UNION SANITARY DISTRICT

UNION SANITARY DISTRICT BOARD MEETING/
UNION SANITARY DISTRICT FINANCING AUTHORITY
AGENDA

Monday, October 12, 2020

Regular Meeting - 4:00 P.M.

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

CORONAVIRUS (COVID-19) ADVISORY NOTICE

Consistent with Executive Orders No. N-25-20 and No. N-29-20 from the Executive Department of the State of California, the Alameda County March 31, 2020 Updated Shelter in Place Order, and Executive Order No. N-33-20, Stay-at-Home Order, the Monday, October 12, 2020, Regular Board Meeting will not be physically open to the public and all Board Members will be teleconferencing into the meeting**. To maximize public safety while still maintaining transparency and public access, members of the public can observe the meeting by following the steps listed below to listen to the Board Meeting, and may provide public comment by sending comments to the Board Clerk by email at assistanttogm@unionsanitary.ca.gov or via voicemail by calling 510-477-7599 before 3:00 p.m. on the date of the meeting.** Comments will then be read into the record, with a maximum allowance of 3 minutes per individual comment, subject to the Board President's discretion. All comments should be a maximum of 500 words, which corresponds to approximately 3 minutes of speaking time. If a comment is received after the agenda item is heard but before the close of the meeting, the comment will still be included as a part of the record of the meeting but will not be read into the record.

Any member of the public who needs accommodations should email or call the Board Clerk who will use their best efforts to provide reasonable accommodations to provide as much accessibility as possible while also maintaining public safety in accordance with the Union Sanitary District procedure for resolving reasonable accommodation requests.

To listen to this Regular Board Meeting:

Call: 1-888-788-0099 *or* 1-877-853-5247

Meeting ID: 856 6965 9111 #

Participant ID: #

Click the Zoom link below to watch and listen:
https://us02web.zoom.us/j/85669659111

	1.	Call to Order.
	2.	~~Salute to the Flag.~~ (This item has been suspended due to the COVID-19 pandemic.)
	3.	Roll Call.
Motion	4.	Approve Minutes of the Union Sanitary District Special Board Meeting of September 23, 2020.
Motion	5.	Approve Minutes of the Union Sanitary District Board Meeting of September 28, 2020.
Motion	6.	Approve Minutes of the Union Sanitary District Special Board Meeting of September 29, 2020.
Motion	7.	Approve Minutes of the Union Sanitary District Special Board Meeting of October 1, 2020.
Motion	8.	Approve Minutes of the Union Sanitary District Special Board Meeting of October 5, 2020.
	9.	Written Communications.
	10.	Public Comment. Public Comment is limited to three minutes per individual, with a maximum of 30 minutes per subject. If the comment relates to an agenda item, the speaker should address the Board at the time the item is considered. Speaker cards will be available in the Boardroom and are requested to be completed prior to the start of the meeting.
Motion	11.	Review and Consider Approval of Publicly Available Pay Schedule for Unclassified Staff *(to be reviewed by the Personnel Committee).*
Motion	12.	Authorize the General Manager to Execute Task Order No. 2 with Carollo Engineers, Inc. for the Aeration Blower No. 11 Project *(to be reviewed by the Engineering and Information Technology Committee).*
Motion	13.	CalPERS Actuarial Valuation as of June 20, 2020 with Projected Future Contributions *(to be reviewed by the Budget & Finance Committee).*
Motion	14.	Consider Fourth Amended and Restated Employment Agreement Between Union Sanitary District and Paul R. Eldredge.
Information	15.	Report on the East Bay Dischargers Authority Meeting of September 17, 2020.
Information	16.	COVID-19 Update.
Information	17.	Check Register.
Information	18.	Committee Meeting Reports. *(No Board action is taken at Committee meetings):* a. Personnel Committee – Thursday, October 8, 2020, at 1:30 p.m. • Director Kite and Director Handley

b. Budget & Finance Committee – Friday, October 9, 2020, at 10:00 a.m.
  - Director Kite and Director Toy

c. Engineering and Information Technology Committee – Friday, October 9, 2020, at 11:00 a.m.
  - Director Lathi and Director Handley

d. Audit Committee – will not meet.

e. Legal/Community Affairs Committee – will not meet.

f. Legislative Committee – will not meet.

Information 19. General Manager's Report. *(Information on recent issues of interest to the Board).*

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20. 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.

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21. Adjournment – The Board will adjourn to the next Regular Board Meeting to be held virtually on Monday, October 26, 2020, at 4:00 p.m.

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.

UNION SANITARY DISTRICT

Directors
Manny Fernandez
Tom Handley
Pat Kite
Anjali Lathi
Jennifer Toy

Officers
Paul R. Eldredge
General Manager/
District Engineer

Karen W. Murphy
Attorney

PERSONNEL COMMITTEE MEETING

Committee Members: Director Kite and Director Handley

AGENDA
Thursday, October 8, 2020
1:30 P.M.

Alvarado Conference Room
5072 Benson Road
Union City, CA 94587

Consistent with Executive Orders No. N-25-20 and No. N-29-20 from the Executive Department of the State of California, the Alameda County May 18, 2020 Updated Shelter in Place Order, and Executive Order No. N-33-20, Stay-at-Home Order, this meeting will not be physically open to the public and all Board Members will be teleconferencing into the meeting via conference call.
To maximize public safety while still maintaining public access, members of the public can observe the meeting by calling 510-477-6190 to listen to the committee meeting, and may provide public comment by sending comments to the Board Clerk by email at assistanttogm@unionsanitary.ca.gov or via voicemail by calling 510-477-7599 up to one hour before the scheduled meeting start time.

1. Call to Order

2. Roll Call

3. Public Comment
   Public Comment is limited to three minutes per individual, with a maximum of 30 minutes per subject. If the comment relates to an agenda item, the speaker should address the Board at the time the item is considered. Speaker cards will be available and are requested to be completed prior to the start of the meeting.

4. Items to be reviewed for the Regular Board meeting of October 12, 2020:
   - Review and Consider Approval of Publicly Available Pay Schedule for Unclassified Staff

5. Adjournment

Items reviewed at committee meetings will be included in the agenda packet for the upcoming Board meeting. No action will be taken at committee meetings.

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.

UNION SANITARY DISTRICT

Directors
Manny Fernandez
Tom Handley
Pat Kite
Anjali Lathi
Jennifer Toy

Officers
Paul R. Eldredge
General Manager/
District Engineer

Karen W. Murphy
Attorney

BUDGET & FINANCE COMMITTEE MEETING

Committee Members: Director Kite and Director Toy

AGENDA
Friday, October 9, 2020
10:00 A.M.

Alvarado Conference Room
5072 Benson Road
Union City, CA 94587

Consistent with Executive Orders No. N-25-20 and No. N-29-20 from the Executive Department of the State of California, the Alameda County May 18, 2020 Updated Shelter in Place Order, and Executive Order No. N-33-20, Stay-at-Home Order, this meeting will not be physically open to the public and all Board Members will be teleconferencing into the meeting via conference call.
To maximize public safety while still maintaining public access, members of the public can observe the meeting by calling 510-477-6190 to listen to the committee meeting, and may provide public comment by sending comments to the Board Clerk by email at assistanttogm@unionsanitary.ca.gov or via voicemail by calling 510-477-7599 up to one hour before the scheduled meeting start time.

1. Call to Order

2. Roll Call

3. Public Comment
Public Comment is limited to three minutes per individual, with a maximum of 30 minutes per subject. If the comment relates to an agenda item, the speaker should address the Board at the time the item is considered. Speaker cards will be available and are requested to be completed prior to the start of the meeting.

4. Items to be reviewed for the Regular Board meeting of October 12, 2020:
   - CalPERS Actuarial Valuation as of June 20, 2020 with Projected Future Contributions

5. Adjournment

Items reviewed at committee meetings will be included in the agenda packet for the upcoming Board meeting. No action will be taken at committee meetings.

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.

Directors
Manny Fernandez
Tom Handley
Pat Kite
Anjali Lathi
Jennifer Toy

Officers
Paul R. Eldredge
General Manager/ District Engineer

Karen W. Murphy
Attorney

ENGINEERING AND INFORMATION TECHNOLOGY COMMITTEE MEETING

Committee Members: Director Lathi and Director Handley

AGENDA
Friday, October 9, 2020
11:00 A.M.

Alvarado Conference Room
5072 Benson Road
Union City, CA 94587

Consistent with Executive Orders No. N-25-20 and No. N-29-20 from the Executive Department of the State of California, the Alameda County May 18, 2020 Updated Shelter in Place Order, and Executive Order No. N-33-20, Stay-at-Home Order, this meeting will not be physically open to the public and all Board Members will be teleconferencing into the meeting via conference call. To maximize public safety while still maintaining public access, members of the public can observe the meeting by calling 510-477-6190 to listen to the committee meeting, and may provide public comment by sending comments to the Board Clerk by email at assistanttogm@unionsanitary.ca.gov or via voicemail by calling 510-477-7599 up to one hour before the scheduled meeting start time.

1. Call to Order

2. Roll Call

3. Public Comment
   Public Comment is limited to three minutes per individual, with a maximum of 30 minutes per subject. If the comment relates to an agenda item, the speaker should address the Board at the time the item is considered. Speaker cards will be available and are requested to be completed prior to the start of the meeting.

4. Items to be reviewed for the Regular Board meeting of October 12, 2020:
   - Authorize the General Manager to Execute Task Order No. 2 with Carollo Engineers, Inc. for the Aeration Blower No. 11 Project

5. Adjournment

Items reviewed at committee meetings will be included in the agenda packet for the upcoming Board meeting. No action will be taken at committee meetings.

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.

MINUTES OF THE SPECIAL MEETING OF THE
BOARD OF DIRECTORS OF
UNION SANITARY DISTRICT
September 23, 2020

Consistent with Executive Order No. N-25-20 from the Executive Department of the State of California and the Alameda County Public Health Department's March 16, 2020 Shelter in Place Order, the District's September 23, 2020, Special Meeting was not physically open to the public. In order to maximize public safety while still maintaining transparency, members of the public were able to attend the public portion of the meeting telephonically.

CALL TO ORDER

President Handley called the special meeting to order at 4:00 p.m.

ROLL CALL

PRESENT: Tom Handley, President
Pat Kite, Vice President
Anjali Lathi, Secretary
Manny Fernandez, Director
Jennifer Toy, Director

STAFF: Paul Eldredge, General Manager/District Engineer
Gene Boucher, Human Resources Manager
Karen Murphy, District Counsel

PUBLIC COMMENT

There was no public comment.

CLOSED SESSION

The Union Sanitary District Board of Directors adjourned to closed session for the following:

PUBLIC EMPLOYEE PERFORMANCE EVALUATION
Pursuant to Government Code Section 54957
Title: General Manager

CONFERENCE WITH LABOR NEGOTIATORS
Agency designated representatives: President Handley and Director Toy
Unrepresented employee: General Manager

There was no reportable action.

ADJOURNMENT:

The special meeting was adjourned at approximately 5:00 p.m. to the next Regular Board meeting to be held virtually on Monday, September 28, 2020, at 4:00 p.m.

SUBMITTED: ATTEST:

REGINA McEVOY
BOARD CLERK

ANJALI LATHI
SECRETARY

APPROVED:

TOM HANDLEY
PRESIDENT

Adopted this 12th day of October, 2020

**MINUTES OF THE MEETING OF THE
BOARD OF DIRECTORS OF
UNION SANITARY DISTRICT/UNION SANITARY DISTRICT FINANCING AUTHORITY
SEPTEMBER 28, 2020**

Consistent with Executive Orders No. N-25-20 and No. N-29-20 from the Executive Department of the State of California, the Alameda County March 16, 2020 Shelter in Place Order, and Executive Order No. N-33-20, Stay-at-Home Order, the Monday, September 28, 2020, Regular Board Meeting was not physically open to the public and all Board Members teleconferenced into the meeting. To maximize public safety while still maintaining transparency and public access, members of the public were able to listen to the Board Meeting, and provide public comment by sending comments to the Board Clerk.

CALL TO ORDER

President Handley called the meeting to order at 4:00 p.m. The regular meeting time was modified due to the COVID-19 emergency.

SALUTE TO THE FLAG

ROLL CALL

PRESENT: Tom Handley, President
Pat Kite, Vice President
Anjali Lathi, Secretary
Manny Fernandez, Director
Jennifer Toy, Director

STAFF: Paul Eldredge, General Manager/District Engineer
Karen Murphy, District Counsel
Mark Carlson, Business Services Manager/CFO
Sami Ghossain, Technical Services Manager
Armando Lopez, Treatment and Disposal Services Manager
James Schofield, Collection Services Manager
Robert Simonich, Fabrication Construction and Maintenance Manager
Gene Boucher, Human Resources Manager
Regina McEvoy, Executive Assistant to the General Manager/Board Clerk

APPROVE MINUTES OF THE UNION SANITARY DISTRICT BOARD MEETING OF SEPTEMBER 14, 2020

It was moved by Vice President Kite, seconded by Director Toy, to Approve the Minutes of the Board Meeting of September 14, 2020. Motion carried with the following vote:

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

APPROVE MINUTES OF THE UNION SANITARY DISTRICT SPECIAL BOARD MEETING OF SEPTEMBER 16, 2020

It was moved by Director Toy, seconded by Vice President Kite, to Approve the Minutes of the Special Board Meeting of September 16, 2020. Motion carried with the following vote:

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

AUGUST 2020 MONTHLY OPERATIONS REPORT

This item was reviewed by the Budget & Finance and Legal/Community Affairs Committees. General Manager Eldredge provided an overview of the Odor Report and Work Group Reports and Business Services Manager Carlson reviewed the financial reports included in the Board meeting packet.

WRITTEN COMMUNICATIONS

There were no written communications.

PUBLIC COMMENT

There was no public comment.

AWARD THE CONSTRUCTION CONTRACT OF THE AERATION BLOWER NO. 11 PROJECT TO WESTERN WATER CONSTRUCTORS, INC.

This item was reviewed by the Engineering and Information Technology Committee. Technical Services Manager Ghossain stated the Project was advertised for bids on August 4, 2020, and the four bids received were opened September 15, 2020. The bid results were summarized in a table included in the Board meeting packet. The Engineer's Estimate for the Project's Total Contract Price was $3,000,000 and included Bid Alternate A for builder's risk insurance. Staff believe the bids received were lower than the Engineer's Estimate due to a competitive bidding environment. Staff reviewed the apparent low bid submitted by Western Water Constructors, Inc. (Western) and found a minor irregularity with their Site Visit Affidavit. Western had mistakenly indicated they visited the Project site instead of indicating they declined to visit the site. Since a site visit was not mandatory, District's legal counsel determined it could be waived by the District. No bid protests were received and Western has confirmed they will construct the Project as bid. The contractor will have 327 calendar days to complete project construction and estimated substantial completion is scheduled for October 2021. Staff recommended the Board waive a minor irregularity in the apparent low bid and award the construction contract, including Bid Alternate A, for the Aeration Blower No. 11 Project to Western Water Constructors, Inc. in the amount of $1,652,000.

It was moved by Secretary Lathi, seconded by Director Fernandez, to Waive a Minor Irregularity in the Apparent Low Bid and Award the Construction Contract, Including Bid

Alternate A, for the Aeration Blower No. 11 Project to Western Water Constructors, Inc. in the Amount of $1,652,000 Motion carried with the following vote:

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

REVIEW AND APPROVE JOB DESCRIPTIONS AND SALARY RANGE FOR ENVIRONMENTAL HEALTH & SAFETY SPECIALIST AND SENIOR HR ANALYST

This item was reviewed by the Personnel Committee. Human Resources Manager Boucher stated that following the departure of the Environmental Health and Safety Program Manager, the District reevaluated the duties assigned to the position. The Environmental Health and Safety Program Manager was responsible for overseeing the District's Safety Program along with Worker's Compensation and budget for the program. The Environmental Health and Safety Specialist will continue to have oversight of the District's safety program and safety related items. The Senior Human Resources Analyst position will replace the Human Resources Analyst II classification and assume the same job functions of the previous position in addition to worker's compensation claims to better align and coordinate leave management for District Employees. The Human Resources Manager will administer the budget and management function over both positions. Creation of the Environmental Health and Safety Specialist and Senior Human Resources Analyst positions will not increase headcount of District staff. Staff recommended the Board approve the newly created job descriptions and salary ranges for the newly created Environmental Health and Safety Specialist and Senior Human Resources Analyst job classifications.

It was moved by Vice President Kite, seconded by Secretary Lathi, to Approve the Environmental Health and Safety Specialist and Senior Human Resources Analyst Job Classifications and Salary Ranges. Motion carried with the following vote:

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

REVIEW AND APPROVE JOB DESCRIPTION, SALARY RANGE, AND SIDE LETTER AGREEMENT BETWEEN THE DISTRICT AND SERVICE EMPLOYEES INTERNATIONAL UNION LOCAL 1021 (SEIU) FOR CONTROL SYSTEMS SPECIALIST

This item was reviewed by the Personnel Committee. Human Resources Manager Boucher stated the creation of the Control Systems Specialist position aligns duties performed by the Instrument Technician/Electrician with control systems, SCADA work that was typically performed by an outside consultant. Creation of this position will allow the District to move an existing employee into the new classification and have them perform the work on SCADA and other control systems rather than having an outside consultant perform the work. The incumbent will continue performing the duties of the Instrument Technician/Electrician position and add the responsibility for the work on

SCADA and District control systems. The District and SEIU Local 1021 met and conferred over the creation of the new position as the Control System Specialist will be represented by the Union. A side letter was created to modify section 34 of the current Memorandum of Understanding (MOU) to include this position as represented by the Union and allowing the District the right to fill at either the lower level Instrument Technician/Electrician position or the higher classification of Control Systems Specialist should the incumbent leave the District. The creation of the Control Systems Specialist, along with the Environmental Health and Safety Specialist and Senior Human Resources Analyst positions previously considered, will not increase headcount of District staff and will result in an overall cost savings to the District of approximately $1,800 annually. Staff recommended the Board review and approve the job description and salary range for Control Systems Specialist and Side Letter Agreement between Service Employees International Union, Local 1021 and the District.

It was moved by Director Fernandez, seconded by Director Toy, to Approve the Job Description and Salary Range for Control Systems Specialist and Approve Side Letter Agreement Between Service Employees International Union, Local 1021 and the District. Motion carried with the following vote:

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

<u>DISCUSS AND PROVIDE DIRECTION REGARDING POTENTIAL USE OF VIDEO FOR VIRTUAL BOARD MEETINGS</u>

General Manager Eldredge stated the Board directed staff to prepare an item to allow the Board to discuss potential use of video for virtual Board meetings. The Board discussed the potential use of video for virtual Board meetings and directed staff to put the matter on hold for reconsideration in 2021.

INFORMATION ITEMS:

<u>Status Report on Computer Purchase and Student Loan Program</u>

This item was reviewed by the Budget & Finance Committee. Business Services Manager/CFO Carlson stated the Computer Purchase Loan Program, authorized by the Board in 1989, provides an opportunity for employees to receive an interest free loan for the purchase of approved technology related equipment. The program has been utilized 390 times to purchase computer related equipment totaling $922,525 with an average purchase of $2,365. The current terms of the program allow an employee to borrow a maximum of $3,300 for up to three years and repay the loan through payroll deductions. The Student Loan Program was created in 1995 and has not been utilized since its inception. The Student Loan Program allows for a maximum annual interest free loan of up to $3,000 for qualifying education expenses. The Board directed staff to provide an update on the programs annually. The Board further directed staff to attempt to identify why the Student Loan Program had not been utilized and provide an update at a future Board meeting.

Annual Report to Union City Fiscal Year 2020
This item was reviewed by the Legislative Committee. Treatment and Disposal Services Manager Lopez stated Union City Use Permit UP-4-95 requires the District submit an annual report to the City Manager's Office. The purpose of the report is to document existing wastewater treatment plant flow, provide projection of plant flow for the following year, review compliance with effluent discharge limits, and provide a status report on progress made in development of any new treatment facilities outside Union City limits.

COVID-19 Update
General Manager Eldredge provided an update regarding COVID-19 impacts on District operations and coordinated efforts.

Check Register
Staff responded to Boardmember questions regarding the check register.

COMMITTEE MEETING REPORTS:

The Budget & Finance, Legislative, Legal/Community Affairs, Personnel, and Engineering and Information Technology met.

GENERAL MANAGER'S REPORT:

General Manager Eldredge stated the following:

- The District's Cogeneration engines were recently affected by a power brown out that led to a series of issues staff have since been working to address.

OTHER BUSINESS:

There was no other business

ADJOURNMENT:

The meeting was adjourned at 4:55 p.m. to a Special Meeting Closed Session at 4:00 p.m. on Tuesday, September 29, 2020.

SUBMITTED:	ATTEST:
REGINA McEVOY BOARD CLERK	ANJALI LATHI SECRETARY

APPROVED:

TOM HANDLEY
PRESIDENT

Adopted this 12th day of October 2020

MINUTES OF THE SPECIAL MEETING OF THE
BOARD OF DIRECTORS OF
UNION SANITARY DISTRICT
September 29, 2020

Consistent with Executive Order No. N-25-20 from the Executive Department of the State of California and the Alameda County Public Health Department's March 16, 2020 Shelter in Place Order, the District's September 29, 2020, Special Meeting was not physically open to the public. In order to maximize public safety while still maintaining transparency, members of the public were able to attend the public portion of the meeting telephonically.

CALL TO ORDER

President Handley called the special meeting to order at 4:00 p.m.

ROLL CALL

PRESENT: Tom Handley, President
Pat Kite, Vice President
Anjali Lathi, Secretary
Manny Fernandez, Director
Jennifer Toy, Director

STAFF: Gene Boucher, Human Resources Manager
Karen Murphy, District Counsel
Leah Castella, Assistant District Counsel

PUBLIC COMMENT

There was no public comment.

CLOSED SESSION

The Union Sanitary District Board of Directors adjourned to closed session for the following:

CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
Significant exposure to litigation pursuant to paragraph (2) of subdivision (d) of Government Code Section 54956.9: One potential case

There was no reportable action.

ADJOURNMENT:

The special meeting was adjourned at approximately 4:20 p.m. to a Special Meeting to be held virtually on Thursday, October 1, 2020, at 4:00 p.m.

SUBMITTED:	ATTEST:
______________________	______________________
REGINA McEVOY BOARD CLERK	ANJALI LATHI SECRETARY

APPROVED:

____

TOM HANDLEY
PRESIDENT

Adopted this 12th day of October, 2020

MINUTES OF THE SPECIAL MEETING OF THE
BOARD OF DIRECTORS OF
UNION SANITARY DISTRICT
October 1, 2020

Consistent with Executive Order No. N-25-20 from the Executive Department of the State of California and the Alameda County Public Health Department's March 16, 2020 Shelter in Place Order, the District's October 1, 2020, Special Meeting was not physically open to the public. In order to maximize public safety while still maintaining transparency, members of the public were able to attend the public portion of the meeting telephonically.

CALL TO ORDER

President Handley called the special meeting to order at 4:00 p.m.

ROLL CALL

PRESENT: Tom Handley, President
Pat Kite, Vice President
Anjali Lathi, Secretary
Manny Fernandez, Director
Jennifer Toy, Director

STAFF: Paul Eldredge, General Manager/District Engineer
Gene Boucher, Human Resources Manager
Karen Murphy, District Counsel

PUBLIC COMMENT

There was no public comment.

CLOSED SESSION

The Union Sanitary District Board of Directors adjourned to closed session for the following:

PUBLIC EMPLOYEE PERFORMANCE EVALUATION
Pursuant to Government Code Section 54957
Title: General Manager

CONFERENCE WITH LABOR NEGOTIATORS
Agency designated representatives: President Handley and Director Toy
Unrepresented employee: General Manager

There was no reportable action.

ADJOURNMENT:

The special meeting was adjourned at approximately 6:30 p.m. to a Special Board meeting to be held virtually on Monday, October 5, 2020, at 4:00 p.m.

SUBMITTED: ATTEST:

REGINA McEVOY
BOARD CLERK

ANJALI LATHI
SECRETARY

APPROVED:

TOM HANDLEY
PRESIDENT

Adopted this 12th day of October, 2020

MINUTES OF THE SPECIAL MEETING OF THE
BOARD OF DIRECTORS OF
UNION SANITARY DISTRICT
October 5, 2020

Consistent with Executive Order No. N-25-20 from the Executive Department of the State of California and the Alameda County Public Health Department's March 16, 2020 Shelter in Place Order, the District's October 5, 2020, Special Meeting was not physically open to the public. In order to maximize public safety while still maintaining transparency, members of the public were able to attend the public portion of the meeting telephonically.

CALL TO ORDER

President Handley called the special meeting to order at 4:00 p.m.

ROLL CALL

PRESENT: Tom Handley, President
Pat Kite, Vice President
Anjali Lathi, Secretary
Manny Fernandez, Director
Jennifer Toy, Director

STAFF: Paul Eldredge, General Manager/District Engineer
Mark Carlson, Business Services Manager/CFO
Karen Murphy, District Counsel
Leah Castella, Assistant District Counsel
Regina McEvoy, Executive Assistant to the General Manager/Board Clerk

PUBLIC COMMENT

There was no public comment.

CLOSED SESSION

The Union Sanitary District Board of Directors adjourned to closed session for the following:

CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
Significant exposure to litigation pursuant to paragraph (2) of subdivision (d) of Government Code Section 54956.9: Two potential cases

There was no reportable action.

ADJOURNMENT:

The special meeting was adjourned at approximately 4:50 p.m. to the next Regular Meeting in the Boardroom on Monday, October 12, 2020, at 4:00 p.m.

SUBMITTED: ATTEST:

REGINA McEVOY
BOARD CLERK

ANJALI LATHI
SECRETARY

APPROVED:

TOM HANDLEY
PRESIDENT

Adopted this 12th day of October, 2020

OCTOBER 12, 2020
BOARD OF DIRECTORS MEETING
AGENDA ITEM # 11

TITLE: **Review and Consider Approval of Publicly Available Pay Schedule for Unclassified Staff *(This is a Motion Item)***

SUBMITTED: Paul R. Eldredge, General Manager/District Engineer
Mark Carlson, Business Services Workgroup Manager/CFO
Gene Boucher, Human Resources Manager

Recommendation

Staff recommends that the Board approve the Publicly Available Pay Schedules for Unclassified Staff effective September 1, 2020, which will be posted and retained in accordance with CalPERS requirements.

Discussion

The salary changes contained in the document effective September 1, 2020 are:

1. The adjustments made to the Unclassified Employees pay ranges as the results of the August 2020 MSA adjustments and Performance Appraisals.
2. The salary was adjusted by the December to December 2019 CPI of 2.5%
3. Addition of two new positions approved at the September 28, 2020 Board meeting – Environmental Health & Safety Specialist and Senior Human Resources Analyst

Background

The Publicly Available Pay Schedule, mandated by CalPERS in August 2011, is designed to:

1. Ensure consistency between CalPERS employers; and,
2. Enhance the disclosure and transparency of public employee compensation.

The “Publicly Available Pay Schedule” (CCR 570.5) must:

- Be duly approved and adopted by the employer’s governing body in accordance with requirements of applicable public meetings laws.
- Identify the position title for every employee position.
- Show the pay rate for each identified position as a single amount or as multiple amounts within a range.
- Indicate the time base (i.e., bi-weekly, monthly, etc.).
- Be posted at the office of the employer or immediately accessible and available for public review from the employer during normal business hours or posted on the employer’s internet website.
- Indicate an effective date and date of any revisions.
- Be retained by the employer and available for public inspection for not less than 5 years.

Previous Board Action
01/27/2020 Board Meeting – Approval of Unclassified Publicly Available Pay Schedule

Attachments
Unclassified Publicly Available Pay Schedule Effective September 1, 2020

Union Sanitary District
Unclassified Employees Salary Schedule
Effective September 1, 2020

Position Title	Minimum Bi-Weekly Pay Rate	Maximum Bi-Weekly Pay Rate
Accounting and Financial Analyst I	$3,428.89	$4,500.42
Accounting and Financial Analyst II	$3,872.04	$5,082.06
Assistant Engineer	$4,144.04	$5,439.05
Assistant Engineer - Limited Term	$4,144.04	$5,439.05
Associate Engineer	$4,649.39	$6,102.33
Buyer I	$3,183.34	$4,178.13
Buyer II	$3,537.04	$4,642.36
Coach, Capital Improvement Projects	$6,132.98	$8,049.53
Coach, Collection Services	$4,856.71	$6,374.44
Coach, Customer Service	$6,132.98	$8,049.53
Coach, Electrical & Technology	$5,778.94	$7,584.86
Coach, Environmental Compliance	$5,270.11	$6,917.01
Coach, Finance & Acquisition Services	$5,679.11	$7,453.84
Coach, Mechanical Maintenance	$4,920.47	$6,458.11
Coach, Research & Support/Sr. Process Engineer	$5,461.13	$7,167.73
Coach, Wastewater Plant Operations	$4,968.96	$6,521.76
Coach, Wastewater Plant Operations - Limited Term	$4,968.96	$6,521.76
Enhanced Treatment Site Upgrade Assistant Program Manager - Limited Term	$5,198.54	$6,823.09
Enhanced Treatment Site Upgrade Program Manager - Limited Term	$5,972.85	$7,839.36
Environmental Health and Safety Specialist ** Approved 9/28/2020*	$3,804.80	$4,993.80
Environmental Program Coordinator	$4,768.19	$6,258.25
Executive Assistant to the General Manager/Board Secretary	$3,734.38	$4,901.37
Human Resources Analyst II	$4,018.91	$5,274.82
Human Resources Manager	$5,669.37	$7,441.04
Information Technology Administrator	$5,503.76	$7,223.68
Information Technology Analyst	$3,659.23	$4,802.74

Union Sanitary District
Unclassified Employees Salary Schedule
Effective September 1, 2020

Position Title	Minimum Bi-Weekly Pay Rate	Maximum Bi-Weekly Pay Rate
Junior Engineer	$3,729.63	$4,895.15
Manager, Business Services / Chief Financial Officer	$7,690.99	$10,094.43
Manager, Collection Services	$6,725.01	$8,826.58
Manager, Maintenance and Technology Services	$7,061.27	$9,267.91
Manager, Technical Services	$7,376.78	$9,682.03
Manager, Treatment & Disposal Services	$6,725.01	$8,826.58
Organizational Performance Coordinator I	$3,464.79	$4,547.54
Organizational Performance Coordinator II	$4,001.84	$5,252.42
Organizational Performance Manager	$4,622.12	$6,066.54
Principal Engineer	$5,548.88	$7,282.91
Purchasing Agent	$4,299.38	$5,642.94
Senior Accounting and Financial Analyst	$4,093.58	$5,372.83
Senior Database Administrator / Developer	$4,578.65	$6,009.48
Senior GIS/Database Administrator/Developer	$4,669.09	$6,128.18
Senior Human Resources Analyst ** Approved 9/28/2020*	$4,547.41	$5,968.47
Senior Information Technology Analyst	$4,065.81	$5,336.38
Senior Network Administrator	$4,548.53	$5,969.95
Senior Engineer/Senior Process Engineer	$4,941.02	$6,485.09

Board of Directors: Directors meet or serve in their official capacity 3 – 12 times per month with a maximum of six paid meetings/month at a rate of $212.10 per meeting and are paid for a maximum of one meeting per day.

Approved by: ____

President, Board of Directors

OCTOBER 12, 2020
BOARD OF DIRECTORS MEETING
AGENDA ITEM # 12

TITLE: **Authorize the General Manager to Execute Task Order No. 2 with Carollo Engineers, Inc. for the Aeration Blower No. 11 Project. *(This is a Motion Item)***

SUBMITTED: Paul R. Eldredge, General Manager/District Engineer
Sami E. Ghossain, Technical Services Work Group Manager
Raymond Chau, CIP Team Coach
Derek Chiu, Assistant Engineer

Recommendation

Staff recommends the Board authorize the General Manager to execute Task Order No. 2 with Carollo Engineers, Inc. (Carollo) in the amount of $74,705 to provide engineering services during construction for the Aeration Blower No. 11 Project (Project).

Discussion

The purpose of this Task Order is to authorize engineering services during construction, such as submittal review, responding to requests for information, and testing and start-up assistance.

The scope of services and fees of Task Order No. 2 with Carollo are summarized below:

Task	Task Description	Amount
1	Submittal Review	$32,400
2	Requests for Information	$9,008
3	Clarification Memoranda	$2,598
4	Informal Requests for Information	$5,264
5	Meetings	$904
6	Periodic Site Visits	$1,895

Task	Task Description	Amount
7	Testing and Start-up Assistance	$10,668
8	Additional Electrical Support	$7,332
9	Project Management	$4,666
	Total Not to Exceed Amount	**$74,705**

The task order's total not-to-exceed amount is 4.5 percent of the construction contract amount of $1,652,000. For a project of this size and scope, staff expects the fee to be in the range of 3 to 5 percent. As a comparison, the table below summarizes the final fees and percentages of engineering services during construction of past plant projects.

Project	Engineering Services During Construction Cost (A)	Construction Cost (B)	Percentage of A to B
High Speed Aeration Blower (Blower No. 12)	$34,132	$1,100,907	3.1%
Primary Digester No. 3 Rehabilitation	$156,027	$2,383,705	6.6%
Thickener Nos. 3 and 4 Rehabilitation	$71,491	$1,453,461	4.9%

The task order amounts for the Project's agreement with Carollo are summarized in the table below:

Task Order / Amendment	Not to Exceed Amount
Task Order No. 1 – Design and Bid Period Services	$122,849
Amendment No. 1 to Task Order No. 1 – Additional Design Services	$11,776
Task Order No. 2 – Engineering Services During Construction	$74,705
Total	**$209,330**

Staff expects to issue the Notice to Proceed to Western Water Constructors, Inc. in October 2020 and anticipates construction to be completed by October 2021. Staff will hire a consultant to provide construction management and inspection services for the Project.

Background

The Alvarado Wastewater Treatment Plant meets the National Pollutant Discharge Elimination System permit requirements for secondary treatment by using conventional activated sludge as its biological liquid treatment process. This plant process consumes the most energy by using large aeration blowers to continuously deliver air to the activated sludge in the aeration basins. The existing multistage centrifugal blowers were installed during the 1993 Plant Upgrade Project and are nearing the end of their useful lives.

In 2016, the District completed the High Speed Aeration Blower Project to install a new high-speed aeration blower, Blower No. 12, to improve the energy efficiency of the process and to evaluate it as a replacement option for the existing multistage centrifugal blowers. In 2018, the District evaluated the performance of Blower No. 12 and determined that it was operating more efficiently than the existing multistage centrifugal blowers. Staff was satisfied with its performance and decided to install another high-speed blower in the East Aeration Blower Building to provide additional blower capacity and to increase aeration system reliability.

Project Scope
Carollo Engineers completed the Project's design in July 2020. The Project's scope includes:

- Installation of a second high-speed blower, Blower No. 11, in the East Aeration Blower Building.
- Modifications to the aeration piping system, electrical system, and other associated systems to facilitate the addition of the new high-speed blower.
- Improvements to the building's ventilation system to improve the performance of the two high-speed blowers.
- Replacement of the building's roofing membrane system.
- Seismic retrofit to the building's precast concrete panels.
- Miscellaneous structural concrete repairs to the building.

Previous Board Action
November 11, 2019, the Board authorized the General Manager to execute an agreement and Task Order No. 1 with Carollo in the amount of $122,849 for final design services for the Project.

September 28, 2020, the Board awarded the construction contract for the Project to Western Water Constructors, Inc. in the amount of $1,652,000.

PRE/SEG/RC/DC;mb

Attachments: Task Order No. 2

AERATION BLOWER NO. 11 PROJECT
PROJECT NO. 900-528

TASK ORDER NO. 2

to

AGREEMENT

BETWEEN

UNION SANITARY DISTRICT

AND

CAROLLO ENGINEERS, INC.

FOR

PROFESSIONAL SERVICES

This Task Order No. 2 is issued by the Union Sanitary District (District) and accepted by Carollo Engineers, Inc., (Engineer), pursuant to the mutual promises, covenants, and conditions contained in the Agreement between the above-named parties dated the 14th day of November 2019, associated with the Aeration Blower No. 11 Project, Project Number 900-528 (Project).

1. PURPOSE

The purpose of this Task Order is to provide engineering services during construction associated with the Project. Engineering services to be provided during construction include engineering support, attendance at meetings, submittal reviews, responses to requests for information, design clarifications, and site visits. These services are to be performed by the same engineers who worked on the design and possess detailed knowledge about the Project. District staff will update as-built drawings based on markups provided by the Contractor and reviewed by the Construction Manager. Preparation of Record Drawings based on as-built information is not included in this scope.

2. PROJECT COORDINATION

All work related to this Task Order shall be coordinated through the District's Project Manager, Derek Chiu.

3. ENGINEER'S SCOPE OF SERVICES

The task numbers in this Scope of Services are associated with the cost data presented in Exhibit A. Carollo Engineers, Inc. (Engineer) shall provide the following engineering support services during the construction of the project:

TASK 1.0 – SUBMITTAL REVIEW

There will be the following division of submittal review responsibility between Construction Manager and Engineer.

Administrative Submittals: The Construction Manager will review and provide responses to all administrative submittals required by the Contract Document Specifications. Copies of these submittals to the Engineer are for informational purposes only.

Shop Drawing Submittals: Engineer shall review and provide response to shop drawing submittals as described in the technical specifications of the Contract Documents on an as requested basis.

Quality Control Submittals: The Construction Manager will review and provide response to all quality control submittals as described in the Contract Document Specifications, except Engineer shall review and provide response to mechanical and electrical testing procedures and testing results on an as requested basis. Copies of all other quality control submittals to the Engineer are for information purposes only. Construction Manager will also be responsible for all testing indicated in the Contract Documents to be performed by an entity other than the Contractor.

Temporary Construction Submittals: Engineer shall review and provide response to all temporary construction submittals including temporary piping, supports, electrical, and controls on an as requested basis.

Submittals
Engineer shall respond to requests for submittal review on an as requested basis. Engineer shall provide written review comments on a review comment sheet and return the review comment sheet to the Construction Manager. Engineer shall complete review of submittal, provide comments, and return review comment sheet within 21 calendar days for normal submittals, after Engineer's receipt of submittal. Review comments for critical path or expedited submittals shall be returned within 10 calendar days, after Engineer's receipt of submittal. If for any reason the review cannot be completed within this period, Engineer shall notify Construction Manager and provide reason for delay prior to the end of the specified period.

The Construction Manager will screen all submittals for form, completeness, and general content conforming to that specified in the Contract Documents before transmitting them to Engineer.

Engineer's submittal review is to determine compliance with the Contract Documents. Submittal review is not intended as acceptance of the work. The review is not intended to relieve the Contractor of his or her full responsibility for performance as required by the Contract Documents.

Engineer’s budget allowance is based on reviewing 27 original submittals and resubmittals with an average review time of 4.0 hours per submittal or resubmittal for a total budget of 108 hours. Engineer’s subconsultant, Beecher Engineering, has included 44 hours of submittal review time in the budget to review 11 additional electrical submittals and resubmittals.

TASK 2.0 – REQUESTS FOR INFORMATION

Engineer shall respond to formal requests for information (RFIs) on an as requested basis. Engineer will provide a written response on a response sheet and return the response sheet to the Construction Manager. Engineer shall complete review of the RFI, provide response, and return response within 7 calendar days after Engineer’s receipt of RFI. If for any reason the response cannot be completed within this period, Engineer shall notify Construction Manager and provide reason for delay prior to the end of the specified period.

The Construction Manager will screen all RFIs for form, completeness, and general content conforming to that specified in the Contract Documents before transmitting them to Engineer.

Engineer’s budget allowance is based on reviewing 7 RFIs at an average of 4 hours review per RFI, for a total of 28 hours. Beecher Engineering has included 12 hours of RFI review time in the budget to review 4 additional electrical RFIs.

TASK 3.0 – CLARIFICATION MEMORANDA

Engineer shall issue Clarification Memoranda where deemed necessary by the Engineer and on an as requested basis. Engineer shall provide a written clarification on a Clarification Memorandum (including specifications, sketches, or other information as necessary) and issue the Clarification Memorandum to the Construction Manager.

Clarification Memoranda will be issued to 1) clarify Contract Documents when necessary and 2) in the event that modifications to the Contract Documents are desired by the District.

Engineer’s budget allowance is based on preparing 1 Clarification Memorandum requiring approximately 6 hours. Beecher Engineering has included an additional 6 hours of preparation time in the budget.

TASK 4.0 – INFORMAL REQUESTS FOR INFORMATION

Engineer shall respond to Construction Manager’s informal requests for information, including verbal, email, and telephone correspondence with Construction Manager.

Engineer’s budget allowance is based on 16 hours of informal correspondence based on an assumption of 2 hours per month over 8 months of active construction. Beecher Engineering has included an additional 8 hours of informal correspondence time in the budget based on an assumed 8 months of active construction and 1 hour per month of informal requests.

TASK 5.0 – MEETINGS

Engineer shall have personnel attend 2 regular construction meetings during the Project. The Construction Manager will facilitate all meetings and provide meeting minutes.

Budget allowance is based on Engineer's Project Manager attending 2 construction meetings by phone with a duration of approximately 1 hour each for a total of 2 hours. No travel is budgeted for these meetings as it is assumed they will be held virtually or by phone. Beecher Engineer has allotted 2 hours of budget to attend up to 2, 1-hour phone meetings.

TASK 6.0 – PERIODIC SITE VISITS

Engineer shall periodically visit the Project site to monitor the progress and quality of the Contractor's work effort, including specialty site visits (civil, structural, mechanical, electrical, and instrumentation) and for preparation of a final punchlist. Engineer shall not, during such site visits or as a result of such observations of Contractor's work in progress, supervise, direct, or have control over Contractor's work. Engineer shall not have authority over or responsibility for the means, methods, techniques, sequences, or procedures of construction selected by Contractor, or safety precautions and programs incident to the Work. Furthermore, Engineer shall not be held responsible for any failure of Contractor to comply with laws, rules, regulations, ordinances, codes, or orders applicable to Contractor furnishing and performing work. Engineer shall provide opinions and observations to the Construction Manager and/or District regarding general compliance with the Contract Documents for improvements that are observed by the Engineer at the time of Engineer's site visits.

Engineer's budget allowance of 4 hours based on one site visit by the Engineer. Site visits are budgeted at 4 hours each, which includes travel time. Beecher Engineering has included a budget allowance of 4 hours based on one site visit.

TASK 7.0 – TESTING AND START-UP ASSISTANCE

This task includes the following subtasks to be completed by the Engineer:

- 7.1 Functional test plan review – The Engineer shall review factory and field test plans submitted by the Contractor for testing and start-up of the new facilities. Four hours of review time is budgeted for the Engineer and 8 hours of review time is allotted for Beecher Engineering to review the blower manufacturer's aeration system integration functional test plan.
- 7.2 Factory witness testing – The Engineer shall attend factory witness testing of the high speed turbo blower. The budget for this task includes two days for factory witnessing of the blower equipment plus travel expenses for one round-trip ticket to factory test location for a total budget of 20 hours. Beecher Engineering has not included any factory witness testing in his budget as it is assumed this will not be required.

- 7.3 Functional testing and startup assistance –Beecher Engineering has included 8 hours of budget assuming that assistance via teleconference shall be provided as required during system start-up.

TASK 8.0 – ADDITIONAL ELECTRICAL SUPPORT

This task includes the following subtasks to be completed primarily by Beecher Engineering with support by the Engineer:

- 8.1 Coordination with PLC/SCADA programmer - Engineer's budget allowance is 4 hours to coordinate with Beecher Engineering and the Construction Manager. Beecher Engineering has included a budget allowance of 8 hours for coordination meetings and calls with the blower manufacturer and third-party programmer.
- 8.2 Power System Short Circuit, Coordination and Arc Flash Hazard Studies - Engineer's budget allowance is 2 hours to coordinate with Beecher Engineering for this work. Beecher Engineering has included a budget allowance of 20 hours to develop settings and provide updated arc flash labels for MCC-13 equipment. Labels shall be sent to District via mail for District field application.

TASK 9.0 – PROJECT MANAGEMENT

Engineer shall manage the efforts of the project team members, coordinate with representatives of the District and Construction Manager, delegate responsibilities, and review work progress. Engineer shall prepare and submit monthly invoices and progress summary reports.

Monthly invoices will be broken down by major tasks only. Monthly progress summary reports will be made as part of the report submitted for all on-going projects with District.

Engineer's budget allowance is 11 hours based on an 11-month project duration and an estimated effort of 1 hour per month. Beecher Engineering has included 8 hours for project management and invoicing.

4. DELIVERABLES

All deliverables shall be provided electronically in Word document or PDF format.

Deliverables shall include:

- Responses to submittals
- Responses to RFIs
- Clarification Memoranda
- Upload information to the District's online project management system, Projectmates

5. PAYMENT TO THE ENGINEER

Payment to the Engineer shall be as called for in Article 2 of the Agreement. The billing rate schedule is equivalent to an overall labor multiplier of 3.21, including profit. Subconsultants and outside services shall be billed at actual cost plus 5 percent; other direct costs will be billed at actual cost; and mileage will be billed at prevailing IRS standard rate.

Total charges to the DISTRICT not-to-exceed amount is $74,705. A summary of the anticipated distribution of cost and manpower between tasks is shown in Exhibit A.

The following table summarizes the previously-executed and proposed task orders and amendments under the Agreement:

Task Order / Amendment	**Not to Exceed Amount**	**Board Authorization Required?**	**District Staff Approval**
Task Order No. 1 – Design and Bid Period Services	$122,849	Yes	Paul R. Eldredge
Amendment No. 1 to Task Order No. 1	$11,776	No	Sami Ghossain
Task Order No. 2 – Engineering Services During Construction	$74,705	Yes	Paul R. Eldredge
Total	$209,330		

6. TIME OF COMPLETION

All work defined in this Task Order shall be completed in 400 calendar days after the execution of this Task Order and subject to the conditions of Article 3 of this Agreement. A summary of the anticipated construction schedule is as follows:

- Notice of Award (NOA) issued to Contractor: October 2020
- Notice to Proceed (NTP) issued to Contractor: November 2020
- Substantial Completion: September 2021
- Final Completion: October 2021

7. KEY PERSONNEL

Engineering personnel assigned to this Task Order No. 2 are as follows:

Role	Key Person to be Assigned
Principal-In-Charge	Scott Parker
Project Manager	Richard Gutierrez
Project Engineer	Brianna Barton

Key personnel shall not be changed except in accordance with Article 8 of the Agreement.

IN WITNESS WHEROF, the parties hereto have made and executed this Task Order No. 2 as of October_____, 2020 and therewith incorporate it as part of the Agreement.

DISRICT	ENGINEER
UNION SANITARY DISTRICT	CAROLLO ENGINEERS, INC
By: ______________________________ Paul R. Eldredge, P.E General Manager/District Engineer	By: ______________________________ Scott E. Parker Senior Vice President
______________________________ Date	______________________________ Date
	By: ______________________________ Richard L. Gutierrez, P.E. Associate Vice President
	______________________________ Date

Aeration Blower No. 11 Project
Task Order No. 2
Union Sanitary District and Carollo Engineers
Engineering Services During Construction
Exhibit A - Fee Schedule

										Other Direct Costs (ODC)							
		PD	PM	PE	SE/ME	CAD	Support	Total	Labor	PECE	Beecher Eng.	Beecher Eng.	Subconsultant	Mileage/Travel		ODC	Total
Task No.	Task Description	$337.00	$229.00	$193.00	$229.00	$152.00	$100.00	Hours	Cost	$13.00	Hours	($200/hr)	Mark up (5%)	Trips	Amount	Cost	Cost
1.0	**Submittal Review**																
		2	14	60	24	0	8	108	$21,756	$1,404	44	$8,800	$440	0	$0	$10,644	$32,400
	Task 1.0 Subtotal =	2	14	60	24	0	8	108	$21,756	$1,404	44	$8,800	$440	0	$0	$10,644	$32,400
2.0	**Requests For Information**																
		2	4	14	8	0	0	28	$6,124	$364	12	$2,400	$120	0	$0	$2,884	$9,008
	Task 2.0 Subtotal =	2	4	14	8	0	0	28	$6,124	$364	12	$2,400	$120	0	$0	$2,884	$9,008
3.0	**Clarification Memoranda**																
		0	2	4	0	0	0	6	$1,230	$78	6	$1,200	$60	0	$0	$1,338	$2,568
	Task 3.0 Subtotal =	0	2	4	0	0	0	6	$1,230	$78	6	$1,200	$60	0	$0	$1,338	$2,568
4.0	**Informal Requests for Information**																
		0	4	8	4	0	0	16	$3,376	$208	8	$1,600	$80	0	$0	$1,888	$5,264
	Task 4.0 Subtotal =	0	4	8	4	0	0	16	$3,376	$208	8	$1,600	$80	0	$0	$1,888	$5,264
5.0	**Meetings**																
		0	2	0	0	0	0	2	$458	$26	2	$400	$20	0	$0	$446	$904
	Task 5.0 Subtotal =	0	2	0	0	0	0	2	$458	$26	2	$400	$20	0	$0	$446	$904
6.0	**Periodic Site Visits**																
		0	4	0	0	0	0	4	$916	$52	4	$800	$40	1	$87	$979	$1,895
	Task 6.0 Subtotal =	0	4	0	0	0	0	4	$916	$52	4	$800	$40	1	$87	$979	$1,895
7.0	**Testing and Start-up Assistance**																
	7.1 Functional Test Plans	0	4	0	0	0	0	4	$916	$52	8	$1,600	$80	0	$0	$1,732	$2,648
	7.2 Factory Witness Testing	0	20	0	0	0	0	20	$4,580	$260	0	$0	$0	1	$1,500	$1,760	$6,340
	7.3 Functional Testing and Startup Assistance	0	0	0	0	0	0	0	$0	$0	8	$1,600	$80	0	$0	$1,680	$1,680
	Task 7.0 Subtotal =	0	24	0	0	0	0	24	$5,496	$312	16	$3,200	$160	1	$1,500	$5,172	$10,668
8.0	**Additional Electrical Support**																
	8.1 Coordination with PLC/SCADA Programmer	0	4	0	0	0	0	4	$916	$52	8	$1,600	$80	0	$0	$1,732	$2,648
	8.2 Short Circuit Study, Arc Flash Study	0	2	0	0	0	0	2	$458	$26	20	$4,000	$200	0	$0	$4,226	$4,684
	Task 8.0 Subtotal =	0	6	0	0	0	0	6	$1,374	$78	28	$5,600	$280	0	$0	$5,958	$7,332
9.0	**Project Management**																
		3	8	0	0	0	0	11	$2,843	$143	8	$1,600	$80	0	$0	$1,823	$4,666
	Task 9.0 Subtotal =	3	8	0	0	0	0	11	$2,843	$143	8	$1,600	$80	0	$0	$1,823	$4,666
	Totals	**7**	**68**	**86**	**36**	**0**	**8**	**205**	**$ 43,573**	**$ 2,665**	**128**	**$ 25,600**	**$ 1,280**	**2**	**$ 1,587**	**$ 31,132**	**$ 74,705**

Legend:

PD	Project Director - Scott Parker
PM	Project Manager - Ricky Gutierrez
PE	Project Engineer - Brianna Barton
SE	Structural Engineer - Preet Chaggar
ME	Mechanical/HVAC Engineer - Tye Weber
CAD	CAD Technician - Otis Barranco
Support	Support Staff - Jean Lardizabal
PECE:	Project Equipment and Communication Expense = $13/hr

Notes:
1. Mileage based on 150 miles per trip @$0.58/mile
2 Multiplier = 3.21

UNION SANITARY DISTRICT

OCTOBER 12, 2020
BOARD OF DIRECTORS MEETING
AGENDA ITEM # 13

TITLE: **CalPERS Actuarial Valuation as of June 20, 2020 with Projected Future Contributions *(This is an Information Item)***

SUBMITTED: Paul R. Eldredge, General Manager/District Engineer
Mark Carlson, Business Services Work Group Manager/CFO

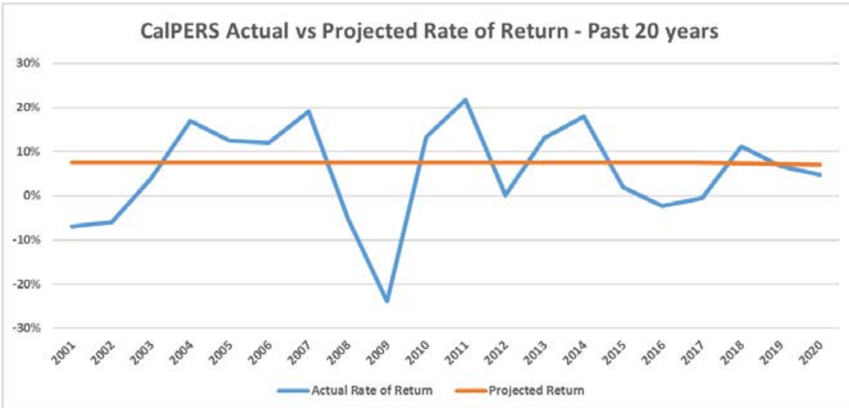
Recommendation
Information only.

Discussion

Attached Reports
Each year the District receives a pension valuation from the California Public Employees' Retirement System (CalPERS) regarding the status of its pension plan. The valuation is attached to this report and described below:

- Actuarial Valuation as of June 30, 2019 for the Miscellaneous Plan – This report contains the results of the June 30, 2019 actuarial valuation of the District's miscellaneous pension plan along with information regarding rates and projections that can be utilized for both short and long term planning as it relates to pension expenses for the District.

CalPERS Status
CalPERS manages more than $389 billion in pension assets for its 2 plus million members. Funding for the plan comes from three sources: 13% from employee contributions, 29% from employer contributions, and 58% from investment earnings. CalPERS model assumes an average investment return of 7% over time. The following graph shows the actual performance against the projected performance from 2001 through 2020:



Actual Return Over Time	
30 Year	8.00%
20 Year	5.50%
10 Year	8.50%
5 Year	6.30%
1 Year	4.70%

This above graph illustrates the volatility in the funds' performance over the last 20 years. Each year that the performance falls below the expected rate of return, additional revenues are required to fund the deficit. The only other source of funding is from employers or employees.

Also shown above is the 4.70% return on investments for pension assets during the most recent year ending June 30, 2020. It must be remembered that CalPERS has assumed that the portfolio would earn 7% which is considered the breakeven for the plan. The direct impact to the District will be discussed further below.

District Status

The Districts pension payments consist of three components. The first two are paid by the District and combined represents the Districts annual pension obligation. The third is paid by the employee. These items are defined as follows:

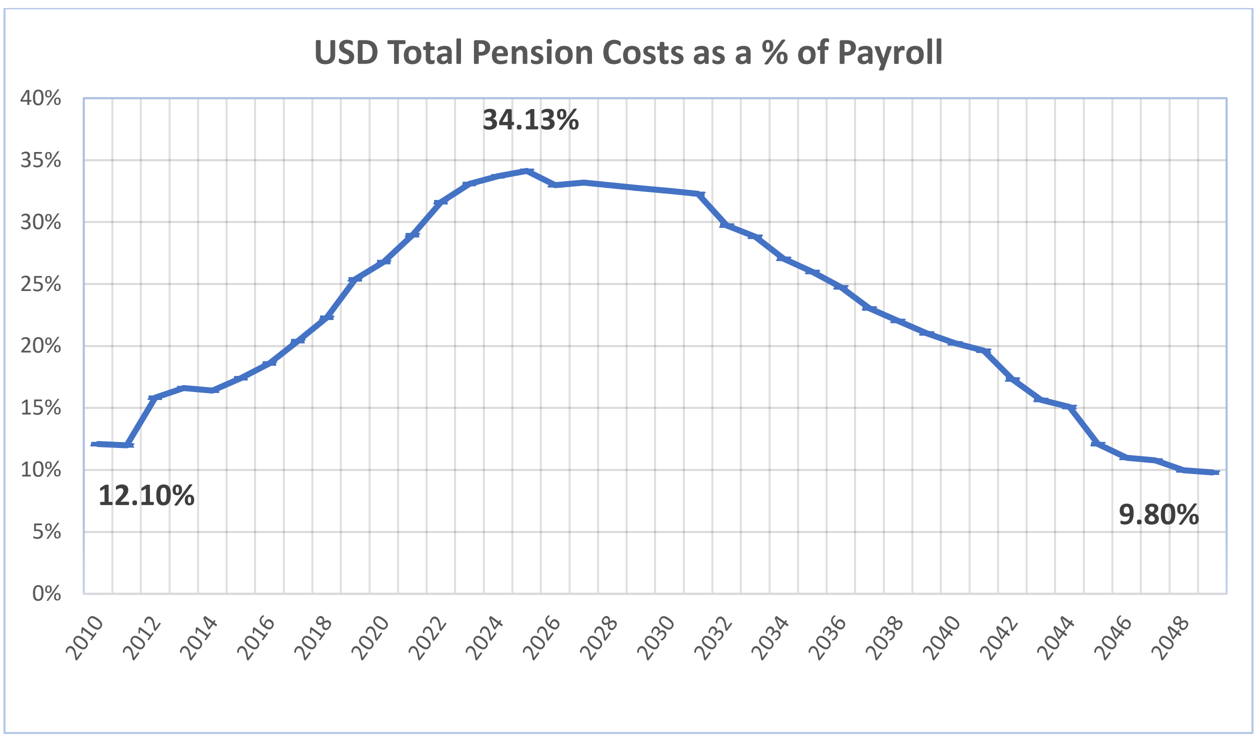
- Employers Normal Cost (NC) represents the annual cost of service for active employees. It is shown as a percentage of payroll and is paid monthly through the year. As payroll increases, the Districts NC (in dollars) increases accordingly.
- Employers Unfunded Accrued Liability (UAL) is an annual fixed payment that represents the amortized dollar amount needed to fund:
    - Past earned benefits that were not sufficiently funded at the time earned
    - Changes in the mortality tables for retirees living longer
    - Reduction in the assumed earnings rate
    - Other smoothing methods to soften rate impacts
- Employee Contribution is a negotiated direct reduction from the employees earned pay and is expressed as a percent.

The chart below shows the above three items expressed as a percentage and in dollars for FY's 19/20 through 25/26. The same report to the Board two years ago showed the NC Rate in 23/24 at 10.80% vs the revised rate for the same year shown below at 10.20%. This rate decrease is a result of the changing mix in Classic vs PEPRA employees at the District. It is anticipated that a slight decrease will continue to the rate over time as the mix of PEPRA employees continues to increase.

Union Sanitary District Projected Future Pension Contribution							
	Actual	Projected					
Fiscal Year	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**
Employer Normal Cost % of Payroll	9.774%	10.392%	10.400%	10.300%	10.200%	9.900%	9.800%
Employer Normal Cost ($)	1,772,590	1,967,481	2,037,910	2,088,956	2,141,078	2,150,839	2,203,632
UAL Employer % of Payrol	17.021%	18.561%	21.223%	22.800%	23.515%	24.236%	23.198%
UAL Employer $ (1)	3,086,822	3,514,041	4,158,694	4,624,051	4,936,015	5,265,324	5,216,414
Total Employer Paid % of Payroll	**26.795%**	**28.953%**	**31.623%**	**33.100%**	**33.715%**	**34.136%**	**32.998%**
Total Employer Paid ($)	**4,859,412**	**5,481,522**	**6,196,604**	**6,713,007**	**7,077,094**	**7,416,163**	**7,420,047**
Employee % of Payroll	8.000%	8.000%	8.000%	8.000%	8.000%	8.000%	8.000%
Employee ($)	1,450,862	1,514,612	1,567,623	1,622,490	1,679,277	1,738,052	1,798,884
Estimated Wages (2)	**18,135,770**	**18,932,646**	**19,595,289**	**20,281,124**	**20,990,963**	**21,725,647**	**22,486,044**

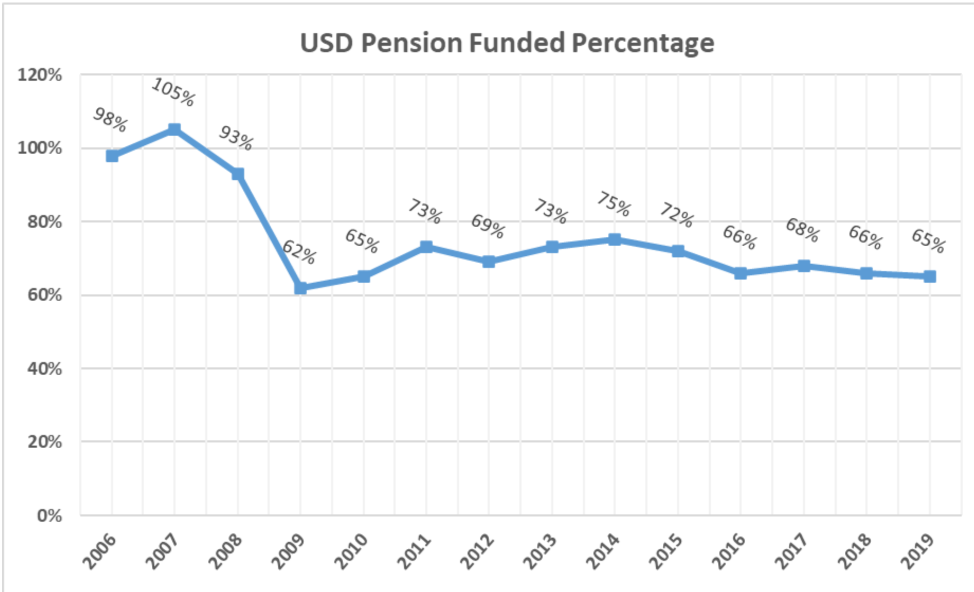
(1) UAL amount based on most recent CalPERS calculations plus anticipated impacts as a result of investments performing below 7% in FY 19/20
(2) CALPERS uses a 2.75% year-over-year increase in wages assumption. For purposes of this table, we used the internally estimated wages for the first year and a 3.5% YOY increase thereafter.

The Districts combined pension costs (NC + UAL) as a percent of payroll have increased from 12.1% in FY 09/10 to a projected peak of 34.13 FY 24/25. Once the UAL is paid off the rate drops to match the projected NC of 9.98% in FY 47/48. The chart below shows the increase over time:



<u>Plan Funded Status</u>

At 06/30/2019 the District's pension plan had a total pension liability of $159.1 million and total plan assets of $103.7 million dollars leaving a difference, or UAL, of $55.4 million. This equates to a funded status of 65% which is below the CalPERS overall funded status of 70.8%. The chart below shows the funded status of the District's pension plan since 2006.



As mentioned above, CalPERS uses a 7% discount rate as the assumed earnings rate over time. The impact of the actual rate of return on the UAL being above or below the target rate over time can be seen in the chart below:

	Sensitivity To the Real Rate of Return Assumption		
As of June 30, 2019	1% Lower	Current	1% Higher
Discount Rate	6%	7%	8%
USD's Unfuned Accrued Liability	$ 75,447,647	$ 55,360,936	$ 38,614,342
Impact (Negative)/Positive	$ (20,086,711)		$ 16,746,594

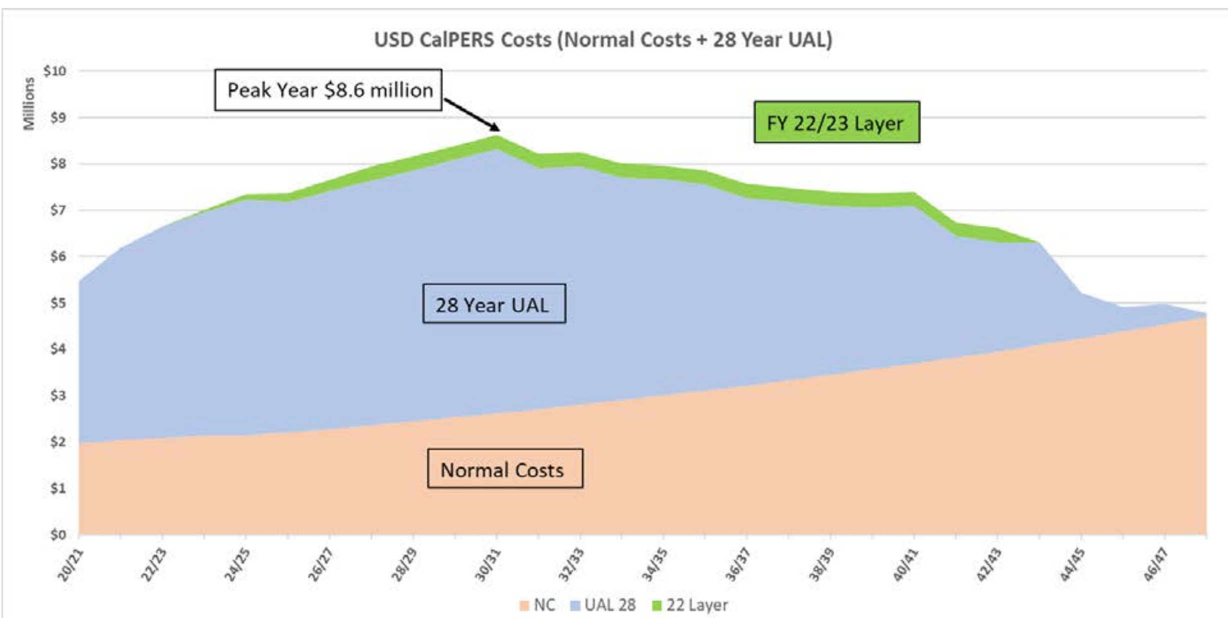
Investment Losses and the Impact to the District

Earlier in this report it was mentioned that CalPERS earned an overall 4.7% return on its portfolio for FY 19/20 which was below the expected earnings rate of 7%. The Districts proportionate share of the 2.3% loss is estimated at $2.4 million. The District will be required to start paying the difference, with interest, beginning in FY 22/23. The payments ramp up in years 1-5 and then level out for the remaining 15 years for a total cost of $5.4 million as follows:

FY	Annual Payment	Total Payments
22/23	59,750	$ 59,750
23/24	119,396	119,396
24/25	179,146	179,146
25/26	238,896	238,896
26/27 - 41/42	298,646	4,778,336
		$ 5,375,524

Each year that the actual rate of return is below the assumed rate of 7%, a negative layer is added to the UAL. If it exceeds the assumed rate, then a positive layer is added which reduces the annual UAL payment. In addition to investment gains and losses, the UAL is also impacted by changes in mortality assumptions and changes to the assumed investment rate of return.

The chart below shows the combined projected pension costs for the District through FY 47/48 when the UAL is expected to be paid off. The top layer in green represents the addition of the FY 19/20 investment loss described above.



<u>Options for Early Payoff of UAL</u>

The above UAL costs represent the minimum payment plan required by CalPERS. Similar to a mortgage, the District could choose to make additional payments into a specialized fund to paydown the debt earlier, and just like a mortgage, would reduce overall interest costs to the District. Currently, staff are working on a report that will be presented to the board at a later date, that will provide an opportunity to discuss the UAL situation and options that are available to the District to address the debt earlier if they should choose to do so.

Background

This report is submitted annually to the Board to provide information on the status of the CalPERS pension plan provided to its employees.

Previous Board Action

None

California Public Employees' Retirement System
Actuarial Office
400 Q Street, Sacramento, CA 95811 | Phone: (916) 795-3000 | Fax: (916) 795-2744
888 CalPERS (or **888**-225-7377) | TTY: (877) 249-7442 | **www.calpers.ca.gov**

July 2020

Miscellaneous Plan of the Union Sanitary District (CalPERS ID: 6011550262)
Annual Valuation Report as of June 30, 2019

Dear Employer,

Attached to this letter, you will find the June 30, 2019 actuarial valuation report of your CalPERS pension plan. **Provided in this report is the determination of the minimum required employer contributions for fiscal year 2021-22**. In addition, the report also contains important information regarding the current financial status of the plan as well as projections and risk measures to aid in planning for the future.

Actuarial valuations are based on assumptions regarding future plan experience including investment return and payroll growth, eligibility for the types of benefits provided, and longevity among retirees. The CalPERS Board of Administration adopts these assumptions after considering the advice of CalPERS actuarial and investment teams and other professionals. Each actuarial valuation reflects all prior differences between actual and assumed experience and adjusts the contribution rates as needed. This valuation is based on an investment return assumption of 7.0 percent, which was adopted by the board in December 2016. Other assumptions used in this report are those recommended in the CalPERS Experience Study and Review of Actuarial Assumptions report from December 2017.

Required Contributions

The table below shows the minimum required employer contributions and the Employee PEPRA Rate for fiscal year 2021-22 along with an estimate of the required contribution for fiscal year 2022-23. Employee contributions other than cost sharing (whether paid by the employer or the employee) are in addition to the results shown below. **The required employer contributions in this report do not reflect any cost sharing arrangement you may have with your employees.**

Fiscal Year	Employer Normal Cost Rate	Employer Amortization of Unfunded Accrued Liability	Employee PEPRA Rate
2021-22	10.40%	$4,287,313	6.25%
Projected Results			
2022-23	*10.3%*	*$4,705,000*	*TBD*

The actual investment return for fiscal year 2019-20 was not known at the time this report was prepared. The projections above assume the investment return for that year would be 7.0 percent. ***To the extent the actual investment return for fiscal year 2019-20 differs from 7.0 percent, the actual contribution requirements for fiscal year 2022-23 will differ from those shown above.*** For additional details regarding the assumptions and methods used for these projections please refer to the "Projected Employer Contributions" in the "Highlights and Executive Summary" section. This section also contains projected required contributions through fiscal year 2026-27.

Changes from Previous Year's Valuations

The CalPERS Board of Administration has adopted a new amortization policy effective with the June 30, 2019 actuarial valuation. The new policy shortens the period over which actuarial gains and losses are amortized from 30 years to 20 years with the payments computed as a level dollar amount. In addition, the new policy does not utilize a 5-year ramp-up and ramp-down on UAL bases attributable to assumption and method changes and non-investment gains/losses. The new policy does not utilize a 5-year ramp-down on investment gains/losses. These changes apply only to new UAL bases established on or after June 30, 2019.

Further descriptions of general changes are included in the "Highlights and Executive Summary" section and in Appendix A, "Actuarial Methods and Assumptions." The effects of the changes on the required contributions are included in the "Reconciliation of Required Employer Contributions" section.

Questions

We understand that you might have some 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 August 1, 2020 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,

SCOTT TERANDO
Chief Actuary

Actuarial Valuation as of June 30, 2019

for the Miscellaneous Plan of the Union Sanitary District

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

Required Contributions for Fiscal Year July 1, 2021 – June 30, 2022

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, 2019 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, 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 opinions contained herein.

EDDIE W. LEE, ASA, EA, FCA, MAAA
Senior Pension Actuary, CalPERS

Highlights and Executive Summary

- **Introduction**
- **Purpose of the Report**
- **Required Contributions**
- **Additional Discretionary Employer Contributions**
- **Plan's Funded Status**
- **Projected Employer Contributions**
- **Cost**
- **Changes Since the Prior Year's Valuation**
- **Subsequent Events**

Introduction

This report presents the results of the June 30, 2019 actuarial valuation of the Miscellaneous Plan of the Union Sanitary District of the California Public Employees' Retirement System (CalPERS). This actuarial valuation sets the minimum required employer contributions for fiscal year 2021-22.

Purpose of the Report

The actuarial valuation was prepared by the CalPERS Actuarial Office using data as of June 30, 2019. The purpose of the report is to:

- Set forth the assets and accrued liabilities of this plan as of June 30, 2019;
- Determine the minimum required employer contributions for the fiscal year July 1, 2021 through June 30, 2022;
- Provide actuarial information as of June 30, 2019 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 No. 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 measurements shown in this actuarial valuation may not be applicable for other purposes. The employer should contact their actuary before disseminating any portion of this report for any reason that is not explicitly described above.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; changes in actuarial policies; and changes in plan provisions or applicable law.

Assessment and Disclosure of Risk

This report includes the following risk disclosures consistent with the recommendations of Actuarial Standards of Practice No. 51 and recommended by the California Actuarial Advisory Panel (CAAP) in the Model Disclosure Elements document:

- A "Scenario Test," projecting future results under different investment income returns.
- A "Sensitivity Analysis," showing the impact on current valuation results using alternative discount rates of 6.0 percent and 8.0 percent.
- A "Sensitivity Analysis," showing the impact on current valuation results assuming rates of mortality are 10 percent lower or 10 percent higher than our current mortality assumptions adopted in 2017.
- Plan maturity measures indicating how sensitive a plan may be to the risks noted above.

Required Contributions

	Fiscal Year
Required Employer Contribution	**2021-22**
Employer Normal Cost Rate	**10.40%**
Plus, Either	
1) Monthly Employer Dollar UAL Payment	**$357,276**
Or	
2) Annual UAL Prepayment Option*	**$4,144,702**
Required PEPRA Member Contribution Rate	**6.25%**

*The total minimum required employer contribution is the **sum** of the Plan's Employer Normal Cost Rate (expressed as a percentage of payroll) and the Employer Unfunded Accrued Liability (UAL) Contribution Amount (billed monthly in dollars).*

** Only the UAL portion of the employer contribution can be prepaid **(which must be received in full no later than July 31)**. Any prepayment totaling over $5 million requires a 72-hour notice email to FCSD_public_agency_wires@calpers.ca.gov. Plan Normal Cost contributions will be made as part of the payroll reporting process. If there is contractual cost sharing or other change, this amount will change.*

In accordance with Sections 20537 and 20572 of the Public Employees' Retirement Law, if a contracting agency fails to remit the required contributions when due, interest and penalties may apply.

For additional detail regarding the determination of the required contribution for PEPRA members, see "PEPRA Member Contribution Rates" in the "Liabilities and Contributions" section. Required member contributions for Classic members can be found in Appendix B.

	Fiscal Year 2020-21	Fiscal Year 2021-22
Normal Cost Contribution as a Percentage of Payroll		
Total Normal Cost	18.106%	18.07%
Employee Contribution[1]	7.714%	7.67%
Employer Normal Cost[2]	10.392%	10.40%
Projected Annual Payroll for Contribution Year	$17,538,714	$18,400,827
Estimated Employer Contributions Based On Projected Payroll		
Total Normal Cost	$3,175,559	$3,325,029
Employee Contribution[1]	1,352,936	1,411,343
Employer Normal Cost[2]	1,822,623	1,913,686
Unfunded Liability Contribution	3,634,952	4,287,313
% of Projected Payroll (illustrative only)	20.725%	23.30%
Estimated Total Employer Contribution	$5,457,575	$6,200,999
% of Projected Payroll (illustrative only)	31.117%	33.70%

[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 the "Liabilities and Contributions" section. Employee cost sharing is not shown in this report.

[2] The Employer Normal Cost is a blended rate for all benefit groups in the plan. For a breakout of normal cost by benefit group, see "Normal Cost by Benefit Group" in the "Liabilities and Contributions" section.

Additional Discretionary Employer Contributions

The minimum required employer contribution towards the Unfunded Accrued Liability (UAL) for this rate plan for the 2021-22 fiscal year is $4,287,313. CalPERS allows employers to make additional discretionary payments (ADPs) at any time and in any amount. These optional payments serve to reduce the UAL and future required contributions and can result in significant long-term savings. Employers can also use ADPs to stabilize annual contributions as a fixed dollar amount, percent of payroll or percent of revenue.

Provided below are select ADP options for consideration. Making such an ADP during fiscal year 2021-22 does not require an ADP be made in any future year, nor does it change the remaining amortization period of any portion of unfunded liability. For information on permanent changes to amortization periods, see the "Amortization Schedule and Alternatives" section of the report.

If you are considering making an ADP, please contact your actuary for additional information.

Minimum Required Employer Contribution for Fiscal Year 2021-22

Estimated Normal Cost	Minimum UAL Payment	ADP	Total UAL Contribution	Estimated Total Contribution
$1,913,686	$4,287,313	$0	$4,287,313	$6,200,999

Alternative Fiscal Year 2021-22 Employer Contributions for Greater UAL Reduction

Funding Target	Estimated Normal Cost	Minimum UAL Payment	ADP[1]	Total UAL Contribution	Estimated Total Contribution
20 years	$1,913,686	$4,287,313	$845,602	$5,132,915	$7,046,601
15 years	$1,913,686	$4,287,313	$1,683,119	$5,970,432	$7,884,118
10 years	$1,913,686	$4,287,313	$3,454,916	$7,742,229	$9,655,915
5 years	$1,913,686	$4,287,313	$8,975,018	$13,262,331	$15,176,017

[1] The ADP amounts are assumed to be made in the middle of the fiscal year. A payment made earlier or later in the fiscal year would have to be less or more than the amount shown to have the same effect on the UAL amortization.

Note that the calculations above are based on the projected Unfunded Accrued Liability as of June 30, 2021 as determined in the June 30, 2019 actuarial valuation. New unfunded liabilities can emerge in future years due to assumption or method changes, changes in plan provisions and actuarial experience different than assumed. Making an ADP illustrated above for the indicated number of years will not result in a plan that is exactly 100 percent funded in the indicated number of years. Valuation results will vary from one year to the next and can diverge significantly from projections over a period of several years.

Plan's Funded Status

	June 30, 2018	June 30, 2019
1. Present Value of Projected Benefits	$175,841,520	$184,471,189
2. Entry Age Normal Accrued Liability	151,708,586	159,124,986
3. Market Value of Assets (MVA)	99,565,021	103,764,050
4. Unfunded Accrued Liability (UAL) [(2) – (3)]	$52,143,565	$55,360,936
5. Funded Ratio [(3) / (2)]	65.6%	65.2%

This measure of funded status is an assessment of the need for future employer contributions based on the actuarial cost method used to fund the plan. The UAL is the present value of future employer contributions for service that has already been earned and is in addition to future normal cost contributions for active members. For a measure of funded status that is appropriate for assessing the sufficiency of plan assets to cover estimated termination liabilities, please see "Hypothetical Termination Liability" in the "Risk Analysis" section.

Projected Employer Contributions

The table below shows the required and projected employer contributions (before cost sharing) for the next six fiscal years. The projection assumes that all actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur during the projection period. As of the preparation date of this report, the year to date return for the 2019-20 fiscal year was well below the 7 percent assumed return. Actual contribution rates during this projection period could be significantly higher than the projection shown below. The projected normal cost percentages in the projections below reflect that the normal cost will continue to decline over time as new employees are hired into PEPRA or other lower cost benefit tiers.

	Required Contribution	**Projected Future Employer Contributions (Assumes 7.00% Return for Fiscal Year 2019-20)**				
Fiscal Year	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**
Normal Cost %	10.40%	10.3%	10.2%	10.0%	9.9%	9.8%
UAL Payment	$4,287,313	$4,705,000	$4,966,000	$5,243,000	$5,131,000	$5,303,000
*Total as a % of Payroll**	*33.70%*	*35.2%*	*35.7%*	*36.3%*	*34.9%*	*34.9%*
Projected Payroll	*$18,400,827*	*$18,906,850*	*$19,426,789*	*$19,961,025*	*$20,509,953*	*$21,073,977*

*Illustrative only and based on the projected payroll shown.

For some sources of UAL, the change in UAL is amortized using a 5-year ramp up. For more information, please see "Amortization of the Unfunded Actuarial Accrued Liability" under "Actuarial Methods" in Appendix A. This method phases in the impact of the change in UAL over a 5-year period in order to reduce employer cost volatility from year to year. As a result of this methodology, dramatic changes in the required employer contributions in any one year are less likely. However, required contributions can change gradually and significantly over the next five years. In years when there is a large increase in UAL, the relatively small amortization payments during the ramp up period could result in a funded ratio that is projected to decrease initially while the contribution impact of the increase in the UAL is phased in.

For projected contributions under alternate investment return scenarios, please see the "Future Investment Return Scenarios" in the "Risk Analysis" section.

Cost

Actuarial Determination of Pension Plan Cost

Contributions to fund the pension plan are comprised of two components:

- The Normal Cost, expressed as a percentage of total active payroll
- The Amortization of the Unfunded Accrued Liability (UAL), expressed as a dollar amount

For fiscal years prior to FY 2017-18, the Amortization of UAL component was expressed as percentage of total active payroll. Starting with FY 2017-18, the Amortization of UAL component was expressed as a dollar amount and invoiced on a monthly basis. There continues to be an option to prepay this amount during July of each fiscal year.

The Normal Cost component will continue to be expressed as a percentage of active payroll with employer and employee contributions payable as part of the regular payroll reporting process.

The determination of both components requires complex actuarial calculations. The calculations are based on a set of actuarial assumptions which can be divided into two categories:

- Demographic assumptions (e.g., mortality rates, retirement rates, employment termination rates, disability rates)
- Economic assumptions (e.g., future investment earnings, inflation, salary growth rates)

These assumptions reflect CalPERS' best estimate of future experience of the plan and are long term in nature. We recognize that all assumptions will not be realized in any given year. For example, the investment earnings at CalPERS have averaged 5.8 percent over the 20 years ending June 30, 2019, yet individual fiscal year returns have ranged from -23.6 percent to +20.7 percent. In addition, CalPERS reviews all actuarial assumptions by conducting in-depth experience studies every four years, with the most recent experience study completed in 2017.

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 the employer contribution is shown in the "Reconciliation of Required Employer Contributions." It should be noted that no change in liability or contribution 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 adopted a new amortization policy effective with this actuarial valuation. The new policy shortens the period over which actuarial gains and losses are amortized from 30 years to 20 years with the payments computed as a level dollar amount. In addition, the new policy does not utilize a 5-year ramp-up and ramp-down on UAL bases attributable to assumption and method changes and non-investment gains/losses. The new policy also does not utilize a 5-year ramp-down on investment gains/losses. These changes will apply only to new UAL bases established on or after June 30, 2019.

For inactive employers, the new amortization policy imposes a maximum amortization period of 15 years for all unfunded accrued liabilities effective June 30, 2017. Furthermore, the plan actuary has the ability to shorten the amortization period on any valuation date based on the life expectancy of plan members and projected cash flow needs to the plan.

Subsequent Events

The contribution requirements determined in this actuarial valuation report are based on demographic and financial information as of June 30, 2019. Changes in the value of assets subsequent to that date are not reflected. Investment returns below the assumed rate of return will increase future required contributions while investment returns above the assumed rate of return will decrease future required contributions.

The projected employer contributions on Page 5 are calculated under the assumption that the discount rate remains at 7.0 percent going forward and that the realized rate of return on assets for fiscal year 2019-20 is 7.0 percent.

This actuarial valuation report reflects statutory changes, regulatory changes and CalPERS Board actions through January 2020. Any subsequent changes or actions are not reflected.

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 6/30/18 including Receivables	$99,565,021
2.	Change in Receivables for Service Buybacks	(36,229)
3.	Employer Contributions	4,156,261
4.	Employee Contributions	1,311,558
5.	Benefit Payments to Retirees and Beneficiaries	(7,706,531)
6.	Refunds	(1,436)
7.	Transfers	0
8.	Service Credit Purchase (SCP) Payments and Interest	68,586
9.	Administrative Expenses	(111,972)
10.	Miscellaneous Adjustments	231
11.	Investment Return (Net of Investment Expenses)	6,518,561
12.	Market Value of Assets as of 6/30/19 including Receivables	$103,764,050

Asset Allocation

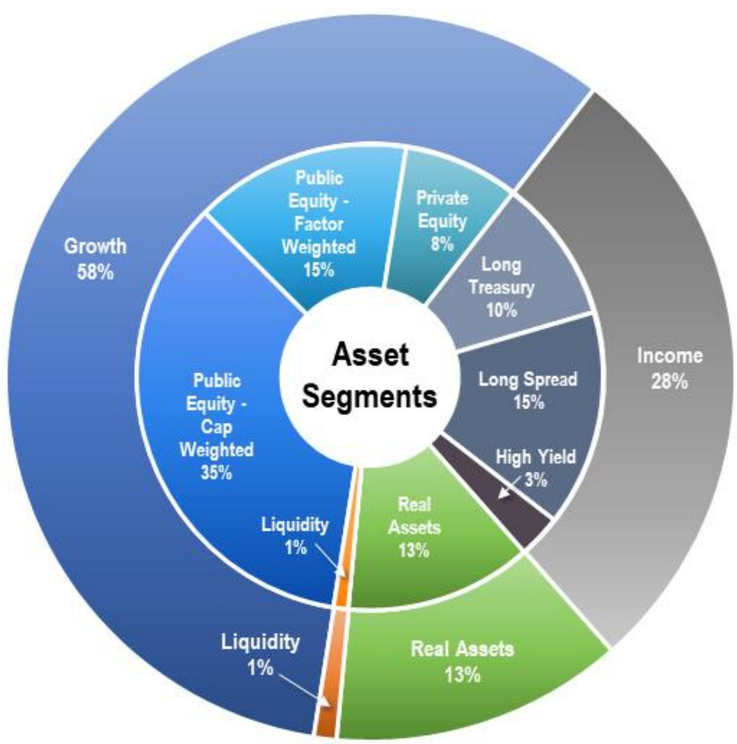
CalPERS adheres to an Asset Allocation Strategy which establishes asset class allocation policy targets and ranges and manages those asset class allocations within their policy ranges. CalPERS Investment Belief No. 6 recognizes that strategic asset allocation is the dominant determinant of portfolio risk and return. On December 19, 2017, the CalPERS Board of Administration adopted changes to the current asset allocation as shown in the Policy Target Allocation below expressed as a percentage of total assets.

The asset allocation shown below reflect the allocation of the Public Employees' Retirement Fund (PERF) in its entirety as of June 30, 2019. The assets for Union Sanitary District Miscellaneous Plan are part of the PERF and are invested accordingly.

Asset Class	Actual Allocation	Policy Target Allocation
Public Equity	50.2%	50.0%
Private Equity	7.1%	8.0%
Global Fixed Income	28.7%	28.0%
Real Assets	11.0%	13.0%
Liquidity	1.0%	1.0%
Inflation Sensitive Assets	0.0%	0.0%
Trust Level[1]	2.0%	0.0%
Total Fund	**100.0%**	**100.0%**

[1] Trust Level includes Multi-Asset Class, Completion Overlay, Risk Mitigation, Absolute Return Strategies, Plan Level Transition and other Total Fund level portfolios.

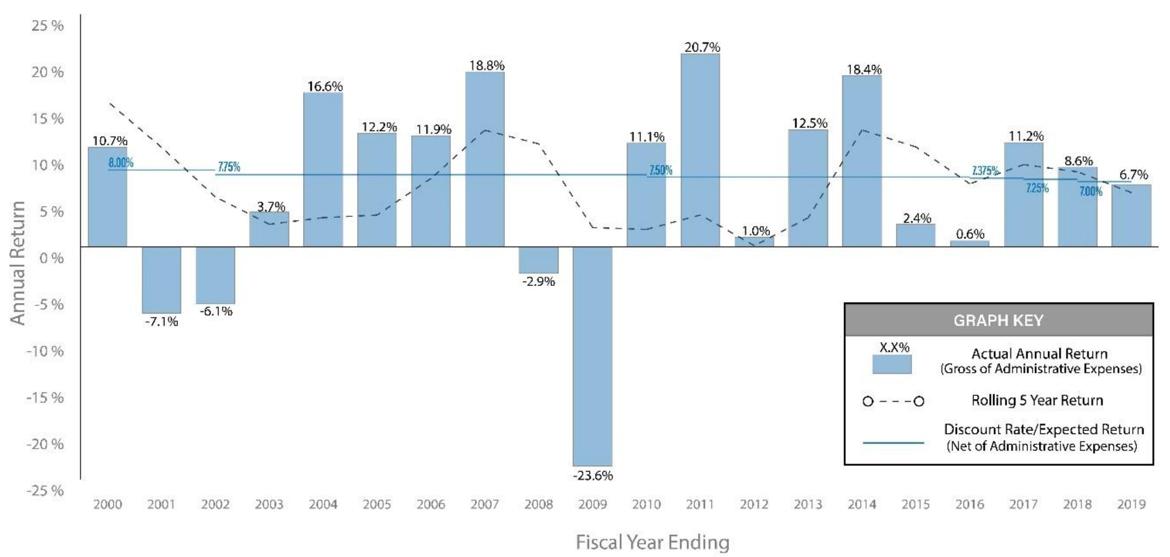
Strategic Asset Allocation Policy Targets



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 administrative expenses.

History of Investment Returns (2000 - 2019)



The table below shows historical compound annual returns of the Public Employees Retirement Fund for various time periods ending on June 30, 2019 (figures are reported as gross of fees). The compound annual return is the average rate per year compounded over the indicated number of years. It should be recognized that in any given year the rate of return is volatile. The portfolio has an expected volatility of 11.4 percent per year based on the most recent Asset Liability Modelling study. The volatility is a measure of the risk of the portfolio expressed in the standard deviation of the fund's total return distribution, expressed as a percentage. Consequently, when looking at investment returns, it is more instructive to look at returns over longer time horizons.

History of CalPERS Compound Annual Rates of Return and Volatilities

	1 year	**5 year**	**10 year**	**20 year**	**30 year**
Compound Annual Return	6.7%	5.8%	9.1%	5.8%	8.1%
Volatility	–	4.4%	6.9%	10.7%	9.8%

Liabilities and Contributions

- **Development of Accrued and Unfunded Liabilities**
- **(Gain) / Loss Analysis 06/30/18 - 06/30/19**
- **Schedule of Amortization Bases**
- **Amortization Schedule and Alternatives**
- **Reconciliation of Required Employer Contributions**
- **Employer Contribution History**
- **Funding History**
- **Normal Cost by Benefit Group**
- **PEPRA Member Contribution Rates**

Development of Accrued and Unfunded Liabilities

	June 30, 2018	June 30, 2019
1. Present Value of Projected Benefits		
a) Active Members	$75,228,568	$76,914,135
b) Transferred Members	6,534,293	6,487,997
c) Terminated Members	1,031,813	663,367
d) Members and Beneficiaries Receiving Payments	93,046,846	100,405,690
e) Total	$175,841,520	$184,471,189
2. Present Value of Future Employer Normal Costs	$13,578,780	$14,280,939
3. Present Value of Future Employee Contributions	$10,554,154	$11,065,264
4. Entry Age Normal Accrued Liability		
a) Active Members [(1a) - (2) - (3)]	$51,095,634	$51,567,932
b) Transferred Members (1b)	6,534,293	6,487,997
c) Terminated Members (1c)	1,031,813	663,367
d) Members and Beneficiaries Receiving Payments (1d)	93,046,846	100,405,690
e) Total	$151,708,586	$159,124,986
5. Market Value of Assets (MVA)	$99,565,021	$103,764,050
6. Unfunded Accrued Liability (UAL) [(4e) - (5)]	$52,143,565	$55,360,936
7. Funded Ratio [(5) / (4e)]	65.6%	65.2%

(Gain)/Loss Analysis 6/30/18 – 6/30/19

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.

1. Total (Gain)/Loss for the Year	
a) Unfunded Accrued Liability (UAL) as of 6/30/18	$52,143,565
b) Expected Payment on the UAL during 2018-19	2,383,898
c) Interest through 6/30/19 [.07 x (1a) - $((1.07)^{½}$ - 1) x (1b)]	3,568,022
d) Expected UAL before all other changes [(1a) - (1b) + (1c)]	53,327,689
e) Change due to plan changes	0
f) Change due to assumption change	0
g) Change due to method change	0
h) Expected UAL after all other changes [(1d) + (1e) + (1f) + (1g)]	53,327,689
i) Actual UAL as of 6/30/19	55,360,936
j) Total (Gain)/Loss for 2018-19 [(1i) - (1h)]	$2,033,247
2. Contribution (Gain)/Loss for the Year	
a) Expected Contribution (Employer and Employee)	$5,502,094
b) Interest on Expected Contributions	189,316
c) Actual Contributions	5,467,819
d) Interest on Actual Contributions	188,137
e) Expected Contributions with Interest [(2a) + (2b)]	5,691,410
f) Actual Contributions with Interest [(2c) + (2d)]	5,655,956
g) Contribution (Gain)/Loss [(2e) - (2f)]	$35,454
3. Investment (Gain)/Loss for the Year	
a) Market Value of Assets as of 6/30/18	$99,565,021
b) Prior Fiscal Year Receivables	(324,402)
c) Current Fiscal Year Receivables	288,173
d) Contributions Received	5,467,819
e) Benefits and Refunds Paid	(7,707,967)
f) Transfers, SCP Payments and Interest, and Miscellaneous Adjustments	68,817
g) Expected Int. [.07 x (3a + 3b) + $((1.07)^{½}$ - 1) x ((3d) + (3e) + (3f))]	6,872,132
h) Expected Assets as of 6/30/19 [(3a) + (3b) + (3c) + (3d) + (3e) + (3f) + (3g)]	104,229,593
i) Market Value of Assets as of 6/30/19	103,764,050
j) Investment (Gain)/Loss [(3h) - (3i)]	$465,543
4. Liability (Gain)/Loss for the Year	
a) Total (Gain)/Loss (1j)	$2,033,247
b) Contribution (Gain)/Loss (2g)	35,454
c) Investment (Gain)/Loss (3j)	465,543
d) Liability (Gain)/Loss [(4a) - (4b) - (4c)]	$1,532,250
5. Non-Investment (Gain)/Loss for the Year	
a) Contribution (Gain)/Loss (2g)	$35,454
b) Liability (Gain)/Loss (4d)	1,532,250
c) Non-Investment (Gain)/Loss [(5a) + (5b)]	$1,567,704

Schedule of Amortization Bases

Below is the schedule of the plan's amortization bases. Note that there is a two-year lag between the valuation date and the start of the contribution fiscal year.

- The assets, liabilities, and funded status of the plan are measured as of the valuation date: June 30, 2019.
- The required employer contributions determined by the valuation are for the fiscal year beginning two years after the valuation date: fiscal year 2021-22.

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

The Unfunded Accrued Liability (UAL) 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 UAL is rolled forward each year by subtracting the expected payment on the UAL for the fiscal year and adjusting for interest. The expected payment on the UAL 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 for the first fiscal year is determined by the actuarial valuation two years ago and the contribution for the second year is from the actuarial valuation one year ago. Additional discretionary payments are reflected in the Expected Payments column in the fiscal year they were made by the agency.

Reason for Base	Date Est.	Ramp Level 2021-22	Ramp Shape	Escala-tion Rate	Amort. Period	Balance 6/30/19	Expected Payment 2019-20	Balance 6/30/20	Expected Payment 2020-21	Balance 6/30/21	Minimum Required Payment 2021-22
Assumption Change	6/30/03	No Ramp		2.75%	4	1,171,845	224,465	1,021,686	228,839	856,491	235,132
Method Change	6/30/04	No Ramp		2.75%	5	(179,991)	(30,145)	(161,408)	(30,721)	(140,929)	(31,566)
Assumption Change	6/30/09	No Ramp		2.75%	10	4,543,220	489,161	4,355,253	497,464	4,145,540	511,144
Special (Gain)/Loss	6/30/09	No Ramp		2.75%	20	2,356,884	166,351	2,349,791	168,469	2,340,011	173,102
Special (Gain)/Loss	6/30/10	No Ramp		2.75%	21	1,428,304	98,142	1,426,766	99,353	1,423,868	102,085
Assumption Change	6/30/11	No Ramp		2.75%	12	1,993,864	191,115	1,935,744	194,189	1,870,375	199,530
Special (Gain)/Loss	6/30/11	No Ramp		2.75%	22	(862,623)	(57,805)	(863,213)	(58,495)	(863,130)	(60,104)
Payment (Gain)/Loss	6/30/12	No Ramp		2.75%	23	(35,884)	(2,349)	(35,966)	(2,376)	(36,026)	(2,441)
(Gain)/Loss	6/30/12	No Ramp		2.75%	23	6,003,195	392,940	6,016,958	397,485	6,026,983	408,416
(Gain)/Loss	6/30/13	100%	Up/Down	2.75%	24	15,561,621	1,043,826	15,571,192	1,056,303	15,568,527	1,085,351
Assumption Change	6/30/14	100%	Up/Down	2.75%	15	7,833,560	582,615	7,779,248	739,722	7,558,621	760,065
(Gain)/Loss	6/30/14	100%	Up/Down	2.75%	25	(9,073,867)	(481,660)	(9,210,805)	(609,082)	(9,225,522)	(625,832)
(Gain)/Loss	6/30/15	100%	Up/Down	2.75%	26	6,612,313	263,887	6,802,208	355,783	6,910,338	456,959
Assumption Change	6/30/16	80%	Up/Down	2.75%	17	2,438,490	90,007	2,516,080	136,988	2,550,504	187,673
(Gain)/Loss	6/30/16	80%	Up/Down	2.75%	27	8,626,597	233,046	8,989,394	353,271	9,253,225	483,981
Assumption Change	6/30/17	60%	Up/Down	2.75%	18	1,979,264	37,385	2,079,141	75,817	2,146,255	116,853
(Gain)/Loss	6/30/17	60%	Up/Down	2.75%	28	(3,182,863)	(44,220)	(3,359,922)	(89,312)	(3,502,731)	(137,653)
Method Change	6/30/18	40%	Up/Down	2.75%	19	1,126,943	(25,945)	1,232,667	22,983	1,295,180	47,229
Assumption Change	6/30/18	40%	Up/Down	2.75%	19	4,315,006	(122,899)	4,744,184	88,454	4,984,779	181,772
(Gain)/Loss	6/30/18	40%	Up/Down	2.75%	29	671,811	0	718,838	9,818	759,001	20,176

Schedule of Amortization Bases (continued)

Reason for Base	Date Est.	Ramp Level 2021-22	Ramp Shape	Escala-tion Rate	Amort. Period	Balance 6/30/19	Expected Payment 2019-20	Balance 6/30/20	Expected Payment 2020-21	Balance 6/30/21	Minimum Required Payment 2021-22
Non-Investment (Gain)/Loss	6/30/19	No Ramp		0.00%	20	1,567,704	0	1,677,443	0	1,794,864	163,787
Investment (Gain)/Loss	6/30/19	20%	Up Only	0.00%	20	465,543	0	498,131	0	533,000	11,654
Total						**55,360,936**	**3,047,917**	**56,083,410**	**3,634,952**	**56,249,224**	**4,287,313**

Amortization Schedule and Alternatives

The amortization schedule on the previous page shows the minimum contributions required according to the CalPERS amortization policy. Many agencies have expressed interest in paying off the unfunded accrued liabilities more quickly than required. As such, we have provided alternative amortization schedules to help analyze the current amortization schedule and illustrate the potential savings of accelerating unfunded liability payments.

Shown on the following page are future year amortization payments based on 1) the current amortization schedule reflecting the individual bases and remaining periods shown on the previous page, and 2) alternative "fresh start" amortization schedules using two sample periods that would both result in interest savings relative to the current amortization schedule.

The Current Amortization Schedule typically contains both positive and negative bases. Positive bases result from plan changes, assumption changes, method changes or plan experience that increase unfunded liability. Negative bases result from plan changes, assumption changes, method changes, or plan experience that decrease unfunded liability. The combination of positive and negative bases within an amortization schedule can result in unusual or problematic circumstances in future years, such as:

- When a negative payment would be required on a positive unfunded actuarial liability; or
- When the payment would completely amortize the total unfunded liability in a very short time period, and results in a large change in the employer contribution requirement.

In any year when one of the above scenarios occurs, the actuary will consider corrective action such as replacing the existing unfunded liability bases with a single "fresh start" base and amortizing it over a reasonable period.

The Current Amortization Schedule on the following page may appear to show that, based on the current amortization bases, one of the above scenarios will occur at some point in the future. It is impossible to know today whether such a scenario will in fact arise since there will be additional bases added to the amortization schedule in each future year. Should such a scenario arise in any future year, the actuary will take appropriate action based on guidelines in the CalPERS amortization policy.

Amortization Schedule and Alternatives

			Alternative Schedules			
	Current Amortization Schedule		20 Year Amortization		15 Year Amortization	
Date	**Balance**	**Payment**	**Balance**	**Payment**	**Balance**	**Payment**
6/30/2021	56,249,224	4,287,313	56,249,224	5,132,915	56,249,224	5,970,432
6/30/2022	55,751,839	4,705,465	54,877,141	5,132,915	54,010,807	5,970,432
6/30/2023	54,787,098	4,965,587	53,409,012	5,132,915	51,615,701	5,970,432
6/30/2024	53,485,751	5,243,482	51,838,114	5,132,915	49,052,937	5,970,431
6/30/2025	51,805,854	5,131,462	50,157,253	5,132,915	46,310,781	5,970,432
6/30/2026	50,124,239	5,302,622	48,358,732	5,132,915	43,376,673	5,970,432
6/30/2027	48,147,858	5,442,338	46,434,315	5,132,915	40,237,177	5,970,431
6/30/2028	45,888,612	5,585,897	44,375,188	5,132,915	36,877,918	5,970,432
6/30/2029	43,322,722	5,733,403	42,171,923	5,132,915	33,283,509	5,970,431
6/30/2030	40,424,632	5,884,965	39,814,429	5,132,915	29,437,493	5,970,432
6/30/2031	37,166,900	5,370,252	37,291,910	5,132,915	25,322,255	5,970,431
6/30/2032	34,213,552	5,306,955	34,592,815	5,132,915	20,918,951	5,970,432
6/30/2033	31,118,945	4,959,978	31,704,783	5,132,915	16,207,415	5,970,432
6/30/2034	28,166,629	4,807,220	28,614,589	5,132,916	11,166,071	5,970,431
6/30/2035	25,165,664	4,585,528	25,308,081	5,132,916	5,771,834	5,970,432
6/30/2036	22,183,952	4,176,175	21,770,117	5,132,915		
6/30/2037	19,416,961	3,975,642	17,984,497	5,132,916		
6/30/2038	16,663,713	3,761,089	13,933,882	5,132,915		
6/30/2039	13,939,671	3,608,350	9,599,725	5,132,915		
6/30/2040	11,182,943	3,509,758	4,962,177	5,132,916		
6/30/2041	8,335,227	2,706,849				
6/30/2042	6,118,707	2,438,369				
6/30/2043	4,024,749	2,281,663				
6/30/2044	1,946,311	1,018,840				
6/30/2045	1,028,655	551,325				
6/30/2046	530,366	465,164				
6/30/2047	86,322	89,292				
6/30/2048						
6/30/2049						
6/30/2050						
Total		**105,894,983**		**102,658,304**		**89,556,475**
Interest Paid		**49,645,759**		**46,409,080**		**33,307,251**
Estimated Savings				**3,236,679**		**16,338,508**

Reconciliation of Required Employer Contributions

Normal Cost (% of Payroll)

1. For Period 7/1/20 – 6/30/21	
a) Employer Normal Cost	10.392%
b) Employee Contribution	7.714%
c) Total Normal Cost	18.106%
2. Changes since the prior year annual valuation	
a) Effect of demographic experience	(0.036%)
b) Effect of plan changes	0.000%
c) Effect of assumption changes	0.000%
d) Effect of method changes	0.000%
e) Net effect of the changes above [sum of (a) through (d)]	(0.036%)
3. For Period 7/1/21 – 6/30/22	
a) Employer Normal Cost	10.40%
b) Employee Contribution	7.67%
c) Total Normal Cost	18.07%
Employer Normal Cost Change [(3a) – (1a)]	0.008%
Employee Contribution Change [(3b) – (1b)]	(0.044%)

Unfunded Liability Contribution ($)

1. For Period 7/1/20 – 6/30/21	3,634,952
2. Changes since the prior year annual valuation	
a) Effect of adjustments to prior year's amortization schedule	0
b) Effect of investment (gain)/loss during prior year[1]	11,654
c) Effect of non-investment (gain)/loss during prior year	163,787
d) Effect of plan changes	0
e) Effect of assumption changes	0
f) Changes to prior year amortization payments[2]	476,920
g) Effect of changes due to Fresh Start	0
h) Effect of elimination of amortization base	0
i) Effect of method change	0
j) Net effect of the changes above [sum of (a) through (i)]	652,361
3. For Period 7/1/21 – 6/30/22 [(1) + (2j)]	4,287,313

The amounts shown for the period 7/1/20 – 6/30/21 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.

[1] The unfunded liability contribution for the investment (gain)/loss during the year prior to the valuation date is 20 percent of the "full" annual requirement due to the 5-year ramp. Increases to this amount that occur during the ramp period will be included in line f) in future years.

[2] Includes scheduled escalation in individual amortization base payments due to the 5-year ramp and payroll growth assumption used in the pre-2019 amortization policy.

Employer Contribution History

The table below provides a recent history of the required employer contributions for the plan for fiscal years prior to 2019-20. The amounts are based on the actuarial valuation from two years prior and does not account for prepayments or benefit changes made during a fiscal year. Additional discretionary payments before July 1, 2018 or after June 30, 2019 are not included.

Fiscal Year	Employer Normal Cost	Unfunded Rate	Unfunded Liability Payment ($)	Additional Discretionary Payments
2013 - 14	8.367%	8.032%	N/A	N/A
2014 - 15	8.389%	9.021%	N/A	N/A
2015 - 16	8.361%	10.197%	N/A	N/A
2016 - 17	8.608%	11.754%	N/A	N/A
2017 - 18	8.793%	N/A	2,139,379	N/A
2018 - 19	9.368%	N/A	2,648,073	0
2019 - 20	9.774%	N/A	3,196,761	
2020 - 21	10.392%	N/A	3,634,952	
2021 - 22	10.40%	N/A	4,287,313	

Funding History

The table 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
06/30/11	$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
06/30/15	123,680,195	88,724,620	34,955,575	71.7%	14,495,883
06/30/16	131,997,730	86,950,874	45,046,856	65.9%	15,154,419
06/30/17	139,483,910	94,177,756	45,306,154	67.5%	15,112,393
06/30/18	151,708,586	99,565,021	52,143,565	65.6%	16,167,849
06/30/19	159,124,986	103,764,050	55,360,936	65.2%	16,962,578

Normal Cost by Benefit Group

The table below displays the Total Normal Cost broken out by benefit group for Fiscal Year 2021-22. The Total Normal Cost is the annual cost of service accrual for the fiscal year for active employees and can be viewed as the long-term contribution rate for the benefits contracted. Generally, the normal cost for a benefit group subject to more generous benefit provisions will exceed the normal cost for a group with less generous benefits. However, based on the characteristics of the members (particularly when the number of actives is small), this may not be the case. Future measurements of the Total Normal Cost for each group may differ significantly from the current values due to such factors as: changes in the demographics of the group, changes in economic and demographic assumptions, changes in plan benefits or applicable law.

Rate Plan Identifier	Benefit Group Name	Total Normal Cost FY 2021-22	Number of Actives	Payroll on 6/30/2019
984	Miscellaneous First Level	19.24%	104	$13,781,008
26482	Miscellaneous PEPRA Level	13.09%	33	$3,181,570
	Plan Total	**18.07%**	**137**	**$16,962,578**

Note that if a Benefit Group above has multiple bargaining units, each of which has separately contracted for different benefits such as Employer Paid Member Contributions, then the Normal Cost split does not reflect those differences. Additionally, if a Second Level Benefit Group amended to the same benefit formula as a First Level Benefit Group, their Normal Costs may be dissimilar due to demographic or other population differences. If you have questions in these situations, please consult with your plan actuary.

PEPRA Member Contribution Rates

The California Public Employees' Pension Reform Act of 2013 ("PEPRA") established new benefit formulas, final compensation period, and contribution requirements for "new" employees (generally those first hired into a CalPERS-covered position on or after January 1, 2013). In accordance with Government Code Section 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 members' entry age into the plan. Should the total normal cost of the plan change by one percent or more from the base total normal cost established for the plan, the new member rate shall be 50 percent of the new normal cost rounded to the nearest quarter percent.

The table below shows the determination of the PEPRA member contribution rates effective July 1, 2021, based on 50 percent of the Total Normal Cost for each respective plan as of the June 30, 2019 valuation.

		Basis for Current Rate		**Rates Effective July 1, 2021**			
Rate Plan Identifier	**Benefit Group Name**	**Total Normal Cost**	**Member Rate**	**Total Normal Cost**	**Change**	**Change Needed**	**Member Rate**
26482	Miscellaneous PEPRA Level	12.500%	6.25%	13.01%	0.510%	No	6.25%

For purposes of setting member rates, it is preferable to determine total normal cost using a large active population so that the rate remains relatively stable. While each CalPERS non-pooled plan has a sufficiently large active population for this purpose, the PEPRA active population by itself may not be sufficiently large. The total PEPRA normal cost will be determined based on the plan's PEPRA membership only if the number of members covered under the PEPRA formula meets either:

1. 50 percent of the active population, or
2. 25 percent of the active population and 100 or more PEPRA members

Until one of these conditions is met, the plan's total PEPRA normal cost will be determined using the entire active plan population (both PEPRA and Classic) based on the PEPRA benefit provisions. For this reason, the PEPRA member contribution rate determined in the table above may not equal 50 percent of the total normal cost of the PEPRA group shown on the "Total Normal Cost by Group" page.

Risk Analysis

- **Future Investment Return Scenarios**
- **Discount Rate Sensitivity**
- **Mortality Rate Sensitivity**
- **Maturity Measures**
- **Maturity Measures History**
- **Hypothetical Termination Liability**

Future Investment Return Scenarios

Analysis was performed to determine the effects of various future investment returns on required employer contributions. The projections below provide a range of results based on five investment return scenarios assumed to occur during the next four fiscal years (2019-20, 2020-21, 2021-22 and 2022-23). The projections also assume that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur.

For fiscal years 2019-20, 2020-21, 2021-22, and 2022-23 each scenario assumes an alternate fixed annual return. The fixed return assumptions for the five scenarios are 1.0 percent, 4.0 percent, 7.0 percent, 9.0 percent and 12.0 percent.

These alternate investment returns were chosen based on stochastic analysis of possible future investment returns over the four-year period ending June 30, 2023. Using the expected returns and volatility of the asset classes in which the funds are invested, we produced five thousand stochastic outcomes for this period based on the recently completed Asset Liability Management process. We then selected annual returns that approximate the 5th, 25th, 50th, 75th, and 95th percentiles for these outcomes. For example, of all the four-year outcomes generated in the stochastic analysis, approximately 25 percent had an average annual return of 4.0 percent or less.

Required contributions outside of this range are also possible. In particular, whereas it is unlikely that investment returns will average less than 1.0 percent or greater than 12.0 percent over a four-year period, the likelihood of a single investment return less than 1.0 percent or greater than 12.0 percent in any given year is much greater.

Assumed Annual Return From 2019-20 through 2022-23	**Projected Employer Contributions**			
	2022-23	**2023-24**	**2024-25**	**2025-26**
1.0%				
Normal Cost	10.3%	10.2%	10.0%	9.9%
UAL Contribution	$4,860,000	$5,427,000	$6,167,000	$6,670,000
4.0%				
Normal Cost	10.3%	10.2%	10.0%	9.9%
UAL Contribution	$4,783,000	$5,199,000	$5,714,000	$5,924,000
7.0%				
Normal Cost	10.3%	10.2%	10.0%	9.9%
UAL Contribution	$4,705,000	$4,966,000	$5,243,000	$5,131,000
9.0%				
Normal Cost	10.5%	10.6%	10.8%	11.0%
UAL Contribution	$4,659,000	$4,843,000	$5,011,000	$4,754,000
12.0%				
Normal Cost	10.5%	10.6%	10.8%	11.0%
UAL Contribution	$4,583,000	$4,605,000	$4,515,000	$3,894,000

These projections reflect recent changes to the amortization policy effective with the June 30, 2019 valuation as well as the impact of the CalPERS risk mitigation policy (which reduces the discount rate when investment returns exceed specified trigger points). The projected normal cost percentages reflect that normal cost will continue to decline over time as new employees are hired into PEPRA or other lower-cost benefit tiers.

Discount Rate Sensitivity

The discount rate assumption is calculated as the sum of the assumed real rate of return and the assumed annual price inflation, currently 4.50 percent and 2.50 percent, respectively. Changing either the price inflation assumption or the real rate of return assumption will change the discount rate. The sensitivity of the valuation results to the discount rate assumption depends on which component of the discount rate is changed. Shown below are various valuation results as of June 30, 2019 assuming alternate discount rates by changing the two components independently. Results are shown using the current discount rate of 7.0 percent as well as alternate discount rates of 6.0 percent and 8.0 percent. The rates of 6.0 percent and 8.0 percent were selected since they illustrate the impact of a 1.0 percent increase or decrease to the 7.0 percent assumption.

Sensitivity to the Real Rate of Return Assumption

As of June 30, 2019	1% Lower Real Return Rate	Current Assumptions	1% Higher Real Return Rate
Discount Rate	**6.0%**	**7.0%**	**8.0%**
Inflation	2.5%	2.5%	2.5%
Real Rate of Return	**3.5%**	**4.5%**	**5.5%**
a) Total Normal Cost	22.62%	18.07%	14.60%
b) Accrued Liability	$179,211,697	$159,124,986	$142,378,392
c) Market Value of Assets	$103,764,050	$103,764,050	$103,764,050
d) Unfunded Liability/(Surplus) [(b) - (c)]	$75,447,647	$55,360,936	$38,614,342
e) Funded Status	57.9%	65.2%	72.9%

Sensitivity to the Price Inflation Assumption

As of June 30, 2019	1% Lower Inflation Rate	Current Assumptions	1% Higher Inflation Rate
Discount Rate	**6.0%**	**7.0%**	**8.0%**
Inflation	**1.5%**	**2.5%**	**3.5%**
Real Rate of Return	4.5%	4.5%	4.5%
a) Total Normal Cost	19.30%	18.07%	16.63%
b) Accrued Liability	$167,096,817	$159,124,986	$148,179,676
c) Market Value of Assets	$103,764,050	$103,764,050	$103,764,050
d) Unfunded Liability/(Surplus) [(b) - (c)]	$63,332,767	$55,360,936	$44,415,626
e) Funded Status	62.1%	65.2%	70.0%

Mortality Rate Sensitivity

The following table looks at the change in the June 30, 2019 plan costs and funded ratio under two different longevity scenarios, namely assuming rates of mortality are 10 percent lower or 10 percent higher than our current mortality assumptions. This type of analysis highlights the impact on the plan of improving or worsening mortality over the long-term.

As of June 30, 2019	10% Lower Mortality Rates	Current Assumptions	10% Higher Mortality Rates
a) Total Normal Cost	18.40%	18.07%	17.77%
b) Accrued Liability	$162,521,486	$159,124,986	$155,996,253
c) Market Value of Assets	$103,764,050	$103,764,050	$103,764,050
d) Unfunded Liability/(Surplus) [(b) - (c)]	$58,757,436	$55,360,936	$52,232,203
e) Funded Status	63.8%	65.2%	66.5%

Maturity Measures

As pension plans mature they become more sensitive to risks. Understanding plan maturity and how it affects the ability of a pension plan to tolerate risk is important in understanding how the plan is impacted by investment return volatility, other economic variables and changes in longevity or other demographic assumptions. One way to look at the maturity level of CalPERS and its plans is to look at the ratio of a plan's retiree liability to its total liability. A pension plan in its infancy will have a very low ratio of retiree liability to total liability. As the plan matures, the ratio increases. A mature plan will often have a ratio above 60-65 percent.

Ratio of Retiree Accrued Liability to Total Accrued Liability	**June 30, 2018**	**June 30, 2019**
1. Retiree Accrued Liability	93,046,846	100,405,690
2. Total Accrued Liability	151,708,586	159,124,986
3. Ratio of Retiree AL to Total AL [(1) / (2)]	61%	63%

Another measure of the maturity level of CalPERS and its plans is the ratio of actives to retirees, also called Support Ratio. A pension plan in its infancy will have a very high ratio of active to retired members. As the plan matures, and members retire, the ratio declines. A mature plan will often have a ratio near or below one. The average support ratio for CalPERS public agency plans is 1.25.

Support Ratio	**June 30, 2018**	**June 30, 2019**
1. Number of Actives	137	137
2. Number of Retirees	185	193
3. Support Ratio [(1) / (2)]	0.74	0.71

The actuarial calculations supplied in this communication are based on various assumptions about long-term demographic and economic behavior. Unless these assumptions (e.g., terminations, deaths, disabilities, retirements, salary growth, 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 required employer contributions from one year to the next. Therefore, employer contributions will inevitably fluctuate, especially due to the ups and downs of investment returns.

Asset Volatility Ratio

Shown in the table below is the asset volatility ratio (AVR), which is the ratio of market value of assets to payroll. Plans that have a higher AVR experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with AVR of 8 may experience twice the contribution volatility due to investment return volatility than a plan with AVR of 4. It should be noted that this ratio is a measure of the current situation. It increases over time but generally tends to stabilize as a plan matures.

Liability Volatility Ratio

Also shown in the table below is the liability volatility ratio (LVR), which is the ratio of accrued liability to payroll. Plans that have a higher LVR experience more volatile employer contributions (as a percentage of payroll) due to changes in liability. For example, a plan with LVR of 8 is expected to have twice the contribution volatility of a plan with LVR of 4 when there is a change in accrued liability, such as when there is a change in actuarial assumptions. It should be noted that this ratio indicates a longer-term potential for contribution volatility, since the AVR, described above, will tend to move closer to the LVR as the funded status approaches 100 percent.

Maturity Measures (continued)

Contribution Volatility	June 30, 2018	June 30, 2019
1. Market Value of Assets without Receivables	$99,240,618	$103,475,877
2. Payroll	16,167,849	16,962,578
3. Asset Volatility Ratio (AVR) [(1) / (2)]	6.1	6.1
4. Accrued Liability	$151,708,586	$159,124,986
5. Liability Volatility Ratio (LVR) [(4) / (2)]	9.4	9.4

Maturity Measures History

Valuation Date	Ratio of Retiree Accrued Liability to Total Accrued Liability	Support Ratio	Asset Volatility Ratio	Liability Volatility Ratio
06/30/17	62%	0.75	6.2	9.2
06/30/18	61%	0.74	6.1	9.4
06/30/19	63%	0.71	6.1	9.4

Hypothetical Termination Liability

The hypothetical termination liability is an estimate of the financial position of the plan had the contract with CalPERS been terminated as of June 30, 2019. The plan liability on a termination basis is calculated differently from 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 assumed. This measure of funded status is not appropriate for assessing the need for future employer contributions in the case of an ongoing plan, that is, for an employer that continues to provide CalPERS retirement benefits to active employees.

A more conservative investment policy and asset allocation strategy was adopted by the CalPERS Board for the Terminated Agency Pool. The Terminated Agency Pool has limited funding sources since no future employer contributions will be made. Therefore, expected benefit payments are secured by risk-free assets and benefit security for members is increased while limiting the funding risk. However, this asset allocation has a lower expected rate of return than the PERF and consequently, a lower discount rate assumption. 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 an approximate 19-month period from 12 months before the valuation date to 7 months after.

Market Value of Assets (MVA)	Hypothetical Termination Liability[1,2] @ 1.75%	Funded Status	Unfunded Termination Liability @ 1.75%	Hypothetical Termination Liability[1,2] @ 3.25%	Funded Status	Unfunded Termination Liability @ 3.25%
$103,764,050	$305,955,039	33.9%	$202,190,989	$248,810,383	41.7%	$145,046,333

1 The hypothetical liabilities calculated above include a 5 percent contingency load in accordance with Board policy. Other actuarial 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 2.31 percent on June 30, 2019, and was 1.83 percent on January 31, 2020.

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

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

Appendices

- **Appendix A – Actuarial Methods and Assumptions**
- **Appendix B – Principal Plan Provisions**
- **Appendix C – Participant Data**
- **Appendix D – 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 generally do not have a material impact on the required employer contributions.

Actuarial Methods

Actuarial Cost Method

The actuarial cost method used is the Entry Age Actuarial 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 percentage of pay in each year from the member's entry age to their assumed retirement age on the valuation date. 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 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.

Amortization of Unfunded Actuarial Accrued Liability

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 a payment toward the UAL. The UAL payment is equal to the sum of individual amortization payments, each representing a different source of UAL for a given measurement period.

Amortization payments are determined according to the CalPERS amortization policy. The CalPERS Board adopted a new policy effective for the June 30, 2019 actuarial valuation. The new policy applies prospectively only; amortization bases (sources of UAL) established prior to the June 30, 2019 valuation will continue to be amortized according to the prior policy.

Prior Policy (Bases Established prior to June 30, 2019)

Amortization payments are determined as a level percentage of payroll whereby the payment increases each year at an escalation rate. Gains or losses are 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) are amortized over a 20-year period with no ramp. Changes in actuarial assumptions or changes in actuarial methodology are amortized 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 five years. Bases established prior to June 30, 2013 may be amortized differently. A summary is provided in the following table:

Driver	Source				
	(Gain)/Loss		Assumption/Method Change	Benefit Change	Golden Handshake
	Investment	Non-investment			
Amortization Period	30 Years	30 Years	20 Years	20 Years	5 Years
Escalation Rate - Active Plans - Inactive Plans	 2.75% 0%	 2.75% 0%	 2.75% 0%	 2.75% 0%	 2.75% 0%
Ramp Up	5	5	5	0	0
Ramp Down	5	5	5	0	0

The 5-year ramp up means that the payments in the first four years of the amortization period are 20 percent, 40 percent, 60 percent and 80 percent of the "full" payment which begins in year five. The 5-year ramp down means that the reverse is true in the final four years of the amortization period.

Current Policy (Bases Established on or after June 30, 2019)

Amortization payments are determined as a level dollar amount. Investment gains or losses are amortized over a fixed 20-year period with a 5-year ramp up at the beginning of the amortization period. Non-investment gains or losses are amortized over a fixed 20-year period with no ramps. All changes in liability due to plan amendments (other than golden handshakes) are amortized over a 20-year period with no ramps. Changes in actuarial assumptions or changes in actuarial methodology are amortized over a 20-year period with no ramps. Changes in unfunded accrued liability due to a Golden Handshake are amortized over a period of five years. A summary is provided in the table below:

	Source				
	(Gain)/Loss		Assumption/ Method Change	Benefit Change	Golden Handshake
	Investment	Non-investment			
Amortization Period	20 Years	20 Years	20 Years	20 Years	5 Years
Escalation Rate	0%	0%	0%	0%	0%
Ramp Up	5	0	0	0	0
Ramp Down	0	0	0	0	0

Exceptions for Inconsistencies

An exception to the amortization rules above is used whenever their application results in inconsistencies. In these cases, a "fresh start" approach is used. This means that the current unfunded actuarial liability is projected and amortized over a set number of years. For example, a fresh start is needed in the following situations:

- When a negative payment would be required on a positive unfunded actuarial liability; or
- When the payment would completely amortize the total unfunded liability in a very short time period, and results in a large change in the employer contribution requirement.

It should be noted that the actuary may determine that a fresh start is necessary under other circumstances. In all cases of a fresh start, the period is set by the actuary at what is deemed appropriate; however, the period will not be greater than 20 years.

Exceptions for Plans in Surplus

If a surplus exists (i.e. the Market Value of Assets exceeds the plan's accrued liability) any prior amortization layers shall be considered fully amortized, and the surplus shall not be amortized.

In the event of any subsequent unfunded liability, a Fresh Start shall be used with an amortization period of 20 years or less.

Exceptions for Small Amounts

Where small unfunded liabilities are identified in annual valuations which result in small payment amounts, the actuary may shorten the remaining period for these bases.

- When the balance of a single amortization base has an absolute value less than $250, the amortization period is reduced to one year.
- When the entire unfunded liability is a small amount the actuary may perform a Fresh Start and use an appropriate amortization period.

Exceptions for Inactive Plans:

The following exceptions apply to plans classified as Inactive. These plans have no active members and no expectation to have active members in the future.

- Amortization of the unfunded liability is on a "level dollar" basis rather than a "level percent of pay" basis. For amortization layers, which utilize a ramp up and ramp down, the "ultimate" payment is constant.
- Actuarial judgment will be used to shorten amortization periods for Inactive plans with existing periods that are deemed too long given the duration of the liability. The specific demographics of the plan will be used to determine if shorter periods may be more appropriate.

Exceptions for Inactive Agencies

For a public agency with no active members in any CalPERS rate plan, the unfunded liability shall be amortized over a closed amortization period of no more than 15 years.

Asset Valuation Method

The Actuarial Value of Assets is set equal to the Market value of assets. Asset values include accounts receivable.

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.

For purposes of setting member rates, it is preferable to determine total normal cost using a large active population so that the rate remains relatively stable. While each CalPERS non-pooled plan has a sufficiently large active population for this purpose, the PEPRA active population by itself may not be sufficiently large. The total PEPRA normal cost will be determined based on the plan's PEPRA membership only if the number of members covered under the PEPRA formula meets either:

1. 50 percent of the active population, or
2. 25 percent of the active population and 100 or more PEPRA members

Until one of these conditions is met, the plan's total PEPRA normal cost will be determined using the entire active plan population (both PEPRA and Classic) based on the PEPRA benefit provisions.

Actuarial Assumptions

In 2017, CalPERS completed its most recent asset liability management study incorporating actuarial assumptions and strategic asset allocation. In December 2017, the CalPERS Board of Administration adopted relatively modest changes to the asset allocation that reduced the expected volatility of returns. The adopted asset allocation was expected to have a long-term blended return that continued to support a discount rate assumption of 7.00 percent. The Board also approved several changes to the demographic assumptions that more closely aligned with actual experience.

On December 21, 2016, the CalPERS Board of Administration lowered the discount rate from 7.50 percent to 7.00 percent using a three-year phase-in beginning with the June 30, 2016 actuarial valuations. The minimum employer contributions for fiscal year 2021-22 determined in this valuation were calculated using a discount rate of 7.00 percent. The decision to reduce the discount rate was primarily based on reduced capital market assumptions provided by external investment consultants and CalPERS investment staff. The specific decision adopted by the Board reflected recommendations from CalPERS staff and additional input from employer and employee stakeholder groups. Based on the investment allocation adopted by the Board and capital market assumptions, the reduced discount rate schedule provides a more realistic assumption for the long-term investment return of the fund.

Notwithstanding the Board's decision to phase into a 7.0 percent discount rate, subsequent analysis of the expected investment return of CalPERS assets or changes to the investment allocation may result in a change to this discount rate schedule.

For more details and additional rationale for the selection of the actuarial assumptions, please refer to the CalPERS Experience Study and Review of Actuarial Assumptions report from December 2017 that can be found on the CalPERS website under: "Forms and Publications". Click on "View All" and search for Experience Study.

All actuarial assumptions (except the discount rates used for the hypothetical termination liability) represent an estimate of future experience rather than observations of the estimates inherent in market data.

Economic Assumptions

Discount Rate

The prescribed discount rate assumption, adopted by the Board on December 21, 2016, is 7.00 percent compounded annually (net of investment and administrative expenses) as of June 30, 2019.

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.

The hypothetical termination liabilities in this report are calculated using an observed range of market interest rates. This range is based on the lowest and highest 20-year Treasury bond observed during an approximate 19-month period from 12 months before the valuation date to 7 months after. The 20-year Treasury bond has a similar duration to most plan liabilities and serves as a good proxy for the termination discount rate. The 20-year Treasury yield was 2.31 percent on June 30, 2019.

Salary Growth

Annual increases vary by category, entry age, and duration of service. A sample of assumed increases are shown below. Wage inflation assumption in the valuation year (2.75% for 2019) is added to these factors for total salary growth.

Public Agency Miscellaneous

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.0850	0.0775	0.0650
1	0.0690	0.0635	0.0525
2	0.0560	0.0510	0.0410
3	0.0470	0.0425	0.0335
4	0.0400	0.0355	0.0270
5	0.0340	0.0295	0.0215
10	0.0160	0.0135	0.0090
15	0.0120	0.0100	0.0060
20	0.0090	0.0075	0.0045
25	0.0080	0.0065	0.0040
30	0.0080	0.0065	0.0040

Public Agency Fire

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.1700	0.1700	0.1700
1	0.1100	0.1100	0.1100
2	0.0700	0.0700	0.0700
3	0.0580	0.0580	0.0580
4	0.0473	0.0473	0.0473
5	0.0372	0.0372	0.0372
10	0.0165	0.0165	0.0165
15	0.0144	0.0144	0.0144
20	0.0126	0.0126	0.0126
25	0.0111	0.0111	0.0111
30	0.0097	0.0097	0.0097

Public Agency Police

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.1027	0.1027	0.1027
1	0.0803	0.0803	0.0803
2	0.0628	0.0628	0.0628
3	0.0491	0.0491	0.0491
4	0.0384	0.0384	0.0384
5	0.0300	0.0300	0.0300
10	0.0145	0.0145	0.0145
15	0.0150	0.0150	0.0150
20	0.0155	0.0155	0.0155
25	0.0160	0.0160	0.0160
30	0.0165	0.0165	0.0165

Salary Growth (continued)

Public Agency County Peace Officers

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.1320	0.1320	0.1320
1	0.0960	0.0960	0.0960
2	0.0657	0.0657	0.0657
3	0.0525	0.0525	0.0525
4	0.0419	0.0419	0.0419
5	0.0335	0.0335	0.0335
10	0.0170	0.0170	0.0170
15	0.0150	0.0150	0.0150
20	0.0150	0.0150	0.0150
25	0.0175	0.0175	0.0175
30	0.0200	0.0200	0.0200

Schools

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.0428	0.0419	0.0380
1	0.0428	0.0419	0.0380
2	0.0428	0.0419	0.0380
3	0.0354	0.0332	0.0280
4	0.0305	0.0279	0.0224
5	0.0262	0.0234	0.0180
10	0.0171	0.0154	0.0112
15	0.0152	0.0134	0.0098
20	0.0135	0.0117	0.0086
25	0.0120	0.0103	0.0076
30	0.0087	0.0071	0.0048

- 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

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

Inflation

2.50 percent compounded annually.

Non-valued Potential Additional Liabilities

The potential liability loss for a cost-of-living increase exceeding the 2.50 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 adopted the provision of 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 5 percent contingency load. This load is for unforeseen negative experience.

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	0.00022	0.00007	0.00004
25	0.00029	0.00011	0.00006
30	0.00038	0.00015	0.00007
35	0.00049	0.00027	0.00009
40	0.00064	0.00037	0.00010
45	0.00080	0.00054	0.00012
50	0.00116	0.00079	0.00013
55	0.00172	0.00120	0.00015
60	0.00255	0.00166	0.00016
65	0.00363	0.00233	0.00018
70	0.00623	0.00388	0.00019
75	0.01057	0.00623	0.00021
80	0.01659	0.00939	0.00022

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	0.00372	0.00346	0.01183	0.01083	0.00372	0.00346
55	0.00437	0.00410	0.01613	0.01178	0.00437	0.00410
60	0.00671	0.00476	0.02166	0.01404	0.00671	0.00476
65	0.00928	0.00637	0.02733	0.01757	0.01113	0.00765
70	0.01339	0.00926	0.03358	0.02183	0.01607	0.01111
75	0.02316	0.01635	0.04277	0.02969	0.02779	0.01962
80	0.03977	0.03007	0.06272	0.04641	0.04773	0.03609
85	0.07122	0.05418	0.09793	0.07847	0.08547	0.06501
90	0.13044	0.10089	0.14616	0.13220	0.14348	0.11098
95	0.21658	0.17698	0.21658	0.21015	0.21658	0.17698
100	0.32222	0.28151	0.32222	0.32226	0.32222	0.28151
105	0.46691	0.43491	0.46691	0.43491	0.46691	0.43491
110	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The post-retirement mortality rates above include 15 years of projected on-going mortality improvement using 90 percent of Scale MP 2016 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	70%
Local Police	85%
Local Fire	90%
Other Local Safety	70%
School Police	85%
Local County Peace Officers	75%

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 retire at age 59 for Miscellaneous members and age 54 for safety members.

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	0.1298	0.1013	0.1188
1	0.0674	0.0636	0.0856
2	0.0320	0.0271	0.0617
3	0.0237	0.0258	0.0445
4	0.0087	0.0245	0.0321
5	0.0052	0.0086	0.0121
10	0.0005	0.0053	0.0053
15	0.0004	0.0027	0.0025
20	0.0003	0.0017	0.0012
25	0.0002	0.0012	0.0005
30	0.0002	0.0009	0.0003
35	0.0001	0.0009	0.0002

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	0.2107	0.2107	0.1827	0.1546	0.1375	0.1203
1	0.1807	0.1807	0.1526	0.1246	0.1105	0.0963
2	0.1526	0.1526	0.1259	0.0992	0.0878	0.0765
3	0.1266	0.1266	0.1023	0.0780	0.0691	0.0603
4	0.1026	0.1026	0.0815	0.0605	0.0537	0.0469
5	0.0808	0.0808	0.0634	0.0461	0.0409	0.0358
10	0.0202	0.0202	0.0157	0.0112	0.0087	0.0063
15	0.0107	0.0107	0.0077	0.0048	0.0034	0.0021
20	0.0056	0.0056	0.0037	0.0017	0.0016	0.0016
25	0.0026	0.0026	0.0018	0.0009	0.0012	0.0015
30	0.0013	0.0013	0.0011	0.0009	0.0012	0.0015
35	0.0008	0.0008	0.0009	0.0009	0.0012	0.0015

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	0.0422	0.0422	0.0393	0.0364	0.0344
10	0.0278	0.0278	0.0271	0.0263	0.0215
15	0.0192	0.0192	0.0174	0.0156	0.0120
20	0.0139	0.0139	0.0109	0.0079	0.0047
25	0.0083	0.0083	0.0048	0.0014	0.0007
30	0.0015	0.0015	0.0007	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	0.0094	0.0163	0.0187
10	0.0064	0.0126	0.0134
15	0.0048	0.0082	0.0092
20	0.0038	0.0065	0.0064
25	0.0026	0.0058	0.0042
30	0.0014	0.0056	0.0022
35	0.0000	0.0000	0.0000

- 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	0.0405	0.0405	0.0346	0.0288	0.0264
10	0.0324	0.0324	0.0280	0.0235	0.0211
15	0.0202	0.0202	0.0179	0.0155	0.0126
20	0.0144	0.0144	0.0114	0.0083	0.0042
25	0.0091	0.0091	0.0046	0.0000	0.0000
30	0.0015	0.0015	0.0007	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	0.0001	0.0001
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	0.0004	0.0007	0.0001	0.0003	0.0004	0.0005	0.0004
40	0.0010	0.0014	0.0001	0.0004	0.0007	0.0012	0.0008
45	0.0015	0.0019	0.0002	0.0005	0.0013	0.0020	0.0017
50	0.0016	0.0020	0.0005	0.0008	0.0018	0.0026	0.0022
55	0.0016	0.0015	0.0007	0.0013	0.0010	0.0025	0.0018
60	0.0015	0.0011	0.0007	0.0020	0.0006	0.0022	0.0011

- 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	0.0002	0.0017	0.0013
30	0.0006	0.0048	0.0025
35	0.0012	0.0079	0.0037
40	0.0023	0.0110	0.0051
45	0.0040	0.0141	0.0067
50	0.0208	0.0185	0.0092
55	0.0307	0.0479	0.0151
60	0.0438	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.

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	0.020	0.020	0.020	0.020	0.020	0.150
51	0.006	0.019	0.027	0.031	0.035	0.038
52	0.011	0.024	0.031	0.034	0.037	0.040
53	0.010	0.015	0.021	0.027	0.033	0.040
54	0.025	0.025	0.029	0.035	0.041	0.048
55	0.019	0.026	0.033	0.092	0.136	0.146
56	0.030	0.034	0.038	0.060	0.093	0.127
57	0.030	0.046	0.061	0.076	0.090	0.104
58	0.040	0.044	0.059	0.080	0.101	0.122
59	0.024	0.044	0.063	0.083	0.103	0.122
60	0.070	0.074	0.089	0.113	0.137	0.161
61	0.080	0.086	0.093	0.118	0.156	0.195
62	0.100	0.117	0.133	0.190	0.273	0.357
63	0.140	0.157	0.173	0.208	0.255	0.301
64	0.140	0.153	0.165	0.196	0.239	0.283
65	0.140	0.178	0.215	0.264	0.321	0.377
66	0.140	0.178	0.215	0.264	0.321	0.377
67	0.140	0.178	0.215	0.264	0.321	0.377
68	0.112	0.142	0.172	0.211	0.257	0.302
69	0.112	0.142	0.172	0.211	0.257	0.302
70	0.140	0.178	0.215	0.264	0.321	0.377

Service Retirement

Public Agency Miscellaneous 2% @ 55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.008	0.013	0.018	0.021	0.022	0.033
51	0.009	0.016	0.020	0.023	0.026	0.036
52	0.015	0.018	0.020	0.021	0.025	0.030
53	0.016	0.020	0.024	0.028	0.031	0.035
54	0.018	0.022	0.026	0.030	0.034	0.038
55	0.040	0.040	0.056	0.093	0.109	0.154
56	0.034	0.050	0.066	0.092	0.107	0.138
57	0.042	0.048	0.058	0.082	0.096	0.127
58	0.046	0.054	0.062	0.090	0.106	0.131
59	0.045	0.055	0.066	0.097	0.115	0.144
60	0.058	0.075	0.093	0.126	0.143	0.169
61	0.065	0.088	0.111	0.146	0.163	0.189
62	0.136	0.118	0.148	0.190	0.213	0.247
63	0.130	0.133	0.174	0.212	0.249	0.285
64	0.113	0.129	0.165	0.196	0.223	0.249
65	0.145	0.173	0.201	0.233	0.266	0.289
66	0.170	0.199	0.229	0.258	0.284	0.306
67	0.250	0.204	0.233	0.250	0.257	0.287
68	0.227	0.175	0.193	0.215	0.240	0.262
69	0.200	0.180	0.180	0.198	0.228	0.246
70	0.150	0.171	0.192	0.239	0.304	0.330

Public Agency Miscellaneous 2.5% @ 55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.008	0.014	0.020	0.026	0.033	0.050
51	0.008	0.015	0.023	0.030	0.037	0.059
52	0.009	0.016	0.023	0.030	0.037	0.061
53	0.014	0.021	0.028	0.035	0.042	0.063
54	0.014	0.022	0.030	0.039	0.047	0.068
55	0.020	0.038	0.055	0.073	0.122	0.192
56	0.025	0.047	0.069	0.091	0.136	0.196
57	0.030	0.048	0.065	0.083	0.123	0.178
58	0.035	0.054	0.073	0.093	0.112	0.153
59	0.035	0.054	0.073	0.092	0.131	0.183
60	0.044	0.072	0.101	0.130	0.158	0.197
61	0.050	0.078	0.105	0.133	0.161	0.223
62	0.055	0.093	0.130	0.168	0.205	0.268
63	0.090	0.124	0.158	0.192	0.226	0.279
64	0.080	0.112	0.144	0.175	0.207	0.268
65	0.120	0.156	0.193	0.229	0.265	0.333
66	0.132	0.172	0.212	0.252	0.292	0.366
67	0.132	0.172	0.212	0.252	0.292	0.366
68	0.120	0.156	0.193	0.229	0.265	0.333
69	0.120	0.156	0.193	0.229	0.265	0.333
70	0.120	0.156	0.193	0.229	0.265	0.333

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	0.003	0.010	0.016	0.034	0.033	0.045
51	0.009	0.016	0.023	0.042	0.038	0.047
52	0.015	0.019	0.024	0.040	0.036	0.046
53	0.012	0.020	0.028	0.047	0.046	0.060
54	0.020	0.027	0.035	0.054	0.056	0.073
55	0.033	0.055	0.078	0.113	0.156	0.234
56	0.039	0.067	0.095	0.135	0.169	0.227
57	0.050	0.067	0.084	0.113	0.142	0.198
58	0.043	0.066	0.089	0.124	0.151	0.201
59	0.050	0.070	0.090	0.122	0.158	0.224
60	0.060	0.086	0.112	0.150	0.182	0.238
61	0.071	0.094	0.117	0.153	0.184	0.241
62	0.091	0.122	0.152	0.194	0.226	0.279
63	0.143	0.161	0.179	0.209	0.222	0.250
64	0.116	0.147	0.178	0.221	0.254	0.308
65	0.140	0.174	0.208	0.254	0.306	0.389
66	0.170	0.209	0.247	0.298	0.310	0.324
67	0.170	0.199	0.228	0.269	0.296	0.342
68	0.150	0.181	0.212	0.255	0.287	0.339
69	0.150	0.181	0.212	0.255	0.287	0.339
70	0.150	0.181	0.212	0.243	0.291	0.350

Public Agency Miscellaneous 3% @ 60

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.013	0.019	0.026	0.042	0.038	0.064
51	0.035	0.037	0.039	0.052	0.047	0.062
52	0.023	0.030	0.038	0.055	0.051	0.056
53	0.025	0.032	0.040	0.057	0.056	0.066
54	0.035	0.042	0.050	0.067	0.066	0.076
55	0.040	0.052	0.064	0.085	0.095	0.120
56	0.043	0.056	0.070	0.094	0.102	0.150
57	0.045	0.060	0.074	0.099	0.109	0.131
58	0.053	0.056	0.059	0.099	0.126	0.185
59	0.050	0.068	0.085	0.113	0.144	0.202
60	0.089	0.106	0.123	0.180	0.226	0.316
61	0.100	0.117	0.133	0.212	0.230	0.298
62	0.130	0.155	0.180	0.248	0.282	0.335
63	0.120	0.163	0.206	0.270	0.268	0.352
64	0.150	0.150	0.150	0.215	0.277	0.300
65	0.200	0.242	0.283	0.330	0.300	0.342
66	0.220	0.264	0.308	0.352	0.379	0.394
67	0.250	0.279	0.309	0.338	0.371	0.406
68	0.170	0.196	0.223	0.249	0.290	0.340
69	0.220	0.261	0.302	0.344	0.378	0.408
70	0.220	0.255	0.291	0.326	0.358	0.388

Service Retirement

Public Agency Miscellaneous 2% @ 62

Age	Duration of Service					
	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	0.005	0.008	0.012	0.015	0.019	0.031
53	0.007	0.011	0.014	0.018	0.021	0.032
54	0.007	0.011	0.015	0.019	0.023	0.034
55	0.010	0.019	0.028	0.036	0.061	0.096
56	0.014	0.026	0.038	0.050	0.075	0.108
57	0.018	0.029	0.039	0.050	0.074	0.107
58	0.023	0.035	0.048	0.060	0.073	0.099
59	0.025	0.038	0.051	0.065	0.092	0.128
60	0.031	0.051	0.071	0.091	0.111	0.138
61	0.038	0.058	0.079	0.100	0.121	0.167
62	0.044	0.074	0.104	0.134	0.164	0.214
63	0.077	0.105	0.134	0.163	0.192	0.237
64	0.072	0.101	0.129	0.158	0.187	0.242
65	0.108	0.141	0.173	0.206	0.239	0.300
66	0.132	0.172	0.212	0.252	0.292	0.366
67	0.132	0.172	0.212	0.252	0.292	0.366
68	0.120	0.156	0.193	0.229	0.265	0.333
69	0.120	0.156	0.193	0.229	0.265	0.333
70	0.120	0.156	0.193	0.229	0.265	0.333

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	0.3000
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	0.050	0.050	0.050	0.050	0.050	0.100
51	0.040	0.040	0.040	0.040	0.058	0.094
52	0.040	0.040	0.040	0.040	0.061	0.087
53	0.040	0.040	0.040	0.040	0.082	0.123
54	0.040	0.040	0.040	0.046	0.098	0.158
55	0.072	0.072	0.072	0.096	0.141	0.255
56	0.066	0.066	0.066	0.088	0.129	0.228
57	0.060	0.060	0.060	0.080	0.118	0.213
58	0.080	0.080	0.080	0.088	0.138	0.228
59	0.080	0.080	0.080	0.092	0.140	0.228
60	0.150	0.150	0.150	0.150	0.150	0.228
61	0.144	0.144	0.144	0.144	0.144	0.170
62	0.150	0.150	0.150	0.150	0.150	0.213
63	0.150	0.150	0.150	0.150	0.150	0.213
64	0.150	0.150	0.150	0.150	0.150	0.319
65	1.000	1.000	1.000	1.000	1.000	1.000

- These rates also apply to County Peace officers, 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	0.035	0.035	0.035	0.035	0.070	0.090
51	0.028	0.028	0.028	0.029	0.065	0.101
52	0.032	0.032	0.032	0.039	0.066	0.109
53	0.028	0.028	0.028	0.043	0.075	0.132
54	0.038	0.038	0.038	0.074	0.118	0.333
55	0.070	0.070	0.070	0.120	0.175	0.340
56	0.060	0.060	0.060	0.110	0.165	0.330
57	0.060	0.060	0.060	0.110	0.165	0.320
58	0.080	0.080	0.080	0.100	0.185	0.350
59	0.090	0.090	0.095	0.130	0.185	0.350
60	0.150	0.150	0.150	0.150	0.185	0.350
61	0.120	0.120	0.120	0.120	0.160	0.350
62	0.150	0.150	0.150	0.150	0.200	0.350
63	0.150	0.150	0.150	0.150	0.200	0.400
64	0.150	0.150	0.150	0.150	0.175	0.350
65	1.000	1.000	1.000	1.000	1.000	1.000

- These rates also apply to County Peace officers, 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	0.100	0.155	0.400
51	0.040	0.040	0.040	0.090	0.140	0.380
52	0.040	0.040	0.040	0.070	0.115	0.350
53	0.040	0.040	0.040	0.080	0.135	0.350
54	0.040	0.040	0.040	0.090	0.145	0.350
55	0.070	0.070	0.070	0.120	0.175	0.340
56	0.060	0.060	0.060	0.110	0.165	0.330
57	0.060	0.060	0.060	0.110	0.165	0.320
58	0.080	0.080	0.080	0.100	0.185	0.350
59	0.090	0.090	0.095	0.130	0.185	0.350
60	0.150	0.150	0.150	0.150	0.185	0.350
61	0.120	0.120	0.120	0.120	0.160	0.350
62	0.150	0.150	0.150	0.150	0.200	0.350
63	0.150	0.150	0.150	0.150	0.200	0.400
64	0.150	0.150	0.150	0.150	0.175	0.350
65	1.000	1.000	1.000	1.000	1.000	1.000

- These rates also apply to County Peace officers, 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	0.040	0.040	0.040	0.040	0.040	0.080
51	0.028	0.028	0.028	0.028	0.040	0.066
52	0.028	0.028	0.028	0.028	0.043	0.061
53	0.028	0.028	0.028	0.028	0.057	0.086
54	0.028	0.028	0.028	0.032	0.069	0.110
55	0.050	0.050	0.050	0.067	0.099	0.179
56	0.046	0.046	0.046	0.062	0.090	0.160
57	0.054	0.054	0.054	0.072	0.106	0.191
58	0.060	0.060	0.060	0.066	0.103	0.171
59	0.060	0.060	0.060	0.069	0.105	0.171
60	0.113	0.113	0.113	0.113	0.113	0.171
61	0.108	0.108	0.108	0.108	0.108	0.128
62	0.113	0.113	0.113	0.113	0.113	0.159
63	0.113	0.113	0.113	0.113	0.113	0.159
64	0.113	0.113	0.113	0.113	0.113	0.239
65	1.000	1.000	1.000	1.000	1.000	1.000

- These rates also apply to County Peace officers, 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	0.050	0.050	0.050	0.050	0.050	0.100
51	0.038	0.038	0.038	0.038	0.055	0.089
52	0.038	0.038	0.038	0.038	0.058	0.082
53	0.036	0.036	0.036	0.036	0.073	0.111
54	0.036	0.036	0.036	0.041	0.088	0.142
55	0.061	0.061	0.061	0.082	0.120	0.217
56	0.056	0.056	0.056	0.075	0.110	0.194
57	0.060	0.060	0.060	0.080	0.118	0.213
58	0.072	0.072	0.072	0.079	0.124	0.205
59	0.072	0.072	0.072	0.083	0.126	0.205
60	0.135	0.135	0.135	0.135	0.135	0.205
61	0.130	0.130	0.130	0.130	0.130	0.153
62	0.135	0.135	0.135	0.135	0.135	0.191
63	0.135	0.135	0.135	0.135	0.135	0.191
64	0.135	0.135	0.135	0.135	0.135	0.287
65	1.000	1.000	1.000	1.000	1.000	1.000

- These rates also apply to County Peace officers, 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	0.0500	0.0500	0.0500	0.0500	0.0500	0.1000
51	0.0400	0.0400	0.0400	0.0400	0.0575	0.0942
52	0.0380	0.0380	0.0380	0.0380	0.0580	0.0825
53	0.0380	0.0380	0.0380	0.0380	0.0774	0.1169
54	0.0380	0.0380	0.0380	0.0437	0.0931	0.1497
55	0.0684	0.0684	0.0684	0.0912	0.1340	0.2423
56	0.0627	0.0627	0.0627	0.0836	0.1228	0.2168
57	0.0600	0.0600	0.0600	0.0800	0.1175	0.2125
58	0.0800	0.0800	0.0800	0.0880	0.1375	0.2275
59	0.0800	0.0800	0.0800	0.0920	0.1400	0.2275
60	0.1500	0.1500	0.1500	0.1500	0.1500	0.2275
61	0.1440	0.1440	0.1440	0.1440	0.1440	0.1700
62	0.1500	0.1500	0.1500	0.1500	0.1500	0.2125
63	0.1500	0.1500	0.1500	0.1500	0.1500	0.2125
64	0.1500	0.1500	0.1500	0.1500	0.1500	0.3188
65	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

- These rates also apply to County Peace officers, 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	0.004	0.007	0.011	0.012	0.013	0.015
51	0.004	0.008	0.011	0.014	0.016	0.017
52	0.005	0.010	0.014	0.016	0.018	0.021
53	0.006	0.012	0.016	0.020	0.022	0.025
54	0.008	0.017	0.023	0.027	0.031	0.034
55	0.021	0.042	0.058	0.069	0.077	0.086
56	0.019	0.037	0.053	0.062	0.069	0.078
57	0.019	0.038	0.054	0.064	0.071	0.079
58	0.022	0.045	0.062	0.074	0.082	0.092
59	0.025	0.049	0.069	0.082	0.090	0.101
60	0.033	0.066	0.092	0.109	0.121	0.135
61	0.037	0.072	0.101	0.119	0.133	0.149
62	0.066	0.131	0.184	0.218	0.242	0.271
63	0.064	0.126	0.178	0.209	0.233	0.261
64	0.059	0.117	0.163	0.193	0.215	0.240
65	0.080	0.158	0.221	0.261	0.291	0.326
66	0.081	0.160	0.224	0.265	0.296	0.330
67	0.070	0.139	0.194	0.229	0.255	0.286
68	0.063	0.124	0.173	0.205	0.228	0.255
69	0.066	0.130	0.183	0.216	0.241	0.270
70	0.071	0.140	0.196	0.231	0.258	0.289

Miscellaneous

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. The Section 415(b) dollar limit for the 2019 calendar year is $225,000.

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. The compensation limit for classic members for the 2019 calendar year is $280,000.

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 Public Employees' Retirement Law. The law itself governs in all situations.

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 $124,180 for 2019 and for those employees that do not participate in Social Security the cap for 2019 is $149,016. 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 and PEPRA safety service retirement benefit is not capped. The classic 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 PEPRA safety 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 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 child(ren) until they attain age 18; or, if no eligible child(ren), 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 credited annually at the greater of 6 percent or the prevailing discount rate through the date of death, 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 child(ren) 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 dependent child(ren), the benefit will be discontinued upon death or attainment of age 18, unless the child(ren) is disabled. The total amount paid will be at least equal to the basic death benefit.

Optional Settlement 2 Death Benefit

This is an optional benefit.

Eligibility

An employee's *eligible survivor* may receive the Optional Settlement 2 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 2 Death benefit.

Benefit

The Optional Settlement 2 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 100 percent to continue to the eligible survivor after the member's death. The allowance is payable as long as the surviving spouse lives, at which time it is continued to any unmarried child(ren) 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 child(ren) 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 child(ren) 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 child(ren) (*eligible* means unmarried child(ren) 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 child(ren) 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 2. (A retiree who elects Optional Settlement 2 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 child(ren) 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 given 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
Miscellaneous, 1.5% at 65	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 classic members (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 CSU 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 with 6 percent interest compounded annually.

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 is required to provide this benefit if the members are 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 may only choose the 4^{th} 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, 2018	June 30, 2019
1. **Active Members**		
a) Counts	137	137
b) Average Attained Age	45.68	45.69
c) Average Entry Age to Rate Plan	35.13	35.33
d) Average Years of Credited Service	10.89	10.65
e) Average Annual Covered Pay	$118,013	$123,814
f) Annual Covered Payroll	16,167,849	16,962,578
g) Projected Annual Payroll for Contribution Year	17,538,714	18,400,827
h) Present Value of Future Payroll	138,229,401	146,084,096
2. **Transferred Members**		
a) Counts	42	40
b) Average Attained Age	50.11	49.91
c) Average Years of Credited Service	5.26	5.45
d) Average Annual Covered Pay	$118,042	$103,743
3. **Terminated Members**		
a) Counts	25	25
b) Average Attained Age	47.84	48.91
c) Average Years of Credited Service	3.06	2.06
d) Average Annual Covered Pay	$62,050	$64,286
4. **Retired Members and Beneficiaries**		
a) Counts	185	193
b) Average Attained Age	68.77	69.37
c) Average Annual Benefits	$39,572	$41,581
5. **Active to Retired Ratio** [(1a) / (4a)]	0.74	0.71

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**	**20-24**	**25+**	**Total**
15-24	1	0	0	0	0	0	1
25-29	7	3	0	0	0	0	10
30-34	8	4	0	0	0	0	12
35-39	14	4	3	2	0	0	23
40-44	9	3	5	5	0	0	22
45-49	2	3	5	3	0	1	14
50-54	3	6	8	3	3	4	27
55-59	2	3	1	4	4	2	16
60-64	1	1	2	2	0	3	9
65 and Over	0	0	0	1	0	2	3
All Ages	**47**	**27**	**24**	**20**	**7**	**12**	**137**

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**	**20-24**	**25+**	**Average Salary**
15-24	$85,811	$0	$0	$0	$0	$0	$85,811
25-29	91,590	134,005	0	0	0	0	104,315
30-34	87,618	107,445	0	0	0	0	94,227
35-39	105,520	133,095	119,389	127,100	0	0	114,001
40-44	116,141	115,666	124,182	157,158	0	0	127,226
45-49	197,037	126,861	133,327	128,221	0	236,786	147,339
50-54	136,673	120,431	118,875	130,321	157,160	158,151	132,543
55-59	123,999	144,610	128,429	131,389	145,529	176,031	141,874
60-64	133,752	120,546	129,632	140,122	0	120,406	128,336
65 and Over	0	0	0	95,326	0	60,085	71,832
Average	**$109,283**	**$124,767**	**$124,350**	**$135,837**	**$150,513**	**$141,903**	**$123,814**

Transferred and Terminated Members

Distribution of Transfers to Other CalPERS Plans by Age, Service, and average Salary

	Years of Service at Valuation Date							
Attained Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**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	1	0	0	0	0	2	30,909
35-39	3	3	0	0	0	0	6	77,772
40-44	3	1	0	0	0	0	4	74,898
45-49	4	3	0	0	0	0	7	88,827
50-54	3	1	0	0	0	1	5	127,971
55-59	6	4	1	1	0	0	12	128,278
60-64	1	2	0	1	0	0	4	130,182
65 and Over	0	0	0	0	0	0	0	0
All Ages	**21**	**15**	**1**	**2**	**0**	**1**	**40**	**$103,743**

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

	Years of Service at Valuation Date							
Attained Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25+**	**Total**	**Average Salary**
15-24	0	0	0	0	0	0	0	$0
25-29	1	0	0	0	0	0	1	31,710
30-34	1	0	0	0	0	0	1	58,956
35-39	2	0	0	0	0	0	2	67,156
40-44	3	1	0	0	0	0	4	93,681
45-49	5	0	0	0	0	0	5	63,245
50-54	4	1	1	0	0	0	6	60,737
55-59	3	1	0	0	0	0	4	59,967
60-64	2	0	0	0	0	0	2	43,462
65 and Over	0	0	0	0	0	0	0	0
All Ages	**21**	**3**	**1**	**0**	**0**	**0**	**25**	**$64,286**

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	0	0	0	0	0	0
50-54	3	1	0	0	0	0	4
55-59	20	2	0	0	0	0	22
60-64	33	1	0	0	0	3	37
65-69	40	1	0	1	0	4	46
70-74	34	1	0	0	0	1	36
75-79	19	1	0	0	0	4	24
80-84	10	1	0	0	0	3	14
85 and Over	6	2	0	0	0	2	10
All Ages	**165**	**10**	**0**	**1**	**0**	**17**	**193**

Distribution of Average Annual Disbursements to 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	0	0	0	0	0	0
50-54	15,654	23,523	0	0	0	0	17,621
55-59	52,829	17,900	0	0	0	0	49,654
60-64	40,372	28,198	0	0	0	35,665	39,661
65-69	36,202	34,570	0	3,449	0	33,416	35,212
70-74	51,535	19,786	0	0	0	129,803	52,827
75-79	41,632	21,759	0	0	0	41,753	40,824
80-84	47,584	8,574	0	0	0	39,781	43,126
85 and Over	36,194	11,288	0	0	0	24,942	28,962
All Ages	**$43,152**	**$19,479**	**$0**	**$3,449**	**$0**	**$41,571**	**$41,581**

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	49	0	0	1	0	7	57
5-9	42	0	0	0	0	5	47
10-14	30	1	0	0	0	3	34
15-19	23	0	0	0	0	0	23
20-24	14	5	0	0	0	1	20
25-29	5	2	0	0	0	1	8
30 and Over	2	2	0	0	0	0	4
All Years	**165**	**10**	**0**	**1**	**0**	**17**	**193**

Distribution of Average Annual Disbursements to 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	$54,480	$0	$0	$3,449	$0	$59,309	$54,177
5-9	37,313	0	0	0	0	19,034	35,369
10-14	38,986	23,523	0	0	0	40,710	38,683
15-19	41,710	0	0	0	0	0	41,710
20-24	37,167	23,671	0	0	0	39,986	33,934
25-29	42,251	15,167	0	0	0	34,248	34,480
30 and Over	11,482	11,288	0	0	0	0	11,385
All Years	**$43,152**	**$19,479**	**$0**	**$3,449**	**$0**	**$41,571**	**$41,581**

* 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 C-1 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

Glossary of Actuarial Terms

Glossary of Actuarial Terms

Accrued Liability *(also called Actuarial Accrued Liability or Entry Age Actuarial 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, 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, method changes, and/or gains and losses.

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
The assumed long-term rate of return on plan assets. This is the rate at which projected cash flows are discounted to the valuation date to determine Accrued Liability. This assumption is called "investment return" in earlier CalPERS reports and "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 Actuarial 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 percent means the plan or risk pool has more assets than liabilities and a ratio less than 100 percent means liabilities are greater than assets.

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

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.

Unfunded Accrued 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 Accrued Liability (or unfunded liability). If the unfunded liability is positive, the plan or pool will have to pay contributions exceeding the Normal Cost.

UNION SANITARY DISTRICT

OCTOBER 12, 2020
BOARD OF DIRECTORS MEETING
AGENDA ITEM #14

TITLE: **Consider Fourth Amended and Restated Employment Agreement between Union Sanitary District and Paul R. Eldredge** ***(This is a Motion Item)***

SUBMITTED: Karen W. Murphy, General Counsel
Gene Boucher, Human Resources Manager

Recommendation

It is recommended that the Board approve the Fourth Amended and Restated Employment Agreement in the form attached.

Discussion

Section 4 of the current Amended and Restated Employment Agreement between the District and General Manager Paul R. Eldredge provides that the General Manager's base salary may be annually adjusted and that the General Manager may receive performance bonuses following his performance evaluation. Section 13(A) provides that the Board agrees to review the Manager's total compensation each year.

On September 14, the Board appointed an ad hoc subcommittee of President Handley and Director Toy to negotiate any contract amendments with Mr. Eldredge. The Board of Directors conducted Mr. Eldredge's 2020 annual performance evaluation on September 23 and October 1. On October 1, the Board also met with its designated ad hoc subcommittee.

The following amendments were agreed upon: (1) an increase in the General Manager's salary to $300,229.16, or approximately 3.25 percent; and (2) a one-time payment of $5,000.00.

The attached Fourth Amended and Restated Employment Agreement incorporates these revisions in one comprehensive agreement for ease of reference, similar to the prior Amended and Restated Employment Agreements. In addition, the attached agreement includes a couple of additional clarifying revisions. Revisions from the Third Amendment and Restated Employment Agreement are shown in the attached redline.

Previous Board Action

10/28/19 - The Board approved a Third Amended and Restated Employment Agreement with Paul R. Eldredge

Background

The Union Sanitary District entered into an Employment Agreement with Paul Eldredge to serve as General Manager/District Engineer on June 25, 2014.

The Employment Agreement was amended on September 28, 2015, to remove the automobile allowance and incorporate such amount into Mr. Eldredge's base salary, and to increase Mr. Eldredge's salary by $7,250.00, or approximately three percent.

The Employment Agreement was amended a second time on November 14, 2016, to: (1) remove the termination date; (2) provide for a salary increase to $261,697.25, or approximately three percent; and (3) increase matching deferred compensation from $4,200.00 to $14,363.00 annually.

On October 23, 2017, District and Manager entered into an Amended and Restated Employment Agreement to incorporate all amendments into one complete and conforming Amended and Restated Employment Agreement and to increase Manager's salary to $275,436.09, or approximately five and a quarter percent.

On January 14, 2019, District and Manager entered into a Second Amended and Restated Employment Agreement, which (1) increased Manager's salary to $279,595.04, or approximately one and a half percent; (2) provided Manager with a one-time payment of $9,641.21, which will not be subject to PERS; and (3) provided Manager with a one-time contribution of 50 vacation hours

On October 28, 2019, District and Manager entered into a Third Amended and Restated Employment Agreement which: (1) increased Manager's salary to $290,778.85, or approximately four percent; and (2) provided Manager with a one-time payment of $8,387.85, which will not be subject to PERS.

Attachments:

- Fourth Amended and Restated Employment Agreement
- Redline between Third and Fourth Amended and Restated Employment Agreement

FOURTH AMENDED AND RESTATED EMPLOYMENT AGREEMENT

THIS FOURTH AMENDED AND RESTATED EMPLOYMENT AGREEMENT (the "**Agreement**") is made and entered into on _______, 2020, by and between the UNION SANITARY DISTRICT, a public sanitary district ("**USD**" or "**District**") and PAUL R. ELDREDGE (the "**Manager**").

Recitals

A. USD desires to employ the services of Manager as General Manager and District Engineer of USD.

B. It is the desire of the Board of Directors of Union Sanitary District (the "**Board**"), to provide certain benefits, establish certain conditions of employment and to set working conditions of said Manager.

C. It is the desire of USD to (1) retain the services of Manager and to provide inducement for him to remain in such employment; (2) make possible full work productivity by assuring Manager's morale and peace of mind with respect to future security; and, (3) provide a means of USD terminating Manager's employment if so desired.

D. Manager desires to accept employment as General Manager and District Engineer of Union Sanitary District.

E. District and Manager entered into that certain Employment Agreement dated June 25, 2014, wherein District hired Manager and Manager accepted employment as General Manager and District Engineer of Union Sanitary District (the "**Employment Agreement**").

F. The Employment Agreement was amended by that certain First Amendment to Employment Agreement between USD and Manager dated as of September 28, 2015 (the "**First Amendment**"). The First Amendment removed Manager's automobile allowance and incorporated such amount into Manager's base salary, and increased Manager's salary by $7,250.00, or approximately three percent.

G. The Employment Agreement as amended by the First Amendment was thereafter amended by that certain Second Amendment to Employment Agreement between USD and Manager dated as of November 14, 2016 (the "**Second Amendment**"). The Second Amendment (1) removed the termination date; (2) increased Manager's salary to $261,697.25, or approximately three percent; and (3) increased Manager's deferred compensation from $4,200.00 to $14,363.00 annually.

H. On October 23, 2017, District and Manager entered into an Amended and Restated Employment Agreement to incorporate all amendments in one complete and conforming Amended and Restated Employment Agreement and to increase Manager's salary to $275,436.09, or approximately five and a quarter percent ("**Amended and Restated Agreement**").

I. On January 14, 2019, District and Manager entered into a Second Amended and Restated Employment Agreement, which (1) increased Manager's salary to $279,595.04, or approximately one and a half percent; (2) provided Manager with a one-time payment of $9,641.21, which will not be subject to PERS; and (3) provided Manager with a one-time contribution of 50 vacation hours ("**Second Amended and Restated Agreement**").

J. On October 28, 2019, District and Manager entered into that certain Third Amended and Restated Employment Agreement which: (1) increased Manager's salary to $290,778.85, or approximately four percent; and (2) provided Manager with a one-time payment of $8,387.85, which will not be subject to PERS ("**Third Amended and Restated Agreement**").

K. District and Manager now desire to enter into a Fourth Amended and Restated Employment Agreement to: (1) increase Manager's salary to $300,229.16, or approximately 3.25 percent; and (2) provide Manager with a one-time payment of $5,000.00, which will not be subject to PERS.

NOW, THEREFORE, in consideration of the mutual covenants herein contained, the parties agree as follows:

Section 1. Duties.

USD hereby agrees to employ Manager as General Manager and District Engineer of Union Sanitary District to perform the functions and duties of the chief executive officer at the District as specified in the regulations of USD, the Health and Safety Code and the Government Code of the State of California, and to perform other legally permissible and proper duties and functions as the Board shall from time and time assign.

Section 2. Term.

This Agreement is for a term commencing on August 11, 2014, and shall continue and remain in full force and effect until terminated by either party in the manner provided herein. Nothing in this Agreement shall prevent, limit or otherwise interfere with (a) Manager's at-will status; (b) the right of the Board to terminate the services of Manager as provided herein; and (c) the right of Manager to resign from his position as provided herein.

Section 3. Termination and Severance Pay.

A. In the event that Manager is terminated by a majority vote of the Board while Manager continues to be willing and able to perform his duties under the Agreement, USD agrees to pay Manager equal payments over an agreed upon period of time equal to Manager's monthly salary multiplied by nine (9). Manager shall also be compensated for all accrued vacation time. The District agrees to continue medical, dental and vision benefits for six (6) months. Such severance pay and benefits shall not be due or payable if the Manager is terminated for willful misconduct, dishonesty, or fraud in office; willing destruction, theft, misappropriation or misuse of District property; or after being convicted of a felony; or any action involving moral turpitude. However, if Manager is terminated by a majority vote of the Board because of his commission of a felony, an act or action which constitutes moral turpitude for personal gain to him, is not in good standing due to acts which bring potential civil liability to the District or is unwilling or unable to adequately perform the duties of a General Manager, then in any of these events, USD shall have no obligation to pay the aggregate severance sum designated in this paragraph. It is specifically agreed that Manager serves at the pleasure of the Board as an at-will employee, subject to the termination and severance provisions contained herein.

B. Except for a termination involving the commission of any illegal act, or falling to remain in good standing as set forth in Section 3 A, above, the Manager may not be terminated by the USD within the three' (3) months preceding or following a General Election where one or more Board seats are contested on the ballot of such election (the "**election cool-off period**").

C. In the event the District terminates Manager for cause, the District and the Manager agree that neither Party shall make any written or oral statements to members of the public or press concerning the Manager's termination which are not factual, or which are of a slanderous nature.

D. If Manager is permanently disabled or is otherwise unable to perform his duties because of sickness, accident, injury, or mental incapacity for a period in excess of 6 months, the District shall have the option to terminate this agreement without further payment of compensation and benefits (except as required by State or Federal Law). Disability will preclude severance benefits.

Section 4. Salary.

USD agrees to pay Manager for his services rendered pursuant hereto an annual base salary of $241,425.00 annually, payable in installments at the same time as other employees of USD are paid. Effective as of September 1, 2015, Manager's base salary is increased to $254,075.00. Effective as of September 1, 2016, Manager's base salary is increased to $261,697.25. Effective as of September 1, 2017, Manager's base salary is increased to $275,436.09. Effective as of September 1, 2018, Manager's base salary is increased to $279,595.04. Effective as of September 1, 2019, Manager's base salary is increased to $290,778.85. Effective as of September 1, 2020, Manager's base salary is $300,229.16. Base salary is subject to adjustment annually and Manager may receive performance bonuses following the Manager's annual performance evaluation. Manager received a one-time payment of $9,641.21 in 2018 pursuant to the Second Amended and Restated Agreement, a one-time payment of $8,387.85 pursuant to the Third Amended and Restated Agreement and shall receive a one-time payment of $5,000.00 at the next pay period after execution of this Agreement. Manager may distribute his Base Salary between salary and his contributions to approved deferred compensation plan as he chooses, so long as such distribution conforms to all applicable State and Federal laws and regulations.

Section 5. Automobile.

As of September 1, 2015, Manager does not receive an automobile allowance. Prior to that date, USD paid the Manager a Four Hundred Fifty Dollars ($450.00) per month automobile allowance.

Section 6. Holiday Benefits.

Manager shall be entitled to the same holidays as Work Group Managers of USD.

Section 7. Medical, Vision and Dental Benefits.

The Manager shall be entitled to all medical, dental, vision, life and disability insurance benefits provided non-represented employees of USD. Qualifying dependents will be eligible for medical, dental, vision and life insurance benefits.

Section 8. Deferred Compensation.

USD will match Manager's contributions to Deferred Compensation Plans up to a maximum of $4,200 per year on a dollar-for-dollar basis. Effective as of September 1, 2016, USD will match Manager's contributions to Deferred Compensation Plans up to a maximum of $14,363.00 per year on a dollar-for-dollar basis. This amount may be increased following the Manager's annual performance evaluation.

Section 9. Comprehensive Leave.

Manager's sick leave and administrative leave shall be the same as Work Group Managers of USD. The Manager shall earn four (4) weeks of vacation leave annually. Manager shall receive a one-time contribution of 50 hours of vacation as of September 1, 2018, or the payroll immediately following the execution of this Agreement.

Section 10. Retirement.

Manager shall be eligible to participate, in the Public Employees' Retirement System (PERS) under the 2.5% at age 55 formula and the Fourth Level 1959 survivor benefit. The terms of the contract between the District and CalPERS shall govern the eligibility for and level of benefits to which Manager Is entitled.

Section 11. Dues and Subscriptions.

USD agrees to pay for the professional dues, licenses and subscriptions of Manager necessary for his continuation and full participation in national, regional, state and local associations and organizations necessary and desirable for his continued professional participation, growth and advancement, and for the good of the District.

Section 12. Professional Development/Employee Recognition.

A. USD hereby agrees to pay the travel and subsistence expenses of Manager for professional and official travel, meetings and occasions adequate to continue the professional development of Manager and adequate to pursue necessary official and other functions for USD, including but not limited to, California Association of Sanitation Agencies, National Association of Clean Water Agencies and other professional associations. Travel related advances and reimbursement shall be on the same basis as other District employees.

B. USD also agrees to pay for the travel and subsistence expenses of Manager for short courses, institutes and seminars that are necessary for his professional development in the best interest of USD.

Section 13. Performance Evaluation.

A. The Board shall review and evaluate the performance of Manager once annually, in September. Said review and evaluation shall be in accordance with specific criteria developed jointly by the Board and Manager. Said criteria may be modified as the Board may from time to time determine after consultation with Manager. The Board agrees to review the Manager's total compensation in September of each year.

B. During the annual evaluation, the Board and Manager shall define such goals and performance objectives which they jointly determine necessary for the proper operation of the District and attainment of the Board's policy objectives; they shall also establish a relative priority among those various goals and objectives, and reduce said goals and objectives to writing. These goals and objectives shall generally be attainable within the time limitations as specified and the annual operating and capital budgets and appropriations provided.

Section 14. Indemnification.

A. Pursuant to the requirements of the California Government Code, including but not limited to sections 825, 995, 995.2, 995.8 and 996.4, as amended from time to time, and any other relevant Government Code sections pertaining to such matters, the District shall defend save harmless and indemnify Manager against any tort, professional liability claim and demand or other claim or legal action, whether groundless or otherwise, arising out of an alleged act or omission occurring in the course and scope of duties as General Manager. Said defense shall be provided by the District until such time as all legal action on the matter is concluded.

B. Should Manager be named as a defendant for any tort, professional liability claim and demand or other claim or legal action, whether groundless or otherwise, arising out of an alleged act or omission occurring In the course and scope of duties as General Manager, District shall solicit and consider Manager's preference for legal representation, but District shall retain full discretion in the selection of counsel to the extent permitted by law.

Section 15. Other Terms and Conditions of Employment.

A. The Board, in consultation with the Manager, shall fix any such other terms and conditions of employment, as it may determine from time to time, relating to the performance of Manager, provided such terms and conditions are not inconsistent with or in conflict with the provisions of this Agreement or State or Federal law. Any terms or conditions changed shall be jointly agreed upon and in writing as provided by Section 16C, infra.

B. All provisions of the ordinances, regulations, policies and rules of the District relating to vacation and sick leave, retirement and pension system contributions, life insurance, holidays and other fringe benefits and working conditions as they now exist or thereafter may be amended, which apply to work group manager level District employees, except as otherwise set forth herein, also shall apply to Manager.

C. District agrees to pay Manager's reasonable consulting fees and travel expenses after employment concludes to serve as a material or expert witness, advisor or consultant to District for litigation or other disputes arising from Manager's service to the District.

Section 16. General Provisions.

A. The text herein shall constitute the entire Agreement between the parties.

B. The Agreement is dated as of the date set forth in the first paragraph above and its terms and provisions effective as of August 11, 2014.

C. No provision of this Agreement may be modified, waived or discharged unless such waiver, modification or discharge is agreed to in writing by USD and the Manager. No waiver of either party at any time of the breach of, or lack of compliance with, any condition or provision of this Agreement shall be deemed a waiver of any other provision or condition hereof.

D. This Agreement shall be binding upon, or shall inure to the benefit of the respective heirs, executors, administrators, successors and assigns of the parties provided, however, that Manager may not assign Manager's obligations hereunder.

E. This Agreement shall be governed by and construed in accordance with the laws of the State of California.

F. If any provision, or any portion thereof, contained in this Agreement is held unconstitutional, invalid or unenforceable, the remainder of this Agreement, or portion thereof, shall be deemed severable, shall not be affected and shall remain in full force and effect.

Section 17. Criminal Background Check.

A. This Agreement is conditioned upon the District's receipt, within four (4) weeks of the date upon which this Agreement is signed by both parties, a criminal background check regarding Manager showing no criminal convictions. If the District does not receive within four (4) weeks a criminal background check regarding Manager showing no criminal convictions, and/or if the criminal background check of Manager contains criminal convictions, this Agreement shall be, null and void.

Section 18. Amendment and Restatement.

This Agreement amends and restates the Third Amended and Restated Agreement in its entirety.

IN WITNESS WHEREOF, the District and Manager have signed and executed this Agreement as of the day and year first above written.

UNION SANITARY DISTRICT

By ________________________________
Tom Handley, President

Attest:

By ________________________________
Anjali Lathi, Secretary

MANAGER

By ________________________________
Paul R. Eldredge

Approved:

By ________________________________
Karen Murphy, District General Counsel

~~THIRD~~ FOURTH AMENDED AND RESTATED EMPLOYMENT AGREEMENT

THIS ~~THIRD~~ FOURTH AMENDED AND RESTATED EMPLOYMENT AGREEMENT (the "**Agreement**") is made and entered into on _______, ~~2019~~2020, by and between the UNION SANITARY DISTRICT, a public sanitary district ("**USD**" or "**District**") and PAUL R. ELDREDGE (the "**Manager**").

Recitals

A. USD desires to employ the services of Manager as General Manager and District Engineer of USD.

B. It is the desire of the Board of Directors of Union Sanitary District (the "**Board**"), to provide certain benefits, establish certain conditions of employment and to set working conditions of said Manager.

C. It is the desire of USD to (1) retain the services of Manager and to provide inducement for him to remain in such employment; (2) make possible full work productivity by assuring Manager's morale and peace of mind with respect to future security; and, (3) provide a means of USD terminating Manager's employment if so desired.

D. Manager desires to accept employment as General Manager and District Engineer of Union Sanitary District.

E. District and Manager entered into that certain Employment Agreement dated June 25, 2014, wherein District hired Manager and Manager accepted employment as General Manager and District Engineer of Union Sanitary District (the "**Employment Agreement**").

F. The Employment Agreement was amended by that certain First Amendment to Employment Agreement between USD and Manager dated as of September 28, 2015 (the "**First Amendment**"). The First Amendment removed Manager's automobile allowance and incorporated such amount into Manager's base salary, and increased Manager's salary by $7,250.00, or approximately three percent.

G. The Employment Agreement as amended by the First Amendment was thereafter amended by that certain Second Amendment to Employment Agreement between USD and Manager dated as of November 14, 2016 (the "**Second Amendment**"). The Second Amendment (1) removed the termination date; (2) increased Manager's salary to $261,697.25, or approximately three percent; and (3) increased Manager's deferred compensation from $4,200.00 to $14,363.00 annually.

H. On October 23, 2017, District and Manager entered into an Amended and Restated Employment Agreement to incorporate all amendments in one complete and conforming Amended and Restated Employment Agreement and to increase Manager's salary to $275,436.09, or approximately five and a quarter percent ("**Amended and Restated**

Agreement”).

I. On January 14, 2019, District and Manager entered into a Second Amended and Restated Employment Agreement, which (1) increased Manager’s salary to $279,595.04, or approximately one and a half percent; (2) provided Manager with a one-time payment of $9,641.21, which will not be subject to PERS; and (3) provided Manager with a one-time contribution of 50 vacation hours (“**Second Amended and Restated Agreement**”).

J. On October 28, 2019, District and Manager ~~now desire to enter~~ entered into ~~a~~ that certain Third Amended and Restated Employment Agreement ~~to~~which: (1) ~~increase~~ increased Manager’s salary to $290,778.85, or approximately four percent; and (2) ~~provide~~ provided Manager with a one-time payment of $8,387.85, which will not be subject to PERS~~.~~ (“**Third Amended and Restated Agreement**”).

K. District and Manager now desire to enter into a Fourth Amended and Restated Employment Agreement to: (1) increase Manager’s salary to $300,229.16, or approximately 3.25 percent; and (2) provide Manager with a one-time payment of $5,000.00, which will not be subject to PERS.

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B. Except for a termination involving the commission of any illegal act, or falling to remain in good standing as set forth in Section 3 A, above, the Manager may not be terminated by the USD within the three' (3) months preceding or following a General Election where one or more Board seats are contested on the ballot of such election (the "**election cool-off period**").

C. In the event the District terminates Manager for cause, the District and the Manager agree that neither Party shall make any written or oral statements to members of the public or press concerning the Manager's termination which are not factual, or which are of a slanderous nature.

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~~USD agrees to pay to~~ As of September 1, 2015, Manager does not receive an automobile allowance. Prior to that date, USD paid the Manager a Four Hundred Fifty Dollars ($450.00) per month automobile allowance.

Section 6. ~~The Manager shall provide USD with proof of insurance demonstrating coverage in an amount acceptable to the USD. Manager shall not receive any automobile allowance as of September 1, 2015.~~Holiday Benefits.

Manager shall be entitled to the same holidays as Work Group Managers of USD.

Section 7. Medical, Vision and Dental Benefits.

The Manager shall be entitled to all medical, dental, vision, life and disability insurance benefits provided non-represented employees of USD. Qualifying dependents will be eligible for medical, dental, vision and life insurance benefits.

Section 8. Deferred Compensation.

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A. USD hereby agrees to pay the travel and subsistence expenses of Manager for professional and official travel, meetings and occasions adequate to continue the professional development of Manager and adequate to pursue necessary official and other functions for USD, including but not limited to, California Association of Sanitation Agencies, National Association of Clean Water Agencies and other professional associations. Travel related advances and reimbursement shall be on the same basis as other District employees.

B. USD also agrees to pay for the travel and subsistence expenses of Manager for short courses, institutes and seminars that are necessary for his professional development in the best interest of USD.

Section 13. Performance Evaluation.

A. The Board shall review and evaluate the performance of Manager once annually, in September. Said review and evaluation shall be in accordance with specific criteria developed jointly by the Board and Manager. Said criteria may be modified as the Board may from time to time determine after consultation with Manager. The Board agrees to review the Manager's total compensation in September of each year.

B. During the annual evaluation, the Board and Manager shall define such goals and performance objectives which they jointly determine necessary for the proper operation of the District and attainment of the Board's policy objectives; they shall also establish a relative priority among those various goals and objectives, and reduce said goals and objectives to writing. These goals and objectives shall generally be attainable within the time limitations as specified and the annual operating and capital budgets and appropriations provided.

Section 14. Indemnification.

A. Pursuant to the requirements of the California Government Code, including but not limited to sections 825, 995, 995.2, 995.8 and 996.4, as amended from time to time, and any other relevant Government Code sections pertaining to such matters, the District shall defend save harmless and indemnify Manager against any tort, professional liability claim and demand or other claim or legal action, whether groundless or otherwise, arising out of an alleged act or omission occurring in the course and scope of duties as General Manager. Said defense shall be provided by the District until such time as all legal action on the matter is concluded.

B. Should Manager be named as a defendant for any tort, professional liability claim and demand or other claim or legal action, whether groundless or otherwise, arising out of an alleged act or omission occurring In the course and scope of duties as General Manager, District shall solicit and consider Manager's preference for legal representation, but District shall retain full discretion in the selection of counsel to the extent permitted by law.

Section 15. Other Terms and Conditions of Employment.

A. The Board, in consultation with the Manager, shall fix any such other terms and conditions of employment, as it may determine from time to time, relating to the performance of Manager, provided such terms and conditions are not inconsistent with or in conflict with the provisions of this Agreement or State or Federal law. Any terms or conditions changed shall be jointly agreed upon and in writing as provided by Section 16C, infra.

B. All provisions of the ordinances, regulations, policies and rules of the District relating to vacation and sick leave, retirement and pension system contributions, life insurance, holidays and other fringe benefits and working conditions as they now exist or thereafter may be amended, which apply to work group manager level District employees, except as otherwise set forth herein, also shall apply to Manager.

C. District agrees to pay Manager's reasonable consulting fees and travel expenses after employment concludes to serve as a material or expert witness, advisor or consultant to District for litigation or other disputes arising from Manager's service to the District.

Section 16. General Provisions.

A. The text herein shall constitute the entire Agreement between the parties.

B. The Agreement is dated as of the date set forth in the first paragraph above and its terms and provisions effective as of August 11, 2014.

C. No provision of this Agreement may be modified, waived or discharged unless such waiver, modification or discharge is agreed to in writing by USD and the Manager. No waiver of either party at any time of the breach of, or lack of compliance with, any condition or provision of this Agreement shall be deemed a waiver of any other provision or condition hereof.

D. This Agreement shall be binding upon, or shall inure to the benefit of the respective heirs, executors, administrators, successors and assigns of the parties provided, however, that Manager may not assign Manager's obligations hereunder.

E. This Agreement shall be governed by and construed in accordance with the laws of the State of California.

F. If any provision, or any portion thereof, contained in this Agreement is held unconstitutional, invalid or unenforceable, the remainder of this Agreement, or portion thereof, shall be deemed severable, shall not be affected and shall remain in full force and effect.

Section 17. Criminal Background Check.

A. This Agreement is conditioned upon the District's receipt, within four (4) weeks of the date upon which this Agreement is signed by both parties, a criminal background check regarding Manager showing no criminal convictions. If the District does not receive within four (4) weeks a criminal background check regarding Manager showing no criminal convictions, and/or if the criminal background check of Manager contains criminal convictions, this Agreement shall be, null and void.

Section 18. Amendment and Restatement.

This Agreement amends and restates the ~~Second~~ Third Amended and Restated Agreement in its entirety.

IN WITNESS WHEREOF, the District and Manager have signed and executed this Agreement as of the day and year first above written.

UNION SANITARY DISTRICT	**MANAGER**
By ____________________	By ____________________
~~Jennifer Toy~~Tom Handley, President	Paul R. Eldredge
Attest:	Approved:
By ____________________	By ____________________
~~Pat Kite~~Anjali Lathi, Secretary	Karen Murphy, District General Counsel

UNION SANITARY DISTRICT

Summary of the EBDA Commission Meeting
Thursday, September 17, 2020, at 9:30 a.m.

- Commissioners Cutter, Johnson, Lamnin, Toy, and Walters were present. This meeting was conducted telephonically and the dial-in information for the meeting was provided in the agenda.

- Commissioner Toy moved to approve the Commission Meeting Minutes of August 20, 2020, List of Disbursements for August 2020, August 2020 Preliminary Treasurer's Report, and Fiscal Year 2019/2020 Year End Expense Summary. The motion was seconded by Commissioner Toy and carried 5-0.

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

- **General Managers Report**
  The General Manager (GM) provided an update on State Water Board Permit Fees which may be increasing above EBDA's current budget. The GM then provided an update on microplastics. The GM is planning to attend and report on a webinar series hosted by the Ocean Protection Council on the health effects of microplastics on humans and the environment.

- **Managers Advisory Committee (MAC)**
  The GM reported on the MAC meeting of September 10, 2020 noting discussion on emergency response contract procurement and thanking Union Sanitary District who plans to initiate the Request for Proposals (RFP) process and include EBDA, Oro Loma Sanitary District, and Castro Valley Sanitary District in the request.

- **Financial Management Committee**
  The GM reported on the Financial Management Committee, which met on September 15, 2020. The GM discussed the Fiscal Year End Expense Summary and provided details on EBDA's budget surplus, noting four special projects that will be carried over as previously approved. The MAC and the Financial Management Committee recommend returning the budget surplus to the member agencies.

  Next, the GM provided an overview of the Authority's OPEB and pension fund status. The GM explained that beginning this fiscal year, if the Authority's OPEB funded ratio continues to be over the policy target of 80% funded, the Authority will request disbursements from the fund to reimburse the Authority for retiree health benefits. If under-funded, an additional discretionary payment to reach the target would be included in the next year's budget proposal, and no disbursements would be requested. Similarly, staff will assess status of the Authority's pension fund in the spring and recommend an additional discretionary payment be included in next year's budget if the funded status is below the 95% policy target.

The GM then provided an update on the Authority's inquiries into local alternative banking solutions. The GM explained the Authority recently changed to a new banking structure with Wells Fargo (WF), thus staff recommends staying with WF for an additional six months to provide an accurate comparison between WF's fees and fraud protection services and other local banking alternatives.

Lastly, the GM reported that negotiations with LAVWMA continue. The Financial Management Committee recommends adding an Ad Hoc Committee to advise staff on the negotiation. Chair Walters has appointed Commissioner Cutter and himself to the new Ad Hoc.

- **Regulatory Affairs Committee**
  The GM reported on the Regulatory Affairs Committee, which met on September 16, 2020 and discussed key regulatory developments. The GM referenced the reporting checklist then provided an update on Nature-Based Solutions, highlighting the First Mile Horizontal Levee Project and Hayward Feasibility Study. An RFP seeking a consultant to assist with engineering and permitting on these projects has been posted on the Authority's website, with responses due October 16. Staff intends to bring a contract with the recommended consultant to the Commission for consideration in November.

  The GM then provided a brief overview of the Recycled Water Summary Report provided by the San Francisco Bay Regional Water Quality Control Board. EBDA's future role in recycled water will be a topic of discussion as part of the Authority's strategic planning process in early 2021.

  The GM then reviewed key concepts from the BACWA Key Regulatory Issue Summary, in particular the latest information regarding the chlorine residual Basin Plan Amendment and updates on nutrients. The GM noted her participation in a virtual retreat held by BACWA and Regional Water Board staff focused on regional collaboration for the next nutrients watershed permit. Lastly, the GM provided a brief update on the Cargill Brine Project and noted that the Committee supported approval of the Larry Walker Associates work order for dilution modeling.

- **Operations and Maintenance (O&M) Committee**
  The O&M Manager reported on the Operations and Maintenance Committee, which met on September 15, 2020 and discussed the status of EBDA facilities. The O&M Manager reviewed NPDES Compliance data for August, and preliminary data for September, noting hot weather has necessitated higher dosing of sodium hypochlorite.

  The O&M Manager provided an overview of current projects. At UEPS, the VFD transformer for Pump No. 2 is set for installation in the coming week. This project, along with installation of the impeller for Pump No. 6, will be the last of the capital improvement projects undertaken by the Authority at UEPS. Union will be responsible for future projects per the terms of the Amended and Restated Joint Powers Agreement. For the HEPS MCC Project, the Authority is finalizing paperwork with the contractor; a filing notice will then be placed with the county, and after a 30-day waiting period, the retained funds for the project may be released.

  For OLEPS, the O&M Manager reviewed the main electrical switchboard upgrade project. The Authority has received quotes for the project, and staff expects to bring a contract to the Commission for consideration next month. For OLSD's Pavement Reconstruction and Rehabilitation Project, EBDA received quotes for the portion of additional asphalt replacement which EBDA has previously agreed to cover.

At Skywest, the O&M Manager reported on the pending insurance claim for the recycled water pipeline leak and provided information on recycled water production. Lastly, for the force main, the 60-inch encapsulating coupling is scheduled to ship at the end of October, which will complete EBDA's commitment to provide spare parts for earthquake preparedness.

The GM then gave an update on regional efforts related to Wastewater-based Epidemiology. The University of California at Berkeley has received funding to set up a lab capable of analyzing 100 wastewater samples per day for SARS-CoV-2, and they are still seeking funding to cover the sample analysis costs. A Working Group and Steering Committee are meeting regularly to inform regional efforts and ensure coordination. Lastly, the GM gave an update on the AQPI project. The radar remains set for installation in late September, and a subcommittee is developing a video presentation for public outreach to seek further funding for the project.

- **Motion Authorizing the General Manager to Execute a Work Order with Larry Walker Associates for a Dilution Study Related to Acceptance of Cargill Mixed Sea Salt Brine for Discharge at the EBDA Outfall in the Amount of $56,617**
  Commissioner Johnson moved to approve the motion authorizing the GM to execute a work order with Larry Walker Associates. The motion was seconded by Commissioner Cutter and carried unanimously, 5-0 by roll call vote.

Ayes:	Commissioners Cutter, Johnson, Toy, Lamnin, Chair Walters
Noes:	None
Absent:	None
Abstain:	None

- **Items from Commission and Staff**
  Commissioner Lamnin asked for additional information regarding the cost that the University of California at Berkeley estimates it needs to cover the per-sample analysis when testing effluent for the presence of SARS-CoV-2. The GM identified several factors that may reduce this cost in the future, noting the cost per-analysis may be a worst-case scenario for budgeting purposes. The GM reported letters have been submitted by a large national coalition to the Rockefeller and Gates Foundations requesting funding for wastewater surveillance, also known as wastewater-based epidemiology. The GM plans to attend a working group meeting next week with the wastewater, health, and academic communities on this topic and will report back.

  Commissioner Lamnin thanked the GM and reiterated the importance of treating the transparency and control-of-costs of the project the same as any other publicly funded project. Commissioner Lamnin plans to forward information on potential partners who are interested in helping jurisdictions and governments during the pandemic.

  The GM then gave an update on the AQPI project. The GM reported the radar network has been useful in collecting data from wildfire smoke which has been shared with the National Weather Service and others. The new date Sonoma County Water District expects to approve the East Bay Agreement and the lease agreement with American Tower for the East Bay radar site is November 10.

  The Chair wished everyone stay safe and continue vigilance during the pandemic.

OCTOBER 12, 2020
BOARD OF DIRECTORS MEETING
AGENDA ITEM # 16

TITLE: **COVID-19 Update** ***(This is an Information Item)***

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

Recommendation
Information only.

Discussion
None.

Background
General Manager Eldredge will provide an update on the District's COVID-19 response and staffing levels.

Previous Board Action
None.

UNION SANITARY DISTRICT
CHECK REGISTER
09/19/2020-10/02/2020

Check No.	Date	Dept	Invoice No.	Vendor	Description	Invoice Amt	Check Am
175656	9/24/2020	110	170120200904	PACIFIC GAS AND ELECTRIC	SERV TO 08/19/2020 PLANT	$409,302.62	$409,302.62
175700	10/1/2020	143	800526.5	KIEWIT INFRASTRUCTURE WEST CO	PRIMARY DIGESTER NO. 2 REHABILITATION	$398,024.88	$398,024.88
175664	9/24/2020	110	16872	SYNAGRO WEST LLC	AUGUST 2020 BIOSOLIDS DISPOSAL	$81,125.49	$81,125.49
175623	9/24/2020	143	190315	CAROLLO ENGINEERS	PRIMARY DIGESTER NO. 7	$67,374.76	$67,374.76
175727	10/1/2020	110	99158	USP TECHNOLOGIES	2436 GALS HYDROGEN PEROXIDE	$10,694.04	$49,554.32
	10/1/2020	110	99171		4434 GALS HYDROGEN PEROXIDE	$19,465.26	
	10/1/2020	110	99172		4418 GALS HYDROGEN PEROXIDE	$19,395.02	
175682	10/1/2020	114	11382710	BROWN & CALDWELL CONSULTANTS	PRIMARY DIGESTER NO. 7	$40,611.69	$40,611.69
175619	9/24/2020	150	257864	BURKE, WILLIAMS & SORENSON LLP	FORCE MAIN RELOCATION - JULY 2020	$2,695.68	$27,154.92
	9/24/2020	150	257866		BIOSOLIDS BID PROTEST - JULY 2020	$18,934.76	
	9/24/2020	150	257870		GENERAL LEGAL - JULY 2020	$5,524.48	
175706	10/1/2020	150	66678	NACWA	FY2021 MEMBERSHIP DUES 10/1/20 - 9/30/21	$20,120.00	$20,120.00
175685	10/1/2020	173	1058356	CDW GOVERNMENT LLC	ADMIN SERVER ROOM UPS BATTERIES REPLACEMENT	$19,506.50	$19,506.50
175631	9/24/2020	150	16558	FONG & FONG PRINTERS & LITHO	POSTAGE FOR NEWSLETTER	$17,918.19	$17,918.19

Check No.	Date	Dept	Invoice No.	Vendor	Description	Invoice Amt	Check Am
175668	9/24/2020	110	48717923	UNIVAR SOLUTIONS USA INC	4898.3 GALS SODIUM HYPOCHLORITE	$3,538.43	$14,122.42
	9/24/2020	110	48717924		4801.2 GALS SODIUM HYPOCHLORITE	$3,468.28	
	9/24/2020	110	48722017		4900 GALS SODIUM HYPOCHLORITE	$3,539.65	
	9/24/2020	110	48714709		4950.4 GALS SODIUM HYPOCHLORITE	$3,576.06	
175645	9/24/2020	110	9017685378	KEMIRA WATER SOLUTIONS INC	48,160 LBS FERROUS CHLORIDE	$6,978.09	$13,692.02
	9/24/2020	110	9017685943		46,660 LBS FERROUS CHLORIDE	$6,713.93	
175725	10/1/2020	110	48728322	UNIVAR SOLUTIONS USA INC	4901.7 GALS SODIUM HYPOCHLORITE	$3,540.88	$13,585.98
	10/1/2020	110	48723999		4901.6 GALS SODIUM HYPOCHLORITE	$3,540.81	
	10/1/2020	110	48723998		4503.1 GALS SODIUM HYPOCHLORITE	$3,252.94	
	10/1/2020	110	48726140		4500.9 GALS SODIUM HYPOCHLORITE	$3,251.35	
175684	10/1/2020	143	190593	CAROLLO ENGINEERS	ALVARADO INFLUENT PS PUMPS AND VFDS	$10,539.88	$10,539.88
175697	10/1/2020	130	9717538	HF&H CONSULTANTS, LLC	SEWER RATE MODELING	$2,473.00	$9,571.00
	10/1/2020	136	9717472		COMPREHENSIVE SEWER RATE STUDY	$7,098.00	
175634	9/24/2020	173	315355	CITY OF FREMONT	SACGISA	$7,878.57	$7,878.57
175729	10/1/2020	121	46367	WECO INDUSTRIES LLC	CAMERA REPAIRS	$326.32	$5,849.42
	10/1/2020	121	46297		CAMERA REPAIRS	$5,523.10	
175712	10/1/2020	122	23391	PRIME MECHANICAL SERVICE INC	SERVICE CALL: BLDG 70	$415.00	$5,379.00
	10/1/2020	170	23588		SERVICE CALL: BLDG 77	$4,964.00	
175731	10/1/2020	170	4172295	WESTERN ENERGY SYSTEMS	2 THROTTLE VALVES	$5,177.68	$5,177.68

Check No.	Date	Dept	Invoice No.	Vendor	Description	Invoice Amt	Check Am
175640	9/24/2020	121	2016042553	ICONIX WATERWORKS INC	4 MANHOLE FRAMES & COVERS	$4,749.99	$4,749.99
175709	10/1/2020	130	82019309	PFM ASSET MANAGEMENT LLC	INVESTMENT MANAGEMENT / ADVISORY SERVICES	$4,186.94	$4,186.94
175710	10/1/2020	130	72018769	PFM ASSET MANAGEMENT LLC	INVESTMENT MANAGEMENT / ADVISORY SERVICES	$4,184.08	$4,184.08
175651	9/24/2020	113	2008A86	MCCAMPBELL ANALYTICAL	LAB SAMPLE ANALYSIS	$1,159.00	$3,835.00
	9/24/2020	113	2008D12		LAB SAMPLE ANALYSIS	$2,210.00	
	9/24/2020	113	2008E54		LAB SAMPLE ANALYSIS	$466.00	
175689	10/1/2020	141	109A9	DCM CONSULTING INC	DUMBARTON TRANSIT-ORIENTED DEV & USD FORCE MAINS	$3,375.00	$3,712.50
	10/1/2020	141	109F2		TURK ISLAND LANDFILL EARTHWORK/GRADING	$337.50	
175707	10/1/2020	170	013720200910	PACIFIC GAS AND ELECTRIC	SERV TO 09/02/20 BOYCE RD PS	$3,344.78	$3,369.42
	10/1/2020	170	140120200911		SERV TO 09/01/20 IRVINGTON PS	$24.64	
175702	10/1/2020	113	2008D12A	MCCAMPBELL ANALYTICAL	LAB SAMPLE ANALYSIS	$50.00	$3,185.00
	10/1/2020	113	2009012		LAB SAMPLE ANALYSIS	$362.00	
	10/1/2020	113	2008B03		LAB SAMPLE ANALYSIS	$2,571.00	
	10/1/2020	113	2004595		LAB SAMPLE ANALYSIS	$202.00	
175667	9/24/2020	143	20132	CITY OF UNION CITY	PERMIT: CAST IRON/PIPE LINING - PHASE VIII	$3,160.00	$3,160.00
175665	9/24/2020	123	138763	TRI-SIGNAL INTEGRATION INC	FIRE PROTECTION SERVICE - UL CERTIFICATE	$350.00	$3,129.17
	9/24/2020	123	138764		FIRE PROTECTION SERVICE - QUARTERLY INSPECTION	$312.50	
	9/24/2020	123	138762		FIRE PROTECTION SERVICE - MONTHLY CHARGE MONITORING AGREE	$266.67	
	9/24/2020	123	138761		FIRE PROTECTION SERVICE - ALARM INSPECTION	$2,200.00	

Check No.	Date	Dept	Invoice No.	Vendor	Description	Invoice Amt	Check Am
175659	9/24/2020	141	20200914	QUADIENT INC	POSTAGE BY PHONE - TMS 8060344	$3,000.00	$3,000.00
175670	9/24/2020	143	19656	V&A CONSULTING ENGINEERS	CATHODIC PROTECTION IMPROVEMENTS	$2,946.50	$2,946.50
175674	10/1/2020	171	2000405041	AECOM TECHNICAL SERVICES INC	HAZMAT CONSULTING SERVICES	$2,628.63	$2,628.63
175691	10/1/2020	170	329574286	FEDERAL EXPRESS CORPORATION	SHIPPING SERVICE - FMC	$43.16	$2,606.45
	10/1/2020	170	329474048		SHIPPING SERVICE- FMC	$37.79	
	10/1/2020		712614531		SHIPPING SERVICE	$2,525.50	
175708	10/1/2020		13746	PACIFIC PLUMBING & SEWER SERV	REFUND # 29102	$2,500.00	$2,500.00
175636	9/24/2020	122	1841092196	GOODYEAR COMM TIRE & SERV CTRS	6 TIRES	$2,439.27	$2,439.27
175716	10/1/2020	170	935938	ROSEMOUNT ANALYTICAL INC	1 APS WET WELL PH TRANSMITTER	$2,273.32	$2,273.32
175629	9/24/2020	170	41798	DC FROST ASSOCIATES INC	PARTS & MATERIALS	$2,173.05	$2,173.05
175643	9/24/2020	141	CXBS306	IRON MOUNTAIN	OFF-SITE STORAGE AND SERVICE - SEPT 2020	$501.03	$2,158.38
	9/24/2020	141	CXLD453		OFF-SITE STORAGE AND SERVICE - SEPT 2020	$1,347.27	
	9/24/2020	173	202186219		DATA/MEDIA OFF-SITE STORAGE - JULY 2020	$310.08	
175628	9/24/2020	144	3386241	DAILY JOURNAL CORPORATION	AD: CERTIFICATE OF MERIT	$488.24	$2,090.64
	9/24/2020	144	3386245		AD: CERTIFICATE OF MERIT	$229.60	
	9/24/2020	143	3389328		AD: CATHODIC PROTECTION IMPROVEMENTS - PLANT	$1,372.80	
175679	10/1/2020	150	5188620200902	APWA AMERICAN PUBLIC WORKS	MEMBERSHIP RENEWAL: 12/1/20 - 11/30/21	$2,012.50	$2,012.50
175626	9/24/2020	173	105806793	COLORADO WASHINGTON INC COMCAST OF	FIBER INTERNET BACKUP - AUG 2020	$2,010.36	$2,010.36
175614	9/24/2020	120	13847	AMERICAN DISCOUNT SECURITY	08/01/20 - 08/31/20 GUARD AT DISTRICT	$1,638.00	$1,638.00

Check No.	Date	Dept	Invoice No.	Vendor	Description	Invoice Amt	Check Am
175661	9/24/2020	110	20090226	S&S TRUCKING	GRIT HAULING 08/24/2020	$833.09	$1,610.21
	9/24/2020	110	20090325		GRIT HAULING 08/27/2020	$777.12	
175658	9/24/2020		22703	PRIME MECHANICAL SERVICE INC	8 FILTERS	$533.39	$1,448.39
	9/24/2020	170	23173		MONTHLY MAINTENANCE - AUG 20	$915.00	
175657	9/24/2020		29606007	PAN PACIFIC SUPPLY COMPANY	1 CHESTERTON SEALS	$1,254.24	$1,254.24
175649	9/24/2020	173	21113	LOOKINGPOINT INC	ANNUAL PBX AND NETWORK SUPPORT	$1,225.00	$1,225.00
175683	10/1/2020	113	613692	CALTEST ANALYTICAL LABORATORY	9 LAB SAMPLE ANALYSIS	$416.79	$1,200.99
	10/1/2020	113	613693		1 LAB SAMPLE ANALYSIS	$46.31	
	10/1/2020	113	613805		7 LAB SAMPLE ANALYSIS	$321.10	
	10/1/2020	113	613804		9 LAB SAMPLE ANALYSIS	$416.79	
175681	10/1/2020		79859	BRENNTAG PACIFIC INC	3846 LBS SODIUM HYDROXIDE	$1,135.33	$1,135.33
175618	9/24/2020	121	77982	BRENNTAG PACIFIC INC	2564 LBS SODIUM HYDROXIDE	$743.23	$1,116.54
	9/24/2020	121	77981		1282 LBS SODIUM HYDROXIDE	$373.31	
175704	10/1/2020	114	2081021	MOBILE MODULAR MANAGEMENT CORP	ETSU TEMPORARY OFFICE SPACE	$1,071.05	$1,071.05
175630	9/24/2020	113	1249934	ENTHALPY ANALYTICAL LLC	37 LAB SAMPLE ANALYSIS	$1,042.00	$1,042.00
175715	10/1/2020		17830	ROOTER HERO	REFUND # 29107	$500.00	$1,000.00
	10/1/2020		17831		REFUND # 29109	$500.00	
175717	10/1/2020		15793	ROTO-ROOTER SERVICES	REFUND # 29105	$500.00	$1,000.00
	10/1/2020		18850		REFUND # 29106	$500.00	

Check No.	Date	Dept	Invoice No.	Vendor	Description	Invoice Amt	Check Am
175627	9/24/2020	120	20200917	CWEA	5 MEMBERSHIP RENEWALS - CS	$960.00	$960.00
175613	9/24/2020	170	9973679503	AIRGAS NCN	CYLINDER RENTAL	$947.58	$947.58
175675	10/1/2020		5234971	ALL INDUSTRIAL ELECTRIC SUPPLY	ASTD PARTS & MATERIALS	$920.53	$920.53
175701	10/1/2020	173	202009111209	KWIZCOM CORPORATION	ANNUAL CALENDAR PLUS SUBSCRIPTION 9/11/20 - 9/11/21	$920.00	$920.00
175722	10/1/2020		20200930	STAR ROOTER & PLUMBING INC	REFUND: DUPLICATE PAYMENT OF INVOICE 2588	$822.98	$822.98
175713	10/1/2020	111	820185197	RED WING BUS ADVANTAGE ACCT	SAFETY SHOES: P. BORBECK	$204.27	$820.81
	10/1/2020	123	820185422		SAFETY SHOES: B. MEDEIROS	$204.27	
	10/1/2020	123	820186249		SAFETY SHOES: A. DIOSDADO	$204.27	
	10/1/2020	172	820186411		SAFETY SHOES: G. OSEGUERA	$208.00	
175703	10/1/2020		45922130	MCMASTER SUPPLY INC	ASTD PARTS & MATERIALS	$568.34	$786.88
	10/1/2020		45994344		ASTD PARTS & MATERIALS	$154.14	
	10/1/2020	170	45998200		ASTD PARTS & MATERIALS	$64.40	
175676	10/1/2020		20200910	AMAZON.COM LLC	09/20 - ASTD OFFICE SUPPLIES	$757.60	$757.60
175718	10/1/2020	110	20090803	S&S TRUCKING	GRIT BIN RENTAL 09/01/2020	$750.00	$750.00
175622	9/24/2020	170	21786356	CARBOLINE COMPANY	PAINT & RELATED PAINT SUPPLIES	$749.62	$749.62
175620	9/24/2020	113	613601	CALTEST ANALYTICAL LABORATORY	7 LAB SAMPLE ANALYSIS	$321.10	$710.11
	9/24/2020	113	613513		9 LAB SAMPLE ANALYSIS	$389.01	
175714	10/1/2020	170	211023	ROCHESTER MIDLAND CORPORATION	HOT WATER LOOP SERVICE	$690.75	$690.75
175687	10/1/2020	132	201014687	CLAREMONT BEHAVIORAL SERVICES	OCT 2020 EAP PREMIUMS	$662.40	$662.40

Check No.	Date	Dept	Invoice No.	Vendor	Description	Invoice Amt	Check Am
175615	9/24/2020		1102411143	AMERIPRIDE SERVICES INC	UNIFORM LAUNDERING & RUGS	$253.98	$652.45
	9/24/2020		1102411154		UNIFORM LAUNDERING SERVICE	$351.15	
	9/24/2020		1102411173		ASTD DUST MOPS, WET MOPS & TERRY TOWEL	$47.32	
175677	10/1/2020		1102415172	AMERIPRIDE SERVICES INC	UNIFORM LAUNDERING & RUGS	$277.68	$641.74
	10/1/2020		1102415173		UNIFORM LAUNDERING SERVICE	$364.06	
175621	9/24/2020	173	4033782241	CANON SOLUTIONS AMERICA INC	MTHLY MAINTENANCE BASED ON USE	$326.90	$641.30
	9/24/2020	173	4033783277		MTHLY MAINTENANCE BASED ON USE	$314.40	
175690	10/1/2020	173	10418789305	DELL MARKETING LP C/O DELL USA	4 SFP ADAPTERS	$639.45	$639.45
175694	10/1/2020	111	9634453774	GRAINGER INC	1 FULL BODY HARNESS	$424.84	$627.02
	10/1/2020	143	9627579890		1 DIGITAL THERMOMETER	$11.36	
	10/1/2020	111	9633468641		ASTD PARTS & MATERIALS	$67.29	
	10/1/2020	170	9622963727		ASTD PARTS & MATERIALS	$45.88	
	10/1/2020		9630667492		ASTD PARTS & MATERIALS	$35.96	
	10/1/2020	122	9629843351		ASTD PARTS & MATERIALS	$41.69	
175653	9/24/2020	170	200947	METROMOBILE COMMUNICATIONS INC	RADIO SERVICE - SEP 2020	$599.08	$599.08
175642	9/24/2020	170	575024	INSTRUMART	1 PH PROBE	$548.75	$548.75
175728	10/1/2020	113	8802110293	VWR INTERNATIONAL LLC	LAB SUPPLIES	$15.43	$509.33
	10/1/2020		8802162597		LAB SUPPLIES	$493.90	
175673	10/1/2020		18838	A2Z BAY BUILDERS & PLUMBING	REFUND # 29110	$500.00	$500.00

UNION SANITARY DISTRICT
CHECK REGISTER
09/19/2020-10/02/2020

Check No.	Date	Dept	Invoice No.	Vendor	Description	Invoice Amt	Check Am
175686	10/1/2020		14781	CHALLENGE ROOTER	REFUND # 29103	$500.00	$500.00
175699	10/1/2020		15791	HOME BASE IMPROVEMENT INC	REFUND # 29104	$500.00	$500.00
175720	10/1/2020		10630	MOHAMMAD SHAIQ	REFUND # 29098	$500.00	$500.00
175721	10/1/2020		10633	RANA SINGH	REFUND # 29101	$500.00	$500.00
175732	10/1/2020		10601	CHI-KEN WONG	REFUND # 29100	$500.00	$500.00
175733	10/1/2020		10434	LIAN XIAO	REFUND # 29099	$500.00	$500.00
175660	9/24/2020	120	00I0036018380	NESTLE WATERS NO. AMERICA READYREFR	WATER SERVICE 08/07/20 - 09/06/20	$478.40	$478.40
175616	9/24/2020	170	734185	A-PRO PEST CONTROL INC	PEST CONTROL - RODENTS	$100.00	$450.00
	9/24/2020	170	734136		PEST CONTROL - RODENTS BLDG 66	$300.00	
	9/24/2020	170	734303		PEST CONTROL - ESTU TRAILER	$50.00	
175644	9/24/2020	122	225403	JACK JAMES TOWING INC	TOW SERVICE: T2374 NEWARK TO PLANT	$450.00	$450.00
175730	10/1/2020	141	2042457	WEST YOST ASSOCIATES	FM RELOCATION NEAR HICKORY STREET	$447.00	$447.00
175638	9/24/2020	123	2163315	HANSON AGGREGATES INC	5.07 TONS 1/2 MAX HMA TYPE A-R	$426.08	$426.08
175688	10/1/2020		1411018	COGENT SOLUTIONS & SUPPLIES	8 CS COMPOSTABLE UTENSILS	$392.55	$392.55
175641	9/24/2020	122	20848673	INFOR PUBLIC SECTOR, INC	MACP INSPECTION MODULE INSTALLATION	$352.50	$352.50
175711	10/1/2020		158806	PREFERRED ALLIANCE INC	AUGUST 2020 SERVICE FEE	$327.18	$327.18
175639	9/24/2020		3P0974	HARRINGTON INDUSTRIAL PLASTICS	ASTD PVC PARTS & MATERIALS	$321.84	$321.84
175719	10/1/2020	170	85340220200922	SAN FRANCISCO WATER DEPT	SERVICE 08/21/2020 - 09/21/20	$314.01	$314.01

Check No.	Date	Dept	Invoice No.	Vendor	Description	Invoice Amt	Check Am
175617	9/24/2020	141	15472110	BLAISDELL'S	ASTD OFFICE SUPPLIES	$78.95	$306.15
	9/24/2020	144	15433810		ASTD OFFICE SUPPLIES	$155.98	
	9/24/2020	144	15446591		ASTD OFFICE SUPPLIES	$71.22	
175672	9/24/2020		5187	ZELAYA DESIGNS	PUBLIC OUTREACH	$288.00	$288.00
175647	9/24/2020	110	20200914	MARCUS LEE	EXP REIMB: CWEA MEMBERSHIP	$267.00	$267.00
175655	9/24/2020	132	2001368	OPTIMUM TECHNOLOGIES LLC	AT HOME EMPLOYEE PORTAL	$265.00	$265.00
175695	10/1/2020		3P1159	HARRINGTON INDUSTRIAL PLASTICS	ASTD PVC PARTS & MATERIALS	$76.71	$257.73
	10/1/2020	170	3P1067		ASTD PVC PARTS & MATERIALS	$181.02	
175648	9/24/2020	132	1506515	LIEBERT CASSIDY WHITMORE	LEGAL SVS - CALPERS UNIFORM APPEAL	$252.00	$252.00
175698	10/1/2020		604054068	HILLYARD/SAN FRANCISCO	ASST JANITORIAL SUPPLIES	$325.71	$214.51
	10/1/2020		800495934		CREDIT: ASST JANITORIAL SUPPLIES	$-660.41	
	10/1/2020		604064980		ASST JANITORIAL SUPPLIES	$199.24	
	10/1/2020	122	604042205		ASST JANITORIAL SUPPLIES	$349.97	
175635	9/24/2020		201682003	GATEWAY PRODUCTS GROUP INC	ASTD COGEN PARTS	$207.48	$207.48
175692	10/1/2020	132	116533368	FREMONT URGENT CARE CENTER	3 DOT PHYSICALS	$189.00	$189.00
175625	9/24/2020	111	1901574563	CINTAS CORPORATION	2 SUMMER JACKETS FOR TEO LARETO	$179.61	$179.61
175693	10/1/2020	120	4095024506	GLACIER ICE COMPANY INC	96 7-LB BAGS OF ICE	$172.79	$172.79
175663	9/24/2020	111	20200921	SWRCB - STATE WATER RESOURCES	GRADE V OPERATOR CERTIFICATE RENEWAL - A. LULLO	$150.00	$150.00
175723	10/1/2020	111	20200925	SWRCB - STATE WATER RESOURCES	GRADE V OPERATOR CERTIFICATE RENEWAL - M. FORTNER	$150.00	$150.00

Check No.	Date	Dept	Invoice No.	Vendor	Description	Invoice Amt	Check Am
175734	10/1/2020	113	2008058	ZALCO LABORATORIES INC	LAB ANALYSIS	$140.00	$140.00
175650	9/24/2020	170	77981479	MATHESON TRI-GAS INC	MONTHLY CYLINDER RENTAL - AUG 2020	$134.92	$134.92
175637	9/24/2020	122	9622963719	GRAINGER INC	ASTD PARTS & MATERIALS	$36.05	$133.70
	9/24/2020	122	9624491396		ASTD PARTS & MATERIALS	$60.91	
	9/24/2020		9622063122		ASTD PARTS & MATERIALS	$36.74	
175680	10/1/2020	141	15485820	BLAISDELL'S	ASTD OFFICE SUPPLIES	$122.88	$122.88
175678	10/1/2020	170	734139	A-PRO PEST CONTROL INC	PEST CONTROL - RODENTS BLDG 66	$120.00	$120.00
175646	9/24/2020	143	20200923	THOMAS LAM	EXP REIMB: PE LICENSE RENEWAL	$115.00	$115.00
175724	10/1/2020	111	20200929	SWRCB - STATE WATER RESOURCES	GRADE III OPERATOR CERTIFICATE RENEWAL - B. GALLEGOS	$110.00	$110.00
175696	10/1/2020	110	1914663	HAYWARD WATER SYSTEM	WATER SERV 07/12/20 - 09/10/20	$92.42	$92.42
175662	9/24/2020	120	20200921	JAMES SCHOFIELD	EXP REIMB: SPECS FOR EQUIPMENT MODIFICATIONS	$85.00	$85.00
175633	9/24/2020	130	167931	FREMONT RUBBER STAMP CO INC	1 RUBBER STAMP	$82.52	$82.52
175654	9/24/2020	170	130432	NEW IMAGE LANDSCAPING CO	LANDSCAPE MAINTENANCE - FMC - JULY 2020	$80.68	$80.68
175669	9/24/2020	136	98XW53350	UPS - UNITED PARCEL SERVICE	SHIPPING CHARGES W/E 08/29/20	$80.56	$80.56
175624	9/24/2020	173	ZXR1044	CDW GOVERNMENT LLC	1 SURFACE PRO	$73.36	$73.36
175671	9/24/2020	113	8802101892	VWR INTERNATIONAL LLC	LAB SUPPLIES	$61.02	$61.02
175652	9/24/2020	170	45034365	MCMASTER SUPPLY INC	ASTD PARTS & MATERIALS	$24.97	$56.59
	9/24/2020	122	45685731		ASTD PARTS & MATERIALS	$31.62	
175632	9/24/2020	123	23853	FREMONT RECYCLING & TRANSFER	.25 TON GREEN WASTE	$54.00	$54.00

Check No.	Date	Dept	Invoice No.	Vendor	Description	Invoice Amt	Check Am
175666	9/24/2020	141	424043	ULTRAEX LLC	COURIER SVCS: 1 BOARDMEMBER DELIVERY - 08/19/20	$47.95	$47.95
175705	10/1/2020	170	24091972	MOTION INDUSTRIES INC	ASTD PARTS & MATERIALS	$41.64	$41.64
175726	10/1/2020	136	98XW53360	UPS - UNITED PARCEL SERVICE	SHIPPING CHARGES W/E 09/05/20	$24.81	$24.81

Invoices:

Credit Memos :	**1**	**-660.41**
$0 - $1,000 :	**127**	**40,133.33**
$1,000 - $10,000 :	**46**	**148,470.54**
$10,000 - $100,000 :	**11**	**325,685.59**
Over $100,000 :	**2**	**807,327.50**
Total:	**187**	**1,320,956.55**

Checks:

$0 - $1,000 :	**72**	**29,374.26**
$1,000 - $10,000 :	**36**	**108,948.62**
$10,000 - $100,000 :	**12**	**375,306.17**
Over $100,000 :	**2**	**807,327.50**
Total:	**122**	**1,320,956.55**