Directors
Manny Fernandez
Tom Handley
Pat Kite
Anjali Lathi
Jennifer Toy

Officers
Paul R. Eldredge
General Manager/
District Engineer

Karen W. Murphy
Attorney

BOARD MEETING AGENDA
Monday, March 28, 2016
Regular Meeting - 7:00 P.M.

Union Sanitary District
Administration Building
5072 Benson Road
Union City, CA 94587

	1.	Call to Order.
	2.	Pledge of Allegiance.
	3.	Roll Call.
Motion	4.	Approve Minutes of the Meeting of March 14, 2016.
Motion	5.	Monthly Operations Report for February 2016 *(to be reviewed by the Budget & Finance Committee).*
	6.	Written Communications.
	7.	Oral Communications. *The public may provide oral comments at regular and special Board meetings; however, whenever possible, written statements are preferred **(to be received at the Union Sanitary District office at least one working day prior to the meeting**). This portion of the agenda is where a member of the public may address and ask questions of the Board relating to any matter within the Board's jurisdiction that is not on the agenda. If the subject relates to an agenda item, the speaker should address the Board at the time the item is considered. Oral comments are limited to three minutes per individuals, with a maximum of 30 minutes per subject. Speaker's cards will be available in the Boardroom and are to be completed prior to discussion.*
Motion	8.	Consider Request Received from Alameda County Water District to Support Boundary Modification and Provide Direction to Staff as Necessary *(to be reviewed by the Legal/Community Affairs Committee).*
Motion	9.	Discuss Senate Bill 1213 Biosolids Grant Program and Consider Sending Letter of Support *(to be reviewed by the Legislative Committee).*
Motion	10.	Consider and Provide Direction Regarding Proposed Content for Spring 2016 Newsletter *(to be reviewed by the Legal/Community Affairs Committee).*
Motion	11.	Consider Confirming and Declaring the Need to Continue the Emergency Action to Repair the 33-inch Sewer on Alvarado Boulevard and Update on the Repairs *(to be reviewed by the Construction Committee).*

Motion	12.	Award the Construction Contract for the Aeration Basins 5-7 Diffuser Membranes Replacement Project *(to be reviewed by the Construction Committee).*
Information	13.	Information Items: a. Check Register. b. CalPERS Actuarial Valuation Report as of June 30, 2014, Required Contributions for Fiscal Year 2016 with Estimates Through 2022 *(to be reviewed by the Budget & Finance Committee).* c. Report on the East Bay Dischargers Authority Commission Meeting of March 17, 2016.
Information	14.	Committee Meeting Reports. *(No Board action is taken at Committee meetings):* a. Budget & Finance Committee – scheduled for Wednesday, March 23, 2016, at 8:30 a.m. b. Construction Committee – scheduled for Wednesday, March 23, 2016, at 10:30 a.m. c. Legal/Community Affairs Committee – scheduled for Wednesday, March 23, 2016, at 4:00 p.m. d. Legislative Committee – scheduled for Thursday, March 24, 2015, at 4:00 p.m. e. Ad Hoc Subcommittee for Communications Strategy.
Information	15.	General Manager's Report. *(Information on recent issues of interest to the Board).*
	16.	Other Business: a. Comments and questions. *Directors can share information relating to District business and are welcome to request information from staff.* b. Scheduling matters for future consideration.
	17.	Adjournment – The Board will adjourn to a Special Meeting Closed Session to be held in the Alvarado Conference Room on Monday, April 4, 2016, at 5:30 p.m.
	18.	Adjournment – The Board will then adjourn to the next Regular Meeting in the Boardroom on Monday, April 11, 2016, at 7:00 p.m.

The Public may provide oral comments at regular and special Board meetings; however, whenever possible, written statements are preferred (to be received at the Union Sanitary District at least one working day prior to the meeting).

If the subject relates to an agenda item, the speaker should address the Board at the time the item is considered. If the subject is within the Board's jurisdiction but not on the agenda, the speaker will be heard at the time "Oral Communications" is calendared. Oral comments are limited to three minutes per individual, with a maximum of 30 minutes per subject. Speaker's cards will be available in the Boardroom and are to be completed prior to discussion of the agenda item.

The facilities at the District Offices are wheelchair accessible. Any attendee requiring special accommodations at the meeting should contact the General Manager's office at (510) 477-7503 at least 24 hours in advance of the meeting.

THE PUBLIC IS INVITED TO ATTEND

NOTICE OF
COMMITTEE MEETING

All meetings will be held in
the General Manager's Office
5072 Benson Road, Union City, CA 94587

UNION SANITARY DISTRICT

BOARD MEETING OF MARCH 28, 2016

Committee Membership:

Budget and Finance	Directors Manny Fernandez and Pat Kite (Alt. – Jennifer Toy)
Construction Committee	Directors Tom Handley and Jennifer Toy (Alt. – Pat Kite)
Legal/Community Affairs	Directors Pat Kite and Anjali Lathi (Alt. – Tom Handley)
Legislative Committee	Directors Manny Fernandez and Tom Handley (Alt–Pat Kite)
Personnel Committee	Directors Manny Fernandez and Jennifer Toy (Alt. – Anjali Lathi)
Audit Committee	Directors Anjali Lathi and Jennifer Toy (Alt. Manny Fernandez)

Budget & Finance Committee, Wednesday, March 23, 2016, at 8:30 a.m.

5. Monthly Operations Report for February 2016.

13b. CalPERS Actuarial Valuation Report for FY 2017 through FY 2022.

Construction Committee, Wednesday, March 23, 2016, at 10:30 a.m.

11. Consider Confirming and Declaring the Need to Continue the Emergency Action to Repair the 33-inch Sewer on Alvarado Boulevard and Update on the Repairs.

12. Award the Construction Contract for the Aeration Basins 5-7 Diffuser Membranes Replacement Project.

Legal/Community Affairs Committee, Wednesday, March 23, 2016, at 4:00 p.m.

8. Consider Boundary Modification Request Received from Alameda County Water District and Provide Direction to Staff as Necessary.

10. Consider and Provide Direction Regarding Proposed Content for Spring 2016 Newsletter.

Legislative Committee, Thursday, March 24, 2016, at 4:00 p.m.

9. Discuss Senate Bill 1213 Biosolids Grant Program and Consider Sending Letter of Support.

Committee meetings may include teleconference participation by one or more Directors.
(Gov. Code Section 54953 (b))
Committee Meetings are open to the public. Only written comments will be considered. No action will be taken.

MINUTES OF THE MEETING OF THE
BOARD OF DIRECTORS OF
UNION SANITARY DISTRICT
March 14, 2016

CALL TO ORDER

President Toy called the meeting to order at 7:00 p.m.

PLEDGE OF ALLEGIANCE

ROLL CALL

PRESENT:	Jennifer Toy, President Tom Handley, Vice President Pat Kite, Secretary Anjali Lathi, Director
ABSENT:	Manny Fernandez, Director
STAFF:	Paul Eldredge, General Manager Karen Murphy, District Counsel Sami Ghossain, Technical Services Manager Armando Lopez, Treatment & Disposal Services Manager Pamela Arends-King, Business Services Manager/CFO James Schofield, Collection Services Manager Chris Pachmayer, Electrical/Support Team Coach Nina Narvaez, Administrative Specialist Regina McEvoy, Assistant to the General Manager/Board Secretary
GUEST:	Grace Chow, Brown and Caldwell Vice President

APPROVAL OF THE MINUTES OF THE MEETING OF FEBRUARY 22, 2016

It was moved by Secretary Kite, seconded by Director Lathi, to approve the Minutes of the Meeting of February 22, 2016. Motion carried with the following vote:

AYES:	Handley, Kite, Lathi, Toy
NOES:	None
ABSENT:	Fernandez
ABSTAIN:	None

APPROVAL OF THE MINUTES OF THE SPECIAL MEETING BOARD WORKSHOP OF FEBRUARY 23, 2016

It was moved by Secretary Kite, seconded by Vice President Handley, to approve the Minutes of the Special Meeting Board Workshop of February 23, 2016. Motion carried with the following vote:

AYES: Handley, Kite, Lathi, Toy
NOES: None
ABSENT: Fernandez
ABSTAIN: None

WRITTEN COMMUNICATIONS

There were no written communications.

ORAL COMMUNICATIONS

There were no oral communications.

APPROVE THE PUBLICLY AVAILABLE PAY SCHEDULE

This item was reviewed by the Personnel Committee. Business Services Manager/CFO Arends-King stated the Publicly Available Pay Schedule (PAPS) had been updated to include the following:

- Adjustment of 3.5% for the March 1, 2016, negotiated Classified employee salary increases.
- Addition of the Collection Systems Trainer position, approved at the February 8, 2016 Board meeting.
- Changed Coach, Total Plant Operations to Coach, Wastewater Plant Operations to match title information in the Human Resources Information System (Optimum).
- Changed title of Technical Training Program Coordinator to Training and Emergency Response Program Manager, approved by the Executive Team.
- Corrected salary for Purchasing Agent.

The PAPS is mandated by CalPERS and is designed to ensure consistency between CalPERS employers and enhance the disclosure and transparency of public employee compensation. Staff recommended the Board approve the PAPS effective March 1, 2016.

It was moved by Director Lathi, seconded by Secretary Kite, to Approve the Publicly Available Pay Schedule Effective March 1, 2016. Motion carried with the following vote:

AYES: Handley, Kite, Lathi, Toy
NOES: None
ABSENT: Fernandez
ABSTAIN: None

AWARD THE CONSTRUCTION CONTRACT FOR THE ALVARADO-NILES ROAD SANITARY SEWER REHABILITATION PROJECT TO SAK CONSTRUCTION

This item was reviewed by the Construction Committee. Technical Services Manager Ghossain stated television inspections of the Alvarado Basin identified portions of the Alvarado-Niles Road trunk sewer, installed in the mid 1960's, that have extensive corrosion. The Project will rehabilitate approximately 9,200 feet of the existing concrete trunk sewer which runs beneath Alvarado-Niles Road and rehabilitate approximately 125 feet of cast iron pipe at four locations. The project was advertised for bids February 2, 2016, and the three bids received were opened March 1, 2016. SAK Construction submitted the lowest responsible bid with a total base bid of $3,282,618, 1.8% below the Engineer's Estimate for the Project. Staff recommended the Board waive a minor bid irregularity and Award the construction contract for the Alvarado-Niles Road Sanitary Sewer Rehabilitation Project to SAK Construction in the amount of $3,282,618 and authorize staff to issue the Notice of Award for the Project.

It was moved by Secretary Kite, seconded by Vice President Handley, to Award the Construction Contract for the Alvarado-Niles Road Sanitary Sewer Rehabilitation Project to SAK Construction. Motion carried with the following vote:

AYES:	Handley, Kite, Lathi, Toy
NOES:	None
ABSENT:	Fernandez
ABSTAIN:	None

AUTHORIZE THE GENERAL MANAGER TO EXECUTE AN AGREEMENT AND TASK ORDER NO. 1 WITH BROWN & CALDWELL TO PROVIDE CONSTRUCTION MANAGEMENT SERVICES FOR THE ALVARADO-NILES ROAD SANITARY SEWER REHABILITATION PROJECT

This item was reviewed by the Construction Committee. Technical Services Manager Ghossain stated the purpose of Task Order No. 1 is to authorize construction management services to Brown & Caldwell for the duration of the Project. The scope of work and cost proposal for Task Order No. 1 have been reviewed by staff and determined to be appropriate. Work under Task Order No. 1 is expected to begin in April, 2016, and the Project is expected to be completed by the end of November, 2016. Staff recommended the Board authorize the General Manager to execute an Agreement and Task Order No. 1 with Brown & Caldwell in the amount of $294,932 to provide construction management services for the Alvarado-Niles Road Sanitary Sewer Rehabilitation Project.

It was moved by Director Lathi, seconded by Secretary Kite, to Authorize the General Manager to Execute an Agreement and Task Order No. 1 with Brown & Caldwell to Provide Construction Management Services for the Alvarado-Niles Road Sanitary Sewer Rehabilitation Project. Motion carried with the following vote:

AYES:	Handley, Kite, Lathi, Toy
NOES:	None
ABSENT:	Fernandez
ABSTAIN:	None

CONSIDER CONFIRMING AND DECLARING THE NEED TO CONTINUE THE EMERGENCY ACTION TO REPAIR THE 33 INCH SEWER ON ALVARADO BOULEVARD AND UPDATE ON THE REPAIRS

This item was reviewed by the Construction Committee. Technical Services Manager Ghossain stated repair of the sewer began on February 22, 2016. On February 29 and March 1, 2016, over 700 feet of existing pipeline up and downstream of the damaged manhole was rehabilitated by sliplining with PVC pipe. A new concrete manhole base was poured, rehabilitated pipelines were connected, and backfill of the pit began March 3, 2016.

Pursuant to Public Contract Code section 22050, the Board is required to review the status of the emergency action at each subsequent meeting until the emergency action is terminated. Authorization to continue the emergency action must be approved by a four-fifths vote of the Board. Staff recommended the Board approve a motion to confirm and declare the need to continue the emergency action to repair the 33-inch sewer on Alvarado Boulevard.

It was moved by Secretary Kite, seconded by Director Lathi, to Confirm and Declare the Need to Continue the Emergency Action to Repair the 33 Inch Sewer on Alvarado Boulevard. Motion carried with the following vote:

AYES:	Handley, Kite, Lathi, Toy
NOES:	None
ABSENT:	Fernandez
ABSTAIN:	None

<u>REVIEW AND APPROVE PROPOSED CHANGES TO POLICY NO. 2920, COMPUTER PURCHASE AND STUDENT LOAN PROGRAM</u>

This item was reviewed by the Personnel Committee. General Manager Eldredge stated Policy No. 2920 provides for a computer purchase loan program, as well as a student loan program. Proposed changes to the computer loan program were detailed in the report included in the Board meeting packet. No changes were proposed for the student loan program portion of the policy. Staff recommended the Board approve proposed changes to Policy No. 2920, Computer Purchase and Student Loan Program.

It was moved by Vice President Handley, seconded by Director Lathi, to Approve Proposed Changes to Policy No. 2920, Computer Purchase and Student Loan Program. Motion carried with the following vote:

AYES:	Handley, Kite, Lathi, Toy
NOES:	None
ABSENT:	Fernandez
ABSTAIN:	None

<u>REVIEW AND APPROVE PROPOSED CHANGES TO POLICY NO. 3070, BOARD MEMBER OFFICERS AND COMMITTEE MEMBERSHIP</u>

This item was reviewed by the Personnel Committee. General Manager Eldredge stated Board Policy No. 3070 provides guidelines for the timing and selection of Board officers and internal and external committee members. On February 22, 2016, the Board considered proposed revisions to the Policy and discussed additional changes.

District Counsel Murphy outlined the proposed changes to the policy as detailed in the report included in the Board meeting packet.

Vice President Handley asked what the procedure would be if a member of the Board wished to change their committee assignments. General Manager Eldredge stated, per the policy, the Board President is delegated the authority to appoint Directors to internal committee assignments. The Board President may consider altering his or her appointments after discussion during the Board meeting where the informational item regarding committee assignments is presented. If the appointments are delayed or postponed, the former fiscal year committee assignments would remain in effect until the new committee assignments are finalized by the Board President.

Staff recommended the Board approve proposed changes to Policy No. 3070, Board Member Officers and Committee Membership.

It was moved by Director Lathi, seconded by Vice President Handley, to Approve Proposed Changes to Policy No. 3070, Board Member Officers and Committee Membership. Motion carried with the following vote:

AYES:	Handley, Kite, Lathi, Toy
NOES:	None
ABSENT:	Fernandez
ABSTAIN:	None

INFORMATION ITEMS:

Check Register

All questions were answered to the Board’s satisfaction.

Information Item on Audit and Comprehensive Annual Financial Report (CAFR) Completion Timeline

This item was reviewed by the Budget & Finance Committee. Business Services Manager/CFO Arends-King stated District staff contacted 10 local agencies and compiled a list that showed when the agencies completed the 2015 audit and CAFR, the number of full time equivalent (FTE) staff who worked to prepare the CAFR and worked with the auditors, and the typical timeline for completion of the audit and CAFR in previous years. The results showed a number of agencies completed the 2015 audit and CAFR past the typical timeline, and further showed most agencies had more FTE’s working with the auditors to complete the reports.

Business Services Manager/CFO Arends-King stated the fiscal year 2015 audit and CAFR were completed at a later date than in previous years. Fiscal year 2015 was a challenging year for completion of the audit report and CAFR due to implementation of Governmental Standards Board (GASB) Statement No. 68, Accounting and Financial Reporting for Pensions; and GASB Statement No. 71, that added additional requirements and clarification to GASB 68. The District historically presents the audit report, which is the audited financial statements including the auditor’s opinion, for informational purposes to the audit committee and then the full Board. The CAFR includes the aforementioned audit report as well as additional financial and statistical information and is typically completed after the audit report is presented. Staff proposed the audit report and CAFR be presented as one complete document to the Audit Committee and then the full Board. The goal for completing the CAFR in future fiscal years will be the second meeting in October and no later than the first meeting in December.

Alternate Compensation Program, FY 2015

This item was reviewed by the Personnel Committee. Business Services Manager/CFO Arends-King stated the District's Alternate Compensation Program was established in April 2003 to recognize positive employee contributions. Employee dissatisfaction with the Program was addressed during 2012 contract negotiations which resulted in the following changes to the Program:

- The amount of funding allocated to the Program decreased from $50,000 to $35,000 per fiscal year.
- A higher standard was established for achieving recognition awards.

A joint labor-management task force developed the rules for the new Alternate Compensation Program within the guidelines established by the Negotiations Team, which were outlined in the Board meeting packet. The Alternate Compensation Program continues to provide acknowledgement and encouragement to many innovative and noteworthy process improvement projects and actions.

Report on the East Bay Dischargers Authority (EBDA) Commission Meeting of February 18, 2016

Vice President Handley stated the Commission discussed the ongoing EBDA Outfall Pipe Inspection, and further stated the full report on the status of the outfall is expected to be completed in the next couple of months. Vice President Handley stated the Ad Hoc Committee discussed creating a new mission statement for EBDA.

COMMITTEE MEETING REPORTS:

The Budget & Finance, Construction, and Personnel Committees met.

General Manager Eldredge stated the Ad Hoc Subcommittee for Communications Strategy met, and staff will be working toward scheduling another meeting.

GENERAL MANAGER'S REPORT:

General Manager Eldredge reported the following:

- The Fremont Chamber of Commerce will host the Fremont State of the City Luncheon on March 24, 2016.
- The Newark Chamber of Commerce will host the Newark State of the City Luncheon on April 21, 2016.
- The most recent recruitment for TPO night coach was completed, and staff believe it was the best recruitment to date for the position. Staff anticipates an announcement will be made within the week.
- The Plant has been able to manage peak flows during the recent rainstorms.

- Plant staff have not been able to test the emergency outfall due to the difficulty in scheduling the testing. One of the requirements is that the testing would need to coincide with a rain storm, which has been hard to predict.
- The Nomination Period for the upcoming Board of Directors Election closed March 11, 2016. There is one contested election for Ward 1 which represents the City of Union City.
- There was a power outage at the Plant and District Offices on the afternoon of March 11, 2016. The power was out for about an hour and a half, and the District's generators were functioning throughout the outage. Plant Staff followed the standard power outage protocol and the transition from generator power was seamless once power was restored.

OTHER BUSINESS:

Secretary Kite stated she recently attended the 5th Annual Synopsys Alameda County Science and Engineering Fair.

ADJOURNMENT:

The meeting was adjourned at 7:50 p.m. to the Special Meeting Seismic Study and New CIP Budget Format Combined Board Workshop to be held in the Boardroom on Monday, March 21, 2016, at 6:30 p.m.

The Board will then adjourn to the next scheduled Regular Board Meeting to be held in the Boardroom on Monday, March 28, 2016, at 7:00 p.m.

SUBMITTED:

____
REGINA McEVOY
SECRETARY TO THE BOARD

ATTEST:

____
PAT KITE
SECRETARY

APPROVED:

____
JENNIFER TOY
PRESIDENT

Adopted this 28th day of March, 2016

DATE: March 21, 2016

TO: Board of Directors - Union Sanitary District

FROM: Paul R. Eldredge, General Manager/District Engineer

SUBJECT: Agenda Item No. 5 - Meeting of March 28, 2016
Information Item: **Monthly Operations Report for February 2016**

Background

Attached are Monthly Operations Reports for February 2016. Staff is available to answer questions regarding information contained in the report.

Work Group Managers

General Manager/Administration	Paul Eldredge	GM
Business Services	Pamela Arends-King	BS
Collection Services	James Schofield	CS
Technical Support	Sami Ghossain	TS
Treatment and Disposal Services	Armando Lopez	T&D
Fabrication, Maintenance, and Construction	Robert Simonich	FMC

ODOR COMPLAINTS:
There were three odor complaints received during the month of February. One was received from a Fremont resident, and two were received from the same Union City resident. Each complaint is detailed in the attached odor report.

SAFETY:
- An employee that had an injury in December came back to work with a 25 lb limit for lifting and pulling. We hope to see the limit increase at his next appointment.
- We had an employee go to their own doctor with pain in their wrist. The employee was given work restrictions and then taken off work to help the healing.
- A couple of employees reported minor cuts or bruises, but declined medical treatment. We are glad to see employees reporting minor injuries so we can document incidents.

- Our Workers compensation insurance administrator had a deposition of an employee about his injury claims. We hope to hear the status of the claims next month.
- We had a near miss incident where another pipe burst in the thickener project area. We completed an incident review to identify the cause and prevention measures to be implemented.
- We completed the annual review of our 6 Hazardous Material Business Plans (HMBP) and corrected the Spill Prevention Control and Countermeasure Plan (SPCC) for our 3 larger facilities.
- The effectiveness of the contract security guard was reviewed. It was determined that the guard is doing a good job and we will continue the contract.

STAFFING & PERSONNEL:

Completed Recruitments Resulting in Promotions:

- Matt Lubina, Collection Service Worker 7th Conditional Lead, 2/6/16

Other Completed Recruitments:

- Marcus Lee, Plant Operator Trainee III, 2/1/16

Recruitments Opened:

- Assistant/Associate Engineer

G.M. ACTIVITIES: For the month of February, the GM was involved in the following:

- Attended the Mid-Year Budget/Newsletter Combined Board Workshop.
- Presented at a Tri-City Marketing Council meeting regarding District services and recent changes to sewer service charges.
- Met with Alameda County Flood Control & Water Conservation District staff to discuss property adjacent to the District.

Attachments: Odor Report and Map
Hours Worked and Leave Time by Work Group
Financial Reports
Business Services
Technical Services
Collection Services
Fabrication, Maintenance, and Construction
Treatment and Disposal Services

ODOR REPORT
February 2016

During the recording period from February 01, 2016 through February 29, 2016, there were a total of three odor complaints received by the District.

City: Fremont

1. Complaint Details:

Date: 2/9/2016 | *Time:* 6:33 pm
Location: FAIRBANKS CM | *Reported By:* Ina Gries
Wind (from): West | *Wind Speed:* 5 mph
Temperature: 70 Degrees F | *Weather:* Clear

Response and Follow-up:
We inspected our USD sewer mains on Maybird Circle in front of the complex. Our mains had no odors. We also inspected the (private) adjacent storm drain inlet and we did find a peculiar odor coming from the drain inlet. We relayed our findings to the homeowner and suggested she contact her HOA to take care of the problem. We also gave her our USD brochure.

City: Union City

2. Complaint Details:

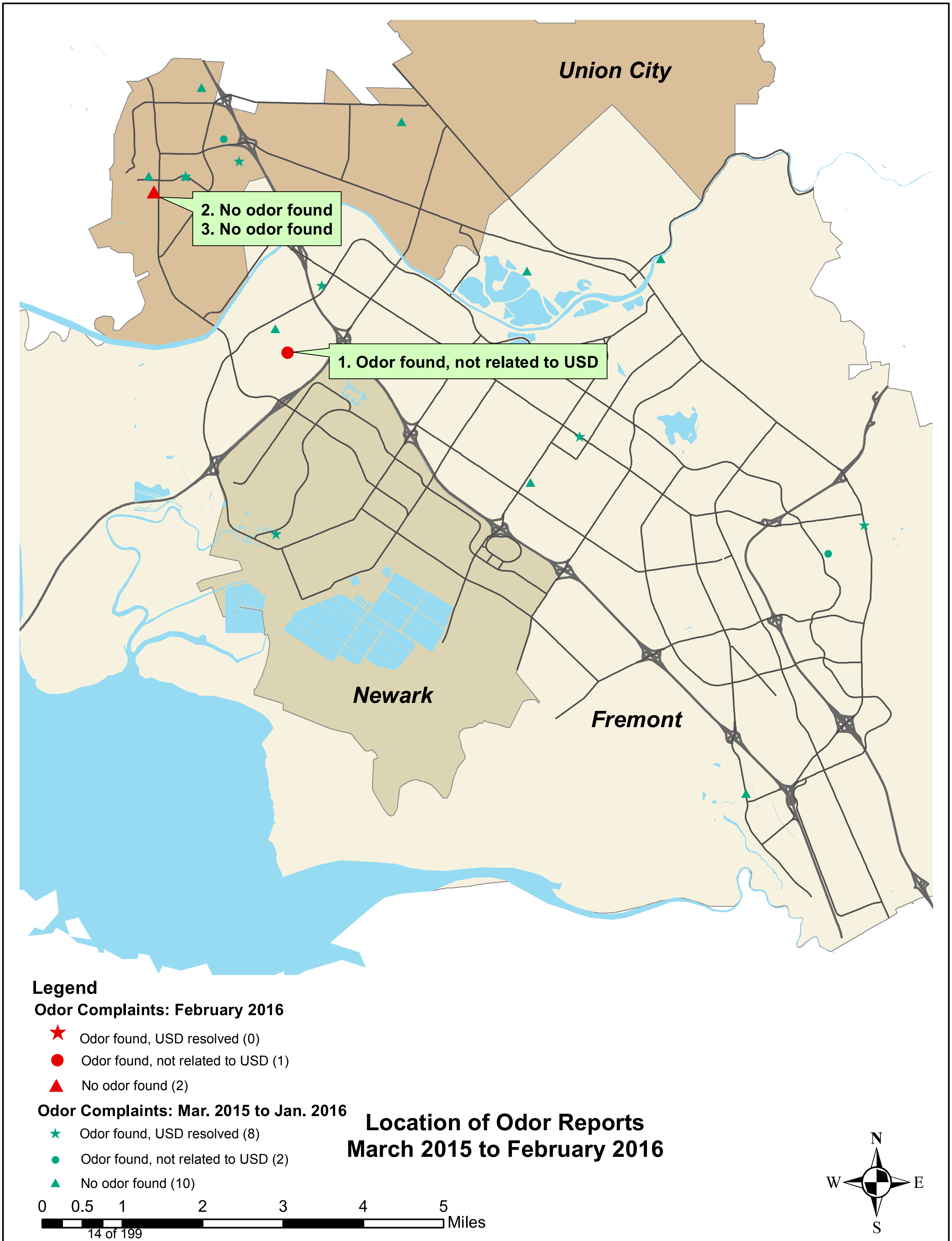
Date: 2/3/2016 | *Time:* 1:15 pm
Location: MACKINAW ST | *Reported By:* Sam Dua
Wind (from): Southwest | *Wind Speed:* 6 mph
Temperature: 58 Degrees F | *Weather:* Sunny, Clear

Response and Follow-up:
Plant observations were performed. Odor scrubbers were in working order. No sludge/grit trucks were being filled nor was there organic waste being off loaded. T&D WGM and Coach investigated the resident's neighborhood. A decaying type odor was detected but not associated with the Plant. The ponds, drainage, and surrounding areas were investigated but no odors were detected.

3. Complaint Details:

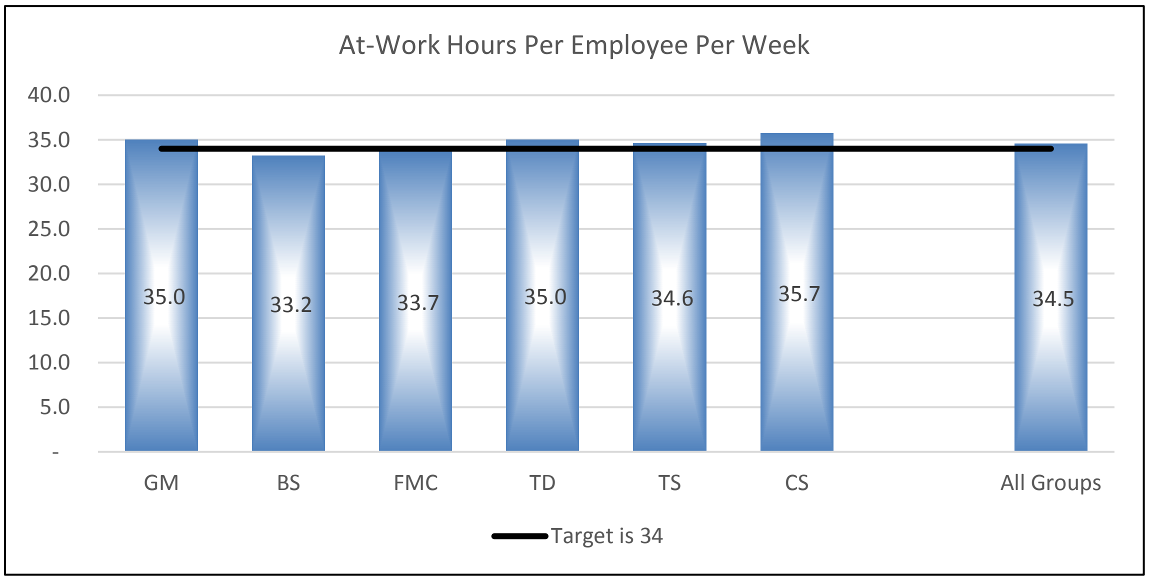
Date: 2/5/2016 | *Time:* 3:30 pm
Location: MACKINAW ST | *Reported By:* Sam Dua
Wind (from): West | *Wind Speed:* < 4 mph
Temperature: 62 Degrees F | *Weather:* Sunny, Clear

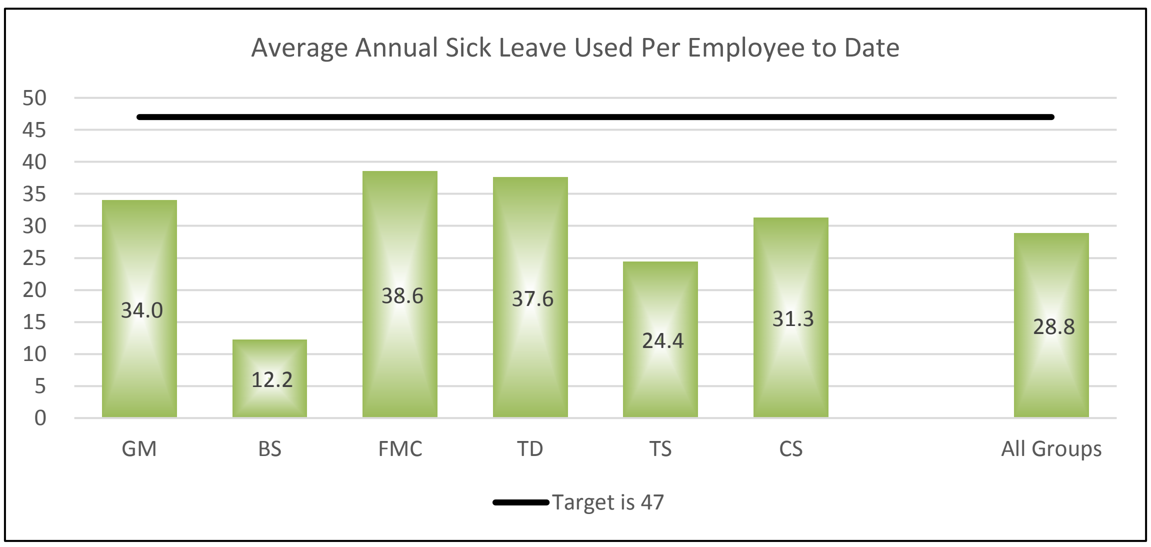
Response and Follow-up:
Operator investigated resident's neighborhood and did not detect an odor. Plant odor scrubbers were in working order.



Location of Odor Reports
March 2015 to February 2016

HOURS WORKED AND LEAVE TIME BY WORK GROUP
July 2, 2015 through February 24, 2016
Weeks to Date: 34 out of 52 (65.4%)





NOTES

(1) Regular hours does not include hours worked by part-time or temporary employees.
(2) Overtime hours includes call outs.
(3) Discretionary Leave includes Vacation, HEC, Holiday, MAL, FLEX, Funeral, Jury Duty, Military, OT Banked Use, Paid Admin., SLIP, VRIP, Holiday Banked Use leaves.
(4) Sick Leave includes sick and catastrophic sick leaves as well as protected time off, of which the District has no discretion.

An employee using 15 vacation, 11 holiday, 2 HEC, and 5 sick days will work an average of **34.9** hours per week over the course of a year; with 20 vacation days, **34.2** hours per week.

HOURS WORKED AND LEAVE TIME BY WORK GROUP
July 2, 2015 through February 24, 2016
Weeks to Date: 34 out of 52 (65.4%)

Group	Average Number of Employees	AT-WORK HOURS		At-Work Hours Per Employee Per Week	LEAVE HOURS				Average Annual Sick Leave Used Per Employee To Date	FY15		
		Regular (1)	Overtime (2)		Discretionary (3)	Short Term Disability	Workers Comp	Sick (4)		Average Number of Employees	At-Work Hours Per Week Per Employee	Annual Sick Leave Used
GM	2	2,331.00	41.00	35.0	321.00	-	-	68.00	34.0	3	34.4	28.8
BS	23	25,554.19	310.19	33.2	4,401.01	-	-	281.64	12.2	22	35.3	30.2
FMC	22	24,631.25	470.69	33.7	3,970.00	258.17	-	848.58	38.6	23	34.2	52.4
TD	25	28,756.67	859.24	35.0	3,869.58	333.19	-	940.56	37.6	25	35.3	24.1
TS	31	36,056.31	290.53	34.6	5,309.99	18.67	-	756.83	24.4	30	35.0	28.1
CS	30	34,188.68	2,081.52	35.7	5,603.93	102.87	221.00	938.22	31.3	29	36.8	68.4
All Groups	**133**	**151,518.10**	**4,053.17**	**34.5**	**23,475.51**	**712.90**	**221.00**	**3,833.83**	**28.8**	**132**	**35.3**	**40.8**
SICK LEAVE INCENTIVE PROGRAM TARGETS				**≥34**					**≤47**			

The Sick Leave Incentive Program target goals are 47 or less hours of sick leave per employee annually, and 34 or more hours of at-work time per week per employee.

NOTES

(1) Regular hours does not include hours worked by part-time or temporary employees.

(2) Overtime hours includes call outs.

(3) Discretionary Leave includes Vacation, HEC, Holiday, MAL, FLEX, Funeral, Jury Duty, Military, OT Banked Use, Paid Admin., SLIP, VRIP, Holiday Banked Use leaves.

(4) Sick Leave includes sick and catastrophic sick leaves, as well as protected time off, of which the District has no discretion.

An employee using 15 vacation, 11 holiday, 2 HEC, and 5 sick days will work an average of **34.9** hours per week over the course of a year;
with 20 vacation days, **34.2** hours per week.

BUDGET AND FINANCE REPORT

FY 2016 — **Year-to-date as of 2/29/16** — **67% of year elapsed**

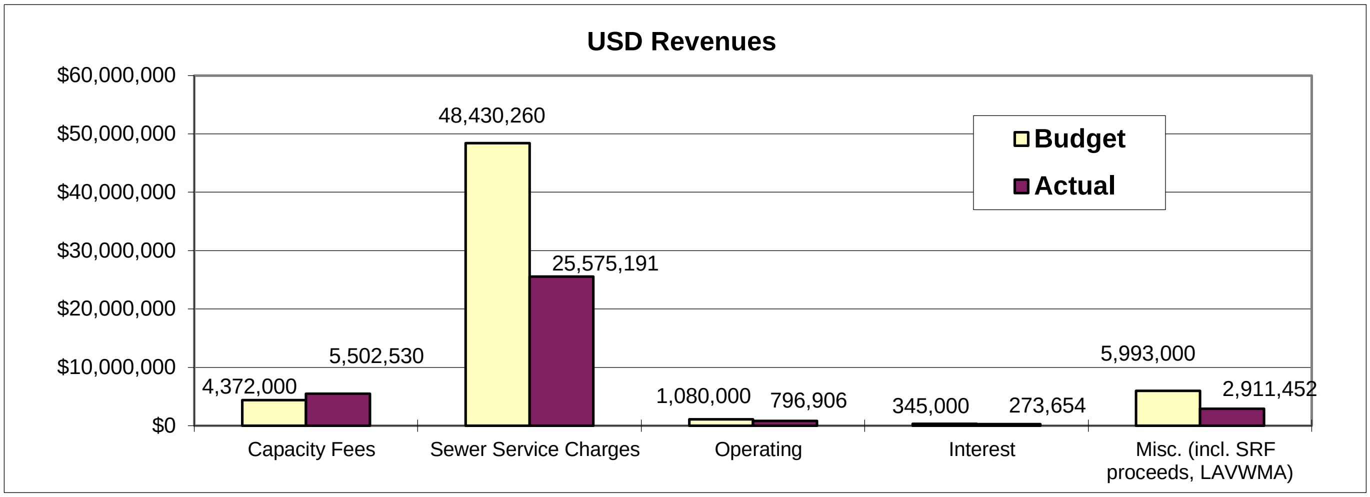
Revenues	**Budget**	**Actual**	**% of Budget Rec'd**	**Audited Last Year Actuals 6/30/15**
Capacity Fees	$4,372,000	$5,502,530	126%	$4,820,637
Sewer Service Charges	48,430,260	25,575,191	53%	48,379,254
Operating	1,080,000	796,906	74%	1,143,435
Interest	345,000	273,654	79%	309,600
Misc. (incl. LAVWMA pymnt, solar, Cogen rebates)	493,000	314,825	64%	2,127,594
Subtotal Revenues	$54,720,260	$32,463,106	59%	$56,780,521
SRF Loan Proceeds (Thickener)	5,500,000	2,596,627	47%	4,501,122
Total Revenues + SRF Proceeds	**$60,220,260**	**$35,059,733**	**58%**	**$61,281,643**

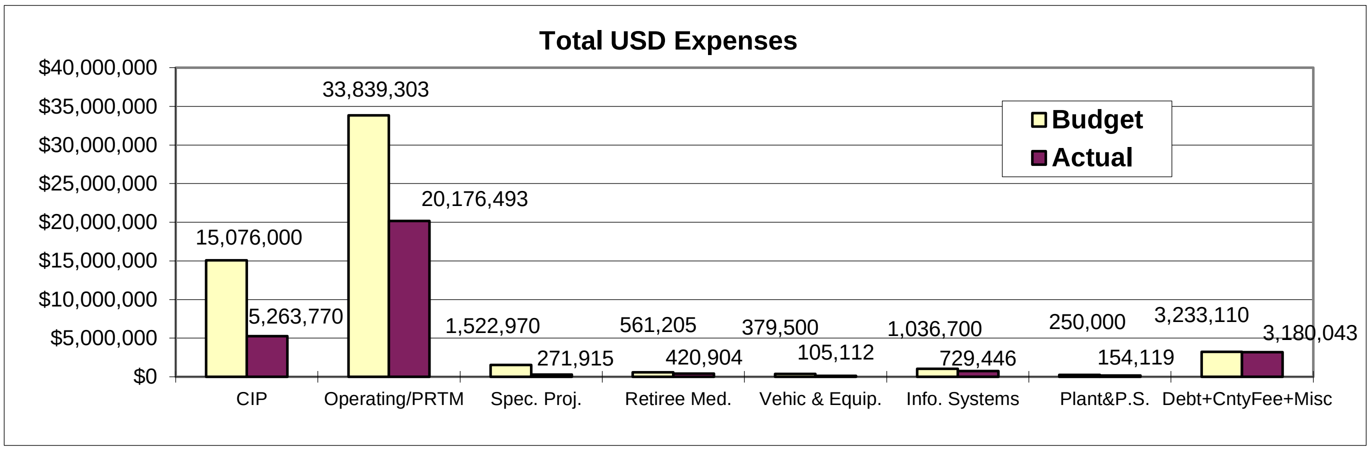
Expenses	**Budget**	**Actual**	**% of Budget Used**	**Last Year Actuals**
Capital Improvement Prog.				
Capacity Projects	$4,523,000	$1,674,697	37%	$3,755,472
Renewal & Repl. Projects	10,553,000	3,589,073	34%	12,194,927
Operating	33,827,303	20,152,640	60%	30,058,848
Special Projects	1,522,970	271,915	18%	1,065,653
Retiree Medical (Annual Required Contribution)	561,205	420,904	75%	543,540
Vehicle & Equipment	379,500	105,112	28%	787,159
Information Systems	1,036,700	729,446	70%	616,117
Plant & Pump Station R&R	250,000	154,119	62%	168,089
Pretreatment Fund	12,000	23,853	199%	109,499
County Fee for Sewer Service Charge Admin.	106,000	52,933	50%	105,559
Debt Servicing:				
SRF Loans (Irv.,Wilw,LHH,Cdr,NPS, Sub1,Boyc,Prim Cl)	3,127,110	3,127,110	100%	3,127,110
Total Expenses	**$55,898,788**	**$30,301,802**	**54%**	**$52,531,974**
Total Revenue & Proceeds less Expenses	***$4,321,472***	***$4,757,931***		***$8,749,669***

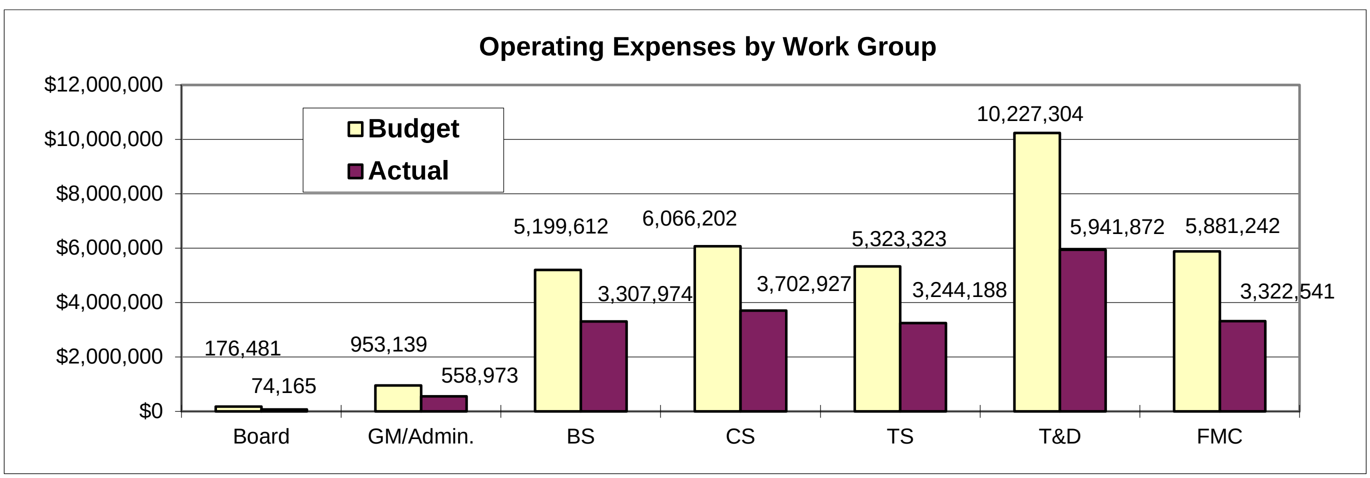
Gross Operating Expenses by Work Group	**Budget**	**Actual**	**% of Budget Used**	**Last Year Actuals**
Board of Directors	$176,481	$74,165	42%	$135,699
General Manager/Admin.	953,139	558,973	59%	987,502
Business Services	5,199,612	3,307,974	64%	4,460,485
Collection Services	6,066,202	3,702,927	61%	5,447,126
Technical Services	5,323,323	3,244,188	61%	4,693,517
Treatment & Disposal Services	10,227,304	5,941,872	58%	9,172,622
Fabrication, Maint. & Construction	5,881,242	3,322,541	56%	5,161,897
Total	$33,827,303	$20,152,640	60%	**$30,058,848**

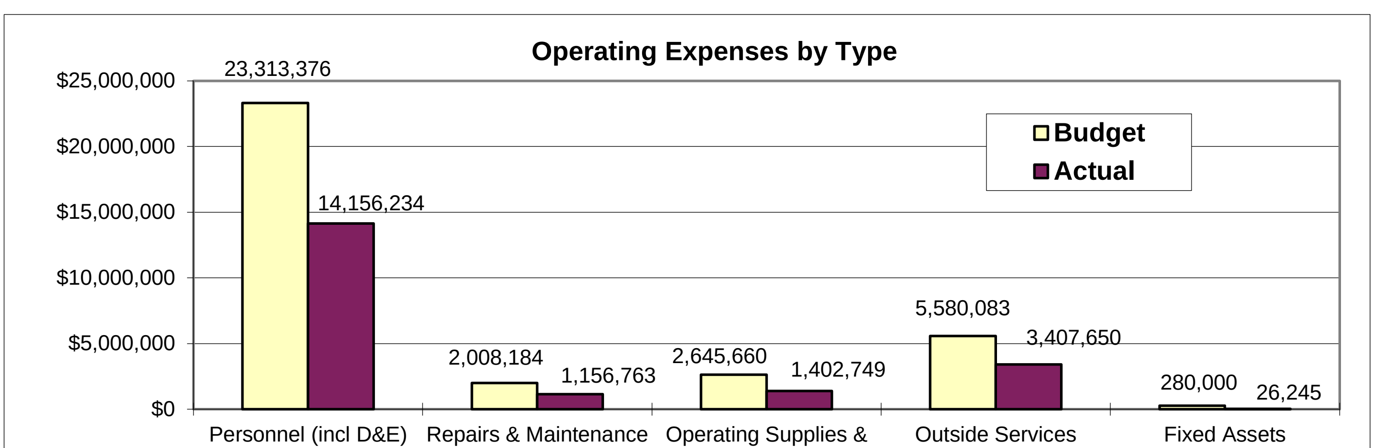
Operating Expenses by Type	**Budget**	**Actual**	**% of Budget Used**	**Last Year Actuals**
Personnel (incl D&E)	$23,313,376	$14,156,234	61% (67%)*	$20,901,890
Repairs & Maintenance	2,008,184	1,156,763	58%	1,772,819
Supplies & Matls (chemicals, small tools)	2,645,660	1,402,749	53%	2,285,558
Outside Services (utilities, biosolids, legal)	5,580,083	3,407,650	61%	4,961,560
Fixed Assets	280,000	29,245	10%	137,021
Total	$33,827,303	$20,152,640	60%	**$30,058,848**

* Personnel Budget Target


USD Revenues
$60,000,000
$50,000,000
$40,000,000
$30,000,000
$20,000,000
$10,000,000
$0
Budget
Actual
4,372,000
5,502,530
48,430,260
25,575,191
1,080,000
796,906
345,000
273,654
5,993,000
2,911,452
Capacity Fees
Sewer Service Charges
Operating
Interest
Misc. (incl. SRF proceeds, LAVWMA)


Total USD Expenses
$40,000,000
$35,000,000
$30,000,000
$25,000,000
$20,000,000
$15,000,000
$10,000,000
$5,000,000
$0
Budget
Actual
15,076,000
5,263,770
33,839,303
20,176,493
1,522,970
271,915
561,205
420,904
379,500
105,112
1,036,700
729,446
250,000
154,119
3,233,110
3,180,043
CIP
Operating/PRTM
Spec. Proj.
Retiree Med.
Vehic & Equip.
Info. Systems
Plant&P.S.
Debt+CntyFee+Misc


Operating Expenses by Work Group
$12,000,000
$10,000,000
$8,000,000
$6,000,000
$4,000,000
$2,000,000
$0
Budget
Actual
176,481
74,165
953,139
558,973
5,199,612
3,307,974
6,066,202
3,702,927
5,323,323
3,244,188
10,227,304
5,941,872
5,881,242
3,322,541
Board
GM/Admin.
BS
CS
TS
T&D
FMC

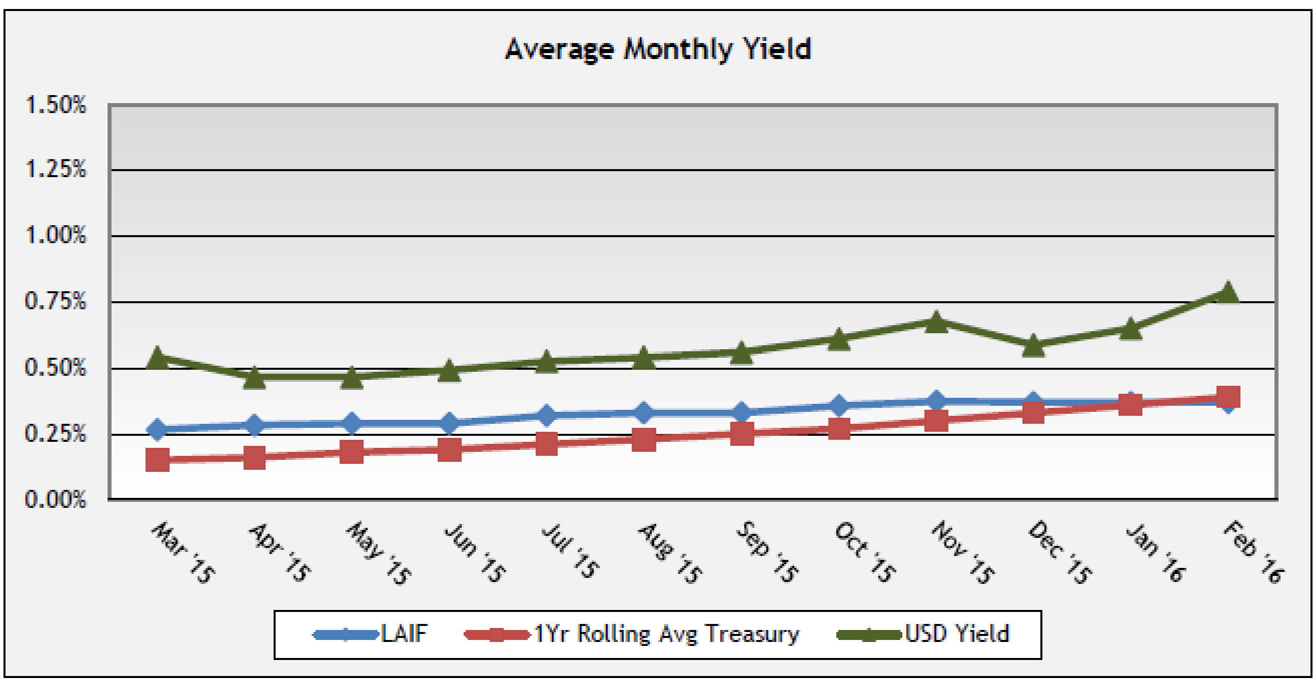

Operating Expenses by Type
$25,000,000
$20,000,000
$15,000,000
$10,000,000
$5,000,000
$0
Budget
Actual
23,313,376
14,156,234
2,008,184
1,156,763
2,645,660
1,402,749
5,580,083
3,407,650
280,000
26,245
Personnel (incl D&E)
Repairs & Maintenance
Operating Supplies & Matls
Outside Services
Fixed Assets

Business Services Group
Activities Report
February 2016

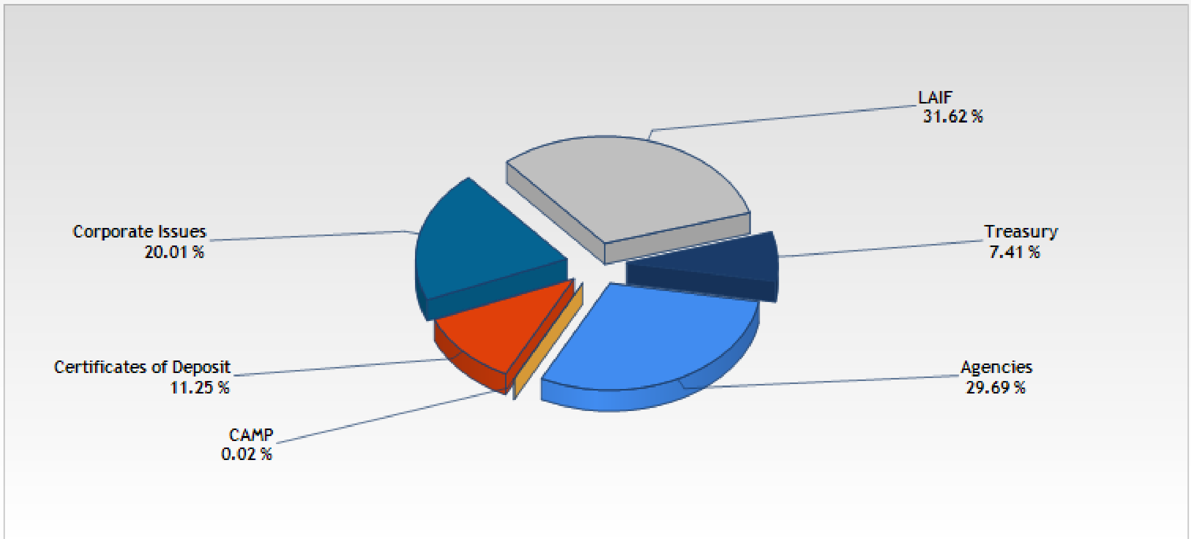
Accomplishments

- IT has implemented new phone system and provided training to all employees.
- The recruitment for Mechanic was completed; Aaron Shong was hired on 1/11/2016.
- The recruitment for Businss Services Manager/CFO was completed; Pamela Arends-King was hired on 1/13/2016.
- The recruitment for Maintenance Assistant was completed; Tommy Vining was hired on 1/27/2016.
- The recruitment for Plant Operator III Trainee was completed; Marcus Lee was hired on 2/1/2016.
- The recruitment for 7th Condiation Lead Collection System Worker was completed; Matt Lubina was promoted on 2/6/2016.
- The OPPM acts as Interim TPO Coach from February 11-April 1 (during Ric Pipkin's absence).

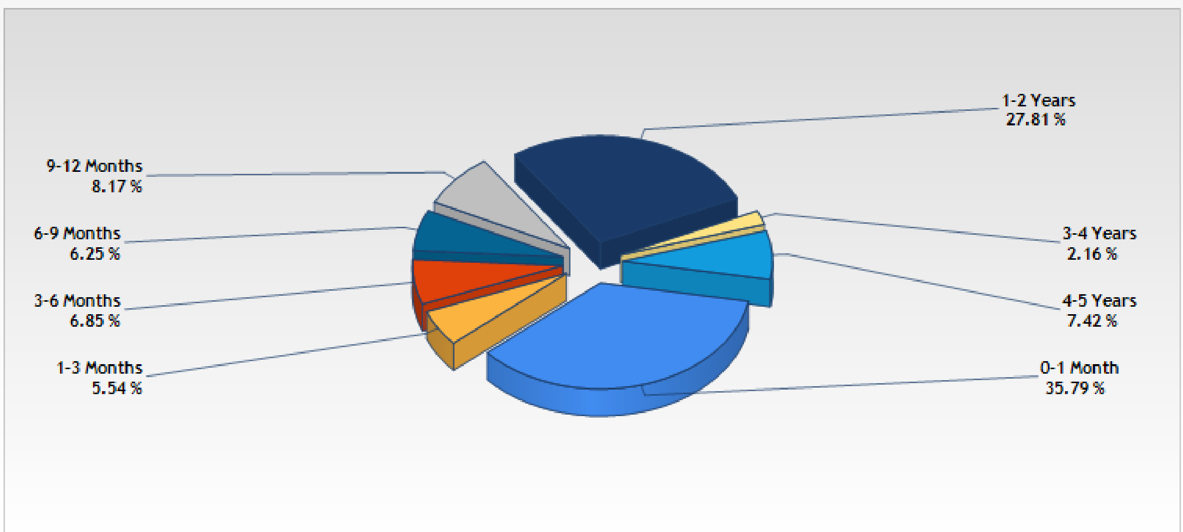
Performance Measures for the USD Investment Portfolio



Portfolio Holdings Distribution by Asset Class



Portfolio Holdings Distribution by Maturity Range



Maturity Range	Face Amount/Shares	YTM @ Cost	Cost Value	Days To Maturity	% of Portfolio	Market Value	Book Value	Duration To Maturity
0-1 Month	19,308,211.11	0.381	19,306,924.44	4	35.79	19,308,088.48	19,308,014.67	0.01
1-3 Months	3,000,000.00	0.574	2,986,605.56	73	5.54	2,998,562.85	2,997,947.47	0.20
3-6 Months	3,670,000.00	0.692	3,696,380.50	142	6.85	3,677,107.62	3,676,358.33	0.39
6-9 Months	3,355,000.00	0.800	3,374,120.25	250	6.25	3,362,318.45	3,362,956.57	0.68
9-12 Months	4,306,000.00	0.839	4,409,264.35	336	8.17	4,354,714.55	4,359,100.99	0.91
1-2 Years	14,989,000.00	0.870	15,001,672.57	520	27.81	15,000,283.64	15,001,299.04	1.42
3-4 Years	1,160,000.00	2.004	1,167,806.57	1355	2.16	1,165,568.00	1,167,789.32	3.56
4-5 Years	4,000,000.00	7.596	4,004,342.20	1651	7.42	4,001,880.00	4,004,253.06	4.35
Total / Average	**53,788,211.11**	**1.183**	**53,947,116.44**	**354**	**100**	**53,868,523.59**	**53,877,719.45**	**0.95**

Union Sanitary District
Board Report - Holdings
Report Format: By Transaction
Group By: Asset Class
Portfolio/Report Group: All Portfolios
As of 2/29/2016

Description	CUSIP/Ticker	Credit Rating 1	Settlement Date	Face Amount/Shares	Cost Value	Coupon Rate	Market Value	YTM @ Cost	Next Call Date	Maturity Date	% of Portfolio
Agencies											
FFCB 0.93 11/17/2017	3133EFPH4	Moodys-Aaa	11/18/2015	1,000,000.00	999,700.00	0.930	1,001,910.00	0.945		11/17/2017	1.85
FHLB 0.625 11/23/2016	3130A3J70	Moodys-Aaa	12/16/2015	1,000,000.00	999,000.00	0.625	1,000,170.00	0.732		11/23/2016	1.85
FHLB 0.75 7/28/2017-16	3130A4ZV7	Moodys-Aaa	4/28/2015	1,000,000.00	1,000,000.00	0.750	1,000,030.00	0.750	4/28/2016	7/28/2017	1.85
FHLB 0.8 3/17/2017-16	3130A4GT3	Moodys-Aaa	3/17/2015	1,000,000.00	1,000,000.00	0.800	1,000,010.00	0.800	3/17/2016	3/17/2017	1.85
FHLB 0.8 5/17/2017	3130A4Q54	Moodys-Aaa	3/27/2015	1,000,000.00	1,001,690.00	0.800	1,001,900.00	0.720		5/17/2017	1.86
FHLB 0.85 6/16/2017-16	3130A4GU0	Moodys-Aaa	3/16/2015	1,000,000.00	1,000,000.00	0.850	1,000,230.00	0.850	3/16/2016	6/16/2017	1.85
FHLB 0.9 9/28/2017	3130A5KH1	Moodys-Aaa	7/22/2015	1,000,000.00	1,001,140.00	0.900	1,001,810.00	0.847		9/28/2017	1.86
FHLB Step 2/26/2021-16	3130A76Q3	Moodys-Aaa	2/26/2016	2,000,000.00	2,000,000.00	0.750	2,000,380.00	2.138	5/26/2016	2/26/2021	3.71
FHLMC 0.8 8/25/2017-16	3134G8L49	Moodys-Aaa	2/25/2016	1,000,000.00	1,000,000.00	0.800	999,670.00	0.800	5/25/2016	8/25/2017	1.85
FHLMC 1 7/25/2017	3134G3ZH6	Moodys-Aaa	6/24/2015	1,000,000.00	1,004,540.00	1.000	1,001,250.00	0.780		7/25/2017	1.86
FNMA 0.5 3/30/2016	3135GOVA8	Moodys-Aaa	1/24/2014	1,000,000.00	1,000,750.00	0.500	1,000,100.00	0.465		3/30/2016	1.86
FNMA 0.625 8/26/2016	3135G0YE7	Moodys-Aaa	12/16/2015	1,000,000.00	999,540.00	0.625	999,950.00	0.691		8/26/2016	1.85
FNMA 1.25 1/30/2017	3135G0GY3	Moodys-Aaa	12/16/2015	1,000,000.00	1,004,790.00	1.250	1,005,360.00	0.820		1/30/2017	1.86
FNMA 2.1 3/18/2020-16	3136G2LV7	Moodys-Aaa	1/29/2016	2,000,000.00	2,004,342.20	2.100	2,001,500.00	2.045	3/18/2016	3/18/2020	3.72

Description	CUSIP/Ticker	Credit Rating 1	Settlement Date	Face Amount/Shares	Cost Value	Coupon Rate	Market Value	YTM @ Cost	Next Call Date	Maturity Date	% of Portfolio
Sub Total / Average				**16,000,000.00**	**16,015,492.20**	**0.971**	**16,014,270.00**	**1.098**			**29.69**
CAMP											
CAMP LGIP	LGIP4000	None	5/31/2011	9,808.71	9,808.71	0.450	9,808.71	0.450	N/A	N/A	0.02
Sub Total / Average				**9,808.71**	**9,808.71**	**0.450**	**9,808.71**	**0.450**			**0.02**
Certificates of Deposit											
1st Source Bank 0.6 9/15/2016	33646CGK4	None	12/18/2015	245,000.00	244,816.25	0.600	244,684.47	0.701		9/15/2016	0.45
Ally Bank 1 10/24/2016	02006LKM4	None	10/23/2014	240,000.00	240,000.00	1.000	240,204.16	1.000		10/24/2016	0.44
American Express Bank 1.1 10/24/2016	02587CBZ2	None	10/23/2014	240,000.00	240,000.00	1.100	240,361.97	1.100		10/24/2016	0.44
American Express Centurian 1.05 6/5/2017	02587DYJ1	None	6/5/2015	240,000.00	240,000.00	1.050	239,897.56	1.050		6/5/2017	0.44
Bank Hapoalim 0.85 2/17/2017	06251AL65	None	2/18/2016	248,000.00	248,000.00	0.850	247,422.65	0.850		2/17/2017	0.46
Bank of Baroda Ny 0.65 10/27/2016	06062QCS1	None	10/27/2015	245,000.00	245,000.00	0.650	244,638.06	0.650		10/27/2016	0.45
Bank of India NY 0.65 10/26/2016	06279HBX0	None	10/30/2015	245,000.00	245,000.00	0.650	244,639.63	0.650		10/26/2016	0.45
BankUnited NA 0.9 5/24/2017	066519BE8	None	11/24/2015	240,000.00	240,000.00	0.900	239,377.36	0.900		5/24/2017	0.44
Bar Harbor Bank 0.7 1/30/2017	066851TT3	None	6/30/2015	240,000.00	240,000.00	0.700	238,973.44	0.700		1/30/2017	0.44
BMW Bank North America 0.5 3/14/2016	05568P6V4	None	3/31/2014	240,000.00	239,760.00	0.500	240,007.37	0.552		3/14/2016	0.44
Capital One Bank 1 10/24/2016	140420QG8	None	10/22/2014	240,000.00	240,000.00	1.000	240,204.16	1.000		10/24/2016	0.44
	14042E6B1	None	8/26/2015	245,000.00	245,000.00	1.250	245,801.63	1.250		8/28/2017	0.45

Description	CUSIP/Ticker	Credit Rating 1	Settlement Date	Face Amount/Shares	Cost Value	Coupon Rate	Market Value	YTM @ Cost	Next Call Date	Maturity Date	% of Portfolio
Capital One National Asso Bank 1.25 8/28/2017											
Compass Bank 0.95 6/5/2017	20451PLE4	None	6/5/2015	240,000.00	240,000.00	0.950	239,592.60	0.950		6/5/2017	0.44
Discover Bank 0.75 1/3/2017	254672QZ4	None	7/1/2015	240,000.00	240,000.00	0.750	239,450.56	0.750		1/3/2017	0.44
First Niagara Bank 1.1 10/30/2017	33583CSV2	None	10/30/2015	245,000.00	245,000.00	1.100	245,704.33	1.100		10/30/2017	0.45
Goldman Sachs Bank 1 10/16/2017	38148JQX2	None	4/27/2015	240,000.00	239,520.00	1.000	240,077.35	1.069		10/16/2017	0.44
Great Midwest Bank 0.75 7/27/2016	39083PCK6	None	10/27/2014	240,000.00	240,000.00	0.750	240,076.35	0.750		7/27/2016	0.44
Marlin Business Bank 0.85 8/24/2017	57116ALG1	None	2/24/2016	248,000.00	248,000.00	0.850	247,327.28	0.850		8/24/2017	0.46
Medallion Bank 1.15 10/30/2017	58403B2L9	None	10/28/2015	245,000.00	245,000.00	1.150	245,912.56	1.150		10/30/2017	0.45
Merrick Bank 0.9 5/19/2017	59013JLK3	None	11/19/2015	240,000.00	240,000.00	0.900	239,384.44	0.900		5/19/2017	0.44
Patriot Bank 0.65 6/30/2016	70337MAH1	None	12/30/2015	240,000.00	240,000.00	0.650	239,909.27	0.650		6/30/2016	0.44
Safra National Bank 0.7 11/29/2016	78658QSF1	None	11/30/2015	245,000.00	245,000.00	0.700	244,541.46	0.700		11/29/2016	0.45
Santander Bank 0.8 2/17/2017	80280JLS8	None	2/17/2016	248,000.00	248,000.00	0.800	247,301.99	0.800		2/17/2017	0.46
TCF National Bank 0.85 8/17/2017	872278SH0	None	2/17/2016	248,000.00	248,000.00	0.850	247,335.69	0.850		8/17/2017	0.46
Wex Bank 0.85 5/19/2017	92937CDE5	None	11/20/2015	245,000.00	245,000.00	0.850	244,221.49	0.850		5/19/2017	0.45
Sub Total / Average				**6,072,000.00**	**6,071,096.25**	**0.862**	**6,067,047.83**	**0.871**			**11.25**

Description	CUSIP/Ticker	Credit Rating 1	Settlement Date	Face Amount/Shares	Cost Value	Coupon Rate	Market Value	YTM @ Cost	Next Call Date	Maturity Date	% of Portfolio
Corporate Issues											
Caterpillar Financial 1 3/3/2017	14912L5Z0	Moodys-A2	12/23/2014	1,313,000.00	1,307,603.57	1.000	1,311,621.35	1.190		3/3/2017	2.42
Chevron Corp 2.193 11/15/2019	166764AN0	Moodys-Aa1	2/26/2016	1,160,000.00	1,167,806.57	2.193	1,165,568.00	2.004		11/15/2019	2.16
General Electric Capital Corp 5.4 2/15/2017	36962G2G8	Moodys-A1	3/2/2015	1,085,000.00	1,179,514.35	5.400	1,130,754.45	0.890		2/15/2017	2.19
Internaltional Business Machs 0.45 5/6/2016	459200HL8	Moodys-Aa3	11/26/2013	1,000,000.00	996,840.00	0.450	999,930.00	0.580		5/6/2016	1.85
JP Morgan Chase & Co 2 8/15/2017	48126EAA5	Moodys-A3	2/16/2016	1,000,000.00	1,008,859.00	2.000	1,004,520.00	1.400		8/15/2017	1.87
JP Morgan Securities 0 5/13/2016	46640PED1	Moodys-P1	8/19/2015	1,000,000.00	995,235.56	0.000	998,822.85	0.653		5/13/2016	1.84
Natixis NY 0 3/18/2016	63873JCJ7	Moodys-P1	10/23/2015	1,000,000.00	998,203.33	0.000	999,770.00	0.448		3/18/2016	1.85
Royal Bank of Canada 1.2 1/23/2017	78010UNX1	Moodys-Aa3	10/2/2015	1,000,000.00	1,003,960.00	1.200	1,000,910.00	0.895		1/23/2017	1.86
Royal Bank of Canada 2.3 7/20/2016	78008TLB8	Moodys-Aa3	12/23/2014	1,190,000.00	1,217,310.50	2.300	1,196,902.00	0.830		7/20/2016	2.26
US Bankcorp 2.2 11/15/2016	91159HHB9	Moodys-A1	3/31/2015	900,000.00	920,304.00	2.200	907,416.00	0.797		11/15/2016	1.71
Sub Total / Average				**10,648,000.00**	**10,795,636.88**	**1.735**	**10,716,214.65**	**0.989**			**20.01**
LAIF											
LAIF LGIP	LGIP1002	None	4/30/2011	17,058,402.40	17,058,402.40	0.370	17,058,402.40	0.370	N/A	N/A	31.62
Sub Total / Average				**17,058,402.40**	**17,058,402.40**	**0.370**	**17,058,402.40**	**0.370**			**31.62**
Treasury											

Description	CUSIP/Ticker	Credit Rating 1	Settlement Date	Face Amount/Shares	Cost Value	Coupon Rate	Market Value	YTM @ Cost	Next Call Date	Maturity Date	% of Portfolio
T-Bond 0.25 5/16/2016	912828VC1	Moodys-Aaa	1/24/2014	1,000,000.00	994,530.00	0.250	999,810.00	0.488		5/16/2016	1.84
T-Note 0.5 6/15/2016	912828VG2	Moodys-Aaa	3/27/2014	1,000,000.00	999,530.00	0.500	1,000,270.00	0.521		6/15/2016	1.85
T-Note 0.875 1/15/2018	912828H37	Moodys-Aaa	6/1/2015	1,000,000.00	1,001,560.00	0.875	1,001,330.00	0.815		1/15/2018	1.86
T-Note 0.875 11/15/2017	912828G20	Moodys-Aaa	6/24/2015	1,000,000.00	1,001,060.00	0.875	1,001,370.00	0.830		11/15/2017	1.86
Sub Total / Average				**4,000,000.00**	**3,996,680.00**	**0.626**	**4,002,780.00**	**0.664**			**7.41**
Total / Average				**53,788,211.11**	**53,947,116.44**	**0.896**	**53,868,523.59**	**0.788**			**100**

All investment actions executed since the last report have been made in full compliance with the District's Investment Policy.
The District will meet its expenditure obligations for the next six months.
Market value sources are the LAIF, CAMP, and BNY Mellon monthly statements.
Broker/Dealers: BOSC, Inc.; Cantella & Co.; First Empire Securities; Ladenburg, Thalman & Co, Inc.; UBS Financial Services; Wells Fargo Securities.

Union Sanitary District
Board Report - Activity
Portfolio/Report Group: All Portfolios
From 1/30/2016 To 2/29/2016

Description	CUSIP/Ticker	Face Amount/Shares	Principal	Interest/Dividends	Coupon Rate	YTM @ Cost	Settlement Date	Total
BUY								
Bank Hapoalim 0.85 2/17/2017	06251AL65	248,000.00	248,000.00	0.00	0.850	0.850	2/18/2016	248,000.00
Chevron Corp 2.193 11/15/2019	166764AN0	1,160,000.00	1,167,806.57	7,137.00	2.193	2.004	2/26/2016	1,174,943.57
FHLB Step 2/26/2021-16	3130A76Q3	2,000,000.00	2,000,000.00	0.00	0.750	13.160	2/26/2016	2,000,000.00
FHLMC 0.08 8/25/2017-16	3134G8L49	1,000,000.00	1,000,000.00	0.00	0.080	0.080	2/25/2016	1,000,000.00
JP Morgan Chase & Co 2 8/15/2017	48126EAA5	1,000,000.00	1,008,859.00	55.56	2.000	1.400	2/16/2016	1,008,914.56
Marlin Business Bank 0.85 8/24/2017	57116ALG1	248,000.00	248,000.00	0.00	0.850	0.850	2/24/2016	248,000.00
Santander Bank 0.8 2/17/2017	80280JLS8	248,000.00	248,000.00	0.00	0.800	0.800	2/17/2016	248,000.00
TCF National Bank 0.85 8/17/2017	872278SH0	248,000.00	248,000.00	0.00	0.850	0.850	2/17/2016	248,000.00
Sub Total / Average		**6,152,000.00**	**6,168,665.57**	**7,192.56**				**6,175,858.13**
DEPOSIT								
CAMP LGIP	LGIP4000	3.46	3.46	0.00		0.000	2/29/2016	3.46
Sub Total / Average		**3.46**	**3.46**	**0.00**				**3.46**
INTEREST								
Bank of China NY 0.5 2/4/2016	06426TCH0	0.00	0.00	1,200.00	0.500	0.000	2/4/2016	1,200.00
Bar Harbor Bank 0.7 1/30/2017	066851TT3	0.00	0.00	142.68	0.700	0.000	2/1/2016	142.68
Bar Harbor Bank 0.7 1/30/2017	066851TT3	0.00	0.00	138.08	0.700	0.000	2/29/2016	138.08
CAMP LGIP	LGIP4000	0.00	0.00	3.46		0.000	2/29/2016	3.46
Capital One National Asso Bank 1.25 8/28/2017	14042E6B1	0.00	0.00	1,560.62	1.250	0.000	2/28/2016	1,560.62
FNMA 0.625 8/26/2016	3135G0YE7	0.00	0.00	3,125.00	0.625	0.000	2/26/2016	3,125.00
FNMA 1.25 1/30/2017	3135G0GY3	0.00	0.00	6,250.00	1.250	0.000	2/1/2016	6,250.00
General Electric Capital Corp 5.4 2/15/2017	36962G2G8	0.00	0.00	29,295.00	5.400	0.000	2/15/2016	29,295.00

Description	CUSIP/Ticker	Face Amount/Shares	Principal	Interest/Dividends	Coupon Rate	YTM @ Cost	Settlement Date	Total
Great Midwest Bank 0.75 7/27/2016	39083PCK6	0.00	0.00	152.88	0.750	0.000	2/27/2016	152.88
Medallion Bank 1.15 10/30/2017	58403B2L9	0.00	0.00	239.29	1.150	0.000	2/29/2016	239.29
Merrick Bank 0.9 5/19/2017	59013JLK3	0.00	0.00	183.45	0.900	0.000	2/19/2016	183.45
Santander Bank 0.5 2/4/2016	80280JDH1	0.00	0.00	1,200.00	0.500	0.000	2/4/2016	1,200.00
T-Note 0.375 2/15/2016	912828UM0	0.00	0.00	1,875.00	0.375	0.000	2/15/2016	1,875.00
Sub Total / Average		**0.00**	**0.00**	**45,365.46**				**45,365.46**
MATURED								
Bank of China NY 0.5 2/4/2016	06426TCH0	240,000.00	240,000.00	0.00	0.500	0.000	2/4/2016	240,000.00
Santander Bank 0.5 2/4/2016	80280JDH1	240,000.00	240,000.00	0.00	0.500	0.000	2/4/2016	240,000.00
T-Note 0.375 2/15/2016	912828UM0	1,000,000.00	1,000,000.00	0.00	0.375	0.000	2/15/2016	1,000,000.00
Sub Total / Average		**1,480,000.00**	**1,480,000.00**	**0.00**				**1,480,000.00**
WITHDRAW								
LAIF LGIP	LGIP1002	2,000,000.00	2,000,000.00	0.00		0.000	2/12/2016	2,000,000.00
LAIF LGIP	LGIP1002	2,000,000.00	2,000,000.00	0.00		0.000	2/23/2016	2,000,000.00
LAIF LGIP	LGIP1002	4,000,000.00	4,000,000.00	0.00		0.000	2/25/2016	4,000,000.00
Sub Total / Average		**8,000,000.00**	**8,000,000.00**	**0.00**				**8,000,000.00**

MONTHLY OPERATIONS REPORT FOR THE MONTH OF FEBRUARY 2016
TECHNICAL SUPPORT WORK GROUP SUMMARY

Capital Improvement Program

Thickener Control Building Improvements Project – Excavation, shoring installation, and backfill to subgrade for the new building structure has been completed. Installation of conduits, formwork, and reinforcement for the bottom slab is scheduled for March.

Fremont and Paseo Padre Lift Stations Improvements Project –No field work was performed by the contractor in February. Contractor is awaiting the fabrication of the lift pumps and electrical equipment before resuming work.

MCC and PLC Replacement Project, Phase 3 – Contractor started installation of electrical conduits at the Main Electrical Distribution Building.

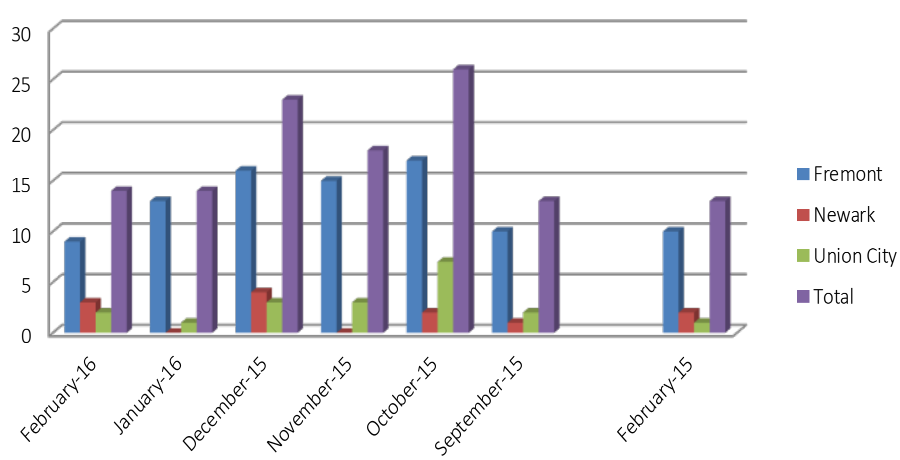
Plant Facilities Improvements Project - Contractor completed the concrete repair at the primary effluent flow meter vault near the East Blower Building. Contractor also completed the trench excavation and approximately 90% of the electrical conduit installation for the new groundwater dewatering pumps located at the Primary Clarifiers 1-4 Building.

Aeration Blower Project – Demolition of the six existing positive displacement blowers, fiberglass ductwork, and concrete equipment pads has been completed. Concrete repair work and installation of new electrical gear section is scheduled for March.

Customer Service

Trouble Calls dispatched from the Front Desk during business hours:

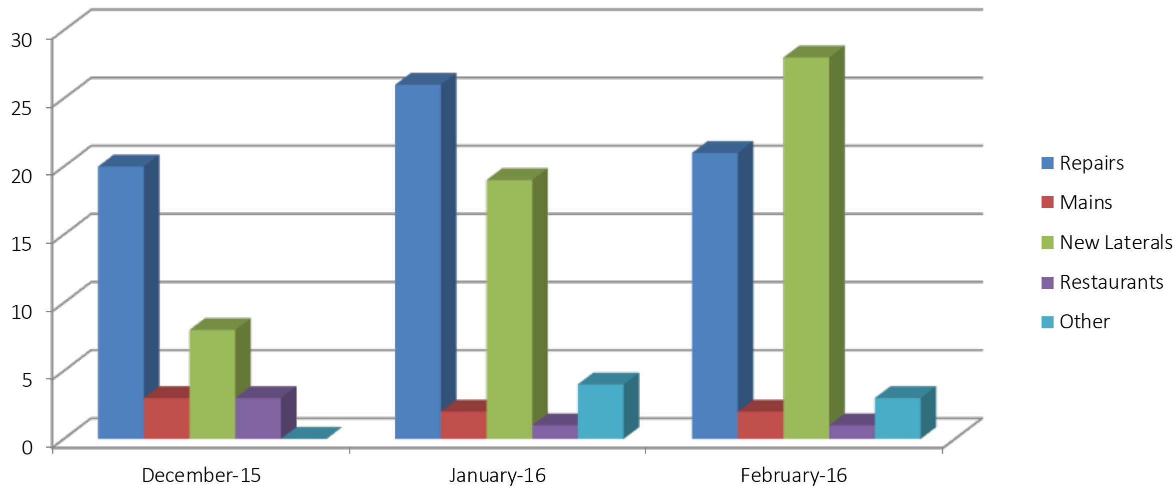
Month	Fremont	Newark	Union City	Total
February-16	9	3	2	**14**
January-16	13	0	1	**14**
December-15	16	4	3	**23**
November-15	15	0	3	**18**
October-15	17	2	7	**26**
September-15	10	1	2	**13**
February-15	*10*	*2*	*1*	*13*
			6-Month Total	**108**



Sewer Permits Issued

Month	Repairs	Mains	New Laterals	Restaurants	Other
February-16	21	2	28	1	3
January-16	26	2	19	1	4
December-15	20	3	8	3	0

New Laterals - New residential lateral connections
Other - Non-residential construction (except restaurants)



Communication & Graphics

- Prepared for and assisted at GM presentation to Tri-City Marketing Council February 25, 2016
- Website updates:
    - Updated Fact Sheet content and posted to website
    - Alvarado Boulevard lane closure information – also posted on social media
    - Uploaded signed Ordinance
    - Job Fair information (Thursday March 3, 2016) – also posted on social media
- Developed outreach plan for Alvarado-Niles Road rehabilitation project
- Fulfilled duties for Alameda County Science and Engineering Fair special prize: collection of prize monies from participating agencies, cut check to Fair for sponsorship fees
- Website Design Updates: Continued development of new District website design; met with teams to discuss content migration
- Union City Chamber of Commerce: continued participation on Board as Past President; attended annual Board retreat

Environmental Compliance

Pollution Prevention Program

USD's Environmental Compliance team conducts pollution prevention inspections to restaurants, car wash businesses, and other commercial facilities. EC also conducts inspections and enforcement for the City of Fremont's Environmental Services group. We conduct over 600 Stormwater compliance inspections every year to ensure that commercial facilities, including restaurants and auto shops, comply with City Ordinance requirements, and do not discharge pollutants to the creeks and bay.

For the past month, the EC team conducted 70 Stormwater (Urban Runoff), and 86 FOG (restaurant) inspections. During this reporting period, Inspectors identified 22 Stormwater and 28 FOG enforcement actions. Eleven of the Stormwater enforcements resulted in administrative fines ranging from $100 to $500. All of the administrative fines were for repeated violations.

Urban Runoff Inspections and Enforcements

February 2016	No. of UR Inspections	VW	WL	NOV	AF	LA	Total Enforcements		No. of Illicit Discharge/s	
	70	7	0	4	11	0	22		% enforcement	31%

FOG Inspections and Enforcements

February 2016	No. of FOG Inspections	VW	WL	NOV	AF	NOD	Total Enforcements		% enforcement	31%
	96	14	16	0	0	0	30			

Enforcements:

VW –Verbal Warning *WL – Warning Letter* *NOV – Notices of Violation*
AF – Administrative Fine *LA – Legal Action* *NOD – Notice of Deficiency*
AO – Administrative Order *C&D – Cease & Desist Order* *SNC – Significant Non Compliance*

Dental Inspections, School Outreach, and Plant Tours

# of Dental Inspections	# of School Outreach Events including Sewer Science	# of Plant Tours
4	19	1

Industrial Pretreatment

The Industrial Pretreatment program has a number of pending permits as shown in the table below. USD inspectors are working with each of these companies to establish permitted industrial discharges.
One permit was issued to Gooch and Housego. This facility manufactures optical communications equipment. It will be a Class II permit.

Pending Permits

New Industrial/Groundwater Permits	Groundwater/Temporary
Pacific States Environmental Contractors, Inc.	Groundwater
Mountain Cascade, Inc.	Groundwater

Permits Issued

Company Name	Date Permit Issued
Environmental Business Solutions	2/26/15

Industrial Closures

Company Name	Date of Closure
None	

Reports (Annual & Semi-Annual Pretreatment Report, Union City Report, etc.)

Report Name	Date Report Completed and Submitted
2015 Annual Pretreatment Report	2/25/16

Enforcement Action

IU Name & Nature of Business	Comments	City	Parameters Violated	Discharge concentration (mg/L)	USD/Fed Limit Violated (mg/L)	Enforcement (1)
Batory Foods	Permit discharge violation	Union City	Copper	2.3	USD limit of 2.0 mg/L	NOV N16-002
Transcontinental Newspaper printing	Permit Condition G2.12(a) violation	Fremont	Best Management Practice	NA	NA	WL-16-003
Silevo, Inc.	Process Self - monitoring excursion	Fremont	Copper	5 mg/L	Fed daily max: 3.38 mg/L, USD Local: 2.0 mg/L	WL-16-004

(1) WL – Warning Letter *NOV – Notices of Violation* *AO – Administrative Order*
C&D – Cease and Desist Order *SNC – Significant Non Compliance* *EM – Enforcement Meeting*

Other - Training, Special Meetings, Conferences, Special Recognition, IAC (topics)

Activity	Date of Event	Attendees
CWEA P3S Conference, Riverside, CA	2/29-3/2/16	Marian Gonzalez

Engineering/Construction

No. of projects under construction: 7

	Construction Projects	Capital ($1000)	Scheduled Completion	Completed Scope	Completed Time	Comments for Feb. 2016 Activities
1.	Thickener Control Building Improvements Project – Curtis	$9,990	12/16	67%	68%	Excavation, shoring installation, and backfill to subgrade has been completed.
2.	Newark Backyard SS Relocation – Phase 2 – Rollie/Al B.	$2,100	10/15	100%	100%	Board accepted project and staff filed the Notice of Completion.
3.	Miscellaneous Spot Repairs Phase VI – Andrew	$324	10/15	100%	100%	Board accepted project and staff filed the Notice of Completion.

	Construction Projects	Capital ($1000)	Scheduled Completion	Completed Scope	Completed Time	Comments for Feb. 2016 Activities
4.	Fremont and Paseo Padre LSs Improvement - Derek	$2,801	10/16	4%	38%	No field work performed this month. Awaiting delivery of lift pumps and electrical equipment before resuming work.
5.	MCC and PLC Replacement Project, Phase 3 – Thomas	$869	12/16	3%	16%	Contractor started installation of electrical conduits at the Main Electrical Distribution Building.
6.	Plant Facilities Improvements Project – Thomas	$1,570	1/17	5%	10%	Contractor completed concrete repairs at primary effluent flow meter vault and continued to work on the conduit installation for the new ground-water dewatering pumps.
7.	Aeration Blower Project – Curtis	$1,065	8/16	12%	33%	Demolition of positive displacement blowers, ductwork, and concrete equipment pads has been completed.

<u>Design/Study</u>

No. of projects in design/study phase: <u>16</u>

	Design/Study Projects	Capital ($1000)	Scheduled Completion	Completed Scope	Completed Time	Comments for Feb. 2016 Activities
1.	Alvarado Basin Master Plan Wet Weather and Condition Assessment - Rollie	$90	6/16	0%	33%	Condition assessment review began. Flow meters in place.
2.	Seismic Study - Raymond	$210	6/15	99%	100%	Board workshop to present study findings is scheduled on March 21st.
3.	Cast Iron Lining Phase VI – Andrew	In-House	10/15	99%	99%	Design 99% complete. Construction is scheduled for FY18.
4.	Alvarado-Niles Road SS Rehabilitation – Chris E.	$248	2/16	100%	100%	Design complete. Project advertised. Bids open March 1st.

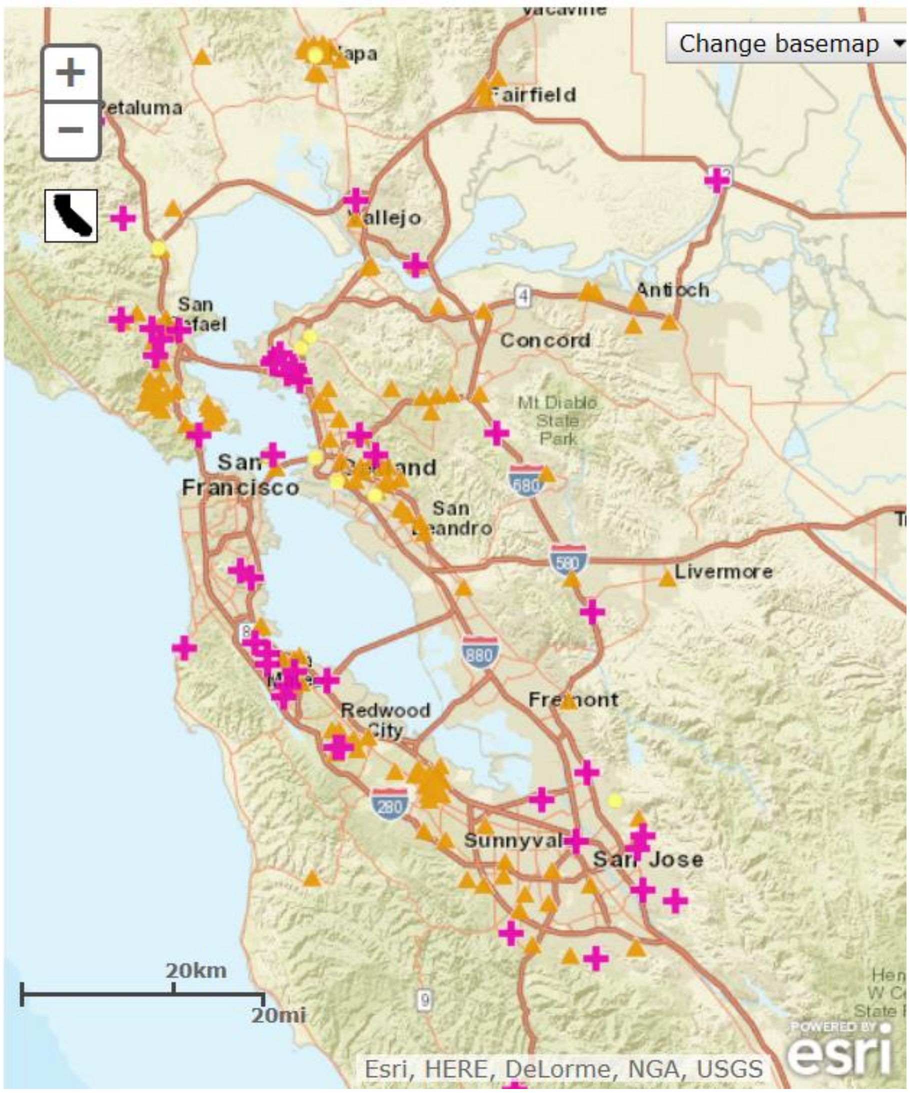
	Design/Study Projects	Capital ($1000)	Scheduled Completion	Completed Scope	Completed Time	Comments for Feb. 2016 Activities
5.	Pine St. Easement Improvements – Chris E.	$87	2/16	100%	100%	Design complete. Project advertised. Bids open March 15th.
6.	Plant Site Use Study – Curtis	$238	1/16	97%	100%	Study in progress. Revised life cycle cost technical memorandum to be submitted in March.
7.	Plant Solids System / Capacity Assessment – Curtis	$238	6/16	28%	44%	Chapter 1 – Basis of Analysis submitted and under review.
8.	Generator Controls Upgrade Project – Raymond	$72	2/16	99%	100%	Final Pre-design report in review.
9.	Hypo Tank and PVC Pipe Replacement at OCB and NPS - Thomas	$160	12/15	100%	100%	Final design completed. Project to advertise in April.
10.	Newark Backyard SS Relocation Phase 3 – Al/Rollie	$160	02/16	90%	100%	Final comments on 100% Plans and Specs sent to WY. Bid Set received.
11.	Recycled Water Feasibility Study Update – Chris E.	$130	07/16	63%	63%	Study in progress. Grant approved.
12.	FM Manways Corrosion – Chris E.	$14	6/16	40%	48%	Pre-design report under review.
13.	FMC Building – Chris E.	$82	03/16	99%	99%	Final reports in progress.
14.	Sludge Degritter System Project – Kevin	$180	06/16	50%	50%	50% Design Submittal in review.
15.	Cogeneration Improvements Project - Derek	$275	02/16	100%	100%	Bid documents were completed and the project advertised on February 16th. Bids open on March 15th.
16.	Aeration Basins 5-7 Diffuser Membranes Replacement Project – Kevin	In-House	2/16	100%	100%	Bid Documents complete. Project advertised. Bids open March 16th.

COLLECTION SERVICES
ACTIVITIES REPORT
January and February 2016

Progress/Accomplishments

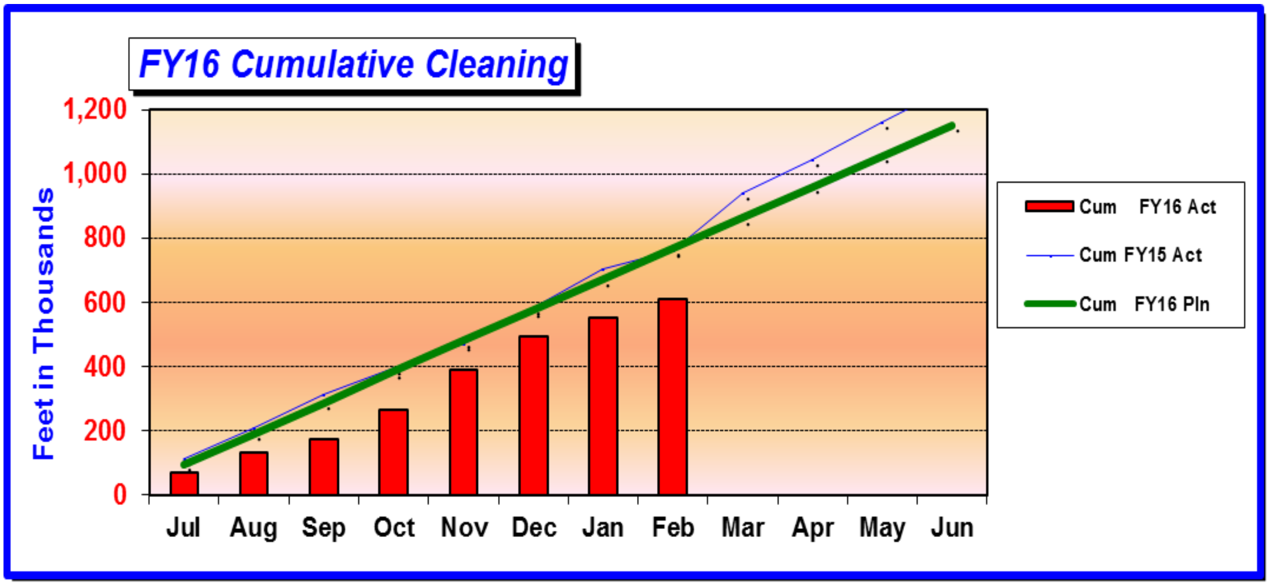
- Completed 11 miles of cleaning and 4.3 miles of televising of sewer lines in January
- Completed 11.5 miles of cleaning and 4.0 miles of televising of sewer lines in February
- Responded to 17 service request calls in January and 23 In February
- Completed a total of 43 main repairs in January and 13 in February
- The District had one Category 3 Spill (350 gallons) on January 20th on Witherly Ln. in Fremont.

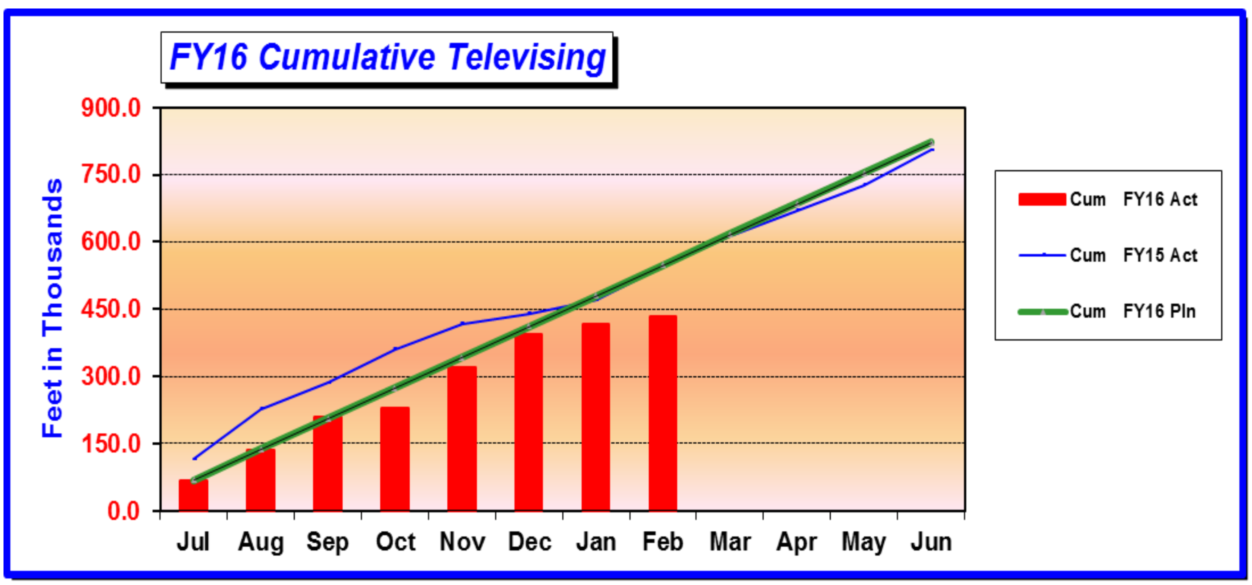
Bay Area Spill Events for Jan. & Feb.



This map represents spills reported by other agencies for the same time period.

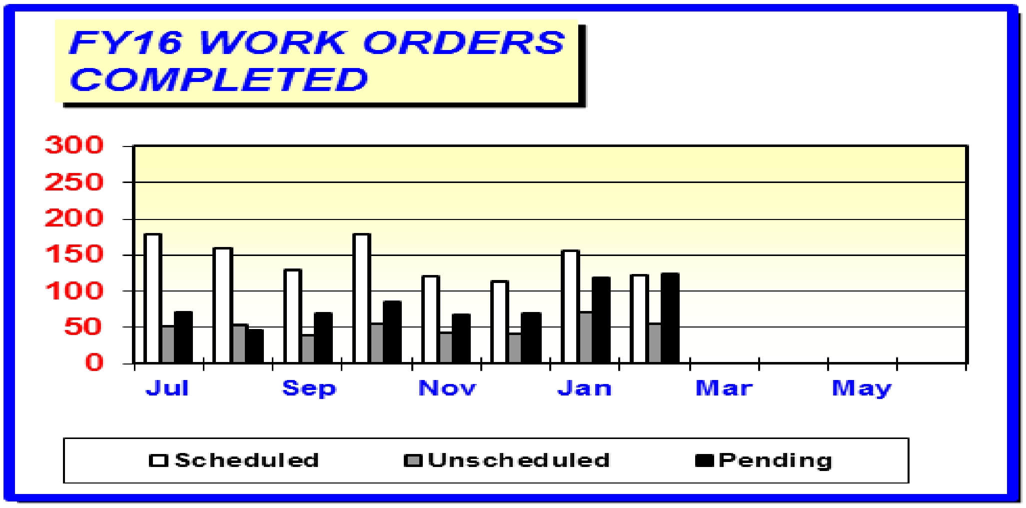
Performance Measures



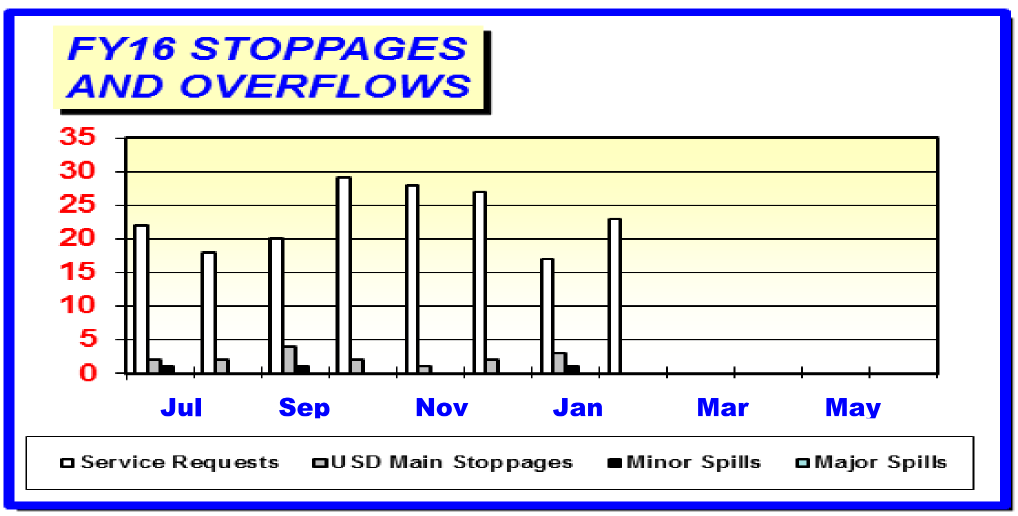


Other Collection Services Status Data:

Support Team Work Order Status:



C/S Maintenance Status:



FMC
Activities Report
February 2016

Progress/Accomplishments

- Completed 94% of preventive maintenance activities for the month of February
- Completed 150 corrective maintenance work orders for the month of February
- Modified programming of IPS headgate to account for loss of comm. or power w/NPS during Boost
- Completed Phone System Upgrade in the Plant (work done for IT)
- Began Cheese tank modifications for Odor Control
- Repaired Odor Scrubber 17 motor (Thickener Odor Scrubber)
- Rebuilt APS No. 1

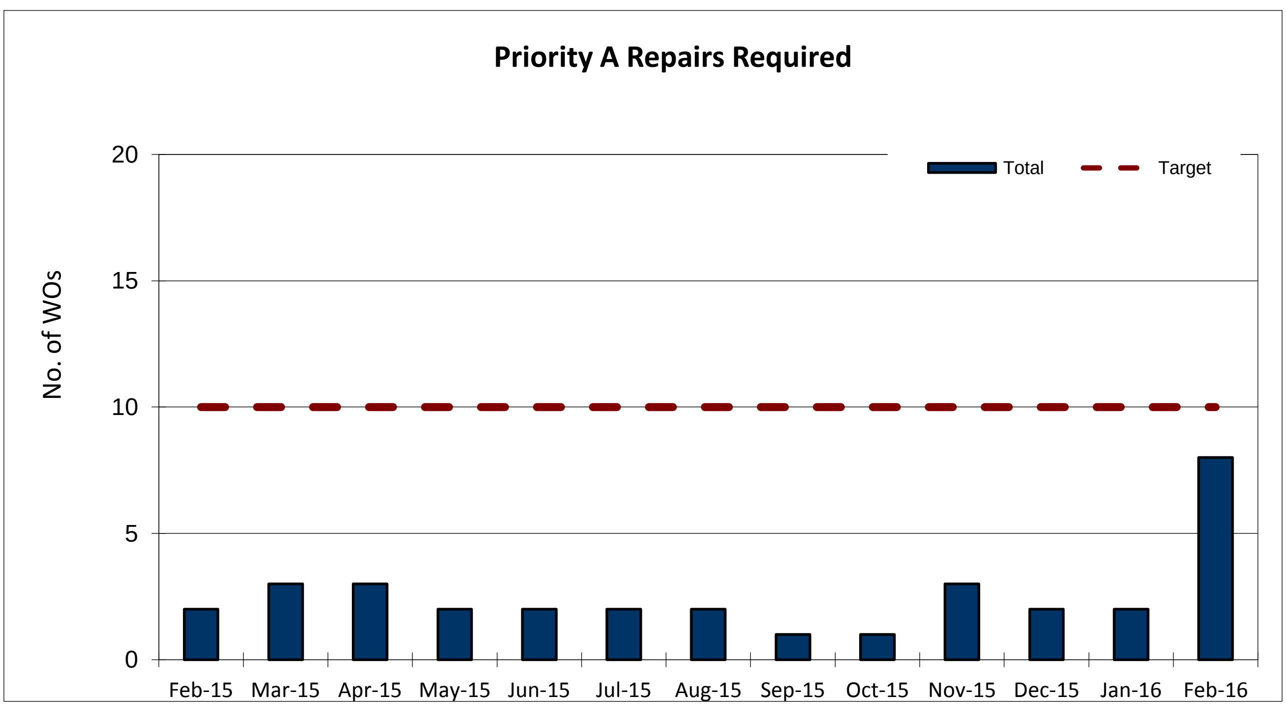
Future Planning

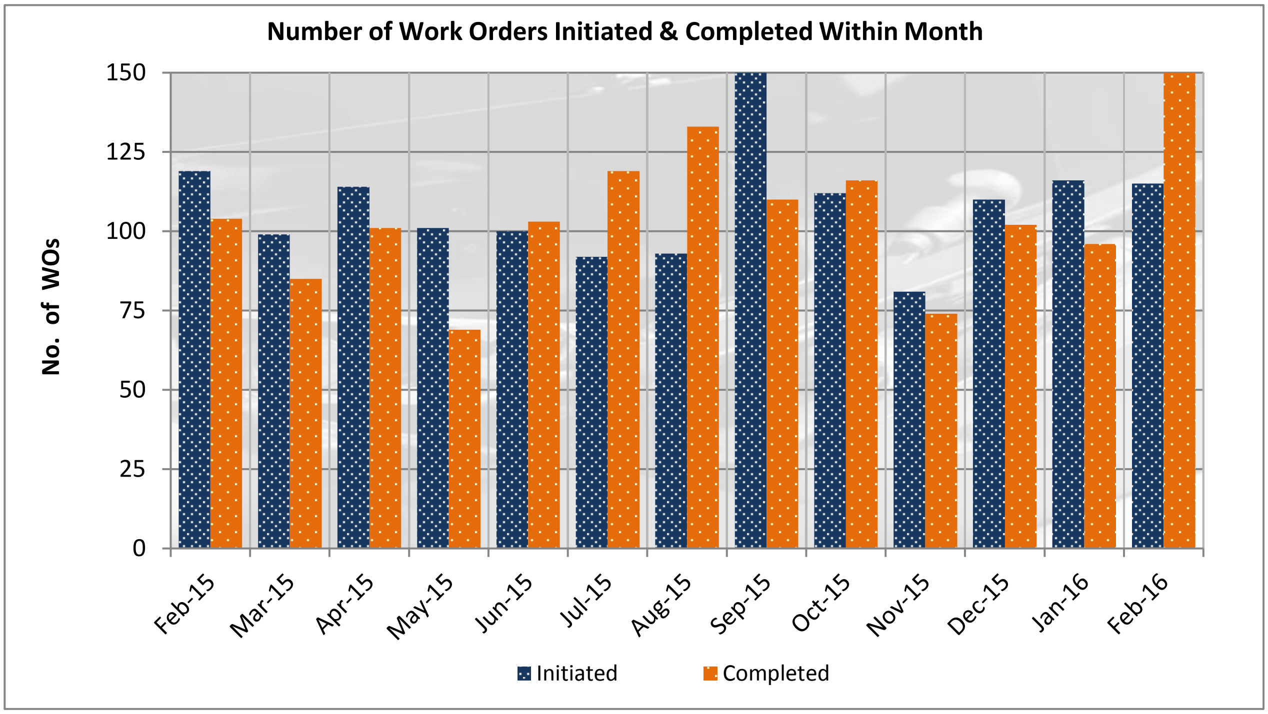
- Complete the Annual Cathodic Protection Survey
- Complete Site Waste Quarterly PMs
- Complete 10,000 Hour Servicing for Cogen Engines No. 1 and No. 2
- Installation of New Main Breaker Power Meter
- Replacement of PLC 99
- Rebuild of Secondary Digester Chopper Pump No. 1
- Rebuild of APS No. 4

Other

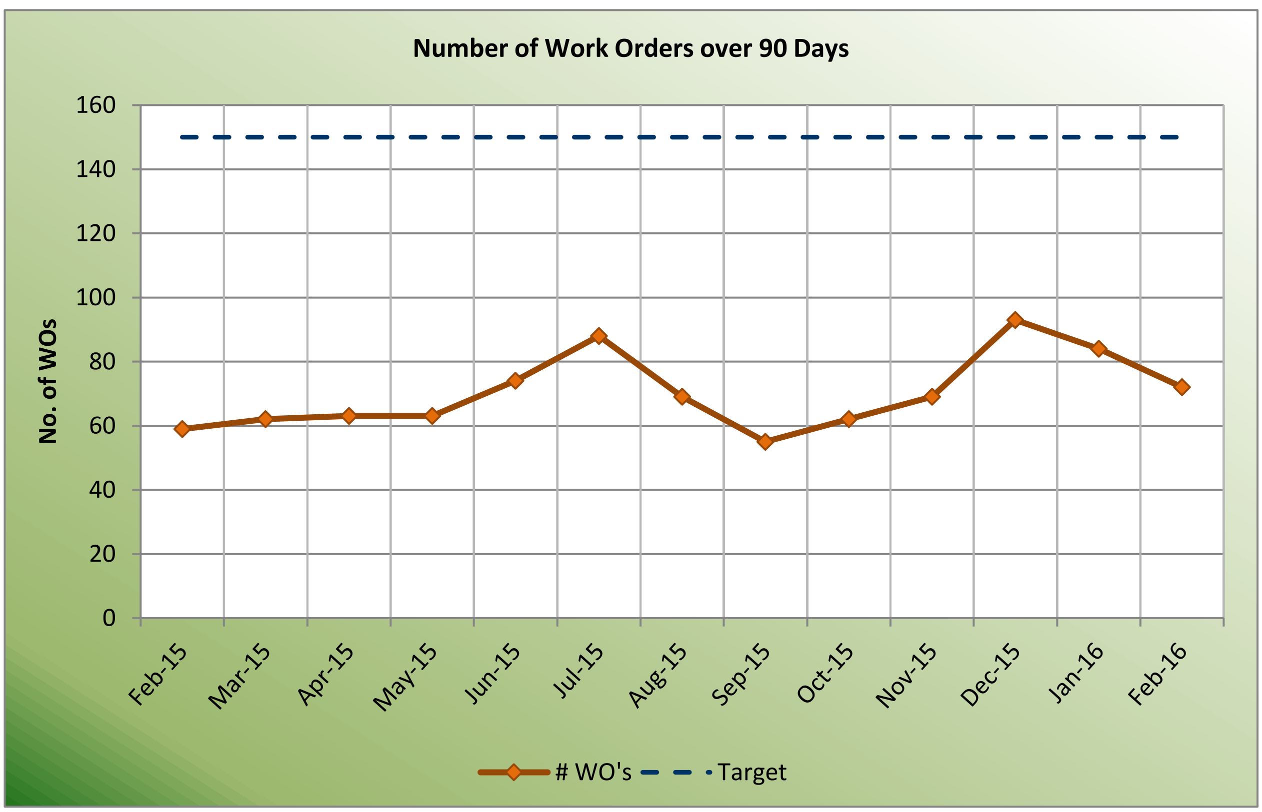
- One elelctrian attended Instrument training in Southern California

Performance Measurements





Number of Work Orders Initiated & Completed Within Month
No. of WOs
150
125
100
75
50
25
0
Feb-15
Mar-15
Apr-15
May-15
Jun-15
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15
Dec-15
Jan-16
Feb-16
Initiated
Completed



Number of Work Orders over 90 Days
No. of WOs
160
140
120
100
80
60
40
20
0
Feb-15
Mar-15
Apr-15
May-15
Jun-15
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15
Dec-15
Jan-16
Feb-16
WO's
Target

Treatment & Disposal
Activities Report
February 2016

Progress/Accomplishments

- Maintained 100% compliance with NPDES permits.
- Completed 99% preventive maintenance activities for the month of February.
- Worked with EBDA and EOA on the preparation of the EBDA NPDES permit renewal application.
- Provided testing results for the Hayward Marsh Mixing Zone Study and worked with RMC on the preparation of the Hayward Marsh NPDES permit renewal application.
- Completed annual reporting for the Old Alameda Creek as required by the NPDES permit.
- Completed annual biosolids reporting to EPA as required under 40 CFR Part 503.
- Evaluated the economics of single forcemain operation for future planning.
- Added activated carbon odor control to the codigestion pilot plant.
- Conducted QAI interviews for TPO Process Coach candidates.
- Provided data and reviewed the basis of analysis for the Solids System Capacity Accessment.

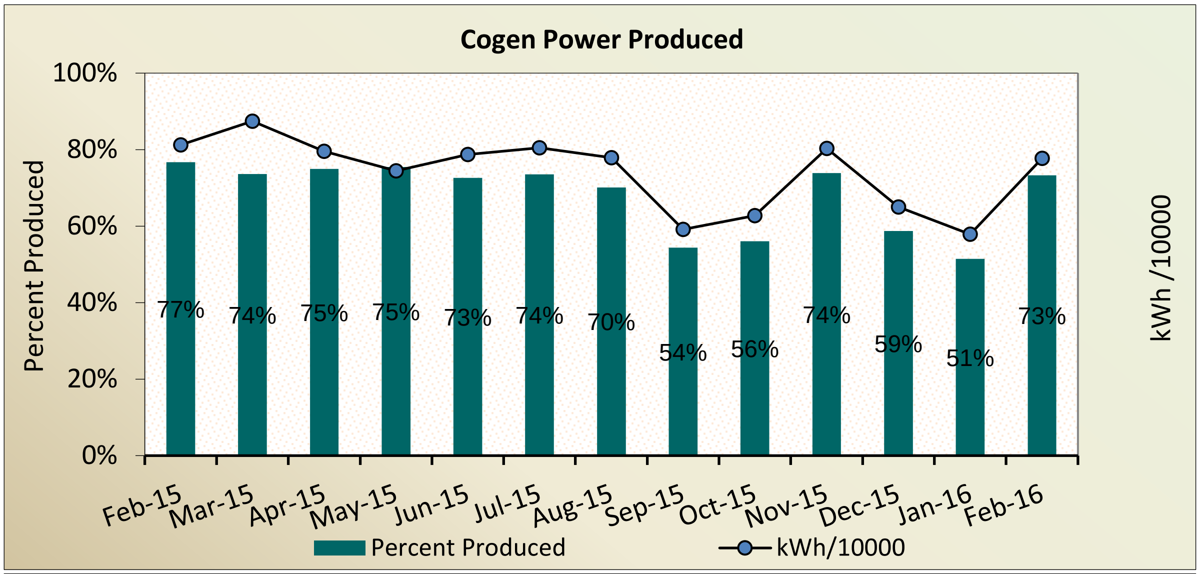
Future Planning

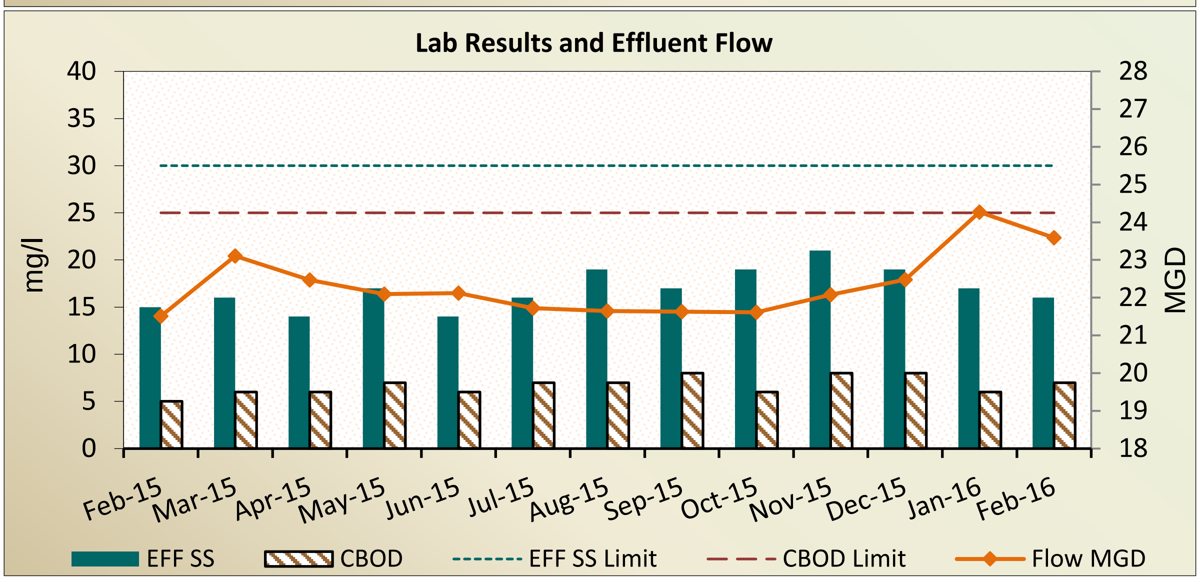
- Meet with EBRPD to discuss their concerns regarding mosquito abatement in the Hayward Marsh.
- Research reclaimed water alternativies for the treatment plant.
- Continue to participate in the EBDA permit renewal.
- Complete the Hayward Marsh Mixing Zone Study and the NPDES permit application.

Other

- Cogen system produced 73% of power consumed for the month of February.

Performance Measurements





USD's Final Effluent Monthly Monitoring Results				
Parameter	**EBDA Limit**	**Dec-15**	**Jan-16**	**Feb-16**
Copper, µg/l	78	4.5	5.6	5.2
Mercury, µg/l	0.066	0.00440	0.00579	0.00488
Cyanide, µg/l	42	< 3	< 3	< 3
Ammonia- N, mg/L (Range)	130	34 - 43	31 - 39	34 - 42
Dioxin-Toxicity Equivalent (TEQ), µg/l	2.8×10^{-8}	not tested	not tested	0
Fecal Coliform, MPN/100ml (Range)				
• 5-Sample Geometric Mean	500	29 - 67	34 - 63	25 - 78
• 11-Sample 90th Percentile	1100	93 - 140	140 - 140	124 - 147
Enterococci *				
• 5-Sample Geometric Mean	242	31 - 85	75 - 135	41 - 134
E = Estimated value, concentration outside calibration range. For SIP, E = DNQ, estimated concentration.				
* Enterococci values are the weekly concentration range not the 5-Sample Geometric Mean range.				

DATE: March 21, 2016

MEMO TO: Board of Directors - Union Sanitary District

FROM: Paul R. Eldredge, General Manager/District Engineer

SUBJECT: Agenda Item No. 8 - Meeting of March 28, 2016
Consider Request Received from Alameda County Water District to Support Boundary Modification and Provide Direction to Staff as Necessary

Recommendation

Consider a request received from the Alameda County Water District (ACWD) to support a boundary modification between ACWD and the City of Hayward. Provide direction to staff as necessary.

Background

ACWD is planning to submit a boundary modification request to the Department of Water Resources (DWR) for their northern boundary of the Niles Cone Groundwater Basin. Although this boundary discrepancy has been known for some time, the recently adopted Sustainable Groundwater Management Act has led to the formal request to DWR.

Staff has been in contact with representatives from both ACWD and the City of Hayward on several occasions since receiving this request in late February. The intent was to see if there was an opportunity for an informal resolution to this matter. As of the writing of this staff report that does not appear likely.

USD supports ACWD's efforts in providing potable water service to the Tri-City area. However, USD also has a professional and contractual relationship with the City of Hayward. Thus, it would be staff's recommendation that USD take a neutral position on this matter and not submit any letters on anyone's behalf.

Attachment
ACWD informational packet

ALAMEDA COUNTY WATER DISTRICT

43885 SOUTH GRIMMER BOULEVARD • FREMONT, CALIFORNIA 94538
(510) 668-4200 • FAX (510) 770-1793 • www.acwd.org

February 17, 2016

Mr. Paul Eldredge, General Manager
Union Sanitary District
5072 Benson Road
Union City, CA 94587-2508

Dear Mr. Eldredge:

Subject: Basin Boundary Modification Request to Correct the Northern Boundary of the Niles Cone Groundwater Basin

On February 11, 2016, the Alameda County Water District (ACWD) Board of Directors adopted a resolution to begin the process to correct the northern boundary of the Niles Cone Groundwater Basin (attached). Accordingly, ACWD plans to submit a request to the Department of Water Resources (DWR) for a basin boundary modification to ensure that the boundary line for the Niles Cone Groundwater Basin includes the entire groundwater basin area that ACWD has been managing since ACWD was formed over 100 years ago.

Since the digital map will play an increasingly critical role in the implementation of the recently adopted Sustainable Groundwater Management Act and the Niles Cone Groundwater Basin contributes approximately 40% of the annual water supply for the cities of Fremont, Newark, and Union City, correcting the map is an important element of continuing to ensure a reliable water supply of the tri-cities area.

The DWR emergency regulations regarding basin boundary modifications require that ACWD submit its formal request for a basin boundary modification by March 31, 2016.

We would appreciate Union Sanitary District's support for ACWD's request to DWR. For your convenience, we attached a draft letter of support for your consideration. If you believe the Union Sanitary District's Board of Directors would want to support ACWD's request, I would be happy to come to a Board meeting.

Please call me at (510) 668-4201 if you would like more information or if you would like to discuss this request.

Sincerely,

R Shaver

Robert Shaver
General Manager

mam/jm
Enclosures
cc: Steven Inn, ACWD
Michelle Myers, ACWD

RESOLUTION NO. 16-010

OF BOARD OF DIRECTORS OF ALAMEDA COUNTY WATER DISTRICT MAKING DECISION TO EXPLORE A BASIN BOUNDARY MODIFICATION TO CORRECT THE NORTHERN BOUNDARY OF THE NILES CONE GROUNDWATER BASIN

WHEREAS, the Alameda County Water District (District) was formed in 1914 as the first county water district created under the County Water District Law (California Water Code Section 30000 et seq.) for the purpose of protecting the water in the Niles Cone Groundwater Basin and conserving the water of the Alameda Creek Watershed;

WHEREAS, as early as 1920, the District began to impound winter flows in Alameda Creek in order to increase groundwater recharge within the Niles Cone Groundwater Basin;

WHEREAS, since 1962, when supplemental water was first purchased, the District has been engaged in a continuous water replenishment/recharge program in order to sustainably manage the quality and quantity of water in the Niles Cone Groundwater Basin;

WHEREAS, the Niles Cone Groundwater Basin is a critical water system facility for the District because it provides a reliable supply of water as well as an emergency source of supply and it provides reserve storage to augment dry year supplies;

WHEREAS, the District manages the Niles Cone Groundwater Basin pursuant to its statutory authority under the County Water District Law, the Replenishment Assessment Act of the Alameda County Water District (Chapter 1942 of the Statutes of 1961, as amended in 1970 and 1974), the Alameda County Water District Groundwater Protection Act (California Water Code Section 31142.20 et seq.), as well as agreements with the cities of Fremont, Union City, Newark, and Hayward (in the context of the detachment of certain areas for purposes of allowing Hayward to provide potable water service in certain areas while the District retained authority to manage the groundwater basin);

WHEREAS, the Niles Cone Groundwater Basin boundary always has been defined and understood to match the service boundary of the District;

WHEREAS, the northern boundary of the Alameda County Water District and subsequently the Niles Cone Groundwater Basin has been described consistently in documents starting as early as 1917 in the "Engineer's Report on Investigation on the Niles Cone 1916-1920" and on the map compiled and extended by the State Water Commission of California, and is also described in the following documents:

- Department of Water Resources Bulletin 118-1
- Department of Water Resources Bulletin 118-80
- Department of Water Resources Bulletin 118 – Update 2003 (Text description is correct, but the digital map is incorrect)
- 1951 Alameda County Water District Boundary Description and Map prepared by the Alameda County Surveyor
- 1979 Alameda Local Agency Formation Commission Sphere of Influence of Alameda County Water District in Eden Township (Excludes areas located within the City of Hayward that were detached from Alameda County Water District in 1973)
- 2005 Alameda Local Agency Formation Commission Final Municipal Service Review Volume II- Utility Services and Resolution No. 2006-03 (Excludes areas located within the City of Hayward that were detached from Alameda County Water District in 1973 and proposed to reduce the Sphere of Influence of the areas detached from Alameda County Water District in 2000 and 2004)
- The District's Groundwater Monitoring Report (1961-2014)
- The Survey Report on Groundwater Conditions (1962-2015)

WHEREAS, only one document shows the northern boundary of Niles Cone Groundwater Basin differently than it is described in every other document – while the Department of Water Resources (DWR) 2003 version of Bulletin 118 describes the northern boundary of the Niles Cone Groundwater Basin as the " boundary of the Alameda County Water District (ACWD), and southern portions of the City of Hayward", the map with the graphical representation included in Bulletin 118 does not match the textual description of this northern boundary as it does not extend all the way to the northern boundary of the District and does not include the areas located within the City of Hayward that were detached from Alameda County Water District in 1973, 2000, and 2004. The pre-2003 Bulletin 118 map, although drawn on a regional scale, showed the Niles Cone Groundwater Basin northern boundary lining up with the northern boundary of the District as it extends in a general northerly direction from east to west;

WHEREAS, when becoming aware of the discrepancy in the 2003 version of Bulletin 118 between the map and the textual description, District staff notified DWR to request that the map be corrected; however, to date, DWR has not revised the Bulletin 118 map to match the textual description;

WHEREAS, Alameda County Water District is identified within the Sustainable Groundwater Management Act as an agency created by statute to manage groundwater and deemed to be the exclusive local agency within its statutory boundaries to comply with Sustainable Groundwater Management Act (California Water Code Section 10723 et seq.); and

WHEREAS, DWR has adopted emergency regulations regarding the process for seeking groundwater basin boundary modifications under the Sustainable Groundwater Management Act and staff recommends that the District explore a formal boundary modification to correct the northern boundary of the Niles Cone Groundwater Basin through that process.

NOW, THEREFORE, BE IT RESOLVED that the BOARD OF DIRECTORS of the ALAMEDA COUNTY WATER DISTRICT has decided to explore a basin boundary modification for the Niles Cone Groundwater Basin so that the boundary of the Niles Cone Groundwater Basin includes the outer boundary extent of the Alameda County Water District and the areas located within the City of Hayward that were detached from Alameda County Water District in 1973, 2000, and 2004, as shown on the drawing attached to this Resolution, and that District staff is authorized to take all actions to explore the groundwater basin boundary modification to correct the northern boundary of the Niles Cone Groundwater Basin.

PASSED AND ADOPTED this 11th day of February, 2016, by the following vote:

AYES: Directors Weed, Gunther, Koller, Sethy, and Huang

NOES: None

ABSENT: None

Judy C. Huang, President
Board of Directors
Alameda County Water District

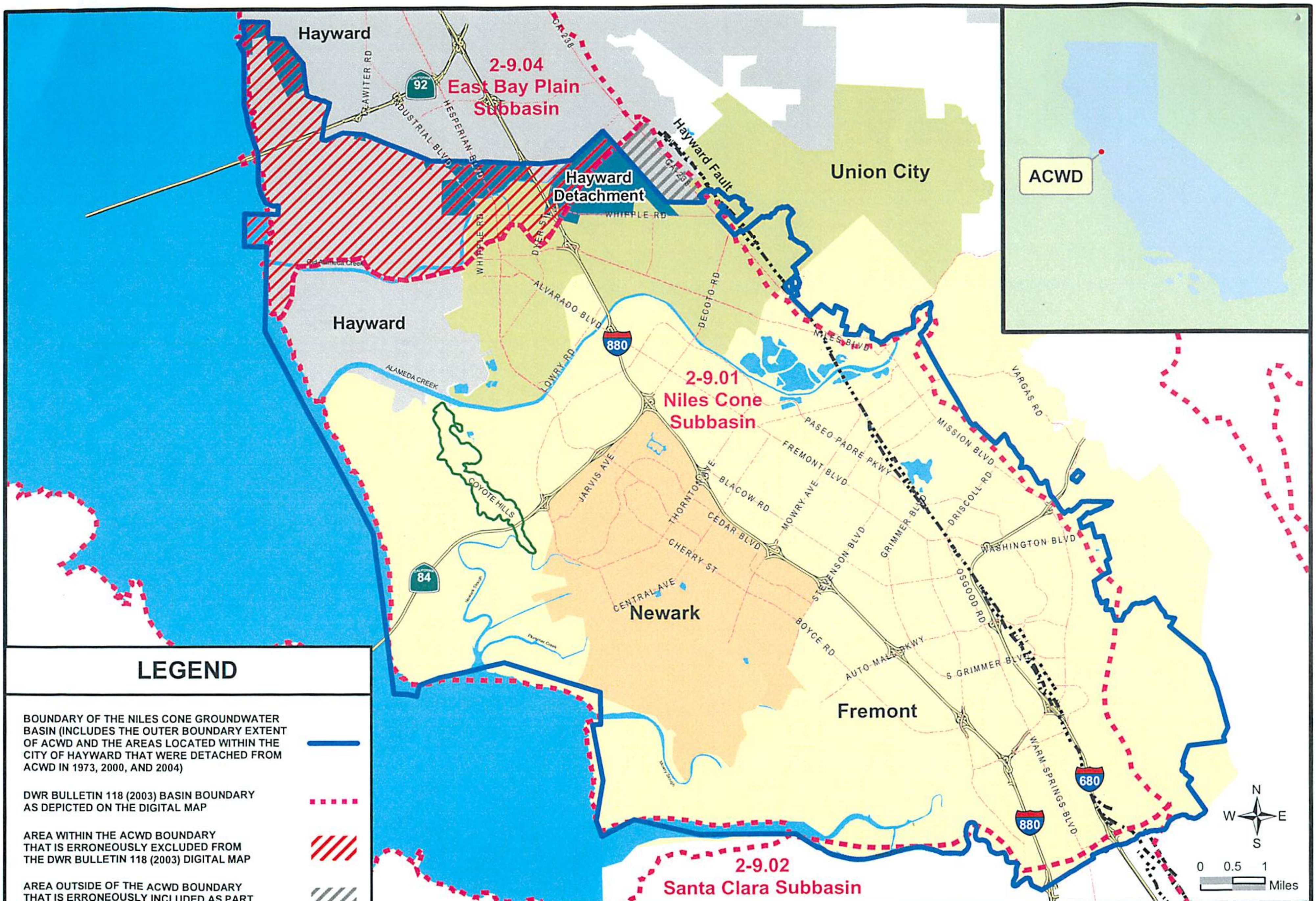
ATTEST:

Andrew Warren, Assistant District Secretary
Alameda County Water District
(Seal)

APPROVED AS TO FORM:

Patrick T. Miyaki, Attorney
Alameda County Water District

11858251.1



NILES CONE GROUNDWATER BASIN BOUNDARY

February 17, 2016

Mr. Robert Shaver
General Manager
Alameda County Water District
43885 South Grimmer Boulevard
Fremont, CA 94538

Dear Robert:

Subject: Alameda County Water District's Basin Boundary Modification Request to Correct the Northern Boundary of the Niles Cone Groundwater Basin

Thank you for providing information regarding the Alameda County Water District's (ACWD) basin boundary modification request to correct the northern boundary of the Niles Cone Groundwater Basin.

We appreciate ACWD's ongoing efforts to sustainably manage and protect the Niles Cone Groundwater Basin and to provide a reliable supply of high quality drinking water to the residents of the cities of Fremont, Newark, and Union City. Union Sanitary District fully supports the submission of ACWD's basin boundary modification request to the Department of Water Resources and we look forward to continuing the close working relationship we have to achieve our mutual goal of protecting our community's groundwater resources.

ACWD may submit this letter of support to the Department of Water Resources with ACWD's basin boundary modification request.

Sincerely,

Paul Eldredge
General Manager, Union Sanitary District

cc: Steven Inn, ACWD
Michelle Myers, ACWD

DATE: March 21, 2016

MEMO TO: Board of Directors - Union Sanitary District

FROM: Paul R. Eldredge, General Manager/District Engineer

SUBJECT: Agenda Item No. 9 - Meeting of March 28, 2016
Discuss Senate Bill 1213, Biosolids Grant Program, and Consider Sending a letter of Support

Recommendation

Discuss Senate Bill 1213, which establishes a Biosolids Grant Program at the California Energy Commission (CEC), and consider sending a letter of support. This bill has been introduced by Senator Wieckowski for consideration in the current legislative term.

Background

USD is a member of the BAB2E Coalition, which is comprised of 19 wastewater agencies throughout the Bay Area. The BAB2E Coalition is dedicated to facilitating regional solutions and exploring new technologies for a higher and better use of biosolids. USD and the BAB2E Coalition are seeking to stimulate the development of cutting edge technology to convert biosolids into a more usable commodity, including clean energy. SB 1213 is attempting to further this important objective in the Bay Area and the State.

SB 1213 appropriates $12 million for a 50 percent state and local cost sharing partnership for initial construction and operation costs for a regional biosolids project in correlation with BAB2E. Additionally, SB 1213 recognizes that using Greenhouse Gas Reduction Funds to convert biosolids to a more usable commodity is a worthy public policy goal that ought to be expanded and replicated at wastewater agencies throughout the state. Thus, this bill also appropriates $20 million to the CEC to develop and manage a grant program for this purpose.

Staff is recommending USD provide a letter of support for this bill. The draft letter, which is attached for Board review and consideration, has been initially drafted for the General

Managers signature. However, it very easily can be modified for the Board President's signature if so desired by the Board.

Attachments: Draft SB 1213 Letter of Support
SB 1213 Fact Sheet
SB 1213 Bill

The Honorable Bob Wieckowski, Chair
Senate Environmental Quality Committee
State Capitol
Sacramento, CA 95814

Re: SB 1213 Biosolids to Energy -- SUPPORT

Dear Senator Wieckowski,

Union Sanitary District (USD) is pleased to support your SB 1213, which would appropriate $12 million to the BAB2E Coalition for a regional biosolids project, and create an ongoing program at the California Energy Commission (CEC) to fund additional biosolids projects throughout the state.

USD is a member of the BAB2E Coalition, which is comprised of 19 wastewater agencies throughout the Bay Area. The BAB2E Coalition is dedicated to facilitating regional solutions and exploring new technologies. This effort, in large part, is to preclude a possible biosolids management crisis as land application and landfill disposal of biosolids becomes less of an option over time. In searching for a higher and better use of biosolids, USD and the BAB2E Coalition are seeking to stimulate the development of cutting edge technology to convert biosolids into a more usable commodity, including clean energy. SB 1213 substantially furthers this important objective in the Bay Area and the state.

SB 1213 addresses the challenge caused by the fact that cutting-edge technology to convert biosolids will in the short term be more expensive to our ratepayers than land application, the current disposal practice. SB 1213 does so by appropriating $12 million for a 50 percent state and local cost sharing partnership for the initial construction and operation costs for a regional biosolids project in the Bay Area. Thus, SB 1213 will encourage these local agencies to take steps to further the state's goals related to reducing greenhouse gas emissions, reducing vehicle miles traveled, and developing renewable energy.

Additionally, SB 1213 recognizes that using Greenhouse Gas Reduction Funds to convert biosolids to a more usable commodity is a worthy public policy goal that ought to be expanded and replicated at wastewater agencies throughout the state by appropriating $20 million to the CEC to develop and manage a grant program for this purpose. More widespread use of this technology by wastewater agencies throughout California will result in more significant reductions of greenhouse gas emissions.

Thank you very much for your leadership on this important issue.

Sincerely,

Paul Eldredge, General Manager
Union Sanitary District

cc: Members of the Senate Energy and Communications Committee
Consultant, Senate Energy, Utilities & Communications Committee
Republican Consultant

SB 1213 (Wieckowski)
Biosolids

THIS BILL

SB 1213 provides a direct appropriation to the Bay Area Biosolids to Energy Coalition. The bill also creates a Biosolids-to-Energy Program at the California Energy Commission (CEC) and continuously appropriates funding for its goals.

PROBLEM

Biosolids are a renewable source of energy and can be converted to clean energy without incineration.

California Wastewater Agencies generate approximately 2.75 million wet tons of biosolids per year. In the San Francisco Bay Area alone, the hauling of biosolids results in approximately 1 million trucking miles and consumption of 153,000 gallons of diesel per year.

Biosolids management consists of agricultural land application and landfill disposal, both of which directly and indirectly generate greenhouse gas emissions. Neither agricultural applications nor landfill are long-term sustainable operations. Agricultural land application is discouraged by many local governments, leading to even more landfill disposal and methane emissions. Under current law, landfills need to reduce by 75%, so local wastewater operations need solutions other than hauling to multiple jurisdictions, including out of state.

A 2007 CA Research Bureau report indicates that disposal of biosolids will continue to be more affordable than conversion to energy, so a state program supporting conversion to energy is necessary to stimulate growth of emerging technologies. Unfortunately, Biosolids-to-Energy does not fit into any existing funding programs through the CEC or CalRecycle.

SUMMARY

The Governor's 2016-17 budget proposes a $3.1 billion expenditure of Cap and Trade Revenues.

California has adopted a goal to reduce landfill waste by 75% by 2020. Governor Brown has called upon the state to reduce fuel consumption by 50% and reduce GHG emissions by 40% by 2030 from 1990 levels. Governor Brown has also called upon the state to increase the amount of electricity derived from renewable sources to 50%.

By creating a Biosolids-to-Energy Program at the CEC, SB 1213 will help accomplish all four of these goals: Biosolids-to-Energy reduces landfill waste, it reduces vehicle miles traveled, it reduces GHG emissions, and it can provide the state with greater renewable sources of energy.

Biosolids are generated locally and biosolids to energy projects can be deployed regionally as part of an expanded distributed generation project, serving local microgrids. Conversion of biosolids to clean energy has been proven on a small-scale. A public-private partnership between local agencies, state government, and private enterprise to demonstrate a commercial-scale Biosolids-to-Energy project is consistent with California's leadership in promoting and creating cutting-edge renewable technology.

SUPPORT

Bay Area Biosolids to Energy Coalition

OPPOSITION

None on File.

STATUS

Introduced 2/18/16

SENATE BILL No. 1213

Introduced by Senator Wieckowski
(Coauthors: Senators Glazer and Hill)
(Coauthors: Assembly Members Baker, Campos, Chiu, Frazier, Gordon, Levine, Mullin, and Ting)

February 18, 2016

An act to add Section 39719.3 to the Health and Safety Code, and to add Chapter 7.8 (commencing with Section 25680) to Division 15 of the Public Resources Code, relating to renewable energy, and making an appropriation therefor.

LEGISLATIVE COUNSEL'S DIGEST

SB 1213, as introduced, Wieckowski. Renewable energy: biosolids: matching grants.

Existing law requires the State Energy Resources Conservation Commission to administer various grant programs, including a program to provide incentives for liquid fuels fermented from biomass and biomass-derived resources.

The California Global Warming Solutions Act of 2006 designates the State Air Resources Board as the state agency charged with monitoring and regulating sources of emissions of greenhouse gases. The act authorizes the state board to include the use of market-based compliance mechanisms to achieve its goals. Existing law requires all moneys, except for fines and penalties, collected by the state board from the auction or sale of allowances as part of a market-based compliance mechanism to be deposited in the Greenhouse Gas Reduction Fund.

This bill would require the commission to develop and implement the Biosolids to Clean Energy Grant Program to provide 50% matching funds to local wastewater agencies for biosolids to clean energy capital projects. The bill would continuously appropriate $20,000,000 annually from the fund to the commission for purposes of the program. The bill would, for the 2016–17 fiscal year, appropriate an additional $12,000,000 from the fund to the Bay Area Biosolids to Energy Coalition for the design and construction of a regional biosolids to clean energy project located in the San Francisco Bay Area.

Vote: majority. Appropriation: yes. Fiscal committee: yes. State-mandated local program: no.

The people of the State of California do enact as follows:

SECTION 1. The Legislature finds and declares all of the following:

(a) California wastewater agencies generate 2.75 million tons of biosolids each year.

(b) Biosolids management primarily consists of agricultural land application and landfill disposal.

(c) Agricultural land application is discouraged by many local governments, leading to increased landfill disposal and methane emissions. Most agricultural land application sites are located far from urban areas and wastewater treatment facilities, causing biosolids to be trucked many miles, resulting in increased petroleum consumption and greenhouse gas emissions.

(d) The Legislature, pursuant to Section 41780.01 of the Public Resources Code, established the policy goal of the state that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by year 2020, and annually thereafter.

(e) In his 2015 inaugural address, the Governor called upon the state to reduce fuel consumption by 50 percent by 2030.

(f) In the San Francisco Bay area, hauling of biosolids by only 19 wastewater agencies contributes to one million trucking miles and consumption of 153,000 gallons of petroleum.

(g) Chapter 547 of the Statutes of 2015 requires electric utilities, by 2030, to increase to 50 percent the amount of electricity derived from renewable resources.

(h) Biosolids are a renewable resource for energy generation and can be converted to energy and useful byproducts without incineration using various technologies, including, but not limited to, supercritical water oxidation technology, which utilizes oxygen and high pressure to create steam or hot water which, in turn, can generate electricity.

(i) Biosolids are generated locally and biosolids to energy projects can be deployed regionally as part of expanded regional distributed generation projects serving local microgrids.

(j) California leads the nation in innovation and research and development. Conversion of biosolids to energy has been proven on a small scale. A public-private partnership among local agencies, state government, and private enterprises to demonstrate a commercial scale biosolids to energy project is consistent with California's leadership in promoting and creating renewable energy.

SEC. 2. Section 39719.3 is added to the Health and Safety Code, to read:

39719.3. Notwithstanding Section 13340 of the Government Code, the sum of twenty million dollars ($20,000,000) annually is hereby continuously appropriated from the fund to the State Energy Resources Conservation and Development Commission for the Biosolids to Clean Energy Grant Program developed pursuant to Chapter 7.8 (commencing with Section 25680) of Division 15 of the Public Resources Code.

SEC. 3. Chapter 7.8 (commencing with Section 25680) is added to Division 15 of the Public Resources Code, to read:

Chapter 7.8. Biosolids to Clean Energy Grant Program

25680. For purposes of this chapter, "biosolids to clean energy capital project" or "project" means a capital project that uses biosolids to generate useful heat energy or electricity, liquid or gaseous fuels, or useful byproducts using nonincineration technology in a manner or location that also reduces the emissions of greenhouse gases as compared with biosolids management practices in use at the time of the enactment of this chapter, such as through a reduction in trucking biosolids to offsite landfill or land application sites.

25681. The commission shall develop and implement the Biosolids to Clean Energy Grant Program to award, on a competitive basis, grants to local wastewater agencies providing 50-percent matching funds for biosolids to clean energy capital projects.

25682. An applicant for a grant shall submit to the commission an application on a form prescribed by the commission. The applicant shall specify the sources of the matching funds for the project.

25683. In awarding a grant pursuant to this chapter, the commission shall consider the following:

(a) The cost-effectiveness of the project.

(b) Any other factors deemed appropriate by the commission.

25684. The commission shall implement this chapter using moneys appropriated pursuant to Section 39719.3 of the Health and Safety Code and from any other moneys appropriated for purposes of this chapter.

SEC. 4. (a) In addition to the amount appropriated pursuant to Section 39719.3 of the Health and Safety Code, for the 2016–17 fiscal year, the sum of twelve million dollars ($12,000,000) is hereby appropriated from the Greenhouse Gas Reduction Fund, established pursuant to Section 16428.8 of the Government Code, to the State Energy Resources Conservation and Development Commission to provide 50-percent matching funds to the Bay Area Biosolids to Energy Coalition for the design and construction of a regional biosolids to clean energy project located in the San Francisco Bay area.

(b) For purposes of this section, “biosolids to clean energy project” means a project that generates electricity by creating steam or hot water through the conversion of biosolids without incineration using supercritical water oxidation technology utilizing oxygen and high pressure.

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UNION SANITARY DISTRICT

DATE: March 18, 2016

MEMO TO: Board of Directors - Union Sanitary District

FROM: Paul Eldredge, General Manager/District Engineer
Sami Ghossain, Technical Services Manager
Michelle Powell, Communications and Intergovernmental Relations Coordinator

SUBJECT: Agenda Item No. 10 - Meeting of March 28, 2016
Consider and Provide Direction Regarding Proposed Content for Spring 2016 Newsletter

Recommendation

Staff requests the Board consider and provide direction regarding proposed content for the District's Spring 2016 newsletter.

Background

It was collectively agreed upon during previous workshops that it would be the goal of the District to publish its newsletter in the spring of each year. Additionally, it is intended to utilize the newsletter as the District's annual courtesy rate notice beginning with the Spring 2017 issue.

The intent of this agenda item is to obtain agreement on topics to be included in the Spring 2016 newsletter to allow staff to develop articles and prepare an initial draft layout. Due to regular and special meetings already scheduled, as well as time constraints of the printing process, staff believe consideration and direction regarding proposed content would be most efficiently accomplished during a Board meeting. The initial draft layout with articles will be reviewed at a newsletter workshop, which staff proposes be held in mid-April. Staff will reach out to the Board separately to schedule the workshop.

After careful consideration, staff proposes the following topics for the Spring 2016 newsletter:

Page One: Alvarado-Niles Road Sanitary Sewer Rehabilitation Project
Mobile Technologies Project

Page Two: Budget in Brief
Taking Care of Your Sewer Lateral
Did You Know? (Environmental tips, total gallons treated annually, etc.)

Alternative topics:
Reclaimed Water
Classroom presentations
New website (as an article or mention)

Staff requests the Board consider and provide direction regarding proposed content for the District's Spring 2016 newsletter.

DATE: March 21, 2016

MEMO TO: Board of Directors - Union Sanitary District

FROM: Paul R. Eldredge, General Manager/District Engineer
Sami E. Ghossain, Manager of Technical Services
Raymond Chau, CIP Coach
Chris Elliott, Associate Engineer

SUBJECT: Agenda Item No. 11 – Meeting of March 28, 2016
Consider Confirming and Declaring the Need to Continue the Emergency Action to Repair the 33-Inch Sewer on Alvarado Boulevard and Update on the Repairs

Recommendation

Receive update on repairs and adopt motion by a four-fifths vote finding that there is a need to continue the action and confirming and declaring the continuance of the emergency.

Background

On Wednesday, October 14th, a sinkhole surfaced at the intersection of Alvarado Blvd. and New Haven St. in Union City; see attached location map. The sinkhole was amplified by a subsequent water main break, which was repaired by Alameda County Water District on the same day. Union Sanitary District's 20-foot deep, 33-inch pipeline and manhole located in the intersection were inspected and found to be damaged.

Given the potential for the sinkhole to affect the health and safety of the community and the possible impact to the District facilities, it was determined that an emergency existed and the necessary steps were taken to meet the emergency, secure the site, and start the repair process. Compliance with competitive bidding procedures typically takes a number of months and would not have allowed prompt action to be taken, as required to safeguard the public and District facilities.

Therefore, District staff called upon the District's emergency contractor, McGuire & Hester Inc., for assistance. Immediate repairs to the damaged sewer facilities could not be accomplished due to the high groundwater level and unstable soil conditions. For safety and traffic reasons and to avoid additional damage to the street, McGuire & Hester quickly stabilized the site by backfilling the sinkhole.

At the Board Meeting of November 9, 2015, the Board adopted a resolution confirming and declaring the need to continue an emergency and authorizing emergency expenditures to allow staff to proceed with expeditious repairs to the 33-inch sewer main, and related appurtenances (e.g. manhole and overflow pipe) on Alvarado Boulevard. Subsequently, at the Board Meetings of November 23, 2015, December 14, 2015, January 11, 2016, January 25, 2016, February 8, 2016, February 22, 2016, and March 14, 2016, the Board found that there was a need to continue the action and confirmed and declared the continuance of the emergency. The Board meeting of December 28, 2015 was cancelled.

Update on the Alvarado Boulevard Sewer Main Repairs

Trunk Sewer Repair

Efforts to control the high groundwater level and unstable soils were unsuccessful and a trenchless repair is not feasible. Therefore, the damaged facilities will be repaired by open-cut method. The approach is to construct a deep shaft around the manhole and pipeline by installing interlocking steel sheet piles, and then to excavate the soil within the shaft down to the pipe. The deep steel sheet piles will stop the inflow of groundwater into the shaft and allow the necessary cleaning, inspection, and repairs to proceed unhindered.

The six phases envisioned for this repair work are as follows:

> *Phase 1 – PG&E (Complete):* On December 23rd, PG&E disconnected and removed a gas line to facilitate the excavation necessary to complete the final repairs.
>
> *Phase 2 – Shoring, Jet Grouting, & Excavation (Complete):* On December 28th, McGuire & Hester mobilized to begin Phase 2 work. First, seventy (70) feet of Alameda County Water District's (ACWD's) water line which was in conflict with the shoring plan was removed for the duration of the work; it will be replaced once the final repairs are complete. Sheet pile installation around the excavation area then began on January 4, 2016, and was completed on January 8, 2016. The sheet pile installation was followed by jet grouting, a process during which grout is injected by pressure into the soils surrounding the sheet piles to seal up gaps and prevent water intrusion into the shaft. Jet grouting work began on January 12, 2016, and was completed on January 29, 2016. The jet grouting was followed by excavation of the shaft itself, which began on February 1, 2016.
>
> On February 2, 2016, excavation work was nearing completion when groundwater began to infiltrate from the bottom of the pit. Before the pit could be dewatered and excavation

work could be resumed, the challenges presented by the groundwater had to be properly addressed. A groundwater dewatering system, supplemental to the one originally installed in October 2015, and comprised of four, 40-foot deep wells, was installed on February 11, 2016. The system pumped for several days and on February 16, 2016, the pit was dewatered and excavation work resumed. On February 19, 2016, a small volume of groundwater was found to be infiltrating from the pipe bedding zone, but was successfully suppressed by point grouting and pit excavation was completed the same day.

Simultaneously during the final stages of Phase 2 and early stages of Phase 3, Collection Services staff fully cleaned and televised the existing pipeline structures upstream and downstream of the sinkhole manhole to make ready for rehabilitation work.

Phase 3 – Sewer Repair (Complete): Repair work began on February 22, 2016. The damaged manhole along with several feet of pipe on each side of it were completely removed, and then the aggregate foundation and bedding for the new manhole and pipeline were constructed. On February 29 and March 1, 2016, over 700 feet of the existing pipeline upstream and downstream of the damaged manhole was rehabilitated by sliplining. By March 3, 2016, a new concrete manhole base had been poured and the rehabilitated pipelines were connected. On March 11 and 14, 2016, the new sliplined pipeline was grouted into place inside the old pipeline. The following day, March 15, 2016, Collection Services staff televised the new pipeline for final acceptance.

Phase 4 – Backfill (Complete): Pit backfill began on March 3, 2016, even as the sewer repair and rehabilitation activities were finishing, and was completed on March 18, 2016. The new manhole was constructed simultaneously as backfill proceeded upwards in the pit.

Phase 5 – Utilities (In Progress): Before the project may be completed, several utilities must be re-connected. On March 18, 2016, McGuire and Hester began replacement of 70 feet of ACWD's water line removed during Phase 2. This work is still in progress. Afterwards, PG&E will re-install and reconnect the gas line that was disconnected and removed in Phase 1. Finally, a storm drain line temporarily relocated to facilitate shaft excavation will also be replaced.

Phase 6 – Site Restoration: Final restoration work includes reconstructing the damaged street area and re-paving the street and returning to normal traffic operations.

District staff is coordinating closely with the City of Union City, New Haven Unified School District, Union City Police Dept., Alameda County Fire Dept., ACWD, and contractor McGuire & Hester to accomplish the work in an efficient and safe manner.

Traffic Control

Due to the large size and location of the repair shaft, the resulting available lane width on westbound Alvarado Blvd. will be less than 11 feet. Thus, the City's preference is that westbound Alvarado Blvd. between Fair Ranch Rd. and Fredi St. be closed entirely to facilitate the work and provide the staging area needed by McGuire & Hester. This closure went into effect on December 28, 2015, and will continue through the duration of the project, which is expected by late April, weather permitting.

At least one eastbound lane on Alvarado Blvd. will be open at all times. Left turns into and out of New Haven St. will be closed. Westbound transit buses and vehicular traffic are being detoured. The New Haven Unified School District requested help directing traffic at the school entrance near Fredi St. and Horner St. during the street closure, and staff has worked with the Union City Police Dept. and McGuire & Hester to provide the appropriate traffic control. The fire truck at Fire Station #32 will continue to be able to enter and exit the fire station safely.

Sewer Bypass

Mcguire & Hester crews removed plugs and returned to normal sewer flows in the new pipeline on March 16, 2016. Collection Services staff finished cleaning all surcharged sewers upstream of the overflow pipe on March 19, 2016. Efforts by Collection Services staff to control odors have concluded now that normal sewer flows are resumed.

Public Information

Staff continues to develop and issue press releases about the field work on an as-needed basis only. These updates are disseminated via the "What's New" page on the District website, as well as through USD social media.

A CMS (changeable message sign) traffic board, as well as other traffic signs, remain on Alvarado Blvd. notifying motorists of the shutdown of westbound Alvarado Blvd. Additionally, flyers were distributed on December 23, 2015, to the businesses at Alvarado Blvd. and Fair Ranch Rd and the apartment complex to the west, notifying them of the same.

Review of Emergency Status

After the determination of an emergency pursuant to Public Contract Code section 22050, the Board is required to review the status of the emergency action at each subsequent meeting until the emergency action is terminated, and authorize continuation of the emergency action by a four-fifths vote. This staff report seeks such authorization. As discussed above, the sinkhole continues to affect traffic and people that live, work, or commute in the area. Furthermore, District facilities need to be protected and there is a need to complete the actions described above as expeditiously as possible. Therefore, staff believes that there is a need to continue the emergency action.

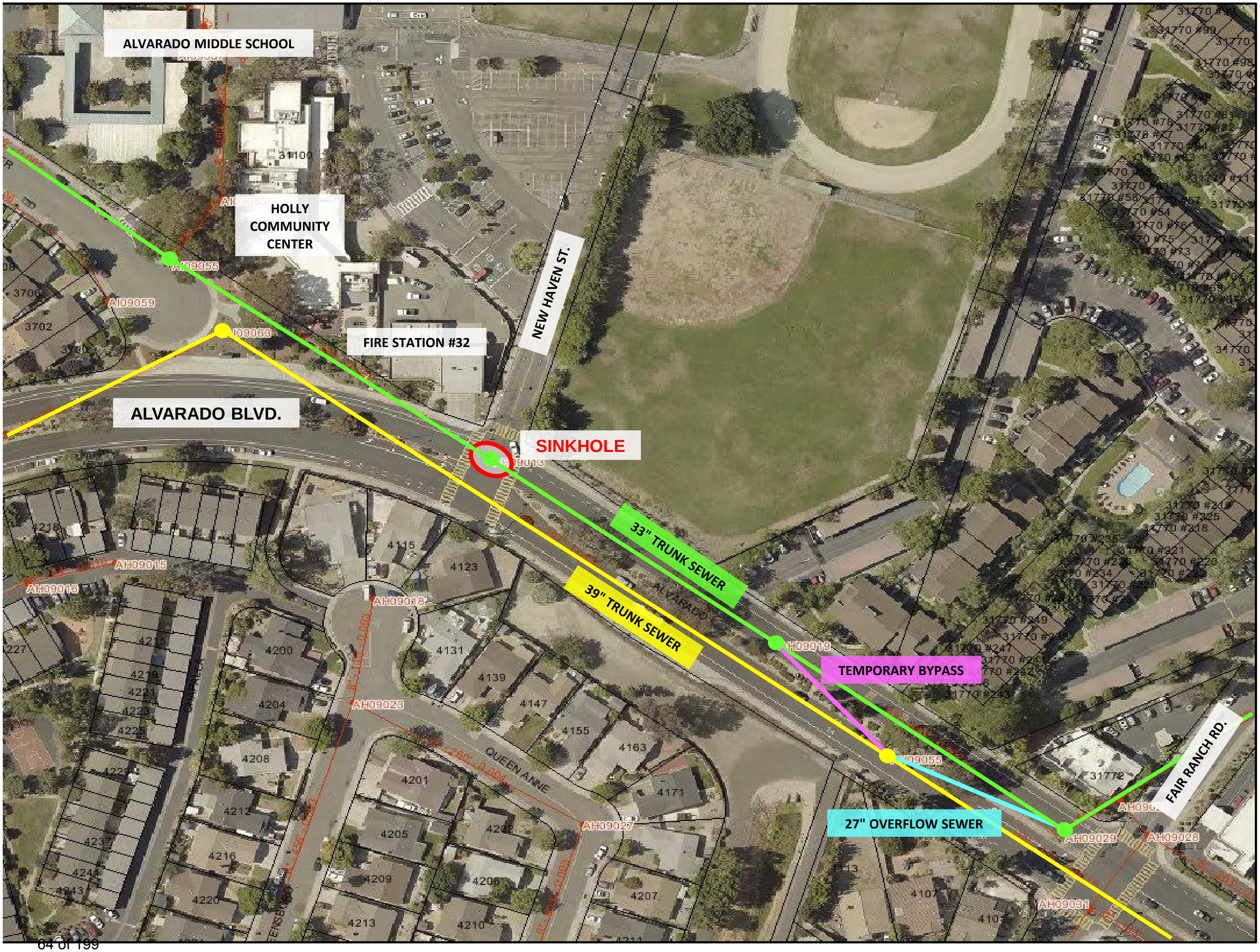
Staff will continue to bring a similar item to the Board until the emergency is terminated.

PRE/SEG/RC/CE:ks

Attachment: Exhibit A – Location Map

EXHIBIT A - LOCATION MAP

ALVARADO BLVD. SEWER REPAIR



DATE: March 21, 2016

MEMO TO: Board of Directors - Union Sanitary District

FROM: Paul R. Eldredge, General Manager/District Engineer
Sami E. Ghossain, Manager of Technical Services
Raymond Chau, CIP Coach
Kevin Chun, Associate Engineer

SUBJECT: Agenda Item No. 12 - Meeting of March 28, 2016
Award the Construction Contract for the Aeration Basins 5-7 Diffuser Membranes Replacement Project

Recommendation

Staff recommends the Board take the following actions:

(1) Approve D.W. Nicholson Corporation's request to withdraw its bid and for the return of its bid bond;

(2) Award the construction contract for the Aeration Basins 5-7 Diffuser Membranes Replacement Project to GSE Construction Company, Inc. in the amount of $312,487.

Funds for the project have been budgeted in the Renewal and Replacement Fund and Capacity Fund as Project No. 800-466.

Background

The District operates a fine bubble aeration system in Aeration Basins 5 through 7. The system distributes air to promote the growth of microorganisms that feed on organic matter in the wastewater. The system consists of a network of pipes and 9-inch diameter rubber disc diffuser membranes. The diffuser membranes have an anticipated life of five to seven years. The current diffuser membranes were installed in 2004 and 2005 and are past their useful service life. Replacement of the diffuser membranes in Aeration Basins 5 through 7 will allow the District to continue to effectively treat wastewater.

Project Scope

The Project's major elements are as follows:

- Cleaning of Aeration Basins 5, 6, and 7 prior to the removal of the existing diffuser membranes.

- Replacement of the existing diffuser membranes with new diffuser membranes within Aeration Basins 5, 6, and 7.

- Testing of the completed diffuser membranes.

- Repair of existing piping system if found to be damaged after each aeration basin is removed from service. This repair will be tracked and paid on a time and material basis.

Bid Results

Staff advertised the Project for bids on February 18, 2016. Staff received and opened three (3) bids on March 16, 2016. The bid results are summarized in the table below.

Contractor	Total Contract Price
GSE Construction Company Inc. Livermore, CA	$312,487
D.W. Nicholson Corporation (DWN) Hayward, CA	$386,544
Pacific Infrastructure Corporation Pleasanton, CA	$559,000

Two of the three bids came in below the Engineer's Estimate of $400,000. GSE Construction Company, Inc. was the apparent low bidder with a bid of $312,487, which is 22% below the Engineer's Estimate. After reviewing DWN's bid, staff discovered that DWN did not accurately enter the total amounts of Bid Items 4 and 5 using the actual unit prices written by DWN for each item. The bid documents stipulate that "if the product of a unit price and an estimated quantity does not equal the extended amount quoted, the unit price shall govern, and the correct product of the unit price and the estimate quantity shall be deemed to be the amount bid." After this adjustment, DWN became the apparent low bidder as summarized in the table below and shown in further detail in the attached Table 1. DWN was notified of the updated bid results.

Pursuant to the Public Contract Code Section 5103, DWN requested to withdraw its bid by claiming that it made a clerical error in the bid that made it materially different than intended. Based on a review of DWN's bid and request to withdraw its bid, staff agreed that DWN's error was clearly clerical in nature. Staff recommends the Board approve DWN's request to withdraw its bid and for the return of its bid bond. With this action, GSE Construction Company, Inc. is the lowest responsive bidder for the Project.

Contractor	Total Contract Price
D.W. Nicholson Corporation (DWN) Hayward, CA	**$312,340
GSE Construction Company Inc. Livermore, CA	$312,487
Pacific Infrastructure Corporation Pleasanton, CA	$559,000

** Adjusted based on unit price bid

Staff reviewed GSE Construction Company, Inc.'s bid and determined it to be the lowest responsive and responsible bid, which GSE Construction Company, Inc. has verified and confirmed. GSE Construction Company, Inc. is a General Engineering Class A licensed contractor who has successfully constructed numerous wastewater projects in the San Francisco Bay Area. GSE has previously completed the Newark Pump Station Upgrade Project and the Boyce Road Lift Station Project and is currently constructing the Thickener Control Building Improvements Project at the District's Alvarado Wastewater Treatment Plant.

Bid Alternates

No bid alternates are included in this Project.

Construction

The Project's construction period will be one hundred thirty (130) calendar days with an estimated completion of all project elements by September 2016. Construction management and inspection services will be performed internally by District Staff.

Staff recommends the Board take the following actions:

(1) Approve D.W. Nicholson Corporation's request to withdraw its bid and for the return of its bid bond;

(2) Award the construction contract for the Aeration Basins 5-7 Diffuser Membranes Replacement Project to GSE Construction Company, Inc. in the amount of $312,487.

PRE/SEG/RC/KC:ks

Attachments: Figure 1 – Site Plan
Table 1 – Bid Tabulation
Attachment 1 – DWN's Letter
Contractor Agreement

FIGURE 1 – AERATION BASIN 5-7 DIFFUSER MEMBRANES REPLACEMENT PROJECT

Table 1
Bid Tabulation (Adjusted)

Aeration Basins 5-7 Diffuser Membranes Replacement Project
Bid Tabulation
Bid Opening: 2:00 pm, March 16, 2016
Engineer's Estimate: $400,000

Bid Item No.	Bid Item	Unit	Estimated Quantity	D.W. Nicholson (Hayward, CA)*		GSE Construction (Livermore, CA)		Pacific Infrastructure (Pleasanton, CA)	
				Unit Bid Price	Total Bid Price	Unit Bid Price	Total Bid Price	Unit Bid Price	Total Bid Price
1	All work required by the Contract Documents except that included in Bid Item Nos. 2 to 7	LS	1	LS	$161,900	LS	$76,000	LS	$23,755
2	Replacement and Testing of Aeration Basin 5 Diffuser Membranes in Grid Type 1, 2, 3, and 4 Tanks	EA	2,331	$24	$55,944	$27	$62,937	$70	$163,170
3	Replacement and Testing of Aeration Basin 6 Diffuser Membranes in Grid Type 1, 2, 3, and 4 Tanks	EA	2,331	$24	$55,944	$27	$62,937	$70	$163,170
4	Replacement and Testing of Aeration Basin 7 Diffuser Membranes in Grid Type 1, 2, 3, and 4 Tanks	EA	2,319	$8	$18,552	$27	$62,613	$70	$162,330
5	Purchase new 9” Sanitaire Membrane Diffuser Discs for Aeration Basins 6 and 7	EA	4,650	$0	$0	$6	$27,900	$6	$25,575
6	Repairs to pre-existing damage of air piping and supports identified through pre-construction testing and pre-construction inspection	LS	1	LS	$20,000	LS	$20,000	LS	$20,000
7	Cost for providing all shoring and bracing on all Bid Items above including but not limited to that as required by Sections 6700-6708 of the labor Code	LS	1	LS	$0	LS	$100	LS	$1,000
Total Base Bid					**$312,340**		**$312,487**		**$559,000**
Total Contract Price					**$312,340**		**$312,487**		**$559,000**
Percent (Under)/Over Engineer's Estimate					**-21.9%**		**-21.9%**		**39.8%**

*** Adjusted based on Unit Price**

D.W. NICHOLSON
CORPORATION

INDUSTRIAL MECHANIZATION CONTRACTORS

March 17, 2016

Union Sanitary District
5072 Benson Rd.
Union City, CA 94587

Attention: Raymond Chau

Reference: Aeration Basins 5-7 Diffuser Membranes Replacement Project - #800-466

Dear Mr. Chau:

D. W. Nicholson Corporation has reviewed the Bid Schedule for the above referenced project. The Total Bid Price of $386,644.00 is correct, however, due to a clerical error when transferring information from our work-spreadsheet to the Bid Schedule; Section 00310. The Unit Bid Price for Item 5 was entered on Unit Bid Price Item 4 and Unit Bid Price for Item 4 should have been $24.00, instead of $8.00. Bid Price Item 5 should have been $8.00 and was omitted in error from the Bid Schedule. Therefore, D. W. Nicholson Corporation must respectfully withdraw our bid.

If you have any questions or require additional information, please feel free to contact Phil Grove.

Best Regards,

Thomas S. Reed
President, C.E.O.

cc: Phil Grove

TSR/amc

24747 Clawiter Road / P.O. Box 4197 / Hayward, CA 94540-4197 / (510) 887-0900 / Corporate Fax: (510) 783-5736
E-mail: info@dwnicholson.com Contractor's License No. 68847 Estimating Dept. Fax: (510) 783-9948

AGREEMENT FOR THE CONSTRUCTION OF

<u>Aeration Basins 5-7 Diffuser Membranes Replacement Project</u>

<u>Project No. 800-466</u>

THIS AGREEMENT, made and concluded, in duplicate, this ___ day of March, 2016, between the UNION SANITARY DISTRICT ("District"), Union City, California, and GSE CONSTRUCTION COMPANY, INC. ("Contractor"), License No. 401498.

W I T N E S S E T H :

1.That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the District, and under the conditions expressed in the two bonds, bearing even date with these presents, and hereunto annexed, the Contractor agrees with the District, at his/her own proper cost and expense, to do all the work and furnish all the materials necessary to construct and complete in good workmanlike and substantial manner the project entitled: **<u>Aeration Basins 5-7 Diffuser Membranes Replacement Project (Project No. 800-466)</u>** in strict conformity with the plans and specifications prepared therefor, which said plans and specifications are hereby specially referred to and by said reference made a part hereof.

2. Now, therefore, in consideration of the mutual covenants and agreements of the parties herein contained and to be performed, the Contractor hereby agrees to complete the work in accordance with the terms and conditions stipulated in the Contract Documents for the sum of Three Hundred Twelve Thousand Four Hundred Eighty Seven Dollars ($312,487.00) (the "Contract Price") computed in accordance with Contractor's accepted proposal dated March 16, 2016, which accepted proposal is incorporated herein by reference thereto as if herein fully set forth. Compensation shall be based upon the lump sum bid items plus the unit prices stated in the Bid Schedule times the actual quantities or units of work and materials performed or furnished. The further terms, conditions, and covenants of this Agreement are set forth in the Contract Documents, each of which is by this reference made a part hereof. Payments are to be made to the Contractor in accordance with the provisions of the Contract Documents and the Technical Specifications in legally executed and regularly issued warrants of the District, drawn on the appropriate fund or funds as required by law and order of the District thereof.

3. The District hereby promises and agrees with the said Contractor to employ, and does hereby employ, the said Contractor to provide the materials and to do the work according to the terms and conditions herein contained and referred to, for the Contract Price, and hereby contracts to pay the same at the time, in the manner and upon the conditions set forth in the Contract Documents; and the said parties for themselves, their heirs, executors, administrators, successors and assigns, do hereby agree to the full performance of the covenants herein contained.

4. The Contractor and any subcontractor performing or contracting any work shall comply with all applicable provisions of the California Labor Code for all workers, laborers and mechanics of all crafts, classifications or types, including, but necessarily limited to the following:

(a) The Contractor shall comply with all applicable provisions of Section 1810 to 1815, inclusive, of the California Labor Code relating to working hours. The Contractor shall, as a penalty to the District, forfeit the sum of twenty-five dollars ($25) for each worker employed in the execution of the Contract by the Contractor or by any subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week, unless such worker receives compensation for all hours worked in excess of eight (8) hours at not less than 1-1/2 times the basic rate of pay.

(b) Pursuant to the provision of California Labor Code, Sections 1770 et. seq., the Contractor and any subcontractor under him shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Pursuant to the provisions of California Labor Code Section 1773.2, the Contractor is hereby advised that copies of the prevailing rate of per diem wages and a general prevailing rate for holidays, Saturdays and Sundays and overtime work in the locality in which the work is to be performed for each craft, classification, or type of worker required to execute the Contract, are on file in the office of the District, which copies shall be made available to any interested party on request. The Contractor shall post a copy of said prevailing rate of per diem wages at each job site.

(c) As required by Section 1773.1 of the California Labor Code, the Contractor shall pay travel and subsistence payments to each worker needed to execute the work, as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with this Section.

(d) To establish such travel and subsistence payments, the representative of any craft, classification, or type of workman needed to execute the contracts shall file with the Department of Industrial Relations fully executed copies of collective bargaining agreements for the particular craft, classification or type of work involved. Such agreements shall be filed within 10 days after their execution and thereafter shall establish such travel and subsistence payments whenever filed 30 days prior to the call for bids.

(e) The Contractor shall comply with the provisions of Section 1775 of the California Labor Code and shall, as a penalty to the District, forfeit not more than two hundred dollars ($200) for each calendar day, or portion thereof, for each worker paid less than the prevailing rate of per diem wages for each craft, classification, or type of worker needed to execute the contract. The Contractor shall pay each worker an amount equal to the difference between the prevailing wage rates and the amount paid worker for each calendar day or portion thereof for which a worker was paid less than the prevailing wage rate.

(f) As required under the provisions of Section 1776 of the California Labor Code, Contractor and each subcontractor shall keep an accurate payroll record, showing the name, address, social security number, work classification, and straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the public work. Said payroll shall be certified and shall be available for inspection at all reasonable hours at the principal office of the Contractor on the following basis:

(1) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request.

(2) A certified copy of all payroll records enumerated in Paragraph 4(f), herein, shall be made available for inspection or furnished upon request to the District, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.

(3) A certified copy of all payroll records enumerated in Paragraph 4(f), herein, shall be made available upon request by the public for inspection or for copies thereof; provided, however, that a request by the public shall be made through the District, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to subparagraph 4(e) herein, the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the Contractor, subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal offices of the Contractor.

The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the division.

Certified payroll records shall be submitted electronically as required under California Labor Code Section 1776 to the Labor Commissioner pursuant to California Code of Regulations Chapter 8, Section 16404.

Each Contractor shall file a certified copy of the records, enumerated in Paragraph 4(f) with the entity that requested the records within 10 days after receipt of a written request. Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the District, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social security number. The name and address of the Contractor awarded the contract or performing the contract shall not be marked or obliterated. The Contractor shall inform the District of the location of the records enumerated under Paragraph 4(f) including the street address, city and county, and shall, within 5 working days, provide a notice of change of location and address. The Contractor shall have 10 days in which to comply subsequent to receipt of written notice specifying in what respects the Contractor must comply with this Paragraph 4(f). In the event that the Contractor fails to comply within the 10-day period, he or she shall, as a penalty to the state or the District, forfeit one hundred dollars ($100) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. Responsibility for compliance with Paragraph 4(f) lies with the Contractor.

(g) The Contractor and any subcontractors shall, when they employ any person in any apprenticeable craft or trade, apply to the joint apprenticeship committee administering the apprenticeship standards of the craft or trade in the area of the construction site for a certificate approving the Contractor or subcontractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected; and shall comply with all other requirements of Section 1777.5 of the California Labor Code. The responsibility of compliance with California Labor Code Section 1777.5 during the performance of this contract rests with the Contractor. Pursuant to California Labor Code Section 1777.7, in the event the Contractor willfully fails to comply with the provisions of California Labor Code Section 1777.5, the Contractor shall be denied the right to bid on any public works contract for up to three (3) years from the date noncompliance is determined and be assessed civil penalties.

(h) In accordance with the provisions of Article 5, Chapter 1, Part 7, Division 2 (commencing with Section 1860), and Chapter 4, Part 1, Division 4 (commencing with Section 3700) of the California Labor Code, the Contractor is required to secure the payment of compensation to its employees and for that purpose obtain and keep in effect adequate Workers' Compensation Insurance. If the Contractor, in the sole discretion of the District satisfies the District of the responsibility and capacity under the applicable Workers' Compensation Laws, if any, to act as self-insurer, the Contractor may so act, and in such case, the insurance required by this paragraph need not be provided.

The Contractor is advised of the provisions of Section 3700 of the California Labor Code, which requires every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code and shall comply with such provisions and have Employer's Liability limits of $1,000,000 per accident before commencing the performance of the work of this Contract.

The Notice to Proceed with the Work under this Contract will not be issued, and the Contractor shall not commence work, until the Contractor submits written evidence that it has obtained full Workers' Compensation Insurance coverage for all persons whom it employs or may employ in carrying out the work under this Contract. This insurance shall be in accordance with the requirements of the most current and applicable state Workers' Compensation Insurance Laws. In accordance with the provisions of Section 1861 of the California Labor Code, the Contractor in signing this agreement certifies to the District as true the following statement: "I am aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the work of this contract."

A subcontractor is not allowed to commence work on the project until verification of Workers' Compensation Insurance coverage has been obtained and verified by the

Contractor and submitted to the Construction Manager for the District's review and records.

(i) In accordance with the provisions of Section 1727 of the California Labor Code, the District, before making payment to the Contractor of money due under a contract for public works, shall withhold and retain therefrom all wages and penalties which have been forfeited pursuant to any stipulation in the contract, and the terms of Chapter 1, Part 7, Division 2 of the California Labor Code (commencing with Section 1720). But no sum shall be withheld, retained or forfeited, except from the final payment, without a full investigation by either the Division of Labor Standards Enforcement or by the District.

5. It is further expressly agreed by and between the parties hereto that should there be any conflict between the terms of this Agreement the instrument and the bid proposal of said Contractor, then this Agreement instrument shall control, and nothing herein contained shall be considered as an acceptance of the said terms of said proposal conflicting herewith.

6. The Contractor agrees to provide and maintain insurance coverage, and to indemnify and save harmless the parties named and in the manner set forth in Section 00800-2.0, **LIABILITY AND INSURANCE**, of the Supplementary General Conditions of the Specifications.

The duty of Contractor to indemnify and save harmless, as set forth herein, shall include a duty to defend as set forth in Section 2778 of the California Civil Code; provided, however, that nothing herein shall be construed to require Contractor to indemnify against any responsibility or liability in contravention of Section 2782 of the California Civil Code.

7. The Contractor shall diligently prosecute the work so that it shall be substantially completed within the time specified in Section 00800-1.1, **Time Allowed for Completion**.

8. Except as otherwise may be provided herein, Contractor hereby expressly guarantees for one (1) full year from the date of the substantial completion of the work under this agreement and acceptance thereof by the District, to repair or replace any part of the work performed hereunder which constitutes a defect resulting from the use of inferior or defective materials, equipment or workmanship. If, within said period, any repairs or replacements in connection with the work are, in the opinion of the District, rendered necessary as the result of the use of inferior or defective materials, equipment or workmanship, Contractor agrees, upon receipt of notice from District, and without expense to District, to promptly repair or replace such material or workmanship and/or correct any and all defects therein. If Contractor, after such notice, fails to proceed promptly to comply with the terms of this guarantee, District may perform the work necessary to effectuate such correction and recover the cost thereof from the Contractor and/or its sureties.

In special circumstances where a particular item of work or equipment is placed in continuous service before substantial completion of the Work, the correction period for that item may start to run from an earlier date. This date shall be agreed upon in writing by the Contractor and District on or before the item is placed in continuous service.

Any and all other special guarantees which may be applicable to definite parts of the work under this agreement shall be considered as an additional guarantee and shall not reduce or limit the guarantee as provided by Contractor pursuant to this paragraph during the first year of the life of such guarantee.

9. The Contractor shall provide, on the execution of this Agreement, a good and sufficient corporate surety bond in the penal sum of one hundred percent (100%) of the Contract Price, which bond shall be on the form provided by the District in Section 00610, **FORM OF PERFORMANCE BOND**, and be conditioned upon the faithful performance of all work required to be performed by the Contractor under this Agreement. Said bond shall be liable for any and all penalties and obligations which may be incurred by Contractor under this Agreement. The corporate surety bond shall be issued by a corporate surety that possesses a minimum rating from A. M. Best Company of A:VII and that is approved by the District. The corporate surety shall be authorized to conduct business in California. At its discretion, the District may request that a certified copy of the certificate of authority of the insurer issued by the Insurance Commissioner of the State of California be submitted by the surety to the District. At its discretion, the District may also require the insurer to provide copies of its most recent annual statement and quarterly statement filed with the Department of Insurance pursuant to Article 10 (commencing with Section 900) of Chapter 1 of Part 2 of Division 1 of the Insurance Code.

10. In addition to the bond required under Paragraph 9, hereof, Contractor shall furnish a good and sufficient corporate surety bond in the penal sum of one hundred percent (100%) of the Contract Price, which bond shall be on the form provided by the District in Section 00620, **PAYMENT BOND**, and conform strictly with the provisions of Sections 9550 et seq. of the Civil Code, and all amendments thereto. The corporate surety bond shall be issued by a corporate surety that possesses a minimum rating from A. M. Best Company of A:VII and that is approved by the District. The corporate surety shall be authorized to conduct business in California. At its discretion, the District may request that a certified copy of the certificate of authority of the insurer issued by the Insurance Commissioner of the State of California be submitted by the surety to the District. At its discretion, the District may also require the insurer to provide copies of its most recent annual statement and quarterly statement filed with the Department of Insurance pursuant to Article 10 (commencing with Section 900) of Chapter 1 of Part 2 of Division 1 of the Insurance Code.

11. The Contractor may substitute securities for the amounts retained by the District to ensure performance of the work in accordance with the provisions of Section 22300 of the Public Contract Code.

12. The Contractor shall be provided the time period specified in Section 01340-2.0, **MATERIAL AND EQUIPMENT SUBSTITUTIONS**, for submission of data substantiating a request for a substitution of an “or equal" item.

13. As required by Section 6705 of the California Labor Code and in addition thereto, whenever work under the Contract involves the excavation of any trench or trenches five feet or more in depth, the Contractor shall submit in advance of excavations, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plan

varies from the shoring system standards established by the Construction Safety Orders of the Division of Industrial Safety in Title 8, Subchapter 4, Article 6, California Code of Regulations, the plan shall be prepared by a registered civil or structural engineer employed by the Contractor, and all costs therefore shall be included in the price named in the Contract for completion of the work as set forth in the Contract Documents. Nothing in this Section shall be deemed to allow the use of a shoring, sloping, or other protective system less effective than that required by the Construction Safety Orders. Nothing in this Section shall be construed to impose tort liability on the District, the Design Consultant, Construction Manager or any of their agents, consultants, or employees. The District's review of the Contractor's excavation plan is only for general conformance to the California Construction Safety Orders.

Prior to commencing any excavation, the Contractor shall designate in writing to the Construction Manager the "competent person(s)" with the authority and responsibilities designated in the Construction Safety Orders.

14. In accordance with Section 7104 of the Public Contract Code, whenever any work involves digging trenches or other excavations that extend deeper than four feet below the surface, the provisions of Section 00700-7.2, **Differing Site Conditions**, shall apply.

15. In accordance with Section 7103.5 of the Public Contract Code, the Contractor and subcontractors shall conform to the following requirements. In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or subcontractor offers and agrees to assign to the District all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act [Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code], arising from purchases of goods, materials or services pursuant to this Contract or the subcontract. Such assignment shall be made and become effective at the time the District tenders final payment to the Contractor, without further acknowledgment by the parties.

16. In accordance with Section 4552 of the Government Code, the Contractor shall conform to the following requirements. In submitting a bid to the District, the Contractor offers and agrees that if the bid is accepted, it will assign to the District all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act [Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code], arising from purchase of goods, materials, or services by the Contractor for sale to the District pursuant to the bid. Such assignment shall be made and become effective at the time the District tenders final payment to the Contractor.

17. Pursuant to Public Contract Code Section 7100, the acceptance by the Contractor of an undisputed payment made under the terms of the Contract shall operate as, and shall be, a release to the District, and their duly authorized agents, from all claim of and/or liability to the Contractor arising by virtue of the contract related to those amounts. Disputed contract claims in stated amounts may be specifically excluded by the Contractor from the operation of the release.

18. In accordance with California Business and Professions Code Section 7030, the Contractor is required by law to be licensed and regulated by the Contractors' State License Board which has jurisdiction to investigate complaints against contractors if a complaint

regarding a patent act or omission is filed within four years of the date of the alleged violation. A complaint regarding a latent act or omission pertaining to structural defects must be filed within 10 years of the date of the alleged violation. Any questions concerning the Contractor may be referred to the Registrar, Contractors' State License Board, P.O. Box 26000, Sacramento, California 95826.

19. INDEMNIFICATION. To the fullest extent permitted by law, Contractor shall indemnify and hold harmless the District from any claims, choses in action or lawsuits, whereby any subcontractor, material or equipment supplier, laborer or any person who supplies work or materials to said work of improvement may claim damages, losses and expenses thereto arising out of or resulting from any claim for performance of work, including the legal defense of any stop notice action as well as attorney fees and costs. District may be required to engage separate legal counsel from that of the Contractor should District and Contractor be both named as defendants, cross-defendants or other parties to any such stop notice action in District's sole discretion. Contractor shall be fully liable for any judgment or damages resulting from any claim for stop notice relief or other liability regarding payment for materials, supplies, labor or equipment under this contract. In claims against any person or entity indemnified under this paragraph by an employee of Contractor, a subcontractor, anyone directly or indirectly employed by them for whose acts they may be liable, the indemnification obligation under this paragraph shall not be limited in amount or type of damages, compensation or benefits payable by or for the Contractor or a subcontractor. In all cases, indemnification shall include attorney fees and court costs.

Unless arising solely out of the active negligence, gross negligence or willful misconduct of the District or the Design Consultant, the Contractor shall indemnity, defend and hold harmless: (1) the District and its Board of Directors, officers, employees, agents and representative; (ii) the Design Consultant and its consultants for the Work and their respective agents and employees; and (iii) if one is designated by the District for the work, the Construction Manager and its agents and employees (collectively "the Indemnified Parties"). The Contractor's obligations hereunder include indemnity, defense and hold harmless of the Indemnified Parties from and against any and all damages, losses, claims, demands or liabilities whether for damages, losses or other relief, including, without limitation attorney's fees and costs which arise, in whole or in part, from the Work, the Contract Documents or the acts, omissions or other conduct of the Contractor or any subcontractor or any person or entity engaged by them for the Work. The Contractor's obligations under the foregoing include without limitation: (i) injuries to or death of persons; (ii) damage to property; or (iii) theft or loss of property; (iv) stop notice claims asserted by any person or entity in connection with the Work; and (v) other losses, liabilities, damages or costs resulting from, in whole or part, any acts, omissions or other conduct of Contractor, any of Contractor's Subcontractors, of any tier, or any other person or entity employed directly or indirectly by Contractor in connection with the Work and their respective agents, officers or employees. If any action or proceeding, whether judicial, administrative, arbitration or otherwise, shall be commenced on account of any claim, demand or liability subject to Contractor's obligations hereunder, and such action or proceeding names any of the Indemnified Parties as a party thereto, the Contractor, at its sole cost and expense, shall defend the District and the Design Consultant in such action or proceeding with counsel reasonably satisfactory to the Indemnified Parties named in such action or proceeding. In the event that there shall be any judgment, award, ruling, settlement, or other relief arising out of any such action or proceeding to which any of the Indemnified Parties are bound by, Contractor shall pay, satisfy or otherwise discharge any such judgment, award, ruling, settlement or relief. Contractor shall indemnify and hold harmless the Indemnified Parties from any and all liability or responsibility arising out of any such judgment, award, ruling, settlement or relief. The Contractor's obligations hereunder are binding upon Contractor's Performance Bond Surety and these obligations shall survive notwithstanding Contractor's completion of the Work or the termination of the Contract.

IN WITNESS WHEREOF, the parties hereto have executed this agreement this _____day of March, 2016.

GSE CONSTRUCTION COMPANY, INC.

By:______________________________________

Orlando Gutierrez, President

Address: 6950 Preston Avenue, Livermore, CA 94551

UNION SANITARY DISTRICT

By:______________________________________

Pat Kite

Board Secretary

Address: 5072 Benson Road, Union City, California 94587

ATTEST:

____

Karen W. Murphy

Attorney for Union Sanitary District

UNION SANITARY DISTRICT
CHECK REGISTER
03/05/2016-03/18/2016

Check No.	Date	Invoice No.	Vendor	Description	Invoice Amt	Check Amt
160458	3/17/2016	20320	MCGUIRE & HESTER	ALVARADO BLVD SEWER MAIN REPAIR	$494,535.65	$473,034.10
	3/17/2016	20320.1		CREDIT FOR INVOICE 20320, REBILLED ON 20320.2	$-494,535.65	
	3/17/2016	20320.2		ALVARADO BLVD SEWER MAIN REPAIR	$473,034.10	
160371	3/10/2016	8480061748	ANDRITZ-RUTHNER INC	CENTRIFUGE 1 REBUILD	$40,833.50	$40,833.50
160464	3/17/2016	1029669	POLYDYNE INC	44,260 LBS CLARIFLOC C-6267	$38,851.43	$38,851.43
160482	3/17/2016	533620160222	US BANK CORP PAYMENT SYSTEM	MONTHLY CAL-CARD STMT - FEB 2016	$25,125.62	$25,125.62
160436	3/17/2016	362	CDW GOVERNMENT LLC	MICROSOFT SOFTWARE ASSURANCE	$21,256.35	$21,256.35
160439	3/17/2016	2015006	COVELLO GROUP INC	NEWARK BACKYARD SS RELOCATION - PHASE 2	$18,896.00	$18,896.00
160404	3/10/2016	761520160225	PACIFIC GAS AND ELECTRIC	SERV TO 02/24/16 NEWARK PS	$16,414.14	$16,414.14
160378	3/10/2016	147086	CAROLLO ENGINEERS	COGENERATION PROJECT	$14,742.00	$14,742.00
160419	3/17/2016	65302	3T EQUIPMENT COMPANY INC	1 FLOW THROUGH PACKER	$3,053.71	$12,555.90
	3/17/2016	65303		12 PIPEPATCH KIT - WINTER & 2 WINTER KIT	$9,078.96	
	3/17/2016	65316		19 PIPEPATCH KIT - WINTER CREDIT	$-7,147.80	
	3/17/2016	65301		7 PIPEPATCH KIT - WINTER	$7,571.03	
160408	3/10/2016	21331	RMC WATER AND ENVIRONMENT	ALVARADO TREATMENT PLANT SITE USE STUDY	$4,724.50	$9,932.25
	3/10/2016	21352		ALVARADO BASIN SEWER MASTER PLAN UPDATE	$5,207.75	
160377	3/10/2016	28670	CALIFORNIA WATER TECHNOLOGIES	44,520 LBS FERROUS CHLORIDE	$4,851.98	$9,565.96
	3/10/2016	28643		42,180 LBS FERROUS CHLORIDE	$4,713.98	

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160440	3/17/2016	13671	CRANE WORKS INC	CRANE WORKS QUADRENNIAL TESTING	$7,129.49	$7,129.49
160481	3/17/2016	732017	UNIVAR USA INC	5,000 GALS SODIUM HYPOCHLORITE	$2,261.05	$6,786.31
	3/17/2016	731098		5,004 GALS SODIUM HYPOCHLORITE	$2,262.85	
	3/17/2016	731612		5,003 GALS SODIUM HYPOCHLORITE	$2,262.41	
160414	3/10/2016	730654	UNIVAR USA INC	5,001 GALS SODIUM HYPOCHLORITE	$2,261.50	$6,692.70
	3/10/2016	729812		4,799 GALS SODIUM HYPOCHLORITE	$2,170.15	
	3/10/2016	730456		5,000 GALS SODIUM HYPOCHLORITE	$2,261.05	
160435	3/17/2016	147286	CAROLLO ENGINEERS	HIGH SPEED AERATION BLOWER	$5,659.11	$5,659.11
160423	3/17/2016	4017420220160304	ALAMEDA COUNTY WATER DISTRICT	SERV TO: 03/04/16 - FREMONT BLVD	$45.37	$4,959.69
	3/17/2016	4017274120160304		SERV TO: 03/04/16 - FREMONT BLVD	$4,914.32	
160434	3/17/2016	28682	CALIFORNIA WATER TECHNOLOGIES	44,680 LBS FERROUS CHLORIDE	$4,941.97	$4,941.97
160381	3/10/2016	3026	COMMERCIALTRANSPORTATION SVCS	COMMERCIAL DRIVERS TRAINING	$1,960.00	$4,825.00
	3/10/2016	3027		COMMERCIAL DRIVER TRAINING - 3 FMC EMPLOYEES	$2,865.00	
160466	3/17/2016	160224	PROSAFE	32 HRS INSPECTIONS & 9 HRS SPCC	$4,100.00	$4,100.00
160375	3/10/2016	950468	BAY AREA NEWS GROUP EAST BAY	ADS - PROJECTS 437/413/466 & ORDINANCE NO. 31.39	$3,979.17	$3,979.17
160413	3/10/2016	130840	TOTAL WASTE SYSTEMS INC	FEBRUARY 2016 GRIT DISPOSAL	$3,511.98	$3,511.98
160405	3/10/2016	8147	PACIFIC PLUMBING & SEWER SERV	REFUND # 18786	$3,300.00	$3,300.00
160461	3/17/2016	8109	NATION'S FOODSERVICE INC	REFUND # 18811	$3,300.00	$3,300.00
160477	3/17/2016	6942	STEVENSON PROPERTIES	REFUND # 18801	$3,300.00	$3,300.00

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160478	3/17/2016	20160316	DUSTIN STRASBURG	COMPUTER NOTE	$3,300.00	$3,300.00
160392	3/10/2016	9792624	HACH COMPANY	1 EA HACH TURBIDIMETER 1720E	$3,144.08	$3,144.08
160385	3/10/2016	1101939	FLUID COMPONENTS INTERNATIONAL	PRIMARY DIGESTERS FLOWMETER SERVICE TRIP	$3,100.91	$3,100.91
160369	3/10/2016	5134236	ALL INDUSTRIAL ELECTRIC SUPPLY	6 L-FSE FLSR050ID 600V IND FUSE	$122.36	$3,053.86
	3/10/2016	5133911		ASTD PARTS & MATERIALS	$2,931.50	
160452	3/17/2016	3592820160316	HASLER INC.	POSTAGE BY PHONE - TMS 35928	$3,000.00	$3,000.00
160394	3/10/2016	28267017005	HERTZ EQUIPMENT RENTAL	MIX TANK RENTAL AND SPILL GUARD PURCHASE	$2,926.00	$2,926.00
160410	3/10/2016	238880	SAN JOSE CITY OF	ANALYTICAL LAB SERVICES HAYWARD MARSH MIXING ZONE STUDY	$2,561.00	$2,561.00
160428	3/17/2016	7707385	AT&T	SERV: 01/20/16 - 02/19/16	$2,482.45	$2,500.52
	3/17/2016	7713097		SERV: 01/20/16 - 02/19/16	$18.07	
160421	3/17/2016	8291	ABLE SEPTIC/ABLE UNDERGROUND	REFUND # 18803	$2,500.00	$2,500.00
160422	3/17/2016	8282	ABOVE ALL PLUMBING, INC.	REFUND # 18812	$2,500.00	$2,500.00
160472	3/17/2016	7993	SITEWORKS CONSTRUCTION INC	REFUND # 18807	$2,500.00	$2,500.00
160450	3/17/2016	9804968	HACH COMPANY	1 EA HACH AFTER ANALYZER CONTROLLER	$2,481.99	$2,481.99
160416	3/10/2016	5372	VON EUW TRUCKING	93.59 TONS 3/4 CLASS II AB DELIVERED	$2,419.30	$2,419.30
160384	3/10/2016	27710	EDWARD R BACON COMPANY INC	1 3" DIAPHRAGM PUMP	$2,405.70	$2,405.70
160468	3/17/2016	916002675747	REPUBLIC SERVICES #916	RECYCLE & ROLL OFF - FEBRUARY 2016	$2,216.88	$2,216.88
160379	3/10/2016	4986	CDW GOVERNMENT LLC	10 HEADSETS FOR DESK PHONES	$2,200.00	$2,200.00
160456	3/17/2016	20160316	MATTHEW LUBINA	COMPUTER NOTE	$2,177.99	$2,177.99

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160403	3/10/2016	20160229	NAPA AUTO PARTS	MONTHLY AUTO PARTS STMT - FEB 2016	$2,139.66	$2,139.66
160376	3/10/2016	601201	BRENNTAG PACIFIC, INC.	3846 LBS SODIUM HYDROXIDE	$2,032.80	$2,032.80
160463	3/17/2016	3581	PIPELOGIX INC	ANNUAL SOFTWARE SUPPORT	$1,980.00	$1,980.00
160400	3/10/2016	51199816	MCMASTER SUPPLY INC	4 EA STEEL L-HOOK ANCHOR BOLTS	$70.07	$1,963.57
	3/10/2016	51723204		ASTD PARTS & MATERIALS	$777.24	
	3/10/2016	51199817		1 EA HOSE COUPLING	$9.63	
	3/10/2016	51501433		2 EA HOSE COUPLINGS	$256.42	
	3/10/2016	51235491		2 EA FUNNELS	$103.39	
	3/10/2016	51441246		ASTD PARTS & MATERIALS	$551.48	
	3/10/2016	51441247		ASTD PARTS & MATERIALS	$33.45	
	3/10/2016	51409403		ASTD PARTS & MATERIALS	$91.73	
	3/10/2016	51568347		2 EA VINYL SIGNS	$70.16	
160365	3/10/2016	8037418	ABC IMAGING, INC.	COGENERATION PROJECT	$937.64	$1,892.55
	3/10/2016	8037417		PINE STREET EASEMENT	$954.91	
160483	3/17/2016	9760830896	VERIZON WIRELESS	WIRELESS SERV 01/21/16-02/20/16	$1,813.92	$1,813.92
160438	3/17/2016	17613003684	CORIX WATER PRODUCTS INC	BYPASS PARTS	$1,692.51	$1,692.51
160417	3/10/2016	8044010092	VWR INTERNATIONAL LLC	1 MERCURIC NITRATE 0.014N 1L	$26.55	$1,559.13
	3/10/2016	8043945241		12 PKS SULFIDE REFILL	$291.46	
	3/10/2016	8043952880		ASTD LAB SUPPLIES	$1,241.12	

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160429	3/17/2016	606773	AUTOMATION PRODUCTS GROUP	2 RAS PIT LEVEL TRANSMITTERS	$1,540.42	$1,540.42
160420	3/17/2016	8076087	ABC IMAGING, INC.	ALVARADO-NILES ROAD SS REHABILITATION	$1,531.04	$1,531.04
160476	3/17/2016	8130	STAR ROOTER AND PLUMBING	REFUND # 18798	$500.00	$1,500.00
	3/17/2016	8172		REFUND # 18796	$500.00	
	3/17/2016	8292		REFUND # 18795	$500.00	
160449	3/17/2016	9016541386	GRAINGER INC	10 EA REDUCER BUSHINGS	$24.75	$1,482.84
	3/17/2016	9021567285		ASTD PARTS & MATERIALS	$154.94	
	3/17/2016	9016541394		ASTD PARTS & MATERIALS	$154.29	
	3/17/2016	9017634719		1 EA CFL BALLAST	$23.29	
	3/17/2016	9016317472		ASTD WRENCHES & SOCKETS/ADAPTERS	$217.60	
	3/17/2016	9016496698		ASTD PARTS & MATERIALS	$907.97	
160451	3/17/2016	3j2294	HARRINGTON INDUSTRIAL PLASTICS	2 EA FLOWMETERS	$196.04	$1,471.24
	3/17/2016	3J2296		ASTD PVC FITTINGS	$789.49	
	3/17/2016	3J2295		ASTD PARTS & MATERIALS	$485.71	
160475	3/17/2016	3294884496	STAPLES CONTRACT & COMMERCIAL	ASTD JANITORIAL SUPPLIES - INVENTORY	$794.74	$1,413.81
	3/17/2016	3294884501		ASTD JANITORIAL SUPPLIES - INVENTORY	$85.83	
	3/17/2016	3294884503		ASTD OFFICE & BREAKROOM SUPPLIES - INVENTORY	$533.24	

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160448	3/17/2016	1083771240	G&K SERVICES CO	UNIFORMS & MATS	$59.22	$1,395.36
	3/17/2016	93766371		2 EA UNISEX CUFFED LAB COATS	$72.00	
	3/17/2016	1083771236		UNIFORM LAUNDERING SERVICE	$103.65	
	3/17/2016	1083771241		UNIFORM LAUNDERING SERVICE	$11.20	
	3/17/2016	93768198		PERSONALIZED POLO UNIFORM SHIRTS - FMC COACHES	$992.30	
	3/17/2016	1083771239		UNIFORM LAUNDERING SERVICE	$16.96	
	3/17/2016	93776160		CREDIT FOR TEST POLO SHIRTS FOR FMC COACHES	$-150.49	
	3/17/2016	1083771237		UNIFORM LAUNDERING SERVICE	$89.76	
	3/17/2016	1083771235		UNIFORM LAUNDERING SERVICE	$123.03	
	3/17/2016	1083771242		ASTD DUST MOPS, WET MOPS & TERRY TOWELS	$33.78	
	3/17/2016	1083771238		UNIFORM LAUNDERING SERVICE	$43.95	
160469	3/17/2016	7608160101	RS HUGHES CO INC	ASTD PPE & SAFETY SUPPLIES	$75.15	$1,217.08
	3/17/2016	7605312201		6 VEST SAFETY MESH HOOK & LOOP	$96.09	
	3/17/2016	7605312202		5 MILLER 705H/YL TOOL BAGS	$537.40	
	3/17/2016	7608160100		ASTD PPE & SAFETY SUPPLIES	$508.44	
160446	3/17/2016	8675	EAST BAY MUNI UTILITY DISTRICT	25 LAB SAMPLE ANALYSIS	$1,199.70	$1,199.70
160393	3/10/2016	3J2026	HARRINGTON INDUSTRIAL PLASTICS	2 EA 3" VALVE BALL TUBV S PVC FKM	$577.31	$1,171.56
	3/10/2016	3J2027		2 EA 3" VALVE BALL TUBV S PVC FKM	$594.25	

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160484	3/17/2016	8044071868	VWR INTERNATIONAL LLC	1 PIPET TIP BLK 500-1000UL & 2 PKS BDH BUFFER REF STD COLORED	$218.28	$1,044.37
	3/17/2016	8044040364		1 PK SPORE STRIPS WITH MEDIA	$143.97	
	3/17/2016	8044068788		1 SULFURIC ACID 0.5N STD SOL 4L	$43.79	
	3/17/2016	8044060518		2 PKS MICROFIBRE GLS GF 12.5CM	$638.33	
160444	3/17/2016	20160225.25	DALE HARDWARE INC	02/16 - ASTD PARTS & MATERIALS	$1,027.66	$1,027.66
160426	3/17/2016	539837	A-PRO PEST CONTROL INC	FEB PEST CONTROL	$1,005.00	$1,005.00
160460	3/17/2016	24859665	MOTION INDUSTRIES INC	1 EA ELECTRIC MOTOR	$831.12	$999.68
	3/17/2016	24860406		1 EA HEAVY DUTY SHEAVE	$168.56	
160454	3/17/2016	12479	LOOKINGPOINT INC	1 EA ADDITIONAL CONFERENCE PHONE	$960.70	$960.70
160453	3/17/2016	9713831	HF&H CONSULTANTS, LLC	SEWER SERVICE CHARGE PEER REVIEW	$910.00	$910.00
160372	3/10/2016	7689799	AT&T	SERV: 01/13/16 - 02/12/16	$43.16	$903.31
	3/10/2016	7685833		SERV: 01/13/16 - 02/12/16	$99.09	
	3/10/2016	7676662		SERV: 01/13/16 - 02/12/16	$761.06	
160411	3/10/2016	4868173022516	SIERRA SPRING WATER COMPANY	WATER SERVICE 01/29/16 - 02/25/16	$621.05	$862.09
	3/10/2016	8122768022516		BOTTLESS COOLERS RENTAL	$241.04	

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160433	3/17/2016	11147100	BLAISDELL'S	1 BX LTR FSTNR FOLDERS	$24.82	$855.20
	3/17/2016	11152010		ASTD OFFICE SUPPLIES	$46.73	
	3/17/2016	11145150		1 CHAIR MAT	$42.66	
	3/17/2016	11143680C		CREDIT 1 LAMINATOR	$-329.99	
	3/17/2016	11106760		1 CHAIR, FREEDOM W/HEADREST	$933.50	
	3/17/2016	11145620		1 CRG LAMINATE	$82.49	
	3/17/2016	11145350		1 ELECTRIC PENCIL SHARPENER	$54.99	
160390	3/10/2016	1841074184	GOODYEAR COMM TIRE & SERV CTRS	1 EA TIRE	$801.78	$801.78
160457	3/17/2016	20160310	MICHAEL MARZANO	EXP REMIB: PARMA CONF LODGING/AIRFARE/BAGGAGE	$774.84	$774.84
160462	3/17/2016	892820160302	PACIFIC GAS AND ELECTRIC	SERV TO 03/01/16 HAYWARD MARSH	$50.77	$745.44
	3/17/2016	096020160302		SERV TO 03/01/16 CATHODIC PROJECT	$49.14	
	3/17/2016	666720160302		SERV TO 03/01/16 PASEO PADRE PS	$203.07	
	3/17/2016	898220160302		SERV TO 03/01/16 FREMONT PS	$242.81	
	3/17/2016	380420160302		SERV TO 02/29/16 CHERRY ST PS	$199.65	
160459	3/17/2016	52007505	MCMASTER SUPPLY INC	ASTD PARTS & MATERIALS	$470.80	$730.12
	3/17/2016	51649087		ASTD PARTS & MATERIALS	$36.43	
	3/17/2016	52252477		2 EA FLOOR-MOUNT SUPPORTS	$222.89	
160370	3/10/2016	7970	AMERICAN DISCOUNT SECURITY	02/16/16 - 02/29/16 GUARD AT DISTRICT GATE	$690.00	$690.00
160373	3/10/2016	87896581202252016	AT&T	SERV: 01/18/16 - 02/17/16	$677.25	$677.25

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160395	3/10/2016	601961961	HILLYARD/SAN FRANCISCO	two mats 3x10, and 4x12	$626.28	$626.28
160374	3/10/2016	3ST67	BAY AREA AIR QUALITY MGMT DIST	ANNUAL PERMIT RNWL 4/2016-4/2018	$603.00	$603.00
160480	3/17/2016	6559	TURNER RISK CONSULTING INC	CONFINED SPACE & FALL PROTECTION TRAINING - SHONG	$550.00	$550.00
160380	3/10/2016	8239	CLEARWATER PLUMBING	REFUND # 18789	$500.00	$500.00
160406	3/10/2016	8217	PRESTON PIPELINE	REFUND # 18772	$500.00	$500.00
160431	3/17/2016	8222	BEST BUILDER	REFUND # 18790	$500.00	$500.00
160432	3/17/2016	8258	BEYOND PLUMBING	REFUND # 18794	$500.00	$500.00
160445	3/17/2016	8238	E Z PLUMBING	REFUND # 18805	$500.00	$500.00
160447	3/17/2016	8123	EVENFLOW PLUMBING CO. INC.	REFUND # 18806	$500.00	$500.00
160465	3/17/2016	8161	PRO ROOTER	REFUND # 18797	$500.00	$500.00
160479	3/17/2016	8255	TRENCH FREE INC	REFUND # 18804	$500.00	$500.00
160488	3/17/2016	8000	JIE YANG	REFUND # 18802	$500.00	$500.00
160442	3/17/2016	20160310	CWEA-NRTC	CONF REG: M. FULKERSON	$495.00	$495.00
160402	3/10/2016	935325	MOBILE MODULAR MANAGEMENT CORP	FMC TRAILER RENTAL - MAR 2016	$493.90	$493.90
160424	3/17/2016	5134668	ALL INDUSTRIAL ELECTRIC SUPPLY	ASTD PARTS & MATERIALS	$482.90	$482.90
160455	3/17/2016	12453	LOOKINGPOINT INC	1 EA ADDITIONAL POWER SUPPLY FOR CISCO PHONE SERVER	$480.34	$480.34
160382	3/10/2016	262767	CURTIS & TOMPKINS, LTD	15 LAB SAMPLE ANALYSIS	$435.00	$435.00
160486	3/17/2016	12397	WESTERN MACHINE & FAB INC	MACHINE 3" NPT THREADS PER ORDER	$420.00	$420.00
160389	3/10/2016	20160303	MARIAN GONZALEZ	EXP REIMB: CWEA P3S CONF - LODGING/MEALS/TRANSPORTATION	$409.05	$409.05

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160409	3/10/2016	2743321001	S & S SUPPLIES & SOLUTIONS	100 BRIEF RELIEF & 10 PRS KNEE PADS	$399.85	$399.85
160430	3/17/2016	18778100	BECK'S SHOES	SAFETY SHOES - N. NARVAEZ	$186.13	$394.13
	3/17/2016	18757000		SAFETY SHOES - L. BRENNER	$208.00	
160412	3/10/2016	28766	STARLINE SUPPLY COMPANY	7 CS COMPOSTABLE UTENSILS	$393.49	$393.49
160427	3/17/2016	20160311	PAMELA ARENDS-KING	TRAVEL REIMB: CSMFO CONF AIRFARE/MEALS/PARKING	$360.85	$360.85
160425	3/17/2016	6022452	ALPHA ANALYTICAL LABORATORIES	13 LAB SAMPLE ANALYSIS	$360.00	$360.00
160391	3/10/2016	9013479630	GRAINGER INC	ASTD PARTS & MATERIALS	$30.43	$316.63
	3/10/2016	9014578638		4 EA FUSES	$39.03	
	3/10/2016	9014578620		3 EA TGOGGLE SWITCHES	$30.76	
	3/10/2016	9013886891		ASTD PARTS & MATERIALS	$162.98	
	3/10/2016	9012674116		1 EA HOSE EXTENSION, POWERLUBER	$45.45	
	3/10/2016	9015253025		1 EA COUPLER, GREASE	$7.98	
160437	3/17/2016	17932	CLI-METRICS SERVICE COMPANY	FEB MONTHLY MAINTENANCE BLDG 81	$306.64	$306.64
160443	3/17/2016	20160310.1	CWEA-NRTC	CONF REG: M. LEE	$295.00	$295.00
160399	3/10/2016	20160303	DUNG LU	EXP REIMB: CCST TRNG - MEALS/MILEAGE/PARKING/FUEL	$274.08	$274.08
160474	3/17/2016	20160301	SPOK INC	MARCH 2016 PAGER SERVICE	$239.88	$239.88
160485	3/17/2016	2016007	WEST BAY SANITARY DISTRICT	COMMITTEE FEE - CS OF THE FUTURE	$226.67	$226.67
160470	3/17/2016	27831	SAFETYLINE INC	ORANGE ANSI TOWING JACKET - LEBON & MINCHACA	$225.49	$225.49

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160441	3/17/2016	263000	CURTIS & TOMPKINS, LTD	2 LAB SAMPLE ANALYSIS	$40.00	$220.00
	3/17/2016	262998		8 LAB SAMPLE ANALYSIS	$180.00	
160387	3/10/2016	1083769286	G&K SERVICES CO	UNIFORM LAUNDERING SERVICE	$11.20	$204.73
	3/10/2016	1083769287		ASTD DUST MOPS, WET MOPS & TERRY TOWELS	$33.78	
	3/10/2016	1083769284		UNIFORM LAUNDERING SERVICE	$16.96	
	3/10/2016	1083769281		UNIFORM LAUNDERING SERVICE	$103.65	
	3/10/2016	1083907388		CREDIT FOR UNRETURNED UNIFORM SHIRTS CHG - INV 1083755628	$-302.39	
	3/10/2016	1083769285		UNIFORMS & MATS	$59.22	
	3/10/2016	1083769283		UNIFORM LAUNDERING SERVICE	$43.95	
	3/10/2016	1083769280		UNIFORM LAUNDERING SERVICE	$123.03	
	3/10/2016	1083769282		UNIFORM LAUNDERING SERVICE	$115.33	
160397	3/10/2016	20160309	KATHLEEN KING	EXP REIMB: NCCIPMA CONF - NAPA, LODGING/MEALS/TRANS	$203.66	$203.66
160487	3/17/2016	20160315	WILSON WONG	EXP REIMB: MEALS/MILEAGE/TIPS/GAS ISA TECH TRAINING ARIZONA	$168.64	$168.64
160383	3/10/2016	20160307	CWEA-NRTC	MEMBERSHIP RENEWAL - A. HERNANDEZ	$164.00	$164.00
160388	3/10/2016	2801604803	GLACIER ICE COMPANY INC	115 EA 7-LB BAGS OF ICE	$159.85	$159.85
160407	3/10/2016	117275	R-2 ENGINEERING INC	2 RING HALF LANTERN	$139.50	$139.50
160467	3/17/2016	30855	R & S ERECTION OF S ALAMEDA	ROLL UP DOOR BUILDING 91 ROLLERS OUT & TRACK BENT	$117.50	$117.50
160386	3/10/2016	2493041	FREMONT FLOWERS	FLOWERS: HOVEY	$110.54	$110.54
160396	3/10/2016	944720160226	HOME DEPOT CREDIT SERVICES	MONTHLY HARDWARE STMT - FEB 2016	$110.12	$110.12

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CHECK REGISTER
03/05/2016-03/18/2016

Check No.	Date	Invoice No.	Vendor	Description	Invoice Amt	Check Amt
160489	3/17/2016	4289	ZELAYA DESIGNS	PUBLIC OUTREACH	$93.50	$93.50
160366	3/10/2016	64686	AIR & TOOL ENGINEERING COMPANY	TOOL REPAIR - APT 140 AIRGO BREAKER	$85.00	$85.00
160471	3/17/2016	20160316	KRISTINA SILVA	EXP REIMB: CIP BUDGET REVIEW LUNCH	$78.75	$78.75
160401	3/10/2016	20160309	MICHAEL MINCHACA	EXP REIMB: CLASS A LICENSE FEE	$73.00	$73.00
160398	3/10/2016	20160309	RICHARD LEBON	EXP REIMB: DMV CLASS A LICENSE FEE	$71.00	$71.00
160473	3/17/2016	20160314	THOMAS SOLARI	EXP REIMB: MILEAGE FOR CALL OUT	$65.33	$65.33
160368	3/10/2016	4088644120160222	ALAMEDA COUNTY WATER DISTRICT	SERV TO: 02/22/16 - BOYCE ROAD	$53.04	$53.04
160418	3/10/2016	83388012	XEROX CORPORATION	MTHLY MAINTENANCE BASED ON USE	$26.13	$26.13
160367	3/10/2016	9048392061	AIRGAS NCN	1 TUBE BRONZE FLUX COATED 3/32 X 36	$19.04	$19.04
160415	3/10/2016	9853076.0	UPS - UNITED PARCEL SERVICE	SHIPPING CHARGES W/E 02/13/16	$17.94	$17.94

Invoices:

Credit Memos :	**5**	**-502,466.32**
\$0 - \$1,000 :	**143**	**41,218.92**
\$1,000 - \$10,000 :	**53**	**163,693.59**
\$10,000 - \$100,000 :	**7**	**176,119.04**
Over \$100,000 :	**2**	**967,569.75**
Total:	**210**	**846,134.98**

Checks:

\$0 - \$1,000 :	**63**	**25,379.86**
\$1,000 - \$10,000 :	**53**	**159,046.08**
\$10,000 - \$100,000 :	**8**	**188,674.94**
Over \$100,000 :	**1**	**473,034.10**
Total:	**125**	**846,134.98**

Directors
Manny Fernandez
Tom Handley
Pat Kite
Anjali Lathi
Jennifer Toy

Officers
Paul R. Eldredge
General Manager/ District Engineer

Karen W. Murphy
Attorney

DATE: March 28, 2016

MEMO TO: Board of Directors – Union Sanitary District

FROM: Paul R. Eldredge, General Manager/District Engineer
Pamela Arends-King, Business Services Manager/Chief Financial Officer
Maria Buckley, Principal Financial Analyst

SUBJECT: Agenda Item No. 13b – Meeting of March 28, 2016
CalPERS Actuarial Valuation as of June 30, 2014, Required Contributions for Fiscal Year 2016 with Estimates Through 2022

Recommendation

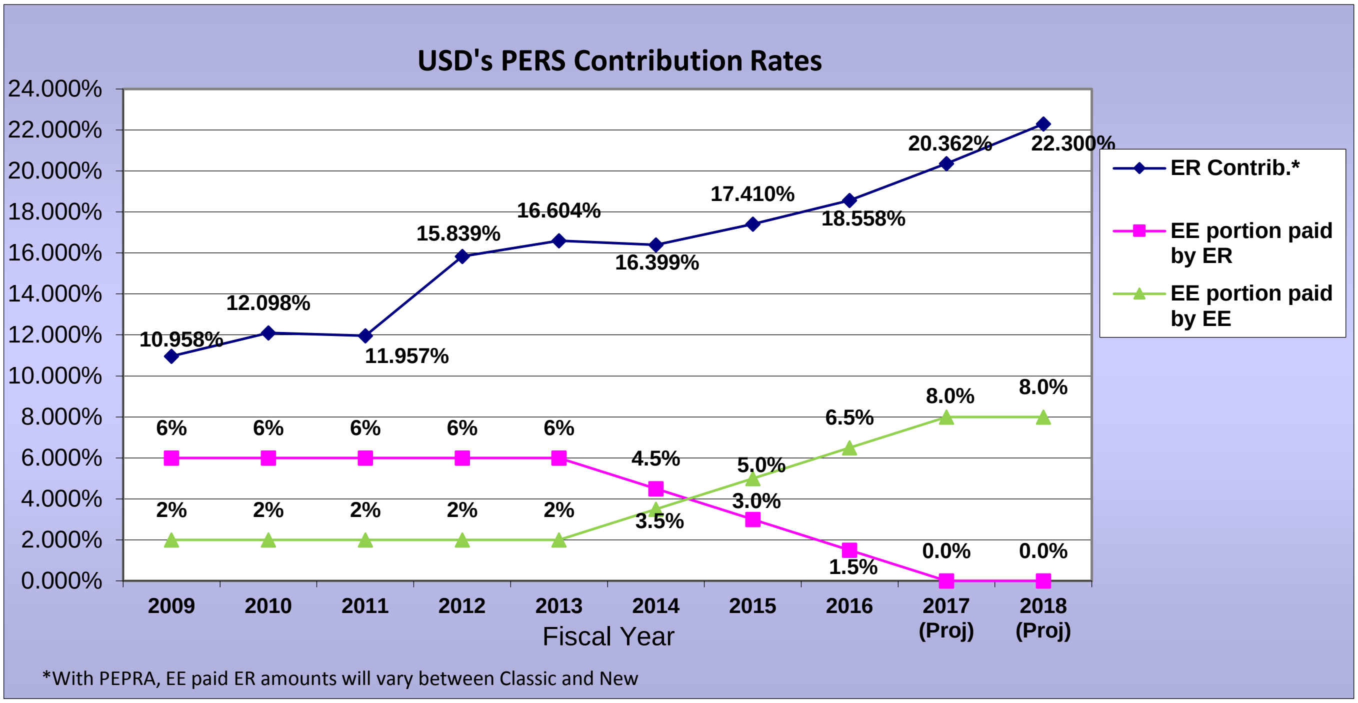
Information only.

Background

The District receives an actuarial report on our pension plan annually from the California Public Employees' Retirement System (CalPERS). Below is a summary from the most recent report, which is attached.

Summary of CalPERS Report:

	FY16 (Current)	**FY17**
Employer Contribution Rate	18.558%	**20.362%**
Employee Contribution Rate	8.00%	**8.00%**
Required Employer Contribution	$2,757,070	**$3,079,701**
Employee portion paid by USD (of 8%)	$222,842 1.5%	**$0** **0%**
Total Contribution by USD	$2,973,280	**$3,079,701 (est.)**
Percentage of rate attributed to unfunded liability	10.197%	**11.754%**
CalPERS Discount Rate Assumption	7.5%	**7.5%**
CalPERS Inflation Assumption	2.75%	**2.75%**
CalPERS Payroll Growth Assumption	3.0%	**3.0%**



As displayed in the chart above, the June 30, 2014 actuarial valuation report which was received by CalPERS late October 2015, lists the District's employer PERS contribution rate for fiscal year 2016-17 as 20.362%. This equates to an increase of 1.8% from the prior fiscal year. The rates are expected to increase over the next 5 years due to CalPERS efforts to address the payoff of the unfunded liability over a 30 year period and the increase in rates reflects the greater life expectancies of its members. For fiscal year 2016, the District paid 1.5% of the employee portion and starting with fiscal year 2017 the employees will be responsible for the total employees' contribution rate of 8%. The five year projected employer rates based on the June 30, 2014 actuarial are:

	Required Rate	Projected Future Employer Contribution Rates				
	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Contribution Rate	20.362%	22.3%	24.2%	26.1%	26.7%	27.1%

Replacement Benefit Plan

Back in July 28, 2015, staff brought forward an agenda report and actuarial report that attempted to explain Internal Revenue Code Section 415(b) and the Replacement Benefit Fund. Internal Revenue Code Section 415(b) (IRC 415) is a federal provision that limits the amount of annual retirement benefit an individual can receive from a tax-qualified defined benefit pension plan such as CalPERS. The annual retirement benefits payable from the CalPERS retirement plan are subject to the dollar limits imposed by IRC 415.

This law was enacted to prevent employers from using tax-qualified defined benefit plans as tax shelters. The CalPERS retirement plan may lose its tax-exempt status if it fails to comply with IRC 415.

IRC 415 places a dollar limit on the annual retirement benefit (allowance) that can be received from a tax-qualified pension plan such as CalPERS. Some additional details are as follows:

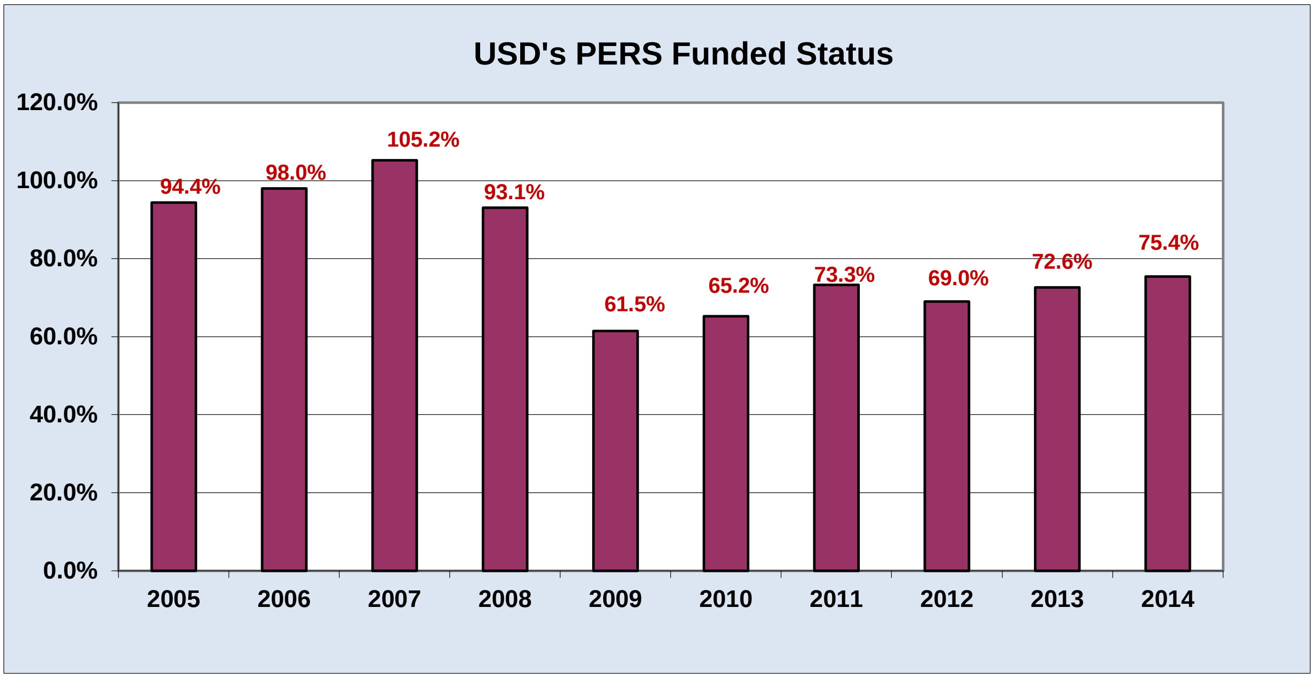
- The 2015 annual dollar limit is $210,000 for retirees aged 62-65 (These ages are designated as "normal retirement age" by the Social Security Administration.)
- Determination of whether a CalPERS member's retirement benefit will be subject to the IRC 415 limit can only be made at retirement.
- For members who retire between the ages of 50-61, the annual dollar limit is lower, adjusted to be the actuarial equivalent as if the member were aged 62-65 at retirement.

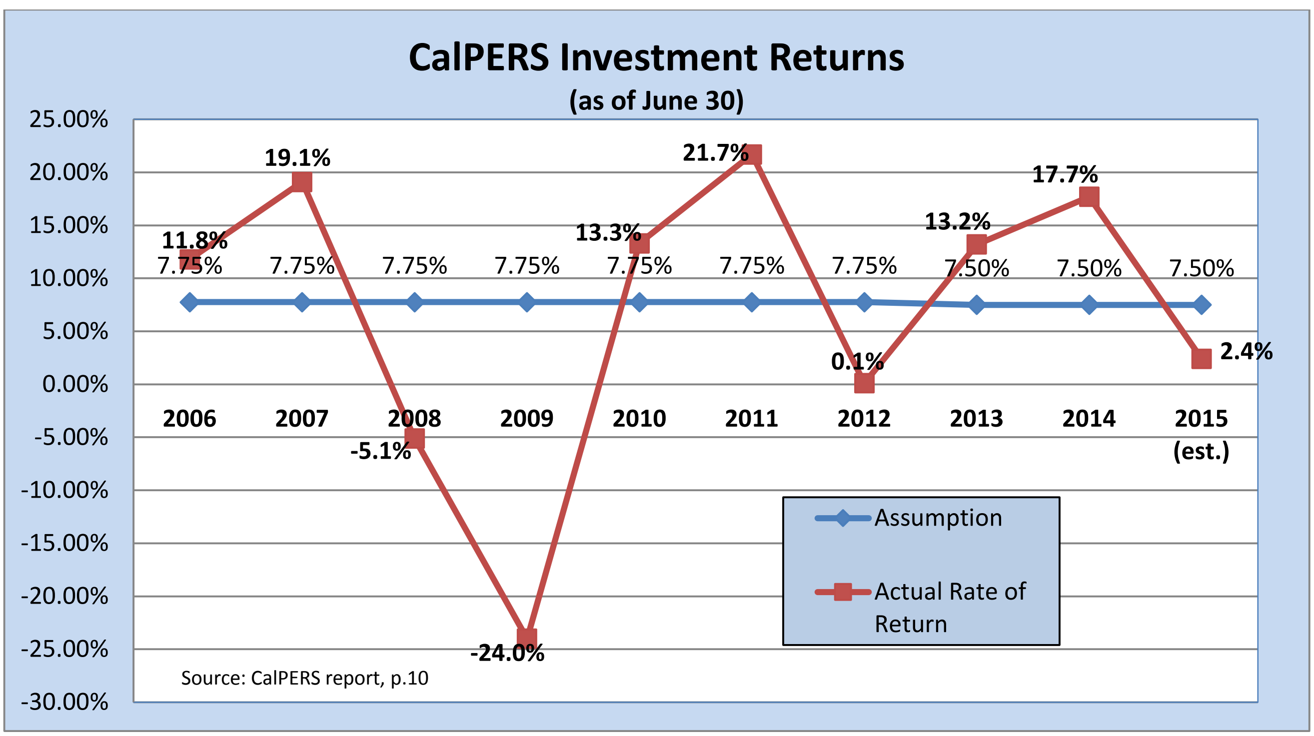
The Replacement Benefit Plan (RBP) is a plan that allows for replacement of the annual allowance that exceeds the IRC 415 dollar limit. The RBP is funded by the retiree's former employers. CalPERS invoices and receives the replacement benefit amounts from the affected employers and then disburses payment to the retiree. Every CalPERS employer must participate in the RBP in accordance with Government Code IRC 21761. The RBP statutes are Government Code IRC Sections 21750 – 21765 and the RBP regulations are California Code of Regulations 589 – 589.10.

CalPERS calculates the employers PERS rate and unfunded liability based on the benefits that will be paid up to the IRC 415 dollar limitation. Any funds contributed by the employer for a retiree's benefit that exceeds the IRC 415 dollar limitation is applied toward reducing the employer's unfunded pension liability which helps lower the employers PERS rates; therefore the employer is not paying twice for the retiree's benefit. Currently, the District has three retirees that fall under IRC 415 and the total amount paid in fiscal year 2016 for benefits that exceeded the dollar limitation was $54,264. Based on an actuarial study the District completed in April of 2015, it is estimated the District may have five additional retirees with benefits that exceed the IRC 415 dollar limitation within the next ten years.

Unfunded Pension Liability

The pension plan's unfunded liability as of June 30, 2014 was $28,888,804; which is the net of the accrued liability of $117,459,514 less the market value of assets totaling $88,570,710. The plan is currently 75.4% funded, an increase of 2.8% from the funding ratio as of June 30, 2013. The following charts reflect the historical funding ratio of the District's plan from 2005 through 2014 and the CalPERS investment returns. Both charts display how the earnings on the pension plan's assets impact the funding status of the District's pension plan.





Attachment: CalPERS Valuation Report as of 6/30/14

CalPERS

California Public Employees' Retirement System
Actuarial Office
P.O. Box 942701
Sacramento, CA 94229-2701
TTY: (916) 795-3240
(888) 225-7377 phone • (916) 795-2744 fax
www.calpers.ca.gov

October 2015

MISCELLANEOUS PLAN OF THE UNION SANITARY DISTRICT (CalPERS ID: 6011550262)
Annual Valuation Report as of June 30, 2014

Dear Employer,

As an attachment to this letter, you will find a copy of the June 30, 2014 actuarial valuation report of your pension plan. Your 2014 actuarial valuation report contains important actuarial information about your pension plan at CalPERS. Your CalPERS staff actuary, whose signature appears in the Actuarial Certification Section on page 1, is available to discuss the report with you after November 30, 2015.

Future Contribution Rates

The exhibit below displays the Minimum Employer Contribution Rate for Fiscal Year 2016-17 and a projected contribution rate for 2017-18, before any cost sharing. The projected rate for 2017-18 is based on the most recent information available, including an estimate of the investment return for Fiscal Year 2014-15, namely 2.4 percent. For a projection of employer rates beyond 2017-18, please refer to the "Projected Rates" in the "Risk Analysis" section, which includes rate projections through 2021-22. The 5-year projection of future employer contribution rates supersedes any previous projections we have provided. The Risk Analysis section of your valuation report also contains estimated employer contribution rates in future years under a variety of investment return scenarios.

Fiscal Year	Employer Contribution Rate
2016-17	20.362%
2017-18	22.3% (projected)

Member contributions other than cost sharing (whether paid by the employer or the employee) are in addition to the above rates. **The employer contribution rates in this report do not reflect any cost sharing arrangement you may have with your employees.**

The estimate for 2017-18 also assumes that there are no future contract amendments and no liability gains or losses (such as larger than expected pay increases, more retirements than expected, etc.). This is a very important assumption because these gains and losses do occur and can have a significant impact on your contribution rate. Even for the largest plans, such gains and losses often cause a change in the employer's contribution rate of one or two percent of payroll and may be even larger in some less common instances. These gains and losses cannot be predicted in advance so the projected employer contribution rates are just estimates. Your actual rate for 2017-18 will be provided in next year's report.

Changes since the Prior Year's Valuation

This actuarial valuation includes Board adopted changes to the demographic assumptions based on the most recent experience study report. The most significant of these is the improvement in post-retirement mortality acknowledging the greater life expectancies we are seeing in our membership and expected continued improvements. The actuarial assumptions and methods used in CalPERS public agency valuations are approved by the Board of Administration upon the recommendation of the Chief Actuary. The individual plan actuary whose signature appears in the actuarial certification in the accompanying report does not set plan specific actuarial assumptions.

Besides the above noted changes, there may also be changes specific to your plan such as contract amendments and funding changes.

Further descriptions of general changes are included in the "Highlights and Executive Summary" section and in Appendix A, "Actuarial Methods and Assumptions." The effect of the changes on your rate is included in the "Reconciliation of Required Employer Contributions" Section.

Effective with the 2014 actuarial valuation, Governmental Accounting Standards Board Statement No. 27 financial reporting information is no longer provided in CalPERS annual actuarial valuation reports. GASB 27 has been replaced with GASB 68 for financial statement reporting purposes. CalPERS is providing separate accounting valuation reports on a fee for service basis for our public agency employers. More details on GASB 68 and instructions for ordering your GASB 68 report are available on our website.

Potential Changes to Future Year Valuations

One of CalPERS strategic goals is to improve the long-term pension benefit sustainability of the system through an integrated view of pension assets and liabilities. The Board of Administration has been engaging in discussions on the funding risks faced by the system and possible risk mitigation strategies to better protect our members. Recent Board actions on a new asset allocation, new actuarial assumptions and new smoothing and amortization policies have already lowered risk. However, future contribution rate volatility is expected as CalPERS pension plans continue to mature. Two approaches under consideration are a flexible glide path methodology, a lowering of the discount rate and expected investment volatility following a great investment return and a blended glide path methodology which is similar to the flexible glide path but with check points over time that would trigger additional asset allocation changes and lowering of the discount rate if investment returns did not result in a sufficient reduction in volatility. Either approach requires thoughtful discussion as it involves tradeoffs between short and long-term system impacts and potential future increases in required contributions. Additional information can be found on the CalPERS website with possible Board action on risk mitigation strategy and policy at the November 2015 Board meeting.

We understand that you might have a number of questions about these results. While we are very interested in discussing these results with your agency, in the interest of allowing us to give every public agency their results, we ask that you wait until after November 30 to contact us with actuarial questions. If you have other questions, you may call the Customer Contact Center at (888)-CalPERS or (**888-225-7377**).

Sincerely,

ALAN MILLIGAN
Chief Actuary

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ACTUARIAL VALUATION
as of June 30, 2014

for the
MISCELLANEOUS PLAN
of the
UNION SANITARY DISTRICT

(CalPERS ID: 6011550262)
(Rate Plan ID: 984)

REQUIRED CONTRIBUTIONS
FOR FISCAL YEAR
July 1, 2016 – June 30, 2017

TABLE OF CONTENTS

ACTUARIAL CERTIFICATION

To the best of our knowledge, this report is complete and accurate and contains sufficient information to disclose, fully and fairly, the funded condition of the MISCELLANEOUS PLAN OF THE UNION SANITARY DISTRICT. This valuation is based on the member and financial data as of June 30, 2014 provided by the various CalPERS databases and the benefits under this plan with CalPERS as of the date this report was produced. It is our opinion that the valuation has been performed in accordance with generally accepted actuarial principles, in accordance with standards of practice prescribed by the Actuarial Standards Board, and that the assumptions and methods are internally consistent and reasonable for this plan, as prescribed by the CalPERS Board of Administration according to provisions set forth in the California Public Employees' Retirement Law.

The undersigned is an actuary for CalPERS, who is a member of the American Academy of Actuaries and the Society of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Fritzie Archuleta

FRITZIE ARCHULETA, ASA, MAAA
Senior Pension Actuary, CalPERS

HIGHLIGHTS AND EXECUTIVE SUMMARY

- **INTRODUCTION**
- **PURPOSE OF THE REPORT**
- **REQUIRED EMPLOYER CONTRIBUTION**
- **PLAN'S FUNDED STATUS**
- **COST**
- **CHANGES SINCE THE PRIOR YEAR'S VALUATION**
- **SUBSEQUENT EVENTS**

Introduction

This report presents the results of the June 30, 2014 actuarial valuation of the MISCELLANEOUS PLAN OF THE UNION SANITARY DISTRICT of the California Public Employees' Retirement System (CalPERS). This actuarial valuation sets the Fiscal Year 2016-17 required employer contribution rates.

This actuarial valuation includes Board adopted changes to the demographic assumptions based on the most recent experience study report. The most significant of these is the improvement in post-retirement mortality acknowledging the greater life expectancies we are seeing in our membership and expected continued improvements. The actuarial assumptions and methods used in CalPERS public agency valuations are approved by the Board of Administration upon the recommendation of the Chief Actuary. The individual plan actuary whose signature appears in the actuarial certification in this report does not set plan specific actuarial assumptions.

Effective with the 2014 actuarial valuation, Governmental Accounting Standards Board Statement No. 27 financial reporting information is no longer provided in CalPERS annual actuarial valuation reports. GASB 27 has been replaced with GASB 68 for financial statement reporting purposes. CalPERS is providing separate accounting valuation reports on a fee for service basis for our public agency employers. More details on GASB 68 and instructions for ordering your GASB 68 report are available on our website.

Purpose of the Report

The actuarial valuation was prepared by the CalPERS Actuarial Office using data as of June 30, 2014. The purpose of the report is to:

- Set forth the assets and accrued liabilities of this plan as of June 30, 2014;
- Determine the required employer contribution rate for the Fiscal Year July 1, 2016 through June 30, 2017;
- Provide actuarial information as of June 30, 2014 to the CalPERS Board of Administration and other interested parties.

The pension funding information presented in this report should not be used in financial reports subject to Governmental Accounting Standards Board (GASB) Statement Number 68 for an Agent Employer Defined Benefit Pension Plan. A separate accounting valuation report for such purposes is available from CalPERS and details for ordering are available on our website.

The use of this report for any other purposes may be inappropriate. In particular, this report does not contain information applicable to alternative benefit costs. The employer should contact their actuary before disseminating any portion of this report for any reason that is not explicitly described above.

California Actuarial Advisory Panel Recommendations

This report includes all the basic disclosure elements as described in the *Model Disclosure Elements for Actuarial Valuation Reports* recommended in 2011 by the California Actuarial Advisory Panel (CAAP), with the exception of including the original base amounts of the various components of the unfunded liability in the Schedule of Amortization Bases shown on page 14.

Additionally, this report includes the following "Enhanced Risk Disclosures" also recommended by the CAAP in the Model Disclosure Elements document:

- A "Deterministic Stress Test," projecting future results under different investment income scenarios
- A "Sensitivity Analysis," showing the impact on current valuation results using a 1 percent plus or minus change in the discount rate.

Required Employer Contribution

		Fiscal Year 2015-16		Fiscal Year 2016-17
Actuarially Determined Employer Contributions				
1. Contribution in Projected Dollars				
a) Total Normal Cost	$	2,426,303	$	2,503,501
b) Employee Contribution[1]		1,184,183		1,201,535
c) Employer Normal Cost [(1a) – (1b)]		1,242,120		1,301,966
d) Unfunded Liability Contribution		1,514,950		1,777,735
e) Required Employer Contribution [(1c) + (1d)]	$	2,757,070	$	3,079,701
Projected Annual Payroll for Contribution Year	$	14,856,136	$	15,125,065
2. Contribution as a Percentage of Payroll				
a) Total Normal Cost		16.332%		16.552%
b) Employee Contribution[1]		7.971%		7.944%
c) Employer Normal Cost [(2a) – (2b)]		8.361%		8.608%
d) Unfunded Liability Rate		10.197%		11.754%
e) Required Employer Rate [(2c) + (2d)]		18.558%		20.362%
Minimum Employer Contribution Rate[2]		**18.558%**		**20.362%**
Annual Lump Sum Prepayment Option[3]	$	2,659,154	$	2,970,327

[1] For classic members this is the percentage specified in the Public Employees Retirement Law, net of any reduction from the use of a modified formula or other factors. For PEPRA members, the member contribution rate is based on 50 percent of the normal cost. A development of PEPRA member contribution rates can be found in Appendix D. Employee cost sharing is not shown in this report.

[2] The Minimum Employer Contribution Rate under PEPRA is the greater of the required employer rate or the employer normal cost. The timing of contributions made during the year coincides with the employer's payroll reporting periods. § 20572 of the Public Employees' Retirement Law assesses interest at an annual rate of 10 percent if a contracting agency fails to remit the required contributions when due.

[3] The Annual Lump Sum Prepayment can be made between July 1 and July 15 and should be made before the contributions for the first payroll reporting period of the new fiscal year are due. If there is contractual cost sharing or other change, this amount will change.

Plan's Funded Status

		June 30, 2013		June 30, 2014
1. Present Value of Projected Benefits	$	120,596,743	$	133,716,622
2. Entry Age Normal Accrued Liability		104,969,799		117,459,514
3. Market Value of Assets (MVA)	$	76,215,351	$	88,570,710
4. Unfunded Liability [(2) – (3)]	$	28,754,448	$	28,888,804
5. Funded Ratio [(3) / (2)]		72.6%		75.4%

Cost

Actuarial Cost Estimates in General

What will this pension plan cost? Unfortunately, there is no simple answer. There are two major reasons for the complexity of the answer. First, actuarial calculations, including the ones in this report, are based on a number of assumptions about the future. These assumptions can be divided into two categories.

- Demographic assumptions include the percentage of employees that will terminate, die, become disabled, and retire in each future year.
- Economic assumptions include future salary increases for each active employee, and the assumption with the greatest impact, future asset returns at CalPERS for each year into the future until the last dollar is paid to current members of your plan.

While CalPERS has set these assumptions to reflect our best estimate of the real future of your plan, it must be understood that these assumptions are very long-term predictors and will surely not be realized in any one year. For example, while the asset earnings at CalPERS have averaged more than the assumed return of 7.5 percent for the past twenty year period ending June 30, 2014, returns for each fiscal year ranged from negative -24 percent to +21.7 percent.

Second, the very nature of actuarial funding produces the answer to the question of plan cost as the sum of two separate pieces.

- The Normal Cost (i.e., the annual cost associated with one year of service accrual) expressed as a percentage of total active payroll.
- The Past Service Cost or Accrued Liability (i.e., the current value of the benefit for all credited past service of current members) which is expressed as a lump sum dollar amount.

The cost is the sum of a percent of future pay and a lump sum dollar amount. To communicate the total cost, either the Normal Cost must be converted to a lump sum dollar amount or the Past Service Cost must be converted to a percent of payroll. Converting the Past Service Cost lump sum to a percent of payroll requires a specific amortization period, and the employer rate will vary depending on the amortization period chosen. CalPERS Board amortization and smoothing policies specify the amortization period used for each amortization base. These policies permit a restructuring of the amortization bases (also known as a "fresh start") when the application of the amortization policy would not otherwise achieve the goals of the policy – to eliminate the unfunded liabilities in a manner that maintains benefit security while minimizing substantial variations in employer contribution rates. Currently unfunded liabilities are paid as a percent of payroll. However, in the future, unfunded liabilities may be billed as dollar amounts as is the case for plans that are in risk pools.

Changes since the Prior Year's Valuation

Benefits

The standard actuarial practice at CalPERS is to recognize mandated legislative benefit changes in the first annual valuation following the effective date of the legislation. Voluntary benefit changes by plan amendment are generally included in the first valuation that is prepared after the amendment becomes effective even if the valuation date is prior to the effective date of the amendment.

This valuation generally reflects plan changes by amendments effective before the date of the report. Please refer to the "Plan's Major Benefit Options" and Appendix B for a summary of the plan provisions used in this valuation. The effect of any mandated benefit changes or plan amendments on the unfunded liability is shown in the "(Gain)/Loss Analysis" and the effect on your employer contribution rate is shown in the "Reconciliation of Required Employer Contributions." It should be noted that no change in liability or rate is shown for any plan changes which were already included in the prior year's valuation.

Actuarial Methods and Assumptions

The CalPERS Board of Administration approved several changes to the demographic assumptions that more closely align with actual experience based on the most recent experience study. The most significant of these is mortality improvement to acknowledge the greater life expectancies we are seeing in our membership and expected continued improvements. The new actuarial assumptions are used to set the Fiscal Year 2016-17 contribution rates for public agency employers. The increase in liability due to new actuarial assumptions calculated in this actuarial valuation is amortized over a 20-year period with a 5-year ramp-up/ramp-down in accordance with Board amortization policy.

Subsequent Events

Actuarial Methods and Assumptions

One of CalPERS strategic goals is to improve the long-term pension benefit sustainability of the system through an integrated view of pension assets and liabilities. The Board of Administration has been engaging in discussions on the funding risks faced by the system and possible risk mitigation strategies to better protect our members. Recent Board actions on a new asset allocation, new actuarial assumptions and new smoothing and amortization policies have already lowered risk. However, future contribution rate volatility is expected as CalPERS pension plans continue to mature. Two approaches under consideration are a flexible glide path methodology, a lowering of the discount rate and expected investment volatility following a great investment return and a blended glide path methodology which is similar to the flexible glide path but with check points over time that would trigger additional asset allocation changes and lowering of the discount rate if investment returns did not result in a sufficient reduction in volatility. Either approach requires thoughtful discussion as it involves tradeoffs between short and long-term system impacts and potential future increases in required contributions. Additional information can be found on the CalPERS website with possible Board action on risk mitigation strategy and policy at the November 2015 Board meeting.

ASSETS

- **RECONCILIATION OF THE MARKET VALUE OF ASSETS**
- **ASSET ALLOCATION**
- **CALPERS HISTORY OF INVESTMENT RETURNS**

Reconciliation of the Market Value of Assets

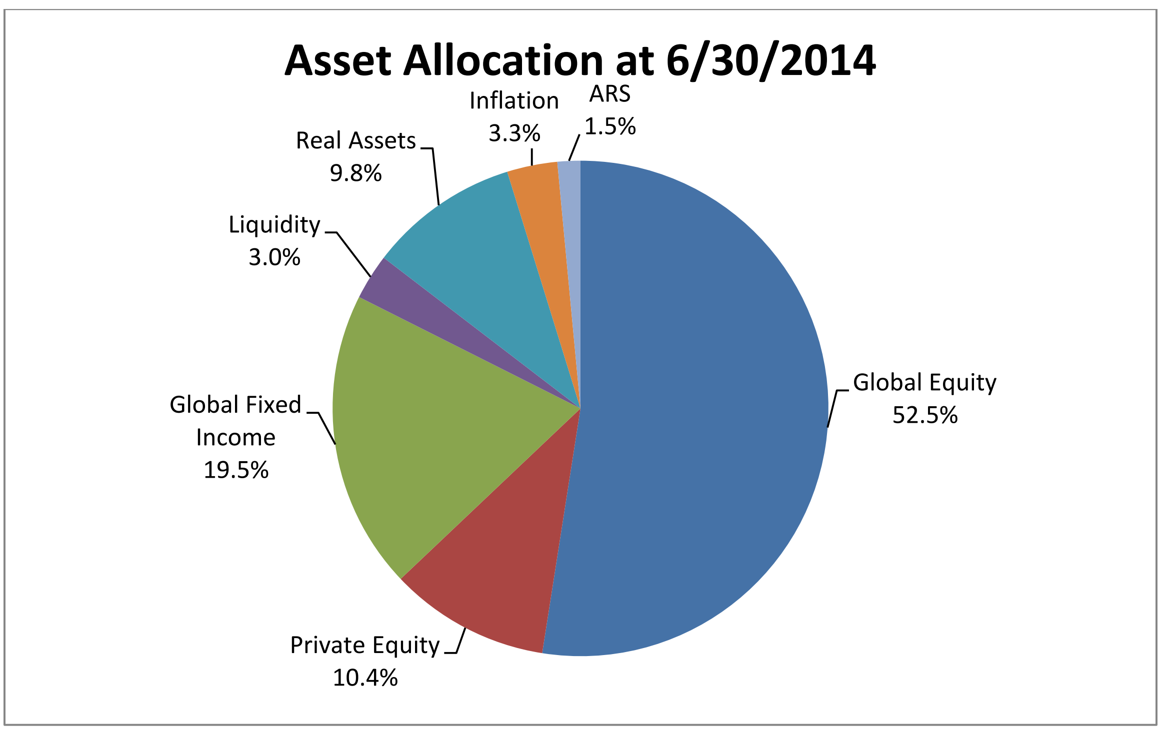
1.	Market Value of Assets as of 6/30/13 Including Receivables	$	76,215,351
2.	Change in Receivables for Service Buybacks as of 6/30/13		218,341
3.	Employer Contributions		2,428,874
4.	Employee Contributions		1,108,457
5.	Benefit Payments to Retirees and Beneficiaries		(4,834,370)
6.	Refunds		(37,628)
7.	Lump Sum Payments		0
8.	Transfers and Miscellaneous Adjustments		248,310
9.	Investment Return		13,223,375
10.	Market Value of Assets as of 6/30/14 Including Receivables	$	88,570,710

Asset Allocation

CalPERS adheres to an Asset Allocation Strategy which establishes asset class allocation policy targets and ranges, and manages those asset class allocations within their policy ranges. CalPERS Investment Belief No. 6 recognizes that strategic asset allocation is the dominant determinant of portfolio risk and return. On February 19, 2014 the CalPERS Board of Administration adopted changes to the current asset allocation as shown in the Policy Target Allocation below expressed as percentage of total assets. The asset allocation has an expected long term blended rate of return of 7.5 percent.

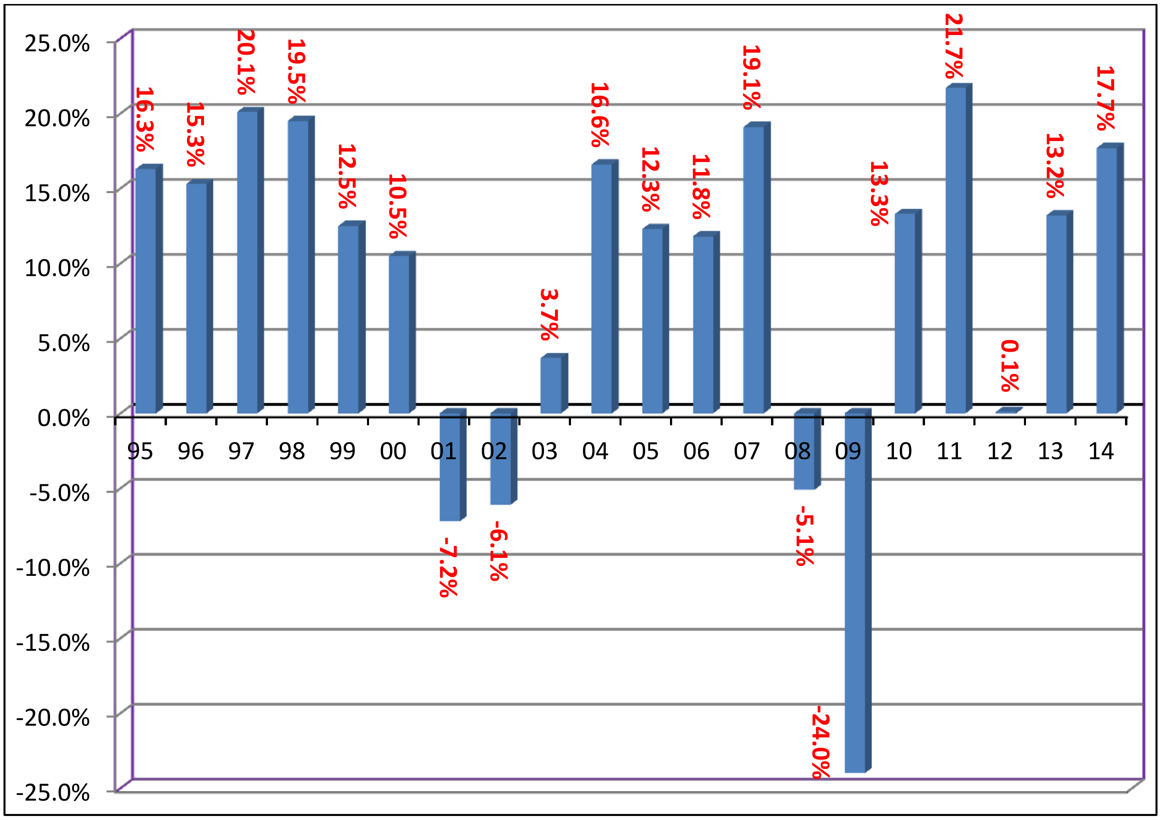
The asset allocation and market value of assets shown below reflect the values of the Public Employees Retirement Fund (PERF) in its entirety as of June 30, 2014. The assets for UNION SANITARY DISTRICT MISCELLANEOUS PLAN are part of the Public Employees Retirement Fund (PERF) and are invested accordingly.

(A) Asset Class	(B) Market Value ($ Billion)	(C) Policy Target Allocation
Global Equity	158.2	50.0%
Private Equity	31.5	14.0%
Global Fixed Income	58.8	17.0%
Liquidity	9.0	4.0%
Real Assets	29.6	11.0%
Inflation Sensitive Assets	9.9	4.0%
Absolute Return Strategy (ARS)	4.5	0.0%
Total Fund	**$301.5**	**100.0%**



CalPERS History of Investment Returns

The following is a chart with the 20-year historical annual returns of the Public Employees Retirement Fund for each fiscal year ending on June 30. Beginning in 2002, the figures are reported as gross of fees.



The table below shows historical geometric mean annual returns of the Public Employees Retirement Fund for various time periods ending on June 30, 2014, (figures are reported as gross of fees). The geometric mean rate of return is the average rate per period compounded over multiple periods. It should be recognized that in any given year the rate of return is volatile. Although the expected rate of return on the recently adopted new asset allocation is 7.5 percent, the portfolio has an expected volatility of 11.76 percent per year. The volatility is a measure of the risk of the portfolio expressed in the standard deviation of the fund's total return distribution, expressed in percent. Consequently when looking at investment returns it is more instructive to look at returns over longer time horizons.

History of CalPERS Geometric Mean Rates of Return and Volatilities					
	1 year	**5 year**	**10 year**	**20 year**	**30 year**
Geometric Return	17.7%	13.0%	7.1%	8.4%	10.1%
Volatility	–	8.1%	14.0%	11.9%	11.4%

LIABILITIES AND RATES

- DEVELOPMENT OF ACCRUED AND UNFUNDED LIABILITIES
- (GAIN) / LOSS ANALYSIS 06/30/13 - 06/30/14
- SCHEDULE OF AMORTIZATION BASES
- ALTERNATE AMORTIZATION SCHEDULES
- RECONCILIATION OF REQUIRED EMPLOYER CONTRIBUTIONS
- EMPLOYER CONTRIBUTION RATE HISTORY
- FUNDING HISTORY

Development of Accrued and Unfunded Liabilities

		June 30, 2013	Prior Year Assumptions June 30, 2014	New Assumptions June 30, 2014
1. Present Value of Projected Benefits				
a) Active Members	$	59,864,885	61,787,127	65,157,405
b) Transferred Members		4,549,089	4,309,744	4,458,625
c) Terminated Members		794,753	1,189,495	1,035,013
d) Members and Beneficiaries Receiving Payments		55,388,016	59,950,495	63,065,579
e) Total	$	120,596,743	127,236,861	133,716,622
2. Present Value of Future Employer Normal Costs	$	7,728,157	7,796,665	8,247,029
3. Present Value of Future Employee Contributions	$	7,898,787	8,019,980	8,010,079
4. Entry Age Normal Accrued Liability				
a) Active Members [(1a) - (2) - (3)]	$	44,237,941	45,970,482	48,900,297
b) Transferred Members (1b)		4,549,089	4,309,744	4,458,625
c) Terminated Members (1c)		794,753	1,189,495	1,035,013
d) Members and Beneficiaries Receiving Payments (1d)		55,388,016	59,950,495	63,065,579
e) Total	$	104,969,799	111,420,216	117,459,514
5. Market Value of Assets (MVA)	$	76,215,351	88,570,710	88,570,710
6. Unfunded Liability [(4e) - (5)]	$	28,754,448	22,849,506	28,888,804
7. Funded Ratio [(5) / (4e)]		72.6%	79.5%	75.4%

(Gain) /Loss Analysis 6/30/13 – 6/30/14

To calculate the cost requirements of the plan, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is compared to the expected experience based on the actuarial assumptions. This results in actuarial gains or losses, as shown below.

A	**Total (Gain)/Loss for the Year**		
	1. Unfunded Accrued Liability (UAL) as of 6/30/13	$	28,754,448
	2. Expected Payment on the UAL during 2013/2014		1,129,649
	3. Interest through 6/30/14 [.075 x (A1) - ((1.075)^{½} - 1) x (A2)]		2,114,988
	4. Expected UAL before all other changes [(A1) - (A2) + (A3)]		29,739,787
	5. Change due to plan changes		0
	6. Change due to assumption change		6,039,298
	7. Expected UAL after all other changes [(A4) + (A5) + (A6)]		35,779,085
	8. Actual UAL as of 6/30/14		28,888,804
	9. Total (Gain)/Loss for 2013/2014 [(A8) - (A7)]	$	(6,890,281)
B	**Contribution (Gain)/Loss for the Year**		
	1. Expected Contribution (Employer and Employee)	$	3,412,612
	2. Interest on Expected Contributions		125,659
	3. Actual Contributions		3,537,331
	4. Interest on Actual Contributions		130,252
	5. Expected Contributions with Interest [(B1) + (B2)]		3,538,271
	6. Actual Contributions with Interest [(B3) + (B4)]		3,667,583
	7. Contribution (Gain)/Loss [(B5) - (B6)]	$	(129,312)
C	**Asset (Gain)/Loss for the Year**		
	1. Market Value of Assets as of 6/30/13	$	76,215,351
	2. Receivables PY		(364,759)
	3. Receivables CY		583,100
	4. Contributions Received		3,537,331
	5. Benefits and Refunds Paid		(4,871,998)
	6. Transfers and miscellaneous adjustments		248,310
	7. Expected Int. [.075 x (C1 + C2) + ((1.075)^{½} - 1) x ((C4) + (C5) + (C6))]		5,648,792
	8. Expected Assets as of 6/30/14 [(C1) + (C2) + (C3) + (C4) + (C5) + (C6) + (C7)]		80,996,127
	9. Market Value of Assets as of 6/30/14		88,570,710
	10. Asset (Gain)/Loss [(C8) - (C9)]	$	(7,574,583)
D	**Liability (Gain)/Loss for the Year**		
	1. Total (Gain)/Loss (A9)	$	(6,890,281)
	2. Contribution (Gain)/Loss (B7)		(129,312)
	3. Asset (Gain)/Loss (C10)		(7,574,583)
	4. Liability (Gain)/Loss [(D1) - (D2) - (D3)]	$	813,614

Schedule of Amortization Bases

There is a two-year lag between the Valuation Date and the Contribution Fiscal Year.

- The assets, liabilities and funded status of the plan are measured as of the valuation date; June 30, 2014.
- The employer contribution rate determined by the valuation is for the fiscal year beginning two years after the valuation date; Fiscal Year 2016-17.

This two-year lag is necessary due to the amount of time needed to extract and test the membership and financial data, and due to the need to provide public agencies with their employer contribution rates well in advance of the start of the fiscal year.

The Unfunded Liability is used to determine the employer contribution and therefore must be rolled forward two years from the valuation date to the first day of the fiscal year for which the contribution is being determined. The Unfunded Liability is rolled forward each year by subtracting the expected Payment on the Unfunded Liability for the fiscal year and adjusting for interest. The Expected Payment on the Unfunded Liability for a fiscal year is equal to the Expected Employer Contribution for the fiscal year minus the Expected Normal Cost for the year. The Employer Contribution Rate for the first fiscal year is determined by the actuarial valuation two years ago and the rate for the second year is from the actuarial valuation one year ago. The Normal Cost Rate for each of the two fiscal years is assumed to be the same as the rate determined by the current valuation. All expected dollar amounts are determined by multiplying the rate by the expected payroll for the applicable fiscal year, based on payroll as of the valuation date.

							Amounts for Fiscal 2016-17		
Reason for Base	**Date Established**	**Amortization Period**	**Balance 6/30/14**	**Expected Payment 2014-15**	**Balance 6/30/15**	**Expected Payment 2015-16**	**Balance 6/30/16**	**Scheduled Payment for 2016-17**	**Payment as Percentage of Payroll**
ASSUMPTION CHANGE	06/30/03	9	$1,690,581	$195,542	$1,614,632	$201,408	$1,526,905	$207,451	1.372%
METHOD CHANGE	06/30/04	10	$(242,957)	$(26,271)	$(233,940)	$(27,059)	$(223,431)	$(27,871)	(0.184%)
ASSUMPTION CHANGE	06/30/09	15	$5,085,093	$427,205	$5,023,539	$440,021	$4,944,081	$453,222	2.996%
SPECIAL (GAIN)/LOSS	06/30/09	25	$2,301,532	$145,867	$2,322,909	$150,243	$2,341,351	$154,750	1.023%
SPECIAL (GAIN)/LOSS	06/30/10	26	$1,384,501	$86,089	$1,399,080	$88,671	$1,412,074	$91,331	0.604%
ASSUMPTION CHANGE	06/30/11	17	$2,140,919	$167,049	$2,128,288	$172,061	$2,109,513	$177,223	1.172%
SPECIAL (GAIN)/LOSS	06/30/11	27	$(830,528)	$(50,724)	$(840,226)	$(52,245)	$(849,074)	$(53,813)	(0.356%)
PAYMENT (GAIN)/LOSS	06/30/12	28	$(34,334)	$(2,062)	$(34,771)	$(2,124)	$(35,177)	$(2,187)	(0.014%)
(GAIN)/LOSS	06/30/12	28	$5,743,983	$344,929	$5,817,151	$355,277	$5,885,078	$365,935	2.419%
(GAIN)/LOSS	06/30/13	29	$12,500,998	$21,735	$13,416,038	$188,697	$14,226,596	$388,716	2.570%
ASSUMPTION CHANGE	06/30/14	20	$6,039,298	$(53,178)	$6,547,381	$(54,773)	$7,095,224	$135,148	0.894%
(GAIN)/LOSS	06/30/14	30	$(6,890,282)	$6,688	$(7,413,987)	$4,898	$(7,975,114)	$(112,170)	(0.742%)
TOTAL			**$28,888,804**	**$1,262,869**	**$29,746,094**	**$1,465,075**	**$30,458,026**	**$1,777,735**	**11.754%**

Alternate Amortization Schedules

The amortization schedule shown on the previous page shows the minimum contribution required according to CalPERS amortization policy. There has been considerable interest from many agencies in paying off these unfunded accrued liabilities sooner and the possible savings in doing so. Therefore, we have provided alternate amortization schedules to help analyze your current amortization schedule and illustrate the advantages of accelerating payments towards your plan's unfunded liability of $30,458,026 as of June 30, 2016, which under the minimum schedule, will require total payments of $66,600,566. Shown below are the level rate payments required to amortize your plan's unfunded liability assuming a fresh start over the various periods noted. Note that the payments under each scenario would increase by 3 percent for each year into the future.

Level Rate of Payroll Amortization

Period	2016-17 Rate	2016-17 Payment	Total Payments	Total Interest	Difference from Current Schedule
20	15.205%	$2,299,746	$61,795,045	$31,337,018	$4,805,521
15	18.460%	$2,792,073	$51,929,528	$21,471,501	$14,671,038

If you are interested in changing your plan's amortization schedule please contact your plan actuary to discuss further.

Reconciliation of Required Employer Contributions

	Percentage of Projected Payroll		Estimated $ Based on Projected Payroll
1. Contribution for 7/1/15 – 6/30/16	18.558%	$	2,757,070
2. Effect of changes since the prior year annual valuation			
a) Effect of changes in demographics and financial results	0.537%		81,088
b) Effect of plan changes	0.000%		0
c) Effect of changes in Assumptions	1.267%		191,635
d) Effect of change in payroll	-		49,908
e) Effect of elimination of amortization base	0.000%		0
f) Effect of changes due to Fresh Start	0.000%		0
g) Net effect of the changes above [Sum of (a) through (f)]	1.804%		322,631
3. Contribution for 7/1/16 – 6/30/17 [(1)+(2g)]	20.362%		3,079,701

The contribution actually paid (item 1) may be different if a prepayment of unfunded actuarial liability is made or a plan change became effective after the prior year's actuarial valuation was performed.

Employer Contribution Rate History

The table below provides a recent history of the employer contribution rates for your plan, as determined by the annual actuarial valuation. It does not account for prepayments or benefit changes made in the middle of the year.

Required By Valuation

Fiscal Year	Employer Normal Cost	Unfunded Rate	Total Employer Contribution Rate
2011 - 2012	8.444%	7.395%	15.839%
2012 - 2013	8.467%	8.137%	16.604%
2013 - 2014	8.367%	8.032%	16.399%
2014 - 2015	8.389%	9.021%	17.410%
2015 - 2016	8.361%	10.197%	18.558%
2016 - 2017	8.608%	11.754%	20.362%

Funding History

The Funding History below shows the recent history of the actuarial accrued liability, the market value of assets, the funded ratio and the annual covered payroll.

Valuation Date	Accrued Liability	Market Value of Assets (MVA)	Unfunded Liability	Funded Ratio	Annual Covered Payroll
06/30/09	$ 83,558,837	$ 51,359,523	$ 32,199,314	61.5%	$ 12,177,190
06/30/10	88,741,572	57,880,869	30,860,703	65.2%	12,301,216
06/30/11	94,015,409	68,869,888	25,145,521	73.3%	12,767,707
06/30/12	98,458,686	67,951,375	30,507,311	69.0%	13,063,048
06/30/13	104,969,799	76,215,351	28,754,448	72.6%	13,595,469
06/30/14	117,459,514	88,570,710	28,888,804	75.4%	13,841,577

RISK ANALYSIS

- VOLATILITY RATIOS
- PROJECTED RATES
- ANALYSIS OF FUTURE INVESTMENT RETURN SCENARIOS
- ANALYSIS OF DISCOUNT RATE SENSITIVITY
- HYPOTHETICAL TERMINATION LIABILITY

Volatility Ratios

The actuarial calculations supplied in this communication are based on a number of assumptions about very long-term demographic and economic behavior. Unless these assumptions (terminations, deaths, disabilities, retirements, salary growth, and investment return) are exactly realized each year, there will be differences on a year-to-year basis. The year-to-year differences between actual experience and the assumptions are called actuarial gains and losses and serve to lower or raise the employer's rates from one year to the next. Therefore, the rates will inevitably fluctuate, especially due to the ups and downs of investment returns.

Asset Volatility Ratio (AVR)

Plans that have higher asset to payroll ratios produce more volatile employer rates due to investment return. For example, a plan with an asset to payroll ratio of 8 may experience twice the contribution volatility due to investment return volatility, than a plan with an asset to payroll ratio of 4. Below we have shown your asset volatility ratio, a measure of the plan's current rate volatility. It should be noted that this ratio is a measure of the current situation. It increases over time but generally tends to stabilize as the plan matures.

Liability Volatility Ratio (LVR)

Plans that have higher liability to payroll ratios produce more volatile employer rates due to investment return and changes in liability. For example, a plan with a liability to payroll ratio of 8 is expected to have twice the contribution volatility of a plan with a liability to payroll ratio of 4. The liability volatility ratio is also included in the table below. It should be noted that this ratio indicates a longer-term potential for contribution volatility and the asset volatility ratio, described above, will tend to move closer to this ratio as the plan matures.

Rate Volatility		**As of June 30, 2014**
1. Market Value of Assets without Receivables	$	87,987,610
2. Payroll		13,841,577
3. Asset Volatility Ratio (AVR = 1. / 2.)		6.4
4. Accrued Liability	$	117,459,514
5. Liability Volatility Ratio (LVR = 4. / 2.)		8.5

Projected Rates

The estimated rate for 2017-18 is based on a projection of the most recent information we have available, including an estimated 2.4 percent investment return for Fiscal Year 2014-15.

The table below shows projected employer contribution rates (before cost sharing) for the next five fiscal years, assuming CalPERS earns 2.4 percent for Fiscal Year 2014-15 and 7.50 percent every fiscal year thereafter, and assuming that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur during the projection period. The projected contribution rates do not reflect that the plan's normal cost will decline over time as new employees are hired into PEPRA and other lower cost benefit tiers.

	Required Rate	**Projected Future Employer Contribution Rates**				
	2016-17	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**
Contribution Rates:	20.362%	22.3%	24.2%	26.1%	26.7%	27.1%

Analysis of Future Investment Return Scenarios

In 2014 CalPERS completed a 2-year asset liability management study incorporating actuarial assumptions and strategic asset allocation. On February 19, 2014 the CalPERS Board of Administration adopted relatively modest changes to the current asset allocation that will reduce the expected volatility of returns. The adopted asset allocation is expected to have a long- term blended return that continues to support a discount rate assumption of 7.5 percent. The newly adopted asset allocation has a lower expected investment volatility which will result in better risk characteristics than an equivalent margin for adverse deviation. The previous asset allocation had an expected standard deviation of 12.45 percent while the current asset allocation has a lower expected standard deviation of 11.76 percent.

The investment return for Fiscal Year 2014-15 was announced July 13, 2015. The investment return in Fiscal Year 2014-15 is 2.4 percent before administrative expenses. This year, there will be no adjustment for real estate and private equities. For purposes of projecting future employer rates, we are assuming a 2.4 percent investment return for Fiscal Year 2014-15.

The investment return realized during a fiscal year first affects the contribution rate for the fiscal year two years later. Specifically, the investment return for 2014-15 will first be reflected in the June 30, 2015 actuarial valuation that will be used to set the 2017-18 employer contribution rates. The 2015-16 investment return will first be reflected in the June 30, 2016 actuarial valuation that will be used to set the 2018-19 employer contribution rates and so forth.

Based on a 2.4 percent investment return for Fiscal Year 2014-15, the April 17, 2013 CalPERS Board-approved amortization and rate smoothing method change, the February 18, 2014 new demographic assumptions including 20-year mortality improvement using Scale BB and assuming that all other actuarial assumptions will be realized, and that no further changes to assumptions, contributions, benefits, or funding will occur between now and the beginning of the Fiscal Year 2017-18, the effect on the 2017-18 Employer Rate is as follows:

Estimated 2017-18 Employer Rate	**Estimated Increase in Employer Rate between 2016-17 and 2017-18**
22.3%	1.9%

As part of this report, a sensitivity analysis was performed to determine the effects of various investment returns during fiscal years 2015-16, 2016-17 and 2017-18 on the 2018-19, 2019-20 and 2020-21 employer rates. Once again, the projected rate increases assume that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur.

Five different investment return scenarios were selected.

- The first scenario is what one would expect if the markets were to give us a 5th percentile return from July 1, 2015 through June 30, 2018. The 5th percentile return corresponds to a -3.8 percent return for each of the 2015-16, 2016-17 and 2017-18 fiscal years.
- The second scenario is what one would expect if the markets were to give us a 25th percentile return from July 1, 2015 through June 30, 2018. The 25th percentile return corresponds to a 2.8 percent return for each of the 2015-16, 2016-17 and 2017-18 fiscal years.
- The third scenario assumed the return for 2015-16, 2016-17, 2017-18 would be our assumed 7.5 percent investment return which represents about a 49th percentile event.
- The fourth scenario is what one would expect if the markets were to give us a 75th percentile return from July 1, 2015 through June 30, 2018. The 75th percentile return corresponds to a 12.0 percent return for each of the 2015-16, 2016-17 and 2017-18 fiscal years.
- Finally, the last scenario is what one would expect if the markets were to give us a 95th percentile return from July 1, 2015 through June 30, 2018. The 95th percentile return corresponds to a 18.9 percent return for each of the 2015-16, 2016-17 and 2017-18 fiscal years.

The table below shows the estimated projected contribution rates and the estimated increases for your plan under the five different scenarios.

2015-18 Investment Return Scenario	**Estimated Employer Rate**			**Estimated Change in Employer Rate between 2017-18 and 2020-21**
	2018-19	**2019-20**	**2020-21**	
(3.8%) (5th percentile)	25.2%	29.0%	32.4%	10.2%
2.8% (25th percentile)	24.6%	27.3%	29.2%	6.9%
7.5%	24.2%	26.1%	26.7%	4.4%
12.0%(75th percentile)	23.8%	24.8%	24.1%	1.9%
18.9%(95th percentile)	23.1%	22.9%	8.6%	(13.7%)

Analysis of Discount Rate Sensitivity

The following analysis looks at the 2016-17 total normal cost rates and liabilities under two different discount rate scenarios. Shown below are the total normal cost rates assuming discount rates that are 1 percent lower and 1 percent higher than the current valuation discount rate. This analysis gives an indication of the potential plan impacts if the PERF were to realize investment returns of 6.50 percent or 8.50 percent over the long-term.

This type of analysis gives the reader a sense of the long-term risk to the contribution rates.

Sensitivity Analysis			
As of June 30, 2014	**6.50% Discount Rate (-1%)**	**7.50% Discount Rate (assumed rate)**	**8.50% Discount Rate (+1%)**
Total Normal Cost	20.619%	16.552%	13.449%
Accrued Liability	$132,609,149	$117,459,514	$104,829,036
Unfunded Accrued Liability	$44,038,439	$28,888,804	$16,258,326

Hypothetical Termination Liability

The hypothetical termination liability is an estimate of the financial position of your plan if you had terminated your contract with CalPERS as of June 30, 2014. Your plan liability on a termination basis is calculated differently compared to the plan's ongoing funding liability. For this hypothetical termination liability calculation both compensation and service are frozen as of the valuation date and no future pay increases or service accruals are included.

For the Terminated Agency Pool the CalPERS Board adopted a more conservative investment policy and asset allocation strategy. Since the Terminated Agency Pool has limited funding sources due to the fact that no future employer contributions will be made, expected benefit payments are secured by risk-free assets. With this change, CalPERS increased benefit security for members while limiting its funding risk. However, this asset allocation has a lower expected rate of return than the PERF. Consequently, the lower discount rate for the Terminated Agency pool results in higher liabilities for terminated plans.

The effective termination discount rate will depend on actual market rates of return for risk-free securities on the date of termination. As market discount rates are variable the table below shows a range for the hypothetical termination liability based on the lowest and highest interest rates observed during the period from July 1, 2013 through June 30, 2015.

Valuation Date	Market Value of Assets (MVA)	Hypothetical Termination Liability[1,2] @ 2.00%	Unfunded Termination Liability @ 2.00%	Hypothetical Termination Liability[1,2] @ 3.75%	Unfunded Termination Liability @ 3.75%
06/30/14	$ 88,570,710	$ 231,193,801	$ 142,623,091	$ 179,870,478	$ 91,299,768

[1] The hypothetical liabilities calculated above include a 7 percent mortality contingency load in accordance with Board policy. Other actuarial assumptions, such as wage and inflation assumptions, can be found in Appendix A.

[2] The current discount rate assumption used for termination valuations is a weighted average of the 10-year and 30-year U.S. Treasury yields where the weights are based on matching asset and liability durations as of the termination date. The discount rates used in the table are based on 20-year Treasury bonds, rounded to the nearest quarter percentage point, which is a good proxy for most plans. The 20-year Treasury yield was 3.00% on June 30, 2014.

In order to terminate your plan, you must first contact our Retirement Services Contract Unit to initiate a Resolution of Intent to Terminate. The completed Resolution will allow your plan actuary to give you a preliminary termination valuation with a more up-to-date estimate of your plan liabilities. CalPERS strongly advises you to consult with your plan actuary before beginning this process.

PLAN'S MAJOR BENEFIT PROVISIONS

Plan's Major Benefit Options

Shown below is a summary of the major optional benefits for which your agency has contracted. A description of principal standard and optional plan provisions is in the following section of this Appendix.

	Contract Package					
Benefit Provision	Active Misc	Active Misc	Inactive Misc	Inactive Misc	Receiving Misc	
Benefit Formula	2.5% @ 55	2.0% @ 62	2.0% @ 55	2.0% @ 55		
Social Security Coverage	No	No	No	Yes		
Full/Modified	Full	Full	Full	Modified		
Employee Contribution Rate	8.00%	6.25%				
Final Average Compensation Period	One Year	Three Year	One Year	One Year		
Sick Leave Credit	Yes	Yes	Yes	Yes		
Non-Industrial Disability	Standard	Standard	Standard	Standard		
Industrial Disability	No	No	No	No		
Pre-Retirement Death Benefits						
Optional Settlement 2W	No	No	No	No		
1959 Survivor Benefit Level	Level 4	Level 4	Level 4	No		
Special	No	No	No	No		
Alternate (firefighters)	No	No	No	No		
Post-Retirement Death Benefits						
Lump Sum	$500	$500	$500	$500	$500	
Survivor Allowance (PRSA)	No	No	No	No	No	
COLA	2%	2%	2%	2%	2%	

APPENDICES

- **APPENDIX A – ACTUARIAL METHODS AND ASSUMPTIONS**
- **APPENDIX B – PRINCIPAL PLAN PROVISIONS**
- **APPENDIX C – PARTICIPANT DATA**
- **APPENDIX D – DEVELOPMENT OF PEPRA MEMBER CONTRIBUTION RATES**
- **APPENDIX E – GLOSSARY OF ACTUARIAL TERMS**

APPENDIX A

ACTUARIAL METHODS AND ASSUMPTIONS

- **ACTUARIAL DATA**
- **ACTUARIAL METHODS**
- **ACTUARIAL ASSUMPTIONS**
- **MISCELLANEOUS**

Actuarial Data

As stated in the Actuarial Certification, the data, which serves as the basis of this valuation, has been obtained from the various CalPERS databases. We have reviewed the valuation data and believe that it is reasonable and appropriate in aggregate. We are unaware of any potential data issues that would have a material effect on the results of this valuation, except that data does not always contain the latest salary information for former members now in reciprocal systems and does not recognize the potential for unusually large salary deviation in certain cases such as elected officials. Therefore, salary information in these cases may not be accurate. These situations are relatively infrequent, however, and when they do occur, they generally do not have a material impact on the employer contribution rates.

Actuarial Methods

Funding Method

The actuarial funding method used for the Retirement Program is the Entry Age Normal Cost Method. Under this method, projected benefits are determined for all members and the associated liabilities are spread in a manner that produces level annual cost as a percent of pay in each year from the age of hire (entry age) to the assumed retirement age. The cost allocated to the current fiscal year is called the normal cost.

The actuarial accrued liability for active members is then calculated as the portion of the total cost of the plan allocated to prior years. The actuarial accrued liability for members currently receiving benefits, for active members beyond the assumed retirement age, and for members entitled to deferred benefits, is equal to the present value of the benefits expected to be paid. No normal costs are applicable for these participants.

The excess of the total actuarial accrued liability over the market value of plan assets is called the unfunded actuarial accrued liability (UAL). Funding requirements are determined by adding the normal cost and an amortization of the unfunded liability as a level percentage of assumed future payrolls. Commencing with the June 30, 2013 valuation all new gains or losses are tracked and amortized over a fixed 30-year period with a 5 year ramp up at the beginning and a 5 year ramp down at the end of the amortization period. All changes in liability due to plan amendments (other than golden handshakes), changes in actuarial assumptions, or changes in actuarial methodology are amortized separately over a 20-year period with a 5 year ramp up at the beginning and a 5 year ramp down at the end of the amortization period. Changes in unfunded accrued liability due to a Golden Handshake will be amortized over a period of 5 years.

Additional contributions will be required for any plan or pool if their cash flows hamper adequate funding progress by preventing the expected funded status on a market value of assets basis to either:

- Increase by at least 15 percent by June 30, 2043; or
- Reach a level of 75 percent funded by June 30, 2043

The necessary additional contribution will be obtained by changing the amortization period of the gains and losses, except for those occurring in the fiscal years 2008-2009, 2009-2010, and 2010-2011 to a period, which will result in the satisfaction of the above criteria. CalPERS actuaries will reassess the criteria above when performing each future valuation to determine whether or not additional contributions are necessary.

An exception to the funding rules above is used whenever the application of such rules results in inconsistencies. In these cases, a "fresh start" approach is used. This simply means that the current unfunded actuarial liability is projected and amortized over a set number of years. However, in the case of a 30-year fresh start, just the unfunded liability not already in the (gain)/loss base (which is already amortized over 30 years), will go into the new fresh start base. In addition, a fresh start is needed in the following situations:

1) When a positive payment would be required on a negative unfunded actuarial liability (or conversely a negative payment on a positive unfunded actuarial liability); or

2) When there are excess assets, rather than an unfunded liability. In this situation, a 30-year fresh start is used, unless a longer fresh start is needed to avoid a negative total rate.

It should be noted that the actuary may choose to use a fresh start under other circumstances. In all cases, the fresh start period is set by the actuary at what is deemed appropriate; however, the period will not be greater than 30 years.

Asset Valuation Method

It is the policy of the CalPERS Board of Administration to use professionally accepted amortization methods to eliminate unfunded accrued liabilities or surpluses in a manner that maintains benefit security for the members of the System while minimizing substantial variations in employer contribution rates. On April 17, 2013, the CalPERS Board of Administration approved a recommendation to change the CalPERS amortization and rate smoothing policies. Beginning with the June 30, 2013 valuations that set the 2015-16 rates, CalPERS employs an amortization and smoothing policy that pays for all gains and losses over a fixed 30-year period with the increases or decreases in the rate spread directly over a 5-year period. CalPERS no longer uses an actuarial value of assets and only uses the market value of assets. This direct rate smoothing method is equivalent to a method using a 5 year asset smoothing period with no actuarial value of asset corridor and a 25-year amortization period for gains and losses.

PEPRA Normal Cost Rate Methodology

Per Government Code Section 7522.30(b) the "normal cost rate" shall mean the annual actuarially determined normal cost for the plan of retirement benefits provided to the new member and shall be established based on actuarial assumptions used to determine the liabilities and costs as part of the annual actuarial valuation. The plan of retirement benefits shall include any elements that would impact the actuarial determination of the normal cost, including, but not limited to, the retirement formula, eligibility and vesting criteria, ancillary benefit provisions, and any automatic cost-of-living adjustments as determined by the public retirement system.

Each non-pooled plan is considered to be stable with a sufficiently large demographic of actives. It is preferable to determine normal cost using a large active population ongoing so that this rate remains relatively stable. The total PEPRA normal cost will be calculated using all active members within a non-pooled plan. Accordingly plans will be funded equally between employer and employee based on the demographics of the employees of that employer. As each non-pooled plan builds up to either 100+ active PEPRA members or half of their active population is under the PEPRA formula, the total PEPRA normal cost will be based on the active PEPRA population in the plan.

Actuarial Assumptions

In 2014 CalPERS completed a 2-year asset liability management study incorporating actuarial assumptions and strategic asset allocation. On February 19, 2014 the CalPERS Board of Administration adopted relatively modest changes to the current asset allocation that will reduce the expected volatility of returns. The adopted asset allocation is expected to have a long-term blended return that continues to support a discount rate assumption of 7.5 percent. The Board also approved several changes to the demographic assumptions that more closely align with actual experience. The most significant of these is mortality improvement to acknowledge the greater life expectancies we are seeing in our membership and expected continued improvements. The new actuarial assumptions are used in this valuation to set the Fiscal Year 2016-17 contribution rates for public agency employers. The increase in liability due to new actuarial assumptions is amortized over a 20-year period with a 5-year ramp-up/ramp-down in accordance with Board policy. These new actuarial assumptions are set forth below. For more details, please refer to the experience study report that can be found on the CalPERS website under: Forms and Publications Center; Employers Section. Click on View employer publications; Actuarial Reports and scroll down to CalPERS Experience Study.

Economic Assumptions

Discount Rate

7.5 percent compounded annually (net of expenses). This assumption is used for all plans.

Termination Liability Discount Rate

The current discount rate assumption used for termination valuations is a weighted average of the 10-year and 30-year U.S. Treasury yields where the weights are based on matching asset and liability durations as of the termination date.

Previously, for purposes of the hypothetical termination liability estimate, the discount rate used was the yield on the 30-year US Treasury Separate Trading of Registered Interest and Principal of Securities (STRIPS). However, this point in time estimate for the termination discount rate can be significantly different from the calculated discount rate for a plan termination based on prevailing market rates. Rather than using a point estimate the hypothetical termination liabilities in this report are calculated using an observed range of market interest rates. This range is based on the 20-year Treasury bond which has a similar duration to most plan liabilities and serves as a good proxy for the termination discount rate.

The securities purchased for the Terminated Agency Pool (TAP), however, consist solely of STRIPS, TIPS, and cash with varying maturity dates over the next 30 years. As a result, the methodology to set the discount rate for the TAP needs to be modified to ensure the discount rate is consistent with the yield rate of the portfolio. Beginning with the June 30, 2014 valuation the discount rate will be calculated by using a weighted average of the yields of the securities effective in the portfolio as of the last day of the most recent month of termination. This methodology would result in a discount rate that more closely reflects the yield rate of the TAP. As of June 30, 2014 this discount rate is 2.91 percent as opposed to the yield on the 30-year Strip of 3.55 percent.

Furthermore, when a plan with a large liability terminates a contingency immunization calculation is performed using actual cash flows of the terminating agency. Large liability terminations are expected to have large annual cash flows that may have an impact on the TAP's cash flows thus creating a need to rebalance the portfolio. Pricing the actual cash flows at current market rates would have the same effect as a rebalance. A large liability plan is defined as one that would cause a 50 percent reduction of the existing TAP surplus as of the latest annual valuation. Quotes would be retrieved from securities necessary to immunize the additional liability. The termination discount rate is determined using the methodology above with the calculation being based on the yields of the quoted securities as opposed to the entire TAP portfolio.

Salary Growth

Annual increases vary by category, entry age, and duration of service. A sample of assumed increases are shown below.

Public Agency Miscellaneous

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.1220	0.1160	0.1020
1	0.0990	0.0940	0.0830
2	0.0860	0.0810	0.0710
3	0.0770	0.0720	0.0630
4	0.0700	0.0650	0.0570
5	0.0640	0.0600	0.0520
10	0.0460	0.0430	0.0390
15	0.0420	0.0400	0.0360
20	0.0390	0.0380	0.0340
25	0.0370	0.0360	0.0330
30	0.0350	0.0340	0.0320

Public Agency Fire

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.2000	0.1980	0.1680
1	0.1490	0.1460	0.1250
2	0.1200	0.1160	0.0990
3	0.0980	0.0940	0.0810
4	0.0820	0.0780	0.0670
5	0.0690	0.0640	0.0550
10	0.0470	0.0460	0.0420
15	0.0440	0.0420	0.0390
20	0.0420	0.0390	0.0360
25	0.0400	0.0370	0.0340
30	0.0380	0.0360	0.0340

Public Agency Police

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.1500	0.1470	0.1310
1	0.1160	0.1120	0.1010
2	0.0950	0.0920	0.0830
3	0.0810	0.0780	0.0700
4	0.0700	0.0670	0.0600
5	0.0610	0.0580	0.0520
10	0.0450	0.0430	0.0370
15	0.0450	0.0430	0.0370
20	0.0450	0.0430	0.0370
25	0.0450	0.0430	0.0370
30	0.0450	0.0430	0.0370

Salary Growth (continued)

Public Agency County Peace Officers

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.1770	0.1670	0.1500
1	0.1340	0.1260	0.1140
2	0.1080	0.1030	0.0940
3	0.0900	0.0860	0.0790
4	0.0760	0.0730	0.0670
5	0.0650	0.0620	0.0580
10	0.0470	0.0450	0.0410
15	0.0460	0.0450	0.0390
20	0.0460	0.0450	0.0380
25	0.0460	0.0450	0.0380
30	0.0460	0.0440	0.0380

Schools

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.0900	0.0880	0.0820
1	0.0780	0.0750	0.0700
2	0.0700	0.0680	0.0630
3	0.0650	0.0630	0.0580
4	0.0610	0.0590	0.0540
5	0.0580	0.0560	0.0510
10	0.0460	0.0450	0.0410
15	0.0420	0.0410	0.0380
20	0.0390	0.0380	0.0350
25	0.0370	0.0350	0.0330
30	0.0350	0.0330	0.0310

- The Miscellaneous salary scale is used for Local Prosecutors.
- The Police salary scale is used for Other Safety, Local Sheriff, and School Police.

Overall Payroll Growth

3.00 percent compounded annually (used in projecting the payroll over which the unfunded liability is amortized). This assumption is used for all plans.

Inflation

2.75 percent compounded annually. This assumption is used for all plans.

Non-valued Potential Additional Liabilities

The potential liability loss for a cost-of-living increase exceeding the 2.75 percent inflation assumption, and any potential liability loss from future member service purchases are not reflected in the valuation.

Miscellaneous Loading Factors

Credit for Unused Sick Leave

Total years of service is increased by 1 percent for those plans that have accepted the provision providing Credit for Unused Sick Leave.

Conversion of Employer Paid Member Contributions (EPMC)

Total years of service is increased by the Employee Contribution Rate for those plans with the provision providing for the Conversion of Employer Paid Member Contributions (EPMC) during the final compensation period.

Norris Decision (Best Factors)

Employees hired prior to July 1, 1982 have projected benefit amounts increased in order to reflect the use of "Best Factors" in the calculation of optional benefit forms. This is due to a 1983 Supreme Court decision, known as the Norris decision, which required males and females to be treated equally in the determination of benefit amounts. Consequently, anyone already employed at that time is given the best possible conversion factor when optional benefits are determined. No loading is necessary for employees hired after July 1, 1982.

Termination Liability

The termination liabilities include a 7 percent contingency load. This load is for unforeseen improvements in mortality.

Demographic Assumptions

Pre-Retirement Mortality

Non-Industrial Death Rates vary by age and gender. Industrial Death rates vary by age. See sample rates in table below. The non-industrial death rates are used for all plans. The industrial death rates are used for Safety Plans (except for Local Prosecutor safety members where the corresponding Miscellaneous Plan does not have the Industrial Death Benefit).

	Non-Industrial Death (Not Job-Related)		**Industrial Death (Job-Related)**
Age	Male	Female	Male and Female
20	0.00031	0.00020	0.00003
25	0.00040	0.00023	0.00007
30	0.00049	0.00025	0.00010
35	0.00057	0.00035	0.00012
40	0.00075	0.00050	0.00013
45	0.00106	0.00071	0.00014
50	0.00155	0.00100	0.00015
55	0.00228	0.00138	0.00016
60	0.00308	0.00182	0.00017
65	0.00400	0.00257	0.00018
70	0.00524	0.00367	0.00019
75	0.00713	0.00526	0.00020
80	0.00990	0.00814	0.00021

Miscellaneous Plans usually have Industrial Death rates set to zero unless the agency has specifically contracted for Industrial Death benefits. If so, each Non-Industrial Death rate shown above will be split into two components; 99 percent will become the Non-Industrial Death rate and 1 percent will become the Industrial Death rate.

Post-Retirement Mortality

Rates vary by age, type of retirement and gender. See sample rates in table below. These rates are used for all plans.

	Healthy Recipients		Non-Industrially Disabled (Not Job-Related)		Industrially Disabled (Job-Related)	
Age	Male	Female	Male	Female	Male	Female
50	0.00501	0.00466	0.01680	0.01158	0.00501	0.00466
55	0.00599	0.00416	0.01973	0.01149	0.00599	0.00416
60	0.00710	0.00436	0.02289	0.01235	0.00754	0.00518
65	0.00829	0.00588	0.02451	0.01607	0.01122	0.00838
70	0.01305	0.00993	0.02875	0.02211	0.01635	0.01395
75	0.02205	0.01722	0.03990	0.03037	0.02834	0.02319
80	0.03899	0.02902	0.06083	0.04725	0.04899	0.03910
85	0.06969	0.05243	0.09731	0.07762	0.07679	0.06251
90	0.12974	0.09887	0.14804	0.12890	0.12974	0.09887
95	0.22444	0.18489	0.22444	0.21746	0.22444	0.18489
100	0.32536	0.30017	0.32536	0.30017	0.32536	0.30017
105	0.58527	0.56093	0.58527	0.56093	0.58527	0.56093
110	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The post-retirement mortality rates above include 20 years of projected on-going mortality improvement using Scale BB published by the Society of Actuaries.

Marital Status

For active members, a percentage who are married upon retirement is assumed according to member category as shown in the following table.

Member Category	Percent Married
Miscellaneous Member	85%
Local Police	90%
Local Fire	90%
Other Local Safety	90%
School Police	90%

Age of Spouse

It is assumed that female spouses are 3 years younger than male spouses. This assumption is used for all plans.

Terminated Members

It is assumed that terminated members refund immediately if non-vested. Terminated members who are vested are assumed to follow the same service retirement pattern as active members but with a load to reflect the expected higher rates of retirement, especially at lower ages. The following table shows the load factors that are applied to the service retirement assumption for active members to obtain the service retirement pattern for separated vested members:

Age	Load Factor Miscellaneous	Load Factor Safety
50	190%	310%
51	110%	190%
52	110%	105%
53 through 54	100%	105%
55	100%	140%
56 and above	100% (no change)	100% (no change)

Termination with Refund

Rates vary by entry age and service for Miscellaneous Plans. Rates vary by service for Safety Plans. See sample rates in tables below.

Public Agency Miscellaneous

Duration of Service	Entry Age 20	Entry Age 25	Entry Age 30	Entry Age 35	Entry Age 40	Entry Age 45
0	0.1742	0.1674	0.1606	0.1537	0.1468	0.1400
1	0.1545	0.1477	0.1409	0.1339	0.1271	0.1203
2	0.1348	0.1280	0.1212	0.1142	0.1074	0.1006
3	0.1151	0.1083	0.1015	0.0945	0.0877	0.0809
4	0.0954	0.0886	0.0818	0.0748	0.0680	0.0612
5	0.0212	0.0193	0.0174	0.0155	0.0136	0.0116
10	0.0138	0.0121	0.0104	0.0088	0.0071	0.0055
15	0.0060	0.0051	0.0042	0.0032	0.0023	0.0014
20	0.0037	0.0029	0.0021	0.0013	0.0005	0.0001
25	0.0017	0.0011	0.0005	0.0001	0.0001	0.0001
30	0.0005	0.0001	0.0001	0.0001	0.0001	0.0001
35	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Public Agency Safety

Duration of Service	Fire	Police	County Peace Officer
0	0.0710	0.1013	0.0997
1	0.0554	0.0636	0.0782
2	0.0398	0.0271	0.0566
3	0.0242	0.0258	0.0437
4	0.0218	0.0245	0.0414
5	0.0029	0.0086	0.0145
10	0.0009	0.0053	0.0089
15	0.0006	0.0027	0.0045
20	0.0005	0.0017	0.0020
25	0.0003	0.0012	0.0009
30	0.0003	0.0009	0.0006
35	0.0003	0.0009	0.0006

The Police Termination and Refund rates are also used for Public Agency Local Prosecutors, Other Safety, Local Sheriff and School Police.

Schools

Duration of Service	Entry Age 20	Entry Age 25	Entry Age 30	Entry Age 35	Entry Age 40	Entry Age 45
0	0.1730	0.1627	0.1525	0.1422	0.1319	0.1217
1	0.1585	0.1482	0.1379	0.1277	0.1174	0.1071
2	0.1440	0.1336	0.1234	0.1131	0.1028	0.0926
3	0.1295	0.1192	0.1089	0.0987	0.0884	0.0781
4	0.1149	0.1046	0.0944	0.0841	0.0738	0.0636
5	0.0278	0.0249	0.0221	0.0192	0.0164	0.0135
10	0.0172	0.0147	0.0122	0.0098	0.0074	0.0049
15	0.0115	0.0094	0.0074	0.0053	0.0032	0.0011
20	0.0073	0.0055	0.0038	0.0020	0.0002	0.0002
25	0.0037	0.0023	0.0010	0.0002	0.0002	0.0002

30	0.0015	0.0003	0.0002	0.0002	0.0002	0.0002
35	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

Termination with Vested Benefits

Rates vary by entry age and service for Miscellaneous Plans. Rates vary by service for Safety Plans. See sample rates in tables below.

Public Agency Miscellaneous

Duration of Service	Entry Age 20	Entry Age 25	Entry Age 30	Entry Age 35	Entry Age 40
5	0.0656	0.0597	0.0537	0.0477	0.0418
10	0.0530	0.0466	0.0403	0.0339	0.0000
15	0.0443	0.0373	0.0305	0.0000	0.0000
20	0.0333	0.0261	0.0000	0.0000	0.0000
25	0.0212	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0000	0.0000	0.0000	0.0000	0.0000

Public Agency Safety

Duration of Service	Fire	Police	County Peace Officer
5	0.0162	0.0163	0.0265
10	0.0061	0.0126	0.0204
15	0.0058	0.0082	0.0130
20	0.0053	0.0065	0.0074
25	0.0047	0.0058	0.0043
30	0.0045	0.0056	0.0030
35	0.0000	0.0000	0.0000

- When a member is eligible to retire, the termination with vested benefits probability is set to zero.
- After termination with vested benefits, a miscellaneous member is assumed to retire at age 59 and a safety member at age 54.
- The Police Termination with vested benefits rates are also used for Public Agency Local Prosecutors, Other Safety, Local Sheriff and School Police.

Schools

Duration of Service	Entry Age 20	Entry Age 25	Entry Age 30	Entry Age 35	Entry Age 40
5	0.0816	0.0733	0.0649	0.0566	0.0482
10	0.0629	0.0540	0.0450	0.0359	0.0000
15	0.0537	0.0440	0.0344	0.0000	0.0000
20	0.0420	0.0317	0.0000	0.0000	0.0000
25	0.0291	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0000	0.0000	0.0000	0.0000	0.0000

Non-Industrial (Not Job-Related) Disability

Rates vary by age and gender for Miscellaneous Plans. Rates vary by age and category for Safety Plans.

	Miscellaneous		Fire	Police	County Peace Officer	Schools	
Age	Male	Female	Male and Female	Male and Female	Male and Female	Male	Female
20	0.0002	0.0001	0.0001	0.0001	0.0001	0.0003	0.0003
25	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
30	0.0002	0.0002	0.0001	0.0002	0.0001	0.0001	0.0002
35	0.0005	0.0008	0.0001	0.0003	0.0004	0.0005	0.0004
40	0.0012	0.0016	0.0001	0.0004	0.0007	0.0015	0.0010
45	0.0019	0.0022	0.0002	0.0005	0.0013	0.0030	0.0019
50	0.0021	0.0023	0.0005	0.0008	0.0018	0.0039	0.0024
55	0.0022	0.0018	0.0010	0.0013	0.0010	0.0036	0.0021
60	0.0022	0.0014	0.0015	0.0020	0.0006	0.0031	0.0014

- The Miscellaneous Non-Industrial Disability rates are used for Local Prosecutors.
- The Police Non-Industrial Disability rates are also used for Other Safety, Local Sheriff and School Police.

Industrial (Job-Related) Disability

Rates vary by age and category.

Age	Fire	Police	County Peace Officer
20	0.0001	0.0000	0.0004
25	0.0003	0.0017	0.0013
30	0.0007	0.0048	0.0025
35	0.0016	0.0079	0.0037
40	0.0030	0.0110	0.0051
45	0.0053	0.0141	0.0067
50	0.0277	0.0185	0.0092
55	0.0409	0.0479	0.0151
60	0.0583	0.0602	0.0174

- The Police Industrial Disability rates are also used for Local Sheriff and Other Safety.
- Fifty Percent of the Police Industrial Disability rates are used for School Police.
- One Percent of the Police Industrial Disability rates are used for Local Prosecutors.
- Normally, rates are zero for Miscellaneous Plans unless the agency has specifically contracted for Industrial Disability benefits. If so, each miscellaneous non-industrial disability rate will be split into two components: 50 percent will become the Non-Industrial Disability rate and 50 percent will become the Industrial Disability rate.

Service Retirement

Retirement rates vary by age, service, and formula, except for the safety ½ @ 55 and 2% @ 55 formulas, where retirement rates vary by age only.

Service Retirement

Public Agency Miscellaneous 1.5% @ 65

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.008	0.011	0.013	0.015	0.017	0.019
51	0.007	0.010	0.012	0.013	0.015	0.017
52	0.010	0.014	0.017	0.019	0.021	0.024
53	0.008	0.012	0.015	0.017	0.019	0.022
54	0.012	0.016	0.019	0.022	0.025	0.028
55	0.018	0.025	0.031	0.035	0.038	0.043
56	0.015	0.021	0.025	0.029	0.032	0.036
57	0.020	0.028	0.033	0.038	0.043	0.048
58	0.024	0.033	0.040	0.046	0.052	0.058
59	0.028	0.039	0.048	0.054	0.060	0.067
60	0.049	0.069	0.083	0.094	0.105	0.118
61	0.062	0.087	0.106	0.120	0.133	0.150
62	0.104	0.146	0.177	0.200	0.223	0.251
63	0.099	0.139	0.169	0.191	0.213	0.239
64	0.097	0.136	0.165	0.186	0.209	0.233
65	0.140	0.197	0.240	0.271	0.302	0.339
66	0.092	0.130	0.157	0.177	0.198	0.222
67	0.129	0.181	0.220	0.249	0.277	0.311
68	0.092	0.129	0.156	0.177	0.197	0.221
69	0.092	0.130	0.158	0.178	0.199	0.224
70	0.103	0.144	0.175	0.198	0.221	0.248

Public Agency Miscellaneous 2% @ 60

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.010	0.013	0.015	0.018	0.019	0.021
51	0.009	0.011	0.014	0.016	0.017	0.019
52	0.011	0.014	0.017	0.020	0.022	0.024
53	0.010	0.012	0.015	0.017	0.020	0.021
54	0.015	0.019	0.023	0.025	0.029	0.031
55	0.022	0.029	0.035	0.040	0.045	0.049
56	0.018	0.024	0.028	0.033	0.036	0.040
57	0.024	0.032	0.038	0.043	0.049	0.053
58	0.027	0.036	0.043	0.049	0.055	0.061
59	0.033	0.044	0.054	0.061	0.068	0.076
60	0.056	0.077	0.092	0.105	0.117	0.130
61	0.071	0.097	0.118	0.134	0.149	0.166
62	0.117	0.164	0.198	0.224	0.250	0.280
63	0.122	0.171	0.207	0.234	0.261	0.292
64	0.114	0.159	0.193	0.218	0.244	0.271
65	0.150	0.209	0.255	0.287	0.321	0.358
66	0.114	0.158	0.192	0.217	0.243	0.270
67	0.141	0.196	0.238	0.270	0.301	0.337
68	0.103	0.143	0.174	0.196	0.219	0.245
69	0.109	0.153	0.185	0.209	0.234	0.261
70	0.117	0.162	0.197	0.222	0.248	0.277

Service Retirement

Public Agency Miscellaneous 2% @ 55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.014	0.018	0.021	0.025	0.027	0.031
51	0.012	0.014	0.017	0.020	0.021	0.025
52	0.013	0.017	0.019	0.023	0.025	0.028
53	0.015	0.020	0.023	0.027	0.030	0.034
54	0.026	0.033	0.038	0.045	0.051	0.059
55	0.048	0.061	0.074	0.088	0.100	0.117
56	0.042	0.053	0.063	0.075	0.085	0.100
57	0.044	0.056	0.067	0.081	0.091	0.107
58	0.049	0.062	0.074	0.089	0.100	0.118
59	0.057	0.072	0.086	0.103	0.118	0.138
60	0.067	0.086	0.103	0.123	0.139	0.164
61	0.081	0.103	0.124	0.148	0.168	0.199
62	0.116	0.147	0.178	0.214	0.243	0.288
63	0.114	0.144	0.174	0.208	0.237	0.281
64	0.108	0.138	0.166	0.199	0.227	0.268
65	0.155	0.197	0.238	0.285	0.325	0.386
66	0.132	0.168	0.203	0.243	0.276	0.328
67	0.122	0.155	0.189	0.225	0.256	0.304
68	0.111	0.141	0.170	0.204	0.232	0.274
69	0.114	0.144	0.174	0.209	0.238	0.282
70	0.130	0.165	0.200	0.240	0.272	0.323

Public Agency Miscellaneous 2.5% @ 55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.004	0.009	0.019	0.029	0.049	0.094
51	0.004	0.009	0.019	0.029	0.049	0.094
52	0.004	0.009	0.020	0.030	0.050	0.095
53	0.008	0.014	0.025	0.036	0.058	0.104
54	0.024	0.034	0.050	0.066	0.091	0.142
55	0.066	0.088	0.115	0.142	0.179	0.241
56	0.042	0.057	0.078	0.098	0.128	0.184
57	0.041	0.057	0.077	0.097	0.128	0.183
58	0.045	0.061	0.083	0.104	0.136	0.192
59	0.055	0.074	0.098	0.123	0.157	0.216
60	0.066	0.088	0.115	0.142	0.179	0.241
61	0.072	0.095	0.124	0.153	0.191	0.255
62	0.099	0.130	0.166	0.202	0.248	0.319
63	0.092	0.121	0.155	0.189	0.233	0.302
64	0.091	0.119	0.153	0.187	0.231	0.299
65	0.122	0.160	0.202	0.245	0.297	0.374
66	0.138	0.179	0.226	0.272	0.329	0.411
67	0.114	0.149	0.189	0.229	0.279	0.354
68	0.100	0.131	0.168	0.204	0.250	0.322
69	0.114	0.149	0.189	0.229	0.279	0.354
70	0.127	0.165	0.209	0.253	0.306	0.385

Service Retirement

Public Agency Miscellaneous 2.7% @ 55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.004	0.009	0.014	0.035	0.055	0.095
51	0.002	0.006	0.011	0.030	0.050	0.090
52	0.006	0.012	0.017	0.038	0.059	0.099
53	0.010	0.017	0.024	0.046	0.068	0.110
54	0.032	0.044	0.057	0.085	0.113	0.160
55	0.076	0.101	0.125	0.165	0.205	0.265
56	0.055	0.074	0.093	0.127	0.160	0.214
57	0.050	0.068	0.086	0.118	0.151	0.204
58	0.055	0.074	0.093	0.127	0.161	0.215
59	0.061	0.082	0.102	0.138	0.174	0.229
60	0.069	0.093	0.116	0.154	0.192	0.250
61	0.086	0.113	0.141	0.183	0.225	0.288
62	0.105	0.138	0.171	0.218	0.266	0.334
63	0.103	0.135	0.167	0.215	0.262	0.329
64	0.109	0.143	0.177	0.226	0.275	0.344
65	0.134	0.174	0.215	0.270	0.326	0.401
66	0.147	0.191	0.235	0.294	0.354	0.433
67	0.121	0.158	0.196	0.248	0.300	0.372
68	0.113	0.147	0.182	0.232	0.282	0.352
69	0.117	0.153	0.189	0.240	0.291	0.362
70	0.141	0.183	0.226	0.283	0.341	0.418

Public Agency Miscellaneous 3% @ 60

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.012	0.018	0.024	0.039	0.040	0.091
51	0.009	0.014	0.019	0.034	0.034	0.084
52	0.014	0.020	0.026	0.043	0.044	0.096
53	0.016	0.023	0.031	0.048	0.050	0.102
54	0.026	0.036	0.045	0.065	0.070	0.125
55	0.043	0.057	0.072	0.096	0.105	0.165
56	0.042	0.056	0.070	0.094	0.103	0.162
57	0.049	0.065	0.082	0.108	0.119	0.180
58	0.057	0.076	0.094	0.122	0.136	0.199
59	0.076	0.100	0.123	0.157	0.175	0.244
60	0.114	0.148	0.182	0.226	0.255	0.334
61	0.095	0.123	0.152	0.190	0.214	0.288
62	0.133	0.172	0.211	0.260	0.294	0.378
63	0.129	0.166	0.204	0.252	0.285	0.368
64	0.143	0.185	0.226	0.278	0.315	0.401
65	0.202	0.260	0.318	0.386	0.439	0.542
66	0.177	0.228	0.279	0.340	0.386	0.482
67	0.151	0.194	0.238	0.292	0.331	0.420
68	0.139	0.179	0.220	0.270	0.306	0.391
69	0.190	0.245	0.299	0.364	0.414	0.513
70	0.140	0.182	0.223	0.274	0.310	0.396

Service Retirement

Public Agency Miscellaneous 2% @ 62

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.000	0.000	0.000	0.000	0.000	0.000
51	0.000	0.000	0.000	0.000	0.000	0.000
52	0.010	0.013	0.016	0.019	0.022	0.024
53	0.013	0.017	0.020	0.024	0.027	0.031
54	0.021	0.027	0.033	0.039	0.045	0.050
55	0.044	0.056	0.068	0.080	0.092	0.104
56	0.030	0.039	0.047	0.055	0.063	0.072
57	0.036	0.046	0.056	0.066	0.076	0.086
58	0.046	0.059	0.072	0.085	0.097	0.110
59	0.058	0.074	0.089	0.105	0.121	0.137
60	0.062	0.078	0.095	0.112	0.129	0.146
61	0.062	0.079	0.096	0.113	0.129	0.146
62	0.097	0.123	0.150	0.176	0.202	0.229
63	0.089	0.113	0.137	0.162	0.186	0.210
64	0.094	0.120	0.145	0.171	0.197	0.222
65	0.129	0.164	0.199	0.234	0.269	0.304
66	0.105	0.133	0.162	0.190	0.219	0.247
67	0.105	0.133	0.162	0.190	0.219	0.247
68	0.105	0.133	0.162	0.190	0.219	0.247
69	0.105	0.133	0.162	0.190	0.219	0.247
70	0.125	0.160	0.194	0.228	0.262	0.296

Service Retirement

Public Agency Fire ½ @ 55 and 2% @ 55

Age	Rate	Age	Rate
50	0.0159	56	0.1108
51	0.0000	57	0.0000
52	0.0344	58	0.0950
53	0.0199	59	0.0441
54	0.0413	60	1.00000
55	0.0751		

Public Agency Police ½ @ 55 and 2% @ 55

Age	Rate	Age	Rate
50	0.0255	56	0.0692
51	0.0000	57	0.0511
52	0.0164	58	0.0724
53	0.0272	59	0.0704
54	0.0095	60	1.0000
55	0.1667		

Service Retirement

Public Agency Police 2% @ 50

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.005	0.005	0.005	0.005	0.017	0.089
51	0.005	0.005	0.005	0.005	0.017	0.087
52	0.018	0.018	0.018	0.018	0.042	0.132
53	0.044	0.044	0.044	0.044	0.090	0.217
54	0.065	0.065	0.065	0.065	0.126	0.283
55	0.086	0.086	0.086	0.086	0.166	0.354
56	0.067	0.067	0.067	0.067	0.130	0.289
57	0.066	0.066	0.066	0.066	0.129	0.288
58	0.066	0.066	0.066	0.066	0.129	0.288
59	0.139	0.139	0.139	0.139	0.176	0.312
60	0.123	0.123	0.123	0.123	0.153	0.278
61	0.110	0.110	0.110	0.110	0.138	0.256
62	0.130	0.130	0.130	0.130	0.162	0.291
63	0.130	0.130	0.130	0.130	0.162	0.291
64	0.130	0.130	0.130	0.130	0.162	0.291
65	1.000	1.000	1.000	1.000	1.000	1.000

- These rates also apply to Local Prosecutors, Local Sheriff, School Police and Other Safety.

Service Retirement

Public Agency Fire 2% @ 50

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.009	0.009	0.009	0.009	0.013	0.020
51	0.013	0.013	0.013	0.013	0.020	0.029
52	0.018	0.018	0.018	0.018	0.028	0.042
53	0.052	0.052	0.052	0.052	0.079	0.119
54	0.067	0.067	0.067	0.067	0.103	0.154
55	0.089	0.089	0.089	0.089	0.136	0.204
56	0.083	0.083	0.083	0.083	0.127	0.190
57	0.082	0.082	0.082	0.082	0.126	0.189
58	0.088	0.088	0.088	0.088	0.136	0.204
59	0.074	0.074	0.074	0.074	0.113	0.170
60	0.100	0.100	0.100	0.100	0.154	0.230
61	0.072	0.072	0.072	0.072	0.110	0.165
62	0.099	0.099	0.099	0.099	0.152	0.228
63	0.114	0.114	0.114	0.114	0.175	0.262
64	0.114	0.114	0.114	0.114	0.175	0.262
65	1.000	1.000	1.000	1.000	1.000	1.000

Service Retirement

Public Agency Police 3% @ 55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.004	0.004	0.004	0.004	0.015	0.086
51	0.014	0.014	0.014	0.014	0.034	0.114
52	0.026	0.026	0.026	0.026	0.060	0.154
53	0.038	0.038	0.038	0.038	0.083	0.188
54	0.071	0.071	0.071	0.071	0.151	0.292
55	0.061	0.061	0.061	0.061	0.131	0.261
56	0.072	0.072	0.072	0.072	0.153	0.295
57	0.065	0.065	0.065	0.065	0.140	0.273
58	0.066	0.066	0.066	0.066	0.142	0.277
59	0.118	0.118	0.118	0.118	0.247	0.437
60	0.065	0.065	0.065	0.065	0.138	0.272
61	0.084	0.084	0.084	0.084	0.178	0.332
62	0.108	0.108	0.108	0.108	0.226	0.405
63	0.084	0.084	0.084	0.084	0.178	0.332
64	0.084	0.084	0.084	0.084	0.178	0.332
65	1.000	1.000	1.000	1.000	1.000	1.000

- These rates also apply to Local Prosecutors, Local Sheriff, School Police and Other Safety.

Service Retirement

Public Agency Fire 3% @ 55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.001	0.001	0.001	0.006	0.016	0.069
51	0.002	0.002	0.002	0.006	0.018	0.071
52	0.012	0.012	0.012	0.021	0.040	0.098
53	0.032	0.032	0.032	0.049	0.085	0.149
54	0.057	0.057	0.057	0.087	0.144	0.217
55	0.073	0.073	0.073	0.109	0.179	0.259
56	0.064	0.064	0.064	0.097	0.161	0.238
57	0.063	0.063	0.063	0.095	0.157	0.233
58	0.065	0.065	0.065	0.099	0.163	0.241
59	0.088	0.088	0.088	0.131	0.213	0.299
60	0.105	0.105	0.105	0.155	0.251	0.344
61	0.118	0.118	0.118	0.175	0.282	0.380
62	0.087	0.087	0.087	0.128	0.210	0.295
63	0.067	0.067	0.067	0.100	0.165	0.243
64	0.067	0.067	0.067	0.100	0.165	0.243
65	1.000	1.000	1.000	1.000	1.000	1.000

Service Retirement

Public Agency Police 3% @ 50

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.050	0.050	0.050	0.099	0.240	0.314
51	0.034	0.034	0.034	0.072	0.198	0.260
52	0.033	0.033	0.033	0.071	0.198	0.259
53	0.039	0.039	0.039	0.080	0.212	0.277
54	0.045	0.045	0.045	0.092	0.229	0.300
55	0.052	0.052	0.052	0.105	0.248	0.323
56	0.042	0.042	0.042	0.087	0.221	0.289
57	0.043	0.043	0.043	0.088	0.223	0.292
58	0.054	0.054	0.054	0.109	0.255	0.333
59	0.054	0.054	0.054	0.108	0.253	0.330
60	0.060	0.060	0.060	0.121	0.272	0.355
61	0.048	0.048	0.048	0.098	0.238	0.311
62	0.061	0.061	0.061	0.122	0.274	0.357
63	0.057	0.057	0.057	0.115	0.263	0.343
64	0.069	0.069	0.069	0.137	0.296	0.385
65	1.000	1.000	1.000	1.000	1.000	1.000

- These rates also apply to Local Prosecutors, Local Sheriff, School Police and Other Safety.

Service Retirement

Public Agency Fire 3% @ 50

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.020	0.020	0.020	0.040	0.130	0.192
51	0.008	0.008	0.008	0.023	0.107	0.164
52	0.023	0.023	0.023	0.043	0.136	0.198
53	0.023	0.023	0.023	0.043	0.135	0.198
54	0.027	0.027	0.027	0.048	0.143	0.207
55	0.043	0.043	0.043	0.070	0.174	0.244
56	0.053	0.053	0.053	0.085	0.196	0.269
57	0.054	0.054	0.054	0.086	0.197	0.271
58	0.052	0.052	0.052	0.084	0.193	0.268
59	0.075	0.075	0.075	0.116	0.239	0.321
60	0.065	0.065	0.065	0.102	0.219	0.298
61	0.076	0.076	0.076	0.117	0.241	0.324
62	0.068	0.068	0.068	0.106	0.224	0.304
63	0.027	0.027	0.027	0.049	0.143	0.208
64	0.094	0.094	0.094	0.143	0.277	0.366
65	1.000	1.000	1.000	1.000	1.000	1.000

Service Retirement

Public Agency Police 2% @ 57

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.011	0.011	0.011	0.011	0.020	0.036
51	0.009	0.009	0.009	0.009	0.016	0.028
52	0.018	0.018	0.018	0.018	0.034	0.060
53	0.037	0.037	0.037	0.037	0.067	0.119
54	0.049	0.049	0.049	0.049	0.089	0.159
55	0.063	0.063	0.063	0.063	0.115	0.205
56	0.045	0.045	0.045	0.045	0.082	0.146
57	0.064	0.064	0.064	0.064	0.117	0.209
58	0.047	0.047	0.047	0.047	0.086	0.154
59	0.105	0.105	0.105	0.105	0.130	0.191
60	0.105	0.105	0.105	0.105	0.129	0.188
61	0.105	0.105	0.105	0.105	0.129	0.188
62	0.105	0.105	0.105	0.105	0.129	0.188
63	0.105	0.105	0.105	0.105	0.129	0.188
64	0.105	0.105	0.105	0.105	0.129	0.188
65	1.000	1.000	1.000	1.000	1.000	1.000

- These rates also apply to Local Prosecutors, Local Sheriff, School Police and Other Safety.

Service Retirement

Public Agency Fire 2% @ 57

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.005	0.005	0.005	0.005	0.008	0.012
51	0.006	0.006	0.006	0.006	0.009	0.013
52	0.012	0.012	0.012	0.012	0.019	0.028
53	0.033	0.033	0.033	0.033	0.050	0.075
54	0.045	0.045	0.045	0.045	0.069	0.103
55	0.061	0.061	0.061	0.061	0.094	0.140
56	0.055	0.055	0.055	0.055	0.084	0.126
57	0.081	0.081	0.081	0.081	0.125	0.187
58	0.059	0.059	0.059	0.059	0.091	0.137
59	0.055	0.055	0.055	0.055	0.084	0.126
60	0.085	0.085	0.085	0.085	0.131	0.196
61	0.085	0.085	0.085	0.085	0.131	0.196
62	0.085	0.085	0.085	0.085	0.131	0.196
63	0.085	0.085	0.085	0.085	0.131	0.196
64	0.085	0.085	0.085	0.085	0.131	0.196
65	1.000	1.000	1.000	1.000	1.000	1.000

Service Retirement

Public Agency Police 2.5% @ 57

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.014	0.014	0.014	0.014	0.025	0.045
51	0.012	0.012	0.012	0.012	0.021	0.038
52	0.025	0.025	0.025	0.025	0.046	0.081
53	0.047	0.047	0.047	0.047	0.086	0.154
54	0.063	0.063	0.063	0.063	0.115	0.205
55	0.076	0.076	0.076	0.076	0.140	0.249
56	0.054	0.054	0.054	0.054	0.099	0.177
57	0.071	0.071	0.071	0.071	0.130	0.232
58	0.057	0.057	0.057	0.057	0.103	0.184
59	0.126	0.126	0.126	0.126	0.156	0.229
60	0.126	0.126	0.126	0.126	0.155	0.226
61	0.126	0.126	0.126	0.126	0.155	0.226
62	0.126	0.126	0.126	0.126	0.155	0.226
63	0.126	0.126	0.126	0.126	0.155	0.226
64	0.126	0.126	0.126	0.126	0.155	0.226
65	1.000	1.000	1.000	1.000	1.000	1.000

- These rates also apply to Local Prosecutors, Local Sheriff, School Police and Other Safety.

Service Retirement

Public Agency Fire 2.5% @ 57

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.007	0.007	0.007	0.007	0.010	0.015
51	0.008	0.008	0.008	0.008	0.012	0.018
52	0.016	0.016	0.016	0.016	0.025	0.038
53	0.042	0.042	0.042	0.042	0.064	0.096
54	0.057	0.057	0.057	0.057	0.088	0.132
55	0.074	0.074	0.074	0.074	0.114	0.170
56	0.066	0.066	0.066	0.066	0.102	0.153
57	0.090	0.090	0.090	0.090	0.139	0.208
58	0.071	0.071	0.071	0.071	0.110	0.164
59	0.066	0.066	0.066	0.066	0.101	0.151
60	0.102	0.102	0.102	0.102	0.157	0.235
61	0.102	0.102	0.102	0.102	0.157	0.236
62	0.102	0.102	0.102	0.102	0.157	0.236
63	0.102	0.102	0.102	0.102	0.157	0.236
64	0.102	0.102	0.102	0.102	0.157	0.236
65	1.000	1.000	1.000	1.000	1.000	1.000

Service Retirement

Public Agency Police 2.7% @ 57

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.0138	0.0138	0.0138	0.0138	0.0253	0.0451
51	0.0123	0.0123	0.0123	0.0123	0.0226	0.0402
52	0.0249	0.0249	0.0249	0.0249	0.0456	0.0812
53	0.0497	0.0497	0.0497	0.0497	0.0909	0.1621
54	0.0662	0.0662	0.0662	0.0662	0.1211	0.2160
55	0.0854	0.0854	0.0854	0.0854	0.1563	0.2785
56	0.0606	0.0606	0.0606	0.0606	0.1108	0.1975
57	0.0711	0.0711	0.0711	0.0711	0.1300	0.2318
58	0.0628	0.0628	0.0628	0.0628	0.1149	0.2049
59	0.1396	0.1396	0.1396	0.1396	0.1735	0.2544
60	0.1396	0.1396	0.1396	0.1396	0.1719	0.2506
61	0.1396	0.1396	0.1396	0.1396	0.1719	0.2506
62	0.1396	0.1396	0.1396	0.1396	0.1719	0.2506
63	0.1396	0.1396	0.1396	0.1396	0.1719	0.2506
64	0.1396	0.1396	0.1396	0.1396	0.1719	0.2506
65	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

- These rates also apply to Local Prosecutors, Local Sheriff, School Police and Other Safety.

Service Retirement

Public Agency Fire 2.7% @ 57

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.0065	0.0065	0.0065	0.0065	0.0101	0.0151
51	0.0081	0.0081	0.0081	0.0081	0.0125	0.0187
52	0.0164	0.0164	0.0164	0.0164	0.0254	0.0380
53	0.0442	0.0442	0.0442	0.0442	0.0680	0.1018
54	0.0606	0.0606	0.0606	0.0606	0.0934	0.1397
55	0.0825	0.0825	0.0825	0.0825	0.1269	0.1900
56	0.0740	0.0740	0.0740	0.0740	0.1140	0.1706
57	0.0901	0.0901	0.0901	0.0901	0.1387	0.2077
58	0.0790	0.0790	0.0790	0.0790	0.1217	0.1821
59	0.0729	0.0729	0.0729	0.0729	0.1123	0.1681
60	0.1135	0.1135	0.1135	0.1135	0.1747	0.2615
61	0.1136	0.1136	0.1136	0.1136	0.1749	0.2618
62	0.1136	0.1136	0.1136	0.1136	0.1749	0.2618
63	0.1136	0.1136	0.1136	0.1136	0.1749	0.2618
64	0.1136	0.1136	0.1136	0.1136	0.1749	0.2618
65	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Service Retirement

Schools 2% @ 55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.005	0.009	0.013	0.015	0.016	0.018
51	0.005	0.010	0.014	0.017	0.019	0.021
52	0.006	0.012	0.017	0.020	0.022	0.025
53	0.007	0.014	0.019	0.023	0.026	0.029
54	0.012	0.024	0.033	0.039	0.044	0.049
55	0.024	0.048	0.067	0.079	0.088	0.099
56	0.020	0.039	0.055	0.065	0.072	0.081
57	0.021	0.042	0.059	0.070	0.078	0.087
58	0.025	0.050	0.070	0.083	0.092	0.103
59	0.029	0.057	0.080	0.095	0.105	0.118
60	0.037	0.073	0.102	0.121	0.134	0.150
61	0.046	0.090	0.126	0.149	0.166	0.186
62	0.076	0.151	0.212	0.250	0.278	0.311
63	0.069	0.136	0.191	0.225	0.251	0.281
64	0.067	0.133	0.185	0.219	0.244	0.273
65	0.091	0.180	0.251	0.297	0.331	0.370
66	0.072	0.143	0.200	0.237	0.264	0.295
67	0.067	0.132	0.185	0.218	0.243	0.272
68	0.060	0.118	0.165	0.195	0.217	0.243
69	0.067	0.133	0.187	0.220	0.246	0.275
70	0.066	0.131	0.183	0.216	0.241	0.270

Miscellaneous

Superfunded Status

Prior to enactment of the Public Employees' Pension Reform Act (PEPRA) that became effective January 1, 2013, a plan in superfunded status (actuarial value of assets exceeding present value of benefits) would normally pay a zero employer contribution rate while also being permitted to use its superfunded assets to pay its employees' normal member contributions.

However, Section 7522.52(a) of PEPRA states, "In any fiscal year a public employer's contribution to a defined benefit plan, in combination with employee contributions to that defined benefit plan, shall not be less than the total normal cost rate…" This means that not only must employers pay their employer normal cost regardless of plan surplus, but also, employers may no longer use superfunded assets to pay employee normal member contributions.

Internal Revenue Code Section 415

The limitations on benefits imposed by Internal Revenue Code Section 415 are taken into account in this valuation. Each year the impact of any changes in this limitation since the prior valuation is included and amortized as part of the actuarial gain or loss base. This results in lower contributions for those employers contributing to the Replacement Benefit Fund and protects CalPERS from prefunding expected benefits in excess of limits imposed by federal tax law.

Internal Revenue Code Section 401(a)(17)

The limitations on compensation imposed by Internal Revenue Code Section 401(a)(17) are taken into account in this valuation. Each year, the impact of any changes in the compensation limitation since the prior valuation is included and amortized as part of the actuarial gain or loss base.

PEPRA Assumptions

The Public Employees' Pension Reform Act of 2013 (PEPRA) mandated new benefit formulas and new member contributions for new members (as defined by PEPRA) hired after January 1, 2013. For non-pooled plans, these new members were first reflected in the June 30, 2013 non-pooled plan valuations. New members in pooled plans were first reflected in the new Miscellaneous and Safety risk pools created by the CalPERS Board in November 2012 in response to the passage of PEPRA, also beginning with the June 30, 2013 valuation. Assumptions for PEPRA members are disclosed in Appendix A tables.

APPENDIX B

PRINCIPAL PLAN PROVISIONS

The following is a description of the principal plan provisions used in calculating costs and liabilities. We have indicated whether a plan provision is standard or optional. Standard benefits are applicable to all members while optional benefits vary among employers. Optional benefits that apply to a single period of time, such as Golden Handshakes, have not been included. Many of the statements in this summary are general in nature, and are intended to provide an easily understood summary of the complex Public Employees' Retirement Law. The law itself governs in all situations. For a full listing of all optional benefits refer to the PERS-CON-40 available on CalPERS website by choosing Employer Information > Retirement Benefit Programs & Contracting Services > Retirement Benefits Program > Contract Information > Optional Benefits

Service Retirement

Eligibility

A classic CalPERS member or PEPRA Safety member becomes eligible for Service Retirement upon attainment of age 50 with at least 5 years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements). For employees hired into a plan with the 1.5 percent at 65 formula, eligibility for service retirement is age 55 with at least 5 years of service. PEPRA miscellaneous members become eligible for Service Retirement upon attainment of age 52 with at least 5 years of service.

Benefit

The Service Retirement benefit is a monthly allowance equal to the product of the *benefit factor*, *years of service*, and *final compensation.*

- The *benefit factor* depends on the benefit formula specified in your agency's contract. The table below shows the factors for each of the available formulas. Factors vary by the member's age at retirement. Listed are the factors for retirement at whole year ages:

Miscellaneous Plan Formulas

Retirement Age	1.5% at 65	2% at 60	2% at 55	2.5% at 55	2.7% at 55	3% at 60	PEPRA 2% at 62
50	0.5000%	1.092%	1.426%	2.000%	2.000%	2.000%	N/A
51	0.5667%	1.156%	1.522%	2.100%	2.140%	2.100%	N/A
52	0.6334%	1.224%	1.628%	2.200%	2.280%	2.200%	1.000%
53	0.7000%	1.296%	1.742%	2.300%	2.420%	2.300%	1.100%
54	0.7667%	1.376%	1.866%	2.400%	2.560%	2.400%	1.200%
55	0.8334%	1.460%	2.000%	2.500%	2.700%	2.500%	1.300%
56	0.9000%	1.552%	2.052%	2.500%	2.700%	2.600%	1.400%
57	0.9667%	1.650%	2.104%	2.500%	2.700%	2.700%	1.500%
58	1.0334%	1.758%	2.156%	2.500%	2.700%	2.800%	1.600%
59	1.1000%	1.874%	2.210%	2.500%	2.700%	2.900%	1.700%
60	1.1667%	2.000%	2.262%	2.500%	2.700%	3.000%	1.800%
61	1.2334%	2.134%	2.314%	2.500%	2.700%	3.000%	1.900%
62	1.3000%	2.272%	2.366%	2.500%	2.700%	3.000%	2.000%
63	1.3667%	2.418%	2.418%	2.500%	2.700%	3.000%	2.100%
64	1.4334%	2.418%	2.418%	2.500%	2.700%	3.000%	2.200%
65	1.5000%	2.418%	2.418%	2.500%	2.700%	3.000%	2.300%
66	1.5000%	2.418%	2.418%	2.500%	2.700%	3.000%	2.400%
67 & up	1.5000%	2.418%	2.418%	2.500%	2.700%	3.000%	2.500%

Safety Plan Formulas

Retirement Age	½ at 55 *	2% at 55	2% at 50	3% at 55	3% at 50
50	1.783%	1.426%	2.000%	2.400%	3.000%
51	1.903%	1.522%	2.140%	2.520%	3.000%
52	2.035%	1.628%	2.280%	2.640%	3.000%
53	2.178%	1.742%	2.420%	2.760%	3.000%
54	2.333%	1.866%	2.560%	2.880%	3.000%
55 & Up	2.500%	2.000%	2.700%	3.000%	3.000%

* For this formula, the benefit factor also varies by entry age. The factors shown are for members with an entry age of 35 or greater. If entry age is less than 35, then the age 55 benefit factor is 50 percent divided by the difference between age 55 and entry age. The benefit factor for ages prior to age 55 is the same proportion of the age 55 benefit factor as in the above table.

PEPRA Safety Plan Formulas

Retirement Age	2% at 57	2.5% at 57	2.7% at 57
50	1.426%	2.000%	2.000%
51	1.508%	2.071%	2.100%
52	1.590%	2.143%	2.200%
53	1.672%	2.214%	2.300%
54	1.754%	2.286%	2.400%
55	1.836%	2.357%	2.500%
56	1.918%	2.429%	2.600%
57 & Up	2.000%	2.500%	2.700%

- The *years of service* is the amount credited by CalPERS to a member while he or she is employed in this group (or for other periods that are recognized under the employer's contract with CalPERS). For a member who has earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer's contract, and then added together for the total allowance. An agency may contract for an optional benefit where any unused sick leave accumulated at the time of retirement will be converted to credited service at a rate of 0.004 years of service for each day of sick leave.

- The *final compensation* is the monthly average of the member's highest 36 or 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). The standard benefit is 36 months. Employers had the option of providing a final compensation equal to the highest 12 consecutive months for classic plans only. Final compensation must be defined by the highest 36 consecutive months' pay under the 1.5% at 65 formula. PEPRA members have a cap on the annual salary that can be used to calculate final compensation for all new members based on the Social Security Contribution and Benefit Base. For employees that participate in Social Security this cap is $115,064 for 2014 and for those employees that do not participate in social security the cap for 2014 is $138,077, the equivalent of 120 percent of the 2013 Contribution and Benefit Base. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers.

- Employees must be covered by Social Security with the 1.5% at 65 formula. Social Security is optional for all other benefit formulas. For employees covered by Social Security, the Modified formula is the standard benefit. Under this type of formula, the final compensation is offset by $133.33 (or by one third if the final compensation is less than $400). Employers may contract for the Full benefit with Social Security that will eliminate the offset applicable to the final compensation. For employees not covered by Social Security, the Full benefit is paid with no offsets. Auxiliary organizations of the CSUC system may elect reduced contribution rates, in which case the offset is $317 if members are not covered by Social Security or $513 if members are covered by Social Security.

- The Miscellaneous Service Retirement benefit is not capped. The Safety Service Retirement benefit is capped at 90 percent of final compensation.

Vested Deferred Retirement

Eligibility for Deferred Status

A CalPERS member becomes eligible for a deferred vested retirement benefit when he or she leaves employment, keeps his or her contribution account balance on deposit with CalPERS, **and** has earned at least 5 years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements).

Eligibility to Start Receiving Benefits

The CalPERS classic members and Safety PEPRA members become eligible to receive the deferred retirement benefit upon satisfying the eligibility requirements for Deferred Status and upon attainment of age 50 (55 for employees hired into a 1.5% @ 65 plan). PEPRA Miscellaneous members become eligible to receive the deferred retirement benefit upon satisfying the eligibility requirements for Deferred Status and upon attainment of age 52.

Benefit

The vested deferred retirement benefit is the same as the Service Retirement benefit, where the benefit factor is based on the member's age at allowance commencement. For members who have earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer's contract, and then added together for the total allowance.

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

A CalPERS member is eligible for Non-Industrial Disability Retirement if he or she becomes *disabled* and has at least 5 years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements). There is no special age requirement. *Disabled* means the member is unable to perform his or her job because of an illness or injury, which is expected to be permanent or to last indefinitely. The illness or injury does not have to be job related. A CalPERS member must be actively employed by any CalPERS employer at the time of disability in order to be eligible for this benefit.

Standard Benefit

The standard Non-Industrial Disability Retirement benefit is a monthly allowance equal to 1.8 percent of final compensation, multiplied by *service*, which is determined as follows:

- *Service* is CalPERS credited service, for members with less than 10 years of service or greater than 18.518 years of service; or

- *Service* is CalPERS credited service plus the additional number of years that the member would have worked until age 60, for members with at least 10 years but not more than 18.518 years of service. The maximum benefit in this case is 33 1/3 percent of Final Compensation.

Improved Benefit

Employers have the option of providing the improved Non-Industrial Disability Retirement benefit. This benefit provides a monthly allowance equal to 30 percent of final compensation for the first 5 years of service, plus 1 percent for each additional year of service to a maximum of 50 percent of final compensation.

Members who are eligible for a larger service retirement benefit may choose to receive that benefit in lieu of a disability benefit. Members eligible to retire, and who have attained the normal retirement age determined by their service retirement benefit formula, will receive the same dollar amount for disability retirement as that payable for service retirement. For members who have earned service with multiple CalPERS employers, the benefit attributed to each employer is the total disability allowance multiplied by the ratio of service with a particular employer to the total CalPERS service.

Industrial (Job Related) Disability Retirement

All safety members have this benefit. For miscellaneous members, employers have the option of providing this benefit. An employer may choose to provide the Increased benefit option or the Improved benefit option.

Eligibility

An employee is eligible for Industrial Disability Retirement if he or she becomes disabled while working, where disabled means the member is unable to perform the duties of the job because of a work-related illness or injury, which is expected to be permanent or to last indefinitely. A CalPERS member who has left active employment within this group is not eligible for this benefit, except to the extent described below.

Standard Benefit

The standard Industrial Disability Retirement benefit is a monthly allowance equal to 50 percent of final compensation.

Increased Benefit (75 percent of Final Compensation)

The increased Industrial Disability Retirement benefit is a monthly allowance equal to 75 percent final compensation for total disability.

Improved Benefit (50 percent to 90 percent of Final Compensation)

The improved Industrial Disability Retirement benefit is a monthly allowance equal to the Workman's Compensation Appeals Board permanent disability rate percentage (if 50 percent or greater, with a maximum of 90 percent) times the final compensation.

For a CalPERS member not actively employed in this group who became disabled while employed by some other CalPERS employer, the benefit is a return of accumulated member contributions with respect to employment in this group. With the standard or increased benefit, a member may also choose to receive the annuitization of the accumulated member contributions.

If a member is eligible for Service Retirement and if the Service Retirement benefit is more than the Industrial Disability Retirement benefit, the member may choose to receive the larger benefit.

Post-Retirement Death Benefit

Standard Lump Sum Payment

Upon the death of a retiree, a one-time lump sum payment of $500 will be made to the retiree's designated survivor(s), or to the retiree's estate.

Improved Lump Sum Payment

Employers have the option of providing an improved lump sum death benefit of $600, $2,000, $3,000, $4,000 or $5,000.

Form of Payment for Retirement Allowance

Standard Form of Payment

Generally, the retirement allowance is paid to the retiree in the form of an annuity for as long as he or she is alive. The retiree may choose to provide for a portion of his or her allowance to be paid to any designated beneficiary after the retiree's death. CalPERS provides for a variety of such benefit options, which the retiree pays for by taking a reduction in his or her retirement allowance. Such reduction takes into account the amount to be provided to the beneficiary and the probable duration of payments (based on the ages of the member and beneficiary) made subsequent to the member's death.

Improved Form of Payment (Post Retirement Survivor Allowance)

Employers have the option to contract for the post retirement survivor allowance.

For retirement allowances with respect to service subject to the modified formula, 25 percent of the retirement allowance will automatically be continued to certain statutory beneficiaries upon the death of the retiree, without a reduction in the retiree's allowance. For retirement allowances with respect to service subject to the full or supplemental formula, 50 percent of the retirement allowance will automatically be continued to certain statutory beneficiaries upon the death of the retiree, without a reduction in the retiree's allowance. This additional benefit is often referred to as post retirement survivor allowance (PRSA) or simply as survivor continuance.

In other words, 25 percent or 50 percent of the allowance, the continuance portion, is paid to the retiree for as long as he or she is alive, and that same amount is continued to the retiree's spouse (or if no eligible spouse, to unmarried children until they attain age 18; or, if no eligible children, to a qualifying dependent parent) for the rest of his or her lifetime. This benefit will not be discontinued in the event the spouse remarries.

The remaining 75 percent or 50 percent of the retirement allowance, which may be referred to as the option portion of the benefit, is paid to the retiree as an annuity for as long as he or she is alive. Or, the retiree may choose to provide for some of this option portion to be paid to any designated beneficiary after the retiree's death. Benefit options applicable to the option portion are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the option portion.

Pre-Retirement Death Benefits

Basic Death Benefit

This is a standard benefit.

Eligibility

An employee's beneficiary (or estate) may receive the Basic Death benefit if the member dies while actively employed. A CalPERS member must be actively employed with the CalPERS employer providing this benefit to be eligible for this benefit. A member's survivor who is eligible for any other pre-retirement death benefit may choose to receive that death benefit instead of this Basic Death benefit.

Benefit

The Basic Death Benefit is a lump sum in the amount of the member's accumulated contributions, where interest is currently credited at 7.5 percent per year, plus a lump sum in the amount of one month's salary for each completed year of current service, up to a maximum of six months' salary. For purposes of this benefit, one month's salary is defined as the member's average monthly full-time rate of compensation during the 12 months preceding death.

1957 Survivor Benefit

This is a standard benefit.

Eligibility

An employee's *eligible survivor(s)* may receive the 1957 Survivor benefit if the member dies while actively employed, has attained at least age 50 for Classic and Safety PEPRA members and age 52 for Miscellaneous PEPRA members, and has at least 5 years of credited service (total service across all CalPERS employers and with certain other Retirement Systems with which CalPERS has reciprocity agreements). A CalPERS member must be actively employed with the CalPERS employer providing this benefit to be eligible for this benefit. An eligible survivor means the surviving spouse to whom the member was married at least one year before death or, if there is no eligible spouse, to the member's unmarried children under age 18. A member's survivor who is eligible for any other pre-retirement death benefit may choose to receive that death benefit instead of this 1957 Survivor benefit.

Benefit

The 1957 Survivor benefit is a monthly allowance equal to one-half of the unmodified Service Retirement benefit that the member would have been entitled to receive if the member had retired on the date of his or her death. If the benefit is payable to the spouse, the benefit is discontinued upon the death of the spouse. If the benefit is payable to a dependent child, the benefit will be discontinued upon death or attainment of age 18, unless the child is disabled. The total amount paid will be at least equal to the Basic Death benefit.

Optional Settlement 2W Death Benefit

This is an optional benefit.

Eligibility

An employee's *eligible survivor* may receive the Optional Settlement 2W Death benefit if the member dies while actively employed, has attained at least age 50 for Classic and Safety PEPRA members and age 52 for Miscellaneous PEPRA members, and has at least 5 years of credited service (total service across all CalPERS employers and with certain other Retirement Systems with which CalPERS has reciprocity agreements). A CalPERS member who is no longer actively employed with **any** CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death. A member's survivor who is eligible for any other pre-retirement death benefit may choose to receive that death benefit instead of this Optional Settlement 2W Death benefit.

Benefit

The Optional Settlement 2W Death benefit is a monthly allowance equal to the Service Retirement benefit that the member would have received had the member retired on the date of his or her death and elected Optional Settlement 2W. (A retiree who elects Optional Settlement 2W receives an allowance that has been reduced so that it will continue to be paid after his or her death to a surviving beneficiary.) The allowance is payable as long as the surviving spouse lives, at which time it is continued to any unmarried children under age 18, if applicable. The total amount paid will be at least equal to the Basic Death Benefit.

Special Death Benefit

This is a standard benefit for safety members. An employer may elect to provide this benefit for miscellaneous members.

Eligibility

An employee's *eligible survivor(s)* may receive the Special Death benefit if the member dies while actively employed and the death is job-related. A CalPERS member who is no longer actively employed with **any** CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married prior to the onset of the injury or illness that resulted in death. If there is no eligible spouse, an eligible survivor means the member's unmarried children under age 22. An eligible survivor who chooses to receive this benefit will not receive any other death benefit.

Benefit

The Special Death benefit is a monthly allowance equal to 50 percent of final compensation, and will be increased whenever the compensation paid to active employees is increased but ceasing to increase when the member would have attained age 50. The allowance is payable to the surviving spouse until death at which time the allowance is continued to any unmarried children under age 22. There is a guarantee that the total amount paid will at least equal the Basic Death Benefit.

If the member's death is the result of an accident or injury caused by external violence or physical force incurred in the performance of the member's duty, and there are *eligible* surviving children (*eligible* means unmarried children under age 22) in addition to an eligible spouse, then an **additional monthly allowance** is paid equal to the following:

- if 1 eligible child: 12.5 percent of final compensation
- if 2 eligible children: 20.0 percent of final compensation
- if 3 or more eligible children: 25.0 percent of final compensation

Alternate Death Benefit for Local Fire Members

This is an optional benefit available only to local fire members.

Eligibility

An employee's *eligible survivor(s)* may receive the Alternate Death benefit in lieu of the Basic Death Benefit or the 1957 Survivor Benefit if the member dies while actively employed and has at least 20 years of total CalPERS service. A CalPERS member who is no longer actively employed with **any** CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married prior to the onset of the injury or illness that resulted in death. If there is no eligible spouse, an eligible survivor means the member's unmarried children under age 18.

Benefit

The Alternate Death benefit is a monthly allowance equal to the Service Retirement benefit that the member would have received had the member retired on the date of his or her death and elected Optional Settlement 2W. (A retiree who elects Optional Settlement 2W receives an allowance that has been reduced so that it will continue to be paid after his or her death to a surviving beneficiary.) If the member has not yet attained age 50, the benefit is equal to that which would be payable if the member had retired at age 50, based on service credited at the time of death. The allowance is payable as long as the surviving spouse lives, at which time it is continued to any unmarried children under age 18, if applicable. The total amount paid will be at least equal to the Basic Death Benefit.

Cost-of-Living Adjustments (COLA)

Standard Benefit

Retirement and survivor allowances are adjusted each year in May for cost of living, beginning the second calendar year after the year of retirement. The standard cost-of-living adjustment (COLA) is 2 percent. Annual adjustments are calculated by first determining the lesser of 1) 2 percent compounded from the end of the year of retirement or 2) actual rate of inflation. The resulting increase is divided by the total increase provided in prior years. For any particular year, the COLA adjustment may be less than 2 percent (when the rate of inflation is low), may be greater than the rate of inflation (when the rate of inflation is low after several years of high inflation) or may even be greater than 2 percent (when inflation is high after several years of low inflation).

Improved Benefit

Employers have the option of providing a COLA of 3 percent, 4 percent, or 5 percent, determined in the same manner as described above for the standard 2 percent COLA. An improved COLA is not available with the 1.5% at 65 formula.

Purchasing Power Protection Allowance (PPPA)

Retirement and survivor allowances are protected against inflation by PPPA. PPPA benefits are cost-of-living adjustments that are intended to maintain an individual's allowance at 80 percent of the initial allowance at retirement adjusted for inflation since retirement. The PPPA benefit will be coordinated with other cost-of-living adjustments provided under the plan.

Employee Contributions

Each employee contributes toward his or her retirement based upon the retirement formula. The standard employee contribution is as described below.

The percent contributed below the monthly compensation breakpoint is 0 percent.
The monthly compensation breakpoint is $0 for full and supplemental formula members and $133.33 for employees covered by the modified formula.
The percent contributed above the monthly compensation breakpoint depends upon the benefit formula, as shown in the table below.

Benefit Formula	**Percent Contributed above the Breakpoint**
Miscellaneous, 1.5% at 65	2%
Miscellaneous, 2% at 60	7%
Miscellaneous, 2% at 55	7%
Miscellaneous, 2.5% at 55	8%
Miscellaneous, 2.7% at 55	8%
Miscellaneous, 3% at 60	8%
Miscellaneous, 2% at 62	50% of the Total Normal Cost
Safety, 1/2 at 55	Varies by entry age
Safety, 2% at 55	7%
Safety, 2% at 50	9%
Safety, 3% at 55	9%
Safety, 3% at 50	9%
Safety, 2% at 57	50% of the Total Normal Cost
Safety, 2.5% at 57	50% of the Total Normal Cost
Safety, 2.7% at 57	50% of the Total Normal Cost

The employer may choose to “pick-up” these contributions for the employees (Employer Paid Member Contributions or EPMC). EPMC is prohibited for new PEPRA members.

An employer may also include Employee Cost Sharing in the contract, where employees agree to share the cost of the employer contribution. These contributions are paid in addition to the member contribution.

Auxiliary organizations of the CSUC system may elect reduced contribution rates, in which case the offset is $317 and the contribution rate is 6 percent if members are not covered by Social Security. If members are covered by Social Security, the offset is $513 and the contribution rate is 5 percent.

Refund of Employee Contributions

If the member’s service with the employer ends, and if the member does not satisfy the eligibility conditions for any of the retirement benefits above, the member may elect to receive a refund of his or her employee contributions, which are credited annually with 6 percent interest.

1959 Survivor Benefit

This is a pre-retirement death benefit available only to members not covered by Social Security. Any agency joining CalPERS subsequent to 1993 was required to provide this benefit if the members were not covered by Social Security. The benefit is optional for agencies joining CalPERS prior to 1994. Levels 1, 2 and 3 are now closed. Any new agency or any agency wishing to add this benefit or increase the current level must choose the 4th or Indexed Level.

This benefit is not included in the results presented in this valuation. More information on this benefit is available on the CalPERS website at www.calpers.ca.gov.

APPENDIX C

PARTICIPANT DATA

- **SUMMARY OF VALUATION DATA**
- **ACTIVE MEMBERS**
- **TRANSFERRED AND TERMINATED MEMBERS**
- **RETIRED MEMBERS AND BENEFICIARIES**

Summary of Valuation Data

	June 30, 2013	June 30, 2014
1. **Active Members**		
a) Counts	132	129
b) Average Attained Age	47.64	47.67
c) Average Entry Age to Rate Plan	35.30	35.05
d) Average Years of Service	12.34	12.62
e) Average Annual Covered Pay	$ 102,996	$ 107,299
f) Annual Covered Payroll	13,595,469	13,841,577
g) Projected Annual Payroll for Contribution Year	14,856,136	15,125,065
h) Present Value of Future Payroll	99,186,200	100,990,539
2. **Transferred Members**		
a) Counts	41	37
b) Average Attained Age	49.95	50.59
c) Average Years of Service	5.22	5.29
d) Average Annual Covered Pay	$ 101,680	$ 103,097
3. **Terminated Members**		
a) Counts	28	30
b) Average Attained Age	44.88	43.99
c) Average Years of Service	2.84	3.31
d) Average Annual Covered Pay	$ 62,287	$ 63,857
4. **Retired Members and Beneficiaries**		
a) Counts	143	155
b) Average Attained Age	67.97	68.14
c) Average Annual Benefits	$ 32,328	$ 32,603
5. **Active to Retired Ratio** [(1a) / (4a)]	0.92	0.83

Counts of members included in the valuation are counts of the records processed by the valuation. Multiple records may exist for those who have service in more than one valuation group. This does not result in double counting of liabilities.

Average Annual Benefits represents benefit amounts payable by this plan only. Some members may have service with another agency and would therefore have a larger total benefit than would be included as part of the average shown here.

Active Members

Counts of members included in the valuation are counts of the records processed by the valuation. Multiple records may exist for those who have service in more than one valuation group. This does not result in double counting of liabilities.

Distribution of Active Members by Age and Service

	Years of Service at Valuation Date						
Attained Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-25**	**25+**	**Total**
15-24	3	0	0	0	0	0	3
25-29	4	1	0	0	0	0	5
30-34	6	5	2	0	0	0	13
35-39	2	5	5	0	0	0	12
40-44	3	5	3	0	0	1	12
45-49	7	8	3	3	4	1	26
50-54	3	1	7	6	4	4	25
55-59	1	3	2	1	8	2	17
60-64	0	1	1	0	1	2	5
65 and over	0	2	2	1	2	4	11
All Ages	29	31	25	11	19	14	129

Distribution of Average Annual Salaries by Age and Service

	Years of Service at Valuation Date						
Attained Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-25**	**25+**	**Average**
15-24	$81,020	$0	$0	$0	$0	$0	$81,020
25-29	70,314	95,495	0	0	0	0	75,351
30-34	84,514	96,910	89,571	0	0	0	90,060
35-39	75,397	99,560	120,460	0	0	0	104,241
40-44	99,821	108,437	103,877	0	0	187,607	111,741
45-49	100,581	91,025	104,572	130,771	131,935	107,774	106,685
50-54	101,583	107,774	112,575	109,917	154,200	133,235	120,391
55-59	97,211	108,589	113,290	86,541	127,392	158,296	121,872
60-64	0	162,450	105,088	0	86,395	93,537	108,201
65 and over	0	101,291	107,808	95,003	56,105	109,340	96,616
All Ages	$89,231	$101,510	$109,684	$112,123	$124,331	$126,382	$107,299

Transferred and Terminated Members

Distribution of Transfers to Other CalPERS Plans by Age and Service

Attained Age	Years of Service at Valuation Date 0-4	5-9	10-14	15-19	20-25	25+	Total	Average Salary
15-24	0	0	0	0	0	0	0	$0
25-29	0	0	0	0	0	0	0	0
30-34	1	0	0	0	0	0	1	98,490
35-39	1	1	0	0	0	0	2	95,070
40-44	4	3	0	0	0	0	7	88,422
45-49	4	0	0	0	0	0	4	114,717
50-54	5	6	2	0	0	0	13	105,681
55-59	2	3	2	1	0	0	8	106,661
60-64	0	1	0	0	0	0	1	106,544
65 and over	1	0	0	0	0	0	1	114,427
All Ages	18	14	4	1	0	0	37	103,097

Distribution of Terminated Participants with Funds on Deposit by Age and Service

Attained Age	Years of Service at Valuation Date 0-4	5-9	10-14	15-19	20-25	25+	Total	Average Salary
15-24	0	0	0	0	0	0	0	$0
25-29	1	0	0	0	0	0	1	42,483
30-34	4	1	0	0	0	0	5	78,872
35-39	4	1	0	0	0	0	5	65,435
40-44	5	0	0	0	0	0	5	61,493
45-49	2	1	1	0	1	0	5	60,201
50-54	4	1	0	1	0	0	6	61,722
55-59	2	0	0	0	0	0	2	43,462
60-64	1	0	0	0	0	0	1	85,968
65 and over	0	0	0	0	0	0	0	0
All Ages	23	4	1	1	1	0	30	63,857

Retired Members and Beneficiaries

Distribution of Retirees and Beneficiaries by Age and Retirement Type*

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0
45-49	0	1	0	0	0	0	1
50-54	4	2	0	0	0	0	6
55-59	20	1	0	0	0	1	22
60-64	35	2	0	0	0	2	39
65-69	25	1	0	0	0	0	26
70-74	21	1	0	0	0	3	25
75-79	13	2	0	0	0	2	17
80-84	8	1	0	0	0	2	11
85 and Over	4	1	0	0	0	3	8
All Ages	130	12	0	0	0	13	155

Distribution of Average Annual Amounts for Retirees and Beneficiaries by Age and Retirement Type*

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Average
Under 30	$0	$0	$0	$0	$0	$0	$0
30-34	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0
45-49	0	21,693	0	0	0	0	21,693
50-54	24,134	16,212	0	0	0	0	21,494
55-59	25,508	25,541	0	0	0	14,806	25,023
60-64	33,554	20,278	0	0	0	8,891	31,608
65-69	44,780	17,921	0	0	0	0	43,747
70-74	40,352	19,709	0	0	0	39,771	39,456
75-79	40,731	6,611	0	0	0	33,612	35,879
80-84	25,802	4,165	0	0	0	25,870	23,848
85 and Over	18,762	16,784	0	0	0	10,543	15,432
All Ages	$35,069	$16,001	$0	$0	$0	$23,269	$32,603

Retired Members and Beneficiaries (continued)

Distribution of Retirees and Beneficiaries by Years Retired and Retirement Type*

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Yrs	43	0	0	0	0	5	48
5-9	32	1	0	0	0	5	38
10-14	24	0	0	0	0	0	24
15-19	18	6	0	0	0	2	26
20-24	7	2	0	0	0	1	10
25-29	3	0	0	0	0	0	3
30 and Over	3	3	0	0	0	0	6
All Years	130	12	0	0	0	13	155

Distribution of Average Annual Amounts for Retirees and Beneficiaries by Years Retired and Retirement Type*

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Average
Under 5 Yrs	$33,852	$0	$0	$0	$0	$17,291	$32,126
5-9	38,798	21,693	0	0	0	26,935	36,787
10-14	36,563	0	0	0	0	0	36,563
15-19	38,512	19,407	0	0	0	25,173	33,077
20-24	33,953	13,738	0	0	0	31,019	29,616
25-29	9,845	0	0	0	0	0	9,845
30 and Over	7,954	8,802	0	0	0	0	8,378
All Years	$35,069	$16,001	$0	$0	$0	$23,269	$32,603

* Counts of members do not include alternate payees receiving benefits while the member is still working. Therefore, the total counts may not match information on page 25 of the report. Multiple records may exist for those who have service in more than one coverage group. This does not result in double counting of liabilities.

APPENDIX D

DEVELOPMENT OF PEPRA MEMBER CONTRIBUTION RATE

DEVELOPMENT OF PEPRA MEMBER CONTRIBUTION RATE

The table below shows the determination of the Member contribution rates based on 50 percent of the Total Normal Cost for each respective plan on June 30, 2014.

Assembly Bill (AB) 340 created PEPRA that implemented new benefit formulas and a final compensation period as well as new contribution requirements for new employees. In accordance with Section Code 7522.30(b), "new members … shall have an initial contribution rate of at least 50 percent of the normal cost rate." The normal cost for the plan is dependent on the benefit levels, actuarial assumptions and demographics of the plan particularly the entry age into the plan. The PEPRA total normal cost for your plan is calculated assuming the entire active population, including classic members, were subject to the adopted PEPRA formula and applicable compensation limits. Should the total normal cost of your plan change by one percent or more from the original total normal cost established for your plan this change in normal cost shall be equally shared between employer and member.

		Basis for Current Rate		Rates Effective July 1, 2016			
Rate Plan Identifier	**Plan**	**Total Normal Cost**	**Member Rate**	**Total Normal Cost**	**Change**	**Change Needed**	**Member Rate**
26482	Miscellaneous PEPRA	12.500%	6.250%	11.621%	0.879%	No	6.250%

APPENDIX E

GLOSSARY OF ACTUARIAL TERMS

Glossary of Actuarial Terms

Accrued Liability *(also called Actuarial Accrued Liability or Entry Age Normal Accrued Liability)*
The total dollars needed as of the valuation date to fund all benefits earned in the past for *current* members.

Actuarial Assumptions
Assumptions made about certain events that will affect pension costs. Assumptions generally can be broken down into two categories: demographic and economic. Demographic assumptions include such things as mortality, disability and retirement rates. Economic assumptions include discount rate, salary growth and inflation.

Actuarial Methods
Procedures employed by actuaries to achieve certain funding goals of a pension plan. Actuarial methods include funding method, setting the length of time to fund the Accrued Liability and determining the Value of Assets.

Actuarial Valuation
The determination, as of a valuation date, of the Normal Cost, Accrued liability, Actuarial Value of Assets and related actuarial present values for a pension plan. These valuations are performed annually or when an employer is contemplating a change to their plan provisions.

Amortization Bases
Separate payment schedules for different portions of the Unfunded Liability. The total Unfunded Liability of a Risk Pool or non-pooled plan can be segregated by "cause," creating "bases" and each such base will be separately amortized and paid for over a specific period of time. However, all bases are amortized using investment and payroll assumptions from the current valuation. This can be likened to a home having a first mortgage of 24 years remaining payments and a second mortgage that has 10 years remaining payments. Each base or each mortgage note has its own terms (payment period, principal, etc.)

Generally, in an actuarial valuation, the separate bases consist of changes in unfunded liability due to contract amendments, actuarial assumption changes, actuarial methodology changes, and/or gains and losses. Payment periods are determined by Board policy and vary based on the cause of the change.

Amortization Period
The number of years required to pay off an Amortization Base.

Classic Member (under PEPRA)
A classic member is a member who joined CalPERS prior to January, 1, 2013 and who is not defined as a new member under PEPRA. (See definition of new member below)

Discount Rate Assumption
The actuarial assumption that was called "investment return" in earlier CalPERS reports or "actuarial interest rate" in Section 20014 of the California Public Employees' Retirement Law (PERL).

Entry Age
The earliest age at which a plan member begins to accrue benefits under a defined benefit pension plan. In most cases, this is the age of the member on their date of hire.

Entry Age Normal Cost Method
An actuarial cost method designed to fund a member's total plan benefit over the course of his or her career. This method is designed to yield a rate expressed as a level percentage of payroll.
(The assumed retirement age less the entry age is the amount of time required to fund a member's total benefit. Generally, the older a member on the date of hire, the greater the entry age normal cost. This is mainly because there is less time to earn investment income to fund the future benefits.)

Fresh Start
A Fresh Start is when multiple amortization bases are collapsed to one base and amortized together over a new funding period.

Funded Status
A measure of how well funded, or how "on track" a plan or risk pool is with respect to assets versus accrued liabilities. A ratio greater than 100% means the plan or risk pool has more assets than liabilities and a ratio less than 100% means liabilities are greater than assets.

GASB 27
Statement No. 27 of the Governmental Accounting Standards Board. The prior accounting standard governing a state or local governmental employer's accounting for pensions.

GASB 68
Statement No. 68 of the Governmental Accounting Standards Board. The accounting standard governing a state or local governmental employer's accounting and financial reporting for pensions. GASB 68 replaces GASB 27 effective the first fiscal year beginning after June 15, 2014.

New Member (under PEPRA)
A new member includes an individual who becomes a member of a public retirement system for the first time on or after January 1, 2013, and who was not a member of another public retirement system prior to that date, and who is not subject to reciprocity with another public retirement system.

Normal Cost
The annual cost of service accrual for the upcoming fiscal year for active employees. The normal cost should be viewed as the long term contribution rate.

Pension Actuary
A business professional that is authorized by the Society of Actuaries, and the American Academy of Actuaries to perform the calculations necessary to properly fund a pension plan.

PEPRA
The California Public Employees' Pension Reform Act of 2013

Prepayment Contribution
A payment made by the employer to reduce or eliminate the year's required employer contribution.

Present Value of Benefits (PVB)
The total dollars needed as of the valuation date to fund all benefits earned in the past or expected to be earned in the future for *current* members.

Rolling Amortization Period
An amortization period that remains the same each year, rather than declining.

Superfunded
A condition existing when a plan's Actuarial Value of Assets exceeds its Present Value of Benefits. Prior to the passage of PEPRA, when this condition existed on a given valuation date for a given plan, employee contributions for the rate year covered by that valuation could be waived.

Unfunded Liability (UAL)
When a plan or pool's Value of Assets is less than its Accrued Liability, the difference is the plan or pool's Unfunded Liability. If the Unfunded Liability is positive, the plan or pool will have to pay contributions exceeding the Normal Cost.

UNION SANITARY DISTRICT

Summary of the EBDA Commission Meeting
Thursday, March 17, 2016, at 9:30 a.m.
Prepared by: P. Eldredge

- Commissioners Dias, Handley, Johnson, Prola and Peixoto were present.

- The Consent Calendar was approved unanimously and included the Commission Meeting Minutes, List of Disbursements, and Treasurer's Report.

- The Commission unanimously approved the reports from the General Manager, Managers Advisory, Financial Management, Regulatory Affairs, Operations & Maintenance, and Ad Hoc committees. The following items were discussed:

- **General Mangers Report -** Superintendent Stoops provided a storm report. He advised the Commission that it was necessary to divert to the City of Hayward Ponds twice in March. The General Manager is working with the Water Board to devise a long term discharge strategy for EBDA.

- **Managers Advisory Committee (MAC)** met with General Manager Connor on March 16, 2016. The MAC discussed the HEPS cost benefit analysis and evaluation of firm capacity at OLEPS alternatives in depth. The Committee recommended postponing the Carollo Engineers, Inc. study of the south system force main capacity. Lastly, the MAC was joined by the Ad Hoc members to discuss EBDA strategic planning.

- **Financial Management Committee** approved the February list of disbursements and Treasurer's Report at the meeting of March 15, 2016. The Finance Committee also reviewed the State Controller's Office Special Districts Local Government Compensation report for calendar year 2015.

- **Regulatory Affairs Committee** met on March 15, 2016 and discussed permit compliance. EBDA's legal counsel submitted a request, to the Water Board, to extend the abeyance period of EBDA's petition until February 16, 2018. The Committee reviewed a notice from the Water Board explaining the permit reissuance process. EBDA's permit renewal application is due by September 1, 2016.

- **Operations and Maintenance (O&M) Committee** met on March 14, 2016, and was updated on EBDA's performance and the status of O&M projects. The Committee discussed the status of the outfall pipe inspection and the No. 2 effluent pump at SLEPS. The Committee approved staff's award to the lowest bid for the replacement of the No. 2 and No. 6 variable frequency drives at the Alvarado Effluent Pump Station.
  The O&M Committee recommended adoption of a resolution authorizing a contract with D.W. Nicholson, in the amount of $52,252, for the replacement of the VFDs at the

Alvarado pump station. The Committee also expressed their support of a purchase order to Pump Repair Service Company, in the amount of $23,331, for the overhaul of the No. 2 effluent pump at the San Leandro pump station.

- **Ad Hoc Committee** met on March 16, 2016 and discussed strategic planning options with the MAC. The Committee asked the MAC to follow through with a longer strategic planning meeting in May.

The Commission unanimously passed the following:

- Commissioner Handley moved to authorize a contract with D.W. Nicholson in the amount of $52,252 for the VFD replacement project at the Alvarado pump station. The motion was seconded by Commissioner Johnson and carried unanimously, 5-0.

Ayes:	Commissioners Handley, Johnson, Prola, Peixoto, and Chair Dias
Noes:	None
Absent:	None
Abstain:	None

- Commissioner Prola moved to authorize a purchase order for Pump Repair Service Company in the amount of $23,331 for the overhaul of the No. 2 effluent pump at the San Leandro pump station. The motion was seconded by Commissioner Johnson and carried unanimously, 5-0.

Ayes:	Commissioners Handley, Johnson, Prola, Peixoto, and Chair Dias
Noes:	None
Absent:	None
Abstain:	None

SCIENTIFIC
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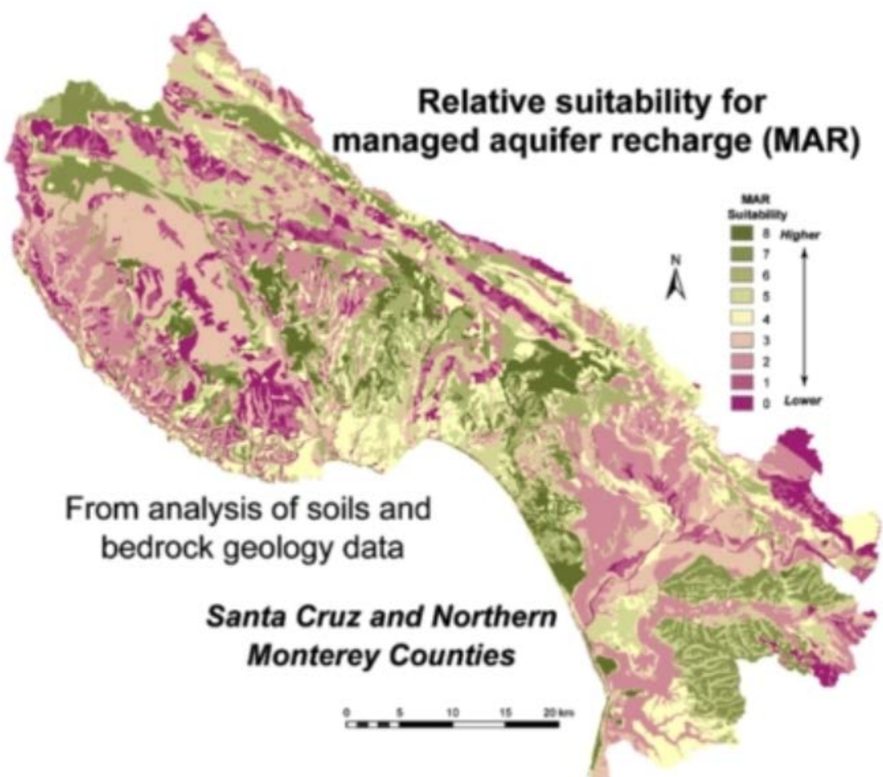
Parched California Tries to Grab Storm Water before It Escapes

A network of basins and wells, designed by geologists, can channel storm runoff into natural underground vaults before it vanishes into the sea

By Tom Yulsman on March 10, 2016



Sites best suited for water basins to recharge groundwater aquifers are shown in green.
A.T. Fisher, U. of California-Santa Cruz

As surface water has dwindled during California's epic drought, desperate farmers and municipalities have staged a run on other sources: the state's vast underground hydrological savings banks, such as aquifers beneath the Sacramento and San Joaquin river basins. Before the great dry spell, about 40 percent of California's water supply came from these underground reservoirs. But by 2015, the percentage had jumped to 75.

Refilling these vaults won't be easy because they've been drained so heavily. In California's Central Valley, groundwater levels have plummeted up to 100 feet lower than previously recorded. Restocking is also hard because an aquifer "is more like a colander than a bank," says Andrew Fisher, a hydrogeologist at the University of California, Santa Cruz. As some water trickles in, other water leaks out—into streams, lakes, and wetlands.

But an underground refill is crucial, so Fisher has developed a scheme to increase the water going in. The idea is to grab stormwater that typically rushes off into waterways and out to the Pacific Ocean. Fisher plans to capture some of that water in special ponds and wells designed to allow water to trickle through the soil down to the aquifers below. Particles and microbes in the soil should help cleanse the water of contaminants that it picked up, such as nitrogen pollution from agricultural runoff.

A pilot project is already underway in the state's Central Coast, and on March 16, a local water management agency will decide whether to approve three additional restoration projects.

To find the best locations for recapture projects, Fisher and his colleagues have taken a two-pronged approach in California's Monterey and Santa Cruz counties. They've used geographic information system mapping to analyze such factors as the slope of the land, the size of possible catchment areas, and the conditions of aquifers below. And they've used computer modeling to identify areas where there might be sufficient stormwater runoff.

The ultimate goal is not only to help farmers in need of irrigation water but also to push back against saltwater intrusion from the sea—a looming problem threatening both municipal and agricultural water supplies—by boosting fresh water in the underground aquifers on land. The approach could also aid plants and animals living along streams and in wetlands, which depend on water from the aquifers during dry summers.

"We are trying to return the hydrological system to what it once was like, so it can work better," Fisher says.

Changes in storm patterns over California make this a timely move. Rain clouds are dumping more intense bursts of water, thanks to climate change. A study by Fisher and his colleagues shows that while total precipitation in the San Francisco Bay area hasn't changed much in 120 years, the rain is coming in shorter but heavier bouts.

This local trend is mirrored globally, says Kevin Trenberth, a climate scientist with the National Center for Atmospheric Research in Boulder, Colorado. "The dries are getting drier, and the wet is getting wetter," he says. "And with continuing climate change, this will only get worse."

http://www.scientificamerican.com/article/parched-california-tries-to-grab-storm-water-before-it-escapes/

Unfortunately, more intense rainfall doesn't translate automatically into more water for aquifers. "With a greater fraction of the precipitation falling in shorter, more intense storms, you tend to have less of an opportunity for water to percolate into the ground," Fisher says. Instead, it runs off fast into rivers and out to sea.

Trenberth, like Fisher, sees a lost opportunity here. Even as mining of groundwater continues, "there is no systematic attempt to get some of the excess stormwater into the ground," he says.

That's what Fisher is trying to change, starting with his Central Coast pilot project in an area called the Pajaro Valley. This region, with the city of Watsonville at its heart, is "ground zero for high value agricultural crops, such as organic berries, fancy vegetables, and salad crops," Fisher says. At the same time, "it is completely dependent on local groundwater." The high value of the Parajo Valley's agriculture, combined with the unsustainable groundwater withdrawals, make the area a great place to start, Fisher says.

During the past four years, his team has had an approximately 180-acre field site operating on land in the valley that is in part a working ranch. The researchers have built a two-acre infiltration basin—basically, a modified pond—into which a simple ditch directs stormwater. All that's needed is gravity. "It involves some engineering, but it is pretty low tech," Fisher says. The focus is on "keeping it simple."

"We're working on ways of helping to get more water into the basin, figuring out ways it can be managed so the system doesn't clog, for example, and also to improve water quality," he says.

There are sites where a pond may not be appropriate, in a highly developed area, for example, or a place where standing water could pose a public health concern. For those sites, Fisher's team is working on an alternative: a variation on dry wells that have been widely used in to handle stormwater runoff in places like parking lots.

With this system, stormwater enters through an intake into a buried chamber where debris settles out and the water is filtered. It then goes into a second chamber, which can extend 100 feet or more into the ground. From here, it is released. "The idea is to put the water into the top of the aquifer material, but above the actual water table, so it can be cleaned a bit as it percolates downward into the aquifer." To help filter contaminants, the researchers have been experimenting with different materials, such as wood chips and charcoal, which can be used at the bottom of infiltration ponds and inside dry wells.

If the board of the Pajaro Valley Water Management Agency approves his expansion plan in their mid-March vote, Fisher will try to use the project to show these methods can cut water costs for landowners. The three additional areas will have water usage meters that run backwards as well as forwards. In other words, a meter would not only measure the groundwater spent by a farmer for irrigation, but it would also spin back to account for the water added back from an infiltration pond on the property. This is akin to the net metering used for photovoltaic systems.

“Landowners who put these systems in would have water costs offset by this approach,” Fisher says. “This has never been done with groundwater.”

Within the Pajaro Valley, his longer-term goal is to get eight to ten systems installed that would infiltrate about 1,000 acre-feet of extra water into the aquifer below in total. An acre-foot is about 326,000 gallons, and it’s enough to cover an acre of ground to a depth of a foot. On average, California households use between one-half and one acre-foot of water annually for indoor and outdoor use (but consumption in some areas is much higher).

Overall, Fisher believes these systems can boost groundwater recharge in the area by 10 percent. “For this basin, that would be a significant achievement,” Fisher says.

Still, that relatively low number also highlights the challenge of using groundwater more sustainably. “We need a portfolio of solutions,” Fisher says—including improved conservation efforts. “No one solution will get us to 100 percent. We have to do a little bit here and a little bit there."

Los Angeles Times

Sewer district draws up comic book super hero to illustrate underground challenges, duties

Costa Mesa Sanitary District's Steve Cano, a maintenance supervisor, stands next to a pump station on Wilson Street with Sewer Slayer, a superhero-like character he helped create that teaches children about how the district keeps the sewers running, and its various villains. (Bradley Zint / Daily Pilot)

By **Bradley Zint - Contact Reporter**

March 10, 2016

In the chaotic underworld of Costa Mesa sewers, where grease and tree roots cause havoc to seep up toward the unsuspecting masses, only the Sewer Slayer can save them.

This heroic figure (who looks a lot like Superman) has one mission: Protect the environment by fighting the sinister evildoers beneath the streets. To achieve his goals, he'll take on the mighty forces of Mr. Overflow, Grease Goblin and Root Myzer.

Villains, all.

And treacherous, each in his own diabolical way.

Sewer Slayer, a cartoon superhero, was created by three Costa Mesa Sanitary District employees as a way to help ratepayers, particularly children, know more about the district's day-to-day duties. (Courtesy Costa Mesa Sanitary District)

If this sounds fictional, it's not — well, sort of.

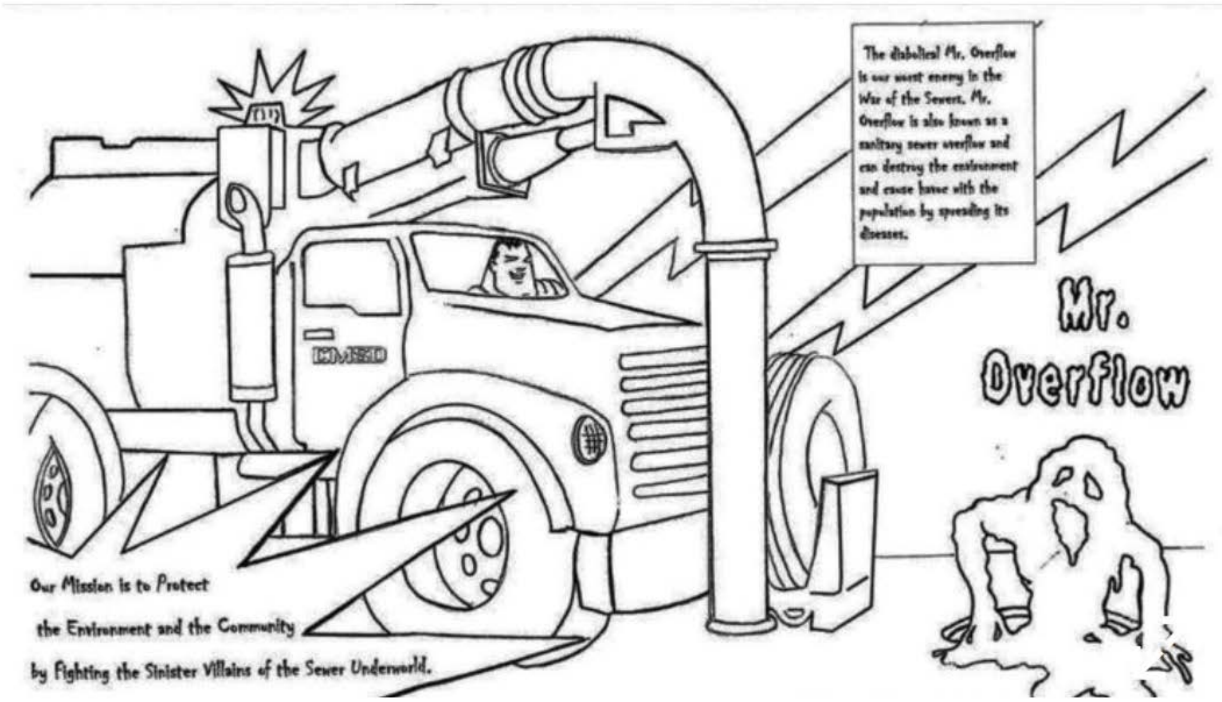
Sewer clogs caused by grease and tree roots are real in Costa Mesa, as are the crews who respond to them.

But to help ratepayers, particularly children, know more about the Costa Mesa Sanitary District's day-to-day duties, there's the Sewer Slayer, a comic book-like hero of the district's creation who teaches how the sewer system is kept running and how to avoid its downfall.

"It's a fun way to promote the wastewater guys," said district General Manager Scott Carroll.

Next month, Mr. Slayer is one reason why the district is being presented with an industry award. The district will receive the 2015 Collection System of the Year award from the Santa Ana River Basin Section of the California Water Environment Association.

The award recognizes aspects that Costa Mesa ratepayers expect to be top notch — like safety, training, regulatory compliance, emergency procedures — and this year, it'll recognize something that makes Costa Mesa's agency a little quirkier.



The Costa Mesa Sanitary District has created Sewer Slayer, a superhero-like character that helps children learn about the district and what causes sewer problems. (Courtesy Costa Mesa Sanitary District)

Credit for Sewer Slayer is divide among three men — Steve Cano, wastewater maintenance supervisor, and maintenance workers Joel Ortiz and Alex Arreola.

Cano came up with the name and initial drawings. Ortiz and Arreola help spread the word and distribute Sewer Slayer stickers and coloring books.

When asked if he was the type of kid who doodled in class instead of listening to the teacher, Cano sheepishly smiled.

"Maybe," he said.

Sewer Slayer's origins date to about two years ago. Cano was inspired after seeing children become fascinated by the district's specialized sewer system cleanup trucks. The kids would be playing in the street, the truck rolled in and they wanted to know more.

But the district didn't have a way to connect with them. There wasn't a toy or some other item to hand out.

So Cano drew something up.

Out came Sewer Slayer, whose square jaw, bulging muscles, spandex suit and flowing cape transform him into a Clark Kent-esque hero for beneath the City of the Arts. He's available on stickers and coloring books.

"The ominous and creeping Root Myzer is the greatest enemy of our sewer pipes," according to Sewer Slayer's coloring book. "If the Root Myzer gets its clutches in our pipe joints, it can break out pipe joints or cause a stoppage."

Then there's the "lurking" Grease Goblin, who must "be destroyed."

"Do not feed the Grease Goblin by dumping grease down your sink!" the coloring book warns.

Carroll said Sewer Slayer materials are cheap to produce yet effective. The freebies go quickly from the district's booths staged for community events.

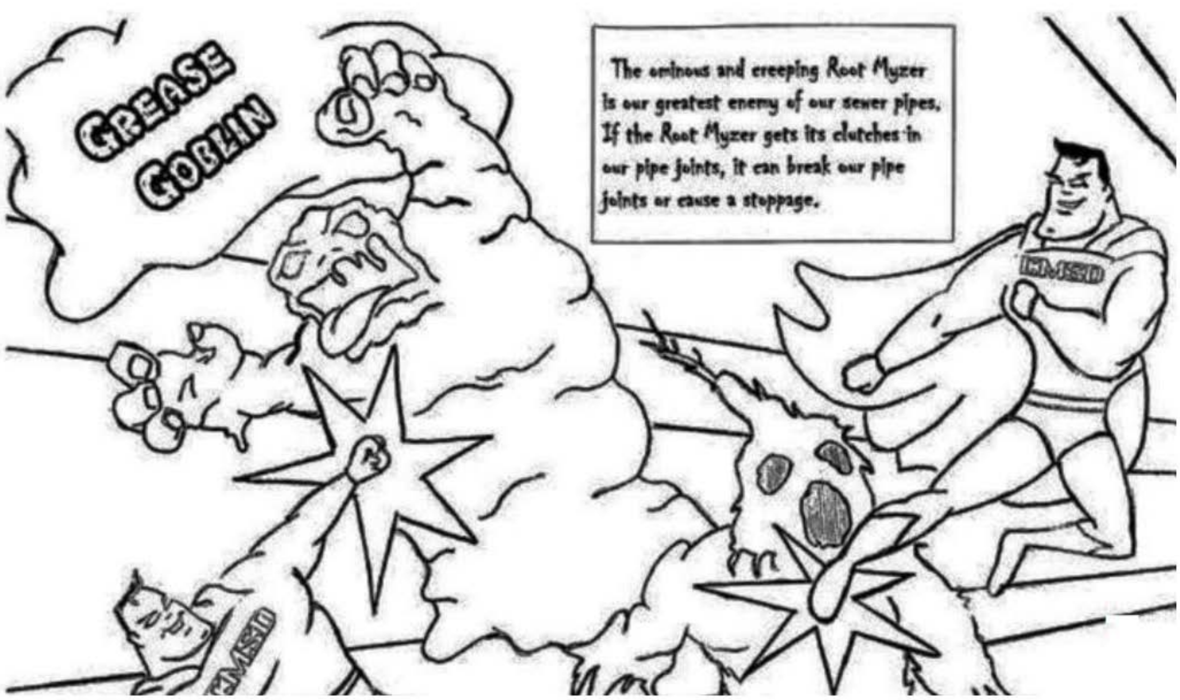
Earlier this year, Sewer Slayer upped his game beyond the stickers and books. He's now emblazoned on a pump station on Wilson Street near Harbor Boulevard, thanks to Mesa Art and Framing, a business down the way from the district's West 19th Street headquarters.

So what's next for Sewer Slayer, other than fighting the good fight in the war for cleaner sewers?

He could show up at the school demonstrations the district wants to do, Carroll said.

Or maybe the San Diego Comic-Con?

"That would be the future," Carroll joked. "Right?"



The Costa Mesa Sanitary District has created Sewer Slayer, a superhero-like character that helps children learn about the district and what causes sewer problems. (Courtesy Costa Mesa Sanitary District)

The Argus

Alleged violations of Prop. 218

Antioch hit with lawsuit over water fund transfers

Officials say using money for police services is justifiable

March 11, 2016

By Nate Gartrell

ngartrell@bayareanewsgroup.com

ANTIOCH — A resident has sued the city over its practice of transferring water and sewer money to the city's general fund, and if his suit is successful, it could force the city to return millions of dollars that have been spent on police services.

Plaintiff Mark Jordan, an Antioch real estate agent, has been an outspoken critic of the city's practice of annually transferring money from the city's water and sewer funds into the general fund to be spent on police services. His lawsuit alleges that the practice violates the California Constitution, which includes a provision that says cities may not impose fees for general governmental services, such as police or fire, "where the service is available to the public at large in substantially the same manner as it is to property owners."

Antioch Finance Director Dawn Merchant, in an email to Jordan, said the city transferred a total of $2.8 million from its water and sewer funds to the city's general fund to pay for police services between 2010 and 2015. The city is continuing that practice and has plans to do so at least into the 2016-17 fiscal year, according to city staff.

"The city is inappropriately taking money from water and sewer enterprise funds and using it for police services, and therefore they're taxing the citizens without a vote of the electorate and that is blatantly illegal," Jordan said.

But interim Antioch City Attorney Derek Cole denied Jordan's claim that the practice is illegal and said he expects the city to be successful in justifying the expenditures in court. He said that since police help protect city water facilities and respond to service calls there, the water and sewer fund transfers were part of the "cost of providing service."

"Basically, police secure water buildings and plants and equipment and respond to any calls for service or emergencies that occur on those properties, so the city's position is that it's appropriate to take that money from fee revenue that's generated for water and for sewer," Cole said. "We believe that the city's practice is valid, and we believe that existing court decisions will support the city."

California permitted cities to use water funds to pay for other services until 1996, when voters approved Proposition 218, a constitutional amendment aimed at reforming the way local governments can impose taxes and fees. Before Proposition 218 was approved, it was common for cities to use water revenue for a multitude of nonwater-related expenses.

“Lots of cities have seen the water system as a cash cow for the general budget, and Prop. 218 was one of the things that was done in an attempt to avoid that sort of thing,” said Bob Maddow, a former attorney for Contra Costa Water District who declined to comment on Jordan’s lawsuit.

Jordan is hardly the first California resident to sue a city over alleged misuse of water funds. In 2005, an appellate court judge ruled in favor of a group that filed a similar suit against the city of Fresno, saying that the city had failed to justify how fees it was charging ratepayers were proportional to the cost of providing water services, a requirement under Proposition 218, and required the city to restructure its fees.

Jordan’s attorney, Eric Benink, is part of a San Diego-based firm that has litigated numerous cases involving alleged misuse of Proposition 218 funds. He said the city’s explanation of why the money was transferred to police services is insufficient.

“(Police) are providing the same service to everybody,” Benink said. “This type of gamesmanship is the reason Prop. 218 was voted into law in 1996. People were tired of taxes being disguised as utility fees. This is a service that should be paid for through taxes.”

The Argus

Moody's settles with CalPERS for $130M

By James Rufus Koren

Los Angeles Times

March 11, 2016

Moody's will pay $130 million to the California Public Employees' Retirement System to settle allegations that the ratings agency acted negligently by giving top scores to ultimately toxic investments that cost the pension fund hundreds of millions of dollars, CalPERS said Wednesday.

CalPERS sued Moody's and rival ratings agencies Standard & Poor's and Fitch in 2009, saying the agencies gave AAA ratings — which imply extremely low risk — to bonds backed by subprime mortgages.

CalPERS, the nation's largest public pension fund, put $1.3 billion into those bonds in 2006, at the height of the subprime-fueled housing boom. When the bonds went bad in the ensuing crash, the fund estimates it lost as much as $1 billion, according to court filings.

In those filings, CalPERS said the ratings agencies' opinions of the bonds "proved to be wildly inaccurate and unreasonably high," and that the methods the agencies used to rate the bonds "were seriously flawed in conception and incompetently applied."

With Wednesday's settlement, plus a $125 million deal reached with S&P last year, CalPERS' total settlements related to the $1.3 billion bonds investment stand at $255 million. "This resolves our lawsuit against Moody's and restores money that belongs to our members and employers," said Matthew Jacobs, CalPERS' general counsel. "We are eager to put this money back to work to help ensure the long-term sustainability of the fund. "

In an emailed statement, Moody's spokesman Michael Adler said: "The resolution of this long-running litigation ... is in the best interest of our company and its shareholders." The ratings agencies played a key role in fueling the subprime mortgage market, putting solid credit ratings on bonds and complex investment products backed by risky loans.

The Securities and Exchange Commission found in a 2008 report that the agencies had no set procedures for rating mortgage backed bonds and other now-toxic assets, and that the firms didn't disclose conflicts of interest.

Chief among the complaints against the agencies was that they were paid for their ratings by the banks and other lenders issuing mortgage-backed bonds.

"This conflict of interest led to the ratings agencies giving high credit rankings to increasingly riskier deals," CalPERS said in its suit against the agencies.

The Moody's settlement comes just over a year after S&P agreed to pay $1.4 billion to the U.S. Department of Justice and 19 states, including California, to settle similar allegations.

environmental LEADER
Environmental & Energy Management News

March 14, 2016

California 'Ready for Recycled Water'

By: Jessica Lyons Hardcastle

California residents are overwhelmingly supportive of using treated wastewater, or recycled water, in their everyday lives, according to a statewide survey released today by water technology provider Xylem.

The survey defined recycled water as former wastewater that has been treated and purified so that it can be reused for drinking purposes.

The survey found that 76 percent of respondents believe recycled water should be used as a long-term solution for managing water resources, regardless of whether or not a water shortage continues.

These findings stand to benefit Xylem's business as well. The ongoing California drought and mandated water cutbacks will undoubtedly boost sales of water saving technologies like those provided by Xylem.

Nearly half, or 49 percent of respondents, are very supportive of using recycled water as an additional local water supply and another 38 percent are somewhat supportive. Forty-two percent are very willing to use recycled water in their everyday lives and an additional 41 percent are somewhat willing.

"With overwhelming support from the public, California is well-positioned to lead the US in accelerating the availability and acceptance of recycled water," said Joseph Vesey, Xylem senior vice president who leads the company's North American commercial business. "The state has the opportunity to champion a flexible framework that recognizes the unique needs of local communities as they work to establish water resource strategies that include sustainable solutions, such as recycled water."

According to the findings, 89 percent of residents are more willing to use recycled water after reading an educational statement explaining the treatment processes that recycled wastewater undergoes to become safe and drinkable again. Further, 88 percent agree that seeing a demonstration of the water purification process would make them more comfortable using and drinking recycled water. These findings suggest that education is a key component in gaining even stronger support for recycled water across the state, Xylem says.

Californians do not view the use of recycled water as a short-term fix to the state's five-year drought. Eighty-eight percent of California residents agree that even if El Niño brings increased rainfall to California, the state should continue to invest in the use of recycled water for drinking purposes. In fact, if El Niño brings the expected rainfall to California, only 12 percent of respondents say it would cause them to be less concerned about saving water.

The survey also found that terminology plays a role in the level of public acceptance for the use of recycled water. When reused water was referred to as “purified water,” respondents were more likely to be supportive (90 percent) of it as an additional local water supply than when the term “recycled water” (87 percent) or “reclaimed water” (82 percent) was used.

Recycled oilfield wastewater is already being used to irrigate about 90,000 acres of crops in California’s Central Valley, one of the world’s most productive agricultural regions.

https://www.environmentalleader.com/2016/03/14/california-ready-for-recycled-water/

DROUGHT-WEARY CALIFORNIANS ARE READY FOR RECYCLED WATER*

Residents eager for long-term solutions to water scarcity

76% of survey respondents believe recycled water **should be used** as a long-term solution, regardless of drought.

87% of respondents **SUPPORT** using recycled water as an additional source of water.

VERY SUPPORTIVE — SOMEWHAT SUPPORTIVE

41% SOMEWHAT WILLING

42% VERY WILLING

83% are **willing to use** recycled water in their everyday lives.

Californians believe that recycled water should be used as a

LONG-TERM SOLUTION

for a water-secure future – regardless of potential rainfall from El Niño.

NEARLY 90%

of Californians believe the state should **continue to invest** in recycled water for drinking water even if El Niño brings the expected rainfall.

12%

Only 12% will be less concerned about conserving water if El Niño brings the expected rainfall.

EDUCATION

is a **key component** in securing support for recycled water across the state.

89% of California residents are **more willing** to use recycled water after learning about the treatment process.

LABELS MATTER:

Referring to reused water as **"purified water"** garners stronger support for its use as an additional local water supply than **"recycled water"** or **"reclaimed water."**

PURIFIED WATER	90%
RECYCLED WATER	87%
RECLAIMED WATER	82%

89% of Californians agree that the drought has made them **more supportive** of

RECYCLED WATER.

Californians are **READY** for recycled water. The state has the opportunity to **LEAD** the US in accelerating the use and acceptance of recycled water.

xylem
Let's Solve Water

*These results are based on an online survey by research firm Edelman Intelligence of approximately 3,000 randomly selected California voters from January 14-30, 2016. The survey was commissioned by Xylem Inc. and has +/-3.1 percent margin of error.

The Argus
March 15, 2016

Near Rheem Valley Shopping Center

Fix started for gas line split by sinkhole

2,500 customers without service a day after a stoplight pole pierces pipe

By Rick Hurd and Matthias Gafni

Staff writers

MORAGA — As residents waited for the return of heat on Monday afternoon, nearly 24 hours after a sinkhole ruptured a natural gas line, PG&E crews were scheduled to begin a key step in repairing the natural gas line.

Moraga police said the process of flushing air from the damaged pipe started at 2:30 p.m., the second of three steps to getting service restored at a location across the street from the Rheem Valley Shopping Center.

PG&E spokesman Nick Stimmel said crews began purging the lines to allow gas back into the pipes Monday afternoon. After that step is complete, PG&E gas service technicians planned to go door-to-door to relight pilots Monday evening. “We brought in about 200 gas service technicians to be able to do this safely and as quickly as possible,” Stimmel said. Approximately 2,500 residents have been without gas since the line ruptured about 5 p.m. Sunday, when a stoplight pole collapsed into a sinkhole near the intersection of Center Street and Rheem Boulevard, across the street from the shopping center. The pole pierced the 4-inch gas line pipe, which contained about 49 psi of pressure, PG&E spokeswoman Tamar Sarkissian said. Moraga interim Police Chief Jon King said Monday that the sinkhole was 15 feet deep, with a perimeter of 10 feet by 10 feet.

Electrical lines also came down. By Monday afternoon, 42 affected customers had electrical power in Moraga and another 57 were without power in nearby Orinda. PG&E officials did not say immediately whether the two outages were related.

King said it’s unclear what caused the sinkhole to form but that the heavy rains over the past week heavily saturated the area and may have been a factor.

The flushing process, during which crews vent natural gas from sections of a pipe to clear it of air, came after the approximately 200 PG&E workers from Northern and Central California went door-to-door through affected neighborhoods to shut down gas meters. They will do the same to turn on pilot lights after the flushing process is finished, Sarkissian said.

The leak caused a whistle that was audible, police said, and crews initially tried to pinch the gas line locally. Instead, the shutdown involved seven valves, and the leak wasn’t shut down entirely until 1 a.m., Sarkissian said. “It was a step we took proactively, because the sinkhole was growing in size,” she said. Police diverted traffic on Rheem

Boulevard into a shopping center and around the sinkhole area, King said. One lane on Moraga Road remained closed, and police said it may remain that way indefinitely.

“It will depend on the weather pattern,” King said. “There’s a lot of water down there still. The soil is really wet.” Police ordered a shelter-in-place order to nearby residents when the gas line initially ruptured but later lifted it. Sarkissian said residents should ask PG&E employees for their photo identification if they ask to enter a home, and that customers who aren’t at home can call the company at 800-943-5000 to schedule an appointment.

Water streams from a broken pipe on Monday after a sinkhole ruptured a natural gas line at the intersection of Center Street and Rheem Boulevard in Moraga. Heavy rains saturating the area may have been a factor, officials said.

Staff writer Katrina Cameron contributed to this report. Follow Rick Hurd at Twitter.com/3rdERH. Follow Matthias Gafni at Twitter.com/mgafni.

Napa Valley Register

Despite protest, sewer board approves rate hikes

BARRY EBERLING beberling@napanews.com

March 18, 2016

Despite an opposition campaign by a taxpayers group, sewer rates in the city of Napa, the Silverado area and the airport industrial area will rise up to 53 percent over the coming five years to help replace and renovate aging pipelines.

The Napa Sanitation District Board of Directors approved a series of rate increases on Wednesday night by unanimous vote. Rates are to rise 15 percent this July, then rise 15 percent, 6 percent, 5 percent and 4 percent in subsequent years.

The Napa County Taxpayers Association mounted a campaign to try to stop the increases. Under Proposition 218, if half the district's parcel owners filed protest letters, the district Board couldn't raise the rates.

Sewer district officials announced at the meeting that 2,238 protests had been lodged, well short of the 12,321 needed.

About 75 people attended the evening meeting at Napa Valley Unified School District headquarters. District officials used the first hour to explain to the skeptical audience why they think the increases are needed.

Everything isn't set in stone. The Board has the power to lower the rates for any given year by passing a resolution saying that the district has sufficient revenues.

But barring such a change of mind, the annual charge for a home will rise from $482.50 to $554.88 in July. When the series of planned increases ends in July 2020, the rate will be $738.62. Payments are made annually as part of the property tax bill.

"We owe it to ourselves so our sewer system will remain in good shape," Board Member Charles Gravett said. "And we owe it to our children so when they grow up, they'll have a sewer system that's working."

The increases will raise district revenue from $19.5 million annually to $31.4 million annually in 2020-21. Among other things, it will allow the district to increase the amount of sewer pipes it replaces and repairs from 1 percent annually to 2 percent annually.

District General Manager Tim Healy explained how cracked, aging pipes in the 270-mile underground system allow groundwater to enter the sewers. That, in turn, brings a risk of sewer collapses and overflows onto streets and into storm drains that lead to the Napa River.

"Nearly one-third of our sewer system is approaching 50 years old," Healy said.

Also, the rate increases will allow the district to borrow money for the planned, $15 million to $20 million Browns Valley Road Sewer Interceptor. This project is designed to free up capacity in the sewer system in the Browns Valley area and downtown Napa.

The Browns Valley Road Sewer Interceptor will reduce the risk of sewer overflows, Healy said, adding that the project must be done whether or not more development takes place in Napa.

But resident Janice Andrade saw the rate increases from the perspective of those on fixed incomes who will find the extra cost a burden.

“You know, just because you have the power to mess with my budget doesn’t mean that you should,” Andrade said to applause.

The audience had plenty of questions.

Resident Robert Francis asked why the district doesn’t index the sewer rates to water use. That way, a single-person household that sends little water down the sinks and toilets wouldn’t pay the same rate for sewer services as household of six.

Healy said that the data from the water providers isn’t in a format the district can use. Basing the sewer rate on water usage is an issue the district will look at in the next few years.

Resident Joseph Vitelli said developers pay a capacity fee to build the extra sewage system capacity needed by their projects. But this expansion fund was in debt to ratepayers by $12.6 million in 2008 and the debt has grown to $30.6 million, he said.

“The developers need to be paying their fair share,” Vitelli said. “We’ve been paying our fair share, plus $30.6 million.”

District Director of Administrative Services Jeff Tucker explained that sewer and sewage treatment capacity must be built before development takes place, with the expansion projects based on city and county growth plans. That leads to a deficit in the expansion fund that is covered mostly by ratepayers.

Then, when the development goes forward, developers pay back the money through capacity fees. District officials noted the Archer Hotel recently paid a fee of $1.9 million.

Board member and Napa City Councilman Peter Mott suggested the district might be able lessen some of the planned rate increases as development takes place and developers pay down the deficit.

The Board also approved a low-income sewer rate program with a rebate of 28 percent. A person qualifying for the program would pay $399.52 for sewer service next fiscal year, rather than the proposed rate of $554.88.

Board members expressed empathy for the comments they heard from the public during a meeting that lasted three and a half hours. But they also authorized the rate hikes to make sewer system improvements they said are needed and would lead to higher costs if ignored.

“I don’t feel like I would be doing my job if I didn’t support this rate increase,” said Board Member and county Supervisor Keith Caldwell.

Also voting for the increase were Napa Mayor Jill Techel and public member David Graves.

Rate hikes

Today a residence pays $482.50 annually in sewer fees.

On Tuesday Napa Sanitation District's board approved five successive rate increases:

-- $554.88 in 2016-17

-- $638.11 in 2017-18

-- $676.39 in 2018-19

-- $710.21 in 2019-20

-- $738.62 in 2020-21

Milpitas fires another volley against San Jose over treatment plant costs

By Ian Bauer, Milpitas Post

San Jose Mercury News

Posted: Mon Mar 21 14:35:13 MDT 2016

Representatives of Milpitas and other users of the San Jose-Santa Clara Regional Wastewater Facility who have claimed for weeks they are being unfairly overcharged for a planned $2.2 billion plant upgrade aired their grievance at a news conference last week.

During the March 9 event at the Campbell-based West Valley Sanitation District, the coalition comprised of Milpitas and special districts serving neighboring cities demanded that San Jose and Santa Clara immediately turn over all public records showing what's spent on the water treatment plant at 700 Los Esteros Road in San Jose, north of state Route 237.

Besides Milpitas, the other tributary agencies -- Cupertino Sanitary District, Burbank Sanitary District, Santa Clara County Sanitation District 2-3 and the West Valley Sanitation District, which collectively serve the communities of Cupertino, Los Gatos, Campbell, Monte Sereno, Saratoga and unincorporated areas of Santa Clara County -- also say San Jose is diverting ratepayer funds to city-only projects.

"The tributary agencies have reason to believe the City of San Jose has used ratepayer funds for the benefit of San Jose only -- and at the unfair expense of smaller communities whose fees are supposed to pay for plant operations," reads a March 9 statement issued by Milpitas' hired public relations firm, Singer Associates Inc.

Under an agreement, Milpitas' share of the $2.2 billion wastewater facility capital improvement program over the 30-year period would be approximately $168 million, according to San Jose's Environmental Services Department, Under a phased 10-year plant upgrade costing $1.4 billion, Milpitas' contribution is estimated at $92 million.

The agencies have hired an independent auditor to investigate whether San Jose has diverted funds away from the plant upgrade. The findings of the independent auditor -- former FBI agent and forensic accountant Dan Ray of San Francisco's Hemming Morse LLP -- may also be turned over to "state and federal officials for further investigation as need be," the written statement reads.

"All rate payers served by the treatment plant have a right to know how their money is being spent, yet the City of San Jose has so far failed to fully comply with two public records requests demanding full documentation," said Britt Strottman, an attorney from the Meyers Nave law firm representing the tributary agencies. "The agencies need to know where every dollar sent to San Jose goes. Right now, we don't know where the money goes. What is the city trying to hide?"

Strottman added the agencies "fully intend to pay the improvement costs" to the water treatment plant.

In response, the city of San Jose last Friday said the allegations against it were irresponsible, unsupported and without basis.

"We're deeply disappointed that our partners...continue to resist good faith negotiations regarding their fair share of the costs of essential improvements to our shared regional infrastructure," said Ashwini Kantak, San Jose Environmental Services Department's assistant director. —...Their publicity stunts only spread misinformation and waste everyone's time and money, increase the risk of expensive delays of the long-term capital improvements that they actually have helped us plan as our partners, and add unnecessary costs to rate payers served by all tributary agencies."

The coalition has been protesting the alleged overcharges since January. It also has accused San Jose of breach of contract and of unfairly basing allocated costs of planned facility improvements on an improper formula.

On Jan. 22, Singer Associates Inc., announced that the coalition -- representing a total population of about 270,000 -- is being hit with millions of dollars in unaccounted expenses for that first phase of the planned improvements.

A public administrative hearing meant to lay out the next steps has been scheduled for 1:30 p.m. March 24 at San Jose City Hall's Council Chambers, 200 E. Santa Clara St.

White House summit focuses on aggressive, new ways to save water

By Carolyn Lochhead

Updated 10:30 am, Tuesday, March 22, 2016

WASHINGTON — Occupants of 11,000 new single-family houses under construction near Tracy will be able to recycle their shower, bath, laundry and sink water on site using a system designed by Australian water engineers, one of dozens of new water technologies the White House will showcase at its big “water summit” Tuesday.

Hoping to leapfrog a Congress still trying to wring more water out of California’s over-drafted rivers, the Obama administration wants to replicate for water the push it made on solar power nearly eight years ago to jump start new technologies and coordinate the federal response to droughts.

President Obama views efforts to address climate change as a key piece of his legacy, and White House officials view drought as among the most dire consequences of a warming climate. After last fall’s climate talks in Paris, the administration immediately targeted water as a priority.

The White House issued a governmentwide directive Monday to reduce the nation’s vulnerability to drought, which it said “poses a serious and growing threat to the security and economies of communities nationwide.” Toward that effort, administration officials said 150 businesses and nonprofits will pledge $4 billion in private capital to improve water resiliency.

White House science adviser John Holdren, who has been helping drive the administration’s water policy, said Tuesday’s summit was planned to coincide with World Water Day, and while it comes at the tail end of the Obama presidency, “we’ll be passing along a lot of good ideas about what works and what doesn’t.”

Technically known as “gray water,” the soapy effluent of showers, sinks and laundry has long been an obvious source of new water supply. Most of the focus, however, has been on building large recycling plants that ferry household sewage to a centralized treatment plant.

‘Like solar panels’

Treating gray water within each home is “conceptually sort of like solar panels,” said Ralph Petroff, co-founder and chairman emeritus of Nexus eWater, an Australian startup that moved to California last year. The company designed the system employed at River Islands, a master-planned development in the town of Lathrop (San Joaquin County), near Tracy. The company calls the project “the first major development in the world” to combine on-site gray water reuse with recycled energy from the home water heater.

“When the energy crisis hit, people said, ‘Let’s build huge power plants,’” Petroff said. But that takes decades and cost tens of billions of dollars, he said, so rooftop solar began catching on.

“There is a similar dynamic now,” he said. “People say, ‘We’ve got a water crisis. We need a lot more water, so we’ll build recycling and desal (desalination) plants,’ and it’ll take 15 years and cost billions. So our solution, similar to solar panels, is to do it on-site and do it during construction.”

The houses will have separate gray-water plumbing, with two underground tanks and a recycling unit about half the size of a refrigerator turned on its side, said Nexus eWater chief executive Tom Wood. The system adds $8,000 to $10,000 to the cost of each house, but will be amortized in a monthly bill partially offset by savings in water and sewer charges. The water can be used to flush toilets but mainly will go outdoors for landscaping and car washing. The system does not include toilet or kitchen waste, so-called black water, but still can reduce household use by an estimated 40 to 60 percent.

Cynthia Koehler, who will attend the summit as executive director of WaterNow, a nonprofit that works on reducing urban water use, said reusing gray water is critical because half of all household water is used outside. She called gray water recycling a "two-fer" that reduces a home's intake of water and helps maintain some level of landscaping, which is environmentally preferable to covering everything with pavement. Showcased projects will range far beyond gray water. Ceres, a water nonprofit that opened an office in San Francisco last year, will also announce a "water climate bonds standard" to provide scientific guidelines that can help investors evaluate the credibility of "green" water bonds. Kirsten James, Ceres' senior manager for California policy and partnerships, said the San Francisco Public Utilities Commission will be the first to issue a bond under the new standard for storm-water capture and wastewater treatment.

Groundwater accounting

At the summit Tuesday, Stanford University and Aqua Geo Frameworks will release maps made from sensor-equipped helicopters that collect data on alluvial sands in the San Joaquin Valley to help farmers know when to pump or when to refill aquifers. The UC Water Security and Sustainability Research Initiative will unveil a system that combines conventional groundwater data with modeling tools to create a groundwater accounting system that water managers will be able to use by next year.

And NASA's Jet Propulsion Laboratory at the California Institute of Technology will commit to elevate its Western States water modeling project to a high priority spaceflight mission, providing detailed information on snow, surface water in rivers and reservoirs, soil moisture and groundwater.

Peter Gleick, co-founder of the Pacific Institute, an Oakland nonprofit that works on water issues, said the efforts to improve water use, including everything from federal data collection to corporate sustainability planning, lag far behind attention to energy use and carbon emissions.

"It's been a long time since there's been any executive-level attention to water issues in the U.S.," said Gleick, who will attend the summit. "We're incredibly bad at collecting critically important data," citing the collection of national water data once every five years as just one example.

Corporate stewardship programs to make supply chains more sustainable when it comes to water use are just beginning.

“That’s a critical piece of the puzzle,” Gleick said, “but it’s a very big puzzle.”

Carolyn Lochhead is The San Francisco Chronicle’s Washington correspondent. Email: clochhead@sfchronicle.com