street from her office: a 350-acre farm field. "This land would typically be farmed in probably tomatoes," she says.

Instead, the field is empty. Like a quarter of the 45,000 acres in the district, it's fallowed because there's no water. And that's Hansen's problem. As head of the Central Valley water district, it's her job to find water for this farm and 150 others.

The normal supply from federal reservoirs has been cut off. There isn't much groundwater to pump. Hansen has been buying water on the open market, but prices have gone through the roof.

What her district needs, she says, is a reliable supply — something that's there, drought or no drought. So her district turned its sights toward the wastewater treatment plant in Modesto, Calif., just a stone's throw from some of the driest agricultural areas in the state.

Will Wong gives me a tour of the plant, a couple of hours east of San Francisco. The smell isn't too bad — "kind of an earthy smell," as Wong describes it. "It's not totally offensive."

Everything that goes down the drain in the city — from 240,000 people — ends up here. Sewage may not seem like an obvious water source, but, as Wong says: "Water is water. As long as it's wet, it's water and it's valuable."

And that water will be disinfected with ultraviolet light once new equipment is installed — part of a \$150 million upgrade to meet new water quality requirements. It won't be drinking-water quality, but according to state standards, it will be clean enough to use on crops.

Normally, the wastewater would be disposed of in a local river, as much as 14 million gallons a day. But Modesto had an idea: Maybe someone else would want to buy it.

"Del Puerto Water District raised their hand, as quickly as we brought the question up," Wong says.

The plan is to build a 6-mile, \$100 million pipeline to carry the wastewater to a canal that goes to local farms. Called the North Valley Regional Recycled Water Program, it would be the largest water recycling project of its kind in the state.

And it won't be cheap. Farmers would pay four to five times normal water prices, but growers like Jim Jasper are more than willing to pay.

"I like to be optimistic, but without something like this, the future for my son and grandson and family — we're into this third generation — I don't know if we can keep our business going," Jasper says.

The water would meet about one-third of the water district's "hardened" demand, or the minimal supply it can get by on.

And other agricultural areas are taking notice as they face their own drought shortfalls.

"There's absolutely more potential for recycled water use in California," says Heather Cooley of the Pacific Institute, a nonprofit water think tank based in Oakland. She says California could be using two to three times more recycled water.

But there are also potential problems. For one, keeping wastewater out of a river could impact the river itself.

"You need to understand where that water would have gone," she says. "Is it providing important environmental flows? Is it providing water to a downstream community?"

That's the case for Modesto. Farmers in a nearby water district are protesting the plan. They're worried it will reduce the flow of a local river.

Recycled wastewater projects are currently used in Monterey and Sonoma counties, where urban areas are close to farm fields. But in other parts of California's Central Valley, Cooley says, location is a problem. It's expensive to move wastewater long distances, and a lot of farms are just too far from big cities and all their wastewater.

"It's not the single silver bullet solution for agriculture. Agriculture is going to have to do a lot of things to adapt to a future of less water availability," she says.

In the Del Puerto Water District, farmers see water recycling as a way to survive that future. The project still needs a slew of permits from the state, but if all goes well, the taps could open up in just three years.

Buyer Survey - Proposed Salary/Education Changes to Buyer I

Buyer II Survey Matching Agency (USD surveys Journey class)	Match (Journey level)		Entry (or Sub- Journey)		Difference calculation based on % entry level is	Requirements			
	Title	Pay	Title	Pay	paid below Buyer II (or Senior) level	Education	Experience (Entry)	Experience (Journey)	
ACWD	Buyer II	105,328	Buyer I	93,873	11.00%	Both - Bach.	None	2 years	
CCCSD	Sr. Buyer	96,048	Buyer	83,256	13.20%	Buyer - HS & training or course work; Sr. Buyer - Bach	2 years purchasing	3 years purchasing	
EBMUD	Buyer II	91,800	Buyer I	83,136	9.50%	Both - Bach	Exp in 2 areas of purchasing may sub for degree on yr for yr basis; no other exp listed	2 years purchasing, dev specs, sourcing, solicit price bids; add'l exp may sub for degree on yr for yr basis	
SCVWD	Buyer II	97,212	Buyer I	88,104	9.60%	Both - Bach	1 yr clerical acctg or purch; sub add'l exp on 1.5 yrs exp to 1 yr ed basis	3 yrs; sub add'l exp on 1.5 yrs exp to 1 yr ed basis	
Sunnyvale	Buyer II	90,314	Buyer I	80,205	11.00%	Both - Assoc.	1 yr purch clerical or asst, or 2 yrs AP or Shipping/Rec	2 yrs purchasing	
USD (current) 100% MSA	Buyer II	98592 93897	Buyer I	83,803	15.00%	Buyer I - HS; Buyer II - Bach	2 years purchasing ordering, receiving	2 years purchasing duties	
USD (proposed) 100% MSA	Buyer II	98592 93897	Buyer I	88,733	10.00%	Both - Bach	1 yr purchasing ordering, receiving; relevant cert may sub for up to 1 yr exp.	3 years purchasing; relevant cert may sub up to 1 yr exp.	

Desk Item - corrections shown in red text

Item 9 7/27/15 Board Meeting

	Buyer backs up Purchasing Agent; proposal is for Buyer I is to promote within 2 years or be terminated										
USD Buyer I		80%	MSA		105%						
		\$67,042.56									
	Current Pay Range	\$63,850.06	\$83,803.20	\$79,812.57	\$87, 993.36	\$83,803.20					
		\$70,986.24									
	Proposed Pay Range	\$67,605.94	\$88,732.80	\$84,507.43	\$93,169. 44	\$88,732.80					