ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM
BOARD OF RETIREMENT
2223 E. WELLINGTON AVENUE, SUITE 100
SANTA ANA, CALIFORNIA

REGULAR MEETING
Monday, June 18, 2018
9:00 a.m.

AGENDA

The Orange County Board of Retirement welcomes you to this meeting. This agenda contains a brief general description of each item to be considered. The Board of Retirement may take action on any item included in the following agenda; however, except as otherwise provided by law, no action shall be taken on any item not appearing on the agenda. The Board of Retirement may consider matters included on the agenda in any order, and not necessarily in the order listed.

PLEDGE OF ALLEGIANCE

PUBLIC COMMENTS

At this time, members of the public may comment on (1) matters not included on the agenda, provided that the matter is within the subject matter jurisdiction of the Board; and (2) any matter appearing on the Consent Agenda.

When addressing the Board, please state your name for the record prior to providing your comments. Speakers will be limited to three (3) minutes.

In addition, public comment on matters listed on this agenda will be taken at the time the item is addressed. ***Persons wishing to address items on the agenda should provide written notice to the Secretary of the Board prior to the Board's discussion on the item by signing in on the Public Comment Sign-In Sheet located at the back of the room.***

CONSENT AGENDA

All matters on the Consent Agenda are to be approved by one action unless a Board Member requests separate action on a specific item.

BENEFITS

C-1 OPTION 4 RETIREMENT ELECTION

Recommendation: Grant election of retirement benefit payment, Option 4, based on Segal Consulting's actuarial report.
(1) Gary Lee
(2) Michael Murphy

(3) William Valdez
(4) Michael Whalen

ADMINISTRATION

C-2 BOARD MEETINGS AND COMMITTEE MEETINGS

Disability Committee Minutes	April 24, 2018
Regular Board Meeting Minutes	May 14, 2018

Recommendation: Approve minutes.

ACTION ITEMS

NOTE: Public comment on matters listed in this agenda will be taken at the time the item is addressed, prior to the Board's discussion of the item. Persons wishing to address items on the agenda should provide written notice to the Secretary of the Board prior to the Board's discussion on the item by signing in on the Public Comment Sign-In Sheet located at the back of the room.

A-1 INDIVIDUAL ACTION ON ANY ITEM TRAILED FROM THE CONSENT AGENDA

A-2 DECEMBER 31, 2017 ACTUARIAL VALUATION

Presentation by Andy Yeung, Segal Consulting

Recommendation: Approve the Actuarial Valuation and Review as of December 31, 2017 and adopt contribution rates for Fiscal Year 2019 – 2020 as recommended by Segal Consulting.

A-3 2017 AUDITED FINANCIAL STATEMENTS AND COMPREHENSIVE ANNUAL FINANCIAL REPORTS

Presentation by Brenda Shott, Assistant Chief Executive Officer and Tracy Bowman, Director of Finance

Recommendation: Approve the following recommendations presented to the Audit Committee during a meeting held on June 7, 2018:

1. Approve OCERS' audited financial statements for the year ended December 31, 2017.
2. Direct staff to finalize OCERS' 2017 Comprehensive Annual Financial Report (CAFR)
3. Approve the Governmental Accounting Standards Board (GASB) Statement 67 Actuarial Valuation as of December 31, 2017.
4. Receive and file Macias, Gini & O'Connell LLP's (MGO) "OCERS' Report to the Audit Committee for the Year Ended December 31, 2017" and their "Independent Auditor's Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on

an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*."

A-4 GASB 68 VALUATION AND AUDIT REPORT

Presentation by Brenda Shott, Assistant Chief Executive Officer and Tracy Bowman, Director of Finance

Recommendation: Approve the following recommendations from the Audit Committee during a meeting held on June 7, 2018:

1. Approve OCERS' audited Schedule of Allocated Pension Amounts by Employer as of and for the Year Ended December 31, 2017.
2. Approve the Governmental Accounting Standards Board (GASB) Statement 68 Actuarial Valuation as of December 31, 2017 for distribution to employers.

INFORMATION ITEMS

I-1 MEMBER MATERIALS DISTRIBUTED

Written Report

Application Notices	June 18, 2018
Death Notices	June 18, 2018

I-2 CEO FUTURE AGENDAS AND 2018 OCERS BOARD WORK PLAN

Written Report

I-3 QUIET PERIOD – NON-INVESTMENT CONTRACTS

Written Report

I-4 LEGISLATIVE UPDATE

Written Report

I-5 2018 STRATEGIC PLANNING WORKSHOP – PROPOSED AGENDA TOPICS

Written Report

I-6 BUSINESS CONTINUITY AND DISASTER RECOVERY PLAN UPDATE

Written report

I-7 2018 ANNUAL OCERS BUSINESS PLAN PROGRESS – MID YEAR REVIEW

Written Report

I-8 OCERS 2018-2020 STRATEGIC PLAN PROGRESS – MID YEAR REVIEW

Written Report

I-9 UPDATE BOARD ELECTION, SAFETY MEMBER AND ALTERNATE SAFETY MEMBER RESULTS

Written Report

I-10 NIPA ANNUAL FORUM AND EXPO (NAFE)
Written Report

I-11 2018 MILKEN INSTITUTE CONFERENCE
Written Report

I-12 BUSINESS CONTINUITY AND DISASTER RECOVERY PLAN EXERCISE EXECUTIVE SUMMARY
Written Report

I-13 DISPOSITION OF EQUIPMENT
Written Report

I-14 BOARD COMMUNICATION
Written Report

I-15 BOARD SURFACE TABLET DEPLOYMENT
Presentation by Jenny Sadoski, Director of Information Technology, Information Technology, OCERS

DISABILITY APPLICATIONS/MEMBER APPEALS AGENDA

11:00 A.M.

NOTE: WHEN CONSIDERING DISABILITY RETIREMENT APPLICATIONS OR MEMBER APPEALS OF BENEFIT OR DISABILITY RETIREMENT DETERMINATIONS, THE BOARD MAY ADJOURN TO CLOSED SESSION TO DISCUSS MATTERS RELATING TO THE MEMBER'S APPLICATION OR APPEAL, PURSUANT TO GOVERNMENT CODE SECTIONS 54957 OR 54956.9. IF THE MATTER IS A DISABILITY APPLICATION UNDER SECTION 54957, THE MEMBER MAY REQUEST THAT THE DISCUSSION BE IN PUBLIC.

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DISABILITY/MEMBER BENEFITS AGENDA

11:00AM

OPEN SESSION
DISABILITY CONSENT AGENDA

All matters on the Disability Consent Agenda are to be approved by one action unless a Board member requires separate action on a specific item. If separate action is requested, the item will be discussed during agenda item DA-1.

DC-1 DISABILITY APPLICATION – RITA CASTILLO

Recommendation: The Disability Committee met on June 5, 2018 and recommends that the Board of Retirement grant non-service connected disability retirement to Rita Castillo with an effective date of December 14, 2016. (General Member)

DC-2 DISABILITY APPLICATION – FRANK GONZALES

Recommendation: The Disability Committee met on June 5, 2018, and recommends that the Board of Retirement grant service connected disability retirement to Frank Gonzales with an effective date of October 20, 2016. (Safety Member)

DC-3 DISABILITY APPLICATION – ARNESIA JONES

Recommendation: The Disability Committee met on June 5, 2018, and recommends that the Board of Retirement grant Service Connected Disability Retirement to Arnesia Jones with an effective date of July 25, 2017.

DC-4 DISABILITY APPLICATION – DEBORA VANDOR

Recommendation: The Disability Committee met on June 5, 2018, and recommends that the Board of Retirement grant service connected disability retirement to Debora Vandor with an effective date of September 14, 2017. (General Member)

ACTION ITEMS

DA-1 INDIVIDUAL ACTION ON ANY ITEM TRAILED FROM THE DISABILITY CONSENT AGENDA

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BOARD MEMBER COMMENTS

CHIEF EXECUTIVE OFFICER/STAFF COMMENTS

COUNSEL COMMENTS

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ADJOURNMENT: (IN MEMORY OF THE ACTIVE MEMBERS, RETIRED MEMBERS, AND SURVIVING SPOUSES WHO PASSED AWAY THIS PAST MONTH)

NOTICE OF NEXT MEETINGS

INVESTMENT COMMITTEE MEETING
June 27, 2018
9:00 A.M.

ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM
2223 E. WELLINGTON AVENUE, SUITE 100

SANTA ANA, CA 92701

DISABILITY COMMITTEE MEETING
July 3, 2018
9:00 A.M.

ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM
2223 E. WELLINGTON AVENUE, SUITE 100
SANTA ANA, CA 92701

GOVERNANCE COMMITTEE MEETING
July 10, 2018
9:00 A.M.

ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM
2223 E. WELLINGTON AVENUE, SUITE 100
SANTA ANA, CA 92701

REGULAR BOARD MEETING
July 16, 2018
9:00 A.M.

ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM
2223 E. WELLINGTON AVENUE, SUITE 100
SANTA ANA, CA 92701

All supporting documentation is available for public review in the retirement office during regular business hours, 8:00 a.m. – 5:00 p.m., Monday through Thursday and 8:00 a.m. – 4:30 p.m. on Friday.

It is OCERS' intention to comply with the Americans with Disabilities Act ("ADA") in all respects. If, as an attendee or participant at this meeting, you will need any special assistance beyond that normally provided, OCERS will attempt to accommodate your needs in a reasonable manner. Please contact OCERS via email at adminsupport@ocers.org or call 714-558-6200 as soon as possible prior to the meeting to tell us about your needs and to determine if accommodation is feasible. We would appreciate at least 48 hours' notice, if possible. Please also advise us if you plan to attend meetings on a regular basis.

C-1

Memorandum

DATE: June 18, 2018

TO: Members of the Board of Retirement

FROM: Adina Bercaru, Member Services Manager

SUBJECT: **OPTION 4 RETIREMENT ELECTION – GARY LEE**

Recommendation

Grant election of retirement benefit payment, Option 4, based on Segal Consulting's actuarial report.

Background/Discussion

This member has requested Option 4 as the benefit payment option for his service retirement allowance effective March 30, 2018. The Orange County Employees Retirement System (OCERS) was joined in the member's dissolution of marriage and under the terms of the Domestic Relations Order (DRO), the member's ex-spouse was awarded a lifetime continuance as a percentage of the member's allowance.

The approval of Option 4 will not increase OCERS liability because the cost of this Option 4 benefit is proportional to the cost of the other benefit plans. Segal Consulting has calculated the member's monthly allowance as indicated in the attached letter as well as the allowance payable to the member's ex-spouse.

Submitted by:

A. B. – APPROVED
Adina Bercaru
Member Services Manager

Segal Consulting

100 Montgomery Street Suite 500 San Francisco, CA 94104-4308
T 415.263.8200 www.segalco.com

DIRECT DIAL NUMBER
415-263-8254

E-MAIL ADDRESS
mcalcagno@segalco.com

PERSONAL and CONFIDENTIAL

VIA EMAIL and USPS

May 30, 2018

Ms. Adina Bercaru
Member Services Manager
Orange County Employees Retirement System
2223 Wellington Avenue
Santa Ana, CA 92701-3101

Re: Orange County Employees Retirement System
Option 4 Calculation for Gary Lee

Dear Adina:

Pursuant to your request, we have determined the Option 4 benefits payable to Gary Lee and his ex-spouse based on the unmodified benefit and other information provided in the System's request dated May 22, 2018.

The monthly benefits payable to the member and the ex-spouse and the data we used for our calculations are as follows:

Member's Date of Birth	
Ex-Spouse's Date of Birth	
Date of Retirement	March 30, 2018
Plan of Membership	Safety Plan F
Monthly Unmodified Benefit	$12,394.36
Ex-Spouse's Share of Monthly Unmodified Benefit	29.78%
Retirement Type	Service Retirement

Option 4 Benefit

The member and the ex-spouse bear the cost of Option 4 reduction equally for the DRO benefit		Payable while the Member is Alive	Payable After the Member's Death while the Ex-Spouse is Alive
Monthly Benefit Payable to Member			
	Annuity:	$1,338.87	
	Pension:	7,047.78	
	Total:	$8,386.65	$0
Monthly Benefit Payable to Ex-Spouse (or to the estate of the ex-spouse if the ex-spouse pre-deceases the member)		$3,374.37	$3,374.37

*Note: The member's benefit payable is equal to 70.22% (i.e., 100.00% - 29.78%) of the total unmodified benefit (i.e., 70.22% * $12,394.36) adjusted by $316.67 to provide a benefit payable over the ex-spouse's lifetime. The ex-spouse's benefit payable is equal to 29.78% of the total unmodified benefit (i.e., 29.78% * $12,394.36) adjusted by $316.67 to provide a benefit payable over the ex-spouse's lifetime.*

ACTUARIAL ASSUMPTIONS

Effective interest rate of 4.126214% per year, which is calculated using an investment return assumption of 7.25% per year together with a cost-of-living adjustment assumption of 3.00% per year.

RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 set back two years weighted 80% male and 20% female for members.

RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 20% male and 80% female for beneficiaries.

The actuarial calculations contained in this letter were performed under my supervision. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions herein.

Please let us know if you have any comments or questions. As in all matters pertaining to the interpretation and application of the law, Plan, or individual Option 4 Calculation provisions, you should be guided by the advice of the Plan's Legal Counsel.

Sincerely,

Molly Calcagno

Molly Calcagno, ASA, MAAA
Assistant Actuary

AW/bqb

ORANGE COUNTY
OCERS
EMPLOYEES RETIREMENT SYSTEM

June 7, 2018

Gary B. Lee

Re: Retirement Election Confirmation – Option 4

Dear Mr. LEE:

You have elected Option 4 as your retirement option, as required by your DRO. This option will provide a 29.78% of your monthly benefit, for the life of the benefit, to:

CATHERINE J. LEE

This designation is irrevocable; you will not be allowed to change your retirement option or designated beneficiary.

Please complete this form and return to OCERS as soon as possible.

( ) I understand that my retirement option is irrevocable; by choosing Option 4 I will take a monthly reduction in order to provide a 29.78% continuance to **CATHERINE J. LEE**.

gary lee / 06/08/2018

Member Signature / Date

Sincerely,

Zaida Miramontes
Retirement Program Specialist

Memorandum

DATE: June 18, 2018

TO: Members of the Board of Retirement

FROM: Adina Bercaru, Member Services Manager

SUBJECT: **OPTION 4 RETIREMENT ELECTION – MICHAEL MURPHY**

Recommendation

Grant election of retirement benefit payment, Option 4, based on Segal Consulting's actuarial report.

Background/Discussion

This member has requested Option 4 as the benefit payment option for his service retirement allowance effective March 30, 2018. The Orange County Employees Retirement System (OCERS) was joined in the member's dissolution of marriage and under the terms of the Domestic Relations Order (DRO), the member's ex-spouse was awarded a lifetime continuance as a percentage of the member's allowance.

The approval of Option 4 will not increase OCERS liability because the cost of this Option 4 benefit is proportional to the cost of the other benefit plans. Segal Consulting has calculated the member's monthly allowance as indicated in the attached letter as well as the allowance payable to the member's ex-spouse.

Submitted by:

A. B. – APPROVED
Adina Bercaru
Member Services Manager

Segal Consulting

100 Montgomery Street Suite 500 San Francisco, CA 94104-4308
T 415.263.8200 www.segalco.com

DIRECT DIAL NUMBER
415-263-8254

E-MAIL ADDRESS
mcalcagno@segalco.com

PERSONAL and CONFIDENTIAL

VIA EMAIL and USPS

May 30, 2018

Ms. Adina Bercaru
Member Services Manager
Orange County Employees Retirement System
2223 Wellington Avenue
Santa Ana, CA 92701-3101

Re: Orange County Employees Retirement System
Option 4 Calculation for Michael M. Murphy

Dear Adina:

Pursuant to your request, we have determined the Option 4 benefits payable to Michael M. Murphy and his ex-spouse based on the unmodified benefit and other information provided in the System's request dated May 22, 2018.

The monthly benefits payable to the member and the ex-spouse and the data we used for our calculations are as follows:

Member's Date of Birth	
Ex-Spouse's Date of Birth	
Date of Retirement	March 30, 2018
Plan of Membership	Safety Plan F
Monthly Unmodified Benefit	$5,392.62
Ex-Spouse's Share of Monthly Unmodified Benefit	37.66%
Retirement Type	Service Retirement

Option 4 Benefit **The ex-spouse bears the cost of Option 4 reduction for the DRO benefit**		Payable while the Member is Alive	Payable After the Member's Death while the Ex-Spouse is Alive
Monthly Benefit Payable to Member			
	Annuity:	$634.20	
	Pension:	2,727.56	
	Total:	$3,361.76	$0
Monthly Benefit Payable to Ex-Spouse (or to the estate of the ex-spouse if the ex-spouse pre-deceases the member)		$1,718.98*	$1,718.98

* *This is equal to 37.66% of the member's unmodified benefit (i.e., 37.66% * $5,392.62 or $2,030.86) adjusted further to provide a benefit payable over the ex-spouse's lifetime or to the estate of the ex-spouse if the ex-spouse pre-deceases the member.*

ACTUARIAL ASSUMPTIONS

Effective interest rate of 4.126214% per year, which is calculated using an investment return assumption of 7.25% per year together with a cost-of-living adjustment assumption of 3.00% per year.

RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 set back two years weighted 80% male and 20% female for members.

RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 20% male and 80% female for beneficiaries.

The actuarial calculations contained in this letter were performed under my supervision. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions herein.

Please let us know if you have any comments or questions. As in all matters pertaining to the interpretation and application of the law, Plan, or individual Option 4 Calculation provisions, you should be guided by the advice of the Plan's Legal Counsel.

Sincerely,

Molly Calcagno

Molly Calcagno, ASA, MAAA
Assistant Actuary

AW/bab

ORANGE COUNTY
OCERS
EMPLOYEES RETIREMENT SYSTEM

June 7, 2018

Michael Marshall Murphy

Re: Retirement Election Confirmation – Option 4

Dear Mr. MURPHY:

You have elected Option 4 as your retirement option, as required by your DRO. This option will provide a 37.66% of your monthly benefit, for the life of the benefit, to:

TERRILEE MURPHY

This designation is irrevocable; you will not be allowed to change your retirement option or designated beneficiary.

Please complete this form and return to OCERS as soon as possible.

(✓) I understand that my retirement option is irrevocable; by choosing Option 4 I will take a monthly reduction in order to provide a 37.66% continuance to **TERRILEE MURPHY.**

M.M. Murphy 6-8-2018
Member Signature / Date

Sincerely,

Zaida Miramontes

Zaida Miramontes
Retirement Program Specialist

Memorandum

DATE: June 18, 2018

TO: Members of the Board of Retirement

FROM: Adina Bercaru, Member Services Manager

SUBJECT: **OPTION 4 RETIREMENT ELECTION – WILLIAM A. VALDEZ**

Recommendation

Grant election of retirement benefit payment, Option 4, based on Segal Consulting's actuarial report.

Background/Discussion

This member has requested Option 4 as the benefit payment option for his service retirement allowance effective March 30, 2018. The Orange County Employees Retirement System (OCERS) was joined in the member's dissolution of marriage and under the terms of the Domestic Relations Order (DRO), the member's ex-spouse was awarded a lifetime continuance as a percentage of the member's allowance.

The approval of Option 4 will not increase OCERS liability because the cost of this Option 4 benefit is proportional to the cost of the other benefit plans. Segal Consulting has calculated the member's monthly allowance as indicated in the attached letter as well as the allowance payable to the member's ex-spouse.

Submitted by:

A. B. – APPROVED
Adina Bercaru
Member Services Manager

Segal Consulting

100 Montgomery Street Suite 500 San Francisco, CA 94104-4308
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PERSONAL and CONFIDENTIAL

VIA EMAIL and USPS

May 30, 2018

Ms. Adina Bercaru
Member Services Manager
Orange County Employees Retirement System
2223 Wellington Avenue
Santa Ana, CA 92701-3101

**Re: Orange County Employees Retirement System
Option 4 Calculation for William A. Valdez**

Dear Adina:

Pursuant to your request, we have determined the Option 4 benefits payable to William A. Valdez and his ex-spouse based on the unmodified benefit and other information provided in the System's request dated May 22, 2018.

The monthly benefits payable to the member and the ex-spouse and the data we used for our calculations are as follows:

Member's Date of Birth	
Ex-Spouse's Date of Birth	
Date of Retirement	March 30, 2018
Plan of Membership	Safety Plan F
Monthly Unmodified Benefit	$12,600.81
Ex-Spouse's Share of Monthly Unmodified Benefit	28.31%
Retirement Type	Service Retirement

Option 4 Benefit

The ex-spouse bears the cost of Option 4 reduction for the DRO benefit		Payable while the Member is Alive	Payable After the Member's Death while the Ex-Spouse is Alive
Monthly Benefit Payable to Member			
	Annuity:	$1,312.57	
	Pension:	7,720.95	
	Total:	$9,033.52	$0
Monthly Benefit Payable to Ex-Spouse (or to the estate of the ex-spouse if the ex-spouse pre-deceases the member)		$3,001.65*	$3,001.65

* *This is equal to 28.31% of the member's unmodified benefit (i.e., 28.31% * $12,600.81 or $3,567.29) adjusted further to provide a benefit payable over the ex-spouse's lifetime or to the estate of the ex-spouse if the ex-spouse pre-deceases the member.*

ACTUARIAL ASSUMPTIONS

Effective interest rate of 4.126214% per year, which is calculated using an investment return assumption of 7.25% per year together with a cost-of-living adjustment assumption of 3.00% per year.

RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 set back two years weighted 80% male and 20% female for members.

RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 20% male and 80% female for beneficiaries.

The actuarial calculations contained in this letter were performed under my supervision. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions herein.

Please let us know if you have any comments or questions. As in all matters pertaining to the interpretation and application of the law, Plan, or individual Option 4 Calculation provisions, you should be guided by the advice of the Plan's Legal Counsel.

Sincerely,

Molly Calcagno

Molly Calcagno, ASA, MAAA
Assistant Actuary

AW/bqb

5538971v1/05794.001

ORANGE COUNTY
OCERS
EMPLOYEES RETIREMENT SYSTEM

RECEIVED
JUN 1 ? 2018
Orange County Employees Retirement System

June 6, 2018

William A. Valdez

Re: Retirement Election Confirmation – Option 4

Dear Mr. VALDEZ:

You have elected Option 4 as your retirement option, as required by your DRO. This option will provide a 28.31% of your monthly benefit, for the life of the benefit, to:

DONNA JEAN VALDEZ

This designation is irrevocable; you will not be allowed to change your retirement option or designated beneficiary.

Please complete this form and return to OCERS as soon as possible.

[X] I understand that my retirement option is irrevocable; by choosing Option 4 I will take a monthly reduction in order to provide a 28.31% continuance to **DONNA JEAN VALDEZ.**

William C. Valdez / 06/06/18
Member Signature / Date

Sincerely,

Zaida Miramontes

Zaida Miramontes
Retirement Program Specialist

ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM 2223 E. Wellington Avenue, Suite 100, Santa Ana, CA 92701
Telephone (714) 558-6200 Fax (714) 558-6234 www.ocers.org

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

Memorandum

DATE: June 18, 2018

TO: Members of the Board of Retirement

FROM: Adina Bercaru, Member Services Manager

SUBJECT: **OPTION 4 RETIREMENT ELECTION – MICHAEL Z. WHALEN**

Recommendation

Grant election of retirement benefit payment, Option 4, based on Segal Consulting's actuarial report.

Background/Discussion

This member has requested Option 4 as the benefit payment option for his service retirement allowance effective March 16, 2018. The Orange County Employees Retirement System (OCERS) was joined in the member's dissolution of marriage and under the terms of the Domestic Relations Order (DRO), the member's ex-spouse was awarded a lifetime continuance as a percentage of the member's allowance.

The approval of Option 4 will not increase OCERS liability because the cost of this Option 4 benefit is proportional to the cost of the other benefit plans. Segal Consulting has calculated the member's monthly allowance as indicated in the attached letter as well as the allowance payable to the member's ex-spouse.

Submitted by:

A. B. – APPROVED
Adina Bercaru
Member Services Manager

Segal Consulting

100 Montgomery Street Suite 500 San Francisco, CA 94104-4308
T 415.263.8200 www.segalco.com

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mcalcagno@segalco.com

PERSONAL and CONFIDENTIAL

VIA EMAIL and USPS

May 30, 2018

Ms. Adina Bercaru
Member Services Manager
Orange County Employees Retirement System
2223 Wellington Avenue
Santa Ana, CA 92701-3101

**Re: Orange County Employees Retirement System
Option 4 Calculation for Michael Z. Whalen**

Dear Adina:

Pursuant to your request, we have determined the Option 4 benefits payable to Michael Z. Whalen and his ex-spouse based on the unmodified benefit and other information provided in the System's request dated May 24, 2018.

The monthly benefits payable to the member and the ex-spouse and the data we used for our calculations are as follows:

Member's Date of Birth	
Ex-Spouse's Date of Birth	
Date of Retirement	March 16, 2018
Plan of Membership	Safety Plan F
Monthly Unmodified Benefit	$9,522.07
Ex-Spouse's Share of Monthly Unmodified Benefit	36.87%
Retirement Type	Service Retirement

Option 4 Benefit **The ex-spouse bears the cost of Option 4 reduction for the DRO benefit**	Payable while the Member is Alive	Payable After the Member's Death while the Ex-Spouse is Alive
Monthly Benefit Payable to Member		
Annuity:	$843.59	
Pension:	5,167.69	
Total:	$6,011.28	$0
Monthly Benefit Payable to Ex-Spouse (or to the estate of the ex-spouse if the ex-spouse pre-deceases the member)	$3,166.10*	$3,166.10

* *This is equal to 36.87% of the member's unmodified benefit (i.e., 36.87% * $9,522.07 or $3,510.79) adjusted further to provide a benefit payable over the ex-spouse's lifetime or to the estate of the ex-spouse if the ex-spouse pre-deceases the member.*

ACTUARIAL ASSUMPTIONS

Effective interest rate of 4.126214% per year, which is calculated using an investment return assumption of 7.25% per year together with a cost-of-living adjustment assumption of 3.00% per year.

RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 set back two years weighted 80% male and 20% female for members.

RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 20% male and 80% female for beneficiaries.

The actuarial calculations contained in this letter were performed under my supervision. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions herein.

Please let us know if you have any comments or questions. As in all matters pertaining to the interpretation and application of the law, Plan, or individual Option 4 Calculation provisions, you should be guided by the advice of the Plan's Legal Counsel.

Sincerely,

Molly Calcagno

Molly Calcagno, ASA, MAAA
Assistant Actuary

AW/bqb

ORANGE COUNTY
OCERS
EMPLOYEES RETIREMENT SYSTEM

June 6, 2018

Michael Z. Whalen

Re: Retirement Election Confirmation – Option 4

Dear Mr. WHALEN:

You have elected Option 4 as your retirement option, as required by your DRO. This option will provide a 36.87% of your monthly benefit, for the life of the benefit, to:

LISA ANNE WHALEN

This designation is irrevocable; you will not be allowed to change your retirement option or designated beneficiary.

Please complete this form and return to OCERS as soon as possible.

(X) I understand that my retirement option is irrevocable; by choosing Option 4 I will take a monthly reduction in order to provide a 36.87% continuance to **LISA ANNE WHALEN**.

Michael Z Whalen 6-6-18
Member Signature / Date

Sincerely,

Zaida Miramontes
Retirement Program Specialist

ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM 2223 E. Wellington Avenue, Suite 100, Santa Ana, CA 92701
Telephone (714) 558-6200 Fax (714) 558-6234 www.ocers.org

C-2

ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM
2223 E. WELLINGTON AVENUE, SUITE 100
SANTA ANA, CALIFORNIA 92701

DISABILITY COMMITTEE MEETING
April 24, 2018
1:00 p.m. or Upon Adjournment of the Investment Committee Meeting, whichever is later

MINUTES

The Chair called the meeting to order at 1:25p.m. Attendance was as follows:

Present: Roger Hilton, Chair; Frank Eley, Vice Chair; David Ball; Chris Prevatt

Staff: Steve Delaney, CEO; Suzanne Jenike, Assistant CEO, External Operations; Gina Ratto, General Counsel; Sonal Sharma, Recording Secretary; Anthony Beltran, Audio Visual Technician

PUBLIC COMMENTS
None.

OPEN SESSION

INFORMATION ITEMS

I-1 OVERVIEW OF JUNE 5, 2018 DISABILITY COMMITTEE MEETING
Presented by Suzanne Jenike, Assistant CEO, External Operations

Suzanne Jenike, Assistant CEO of External Operations reviewed the mechanics of the newly formed Disability Committee summarized below:

- A detailed review of the 2018 Calendar and Timeline.
- A detailed explanation of the process of hearing matters in closed session/closed hearing and reporting decisions in public. Disability matters will be presented to the Committee one at a time with Disability Staff escorting each applicant into the Board to hear their matter. The Disability Chair will report all decisions at the end of the closed hearing period. General Counsel will be available if consultation is needed.
- The format of materials that will be presented to the Committee will include the same materials currently provided to the Board of Retirement. The Board of Retirement will receive modified face pages showing the Disability Committee recommendation. Should the Board wish to challenge the recommendation made by the Disability Committee, they will have the option to do so.
- The materials posted on Board Vantage will be similar to what the Board uses currently.
- An Orange County Sheriff will be present at all Disability Committee Meetings.
- A letter will be mailed to all pending applicants informing them of the change in process which will include a copy of the OCERS Administrative Procedure as well as the Disability Committee Charter.

I-2 DISABILITY APPLICATION REVIEW PROCESS - OCERS ADMINISTRATIVE PROCEDURE (OAP)
Presented by Suzanne Jenike, Assistant CEO, External Operations

Ms. Jenike reviewed some highlights of the Disability Application Review Process:

- The goal of the Disability Application Review Process is to include clear timelines so all parties are aware of where they are in the process and to hold staff and members accountable throughout the process so applications are processed in a timely manner.
- An overview of the OAP is summarized below:
  - Member applies for Disability Retirement.
  - OCERS Disability Staff investigates.
  - Disability Staff schedules Independent Medical Examination with panel physician who is board certified in specialty associated to members claimed condition(s).
  - Disability Staff develops staff recommendation.
  - Legal issues are reviewed with Legal Team.
  - Staff Committee reviews all cases.
  - Presented to Disability Committee.
- The Disability Staffs' philosophical approach is to do its very best to assist all members in identifying conditions that satisfy the disability standard and assist members in their efforts to establish rights to a benefit. In the event a member provides insufficient evidence, the disability staff will get more information from the member, their doctors or employer to help advance the case.

I-3 ADMINISTRATIVE HEARING FILING PROCEDURES - OCERS ADMINISTRATIVE PROCEDURE (OAP)
Presented by Lee Fink, Deputy General Counsel

Lee Fink, Deputy General Counsel, reviewed the Administrative Hearing Filing Procedures. The Hearing Rules required that OCERS create an OAP to set forth the new electronic filing procedures. The OAP also explains the technical requirements for documents and sets up samples/templates of documents that can be used. In the initial phase, the electronic filing will be accomplished through sending the documents to be filed to a designated OCERS e-mail account.

The OCERS IT Department is currently working on updating the OCERS website. As part of that project, we may be able to create a web-based portal for submitting documents down the road, but for now a start is for documents to be submitted via e-mail. The Committee discussed cyber security considerations and improvements that could be taken into account.

Mr. Fink invited the Committee members to attend two orientations regarding the Administrative Rules. The invitation is open to stakeholders, Hearing Officers, Board Members, educating them on the new Hearing Rules and the electronic filing.

I-4 UPDATE ON PANEL PHYSICIAN AND HEARING OFFICER CONTRACTS
Presented by Lee Fink, Deputy General Counsel

Mr. Fink presented an update on Panel Physicians and Hearing Officer Contracts. Staff revised the contracts so that the OCERS contractors will be accountable to fulfilling their part of the timeline and standards. Staff will finalize the contracts in the near future.

COMMITTEE MEMBER COMMENTS

CHIEF EXECUTIVE OFFICER/STAFF COMMENTS

COUNSEL COMMENTS

ADJOURNMENT: The Chair adjourned the meeting at 2:35 p.m.

Submitted by:	Approved by:
__________________________	______________________________
Steve Delaney	Roger Hilton
Secretary to the Committee	Chair

ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM
BOARD OF RETIREMENT
2223 E. WELLINGTON AVENUE, SUITE 100
SANTA ANA, CALIFORNIA

REGULAR MEETING
Monday, May 14, 2018
9:00 a.m.

MINUTES

Chair Prevatt called the meeting to order at 9:02 a.m.

Attendance was as follows:

Present: Chris Prevatt, Chair; Chuck Packard, Vice-Chair; Eric Gilbert; David Ball; Roger Hilton; Shawn Dewane; Frank Eley; Russell Baldwin and Shari Freidenrich

Also Present: Steve Delaney, Chief Executive Officer; Brenda Shott, Assistant CEO, Finance and Internal Operations; Suzanne Jenike, Assistant CEO, External Operations; Molly Murphy, Chief Investment Officer; Jenny Sadoski, Director of Information Technology; Gina Ratto, General Counsel; Lee Fink, Deputy General Counsel; Anthony Beltran, Visual Technician; Megan Cortez; Disability Coordinator; Cammy Danciu, Recording Secretary.

Guests: Harvey Leiderman

Absent: Wayne Lindholm

Mr. Gilbert led the Pledge of Allegiance.

CONSENT AGENDA

All matters on the Consent Agenda are to be approved by one action unless a Board Member or a member of the public requests separate action on a specific item.

Ms. Freidenrich pulled item C-3 and C-4 for discussion.

A **motion** was made by Mr. Dewane **seconded** by Mr. Packard to move the remainder of the consent agenda.

Motion passed **unanimously**.

BENEFITS

C-1 OPTION 4 RETIREMENT ELECTION

Recommendation: Grant election of retirement benefit payment, Option 4, based on Segal Consulting's actuarial report.
(1) Mitchell Cherness
(2) Joseph Smith

ADMINISTRATION

C-2 BOARD MEETING MINUTES

Regular Board Meeting Minutes April 18, 2018

Recommendation: Approve minutes.

C-3 INVESTMENT COMMITTEE OUTCOMES FROM APRIL 24, 2018 MEETING

Recommendation: The Investment Committee recommends that the Board of Retirement:
(1) Adopt revisions to the Investment Committee Charter as approved by the Investment Committee.

C-4 INVESTING FOR A SUSTAINABLE WORLD

Recommendation: Approve Russell Baldwin's attendance and related expenses including overnight accommodations for the "Investing for a Sustainable World" Conference, May 30-June 1, 2018, at the Omni Shoreham in Washington D.C.

ACTION ITEMS

NOTE: Public comment on matters listed in this agenda will be taken at the time the item is addressed, prior to the Board's discussion of the item. Persons wishing to address items on the agenda should provide written notice to the Secretary of the Board prior to the Board's discussion on the item by signing in on the Public Comment Sign-In Sheet located at the back of the room.

A-1 INDIVIDUAL ACTION ON ANY ITEM TRAILED FROM THE CONSENT AGENDA

C-3 - INVESTMENT COMMITTEE OUTCOMES FROM APRIL 24, 2018 MEETING

Ms. Freidenrich commented on the delegating authority portion of the item. She stated that the delegation should be a specific person instead of it being a general delegation.

Mr. Prevatt explained the delegation process under the charter and stated that he does not want a specific person to be added in the charter. The committee has the authority to delegate based on their decisions.

Mr. Delaney concurred with Mr. Prevatt that this gives a general authority for delegation.

A **motion** was made by Ms. Freidenrich **seconded** by Mr. Eley to move item C-3 of the consent agenda.

Motion passed **unanimously**.

C-4- INVESTING FOR A SUSTAINABLE WORLD

Ms. Freidenrich did not like that this item was a last minute addition to the agenda.

Mr. Prevatt stated that OCERS was within policy for the addition of the item. He recommended approval of Mr. Baldwin's travel based on OCERS travel policy.

Ms. Freidenrich stated that it is a poor business practice to add last minute travel items to the agenda as there isn't an opportunity for the public to add their comments. She stated that she is not in support of this conference due to timing as it sets a bad precedence.

Mr. Baldwin apologized for the late addition.

Mr. Eley stated that the conference is a good idea and supported Mr. Baldwin's attendance.

A **motion** was made by Mr. Packard **seconded** by Mr. Dewane to move item C-4 of the consent agenda.

Motion passed **8-1** with Ms. Freidenrich voting "No".

A-2 SACRS BUSINESS MEETING – DIRECTION TO OCERS VOTING DELEGATE RE: SB 1270
Presentation by Gina Ratto, General Counsel, OCERS

Recommendation: Direct the OCERS' Voting Delegate and Alternate Delegates to vote **IN FAVOR** of SACRS' proposal to co-sponsor SB 1270 (Videk) at the SACRS business meeting on May 18, 2018.

Ms. Ratto discussed the SACRS business meeting, direction to OCERS voting delegate RE:SB 1270.

She stated that staff recommends the Board direct the OCERS voting delegate/alternate delegates to vote in favor of SACRS' proposal to co-sponsor SB 1270.

Mr. Eley stated his concerns regarding the language in the SB1270 document where it states, "The persons so appointed shall be county employees and shall be included in the salary ordinance or salary resolution adopted by the board of supervisors…" He stated that this will not accomplish what is intended to be accomplished. He also pointed out that there's a conflict between County employees and direct hire employees of a system.

Ms. Ratto discussed her reasoning as to why the SB1270 language was drafted the way it's written.

At the direction of Chair Prevatt, Ms. Ratto stated that she will communicate with SACRS the observation that Mr. Eley communicated.

A **motion** was made by Mr. Ball **seconded** by Mr. Packard to direct the OCERS' Voting Delegate and Alternate Delegates to vote **IN FAVOR** of SACRS' proposal to co-sponsor SB 1270 (Videk) at the SACRS business meeting on May 18, 2018.

Motion passed **unanimously.**

INFORMATION ITEMS

I-1 MEMBER MATERIALS DISTRIBUTED
Written Report

Application Notices	May 14, 2018
Death Notices	May 14, 2018

I-2 CEO FUTURE AGENDAS AND 2018 OCERS BOARD WORK PLAN
Written Report

I-3 QUIET PERIOD – NON-INVESTMENT CONTRACTS
Written Report

I-4 LEGISLATIVE UPDATE
Written Report

I-5 2018 FIRST QUARTER BUDGET TO ACTUAL REPORT
Written Report

I-6 2018 FIRST QUARTER PRELIMINARY FINANCIAL STATEMENTS
Written Report

I-7 UPDATE TO BOARD ELECTION, SAFETY MEMBER AND ALTERNATE SAFETY MEMBER
Written Report

I-8 BOARD POLICY COMPLIANCE
Written Report

I-9 TRAVEL REPORT – CALIFORNIA RETIRED COUNTY EMPLOYEES ASSOCIATION (CRCEA) SPRING 2018
Written Report

I-10 TRAVEL REPORT – WOMEN'S PRIVATE EQUITY SUMMIT 2018
Written Report

I-11 PRELIMINARY DECEMBER 31, 2017 ACTUARIAL VALUATION
Presentation by Andy Yeung, Segal Consulting

Mr. Yeung discussed the Preliminary December 31, 2017 Actuarial Valuation.

Mr. Ball asked if the UAAL and Actuarial Valuation changed with the new assumptions adopted and if contribution rates were consistent with the estimates provided a few months ago.

Mr. Yeung explained the reason for the changes.

Mr. Ball and Mr. Yeung discussed the differences in payment amount when there is a reduction in interest rates when using percentage of pay verses flat payment amounts. They will discuss offline.

Mr. Prevatt asked Ms. Shott to give an update with the City of Cypress Recreation and Parks.

Ms. Shott stated that OCERS has an agreement drafted that will be sent to the City Cypress mirroring a similar agreement as Vector Control. The agreement will include a time frame for paying off their unfunded liability.

Ms. Freidenrich discussed Plan W and asked why OCERS didn't combine Plan W into Plan T. She asked Mr. Yeung to discuss why a new plan was created.

Mr. Yeung discussed the reasons, based on discussions and experiences as to why a new plan was created instead of adding plans together.

Mr. Eley stepped out at 10:05am.

Mr. Eley returned at 10:09am.

Mr. Prevatt stepped out at 10:11am.

Mr. Prevatt returned at 10:13am.

Ms. Molly Calcagno of Segal Consulting discussed the reconciliation of employer contributions for safety members.

Mr. Gilbert stepped out at 10:38am.

Mr. Gilbert returned at 10:39am.

Mr. Eley stepped out at 10:59am.

Mr. Hilton discussed mortality and assumption rate specifically for safety members.

Mr. Yeung stated that safety members are living longer and every year there would be an increase in the UAAL related to actuarial losses if assumptions weren't adjusted. They recommend a more conservative approach during the recent experience study to reflect that members live longer.

Mr. Eley returned at 11:01am.

The Board recessed for break at 11:04am.

The Board reconvened from break at 11:17am.

I-12 REFRESHER ON THE NEW PROCESS FOR DISABILITY RETIREMENT DETERMINATIONS
Presentation by Suzanne Jenike, Assistant CEO and Gina Ratto, General Counsel, OCERS

Ms. Jenike discussed the new process for the Disability retirement determinations.

Ms. Freidenrich asked what documentation will be brought to the full board.

Ms. Jenike discussed the process and the type of communication that will be brought to the board.

*** * * * * * * END OF INDIVIDUAL ITEMS AGENDA * * * * * ***

<u>DISABILITY APPLICATIONS/MEMBER APPEALS AGENDA</u>

11:00 A.M.

<u>DISABILITY CONSENT AGENDA</u>

<u>Note: Mr. Lindholm's absence on May 14, 2018.</u>

All matters on the Disability Consent Agenda are to be approved by one action unless a Board Member or a member of the public requests separate action on a specific item.

D-1: Kevin Ward

<u>Recommendation:</u> Dismiss the appeal of the effective date of the Applicant's service connected disability retirement benefit without prejudice due to the Applicant's failure to cooperate. (General Member)

Item D-1 was **<u>pulled</u>** from the agenda.

<u>DISABILITY INDIVIDUAL AGENDA</u>

D-2: INDIVIDUAL ACTION ON ANY ITEM TRAILED FROM THE CONSENT AGENDA

Ms. Cortez presented item D-3.

D-3: Jeffrey Baclawski
Firefighter, Orange County Fire Authority
Date of employee filed application for service connected disability retirement: 01/06/2017

Recommendation: Grant service connected disability retirement with an effective date of January 6, 2017. (Safety Member)

A **motion** was made by Mr. Gilbert, **seconded** by Mr. Dewane to grant service connected disability retirement with an effective date of January 6, 2017. The motion carried **8-0** with voting as follows:

AYES	NAYS	ABSTAIN	ABSENT
Chair Prevatt			Mr. Lindholm
Mr. Dewane			
Mr. Ball			
Mr. Baldwin			
Mr. Packard			
Mr. Eley			
Mr. Gilbert			
Ms. Freidenrich			

Ms. Cortez presented item D-4.

D-4: Cheryl Cisowski
Deputy Sheriff II, Orange County Sheriff's Department
Date of employer filed application for service and non-service connected disability retirement: 10/26/2016
Date of employee filed application for service and non-service connected disability retirement: 02/10/2017

Recommendation: Grant service connected disability retirement with an effective date of April 14, 2017. (Safety Member)

A **motion** was made by Mr. Hilton, **seconded** by Mr. Dewane to grant service connected disability retirement with an effective date of April 14, 2017. The motion carried **8-0** with voting as follows:

AYES	NAYS	ABSTAIN	ABSENT
Chair Prevatt			Mr. Lindholm
Mr. Dewane			
Mr. Ball			
Mr. Baldwin			
Mr. Packard			
Mr. Eley			
Mr. Hilton			
Ms. Freidenrich			

Ms. Cortez presented item D-5.

D-5: Jonathan Lim
Firefighter, Orange County Fire Authority
Date of employer filed application for service and non-service connected disability retirement: 04/28/2017

Date of employee filed application for service and non-service connected disability retirement: 08/08/2017

Recommendation: **Grant service connected disability retirement with an effective date of June 09, 2017. Find the Applicant is capable of performing other duties in the service of the Orange County Fire Authority pursuant to Government Code Section 31725.65.Grant a supplemental disability retirement payment. Request that the Board require Mr. Lim to undergo the reexamination process in two years' time per Government Code section 31729. (Safety Member)**

A **motion** was made by Mr. Gilbert, **seconded** by Mr. Eley to grant service connected disability retirement with an effective date of June 09, 2017. Find the Applicant is capable of performing other duties in the service of the Orange County Fire Authority pursuant to Government Code Section 31725.65.Grant a supplemental disability retirement payment. Request that the Board require Mr. Lim to undergo the reexamination process in two years' time per Government Code section 31729. The motion carried **8-0** with voting as follows:

AYES	NAYS	ABSTAIN	ABSENT
Chair Prevatt			Mr. Lindholm
Mr. Dewane			
Mr. Ball			
Mr. Baldwin			
Mr. Packard			
Mr. Eley			
Mr. Gilbert			
Ms. Freidenrich			

Ms. Cortez presented item D-6.

D-6: Claudine Otero-Murrietta

Deputy Juvenile Correctional Officer I, Orange County Probation Department
Date of employee filed application for service connected disability retirement: 07/08/2016

Recommendation: **Grant service connected disability retirement with an effective date of December 7, 2007. Find the Applicant is capable of performing other duties in the service of the County of Orange pursuant to Government Code Section 31725.65. Grant a supplemental disability retirement payment allowance. (Safety Member)**

A **motion** was made by Mr. Hilton, **seconded** by Mr. Eley to grant service connected disability retirement with an effective date of December 7, 2007. Find the Applicant is capable of performing other duties in the service of the County of Orange pursuant to Government Code Section 31725.65. Grant a supplemental disability retirement payment allowance. The motion carried **8-0** with voting as follows:

AYES	NAYS	ABSTAIN	ABSENT
Chair Prevatt			Mr. Lindholm
Mr. Dewane			
Mr. Ball			
Mr. Baldwin			

Mr. Packard
Mr. Eley
Mr. Hilton
Ms. Freidenrich

Ms. Cortez presented item D-7.

D-7: Maritza Partida
Senior Social Services Supervisor, Social Services Agency
Date of employee filed application for non-service connected disability retirement: 04/05/2018

Recommendation: Grant non-service connected disability retirement with an effective date of April 13, 2018. (General Member)

A **motion** was made by Mr. Baldwin, **seconded** by Mr. Eley to grant non-service connected disability retirement with an effective date of April 13, 2018. The motion carried **8-0** with voting as follows:

AYES	NAYS	ABSTAIN	ABSENT
Chair Prevatt			Mr. Lindholm
Mr. Dewane			
Mr. Ball			
Mr. Baldwin			
Mr. Packard			
Mr. Eley			
Mr. Hilton			
Ms. Freidenrich			

Ms. Cortez presented item D-8.

D-8: Derek Peter
Firefighter/Paramedic, Orange County Fire Authority
Date of employee filed application for service connected disability retirement: 07/18/2017

Recommendation Grant service connected disability retirement with an effective date of September 29, 2017. (Safety Member)

A **motion** was made by Mr. Gilbert, **seconded** by Mr. Packard to grant service connected disability retirement with an effective date of September 29, 2017. The motion carried **8-0** with voting as follows:

AYES	NAYS	ABSTAIN	ABSENT
Chair Prevatt			Mr. Lindholm
Mr. Dewane			
Mr. Ball			
Mr. Baldwin			
Mr. Packard			
Mr. Eley			
Mr. Gilbert			

Ms. Freidenrich

Ms. Cortez presented item D-9.

D-9: Suzy Yasol
Office Specialist, Health Care Agency
Date of employee filed application for service connected disability retirement: 10/4/2016

Recommendation Grant service connected disability retirement with an effective date of October 4, 2016. (General Member)

A **motion** was made by Mr. Eley, **seconded** by Mr. Baldwin to grant service connected disability retirement with an effective date of October 4, 2016. The motion carried **8-0** with voting as follows:

AYES	NAYS	ABSTAIN	ABSENT
Chair Prevatt			Mr. Lindholm
Mr. Dewane			
Mr. Ball			
Mr. Baldwin			
Mr. Packard			
Mr. Eley			
Mr. Hilton			
Ms. Freidenrich			

Ms. Cortez presented item D-10.

D-10: Brian Petros
Administrative Manager I, Orange County Health Care Agency
Date of employee filed application for service and non-service connected disability retirement: 07/26/2017

Recommendation Deny service and non-service connected disability retirement due to insufficient evidence of permanent incapacity. (General Member)

Item D-10 was **pulled** from the agenda.

Ms. Cortez presented item D-11.

D-11: Paula Snyder
Office Services Specialist, Orange County Fire Authority
Date of employee filed application for service connected disability retirement: 10/26/2016

Recommendation Deny service and non-service connected disability retirement due to insufficient evidence of permanent incapacity. (General Member)

Paula Snyder discussed why her disability should not be denied.

A substitute **motion** was made by Mr. Prevatt **seconded** by Mr. Baldwin to grant connected service disability.

Motion did not carry.

Another substitute **motion** was made by Mr. Packard, **seconded** by Mr. Ball to defer this matter to a hearing officer for further examination. The motion carried **6-2** with voting as follows:

AYES	NAYS	ABSTAIN	ABSENT
Mr. Dewane	Mr. Baldwin		Mr. Lindholm
Mr. Ball	Chair Prevatt		
Mr. Packard			
Mr. Eley			
Mr. Hilton			
Ms. Freidenrich			

****

PUBLIC COMMENTS: At this time members of the public may address the Board of Retirement regarding any items within the subject matter jurisdiction of the Board, provided that no action may be taken on non-agendized items unless authorized by law.

N/A

BOARD MEMBER COMMENTS

N/A

CHIEF EXECUTIVE OFFICER/STAFF COMMENTS

Ms. Hockless updated the Board on OCERS staffing status as of May 16, 2018.

Mr. Hilton left at 12:17pm.

COUNSEL COMMENTS

N/A

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ADJOURNMENT: (IN MEMORY OF THE ACTIVE MEMBERS, RETIRED MEMBERS, AND SURVIVING SPOUSES WHO PASSED AWAY THIS PAST MONTH)

Active Members
Partida, Maritza
Rios, Claudio

Retired Members

Agee, Thomas
Al-Sunna, Saeb
Bernard, G-Jimmie
Bien, Ann
Burns, Ardith
Chesshir, Leeds
Chicklo, Michael
Clark, Dane
Cobbett. William
Compton, Ariel
Coons, Bonnie
Curtis, Edward
Denisac, Raul
Dionne, Linda
Dirden, Josephine
Frazier, Carol
Graner, Beverly
Hiller, Robert
Kay, Barbara
Kimpo, Ramon
Kohlberg, Charles
Liberator, Carol
Mandell, Irma
Mannion, Horace
Marquez, Anna
May, Kay
Mc Nealey, Evelyn
McDonald, Bredaline
Mishica, Josheph
Morrow, Kathryn
Mucia, Anton
Powell, Robin
Reza. Connie
Sherman, Natalie
Simpson, Warren
Slupsky, Suzanne
Smith, Elmer
Towne, Leroy
Truitt, Patricia
Ureta, Ignacio
Walker, Milo
Waterman, Patricia
White, Betty

Surviving Spouses
Allemant, Jose
Brady, Floy
Collins, Marlene
Heppert, Elizabeth
Johnston, Ann

Kuroda, Hideo
Lane, Thomas
Powers, Gail
Sena, Alice

There being no further business to bring before the Board, the meeting adjourned at 12:23p.m.

Submitted by:	Approved by:
___________________________	______________________________
Steve Delaney	Chris Prevatt
Secretary to the Board	Chairman

A-2

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

Memorandum

DATE: June 07, 2018

TO: Members of the Board of Retirement

FROM: Brenda Shott, Assistant CEO, Finance and Internal Operations

SUBJECT: **DECEMBER 31, 2017 ACTUARIAL VALUATION**

Recommendation

Approve the Actuarial Valuation and Review as of December 31, 2017 and adopt contribution rates for Fiscal Year 2019 – 2020 as recommended by Segal Consulting.

Background/Discussion

In May the OCERS Board of Retirement considered the preliminary results of the December 31, 2017 Actuarial Valuation in PowerPoint format with Mr. Paul Angelo from Segal Consulting.

On June 18, Mr. Andy Yeung will present the complete Actuarial Valuation and Review as of December 31, 2017 which contains greater detail, and the Board will be requested to formally adopt that report and the contribution rates that will go into effect in Fiscal Year 2019-2020.

The Board considers the Actuarial Valuation report in this two-step process (a process shared by only two other Segal public pension clients) as a courtesy to our many stakeholders, allowing them an opportunity to consider the initial data and provide comment prior to a formal adoption. To-date we have received no comments or concerns regarding the Actuarial Valuation as of December 31, 2017.

Submitted by:

Brenda M Shott

Brenda Shott

Assistant CEO, Finance and Internal Operations

Approved by:

Steve Delaney

Steve Delaney

CEO

Orange County Employees Retirement System

Actuarial Valuation and Review as of December 31, 2017

This report has been prepared at the request of the Board of Retirement to assist in administering the Fund. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Retirement and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

Segal Consulting
100 Montgomery Street, Suite 500 San Francisco, CA 94104
T 415.263.8200 F 415.376.1167 www.segalco.com

June 5, 2018

Board of Retirement
Orange County Employees Retirement System
2223 Wellington Avenue
Santa Ana, CA 92701

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of December 31, 2017. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2019/2020 and analyzes the preceding year's experience.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Plan. The census and financial information on which our calculations were based was prepared by Orange County Employees Retirement System (OCERS). That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in plan provisions or applicable law.

The actuarial calculations were completed under the supervision of Andy Yeung, ASA, MAAA, FCA, Enrolled Actuary. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

Paul Angelo	Andy Yeung	Molly Calcagno
Paul Angelo, FSA, EA, MAAA, FCA	*Andy Yeung, ASA, EA, MAAA, FCA*	*Molly Calcagno, ASA, MAAA*
Senior Vice President and Actuary	*Vice President and Actuary*	*Assistant Actuary*

MYM/jl

SECTION 1

VALUATION SUMMARY

SECTION 2

VALUATION RESULTS

SECTION 3

SUPPLEMENTAL INFORMATION

SECTION 4

REPORTING INFORMATION

Purpose

This report has been prepared by Segal Consulting to present a valuation of the Orange County Employees Retirement System as of December 31, 2017. The valuation was performed to determine whether the assets and contributions are expected to be sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of OCERS, as administered by the Board of Retirement;
- The characteristics of covered active members, inactive vested members, retired members, and beneficiaries as of December 31, 2017, provided by OCERS;
- The assets of the Plan as of December 31, 2017, provided by OCERS;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board for the December 31, 2017 valuation; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc. adopted by the Board for the December 31, 2017 valuation.

One of the general goals of an actuarial valuation is to establish contributions that fully fund the System's liabilities, and that, as a percentage of payroll, remain as level as possible for each generation of active members. Annual actuarial valuations measure the progress toward this goal, as well as test the adequacy of the contribution rates.

In preparing this valuation, we have employed generally accepted actuarial methods and assumptions to evaluate the System's assets, liabilities and future contribution requirements. Our calculations are based upon member data and financial information provided to us by the System's staff. This information has not been audited by us, but it has been reviewed and found to be consistent, both internally and with prior year's information.

Ref: Pgs. 108 - 119

The contribution requirements are determined as a percentage of payroll. The System's employer rates provide for both normal cost and a contribution to amortize any unfunded or overfunded actuarial accrued liabilities. In this valuation, we have applied the Board's funding policy adopted in 2014 (and reaffirmed in 2018) to combine and re-amortize the outstanding balance of the unfunded actuarial accrued liability (UAAL) from the December 31, 2012 valuation over a declining 20-year period effective with the December 31, 2013 valuation. Any changes in UAAL due to actuarial gains or losses or due to changes in assumptions or methods will be amortized over separate 20-year periods. Any changes in UAAL due to plan amendments will be amortized over separate 15-year periods and any change in UAAL due to an early retirement incentive program will be amortized over a separate period of up to 5 years.

The rates calculated in this report may be adopted by the Board for the fiscal year that extends from July 1, 2019 through June 30, 2020 (the rates will go into effect during the pay period which includes July 1, 2019).

Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- The results of this valuation reflect changes in the economic and non-economic assumptions as recommended by Segal and adopted by the Board for the December 31, 2017 valuation. These changes were documented in our Actuarial Experience Study dated August 14, 2017 and PowerPoint presentation dated October 16, 2017. They are also outlined in Section 4, Exhibit II of this report. These assumption changes resulted in an increase in the average employer rate of 4.81% of payroll and an increase in the aggregate member rate of 0.77% of payroll. Of the 4.81% increase in the employer rate, 1.10% is due to an increase in the Normal Cost and 3.71% is due to an increase in the UAAL rate.
- The Board approved a three-year phase-in of the UAAL employer cost impact due to assumption changes. The employer contribution rates as of December 31, 2017 have been adjusted to reflect only one-third of the UAAL cost impact.

Ref: Pgs. 36 and 140

Ref: Pgs. 67 and 144 - 145

- The ratio of the valuation value of assets to the actuarial accrued liabilities has decreased from 73.1% to 72.3%. For informational purposes only, we have also prepared in Appendix C the funded ratio for each Rate Group. The System's funded ratio measured on a market value basis increased from 70.6% to 74.6%. The System's UAAL, measured using the valuation value of assets, has increased from $4,830.5 million as of December 31, 2016 to $5,438.3 million as of December 31, 2017. The increase in UAAL is mainly due to (a) changes in actuarial assumptions, (b) actual contributions less than expected, and (c) other actuarial losses, offset somewhat by (d) favorable investment return (after smoothing), (e) lower than expected salary increases, (f) lower than expected COLA increases, (g) a transfer from the O.C. Sanitation District UAAL Deferred Account, and (h) additional UAAL payments made by Children and Families Commission, Law Library and OCFA. A reconciliation of the System's UAAL is provided in Section 3, Exhibit H. A schedule showing the reconciliation of the UAAL by Rate Group is provided in Appendix E.
- The aggregate employer rate calculated in this valuation has increased from 36.43% of payroll to 37.97% of payroll. The 36.43% aggregate rate was calculated after adjusting for the additional UAAL contributions made by Children and Families Commission and Law Library during 2017. The December 31, 2016 contribution rate without adjustment for the additional UAAL contributions was 36.45% of payroll.

Ref: Pgs. 33 and 141 - 143

The reasons for the increase in the aggregate employer rate between the 2016 and 2017 valuations are (a) changes in actuarial assumptions and (b) actual contributions less than expected , offset somewhat by (c) the adjustment for the three-year phase-in of the UAAL cost impact due to assumption changes, (d) favorable investment return (after smoothing), (e) lower than expected salary increases, (f) growth in total payroll more than expected, (g) lower than expected COLA increases, (h) additional UAAL payments made by Children and Families Commission, Law Library and OCFA, and (i) other actuarial gains. A reconciliation of the System's aggregate employer rate is provided in

Section 2, Subsection D (see Chart 15). A reconciliation of the employer contribution rate by Rate Group is provided in Appendix D.

Ref: Pg. 15

- OCERS has applied the withdrawing employer policy to Cypress Parks and Recreation. Similar to the presentation used in the December 31, 2016 valuation report, we have included a footnote to Chart 13 to show what the UAAL contribution rates would be for the other active employers in Rate Group #1 (i.e., the County and O.C. IHSS Public Authority) after adjustments to reflect the UAAL paid by U.C.I., Department of Education, and Cypress Parks and Recreation.

Ref: Pg. 108

- The UAAL amounts of $28.533 million, $2.848 million, and $0.653 million allocated to U.C.I., Department of Education, and Cypress Parks and Recreation, respectively, as of December 31, 2016 were provided in our December 31, 2016 valuation report and our letter dated October 23, 2017. The UAAL amounts for U.C.I., Department of Education, and Cypress Parks and Recreation have increased to $30.927 million, $3.046 million, and $0.853 million, respectively, as of December 31, 2017 primarily due to the changes in actuarial assumptions. We have not included the level dollar amount required to amortize the new UAAL under the Board's policy for employers with declining payroll. We would be glad provide such amount in a side letter if directed to do so by the Board.

Ref: Pg. 34

- The aggregate member rate calculated in this valuation has increased from 11.97% of payroll to 12.63% of payroll due to the changes in actuarial assumptions. A reconciliation of the System's aggregate member rate is provided in Section 2, Subsection D (see Chart 16).

Ref: Pg. 5

- As indicated in Section 2, Subsection B (see Chart 7) of this report, the total net unrecognized investment **gain** as of December 31, 2017 is $455,396,000 (as compared to a net unrecognized **loss** of $445,648,000 as of December 31, 2016). This deferred investment gain will be recognized in the determination of the actuarial value of assets for funding purposes over the next four years as shown on Line 7 of Chart 7, along with any future gains or losses that occur after December 31, 2017 if the System does not earn the assumed rate of investment return of 7.00% per year (net of expenses) on a market value basis.

  The deferred gains of $455.4 million represent about 3.1% of the market value of assets (as compared to 3.5% in deferred losses the prior valuation). The potential impact associated with the deferred investment gains may be illustrated as follows:

  - If the deferred gains were recognized immediately in the valuation value of assets, the funded ratio would increase from 72.3% to 74.6%.

    For comparison purposes, if all the deferred losses in the December 31, 2016 valuation had been recognized immediately in the valuation value of assets, the funded ratio would have decreased from 73.1% to 70.6%.

- If the deferred gains were recognized immediately in the valuation value of assets, the aggregate employer rate would decrease from 37.97% of payroll to about 36.2% of payroll.

  For comparison purposes, if all the deferred losses in the December 31, 2016 valuation had been recognized immediately in the valuation value of assets, the aggregate employer rate would have increased from 36.56% of payroll to about 38.6% or payroll.

- The actuarial valuation report as of December 31, 2017 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected. Declines in asset values will increase the actuarial cost of the plan, while increases will decrease the actuarial cost of the plan.

- The balance in the O.C. Sanitation District UAAL Deferred Account as of December 31, 2017 before any transfer was $38.9 million. As of December 31, 2017, a transfer of $24.0 million was required from this account to pay off their UAAL. The balance in the O.C. Sanitation District UAAL Deferred Account as of December 31, 2017 after the transfer is $14.9 million.

- This report reflects the $1.7 million additional contributions made by Children and Families Commission to pay off their UAAL as of December 31, 2016. The $1.7 million[1] of additional contributions made by Children and Families Commission has been used to eliminate their UAAL rates starting 2018/2019. Note that because the UAAL used to determine the $1.7 million required to pay off their UAAL included the UAAL rate credit due to the future service only benefit improvement, Children and Families Commission will no longer receive any future service only benefit improvement rate credit.

  This report also reflects the $1.5 million additional contributions made by Law Library to pay off their UAAL. The $1.5 million[2] of additional contributions made by Law Library has been used to eliminate their UAAL rates starting 2018/2019.

  This report also reflects the $32.1 million additional contributions made by OCFA towards their UAAL. The $32.1 million[3] of additional contributions made by OCFA has been amortized as a level percent of pay over a period of twenty years effective on December 31, 2017 and used to reduce their UAAL rates for 2019/2020.

[1] *$1.7 million in additional contributions were made by Children and Families Commission on November 15, 2017. After adjusting with interest, those contributions have a value of $1.8 million as of December 31, 2017.*

[2] *$1.5 million in additional contributions were made by Law Library on December 15, 2017. After adjusting with interest, those contributions have a value of $1.5 million as of December 31, 2017.*

[3] *$32.1 million in additional contributions were made by OCFA continuously throughout the year. After adjusting with interest, those contributions have a value of $32.7 million as of December 31, 2017.*

Impact of Future Experience on Contribution Rates

Future contribution requirements may differ from those determined in the valuation because of:

- difference between actual experience and anticipated experience;
- changes in actuarial assumptions or methods;
- changes in statutory provisions; and
- difference between the contribution rates determined by the valuation and those adopted by the Board.

A general measure of the potential volatility in the level of required contributions from changes in the market value of assets and the actuarial accrued liability is provided in Section 2, Subsection F. A more specific review to illustrate the impact on contributions under various scenarios of one-year deviation in market return will be provided in a separate report later this year.

Summary of Key Valuation Results (Dollar Amounts in Thousands)

	December 31, 2017		December 31, 2016	
Aggregate Employer Contribution Rates:		Estimated		Estimated
General	Total Rate[1]	Annual Amount[2]	Total Rate[3]	Annual Amount[2]
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD)	18.27%	$15,287	16.37%	$13,701
Rate Group #2 – Plans I, J, O, P, S, T, U and W (County et al.)	35.33%	386,218	33.34%	364,426
Rate Group #3 – Plans B, G, H and U (OCSD)	12.46%	8,615	11.42%	7,896
Rate Group #5 – Plans A, B and U (OCTA)	27.96%	28,725	25.47%	26,164
Rate Group #9 – Plans M, N and U (TCA)	24.51%	1,794	23.53%	1,721
Rate Group #10 – Plans I, J, M, N and U (OCFA)	28.96%	7,731	30.40%	8,115
Rate Group #11 – Plans M and N, future service, and U (Cemetery)	12.48%	205	10.81%	177
Rate Group #12 – Plans G, H, future service, and U (Law Library)	13.85%	155	13.14%	147
Safety				
Rate Group #6 – Plans E, F and V (Probation)	52.32%	$33,518	47.81%	$30,629
Rate Group #7 – Plans E, F, Q, R and V (Law Enforcement)	62.38%	147,440	62.39%	147,475
Rate Group #8 – Plans E, F, Q, R and V (OCFA)	46.24%	58,307	47.31%	59,654
All Groups Combined	37.97%	$687,995	36.43%	$660,105
Average Member Contribution Rates:		Estimated		Estimated
General	Total Rate	Annual Amount[2]	Total Rate[4]	Annual Amount[2]
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD)	9.61%	$8,041	8.66%	$7,246
Rate Group #2 – Plans I, J, O, P, S, T, U and W (County et al.)	11.56%	126,356	10.98%	120,016
Rate Group #3 – Plans B, G, H and U (OCSD)	12.13%	8,387	11.35%	7,847
Rate Group #5 – Plans A, B and U (OCTA)	10.10%	10,376	9.34%	9,595
Rate Group #9 – Plans M, N and U (TCA)	10.92%	799	10.21%	747
Rate Group #10 – Plans I, J, M, N and U (OCFA)	11.84%	3,160	10.97%	2,928
Rate Group #11 – Plans M and N, future service, and U (Cemetery)	9.98%	163	9.15%	150
Rate Group #12 – Plans G, H, future service, and U (Law Library)	13.67%	153	12.77%	143
Safety				
Rate Group #6 – Plans E, F and V (Probation)	16.55%	$10,602	15.50%	$9,930
Rate Group #7 – Plans E, F, Q, R and V (Law Enforcement)	17.15%	40,538	16.46%	38,907
Rate Group #8 – Plans E, F, Q, R and V (OCFA)	16.11%	20,313	15.39%	19,405
All Groups Combined	12.63%	$228,888	11.97%	$216,914

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*

(2) *Based on December 31, 2017 projected annual compensation.*

(3) *For those Rate Groups with tier specific contribution rates, the total rates shown above have been recalculated by applying the tier specific contribution rates determined in the December 31, 2016 valuation to the corresponding projected payrolls reported as of December 31, 2017.*

(4) *Average rates have been recalculated by applying the individual entry age based rates determined in the December 31, 2016 valuation to the System membership as of December 31, 2017.*

Summary of Key Valuation Results (Dollar Amounts in Thousands)

	December 31, 2017	December 31, 2016
Funded Status:		
Actuarial accrued liability (AAL)	$19,635,427	$17,933,461
Valuation value of assets (VVA)[1]	14,197,125	13,102,978
Market value of assets (MVA)[1],[2]	14,652,521	12,657,330
Funded percentage on a VVA basis	72.30%	73.06%
Funded percentage on a MVA basis	74.62%	70.58%
Unfunded Actuarial Accrued Liability on a VVA basis	$5,438,302	$4,830,483
Unfunded Actuarial Accrued Liability on a MVA basis	4,982,906	5,276,131
Key Assumptions:		
Interest rate	7.00%	7.25%
Inflation rate	2.75%	3.00%
Across-the-board real salary increase	0.50%	0.50%

(1) *Excludes County Investment Account (funded by pension obligation bond proceeds held by OCERS), prepaid employer contributions account, O.C. Sanitation District UAAL Deferred Account (after transfer) and non-valuation reserves.*

(2) *Based on the preliminary unaudited financial statement provided by OCERS for this valuation.*

Summary of Key Valuation Demographic and Financial Data

	December 31, 2017	December 31, 2016	Change
Active Members:			
Number of members	21,721	21,746	-0.1%
Average age	45.3	45.4	-0.1
Average service	12.9	12.9	0.0
Projected total compensation	$1,811,879,510	$1,759,833,297	3.0%
Average projected compensation	$83,416	$80,927	3.1%
Retired Member and Beneficiaries:			
Number of members:			
Service retired	13,240	12,767	3.7%
Disability retired	1,446	1,419	1.9%
Beneficiaries	2,261	2,183	3.6%
Total	16,947	16,369	3.5%
Average age	69.8	69.7	0.1
Average monthly benefit(1)	$3,745	$3,637	3.0%
Vested Terminated Members:			
Number of vested terminated members(2)	5,803	5,370	8.1%
Average age	44.8	44.8	0.0
Summary of Financial Data (dollar amounts in thousands):			
Market value of assets(3)	$14,652,607	$12,657,418	15.8%
Return on market value of assets	14.79%	8.72%	N/A
Actuarial value of assets(3)	$14,197,211	$13,103,066	8.4%
Return on actuarial value of assets	7.44%	6.33%	N/A
Valuation value of assets(3)	$14,197,125	$13,102,978	8.4%
Return on valuation value of assets	7.44%	6.33%	N/A

(1) *Excludes monthly benefits payable from the STAR COLA.*

(2) *This includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

(3) *The market value excludes $134,417,000 and $117,723,000 as of December 31, 2017 and December 31, 2016, respectively, in the County Investment Account (funded by pension obligation bond proceeds held by OCERS), $244,552,000 and $222,524,000 as of December 31, 2017 and December 31, 2016, respectively, in the prepaid employer contributions account and $14,871,000 and $34,067,000 as of December 31, 2017 and December 31, 2016, respectively, in the O.C. Sanitation District UAAL Deferred Account (after transfer as of December 31, 2017).*

Note that the above market values and actuarial values include the non-valuation reserves, which are excluded from the valuation values.

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare an actuarial valuation, Segal Consulting ("Segal") relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan description in this report to confirm that Segal has correctly interpreted the plan provisions.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by OCERS. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Assets** This valuation is based on the market value of assets as of the valuation date, as provided by OCERS.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The valuation is prepared at the request of the OCERS. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The

actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

- If OCERS is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.

As Segal has no discretionary authority with respect to the management or assets of OCERS, it is not a fiduciary in its capacity as actuaries and consultants with respect to OCERS.

A. MEMBER DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, vested terminated members, retired members and beneficiaries.

This section presents a summary of significant statistical data on these member groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A, B, and C.

A historical perspective of how the member population has changed over the past ten valuations can be seen in this chart.

CHART 1

Member Population: 2008 – 2017

Year Ended December 31	Active Members	Vested Terminated Members[1]	Retired Members and Beneficiaries	Ratio of Non-Actives to Actives
2008	23,720	3,881	11,778	0.66
2009	22,633	4,094	12,243	0.72
2010	21,742	4,308	12,762	0.79
2011	21,421	4,406	13,289	0.83
2012	21,256	4,415	13,947	0.86
2013	21,368	4,613	14,505	0.89
2014	21,459	4,789	15,169	0.93
2015	21,525	5,091	15,810	0.97
2016	21,746	5,370	16,369	1.00
2017	21,721	5,803	16,947	1.05

(1) *Includes terminated members due a refund of member contributions.*

Active Members

Plan costs are affected by the age, years of service and compensation of active members. In this year's valuation, there were 21,721 active members with an average age of 45.3, average years of service of 12.9 years, and average compensation of $83,416. The 21,746 active members in the prior valuation had an average age of 45.4, average service of 12.9 years, and average compensation of $80,927.

Inactive Members

In this year's valuation, there were 5,803 members with a vested right to a deferred or immediate vested benefit or entitled to a return of their member contributions versus 5,370 in the prior valuation.

These graphs show a distribution of active members by age and by years of service.

CHART 2

Distribution of Active Members by Age as of December 31, 2017

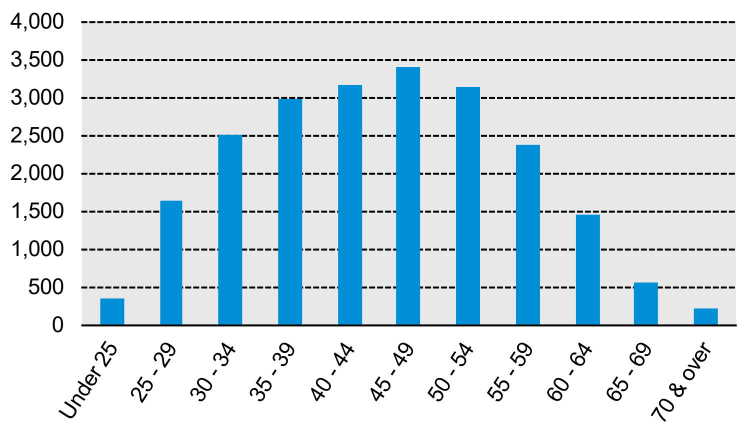
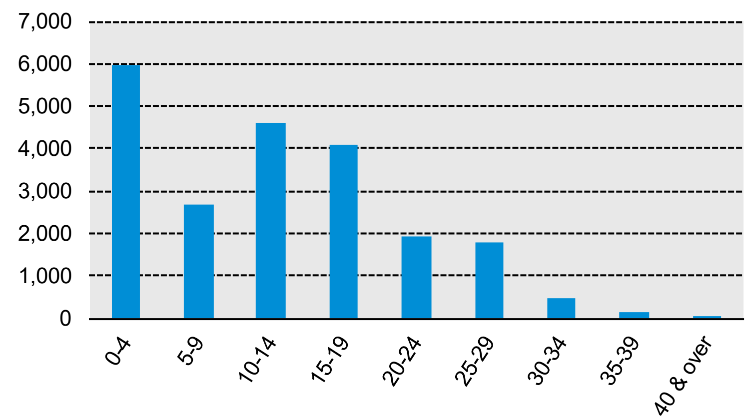


CHART 3

Distribution of Active Members by Years of Service as of December 31, 2017



Retired Members and Beneficiaries
As of December 31, 2017, 14,686 retired members and 2,261 beneficiaries were receiving total monthly benefits of $63,464,718. For comparison, in the previous valuation, there were 14,186 retired members and 2,183 beneficiaries receiving total monthly benefits of $59,529,794. These monthly benefits exclude benefits payable from the Supplemental Targeted Adjustment for Retirees Cost of Living Adjustment (STAR COLA).

These graphs show a distribution of the current retired members based on their monthly amount and age, by type of pension.

CHART 4

Distribution of Retired Members (Excl. Beneficiaries) by Type and by Monthly Amount as of December 31, 2017

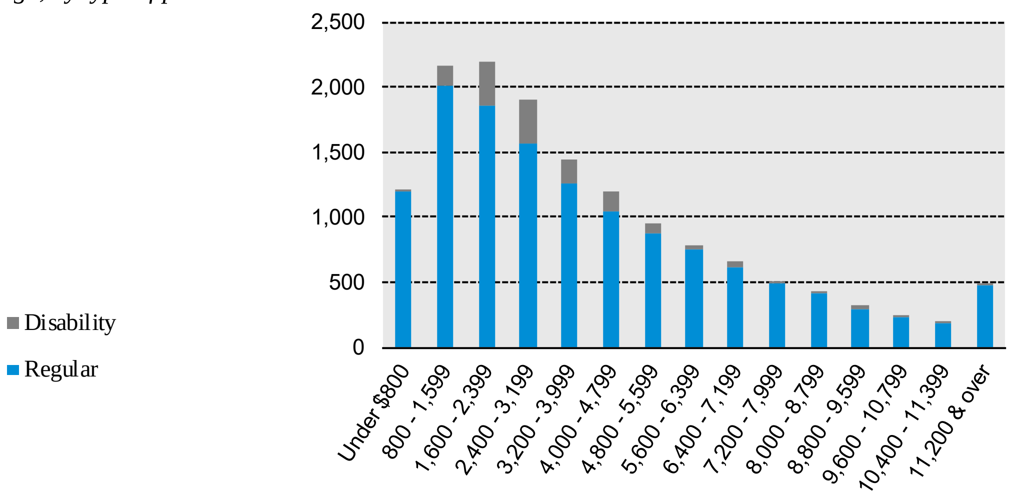
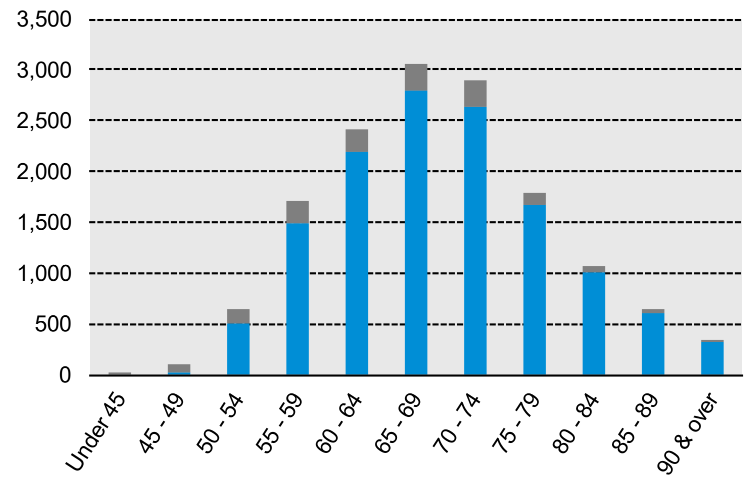


CHART 5

Distribution of Retired Members (Excl. Beneficiaries) by Type and by Age as of December 31, 2017



B. FINANCIAL INFORMATION

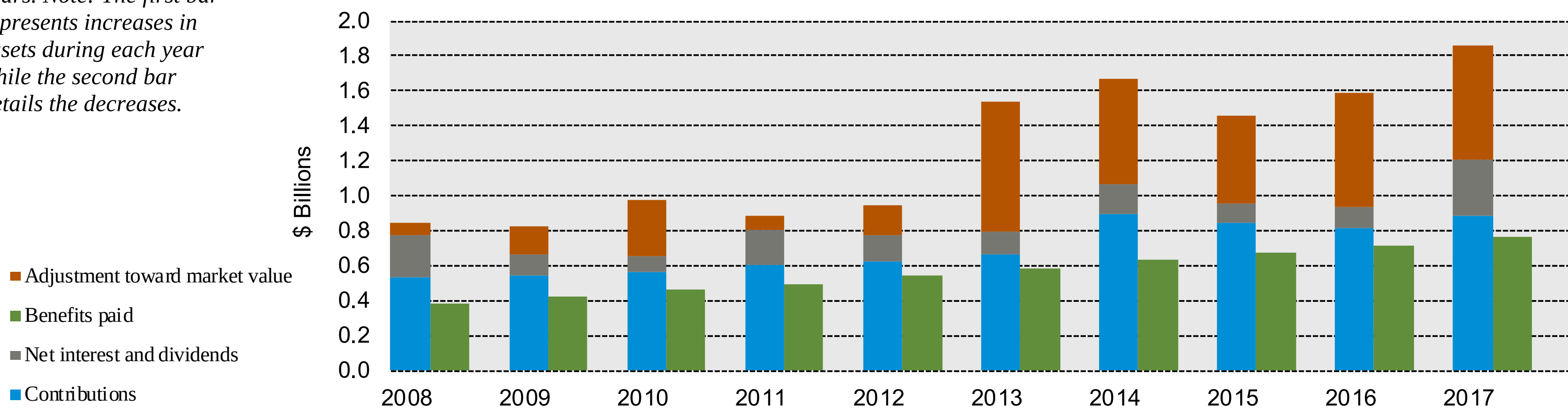
Retirement plan funding anticipates that, over the long term, both contributions and net investment earnings (less investment fees and administrative expenses) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. The adjustment toward market value shown in the chart is the "non-cash" earnings on investments implicitly included in the actuarial value of assets. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits D and E.

The chart depicts the components of changes in the actuarial value of assets over the past ten years. Note: The first bar represents increases in assets during each year while the second bar details the decreases.

CHART 6

Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended December 31, 2008 – 2017



It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board of Retirement has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets does not have an immediate effect on the actuarial value of assets. The determination of the Actuarial Value of Assets and Valuation Value of Assets is provided below.

The chart shows the determination of the actuarial value of assets as of the valuation date.

CHART 7

Determination of Actuarial and Valuation Value of Assets for Year Ended December 31, 2017

Plan Year Ending	Total Actual Market Return (net)	Expected Market Return (net)	Investment Gain / (Loss)	Deferred Factor	Deferred Return
2013	$1,031,118,000	$696,553,000	$334,565,000	0.0	$0
2014	487,104,000	780,627,000	(293,523,000)	0.2	(58,705,000)
2015	(51,601,000)	833,757,000	(885,358,000)	0.4	(354,143,000)
2016	1,010,548,000	840,469,000	170,079,000	0.6	102,047,000
2017	1,878,172,000	920,426,000	957,746,000	0.8	766,197,000

1.	Total Deferred Return	$455,396,000
2.	Net Market Value Of Assets (Excludes $134,417,000 in County Investment Account (funded by pension obligation bond proceeds held by OCERS), $244,552,000 in Prepaid Employer Contributions and $14,871,000[(1)] in O.C. Sanitation District UAAL Deferred Account)	$14,652,607,000[(2)]
3.	Actuarial Value of Assets (2) – (1)	$14,197,211,000
4.	Ratio of Actuarial Value To Market Value (3) / (2)	96.9%
5.	Non-valuation Reserves	
	(a) Unclaimed member deposit	$0
	(b) Medicare medical insurance reserve	86,000
	(c) Subtotal	$86,000
6.	Valuation value of assets (3) – (5)(c)	$14,197,125,000
7.	Deferred Return Recognized in Each of the Next 4 years	
	(a) Amount recognized on 12/31/2018	$(10,211,000)
	(b) Amount recognized on 12/31/2019	48,493,000
	(c) Amount recognized on 12/31/2020	225,565,000
	(d) Amount recognized on 12/31/2021	191,549,000
	(e) Subtotal (may not total exactly due to rounding)	$455,396,000

(1) *After reflecting asset transfer of $24,042,000 from O.C. Sanitation District UAAL Deferred Account to valuation assets as of December 31, 2017.*

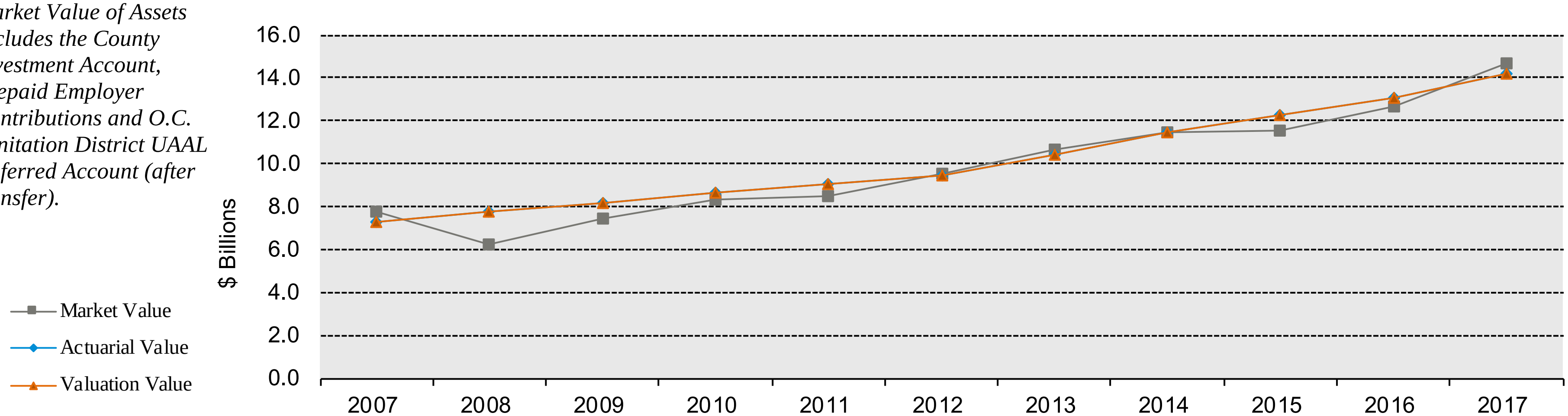
(2) *Based on the preliminary unaudited financial statement provided by OCERS for this valuation.*

The market value, actuarial value, and valuation value of assets are representations of OCERS' financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets, but with less volatility. The valuation value of assets is the actuarial value, excluding any non-valuation reserves. The valuation value of assets is significant because OCERS' liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

This chart shows the change in market value, actuarial value and valuation value over the past eleven years. Note: Market Value of Assets excludes the County Investment Account, Prepaid Employer Contributions and O.C. Sanitation District UAAL Deferred Account (after transfer).

CHART 8

Market Value, Actuarial Value and Valuation Value of Assets as of December 31, 2007 – 2017



This chart provides a summary of the actuarial experience during the past year.

C. ACTUARIAL EXPERIENCE

To calculate the required contribution, 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 measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total experience gain was $191.9 million, reflecting a gain of $24.4 million from investments, a net gain of $22.7 million from contribution experience (including a gain of $36.4 million from additional UAAL payments, a gain of $24.0 million transfer from O.C. Sanitation District UAAL Deferred Account and a loss of $37.7 million from all other contribution experience) and a gain of $144.8 million from all other sources. A discussion of the major components of the actuarial experience is on the following pages.

CHART 9

Actuarial Experience for Year Ended December 31, 2017 (Dollar Amounts in Thousands)

1.	Net gain/(loss) from investments[1]	$24,401,000
2.	Net gain/(loss) from contribution experience	22,664,000
3.	Net gain/(loss) from other experience[2]	144,847,000
4.	Net experience gain/(loss): (1) + (2) + (3)	$191,912,000

(1) *Details in Chart 10.*

(2) *See Section 3, Exhibit H.*

Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on OCERS' investment policy. For valuation purposes, the assumed rate of return on the valuation value of assets was 7.25% (based on the December 31, 2016 valuation). The actual rate of return on a valuation basis for the 2017 plan year was 7.44%.

Since the actual return for the year was greater than the assumed return, OCERS experienced an actuarial gain during the year ended December 31, 2017 with regard to its investments.

This chart shows the gain/(loss) due to investment experience.

CHART 10

Investment Experience for Year Ended December 31, 2017 – Valuation Value, Actuarial Value and Market Value of Assets

	Valuation Value	Actuarial Value	Market Value
1. Actual return	$977,130,000	$977,128,000	$1,878,172,000
2. Average value of assets	$13,141,089,000	$13,141,177,000	$12,695,529,000
3. Actual rate of return: (1) ÷ (2)	7.44%	7.44%	14.79%
4. Assumed rate of return	7.25%	7.25%	7.25%
5. Expected return: (2) x (4)	$952,729,000	$952,735,000	$920,426,000
6. Actuarial gain/(loss): (1) – (5)	$24,401,000	$24,393,000	$957,746,000

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on a valuation, actuarial and market basis for the last ten years.

CHART 11

Investment Return – Valuation Value, Actuarial Value and Market Value: 2008 - 2017 (Dollar Amounts in Thousands)

	Valuation Value Investment Return		Actuarial Value Investment Return		Market Value Investment Return	
Year Ended December 31	**Amount**	**Percent**	**Amount**	**Percent**	**Amount**	**Percent**
2008	$312,821	4.25%	$311,887	4.23%	$(1,617,791)	-20.76%
2009	282,764	3.62%	281,360	3.60%	1,092,660	17.32%
2010	412,046	5.02%	411,960	5.02%	787,215	10.47%
2011	287,241	3.29%	286,585	3.28%	3,236	0.04%
2012	318,043	3.49%	318,033	3.49%	1,014,471	11.92%
2013	866,402	9.11%	866,402	9.11%	1,031,118	10.73%
2014	771,174	7.34%	771,049	7.34%	487,104	4.52%
2015	606,191	5.26%	606,190	5.26%	(51,601)	-0.45%
2016	776,628	6.33%	776,627	6.33%	1,010,548	8.72%
2017	977,130	7.44%	977,128	7.44%	1,878,172	14.79%
5-Year Average Return		7.09%		7.09%		7.53%
10-Year Average Return		5.50%		5.49%		5.16%

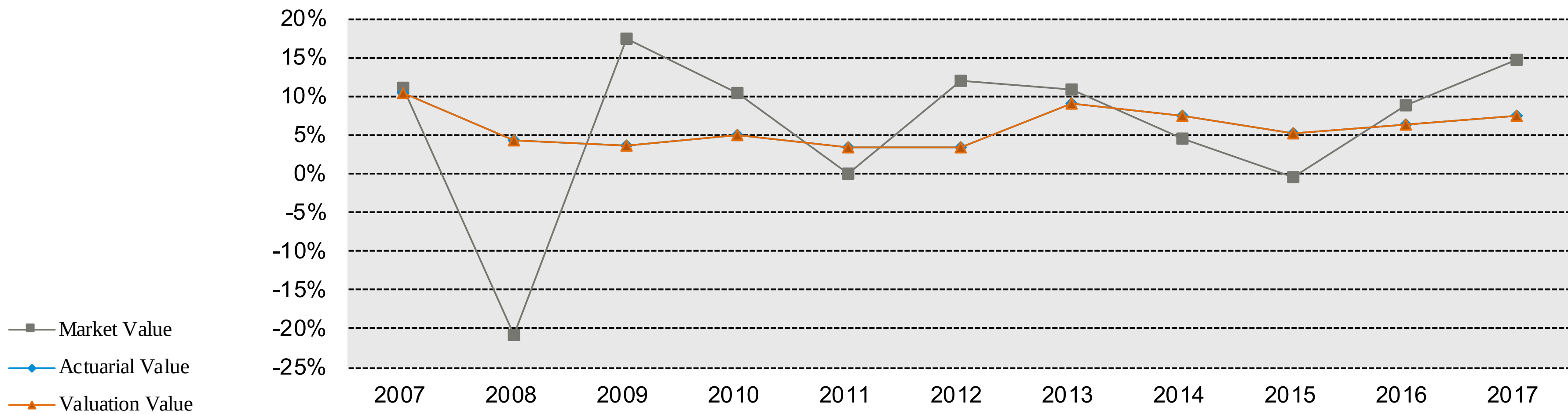
Note: The dollar amount of return on market value is net of the return on the County Investment Account (funded by pension obligation bond proceeds held by OCERS), prepaid employer contributions account and O.C. Sanitation District UAAL Deferred Account (after transfer). Furthermore, due to differences in how returns are calculated, these market value rates of return will generally differ somewhat from the return reported by OCERS and its investment consultant.

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

This chart illustrates how this leveling effect has actually worked over the past eleven years.

CHART 12

Market, Actuarial, and Valuation Value Rates of Return for Years Ended December 31, 2007 – 2017



Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- actual turnover among the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected),
- the number of disability retirements, and
- salary increases different than assumed.

The net gain from this other experience for the year ended December 31, 2017 amounted to $144.8 million which is 0.74% of the actuarial accrued liability. See Exhibit H in Section 3 for a detailed development of the unfunded actuarial accrued liability.

D. EMPLOYER AND MEMBER CONTRIBUTIONS

Employer contributions consist of two components:

Normal Cost

The annual contribution rate that, if paid annually from a member's first year of membership through the year of retirement, would accumulate to the amount necessary to fully fund the member's retirement-related benefits. Accumulation includes annual crediting of interest at the assumed investment earning rate. The contribution rate is expressed as a level percentage of the member's compensation.

For Probation Safety members who have prior benefit service in the other OCERS plan, the normal cost rate for their current plan is calculated based on the entry date for their current plan.

Contribution to the Unfunded Actuarial Accrued Liability (UAAL)

The annual contribution rate that, if paid annually over the UAAL amortization period, would accumulate to the amount necessary to fully fund the UAAL. Accumulation includes annual crediting of interest at the assumed investment earning rate. The contribution (or rate credit in the case of a negative unfunded actuarial accrued liability) is calculated to remain as a level percentage of future active member payroll (including payroll for new members as they enter the System) assuming a constant number of active members. In order to remain as a level percentage of payroll, amortization payments (credits) are scheduled to increase at the annual rate of 3.25% (i.e., 2.75% inflation plus 0.50% across-the-board salary increase). The outstanding balance of the December 31, 2012 UAAL was combined and re-amortized over a declining 20-year period effective with the December 31, 2013 valuation. Any changes in UAAL due to actuarial gains or losses or due to changes in assumptions or methods will be amortized over separate 20-year periods. Any changes in UAAL due to plan amendments will be amortized over separate 15-year periods and any change in UAAL due to early retirement incentive programs will be amortized over a separate period of up to 5 years.

The recommended employer contributions are provided in Chart 13.

Member Contributions

Non-CalPEPRA Members

Articles 6 and 6.8 of the 1937 Act define the methodology to be used in the calculation of member basic contribution rates for General members and Safety members, respectively. The basic contribution rate is determined so that the accumulation of a member's basic contributions made in a given year until a certain age will be sufficient to fund an annuity at that age that is equal to:

- 1/200 of Final Average Salary for General Plan A;
- 1/120 of Final Average Salary for General Plan B;
- 1/100 of Final Average Salary for General Plans G, H, I, J, and S;
- 1/120 of Final Average Salary for General Plans M, N, O, and P;
- 1/200 of Final Average Salary for Safety Plans E and Q, and;
- 1/100 of Final Average Salary for Safety Plans F and R.

The annuity age is 60 for General Plans A, B, M, N, O, P and S, 55 for Plans G, H, I, and J, and 50 for Safety Plans E, F, Q, and R. It is assumed that contributions are made annually at the same rate, starting at entry age.

In addition to the basic contributions, members also pay one-half of the total normal cost necessary to fund cost-of-living benefits which is calculated separately for each rate group, with the exception of Rate Groups #9 and #11, which are developed on a combined or pooled basis as described in our Cost Sharing Structure letter dated July 30, 2010. Within each rate group, the COLA normal cost is either pooled for Tiers 1 and 2 because the same 3% COLA is provided for both Tiers, or it differs by a set formula based on past practice we carried over from the OCERS' prior actuary. Accumulation includes crediting of interest at the assumed investment earnings rate.

Effective with the December 31, 2014 valuation, for determining the cost of the total benefit (i.e., basic and COLA components), the effect of the assumed additional cashouts are recognized in the valuation as an employer and member cost.

CalPEPRA Members

Pursuant to Section 7522.30(a) of the Government Code, CalPEPRA members in Plans T, U, V and W are required to contribute at least 50% of the Normal Cost rate. We have assumed that exactly 50% of the Normal Cost would be paid by the new members. Also of note is that based on our recommendation, OCERS decided to use the discretion made available by AB1380 to not round the member's contribution rate to the nearest ¼% as previously required by the California Public Employees' Pension Reform Act of 2013 (CalPEPRA).

Note that for members in Plan T and Plan W, their basic rates have been calculated using a methodology similar to that used for Plan P. For members in Plan U or Plan V, their basic rates have been calculated using a methodology outlined in our letter dated December 4, 2012 that was previously approved by the Board.

Member contribution rates are provided in Appendix B.

CHART 13

Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

General Employers	December 31, 2017 Valuation		December 31, 2016 Valuation	
	Rate[1]	Estimated Annual Amount[2]	Rate	Estimated Annual Amount[2]
Rate Group #1 – Plans A and B (2.0% @ 57 and 1.6667% @ 57.5 – non-OCTA, non-OCSD)				
Normal Cost	10.73%	$5,049	9.51%	$4,475
UAAL[3],[4],[5]	7.89%	3,713	7.25%	3,411
Total Contribution	18.62%	$8,762	16.76%	$7,886
Rate Group #1 – Plan U (2.5% @ 67 PEPRA)[6]				
Normal Cost	9.93%	$3,636	8.63%	$3,160
UAAL[3],[4],[5]	7.89%	2,889	7.25%	2,655
Total Contribution	17.82%	$6,525	15.88%	$5,815
Rate Group #1 – Plans A, B and U Combined				
Normal Cost	10.38%	$8,685	9.12%	$7,635
UAAL[3],[4],[5]	7.89%	6,602	7.25%	6,066
Total Contribution	18.27%	$15,287	16.37%	$13,701

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*

(2) *See page 28 for projected annual compensation.*

(3) *UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.*

(4) *The net UAAL contribution rates for County and IHSS Public Authority when calculated after excluding the UAAL for Cypress Parks and Recreation, U.C.I. and Department of Education is 4.61% for the December 31, 2017 valuation.*

(5) *The net UAAL contribution rates for County and IHSS Public Authority when calculated after excluding the UAAL for U.C.I. and Department of Education is 4.18% for the December 31, 2016 valuation.*

(6) *Applicable for members hired on or after January 1, 2013.*

CHART 13 (Continued)

Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

General Employers	December 31, 2017 Valuation Rate[1]	December 31, 2017 Valuation Estimated Annual Amount[2]	December 31, 2016 Valuation Rate	December 31, 2016 Valuation Estimated Annual Amount[2]
Rate Group #2 – Plans I and J (2.7% @ 55 – non-OCFA, non-Children and Families Commission)				
Normal Cost	14.39%	$119,837	13.19%	$109,844
UAAL[3]	22.67%	188,792	21.72%	180,880
Total Contribution	37.06%	$308,629	34.91%	$290,724
Rate Group #2 – Plans I and J (2.7% @ 55 – non-OCFA, Children and Families Commission)				
Normal Cost	14.39%	$75	13.19%	$68
UAAL[3],[4]	1.04%	5	0.00%[5]	0
Total Contribution	15.43%	$80	13.19%	$68
Rate Group #2 – Plans O and P (1.62% @ 65)				
Normal Cost	6.21%	$926	5.53%	$825
UAAL[3]	22.67%	3,381	21.72%	3,239
Total Contribution	28.88%	$4,307	27.25%	$4,064
Rate Group #2 – Plan S (2.0% @ 57)				
Normal Cost	11.51%	$235	10.35%	$211
UAAL[3]	22.67%	462	21.72%	443
Total Contribution	34.18%	$697	32.07%	$654

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*

(2) *See page 28 for projected annual compensation.*

(3) *UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.*

(4) *UAAL rate has been adjusted to reflect future service only benefit improvement under 2.7% @ 55.*

(5) *These rates are after adjustment to the contribution rates for the FY 18-19 for additional UAAL contributions made during calendar year 2017.*

Note: For employers with future service only benefit improvements under 2.7% @ 55 (including Local Agency Formation Commission and Orange County Employees Retirement System but excluding Children and Families Commission), refer to the employer rates on page 29.

CHART 13 (Continued)
Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

General Employers	December 31, 2017 Valuation		December 31, 2016 Valuation	
	Rate[1]	Estimated Annual Amount[2]	Rate	Estimated Annual Amount[2]
Rate Group #2 – Plan T (1.62% @ 65 PEPRA)[5]				
Normal Cost	7.11%	$15,970	6.58%	$14,779
UAAL[3]	22.67%	50,918	21.72%	48,785
Total Contribution	29.78%	$66,888	28.30%	$63,564
Rate Group #2 – Plan U (2.5% @ 67 PEPRA, non-Children and Families Commission)[6]				
Normal Cost	8.78%	$1,543	8.28%	$1,455
UAAL[3]	22.67%	3,983	21.72%	3,816
Total Contribution	31.45%	$5,526	30.00%	$5,271
Rate Group #2 – Plan U (2.5% @ 67 PEPRA, Children and Families Commission)[6]				
Normal Cost	8.78%	$41	8.28%	$39
UAAL[3],[4]	1.04%	5	0.00%[7]	0
Total Contribution	9.82%	$46	8.28%	$39

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*

(2) *See page 28 for projected annual compensation.*

(3) *UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.*

(4) *UAAL rate has been adjusted to reflect future service only benefit improvement under 2.7% @ 55.*

(5) *Applicable for members hired on or after January 1, 2013 except for County Attorneys, San Juan Capistrano members, OCERS management members and Children and Families members.*

(6) *Applicable for County Attorneys, San Juan Capistrano members, OCERS management members and Children and Families members hired on or after January 1, 2013.*

(7) *These rates are after adjustment to the contribution rates for the FY 18-19 for additional UAAL contributions made during calendar year 2017.*

Note: For employers with future service only benefit improvements under 2.7% @ 55 (including Local Agency Formation Commission and Orange County Employees Retirement System but excluding Children and Families Commission), refer to the employer rates on page 29.

CHART 13 (Continued)

Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

General Employers	December 31, 2017 Valuation		December 31, 2016 Valuation	
	Rate[1]	Estimated Annual Amount[2]	Rate	Estimated Annual Amount[2]
Rate Group #2 – Plan W (1.62% @ 65 PEPRA)[4],[5]				
Normal Cost	8.56%	$12	6.68%	$10
UAAL[3]	22.67%	33	21.72%	32
Total Contribution	31.23%	$45	28.40%	$42
Rate Group #2 – Plans I, J, O, P, S, T, U and W Combined				
Normal Cost	12.68%	$138,639	11.64%	$127,231
UAAL[3]	22.65%	247,579	21.70%	237,195
Total Contribution	35.33%	$386,218	33.34%	$364,426

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*

(2) *See page 28 for projected annual compensation.*

(3) *UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.*

(4) *Applicable for San Juan Capistrano members hired on or after January 1, 2016 if they elect to be covered under Plan W (1.62% @ 65 formula).*

(5) *No active members were reported for Plan W in the December 31, 2016 valuation. An entry age of 35, based on hypothetical demographic profile in our letter dated October 8, 2015 was used to estimate the Normal Cost rate. However, based on 1 employee reported in the December 31, 2017 valuation, the entry age was 57.*

Note: For employers with future service only benefit improvements under 2.7% @ 55 (including Local Agency Formation Commission and Orange County Employees Retirement System but excluding Children and Families Commission), refer to the employer rates on page 29.

CHART 13 (Continued)

Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

General Employers	December 31, 2017 Valuation		December 31, 2016 Valuation	
	Rate[1]	Estimated Annual Amount[2]	Rate	Estimated Annual Amount[2]
Rate Group #3 – Plans G and H (2.5% @ 55 – OCSD)				
Normal Cost	13.30%	$6,312	12.28%	$5,828
UAAL	0.00%	0	0.00%	0
Total Contribution	13.30%	$6,312	12.28%	$5,828
Rate Group #3 – Plan B (1.64% @ 57 – OCSD)				
Normal Cost	11.25%	$699	10.21%	$634
UAAL	0.00%	0	0.00%	0
Total Contribution	11.25%	$699	10.21%	$634
Rate Group #3 – Plan U (2.5% @ 67 PEPRA)[3]				
Normal Cost	10.37%	$1,604	9.27%	$1,434
UAAL	0.00%	0	0.00%	0
Total Contribution	10.37%	$1,604	9.27%	$1,434
Rate Group #3 – Plans B, G, H and U Combined				
Normal Cost	12.46%	$8,615	11.42%	$7,896
UAAL	0.00%	0	0.00%	0
Total Contribution	12.46%	$8,615	11.42%	$7,896

(1) *These rates are after adjustment for $24,042,000 asset transfer from O.C. Sanitation District UAAL Deferred Account.*

(2) *See page 28 for projected annual compensation.*

(3) *Applicable for members hired on or after January 1, 2013.*

CHART 13 (Continued)
Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

General Employers	December 31, 2017 Valuation		December 31, 2016 Valuation	
	Rate[1]	Estimated Annual Amount[2]	Rate	Estimated Annual Amount[2]
Rate Group #5 – Plans A and B (2.0% @ 57 and 1.6667% @ 57.5 – OCTA)				
Normal Cost	12.10%	$11,166	10.76%	$9,930
UAAL[3]	15.94%	14,710	14.76%	13,621
Total Contribution	28.04%	$25,876	25.52%	$23,551
Rate Group #5 – Plan U (2.5% @ 67 PEPRA)[4]				
Normal Cost	11.32%	$1,183	10.25%	$1,071
UAAL[3]	15.94%	1,666	14.76%	1,542
Total Contribution	27.26%	$2,849	25.01%	$2,613
Rate Group #5 – Plans A, B and U Combined				
Normal Cost	12.02%	$12,349	10.71%	$11,001
UAAL[3]	15.94%	16,376	14.76%	15,163
Total Contribution	27.96%	$28,725	25.47%	$26,164

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*
(2) *See page 28 for projected annual compensation.*
(3) *UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.*
(4) *Applicable for members hired on or after January 1, 2015.*

CHART 13 (Continued)
Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

General Employers	December 31, 2017 Valuation		December 31, 2016 Valuation	
	Rate[1]	Estimated Annual Amount[2]	Rate	Estimated Annual Amount[2]
Rate Group #9 – Plans M and N (2.0% @ 55 – TCA)				
Normal Cost	14.51%	$611	13.30%	$560
UAAL[3]	11.49%	484	11.46%	482
Total Contribution	26.00%	$1,095	24.76%	$1,042
Rate Group #9 – Plan U (2.5% @ 67 PEPRA)[4]				
Normal Cost	11.02%	$342	10.40%	$323
UAAL[3]	11.49%	357	11.46%	356
Total Contribution	22.51%	$699	21.86%	$679
Rate Group #9 – Plans M, N and U Combined				
Normal Cost	13.02%	$953	12.07%	$883
UAAL[3]	11.49%	841	11.46%	838
Total Contribution	24.51%	$1,794	23.53%	$1,721

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*
(2) *See page 28 for projected annual compensation.*
(3) *UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.*
(4) *Applicable for members hired on or after January 1, 2013.*

CHART 13 (Continued)

Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

General Employers	December 31, 2017 Valuation Rate[1]	December 31, 2017 Valuation Estimated Annual Amount[2]	December 31, 2016 Valuation Rate	December 31, 2016 Valuation Estimated Annual Amount[2]
Rate Group #10 – Plans I and J (2.7% @ 55 – OCFA)				
Normal Cost	14.72%	$2,183	13.61%	$2,018
UAAL[3]	15.74%	2,334	18.35%	2,721
Total Contribution	30.46%	$4,517	31.96%	$4,739
Rate Group #10 – Plans M and N (2.0% @ 55 – OCFA)				
Normal Cost	13.46%	$491	12.64%	$461
UAAL[3]	15.74%	575	18.35%	670
Total Contribution	29.20%	$1,066	30.99%	$1,131
Rate Group #10 – Plan U (2.5% @ 67 PEPRA)[4]				
Normal Cost	10.41%	$855	8.99%	$738
UAAL[3]	15.74%	1,293	18.35%	1,507
Total Contribution	26.15%	$2,148	27.34%	$2,245
Rate Group #10 – Plans I, J, M, N and U Combined				
Normal Cost	13.22%	$3,529	12.05%	$3,217
UAAL[3]	15.74%	4,202	18.35%	4,898
Total Contribution	28.96%	$7,731	30.40%	$8,115

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*

(2) *See page 28 for projected annual compensation.*

(3) *UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.*

(4) *Applicable for members hired on or after January 1, 2013.*

CHART 13 (Continued)

Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

General Employers	December 31, 2017 Valuation		December 31, 2016 Valuation	
	Rate[1]	Estimated Annual Amount[2]	Rate	Estimated Annual Amount[2]
Rate Group #11 – Plans M and N, future service (2.0% @ 55 – Cemetery)				
Normal Cost	11.98%	$155	11.09%	$143
UAAL[3]	0.48%	6	0.00%	0
Total Contribution	12.46%	$161	11.09%	$143
Rate Group #11 – Plan U (2.5% @ 67 PEPRA)[4]				
Normal Cost	12.03%	$42	9.98%	$34
UAAL[3]	0.48%	2	0.00%	0
Total Contribution	12.51%	$44	9.98%	$34
Rate Group #11 – Plans M, N and U Combined				
Normal Cost	12.00%	$197	10.81%	$177
UAAL[3]	0.48%	8	0.00%	0
Total Contribution	12.48%	$205	10.81%	$177

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*

(2) *See page 28 for projected annual compensation.*

(3) *UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.*

(4) *Applicable for members hired on or after January 1, 2013.*

CHART 13 (Continued)

Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

General Employers	December 31, 2017 Valuation Rate[1]	December 31, 2017 Valuation Estimated Annual Amount[2]	December 31, 2016 Valuation Rate	December 31, 2016 Valuation Estimated Annual Amount[2]
Rate Group #12 – Plans G and H, future service (2.5% @ 55 – Law Library)				
Normal Cost	14.11%	$151	13.32%	$143
UAAL[3],[4]	0.00%	0	0.00%[5]	0
Total Contribution	14.11%	$151	13.32%	$143
Rate Group #12– Plan U (2.5% @ 67 PEPRA)[6]				
Normal Cost	9.36%[7]	$4	7.59%	$4
UAAL[3],[4]	0.00%	0	0.00%[5]	0
Total Contribution	9.36%	$4	7.59%	$4
Rate Group #12 – Plans G, H, future service, and U Combined				
Normal Cost	13.85%	$155	13.14%	$147
UAAL[3],[4]	0.00%	0	0.00%[5]	0
Total Contribution	13.85%	$155	13.14%	$147

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*

(2) *See page 28 for projected annual compensation.*

(3) *UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation*

(4) *UAAL rate has been adjusted to reflect future service only benefit improvement under 2.7% @ 55.*

(5) *These rates are after adjustment to the contribution rates for the FY 18-19 for additional UAAL contributions made during calendar year 2017.*

(6) *Applicable for members hired on or after January 1, 2013.*

(7) *There is only one member in Plan U. The increase in the employer Normal Cost rate from last year to this year is primarily due to changes in actuarial assumption. There is also impact due to calculation of Normal Cost in nearest $1000.*

CHART 13 (Continued)

Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

Safety Employers	December 31, 2017 Valuation Rate[1]	December 31, 2017 Valuation Estimated Annual Amount[2]	December 31, 2016 Valuation Rate	December 31, 2016 Valuation Estimated Annual Amount[2]
Rate Group #6 – Plans E and F (3% @ 50 – Probation)				
Normal Cost	23.71%	$14,915	21.87%	$13,758
UAAL[3]	28.74%	18,079	26.06%	16,394
Total Contribution	52.45%	$32,994	47.93%	$30,152
Rate Group #6 – Plan V (2.7% @ 57 PEPRA)[4]				
Normal Cost	16.63%	$192	15.24%	$176
UAAL[3]	28.74%	332	26.06%	301
Total Contribution	45.37%	$524	41.30%	$477
Rate Group #6 – Plans E, F and V Combined				
Normal Cost	23.58%	$15,107	21.75%	$13,934
UAAL[3]	28.74%	18,411	26.06%	16,695
Total Contribution	52.32%	$33,518	47.81%	$30,629

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*

(2) *See page 28 for projected annual compensation.*

(3) *UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation*

(4) *Applicable for members hired on or after January 1, 2013.*

CHART 13 (Continued)

Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

Safety Employers	December 31, 2017 Valuation		December 31, 2016 Valuation	
	Rate[1]	Estimated Annual Amount[2]	Rate	Estimated Annual Amount[2]
Rate Group #7 – Plans E and F (3% @ 50 – Law Enforcement)				
Normal Cost	26.69%	$42,227	25.63%	$40,550
UAAL[3]	37.36%	59,108	38.19%	60,421
Total Contribution	64.05%	$101,335	63.82%	$100,971
Rate Group #7 – Plans Q and R (3% @ 55 – Law Enforcement)				
Normal Cost	23.69%	$9,835	23.00%	$9,548
UAAL[3]	37.36%	15,510	38.19%	15,855
Total Contribution	61.05%	$25,345	61.19%	$25,403
Rate Group #7 – Plan V (2.7% @ 57 PEPRA)[4]				
Normal Cost	19.29%	$7,069	19.39%	$7,106
UAAL[3]	37.36%	13,691	38.19%	13,995
Total Contribution	56.65%	$20,760	57.58%	$21,101
Rate Group #7 – Plans E, F, Q, R and V Combined				
Normal Cost	25.02%	$59,131	24.20%	$57,204
UAAL[3]	37.36%	88,309	38.19%	90,271
Total Contribution	62.38%	$147,440	62.39%	$147,475

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*
(2) *See page 28 for projected annual compensation.*
(3) *UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation*
(4) *Applicable for members hired on or after January 1, 2013.*

CHART 13 (Continued)

Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

Safety Employers	December 31, 2017 Valuation		December 31, 2016 Valuation	
	Rate[1]	Estimated Annual Amount[2]	Rate	Estimated Annual Amount[2]
Rate Group #8 – Plans E and F (3% @ 50 – OCFA)				
Normal Cost	27.24%	$27,663	26.84%	$27,257
UAAL[3]	20.80%	21,123	22.27%	22,616
Total Contribution	48.04%	$48,786	49.11%	$49,873
Rate Group #8 – Plans Q and R (3% @ 55 – OCFA)				
Normal Cost	21.97%	$2,116	21.86%	$2,106
UAAL[3]	20.80%	2,004	22.27%	2,145
Total Contribution	42.77%	$4,120	44.13%	$4,251
Rate Group #8 – Plan V (2.7% @ 57 PEPRA)[4]				
Normal Cost	15.44%	$2,301	14.84%	$2,211
UAAL[3]	20.80%	3,100	22.27%	3,319
Total Contribution	36.24%	$5,401	37.11%	$5,530
Rate Group #8 – Plans E, F, Q, R and V Combined				
Normal Cost	25.44%	$32,080	25.04%	$31,574
UAAL[3]	20.80%	26,227	22.27%	28,080
Total Contribution	46.24%	$58,307	47.31%	$59,654

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*
(2) *See page 28 for projected annual compensation.*
(3) *UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation*
(4) *Applicable for members hired on or after January 1, 2013.*

CHART 13 (Continued)

Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

General and Safety Combined	December 31, 2017 Valuation		December 31, 2016 Valuation	
	Rate[(1)]	Estimated Annual Amount[(2)]	Rate	Estimated Annual Amount[(2)]
Rate Groups #1 – #12				
Total Contribution	37.97%	$687,995	36.43%	$660,105

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*

(2) *Based on December 31, 2017 projected annual compensation (also in thousands):*

General Employers	
Rate Group #1 – Plans A and B	*$47,054*
Rate Group #1 – Plan U	*36,621*
Rate Group #2 – Plans I and J non-Children and Families Commission	*832,783*
Rate Group #2 – Plans I and J Children and Families Commission	*519*
Rate Group #2 – Plans O and P	*14,914*
Rate Group #2 – Plan S	*2,039*
Rate Group #2 – Plan T	*224,607*
Rate Group #2 – Plan U non-Children and Families Commission	*17,570*
Rate Group #2 – Plan U Children and Families Commission	*466*
Rate Group #2 – Plan W	*146*
Rate Group #3 – Plans G and H	*47,462*
Rate Group #3 – Plan B	*6,212*
Rate Group #3 – Plan U	*15,465*
Rate Group #5 – Plans A and B	*92,282*
Rate Group #5 – Plan U	*10,449*
Rate Group #9 – Plans M and N	*4,210*
Rate Group #9 – Plan U	*3,107*
Rate Group #10 – Plans I and J	*14,828*
Rate Group #10 – Plans M and N	*3,651*
Rate Group #10 – Plan U	*8,213*
Rate Group #11 – Plans M and N	*1,292*
Rate Group #11 – Plan U	*345*
Rate Group #12 – Plans G and H	*1,071*
Rate Group #12 – Plan U	*48*

Safety Employers	
Rate Group #6 – Plans E and F	*62,907*
Rate Group #6 – Plan V	*1,155*
Rate Group #7 – Plans E and F	*158,212*
Rate Group #7 – Plans Q and R	*41,515*
Rate Group #7 – Plan V	*36,646*
Rate Group #8 – Plans E and F	*101,553*
Rate Group #8 – Plans Q and R	*9,633*
Rate Group #8 – Plan V	*14,902*
Total General and Safety Combined	*$1,811,877*

CHART 13 (Continued)

Recommended Employer Contribution Rates as of December 31, 2017 (Dollar Amounts in Thousands)

General Employers –Local Agency Formation Commission and Orange County Employees Retirement System

	December 31, 2017 Valuation		December 31, 2016 Valuation	
	Rate[(1),(2)]	Rate[(1),(3)]	Rate[(2)]	Rate[(3)]
Rate Group #2 – Plans I and J (2.7% @ 55 – non-OCFA)				
Normal Cost	14.39%	14.39%	13.19%	13.19%
UAAL[(4)]	21.06%	22.67%	19.61%	21.72%
Total Contribution	35.45%	37.06%	32.80%	34.91%
Rate Group #2 – Plans O and P (1.62% @ 65)[(5)]				
Normal Cost	6.21%	6.21%	5.53%	5.53%
UAAL[(4)]	21.06%	22.67%	19.61%	21.72%
Total Contribution	27.27%	28.88%	25.14%	27.25%
Rate Group #2 – Plan T (1.62% @ 65 PEPRA)[(6)]				
Normal Cost	7.11%	7.11%	6.58%	6.58%
UAAL[(4)]	21.06%	22.67%	19.61%	21.72%
Total Contribution	28.17%	29.78%	26.19%	28.30%
Rate Group #2 – Plan U (2.5% @ 67 PEPRA)[(7)]				
Normal Cost	8.78%	8.78%	8.28%	8.28%
UAAL[(4)]	21.06%	22.67%	19.61%	21.72%
Total Contribution	29.84%	31.45%	27.89%	30.00%

(1) *These rates reflect only 1/3 of UAAL cost impact due to assumptions changes.*
(2) *These rates are after reflecting future service only benefit improvements under 2.7% @ 55.*
(3) *These rates are before reflecting future service only benefit improvements under 2.7% @ 55.*
(4) *UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.*
(5) *Applicable for Local Agency Formation Commission members hired on or after July 1, 2010 but before January 1, 2013.*
(6) *Applicable for Local Agency Formation Commission members hired on or after January 1, 2013.*
(7) *Applicable for Orange County Employees Retirement System members hired on or after January 1, 2013.*

CHART 14

"Pick – Up" - Discount Percentages for Non-PEPRA Tier Members

For every dollar of member contribution "picked up" by the employer for non-PEPRA tier members and not deposited in the member's contribution account, the employer can contribute less than a dollar. This is because the "pick-up" amount is not deposited in the member's contribution account and so is not payable to a member who withdraws his or her contributions following termination of employment, and is not payable as an additional death benefit. The contribution discount percentages are as follows:

	December 31, 2017 Valuation Pick-Up Percentage		December 31, 2016 Valuation Pick-Up Percentage	
General Members				
Rate Group #1 Plan A/B (non-OCTA, non-OCSD)	Plan A: 100.00%	Plan B: 98.16%	Plan A: 100.00%	Plan B: 97.14%
Rate Group #2 (2.7% @ 55 – non-OCFA)	Plan I: 99.37%	Plan J: 98.38%	Plan I: 99.00%	Plan J: 97.47%
Rate Group #2 (1.62% @ 65)	Plan O: Not calculated	Plan P: 97.33%	Plan O: Not calculated	Plan P: 96.46%
Rate Group #2 (2.0% @ 57)		Plan S: 97.70%		Plan S: 96.72%
Rate Group #3 (2.5% @ 55 – OCSD)	Plan G: 100.00%	Plan H: 98.53%	Plan G: 98.21%	Plan H: 97.73%
Rate Group #3 (1.64% @ 57 – OCSD)		Plan B: 97.48%		Plan B: 96.50%
Rate Group #5 Plan A/B (OCTA)	Plan A: 98.82%	Plan B: 97.46%	Plan A: 98.17%	Plan B: 94.74%
Rate Group #9 (2.0% @ 55 – TCA)	Plan M: Not calculated	Plan N: 98.34%	Plan M: Not calculated	Plan N: 97.64%
Rate Group #10 (2.7% @ 55 – OCFA)	Plan I: Not calculated	Plan J: 98.53%	Plan I: Not calculated	Plan J: 97.72%
Rate Group #10 (2.0% @ 55 – OCFA)	Plan M: Not calculated	Plan N: 97.57%	Plan M: Not calculated	Plan N: 96.41%
Rate Group #11 (2.0% @ 55 – Cemetery)	Plan M: Not calculated	Plan N: 98.52%	Plan M: Not calculated	Plan N: 97.64%
Rate Group #12 (2.5% @ 55 – Law Library)	Plan G: Not calculated	Plan H: 98.82%	Plan G: Not calculated	Plan H: 98.04%

CHART 14 (Continued)

"Pick – Up" - Discount Percentages

	December 31, 2017 Valuation Pick-Up Percentage		December 31, 2016 Valuation Pick-Up Percentage	
Safety Members				
Rate Group #6 (3% @ 50 – Probation)	Plan E: 100.00%	Plan F: 99.43%	Plan E: 100.00%	Plan F: 98.74%
Rate Group #7 (3% @ 50 – Law Enforcement)	Plan E: 100.00%	Plan F: 99.69%	Plan E: 100.00%	Plan F: 99.60%
Rate Group #7 (3% @ 55 – Law Enforcement)	Plan Q: Not calculated	Plan R: 99.37%	Plan Q: Not calculated	Plan R: 99.23%
Rate Group #8 (3% @ 50 – OCFA)	Plan E: 100.00%	Plan F: 99.61%	Plan E: 100.00%	Plan F: 99.51%
Rate Group #8 (3% @ 55 – OCFA)	Plan Q: Not calculated	Plan R: 99.38%	Plan Q: Not calculated	Plan R: 99.30%

CHART 14 (Continued)
"Pick – Up" - Average Entry Age

The following table provides the average entry age by employer used in determining the "pick-up" contributions under Section 31581.1.

Employer	Code	Average Entry Age for All non-PEPRA Members
General		
Orange County	101	32
Cemetery District	102	30
Law Library	103	40
Retirement System	105	32
OCFA	106	33
Transportation Corridor Agency	109	38
City of San Juan Capistrano	110	33
Sanitation District	111	34
OCTA	112	36
Children & Families Commission	118	27
Local Agency Formation Commission	119	38
Superior Court	121	32
IHSS Public Authority	122	39
Safety		
Probation	101	27
Law Enforcement	101	27
OCFA	106	30

Note: In preparing the average entry age, we only included the non-PEPRA members starting with this valuation. (Previously, we had included both non-PEPRA and PEPRA members in preparing the average entry age.)

The contribution rates as of December 31, 2017 are based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions or methods.

Reconciliation of Recommended Contribution

The chart below details the changes in the recommended contribution from the prior valuation to the current year's valuation, for the entire Retirement System. A reconciliation of the recommended contribution from the prior valuation to the current year's valuation by Rate Group is provided in Appendix D.

The chart reconciles the employer contribution from the prior valuation to the amount determined in this valuation.

CHART 15

Reconciliation of Recommended Employer Contribution Rate from December 31, 2016 to December 31, 2017 (Dollar Amounts in Thousands)

	Contribution Rate	Estimated Amount [1]
1. Aggregate Recommended Contribution Rate as of December 31, 2016 (before adjustments to FY 18/19 rates)	36.45%	$660,428
2. Adjustment to FY18-19 rates for additional UAAL contributions from Children and Families Commission and Law Library	(0.02%)	(323)
3. Aggregate Recommended Contribution Rate as of December 31, 2016 (after adjustments to FY 18/19 rates)	36.43%	$660,105
4. Actuarial (gain)/loss items:		
(a) Effect of investment gain (after smoothing)	(0.10%)	$(1,812)
(b) Effect of additional UAAL contributions from OCFA and anticipated payments from DOE and U.C.I.	(0.14%)	(2,536)
(c) Effect of actual contributions less than expected	0.15%	2,718
(d) Effect of lower than expected COLA increases	(0.38%)	(6,885)
(e) Effect of lower than expected salary increases	(0.26%)	(4,711)
(f) Effect of growth in total payroll greater than expected	(0.01%)	(181)
(g) Effect of other experience (gain)/loss[2]	(0.06%)	(1,050)
(h) Effect of changes in actuarial assumptions[3],[4]	4.81%	87,151
(i) Effect of three-year phase-in of UAAL cost impact due to changes in actuarial assumptions	(2.47%)	(44,804)
(j) Subtotal	1.54%	$27,890
5. Aggregate Recommended Contribution Rate as of December 31, 2017	37.97%	$687,995

[1] *Based on December 31, 2017 projected annual compensation of $1,811,877,000.*

[2] *Net of an adjustment of 0.35% to reflect 18-month delay between date of valuation and date of rate implementation for the rate impact of all actuarial experience.*

[3] *Include the effect of $24,042,000 asset transfer from O.C. Sanitation District UAAL Deferred Account to valuation assets.*

[4] *Normal Cost increased by 1.10% and UAAL cost increased by 3.71%.*

The member contribution rates as of December 31, 2017 are based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. They include all changes affecting future costs, adopted benefit changes, and changes in the actuarial assumptions or methods.

Reconciliation of Recommended Contribution Rate
The chart below details the changes in the aggregate recommended member contribution rate from the prior valuation to the current year's valuation.

The chart reconciles the member contribution from the prior valuation to the amount determined in this valuation.

CHART 16
Reconciliation of Average Recommended Member Contribution from December 31, 2016 to December 31, 2017 (Dollar Amounts in Thousands)

	Contribution Rate	Estimated Amount[1]
Average Recommended Contribution Rate as of December 31, 2016[2]	11.97%	$216,914
Effect of changes in demographics	(0.11%)	$(1,977)
Effect of changes in actuarial assumptions	0.77%	13,951
Subtotal	0.66%	$11,974
Average Recommended Contribution Rate as of December 31, 2017	12.63%	$228,888

(1) *Based on December 31, 2017 projected annual compensation of $1,811,877,000.*

(2) *Rates have been recalculated by applying the individual entry age based rates determined in the December 31, 2016 valuation to the System membership as of December 31, 2017.*

E. FUNDED RATIO

A critical piece of information regarding the Plan's financial status is the funded ratio. The ratios compare the valuation value of assets and market value of assets to the actuarial accrued liabilities of the Plan as calculated. High ratios indicate a well-funded plan with assets sufficient to cover the plan's actuarial accrued liabilities. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors. The chart below depicts a history of the funded ratio for this plan.

CHART 17

Funded Ratio for Plan Years Ending December 31, 2007 - 2017

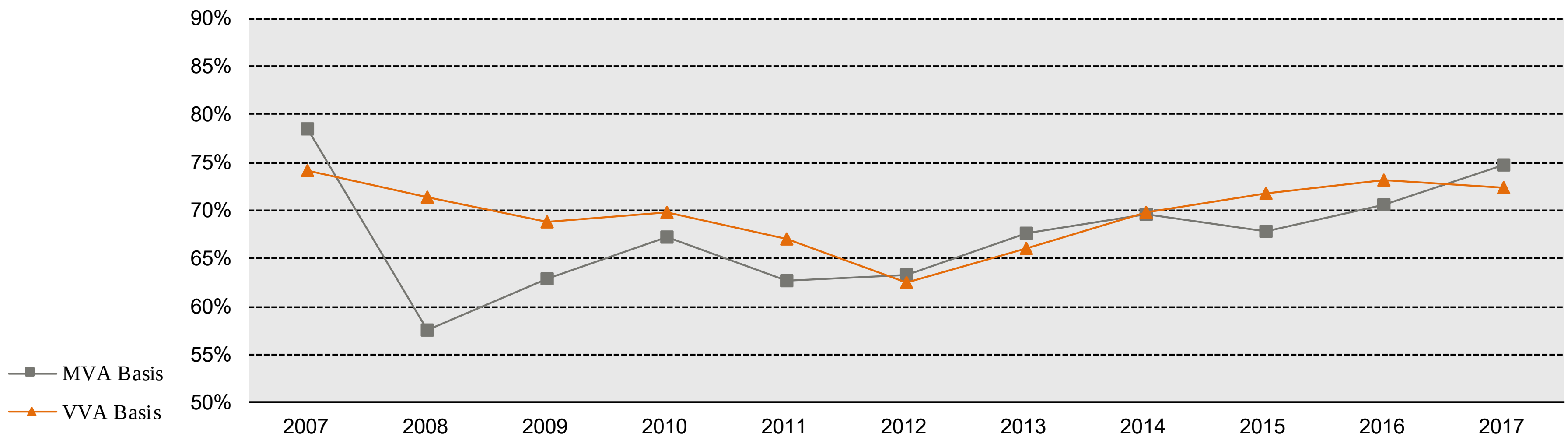


CHART 18
Schedule of Funding Progress

Actuarial Valuation Date December 31	Valuation Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Projected Covered Payroll (c)	UAAL as a Percentage of Projected Covered Payroll [(b) - (a)] / (c)
2008	$7,748,380,000	$10,860,715,000	$3,112,335,000	71.34%	$1,569,764,000	198.27%
2009	8,154,687,000	11,858,578,000	3,703,891,000	68.77%	1,618,491,000	228.85%
2010	8,672,592,000	12,425,873,000	3,753,281,000	69.79%	1,579,239,000	237.66%
2011	9,064,355,000	13,522,978,000	4,458,623,000	67.03%	1,619,474,000	275.31%
2012	9,469,208,000	15,144,888,000	5,675,680,000	62.52%	1,609,600,000	352.55%
2013	10,417,125,000	15,785,042,000	5,367,917,000	65.99%	1,604,496,000	334.55%
2014	11,449,911,000	16,413,124,000	4,963,213,000	69.76%	1,648,160,000	301.14%
2015	12,228,009,000	17,050,357,000	4,822,348,000	71.72%	1,633,112,000	295.29%
2016	13,102,978,000	17,933,461,000	4,830,483,000	73.06%	1,759,831,000	274.49%
2017	14,197,125,000	19,635,427,000	5,438,302,000	72.30%	1,811,877,000	300.15%

For informational purposes only, we have also developed the funded ratio determined using the historical market value of assets after adjustment for amounts in the County Investment Account (funded by pension obligation bond proceeds held by OCERS), prepaid employer contributions, O.C. Sanitation District UAAL Deferred Account (after transfer), unclaimed member reserve and Medicare Medical Insurance Reserve.

Actuarial Valuation Date December 31	Funded Ratio Based on Net Market Value of Assets	Actuarial Valuation Date December 31	Funded Ratio Based on Net Market Value of Assets
2008	57.51%	2013	67.65%
2009	62.94%	2014	69.63%
2010	67.25%	2015	67.73%
2011	62.60%	2016	70.58%
2012	63.17%	2017	74.62%

F. VOLATILITY RATIOS

Retirement plans are subject to volatility in the level of required contributions. This volatility tends to increase as retirement plans become more mature.

The Asset Volatility Ratio (AVR), which is equal to the market value of assets divided by total payroll, provides an indication of the potential contribution volatility for any given level of investment volatility. A higher AVR indicates that the plan is subject to a greater level of contribution volatility. This is a current measure since it is based on the current level of assets.

For OCERS, the current AVR is about 8.1. This means that a 1% asset gain/(loss) (relative to the assumed investment return) translates to about 8.1% of one-year's payroll. Since OCERS amortizes actuarial gains and losses over a 20-year period, there would be a 0.6% of payroll decrease/(increase) in the required contribution for each 1% asset gain/(loss).

The Liability Volatility Ratio (LVR), which is equal to the Actuarial Accrued Liability divided by payroll, provides an indication of the longer-term potential for contribution volatility for any given level of investment volatility. This is because, over an extended period of time, the plan's assets should track the plan's liabilities. For example, if a plan is 50% funded on a market value basis, the liability volatility ratio would be double the asset volatility ratio and the plan sponsor should expect contribution volatility to increase over time as the plan becomes better funded.

The LVR also indicates how volatile contributions will be in response to changes in the Actuarial Accrued Liability due to actual experience or to changes in actuarial assumptions.

For OCERS, the current LVR is about 10.8. This is about 33% higher than the AVR. Therefore, we would expect that contribution volatility will increase over the long-term.

This chart shows how the asset and liability volatility ratios have varied over time.

CHART 19

Volatility Ratios for Years Ended December 31, 2009 - 2017

	Asset Volatility Ratios			Liability Volatility Ratios		
Year Ended December 31	**General**	**Safety**	**Total**	**General**	**Safety**	**Total**
2009	4.2	6.1	4.6	6.6	10.0	7.3
2010	4.7	7.3	5.3	7.0	10.9	7.9
2011	4.7	7.1	5.2	7.6	10.9	8.4
2012	5.3	8.1	5.9	8.6	12.3	9.4
2013	6.0	8.9	6.7	9.0	12.6	9.8
2014	6.2	9.4	6.9	8.9	13.6	10.0
2015	6.3	9.6	7.1	9.3	14.3	10.4
2016	6.4	9.9	7.2	9.0	14.2	10.2
2017	7.2	11.0	8.1	9.6	14.8	10.8

EXHIBIT A

Table of Plan Coverage

i. Rate Group #1 – General – Plans A, B and U (non-OCTA, non-OCSD)

Category	Year Ended December 31		Change From Prior Year
	2017	2016	
Active members in valuation			
Number	1,555	1,640	-5.2%
Average age	43.1	42.0	1.1
Average service	9.8	8.9	0.9
Projected total compensation	$83,675,611	$83,218,758	0.5%
Projected average compensation	$53,811	$50,743	6.0%
Account balances	$55,414,963	$49,693,494	11.5%
Total active vested members	817	795	2.8%
Vested terminated members[1]			
Number	496	445	11.5%
Average age	41.6	41.7	-0.1
Retired members			
Number in pay status	627	617	1.6%
Average age	74.9	74.4	0.5
Average monthly benefit[2]	$2,645	$2,626	0.7%
Disabled members			
Number in pay status	37	38	-2.6%
Average age	67.6	67.2	0.4
Average monthly benefit[2]	$2,337	$2,290	2.1%
Beneficiaries			
Number in pay status	96	93	3.2%
Average age	76.7	76.3	0.4
Average monthly benefit[2]	$1,360	$1,324	2.7%

(1) *Includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

(2) *Excludes monthly benefits payable from the STAR COLA.*

EXHIBIT A

Table of Plan Coverage

ii. Rate Group #2 – General – Plans I, J, O, P, S, T, U and W

Category	Year Ended December 31 2017	Year Ended December 31 2016	Change From Prior Year
Active members in valuation			
Number	14,097	14,075	0.2%
Average age	45.7	45.9	-0.2
Average service	12.9	13.0	-0.1
Projected total compensation	$1,093,044,342	$1,064,427,772	2.7%
Projected average compensation	$77,537	$75,625	2.5%
Account balances	$1,930,686,878	$1,833,455,161	5.3%
Total active vested members	10,337	10,700	-3.4%
Vested terminated members[1]			
Number	3,928	3,629	8.2%
Average age	44.9	44.8	0.1
Retired members			
Number in pay status	9,067	8,772	3.4%
Average age	70.9	70.8	0.1
Average monthly benefit[2]	$3,628	$3,513	3.3%
Disabled members			
Number in pay status	582	569	2.3%
Average age	66.8	66.7	0.1
Average monthly benefit[2]	$2,477	$2,438	1.6%
Beneficiaries			
Number in pay status	1,433	1,397	2.6%
Average age	75.0	75.2	-0.2
Average monthly benefit[2]	$1,829	$1,765	3.6%

[1] *Includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

[2] *Excludes monthly benefits payable from the STAR COLA.*

EXHIBIT A

Table of Plan Coverage

iii. Rate Group #3 – General – Plans B, G, H and U (OCSD)

Category	Year Ended December 31 2017	Year Ended December 31 2016	Change From Prior Year
Active members in valuation			
Number	592	578	2.4%
Average age	48.0	48.0	0.0
Average service	12.7	13.2	-0.5
Projected total compensation	$69,138,987	$65,370,761	5.8%
Projected average compensation	$116,789	$113,098	3.3%
Account balances	$89,050,369	$87,379,694	1.9%
Total active vested members	438	440	-0.5%
Vested terminated members(1)			
Number	112	104	7.7%
Average age	46.8	47.6	-0.8
Retired members			
Number in pay status	372	355	4.8%
Average age	67.8	67.6	0.2
Average monthly benefit(2)	$5,321	$5,075	4.8%
Disabled members			
Number in pay status	15	13	15.4%
Average age	66.6	66.4	0.2
Average monthly benefit(2)	$3,633	$3,259	11.5%
Beneficiaries			
Number in pay status	72	71	1.4%
Average age	69.3	70.3	-1.0
Average monthly benefit(2)	$2,282	$2,154	5.9%

(1) *Includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

(2) *Excludes monthly benefits payable from the STAR COLA.*

EXHIBIT A

Table of Plan Coverage

iv. Rate Group #5 – General – Plans A, B and U (OCTA)

Category	Year Ended December 31 2017	Year Ended December 31 2016	Change From Prior Year
Active members in valuation			
Number	1,313	1,372	-4.3%
Average age	50.4	50.0	0.4
Average service	13.8	13.3	0.5
Projected total compensation	$102,731,350	$104,111,593	-1.3%
Projected average compensation	$78,242	$75,883	3.1%
Account balances	$128,751,586	$124,925,999	3.1%
Total active vested members	1,021	1,045	-2.3%
Vested terminated members[(1)]			
Number	584	568	2.8%
Average age	49.6	49.6	0.0
Retired members			
Number in pay status	903	863	4.6%
Average age	69.8	69.5	0.3
Average monthly benefit[(2)]	$2,463	$2,402	2.5%
Disabled members			
Number in pay status	258	256	0.8%
Average age	65.9	65.4	0.5
Average monthly benefit[(2)]	$2,304	$2,254	2.2%
Beneficiaries			
Number in pay status	167	166	0.6%
Average age	71.2	71.5	-0.3
Average monthly benefit[(2)]	$1,349	$1,294	4.3%

[(1)] *Includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

[(2)] *Excludes monthly benefits payable from the STAR COLA.*

EXHIBIT A

Table of Plan Coverage

v. Rate Group #9 – General – Plans M, N and U (TCA)

Category	Year Ended December 31 2017	Year Ended December 31 2016	Change From Prior Year
Active members in valuation			
Number	64	68	-5.9%
Average age	49.2	49.3	-0.1
Average service	8.4	10.0	-1.6
Projected total compensation	$7,317,008	$6,835,138	7.0%
Projected average compensation	$114,328	$100,517	13.7%
Account balances	$5,438,441	$5,835,926	-6.8%
Total active vested members	34	45	-24.4%
Vested terminated members[1]			
Number	61	56	8.9%
Average age	44.5	45.1	-0.6
Retired members			
Number in pay status	44	40	10.0%
Average age	68.6	68.5	0.1
Average monthly benefit[2]	$2,944	$2,768	6.4%
Disabled members			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit[2]	N/A	N/A	N/A
Beneficiaries			
Number in pay status	4	3	33.3%
Average age	70.0	72.1	-2.1
Average monthly benefit[2]	$451	$427	5.6%

(1) *Includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

(2) *Excludes monthly benefits payable from the STAR COLA.*

EXHIBIT A

Table of Plan Coverage

vi. Rate Group #10 – General – Plans I, J, M, N and U (OCFA)

Category	Year Ended December 31 2017	Year Ended December 31 2016	Change From Prior Year
Active members in valuation			
Number	281	302	-7.0%
Average age	45.5	44.1	1.4
Average service[1]	10.8	10.0	0.8
Projected total compensation	$26,691,539	$26,836,736	-0.5%
Projected average compensation	$94,988	$88,863	6.9%
Account balances	$27,364,974	$26,401,200	3.7%
Total active vested members	176	176	0.0%
Vested terminated members[2]			
Number	154	131	17.6%
Average age	41.9	42.6	-0.7
Retired members			
Number in pay status	157	141	11.3%
Average age	65.3	65.4	-0.1
Average monthly benefit[3]	$4,424	$4,446	-0.5%
Disabled members			
Number in pay status	10	10	0.0%
Average age	61.4	60.4	1.0
Average monthly benefit[3]	$2,522	$2,473	2.0%
Beneficiaries			
Number in pay status	12	10	20.0%
Average age	64.7	62.2	2.5
Average monthly benefit[3]	$1,273	$1,419	-10.3%

(1) *For some former Santa Ana members, service used in calculating the average above is only used for vesting purposes. Benefit service starts to accrue only effective April 2012.*

(2) *Includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

(3) *Excludes monthly benefits payable from the STAR COLA.*

EXHIBIT A

Table of Plan Coverage

vii. Rate Group #11 – General – Plans M and N, future service, and U (Cemetery)

Category	Year Ended December 31 2017	Year Ended December 31 2016	Change From Prior Year
Active members in valuation			
Number	25	22	13.6%
Average age	49.3	48.1	1.2
Average service	15.7	16.8	-1.1
Projected total compensation	$1,637,025	$1,397,215	17.2%
Projected average compensation	$65,481	$63,510	3.1%
Account balances	$2,227,789	$1,994,990	11.7%
Total active vested members	18	18	0.0%
Vested terminated members(1)			
Number	2	3	-33.3%
Average age	39.1	37.2	1.9
Retired members			
Number in pay status	5	5	0.0%
Average age	75.8	74.8	1.0
Average monthly benefit(2)	$2,455	$2,406	2.0%
Disabled members			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit(2)	N/A	N/A	N/A
Beneficiaries			
Number in pay status	4	4	0.0%
Average age	79.0	78.0	1.0
Average monthly benefit(2)	$1,598	$1,567	2.0%

(1) *Includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

(2) *Excludes monthly benefits payable from the STAR COLA.*

EXHIBIT A

Table of Plan Coverage

viii.Rate Group #12 – General – Plans G, H, future service, and U (Law Library)

Category	Year Ended December 31		Change From Prior Year
	2017	2016	
Active members in valuation			
Number	14	15	-6.7%
Average age	57.5	57.1	0.4
Average service	17.5	16.5	1.0
Projected total compensation	$1,119,773	$1,164,792	-3.9%
Projected average compensation	$79,984	$77,653	3.0%
Account balances	$2,634,092	$2,505,275	5.1%
Total active vested members	13	14	-7.1%
Vested terminated members[1]			
Number	4	4	0.0%
Average age	48.6	47.6	1.0
Retired members			
Number in pay status	11	10	10.0%
Average age	71.8	71.3	0.5
Average monthly benefit[2]	$2,200	$2,165	1.6%
Disabled members			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit[2]	N/A	N/A	N/A
Beneficiaries			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit[2]	N/A	N/A	N/A

(1) *Includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

(2) *Excludes monthly benefits payable from the STAR COLA.*

EXHIBIT A

Table of Plan Coverage

ix. Rate Group #6 – Safety – Plans E, F and V (Probation)

Category	Year Ended December 31 2017	Year Ended December 31 2016	Change From Prior Year
Active members in valuation			
Number	763	806	-5.3%
Average age	44.6	43.8	0.8
Average service	17.1	16.2	0.9
Projected total compensation	$64,062,602	$65,135,279	-1.6%
Projected average compensation	$83,961	$80,813	3.9%
Account balances	$137,781,996	$129,680,498	6.2%
Total active vested members	743	760	-2.2%
Vested terminated members[1]			
Number	220	211	4.3%
Average age	41.1	40.3	0.8
Retired members			
Number in pay status	306	283	8.1%
Average age	65.9	65.9	0.0
Average monthly benefit[2]	$5,444	$5,429	0.3%
Disabled members			
Number in pay status	29	28	3.6%
Average age	54.8	54.0	0.8
Average monthly benefit[2]	$2,872	$2,821	1.8%
Beneficiaries			
Number in pay status	25	26	-3.8%
Average age	64.6	61.9	2.7
Average monthly benefit[2]	$2,473	$2,387	3.6%

[1] *Includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

[2] *Excludes monthly benefits payable from the STAR COLA.*

EXHIBIT A

Table of Plan Coverage

x. Rate Group #7 – Safety – Plans E, F, Q, R and V (Law Enforcement)

Category	Year Ended December 31 2017	Year Ended December 31 2016	Change From Prior Year
Active members in valuation			
Number	2,010	1,907	5.4%
Average age	41.0	41.7	-0.7
Average service	13.4	14.1	-0.7
Projected total compensation	$236,373,080	$219,505,701	7.7%
Projected average compensation	$117,599	$115,105	2.2%
Account balances	$298,704,270	$270,051,750	10.6%
Total active vested members	1,607	1,502	7.0%
Vested terminated members[1]			
Number	175	170	2.9%
Average age	43.4	42.6	0.8
Retired members			
Number in pay status	1,333	1,283	3.9%
Average age	63.9	63.7	0.2
Average monthly benefit[2]	$6,876	$6,756	1.8%
Disabled members			
Number in pay status	351	350	0.3%
Average age	63.2	62.9	0.3
Average monthly benefit[2]	$4,977	$4,817	3.3%
Beneficiaries			
Number in pay status	351	320	9.7%
Average age	67.3	66.9	0.4
Average monthly benefit[2]	$3,011	$2,886	4.3%

[1] Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

[2] *Excludes monthly benefits payable from the STAR COLA.*

EXHIBIT A

Table of Plan Coverage

xi. Rate Group #8 – Safety – Plans E, F, Q, R and V (OCFA)

Category	Year Ended December 31 2017	Year Ended December 31 2016	Change From Prior Year
Active members in valuation			
Number	1,007	961	4.8%
Average age	43.3	44.1	-0.8
Average service[1]	13.9	14.3	-0.4
Projected total compensation	$126,088,193	$121,829,553	3.5%
Projected average compensation	$125,212	$126,774	-1.2%
Account balances	$137,783,839	$122,675,043	12.3%
Total active vested members	836	732	14.2%
Vested terminated members[2]			
Number	67	49	36.7%
Average age	43.1	40.0	3.1
Retired members			
Number in pay status	414	397	4.3%
Average age	64.5	63.9	0.6
Average monthly benefit[3]	$7,976	$7,788	2.4%
Disabled members			
Number in pay status	164	155	5.8%
Average age	65.2	64.6	0.6
Average monthly benefit[3]	$6,628	$6,602	0.4%
Beneficiaries			
Number in pay status	97	93	4.3%
Average age	62.8	61.7	1.1
Average monthly benefit[3]	$3,206	$3,025	6.0%

(1) *For some former Santa Ana members, service used in calculating the average above is only used for vesting purposes. Benefit service starts to accrue only effective April 2012.*

(2) *Includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

(3) *Excludes monthly benefits payable from the STAR COLA.*

EXHIBIT A

Table of Plan Coverage

xii. Total

Category	Year Ended December 31 2017	Year Ended December 31 2016	Change From Prior Year
Active members in valuation			
Number	21,721	21,746	-0.1%
Average age	45.3	45.4	-0.1
Average service	12.9	12.9	0.0
Projected total compensation	$1,811,879,510	$1,759,833,297	3.0%
Projected average compensation	$83,416	$80,927	3.1%
Account balances	$2,815,839,196	$2,654,599,030	6.1%
Total active vested members	16,040	16,227	-1.2%
Vested terminated members[1]			
Number	5,803	5,370	8.1%
Average age	44.8	44.8	0.0
Retired members			
Number in pay status	13,240	12,767	3.7%
Average age	69.8	69.7	0.1
Average monthly benefit[2]	$4,060	$3,946	2.9%
Disabled members			
Number in pay status	1,446	1,419	1.9%
Average age	65.3	65.0	0.3
Average monthly benefit[2]	$3,540	$3,458	2.4%
Beneficiaries			
Number in pay status	2,261	2,183	3.6%
Average age	72.8	72.8	0.0
Average monthly benefit[2]	$2,032	$1,945	4.5%

(1) *Includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

(2) *Excludes monthly benefits payable from the STAR COLA.*

EXHIBIT B
Members in Active Service and Projected Average Compensation as of December 31, 2017
By Age and Years of Service

i. Rate Group #1 – General – Plans A, B and U (non-OCTA, non-OCSD)

		Years of Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	37	37	- -	- -	- -	- -	- -	- -	- -	- -
	$60,096	$60,096	- -	- -	- -	- -	- -	- -	- -	- -
25-29	216	213	3	- -	- -	- -	- -	- -	- -	- -
	51,228	51,215	$52,181	- -	- -	- -	- -	- -	- -	- -
30-34	233	178	29	26	- -	- -	- -	- -	- -	- -
	51,560	49,967	56,798	$56,625	- -	- -	- -	- -	- -	- -
35-39	220	104	35	52	29	- -	- -	- -	- -	- -
	53,607	49,915	56,727	57,100	$56,817	- -	- -	- -	- -	- -
40-44	197	59	12	61	55	9	1	- -	- -	- -
	54,815	49,138	57,469	57,597	57,058	$55,702	$56,812	- -	- -	- -
45-49	198	49	15	56	43	20	15	- -	- -	- -
	55,287	49,064	57,237	57,357	56,510	58,883	57,638	- -	- -	- -
50-54	138	39	13	28	24	9	22	3	- -	- -
	54,395	47,557	56,264	56,112	56,753	57,956	58,942	$56,260	- -	- -
55-59	133	35	16	20	20	8	30	4	- -	- -
	54,289	47,931	55,001	56,703	55,829	55,961	57,824	57,429	- -	- -
60-64	120	26	6	14	12	14	41	2	5	- -
	55,305	49,600	55,207	56,802	56,487	56,513	57,445	57,821	$56,140	- -
65-69	42	6	2	7	11	1	13	1	1	- -
	54,699	45,650	55,421	55,659	55,018	62,214	57,359	53,405	56,503	- -
70 & over	21	1	1	3	3	4	9	- -	- -	- -
	55,880	47,775	53,353	56,320	54,306	55,272	57,710	- -	- -	- -
Total	1,555	747	132	267	197	65	131	10	6	- -
	$53,811	$50,421	$56,396	$57,026	$56,550	$57,273	$57,810	$56,754	$56,200	- -

EXHIBIT B

Members in Active Service and Projected Average Compensation as of December 31, 2017
By Age and Years of Service

ii. Rate Group #2 – General – Plans I, J, O, P, S, T, U and W

		Years of Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	213	213	- -	- -	- -	- -	- -	- -	- -	- -
	$49,359	$49,359	- -	- -	- -	- -	- -	- -	- -	- -
25-29	993	932	53	8	- -	- -	- -	- -	- -	- -
	56,867	56,352	$64,611	$65,539	- -	- -	- -	- -	- -	- -
30-34	1,609	966	324	313	6	- -	- -	- -	- -	- -
	66,464	64,975	72,962	64,208	$72,977	- -	- -	- -	- -	- -
35-39	1,892	576	373	726	213	4	- -	- -	- -	- -
	75,846	71,411	81,958	77,728	70,874	$67,671	- -	- -	- -	- -
40-44	2,011	434	228	618	612	117	2	- -	- -	- -
	79,278	72,034	81,707	81,198	81,280	81,121	$60,221	- -	- -	- -
45-49	2,160	265	198	498	643	348	207	1	- -	- -
	84,862	75,719	87,685	85,260	87,127	87,266	81,914	$68,620	- -	- -
50-54	2,076	228	154	353	488	318	434	95	6	- -
	84,780	80,338	82,121	82,031	83,734	91,752	86,979	80,787	$103,239	- -
55-59	1,600	156	117	282	342	217	320	128	36	2
	83,837	84,705	86,508	84,589	79,724	83,189	87,540	83,202	78,102	$78,287
60-64	960	92	60	164	256	143	139	73	28	5
	79,852	83,180	81,352	72,120	79,470	81,362	84,572	83,161	76,396	70,491
65-69	411	32	35	75	120	58	58	22	8	3
	82,121	95,709	95,872	79,667	77,815	82,921	84,197	70,187	65,848	85,666
70 & over	172	7	9	30	59	25	21	11	5	5
	71,743	47,718	58,912	84,316	74,223	71,584	58,711	80,697	56,157	75,184
Total	14,097	3,901	1,551	3,067	2,739	1,230	1,181	330	83	15
	$77,537	$66,865	$80,696	$79,177	$81,595	$85,848	$85,275	$81,502	$76,840	$76,130

EXHIBIT B
Members in Active Service and Projected Average Compensation as of December 31, 2017
By Age and Years of Service

iii. Rate Group #3 – General – Plans B, G, H and U (OCSD)

		Years of Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	$69,418	$69,418	- -	- -	- -	- -	- -	- -	- -	- -
25-29	23	19	4	- -	- -	- -	- -	- -	- -	- -
	82,087	80,192	$91,089	- -	- -	- -	- -	- -	- -	- -
30-34	48	33	11	4	- -	- -	- -	- -	- -	- -
	98,210	91,913	112,833	$109,952	- -	- -	- -	- -	- -	- -
35-39	80	35	20	24	1	- -	- -	- -	- -	- -
	105,380	97,592	109,319	113,910	$94,412	- -	- -	- -	- -	- -
40-44	74	27	18	23	6	- -	- -	- -	- -	- -
	111,406	105,522	117,735	113,635	110,354	- -	- -	- -	- -	- -
45-49	92	20	13	20	17	9	13	- -	- -	- -
	120,999	110,284	125,034	118,230	126,181	$136,234	$120,386	- -	- -	- -
50-54	112	15	15	20	11	17	31	3	- -	- -
	128,229	98,854	120,395	130,528	115,162	156,074	134,733	$121,864	- -	- -
55-59	84	12	20	15	8	11	17	1	- -	- -
	124,527	105,869	112,459	113,310	149,274	146,878	134,918	137,564	- -	- -
60-64	56	8	6	10	10	10	10	2	- -	- -
	130,170	113,133	125,940	125,059	130,343	151,065	124,670	158,733	- -	- -
65-69	15	3	1	2	2	1	4	1	1	- -
	119,675	117,218	113,696	102,920	196,844	94,157	113,616	78,227	$103,404	- -
70 & over	7	- -	1	- -	1	2	2	1	- -	- -
	107,789	- -	78,874	- -	93,547	131,768	108,024	102,516	- -	- -
Total	592	173	109	118	56	50	77	8	1	- -
	$116,789	$98,882	$115,045	$117,953	$127,737	$147,267	$129,254	$125,171	$103,404	- -

EXHIBIT B

Members in Active Service and Projected Average Compensation as of December 31, 2017
By Age and Years of Service

iv. Rate Group #5 – General – Plans A, B and U (OCTA)

		Years of Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	15	15	- -	- -	- -	- -	- -	- -	- -	- -
	$56,513	$56,513	- -	- -	- -	- -	- -	- -	- -	- -
25-29	52	48	3	1	- -	- -	- -	- -	- -	- -
	57,103	55,763	$74,674	$68,726	- -	- -	- -	- -	- -	- -
30-34	61	39	18	4	- -	- -	- -	- -	- -	- -
	66,789	61,797	76,151	73,338	- -	- -	- -	- -	- -	- -
35-39	117	41	13	52	11	- -	- -	- -	- -	- -
	77,524	69,989	88,329	77,641	$92,288	- -	- -	- -	- -	- -
40-44	138	31	22	49	34	2	- -	- -	- -	- -
	77,705	72,207	88,566	76,455	77,490	$77,754	- -	- -	- -	- -
45-49	190	45	32	52	44	10	7	- -	- -	- -
	78,297	65,337	93,639	81,467	75,413	81,291	$81,780	- -	- -	- -
50-54	231	37	18	67	61	18	24	5	1	- -
	78,865	73,994	118,631	68,859	73,384	82,409	92,576	$93,552	$81,680	- -
55-59	253	26	18	68	56	19	43	17	6	- -
	83,114	69,646	107,893	78,647	78,720	106,856	83,304	85,060	76,709	- -
60-64	187	15	19	34	34	17	32	19	14	3
	84,515	85,872	85,374	81,258	67,341	109,355	85,056	90,017	88,685	$103,040
65-69	55	3	8	10	18	4	5	3	2	2
	74,782	56,948	90,425	70,718	72,576	59,130	82,055	65,570	108,512	72,339
70 & over	14	3	- -	3	5	1	2	- -	- -	- -
	71,940	88,734	- -	59,867	74,289	58,617	65,643	- -	- -	- -
Total	1,313	303	151	340	263	71	113	44	23	5
	$78,242	$66,852	$93,450	$76,450	$75,362	$93,468	$85,307	$86,837	$86,980	$90,760

EXHIBIT B

Members in Active Service and Projected Average Compensation as of December 31, 2017
By Age and Years of Service

v. Rate Group #9 – General – Plans M, N and U (TCA)

		Years of Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
25-29	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
30-34	6	5	--	1	--	--	--	--	--	--
	$88,725	$84,839	--	$108,150	--	--	--	--	--	--
35-39	7	6	--	1	--	--	--	--	--	--
	83,089	88,674	--	49,579	--	--	--	--	--	--
40-44	8	3	--	4	1	--	--	--	--	--
	96,937	108,737	--	96,258	$64,254	--	--	--	--	--
45-49	11	7	2	1	--	1	--	--	--	--
	118,992	122,839	$151,001	56,286	--	$90,749	--	--	--	--
50-54	14	6	1	3	3	--	1	--	--	--
	129,638	143,174	124,175	94,038	113,471	--	$209,194	--	--	--
55-59	10	2	2	2	4	--	--	--	--	--
	121,371	95,556	85,303	159,744	133,127	--	--	--	--	--
60-64	6	2	1	1	1	1	--	--	--	--
	161,876	145,666	283,154	184,465	80,824	131,480	--	--	--	--
65-69	1	--	--	--	1	--	--	--	--	--
	76,031	--	--	--	76,031	--	--	--	--	--
70 & over	1	--	--	1	--	--	--	--	--	--
	42,691	--	--	42,691	--	--	--	--	--	--
Total	64	31	6	14	10	2	1	--	--	--
	$114,328	$112,381	$146,656	$101,986	$109,403	$111,114	$209,194	--	--	--

EXHIBIT B

Members in Active Service and Projected Average Compensation as of December 31, 2017
By Age and Years of Service

vi. Rate Group #10 – General – Plans I, J, M, N and U (OCFA)

		Years of Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	5	5	- -	- -	- -	- -	- -	- -	- -	- -
	$52,754	$52,754	- -	- -	- -	- -	- -	- -	- -	- -
25-29	15	15	- -	- -	- -	- -	- -	- -	- -	- -
	67,124	67,124	- -	- -	- -	- -	- -	- -	- -	- -
30-34	30	25	4	1	- -	- -	- -	- -	- -	- -
	77,066	76,246	$80,064	$85,558	- -	- -	- -	- -	- -	- -
35-39	39	21	7	8	3	- -	- -	- -	- -	- -
	88,391	86,517	92,327	89,647	$88,974	- -	- -	- -	- -	- -
40-44	41	14	8	11	8	- -	- -	- -	- -	- -
	89,913	85,414	71,008	109,485	89,781	- -	- -	- -	- -	- -
45-49	45	24	4	4	9	4	- -	- -	- -	- -
	115,703	111,643	133,664	115,505	108,903	$137,604	- -	- -	- -	- -
50-54	54	8	4	5	17	8	10	2	- -	- -
	99,646	108,331	109,423	116,495	88,329	104,503	$92,969	$113,377	- -	- -
55-59	31	7	5	3	8	6	2	- -	- -	- -
	107,496	86,555	158,991	123,594	83,759	118,610	89,517	- -	- -	- -
60-64	16	4	- -	2	9	1	- -	- -	- -	- -
	104,558	98,403	- -	91,314	105,732	145,105	- -	- -	- -	- -
65-69	4	- -	1	1	1	1	- -	- -	- -	- -
	81,683	- -	71,683	92,652	73,985	88,411	- -	- -	- -	- -
70 & over	1	- -	- -	1	- -	- -	- -	- -	- -	- -
	55,671	- -	- -	55,671	- -	- -	- -	- -	- -	- -
Total	281	123	33	36	55	20	12	2	- -	- -
	$94,988	$87,277	$102,230	$104,258	$93,864	$116,581	$92,394	$113,377	- -	- -

EXHIBIT B
Members in Active Service and Projected Average Compensation as of December 31, 2017
By Age and Years of Service

vii. Rate Group #11 – General – Plans M and N, future service, and U (Cemetery)

		Years of Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
25-29	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	$44,187	$44,187	- -	- -	- -	- -	- -	- -	- -	- -
30-34	2	2	- -	- -	- -	- -	- -	- -	- -	- -
	44,589	44,589	- -	- -	- -	- -	- -	- -	- -	- -
35-39	4	- -	2	1	1	- -	- -	- -	- -	- -
	60,879	- -	$54,024	$62,739	$72,731	- -	- -	- -	- -	- -
40-44	2	- -	- -	1	1	- -	- -	- -	- -	- -
	75,182	- -	- -	54,570	95,794	- -	- -	- -	- -	- -
45-49	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
50-54	8	2	- -	2	- -	2	2	- -	- -	- -
	69,113	52,866	- -	114,559	- -	$54,228	$54,798	- -	- -	- -
55-59	2	1	- -	- -	- -	1	- -	- -	- -	- -
	76,346	54,686	- -	- -	- -	98,006	- -	- -	- -	- -
60-64	6	1	- -	- -	- -	2	2	1	- -	- -
	67,364	50,791	- -	- -	- -	75,112	54,228	$94,712	- -	- -
65-69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	25	7	2	4	2	5	4	1	- -	- -
	$65,481	$49,225	$54,024	$86,607	$84,263	$71,337	$54,513	$94,712	- -	- -

EXHIBIT B
Members in Active Service and Projected Average Compensation as of December 31, 2017
By Age and Years of Service

viii. Rate Group #12 – General – Plans G, H, future service, and U (Law Library)

		Years of Service								
Age	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
25-29	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
30-34	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
35-39	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	$48,479	$48,479	- -	- -	- -	- -	- -	- -	- -	- -
40-44	2	- -	- -	2	- -	- -	- -	- -	- -	- -
	88,199	- -	- -	$88,199	- -	- -	- -	- -	- -	- -
45-49	1	- -	- -	- -	1	- -	- -	- -	- -	- -
	63,472	- -	- -	- -	$63,472	- -	- -	- -	- -	- -
50-54	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
55-59	3	- -	- -	- -	2	- -	1	- -	- -	- -
	83,246	- -	- -	- -	88,023	- -	$73,693	- -	- -	- -
60-64	4	- -	1	- -	1	1	1	- -	- -	- -
	97,100	- -	$52,877	- -	63,777	$81,034	190,711	- -	- -	- -
65-69	1	- -	- -	- -	- -	1	- -	- -	- -	- -
	63,472	- -	- -	- -	- -	63,472	- -	- -	- -	- -
70 & over	2	- -	- -	1	- -	- -	- -	1	- -	- -
	64,907	- -	- -	48,779	- -	- -	- -	$81,034	- -	- -
Total	14	1	1	3	4	2	2	1	- -	- -
	$79,984	$48,479	$52,877	$75,059	$75,824	$72,253	$132,202	$81,034	- -	- -

EXHIBIT B

Members in Active Service and Projected Average Compensation as of December 31, 2017
By Age and Years of Service

ix. Rate Group #6 – Safety – Plans E, F and V (Probation)

		Years of Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	$58,971	$58,971	- -	- -	- -	- -	- -	- -	- -	- -
25-29	14	7	7	- -	- -	- -	- -	- -	- -	- -
	64,796	58,185	$71,406	- -	- -	- -	- -	- -	- -	- -
30-34	43	10	7	26	- -	- -	- -	- -	- -	- -
	68,153	59,174	60,538	$73,657	- -	- -	- -	- -	- -	- -
35-39	140	3	7	94	36	- -	- -	- -	- -	- -
	77,226	57,857	60,459	77,170	$82,248	- -	- -	- -	- -	- -
40-44	222	- -	9	56	139	17	1	- -	- -	- -
	82,352	- -	62,813	78,150	83,527	$97,554	$71,832	- -	- -	- -
45-49	177	1	- -	17	75	76	8	- -	- -	- -
	88,628	53,851	- -	73,760	83,346	96,113	102,971	- -	- -	- -
50-54	99	- -	- -	5	29	29	29	7	- -	- -
	93,102	- -	- -	74,199	80,565	93,446	101,755	$121,277	- -	- -
55-59	41	- -	2	1	8	10	13	7	- -	- -
	97,255	- -	79,204	71,473	83,487	87,801	97,574	134,746	- -	- -
60-64	21	- -	- -	1	7	5	6	2	- -	- -
	84,734	- -	- -	72,661	78,339	81,317	93,167	96,401	- -	- -
65-69	5	- -	- -	1	2	1	1	- -	- -	- -
	80,182	- -	- -	71,594	65,226	103,995	94,866	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	763	22	32	201	296	138	58	16	- -	- -
	$83,961	$58,429	$64,704	$76,548	$82,788	$94,649	$99,462	$124,060	- -	- -

EXHIBIT B
Members in Active Service and Projected Average Compensation as of December 31, 2017
By Age and Years of Service

x. Rate Group #7 – Safety – Plans E, F, Q, R and V (Law Enforcement)

		Years of Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	67	66	1	- -	- -	- -	- -	- -	- -	- -
	$78,557	$78,457	$85,168	- -	- -	- -	- -	- -	- -	- -
25-29	249	152	92	5	- -	- -	- -	- -	- -	- -
	90,141	82,575	101,272	$115,302	- -	- -	- -	- -	- -	- -
30-34	327	81	166	79	1	- -	- -	- -	- -	- -
	103,991	87,978	106,456	114,982	$123,557	- -	- -	- -	- -	- -
35-39	288	31	82	133	41	1	- -	- -	- -	- -
	113,937	99,360	106,281	118,328	125,922	$118,083	- -	- -	- -	- -
40-44	303	17	28	82	135	41	- -	- -	- -	- -
	123,235	106,387	114,694	117,568	126,710	135,950	- -	- -	- -	- -
45-49	374	7	12	56	102	158	37	2	- -	- -
	133,477	113,068	123,009	130,375	128,269	138,537	$136,054	$172,719	- -	- -
50-54	261	39	3	20	42	63	80	14	- -	- -
	135,275	130,386	133,452	127,565	124,743	133,142	140,908	169,300	- -	- -
55-59	103	24	14	3	7	20	18	17	- -	- -
	137,387	140,064	141,462	126,125	116,874	138,626	128,096	149,066	- -	- -
60-64	35	2	9	7	- -	3	2	11	1	- -
	135,263	125,482	150,331	143,002	- -	121,122	118,526	128,240	$118,173	- -
65-69	3	1	- -	1	1	- -	- -	- -	- -	- -
	131,143	141,287	- -	138,954	113,189	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	2,010	420	407	386	329	286	137	44	1	- -
	$117,599	$93,750	$108,625	$120,231	$126,584	$136,730	$137,587	$151,373	$118,173	- -

EXHIBIT B

Members in Active Service and Projected Average Compensation as of December 31, 2017
By Age and Years of Service

xi. Rate Group #8 – Safety – Plans E, F, Q, R and V (OCFA)

		Years of Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	15	15	- -	- -	- -	- -	- -	- -	- -	- -
	$78,607	$78,607	- -	- -	- -	- -	- -	- -	- -	- -
25-29	74	69	4	1	- -	- -	- -	- -	- -	- -
	94,476	93,827	$102,663	$106,530	- -	- -	- -	- -	- -	- -
30-34	139	85	37	17	- -	- -	- -	- -	- -	- -
	104,845	95,549	116,797	125,312	- -	- -	- -	- -	- -	- -
35-39	189	56	62	63	8	- -	- -	- -	- -	- -
	119,819	101,839	122,728	131,664	$129,861	- -	- -	- -	- -	- -
40-44	166	17	53	56	35	5	- -	- -	- -	- -
	131,082	103,896	129,932	137,577	132,775	$151,109	- -	- -	- -	- -
45-49	136	3	32	33	32	22	14	- -	- -	- -
	139,358	116,923	136,889	131,811	137,136	150,057	$155,861	- -	- -	- -
50-54	140	1	27	10	26	30	34	12	- -	- -
	145,541	133,466	146,135	123,771	143,608	142,736	155,269	$146,995	- -	- -
55-59	101	1	35	3	11	14	19	16	2	- -
	133,922	83,765	132,250	131,358	127,031	138,025	139,119	136,213	$133,619	- -
60-64	35	2	16	- -	1	2	6	2	6	- -
	129,912	98,696	128,164	- -	117,300	115,119	139,561	143,874	137,711	- -
65-69	11	- -	5	1	- -	- -	2	- -	3	- -
	130,256	- -	126,441	140,756	- -	- -	116,561	- -	142,244	- -
70 & over	1	- -	- -	- -	- -	- -	- -	- -	1	- -
	104,570	- -	- -	- -	- -	- -	- -	- -	104,570	- -
Total	1,007	249	271	184	113	73	75	30	12	- -
	$125,212	$96,424	$128,654	$132,382	$135,600	$143,856	$148,999	$141,036	$135,401	- -

EXHIBIT B
Members in Active Service and Projected Average Compensation as of December 31, 2017
By Age and Years of Service

xii. Total

		Years of Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	354	353	1	- -	- -	- -	- -	- -	- -	- -
	$57,682	$57,604	$85,168	- -	- -	- -	- -	- -	- -	- -
25-29	1,637	1,456	166	15	- -	- -	- -	- -	- -	- -
	63,400	60,517	86,728	$85,072	- -	- -	- -	- -	- -	- -
30-34	2,498	1,424	596	471	7	- -	- -	- -	- -	- -
	72,932	66,968	84,960	75,637	$80,203	- -	- -	- -	- -	- -
35-39	2,977	874	601	1,154	343	5	- -	- -	- -	- -
	81,756	73,184	88,839	85,171	79,754	$77,753	- -	- -	- -	- -
40-44	3,164	602	378	963	1,026	191	4	- -	- -	- -
	85,766	73,665	91,581	86,807	88,129	94,952	$62,271	- -	- -	- -
45-49	3,384	421	308	737	966	648	301	3	- -	- -
	92,020	76,843	95,894	89,139	91,803	102,965	93,017	$138,019	- -	- -
50-54	3,133	375	235	513	701	494	667	141	7	- -
	92,160	83,846	94,584	83,832	87,188	101,538	99,243	98,488	$100,159	- -
55-59	2,361	264	229	397	466	306	463	190	44	2
	88,717	84,356	100,113	84,559	82,074	93,262	90,915	95,368	80,435	$78,287
60-64	1,446	152	118	233	331	199	239	112	54	8
	83,600	81,049	96,015	77,584	79,689	86,953	83,732	91,072	85,293	82,697
65-69	548	45	52	98	156	67	83	27	15	5
	81,479	88,897	96,295	78,792	77,158	81,466	82,191	69,350	88,696	80,335
70 & over	219	11	11	39	68	32	34	13	6	5
	71,268	58,909	60,222	77,568	73,634	72,901	61,755	82,401	64,226	75,184
Total	21,721	5,977	2,695	4,620	4,064	1,942	1,791	486	126	20
	$83,416	$69,458	$90,841	$84,389	$86,074	$97,342	$92,389	$93,754	$83,824	$79,787

EXHIBIT C

Reconciliation of Member Data – December 31, 2016 to December 31, 2017

	Active Members	Vested Former Members[1]	Pensioners	Disableds	Beneficiaries	Total
Number as of December 31, 2016	21,746	5,370	12,767	1,419	2,183	43,485
New members	1,425	141	0	0	193	1,759
Terminations – with vested rights	-584	584	0	0	0	0
Contributions refunds	-161	-111	0	0	0	-272
Retirements	-678	-128	806	0	0	0
New disabilities	-31	-7	-27	65	0	0
Return to work	35	-34	-1	0	0	0
Deaths	-31	-12	-308	-37	-105	-493
Data adjustments	0	0	3	-1	-10	-8
Number as of December 31, 2017	21,721	5,803	13,240	1,446	2,261	44,471

[1] *Includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

EXHIBIT D

Summary Statement of Income and Expenses on an Actuarial Value Basis

	Year Ended December 31, 2017		Year Ended December 31, 2016	
Contribution income:				
Employer contributions	$596,146,000[1]		$533,667,000[2]	
Member contributions	262,294,000		258,297,000	
Discount for prepaid contributions	22,921,000		24,353,000	
Transfer from County Investment Account[3]	0		0	
Contribution income		$881,361,000		$816,317,000
Investment income:				
Interest, dividends and other income	$419,412,000		$220,524,000	
Recognition of capital appreciation	654,094,000		653,783,000	
Less investment and administrative fees	(96,378,000)		(97,680,000)	
Net investment income		$977,128,000		$776,627,000
Total income available for benefits		$1,858,489,000		$1,592,944,000
Less benefit payments		$(764,344,000)		$(717,976,000)
Change in reserve for future benefits		$1,094,145,000		$874,968,000

(1) *Includes asset transfer of $24,042,000 from O.C. Sanitation District UAAL Deferred Account to valuation assets.*

(2) *Excludes contributions towards O.C. Sanitation District UAAL Deferred Account.*

(3) *Funded by pension obligation bond proceeds held by OCERS.*

EXHIBIT E

Summary Statement of Assets

	Year Ended December 31, 2017		Year Ended December 31, 2016	
Cash equivalents		$486,846,000		$456,545,000
Accounts receivable:				
Contributions	$21,361,000		$19,206,000	
Investment income	13,727,000		15,880,000	
Securities settlements	150,619,000		85,263,000	
Other	199,651,000		56,019,000	
Total accounts receivable		$385,358,000		$176,368,000
Investments:				
Fixed income investments	$2,011,101,000		$2,051,276,000	
Equities	7,305,333,000		4,774,008,000	
Real estate	N/A		1,096,693,000	
Alternative investments and diversified credit	5,115,269,000		4,692,664,000	
Security lending collateral	189,948,000		165,455,000	
Fixed assets net of accumulated depreciation	20,670,000		22,620,000	
Total investments at market value		$14,642,321,000		$12,802,716,000
Total assets		$15,514,525,000		$13,435,629,000
Less accounts payable:				
Securities settlements	$(194,266,000)		$(157,867,000)	
Security lending liability	(189,948,000)		(165,455,000)	
All other	(83,864,000)		(80,575,000)	
Total accounts payable		$(468,078,000)		$(403,897,000)
Net assets at market value[1]		$14,652,607,000		$12,657,418,000
Net assets at actuarial value		$14,197,211,000		$13,103,066,000
Net assets at valuation value		$14,197,125,000		$13,102,978,000

(1) *The market value excludes $134,417,000 and $117,723,000 as of December 31, 2017 and December 31, 2016, respectively, in the County Investment Account (funded by pension obligation bond proceeds held by OCERS), $244,552,000 and $222,524,000 as of December 31, 2017 and December 31,2016, respectively, in the prepaid employer contributions account, $14,871,000 and $34,067,000 as of December 31, 2017 and December 31, 2016, respectively in the O.C. Sanitation District UAAL Deferred Account (after transfer).*

Note: Results may not total exactly due to rounding.

EXHIBIT F

Actuarial Balance Sheet

An overview of the Plan's funding is given by an Actuarial Balance Sheet. In this approach, we first determine the amount and timing of all future payments that will be made by the Plan for current participants. We then discount these payments at the valuation interest rate to the date of the valuation, thereby determining their present value. In this Exhibit only, we refer to this present value as the "liability" of the Plan.

Second, we determine how this liability will be met. These actuarial "assets" include the net amount of assets already accumulated by the Plan, the present value of future member contributions, the present value of future employer normal cost contributions, and the present value of future employer amortization payments.

Assets		
1.	Total valuation value of assets	$14,197,125,000
2.	Present value of future contributions by members	2,003,365,000
3.	Present value of future employer contributions for:	
	a. entry age normal cost	2,406,565,000
	b. unfunded actuarial accrued liability	5,438,302,000
4.	Total current and future assets	$24,045,357,000
Liabilities		
5.	Present value of retirement allowance for retirees and beneficiaries	$10,633,213,000
6.	Present value of retirement allowance for inactive members with vested rights(1)	488,752,000
7.	Present value of retirement allowances for active members	12,923,392,000
8.	Total liabilities	$24,045,357,000

(1) *This includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

EXHIBIT G

Summary of Reported Asset Information as of December 31, 2017

Reserves		
Included in Valuation Value of Assets		
Active Members Reserve (Book Value)		$3,093,114,000
Retired Members Reserve (Book Value)		9,821,494,000
Employer Advanced Reserve (Book Value)		2,586,106,000
O.C. Sanitation District UAAL Deferred Account Transfer		24,042,000
ERI Contribution Reserve		10,660,000
STAR COLA Contribution Reserve		0
Unrealized Appreciation/(Depriciation) Included in Valuation Value of Assets		-1,338,291,000
Subtotal: Valuation Value of Assets		$14,197,125,000
Not Included in Valuation Value of Assets		
RMBR	$0	
Unclaimed Member Deposit	0	
Medicare Medical Insurance Reserve	86,000	
Total	$86,000	
Subtotal: Actuarial Value of Assets		$14,197,211,000
Unrecognized Investment Income		455,396,000
Subtotal: Market Value of Assets (Net of County Investment Account[1] and Prepaid Employer Contributions)		$14,652,607,000
County Investment Account[1]		134,417,000
Prepaid Employer Contributions		244,552,000
O.C. Sanitation District UAAL Deferred Account[2]		14,871,000
Total: Gross Market Value of Assets		$15,046,447,000

[1] *Funded by pension obligation bond proceeds held by OCERS.*

[2] *After asset transfer of $24,042,000 from O.C. Sanitation District UAAL Deferred Account to valuation assets.*

EXHIBIT H

Development of Unfunded/(Overfunded) Actuarial Accrued Liability for Year Ended December 31, 2017

1.	Unfunded actuarial accrued liability at beginning of year		$4,830,483,000
2.	Additional UAAL contributions from Children and Families and Law Library to pay-off UAAL		-3,800,000
3.	Unfunded actuarial accrued liability at beginning of year after reflecting additional UAAL contributions from Children and Families and Law Library to pay-off UAAL		$4,826,683,000
4.	Total normal cost at middle of year		468,525,000
5.	Expected employer and member contributions		-854,874,000
6.	Interest		336,342,000
7.	Expected unfunded actuarial accrued liability		$4,776,676,000
8.	Actuarial (gain)/loss and other changes:		
	(a) Gain from additional UAAL contributions	-$36,348,000	
	(b) Loss from actual contributions less than expected	37,726,000	
	(c) Gain from investment return	-24,401,000	
	(d) Gain from lower than expected COLA increases	-95,796,000	
	(e) Gain from higher than expected salary increases	-66,399,000	
	(f) Other experience loss	17,348,000	
	(g) Gain from asset transfer from O.C. Sanitation District UAAL Deferred Account	-24,042,000	
	(h) Changes in actuarial assumptions	853,538,000	
	Total changes		$661,626,000
9.	Unfunded actuarial accrued liability at end of year		$5,438,302,000

Note: The sum of 8(d) through 8(f) is equal to the “other experience” gain of $144,847,000 provided on page 7.

EXHIBIT I
Section 415 Limitations

Section 415 of the Internal Revenue Code (IRC) specifies the maximum benefits that may be paid to an individual from a defined benefit plan and the maximum amounts that may be allocated each year to an individual's account in a defined contribution plan.

A qualified pension plan may not pay benefits in excess of the Section 415 limits. The ultimate penalty for non-compliance is disqualification: active participants could be taxed on their vested benefits and the IRS may seek to tax the income earned on the plan's assets.

In particular, Section 415(b) of the IRC limits the maximum annual benefit payable at the Normal Retirement Age to a dollar indexed for inflation. That limit is $220,000 for 2018. Normal Retirement Age for these purposes is age 62. These are the limits in simplified terms. They must be adjusted based on each participant's circumstances, for such things as age at retirement, form of benefits chosen and after tax contributions.

Benefits for non-CalPEPRA plans that are in excess of the limits may be paid through a qualified governmental excess plan that meets the requirements of Section 415(m).

Legal Counsel's review and interpretation of the law and regulations should be sought on any questions in this regard.

Contributions rates for non-CalPEPRA plans determined in this valuation have not been reduced for the Section 415 limitations. Actual limitations will result in gains as they occur.

EXHIBIT J
Definitions of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Assumptions or Actuarial Assumptions: The estimates on which the cost of the Plan is calculated including:

(a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;

(b) Mortality rates — the death rates of members and pensioners; life expectancy is based on these rates;

(c) Retirement rates — the rate or probability of retirement at a given age; and

(d) Turnover rates — the rates at which members of various ages are expected to leave employment for reasons other than death, disability, or retirement.

Normal Cost: The amount of contributions required to fund the level cost allocated to the current year of service.

Actuarial Accrued Liability For Actives: The equivalent of the accumulated normal costs allocated to the years before the valuation date.

Actuarial Accrued Liability For Pensioners: The single sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

Unfunded/(Overfunded) Actuarial Accrued Liability: The extent to which the actuarial accrued liability of the Plan exceeds (or is exceeded by) the assets of the Plan. There are many approaches to paying off the unfunded or overfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.

Amortization of the Unfunded/ (Overfunded) Actuarial Accrued Liability: Payments made over a period of years equal in value to the Plan's unfunded or overfunded actuarial accrued liability.

Investment Return: The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the market gains and losses to avoid significant swings in the value of assets from one year to the next.

EXHIBIT I
Summary of Actuarial Valuation Results

The valuation was made with respect to the following data supplied to us:

1.	Retired members as of the valuation date (including 2,261 beneficiaries in pay status)		16,947
2.	Members inactive during year ended December 31, 2017 with vested rights[1]		5,803
3.	Members active during the year ended December 31, 2017		21,721

The actuarial factors as of the valuation date are as follows (amounts in 000s):

1.	Normal cost		$508,328
2.	Present value of future benefits		24,045,357
3.	Present value of future normal costs		4,409,930
4.	Actuarial accrued liability[2]		19,635,427
	Retired members and beneficiaries	$10,633,213	
	Inactive members with vested rights[1]	488,752	
	Active members	8,513,462	
5.	Valuation value of assets[3] ($14,652,607 at market value as reported by Retirement System)		14,197,125
6.	Unfunded actuarial accrued liability		$5,438,302

(1) *This includes members who chose to leave their contributions on deposit even though they have less than five years of service.*

(2) *Excludes liabilities held for STAR COLA.*

(3) *Excludes assets held for Medicare medical insurance reserve.*

EXHIBIT I (continued)
Summary of Actuarial Valuation Results

The determination of the recommended average employer contribution is as follows (amounts in 000s):

		Dollar Amount	% of Payroll
1.	Total normal cost	$508,328	28.05%
2.	Expected member contributions	-228,888	-12.63%
3.	Employer normal cost: (1) + (2)	$279,440	15.42%
4.	Amortization of unfunded actuarial accrued liability	408,555	22.55%
5.	Total recommended average employer contribution: (3) + (4)	$687,995	37.97%
6.	Projected compensation	$1,811,877	

EXHIBIT II
Actuarial Assumptions and Actuarial Cost Method

Rationale for Assumptions:	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the January 1, 2014 through December 31, 2016 Actuarial Experience Study dated August 14, 2017 and PowerPoint presentation dated October 16, 2017. Unless otherwise noted, all actuarial assumptions and methods shown below apply to members for all tiers.
<u>**Economic Assumptions**</u>	
Net Investment Return:	7.00%; net of investment expenses and administrative expenses.
Member Contribution Crediting Rate:	5.00%, compounded semi-annually.
Consumer Price Index:	Increase of 2.75% per year, retiree COLA increases due to CPI subject to a 3.0% maximum change per year.
Payroll Growth:	Inflation of 2.75% per year plus “across the board” real salary increases of 0.50% per year.
Increase in Section 7522.10 Compensation Limit:	Increase of 2.75% per year from the valuation date.

Individual Salary Increases:

Annual Rate of Compensation Increase (%)

Inflation: 2.75% per year, plus "across the board" real salary increases of 0.50% per year, plus the following merit and promotional increases:

Years of Service	General	Safety
Less than 1	9.00%	14.00%
1	7.25	10.00
2	6.00	7.75
3	5.00	6.00
4	4.00	5.50
5	3.50	4.50
6	2.50	3.75
7	2.25	3.25
8	1.75	2.50
9	1.50	2.25
10	1.50	1.75
11	1.50	1.75
12	1.50	1.75
13	1.50	1.75
14	1.50	1.75
15	1.50	1.75
16	1.00	1.50
17	1.00	1.50
18	1.00	1.50
19	1.00	1.50
20 & over	1.00	1.50

In addition to the individual salary increase assumptions, we have applied an average of two hours of additional salary annually for leap-year salary adjustment.

Demographic Assumptions

Post – Retirement Mortality Rates:

Healthy: For General Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table, projected generationally with the two-dimensional MP-2016 projection scale.

For Safety Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set back four years, projected generationally with the two-dimensional MP-2016 projection scale.

Disabled: For General Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set forward five years, projected generationally with the two-dimensional MP-2016 projection scale.

For Safety Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table, projected generationally with the two-dimensional MP-2016 projection scale.

Beneficiaries: Beneficiaries are assumed to have the same mortality as a General Member of the opposite sex who is receiving a service (non-disability) retirement.

The RP-2014 mortality tables and adjustments as shown above reflect the mortality experience as of the measurement date. The generational projection is a provision for future mortality improvement.

Member Contribution Rates: For General Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016, weighted 40% male and 60% female.

For Safety Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016 set back four years, weighted 80% male and 20% female.

Optional Forms of Benefits: For General Service Retirees: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016, weighted 40% male and 60% female.

For Safety Service Retirees: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016 set back four years, weighted 80% male and 20% female.

For General Disabled Retirees: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016 set forward five years, weighted 40% male and 60% female.

For Safety Disabled Retirees: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016, weighted 80% male and 20% female.

For General Beneficiaries: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016, weighted 60% male and 40% female.

For Safety Beneficiaries: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016, weighted 20% male and 80% female.

Pre-Retirement Mortality Rates: For General and Safety Members: Headcount-Weighted RP-2014 Employee Mortality Table times 80%, projected generationally with the two-dimensional MP-2016 projection scale.

Termination Rates Before Retirement:

	Rate (%)	
	Mortality (General and Safety)	
Age	Male	Female
25	0.05	0.02
30	0.05	0.02
35	0.05	0.03
40	0.06	0.04
45	0.10	0.07
50	0.17	0.11
55	0.27	0.17
60	0.45	0.24
65	0.78	0.36
70	1.27	0.59

Note that generational projections beyond the base year (2014) are not reflected in the above mortality rates.

All General pre-retirement deaths are assumed to be non-service connected. For Safety, 90% of pre-retirement deaths are assumed to be non-service connected. The other 10% are assumed to be service connected.

Termination Rates Before Retirement (Continued):

	Rate (%)			
	Disability			
Age	General All Other[1]	General OCTA[2]	Safety - Law & Fire[3]	Safety - Probation[4]
20	0.00	0.00	0.00	0.00
25	0.00	0.00	0.01	0.03
30	0.01	0.03	0.04	0.08
35	0.03	0.20	0.14	0.10
40	0.08	0.36	0.23	0.13
45	0.13	0.43	0.40	0.21
50	0.18	0.48	1.10	0.28
55	0.23	0.65	2.40	0.42
60	0.31	1.26	4.80	0.20

(1) *60% of General All Other disabilities are assumed to be service connected disabilities. The other 40% are assumed to be non-service connected.*

(2) *65% of General OCTA disabilities are assumed to be service connected disabilities. The other 35% are assumed to be non-service connected.*

(3) *100% of Safety Law Enforcement and Fire disabilities are assumed to be service connected disabilities.*

(4) *75% of Safety Probation disabilities are assumed to be service connected disabilities. The other 25% are assumed to be non-service connected.*

Termination Rates Before Retirement (Continued):

Years of Service	Rate (%) Termination General All Other	General OCTA	Safety – Law & Fire	Safety - Probation
0	11.00	17.50	4.50	14.00
1	7.50	11.00	2.50	13.00
2	6.50	9.00	2.00	10.00
3	5.00	8.50	1.50	5.00
4	4.50	7.50	1.25	4.00
5	4.25	7.00	1.00	3.50
6	3.75	4.50	0.95	2.75
7	3.25	4.00	0.90	2.00
8	3.00	3.50	0.85	2.00
9	2.75	3.00	0.80	1.75
10	2.50	3.00	0.75	1.75
11	2.00	3.00	0.65	1.50
12	2.00	3.00	0.60	1.25
13	1.75	2.50	0.55	1.00
14	1.50	2.50	0.50	0.75
15	1.40	2.50	0.45	0.75
16	1.30	2.00	0.40	0.75
17	1.20	1.80	0.35	0.25
18	1.10	1.60	0.30	0.25
19	1.00	1.40	0.25	0.25
20 +	0.90	1.20	0.20	0.25

Termination Rates Before Retirement (Continued):

	Election for Withdrawal of Contributions (%)			
Years of Service	**General All Other**	**General OCTA**	**Safety – Law & Fire**	**Safety - Probation**
0 – 4	35.0	40.0	20.0	25.0
5 – 9	30.0	35.0	20.0	25.0
10 – 14	25.0	30.0	20.0	25.0
15 or more	20.0	20.0	20.0	25.0

Retirement Rates:

	Rate (%)							
Age	General - Enhanced	General - Non-Enhanced(1)	General - SJC (31676.12)	Safety - Law (31664.1)(2)	Safety - Law (31664.2)(2)	Safety - Fire (31664.1)	Safety - Fire (31664.2)	Safety - Probation(2)
48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49	30.0	25.0	0.0	12.0	0.0	2.0	0.0	0.0
50	2.5	2.0	3.0	18.0	11.5	5.0	8.0	3.3
51	2.0	2.0	3.0	18.0	12.0	7.0	10.0	3.3
52	2.5	2.0	3.0	17.0	12.7	9.5	11.0	4.3
53	2.5	2.8	3.0	17.0	17.9	10.5	12.0	4.3
54	5.5	2.8	3.0	22.0	18.8	15.0	14.0	7.0
55	15.0	3.3	4.0	22.0	30.7	18.0	24.0	12.0
56	10.0	3.5	5.0	20.0	20.0	20.0	23.0	12.0
57	10.0	5.5	6.0	20.0	20.0	21.0	27.0	18.0
58	11.0	5.5	7.0	20.0	25.0	28.0	27.0	18.0
59	11.0	6.5	9.0	26.0	30.0	28.0	36.0	18.0
60	12.0	9.3	11.0	35.0	40.0	30.0	40.0	20.0
61	12.0	12.0	13.0	35.0	40.0	30.0	40.0	20.0
62	14.0	16.0	15.0	40.0	40.0	35.0	40.0	25.0
63	16.0	16.0	15.0	40.0	40.0	35.0	40.0	40.0
64	16.0	18.0	20.0	40.0	40.0	35.0	40.0	40.0
65	22.0	22.0	20.0	100.0	100.0	100.0	100.0	100.0
66	22.0	28.0	24.0	100.0	100.0	100.0	100.0	100.0
67	23.0	24.0	24.0	100.0	100.0	100.0	100.0	100.0
68	23.0	24.0	24.0	100.0	100.0	100.0	100.0	100.0
69	23.0	20.0	24.0	100.0	100.0	100.0	100.0	100.0
70	25.0	20.0	50.0	100.0	100.0	100.0	100.0	100.0
71	25.0	25.0	50.0	100.0	100.0	100.0	100.0	100.0
72	25.0	25.0	50.0	100.0	100.0	100.0	100.0	100.0
73	25.0	25.0	50.0	100.0	100.0	100.0	100.0	100.0
74	25.0	25.0	50.0	100.0	100.0	100.0	100.0	100.0
75	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(1) *These assumptions are also used for the CalPEPRA 1.62% @ 65 formula (Plan T and Plan W).*

(2) *Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.*

Retirement Rates (Continued):

	Rate (%)			
Age	CalPEPRA 2.5% @ 67 General Formula	CalPEPRA Safety - Probation Formula[1]	CalPEPRA Safety - Law Formula[1]	CalPEPRA Safety - Fire Formula
50	0.0	2.5	11.0	6.0
51	0.0	2.5	11.5	7.0
52	4.0	3.0	12.0	9.0
53	1.5	3.0	16.0	10.0
54	1.5	5.5	17.0	11.5
55	2.5	10.0	28.0	21.0
56	3.5	10.0	18.0	20.0
57	5.5	15.0	17.5	22.0
58	7.5	20.0	22.0	25.0
59	7.5	20.0	26.0	30.0
60	7.5	40.0	40.0	40.0
61	7.5	40.0	40.0	40.0
62	14.0	40.0	40.0	40.0
63	14.0	40.0	40.0	40.0
64	14.0	40.0	40.0	40.0
65	18.0	100.0	100.0	100.0
66	22.0	100.0	100.0	100.0
67	23.0	100.0	100.0	100.0
68	23.0	100.0	100.0	100.0
69	23.0	100.0	100.0	100.0
70	25.0	100.0	100.0	100.0
71	25.0	100.0	100.0	100.0
72	25.0	100.0	100.0	100.0
73	25.0	100.0	100.0	100.0
74	25.0	100.0	100.0	100.0
75	100.0	100.0	100.0	100.0

[1] *Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.*

Retirement Age and Benefit for Deferred Vested Members:

For current deferred vested members, we make the following retirement age assumptions:

General Age:	59
Safety Age:	53

We assume that 15% of future General and 25% of future Safety deferred vested members will continue to work for a reciprocal employer. For reciprocals, we assume 4.25% compensation increases for General and 4.75% for Safety per annum.

Liability Calculation for Current Deferred Vested Members:

Liability for a current deferred vested member is calculated based on salary (adjusted with the additional cashout assumptions for non-CalPEPRA members), service, and eligibility for reciprocal benefit as provided by the Retirement System. For those members without salary information that have 3 or more years of service, we used an average salary. For those members without salary information that have less than 3 years of service or for those members without service information, we assumed a refund of account balance.

Future Benefit Accruals:

1.0 year of service per year of employment. There is no assumption to anticipate conversion of unused sick leave at retirement.

Unknown Data for Members:

Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.

Percent Married:

75% of male members and 55% of female members are assumed to be married at retirement or time of pre-retirement death.

Age of Spouse:

Female (or male) three years younger (or older) than spouse.

Additional Cashout Assumptions:

Non-CalPEPRA Formulas

Additional compensation amounts are expected to be received during a member's final average earnings period. The percentages used in this valuation are:

	Final One Year Salary	Final Three Year Salary
General Members	3.00%	2.80%
Safety - Probation	3.80%	3.40%
Safety - Law	5.20%	4.60%
Safety - Fire	2.00%	1.70%

The additional cashout assumptions are the same for service and disability retirements.

CalPEPRA Formulas

None

Actuarial Value of Assets:

Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual and the expected return on a market value basis, and is recognized over a five-year period.

Valuation Value of Assets:

The Valuation Value of Assets is the Actuarial Value of Assets reduced by the value of the non-valuation reserves.

Actual Cost Method:

Entry Age Actuarial Cost Method. Entry Age is the current age minus Vesting Credit. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salaries, with Normal Cost determined as a level percentage of individual salary, as if the current benefit accrual rate had always been in effect. Effective December 31, 2013, the outstanding balance of the UAAL from the December 31, 2012 valuation was combined and re-amortized over a declining 20-year period. Any changes in UAAL due to actuarial gains or losses or due to changes in assumptions or methods will be amortized over separate 20-year periods. Any changes in UAAL due to plan amendments will be amortized over separate 15-year periods and any change in UAAL due to early retirement incentive programs will be amortized over a separate period of up to 5 years.

Please note that for Probation members who have prior benefit service in another OCERS plan, the normal cost rate for the current plan is calculated assuming their Entry Age is the date they entered service with their current plan.

Changes in Actuarial Assumptions and Methods:

Based on the Actuarial Experience Study, the following assumptions were changed. Previously, these assumptions were as follows:

Economic Assumptions

Net Investment Return: 7.25%; net of investment and administrative expenses.

Consumer Price Index: Increase of 3.00% per year, retiree COLA increases due to CPI subject to a 3.0% maximum change per year.

Payroll Growth: Inflation of 3.00% per year plus “across the board” real salary increases of 0.50% per year.

Increase in Section 7522.10 Compensation Limit: Increase of 3.00% per year from the valuation date.

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Individual Salary Increases:

Annual Rate of Compensation Increase (%)

Inflation: 3.00% per year, plus "across the board" real salary increases of 0.50% per year, plus the following merit and promotional increases:

Years of Service	General	Safety
Less than 1	10.00%	14.00%
1	7.25	10.00
2	6.00	8.50
3	4.75	6.75
4	4.00	5.25
5	3.25	4.50
6	2.25	3.50
7	2.00	3.25
8	1.50	2.25
9	1.25	2.25
10	1.25	1.75
11	1.25	1.75
12	1.25	1.75
13	1.25	1.75
14	1.25	1.75
15	1.25	1.75
16	0.75	1.50
17	0.75	1.50
18	0.75	1.50
19	0.75	1.50
20 & over	0.75	1.50

In addition to the individual salary increase assumptions, we have applied an average two hours of additional salary annually for leap-year salary adjustment.

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Demographic Assumptions

Post – Retirement Mortality Rates:

Healthy:	For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020. For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 with ages set back two years.
Disabled:	For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 with ages set forward six years for males and set forward three years for females. For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020.
Beneficiaries:	Beneficiaries are assumed to have the same mortality as a General Member of the opposite sex who is receiving a service (non-disability) retirement.

The mortality tables shown above were determined to contain about a 10% margin to reflect future mortality improvement, based on a review of the mortality experience as of the measurement date.

Member Contribution Rates:	For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 40% male and 60% female. For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 with ages set back two years weighted 80% male and 20% female.
Optional Forms of Benefits:	For General Service Retirees: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 40% male and 60% female. For Safety Service Retirees: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 with ages set back two years weighted 80% male and 20% female. For General Disabled Retirees: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 with ages set forward six years for males and set forward three years for females weighted 40% male and 60% female. For Safety Disabled Retirees: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 80% male and 20% female. For General Beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 60% male and 40% female. For Safety Beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 20% male and 80% female.

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Termination Rates Before Retirement:

	Rate (%) Mortality			
	General		Safety	
Age	Male	Female	Male	Female
25	0.04	0.02	0.04	0.02
30	0.04	0.02	0.04	0.02
35	0.07	0.04	0.06	0.04
40	0.10	0.07	0.09	0.06
45	0.14	0.11	0.12	0.09
50	0.20	0.16	0.18	0.14
55	0.34	0.25	0.27	0.21
60	0.59	0.41	0.48	0.33
65	1.00	0.76	0.82	0.60

All General pre-retirement deaths are assumed to be non-service connected. For Safety, 90% of pre-retirement deaths are assumed to be non-service connected. The other 10% are assumed to be service connected.

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Termination Rates Before Retirement (Continued):

	Rate (%)			
	Disability			
Age	General All Other[1]	General OCTA[2]	Safety - Law & Fire[3]	Safety - Probation[3]
20	0.00	0.00	0.00	0.00
25	0.00	0.00	0.01	0.03
30	0.01	0.03	0.04	0.08
35	0.03	0.20	0.14	0.10
40	0.08	0.36	0.26	0.10
45	0.11	0.43	0.42	0.16
50	0.14	0.48	0.92	0.20
55	0.18	0.74	1.98	0.23
60	0.29	1.41	5.20	0.10

(1) *55% of General All Other disabilities are assumed to be service connected disabilities. The other 45% are assumed to be non-service connected.*

(2) *65% of General - OCTA disabilities are assumed to be service connected disabilities. The other 35% are assumed to be non-service connected.*

(3) *100% of Safety – Law Enforcement, Fire and Probation disabilities are assumed to be service connected disabilities.*

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Termination Rates Before Retirement (Continued):

	Rate (%) Termination			
Years of Service	General All Other(1)	General OCTA(2)	Safety – Law & Fire(3)	Safety - Probation(4)
0	11.00	17.50	4.00	16.00
1	8.00	13.50	3.00	13.00
2	7.00	10.50	2.00	10.00
3	5.00	10.00	1.00	6.00
4	4.00	9.00	1.00	4.00
5	3.75	7.00	1.00	3.50
6	3.50	5.00	0.95	3.00
7	3.00	5.00	0.90	2.50
8	2.75	4.00	0.85	2.25
9	2.50	3.50	0.80	2.00
10	2.25	3.50	0.75	1.75
11	2.00	3.50	0.65	1.75
12	2.00	3.00	0.60	1.50
13	1.75	3.00	0.50	1.25
14	1.75	3.00	0.50	1.00
15	1.75	3.00	0.50	1.00
16	1.50	3.00	0.50	1.00
17	1.50	2.75	0.50	0.50
18	1.50	2.75	0.50	0.50
19	1.50	2.75	0.50	0.50
20 +	1.25	1.75	0.25	0.50

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

(1) *40% of all terminated members with less than 5 years of service and 25% of all terminated members with 5 or more years of service will choose a refund of contributions.*

(2) *45% of all terminated members with less than 5 years of service and 35% of all terminated members with 5 or more years of service will choose a refund of contributions.*

(3) *20% of all terminated members with less than 5 years of service and 20% of all terminated members with 5 or more years of service will choose a refund of contributions.*

(4) *40% of all terminated members with less than 5 years of service and 30% of all terminated members with 5 or more years of service will choose a refund of contributions.*

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Retirement Rates:

	Rate (%)							
Age	General - Enhanced	General - Non-Enhanced[1]	General - SJC (31676.12)	Safety - Law (31664.1)[2]	Safety - Law (31664.2)[2]	Safety - Fire (31664.1)[2]	Safety - Fire (31664.2)[2]	Safety - Probation[2]
49	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0
50	2.5	2.5	3.0	16.0	11.5	6.0	8.0	3.0
51	2.0	2.5	3.0	16.0	12.0	8.0	10.0	3.0
52	2.0	2.5	3.0	16.0	12.7	9.0	11.0	4.0
53	2.0	2.5	3.0	16.0	17.9	10.0	12.0	4.0
54	5.0	2.5	3.0	22.0	18.8	16.0	14.0	6.0
55	15.0	3.0	4.0	22.0	30.7	19.0	24.0	11.0
56	10.0	3.5	5.0	20.0	20.0	20.0	23.0	11.0
57	10.0	5.0	6.0	20.0	20.0	23.0	27.0	17.0
58	10.0	5.0	7.0	20.0	25.0	30.0	27.0	20.0
59	11.0	7.0	9.0	26.0	30.0	30.0	36.0	20.0
60	12.0	9.0	11.0	45.0	100.0	45.0	100.0	20.0
61	12.0	10.0	13.0	45.0	100.0	45.0	100.0	20.0
62	15.0	16.0	15.0	45.0	100.0	45.0	100.0	25.0
63	16.0	16.0	15.0	45.0	100.0	45.0	100.0	50.0
64	16.0	18.0	20.0	45.0	100.0	45.0	100.0	50.0
65	21.0	21.0	20.0	100.0	100.0	100.0	100.0	100.0
66	22.0	26.0	24.0	100.0	100.0	100.0	100.0	100.0
67	23.0	21.0	24.0	100.0	100.0	100.0	100.0	100.0
68	23.0	21.0	24.0	100.0	100.0	100.0	100.0	100.0
69	23.0	21.0	24.0	100.0	100.0	100.0	100.0	100.0
70	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
71	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
72	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
73	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
74	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
75	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(1) *These assumptions are also used for the CalPEPRA 1.62% @ 65 formula (Plan T and Plan W).*

(2) *Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.*

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Retirement Rates (continued):

	Rate (%)			
Age	CalPEPRA 2.5% @ 67 General Formula	CalPEPRA Safety - Probation Formula[1]	CalPEPRA Safety - Law Formula[1]	CalPEPRA Safety - Fire Formula[1]
50	0.0	2.5	11.0	6.5
51	0.0	2.5	11.5	8.0
52	4.0	3.0	12.0	9.0
53	1.5	3.0	16.0	10.0
54	1.5	5.5	17.0	12.0
55	2.5	10.0	28.0	21.0
56	3.5	10.0	18.0	20.0
57	5.5	15.0	17.5	22.0
58	7.5	20.0	22.0	25.0
59	7.5	20.0	26.0	31.5
60	7.5	100.0	100.0	100.0
61	7.5	100.0	100.0	100.0
62	14.0	100.0	100.0	100.0
63	14.0	100.0	100.0	100.0
64	14.0	100.0	100.0	100.0
65	18.0	100.0	100.0	100.0
66	22.0	100.0	100.0	100.0
67	23.0	100.0	100.0	100.0
68	23.0	100.0	100.0	100.0
69	23.0	100.0	100.0	100.0
70	30.0	100.0	100.0	100.0
71	30.0	100.0	100.0	100.0
72	30.0	100.0	100.0	100.0
73	30.0	100.0	100.0	100.0
74	30.0	100.0	100.0	100.0
75	100.0	100.0	100.0	100.0

[1] *Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.*

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Retirement Age and Benefit for Deferred Vested Members:

For current deferred vested members, we make the following retirement age assumptions:

General Age:	58
Safety Age:	53

We assume that 20% of future General and 30% of future Safety deferred vested members will continue to work for a reciprocal employer. For reciprocals, we assume 4.25% compensation increases for General and 5.00% for Safety per annum.

Percent Married:

75% of male members and 50% of female members are assumed to be married at retirement or time of pre-retirement death.

Additional Cashout Assumptions:

Non-CalPEPRA Formulas

Additional compensation amounts are expected to be received during a member's final average earnings period. The percentages used in this valuation are:

	Final One Year Salary	Final Three Year Salary
General Members	3.50%	2.80%
Safety - Probation	3.80%	2.80%
Safety - Law	5.20%	4.70%
Safety - Fire	2.00%	2.00%

The additional cashout assumptions are the same for service and disability retirements.

CalPEPRA Formulas

None

EXHIBIT III
Summary of Plan Provisions

This exhibit summarizes the major provisions of the OCERS included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Membership Eligibility: Membership with OCERS begins with the day of employment in an eligible position by the County or a participating employer.

Non-CalPEPRA General Plans

2.5% @ 55 Plans (Orange County Sanitation District[(1)] and Law Library[(2)])

Plan G	General members hired before September 21, 1979.
Plan H	General members hired on or after September 21, 1979

(1) *Sanitation District members within Supervisors and Professional unit hired on or after October 1, 2010 are in Plan B.*
(2) *Improvement is prospective only for service after June 23, 2005.*

2.7% @ 55 Plans (City of San Juan Capistrano, Orange County Members except bargaining unit AFSCME members, Orange County Superior Court, Local Agency Formation Commission[(1)], Orange County Employees Retirement System[(2)], Children and Families Commission[(3)] and Orange County OCFA)

Plan I	General members hired before September 21, 1979.
Plan J	General members hired on or after September 21, 1979.

(1) *Improvement is prospective only for service after June 23, 2005.*
(2) *Improvement for management members is prospective only for service after June 30, 2005.*
(3) *Improvement is prospective only for service after December 22, 2005.*

2.0% @ 55 Plans (Transportation Corridor Agency, Cemetery District[(1)] and General OCFA)

Plan M	General members hired before September 21, 1979 and General OCFA members hired on or after July 1, 2011.
Plan N	General members hired on or after September 21, 1979.

(1) *Improvement is prospective only for service after December 7, 2007.*

1.62% @ 65 Plans (Orange County Members, Orange County Superior Court, Local Agency Formation Commission and County Managers unit)	
Plan O	County OCEA members and Superior Court members rehired on or after May 7, 2010, LAFCO members rehired on or after July 1, 2010 and County Managers unit members rehired on or after August 17, 2010 and not electing to rejoin Plan I.
Plan P	County OCEA members and Superior Court members hired on or after May 7, 2010, LAFCO members hired on or after July 1, 2010 and County Managers unit members hired on or after August 17, 2010 and not electing Plan J.
2.0% @ 57 Plan (City of San Juan Capistrano)	
Plan S	General members hired on or after July 1, 2012.
All Other General Employers	
Plan A	General members hired before September 21, 1979.
Plan B	General members hired on or after September 21, 1979 and Sanitation District members within Supervisors and Professional unit hired on or after October 1, 2010
Non-CalPEPRA Safety Plans	
3% @ 50 Plans (Law Enforcement, OCFA and Probation Members)	
Plan E	Safety members hired before September 21, 1979.
Plan F	Safety members hired on or after September 21, 1979 and before April 9, 2010 for Law Enforcement, before July 1, 2011 for Safety members of OCFA Executive Management, and before July 1, 2012 for other OCFA Safety members.
3% @ 55 Plans (Law Enforcement, OCFA)	
Plan Q	Safety Law Enforcement members rehired on or after April 9, 2010, Safety members of OCFA Executive Management rehired on or after July 1, 2011, and other OCFA Safety members rehired on or after July 1, 2012 and previously in Plan E.
Plan R	Safety Law Enforcement members hired on or after April 9, 2010, Safety members of OCFA Executive Management hired on or after July 1, 2011, and other OCFA Safety members hired on or after July 1, 2012.

CalPEPRA General Plans

1.62% @ 65 Plan (Orange County Members except County Attorneys, Orange County Employees Retirement System except Management Members, Local Agency Formation Commission, and Orange County Superior Court)

Plan T	General members with membership dates on or after January 1, 2013.

2.5% @ 67 Plan (All Other General Employers, Orange County Attorneys, Orange County Employees Retirement System Management Members)

Plan U	General Non-Orange County Transportation Authority members with membership dates on or after January 1, 2013 and Orange County Transportation Authority members with membership dates on or after January 1, 2015.

1.62% @ 65 Plan (City of San Juan Capistrano)

Plan W	General members with membership dates on or after January 1, 2016 and not electing Plan U.

CalPEPRA Safety Plans

2.7% @ 57 Plan (Law Enforcement, OCFA and Probation Members)

Plan V	Safety members with membership dates on or after January 1, 2013.

Final Compensation for Benefit Determination:

Plans A, E, G, I, M, O and Q	Highest consecutive twelve months of compensation earnable. (§31462.1) (FAS1)
Plans B, F, H, J, N, P, R and S	Highest consecutive thirty-six months of compensation earnable. (§31462) (FAS3)
Plans T	Highest consecutive thirty-six months of pensionable compensation. (§7522.32 and §7522.34) (FAS3)
Plans U, V and W	Highest consecutive thirty-six months of pensionable compensation. (§7522.10(c), §7522.32 and §7522.34) (FAS3)

Service:	Years of service. (Yrs)

Service Retirement Eligibility:

Plans A, B, G, H, I, J, M, N, O, P, S, T and W	Age 50 with 10 years of service, or age 70 regardless of service, or after 30 years, regardless of age. (§31672)
Plan U	Age 52 with 5 years of service (§7522.20(a)) or age 70 regardless of service (§31672.3).
Plans E, F, Q and R	Age 50 with 10 years of service, or after 20 years, regardless of age. (§31663.25) All part time members over age 55 with 10 years of employment may retire with 5 years of service.
Plan V	Age 50 with 5 years of service. (§7522.20(d)) or age 70 regardless of service (§31672.3).

Benefit Formula:

General Plans

2.5% @ 55	**Retirement Age**	**Benefit Formula**
Plan G (§31676.18)	50	(2.00% x FAS1 x Yrs)
	55	(2.50% x FAS1 x Yrs)
	60	(2.50% x FAS1 x Yrs)
	62	(2.62% x FAS1 x Yrs)(1)
	65 or later	(2.62% x FAS1 x Yrs)(1)
Plan H (§31676.18)	50	(2.00% x FAS3 x Yrs)
	55	(2.50% x FAS3 x Yrs)
	60	(2.50% x FAS3 x Yrs)
	62	(2.50% x FAS3 x Yrs)
	65 or later	(2.50% x FAS3 x Yrs)

(1) *Reflects benefit factors from Plan A as they provide a better benefit than those under 2.5% @ 55.*

Benefit Formula (continued):

2.7% @ 55	**Retirement Age**	**Benefit Formula**
Plan I (§31676.19)	50	(2.00% x FAS1 x Yrs)
	55	(2.70% x FAS1 x Yrs)
	60	(2.70% x FAS1 x Yrs)
	62	(2.70% x FAS1 x Yrs)
	65 or later	(2.70% x FAS1 x Yrs)
Plan J (§31676.19)	50	(2.00% x FAS3 x Yrs)
	55	(2.70% x FAS3 x Yrs)
	60	(2.70% x FAS3 x Yrs)
	62	(2.70% x FAS3 x Yrs)
	65 or later	(2.70% x FAS3 x Yrs)

Benefit Formula (continued):

2.0% @ 55	**Retirement Age**	**Benefit Formula**
Plan M (§31676.16)	50	(1.43% x FAS1 x Yrs)
	55	(2.00% x FAS1 x Yrs)
	60	(2.34% x FAS1 x Yrs)[1]
	62	(2.62% x FAS1 x Yrs)[1]
	65 or later	(2.62% x FAS1 x Yrs)[1]
Plan N (§31676.16)	50	(1.43% x FAS3 x Yrs)
	55	(2.00% x FAS3 x Yrs)
	60	(2.26% x FAS3 x Yrs)
	62	(2.37% x FAS3 x Yrs)
	65 or later	(2.43% x FAS3 x Yrs)[2]

(1) *Reflects benefit factors from Plan A as they provide a better benefit than those under 2.0% @ 55.*

(2) *Reflects benefit factors from Plan B as they provide a better benefit than those under 2.0% @ 55.*

Benefit Formula (continued):

	Retirement Age	Benefit Formula
1.62% @ 65		
Plan O (§31676.01)	50	(0.79% x FAS1 x Yrs)
	55	(0.99% x FAS1 x Yrs)
	60	(1.28% x FAS1 x Yrs)
	62	(1.39% x FAS1 x Yrs)
	65 or later	(1.62% x FAS1 x Yrs)
Plan P, Plan T and Plan W	50	(0.79% x FAS3 x Yrs)
(§31676.01)	55	(0.99% x FAS3 x Yrs)
	60	(1.28% x FAS3 x Yrs)
	62	(1.39% x FAS3 x Yrs)
	65 or later	(1.62% x FAS3 x Yrs)
2.0% @ 57		
Plan S (§31676.12)	50	(1.34% x FAS3 x Yrs)
	55	(1.77% x FAS3 x Yrs)
	60	(2.34% x FAS3 x Yrs)
	62	(2.62% x FAS3 x Yrs)
	65 or later	(2.62% x FAS3 x Yrs)

Benefit Formula (continued):

	Retirement Age	Benefit Formula
Plan A (§31676.12)	50	(1.34% x FAS1 x Yrs)
	55	(1.77% x FAS1 x Yrs)
	60	(2.34% x FAS1 x Yrs)
	62	(2.62% x FAS1 x Yrs)
	65 or later	(2.62% x FAS1 x Yrs)
Plan B (§31676.1)	50	(1.18% x FAS3 x Yrs)
	55	(1.49% x FAS3 x Yrs)
	60	(1.92% x FAS3 x Yrs)
	62	(2.09% x FAS3 x Yrs)
	65 or later	(2.43% x FAS3 x Yrs)
Plan U (§7522.20(a))	52	(1.00% x FAS3 x Yrs)
	55	(1.30% x FAS3 x Yrs)
	60	(1.80% x FAS3 x Yrs)
	62	(2.00% x FAS3 x Yrs)
	65	(2.30% x FAS3 x Yrs)
	67 or later	(2.50% x FAS3 x Yrs)

Benefit Formula (continued):

Safety Plans

	Retirement Age	Benefit Formula
3% @ 50		
Plan E (§31664.1)	50	(3.00% x FAS1 x Yrs)
	55	(3.00% x FAS1 x Yrs)
	60 or later	(3.00% x FAS1 x Yrs)
Plan F (§31664.1)	50	(3.00% x FAS3 x Yrs)
	55	(3.00% x FAS3 x Yrs)
	60 or later	(3.00% x FAS3 x Yrs)
3% @ 55		
Plan Q (§31664.2)	50	(2.29% x FAS1 x Yrs)
	55	(3.00% x FAS1 x Yrs)
	60 or later	(3.00% x FAS1 x Yrs)
Plan R (§31664.2)	50	(2.29% x FAS3 x Yrs)
	55	(3.00% x FAS3 x Yrs)
	60 or later	(3.00% x FAS3 x Yrs)
Plan V (§7522.25(d))	50	(2.00% x FAS3 x Yrs)
	55	(2.50% x FAS3 x Yrs)
	57 or later	(2.70% x FAS3 x Yrs)

Maximum Benefit:

Plans A, B, E, F, G, H, I, J, M, N, O, P, Q, R, S, T and W	100% of Highest Average Compensation. (§31676.01, §31676.1, §31676.12, §31676.16, §31676.18, §31676.19, §31664.1, §31664.2)
Plans U and V	None.

Ordinary Disability:

General Plans

Plans A, B, G, H, I, J, M, N, O, P, S, T, U and W

Eligibility	Five years of service. (§31720)
Benefit Formula	Plans A, G, I, M and O: 1.8% per year of service. If the benefit does not exceed one-third of Final Compensation, the service is projected to 62, but the total benefit cannot be more than one-third of Final Compensation. (§31727.1) Plans B, H, J, N, P, S, T, U and W: 1.5% per year of service. If the benefit does not exceed one-third of Final Compensation, the service is projected to 65, but the total benefit cannot be more than one-third of Final Compensation. (§31727)

Safety Plans

Plans E, F, Q, R and V

Eligibility	Five years of service. (§31720)
Benefit Formula	1.8% per year of service. If the benefit does not exceed one-third of Final Compensation, the service is projected to 55, but the total benefit cannot be more than one-third of Final Compensation. (§31727.2) For all members, 100% of the Service Retirement benefit will be paid, if greater.

Line-of-Duty Disability:	
All Members	
Eligibility	No age or service requirements. (§31720)
Benefit Formula	50% of the Final Compensation or 100% of Service Retirement benefit, if greater. (§31727.4)
Pre-Retirement Death:	
All Members	
Eligibility	None.
Benefit	Refund of member contributions with interest plus one month's compensation for each year of service to a maximum of six month's compensation. (§31781) A lump sum benefit in the amount of $1,000 is payable upon the death of a member (with 10 years of service) to his/her eligible beneficiary. (§31790)
Death in line of duty	50% of Final Compensation or 100% of Service Retirement benefit, if greater, payable to spouse or minor children. (§31787)
	OR
Vested Members	
Eligibility	Five years of service.
Benefit	60% of the greater of Service or Ordinary Disability Retirement benefit payable to eligible surviving spouse (§31765.1, §31781.1), in lieu of §31781.

Death After Retirement:	
All Members	
Service or Ordinary Disability Retirement	60% of member's unmodified allowance continued to eligible spouse. (§31760.1) A lump sum benefit in the amount of $1,000 is payable upon the death of a member (with 10 years of service) to his/her eligible beneficiary. (§31790) An eligible spouse is a surviving spouse who was married to or registered with the member one year prior to the effective retirement date. Certain surviving spouses or domestic partners may also be eligible if marriage or domestic partnership was at least two years prior to the date of death and the surviving spouse or domestic partner has attained age 55.
Line-of-Duty Disability	100% of member's allowance continued to eligible spouse. (§31786) A lump sum benefit in the amount of $1,000 is payable upon the death of a member (with 10 years of service) to his/her eligible beneficiary. (§31790)
Withdrawal Benefits:	
Less than Five Years of Service	Refund of accumulated member contributions with interest or earned benefit at age 70. (§31628) Effective January 1, 2003, a member may also elect to leave contributions on deposit in the retirement fund. (§31629.5)
Five or More Years of Service	If contributions left on deposit, entitled to earned benefits commencing at any time after eligible to retire. (§31700)
Post-retirement Cost-of-Living Benefits:	Future changes based on Consumer Price Index to a maximum of 3% per year, excess "banked." (§31870.1)
Supplemental Benefit:	Non-vested supplemental COLA and medical benefits are also paid by the System to eligible retirees and survivors. These benefits have been excluded from this valuation.

Member Contributions:	Please refer to Appendix B for the specific rates.
Non-CalPEPRA General Plans	
Plan A	
Basic	Provide for an average annuity payable at age 60 equal to 1/200 of FAS1. (§31621.5)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.
Plan B	
Basic	Provide for an average annuity payable at age 60 equal to 1/120 of FAS3. (§31621)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.
Plans G, H, I and J	
Basic	Provide for an average annuity payable at age 55 equal to 1/100 of FAS3 (FAS1 for Plans G and I). (§31621.8)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.
Plan M, N, O and P	
Basic	Provide for an average annuity payable at age 60 equal to 1/120 of FAS3 (FAS1 for Plans M and O). (§31621)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.
Plan S	
Basic	Provide for an average annuity at age 60 equal to 1/100 of FAS3. (§31621.2)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.

Member Contributions (Continued):

Non-CalPEPRA Safety Plans

Plans E and Q	
Basic	Provide for an average annuity payable at age 50 equal to 1/200 FAS1. (§31639.5)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.
Plans F and R	
Basic	Provide for an average annuity payable at age 50 equal to 1/100 of FAS3. (§31639.25)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.

CalPEPRA Plans

Plans T, U, V and W	50% of total Normal Cost rate.

Other Information:	Non-CalPEPRA Safety members with 30 or more years of service are exempt from paying member contributions. This also applies for General members hired on or before March 7, 1973.

NOTE: *The summary of major plan provisions is designed to outline principal plan benefits as interpreted for purposes of the actuarial valuation. If the System should find the plan summary not in accordance with the actual provisions, the System should alert the actuary so that both can be sure the proper provisions are valued.*

Appendix A
UAAL Amortization Schedule as of December 31, 2017

Rate Groups	Date Established	Source	Initial Base	Years Remaining	Remaining Base	Amortization Amount
General Members						
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for Orange County and IHSS						
	12/31/2012	Restart amortization	$70,164,000	16	$68,689,000	$5,741,000
	12/31/2013	Actuarial (gain) or loss	(5,744,000)	16	(5,623,000)	(470,000)
	12/31/2014	Actuarial (gain) or loss	(2,744,000)	17	(2,710,000)	(217,000)
	12/31/2014	Assumption changes	(6,545,000)	17	(6,463,000)	(517,000)
	12/31/2015	Actuarial (gain) or loss	(1,650,000)	18	(1,641,000)	(126,000)
	12/31/2016	Actuarial (gain) or loss	(9,719,000)	19	(9,700,000)	(716,000)
	12/31/2017	Actuarial (gain) or loss	(5,386,000)	20	(5,386,000)	(384,000)
	12/31/2017	Assumption changes	21,899,000	20	21,899,000	1,561,000
Subtotal					$59,065,000	$4,872,000
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for O.C. Vector Control					$2,052,000 (1)	
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for Department of Education					$3,046,000 (1)	
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for U.C.I.					$30,927,000 (1)	
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for Cypress Parks and Recreation					$853,000 (1)	
Rate Group #1 Subtotal					$95,943,000	

Note:

We have made an adjustment to the amortization bases to reflect the $653,000 in UAAL for Cypress Parks and Recreation as of December 31, 2016 (ref: our letter to OCERS dated October 23, 2017). With that adjustment, we have reduced the amortization layers established on or before December 31, 2016 for Orange County and IHSS by that amount on a pro-rata basis.

(1) *In determining the UAALs for the O.C. Vector Control District, Department of Education, U.C.I and Cypress Parks and Recreation, we first start by rolling forward the VVAs of these employers as of December 31, 2016 to December 31, 2017 to reflect the actual contributions, benefit payments and return on their VVAs during 2017. The AALs for these employers, calculated to reflect the assumption changes, are obtained from internal valuation results.*

Appendix A (Continued)
UAAL Amortization Schedule as of December 31, 2017

Rate Groups	Date Established	Source	Initial Base	Years Remaining	Remaining Base	Amortization Amount
Rate Group #2 – Plans I, J, O, P, S, T, U and W						
	12/31/2012	Restart amortization	$3,438,555,000	16	$3,366,250,000	$281,362,000
	12/31/2013	Actuarial (gain) or loss	(173,790,000)	16	(170,136,000)	(14,221,000)
	12/31/2014	Actuarial (gain) or loss	(78,001,000)	17	(77,027,000)	(6,158,000)
	12/31/2014	Assumption changes	(246,714,000)	17	(243,633,000)	(19,477,000)
	12/31/2015	Actuarial (gain) or loss	(65,063,000)	18	(64,689,000)	(4,963,000)
	12/31/2016	Actuarial (gain) or loss	39,445,000	19	39,368,000	2,907,000
Subtotal					$2,850,133,000	$239,450,000[1]
	12/31/2017	Actuarial (gain) or loss	(59,911,000)	20	(59,911,000)	(4,270,000)
	12/31/2017	Assumption changes	481,098,000	20	481,098,000	34,288,000
Subtotal					$421,187,000	$30,018,000[2]
Rate Group #2 Subtotal					$3,271,320,000	$269,468,000

Note:

We have made an adjustment to the amortization bases to reflect the $1.7 million additional contributions made by Children and Families Commission to pay off their UAAL as of December 31, 2016. With that adjustment, we have reduced the amortization layers established on or before December 31, 2016 for Rate Group #2 by that amount on a pro-rata basis. The UAAL contribution rate for Children and Families Commission is determined based on the amortization layers established on or after December 31, 2017.

[1] *This amount is spread over the payroll for all employers in Rate Group #2 excluding the payroll for Children and Families Commission.*

[2] *This amount is spread over the payroll for all employers in Rate Group #2 including the payroll for Children and Families Commission.*

Appendix A (Continued)
UAAL Amortization Schedule as of December 31, 2017

Rate Groups	Date Established	Source	Initial Base	Years Remaining	Remaining Base	Amortization Amount
Rate Group #3 – Plans B, G, H and U (OCSD)						
Rate Group #3 Subtotal					$0[1]	$0

[1] *After transfer of $24,042,000 from O.C. Sanitation District UAAL Deferred Account.*

Appendix A (Continued)
UAAL Amortization Schedule as of December 31, 2017

Rate Groups	Date Established	Source	Initial Base	Years Remaining	Remaining Base	Amortization Amount
Rate Group #5 – Plans A, B and U (OCTA)						
	12/31/2012	Restart amortization	$232,513,000	16	$227,811,000	$19,041,000
	12/31/2013	Actuarial (gain) or loss	(13,471,000)	16	(13,198,000)	(1,103,000)
	12/31/2014	Actuarial (gain) or loss	4,522,000	17	4,470,000	357,000
	12/31/2014	Assumption changes	(19,944,000)	17	(19,712,000)	(1,576,000)
	12/31/2015	Actuarial (gain) or loss	(933,000)	18	(928,000)	(71,000)
	12/31/2016	Actuarial (gain) or loss	(9,743,000)	19	(9,732,000)	(719,000)
	12/31/2017	Actuarial (gain) or loss	(9,948,000)	20	(9,948,000)	(709,000)
	12/31/2017	Assumption changes	43,481,000	20	43,481,000	3,099,000
Rate Group #5 Subtotal					$222,244,000	$18,319,000

Appendix A (Continued)

UAAL Amortization Schedule as of December 31, 2017

Rate Groups	Date Established	Source	Initial Base	Years Remaining	Remaining Base	Amortization Amount
Rate Group #9 – Plans M, N and U (TCA)						
	12/31/2012	Restart amortization	$11,906,000	16	$11,665,000	$975,000
	12/31/2013	Actuarial (gain) or loss	(684,000)	16	(670,000)	(56,000)
	12/31/2014	Actuarial (gain) or loss	496,000	17	491,000	39,000
	12/31/2014	Assumption changes	(1,032,000)	17	(1,020,000)	(82,000)
	12/31/2015	Actuarial (gain) or loss	778,000	18	774,000	59,000
	12/31/2016	Actuarial (gain) or loss	(1,535,000)	19	(1,533,000)	(113,000)
	12/31/2017	Actuarial (gain) or loss	(257,000)	20	(257,000)	(18,000)
	12/31/2017	Assumption changes	1,665,000	20	1,665,000	119,000
Rate Group #9 Subtotal					$11,115,000	$923,000

Appendix A (Continued)
UAAL Amortization Schedule as of December 31, 2017

Rate Groups	Date Established	Source	Initial Base	Years Remaining	Remaining Base	Amortization Amount
Rate Group #10 – Plans I, J, M, N and U (OCFA)						
	12/31/2012	Restart amortization	$72,750,000	16	$71,278,000	$5,958,000
	12/31/2013	Actuarial (gain) or loss	(2,659,000)	16	(2,605,000)	(218,000)
	12/31/2014	Actuarial (gain) or loss	(3,755,000)	17	(3,711,000)	(297,000)
	12/31/2014	Assumption changes	(4,489,000)	17	(4,437,000)	(355,000)
	12/31/2015	Actuarial (gain) or loss	626,000	18	623,000	48,000
	12/31/2016	Actuarial (gain) or loss	134,000	19	134,000	10,000
	12/31/2017	Actuarial (gain) or loss	(15,281,000)	20	(15,281,000)	(1,089,000)
	12/31/2017	Assumption changes	9,159,000	20	9,159,000	653,000
Rate Group #10 Subtotal					$55,160,000	$4,710,000

Appendix A (Continued)

UAAL Amortization Schedule as of December 31, 2017

Rate Groups	Date Established	Source	Initial Base	Years Remaining	Remaining Base	Amortization Amount
Rate Group #11 – Plans M and N, future service, and U (Cemetery)						
	12/31/2017	Restart amortization & Assumption changes	$281,000	20	$281,000	$20,000
Rate Group #11 Subtotal					$281,000	$20,000

Appendix A (Continued)

UAAL Amortization Schedule as of December 31, 2017

Rate Groups	Date Established	Source	Initial Base	Years Remaining	Remaining Base	Amortization Amount
Rate Group #12 – Plans G, H, future service, and U (Law Library)						
	12/31/2017	Restart amortization & Assumption changes	$13,000	20	$13,000	$1,000
Rate Group #12 Subtotal					$13,000	$1,000

Appendix A (Continued)
UAAL Amortization Schedule as of December 31, 2017

Rate Groups	Date Established	Source	Initial Base	Years Remaining	Remaining Base	Amortization Amount
Safety Members						
Rate Group #6 – Plans E, F and V (Probation)						
	12/31/2012	Restart amortization	$192,912,000	16	$189,010,000	$15,798,000
	12/31/2013	Actuarial (gain) or loss	(14,039,000)	16	(13,756,000)	(1,150,000)
	12/31/2014	Actuarial (gain) or loss	(2,596,000)	17	(2,566,000)	(205,000)
	12/31/2014	Assumption changes	36,260,000	17	35,837,000	2,865,000
	12/31/2015	Actuarial (gain) or loss	(10,703,000)	18	(10,650,000)	(817,000)
	12/31/2016	Actuarial (gain) or loss	13,799,000	19	13,783,000	1,018,000
	12/31/2017	Actuarial (gain) or loss	(6,566,000)	20	(6,566,000)	(468,000)
	12/31/2017	Assumption changes	50,030,000	20	50,030,000	3,566,000
Rate Group #6 Subtotal					$255,122,000	$20,607,000

Appendix A (Continued)
UAAL Amortization Schedule as of December 31, 2017

Rate Groups	Date Established	Source	Initial Base	Years Remaining	Remaining Base	Amortization Amount
Rate Group #7 – Plans E, F, Q, R and V (Law Enforcement)						
	12/31/2012	Restart amortization	$988,833,000	16	$968,834,000	$80,978,000
	12/31/2013	Actuarial (gain) or loss	(51,652,000)	16	(50,607,000)	(4,230,000)
	12/31/2014	Actuarial (gain) or loss	(34,729,000)	17	(34,324,000)	(2,744,000)
	12/31/2014	Assumption changes	102,262,000	17	101,068,000	8,080,000
	12/31/2015	Actuarial (gain) or loss	23,666,000	18	23,549,000	1,807,000
	12/31/2016	Actuarial (gain) or loss	39,724,000	19	39,679,000	2,930,000
	12/31/2017	Actuarial (gain) or loss	(27,922,000)	20	(27,922,000)	(1,990,000)
	12/31/2017	Assumption changes	161,417,000	20	161,417,000	11,504,000
Rate Group #7 Subtotal					$1,181,694,000	$96,335,000

Appendix A (Continued)

UAAL Amortization Schedule as of December 31, 2017

Rate Groups	Date Established	Source	Initial Base	Years Remaining	Remaining Base	Amortization Amount
Rate Group #8 – Plans E, F, Q, R and V (OCFA)						
	12/31/2012	Restart amortization	$399,947,000	16	$391,858,000	$32,753,000
	12/31/2013	Actuarial (gain) or loss	(20,177,000)	16	(19,769,000)	(1,652,000)
	12/31/2014	Actuarial (gain) or loss	(35,400,000)	17	(34,986,000)	(2,797,000)
	12/31/2014	Assumption changes	35,957,000	17	35,538,000	2,841,000
	12/31/2015	Actuarial (gain) or loss	(22,228,000)	18	(22,119,000)	(1,697,000)
	12/31/2016	Actuarial (gain) or loss	(15,736,000)	19	(15,718,000)	(1,161,000)
	12/31/2017	Actuarial (gain) or loss	(43,031,000)	20	(43,031,000)	(3,067,000)
	12/31/2017	Assumption changes	53,637,000	20	53,637,000	3,823,000
Rate Group #8 Subtotal					$345,410,000	$29,043,000

Appendix A (Continued)
UAAL Amortization Schedule as of December 31, 2017

Rate Groups	Date Established	Source	Initial Base	Years Remaining	Remaining Base	Amortization Amount
All Rate Groups Combined Excluding O.C. Vector Control, Department of Education, U.C.I., Cypress Parks and Recreation and O.C. Sanitation District						
	12/31/2012	Restart amortization	$5,407,593,000	16	$5,295,408,000	$442,606,000
	12/31/2013	Actuarial (gain) or loss	(282,229,000)	16	(276,377,000)	(23,100,000)
	12/31/2014	Actuarial (gain) or loss	(152,205,000)	17	(150,361,000)	(12,022,000)
	12/31/2014	Assumption changes	(104,247,000)	17	(102,824,000)	(8,221,000)
	12/31/2015	Actuarial (gain) or loss	(75,507,000)	18	(75,081,000)	(5,760,000)
	12/31/2016	Actuarial (gain) or loss	56,369,000	19	56,281,000	4,156,000
	12/31/2017	Actuarial (gain) or loss	(168,305,000)	20	(168,305,000)	(11,995,000)
	12/31/2017	Assumption changes	822,683,000	20	822,683,000	58,634,000
Subtotal					$5,401,424,000	$444,298,000
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for O.C. Vector Control					$2,052,000	
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for Department of Education					$3,046,000	
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for U.C.I.					$30,927,000	
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for Cypress Parks and Recreation					$853,000	
Rate Group #3 – Plans B, G, H and U (OCSD)					$0	
Grand Total					$5,438,302,000	

Appendix B
Member Contribution Rates

General Tier 1 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan I (2.7% @ 55 Non-OCFA)		Plan G (2.5% @ 55)		Plan M (2.0% @ 55)*		Plan A (OCTA)	
Entry Age	Normal	Total	Normal	Total	Normal	Total	Normal	Total
15	7.51%	10.51%	7.51%	10.31%	5.46%	7.92%	3.28%	5.46%
16	7.51%	10.51%	7.51%	10.31%	5.46%	7.92%	3.28%	5.46%
17	7.63%	10.68%	7.63%	10.47%	5.55%	8.05%	3.33%	5.55%
18	7.75%	10.85%	7.75%	10.64%	5.64%	8.18%	3.38%	5.64%
19	7.87%	11.03%	7.87%	10.81%	5.73%	8.31%	3.44%	5.73%
20	8.00%	11.21%	8.00%	10.99%	5.82%	8.44%	3.49%	5.83%
21	8.13%	11.39%	8.13%	11.16%	5.92%	8.58%	3.55%	5.92%
22	8.26%	11.57%	8.26%	11.34%	6.01%	8.72%	3.61%	6.01%
23	8.39%	11.75%	8.39%	11.53%	6.11%	8.86%	3.67%	6.11%
24	8.53%	11.94%	8.53%	11.71%	6.21%	9.00%	3.72%	6.21%
25	8.66%	12.14%	8.66%	11.90%	6.31%	9.14%	3.78%	6.31%
26	8.81%	12.33%	8.81%	12.09%	6.41%	9.29%	3.84%	6.41%
27	8.95%	12.53%	8.95%	12.29%	6.51%	9.44%	3.91%	6.51%
28	9.09%	12.74%	9.09%	12.49%	6.61%	9.59%	3.97%	6.62%
29	9.24%	12.94%	9.24%	12.69%	6.72%	9.74%	4.03%	6.72%
30	9.39%	13.16%	9.39%	12.90%	6.83%	9.90%	4.10%	6.83%
31	9.55%	13.38%	9.55%	13.11%	6.94%	10.06%	4.16%	6.94%
32	9.71%	13.60%	9.71%	13.33%	7.05%	10.22%	4.23%	7.06%
33	9.87%	13.83%	9.87%	13.56%	7.17%	10.39%	4.30%	7.17%
34	10.04%	14.06%	10.04%	13.79%	7.28%	10.56%	4.37%	7.29%
35	10.21%	14.31%	10.21%	14.03%	7.40%	10.73%	4.44%	7.41%
36	10.39%	14.56%	10.39%	14.27%	7.53%	10.91%	4.52%	7.53%
37	10.58%	14.82%	10.58%	14.53%	7.65%	11.09%	4.59%	7.66%
38	10.77%	15.09%	10.77%	14.80%	7.78%	11.28%	4.67%	7.78%
39	10.92%	15.30%	10.92%	15.00%	7.91%	11.47%	4.75%	7.92%

General Tier 1 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan I (2.7% @ 55 Non-OCFA)		Plan G (2.5% @ 55)		Plan M (2.0% @ 55)*		Plan A (OCTA)	
Entry Age	Normal	Total	Normal	Total	Normal	Total	Normal	Total
40	11.08%	15.52%	11.08%	15.22%	8.05%	11.67%	4.83%	8.05%
41	11.24%	15.75%	11.24%	15.44%	8.19%	11.88%	4.92%	8.20%
42	11.41%	15.99%	11.41%	15.67%	8.34%	12.09%	5.00%	8.34%
43	11.59%	16.24%	11.59%	15.92%	8.49%	12.31%	5.10%	8.50%
44	11.79%	16.51%	11.79%	16.19%	8.61%	12.48%	5.17%	8.61%
45	12.00%	16.81%	12.00%	16.48%	8.73%	12.66%	5.24%	8.74%
46	12.20%	17.09%	12.20%	16.76%	8.86%	12.85%	5.32%	8.87%
47	12.37%	17.33%	12.37%	16.99%	9.00%	13.04%	5.40%	9.00%
48	12.54%	17.57%	12.54%	17.22%	9.14%	13.25%	5.48%	9.14%
49	12.63%	17.68%	12.63%	17.34%	9.29%	13.47%	5.58%	9.30%
50	12.68%	17.76%	12.68%	17.42%	9.46%	13.71%	5.67%	9.46%
51	12.66%	17.73%	12.66%	17.38%	9.62%	13.94%	5.77%	9.62%
52	12.55%	17.57%	12.55%	17.23%	9.75%	14.14%	5.85%	9.76%
53	12.32%	17.26%	12.32%	16.92%	9.88%	14.33%	5.93%	9.89%
54	11.86%	16.61%	11.86%	16.29%	9.95%	14.43%	5.97%	9.96%
55	11.86%	16.61%	11.86%	16.29%	10.00%	14.49%	6.00%	10.00%
56	11.86%	16.61%	11.86%	16.29%	9.98%	14.46%	5.99%	9.98%
57	11.86%	16.61%	11.86%	16.29%	9.89%	14.34%	5.93%	9.89%
58	11.86%	16.61%	11.86%	16.29%	9.71%	14.08%	5.83%	9.72%
59	11.86%	16.61%	11.86%	16.29%	9.35%	13.55%	5.61%	9.35%
60	11.86%	16.61%	11.86%	16.29%	9.35%	13.55%	5.61%	9.35%
COLA Loading:		*40.06%*		*37.33%*		*44.97%*		*66.73%*

Interest: *7.00%*
Salary Increases: *See Exhibit II, page 74*
Mortality: *See Exhibit II, page 75*
Additional Cashouts *See Exhibit II, page 83*

* Payable by members in Rate Group #9 and Rate Group #11.

General Tier 1 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan A (Non-OCTA)		Plan I (2.7% @ 55 OCFA)	
Entry Age	**Normal**	**Total**	**Normal**	**Total**
15	3.28%	5.37%	7.51%	10.51%
16	3.28%	5.37%	7.51%	10.51%
17	3.33%	5.46%	7.63%	10.68%
18	3.38%	5.55%	7.75%	10.85%
19	3.44%	5.64%	7.87%	11.03%
20	3.49%	5.73%	8.00%	11.20%
21	3.55%	5.82%	8.13%	11.38%
22	3.61%	5.91%	8.26%	11.57%
23	3.67%	6.01%	8.39%	11.75%
24	3.72%	6.10%	8.53%	11.94%
25	3.78%	6.20%	8.66%	12.13%
26	3.84%	6.30%	8.81%	12.33%
27	3.91%	6.40%	8.95%	12.53%
28	3.97%	6.51%	9.09%	12.73%
29	4.03%	6.61%	9.24%	12.94%
30	4.10%	6.72%	9.39%	13.15%
31	4.16%	6.83%	9.55%	13.37%
32	4.23%	6.94%	9.71%	13.60%
33	4.30%	7.05%	9.87%	13.82%
34	4.37%	7.17%	10.04%	14.06%
35	4.44%	7.28%	10.21%	14.30%
36	4.52%	7.40%	10.39%	14.55%
37	4.59%	7.53%	10.58%	14.81%
38	4.67%	7.65%	10.77%	15.09%
39	4.75%	7.78%	10.92%	15.30%
40	4.83%	7.92%	11.08%	15.51%
41	4.92%	8.06%	11.24%	15.74%
42	5.00%	8.20%	11.41%	15.98%

General Tier 1 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan A (Non-OCTA)		Plan I (2.7% @ 55 OCFA)	
Entry Age	**Normal**	**Total**	**Normal**	**Total**
43	5.10%	8.35%	11.59%	16.24%
44	5.17%	8.47%	11.79%	16.51%
45	5.24%	8.59%	12.00%	16.80%
46	5.32%	8.72%	12.20%	17.09%
47	5.40%	8.85%	12.37%	17.32%
48	5.48%	8.99%	12.54%	17.56%
49	5.58%	9.14%	12.63%	17.68%
50	5.67%	9.30%	12.68%	17.76%
51	5.77%	9.46%	12.66%	17.72%
52	5.85%	9.59%	12.55%	17.57%
53	5.93%	9.72%	12.32%	17.25%
54	5.97%	9.79%	11.86%	16.61%
55	6.00%	9.83%	11.86%	16.61%
56	5.99%	9.81%	11.86%	16.61%
57	5.93%	9.73%	11.86%	16.61%
58	5.83%	9.55%	11.86%	16.61%
59	5.61%	9.20%	11.86%	16.61%
60	5.61%	9.20%	11.86%	16.61%
COLA Loading:		*63.93%*		*40.02%*

Interest: *7.00%*
Salary Increases: *See Exhibit II, page 74*
Mortality: *See Exhibit II, page 75*
Additional Cashouts *See Exhibit II, page 83*

General Tier 2 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan J (2.7% @ 55 non-OCFA)		Plan H (2.5% @ 55 OCSD)		Plan N (2.0% @ 55)*		Plan B (OCTA)		Plan B (non-OCTA, non-OCSD)	
Entry Age	Normal	Total	Normal	Total	Normal	Total	Normal	Total	Normal	Total
15	7.18%	10.06%	7.18%	9.87%	5.23%	7.58%	5.23%	7.32%	5.23%	7.24%
16	7.18%	10.06%	7.18%	9.87%	5.23%	7.58%	5.23%	7.32%	5.23%	7.24%
17	7.30%	10.22%	7.30%	10.02%	5.31%	7.70%	5.31%	7.44%	5.31%	7.35%
18	7.42%	10.39%	7.42%	10.19%	5.40%	7.83%	5.40%	7.56%	5.40%	7.47%
19	7.54%	10.55%	7.54%	10.35%	5.49%	7.95%	5.49%	7.68%	5.49%	7.59%
20	7.66%	10.72%	7.66%	10.51%	5.57%	8.08%	5.57%	7.81%	5.57%	7.71%
21	7.78%	10.89%	7.78%	10.68%	5.66%	8.21%	5.66%	7.93%	5.66%	7.84%
22	7.90%	11.07%	7.90%	10.85%	5.75%	8.34%	5.75%	8.06%	5.75%	7.96%
23	8.03%	11.25%	8.03%	11.03%	5.85%	8.47%	5.85%	8.19%	5.85%	8.09%
24	8.16%	11.43%	8.16%	11.20%	5.94%	8.61%	5.94%	8.32%	5.94%	8.22%
25	8.29%	11.61%	8.29%	11.38%	6.03%	8.75%	6.03%	8.45%	6.03%	8.35%
26	8.42%	11.80%	8.42%	11.57%	6.13%	8.89%	6.13%	8.59%	6.13%	8.48%
27	8.56%	11.99%	8.56%	11.75%	6.23%	9.03%	6.23%	8.72%	6.23%	8.62%
28	8.70%	12.18%	8.70%	11.94%	6.33%	9.17%	6.33%	8.86%	6.33%	8.76%
29	8.84%	12.38%	8.84%	12.14%	6.43%	9.32%	6.43%	9.01%	6.43%	8.90%
30	8.98%	12.58%	8.98%	12.34%	6.53%	9.47%	6.53%	9.15%	6.53%	9.04%
31	9.13%	12.79%	9.13%	12.54%	6.64%	9.62%	6.64%	9.30%	6.64%	9.19%
32	9.28%	13.00%	9.28%	12.75%	6.75%	9.78%	6.75%	9.45%	6.75%	9.33%
33	9.44%	13.22%	9.44%	12.96%	6.86%	9.94%	6.86%	9.60%	6.86%	9.48%
34	9.60%	13.44%	9.60%	13.18%	6.97%	10.10%	6.97%	9.76%	6.97%	9.64%
35	9.76%	13.67%	9.76%	13.41%	7.08%	10.26%	7.08%	9.92%	7.08%	9.80%
36	9.93%	13.91%	9.93%	13.64%	7.20%	10.43%	7.20%	10.08%	7.20%	9.96%
37	10.09%	14.14%	10.09%	13.86%	7.32%	10.61%	7.32%	10.25%	7.32%	10.12%
38	10.24%	14.35%	10.24%	14.07%	7.44%	10.78%	7.44%	10.42%	7.44%	10.29%
39	10.38%	14.54%	10.38%	14.26%	7.56%	10.97%	7.56%	10.59%	7.56%	10.47%
40	10.53%	14.75%	10.53%	14.46%	7.69%	11.15%	7.69%	10.78%	7.69%	10.65%
41	10.68%	14.96%	10.68%	14.67%	7.83%	11.35%	7.83%	10.96%	7.83%	10.83%
42	10.84%	15.18%	10.84%	14.89%	7.95%	11.53%	7.95%	11.14%	7.95%	11.01%

General Tier 2 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan J (2.7% @ 55 non-OCFA)		Plan H (2.5% @ 55 OCSD)		Plan N (2.0% @ 55)*		Plan B (OCTA)		Plan B (non-OCTA, non-OCSD)	
Entry Age	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**
43	11.01%	15.42%	11.01%	15.12%	8.07%	11.70%	8.07%	11.31%	8.07%	11.17%
44	11.18%	15.65%	11.18%	15.35%	8.18%	11.87%	8.18%	11.46%	8.18%	11.32%
45	11.34%	15.88%	11.34%	15.57%	8.30%	12.03%	8.30%	11.62%	8.30%	11.48%
46	11.48%	16.07%	11.48%	15.76%	8.42%	12.20%	8.42%	11.79%	8.42%	11.65%
47	11.58%	16.21%	11.58%	15.90%	8.54%	12.39%	8.54%	11.96%	8.54%	11.82%
48	11.63%	16.29%	11.63%	15.98%	8.68%	12.58%	8.68%	12.15%	8.68%	12.00%
49	11.63%	16.29%	11.63%	15.97%	8.81%	12.77%	8.81%	12.34%	8.81%	12.19%
50	11.56%	16.19%	11.56%	15.87%	8.93%	12.95%	8.93%	12.51%	8.93%	12.36%
51	11.40%	15.96%	11.40%	15.65%	9.05%	13.11%	9.05%	12.67%	9.05%	12.51%
52	11.12%	15.58%	11.12%	15.28%	9.12%	13.23%	9.12%	12.78%	9.12%	12.62%
53	11.48%	16.08%	11.48%	15.77%	9.17%	13.29%	9.17%	12.84%	9.17%	12.69%
54	11.86%	16.61%	11.86%	16.29%	9.17%	13.29%	9.17%	12.83%	9.17%	12.68%
55	11.86%	16.61%	11.86%	16.29%	9.11%	13.21%	9.11%	12.76%	9.11%	12.60%
56	11.86%	16.61%	11.86%	16.29%	8.98%	13.02%	8.98%	12.58%	8.98%	12.43%
57	11.86%	16.61%	11.86%	16.29%	8.77%	12.71%	8.77%	12.28%	8.77%	12.13%
58	11.86%	16.61%	11.86%	16.29%	9.05%	13.12%	9.05%	12.68%	9.05%	12.52%
59	11.86%	16.61%	11.86%	16.29%	9.35%	13.55%	9.35%	13.09%	9.35%	12.94%
60	11.86%	16.61%	11.86%	16.29%	9.35%	13.55%	9.35%	13.09%	9.35%	12.94%
COLA Loading:		*40.06%*		*37.33%*		*44.97%*		*40.04%*		*38.36%*

Interest: *7.00%*
Salary Increases: *See Exhibit II, page 74*
Mortality: *See Exhibit II, page 75*
Additional Cashouts *See Exhibit II, page 83*

* Payable by members in Rate Group #9 and Rate Group #11.

General Tier 2 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan J (2.7% @ 55 OCFA)		Plan P (1.62% @ 65)		Plan B (OCSD)		Plan N (OCFA)		Plan S (City of SJC)	
Entry Age	Normal	Total	Normal	Total	Normal	Total	Normal	Total	Normal	Total
15	7.18%	10.06%	5.23%	6.63%	5.23%	7.28%	5.23%	7.67%	6.28%	8.64%
16	7.18%	10.06%	5.23%	6.63%	5.23%	7.28%	5.23%	7.67%	6.28%	8.64%
17	7.30%	10.22%	5.31%	6.74%	5.31%	7.40%	5.31%	7.80%	6.38%	8.78%
18	7.42%	10.38%	5.40%	6.85%	5.40%	7.52%	5.40%	7.92%	6.48%	8.92%
19	7.54%	10.55%	5.49%	6.96%	5.49%	7.64%	5.49%	8.05%	6.58%	9.07%
20	7.66%	10.72%	5.57%	7.07%	5.57%	7.76%	5.57%	8.18%	6.69%	9.21%
21	7.78%	10.89%	5.66%	7.18%	5.66%	7.89%	5.66%	8.31%	6.80%	9.36%
22	7.90%	11.07%	5.75%	7.30%	5.75%	8.01%	5.75%	8.44%	6.90%	9.51%
23	8.03%	11.24%	5.85%	7.41%	5.85%	8.14%	5.85%	8.58%	7.02%	9.66%
24	8.16%	11.42%	5.94%	7.53%	5.94%	8.27%	5.94%	8.72%	7.13%	9.82%
25	8.29%	11.61%	6.03%	7.65%	6.03%	8.40%	6.03%	8.86%	7.24%	9.97%
26	8.42%	11.79%	6.13%	7.77%	6.13%	8.54%	6.13%	9.00%	7.36%	10.13%
27	8.56%	11.98%	6.23%	7.90%	6.23%	8.68%	6.23%	9.14%	7.47%	10.29%
28	8.70%	12.18%	6.33%	8.03%	6.33%	8.81%	6.33%	9.29%	7.59%	10.46%
29	8.84%	12.38%	6.43%	8.15%	6.43%	8.96%	6.43%	9.44%	7.72%	10.63%
30	8.98%	12.58%	6.53%	8.29%	6.53%	9.10%	6.53%	9.59%	7.84%	10.80%
31	9.13%	12.79%	6.64%	8.42%	6.64%	9.25%	6.64%	9.74%	7.97%	10.97%
32	9.28%	13.00%	6.75%	8.55%	6.75%	9.40%	6.75%	9.90%	8.10%	11.15%
33	9.44%	13.22%	6.86%	8.69%	6.86%	9.55%	6.86%	10.06%	8.23%	11.33%
34	9.60%	13.44%	6.97%	8.83%	6.97%	9.70%	6.97%	10.22%	8.36%	11.51%
35	9.76%	13.67%	7.08%	8.98%	7.08%	9.86%	7.08%	10.39%	8.50%	11.70%
36	9.93%	13.91%	7.20%	9.13%	7.20%	10.02%	7.20%	10.56%	8.64%	11.89%
37	10.09%	14.13%	7.32%	9.28%	7.32%	10.19%	7.32%	10.74%	8.78%	12.09%
38	10.24%	14.34%	7.44%	9.43%	7.44%	10.36%	7.44%	10.92%	8.93%	12.29%
39	10.38%	14.54%	7.56%	9.59%	7.56%	10.54%	7.56%	11.10%	9.08%	12.50%
40	10.53%	14.74%	7.69%	9.76%	7.69%	10.72%	7.69%	11.29%	9.23%	12.72%
41	10.68%	14.96%	7.83%	9.93%	7.83%	10.90%	7.83%	11.49%	9.39%	12.94%
42	10.84%	15.18%	7.95%	10.09%	7.95%	11.08%	7.95%	11.67%	9.55%	13.15%

General Tier 2 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan J (2.7% @ 55 OCFA)		Plan P (1.62% @ 65)		Plan B (OCSD)		Plan N (OCFA)		Plan S (City of SJC)	
Entry Age	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**
43	11.01%	15.41%	8.07%	10.24%	8.07%	11.24%	8.07%	11.85%	9.69%	13.34%
44	11.18%	15.65%	8.18%	10.38%	8.18%	11.40%	8.18%	12.01%	9.82%	13.53%
45	11.34%	15.87%	8.30%	10.52%	8.30%	11.56%	8.30%	12.18%	9.96%	13.72%
46	11.48%	16.07%	8.42%	10.68%	8.42%	11.72%	8.42%	12.36%	10.10%	13.91%
47	11.58%	16.21%	8.54%	10.83%	8.54%	11.90%	8.54%	12.54%	10.25%	14.12%
48	11.63%	16.29%	8.68%	11.00%	8.68%	12.08%	8.68%	12.73%	10.41%	14.34%
49	11.63%	16.28%	8.81%	11.17%	8.81%	12.27%	8.81%	12.93%	10.57%	14.56%
50	11.56%	16.18%	8.93%	11.33%	8.93%	12.44%	8.93%	13.11%	10.72%	14.77%
51	11.40%	15.96%	9.05%	11.47%	9.05%	12.60%	9.05%	13.27%	10.85%	14.95%
52	11.12%	15.58%	9.12%	11.57%	9.12%	12.71%	9.12%	13.39%	10.95%	15.08%
53	11.48%	16.08%	9.17%	11.63%	9.17%	12.77%	9.17%	13.46%	11.00%	15.15%
54	11.86%	16.61%	9.17%	11.62%	9.17%	12.76%	9.17%	13.45%	11.00%	15.15%
55	11.86%	16.61%	9.11%	11.55%	9.11%	12.69%	9.11%	13.37%	10.93%	15.05%
56	11.86%	16.61%	8.98%	11.39%	8.98%	12.51%	8.98%	13.19%	10.78%	14.85%
57	11.86%	16.61%	8.77%	11.12%	8.77%	12.21%	8.77%	12.87%	10.52%	14.49%
58	11.86%	16.61%	9.05%	11.48%	9.05%	12.61%	9.05%	13.28%	10.86%	14.96%
59	11.86%	16.61%	9.35%	11.86%	9.35%	13.02%	9.35%	13.72%	11.22%	15.45%
60	11.86%	16.61%	9.35%	11.86%	9.35%	13.02%	9.35%	13.72%	11.22%	15.45%
COLA Loading:		*40.02%*		*26.81%*		*39.27%*		*46.76%*		*37.72%*

Interest: *7.00%*
Salary Increases: *See Exhibit II, page 74*
Mortality: *See Exhibit II, page 75*
Additional Cashouts *See Exhibit II, page 83*

General Tier 2 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan H (2.5% @ 55 Law Library)	
Entry Age	Normal	Total
15	7.18%	9.87%
16	7.18%	9.87%
17	7.30%	10.03%
18	7.42%	10.19%
19	7.54%	10.35%
20	7.66%	10.52%
21	7.78%	10.69%
22	7.90%	10.86%
23	8.03%	11.03%
24	8.16%	11.21%
25	8.29%	11.39%
26	8.42%	11.57%
27	8.56%	11.76%
28	8.70%	11.95%
29	8.84%	12.14%
30	8.98%	12.34%
31	9.13%	12.55%
32	9.28%	12.75%
33	9.44%	12.97%
34	9.60%	13.19%
35	9.76%	13.41%
36	9.93%	13.65%
37	10.09%	13.87%
38	10.24%	14.07%
39	10.38%	14.27%
40	10.53%	14.47%
41	10.68%	14.68%
42	10.84%	14.89%

General Tier 2 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan H (2.5% @ 55 Law Library)	
Entry Age	**Normal**	**Total**
43	11.01%	15.12%
44	11.18%	15.36%
45	11.34%	15.57%
46	11.48%	15.77%
47	11.58%	15.90%
48	11.63%	15.98%
49	11.63%	15.98%
50	11.56%	15.88%
51	11.40%	15.66%
52	11.12%	15.28%
53	11.48%	15.78%
54	11.86%	16.30%
55	11.86%	16.30%
56	11.86%	16.30%
57	11.86%	16.30%
58	11.86%	16.30%
59	11.86%	16.30%
60	11.86%	16.30%
COLA Loading:		*37.40%*

Interest:	*7.00%*
Salary Increases:	*See Exhibit II, page 74*
Mortality:	*See Exhibit II, page 75*
Additional Cashouts	*See Exhibit II, page 83*

General CalPEPRA Members' Contribution Rates from the December 31, 2017 Actuarial Valuation
(Expressed as a Percentage of Monthly Payroll)

Calculated Under Recommended Assumptions

	Rate Group 1 – Plan U		Rate Group 2 – Plan T		Rate Group 2 – Plan U		Rate Group 2 – Plan W		Rate Group 3 – Plan U	
Entry Age	Normal	Total	Normal	Total	Normal	Total	Normal	Total	Normal	Total
15	6.28%	8.50%	3.88%	5.20%	5.60%	7.59%	3.89%	4.90%	5.95%	8.04%
16	6.28%	8.50%	3.88%	5.20%	5.60%	7.59%	3.89%	4.90%	5.95%	8.04%
17	5.99%	8.11%	3.94%	5.28%	5.34%	7.24%	3.96%	4.97%	5.68%	7.67%
18	5.69%	7.70%	4.00%	5.37%	5.07%	6.88%	4.02%	5.05%	5.40%	7.28%
19	5.79%	7.83%	4.07%	5.46%	5.15%	6.99%	4.09%	5.14%	5.48%	7.40%
20	5.88%	7.95%	4.13%	5.54%	5.24%	7.10%	4.15%	5.22%	5.57%	7.52%
21	5.98%	8.08%	4.20%	5.63%	5.32%	7.22%	4.22%	5.30%	5.66%	7.64%
22	6.07%	8.21%	4.27%	5.72%	5.41%	7.34%	4.29%	5.39%	5.75%	7.77%
23	6.17%	8.35%	4.33%	5.81%	5.50%	7.45%	4.36%	5.47%	5.85%	7.89%
24	6.27%	8.48%	4.40%	5.91%	5.58%	7.57%	4.43%	5.56%	5.94%	8.02%
25	6.37%	8.62%	4.47%	6.00%	5.68%	7.70%	4.50%	5.65%	6.04%	8.15%
26	6.47%	8.76%	4.55%	6.10%	5.77%	7.82%	4.57%	5.74%	6.14%	8.28%
27	6.58%	8.90%	4.62%	6.20%	5.86%	7.95%	4.64%	5.84%	6.23%	8.42%
28	6.68%	9.04%	4.69%	6.30%	5.95%	8.07%	4.72%	5.93%	6.33%	8.55%
29	6.79%	9.19%	4.77%	6.40%	6.05%	8.20%	4.79%	6.03%	6.44%	8.69%
30	6.90%	9.34%	4.85%	6.50%	6.15%	8.34%	4.87%	6.12%	6.54%	8.83%
31	7.01%	9.49%	4.93%	6.61%	6.25%	8.47%	4.95%	6.22%	6.64%	8.97%
32	7.12%	9.64%	5.01%	6.72%	6.35%	8.61%	5.03%	6.32%	6.75%	9.11%
33	7.24%	9.79%	5.09%	6.82%	6.45%	8.74%	5.11%	6.43%	6.86%	9.26%
34	7.36%	9.95%	5.17%	6.94%	6.55%	8.89%	5.20%	6.53%	6.97%	9.41%
35	7.47%	10.11%	5.26%	7.05%	6.66%	9.03%	5.28%	6.64%	7.08%	9.56%
36	7.59%	10.27%	5.34%	7.17%	6.76%	9.17%	5.37%	6.75%	7.20%	9.72%
37	7.72%	10.44%	5.43%	7.29%	6.87%	9.32%	5.46%	6.86%	7.31%	9.87%
38	7.84%	10.61%	5.53%	7.41%	6.98%	9.47%	5.55%	6.98%	7.43%	10.03%
39	7.97%	10.78%	5.62%	7.54%	7.10%	9.63%	5.65%	7.10%	7.55%	10.20%
40	8.10%	10.96%	5.72%	7.67%	7.21%	9.78%	5.75%	7.22%	7.68%	10.36%
41	8.23%	11.14%	5.82%	7.81%	7.33%	9.95%	5.85%	7.35%	7.80%	10.53%
42	8.37%	11.32%	5.91%	7.93%	7.45%	10.11%	5.94%	7.47%	7.93%	10.71%
43	8.51%	11.51%	6.00%	8.05%	7.58%	10.28%	6.03%	7.58%	8.06%	10.88%
44	8.65%	11.70%	6.09%	8.17%	7.70%	10.45%	6.12%	7.69%	8.20%	11.07%

General CalPEPRA Members' Contribution Rates from the December 31, 2017 Actuarial Valuation
(Expressed as a Percentage of Monthly Payroll)

Calculated Under Recommended Assumptions

	Rate Group 1 – Plan U		Rate Group 2 – Plan T		Rate Group 2 – Plan U		Rate Group 2 – Plan W		Rate Group 3 – Plan U	
Entry Age	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**
45	8.80%	11.90%	6.18%	8.29%	7.83%	10.63%	6.21%	7.80%	8.34%	11.25%
46	8.95%	12.10%	6.27%	8.41%	7.97%	10.81%	6.30%	7.92%	8.48%	11.45%
47	9.10%	12.31%	6.36%	8.54%	8.11%	11.00%	6.40%	8.04%	8.63%	11.64%
48	9.26%	12.53%	6.47%	8.68%	8.25%	11.19%	6.50%	8.17%	8.78%	11.85%
49	9.42%	12.74%	6.57%	8.82%	8.39%	11.37%	6.60%	8.30%	8.92%	12.04%
50	9.56%	12.93%	6.67%	8.95%	8.51%	11.55%	6.70%	8.43%	9.06%	12.23%
51	9.69%	13.11%	6.76%	9.07%	8.63%	11.71%	6.79%	8.54%	9.19%	12.40%
52	9.83%	13.30%	6.83%	9.16%	8.76%	11.88%	6.86%	8.62%	9.32%	12.58%
53	9.98%	13.50%	6.87%	9.22%	8.89%	12.06%	6.91%	8.68%	9.46%	12.77%
54	10.13%	13.71%	6.88%	9.23%	9.03%	12.24%	6.92%	8.69%	9.60%	12.96%
55	10.30%	13.93%	6.86%	9.20%	9.17%	12.44%	6.89%	8.67%	9.76%	13.17%
56	10.46%	14.15%	6.79%	9.11%	9.32%	12.64%	6.83%	8.58%	9.91%	13.38%
57	10.62%	14.37%	6.67%	8.95%	9.46%	12.83%	6.71%	8.43%	10.06%	13.59%
58	10.76%	14.56%	6.89%	9.24%	9.59%	13.00%	6.92%	8.70%	10.20%	13.77%
59	10.87%	14.70%	7.12%	9.55%	9.68%	13.13%	7.15%	8.99%	10.30%	13.91%
60	10.94%	14.80%	7.12%	9.55%	9.75%	13.22%	7.15%	8.99%	10.37%	14.00%
61	10.96%	14.83%	7.12%	9.55%	9.76%	13.24%	7.15%	8.99%	10.39%	14.02%
62	10.92%	14.78%	7.12%	9.55%	9.73%	13.20%	7.15%	8.99%	10.35%	13.97%
63	10.82%	14.63%	7.12%	9.55%	9.63%	13.07%	7.15%	8.99%	10.25%	13.84%
64	10.62%	14.37%	7.12%	9.55%	9.46%	12.83%	7.15%	8.99%	10.07%	13.59%
65	10.97%	14.84%	7.12%	9.55%	9.77%	13.25%	7.15%	8.99%	10.39%	14.03%
66 and thereafter	11.33%	15.33%	7.12%	9.55%	10.09%	13.69%	7.15%	8.99%	10.74%	14.49%
COLA Loading:		*35.27%*		*34.15%*		*35.63%*		*25.70%*		*34.99%*

Interest: *7.00%*

Salary Increases: *See Exhibit II, page 74*

Mortality: *See Exhibit II, page 75*

It is our understanding that in the determination of pension benefits under the CalPEPRA 2.5% at 67 formula and the Plan W 1.62% at 65 formula, the compensation that can be taken into account for 2018 is equal to $145,666 (reference: Section 7522.10). This amount should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2018 (reference: Section 7522.10(d)).

General CalPEPRA Members' Contribution Rates from the December 31, 2017 Actuarial Valuation
(Expressed as a Percentage of Monthly Payroll)

Calculated Under Recommended Assumptions

	Rate Group 5 – Plan U		Rate Group 9 – Plan U		Rate Group 10 – Plan U		Rate Group 11 – Plan U		Rate Group 12 – Plan U	
Entry Age	Normal	Total	Normal	Total	Normal	Total	Normal	Total	Normal	Total
15	6.56%	8.89%	5.92%	7.97%	6.13%	8.30%	6.65%	8.58%	5.19%	7.99%
16	6.56%	8.89%	5.92%	7.97%	6.13%	8.30%	6.65%	8.58%	5.19%	7.99%
17	6.26%	8.48%	5.65%	7.60%	5.85%	7.92%	6.35%	8.19%	4.95%	7.62%
18	5.94%	8.06%	5.37%	7.22%	5.55%	7.52%	6.03%	7.78%	4.71%	7.24%
19	6.04%	8.19%	5.45%	7.34%	5.64%	7.64%	6.12%	7.90%	4.78%	7.36%
20	6.14%	8.32%	5.54%	7.46%	5.74%	7.77%	6.22%	8.03%	4.86%	7.48%
21	6.24%	8.45%	5.63%	7.58%	5.83%	7.89%	6.33%	8.16%	4.94%	7.60%
22	6.34%	8.59%	5.72%	7.70%	5.92%	8.02%	6.43%	8.29%	5.02%	7.72%
23	6.44%	8.73%	5.82%	7.83%	6.02%	8.15%	6.53%	8.43%	5.10%	7.85%
24	6.55%	8.87%	5.91%	7.95%	6.12%	8.28%	6.64%	8.56%	5.18%	7.97%
25	6.65%	9.02%	6.01%	8.08%	6.22%	8.42%	6.74%	8.70%	5.27%	8.10%
26	6.76%	9.16%	6.10%	8.21%	6.32%	8.55%	6.85%	8.84%	5.35%	8.23%
27	6.87%	9.31%	6.20%	8.34%	6.42%	8.69%	6.96%	8.99%	5.44%	8.36%
28	6.98%	9.46%	6.30%	8.48%	6.52%	8.83%	7.08%	9.13%	5.52%	8.50%
29	7.09%	9.61%	6.40%	8.61%	6.63%	8.97%	7.19%	9.28%	5.61%	8.64%
30	7.20%	9.76%	6.51%	8.75%	6.73%	9.11%	7.31%	9.43%	5.70%	8.77%
31	7.32%	9.92%	6.61%	8.89%	6.84%	9.26%	7.42%	9.58%	5.79%	8.92%
32	7.44%	10.08%	6.72%	9.04%	6.95%	9.41%	7.54%	9.73%	5.89%	9.06%
33	7.56%	10.24%	6.82%	9.18%	7.06%	9.56%	7.66%	9.89%	5.98%	9.20%
34	7.68%	10.41%	6.93%	9.33%	7.18%	9.72%	7.79%	10.05%	6.08%	9.35%
35	7.80%	10.57%	7.05%	9.48%	7.29%	9.87%	7.91%	10.21%	6.18%	9.50%
36	7.93%	10.75%	7.16%	9.63%	7.41%	10.03%	8.04%	10.37%	6.28%	9.66%
37	8.06%	10.92%	7.27%	9.79%	7.53%	10.19%	8.17%	10.54%	6.38%	9.81%
38	8.19%	11.10%	7.39%	9.95%	7.65%	10.36%	8.30%	10.71%	6.48%	9.97%
39	8.32%	11.28%	7.51%	10.11%	7.77%	10.53%	8.44%	10.89%	6.59%	10.13%
40	8.45%	11.46%	7.64%	10.27%	7.90%	10.70%	8.57%	11.06%	6.69%	10.30%
41	8.59%	11.65%	7.76%	10.44%	8.03%	10.87%	8.71%	11.24%	6.80%	10.47%
42	8.74%	11.84%	7.89%	10.61%	8.16%	11.05%	8.86%	11.43%	6.92%	10.64%
43	8.88%	12.04%	8.02%	10.79%	8.30%	11.24%	9.01%	11.62%	7.03%	10.82%
44	9.03%	12.24%	8.15%	10.97%	8.44%	11.43%	9.16%	11.81%	7.15%	11.00%

General CalPEPRA Members' Contribution Rates from the December 31, 2017 Actuarial Valuation
(Expressed as a Percentage of Monthly Payroll)

Calculated Under Recommended Assumptions

	Rate Group 5 – Plan U		Rate Group 9 – Plan U		Rate Group 10 – Plan U		Rate Group 11 – Plan U		Rate Group 12 – Plan U	
Entry Age	Normal	Total	Normal	Total	Normal	Total	Normal	Total	Normal	Total
45	9.18%	12.45%	8.29%	11.16%	8.58%	11.62%	9.31%	12.01%	7.27%	11.19%
46	9.34%	12.66%	8.43%	11.35%	8.73%	11.82%	9.47%	12.22%	7.39%	11.38%
47	9.50%	12.88%	8.58%	11.55%	8.88%	12.02%	9.64%	12.43%	7.52%	11.57%
48	9.67%	13.11%	8.73%	11.75%	9.04%	12.23%	9.81%	12.65%	7.66%	11.78%
49	9.83%	13.32%	8.88%	11.94%	9.19%	12.44%	9.97%	12.86%	7.78%	11.97%
50	9.98%	13.53%	9.01%	12.12%	9.33%	12.63%	10.12%	13.06%	7.90%	12.15%
51	10.12%	13.72%	9.14%	12.30%	9.46%	12.80%	10.26%	13.24%	8.01%	12.33%
52	10.26%	13.91%	9.27%	12.47%	9.59%	12.99%	10.41%	13.43%	8.13%	12.50%
53	10.42%	14.12%	9.41%	12.66%	9.74%	13.18%	10.56%	13.63%	8.25%	12.69%
54	10.58%	14.34%	9.55%	12.85%	9.89%	13.38%	10.73%	13.84%	8.37%	12.88%
55	10.75%	14.57%	9.71%	13.06%	10.04%	13.60%	10.90%	14.06%	8.51%	13.09%
56	10.92%	14.80%	9.86%	13.27%	10.21%	13.82%	11.08%	14.29%	8.65%	13.30%
57	11.09%	15.03%	10.01%	13.47%	10.36%	14.03%	11.24%	14.51%	8.78%	13.50%
58	11.23%	15.23%	10.15%	13.65%	10.50%	14.22%	11.39%	14.70%	8.90%	13.69%
59	11.35%	15.38%	10.25%	13.79%	10.60%	14.36%	11.51%	14.85%	8.98%	13.82%
60	11.42%	15.48%	10.31%	13.88%	10.67%	14.45%	11.58%	14.94%	9.04%	13.91%
61	11.44%	15.51%	10.33%	13.90%	10.69%	14.48%	11.60%	14.97%	9.06%	13.94%
62	11.40%	15.45%	10.30%	13.85%	10.66%	14.43%	11.56%	14.92%	9.03%	13.89%
63	11.29%	15.30%	10.20%	13.72%	10.55%	14.29%	11.45%	14.77%	8.94%	13.75%
64	11.09%	15.03%	10.02%	13.48%	10.36%	14.03%	11.25%	14.51%	8.78%	13.51%
65	11.45%	15.52%	10.34%	13.91%	10.70%	14.49%	11.61%	14.98%	9.06%	13.95%
66 and thereafter	11.83%	16.03%	10.68%	14.37%	11.05%	14.96%	11.99%	15.47%	9.36%	14.41%
COLA Loading:		*35.55%*		*34.55%*		*35.39%*		*29.03%*		*53.85%*

Interest: *7.00%*
Salary Increases: *See Exhibit II, page 74*
Mortality: *See Exhibit II, page 75*

It is our understanding that in the determination of pension benefits under the CalPEPRA 2.5% at 67 formula and the Plan W 1.62% at 65 formula, the compensation that can be taken into account for 2018 is equal to $145,666 (reference: Section 7522.10). This amount should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2018 (reference: Section 7522.10(d)).

Safety Tier 1 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan E (OCFA)		Plan E (Law Enforcement)		Plan E (Probation)	
Entry Age	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**
15	4.66%	11.11%	4.80%	11.58%	4.74%	10.97%
16	4.66%	11.11%	4.80%	11.58%	4.74%	10.97%
17	4.72%	11.26%	4.86%	11.74%	4.80%	11.12%
18	4.78%	11.41%	4.93%	11.89%	4.86%	11.26%
19	4.85%	11.56%	4.99%	12.05%	4.93%	11.41%
20	4.91%	11.71%	5.06%	12.21%	4.99%	11.57%
21	4.98%	11.87%	5.13%	12.37%	5.06%	11.72%
22	5.04%	12.03%	5.20%	12.54%	5.13%	11.88%
23	5.11%	12.19%	5.27%	12.71%	5.20%	12.04%
24	5.18%	12.36%	5.34%	12.88%	5.27%	12.20%
25	5.25%	12.53%	5.41%	13.06%	5.34%	12.37%
26	5.33%	12.70%	5.49%	13.24%	5.42%	12.54%
27	5.40%	12.88%	5.56%	13.42%	5.49%	12.72%
28	5.48%	13.07%	5.64%	13.61%	5.57%	12.90%
29	5.56%	13.26%	5.72%	13.81%	5.65%	13.09%
30	5.64%	13.45%	5.81%	14.01%	5.73%	13.28%
31	5.73%	13.66%	5.90%	14.22%	5.82%	13.48%
32	5.81%	13.87%	5.99%	14.44%	5.91%	13.69%
33	5.91%	14.09%	6.08%	14.67%	6.01%	13.91%
34	5.99%	14.29%	6.17%	14.88%	6.09%	14.10%
35	6.08%	14.50%	6.26%	15.10%	6.18%	14.31%
36	6.17%	14.73%	6.35%	15.33%	6.28%	14.53%
37	6.28%	14.97%	6.46%	15.58%	6.38%	14.77%
38	6.38%	15.23%	6.57%	15.84%	6.49%	15.02%
39	6.51%	15.52%	6.69%	16.14%	6.61%	15.30%
40	6.61%	15.77%	6.79%	16.39%	6.71%	15.55%
41	6.71%	16.01%	6.90%	16.64%	6.82%	15.78%
42	6.79%	16.19%	6.97%	16.81%	6.89%	15.95%

Safety Tier 1 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan E (OCFA)		Plan E (Law Enforcement)		Plan E (Probation)	
Entry Age	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**
43	6.85%	16.33%	7.03%	16.95%	6.95%	16.09%
44	6.88%	16.41%	7.06%	17.02%	6.98%	16.16%
45	6.87%	16.40%	7.04%	16.99%	6.97%	16.14%
46	6.86%	16.37%	7.02%	16.93%	6.95%	16.10%
47	6.78%	16.18%	6.92%	16.69%	6.86%	15.89%
48	6.62%	15.78%	6.71%	16.19%	6.67%	15.45%
49	6.27%	14.95%	6.27%	15.12%	6.27%	14.51%
50	6.27%	14.95%	6.27%	15.12%	6.27%	14.51%
51	6.27%	14.95%	6.27%	15.12%	6.27%	14.51%
52	6.27%	14.95%	6.27%	15.12%	6.27%	14.51%
53	6.27%	14.95%	6.27%	15.12%	6.27%	14.51%
54	6.27%	14.95%	6.27%	15.12%	6.27%	14.51%
55	6.27%	14.95%	6.27%	15.12%	6.27%	14.51%
56	6.27%	14.95%	6.27%	15.12%	6.27%	14.51%
57	6.27%	14.95%	6.27%	15.12%	6.27%	14.51%
58	6.27%	14.95%	6.27%	15.12%	6.27%	14.51%
59	6.27%	14.95%	6.27%	15.12%	6.27%	14.51%
60	6.27%	14.95%	6.27%	15.12%	6.27%	14.51%
COLA Loading:		*138.56%*		*141.26%*		*131.56%*

Interest: *7.00%*
Salary Increases: *See Exhibit II, page 74*
Mortality: *See Exhibit II, page 75*
Additional Cashouts *See Exhibit II, page 83*

Safety Tier 2 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan F (OCFA)		Plan F (Law Enforcement)		Plan F (Probation)		Plan R (OCFA)		Plan R (Law Enforcement)	
Entry Age	Normal	Total	Normal	Total	Normal	Total	Normal	Total	Normal	Total
15	8.87%	15.01%	9.11%	15.54%	9.01%	14.93%	8.87%	14.21%	9.11%	14.56%
16	8.87%	15.01%	9.11%	15.54%	9.01%	14.93%	8.87%	14.21%	9.11%	14.56%
17	8.99%	15.21%	9.22%	15.74%	9.13%	15.13%	8.99%	14.39%	9.22%	14.75%
18	9.10%	15.41%	9.34%	15.94%	9.24%	15.33%	9.10%	14.58%	9.34%	14.94%
19	9.22%	15.61%	9.47%	16.15%	9.37%	15.53%	9.22%	14.77%	9.47%	15.14%
20	9.35%	15.82%	9.59%	16.37%	9.49%	15.73%	9.35%	14.97%	9.59%	15.34%
21	9.47%	16.03%	9.72%	16.58%	9.62%	15.94%	9.47%	15.17%	9.72%	15.54%
22	9.60%	16.25%	9.85%	16.80%	9.74%	16.15%	9.60%	15.37%	9.85%	15.74%
23	9.73%	16.47%	9.98%	17.03%	9.87%	16.37%	9.73%	15.58%	9.98%	15.95%
24	9.86%	16.69%	10.11%	17.26%	10.01%	16.59%	9.86%	15.79%	10.11%	16.17%
25	10.00%	16.92%	10.25%	17.49%	10.14%	16.82%	10.00%	16.01%	10.25%	16.39%
26	10.13%	17.15%	10.39%	17.73%	10.28%	17.05%	10.13%	16.23%	10.39%	16.61%
27	10.28%	17.39%	10.53%	17.98%	10.43%	17.29%	10.28%	16.46%	10.53%	16.84%
28	10.42%	17.64%	10.68%	18.23%	10.57%	17.53%	10.42%	16.69%	10.68%	17.08%
29	10.57%	17.90%	10.83%	18.49%	10.73%	17.78%	10.57%	16.93%	10.83%	17.32%
30	10.73%	18.16%	10.99%	18.75%	10.88%	18.04%	10.73%	17.18%	10.99%	17.57%
31	10.89%	18.44%	11.15%	19.03%	11.05%	18.31%	10.89%	17.44%	11.15%	17.83%
32	11.05%	18.71%	11.31%	19.31%	11.21%	18.58%	11.05%	17.70%	11.31%	18.09%
33	11.21%	18.97%	11.47%	19.58%	11.36%	18.84%	11.21%	17.95%	11.47%	18.34%
34	11.37%	19.24%	11.63%	19.85%	11.52%	19.10%	11.37%	18.20%	11.63%	18.60%
35	11.53%	19.52%	11.80%	20.13%	11.69%	19.38%	11.53%	18.47%	11.80%	18.86%
36	11.71%	19.82%	11.97%	20.42%	11.86%	19.67%	11.71%	18.75%	11.97%	19.14%
37	11.90%	20.14%	12.16%	20.74%	12.05%	19.98%	11.90%	19.06%	12.16%	19.44%
38	12.08%	20.46%	12.34%	21.05%	12.23%	20.28%	12.08%	19.35%	12.34%	19.73%
39	12.26%	20.76%	12.51%	21.35%	12.41%	20.57%	12.26%	19.64%	12.51%	20.00%
40	12.41%	21.00%	12.65%	21.58%	12.55%	20.80%	12.41%	19.87%	12.65%	20.22%
41	12.52%	21.20%	12.75%	21.75%	12.65%	20.98%	12.52%	20.05%	12.75%	20.38%
42	12.59%	21.31%	12.80%	21.84%	12.71%	21.07%	12.59%	20.16%	12.80%	20.47%
43	12.60%	21.33%	12.79%	21.82%	12.71%	21.07%	12.60%	20.18%	12.79%	20.45%
44	12.56%	21.26%	12.72%	21.71%	12.66%	20.98%	12.56%	20.12%	12.72%	20.34%

Safety Tier 2 Members' Contribution Rates from the December 31, 2017 Actuarial Valuation (Expressed as a Percentage of Monthly Payroll)
Calculated Under Recommended Assumptions

	Plan F (OCFA)		Plan F (Law Enforcement)		Plan F (Probation)		Plan R (OCFA)		Plan R (Law Enforcement)	
Entry Age	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**
45	12.44%	21.06%	12.57%	21.45%	12.52%	20.75%	12.44%	19.93%	12.57%	20.10%
46	12.21%	20.66%	12.28%	20.96%	12.25%	20.31%	12.21%	19.55%	12.28%	19.64%
47	11.77%	19.93%	11.77%	20.09%	11.77%	19.52%	11.77%	18.85%	11.77%	18.82%
48	12.14%	20.56%	12.14%	20.72%	12.14%	20.13%	12.14%	19.45%	12.14%	19.42%
49	12.54%	21.22%	12.54%	21.39%	12.54%	20.78%	12.54%	20.08%	12.54%	20.04%
50	12.54%	21.22%	12.54%	21.39%	12.54%	20.78%	12.54%	20.08%	12.54%	20.04%
51	12.54%	21.22%	12.54%	21.39%	12.54%	20.78%	12.54%	20.08%	12.54%	20.04%
52	12.54%	21.22%	12.54%	21.39%	12.54%	20.78%	12.54%	20.08%	12.54%	20.04%
53	12.54%	21.22%	12.54%	21.39%	12.54%	20.78%	12.54%	20.08%	12.54%	20.04%
54	12.54%	21.22%	12.54%	21.39%	12.54%	20.78%	12.54%	20.08%	12.54%	20.04%
55	12.54%	21.22%	12.54%	21.39%	12.54%	20.78%	12.54%	20.08%	12.54%	20.04%
56	12.54%	21.22%	12.54%	21.39%	12.54%	20.78%	12.54%	20.08%	12.54%	20.04%
57	12.54%	21.22%	12.54%	21.39%	12.54%	20.78%	12.54%	20.08%	12.54%	20.04%
58	12.54%	21.22%	12.54%	21.39%	12.54%	20.78%	12.54%	20.08%	12.54%	20.04%
59	12.54%	21.22%	12.54%	21.39%	12.54%	20.78%	12.54%	20.08%	12.54%	20.04%
60	12.54%	21.22%	12.54%	21.39%	12.54%	20.78%	12.54%	20.08%	12.54%	20.04%
COLA Loading:		*69.28%*		*70.63%*		*65.78%*		*60.16%*		*59.89%*

Interest: *7.00%*
Salary Increases: *See Exhibit II, page 74*
Mortality: *See Exhibit II, page 75*
Additional Cashouts *See Exhibit II, page 83*

Safety CalPEPRA Members' Contribution Rates from the December 31, 2017 Actuarial Valuation
(Expressed as a Percentage of Monthly Payroll)

Calculated Under Recommended Assumptions

	Rate Group 6 – Plan V		Rate Group 7 – Plan V		Rate Group 8 – Plan V	
Entry Age	Normal	Total	Normal	Total	Normal	Total
15	9.82%	14.02%	10.87%	15.53%	9.11%	13.13%
16	9.82%	14.02%	10.87%	15.53%	9.11%	13.13%
17	9.94%	14.21%	11.01%	15.73%	9.23%	13.30%
18	10.07%	14.39%	11.15%	15.93%	9.35%	13.47%
19	10.21%	14.58%	11.30%	16.14%	9.47%	13.65%
20	10.34%	14.77%	11.44%	16.35%	9.60%	13.83%
21	10.47%	14.96%	11.59%	16.57%	9.72%	14.01%
22	10.61%	15.16%	11.75%	16.78%	9.85%	14.19%
23	10.75%	15.36%	11.90%	17.00%	9.98%	14.38%
24	10.89%	15.56%	12.06%	17.23%	10.11%	14.56%
25	11.04%	15.76%	12.22%	17.45%	10.24%	14.76%
26	11.18%	15.97%	12.38%	17.69%	10.38%	14.95%
27	11.33%	16.19%	12.54%	17.92%	10.52%	15.15%
28	11.48%	16.40%	12.71%	18.16%	10.66%	15.35%
29	11.64%	16.62%	12.88%	18.41%	10.80%	15.56%
30	11.80%	16.85%	13.06%	18.66%	10.95%	15.77%
31	11.96%	17.08%	13.24%	18.91%	11.10%	15.99%
32	12.12%	17.32%	13.42%	19.17%	11.25%	16.21%
33	12.29%	17.56%	13.61%	19.44%	11.41%	16.44%
34	12.47%	17.81%	13.80%	19.72%	11.57%	16.67%
35	12.64%	18.06%	14.00%	20.00%	11.74%	16.91%
36	12.83%	18.33%	14.20%	20.29%	11.91%	17.15%
37	13.02%	18.60%	14.41%	20.59%	12.09%	17.41%
38	13.22%	18.88%	14.63%	20.91%	12.27%	17.67%
39	13.41%	19.16%	14.85%	21.22%	12.45%	17.94%
40	13.61%	19.44%	15.06%	21.53%	12.63%	18.20%
41	13.80%	19.72%	15.28%	21.83%	12.81%	18.46%
42	14.01%	20.01%	15.51%	22.16%	13.00%	18.73%
43	14.23%	20.32%	15.75%	22.50%	13.21%	19.03%
44	14.46%	20.66%	16.01%	22.87%	13.43%	19.34%

Safety CalPEPRA Members' Contribution Rates from the December 31, 2017 Actuarial Valuation
(Expressed as a Percentage of Monthly Payroll)

Calculated Under Recommended Assumptions

	Rate Group 6 – Plan V		Rate Group 7 – Plan V		Rate Group 8 – Plan V	
Entry Age	**Normal**	**Total**	**Normal**	**Total**	**Normal**	**Total**
45	14.69%	20.99%	16.27%	23.24%	13.64%	19.65%
46	14.92%	21.31%	16.51%	23.59%	13.85%	19.95%
47	15.10%	21.57%	16.72%	23.89%	14.02%	20.20%
48	15.25%	21.78%	16.88%	24.12%	14.16%	20.39%
49	15.34%	21.92%	16.98%	24.27%	14.24%	20.52%
50	15.37%	21.96%	17.02%	24.31%	14.27%	20.56%
51	15.34%	21.92%	16.98%	24.27%	14.24%	20.52%
52	15.22%	21.75%	16.85%	24.08%	14.13%	20.36%
53	14.97%	21.39%	16.57%	23.68%	13.90%	20.02%
54	14.49%	20.71%	16.04%	22.93%	13.46%	19.38%
55	14.95%	21.36%	16.55%	23.65%	13.88%	19.99%
56 and thereafter	15.43%	22.05%	17.09%	24.41%	14.33%	20.64%
COLA Loading:		*42.85%*		*42.88%*		*44.05%*

Interest: *7.00%*

Salary Increases: *See Exhibit II, page 74*

Mortality: *See Exhibit II, page 75*

It is our understanding that in the determination of pension benefits under the CalPEPRA 2.7% at 57 formula, the compensation that can be taken into account for 2018 is equal to $145,666 (reference: Section 7522.10). This amount should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2018 (reference: Section 7522.10(d)).

Appendix C
Funded Percentages

The funded percentages on a valuation value of assets basis by rate group provided for informational purposes only are as follows:

	Funded Percentage	
	December 31, 2017 Valuation	**December 31, 2016 Valuation**
General Members		
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD)	80.19%	82.57%
Rate Group #2 – Plans I, J, O, P, S, T, U and W (County et al.)	70.12%	71.23%
Rate Group #3 – Plans B, G, H and U (OCSD)	100.00%[(1)]	100.42%
Rate Group #5 – Plans A, B and U (OCTA)	75.74%	77.31%
Rate Group #9 – Plans M, N and U (TCA)	74.76%	75.29%
Rate Group #10 – Plans I, J, M, N and U (OCFA)	76.08%	70.16%
Rate Group #11 – Plans M and N, future service, and U (Cemetery)	97.16%	103.37%
Rate Group #12 – Plans G, H, future service, and U (Law Library)	99.87%	84.42%
Safety Members		
Rate Group #6 – Plans E, F and V (Probation)	69.20%	70.84%
Rate Group #7 – Plans E, F, Q, R and V (Law Enforcement)	69.30%	69.89%
Rate Group #8 – Plans E, F, Q, R and V (OCFA)	79.03%	77.65%

(1) *After transfer of $24,042,000 from O.C. Sanitation District UAAL Deferred Account.*

Appendix D
Reconciliation of Employer Contribution Rates (by Rate Group)

The reconciliation of the employer contribution rates for the General Rate Groups #1 to #5 are as follows:

		Rate Group			
		RG #1[1]	RG #2	RG #3	RG #5
1.	Aggregate Recommended Contribution Rate as of December 31, 2016 (before adjustments to FY18-19 rates)	16.37%[2]	33.36%	11.42%	25.47%
2.	Adjustment to FY18-19 rates for additional UAAL contributions from Children and Families and Law Library	0.00%	-0.02%	0.00%	0.00%
3.	Aggregate Recommended Contribution Rate as of December 31, 2016 (after adjustments to FY18-19 rates)	16.37%[2]	33.34%	11.42%	25.47%
4.	Actuarial (gain)/loss items:				
(a)	Effect of investment gain (after smoothing)	-0.06%	-0.09%	N/A[3]	-0.08%
(b)	Effect of additional UAAL contributions from OCFA and anticipated payments from DOE and UCI	-0.31%	0.00%	N/A[3]	0.00%
(c)	Effect of actual contributions less/(more) than expected	-0.10%	0.16%	N/A[3]	0.22%
(d)	Effect of difference in actual versus expected COLA increases	-0.18%	-0.33%	N/A[3]	-0.24%
(e)	Effect of difference in actual versus expected salary increases	0.24%	-0.28%	N/A[3]	-0.38%
(f)	Effect of growth in total payroll (greater)/less than expected	0.21%	0.15%	N/A[3]	0.71%
(g)	Effect of other experience (gain)/loss[4]	0.06%	0.11%	0.06%	-0.30%
(h)	Effect of changes in actuarial assumptions[5]	3.73%	4.65%	0.98%[6]	4.88%
(i)	Effect of three-year phase-in of UAAL cost impact due to changes in actuarial assumptions	-1.69%	-2.38%	0.00%	-2.32%
(j)	Subtotal	1.90%	1.99%	1.04%	2.49%
5.	Aggregate Recommended Contribution Rate as of December 31, 2017	18.27%[7]	35.33%	12.46%	27.96%

(1) *Liability associated with O.C. Vector Control has been excluded in determining rates for RG #1.*

(2) *As of December 31, 2016, the net contribution rate for County and IHSS Public Authority after reflecting Board's UAAL contribution rate policy for U.C.I. and DOE is 13.30%.*

(3) *N/A because RG #3 has paid off their UAAL after reflecting asset transfer from O.C. Sanitation District UAAL Deferred Account and under CalPEPRA, the employer's contribution rate cannot be less than the Normal Cost unless the funded ratio is over 120% and other conditions in CalPEPRA are met.*

(4) *Net of an adjustment to reflect 18-month delay between date of valuation and date of rate implementation for all actuarial experience.*

(5) *Actual effect of changes in actuarial assumptions on December 31, 2017 valuation is somewhat higher than the effect that we estimated in the experience study which was based on the December 31, 2016 valuation. This is primarily due to the effect of lower mortality rates based on the generational tables applied at two different measurement dates.*

(6) *Includes the effect of $24,042,000 asset transfer from O.C. Sanitation District UAAL Deferred Account to eliminate entire UAAL rate impact.*

(7) *As of December 31, 2017, the net contribution rate for County and IHSS Public Authority after reflecting Board's UAAL contribution rate policy for Cypress Parks and Recreation, U.C.I. and DOE is 14.99% after adjustment for phase-in.*

Appendix D (Continued)
Reconciliation of Employer Contribution Rates (by Rate Group)

The reconciliation of the employer contribution rates for the General Rate Groups #9 to #12 are as follows:

		Rate Group			
		RG #9	RG #10	RG #11	RG #12
1.	Aggregate Recommended Contribution Rate as of December 31, 2016 (before adjustments to FY18-19 rates)	23.53%	30.40%	10.81%	22.88%
2.	Adjustment to FY18-19 rates for additional UAAL contributions from Children and Families and Law Library	0.00%	0.00%	0.00%	-9.74%
3.	Aggregate Recommended Contribution Rate as of December 31, 2016 (after adjustments to FY18-19 rates)	23.53%	30.40%	10.81%	13.14%
4.	Actuarial (gain)/loss items:				
(a)	Effect of investment gain (after smoothing)	-0.06%	-0.08%	N/A[1]	N/A[1]
(b)	Effect of additional UAAL contributions from OCFA and anticipated payments from DOE and UCI	0.00%	-3.92%	N/A[1]	N/A[1]
(c)	Effect of actual contributions less/(more) than expected	-0.11%	-0.01%	N/A[1]	N/A[1]
(d)	Effect of difference in actual versus expected COLA increases	-0.17%	-0.28%	N/A[1]	N/A[1]
(e)	Effect of difference in actual versus expected salary increases	0.27%	-0.21%	N/A[1]	N/A[1]
(f)	Effect of growth in total payroll (greater)/less than expected	-0.40%	0.73%	N/A[1]	N/A[1]
(g)	Effect of other experience (gain)/loss[2]	-0.03%	0.28%	0.11%	-0.10%
(h)	Effect of changes in actuarial assumptions[3]	2.73%	3.93%	2.52%	0.81%
(i)	Effect of three-year phase-in of UAAL cost impact due to changes in actuarial assumptions	-1.25%	-1.88%	-0.96%	0.00%
(j)	Subtotal	0.98%	-1.44%	1.67%	0.71%
5.	Aggregate Recommended Contribution Rate as of December 31, 2017	24.51%	28.96%	12.48%	13.85%

[1] *N/A because RG #11 and RG #12 have become overfunded and, under CalPEPRA and before reflecting the effect of changes in actuarial assumptions, the employer's contribution rate cannot be less than the Normal Cost unless the funded ratio is over 120% and other conditions in CalPEPRA are met.*

[2] *Net of an adjustment to reflect 18-month delay between date of valuation and date of rate implementation for all actuarial experience.*

[3] *Actual effect of changes in actuarial assumptions on December 31, 2017 valuation is somewhat higher than the effect that we estimated in the experience study which was based on the December 31, 2016 valuation. This is primarily due to the effect of lower mortality rates based on the generational tables applied at two different measurement dates.*

Appendix D (Continued)
Reconciliation of Employer Contribution Rates (by Rate Group)

The reconciliation of the employer contribution rates for the Safety rate groups are as follows:

		Rate Group		
		RG #6	RG #7	RG #8
1.	Aggregate Recommended Contribution Rate as of December 31, 2016 (before adjustments to FY18-19 rates)	47.81%	62.39%	47.31%
2.	Adjustment to FY18-19 rates for additional UAAL contributions from Children and Families and Law Library	0.00%	0.00%	0.00%
3.	Aggregate Recommended Contribution Rate as of December 31, 2016 (after adjustments to FY18-19 rates)	47.81%	62.39%	47.31%
4.	Actuarial (gain)/loss items:			
(a)	Effect of investment gain (after smoothing)	-0.11%	-0.14%	-0.13%
(b)	Effect of additional UAAL contributions from OCFA and anticipated payments from DOE and UCI	0.00%	0.00%	-1.02%
(c)	Effect of actual contributions less/(more) than expected	0.53%	0.18%	0.04%
(d)	Effect of difference in actual versus expected COLA increases	-0.31%	-0.73%	-0.49%
(e)	Effect of difference in actual versus expected salary increases	-0.71%	0.02%	-0.90%
(f)	Effect of growth in total payroll (greater)/less than expected	1.29%	-1.58%	-0.06%
(g)	Effect of other experience (gain)/loss(1),(2)	-0.26%	-0.76%	-0.24%
(h)	Effect of changes in actuarial assumptions(3),(4)	8.34%	6.71%	4.02%
(i)	Effect of three-year phase-in of UAAL cost impact due to changes in actuarial assumptions	-4.26%	-3.71%	-2.29%
(j)	Subtotal	4.51%	-0.01%	-1.07%
5.	Aggregate Recommended Contribution Rate as of December 31, 2017	52.32%	62.38%	46.24%

(1) *Net of an adjustment to reflect 18-month delay between date of valuation and date of rate implementation for all actuarial experience.*

(2) *Effect of other experience (gain)/loss for RG #7 includes: -0.33% due to changes in demographics and -0.31% adjustment due to 18-month delay.*

(3) *Actual effect of changes in actuarial assumptions on December 31, 2017 valuation is somewhat higher than the effect that we estimated in the experience study which was based on the December 31, 2016 valuation. This is primarily due to the effect of lower mortality rates based on the generational tables applied at two different measurement dates.*

(4) *Effect of changes in actuarial assumptions for RG #6 is greater than RGs #7 and #8 primarily due to the higher cashout assumption adopted for Rate Group #6 and lower cashout assumptions adopted for RGs #7 and #8. Also, for RG #8, we are no longer assuming 100% retirement after a member's benefit reaches 100% of Final Average Compensation.*

Appendix E
Reconciliation of UAAL (by Rate Group)

The reconciliation of UAAL for the General rate groups are as follows:

	Rate Group ($000s)							
	#1	#2	#3	#5	#9	#10	#11	#12
1. UAAL as of December 31, 2016	$76,266	$2,880,380[1]	$(2,522)	$190,783	$9,816	$61,930	$(289)	$0[2]
2. Total normal cost at middle of year	14,763	245,192	15,119	20,896	1,534	6,232	276	304
3. Expected employer and member contributions	(20,796)	(476,386)	(15,119)	(36,263)	(2,318)	(11,157)	(276)	(416)
4. Interest	5,080	200,947	(183)	13,295	675	4,277	(21)	(4)
5. Expected UAAL as of December 31, 2017	$75,313	$2,850,133	$(2,705)	$188,711	$9,707	$61,282	$(310)	$(116)
6. Actuarial (gain)/loss and other changes:								
(a) (Gain) from additional UAAL contributions	$(3,602)	$0	$0	$0	$0	$(14,705)	$0	$0
(b) (Gain)/loss from actual contributions (more)/less than expected	(1,176)	24,567	(2)	3,137	(117)	(36)	(26)	(10)
(c) (Gain) from investment return	(669)	(13,215)	(1,107)	(1,195)	(57)	(302)	(17)	(17)
(d) (Gain) on lower than expected COLA increases	(2,168)	(50,225)	(2,859)	(3,465)	(170)	(1,043)	(23)	(29)
(e) (Gain)/loss from lower/higher than expected salary increases	2,805	(43,129)	1,667	(5,421)	274	(793)	134	(169)
(f) Other experience (gain)/loss	(1,137)	22,091	3,531	(3,004)	(187)	1,598	6	(84)
(g) (Gain) from asset transfer from O.C. Sanitation District UAAL Deferred Account	0	0	(24,042)	0	0	0	0	0
(h) Changes in actuarial assumptions	26,577	481,098	25,517	43,481	1,665	9,159	517	438
Total Changes	$20,630	$421,187	$2,705	$33,533	$1,408	$(6,122)	$591	$129
7. UAAL as of December 31, 2017	$95,943	$3,271,320	$0	$222,244	$11,115	$55,160	$281	$13

[1] *After adjustment for additional UAAL contributions made by Children and Families Commission (i.e., Rate Group #2) of $1.7 million to pay off their UAAL as of December 31, 2016 and adjustment of $0.7 million for future service only benefit improvement for Children and Families Commission.*

[2] *After adjustment for additional UAAL contributions made by Law Library (i.e., Rate Group #12) of $1.5 million to pay off their UAAL as of December 31, 2016.*

Appendix E (Continued)
Reconciliation of UAAL (by Rate Group)

The reconciliation of UAAL for the Safety rate groups are as follows:

	Rate Group ($000s)		
	#6	**#7**	**#8**
1. UAAL as of December 31, 2016	$213,650	$1,058,165	$338,504
2. Total normal cost at middle of year	24,266	90,016	49,927
3. Expected employer and member contributions	(41,240)	(173,845)	(77,058)
4. Interest	14,982	73,863	23,431
5. Expected UAAL as of December 31, 2017	$211,658	$1,048,199	$334,804
6. Actuarial (gain)/loss and other changes:			
(a) (Gain) from additional UAAL contributions	$0	$0	$(18,041)
(b) (Gain)/loss from actual contributions (more)/less than expected	4,735	5,864	790
(c) (Gain) from investment return	(987)	(4,593)	(2,242)
(d) (Gain) on lower than expected COLA increases	(2,771)	(24,422)	(8,621)
(e) (Gain)/loss from lower/higher than expected salary increases	(6,385)	560	(15,942)
(f) Other experience (gain)/loss	(1,158)	(5,331)	1,025
(g) (Gain) from asset transfer from O.C. Sanitation District UAAL Deferred Account	0	0	0
(h) Changes in actuarial assumptions	50,030	161,417	53,637
Total Changes	$43,464	$133,495	$10,606
7. UAAL as of December 31, 2017	$255,122	$1,181,694	$345,410

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A-3

Memorandum

DATE: June 7, 2018

TO: Members, Board of Retirement

FROM: Brenda Shott, Assistant CEO, Finance and Internal Operations; Tracy Bowman, Director of Finance

SUBJECT: **2017 AUDITED FINANCIAL STATEMENTS AND COMPREHENSIVE ANNUAL FINANCIAL REPORTS**

Recommendation

Approve the following recommendations presented to the Audit Committee during a meeting held on June 7, 2018:

1. Approve OCERS' audited financial statements for the year ended December 31, 2017
2. Direct staff to finalize OCERS' 2017 Comprehensive Annual Financial Report (CAFR)
3. Approve the Governmental Accounting Standards Board (GASB) Statement 67 Actuarial Valuation as of December 31, 2017
4. Receive and file Macias, Gini & O'Connell LLP's (MGO) "OCERS' Report to the Audit Committee for the Year Ended December 31, 2017" and their "Independent Auditor's Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*"

Background/Discussion

The attached draft of OCERS' 2017 CAFR, including the audited financial statements and related notes for the year ended December 31, 2017, are considered to be in substantially final form and include the unmodified (clean) audit opinion from MGO, OCERS' independent auditors. The audited financial statements and related notes are included in the Financial Section of OCERS' 2017 CAFR.

The attached Governmental Accounting Standards Board (GASB) Statement 67 Actuarial Valuation as of December 31, 2017 is used for reporting purposes and is separate and distinct from the funding actuarial valuation. This valuation has been audited by MGO and contains necessary information and schedules that have been incorporated into OCERS' 2017 CAFR in compliance with GASB Statement No. 67, *Financial Reporting for Pension Plans*.

As part of the normal course of an annual financial statement audit, MGO has issued their "Report to the Audit Committee" that includes the required communications of the independent auditors, comments and recommendations based on their 2017 audit of OCERS and the status of prior year comments and recommendations reported to the Audit Committee related to their 2016 audit of OCERS (which there were none). MGO has also issued an "Independent Auditor's Report on Internal Control over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements, Performed in Accordance with Government Auditing Standards."

MGO presented their reports to the Audit Committee Meeting on June 7, 2018 and provided a detailed verbal report on their audit. Due to the short turn-around time between the Audit Committee meeting and the Regular Board meeting, those minutes are not yet available.

California's Government Code Section 7504 requires all state and local retirement agencies, including OCERS, to submit annual financial information to the State Controller within six months of the end of the fiscal year end. The State Controller's Office (SCO) has an automated system to allow retirement systems to provide the prescribed report containing specific financial and plan information to the SCO (this report is referred to as the State Controller's Report). In addition to the State Controller's Report, OCERS is also required to submit the annual audited financial statements and the most current funding actuarial valuation. Once the Board approves the financial statements for the year ended December 31, 2017, staff will file a timely submission of the State Controller's Report and submit OCERS' 2017 CAFR and the Actuarial Valuation (for funding purposes) as of December 31, 2016 by the deadline of June 30, 2018.

Submitted by:

Tracy Bowman

Director of Finance

Approved by:

Brenda M Shott

Brenda Shott

Asst. CEO, Finance & Internal Operations

ORANGE COUNTY
OCERS
EMPLOYEES RETIREMENT SYSTEM

2017 Audited Financial Statements

Presented on June 18, 2018

by

Brenda Shott and Tracy Bowman

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

Recommendation

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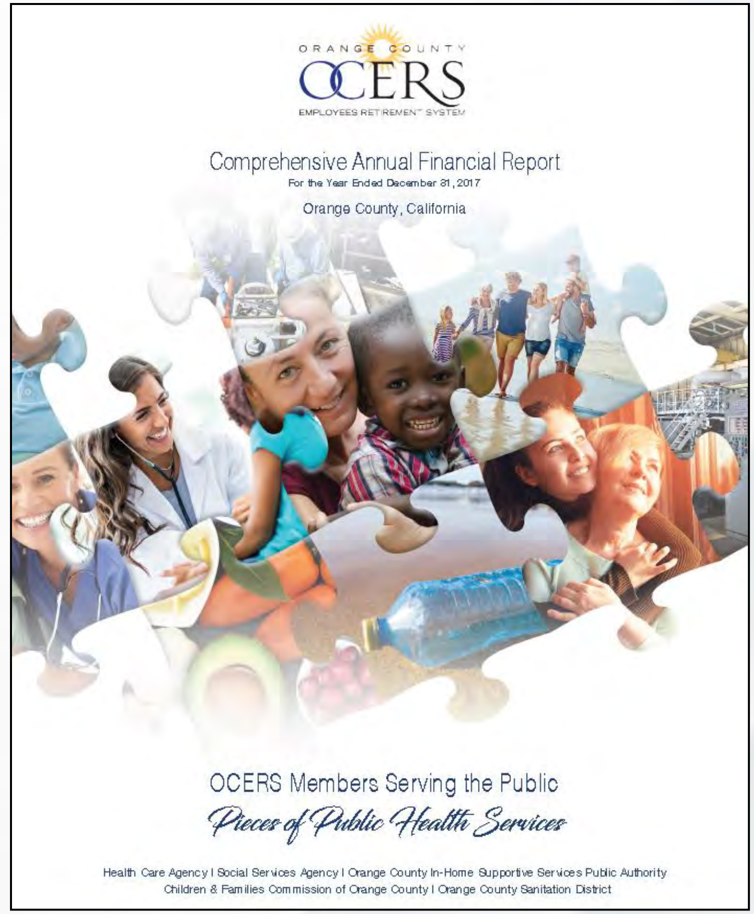
"We provide secure retirement and disability benefits with the highest standards of excellence."

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

2017 CAFR

- Theme: OCERS Members Serving the Public
  - Pieces of Public Health Services
- Preliminary unaudited financial statements provided to the Board in February
  - No material changes reflected in final audited version included in the CAFR
- OCFA took financial reporting responsibility for their Health Care Plan (OPEB) due to new reporting requirements of GASB 74 (OPEB equivalent of GASB 67)
  - Health Care Plan disclosures have been eliminated from OCERS' CAFR
  - Health Care Fund assets held by OCERS in an investment capacity remain in OCERS' basic financials as a trust fund



"We provide secure retirement and disability benefits with the highest standards of excellence."

Financial Highlights – MD&A

- Net position increased $2.1 billion from the prior year, growing to a total of $15.1 billion
  - Net investment returns were 14.52% vs. 8.52% in prior year, generating nearly $2 billion in net income
  - Employee and employer contributions for pension and health care added almost $900 million
- Increases offset by member pension benefit payments of $750 million, which increased 6.5% or $45.8 million from the prior year

Table 2 : Changes in Fiduciary Net Position

For the Years Ended December 31, 2017 and 2016

(Dollars in Thousands)

	12/31/2017	12/31/2016	Increase / (Decrease)	Percentage Change
Additions				
Employer Pension Contributions	$ 572,104	$ 567,196	$ 4,908	0.9%
Employer Health Care Contributions	62,244	44,825	17,419	38.9%
Employee Pension Contributions	262,294	258,297	3,997	1.5%
Net Investment Income/(Loss)	1,978,871	1,081,014	897,857	83.1%
Total Additions	2,875,513	1,951,332	924,181	47.4%
Deductions				
Participant Benefits - Pension	749,784	703,949	45,835	6.5%
Participant Benefits - Health Care	36,020	34,685	1,335	3.8%
Death Benefits	694	384	310	80.7%
Member Withdrawals and Refunds	13,866	13,643	223	1.6%
Administrative Expenses - Pension	17,002	16,870	132	0.8%
Administrative Expenses - Health Care	49	44	5	11.4%
Total Deductions	817,415	769,575	47,840	6.2%
Increase in Net Position Restricted for Pension and Other Post-Employment Benefits	2,058,098	1,181,757	876,341	74.2%
Net Position Restricted for Pension and Other Post-Employment Benefits Beginning of the Year	13,077,851	11,896,094		
End of the Year	$ 15,135,949	$ 13,077,851		

"We provide secure retirement and disability benefits with the highest standards of excellence."

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

Financial Highlights – MD&A (continued)

Table 3 : Membership Data

As of December 31, 2017 and 2016

	12/31/2017	12/31/2016	Increase/ (Decrease)	Percentage Change
Active Members	21,721	21,746	(25)	-0.1%
Retired Members	16,947	16,369	578	3.5%
Deferred Members	5,803	5,370	433	8.1%
Total Membership	**44,471**	**43,485**	**986**	**2.3%**

- Increases in member pension benefit payments can be attributed to an increase in the number of retirees receiving a benefit
  - Number of retirees increased by 3.5% or 578, for a total of 16,947 payees as of December 31, 2017
  - The average benefit paid to retired members and beneficiaries during 2017 was $44,243 vs. $43,005 in 2016

“We provide secure retirement and disability benefits with the highest standards of excellence.”

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

Financial Highlights – MD&A (continued)

- CAFR includes information from the December 31, 2016 funding valuation, which is the most currently available information at the time the CAFR is completed
  - ➢ Funding status based on actuarial value of assets (which smooths market gains and losses over five years) was 73.06% versus 70.58% if market gains and losses were recognized immediately
  - ➢ In comparison, in the December 31, 2017 funding valuation presented at today's Board meeting, the funding status based on actuarial value of assets was 72.30% versus 74.62% if market gains and losses were recognized immediately

GASB 67

- Four years since OCERS implemented GASB 67
- GASB 67 Valuation is prepared by Segal for reporting purposes only
  - Information is incorporated into the Notes (Note 8) and Required Supplementary Information sections of the CAFR
  - TPL is based on rolling forward the TPL from the 2016 valuation to the December 31, 2017 measurement date
  - TPL incorporates the newly adopted actuarial assumptions used in the 2017 funding valuation
- 2017 NPL decreased from $5.2 billion to $4.9 billion, primarily due to higher than expected returns
  - 2017 NPL is amount used in GASB 68 proportionate share calculation

Conclusion

Questions?

CAFR

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

Comprehensive Annual Financial Report

For the Year Ended December 31, 2017

Orange County, California

OCERS Members Serving the Public

Pieces of Public Health Services

Health Care Agency | Social Services Agency | Orange County In-Home Supportive Services Public Authority
Children & Families Commission of Orange County | Orange County Sanitation District

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

OCERS Members Serving the Public

Pieces of Public Health Services

Orange County Employees Retirement System

Comprehensive Annual Financial Report

For the Year Ended December 31, 2017

Prepared by: The Finance Division of the Orange County Employees Retirement System

Issued by: Steve Delaney, Chief Executive Officer
Brenda Shott, Assistant CEO of Finance and Internal Operations

Orange County Employees Retirement System
2223 East Wellington Avenue, Suite 100
Santa Ana, CA 92701-3161

714.558.6200

www.ocers.org

ORANGE COUNTY

OCERS

EMPLOYEES RETIREMENT SYSTEM

Mission

We provide secure retirement and disability benefits with the highest standards of excellence.

Vision

To be a trusted partner providing premier pension administration, distinguished by consistent, quality member experiences and prudent financial stewardship.

Values

O*pen and Transparent*

C*ommitment to Superior Service*

E*ngaged and Dedicated Workforce*

R*eliable and Accurate*

S*ecure and Sustainable*

Table of Contents

Section I

Introductory

Health Care Agency (HCA)

It is the mission of the Orange County Health Care Agency to protect and promote the health and safety of individuals and families in Orange County through assessment and planning, prevention and education, and treatment and care. The Agency provides many pieces of health services to the community, through public health clinics that promote family-focused preventative health care, nutrition services, and dental services; advising swimmers of the levels of bacteria in the ocean which rise after rain storms; closing affected ocean areas when needed due to sewage spills; notifying residents of a heat advisory on extreme heat days; providing locations for disposing of unused medical prescriptions; and performing food and restaurant inspections. These are just a few of the many services offered to our community by the 2,500 employees of HCA which include doctors, nurses, dentists, mental, environmental and public health workers, educators, administrative professionals and so much more.

Letter of Transmittal

Serving the Active and Retired Members of:

City of San Juan Capistrano

County of Orange

Orange County Cemetery District

Orange County Children & Families Commission

Orange County Department of Education (closed to new members)

Orange County Employees Retirement System

Orange County Fire Authority

Orange County In-Home Supportive Services Public Authority

Orange County Local Agency Formation Commission

Orange County Public Law Library

Orange County Sanitation District

Orange County Transportation Authority

Superior Court of California, County of Orange

Transportation Corridor Agencies

UCI Medical Center and Campus (closed to new members)

June 7, 2018

Board of Retirement
Orange County Employees Retirement System
2223 East Wellington Avenue, Suite 100
Santa Ana, CA 92701

Dear Board Members,

I am pleased to present the Comprehensive Annual Financial Report (CAFR) of the Orange County Employees Retirement System (OCERS or System) as of and for the year ended December 31, 2017. The information contained in this report is intended to provide a detailed overview of the System's financial and investment results for the year ended December 31, 2017. It also includes information from the current actuarial valuation as of December 31, 2016.

OCERS and its Services

Established in 1945, OCERS is a public retirement system that has provided service retirement, disability, death and survivor benefits to its members for 72 years, administered in accordance with the County Employees Retirement Law of 1937 (CERL).

Pursuant to certain provisions of CERL, OCERS is an independent governmental unit within the County of Orange, with a separate operating budget and professional staff. The California Constitution gives the Board of Retirement full authority over the administration of the System, which includes administering plan benefits for over 44,000 members, managing $15.9 billion in net assets, and serving 13 active agencies. A complete listing of both active and inactive agencies as of December 31, 2017, can be found on page 30, Section II of the CAFR, under Note 1: Plan Descriptions.

OCERS recognizes that prior to retiring from a career in public service, our members are dedicated to providing an array of services that benefit residents throughout Orange County. With many different services to choose from, this year's CAFR theme, "OCERS Members Serving the Public" focuses on agencies whose members provide various public health services within our community. We hope you enjoy reading and learning about the "Pieces of Public Health Services" that are highlighted in this year's CAFR.

Major Initiatives and Significant Events

Vision and Values

During 2017, after input from staff and in-depth discussions of what best represented the vision and values of the System to support its mission to provide secure retirement and disability benefits with the highest standards of excellence, the OCERS Board of Retirement adopted the following Vision Statement and Values:

Vision Statement

"To be a trusted partner providing premier pension administration, distinguished by consistent, quality member experiences and prudent financial stewardship."

Values

Open and Transparent
Commitment to Superior Service
Engaged and Dedicated Workforce
Reliable and Accurate
Secure and Sustainable

Technology Update

The security of OCERS' data and systems continues to be a top priority and we remain vigilant and focused on protecting our members' information and the systems which we rely upon for our daily operations. This includes monthly security awareness and phishing tests of employees that serve to train staff on how to identify dangerous emails. We also completed adding security enhancements to the Member Self-Service (MSS) portals, including automatic generation of a paper letter informing a member whenever a new MSS portal account has been created and the creation of a unique PIN number for each member, which is required whenever a member creates an MSS portal account. The Board also approved a newly created position, Director of Cybersecurity, to oversee OCERS' cybersecurity program with the hiring process expected to be completed sometime in 2018.

OCERS business continuity and disaster recovery (BC/DR) plan had notable developments during 2017, including the successful transition to a new, fully integrated cloud-based telephone system that provides BC/DR capabilities that were not present in the previous system; namely, the ability to use laptops and mobile devices as phones in lieu of a desk phone in case of an emergency. We also relocated OCERS' data center to a locally, professionally-managed facility and the establishment of a secondary site out of the state is near completion.

Workforce Analysis

OCERS retained the services of Management Partners to complete a workforce analysis that included a comprehensive review of OCERS' existing staffing model. This analysis involved an assessment of OCERS' organizational structure, staffing levels and employee classifications with the goals of clarifying and aligning staff responsibilities and recommending staffing changes to equip OCERS with the necessary resources to effectively serve our members now and in the future. Based on this analysis, OCERS has developed a staffing plan that includes the hiring of additional staff to accommodate increases in the volume of work across multiple departments, reduce the reliance on temporary staff and address employee turnover.

Key Staff Additions

After completing a competitive recruitment and selection process, OCERS named Molly Murphy as its new Chief Investment Officer (CIO). Ms. Murphy assumed her new position in June 2017 after previously serving in the private sector as CIO of Mercy Health based in Cincinnati, Ohio. OCERS also had an additional 13 new hires and 9 internal promotions in 2017.

Board Member Updates

Mr. David Ball and Mr. Chuck Packard were reconfirmed as appointed members by the Board of Supervisors for another 3-year term beginning January 1, 2017. The Board of Supervisors also appointed Mr. Shawn Dewane to replace outgoing appointed member Mr. Thomas Flanigan who served from October 2008 through February 2017.

Financial Information

OCERS' management is responsible for the complete and fair presentation of the financial information in accordance with generally accepted accounting principles (GAAP) in the United States. To the best of our knowledge, the enclosed data is accurate in all material respects and is reported in a manner designed to fairly present the financial position and operating results of OCERS.

The CAFR was prepared in accordance with GAAP and reporting guidelines set forth by the Governmental Accounting Standards Board (GASB) and CERL. GAAP requires that management provide a narrative introduction, overview, and analysis to accompany the basic financial statements in the form of management's discussion and analysis (MD&A). This letter of transmittal is designed to complement the MD&A and should be read in conjunction with it. OCERS' MD&A can be found immediately following the independent auditor's report.

OCERS' management is responsible for establishing a system of internal controls to safeguard assets and for the presentation of the accompanying basic financial statements. Oversight is provided by OCERS' Audit Committee, supported by internal auditing staff. Macias Gini & O Connell LLP (MGO) audited the accompanying basic financial statements and related disclosures. The financial audit provides reasonable assurance that OCERS' financial statements are presented in conformity with GAAP and are free from material misstatement. Internal controls are considered in assessing whether OCERS' operating policies and procedures are being adhered to and are sufficient to safeguard OCERS' assets. OCERS recognizes even sound internal controls have inherent limitations. OCERS' internal controls are designed to provide reasonable, but not absolute, assurance these objectives are met. The concept of reasonable assurance recognizes that the cost of a control should not exceed the benefits likely to be derived and that the valuation of costs and benefits requires estimates and judgment by management.

Investment Activities

The Board of Retirement (with the participation of the Investment Committee, staff and advisors) has exclusive control of all investments of the System and is responsible for the establishment of investment objectives, strategies and policies. OCERS' Investment Beliefs Statement helps guide decisions that impact OCERS' investment structure with the overall objective to invest the assets of the System solely for the benefit of its members while attempting to minimize employer contributions and investment and administration costs. In January 2017, the Board adopted a more simplified asset allocation policy, taking into consideration a risk framework with an objective to lower investment management fees.

OCERS also recently completed its search for illiquid investments advisory services, selecting TorreyCove Capital Partners for private equity and private real assets consulting services and Townsend Group for real estate consulting services. OCERS will be working with TorreyCove to begin building out a direct private equity program, which will save OCERS from paying the second layer of fund-of-funds fees. OCERS will also begin working with Townsend to develop a strategic plan for the real estate portfolio going forward.

For the year ended December 31, 2017, OCERS' investment portfolio returned 14.51%, net of fees. Over the three-year and five-year period ended December 31, 2017, OCERS' investment portfolio returns, net of investment management fees, were 7.47% and 7.58%, respectively.

Pension Actuarial Funding Status

OCERS maintains a funding goal to establish contributions that fully fund the System's liabilities, and that, as a percentage of payroll, remain as level as possible for each generation of active members. It also ensures that contributions are sufficient for each generation of active members to avoid an inter-generational burden on future employees' contributions. Actuarial valuations are performed annually with actuarial experience investigations conducted triennially in accordance with state statute. The use of realistic assumptions is important in maintaining the necessary funding while paying promised benefits. Each year the actual experience of the System is compared to our assumptions and the differences are studied to determine whether changes in the contribution requirements are necessary. In addition, triennially, the actuarial experience investigation is undertaken to review the actuarial assumptions and compare the actual experience during the preceding three year period with that expected under those assumptions. The latest experience investigation was completed during 2017 for plan years ending in 2014 through 2016. The Board adopted changes in several assumptions that will be incorporated into the 2017 actuarial valuation, including a change in the assumed rate of return from 7.25% to 7.00%.

As of the most current actuarial valuation for the year ended December 31, 2016, OCERS' funding status was 73.06% on a valuation basis, versus 70.58% on a market value basis, with an Unfunded Actuarial Accrued Liability (UAAL) of $4.83 billion. Average employer and employee contribution rates for the year ended December 31, 2016, were 37.77% and 12.45%, respectively.

Letter of Transmittal

(continued)

Budget

The Board of Retirement approves OCERS' annual budget. The 1937 Act limits OCERS' annual administrative expenses, excluding the costs of administration for computer software and hardware and computer technology consulting services (IT costs), to twenty-one hundredths of one percent (0.21%) of OCERS' actuarial accrued liability. OCERS' 2017 administrative expense of $15.3 million was .08% of OCERS' actuarial accrued liability.

Certificate of Achievement

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to OCERS for its CAFR for the year ended December 31, 2016. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized comprehensive annual financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current CAFR continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

OCERS was also the recipient of the Public Pension Coordinating Council (PPCC) Award in recognition of compliance with professional standards for plan design and administration for the year ended December 31, 2016. This is awarded to a retirement system that meets the professional standards for plan design and administration as set forth in the Public Pension Standards, including a Comprehensive Benefit Program, Funding Adequacy, Actuarial Valuation, Independent Audit, Investments, and Communications. A Public Pension Standards Award is valid for a period of one year.

Acknowledgements

I would like to take this opportunity to thank the members of the System for their continued confidence in OCERS during the past year. Also, I would like to express my thanks to the Board of Retirement for its dedicated effort in supporting the System throughout this past year. Finally, I would like to thank the staff and consultants for their commitment to OCERS and their diligent work to assure the System's continued success.

Respectfully submitted,

Steve Delaney
Chief Executive Officer

Members of the Board of Retirement

As of December 31, 2017

David Ball
Chair Person
Appointed by the Board of Supervisors

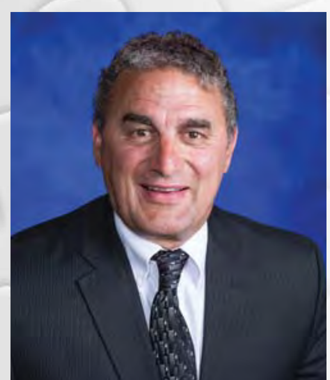
Chris Prevatt
Vice Chair Person
Elected by General Members

Russell Baldwin
Elected by General Members

Shawn Dewane
Appointed by the Board of Supervisors

Frank E. Eley
Elected by Retired Members

Shari L. Freidenrich
Treasurer-Tax Collector County of Orange



Eric W. Gilbert
Alternate Elected by Safety Members

Roger Hilton
Elected by Safety Members

Wayne Lindholm
Appointed by the Board of Supervisors

Charles E. Packard
Appointed by the Board of Supervisors

Organization of OCERS

Board of Retirement

The Board of Retirement is responsible for establishing policies governing the administration of the retirement plan, disability determinations, assuring benefit payments, establishing investment policy for the System and monitoring execution of its policies. The Board of Retirement consists of nine members and one alternate. Four members of the Board of Retirement are appointed by the Board of Supervisors of the County; four members are elected by active members of the System, including two by the general members, two by the safety members, of which one is the alternate member; one member is elected by the retirees; and the Treasurer of the County elected by registered voters in the County, serves as an Ex-Officio member.

Executive Department

This department consists of the Chief Executive Officer (CEO) who implements and executes policies promulgated by the Board of Retirement. Two Assistant CEOs, an Internal Auditor, a Chief Investment Officer and a General Counsel assist the CEO in the daily operations of the System.

Investment Department

This department is responsible for the administration and management of the investment program, in accordance with policies, regulations, and guidelines set forth by the Board of Retirement. It is responsible for the interface with investment managers, including monitoring investment performance objectives, adherence to investment guidelines, conducting due diligence visits to investment managers' sites, and interviewing prospective investment managers. This department is also responsible for the interface with outside investment consultants in reviewing and evaluating all investment managers' performance and investment manager fees. Refer to the Investment Section on pages 86 and 87 for the Schedules of Commissions and Investment Expenses.

External Operations Department

This department is comprised of the following divisions: Member Services and Communications.

The Member Services Division is responsible for providing all benefit services to the members of the System. This includes benefit calculations, preparation of data to support applications for retirement, preparation of the retiree payroll, processing transmittals, membership counseling, and retirement seminars. The Disability section of Member Services is responsible for reviewing claims and medical records; interviewing applicants and witnesses; preparing written reports of findings and recommendations; and making presentations to the Board of Retirement regarding the disposition of cases.

The Communications Division is responsible for developing and coordinating information for members and plan sponsors through publications, newsletters, seminars and publishing content to the website.

Internal Operations Department

This department is comprised of the following divisions: Finance, Information Technology, and Administrative Services.

The Finance Division is responsible for all of the financial records and reports of OCERS. This includes the preparation of the Comprehensive Annual Financial Report, monthly and quarterly financial statements and the annual operating budget. The Finance Division also maintains OCERS' system of internal controls; processes and accounts for retirement payroll and refunds of contributions and interest to members; collects and accounts for employers' and members' contributions; reconciles investment portfolios; and pays costs incurred for goods received and services rendered.

The Information Technology Division is responsible for OCERS' network systems, personal computers, website and databases, as well as providing programming and technical support to our Benefits Administration System. In addition, this division is responsible for overseeing cyber security, business continuity/disaster recovery and administering all audio/visual services.

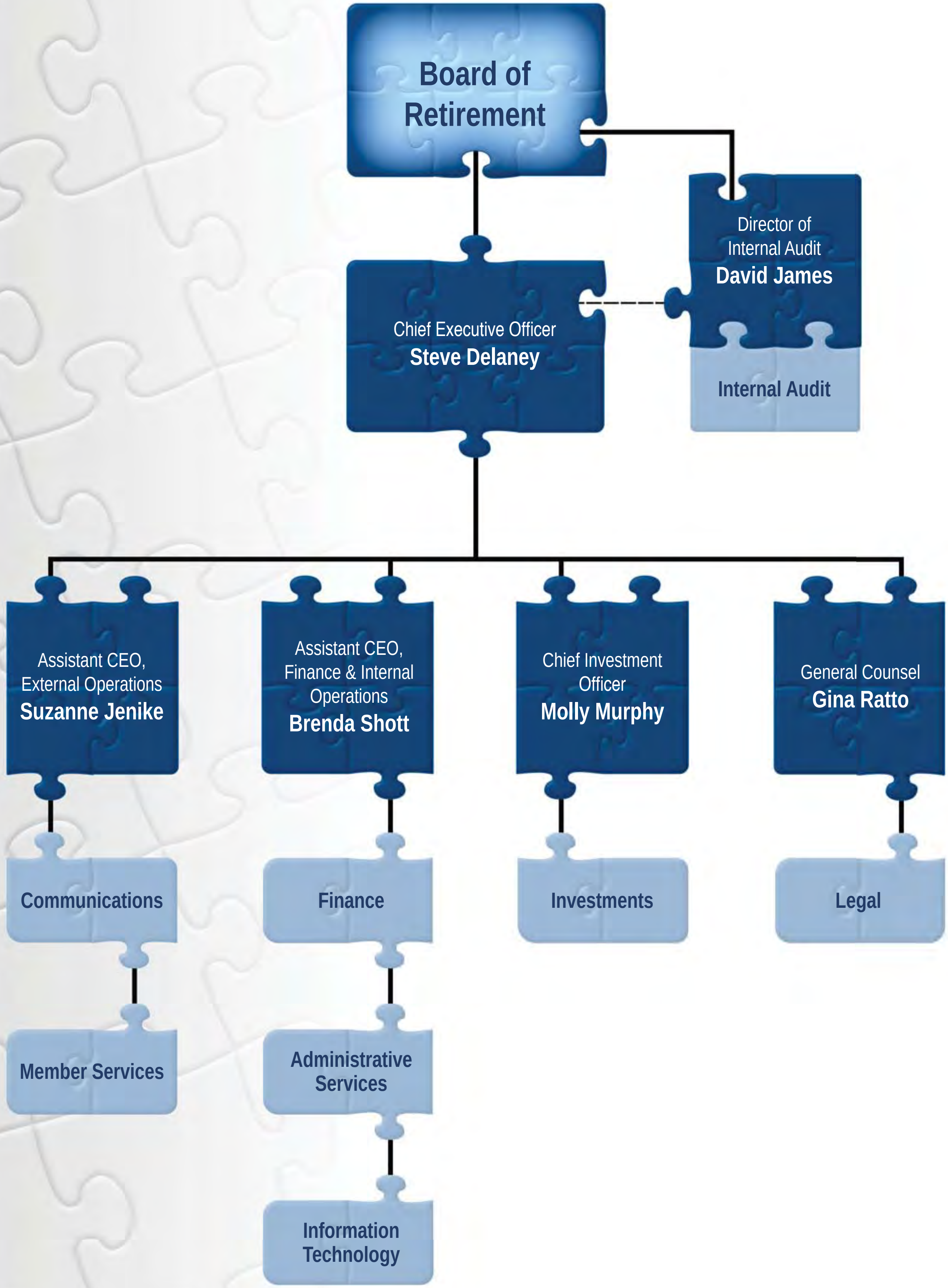
The Administrative Services Division is responsible for providing contract administration, risk management, purchasing, headquarters building administration, human resources and labor relations functions of OCERS.

Legal Department

This department provides legal advice and representation to the Board of Retirement and OCERS on a wide variety of issues. Among other things, this includes issues involving pension benefits, disability retirements, investments, legislation and vendor contracts.

Administrative Organization Chart

As of December 31, 2017



List of Professional Consultants

As of December 31, 2017

Actuary
The Segal Company

Investment Consultant
Meketa Investment Group

Risk Reporting & Portfolio Review Services
Pension Consulting Alliance

Operational Due Diligence Service Providers
Aksia, LLC
Laven Partners US LLC

Independent Auditor
Macias Gini & O'Connell LLP

Investment Counsel
Foley and Lardner, LLP

Fiduciary Counsel
Reed Smith, LLP

Tax Counsel
Hanson Bridgett, LLP

Custodian
State Street Bank and Trust Company

Note: List of Investment Managers is located on page 89 of the Investment Section of this report.

Certificate of Achievement for Excellence in Financial Reporting

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Public Pension Standards Award for Funding and Administration

PPCC

Public Pension Coordinating Council

Public Pension Standards Award
For Funding and Administration
2017

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Orange County Employees Retirement System

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Section II
Financial

Social Services Agency (SSA)

The Orange County Social Services Agency administers Federal, State, and County social services programs to provide services that impact the health, safety and well-being of children, adults with disabilities, seniors and families within our community. Children and family services include adoption and foster care services; prevention and intervention services to remedy conditions that may result in abuse and neglect; food and health services, such as Medi-Cal and CalFresh; and CalWORKs, which provides cash assistance to families with children, as well as job services and training. Other services administered by SSA include a wide range of senior services including needs assessments; assistance with locating in-home health services; and providing adult protective services to prevent or remedy neglect or abuse for those in need.

ORANGE COUNTY

OCERS

EMPLOYEES RETIREMENT SYSTEM

mgo Certified Public Accountants

Independent Auditor's Report

To the Board of Retirement of the
Orange County Employees Retirement System
Santa Ana, California

Report on the Financial Statements

We have audited the accompanying financial statements of the Orange County Employees Retirement System (the System), California, as of and for the year ended December 31, 2017, and the related notes to the financial statements, which collectively comprise the System's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the Orange County Employees Retirement System as of December 31, 2017, and the changes in its fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matter

As discussed in Note 8 to the basic financial statements, based on the actuarial valuation of the pension plan's total pension liability as of December 31, 2016, rolled forward to December 31, 2017, the total pension liability of participating employers exceeded the pension plan's fiduciary net position by $5.0 billion. The actuarial valuation is very sensitive to the underlying assumptions, including a discount rate of 7.0 percent, which represents the long-term expected rate of return on investments.

Our opinion is not modified with respect to this matter.

Other Matters

Prior-Year Comparative Information

The financial statements include partial prior-year comparative information. Such information does not include all of the information required to constitute a presentation in conformity with accounting principles generally accepted in the United States of America. Accordingly, such information should be read in conjunction with the System's financial statements for the year ended December 31, 2016, from which such partial information was derived.

We have previously audited the System's 2016 financial statements, and we expressed an unmodified opinion on the financial statements in our report dated June 1, 2017. In our opinion, the partial comparative information presented herein as of and for the year ended December 31, 2016, is consistent, in all material respects, with the audited financial statements from which it has been derived.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, the Schedule of Changes in Net Pension Liability of Participating Employers, Schedule of Investment Returns, Schedule of Employer Contributions, and Notes to the Required Supplementary Information, as listed in the table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming an opinion on the System's basic financial statements. The other supplementary information, introductory, investment, actuarial, and statistical sections are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The other supplementary information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the other supplemental information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

The introductory, investment, actuarial, and statistical sections have not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on them.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated June 7, 2018, on our consideration of the System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the System's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the System's internal control over financial reporting and compliance.

Macias Gini & O'Connell LLP

Newport Beach, California
June 7, 2018

Management's Discussion and Analysis

The Management's Discussion and Analysis (MD&A) of the Orange County Employees Retirement System (OCERS or System) presents the financial performance and provides a summary of OCERS' financial position and activities as of and for the year ended December 31, 2017. The narrative overview and analysis is presented in conjunction with the Chief Executive Officer's Letter of Transmittal, included in Section I – Introductory to this Comprehensive Annual Financial Report. The MD&A should be read in conjunction with OCERS' Basic Financial Statements as presented in this report. Amounts in this section have been grouped together to facilitate readability.

OCERS administers the OCERS pension plan—a cost-sharing multiple-employer defined benefit pension plan (the Plan) as well as acts as a trustee and custodian for retirement health benefit plan funds that are sponsored by participating employers. OCERS' financial information is comprised of four fiduciary funds: a defined benefit pension trust fund, two other post-employment benefit (OPEB) trust funds for retiree medical plans and an agency fund.

Financial Highlights

- The net position restricted for pension and other post-employment benefits as of December 31, 2017, totaled $15.1 billion, an increase of $2.1 billion or 15.7% from the prior year. This was primarily due to positive returns on investments and contributions continuing to exceed total deductions.
- Total additions to fiduciary net position increased 47.4% from $2.0 billion in 2016 to $2.9 billion in 2017.
  - Net investment income increased significantly from a net investment income of $1.1 billion in 2016 to a net investment income of nearly $2.0 billion in 2017. The net year-to-date rate of return on investments on a fair value basis was approximately 14.51% in 2017 versus a net return of 8.52% in 2016.
  - Contributions received from employers and employees totaled $896.6 million in 2017, an increase of 3.0% compared to 2016 contributions received of $870.3 million.
- Total deductions from fiduciary net position increased $47.8 million from $769.6 million in 2016 to $817.4 million in 2017.
  - Member pension benefit payments increased by $45.8 million or 6.5% in 2017 from $704.0 million to $749.8 million.
  - The number of retired members and beneficiaries receiving a benefit payment increased 3.5% from 16,369 payees at the end of 2016 to 16,947 payees as of December 31, 2017.
  - The average annual benefit paid to retired members and beneficiaries during 2017 was $44,243, an increase of 2.9% over the average annual benefit payment of $43,005 in 2016.
- The net pension liability of participating employers as calculated in the December 31, 2017, Governmental Accounting Standards Board (GASB) Statement No. 67 Actuarial Valuation used for financial reporting purposes is nearly $5.0 billion, which as a percentage of covered payroll is 295.06%. The plan fiduciary net position of the pension trust fund of $14.8 billion as a percentage of the total pension liability of $19.8 billion is 74.93%.
- Based upon the most recent actuarial funding valuation dated as of December 31, 2016, the funding status for the pension plan, as measured by the ratio of the actuarial value of assets (which smooths market gains and losses over five years) to the actuarial value of accrued liabilities was 73.06% versus 70.58% if market gains and losses were recognized immediately.

Overview of the Financial Statements

The following discussion and analysis serve as an introduction and overview of the OCERS' Basic Financial Statements. The Basic Financial Statements and required disclosures are prepared in accordance with accounting principles and reporting guidelines as set forth by the Governmental Accounting Standards Board (GASB). These pronouncements require OCERS to make certain disclosures and to report using the full accrual method of accounting.

Management's Discussion and Analysis

(continued)

OCERS' Basic Financial Statements are comprised of the following:

Statement of Fiduciary Net Position

The Statement of Fiduciary Net Position presents the major categories of assets and liabilities and their related value as of year-end. The difference between assets and liabilities is reported as "Net Position Restricted for Pension and Other Post-Employment Benefits," representing funds available to pay future benefits to plan participants. The Statement of Fiduciary Net Position includes prior year-end total balances for comparative purposes. Increases and decreases in Net Position Restricted for Pension and Other Post-Employment Benefits, when analyzed over time, may serve as an indicator of whether OCERS' financial position is improving or deteriorating. Other factors, such as market conditions, should also be considered when measuring the overall financial health of the System.

The County of Orange (the County) and Orange County Fire Authority (OCFA) participate in irrevocable post-employment health care plan trusts (retiree medical plans) that are reported as other post-employment benefit trust funds in the Statement of Fiduciary Net Position as separate health care funds. OCERS serves as trustee for these trusts. Assets are commingled with pension trust assets for investment purposes and are used exclusively to pay health allowances. The County and OCFA have taken financial reporting responsibility of the retiree medical plans, including financial statement disclosures and required supplementary information regarding the retiree medical plans funded status and contributions, in accordance with GASB Statement No. 74, *Financial Reporting for Postemployment Benefits Plans Other than Pension Plans*.

The Orange County Transportation Authority has revocable trust assets held by OCERS in an investment capacity and are not commingled with those of the pension plan and health care plan trusts. The assets and offsetting liabilities are reported in the Statement of Fiduciary Net Position as an agency fund.

Statement of Changes in Fiduciary Net Position

The Statement of Changes in Fiduciary Net Position provides information about the financial activities during the reporting period that increased and decreased Net Position Restricted for Pension and Other Post-Employment Benefits. The trend of additions versus deductions to the Plan indicates the strength of OCERS' financial position over time. For comparative purposes, prior year-end total balances are also provided.

To distinguish the activities of the health care plan trusts from the pension plan, the health care plan trusts are also reported separately in the Statement of Changes in Fiduciary Net Position as health care funds.

Notes to the Basic Financial Statements

The Notes to the Basic Financial Statements are an integral part of the basic financial statements and provide additional information that is essential to acquire a full understanding of the information provided in the two statements discussed above. The notes include further discussion and details regarding OCERS' key policies, programs, investments and activities that occurred during the year.

Required Supplementary Information

The Required Supplementary Information (RSI) presents historical trend information related to the pension plan (the County and OCFA maintain the financial reporting responsibility of their respective retiree medical plans, so it is not included in OCERS' RSI schedules) reported in the Basic Financial Statements. The pension plan includes a schedule of changes in net pension liability, a schedule of money-weighted investment returns, a schedule of employer contributions and other required supplementary information as required by GASB Statement No. 67, *Financial Reporting for Pension Plans – an Amendment of GASB Statement No. 25*. The information contained in the pension plan schedules is based on the actuarial valuation prepared for the pension plan and includes additional actuarial information that contributes to the understanding of the changes in the net pension liability of participating employers in the pension plan as presented in the schedules. The actuarial information is based upon assumptions made regarding future events at the time the valuation was performed. Therefore, the amounts presented in the schedules are management's estimates. A summary of factors that affected the trends of the actuarial information is included in this section as well.

Other Supplementary Information

The Other Supplementary Information includes schedules pertaining to contributions by plan sponsors and members, OCERS' administrative expenses, investment expenses, professional services and a statement of changes in assets and liabilities for the OPEB agency fund.

Financial Analysis

Tables 1 and 2 compare and summarize OCERS' financial activity for the current and prior years.

Table 1 : Fiduciary Net Position

As of December 31, 2017 and 2016
(Dollars in Thousands)

	12/31/2017	12/31/2016	Increase / (Decrease)	Percentage Change
Assets				
Cash and Cash Equivalents	$ 498,112	$ 466,328	$ 31,784	6.8%
Securities Lending Collateral	194,196	168,896	25,300	15.0%
Receivables	393,499	180,475	213,024	118.0%
Investments at Fair Value	14,770,714	12,891,389	1,879,325	14.6%
Capital Assets, Net	20,670	22,620	(1,950)	-8.6%
Total Assets	**15,877,191**	**13,729,708**	**2,147,483**	**15.6%**
Liabilites				
Obligations Under Securities Lending Program	194,196	168,896	25,300	15.0%
Securities Purchased	198,610	161,150	37,460	23.2%
Other	348,436	321,811	26,625	8.3%
Total Liabilities	**741,242**	**651,857**	**89,385**	**13.7%**
Net Position Restricted for Pension and Other Post-Employment Benefits	**$ 15,135,949**	**$ 13,077,851**	**$ 2,058,098**	**15.7%**

As of December 31, 2017, OCERS has a net position of $15.1 billion restricted for pension and other post-employment benefits. Net position increased $2.1 billion, an increase of 15.7% over 2016. The increase in net position includes an increase in total assets of $2.1 billion and an increase in total liabilities of $89.4 million.

The increase in total assets is primarily attributed to an increase in fair value of investments, with additional increases in cash and cash equivalents, the security lending program and receivables at year end. The increase in total assets is slightly offset by a decrease in capital assets. Investments at fair value increased $1.9 billion primarily due to greater returns in 2017. Investments experienced strong returns in global public equity, private equity, and credit, of 26.3%, 14.1% and 9.1%, respectively. All investment categories experienced positive returns in 2017. Cash and cash equivalents increased $31.8 million due to timing of contributions and other receipts near year-end. Securities lending collateral increased $25.3 million due to an increase in lending activity at year-end in the securities lending program. Receivables increased $213.0 million from the prior year due to the timing of investments for unsettled trades, and other receivables related to year-end investment redemptions.

The increase in total liabilities of $89.4 million includes an increase in unsettled security purchases of $37.5 million, as well as an increase in the obligations under the securities lending program of $25.3 million, which is directly related to the increase in securities lending collateral as previously discussed. All other liabilities increased by $26.6 million and the majority of this increase, $22.0 million, represents an increase in unearned contributions due to larger prepaid employer contributions received for the 2017-2018 prepayment program compared to prior year's prepayment program. Also included in other liabilities are foreign currency forward contracts, retiree payroll payables and miscellaneous other liabilities.

Table 2 : Changes in Fiduciary Net Position

For the Years Ended December 31, 2017 and 2016
(Dollars in Thousands)

	12/31/2017	12/31/2016	Increase / (Decrease)	Percentage Change
Additions				
Employer Pension Contributions	$ 572,104	$ 567,196	$ 4,908	0.9%
Employer Health Care Contributions	62,244	44,825	17,419	38.9%
Employee Pension Contributions	262,294	258,297	3,997	1.5%
Net Investment Income/(Loss)	1,978,871	1,081,014	897,857	83.1%
Total Additions	**2,875,513**	**1,951,332**	**924,181**	**47.4%**
Deductions				
Participant Benefits - Pension	749,784	703,949	45,835	6.5%
Participant Benefits - Health Care	36,020	34,685	1,335	3.8%
Death Benefits	694	384	310	80.7%
Member Withdrawals and Refunds	13,866	13,643	223	1.6%
Administrative Expenses - Pension	17,002	16,870	132	0.8%
Administrative Expenses - Health Care	49	44	5	11.4%
Total Deductions	**817,415**	**769,575**	**47,840**	**6.2%**
Increase in Net Position Restricted for Pension and Other Post-Employment Benefits	2,058,098	1,181,757	876,341	74.2%
Net Position Restricted for Pension and Other Post-Employment Benefits				
Beginning of the Year	13,077,851	11,896,094		
End of the Year	**$ 15,135,949**	**$ 13,077,851**		

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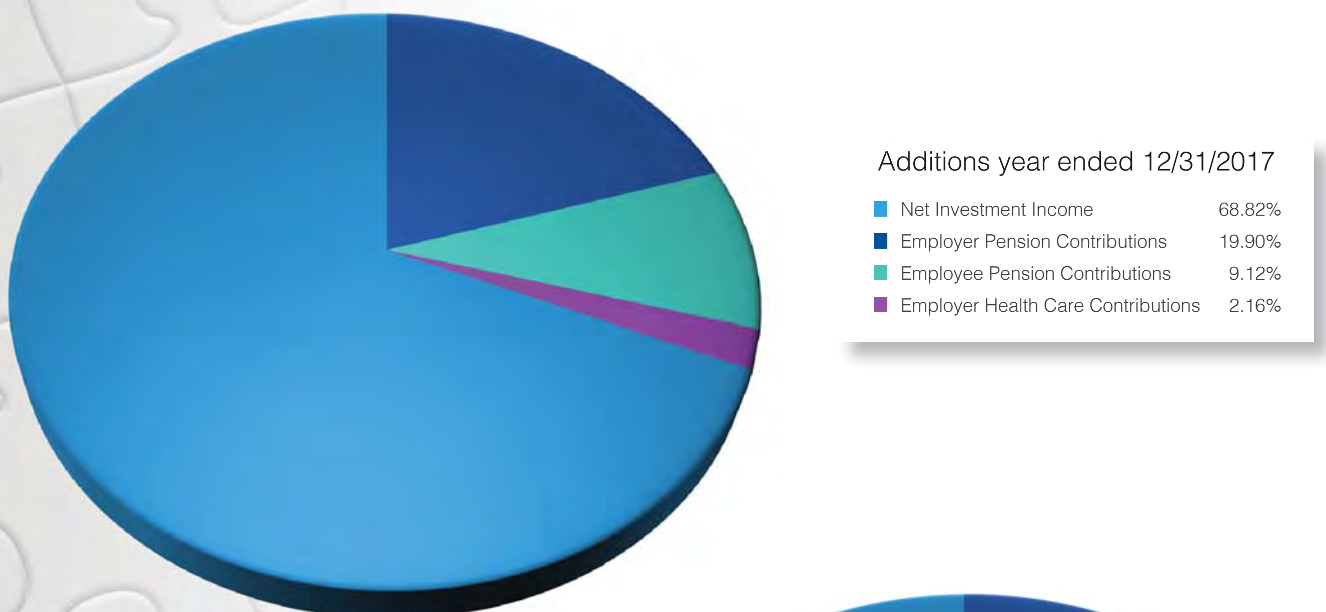
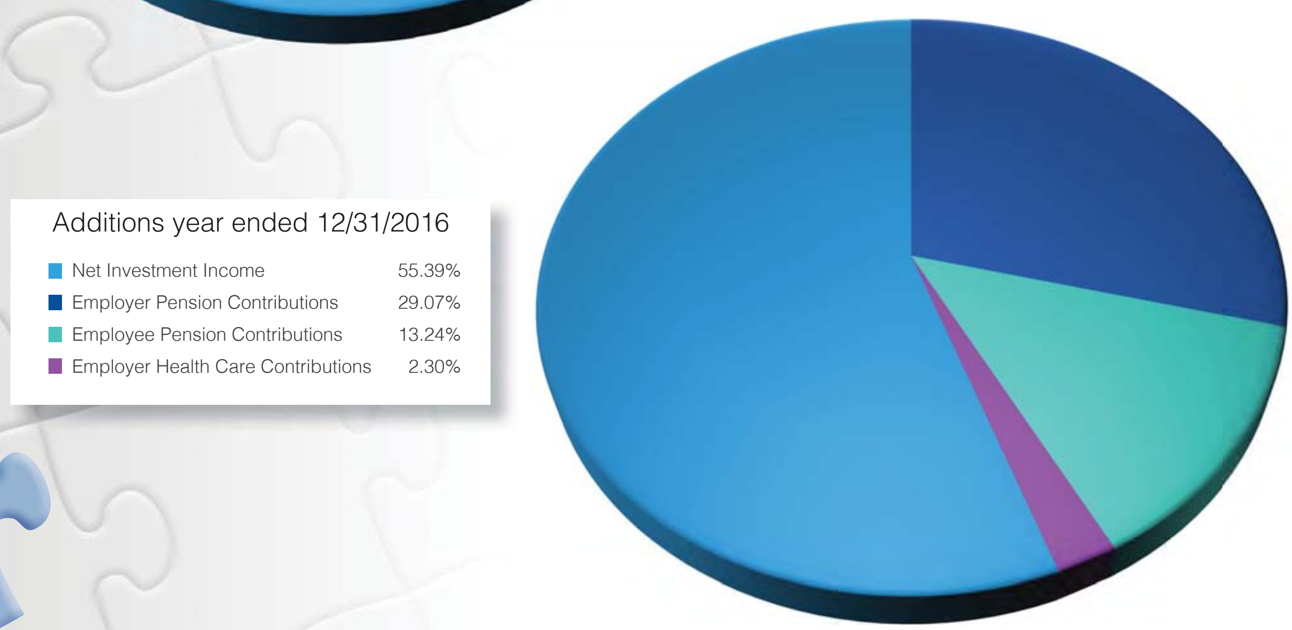
Management's Discussion and Analysis

(continued)

Additions to Fiduciary Net Position

The primary funding sources of pension benefits are the collection of participating employer and member contributions and earnings on investments, net of investment expenses. Additions to fiduciary net position increased 47.4% in 2017. Total additions for the year ended December 31, 2017, were $2.9 billion compared to $2.0 billion for the same period in 2016. The increase is comprised of an increase in total contributions of $26.3 million and an increase in investment income of $0.9 billion. Total employer and employee contributions continue to rise due to increases in the average employer and employee contribution rates and increases in employee salaries. The increase in investment income is attributed to higher appreciation in the fair value of investments and greater returns on the underlying investments. Overall market performance as of December 31, 2017, improved significantly over December 31, 2016, as all of the investment categories experienced positive returns, with the global public equity category experiencing the largest return at 26.28%. Overall net investment returns for the year ended December 31, 2017, were 14.51% compared to the prior year's return of 8.52%.





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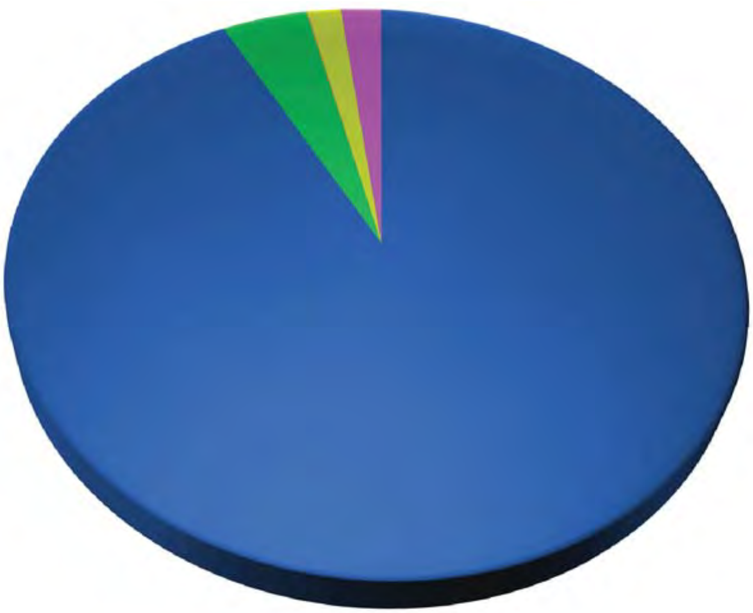
Deductions from Fiduciary Net Position

The costs associated with the System include payments of benefits to members and their beneficiaries, refunds of contributions to terminated members and the costs of administering the plan. Deductions from fiduciary net position increased $47.8 million or 6.2% compared to the prior year, primarily due to the continued and anticipated growth in member pension benefit payments, both in the total number of OCERS' retired members receiving a pension benefit and the average benefit received. Participant benefit payments for pension and health have increased by $45.8 million and $1.3 million, respectively. Total benefit recipients increased by 578, from 16,369 to 16,947. The average annual pension benefit increased from $43,005 to $44,243.

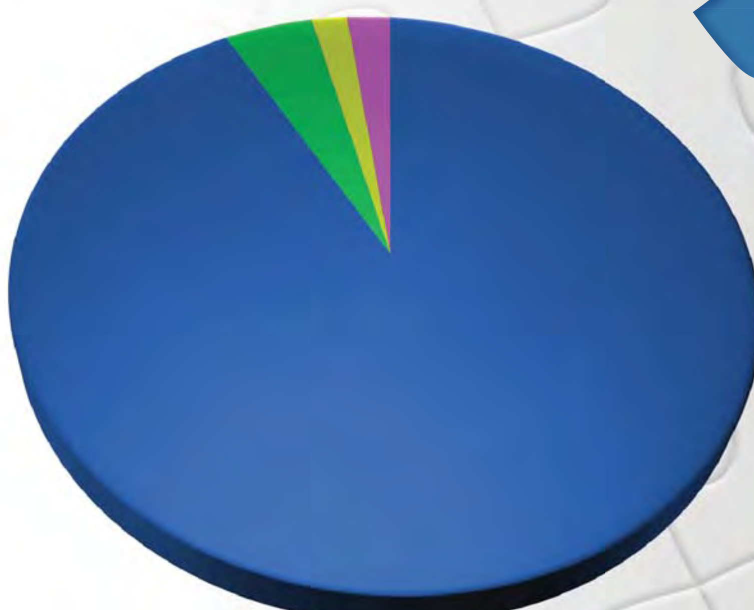


Deductions year ended 12/31/2017

Participant Benefits - Pension	91.73%
Participant Benefits - Health Care	4.41%
Death Benefits	0.08%
Member Withdrawals and Refunds	1.70%
Administrative Expenses - Pension	2.07%
Administrative Expenses - Health Care	0.01%

Deductions year ended 12/31/2016

Participant Benefits - Pension	91.47%
Participant Benefits - Health Care	4.51%
Death Benefits	0.05%
Member Withdrawals and Refunds	1.77%
Administrative Expenses - Pension	2.19%
Administrative Expenses - Health Care	0.01%



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OCERS Membership

The table below provides comparative OCERS' membership data for the last two years.

Table 3 : Membership Data

As of December 31, 2017 and 2016

	12/31/2017	12/31/2016	Increase/ (Decrease)	Percentage Change
Active Members	21,721	21,746	(25)	-0.1%
Retired Members	16,947	16,369	578	3.5%
Deferred Members	5,803	5,370	433	8.1%
Total Membership	**44,471**	**43,485**	**986**	**2.3%**

Total OCERS' membership increased during 2017 with a net increase of 986 members. The number of active members decreased by 25 or -0.1% and the number of retirees increased by 578 or 3.5%, suggesting that members are leaving their employment for retirement or other opportunities at a higher rate than plan sponsors are hiring employees.

Actuarial Valuations

In order to determine whether Net Position Restricted for Pension Benefits will be sufficient to meet future obligations, a calculation of the actuarial funded status is required. An actuarial valuation includes an appraisal of both the assets available to pay future benefits and the liabilities of the System, which represent the actuarial present value of all future benefits expected to be paid for each member. The purpose of the valuation is to determine the amount of future contributions by the employees (members) and employers (plan sponsors), which will be required to pay all expected future benefits. OCERS utilizes an independent actuarial firm, The Segal Company (Segal), to prepare an annual valuation. The most recent Annual Actuarial Valuation as of December 31, 2016 is included in the Actuarial Section of this report, and contains a detailed discussion of the funding requirements. This valuation is used for funding purposes and establishing employer and employee contribution rates. For the year ended December 31, 2017, Segal prepared a Governmental Accounting Standards Board (GASB) Statement No. 67 Actuarial Valuation as of December 31, 2017, used for financial reporting purposes.

In order to prepare the valuations, the actuary must use several assumptions with regards to OCERS' members such as their life expectancy, projected salary increases over time, and the age at which members will retire. The actuary must also utilize assumptions with regards to how the assets will perform over time. A key assumption in this regard is the expected rate of return, which has remained at 7.25%, since the December 31, 2012 valuation. All assumptions used by the actuary are reviewed and adjusted, as required, on a triennial basis and adopted by the Board of Retirement. The most recent triennial study was adopted by the Board on October 16, 2017, for the three-year experience period ending December 31, 2016. Based on this triennial study, the following assumptions changes will be incorporated into the December 31, 2017 valuation: decrease to the expected rate of return from 7.25% to 7.00%; inflation lowered from 3.00% to 2.75%; active member payroll increases lowered from 3.50% to 3.25%; and projected salary increases for general members lowered from a range of 4.25% to 13.50% to a range of 4.25% to 12.25% and for safety members, the range was changed from 5.00% to 17.50% to 4.75% to 17.25%. In addition, mortality rates will be adjusted for after service retirement to reflect a generational approach for anticipating future mortality improvement, and the assumption remains that all general pre-retirement deaths and 90% of safety pre-retirement deaths are assumed to be non-service connected deaths.

The GASB 67 valuation provides the calculation of the employers' pension liability. In order to accommodate the annual reporting requirements of our plan sponsors in a timely manner, the valuation was prepared using the December 31, 2016 valuation as the basis for calculating the total pension liability (TPL) using the actuarial assumptions that the Board of Retirement adopted for the three-year experience study for the period ending December 31, 2016 and rolled forward to December 31, 2017. Based on this actuarial valuation, the TPL was $19.8 billion compared to a fiduciary net position of $14.8 billion, resulting in the employers' net pension liability (NPL) of nearly $5.0 billion and a fiduciary net position as a percentage of the TPL of 74.93%. The NPL as a percentage of covered payroll was 295.06%.

In the actuarial funding valuation for the pension plan as of December 31, 2016, the funding ratio of the valuation value of assets to actuarial accrued liabilities was 73.06%. The calculation of funding status takes into account OCERS' policy to smooth the impact of market volatility by spreading each year's gains or losses over five years. Using the market value of assets as of the valuation date, the funded status of OCERS' pension plan was 70.58% in 2016.

Investment and Economic Summary

The United States economy continued to strengthen throughout 2017. The labor market has continued to strengthen and economic activity has been rising at a solid rate. Gains in employment have reduced the unemployment rate from 4.7% at the end of 2016 to 4.1% at the end of 2017. The all items consumer price index increased by 2.1 percentage points, but overall inflation and inflation for items other than food and energy have continued to run below the targeted objective of 2%. The United States financial markets, the S&P, Nasdaq and Dow, all posted their best year since 2013. For the year, the S&P gained 19.4%, the Nasdaq rose 28.2% and the Dow added 25.1%. The Federal Open Market Committee (FOMC) raised the target for the federal funds rate by ¼ percentage point in March, June and December bringing the target to a range of 1¼ to 1½% as of December 2017 versus ½ to ¾% as of December 2016. As the United States unemployment rate continues to be at the lowest year-end rate since 2007, wage growth has increased 2.6% for the year ended December 2017. In addition to gains in employment, consumer spending and business fixed investment have shown solid economic improvement.

OCERS experienced a strong net investment return for 2017 at 14.51% after investment management fees, exceeding the actuarial assumed rate of return and outperforming the policy benchmark. As of December 31, 2017, the three-year and five-year returns after investment management fees were 7.47% and 7.58%, respectively. Regardless of fluctuations and uncertainty in the financial markets, OCERS continues to preserve a sound financial position to meet the obligations of the Plan participants and their beneficiaries. OCERS adopted a new asset allocation policy in 2017 with the goal of simplifying the investment portfolio and lowering investment management fees to better position the portfolio for the future. Major changes from the prior asset allocation include the divesting from the absolute return asset classification, which included direct hedge funds; creating a new asset class, risk mitigation; decreasing investment in diversified credit and emerging market debt; and increasing investment in the core fixed income, private equity and real asset investment classes.

Request for Financial Information

This Comprehensive Annual Financial Report is designed to provide the Board of Retirement, plan members, participating employers, taxpayers, investment managers and other interested parties with a general overview of OCERS' financial condition and to demonstrate OCERS' accountability for the funds under its stewardship.

Please address any questions about this report or requests for additional information to:

Orange County Employees Retirement System
2223 East Wellington Avenue, Suite 100
Santa Ana, CA 92701

Section II

Financial

Basic Financial Statements

Statement of Fiduciary Net Position

As of December 31, 2017
(with summarized comparative amounts as of December 31, 2016)
(Dollars in Thousands)

	Pension Trust Fund	Health Care Fund-County	Health Care Fund-OCFA	OPEB 115 Agency Fund	Total Funds	Comparative Totals 2016
Assets						
Cash and Short-Term Investments						
Cash and Cash Equivalents	$ 486,846	$ 9,576	$ 1,312	$ 378	$ 498,112	$ 466,328
Securities Lending Collateral	189,948	3,736	512	-	194,196	168,896
Total Cash and Short-Term Investments	676,794	13,312	1,824	378	692,308	635,224
Receivables						
Investment Income	13,727	270	37	-	14,034	16,210
Securities Sales	150,619	2,963	406	-	153,988	87,036
Contributions	21,361	-	-	-	21,361	19,206
Foreign Currency Forward Contracts	70	1	-	-	71	839
Other Receivables	199,581	3,926	538	-	204,045	57,184
Total Receivables	385,358	7,160	981	-	393,499	180,475
Investments at Fair Value						
Global Public Equity	5,989,530	117,816	16,135	10,625	6,134,106	4,996,519
Private Equity	1,315,803	25,882	3,545	-	1,345,230	1,095,351
Core Fixed Income	2,011,101	39,559	5,418	5,632	2,061,710	931,660
Credit	1,967,752	38,706	5,301	-	2,011,759	2,441,810
Real Assets	2,417,747	47,558	6,513	-	2,471,818	2,262,968
Risk Mitigation	727,422	14,309	1,960	-	743,691	356,345
Absolute Return	2,348	46	6	-	2,400	806,736
Total Investments at Fair Value	14,431,703	283,876	38,878	16,257	14,770,714	12,891,389
Capital Assets, Net	20,670	-	-	-	20,670	22,620
Total Assets	**15,514,525**	**304,348**	**41,683**	**16,635**	**15,877,191**	**13,729,708**
Liabilities						
Obligations Under Securities Lending Program	189,948	3,736	512	-	194,196	168,896
Securities Purchased	194,266	3,821	523	-	198,610	161,150
Unearned Contributions	244,552	-	-	-	244,552	222,524
Foreign Currency Forward Contracts	390	8	1	-	399	914
Retiree Payroll Payable	63,318	2,663	263	-	66,244	62,406
Other	20,156	396	54	-	20,606	21,273
Due to Employers	-	-	-	16,635	16,635	14,694
Total Liabilities	**712,630**	**10,624**	**1,353**	**16,635**	**741,242**	**651,857**
Net Position Restricted for Pension and Other Post-Employment Benefits	$ 14,801,895	$ 293,724	$ 40,330	$ -	$ 15,135,949	$ 13,077,851

The accompanying notes are an integral part of these financial statements.

Statement of Changes in Fiduciary Net Position

For the Year Ended December 31, 2017
(with summarized comparative amounts for the Year Ended December 31, 2016)
(Dollars in Thousands)

	Pension Trust Fund	Health Care Fund - County	Health Care Fund- OCFA	Total Funds	Comparative Totals 2016
Additions					
Contributions					
Employer	$ 572,104	$ 59,864	$ 2,380	$ 634,348	$ 612,021
Employee	262,294	-	-	262,294	258,297
Total Contributions	834,398	59,864	2,380	896,642	870,318
Investment Income					
Net Appreciation in Fair Value of Investments	1,808,500	31,545	4,769	1,844,814	938,390
Dividends, Interest, and Other Investment Income	208,901	4,100	555	213,556	223,890
Securities Lending Income					
Gross Earnings	3,498	69	9	3,576	1,895
Less: Borrower Rebates and Bank Charges	(1,888)	(37)	(5)	(1,930)	(668)
Net Securities Lending Income	1,610	32	4	1,646	1,227
Total Investment Income	2,019,011	35,677	5,328	2,060,016	1,163,507
Investment Fees and Expenses	(79,376)	(1,558)	(211)	(81,145)	(82,493)
Net Investment Income	1,939,635	34,119	5,117	1,978,871	1,081,014
Total Additions	**2,774,033**	**93,983**	**7,497**	**2,875,513**	**1,951,332**
Deductions					
Participant Benefits	749,784	32,042	3,978	785,804	738,634
Death Benefits	694	-	-	694	384
Member Withdrawals and Refunds	13,866	-	-	13,866	13,643
Administrative Expenses	17,002	22	27	17,051	16,914
Total Deductions	**781,346**	**32,064**	**4,005**	**817,415**	**769,575**
Net Increase	1,992,687	61,919	3,492	2,058,098	1,181,757
Net Position Restricted For Pension and Other Post-Employment Benefits, Beginning of Year	12,809,208	231,805	36,838	13,077,851	11,896,094
Ending Net Position Restricted For Pension and Other Post-Employment Benefits	**$ 14,801,895**	**$ 293,724**	**$ 40,330**	**$ 15,135,949**	**$ 13,077,851**

The accompanying notes are an integral part of these financial statements.

Notes to the Basic Financial Statements

NOTE 1 : Plan Descriptions

The Orange County Employees Retirement System (OCERS or System) was established in 1945 under the provisions of the County Employees Retirement Law of 1937 (CERL). OCERS is governed by a ten-member Board of Retirement, nine voting members and one alternate member. Board membership consists of four members appointed by the County of Orange Board of Supervisors, five members elected by the members of the System, including an alternate, two by the general members, one by the safety members, and one by the retired members. Safety members elect the alternate member. The County of Orange Treasurer Tax-Collector, elected by the voters registered in the County, serves as an Ex-Officio member.

OCERS operates as a cost-sharing multiple-employer defined benefit pension plan for the County of Orange, Orange County Superior Court of California, City of San Juan Capistrano, and ten special districts: Orange County Cemetery District, Children and Families Commission of Orange County, Orange County Employees Retirement System, Orange County Fire Authority, Orange County In-Home Supportive Services Public Authority, Orange County Local Agency Formation Commission (LAFCO), Orange County Public Law Library, Orange County Sanitation District, Orange County Transportation Authority and Transportation Corridor Agencies. Capistrano Beach, Cypress Recreation & Parks District, Orange County Mosquito and Vector Control, City of Rancho Santa Margarita, the Orange County Department of Education and the University of California, Irvine Medical Center and Campus are no longer active plan sponsors, but retired members and their beneficiaries, as well as deferred members, remain in the System. OCERS is legally and fiscally independent of the County of Orange.

Pension Plan Membership

OCERS provides retirement, disability and death benefits to general and safety members. Safety membership includes those members serving in active law enforcement, fire suppression and as probation officers. General membership applies to all other occupations. Plan retirement benefits are tiered based upon date of OCERS membership. Tier 1 members were hired prior to September 21, 1979 and use their highest one-year average salary to determine their retirement allowance while Tier II members were hired on or after September 21, 1979 and use their highest three-year average salary to determine their retirement allowance. Member rate groups are determined by employer, bargaining unit, and benefit plan (a description of the benefit plans can be found under Member Retirement Benefits). The benefit plan represents the benefit formula and tier that will be used in calculating a retirement benefit. All regular employees scheduled to work 20 hours or more per week become members of the plan upon commencing employment with one of OCERS' plan sponsors, with the exception of a provision adopted in 2014 that allows new members over the age of 60 to opt out of the plan if their employer has implemented the provision. Active members are categorized as vested in the table below upon accumulating five years of accredited service or attaining the age of 70. Additional information regarding the pension plan's benefit structure is included in the Summary Plan Description that is available on the web at **www.ocers.org/member_active/spd.htm**.

The following table is a summary of OCERS' general and safety membership as of December 31, 2017, consisting of active members, retired members or their beneficiaries, and deferred members who have terminated, but are not yet receiving benefits (further information regarding benefit eligibility for deferred members is described under the Deferred Members Benefits section):

Notes to the Basic Financial Statements

NOTE 1 : Plan Descriptions (continued)

OCERS Membership (General Members)

As of December 31, 2017

	Rate Group	Benefit Plan	Tier	Active Vested	Active Non-Vested	Retired Members & Beneficiaries	Deferred Members	Total
	1	A	I	2	-	374	1	377
	1	B	II	805	21	386	294	1,506
	1	U	II-PEPRA	2	725	-	201	928
Rate Group 1 Total				809	746	760	496	2,811
	2	A	I	-	-	3,180	14	3,194
	2	B	II	-	-	1,936	757	2,693
	2	I	I	40	-	1,132	-	1,172
	2	J	II	9,956	183	4,829	2,343	17,311
	2	P	II	163	32	3	86	284
	2	S	II	6	11	-	4	21
	2	T	II-PEPRA	36	3,489	2	694	4,221
	2	U	II-PEPRA	2	183	-	30	215
Rate Group 2 Total				10,203	3,898	11,082	3,928	29,111
	3	A	I	-	-	87	1	88
	3	B	II	40	18	63	36	157
	3	G	I	1	-	29	-	30
	3	H	II	376	-	280	56	712
	3	U	II-PEPRA	2	152	-	19	173
Rate Group 3 Total				419	170	459	112	1,160
	4	H	II	-	-	1	-	1
Rate Group 4 Total				-	-	1	-	1
	5	A	I	10	-	378	4	392
	5	B	II	1,003	134	950	532	2,619
	5	U	II-PEPRA	-	165	-	48	213
Rate Group 5 Total				1,013	299	1,328	584	3,224
	9	A	I	-	-	4	-	4
	9	B	II	-	-	10	11	21
	9	N	II	33	2	33	44	112
	9	U	II-PEPRA	-	29	1	6	36
Rate Group 9 Total				33	31	48	61	173
	10	A	I	-	-	8	-	8
	10	B	II	-	-	40	9	49
	10	I	I	-	-	16	-	16
	10	J	II	145	1	114	81	341
	10	N	II	12	22	1	11	46
	10	U	II-PEPRA	1	100	-	53	154
Rate Group 10 Total				158	123	179	154	614
	11	A	I	-	-	4	-	4
	11	B	II	-	-	3	-	3
	11	N	II	18	-	2	2	22
	11	U	II-PEPRA	-	7	-	-	7
Rate Group 11 Total				18	7	9	2	36
	12	A	I	-	-	2	-	2
	12	B	II	-	-	3	2	5
	12	H	II	13	-	6	2	21
	12	U	II-PEPRA	-	1	-	-	1
Rate Group 12 Total				13	1	11	4	29
Total General Members				12,666	5,275	13,877	5,341	37,159

NOTE 1 : Plan Descriptions (continued)

OCERS Membership (Safety Members)

As of December 31, 2017

	Rate Group	Benefit Plan	Tier	Active Vested	Active Non-Vested	Retired Members & Beneficiaries	Deferred Members	Total
	6	C	I	-	-	89	-	89
	6	D	II	-	-	45	35	80
	6	E	I	1	-	44	-	45
	6	F	II	740	2	182	180	1,104
	6	V	II-PEPRA	-	20	-	5	25
Rate Group 6 Total				741	22	360	220	1,343
	7	C	I	-	-	487	-	487
	7	D	II	-	-	247	44	291
	7	E	I	-	-	283	-	283
	7	F	II	1,223	-	1,015	93	2,331
	7	R	II	367	24	2	22	415
	7	V	II-PEPRA	-	396	-	16	412
Rate Group 7 Total				1,590	420	2,034	175	4,219
	8	C	I	-	-	27	-	27
	8	D	II	-	-	72	5	77
	8	E	I	-	-	17	-	17
	8	F	II	750	4	559	43	1,356
	8	R	II	7	87	-	3	97
	8	V	II-PEPRA	1	158	1	16	176
Rate Group 8 Total				758	249	676	67	1,750
Total Safety Members				3,089	691	3,070	462	7,312
Grand Total				15,755	5,966	16,947	5,803	44,471

Member Retirement Benefits

Members are entitled to receive a retirement allowance with ten or more years of service credit beginning at age 50 (5 years of service and age 52 for General Public Employees Pension Reform Act (PEPRA) plans and 5 years of service and age 50 for Safety PEPRA, for all plans except those identified as PEPRA compliant), at any age with thirty years of service credit (twenty years of service credit for safety members), or if a part-time employee at age 55 or older with five or more years of service credit and at least ten years of active employment with a sponsoring agency covered by OCERS. Members attaining age 70 are eligible to retire regardless of credited service. Benefits received are determined by plan formula, age, years of service and final average salary (see Section II, Notes to the Required Supplementary Information, for any changes in benefit terms). Member rate groups and benefit plans as of December 31, 2017, are as follows:

NOTE 1 : Plan Descriptions (continued)

Rate Groups and Benefit Plans

As of December 31, 2017

Rate Group	Plan Type	Benefit Plan	Benefit Formula per Year of Service	Sponsoring Agency
1	General	A	2.0% @ 57	County of Orange; OC In-Home Supportive Services Public Authority (OC Department of Education, UCI Medical Center and Campus, Capistrano Beach Sanitary District, Cypress Recreation & Parks District, and OC Mosquito and Vector Control District are no longer active plan sponsors)
		B	1.67% @ 57.5	
		U	2.5% @ 67 PEPRA	
2	General	A	2.0% @ 57	County of Orange; City of San Juan Capistrano; LAFCO; OCERS; Orange County Superior Court of California; and Children and Families Commission of Orange County
		B	1.67% @ 57.5	
		I	2.7% @ 55	
		J	2.7% @ 55	
		O	1.62% @ 65	
		P	1.62% @ 65	
		S	2.0% @ 57	
		T	1.62% @ 65 PEPRA	
		U	2.5% @ 67 PEPRA	
		W	1.62% @ 65 PEPRA	
3	General	A	2.0% @ 57	OC Sanitation District
		B	1.67% @ 57.5	
		G	2.5% @ 55	
		H	2.5% @ 55	
		U	2.5% @ 67 PEPRA	
4	General	H	2.5% @ 55	Rancho Santa Margarita (no longer an active plan sponsor)
5	General	A	2.0% @ 57	OC Transportation Authority
		B	1.67% @ 57.5	
		U	2.5% @ 67 PEPRA	
6	Safety	C	2.0% @ 50	County of Orange (Probation)
		D	2.0% @ 50	
		E	3.0% @ 50	
		F	3.0 % @ 50	
		V	2.7% @ 57 PEPRA	
7	Safety	C	2.0% @ 50	County of Orange (Law Enforcement)
		D	2.0% @ 50	
		E	3.0% @ 50	
		F	3.0% @ 50	
		Q	3.0% @ 55	
		R	3.0% @ 55	
		V	2.7% @ 57 PEPRA	
8	Safety	C	2.0% @ 50	OC Fire Authority
		D	2.0% @ 50	
		E	3.0% @ 50	
		F	3.0% @ 50	
		Q	3.0% @ 55	
		R	3.0% @ 55	
		V	2.7% @ 57 PEPRA	

NOTE 1 : Plan Descriptions (continued)

Rate Groups and Benefit Plans (continued)

As of December 31, 2017

Rate Group	Plan Type	Benefit Plan	Benefit Formula per Year of Service	Sponsoring Agency
9	General	A	2.0% @ 57	Transportation Corridor Agencies
		B	1.67% @ 57.5	
		M	2.0% @ 55	
		N	2.0% @ 55	
		U	2.5% @ 67 PEPRA	
10	General	A	2.0% @ 57	OC Fire Authority
		B	1.67% @ 57.5	
		I	2.7% @ 55	
		J	2.7% @ 55	
		M	2.0% @ 55	
		N	2.0% @ 55	
		U	2.5% @ 67 PEPRA	
11	General	A	2.0% @ 57	OC Cemetery District
		B	1.67% @ 57.5	
		M	2.0% @ 55	
		N	2.0% @ 55	
		U	2.5% @ 67 PEPRA	
12	General	A	2.0% @ 57	OC Law Library
		B	1.67% @ 57.5	
		G	2.5% @ 55	
		H	2.5% @ 55	
		U	2.5% @ 67 PEPRA	

Public Employees Pension Reform Act (PEPRA)

During 2012, the Public Employees Pension Reform Act (PEPRA) was signed into law, resulting in the creation of three new benefit formulas for employees entering OCERS on or after January 1, 2013: 1.62% @ 65 PEPRA - General; 2.5% @ 67 PEPRA - General; and 2.7% @ 57 PEPRA - Safety. New plan provisions include a cap on pensionable compensation at 120% of the social security taxable wage base limit, three year final average salary, and new cost-sharing requirements by members to pay at least 50% of the total normal cost of the plan.

Deferred Member Benefits

If a member terminates employment with a participating plan sponsor, the member is entitled to withdraw the employee contributions made, together with accumulated interest, unless the member enters a reciprocal retirement system within 180 days and leaves their accumulated contributions on deposit with OCERS and receives a deferred retirement allowance when eligible. There are different deferred retirement eligibility requirements for members with less than five years of service when terminating and leaving funds on deposit. It is possible for these members to earn a deferred retirement allowance upon attaining the age of 70, or upon accumulating reciprocal service. Members who terminate employment with a participating plan sponsor, and defer with five or more years of service may become eligible for a service retirement allowance when they would have accrued ten years of service and attain the age of 50 or greater (5 years of service and age 52 for PEPRA).

Disability Benefits

Members found by the Board of Retirement to be permanently incapacitated from the performance of their job are eligible for disability retirement benefits. A disability retirement benefit may either be service-connected or non-service-connected. Members applying for non-service-connected disability must have five or more years of eligible service credit. There are no service credit requirements for members applying for service-connected disability benefits, but the disabling condition must be a result of injury or disease arising out of or in the course of the member's employment.

Notes to the Basic Financial Statements

NOTE 1 : Plan Descriptions (continued)

Death Benefits

Death benefits are payable to eligible beneficiaries of OCERS members. Eligible beneficiaries of retired members may receive a percentage of a deceased member's retirement allowance based upon the retirement option selected by the member at the time of retirement. The beneficiary of a retired member will also receive a $1,000 burial benefit.

Survivor benefits for members who die prior to retirement are dependent upon a number of factors including whether or not the member was eligible for a service retirement or disability retirement at the time of death, and whether the death was job related. The eligible beneficiary of a member who is not eligible for service retirement or disability retirement is eligible to receive the member's accumulated contributions plus one month's salary for each year of creditable service, subject to a maximum of six month's salary. The eligible beneficiary of a member who is entitled to receive a service retirement or disability retirement, in lieu of the benefit described above, may elect to receive a monthly retirement allowance equal to 60% of the monthly allowance the member would have received for a non-service connected disability as of the day after the date of death, or a monthly allowance equal to the higher of 50% of the member's monthly compensation and service retirement allowance if the death was found to be service-connected.

Survivor benefits for deferred members (with no reciprocity) consist of a refund to eligible beneficiaries of all contributions and interest accumulated by the member as of the date of death.

Cost-of-Living Adjustments (COLA)

Retired member monthly allowances will be adjusted annually in accordance with changes in the cost-of-living, as determined by the average annual change in the Consumer Price Index (CPI) for the prior calendar year. The cost-of-living adjustment is limited to a maximum increase or decrease of three percent per year as established by the Board of Retirement. The 2017 cost-of-living adjustment ranged from 2% to 3% based on the date benefit recipients began receiving benefits.

STAR COLA

Retired members and eligible beneficiaries who have lost more than 20% of their original retirement benefit's purchasing power due to inflation are eligible to receive the STAR COLA (Supplemental Targeted Adjustment for Retirees Cost-of-Living Adjustment). STAR COLA benefits are reviewed annually by the Board of Retirement and as of December 31, 2017, only those members that retired on or before April 1, 1980 are eligible to receive the STAR COLA benefit.

Post-Employment Health Care Plans

OCERS serves as trustee for the County of Orange (County) and Orange County Fire Authority (OCFA) post-employment health care plan trusts established under Internal Revenue Code section 401(h), which are reported as other post-employment benefit trust funds in OCERS basic financial statements. Health care assets for the 401(h) trusts are commingled with pension trust assets for investment purposes and are used exclusively to pay health allowances to eligible retired members of the County of Orange and participating special districts including OCERS and the OCFA.

In July 2007, the County of Orange established under Internal Revenue Code both a 115 trust and a 401(h) trust as funding sources of retiree health care benefits, including grants, for the County of Orange Retiree Medical Plan (the "Plan"). The County maintains control and custody of all the 115 trust assets, which acts as a conduit for collecting contributions and passing them through to the 401(h) trust at their discretion, as well as distributing lump sum health care grant payments as part of a termination program that is being phased-out. OCERS maintains custody of the assets in the 401(h) trust and pays all primary benefits of the Plan as directed by the County. The County has evaluated the structure of its plan and related roles and responsibilities and has determined that the County is the plan administrator. Therefore, the County has taken financial reporting responsibility of the plan including financial statement disclosures and required supplementary information regarding the plan's funded status and contributions, in accordance with GASB Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other than Pension Plans*. A publicly available financial report can be obtained from the County of Orange at 12 Civic Center Plaza, Santa Ana, California 92702 or their website at **http://ac.ocgov.com**.

In order to be eligible to receive the County of Orange Retiree Medical Grant (Grant) upon retirement, the employee must have completed at least ten years of continuous County or participating special districts service (although exceptions for disability retirements exist), be enrolled in a County sponsored health plan and/or Medicare, qualify as a retiree as defined by the pension plan and be able to receive a monthly benefit payment from OCERS. To qualify as a retiree as defined by the Plan, the employee upon retirement must be at least 50 years of age with a minimum of 10 years of service or have at least 20 years of service for a safety member of OCERS or at least 30 years of service for a general member of OCERS.

Employees represented by the American Federation of State, County and Municipal Employees (AFSCME) who were employed on or after September 30, 2005 are not eligible for the Grant. Employees represented by the Association of Orange County Deputy Sheriffs (AOCDS) who were hired on or after October 12, 2007 are not eligible for the Grant or lump sum payment. Law enforcement management employees who were hired on or after June 19, 2009 are not eligible for the Grant.

NOTE 1 : Plan Descriptions (continued)

The monthly Grant amount is determined by a formula that multiplies a base number by the number of years of qualifying County employment up to a maximum of 25 years. The base number for calendar year 2017 is $22.09 per year of County service, and the maximum monthly Grant is $552.25. The amount of the Grant is netted against the monthly health plan premium and/or reimburses Medicare premiums paid by the retiree for retiree and dependent coverage with the retiree obligated to pay the remaining balance. Any Grant in excess of the monthly health plan and/or Medicare premium payable is forfeited.

The Grant is reduced by 50% once the retiree becomes Medicare A and B eligible. Retirees who were age 65 and/or Medicare A and B eligible on the effective date are not subject to the Medicare reduction. The Grant is also reduced by 7.5% for each year of age prior to age 60 and increased by 7.5% for each year of age after age 60 up to age 70 for employees retiring after the effective date. The effective date varies by labor agreement. Safety employees and disability retirements are exempt from the age adjustment. The base number for the Grant is adjusted annually based on a formula defined in the Plan document with a maximum increase/decrease of 3%. Surviving dependents of a deceased employee or retiree eligible for the Grant are entitled to receive 50% of the Grant that the employee/retiree was eligible to receive.

AFSCME employees are not subject to the Medicare reduction or age adjustment. In addition, the base number for the Grant is adjusted annually with a maximum increase/decrease of 5%. The base number for calendar year 2017 is $26.03 per year of County service, and the maximum monthly Grant is $650.75.

As trustee of OCFA's 401(h) OPEB trust fund, the sole source of funding for OCFA's post-employment health care plan, OCFA has evaluated the structure of its plan and related roles and responsibilities and has determined that OCFA is the plan administrator. Therefore, OCFA has taken financial reporting responsibility of the Plan including financial statement disclosures and required supplementary information regarding the plan's funded status and contributions, in accordance with GASB Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other than Pension Plans*. A publicly available financial report can be obtained from the Orange County Fire Authority at 1 Fire Authority, Irvine, California 92602 or their website at http://ocfa.org.

All OCFA retirees and full-time employees hired prior to January 1, 2007, are eligible to participate in the OCFA health care plan. Eligible employees who are credited with at least one year of service are eligible to receive plan benefits upon retirement. Participants must be covered under a qualified health plan, Medicare or a recognized health insurance plan. In 2017, retired OCFA members received $25.50 per year of creditable service, with a maximum monthly benefit of $637.50 based upon 25 or more years of creditable service.

Assets are allocated on the Statement of Fiduciary Net Position between the pension plan and the two 401(h) health care trusts based upon pro-rata shares after balances and transactions specific to the respective trusts are assigned. Contributions and benefit payment information for the pension plan and individual health care trusts are readily identified; however, investment income must be allocated and is based upon the individual health care trusts' pro-rata share of total fund assets.

In addition to serving as Trustee for the two 401(h) health care trusts, OCERS also provides investment advisory services to the Orange County Transportation Authority (OCTA) health care plan pursuant to an agreement established in accordance with Internal Revenue Code section 115 (115 Plan). Investments in the 115 Plan are not commingled with those of the pension plan and 401(h) plan trusts, but rather are invested in separately managed index funds.

An Agency Fund is used to account for OCTA's 115 Plan assets held by OCERS in an investment capacity with the revocable trust assets reported being offset by a liability for the resources held on behalf of OCTA. Additional information regarding the OCTA 115 Plan is available by contacting OCTA at 550 S. Main Street, Orange, California 92868 or their website at **http://www.octa.net**.

NOTE 2 : Summary of Significant Accounting Policies

Basis of Accounting

The accompanying financial statements have been prepared on the accrual basis of accounting and in accordance with accounting principles generally accepted in the United States of America (GAAP). Employee and employer contributions are recognized in the period in which contributions are due pursuant to legal requirements, and benefits and refunds are recognized when currently due and payable in accordance with plan terms. Unearned contributions represent prepaid employer contributions that will be recognized as an addition to plan net position in future periods. Investment income is recognized as revenue when earned. The net appreciation/(depreciation) in the fair value of investments is recorded as an increase/(decrease) to investment income based upon investment valuations, which includes both realized and unrealized gains and losses on investments.

Investment Policy and Valuation

State Street Bank and Trust (State Street) maintains custody of the majority of OCERS' investments held as of December 31, 2017. The acquisition of investments is authorized by state statute and OCERS' Investment Policy Statement (refer to Note 3 - Investments for further information). The allocation of investment assets is approved by OCERS' Board of Retirement, as outlined in the Investment Policy Statement, and System assets are invested solely for the benefit of plan participants and beneficiaries while attempting to minimize employer contributions and investment and administration costs. The Investment Policy Statement calls for an asset allocation plan that seeks to optimize long-term returns for the level of risk that the Board of Retirement considers appropriate. The current asset allocation adopted by the Board of Retirement as of December 31, 2017, is detailed on page 59 and in Section III - Investments. The Board of Retirement conducts a periodic review of the asset allocation plan to maintain an optimal allocation, and may also revise the asset allocation in response to significantly changing market conditions that may affect valuations and forward-looking expected returns of asset classes.

Plan investments consist of global public equity securities, core fixed income, real assets, credit, risk mitigation, absolute return strategies and private equity. Investments are reported at fair value, in accordance with Governmental Accounting Standards Board (GASB) Statement No. 72, *Fair Value Measurement and Application* (GASB 72) guidelines, and the overall valuation process and information sources by major asset classification are as follows:

Cash and Short-Term Investments

Cash and short-term investments represent funds held in operating accounts with State Street, Wells Fargo Bank and deposits held in a pooled account with the County of Orange Treasurer. Short-term investments are expected to be utilized within 30-90 days and are reported at fair value. OCERS is a participant in the County Treasurer's Orange County Investment Pool (OCIP). The OCIP is an external investment pool, is not rated, and is not registered with the Securities and Exchange Commission. The County Treasury Oversight Committee conducts OCIP oversight. Cash on deposit in the OCIP is stated at fair value. The OCIP values participant shares on an amortized cost basis during the year and adjusts to fair value at year-end. Deposits held in the OCIP are invested in the Orange County Money Market Fund and the Extended Fund. At December 31, 2017, the OCIP had a weighted average maturity of 236 days. The Orange County Money Market Fund is rated AAAm by Standard & Poor's. The Extended Fund is not rated. For further information regarding the OCIP, refer to the County of Orange Comprehensive Annual Financial Report.

Global Public Equity

The majority of OCERS' domestic, international and global securities, including those traded in emerging markets, consist of institutional funds that are valued based on the fair value of underlying investments using pricing models or other valuation methodologies that use pricing inputs that are either directly or indirectly observable on the valuation date for the securities or assets held in the fund. Other domestic, international and global securities are actively traded on major security exchanges, or over-the-counter. Fair value for exchange traded securities is determined as of the close of the trading date in the primary market or agreed upon exchange. The last known price is used for listed securities that did not trade on a particular date. Fair value is obtained from third-party pricing sources for securities traded over-the-counter.

Core Fixed Income

Actively traded debt instruments such as those securities issued by the U.S. Treasury, Federal Agencies and corporate issuers are reported at fair value as of the close of the trading date. Fair values of irregularly traded debt securities are obtained from pricing vendors who employ modeling techniques in determining security values. Inputs typically employed by pricing vendors include cash flows, maturity and credit rating.

Real Assets

OCERS invests in real assets, which include agriculture, commodities, energy, real estate and timber holdings. The fair value of commodities is determined by quoted market prices. Fair value for real estate, timber, energy and agriculture are determined based on independent appraisals and/or estimates made in good faith by the general partner or management.

NOTE 2 : Summary of Significant Accounting Policies (continued)

Real estate assets are in commingled real estate funds structured as either limited partnerships or trust funds. Properties held in commingled funds are based on the investment's net asset value (NAV) per share provided by the investment management firms/general partners, who perform regular internal appraisals and obtained at regular intervals independent third-party appraisals and are further supported by annual financial statements, which are audited by an independent third-party accountant. Primary determinants of fair value include market and property type specific information, which typically involve a degree of expert judgment.

Other Investments
OCERS invests in a variety of different credit strategies, alternative strategies which include private equity and absolute return, and risk mitigation investments.

Credit is a global allocation that includes a number of diverse fixed-income related strategies. It represents an allocation that is diversified by region, by credit quality, and by sources of risk. The general shared characteristics of these strategies are a degree of illiquidity, and a focus on current yield as a principal source of expected return. Hedging of market and individual security risks and diversified risk-controlled tactical trading may be permitted.

Credit is a combination of liquid and illiquid credit strategies and the fair value depends on the nature of the investment. For credit funds structured as partnerships, the fair values are based on NAV. Credit included in Level 2 of the fair value hierarchy may be estimated by the underlying managers in the absence of observable market data or the general partner may estimate the fair value in good faith using the best information available, which may incorporate the general partner's own assumptions. The liquid strategies comprised of multi-strategies are actively traded and are generally reported at fair value as of the close of the trading date. The illiquid strategies comprised of mortgages, direct lending and energy-based credit funds are valued initially at cost as an approximation of fair value with subsequent adjustments to fair value as determined by the general partner. The factors considered include readily available market quotes, earnings-multiple analysis using comparable companies or discounted cash flow analysis.

Private equity and absolute return are alternative strategies. The fair value of these alternative investments depends upon the nature of the investment and the underlying business. Typically, alternative investments are less liquid and subject to redemption restrictions. Fair value is determined either quarterly or semi-annually with valuations conducted by general partners, management and valuation specialists. Valuation techniques vary by investment type and involve expert judgment or estimates made in good faith using the best information available, including the general partner's or management's own assumptions. Investments that are reported at NAV are based on audited financial statements.

Risk mitigation investments include generally liquid investments with shorter redemption periods. Risk mitigation funds included in Level 2 are short-term investment funds and NAV is determined daily; for risk mitigation funds structured as partnerships, the fair values are based on NAV. Risk mitigation investments are uncorrelated or negatively correlated to economic growth assets.

Notes to the Basic Financial Statements

NOTE 2 : Summary of Significant Accounting Policies (continued)

Capital Assets

Capital assets consist of furniture, equipment, intangible assets, including computer software, and building and improvements for the portion of the OCERS' headquarters building used for plan administration. Capital assets are defined by OCERS as assets with an initial, individual cost of more than $25,000 and an estimated useful life in excess of one year. Such assets are recorded at cost. Capital assets are depreciated using the straight-line depreciation method over their estimated useful lives, ranging from five to fifteen years for furniture, equipment and building improvements; three years for purchased computer software; and sixty years for buildings.

Capital Assets

As of December 31, 2017
(Dollars in Thousands)

Building and Improvements	$ 5,196
Computer Software-V3 Pension System	21,853
Construction in Progress	1,117
Total Capital Assets (at cost)	28,166
Less: Accumulated Depreciation and Amortization	(7,496)
Total Capital Assets, Net of Depreciation and Amortization	**$ 20,670**

GASB Statement No. 51, *Accounting and Financial Reporting for Intangible Assets*, requires OCERS to identify and capitalize costs incurred for the development of internally generated computer software, which is considered an intangible asset. According to GASB Statement No. 51, there are three stages in the development and installation of internally generated computer software: (1) Preliminary Project Stage, (2) Application and Development Stage, and (3) Post-Implementation/Operation Stage. All outlays related to the Application and Development Stage must be capitalized.

OCERS internally generated computer software, Pension Administration Software System (V3), was put into operation in 2016. At that point, all outlays were expensed and amortization of the asset began over an estimated useful life of ten years. Intangible assets are included as Capital Assets in the Statement of Fiduciary Net Position.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect reported amounts of net position. Actual results could differ from those estimates.

Comparative Totals

The basic financial statements include certain prior-year summarized comparative information in total but not at the level of detail required for a presentation in conformity with GAAP. Accordingly, such information should be read in conjunction with OCERS' financial statements for the year ended December 31, 2016, from which the summarized information was derived. In January 2017, the OCERS' Investment Committee adopted a new asset allocation policy. The new policy was structured to increase investments in the areas of private equity, core fixed income and real assets, while decreasing or eliminating investments in diversified credit and absolute return. The new asset allocation categories are reflected in the investments at fair value section in the Statement of Fiduciary Net Position and certain reclassifications have been made to amounts in the 2016 investments to conform with the 2017 financial statement presentation. These reclassifications had no material effect on net position as previously reported.

NOTE 3 : Investments

OCERS may invest, in accordance with state statutes, in any form or type of investment deemed prudent by the Board of Retirement. pension and 401(h) health care plan assets are restricted for the exclusive purposes of providing benefits to plan participants and defraying reasonable expenses of administering the plans. The Board of Retirement may invest, or delegate the authority to invest, the assets of the funds through the purchase, holding, or sale of any form or type of investment, financial instrument, or financial transaction. Agency fund assets, restricted pursuant to section 115 of the Internal Revenue Code, are separately invested in global public equity and core fixed income funds in accordance with the respective OCTA Third-Party Administrative and Investment Management Agreement.

Custodial Credit Risk

Custodial credit risk for deposits is the risk that in the event of a financial institution's failure, OCERS would not be able to recover its deposits. Deposits are exposed to custodial risk if they are not insured or not collateralized. As of December 31, 2017, OCERS' deposits with a financial institution are fully insured by Federal Deposit Insurance Corporation (FDIC) insurance up to $250,000 with the remaining balance exposed to custodial credit risk as it is not insured; however, the financial institution does collateralize the deposit of monies in excess of the FDIC insurance amount with eligible securities held by the pledging financial institution, but not in OCERS' name. Deposits held by OCERS' custodial bank are not exposed to custodial credit risk as they are held in a qualified pool trust, separate from the custodial bank assets.

For an investment, custodial credit risk is the risk that, in the event of a counterparty failure, OCERS will not be able to recover the value of its investments or collateral securities that are in the possession of counterparties. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in OCERS' name or by other qualified third-party administrator trust accounts.

OCERS' investments and collateral received through securities lending are not exposed to custodial credit risk because all securities are held by OCERS' custodial bank in OCERS' name or by other qualified third-party administrator trust accounts. OCERS does not maintain any general policies regarding custodial credit risk.

Credit Risk

By definition, credit risk measures the risk that an issuer or counterparty will not fulfill its obligations. Standard & Poor's defines investment grade as those fixed income securities with ratings between AAA and BBB. OCERS' investment policy permits, on an opportunistic basis, the investment in fixed income securities rated below investment grade. A rating of NR represents those securities that are not rated and NA represents those securities that are not subject to the GASB Statement No. 40 disclosure requirements. The credit ratings for individual OCERS' fixed income portfolios are monitored regularly.

As of December 31, 2017, the Standard & Poor's credit ratings of the OCERS' fixed income portfolio were as follows:

Credit Ratings

As of December 31, 2017
(Dollars in Thousands)

Rating	Pooled	International	U.S. Treasuries	Corporates	Agencies	Mortgages	Municipals	Asset-Backed	Swaps	Total
AAA	$ -	$ 438	$ -	$ -	$ -	$ -	$ -	$ 4,966	$ -	$ 5,404
AA	-	10,788	-	5,187	137,675	11,290	13,665	2,792	-	181,397
A	-	15,892	-	17,578	-	1,280	4,448	727	-	39,925
BBB	-	32,617	-	79,866	-	907	5,129	524	-	119,043
BB	-	25,258	-	48,517	-	3,251	-	4,115	-	81,141
B	-	7,291	-	62,347	-	-	2,380	4,401	-	76,419
CCC	-	-	-	33,038	-	6,195	-	9,332	-	48,565
CC	-	-	-	-	-	967	-	-	-	967
C	-	-	-	80	-	-	-	-	-	80
D	-	356	-	936	-	6,063	48	4,585	-	11,988
NR	1,225,918	16,626	-	10,272	-	22,152	2,356	7,992	2,810	1,288,126
NA	-	-	242,730	-	554	-	-	-	-	243,284
Total	**$ 1,225,918**	**$ 109,266**	**$ 242,730**	**$ 257,821**	**$ 138,229**	**$ 52,105**	**$ 28,026**	**$ 39,434**	**$ 2,810**	**$ 2,096,339**

This schedule reflects credit ratings for OCERS' fixed income portfolio, which includes $395.6 million of fixed income securities, which are included in the Credit investment category and excludes $360.8 million of non-fixed income securities that are included in the Core Fixed Income investment category on the Statement of Fiduciary Net Position.

Notes to the Basic Financial Statements

NOTE 3 : Investments (continued)

Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. Duration is a measure of the price sensitivity of a fixed-income portfolio to changes in interest rates. It is calculated as the weighted average time to receive a bond's coupon and principal payments. The longer the duration of a portfolio, the greater its price sensitivity to changes in interest rates.

Interest rate risk is managed through OCERS' investment policies requiring that investment managers investing on behalf of OCERS have applicable investment guidelines and that the effective durations of fixed income portfolios remain within a defined range of the benchmark's effective duration. The primary benchmark for domestic fixed income is the Bloomberg Barclays Capital Universal Index. As of December 31, 2017, the duration was 5.77 years for the Bloomberg Barclays Capital Universal Index and all investment managers were in compliance within their defined range.

OCERS invests in a variety of fixed income instruments including asset-backed securities, corporate obligations and commercial mortgage backed securities. The value, liquidity and income of these securities are sensitive to changes in overall economic conditions and the fair value of these securities may be affected by changes in interest rates, default rates and the value of the underlying securities.

The interest rate risk schedule presents the duration of fixed income securities by investment category as of December 31, 2017:

Interest Rate Risk Schedule

As of December 31, 2017
(Dollars in Thousands)

Category	Amount	Duration (in Years)	Percent
Pooled	$ 1,225,918	5.77	59%
International	103,599	4.87	5%
U.S. Treasuries	242,730	4.66	12%
Corporates	254,860	5.85	12%
Agencies	138,226	3.19	7%
Mortgages	42,310	2.06	2%
Municipals	27,978	7.26	1%
Asset-Backed	27,424	1.19	1%
No Effective Duration:			
International	5,667	N/A	0%
Corporates	2,961	N/A	0%
Agencies	3	N/A	0%
Mortgages	9,795	N/A	0%
Municipals	48	N/A	0%
Asset-Backed	12,010	N/A	1%
Swaps	2,810	N/A	0%
Total	$ 2,096,339	5.23	100%

This schedule reflects interest rate risk for OCERS' fixed income portfolio, which includes $395.6 million of fixed income securites, which are included in the Credit investment category and excludes $360.8 million of non-fixed income securities that are included in the Core Fixed Income investment category on the Statement of Fiduciary Net Position.

NOTE 3 : Investments (continued)

Foreign Currency Risk

The value of deposits or investments denominated in foreign currency may be adversely affected by changes in currency exchange rates. OCERS' investment policy permits investment in international securities that includes investments in global public equity securities, core fixed income, real assets and other investment credit strategies. Investment managers monitor currency exposures daily.

The following schedule represents OCERS' net exposure to foreign currency risk in U.S. dollars as of December 31, 2017:

Foreign Currency Risk Schedule

As of December 31, 2017
(Dollars in Thousands)

Currency in U.S. Dollar	Cash	Equities	Fixed Income	Options	Forwards	Swaps	Total
Argentine Peso	$ 43	$ -	$ 692	$ -	$ (27)	$ -	$ 708
Austrailian Dollar	279	30,206	438	-	681	-	31,604
Brazilian Real	134	4,700	1,561	-	(53)	13	6,355
Canadian Dollar	3	15,910	1,923	-	99	-	17,935
Colombian Peso	-	-	-	-	5	-	5
Danish Krone	43	19,540	-	-	(6)	-	19,577
Egyptian Pound	-	-	-	-	14	-	14
Euro Currency	667	222,579	5,125	-	(77)	(79)	228,215
Hong Kong Dollar	255	28,833	-	-	(1)	-	29,087
Iceland Krona	65	(1)	1,156	-	-	-	1,220
Indian Rupee	33	5,045	-	-	-	-	5,078
Indonesian Rupiah	-	986	-	-	-	-	986
Japanese Yen	(95)	157,766	8,168	-	(249)	(22)	165,568
Mexican Peso	86	-	4,254	-	(33)	(52)	4,255
New Israeli Sheqel	-	6,379	-	-	12	-	6,391
New Taiwan Dollar	-	-	-	-	(19)	-	(19)
New Zealand Dollar	-	488	8,218	-	-	-	8,706
Norwegian Krone	-	3,136	-	-	-	-	3,136
Philippine Piso	-	243	_	-	-	-	243
Pound Sterling	419	126,811	2,784	1	(242)	50	129,823
Russian Ruble	-	-	-	-	12	-	12
Singapore Dollar	304	6,512	-	-	(34)	-	6,782
South African Rand	-	2,848	-	-	-	-	2,848
South Korean Won	-	8,509	-	-	(67)	-	8,442
Swedish Krona	31	15,995	-	-	(152)	-	15,874
Swiss Franc	82	49,488	-	-	(227)	2	49,345
Turkish Lira	-	-	-	-	36	-	36
Thailand Baht	(4)	-	-	-	-	-	(4)
Amount Exposed to Foreign Currency Risk	**$ 2,345**	**$ 705,973**	**$ 34,319**	**$ 1**	**$ (328)**	**$ (88)**	**$ 742,222**

The foreign currency amounts above are included within the cash and cash equivalents, global public equity, credit and core fixed income categories on the Statement of Fiduciary Net Position as of December 31, 2017.

NOTE 3 : Investments (continued)

Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of OCERS' investment in a single issuer. By policy, OCERS did not hold investments in any one issuer that represented five percent (5%) or more of plan net position and net investments. Investments issued or explicitly guaranteed by the U.S. Government and pooled investments are excluded from this policy requirement.

Concentration of Investments

As of December 31, 2017, OCERS did not hold investments in any one organization that represented five percent (5%) or more of the plan's fiduciary net position. Investments issued or explicitly guaranteed by the U.S. Government and pooled investments are excluded from this requirement.

Derivative Instruments

As of December 31, 2017, all derivative instruments held by OCERS are considered investments and not hedges for accounting purposes. Any reference to the term hedging in these financial statements references an economic activity and not an accounting method. All gains and losses associated with these activities are recognized as incurred in the Statement of Changes in Fiduciary Net Position.

The table that follows presents the related net appreciation/(depreciation) in fair value, the fair value amounts and the notional amounts of derivative instruments outstanding at December 31, 2017.

NOTE 3 : Investments (continued)

Derivative Instruments

As of December 31, 2017
(Amounts in Thousands)

Derivative Instruments	Changes in Fair Value [4] Classification	Changes in Fair Value [4] Amount [1]	Fair Value at December 31, 2017 Classification	Fair Value at December 31, 2017 Amount [2]	Notional [3]
Commodity Futures Long	Net Appreciation / (Depreciation) in Fair Value of Investments	$ (272)	Cash	$ -	6,650
Commodity Futures Short	Net Appreciation / (Depreciation) in Fair Value of Investments	(415)	Cash	-	-
Credit Default Swaps Bought	Net Appreciation / (Depreciation) in Fair Value of Investments	(146)	Credit	(595)	$ 10,803
Credit Default Swaps Written	Net Appreciation / (Depreciation) in Fair Value of Investments	600	Core Fixed Income/Credit	1,197	54,548
Fixed Income Futures Long	Net Appreciation / (Depreciation) in Fair Value of Investments	2,599	Cash/Core Fixed Income/Credit	-	$ 119,563
Fixed Income Futures Short	Net Appreciation / (Depreciation) in Fair Value of Investments	146	Core Fixed Income/Credit	-	(177,404)
Fixed Income Options Bought	Net Appreciation / (Depreciation) in Fair Value of Investments	(908)	Core Fixed Income/Credit	212	107,874
Fixed Income Options Written	Net Appreciation / (Depreciation) in Fair Value of Investments	1,046	Core Fixed Income/Credit	(302)	(162,700)
Foreign Currency Futures Short	Net Appreciation / (Depreciation) in Fair Value of Investments	(3,153)	Core Fixed Income	-	-
Foreign Currency Options Bought	Net Appreciation / (Depreciation) in Fair Value of Investments	(390)	Global Public Equity	-	-
Foreign Currency Options Written	Net Appreciation / (Depreciation) in Fair Value of Investments	35	Core Fixed Income	(7)	(2,500)
Futures Options Bought	Net Appreciation / (Depreciation) in Fair Value of Investments	(50)	Core Fixed Income	-	-
Futures Options Written	Net Appreciation / (Depreciation) in Fair Value of Investments	258	Core Fixed Income	-	-
FX Forwards	Net Appreciation / (Depreciation) in Fair Value of Investments	(1,025)	Core Fixed Income/Global Public Equity/Credit	(328)	196,281
Index Futures Long	Net Appreciation / (Depreciation) in Fair Value of Investments	53,417	Global Public Equity/Cash	-	1,316
Index Futures Short	Net Appreciation / (Depreciation) in Fair Value of Investments	(2,924)	Global Public Equity	-	(23)

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NOTE 3 : Investments (continued)

Derivative Instruments

As of December 31, 2017
(Amounts in Thousands)

(Continued)

Derivative Instruments	Changes in Fair Value (4)		Fair Value at December 31, 2017		Notional (3)
	Classification	Amount (1)	Classification	Amount (2)	
Pay Fixed Interest Rate Swaps	Net Appreciation / (Depreciation) in Fair Value of Investments	489	Core Fixed Income/Credit	2,262	106,352
Receive Fixed Interest Rate Swaps	Net Appreciation / (Depreciation) in Fair Value of Investments	(139)	Credit	(56)	13,914
Rights	Net Appreciation / (Depreciation) in Fair Value of Investments	195	Core Fixed Income/Global Public Equity	-	-
Total Return Swaps Bond	Net Appreciation / (Depreciation) in Fair Value of Investments	(3,943)	Global Public Equity	2	$ 51,391
Total Return Swaps Equity	Net Appreciation / (Depreciation) in Fair Value of Investments	2,072	Global Public Equity	-	(20,270)
Grand Totals		$ 47,492		$ 2,385	

(1) Negative values (in brackets) refer to losses
(2) Negative values refer to liabilities and are reported net of investments
(3) Notional may be a dollar amount or size of underlying for futures and options, negative values refer to short positions
(4) Excludes futures margin payments

Valuation of Derivative Instruments

Non-exchange traded instruments, such as swaps, are valued using similar methods as those described for debt securities.

Futures contracts are traded on exchanges and typically derive their value from underlying indices and are marked to market daily. All gains and losses associated with changes in the value of futures contracts also settle on a daily basis and result in the contracts themselves having no fair value at the end of any trading day, including December 31, 2017. Future variation margin accounts also settle daily and are recognized in the Statement of Changes in Fiduciary Net Position under net appreciation/(depreciation) in the fair value of the investments as incurred.

In general, option values are dependent upon a number of different factors, including the current market price of the underlying security, the strike price of the option, costs associated with holding a position in the underlying security including interest and dividends, the length of time until the option expires and an estimate of the future price volatility of the underlying security relative to the time period of the option.

Foreign currency forward contracts are agreements to buy or sell a currency at a specified exchange rate on a specified date. The fair value of a foreign currency forward is determined by the difference between the specified exchange rate and the closing exchange rate at December 31, 2017.

Custodial Credit Risk – Derivative Instruments

As of December 31, 2017, all investments in derivative instruments are held in OCERS' name and are not exposed to custodial credit risk as described in the previous discussion of custodial credit risk.

NOTE 3 : Investments (continued)

Counterparty Credit Risk – Derivative Instruments

A summary of counterparty credit ratings relating to non-exchange traded derivatives in asset positions as of December 31, 2017, is as follows:

Counterparty Credit Risk Schedule for Derivative Instruments

As of December 31, 2017
(Dollars in Thousands)

Counterparty Name	S&P Rating	Foreign Currency Forward Contracts	Swaps	Total Fair Value
Bank of America ICE	A-	$ -	$ 414	$ 414
Bank of America LCH	A-	-	28	28
Bank of America, N.A.	A+	3	-	3
Barclays Capital	A	-	1	1
Citibank N.A.	A+	1,043	-	1,043
Credit Suisse FOB CME	A	-	707	707
Credit Suisse FOB ICE	A	-	98	98
Credit Suisse FOB LCH	A	-	111	111
Goldman Sachs Bank USA	BBB+	23	-	23
Goldman Sachs International	A+	-	55	55
HSBC Bank USA	AA-	7	1	8
JPMorgan	A-	-	2	2
JPMorgan Chase Bank	A+	43	-	43
Morgan Stanley Bank, N.A.	A+	4	-	4
Morgan Stanley CME	BBB+	-	122	122
Morgan Stanley ICE	BBB+	-	783	783
Standard Chartered Bank, London	A	5	-	5
Total Non-Exchange Traded Derivatives in Asset Position		**$ 1,128**	**$ 2,322**	**$ 3,450**

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Notes to the Basic Financial Statements

NOTE 3 : Investments (continued)

Interest Rate Risk – Derivatives

At December 31, 2017, OCERS is exposed to interest rate risk on its investments in various swap arrangements based on daily interest rates for LIBOR (London Interbank Offered Rate), Brazilian reference rate, European reference rates and Mexican swap rate. The following table illustrates the maturity periods of these investments.

Interest Rate Risk - Schedules for Derivative Instruments

As of December 31, 2017
(Dollars in Thousands)

Investment Type	Fair Value	Investment Maturities (in years)			
		Less Than 1	1-5	6-10	More than 10
Credit Default Swaps Bought	$ (595)	$ (2)	$ (593)	$ -	$ -
Credit Default Swaps Written	1,197	8	1,399	-	(210)
Pay Fixed Interest Rate Swaps	2,262	85	111	2,082	(16)
Receive Fixed Interest Rate Swaps	(56)	-	-	25	(81)
Total Return Swaps Bond	2	2	-	-	-
Total Return Swaps Equity	-	-	-	-	-
Total	**$ 2,810**	**$ 93**	**$ 917**	**$ 2,107**	**$ (307)**

Derivative Instruments Highly Sensitive to Interest Rate Changes

As of December 31, 2017
(Dollars in Thousands)

Investment Type	Receive Rate	Payable Rate	Fair Value	Notional
Pay Fixed Interest Rate Swaps	Variable 3-month LIBOR	Fixed 1.25%-2.50%	$ 2,250	$ 75,640
Pay Fixed Interest Rate Swaps	Variable 6-month EURIB	Fixed 0.50%	(16)	4,803
Pay Fixed Interest Rate Swaps	Variable 6-month LIBOR	Fixed 0.30%-2.00%	28	25,909
Total Pay Fixed Interest Rate Swaps			**$ 2,262**	
Receive Fixed Interest Rate Swaps	Fixed 3.14%	Variable 0-month BRCDI	$ 13	$ 2,412
Receive Fixed Interest Rate Swaps	Fixed 6.75%	Variable 1-month TIIE	(52)	1,196
Receive Fixed Interest Rate Swaps	Fixed 1.75%-2.45%	Variable 3-month LIBOR	(80)	820
Receive Fixed Interest Rate Swaps	Fixed 3.25%	Variable 6-month EURIB	63	9,486
Total Receive Fixed Interest Rate Swaps			**$ (56)**	
Total Interest Rate Swaps			**$ 2,206**	

NOTE 3 : Investments (continued)

Foreign Currency Risk – Derivatives

At December 31, 2017, OCERS is exposed to foreign currency risk on investments in swaps and forward currency contracts denominated in foreign currencies that may be adversely affected by changes in the currency exchange rates.

Foreign Currency Risk Schedule for Derivative Instruments

As of December 31, 2017
(Dollars in Thousands)

		Currency Forward Contracts			
Currency Name	Options	Net Receivables	Net Payables	Swaps	Total Exposure
Argentine Peso	$ -	$ (27)	$ -	$ -	$ (27)
Austrailian Dollar	-	718	(37)	-	681
Brazilian Real	-	(21)	(32)	13	(40)
Canadian Dollar	-	140	(41)	-	99
Colombian Peso	-	5	-	-	5
Danish Krone	-	5	(11)	-	(6)
Egyptian Pound	-	14	-	-	14
Euro Currency	-	102	(179)	(79)	(156)
Hong Kong Dollar	-	(1)	-	-	(1)
Japanese Yen	-	(184)	(65)	(22)	(271)
Mexican Peso	-	(40)	7	(52)	(85)
New Israeli Sheqel	-	12	-	-	12
New Taiwan Dollar	-	-	(19)	-	(19)
Pound Sterling	1	7	(249)	50	(191)
Russian Ruble	-	12	-	-	12
Singapore Dollar	-	13	(47)	-	(34)
South Korean Won	-	-	(67)	-	(67)
Swedish Krona	-	21	(173)	-	(152)
Swiss Franc	-	-	(227)	2	(225)
Turkish Lira	-	36	-	-	36
Total Foreign Currency	$ 1	$ 812	$ (1,140)	$ (88)	$ (415)
U.S. Dollar	(98)	-	-	2,898	2,800
Total	$ (97)	$ 812	$ (1,140)	$ 2,810	$ 2,385

Rate of Return

For the year ended December 31, 2017, the annual money-weighted rate of return on the assets of the plan, net of investment expense, was 14.74% The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the timing of cash flows and the changing amounts actually invested.

NOTE 3 : Investments (continued)

Securities Lending

OCERS is authorized by investment policy and state law to lend its investment securities including global public equities, core fixed income, credit and real assets to broker/dealers in exchange for collateral in the form of either cash or securities. Lent securities are collateralized with an initial market value of not less than 102% or 105% depending on the nature of the loaned securities and the collateral received, of fair value of the loaned securities. The lending agent receives cash and non-cash collateral for the securities on loan. There are no restrictions on the amount of securities that can be lent at one time. State Street Bank serves, in accordance with a Securities Lending Authorization Agreement, as OCERS' agent to loan securities. State Street Bank does not have the ability to pledge or sell collateral securities delivered absent a borrower default.

Cash collateral received on loaned securities is invested together with the cash collateral of other qualified tax-exempt investors in a collective investment fund managed by State Street. The collective investment fund is not rated. In December 2010 the collective investment fund was divided into separate investment pools: 1) a liquidity pool and 2) a duration pool. As of December 31, 2017, the liquidity pool had an average life-final maturity of 153 days and a weighted average maturity (WAM) of 28 days. The duration pool had an average life-final maturity of 3,185 days and a WAM of 25 days. Because loans are terminable at will, the duration of the loans did not generally match the duration of the investments made with the cash collateral. The Securities Lending Authorization Agreement requires State Street to indemnify OCERS if the broker/dealer fails to return any borrowed securities. During 2017, there were no failures to return loaned securities or to pay distributions by the borrowers. Furthermore, there were no losses due to borrower defaults. The fair value of securities on loan and the total cash and non-cash collateral held as of December 31, 2017, was $243.2 million and $249.3 million, respectively. The following table shows fair values of securities on loan and cash collateral received by asset class:

Securities on Loan and Collateral Received

As of December 31, 2017
(Dollars in Thousands)

Security Lent for Cash Collateral	Fair Value of OCERS' Securities Lent	Cash Collateral Received	Non-Cash Collateral Received	Total Collateral Received
Global Public Equity	$ 70,463	$ 53,844	$ 19,209	$ 73,053
Core Fixed Income	69,545	44,551	26,311	70,862
Credit	94,335	86,891	9,372	96,263
Real Assets	8,906	8,910	163	9,073
Total	**$ 243,249**	**$ 194,196**	**$ 55,055**	**$ 249,251**

Investments – Fair Value Measurements

OCERS categorizes its fair value measurements of its investments based on the three level fair value hierarchy established by GAAP. The fair value hierarchy is based on the valuation inputs used to measure fair value of the asset or liability and gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 inputs) and the lowest priority to unobservable inputs (Level 3 inputs). Unobservable inputs are developed using the best information available about the assumptions that market participants would use when pricing an investment. The three levels of the fair value hierarchy are:

- **Level 1** - Unadjusted quoted prices for identical instruments in active markets.
- **Level 2** - Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.
- **Level 3** - Valuations are derived from valuation techniques in which significant inputs are unobservable.

Investments that are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient are not classified in the fair value hierarchy.

The following table represents the fair value measurements as of December 31, 2017.

NOTE 3 : Investments (continued)

Investments, Derivative Instruments and Securities Lending Collateral Measured at Fair Value

As of December 31, 2017
(Dollars in Thousands)

	12/31/2017	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Investments by Fair Value Level				
Core Fixed Income:				
U.S. Fixed Income				
Pooled	$ 1,225,918	$ -	$ 1,225,918	$ -
U.S. Treasuries	242,730	-	242,730	-
Corporates	257,821	-	257,821	-
Agencies	138,229	-	138,229	-
Mortgages	52,105	-	52,105	-
Municipals	28,026	-	28,026	-
Asset-Backed	39,434	-	39,434	-
International	109,266	-	109,266	-
Total Core Fixed Income	**2,093,529**	**-**	**2,093,529**	**-**
Global Public Equity:				
U.S. Equity	3,292,013	193,539	3,098,474	-
International Equity	1,701,276	729,102	972,174	-
Emerging Market Equity	938,683	-	938,683	-
Total Global Public Equity	**5,931,972**	**922,641**	**5,009,331**	**-**
Real Assets:				
Agriculture	64,763	-	-	64,763
Commodities	251,018	251,018	-	-
Energy	224,748	123,165	-	101,583
Real Estate	4,659	-	-	4,659
Timber	119,728	-	-	119,728
Total Real Assets	664,916	**374,183**	-	**290,733**
Other Investments:				
Credit				
Multi-Strategy	55,584	-	55,584	-
Risk Mitigation	659,795	-	659,795	-
Total Other Investments	**715,379**	**-**	**715,379**	**-**
Total Investments by Fair Value Level	**$ 9,405,796**	**$ 1,296,824**	**$ 7,818,239**	**$ 290,733**

Core Fixed Income in the above schedule includes $395.6 million of fixed income securities, which are included in the Credit investment category; and excludes $360.8 million of non-fixed income securities and $2.8 million of swaps that are included in the Core Fixed Income investment category on the Statement of Fiduciary Net Position.

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NOTE 3 : Investments (continued)

Investments, Derivative Instruments and Securities Lending Collateral Measured at Fair Value

As of December 31, 2017
(Dollars in Thousands)
(Continued)

	12/31/2017	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Investments Measured at the Net Asset Vaue (NAV)				
Global Public Equity:				
U.S. Equity	$ 118,691			
International Equity	160,433			
Emerging Market Equity	292,779			
Total Global Public Equity	**571,903**			
Real Assets:				
Agriculture	58,600			
Energy	537,038			
Real Estate	1,211,264			
Total Real Assets	**1,806,902**			
Other Investments:				
Credit:				
Emerging Market Debt	471,472			
Direct Lending	188,028			
Multi-Strategy	657,729			
Non-U.S. Direct Lending	234,646			
Absolute Return:				
Direct Hedge	2,400			
Private Equity	1,345,230			
Risk Mitigation	83,895			
Total Other Investments	**2,983,400**			
Total Investments Measured at the NAV	**$ 5,362,205**			
Investments - Derivative Instruments				
Swaps:				
Interest Rate Swaps	$ 2,206	$ -	$ 2,206	$ -
Credit Default Swaps	602	-	602	-
Total Return Swaps	2	-	2	-
Options	(97)	-	(97)	-
Total Investments - Derivative Instruments	**2,713**	**$ -**	**$ 2,713**	**$ -**
Total Investments Measured at Fair Value	**$ 14,770,714**			
Investments - Securities Lending Collateral				
Debt Securities:				
Core Fixed Income	$ 44,551	$ -	$ 44,551	$ -
Credit	86,891	-	86,891	-
Equity Investments:				
U.S. Equity	29,305	29,305	-	-
International Equity	24,539	24,539	-	-
Real Return	8,910	8,910	-	-
Total Investments - Securities Lending Collateral	**$ 194,196**	**$ 62,754**	**$ 131,442**	**$ -**

NOTE 3 : Investments (continued)

Core fixed income include actively traded debt instruments such as those securities issued by the United States government, federal agencies, municipal obligations, foreign governments, and both U.S. and foreign corporate issuers. Core fixed income securities are reported at fair value as of the close of the trading date. Fair values for securities not traded on a regular basis are obtained from pricing vendors who employ modeling techniques, such as matrix pricing or discounted cash flow method, in determining security values. These inputs are observable, which supports the Level 2 fair value hierarchy.

Global public equity include U.S. and international equity securities, and emerging markets equity securities. Global public equity securities classified in Level 1 of the fair value hierarchy are primarily common and preferred stock or real estate investment trusts. Fair value for these exchange traded securities is determined as of the close of the trading date in the primary market or agreed upon exchange. The last known price is used for listed securities that did not trade on a particular date. Fair value is obtained from third-party pricing sources for securities traded over-the-counter. Global public equity securities classified in Level 2 of the fair value hierarchy consist of institutional funds that are valued based on the fair value of underlying investments using pricing models or other valuation methodologies that use pricing inputs that are either directly or indirectly observable on the valuation date for the securities or assets held in the fund.

Real assets investments at fair value include a variety of real return investments in agriculture, commodities, energy, real estate and timber resources. Commodities and energy classified in Level 1 of the fair value hierarchy are valued using quoted prices in active markets for those securities. Real asset investments classified as Level 3 include energy investments that are not actively traded, are less liquid and subject to redemption restrictions. Determining the fair value requires valuation techniques, such as expert judgment, which are unobservable. The general partner of energy funds estimate the fair value of these investments in good faith using the best information available, which may incorporate the general partner's own assumptions. Real estate assets held directly are appraised by independent third-party appraisers in accordance with the Uniform Standards of Professional Appraisal Practice. Independent appraisals use professional judgment, which is an unobservable input, to determine the fair value of the asset; therefore these real estate investments are classified as Level 3. Agriculture and timber resources included in Level 3 are based on independent appraisals and/or the good faith estimates of management.

Other investments includes multi-strategy credit investments and risk mitigation. These investments are classified in Level 2 of the fair value hierarchy and include primarily institutional funds that are valued based on the fair value of underlying investments using pricing models or other valuation methodologies that use pricing inputs that are either directly or indirectly observable on the valuation date for the securities or assets held in the fund.

Derivative instruments classified as Level 2 are valued using a market approach with observable inputs from major indices as well as benchmark interest rates and foreign exchange rates.

Securities lending represents cash collateral received for securities lent. The equity securities lent include domestic equities, international equities, and real return investments in Level 1 of the fair value hierarchy, valued using a market approach for prices quoted in active markets for securities. Level 2 securities lent are core fixed income securities, which include U.S. government, federal agencies, and credit securities including municipal obligations along with corporate issuers.

NOTE 3 : Investments (continued)

Investments Measured at NAV, Unfunded Commitments and Redemption Terms

As of December 31, 2017
(Dollars in Thousands)

The System used the Net Asset Value (NAV) to determine the fair value of the underlying investments when an investment does not have a readily determinable fair value, provided that the NAV is calculated and used as a practical expedient to estimate fair value in accordance with GAAP requirements.

	Fair Value Measured at NAV	Unfunded Commitments	Redemption Frequency (If Currently Eligible)[1]	Redemption Notice Period
Investments Measured at the Net Asset Value (NAV)				
Public Equity Investments:				
U.S. Equity	$ 118,691	$ -	M, S	15-60 days
International Equity	160,433	-	M	60 days
Emerging Market Equity	292,779	-	M	30 days
Total Public Equity Investments Measured at the NAV	571,903	-		
Real Assets:				
Agriculture	58,600	27,351	Q	60 days
Energy	537,038	637,949	N/A	N/A
Real Estate	1,211,264	335,509	Q	5-90 days
Total Real Assets Measured at the NAV	1,806,902	1,000,809		
Other Investments:				
Credit:				
Emerging Market Debt	471,472	-	M	3 days prior to month-end
Direct Lending	188,028	15,458	N/A	N/A
Multi-Strategy	657,729	-	M, Q	60-95 days
Non-U.S. Direct Lending	234,646	154,935	N/A	N/A
Direct Hedge	2,400	-	N/A	N/A
Private Equity	1,345,230	600,757	N/A	N/A
Risk Mitigation	83,895	-	Q	75 days
Total Other Investments Measured at the NAV	2,983,400	771,150		
Total Investments Measured at the NAV	**$ 5,362,205**	**$ 1,771,959**		

[1] M=Monthly, S=Semi-Annually, Q=Quarterly

The investment types listed in the above table were measured at the Net Asset Value (NAV) as explained below:

Global public equities include four separate institutional funds. Each fund has a different focus, U.S. equity, international equity, global equity and emerging market equity. The fair value of each fund has been determined using NAV per share or unit of the investments.

NOTE 3 : Investments (continued)

Real assets: Agriculture includes one fund that invests in a diversified portfolio of row, vegetable and permanent crop farmland in select major agricultural states. The fund is an open-end, infinite life, private REIT (real estate investment trust) subject to the redemption terms in the above schedule.

Real assets: Energy consists of thirteen limited partnerships that invest primarily in oil and gas related investments including energy-related infrastructure. There are no redemption terms for any of these partnerships. These investments are considered illiquid. During the life of the partnerships, distributions are received as underlying partnership investments are realized. The fair values of this investment type have been determined using estimates provided by the underlying partnerships and are at NAV. Two of the partnerships are considered going concerns, and are included at a zero value.

Real assets: Real estate investments include 14 funds consisting of primarily trust funds and limited partnerships. The purpose of these funds is to acquire, own, invest in real estate and real estate related assets with the intention of achieving current income, capital appreciation or both. These investments are valued through independent appraisals and other unobservable methods. Approximately 20% of the investments are closed-end funds with structured investment periods, and are considered illiquid investments. All other funds have no redemption restrictions other than the restrictions noted above.

Credit: Emerging market debt includes investments in three alternative funds that invest primarily in debt in emerging markets both domestic and foreign. The fair value of these investments has been determined using NAV per share of the investments. Investments representing approximately 59% of the value of the investments cannot be redeemed due to restrictions that do not allow for redemption.

Credit: U.S. direct lending consists of four funds. These funds seek to generate current income while preserving capital by investing in senior secured loans and other debt and equity securities of primarily U.S. companies. These investments are considered illiquid. Redemption restrictions are in place over the life of the partnerships. During the life of the partnerships, distributions are received as underlying partnership investments are realized.

Credit: Multi-strategy includes investments in five funds. All funds allow redemption with proper notification. These investment funds seek to minimize risk and volatility by constructing a portfolio of investments across a range of strategies.

Credit: Non-U.S. direct lending includes four investment funds. All of the funds are closed-end funds with structured investment periods, plus extension options. These funds invest opportunistically in Non-U.S. credit investments, which offer downside protection, such as senior secured loans to non-investment grade companies.

Absolute return: Direct hedge includes one limited partnership fund, which is winding down. No redemptions are available at this time. Proceeds will be distributed when liquidated.

Private equity includes primarily investments in limited partnerships. Generally, the partnership strategies are to maximize the return by participating in private equity and equity-related investments through a diversified portfolio of venture capital, growth equity, buyouts, special situation partnerships and other limited liability vehicles. Investments in these partnerships are typically for 10-12 years and are considered illiquid. Redemptions are restricted over the life of the partnership. During the life of the partnerships, distributions are received as underlying partnership investments are realized. The fair values of this investment type have been determined using NAV per share of the System's ownership interest in partners' capital.

Risk mitigation includes one limited partnership fund, which allows redemption with proper notification. The fund assists in diversifying the portfolio and protecting in an economic downturn of growth assets. The strategies are uncorrelated or negatively correlated to economic growth assets. The fair value of this investment has been determined using NAV per share.

NOTE 4 : Funding Policy - Pension Plan

Employer and employee/member pension plan contribution requirements are determined as a percentage of plan sponsor payrolls. In determining contributions, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. The projected total pensionable compensation for all OCERS' plan sponsors for the year ended December 31, 2017, was $1.6 billion. Employer contribution rates are determined using the entry age normal actuarial cost method based upon a level percentage of payroll. The employer contributions provide for both normal cost and an amount to amortize any unfunded or overfunded actuarial accrued liabilities. By definition, the normal cost is the annual contribution rate that, if paid annually from a member's first year of membership through the year of retirement, would accumulate to the amount necessary to fully fund the member's retirement benefit if all underlying assumptions are met. The actuarial report as of December 31, 2014 established the contribution rates for the first six months of calendar year 2017 (second half of fiscal year 2016-2017), and the actuarial valuation report as of December 31, 2015 established the contribution rates for the last six months of calendar year 2017 (first half of fiscal year 2017-2018). For the year ended December 31, 2017, employer contribution rates ranged from 11.40% of payroll to 61.89% depending upon the benefit plan type. Employer pension contributions were $572.1 million for the year ended December 31, 2017, of which approximately $401.1 million and $96.5 million, net of prepayment discounts, were made by the County of Orange and the Orange County Fire Authority, respectively. Participating employers are required by Government Code Sections 31453.5 and 31454 to contribute a percentage of covered salary to the Plan. The contribution requirements of participating active members and employers are established and may be amended by the OCERS' Board of Retirement. Participating employers may pay a portion of the participating active employees' contributions through negotiations and bargaining agreements. Employer contributions paid for by the employee through negotiated reverse pick-up arrangements are treated and reported as employee contributions. Employee contributions elected to be paid for by the employer under Section 31581.1 are treated and reported as employer contributions as these payments do not become part of the accumulated contributions of the employee and are immaterial. Employee contributions elected to be paid for by the employer under Section 31581.2 are treated and reported as employee contributions as these payments are credited to the employee account and become a part of their accumulated contributions.

Employee contributions are established by the OCERS' Board of Retirement and guided by state statute (Government Code Sections 31621, 31621.5, 31621.8, 31639.25 and 31639.5) and vary based upon employee age at the time of entering OCERS membership. OCERS received $262.3 million in employee pension contributions for the year ended December 31, 2017. Average employee contribution rates for the year ended December 31, 2017, ranged between 8.75% and 16.35%.

NOTE 5 : Plan Reserves

Employer and employee contributions are deposited into various legally-required reserve accounts established on a book value basis. Set forth below are the descriptions of OCERS' various reserve accounts:

Pension Reserve
Pension reserve represents funding set aside for retirement payments derived from employer contributions. Additions include transfers from the employer contribution reserve and interest credited. Deductions include benefit payments made to retired members.

Employee Contribution Reserve
Employee contribution reserve represents the balance of member contributions. Additions include member contributions and interest credited. Deductions include member refunds and transfers to the annuity reserve fund retirement benefits.

Employer Contribution Reserve
Employer contribution reserve represents the balance of employer contributions for active member future retirement benefits. Additions include employer contributions. Deductions include transfers to the pension reserves in order to fund retirement benefits, disability benefits and death benefits.

Annuity Reserve
Annuity reserve represents funding set aside for retirement payments derived from contributions made by members. Additions include transfers from the employee contribution reserve and interest credited. Deductions include benefit payments made to retired members.

Contra Account
A positive balance in this account represents excess earnings. A credit balance in this account represents the amount of interest credited to the reserve accounts that has not been paid for out of current or excess earnings. Additions include net increases to the fiduciary net position, which are decreased by interest credited to the reserves account.

NOTE 5 : Plan Reserves (continued)

County Investment Account (POB Proceeds) Reserve

County investment account (POB Proceeds) reserve represents the remaining proceeds from the County of Orange's 1994 Pension Obligation Bond issuance. The remaining proceeds are utilized, in accordance with a long standing agreement between OCERS and the County of Orange, to offset a portion of the annual actuarially-determined contribution rates for the County of Orange. In 2017, none of the remaining proceeds were utilized to offset the actuarially determined contributions for the County of Orange.

OCSD UAAL Deferred Reserve

The Orange County Sanitation District (OCSD) UAAL Reserve represents the payment by OCSD of its deferred UAAL. OCERS shall make annual transfers from the OCSD reserve account into the OCERS' employer contribution reserve account in the amount necessary to satisfy the actual UAAL attributed to OCSD. The intent of this transfer is to provide that the OCSD's future annual employer contribution obligation to OCERS shall consist of either the normal cost portion only, or the normal cost and amortizing installments of only such amount of future actual UAAL that exceeds the amount of funds remaining in the OCSD reserve account.

Actuarial Deferred Return

The actuarial deferred return represents the balance of deferred earnings created by a five-year smoothing of actual gains and losses compared to the assumed investment rate of return.

Health Care Plan Reserves

Health care plan reserves represent assets held to pay medical benefits for eligible retirees of the 401(h) health care plans. Additions include employer contributions and investment earnings. Deductions include medical payments.

Total Plan Reserves

As of December 31, 2017
(Dollars in Thousands)

Valuation Reserves		
Pension Reserve	$	8,409,830
Employee Contribution Reserve		3,093,113
Employer Contribution Reserve		2,620,807
Annuity Reserve		1,411,751
Contra Account		(1,338,906)
Non-Valuation Reserves		
County Investment Reserve		134,416
OCSD UAAL Deferred Reserve		14,871
Total Pension Fund Reserves (smoothed market actuarial value)		**14,345,882**
Actuarial Deferred Return		456,013
Net Position Restricted for Pensions including Non-Valuation Reserves		**14,801,895**
Health Care Reserves		334,054
Net Position-Total Fund	**$**	**15,135,949**

NOTE 6 : Administrative Expenses - Pension

As permitted by Government Code (Code) Section 31580.2, the Board of Retirement adopts an annual budget, financed from the System's assets, covering the entire expenses for the administration of OCERS. The Code provides that administrative expenses incurred in any year are to be charged against the earnings of the pension trust fund and are not to exceed twenty-one hundredths of one percent (0.21%) of OCERS' actuarial accrued liabilities, excluding investment related costs and expenditures for computer software, hardware and related technology consulting services. Administrative expenses incurred in calendar year 2017 were within the limits established by the Code. The following schedule represents the excess of the maximum allowed over actual administrative expenses for the year ended December 31, 2017.

Administrative Expense Compared to Projected Actuarial Accrued Liability

For the Year Ended December 31, 2017
(Dollars in Thousands)

Projected Actuarial Accrued Liability (AAL) as of 12/31/17	$	18,896,140
Maximum Allowed for Administrative Expense (AAL * 0.21%)		39,682
Actual Administrative Expense[1]		15,349
Excess of Allowed Over Actual Expense	**$**	**24,333**
Actual Administrative Expense as a Percentage of Projected Actuarial Accrued Liability as of 12/31/17		0.08%
[1] Administrative Expense Reconciliation		
Administrative Expense per Statement of Changes in Fiduciary Net Position	$	17,002
Less Administrative Expense Not Considered per CERL Section 31596.1		(1,653)
Administrative Expense Allowable Under CERL Section 31580.2	**$**	**15,349**

NOTE 7 : Contingencies

At December 31, 2017, OCERS was involved in various litigation matters. In management's opinion, and after consultation with legal counsel, the outcome of these matters is not expected to have a material adverse effect on OCERS' financial position.

NOTE 8 : Pension Disclosures

The net pension liability was measured as of December 31, 2017. The plan fiduciary net position was valued as of the measurement date while the total pension liability was determined based upon rolling forward the total pension liability from the actuarial valuation as of December 31, 2016. The components of the net pension liability as of December 31, 2017, are as follows:

Net Pension Liability

As of December 31, 2017
(Dollars in Thousands)

Total Pension Liability	$	19,753,994
Less: Plan Fiduciary Net Position		(14,801,895)
Net Pension Liability	**$**	**4,952,099**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability		**74.93%**

NOTE 8 : Pension Disclosures (continued)

Actuarial Assumptions

Actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future. Examples include future salary increases and investment earnings, expected retirement age, life expectancy and other relevant factors. Actuarially determined amounts are subject to continual revision as results are compared to past expectations and new estimates are made about the future. OCERS' actuary and Board of Retirement review the economic and demographic assumptions every three years and the actuarially determined contributions annually.

In preparing the actuarial valuation, the actuary has complied with the parameters set forth in GASB Statement No. 67, *Financial Reporting for Pension Plans – An Amendment of GASB Statement No. 25*, and employed generally accepted actuarial methods and assumptions to measure the total pension liability of plan sponsors. The actuary's calculations are based upon member data and financial information provided by the System. Projection of benefits for financial reporting purposes is based on all benefits estimated to be payable through the System to current active, retired and inactive employees as a result of their past service and their expected future service.

The total pension liability as of December 31, 2017, was remeasured by (1) revaluing the total pension liability as of December 31, 2016, (before the roll forward) to include the actuarial assumptions that the Board of Retirement has adopted for use in the pension funding valuation as of December 31, 2017, and (2) using this revalued total pension liability in rolling forward the results from December 31, 2016 to December 31, 2017:

Actuarial Information

Investment Rate of Return	7.00%, net of pension plan investment expense, including inflation
Inflation Rate	2.75%
Projected Salary Increases	General: 4.25% to 12.25% and Safety: 4.75% to 17.25%, vary by service, including inflation
Cost of Living Adjustments	2.75% of retirement income
Mortality Rates	Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table, projected generationally using two-dimensional MP-2016 scale, adjusted separately for healthy and disabled for both general and safety members.
Other Assumptions	Refer to Actuarial Experience Study 01/01/2014-12/31/2016

Long-Term Expected Real Rate of Return

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage, adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before deducting investment expenses, used in the derivation of the December 31, 2017, long-term expected investment rate of return assumption are summarized in the following table:

NOTE 8 : Pension Disclosures (continued)

Long-Term Expected Real Rate of Return

For the Year Ended December 31, 2017

Asset Class	Target Allocation	Long-Term Expected Arithmetic Real Rate of Return
Global Equity	35%	6.38%
Core Bonds	13%	1.03%
High Yield Bonds	4%	3.52%
Bank Loan	2%	2.86%
TIPS	4%	0.96%
Emerging Markets Debt	4%	3.78%
Real Estate	10%	4.33%
Core Infrastructure	2%	5.48%
Natural Resources	10%	7.86%
Risk Mitigation	5%	4.66%
Mezzanine / Distressed Debts	3%	6.53%
Private Equity	8%	9.48%
Total	**100%**	

Discount Rate

The discount rate used to measure the total pension liability was 7.00% for the year ended December 31, 2017. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the actuarially determined contribution rates. For this purpose, only employer contributions that are intended to fund benefits for current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service costs for future plan members and their beneficiaries, as well as projected contributions from future plan members, are not included. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments for current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability as of December 31, 2017.

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following table represents the net pension liability as of December 31, 2017, of participating employers calculated using the discount rate of 7.00%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1.00% lower (6.00%) or 1.00% higher (8.00%) than the current rate:

Sensitivity of Net Pension Liability to Changes in the Discount Rate

As of December 31, 2017
(Dollars in Thousands)

1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
$ 7,854,146	$ 4,952,099	$ 2,594,547

Section II

Financial

Required Supplementary Information

Schedule of Changes in Net Pension Liability of Participating Employers

For the Years Ended December 31, 2013 through 2017[1]
(Dollars in Thousands)

	2017	2016	2015	2014	2013
Total Pension Liability					
Service Cost	$ 452,412	$ 427,473	$ 439,454	$ 438,600	$ 444,838
Interest	1,305,268	1,241,080	1,197,308	1,153,352	1,109,002
Change of Benefit Terms	-	-	-	-	-
Differences Between Expected and Actual Experience	(66,964)	(323,566)	(205,463)	(327,402)	(295,483)
Changes of Assumptions	827,197	-	-	(127,729)	-
Benefit Payments, Including Refunds of Employee Contributions	(764,344)	(717,976)	(675,963)	(630,678)	(586,284)
Other	-	(509)[2]	-	-	-
Net Change in Total Pension Liability	**1,753,569**	**626,502**	**755,336**	**506,143**	**672,073**
Total Pension Liability - Beginning	**18,000,425**	**17,373,923**	**16,618,587**	**16,112,444**	**15,440,371**
Total Pension Liability - Ending (a)	**$ 19,753,994**	**$ 18,000,425**	**$ 17,373,923**	**$ 16,618,587**	**$ 16,112,444**
Plan Fiduciary Net Position					
Contributions - Employer [3]	$ 572,104[4]	$ 567,196	$ 571,298	$ 625,520	$ 427,095
Contributions - Employee	262,294	258,297	249,271	232,656	209,301
Net Investment Income/(Loss)	1,939,635	1,061,243	(10,873)	499,195	1,152,647
Benefit Payments, Including Refunds of Employee Contributions	(764,344)	(717,976)	(675,963)	(630,678)	(586,284)
Administrative Expense	(17,002)	(16,870)	(12,521)	(11,905)	(11,705)
Net Change in Plan Fiduciary Net Position	**1,992,687**	**1,151,890**	**121,212**	**714,788**	**1,191,054**
Plan Fiduciary Net Position - Beginning	**12,809,208**	**11,657,318**	**11,536,106**	**10,821,318**	**9,630,264**
Plan Fiduciary Net Position - Ending (b)	**14,801,895**	**12,809,208**	**11,657,318**	**11,536,106**	**10,821,318**
Net Pension Liability (a) - (b) = (c)	**$ 4,952,099**	**$ 5,191,217**	**$ 5,716,605**	**$ 5,082,481**	**$ 5,291,126**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability (b)/(a)	74.93%	71.16%	67.10%	69.42%	67.16%
Covered Payroll (d)	$ 1,678,322	$ 1,602,675	$ 1,521,036	$ 1,513,206	$ 1,494,745
Plan Net Pension Liability as a Percentage of Covered Payroll (c)/(d)	295.06%	323.91%	375.84%	335.88%	353.98%

1 Data for years prior to 2013 is not available. Information will be presented over ten years as it becomes available prospectively.
2 Orange County Public Law Library was separated out from the Orange County Sanitation District in Rate Group #3 and put into their own Rate Group (Rate Group #12) as of the December 31, 2015 valuation. There was an adjustment to the UAAL for Rate Group #3 that was originally included in the December 31, 2015 valuation. There was a credit of $509 given to the Orange County Public Law Library to reflect that their future service enhancement did not increase the UAAL.
3 Reduced by discount for prepaid contributions and transfers from County Investment Account.
4 A $24,042 transfer from the Orange County Sanitation District Deferred UAAL Account, which was required to offset a UAAL increase for the assumption changes has been excluded from this amount.

Schedule of Investment Returns

For the Years Ended December 31, 2014 Through 2017[1]

Years Ended December 31	Annual Money Weighted Rate of Return, Net of Investment Expense
2014	4.64%
2015	- 0.51%
2016	8.71%
2017	14.74%

[1] Data for years prior to 2014 is not available. Information will be presented over ten years as it becomes available prospectively.

Schedule of Employer Contributions

For the Years Ended December 31, 2008 through 2017
(Dollars in Thousands)

Years Ended December 31	Actuarially Determined Contributions[1,2]	Actual Contributions[1,2]	Contribution Deficiency / (Excess)[3]	Covered Payroll	Contributions as a % of Covered Payroll
2008	$ 359,673	$ 360,365[3]	$ (692)	$ 1,526,113	23.61%
2009	337,496	338,387[3]	(891)	1,598,888	21.16%
2010	372,437	372,437	-	1,511,569	24.64%
2011	387,585	387,585	-	1,498,914	25.86%
2012	406,521	406,521	-	1,497,475	27.15%
2013	426,020	427,095[3]	(1,075)	1,494,745	28.57%
2014	476,320	625,520[3]	(149,200)	1,513,206	41.34%
2015	502,886	571,298[3]	(68,412)	1,521,036	37.56%
2016	521,447	567,196[3]	(45,749)	1,602,675	35.40%
2017	536,726[4]	572,104[3,4]	(35,378)	1,678,322	34.09%

[1] Excludes employer pickup of member contributions and transfers from County Investment Account (funded by pension obligation proceeds held by OCERS). Those transfers are as follows:

2009	$ 34,900
2010	11,000
2011	11,000
2012	5,500
2013	5,000
2014	5,000

[2] Reduced by discount for prepaid contributions

[3] Includes additional contributions made by Plan Sponsors towards the reduction of their UAAL.

[4] A $24,042 transfer from the Orange County Sanitation District Deferred UAAL Account, which was required to offset a UAAL increase for the assumption changes has been excluded from both these amounts.

Notes to the Required Supplementary Information

Actuarial Valuation Methods and Assumptions

The actuarial determined contribution rates in the schedule of employer contributions are calculated as of December 31. Rates are effective eighteen months after the valuation date for the fiscal year that begins July 1. The following actuarial methods and assumptions were used to calculate the actuarially determined contributions for the year ended December 31, 2017:

Valuation Date	Actuarially determined contribution rates for the first six months of calendar year 2017 or the second half of fiscal year 2016-2017 are calculated based on the December 31, 2014 valuation. Actuarially determined contribution rates for the last six months of calendar year 2017 or the first half of fiscal year 2017-2018 are calculated based on the December 31, 2015 valuation.
Actuarial Cost Method	Entry Age Actuarial Cost Method
Amortization Method	Level percent of payroll for total unfunded actuarial accrued liability
Remaining Amortization Period	Effective December 31, 2013, the outstanding balance of the UAAL from the December 31, 2012 valuation was combined and re-amortized over a declining 20-year period. Any changes in UAAL due to actuarial gains or losses or due to changes in assumptions or methods will be amortized over separate 20-year periods. Any changes in UAAL due to plan amendments will be amortized over separate 15-year periods and any change in UAAL due to early retirement incentive programs will be amortized over a separate period of up to 5 years.
Asset Valuation Method	The Actuarial Value of Assets is determined by recognizing any difference between the actual and the expected market return over a five-year period. The Valuation Value of Assets is the Actuarial Value of Assets reduced by the value of the non-valuation reserves.
Actuarial Assumptions:	
December 31, 2014 Valuation	
Investment Rate of Return	7.25% net of pension plan investment expense, including inflation
Inflation Rate	3.00%
Real Across-the-Board Salary Increase	0.50%
Projected Salary Increases	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%, vary by service, including inflation
Cost of Living Adjustments	3.00% of retirement income
Other Assumptions	Same as those used in the December 31, 2014 funding actuarial valuation
December 31, 2015 Valuation	
Investment Rate of Return	7.25% net of pension plan investment expense, including inflation
Inflation Rate	3.00%
Real Across-the-Board Salary Increase	0.50%
Projected Salary Increases	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%, vary by service, including inflation
Cost of Living Adjustments	3.00% of retirement income
Other Assumptions	Same as those used in the December 31, 2015 funding actuarial valuation

Significant Factors Affecting Trends in Actuarial Information – Pension Plan

Changes in Benefit Terms

2016

- New employees hired by the City of San Juan Capistrano on and after July 1, 2016 will be offered a choice in retirement plan formulas; the PEPRA Plan U (2.5% at 67 PEPRA – General) or the alternate plan formula, Plan W (1.62% at 65 PEPRA – General).
- Orange County Public Law Library was moved from Rate Group #3 into its own rate group, Rate Group #12.

2015

- Effective January 1, 2015, new OCTA employees will be enrolled in Plan U (2.5% at 67 PEPRA - General).

2012

- With the exception of OCTA, members with membership date on or after January 1, 2013 will be placed in PEPRA tiers: Plan T (1.62% at 65 PEPRA – General); Plan U (2.5% at 67 PEPRA – General); or Plan V (2.7% at 57 PEPRA – Safety).

2011

- Effective April 20, 2012, certain employees previously employed at the City of Santa Ana became employees of OCFA General and OCFA Safety and are eligible for benefits under Plan N (2 % at 55) and Plan F (3% at 50), respectively.
- Effective July 1, 2012, new General employees hired by the City of San Juan Capistrano will be covered under General Plan S (2% at 57).

2010

- LAFCO adopted an optional 1.62% of final average salary at age 65 for members hired on or after July 1, 2010.
- County Managers unit adopted an optional 1.62% of final average salary at age 65 for members hired on or after August 17, 2010.
- Sanitation District adopted a 1.64% of final average salary at age 57 for members within Supervisors and Professional unit hired on or after October 1, 2010.
- OCFA adopted a 3.00% of final average salary at age 55 for Safety members within the Executive Management unit hired on or after July 1, 2011 and for all Safety members hired on or after July 1, 2012.
- OCFA adopted a 2.00% of final average salary at age 55 for General members hired on or after July 1, 2011.

2009

- County and the Courts adopted optional 1.62% at 65 formula for General Member Employees entering OCERS after May 7, 2010.
- County Law Enforcement Members adopted 3% at 55 formula for Safety Members entering OCERS on or after April 9, 2010.

2007

- Vector Control District terminated their participation in OCERS effective January 4, 2007.
- Retirement formula for the Orange County Cemetery District changed to 2% at 55 effective December 7, 2007.

Significant Factors Affecting Trends in Actuarial Information – Pension Plan

(continued)

Changes in Assumptions and Methods

2017

- The assumed rate of return was decreased from 7.25% to 7.00%.
- The inflation rate was decreased from 3.00% to 2.75%.
- Projected salary increases for general members of 4.25% to 13.50% changed to 4.25% to 12.25% and safety members changed from 5.00% to 17.50% to 4.75% to 17.25%.
- Mortality rate tables changed to a Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table, projected generationally using two-dimensional MP-2016 scale, adjusted separately for healthy and disabled for both general and safety members.
- Impact due to assumption changes to be phased-in over three years.

2014

- The inflation rate was reduced from 3.25% to 3.00%.
- Total wage inflation and payroll growth was reduced from 3.75% to 3.50%.
- Projected salary increases for general members of 4.75% to 13.75% changed to 4.25% to 13.50% and safety members changed from 4.75% to 17.75% to 5.00% to 17.50%.
- Inclusion of additional cash-out assumptions in developing basic member contribution rates in the legacy plans.
- Mortality rates for after service retirement were changed to reflect longer life expectancies for Safety members and shorter life expectancies for General members and longer life expectancies for both General and Safety members for after disability retirement. The cost impact to employer to be phased in over three years.

2013

- The outstanding balance of the December 31, 2012 UAAL was combined and re-amortized over a 20-year period.

2012

- The investment rate of return was decreased from 7.75% to 7.25%.
- The inflation rate was decreased from 3.50% to 3.25%.
- Projected salary increases for general members of 4.50% to 11.50% changed to 4.75% to 13.75% and safety members changed from 4.50% to 13.50% to 4.75% to 17.75%.

2011

- Changes in mortality, disability, termination, retirement, salary scale, and annual pay-off assumptions in the December 31, 2010 triennial experience study increased the pension plan UAAL by $364 million.

2009

- Adjustments to correct the under-reporting of certain premium pay items in prior years' pensionable salary data resulted in a $228 million increase in UAAL.

2008

- Individual salary increase assumptions are changed from age based to service based.
- Annual leave payoff assumptions were increased for General members.

Section II

Financial

Other Supplementary Information

Schedule of Contributions

For the Year Ended December 31, 2017
(Dollars in Thousands)

	Employee	Employer
Pension Trust Fund Contributions		
County of Orange	$ 206,350	$ 420,500
Orange County Fire Authority	21,294	98,291[1]
Orange County Superior Court of California	15,300	30,423
Orange County Transportation Authority	8,926	24,310
Orange County Sanitation District	7,496	7,625
UCI Medical Center and Campus	-	2,948[2]
City of San Juan Capistrano	802	2,391
Orange County Children & Families Commission	86	2,015[3]
OCERS	901	1,960
Orange County Public Law Library	163	1,801[4]
Transportation Corridor Agencies	692	1,738
Orange County Department of Education	-	524[2]
Orange County In-Home Supportive Services Public Authority	112	204
Orange County Cemetery District	131	170
Orange County LAFCO	37	125
Orange County Mosquito & Vector Control	4	-
Contributions Before Prepaid Discount	262,294	595,025
Prepaid Employer Contribution Discount	-	(22,921)
Total Pension Trust Fund Contributions	**262,294**	**572,104**
Health Care Fund - County Contributions	**-**	**59,864**
Health Care Fund - OCFA Contributions	**-**	**2,380**
Total Contributions	**$ 262,294**	**$ 634,348**

[1] Unfunded actuarial accrued liability payments were made in 2017 of $32.1 million for the Orange County Fire Authority.

[2] Unfunded actuarial accrued liability payments have been made in accordance with a separate 20-year level dollar payment schedule to include liabilities for employee benefits related to past service credit.

[3] Unfunded actuarial accrued liability payments were made in 2017 of $1.7 million for the Orange County Children & Family Commission.

[4] Unfunded actuarial accrued liability payments were made in 2017 for $1.5 million for the Orange County Public Law Library.

Schedule of Administrative Expenses

For the Year Ended December 31, 2017
(Dollars in Thousands)

Pension Fund Administrative Expenses	
Expenses Subject to the Statutory Limit	
Personnel Services	
Employee Salaries and Benefits	$ 9,933
Board Members' Allowance	16
Total Personnel Services	9,949
Office Operating Expenses	
Depreciation/Amortization	2,292
General Office and Administrative Expenses	1,300
Professional Services	1,240
Rent/Leased Real Property	568
Total Office Operating Expenses	5,400
Total Expenses Subject to the Statutory Limit	15,349
Expenses Not Subject to the Statutory Limit	
Information Technology Professional Services	1,171
Actuarial Fees	385
Equipment/Software	97
Total Expenses Not Subject to the Statutory Limit	1,653
Total Pension Fund Administrative Expenses	**17,002**
Health Care Fund - County Administrative Expenses	22
Health Care Fund - OCFA Administrative Expenses	27
Total Administrative Expenses	**$ 17,051**

Schedule of Investment Expenses

For the Year Ended December 31, 2017
(Dollars in Thousands)

Investment Management Fees *		
Global Public Equity:		
U.S. Equity	$	2,932
Global Equity		451
Internatioal Equity		4,957
Emerging Markets Equity		4,292
Total Global Public Equity		12,632
Core Fixed Income:		
U.S. Fixed Income		974
Total Core Fixed Income		974
Credit:		
High Yield		2,362
Emerging Markets Debt		695
Direct Lending		3,000
Mortgage		4,460
Multi-Strategy		3,429
Non-U.S. Direct Lending		1,400
Total Credit		15,346
Real Assets:		
Real Estate		15,697
Real Return		
Timber		1,329
Agriculture		1,086
Infrastructure		5,703
Energy		882
Total Real Return		9,000
Total Real Assets		24,697
Absolute Return:		
Direct Hedge Fund		2,134
GTAA		1,406
Total Absolute Return		3,540
Private Equity		8,093
Risk Mitigation		5,166
Short-Term Investments		250
Total Investment Management Fees		**70,698**
Other Fund Expenses [1]		**7,459**
Other Investment Expenses		
Consulting/Research Fees		1,005
Investment Department Expenses		1,171
Legal Services		346
Custodian Services		438
Investment Service Providers		28
Total Other Investment Expenses		**2,988**
Security Lending Activity		
Security Lending Fees		399
Rebate Fees		1,531
Total Security Lending Activity		**1,930**
Total Investment Expenses	**$**	**83,075**

Note: New schedule format for investment management fees to reflect the new investment allocation adopted in 2017.

* Does not include undisclosed fees deducted at source.

[1] These costs include, but are not limited to foreign income tax and other indirect flow-through investment expenses such as organizational expenses in limited partnership structures.

Schedule of Payments for Professional Services

For the Year Ended December 31, 2017
(Dollars in Thousands)

Type of Services *

Professional Expenses Subject to the Statutory Limit	
Medical/Disability Services	$ 300
Legal Counsel	278
Administrative Services	159
Information Technology Services	155
Finance Services	134
Audit Services	126
Other Legal Services	80
Other Consulting/Services	8
Total Professional Expenses Subject to the Statutory Limit	**1,240**
Professional Expenses Not Subject to the Statutory Limit	
Information Technology Consultants	1,171
Consulting/Research Fees	1,005
Custodian Services	438
Actuarial Services	385
Investment Legal Services	346
Investment Service Providers	28
Total Professional Expenses Not Subject to the Statutory Limit	**3,373**
Total Payments for Professional Expenses	**$ 4,613**

* Detail for fees paid to investment professionals is presented in the Investment Section.

Statement of Changes in Assets and Liabilities - OPEB Agency Fund

For the Year Ended December 31, 2017
(Dollars in Thousands)

	Beginning Balance December 31, 2016	Additions	Deductions	Ending Balance December 31, 2017
Assets				
Cash and Cash Equivalents	$ 288	$ 927	$ (837)	$ 378
Global Public Equity	8,974	1,866	(215)	10,625
Core Fixed Income	5,432	240	(40)	5,632
Total Assets	$ 14,694	$ 3,033	$ (1,092)	$ 16,635
Liabilities				
Due to Employers	$ 14,694	$ 3,033	$ (1,092)	$ 16,635
Total Liabilities	$ 14,694	$ 3,033	$ (1,092)	$ 16,635

Section III

Investment

Orange County In-Home Supportive Services Public Authority (IHSS)

The Orange County In-Home Supportive Services Public Authority provides the elderly, blind, and individuals with disabilities assistance in finding a pre-screened homecare provider who will enable them to live independently and remain safely in their homes. Services may include house cleaning, shopping, cooking, laundry and personal care services, such as help with bathing, grooming and dressing. A social worker will work with the individual in need of in-home care services by performing a needs assessment to determine the types of services needed. Once the individual's needs have been assessed, resources will be provided to help the individual in finding and hiring an appropriate homecare provider.

Investment Consultant's Statement

MEMORANDUM

To: Board Members, Orange County Employees Retirement System

From: Stephen McCourt, Laura Wirick, Holly Heiserman-Biertuempfel
Meketa Investment Group

Date: April 9, 2018

Re: Investment Consultant's Statement for CAFR

This letter reviews the investment performance of the Orange County Employees Retirement System (OCERS) for the year ending December 31, 2017.

OCERS' stated mission is to provide secure retirement and disability benefits with the highest standards of excellence. To this end, OCERS strives to align the portfolio's asset allocation, investments, and other related decision with the goals of the overall system. This alignment is a fundamental part of the Investment Committee's monthly meetings, where performance is examined (both on an overall portfolio basis and at the manager level), asset allocation is reviewed and modified to fit changes in expected return, strategic and tactical decisions are discussed, and the System's liabilities are reviewed. Meketa Investment Group, OCERS' general consultant, works in concert with PCA, OCERS' risk consultant, to provide guidance to the Board (the System's fiduciary), and assist the Board with performance evaluation, asset allocation, manager selection, and other industry best practices.

State Street Bank and Trust Company, OCERS' custodian, independently prepared the performance data used in this report. Rates of return are represented using a time-weighted rate of return methodology based upon market values.

2017 Year in Review

Emerging and international markets were strong in the first quarter of 2017, with the MSCI Emerging Markets Index (equity) and MSCI EAFE Index (equity) returning 11.4% and 7.2%, respectively. Emerging market debt and domestic equity also showed strength, while commodities were the only major asset class to post negative returns. The Federal Reserve made their third 0.25% rate increase in March (0.75% to 1.00%). Also in March, the Bank of Japan (BOJ) and the European Central Bank (ECB) made no changes to their respective stimulative efforts, both keeping bank deposit rates negative and targeting 0% yields on key interest rates. The Federal Reserve, BOJ, and ECB actions highlighted the divergence of policy among major central banks. China's economy grew slightly above expectations in the first quarter (6.9% versus 6.8%), driven in part by the construction industry's high demand for steel. Corporate debt levels, a hot property market, capital outflows, and the relationship with the new U.S. administration were key issues for the world's second largest economy.

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April 9, 2018
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In the second quarter, markets continued first quarter themes; emerging and international equity markets posted strong returns, with the MSCI Emerging Markets Index and MSCI EAFE Index returning 6.3% and 6.1%, respectively. Domestic equities continued to show strength, and commodities lagged substantially, with the Bloomberg Commodity Index returning -3.0%. For the first time in six years, the International Monetary Fund (IMF) increased their forecast for global growth (from 3.4% to 3.5%), citing improvements in manufacturing, trade, and investment, but they warned that downside risks related to potential protectionist trade policies and structural issues remained. A further global growth forecast increase to 3.6% was projected to take place in 2018.

Expectations for continued low interest rates helped emerging markets, resulting in a third quarter of strength; the MSCI Emerging Markets returned 7.9% in the third quarter, outperforming all other major asset classes. Commodities continued to trail other asset classes, but ended the third quarter with a slightly positive return.

In the fourth quarter, emerging market equities again led the world markets, with the MSCI Emerging Markets returning 7.4% and outperforming the S&P 500, which returned 6.6% over the same period. Commodities rebounded, with the Bloomberg Commodity Index returning 4.7%. Fixed income lagged other asset classes, with the Bloomberg Barclays Aggregate, Bloomberg Barclays High Yield, and the JPM GBI-Emerging Markets Global Diversified Local Index all returning less than 1.0%.

2018 OUTLOOK

Looking forward to 2018, growth is expected to continue. Global growth forecasts for 2018 and 2019 were revised upward by the IMF, due to the recent U.S. tax legislation and accelerating growth. The IMF forecasted increases in Japan and Europe, due to higher domestic and foreign demand. Medium-term risks remain, including the potential for a correction in financial markets and higher than expected inflation and interest rates. Projections for emerging economy growth remain unchanged for 2018 (4.9%) and 2019 (5.0%), with wide variations across countries.

Four primary concerns currently face the global economy. First, the potential for simultaneous monetary tightening globally. Since the Global Financial Crisis (GFC), central banks worldwide have attempted to support markets and the economy through low interest rates and bond-purchasing programs (i.e., quantitative easing). Total balance sheets have close to doubled since the GFC and equal over 40% of aggregate GDP. The U.S. has been increasing rates and reducing its balance sheet, with other central banks likely to follow shortly. Simultaneous tightening across central banks could lead to higher interest rates, less liquidity, and overall slower economic activity

Second, there is uncertainty related to U.S. policies. The U.S. has experienced largely stable growth since the end of the financial crisis, but at levels below prior recoveries. Inflation and wage growth remain low despite the declining unemployment rate. Recent tax legislation could lead to more growth, but also higher inflation and tightening from the Fed. The question remains whether the U.S. needs additional stimulus this late in the

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economic cycle. Political gridlock in Washington and uncertainty related to the administration's policies, particularly regarding trade, remain other key issues.

Third, declining growth in China, along with uncertain fiscal and monetary policies could impact the global markets. Over the coming years, China will likely continue to manage a repositioning and slowing of its economy, which could have a meaningful impact on countries that depend on its trade. Uncertainties related to the policies of the recently elected officials at the Communist Party's congress and the growing debt, particularly corporate, remain key issues. Another devaluation of the yuan could disrupt capital markets, weigh on domestic demand, and hurt countries with competing exports.

Fourth, political uncertainty in Europe and risks related to the U.K.'s exit from the European Union could have a substantial impact on international developed economies. The referendum in Catalonia Spain and the elections in Germany showed that political uncertainties remain in Europe. The on-going negotiations of the U.K. to leave the EU is another key issue. Uncertainty related to the outcome of negotiations should weigh on foreign investment and consumption. Any moves by other countries to leave the EU, or the Eurozone, would be disruptive to markets and growth.

OCERS 2017 PERFORMANCE

OCERS' portfolio returned 14.5% in 2017, outperforming the Policy Index return of 13.7%, and the System's 7.25% required actuarial rate of return. For 2017, OCERS was in the 78th percentile[1] compared to peers. Emerging Market Equity had the strongest absolute performance of all asset classes, returning 43.2%, and outperforming the MSCI Emerging Market return of 37.3%, while the Treasury Inflation Protected Securities ("TIPS") asset class had the weakest 2017 performance of 3.6%, outperforming the Bloomberg Barclays U.S. TIPS Index, which returned 3.0% over the same period.

Over the trailing three- and five-year periods, the OCERS portfolio returned 7.5% and 7.6% on average annually, underperforming the Policy Index returns of 7.8% and 8.2%, respectively. For the trailing three years, OCERS was in the 72nd percentile compared to peers, and over the trailing five years, OCERS was in the 83rd percentile compared to peers.

A new asset allocation was adopted by the Investment Committee at the beginning of 2017. The goals of the new asset allocation included simplifying the portfolio, lowering investment management fees, and focusing on drivers of risk and return going forward.

If you have any questions, please contact us at (760) 795-3450.

SPM/LW/HH/mps

[1] Based on InvestorForce peer rankings: Defined Benefit Public Funds over $1 billion in assets.

Investment Returns

The table below details the annualized rates of return for the different asset categories over various time periods ended December 31, 2017. The returns for each asset class represent the composite returns of all the manager portfolios within the asset class. All returns are net of fees, which is a change from the reporting in prior years when only indirect or at source fees were deducted from the returns being presented. The method of computation of investment returns is time-weighted approximation.

	1 Year	3 Year	5 Year
Global Public Equity (%)	**26.01**	**10.15**	**11.58**
MSCI ACWI Index (%)	24.62	9.89	11.40
Private Equity (%)	**14.05**	**11.44**	**12.64**
Cambridge Private Equity Lagged	14.56	9.68	12.84
Core Fixed Income (%)	**5.05**	**2.81**	**1.72**
Bloomberg Barclays Capital Universal Index (%)	3.54	2.24	2.10
Credit (%)	**9.08**	**7.19**	**7.35**
Credit Custom Index[1] (%)	5.86	5.46	5.08
Real Assets (%)	**N/A**	**N/A**	**N/A**
Real Assets Custom Index[2] (%)	N/A	N/A	N/A
Real Return (%)	**1.90**	**1.66**	**-0.08**
Real Return Custom Index[3] (%)	9.42	7.76	6.92
Real Estate (%)	**6.62**	**11.79**	**11.80**
Real Estate Custom Index[4] (%)	7.62	9.57	10.71
Risk Mitigation (%)	**N/A**	**N/A**	**N/A**
Risk Mitigation Custom Index[5] (%)	N/A	N/A	N/A
Short Term Investments (%)	**1.32**	**0.72**	**0.62**
Cash Overlay (%)	**14.13**	**6.47**	**7.05**
91-day Treasury Bill (%)	0.86	0.41	0.27
Total Fund (%)	**14.51**	**7.47**	**7.58**
Composite Policy Benchmark[6] (%)	13.73	7.86	8.17

(1) Credit Custom Index = 50% Merrill Lynch HY Constrained + 50% CS Levered Loan

(2) Real Assets Custom Index = 45% NCREIF ODCE Index/ 36% Cambridge Private Equity Energy Lagged/ 13% Cambridge Infrastructure Index L/ 6% NCREIF Farmland Index

(3) Real Return Custom Index =60% Bloomberg Barclays U.S. TIPS Index + 40% (CPI + 5%) through 6/30/12, CPI + 5% through 6/30/14, CPI + 3% through 6/30/16; and 10% NCREIF Farmland Index + 25% S&P GSCI Index + 15% NCREIF Timberland Index + 50% Cambridge Private Equity Energy Lagged thereafter

(4) Real Estate Custom Index = 90% NCREIF Total Index + 10% FTSE EPRA/NAREIT Global Real Estate Index through 6/30/12, 90% NCREIF ODCE Index + 10% FTSE EPRA/NAREIT Developed Real Estate Ex-U.S. Index through 12/31/16, and 100% NCREIF ODCE Index thereafter

(5) Risk Mitigation Custom Index = 50% HFRI MACRO: Systematic Diversified CTA + 50% Bbloomberg Barclays Long Term U.S. Treasury Index

(6) Policy Benchmark = 13.0% Russell 1000 Index + 2% Russell 2000 Index + 7.0% MSCI EAFE Index + 5.0% MSCI World Index + 6.0% MSCI Emerging Markets Equity Index + 2% MSCI EAFE Small Cap Equity Index + 10.0% Bloomberg Barclays U.S. Universal Index + 7.0% ML HY Constrained + 7.0% CS Leveraged Loan + 7% HFRI Fund of Fund Index + 2 1/3% HFRI Macro Index + 2 1/3% MSCI ACWI Index + 2 1/3% Bloomberg Barclays Multiverse Index + 4% Cambridge Private Equity Energy Lagged + 2% S&P GSCI Index + 1.2% NCREIF Timberland Index + 0.8% NCREIF Farmland Index + 10.0% NCREIF ODCE Index + 6% Cambridge Private Equity Lagged + 1.95% JPMorgan GBI-EM Global Diversified Un-hedged + 1.05% JPMorgan EM Bond Index

N/A - Represents new investment class and custom index in 2017; data not available.

Statement of Investment Objectives and Policies

General

The primary goal of the Orange County Employees Retirement System's investment program is to provide Plan participants with retirement benefits as required by the County Employees Retirement Law of 1937. This goal is accomplished through Plan Sponsors' and Plan participants' contributions and the implementation of a carefully planned and monitored long-term investment program. The Board of Retirement (with the participation of the Investment Committee, staff and advisors) has exclusive control of all investments of the Plan and is responsible for the establishment of investment objectives, strategies and policies.

The Board of Retirement is authorized to invest in any form or type of investment deemed prudent in the informed opinion of the Board. The Board has adopted an Investment Policy Statement that provides a frame work for the management of OCERS' investments. This purpose of the Investment Policy Statement is to assist the Investment Committee in effectively supervising, monitoring, and evaluating the investment of the system's assets.

Investment Objectives

The overall objective is to invest the assets of the system solely for the benefit of plan participants and beneficiaries while attempting to minimize employer contributions and investment and administration costs. The long-term performance objective for the portfolio is to exceed the actuarially assumed rate of return net of fees and expenses, with a secondary objective of exceeding the return on an appropriate designated balanced index mutual fund over a complete economic cycle and relevant longer periods, also net of fees and expenses.

Strategic Asset Allocation Policy and Maintenance

A pension fund's strategic asset allocation policy, implemented in a consistent and timely manner, is generally recognized to have the most impact on a fund's investment performance. The asset allocation policy determines a fund's optimal long-term asset class mix (target allocation). This policy is expected to achieve a specific set of investment goals, such as risk and return objectives. The policy also establishes ranges around the targeted levels, which assets levels are permitted to fluctuate. Fluctuations outside the permitted range act as triggers for reallocating assets to ensure adherence to targeted weights.

Program Administration and Manager Structure

For each major asset class, the System shall diversify assets by employing managers with demonstrated skill in their particular areas of expertise. The System will retain managers who utilize varied investment approaches and allocate assets in a manner that is consistent with the overall strategic plan. For example, the sum of all domestic equity managers should exhibit characteristics that are similar, but not necessarily identical, to the overall equity market. When asset fluctuation causes the asset class to exhibit characteristics that are dissimilar from the plan, staff shall direct cash flows to or from the various managers so that actual characteristics are consistent with the plan.

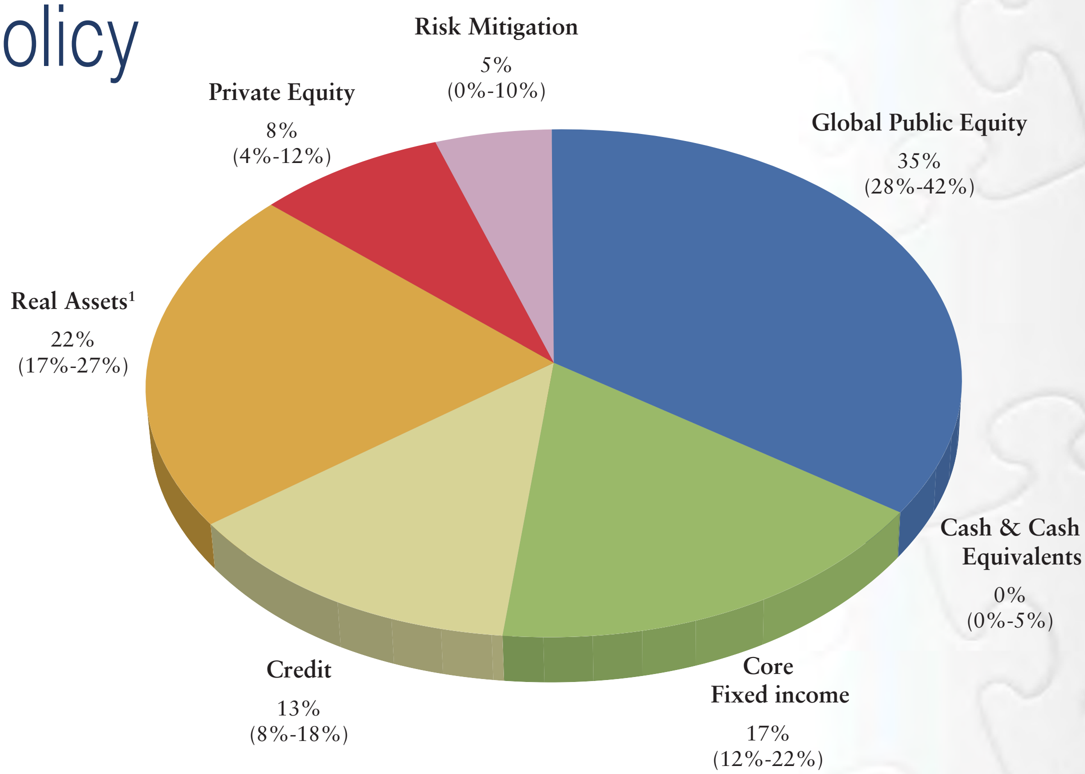
Use of Proxies

OCERS utilizes the services of Institutional Shareholder Services (ISS) to vote public equity proxies on OCERS' behalf. ISS is solely responsible for voting all proxies for securities, consistent with the ISS Benchmark Policy, as approved by the Board of Retirement. If the ISS Benchmark Policy does not contain recommended voting guidelines for the subject of the proxy vote, ISS will contact OCERS for guidance prior to casting the vote to ensure proxy votes are in accordance with OCERS' guidelines to protect and enhance returns on behalf of plan participants.

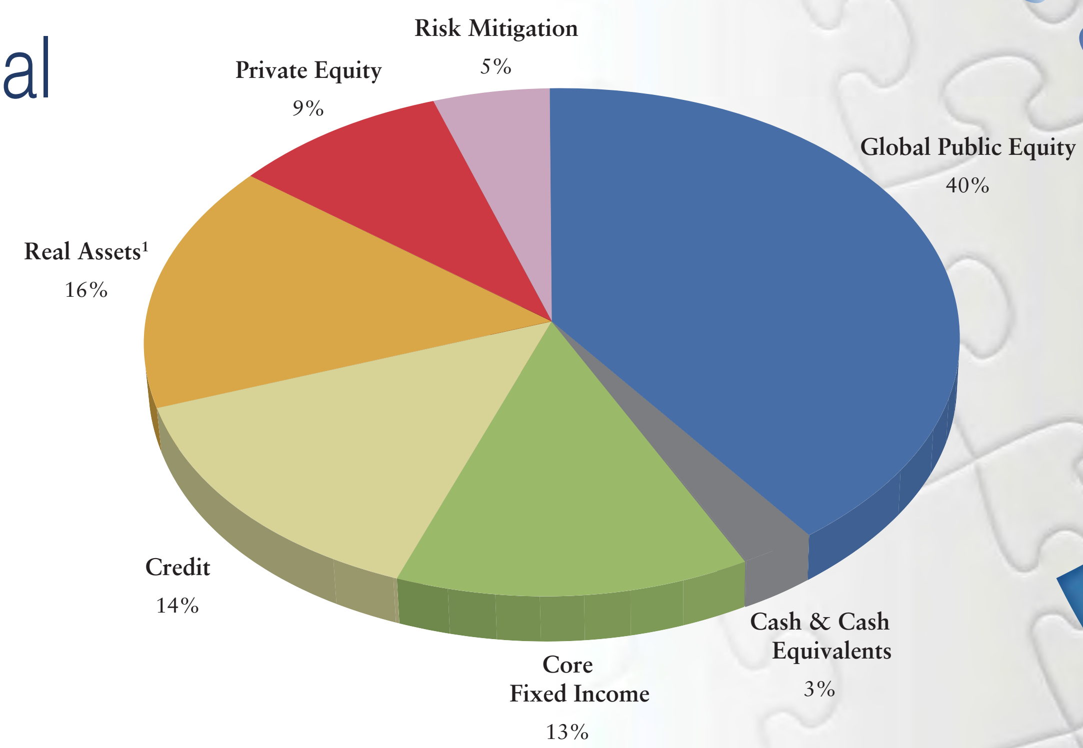
Asset Diversification

December 31, 2017

Policy



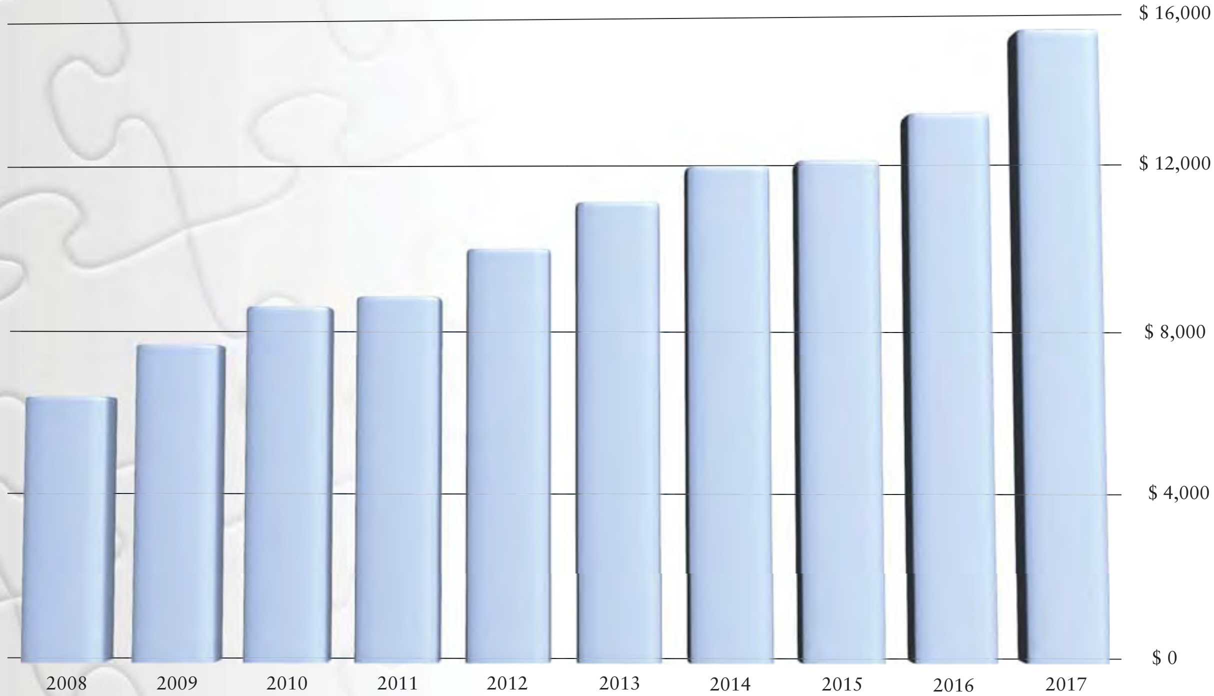
Actual



[1] A new asset allocation was adopted on January 25, 2017 with target ranges approved on March 28, 2017. Real Assets is temporarily under the minimum range since the new asset allocation increased the target for Real Assets from 18% to 22%.

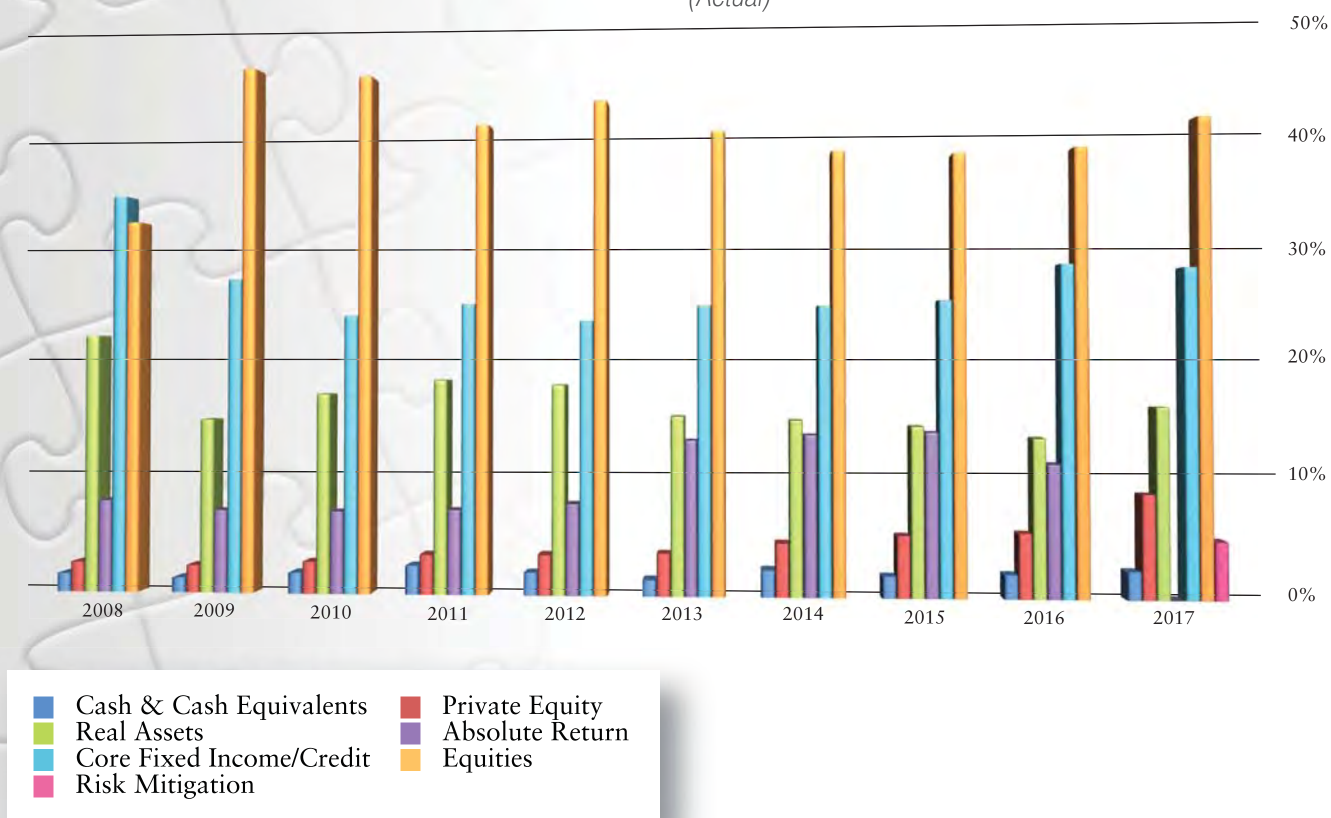
Growth of System Net Investments at Fair Value

For the Ten Years Ended December 31, 2017
(in Millions of Dollars)



Historical Asset Allocation

December 2008 - December 2017
(Actual)



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History of Performance - Net

December 2008 - December 2017
(Actual)

All History of Performance rates of returns have been recalculated from the prior years reporting to report net of all fees. In prior years, the rates of returns in the above schedule included indirect or at source fees, but excluded other direct fees.

Schedule of Commissions

For the Year Ended December 31, 2017
(Amounts in Thousands)

Broker Name	Number of Shares Traded	Commission per Share (in cents)	Total Commission
Barclays Capital Inc.	830	1.34	$ 11
Citigroup Global Markets, Inc.	9,415	0.34	32
CLSA	537	0.62	3
Credit Suisse Securities	5,175	0.48	25
Deutsche Bank	5,704	0.35	20
Goldman Sachs	15,593	0.32	51
Instinet	9,776	0.20	20
Investment Technology Group	962	0.92	9
J.P. Morgan Securities	1,425	1.01	14
Jefferies	1,208	1.16	14
Liquidnet	612	0.84	5
MacQuarie	757	1.13	9
Merrill Lynch & Company, Inc.	14,652	0.36	53
Morgan Stanley & Company, Inc.	21,070	0.42	88
Redburn (Europe) Limited	664	0.68	4
Sanford C. Bernstein And Co., LLC	1,309	0.81	11
Societe Generale	877	0.76	7
UBS	8,110	0.74	60
Other*	6,571	1.68	110
Total	105,247	0.52	$ 546

* Other includes 80 additional firms that comprise approximately 20% of total commissions and approximately 6% of the total number of shares traded. The average commission per share is 1.68 cents.

Commission Recapture Program

OCERS implemented a direct brokerage program where investment managers can trade with specific brokerage firms for the purpose of reducing trading commissions. The brokerage firms utilized for these services are Abel Noser, Capital Institutional Services, Convergex Execution Solutions LLC, and State Street Bank.

Schedule of Investment Expenses and Investment Summary

For the Year Ended December 31, 2017
(Dollars in Thousands)

Type of Investment Expenses	Assets Under Management at Fair Value	Percentage	Fees
Investment Management Fees *			
Investments at Fair Value:			
Global Public Equity	$ 6,123,481	40%	$ 12,632
Core Fixed Income	2,056,078	14%	974
Credit	2,011,759	14%	15,346
Real Assets	2,471,818	17%	24,697
Absolute Return	2,400	0%	3,540
Private Equity	1,345,230	9%	8,093
Risk Mitigation	743,691	5%	5,166
Total Investments at Fair Value	14,754,457		70,448
Short-Term Investments[1]	122,980	1%	250
Total Investment Management Fees	**$ 14,877437**	**100%**	**70,698**
Other Fund Expenses[2]			**7,459**
Other Investment Expenses			
Consulting/Research Fees			1,005
Investment Department Expenses			1,171
Legal Services			346
Custodian Services			438
Investment Service Providers			28
Total Other Investment Expenses			**2,988**
Securities Lending Activity			
Securities Lending Fees			399
Rebate Fees			1,531
Total Securities Lending Activity			**1,930**
Total Investment Expenses			**$ 83,075**

* The table above does not include undisclosed fees deducted at source or the fair value of OPEB 115 Agency Funds held by OCERS in an investment capacity.

[1] Short-Term Investments are categorized as Cash and Cash Equivalents in the Statement of Fiduciary Net Position.

[2] These costs include, but are not limited to foreign income tax and other indirect flow-through investment expenses such as organizational expenses in limited partnership structures.

Schedule of Largest Equity Holdings

(by Fair Value) [1, 2]

As of December 31, 2017
(Amounts in Thousands)

Common Stock	Shares	Fair Value
Roche Holding AG	36	$ 9,113
Nestle SA Reg	90	7,766
Oneok Inc	140	7,481
Enel Spa	1,214	7,481
Novo Nordisk A/S B	120	6,488
ASML Holding NV	37	6,362
Coherent Inc	22	6,321
LVMH Moet Hennessy Louis Vui	20	5,892
SMC Corp	13	5,496
Safran SA	53	5,492

Schedule of Largest Fixed Income Holdings

(by Fair Value) [1]

As of December 31, 2017
(Amounts in Thousands)

Asset	CPN/ Maturity	Fair Value
SWPC0G796 CDS USD R F 1.00000	1.0% / 12-20-2022	$ 33,786
US TREASURY N/B	1.6% / 08-31-2022	24,674
BWU00MID2 IRS GBP R V 06MLIBOR	1.0% / 03-21-2023	21,103
US TREASURY N/B	2.0% / 05-31-2024	19,126
FNMA TBA 30 YR 3	3.0% / 02-13-2048	17,777
FNMA TBA 30 YR 3.5	3.5% / 03-13-2048	13,613
BWU00IN86 IRS USD R V 03MLIBOR	1.6% / 12-21-2023	13,100
US TREASURY N/B	2.3% / 08-15-2027	12,009
BWU00IN03 IRS USD R V 03MLIBOR	1.6% / 12-21-2018	11,600
BWU00INA1 IRS USD R V 03MLIBOR	1.6% / 12-21-2026	11,540

[1] A complete list of portfolio holdings is available for review at the OCERS' office.
[2] The holding schedules pertain to holdings of individual securities; they do not reflect OCERS' investments in commingled funds.

List of Investment Managers

As of December 31, 2017

Absolute Return

Archer Capital Management
Fore Research & Management
Ionic Capital Management
Perry Capital
Venor Capital Management

Cash Overlay

Parametric

Credit

Beach Point Capital Management
BlueBay Asset Management
Brigade Capital Management
Caspian Capital Advisors
CQS Capital Management
Crescent Capital Group
Cross Ocean Partners
Hayfin Capital Management
Loomis, Sayles, & Company
Monroe Capital
NXT Capital
Pacific Investment Management Company
Pharo Management
Pictet Asset Management
Tennenbaum Capital Partners, LLC
Tricadia Capital Management

Core Fixed Income

BlackRock Institutional Trust Company
Dodge & Cox
Mondrian Investment Partners, Ltd.
Pacific Investment Management Company

Global Public Equity

Acadian Asset Management
AQR Capital Management, LLC
BlackRock Institutional Trust Company
Capital Guardian Trust Company
City of London
Eagle Asset Management
Fidelity Institutional Asset Management
Franklin Templeton Investments
Gotham Asset Management
Highfields Capital
J.P. Morgan Asset Management
Mercator Asset Management
Mondrian Investment Partners, Ltd.
William Blair & Co.

Private Equity

Abbott Capital
Adams Street Partners
Alcentra Clareant European Direct Lending
HarbourVest Partners, LLC
Mesirow Financial Private Equity
Monroe Capital
OCP Asia
Pantheon Ventures
Park Square Capital

Real Assets

AEW Capital Management
Angelo Gordon & Co.
Argo Capital Platform
ASB Capital Management
BlackRock Institutional Trust Company
Brigade Capital Management
BTG Pactual
CB Richard Ellis Investors
EIG Global Energy Partners
Encap
EnerVest, Ltd
Hancock Agricultural Investment Group
Hancock Timber Resource Group
J.P. Morgan Asset Management
Jamestown
Kayne Anderson Capital Advisors
KTR Industrial
Morgan Stanley
Oaktree Capital Management
Pacific Investment Management Company
Tennenbaum Capital Partners, LLC
True North Management Group
UBS Farmland Investors LLC
Waterton Associates
Westbrook Real Estate Fund X, L.P.

Risk Mitigation

BlackRock Institutional Trust Company
Bridgewater Associates, Inc.
D.E. Shaw Group

Section IV

Actuarial

Children and Families Commission of Orange County (CFCOC)

The Children and Families Commission of Orange County provides education, health and child development programs for children from the prenatal stage through age five. Funded by Proposition 10, which added a 50-cent tax on tobacco products sold in California, CFCOC's funded programs include prenatal care; pediatric primary and specialty health care; health and developmental screenings, including dental and vision; early literacy programs; homeless prevention; and other early intervention services as needed to maximize each child's potential. CFCOC's goal is to ensure all children are healthy and ready to learn when they enter school.

Segal Consulting

100 Montgomery Street Suite 500 San Francisco, CA 94104-4308
T 415.263.8200 www.segalco.com

May 23, 2018

Board of Retirement
Orange County Employees Retirement System
2223 Wellington Avenue
Santa Ana, CA 92701-3101

Re: Certification for Pension Plan

Dear Members of the Board:

Segal Consulting (Segal) prepared the December 31, 2016 annual actuarial valuation of the Orange County Employees Retirement System (OCERS). We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices and OCERS' funding policy that was last reviewed and adopted by the Board in 2014 and reaffirmed in 2017. In particular, it is our understanding that the assumptions and methods used for funding purposes meet the parameters set by Actuarial Standards of Practice (ASOPs). A discussion of the assumptions and methods used in the separate December 31, 2017 actuarial valuation for financial reporting purposes under Governmental Accounting Standards Board (GASB) Statement No. 67 is presented at the end of this letter.

DECEMBER 31, 2016 ACTUARIAL VALUATION FOR FUNDING PURPOSES

Actuarial valuations are performed on an annual basis with the last valuation completed as of December 31, 2016. The actuarial calculations presented in the valuation report have been made on a basis consistent with our understanding of the historical funding methods used in determination of the liability for statutory retirement benefits.

The December 31, 2016 actuarial valuation is based on the plan of benefits verified by OCERS and on participant and financial data provided by OCERS. Segal conducted an examination of all participant data for reasonableness and we concluded that it was reasonable and consistent with the prior year's data. Summaries of the employee data used in performing the actuarial valuations over the past several years are provided in our valuation report.

Board of Retirement
Orange County Employees Retirement System
May 23, 2018
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We did not audit the System's financial statements. For actuarial valuation purposes, Plan assets are valued at actuarial value. Under this method, the assets used to determine employer contribution rates take into account market value by recognizing the differences between the actual and expected return on market value over a five-year period. The development of the actuarial value as of December 31, 2016 is provided in the Development of Actuarial and Valuation Value of Assets.

One funding objective of the Plan is to establish rates, which, over time, will remain level as a percentage of payroll unless Plan benefit provisions are changed. Actuarial funding is based on the Entry Age Cost Method. Under this method, the employer contribution rate provides for current cost (normal cost) plus a level percentage of payroll to amortize any unfunded actuarial accrued liability (UAAL). One of the funding objectives of the System is to reduce that UAAL to zero over a declining period. Effective December 31, 2013, the outstanding balance of the UAAL from the December 31, 2012 valuation was combined and reamortized over a declining 20-year period. Any changes in UAAL due to actuarial gains or losses or due to changes in assumptions or methods will be amortized over separate 20-year periods. Any changes in UAAL due to plan amendments will be amortized over separate 15-year periods and any change in UAAL due to early retirement incentive programs will be amortized over a separate period of up to 5 years. The progress being made toward the realization of the financing objectives through December 31, 2016 is illustrated in the Schedule of Funding Progress.

Segal prepared all of the supporting schedules in the actuarial section of the System's Comprehensive Annual Financial Report (CAFR) based on the results of the December 31, 2016 actuarial valuation for funding purposes. A listing of the supporting schedules related to the statutory retirement plan benefits that Segal prepared for inclusion in the actuarial section of the System's CAFR is provided below. OCERS' staff prepared the remaining trend data schedules in the statistical section.

Actuarial Section (Based on December 31, 2016 Funding Valuation)

1. Schedule of Funding Progress
2. History of Employer Contribution Rates
3. Summary of Active Membership
4. Summary of Retired Membership
5. Development of Actuarial and Valuation Value of Assets
6. Short-Term Solvency Test

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Orange County Employees Retirement System
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7. Actuarial Methods and Assumptions

8. Summary of Major Plan Provisions

9. Experience Analysis

The valuation assumptions used in this valuation were included in the Actuarial Section. The results of this valuation were prepared using the actuarial assumptions and methods developed in the triennial experience study and the economic assumptions study as of December 31, 2013. All of the assumptions recommended in those studies, including the alternative 3.00% inflation assumption discussed during subsequent presentations, were adopted by the Board. Actuarial valuations are performed on an annual basis and the experience analysis is performed every three years. The most recent actuarial experience study as of December 31, 2016 has been adopted by the Board and any changes in assumptions, including the alternative 2.75% inflation assumption discussed during subsequent presentations, will be reflected in the December 31, 2017 valuation.

In the December 31, 2016 valuation, the ratio of the valuation value of assets to actuarial accrued liabilities increased from 71.7% to 73.1%. The aggregate employer rate (average of the County and all special districts rates combined) has changed from 36.97% of payroll to 36.56% of payroll. The 36.97% rate was calculated after adjusting for the additional UAAL contributions made by O.C. Sanitation District (OCSD) and Law Library during 2016 and the phase-in adjustment for Safety Rate Groups. The aggregate employee's rate has remained unchanged at 12.01% of payroll.

In the December 31, 2016 valuation, the actuarial value of assets excluded $445.6 million in unrecognized investment losses, which represented 3.5% of the market value of assets. If these deferred investment losses were recognized immediately in the actuarial value of assets, the funded percentage would decrease from 73.1% to 70.6% and the aggregate employer contribution rate, expressed as a percent of payroll would increase from 36.56% to about 38.6%.

To the best of our knowledge, the December 31, 2016 funding valuation report is complete and accurate and in our opinion presents the Plan's current funding information.

DECEMBER 31, 2017 GASB STATEMENT 67 ACTUARIAL VALUATION FOR FINANCIAL REPORTING PURPOSES

Segal prepared the December 31, 2017 GASB Statement 67 actuarial valuation for financial reporting purposes. The valuation was performed in order to comply with GASB Statement 67 and we certify that the assumptions and methods used for financial reporting purposes meet the parameters set by ASOPs and our understanding of generally accepted accounting principles

Board of Retirement
Orange County Employees Retirement System
May 23, 2018
Page 4

(GAAP) applicable in the United States of America as promulgated by the GASB. The GASB rules only redefine pension liability and expense for financial reporting purposes, and do not apply to contribution amounts for pension funding purposes.

When measuring pension liability, GASB uses the same actuarial cost method (Entry Age method) and the same type of discount rate (expected return on assets) as OCERS uses for funding. The Net Pension Liabilities (NPLs) measured as of December 31, 2017 and 2016 have been determined by rolling forward the Total Pension Liabilities (TPLs) for the statutory Retirement Plan benefits as of December 31, 2016 and December 31, 2015, respectively. In addition, any changes in actuarial assumptions or plan provisions that occurred between the valuation date and the measurement date have been reflected.

Note number 8 to the Basic Financial Statements and the Required Supplementary Information included in the Financial Section of the CAFR were prepared by the System based on the results of the GASB Statement No. 67 actuarial valuation as of December 31, 2017 prepared by Segal.

The undersigned are Members of the American Academy of Actuaries and meet the qualification requirements to render the actuarial opinion contained herein.

Sincerely,

Paul Angelo, FSA, MAAA, FCA, EA
Senior Vice President & Actuary

Andy Yeung, ASA, MAAA, FCA, EA
Vice President & Actuary

AW/bqb
Enclosures

Schedule of Funding Progress

(Dollars in Thousands)

Valuation Date	Actuarial Accrued Liability	Valuation Value of Assets	Unfunded Actuarial Accrued Liability	Ratio of Assets to Actuarial Accrued Liability	Projected Covered Payroll	Ratio of Unfunded Actuarial Accrued Liability to Projected Covered Payroll
12/31/07	$ 9,838,686[1]	$ 7,288,900	$ 2,549,786[1]	74.08%[1]	$ 1,457,159	174.98%[1]
12/31/08	10,860,715	7,748,380	3,112,335	71.34%	1,569,764	198.27%
12/31/09	11,858,578	8,154,687	3,703,891	68.77%	1,618,491	228.85%
12/31/10	12,425,873	8,672,592	3,753,281	69.79%	1,579,239	237.66%
12/31/11	13,522,978	9,064,355	4,458,623	67.03%	1,619,474	275.31%
12/31/12	15,144,888	9,469,208	5,675,680	62.52%	1,609,600	352.55%
12/31/13	15,785,042	10,417,125	5,367,917	65.99%	1,604,496	334.55%
12/31/14	16,413,124	11,449,911	4,963,213	69.76%	1,648,160	301.14%
12/31/15	17,050,357	12,228,009	4,822,348	71.72%	1,633,112	295.29%
12/31/16	17,933,461	13,102,978	4,830,483	73.06%	1,759,831	274.49%

[1] Revised due to the Board's action to continue the retirement rates for General plans with improved benefit formulas until further analysis could be conducted as part of the December 31, 2008 valuation.

Notes:

- The 12/31/16 valuation included the following change:

  O.C. Law Library was separated from O.C. Sanitation District in Rate Group #3 and put into their own Rate Group (Rate Group #12) after the last valuation as of December 31, 2015.

- The 12/31/15 valuation included the following benefit change:

  City of San Juan Capistrano adopted an optional 1.62% of final average salary at age 65 for members hired on or after July 1, 2016.

  Effective January 1, 2015, new OCTA members will be placed in CalPEPRA Plan U (2.50% of final average salary at age 67).

- The 12/31/14 valuation included the following changes:

  Assumption Changes:
  Changes in inflation, mortality, disability, termination, retirement, salary scale, and additional cashout assumptions in the December 31, 2013 triennial experience study decreased the UAAL by $122 million.

  Method Change:
  The cashout assumptions are now used in developing basic member contribution rates for employees in the legacy plans (impact is only on Normal Cost).

- The 12/31/13 valuation included the following method change:

  The outstanding balance of the December 31, 2012 UAAL was combined and re-amortized over a 20-year period.

- The 12/31/12 valuation included the following changes:

  Assumption Changes:
  Changes in investment return, inflation, and across the board salary increase assumptions in the December 31, 2012 review of economic assumptions report increased the UAAL by $935 million.

  Benefit Changes:
  Members with membership date on or after January 1, 2013 will be placed in CalPEPRA tiers (1.62% of final average salary at age 65, 2.50% of final average salary at age 67 and 2.70% of final average salary at age 57).

Schedule of Funding Progress

(continued)

- The 12/31/11 valuation included the following changes:

  Assumption Changes:
  Changes in mortality, disability, termination, retirement, salary scale, and additional cashout assumptions in the December 31, 2010 triennial experience study increased the UAAL by $364 million.

  Benefit Changes:
  City of San Juan Capistrano adopted a 2.0% of final average salary at age 57 for members hired on or after July 1, 2012.

  Certain employees previously employed at the City of Santa Ana became employees of OCFA General and OCFA Safety eligible for benefits under 2.0% of final average salary at age 55 and 3.0% of final average salary at age 50, respectively.

- The 12/31/10 valuation included the following benefit changes:

  LAFCO adopted an optional 1.62% of final average salary at age 65 for members hired on or after July 1, 2010.

  County Managers unit adopted an optional 1.62% of final average salary at age 65 for members hired on or after August 17, 2010.

  Sanitation District adopted a 1.64% of final average salary at age 57 for members within Supervisors and Professional unit hired on or after October 1, 2010.

  OCFA adopted a 3.00% of final average salary at age 55 for Safety members within the Executive Management unit hired on or after July 1, 2011 and for all Safety members hired on or after July 1, 2012.

  OCFA adopted a 2.00% of final average salary at age 55 for General members hired on or after July 1, 2011.

- The 12/31/09 valuation included the following benefit changes:

  General County OCEA and Superior Court adopted an optional 1.62% of final average salary at age 65 for members hired on or after May 7, 2010.

  Law Enforcement adopted a 3.0% of final average salary at age 55 for members hired on or after April 9, 2010.

- The 12/31/08 valuation included the following assumption changes:

  Changes in service retirement rates for General members with improved benefit formulas increased the UAAL by $116 million.

- The 12/31/07 valuation included the following changes:

  Assumption Changes:
  Changes in mortality, disability, termination, retirement, salary scale, and annual payoff assumptions in the December 31, 2007 triennial experience study increased the UAAL by $237 million.

  Benefit Changes:
  There is a new Rate Group #11, for Cemetery District, that adopted a 2% of final average salary at age 55 for future service only effective December 7, 2007. Vector Control District terminated its participation at OCERS as of January 4, 2007.

Schedule of Funding Progress

(continued)

- The assets exclude amounts in the County Investment Account and prepaid employer contributions. Each year since December 31, 2016 the assets also exclude amounts in the O.C. Sanitation District UAAL Deferred Account.

Valuation Date	Amount Excluded from Assets		
	County Investment Account	Prepaid Employer Contributions	O.C. Sanitation District UAAL Deferred Account
12/31/07	$ 174,348,000	$ 108,301,000	$ 0
12/31/08	126,683,000	24,345,000	0
12/31/09	108,324,000	20,027,000	0
12/31/10	108,531,000	29,545,000	0
12/31/11	97,767,000	162,873,000	0
12/31/12	103,261,000	177,632,000	0
12/31/13	109,254,000	172,348,000	0
12/31/14	109,103,000	207,829,000	0
12/31/15	108,789,000	227,166,000	0
12/31/16	117,723,000	222,524,000	34,067,000

- For informational purposes only, we have also developed the funded ratio determined using the historical market value of assets after adjustment for amounts in the County Investment Account, prepaid employer contributions, amounts in the O.C. Sanitation District UAAL Deferred Account, unclaimed member reserve and Medicare Medical Insurance Reserve.

Valuation Date	Funded Ratio based on Net Market Value of Assets
12/31/07	78.43%
12/31/08	57.51%
12/31/09	62.94%
12/31/10	67.25%
12/31/11	62.60%
12/31/12	63.17%
12/31/13	67.65%
12/31/14	69.63%
12/31/15	67.73%
12/31/16	70.58%

History of Employer Contribution Rates

Employer Contribution Rate (% of pay)

Valuation Date	General (Non-OCTA, Non-OCSD)	General (1.62% @ 65, Non-OCTA)	General (2.7% @ 55)	General (2.0% @ 57)	General (OCTA)	General (2.5% @ 55)
12/31/07	NC 8.92% UAAL 5.25 Total 14.17%	N/A	NC 11.24% UAAL 10.59 Total 21.83%	N/A	NC 11.26% UAAL 3.76 Total 15.02%	NC 10.54% UAAL 11.41 Total 21.95%
12/31/08	NC 8.99% UAAL 7.06 Total 16.05%	N/A	NC 11.79% UAAL 13.00 Total 24.79%	N/A	NC 11.32% UAAL 5.94 Total 17.26%	NC 11.19% UAAL 13.01 Total 24.20%
12/31/09[1]	NC 8.69% UAAL 10.43 Total 19.12%	NC 3.69% UAAL 15.50 Total 19.19%	NC 11.61% UAAL 15.50 Total 27.11%	N/A	NC 11.11% UAAL 9.28 Total 20.39%	NC 10.93% UAAL 14.75 Total 25.68%
12/31/10[2]	NC 8.59% UAAL 8.26 Total 16.85%	NC 5.10% UAAL 16.84 Total 21.94%	NC 11.55% UAAL 16.84 Total 28.39%	N/A	NC 10.96% UAAL 10.00 Total 20.96%	NC 10.92% UAAL 16.55 Total 27.47%
12/31/11	NC 8.55% UAAL 10.39 Total 18.94%	NC 4.91% UAAL 20.98 Total 25.89%	NC 12.03% UAAL 20.98 Total 33.01%	NC 10.99% UAAL 20.98 Total 31.97%	NC 10.57% UAAL 13.08 Total 23.65%	NC 11.29% UAAL 20.66 Total 31.95%
12/31/12	NC 9.68% UAAL 12.91 Total 22.59%	NC 5.56% UAAL 25.85 Total 31.41%	NC 13.69% UAAL 25.85 Total 39.54%	NC 12.10% UAAL 25.85 Total 37.95%	NC 11.83% UAAL 16.48 Total 28.31%	NC 12.88% UAAL 25.60 Total 38.48%
With 2-Year Phase-In	21.04%	29.84%	37.45%	35.96%	26.62%	36.57%
12/31/13[3]	NC 9.82% UAAL 11.34 Total 21.16%	NC 5.61% UAAL 23.72 Total 29.33%	NC 13.66% UAAL 23.72 Total 37.38%	NC 12.46% UAAL 23.72 Total 36.18%	NC 11.81% UAAL 15.22 Total 27.03%	NC 12.89% UAAL[4] 21.87 Total 34.76%
12/31/14	NC 9.67% UAAL[6] 8.62 Total 18.29%	NC 5.49% UAAL 21.72 Total 27.21%	NC 13.22% UAAL 21.72 Total 34.94%	NC 10.54% UAAL 21.72 Total 32.26%	NC 10.78% UAAL 14.40 Total 25.18%	NC 12.40% UAAL[7] 6.26 Total 18.66%
With 3-Year Phase-In	N/A	N/A	N/A	N/A	N/A	N/A
12/31/15	NC 9.58% UAAL[8] 9.22 Total 18.80%	NC 5.46% UAAL 22.45 Total 27.91%	NC 13.19% UAAL 22.45 Total 35.64%	NC 11.40% UAAL 22.45 Total 33.85%	NC 10.70% UAAL 15.52 Total 26.22%	NC 12.33% UAAL[9] 1.42 Total 13.75%
With 3-Year Phase-In	N/A	N/A	N/A	N/A	N/A	N/A
12/31/16	NC 9.51% UAAL[10] 7.25 Total 16.76%	NC 5.53% UAAL 21.72 Total 27.25%	NC 13.19% UAAL[11] 21.72 Total 34.91%	NC 10.35% UAAL 21.72 Total 32.07%	NC 10.76% UAAL 14.76 Total 25.52%	NC 12.28% UAAL 0.00 Total 12.28%

History of Employer Contribution Rates

(continued)

Employer Contribution Rate (% of pay)

Valuation Date	General (1.64% @ 57, OCSD)	General (2.0% @ 55, TCA)	General (2.0% @ 55, Cemetery, future service)	General (2.7% @ 55, OCFA)	General (2.0% @ 55, OCFA)	General (2.5% @ 55, Law Library)
12/31/07	N/A	NC 12.60%	NC 10.79%	NC 11.48%	N/A	NC 10.54%
		UAAL 6.13	UAAL 4.36	UAAL 11.53		UAAL 11.41
		Total 18.73%	Total 15.15%	Total 23.01%		Total 21.95%
12/31/08	N/A	NC 13.02%	NC 10.85%	NC 12.03%	N/A	NC 11.19%
		UAAL 5.72	UAAL 7.05	UAAL 12.59		UAAL 13.01
		Total 18.74%	Total 17.90%	Total 24.62%		Total 24.20%
12/31/09[1]	NC 10.14%	NC 12.59%	NC 11.24%	NC 11.98%	NC 11.11%	NC 10.93%
	UAAL 14.75	UAAL 7.05	UAAL 6.92	UAAL 14.55	UAAL 14.55	UAAL 14.75
	Total 24.89%	Total 19.64%	Total 18.16%	Total 26.53%	Total 25.66%	Total 25.68%
12/31/10[2]	NC 10.14%	NC 12.56%	NC 10.90%	NC 11.85%	NC 11.11%	NC 10.92%
	UAAL 16.55	UAAL 8.41	UAAL 6.86	UAAL 16.14	UAAL 16.14	UAAL 16.55
	Total 26.69%	Total 20.97%	Total 17.76%	Total 27.99%	Total 27.25%	Total 27.47%
12/31/11	NC 10.11%	NC 13.11%	NC 10.80%	NC 12.18%	NC 14.35%	NC 11.29%
	UAAL 20.66	UAAL 9.11	UAAL 8.23	UAAL 20.43	UAAL 20.43	UAAL 20.66
	Total 30.77%	Total 22.22%	Total 19.03%	Total 32.61%	Total 34.78%	Total 31.95%
12/31/12	NC 11.02%	NC 14.20%	NC 12.34%	NC 13.92%	NC 14.01%	NC 12.88%
	UAAL 25.60	UAAL 12.97	UAAL 12.28	UAAL 24.76	UAAL 24.76	UAAL 25.60
	Total 36.62%	Total 27.17%	Total 24.62%	Total 38.68%	Total 38.77%	Total 38.48%
With 2-Year Phase-In	34.87%	25.71%	22.99%	36.70%	36.99%	36.57%
12/31/13[3]	NC 10.53%	NC 14.13%	NC 12.33%	NC 14.06%	NC 14.15%	NC 12.89%
	UAAL[4] 21.87	UAAL 12.28	UAAL[5] 9.87	UAAL 23.34	UAAL 23.34	UAAL 21.87
	Total 32.40%	Total 26.41%	Total 22.20%	Total 37.40%	Total 37.49%	Total 34.76%
12/31/14	NC 10.30%	NC 13.59%	NC 11.79%	NC 13.53%	NC 12.47%	NC 12.40%
	UAAL[7] 6.26	UAAL 12.78	UAAL 0.00	UAAL 20.28	UAAL 20.28	UAAL 20.21
	Total 16.56%	Total 26.37%	Total 11.79%	Total 33.81%	Total 32.75%	Total 32.61%
With 3-Year Phase-In	N/A	N/A	N/A	N/A	N/A	N/A
12/31/15	NC 10.30%	NC 13.44%	NC 11.33%	NC 13.44%	NC 12.72%	NC 12.33%
	UAAL[9] 1.42	UAAL 13.79	UAAL 0.00	UAAL 20.53	UAAL 20.53	UAAL[12] 22.08
	Total 11.72%	Total 27.23%	Total 11.33%	Total 33.97%	Total 33.25%	Total 34.41%
With 3-Year Phase-In	N/A	N/A	N/A	N/A	N/A	N/A
12/31/16	NC 10.21%	NC 13.30%	NC 11.09%	NC 13.61%	NC 12.64%	NC 13.32%
	UAAL 0.00	UAAL 11.46	UAAL 0.00	UAAL 18.35	UAAL 18.35	UAAL[13] 9.69
	Total 10.21%	Total 24.76%	Total 11.09%	Total 31.96%	Total 30.99%	Total 23.01%

History of Employer Contribution Rates

(continued)

Employer Contribution Rate (% of pay)

Valuation Date	Safety Law Enforcement (3% @ 50)	Safety Law Enforcement (3% @ 55)	Safety Fire Authority (3% @ 50)	Safety Fire Authority (3% @ 55)	Safety Probation
12/31/07	NC 21.27%	N/A	NC 21.02%	N/A	NC 20.49%
	UAAL 18.25		UAAL 17.22		UAAL 10.90
	Total 39.52%		**Total 38.24%**		**Total 31.39%**
12/31/08	NC 21.39%	N/A	NC 21.16%	N/A	NC 20.15%
	UAAL 21.95		UAAL 21.94		UAAL 12.03
	Total 43.34%		**Total 43.10%**		**Total 32.18%**
12/31/09[1]	NC 21.13%	NC 20.38%	NC 21.31%	NC 18.30%	NC 20.17%
	UAAL 25.26	UAAL 25.26	UAAL 27.22	UAAL 27.22	UAAL 13.90
	Total 46.39%	**Total 45.64%**	**Total 48.53%**	**Total 45.52%**	**Total 34.07%**
12/31/10[2]	NC 21.05%	NC 20.38%	NC 21.54%	NC 18.30%	NC 20.07%
	UAAL 26.40	UAAL 26.40	UAAL 23.92	UAAL 23.92	UAAL 16.22
	Total 47.45%	**Total 46.78%**	**Total 45.46%**	**Total 42.22%**	**Total 36.29%**
12/31/11	NC 21.48%	NC 21.47%	NC 23.49%	NC 18.58%	NC 19.31%
	UAAL 29.38	UAAL 29.38	UAAL 19.66	UAAL 19.66	UAAL 17.26
	Total 50.86%	**Total 50.85%**	**Total 43.15%**	**Total 38.24%**	**Total 36.57%**
12/31/12	NC 24.24%	NC 24.20%	NC 26.16%	NC 21.12%	NC 21.26%
	UAAL 36.71	UAAL 36.71	UAAL 26.84	UAAL 26.84	UAAL 21.91
	Total 60.95%	**Total 60.91%**	**Total 53.00%**	**Total 47.96%**	**Total 43.17%**
With 2-Year Phase-In	**57.27%**	**57.37%**	**49.83%**	**44.85%**	**40.52%**
12/31/13[3]	NC 24.23%	NC 22.58%	NC 25.86%	NC 21.70%	NC 21.00%
	UAAL 32.47	UAAL 32.47	UAAL 24.14	UAAL 24.14	UAAL 19.72
	Total 56.70%	**Total 55.05%**	**Total 50.00%**	**Total 45.84%**	**Total 40.72%**
12/31/14	NC 25.79%	NC 23.55%	NC 27.05%	NC 22.38%	NC 22.17%
	UAAL 37.46	UAAL 37.46	UAAL 24.42	UAAL 24.42	UAAL 25.01
	Total 63.25%	**Total 61.01%**	**Total 51.47%**	**Total 46.80%**	**Total 47.18%**
With 3-Year Phase-In	**58.92%**	**56.88%**	**48.60%**	**43.93%**	**42.84%**
12/31/15	NC 25.56%	NC 23.24%	NC 26.87%	NC 22.10%	NC 21.92%
	UAAL 39.16	UAAL 39.16	UAAL 23.81	UAAL 23.81	UAAL 25.32
	Total 64.72%	**Total 62.40%**	**Total 50.68%**	**Total 45.91%**	**Total 47.24%**
With 3-Year Phase-In	**62.55%**	**60.34%**	**49.24%**	**44.47%**	**45.07%**
12/31/16	NC 25.63%	NC 23.00%	NC 26.84%	NC 21.86%	NC 21.87%
	UAAL 38.19	UAAL 38.19	UAAL 22.27	UAAL 22.27	UAAL 26.06
	Total 63.82%	**Total 61.19%**	**Total 49.11%**	**Total 44.13%**	**Total 47.93%**

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History of Employer Contribution Rates

(continued)

Employer Contribution Rate (% of pay)

Valuation Date	CalPEPRA Rate Group #1 2.5% @ 67	CalPEPRA Rate Group #2 1.62% @ 65 (Plan T)	CalPEPRA Rate Group #2 2.5% @ 67	CalPEPRA Rate Group #2 1.62% @ 67 (Plan W)	CalPEPRA Rate Group #3 2.5% @ 67	CalPEPRA Rate Group #5 2.5% @ 67
12/31/10	NC 7.24% UAAL 8.26 Total 15.50%	NC 5.78% UAAL 16.84 Total 22.62%	NC 7.64% UAAL 16.84 Total 24.48%	N/A	NC 8.34% UAAL 16.55 Total 24.89%	N/A
12/31/11	NC 8.06% UAAL 10.39 Total 18.45%	NC 6.20% UAAL 20.98 Total 27.18%	NC 8.26% UAAL 20.98 Total 29.24%	N/A	NC 8.70% UAAL 20.66 Total 29.36%	N/A
12/31/12	NC 8.68% UAAL 12.91 Total 21.59%	NC 6.78% UAAL 25.85 Total 32.63%	NC 7.44% UAAL 25.85 Total 33.29%	N/A	NC 9.38% UAAL 25.60 Total 34.98%	N/A
With 2-Year Phase-In	20.33%	31.10%	32.05%		33.52%	
12/31/13[3]	NC 9.39% UAAL 11.34 Total 20.73%	NC 6.70% UAAL 23.72 Total 30.42%	NC 8.56% UAAL 23.72 Total 32.28%	N/A	NC 9.66% UAAL[4] 21.87 Total 31.53%	N/A
12/31/14	NC 8.87% UAAL[6] 8.62 Total 17.49%	NC 6.61% UAAL 21.72 Total 28.33%	NC 8.33% UAAL 21.72 Total 30.05%	N/A	NC 9.00% UAAL[7] 6.26 Total 15.26%	NC 10.04% UAAL 14.40 Total 24.44%
With 3-Year Phase-In	N/A	N/A	N/A		N/A	N/A
12/31/15	NC 8.92% UAAL[8] 9.22 Total 18.14%	NC 6.56% UAAL 22.45 Total 29.01%	NC 8.35% UAAL 22.45 Total 30.80%	NC 6.68% UAAL 22.45 Total 29.13%	NC 9.25% UAAL[9] 1.42 Total 10.67%	NC 10.12% UAAL 15.52 Total 25.64%
With 3-Year Phase-In	N/A	N/A	N/A	N/A	N/A	N/A
12/31/16	NC 8.63% UAAL[10] 7.25 Total 15.88%	NC 6.58% UAAL 21.72 Total 28.30%	NC 8.28% UAAL 21.72 Total 30.00%	NC 6.68% UAAL 21.72 Total 28.40%	NC 9.27% UAAL 0.00 Total 9.27%	NC 10.25% UAAL 14.76 Total 25.01%

History of Employer Contribution Rates

(continued)

Employer Contribution Rate (% of pay)

Valuation Date	CalPEPRA Rate Group #9 2.5% @ 67	CalPEPRA Rate Group #10 2.5% @ 67	CalPEPRA Rate Group #11 2.5% @ 67	CalPEPRA Rate Group #12 2.5% @ 67	CalPEPRA Rate Group #6 2.7% @ 57	CalPEPRA Rate Group #7 2.7% @ 57	CalPEPRA Rate Group #8 2.7% @ 57
12/31/10	NC 9.78% UAAL 8.41 Total 18.19%	NC 7.36% UAAL 16.14 Total 23.50%	NC 7.31% UAAL 6.86 Total 14.17%	NC 8.34% UAAL 16.55 Total 24.89%	NC 11.37% UAAL 16.22 Total 27.59%	NC 15.03% UAAL 26.40 Total 41.43%	NC 14.53% UAAL 23.92 Total 38.45%
12/31/11	NC 10.36% UAAL 9.11 Total 19.47%	NC 7.84% UAAL 20.43 Total 28.27%	NC 7.95% UAAL 8.23 Total 16.18%	NC 8.70% UAAL 20.66 Total 29.36%	NC 12.23% UAAL 17.26 Total 29.49%	NC 15.55% UAAL 29.38 Total 44.93%	NC 15.23% UAAL 19.66 Total 34.89%
12/31/12	NC 10.97% UAAL 12.97 Total 23.94%	NC 8.50% UAAL 24.76 Total 33.26%	NC 8.66% UAAL 12.28 Total 20.94%	NC 9.38% UAAL 25.60 Total 34.98%	NC 13.91% UAAL 21.91 Total 35.82%	NC 17.05% UAAL 36.71 Total 53.76%	NC 16.41% UAAL 26.84 Total 43.25%
With 2-Year Phase-In	22.87%	31.81%	19.63%	33.52%	33.40%	50.61%	40.96%
12/31/13[3]	NC 11.40% UAAL 12.28 Total 23.68%	NC 9.71% UAAL 23.34 Total 33.05%	NC 8.66% UAAL[5] 9.87 Total 18.53%	NC 9.66% UAAL 21.87 Total 31.53%	NC 13.95% UAAL 19.72 Total 33.67%	NC 19.17% UAAL 32.47 Total 51.64%	NC 16.85% UAAL 24.14 Total 40.99%
12/31/14	NC 9.85% UAAL 12.78 Total 22.63%	NC 9.63% UAAL 20.28 Total 29.91%	NC 11.81% UAAL 0.00 Total 11.81%	NC 9.00% UAAL 20.21 Total 29.21%	NC 15.25% UAAL 25.01 Total 40.26%	NC 20.10% UAAL 37.46 Total 57.56%	NC 15.71% UAAL 24.42 Total 40.13%
With 3-Year Phase-In	N/A	N/A	N/A	N/A	36.02%	54.01%	38.08%
12/31/15	NC 10.57% UAAL 13.79 Total 24.36%	NC 8.81% UAAL 20.53 Total 29.34%	NC 12.23% UAAL 0.00 Total 12.23%	NC 9.25% UAAL[12] 22.08 Total 31.33%	NC 15.00% UAAL 25.32 Total 40.32%	NC 20.04% UAAL 39.16 Total 59.20%	NC 15.30% UAAL 23.81 Total 39.11%
With 3-Year Phase-In	N/A	N/A	N/A	N/A	38.20%	57.42%	38.09%
12/31/16	NC 10.40% UAAL 11.46 Total 21.86%	NC 8.99% UAAL 18.35 Total 27.34%	NC 9.98% UAAL 0.00 Total 9.98%	NC 7.59% UAAL[13] 9.69 Total 17.28%	NC 15.24% UAAL 26.06 Total 41.30%	NC 19.39% UAAL 38.19 Total 57.58%	NC 14.84% UAAL 22.27 Total 37.11%

(1) The UAAL established as a result of including additional premium pay items is amortized over a 25-year period.
(2) The UAAL established as a result of reallocating contributions and benefit payments among Rate Groups is amortized over a 24-year period.
(3) The outstanding balance of the December 31, 2012 UAAL has been combined and re-amortized over a period of 20 years.
(4) This is the UAAL rate for O.C. Sanitation District for FY 15-16 before reflecting the additional UAAL contributions made during calendar year 2014.
(5) This is the UAAL rate for O.C. Cemetery District for FY 15-16 before reflecting the additional UAAL contributions made during calendar year 2014.
(6) The net UAAL contribution rates for County and O.C. IHSS Public Authority (i.e., excluding U.C.I and Department of Education) is 5.67% as of December 31, 2014.
(7) This is the UAAL rate for O.C. Sanitation District for FY 16-17 before reflecting the additional UAAL contributions made during calendar year 2015.
(8) The net UAAL contribution rates for County and O.C. IHSS Public Authority (i.e., excluding U.C.I and Department of Education) is 5.57% as of December 31, 2015.
(9) This is the UAAL rate for O.C. Sanitation District for FY 17-18 before reflecting the additional UAAL contributions made during calendar year 2016.
(10) The net UAAL contribution rates for County and O.C. IHSS Public Authority (i.e., excluding U.C.I and Department of Education) is 4.18% as of December 31, 2016.
(11) This is the UAAL rate for O.C. Children and Families Commission for FY 18-19 before reflecting the additional UAAL contributions made during calendar year 2017.
(12) This is the UAAL rate for Law Library for FY 17-18 before reflecting the additional UAAL contributions made during calendar year 2016.
(13) This is the UAAL rate for Law Library for FY 18-19 before reflecting the additional UAAL contributions made during calendar year 2017.

Summary of Active Membership

Valuation Date	Number	Annual Salary	Annual Average Salary	Increase in Average Salary (%)
12/31/07				
General	19,803	$ 1,156,684,000	$ 58,410	6.50
Safety	3,815	300,475,000	78,761	5.32
Total	**23,618**	**$ 1,457,159,000**	**$ 61,697**	**6.29**
12/31/08				
General	19,795	$ 1,238,077,000	$ 62,545	7.08
Safety	3,925	331,687,000	84,506	7.29
Total	**23,720**	**$ 1,569,764,000**	**$ 66,179**	**7.26**
12/31/09				
General	18,873	$ 1,258,558,000	$ 66,686	6.62
Safety	3,760	359,933,000	95,727	13.28
Total	**22,633**	**$ 1,618,491,000**	**$ 71,510**	**8.06**
12/31/10				
General	18,155	$ 1,232,657,000	$ 67,896	1.81
Safety	3,587	346,582,000	96,622	0.93
Total	**21,742**	**$ 1,579,239,000**	**$ 72,635**	**1.57**
12/31/11				
General	17,717	$ 1,249,064,000	$ 70,501	3.84
Safety	3,704	370,410,000	100,003	3.50
Total	**21,421**	**$ 1,619,474,000**	**$ 75,602**	**4.08**
12/31/12				
General	17,529	$ 1,238,958,000	$ 70,680	0.25
Safety	3,727	370,643,000	99,448	-0.55
Total	**21,256**	**$ 1,609,601,000**	**$ 75,725**	**0.16**
12/31/13				
General	17,547	$ 1,227,153,000	$ 69,935	-1.05
Safety	3,821	377,343,000	98,755	-0.70
Total	**21,368**	**$ 1,604,496,000**	**$ 75,089**	**-0.84**
12/31/14				
General	17,705	$ 1,267,582,000	$ 71,595	2.37
Safety	3,754	380,578,000	101,379	2.66
Total	**21,459**	**$ 1,648,160,000**	**$ 76,805**	**2.29**
12/31/15				
General	17,839	$ 1,254,521,000	$ 70,325	-1.77
Safety	3,686	378,590,000	102,710	1.31
Total	**21,525**	**$ 1,633,111,000**	**$ 75,870**	**-1.22**
12/31/16				
General	18,072	$ 1,353,363,000	$ 74,887	6.49
Safety	3,674	406,470,000	110,634	7.71
Total	**21,746**	$ 1,759,833,000	**$ 80,927**	**6.67**

Excludes Deferred and Pending members.

Summary of Retired Membership

Plan Year Ending	At Beginning of Year	Added to Rolls		Removed from Rolls		At End of Year	Annual Allowance (in 000's)	% Increase in Annual Allowance	Average Monthly Allowance
		Number	Annual Allowance (in 000's)[1]	Number	Annual Allowance (in 000's)				
2007	10,915	817	$ 41,552	(311)	$ (6,596)	11,421	$ 361,775	10.70	$ 2,640
2008	11,421	658	38,298	(301)	(6,426)	11,778	393,647	8.81	2,785
2009	11,778	744	32,435	(279)	(6,829)	12,243	419,253	6.50	2,854
2010	12,243	851	46,736	(332)	(8,334)	12,762	457,655	9.16	2,988
2011	12,762	888	45,913	(361)	(9,371)	13,289	494,197	7.98	3,099
2012	13,289	1,026	58,344	(368)	(9,036)	13,947	543,505	9.98	3,247
2013	13,947	911	52,319	(353)	(9,958)	14,505	585,866	7.79	3,366
2014	14,505	995	52,838	(331)	(9,812)	15,169	628,892	7.34	3,455
2015	15,169	1,053	58,679	(412)	(12,077)	15,810	675,494	7.41	3,560
2016	15,810	989	51,759	(430)	(12,895)	16,369	714,358	5.75	3,637

[1] Includes COLA granted during the plan year.

Note: Annual allowances exclude RMBR and STAR COLA.

Development of Actuarial and Valuation Value of Assets

As of December 31, 2016

Plan Year Ending	Total Actual Market Return (net)	Expected Market Return (net)	Investment Gain/ (Loss)	Deferred Factor	Deferred Return
2013	$ 1,031,118,000	$ 696,553,000	$ 334,565,000	0.2	$ 66,913,000
2014	487,104,000	780,627,000	(293,523,000)	0.4	(117,409,000)
2015	(51,601,000)	833,757,000	(885,358,000)	0.6	(531,215,000)
2016	1,010,548,000	840,469,000	170,079,000	0.8	136,063,000

(1) Total Deferred Return	$	(445,648,000)
(2) Net Market Value of Assets (Excludes $117,723,000 in County Investment Account, $222,524,000 in Prepaid Employer Contributions and $34,067,000 in O.C. Sanitation District UAAL Deferred Account)	$	12,657,418,000[1]
(3) Actuarial Value of Assets (2) – (1)	$	13,103,066,000[2]
(4) Non-valuation Reserves		
(a) Unclaimed member deposit	$	-
(b) Medicare medical insurance reserve		88,000
(c) Subtotal	$	88,000
(5) Valuation Value of Assets (3) – (4)(c)	$	13,102,978,000
(6) Deferred Return Recognizd in Each of the Next 4 Years		
(a) Amount recognized on 12/31/2017	$	(134,848,000)
(b) Amount recognized on 12/31/2018		(201,760,000)
(c) Amount recognized on 12/31/2019		(143,056,000)
(d) Amount recognized on 12/31/2020		34,016,000
(e) Subtotal (may not total exactly due to rounding)	$	(445,648,000)

[1] Based on the preliminary unaudited financial statement provided by OCERS for the December 31, 2016 valuation.

[2] Ratio of Actuarial Value of Assets to Net Market Value of Assets is 103.5% ((3) / (2)).

Short-Term Solvency Test

(Dollars in Thousands)

Valuation Date	(1) Active Member Contributions	(2) Liability for Inactive Participants	(3) Liability for Active Members (Employer Financed Portion)	Valuation Value of Assets	Portion of Accrued Liability Covered by Valuation Assets (%) (1)	(2)	(3)
12/31/07	$ 1,215,825	$ 4,803,585	$ 3,819,276[1]	$ 7,288,900	100	100	33.24[1]
12/31/08	1,376,514	5,211,893	4,272,308	7,748,380	100	100	27.15
12/31/09	1,536,849	5,680,031	4,641,698	8,154,687	100	100	20.20
12/31/10	1,680,401	6,107,350	4,638,122	8,672,592	100	100	19.08
12/31/11	1,829,406	6,881,152	4,812,420	9,064,355	100	100	7.35
12/31/12	1,967,117	7,919,478	5,258,293	9,469,208	100	94.73	0.00
12/31/13	2,126,182	8,502,269	5,156,591	10,417,125	100	97.51	0.00
12/31/14	2,298,744	9,017,874	5,096,506	11,449,911	100	100	2.62
12/31/15	2,488,757	9,696,776	4,864,824	12,228,009	100	100	0.87
12/31/16	2,654,599	10,109,528	5,169,334	13,102,978	100	100	6.56

[1] Revised due to the Board's action to continue the retirement rates for General plans with improved benefit formulas until further analysis could be conducted as part of the December 31, 2008 valuation.

Actuarial Methods and Assumptions

Section 1 - Post – Retirement Mortality Rates:

Healthy: For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020.

For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 with ages set back two years.

Disabled: For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 with ages set forward six years for males and set forward three years for females.

For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020.

The mortality tables shown above were determined to contain about a 10% margin to reflect future mortality improvement, based on a review of the mortality experience as of the measurement date.

Beneficiaries: Beneficiaries are assumed to have the same mortality as a General Member of the opposite sex who is receiving a service (non-disability) retirement.

Employee Contribution Rates: For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 40% male and 60% female.

For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 with ages set back two years weighted 80% male and 20% female.

Section 2 - Termination Rates Before Retirement:

	Rate (%)			
	General		Safety	
Age	Male	Female	Male	Female
25	0.04	0.02	0.04	0.02
30	0.04	0.02	0.04	0.02
35	0.07	0.04	0.06	0.04
40	0.10	0.07	0.09	0.06
45	0.14	0.11	0.12	0.09
50	0.20	0.16	0.18	0.14
55	0.34	0.25	0.27	0.21
60	0.59	0.41	0.48	0.33
65	1.00	0.76	0.82	0.60

All General pre-retirement deaths are assumed to be non-service connected. For Safety, 90% of pre-retirement deaths are assumed to be non-service connected. The other 10% are assumed to be service connected.

Section 2 - Termination Rates Before Retirement (Continued):

Disability Incidence Rates

	Rate (%)			
	General		Safety	
Age	All Other[1]	OCTA[2]	Law & Fire[3]	Probation[3]
20	0.00	0.00	0.00	0.00
25	0.00	0.00	0.01	0.03
30	0.01	0.03	0.04	0.08
35	0.03	0.20	0.14	0.10
40	0.08	0.36	0.26	0.10
45	0.11	0.43	0.42	0.16
50	0.14	0.48	0.92	0.20
55	0.18	0.74	1.98	0.23
60	0.29	1.41	5.20	0.10

(1) 55% of General All Other disabilities are assumed to be service connected disabilities. The other 45% are assumed to be non-service connected.
(2) 65% of General - OCTA disabilities are assumed to be service connected disabilities. The other 35% are assumed to be non-service connected.
(3) 100% of Safety – Law Enforcement, Fire and Probation disabilities are assumed to be service connected disabilities.

Actuarial Methods and Assumptions

(continued)

Section 2 - Termination Rates Before Retirement (Continued):

Termination Rates

Years of Service	Rate (%) General All Other[1]	Rate (%) General OCTA[2]	Rate (%) Safety Law & Fire[3]	Rate (%) Safety Probation[4]
0	11.00	17.50	4.00	16.00
1	8.00	13.50	3.00	13.00
2	7.00	10.50	2.00	10.00
3	5.00	10.00	1.00	6.00
4	4.00	9.00	1.00	4.00
5	3.75	7.00	1.00	3.50
6	3.50	5.00	0.95	3.00
7	3.00	5.00	0.90	2.50
8	2.75	4.00	0.85	2.25
9	2.50	3.50	0.80	2.00
10	2.25	3.50	0.75	1.75
11	2.00	3.50	0.65	1.75
12	2.00	3.00	0.60	1.50
13	1.75	3.00	0.50	1.25
14	1.75	3.00	0.50	1.00
15	1.75	3.00	0.50	1.00
16	1.50	3.00	0.50	1.00
17	1.50	2.75	0.50	0.50
18	1.50	2.75	0.50	0.50
19	1.50	2.75	0.50	0.50
20+	1.25	1.75	0.25	0.50

(1) 40% of all terminated members with less than 5 years of service and 25% of all terminated members with 5 or more years of service will choose a refund of contributions.

(2) 45% of all terminated members with less than 5 years of service and 35% of all terminated members with 5 or more years of service will choose a refund of contributions.

(3) 20% of all terminated members with less than 5 years of service and 20% of all terminated members with 5 or more years of service will choose a refund of contributions.

(4) 40% of all terminated members with less than 5 years of service and 30% of all terminated members with 5 or more years of service will choose a refund of contributions.

Retirement Rates

	Rate (%)							
	General			Safety				
Age	Enhanced	Non-Enhanced[1]	SJC	Law (3% @ 50)[2]	Law (3% @ 55)[2]	Fire (3% @ 50)[2]	Fire (3% @ 55)[2]	Probation[2]
49	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0
50	2.5	2.5	3.0	16.0	11.5	6.0	8.0	3.0
51	2.0	2.5	3.0	16.0	12.0	8.0	10.0	3.0
52	2.0	2.5	3.0	16.0	12.7	9.0	11.0	4.0
53	2.0	2.5	3.0	16.0	17.9	10.0	12.0	4.0
54	5.0	2.5	3.0	22.0	18.8	16.0	14.0	6.0
55	15.0	3.0	4.0	22.0	30.7	19.0	24.0	11.0
56	10.0	3.5	5.0	20.0	20.0	20.0	23.0	11.0
57	10.0	5.0	6.0	20.0	20.0	23.0	27.0	17.0
58	10.0	5.0	7.0	20.0	25.0	30.0	27.0	20.0
59	11.0	7.0	9.0	26.0	30.0	30.0	36.0	20.0
60	12.0	9.0	11.0	45.0	100.0	45.0	100.0	20.0
61	12.0	10.0	13.0	45.0	100.0	45.0	100.0	20.0
62	15.0	16.0	15.0	45.0	100.0	45.0	100.0	25.0
63	16.0	16.0	15.0	45.0	100.0	45.0	100.0	50.0
64	16.0	18.0	20.0	45.0	100.0	45.0	100.0	50.0
65	21.0	21.0	20.0	100.0	100.0	100.0	100.0	100.0
66	22.0	26.0	24.0	100.0	100.0	100.0	100.0	100.0
67	23.0	21.0	24.0	100.0	100.0	100.0	100.0	100.0
68	23.0	21.0	24.0	100.0	100.0	100.0	100.0	100.0
69	23.0	21.0	24.0	100.0	100.0	100.0	100.0	100.0
70	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
71	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
72	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
73	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
74	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
75	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(1) These assumptions are also used for the CalPEPRA 1.62% @ 65 formula (Plan T and Plan W).
(2) Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.

Retirement Rates

(continued)

	Rate (%)			
Age	CalPEPRA General Formula	CalPEPRA Safety – Probation Formula[1]	CalPEPRA Safety – Law Formula[1]	CalPEPRA Safety – Fire Formula[1]
50	0.0	2.5	11.0	6.5
51	0.0	2.5	11.5	8.0
52	4.0	3.0	12.0	9.0
53	1.5	3.0	16.0	10.0
54	1.5	5.5	17.0	12.0
55	2.5	10.0	28.0	21.0
56	3.5	10.0	18.0	20.0
57	5.5	15.0	17.5	22.0
58	7.5	20.0	22.0	25.0
59	7.5	20.0	26.0	31.5
60	7.5	100.0	100.0	100.0
61	7.5	100.0	100.0	100.0
62	14.0	100.0	100.0	100.0
63	14.0	100.0	100.0	100.0
64	14.0	100.0	100.0	100.0
65	18.0	100.0	100.0	100.0
66	22.0	100.0	100.0	100.0
67	23.0	100.0	100.0	100.0
68	23.0	100.0	100.0	100.0
69	23.0	100.0	100.0	100.0
70	30.0	100.0	100.0	100.0
71	30.0	100.0	100.0	100.0
72	30.0	100.0	100.0	100.0
73	30.0	100.0	100.0	100.0
74	30.0	100.0	100.0	100.0
75	100.0	100.0	100.0	100.0

[1] Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.

Actuarial Methods and Assumptions

(continued)

Retirement Age and Benefit for Deferred Vested Members:	For deferred vested members, we make the following retirement age assumptions: General 58 Safety 53 We assume that 20% of future General and 30% of future Safety deferred vested members will continue to work for a reciprocal employer. For these members, we assume 4.25% compensation increases for General and 5.00% for Safety per annum.
Liability Calculation for Current Deferred Vested Members:	Liability for a current deferred vested member is calculated based on salary, service, and eligibility for reciprocal benefit as provided by the Retirement System. For those members without salary information that have 3 or more years of service, we used an average salary. For those members without salary information that have less than 3 years of service or for those members without service information, we assumed a refund of account balance.
Future Benefit Accruals:	1.0 year of service per year of employment. There is no assumption to anticipate conversion of unused sick leave at retirement.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Percent Married:	75% of male members and 50% of female members are assumed to be married at retirement or time of pre-retirement death.
Age of Spouse:	Female (or male) three years younger (or older) than spouse.
Net Investment Return:	7.25%; net of investment and administrative expenses.
Employee Contribution Crediting Rate:	5.00%, compounded semi-annually.
Consumer Price Index:	Increase of 3.00% per year, retiree COLA increases due to CPI subject to a 3.00% maximum change per year.

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Actuarial Methods and Assumptions

(continued)

Individual Salary Increases

Annual Rate of Compensation Increase (%)		
Inflation: 3.00% per year, plus "across the board" real salary increases of 0.50% per year, plus the following merit and promotion increases:		
Years of Service	**General**	**Safety**
Less than 1	10.00	14.00
1	7.25	10.00
2	6.00	8.50
3	4.75	6.75
4	4.00	5.25
5	3.25	4.50
6	2.25	3.50
7	2.00	3.25
8	1.50	2.25
9	1.25	2.25
10	1.25	1.75
11	1.25	1.75
12	1.25	1.75
13	1.25	1.75
14	1.25	1.75
15	1.25	1.75
16	0.75	1.50
17	0.75	1.50
18	0.75	1.50
19	0.75	1.50
20 & over	0.75	1.50

In addition to the individual salary increase assumptions, we have applied an average two hours of additional salary annually for leap-year salary adjustment.

Actuarial Methods and Assumptions

(continued)

Additional Cashout Assumptions:

Non-CalPEPRA Formulas: Additional compensation amounts are expected to be received during a member's final average earnings period. The percentages used in this valuation are:

	Final One Year Salary	Final Three Year Salary
General Members	3.50%	2.80%
Safety - Probation	3.80%	2.80%
Safety - Law	5.20%	4.70%
Safety - Fire	2.00%	2.00%

The additional cashout assumptions are the same for service and disability retirements.

CalPEPRA Formulas: None

Increase in Section 7522.10 Compensation Limit: Increase of 3.00% per year from the valuation date.

Actuarial Value of Assets: Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual and the expected return on a market value basis, and is recognized over a five-year period.

Valuation Value of Assets: The Valuation Value of Assets is the Actuarial Value of Assets reduced by the value of the non-valuation reserves.

Actuarial Cost Method: Entry Age Actuarial Cost Method. Entry Age is the current age minus Vesting Credit. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salaries, with Normal Cost determined as a level percentage of individual salary, as if the current benefit accrual rate had always been in effect. Effective December 31, 2013, the outstanding balance of the UAAL from the December 31, 2012 valuation was combined and re-amortized over a declining 20-year period. Any changes in UAAL due to actuarial gains or losses or due to changes in assumptions or methods will be amortized over separate 20-year periods. Any changes in UAAL due to plan amendments will be amortized over separate 15-year periods and any change in UAAL due to early retirement incentive programs will be amortized over a separate period of up to 5 years.

Please note that for Probation members who have prior benefit service in another OCERS plan, the normal cost rate for the current plan is calculated assuming their Entry Age is the date they entered service with their current plan.

Summary of Major Plan Provisions

This section summarizes the major provisions of OCERS included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Membership Eligibility:

Membership with OCERS begins with the day of employment in an eligible position by the County or a participating employer.

Non-CalPEPRA General Plans:

2.5% @ 55 Plans	*(Orange County Sanitation District[1] and Law Library[2])*
Plan G	General members hired before September 21, 1979.
Plan H	General members hired on or after September 21, 1979.
	(1) Sanitation District members within Supervisors and Professional unit hired on or after October 1, 2010 are in Plan B
	(2) Improvement for management employees is prospective only for service after June 30, 2005.
2.7% @ 55 Plans	*(City of San Juan Capistrano, Orange County Employees except bargaining unit AFSCME members, Orange County Superior Court, Orange County Local Agency Formation Commission[1], Orange County Employees Retirement System[2], Children and Family Commission[3] and Orange County Fire Authority)*
Plan I	General members hired before September 21, 1979.
Plan J	General members hired on or after September 21, 1979.
	(1) Improvement is prospective only for service after June 23, 2005.
	(2) Improvement for management employees is prospective only for service after June 30, 2005.
	(3) Improvement is prospective only for service after December 22, 2005.
2.0% @ 55 Plans	*(Transportation Corridor Agency, Cemetery District - future service effective December 7, 2007 and General OCFA employees effective July 1, 2011)*
Plan M	General members hired before September 21, 1979.
Plan N	General members hired on or after September 21, 1979.
1.62% @ 65 Plans	*(Orange County Employees, Orange County Superior Court, Orange County Local Agency Formation Commission and Orange County Managers Unit)*
Plan O	County OCEA members and Superior Court members rehired on or after May 7, 2010, LAFCO members rehired on or after July 1, 2010 and County Managers unit members rehired on or after August 17, 2010 and not electing to rejoin Plan I.
Plan P	County OCEA members and Superior Court members hired on or after May 7, 2010, LAFCO members hired on or after July 1, 2010 and County Managers unit members hired on or after August 17, 2010 and not electing Plan J.
2.0% @ 57 Plan	*(City of San Juan Capistrano)*
Plan S	*General members hired on or after July 1, 2012.*

All Other General Employers:

Plan A	General members hired before September 21, 1979.
Plan B	General members hired on or after September 21, 1979 and Sanitation District members within Supervisors and Professional unit hired on or after October 1, 2010.

Summary of Major Plan Provisions

(continued)

Membership Eligibility: (continued)

Non-CalPEPRA Safety Plans:

3% @ 50 Plans	*(Law Enforcement, Fire Authority and Probation)*
Plan E	Safety members hired before September 21, 1979.
Plan F	Safety members hired on or after September 21, 1979 and before April 9, 2010 for Law Enforcement, before July 1, 2011 for Safety employees of OCFA Executive Management, and before July 1, 2012 for other OCFA Safety employees.
3% @ 55 Plans	*(Law Enforcement and Fire Authority)*
Plan Q	Safety Law Enforcement members rehired on or after April 9, 2010, Safety employees of OCFA Executive Management rehired on or after July 1, 2011, and other OCFA Safety employees rehired on or after July 1, 2012 and previously in Plan E.
Plan R	Safety Law Enforcement members hired on or after April 9, 2010, Safety employees of OCFA Executive Management hired on or after July 1, 2011, and other OCFA Safety employees hired on or after July 1, 2012.

CalPEPRA General Plans:

1.62% @ 65 Plan	*(Orange County Employees except County Attorneys, Orange County Employees Retirement System except Management Employees, Children and Family Commission, Local Agency Formation Commission, and Orange County Superior Court)*
Plan T	General members with membership dates on or after January 1, 2013.
2.5% @ 67 Plan	*(All Other General Employers, Orange County Attorneys, Orange County Employees Retirement System Management Employees)*
Plan U	General Non-Orange County Transportation Authority members with membership dates on or after January 1, 2013 and Orange County Transportation Authority members with membership dates on or after January 1, 2015.
1.62% @ 65 Plan	*(City of San Juan Capistrano)*
Plan W	General members with membership dates on or after January 1, 2016 and not electing Plan U.

CalPEPRA Safety Plans:

2.7% @ 57 Plan	*(Law Enforcement, Fire Authority and Probation Members)*
Plan V	Safety members with membership dates on or after January 1, 2013.

Summary of Major Plan Provisions

(continued)

Final Compensation for Benefit Determination:

Plans A, E, G, I, M, O and Q	Highest consecutive twelve months of compensation earnable. (§31462.1) (FAS1)
Plans B, F, H, J, N, P, R and S	Highest consecutive thirty-six months of compensation earnable. (§31462) (FAS3)
Plan T	Highest consecutive thirty-six months of pensionable compensation. (§7522.32 and §7522.34) (FAS3)
Plans U, V and W	Highest consecutive thirty-six months of pensionable compensation. (§7522.10(c), §7522.32 and §7522.34) (FAS3)

Service:

Years of service. (Yrs)

Service Retirement Eligibility:

Plans A, B, G, H, I, J, M, N, O, P, S, T, and W	Age 50 with 10 years of service, or age 70 regardless of service, or after 30 years, regardless of age. (§31672)
	All part-time employees over age 55 with 10 years of employment may retire with 5 years of service.
Plan U	Age 52 with 5 years of service (§7522.20(a)) or age 70 regardless of service. (§31672.3)
Plans E, F, Q and R	Age 50 with 10 years of service, or after 20 years, regardless of age. (§31663.25)
	All part-time employees over age 55 with 10 years of employment may retire with 5 years of service.
Plan V	Age 50 with 5 years of service (§7522.20(d)) or age 70 regardless of service. (§31672.3)

Summary of Major Plan Provisions

(continued)

Benefit Formula: General Plans

Plan G (§31676.18)	50	(2.00% x FAS1 x Yrs)
Tier 1	55	(2.50% x FAS1 x Yrs)
	60	(2.50% x FAS1 x Yrs)
	62	(2.62% x FAS1 x Yrs)*
	65 or later	(2.62% x FAS1 x Yrs)*
Plan H (§31676.18)	50	(2.00% x FAS3 x Yrs)
Tier 2	55	(2.50% x FAS3 x Yrs)
	60	(2.50% x FAS3 x Yrs)
	62	(2.50% x FAS3 x Yrs)
	65 or later	(2.50% x FAS3 x Yrs)

* Reflects benefit factors from Plan A as they provide a better benefit than those under 2.5% @ 55.

Plan I (§31676.19)	50	(2.00% x FAS1 x Yrs)
Tier 1	55	(2.70% x FAS1 x Yrs)
	60	(2.70% x FAS1 x Yrs)
	62	(2.70% x FAS1 x Yrs)
	65 or later	(2.70% x FAS1 x Yrs)
Plan J (§31676.19)	50	(2.00% x FAS3 x Yrs)
Tier 2	55	(2.70% x FAS3 x Yrs)
	60	(2.70% x FAS3 x Yrs)
	62	(2.70% x FAS3 x Yrs)
	65 or later	(2.70% x FAS3 x Yrs)

Plan M (§31676.16)	50	(1.43% x FAS1 x Yrs)
Tier 1	55	(2.00% x FAS1 x Yrs)
	60	(2.34% x FAS1 x Yrs)**
	62	(2.62% x FAS1 x Yrs)**
	65 or later	(2.62% x FAS1 x Yrs)**
Plan N (§31676.16)	50	(1.43% x FAS3 x Yrs)
Tier 2	55	(2.00% x FAS3 x Yrs)
	60	(2.26% x FAS3 x Yrs)
	62	(2.37% x FAS3 x Yrs)
	65 or later	(2.43% x FAS3 x Yrs)***

** Reflects benefit factors from Plan A as they provide a better benefit than those under 2.0% @ 55.
*** Reflects benefit factors from Plan B as they provide a better benefit than those under 2.0% @ 55.

Summary of Major Plan Provisions

(continued)

Benefit Formula: General Plans (continued)

Plan O (§31676.01)	50	(0.79% x FAS1 x Yrs)
Tier 1	55	(0.99% x FAS1 x Yrs)
	60	(1.28% x FAS1 x Yrs)
	62	(1.39% x FAS1 x Yrs)
	65 or later	(1.62% x FAS1 x Yrs)
Plan P, Plan T and Plan W (§31676.01)	50	(0.79% x FAS3 x Yrs)
Tier 2	55	(0.99% x FAS3 x Yrs)
	60	(1.28% x FAS3 x Yrs)
	62	(1.39% x FAS3 x Yrs)
	65 or later	(1.62% x FAS3 x Yrs)

Plan S (§31676.12)	50	(1.34% x FAS3 x Yrs)
Tier 2	55	(1.77% x FAS3 x Yrs)
	60	(2.34% x FAS3 x Yrs)
	62	(2.62% x FAS3 x Yrs)
	65 or later	(2.62% x FAS3 x Yrs)

Plan A (§31676.12)	50	(1.34% x FAS1 x Yrs)
Tier 1	55	(1.77% x FAS1 x Yrs)
	60	(2.34% x FAS1 x Yrs)
	62	(2.62% x FAS1 x Yrs)
	65 or later	(2.62% x FAS1 x Yrs)
Plan B (§31676.1)	50	(1.18% x FAS3 x Yrs)
Tier 2	55	(1.49% x FAS3 x Yrs)
	60	(1.92% x FAS3 x Yrs)
	62	(2.09% x FAS3 x Yrs)
	65 or later	(2.43% x FAS3 x Yrs)
Plan U (§7522.20(a))	52	(1.00% x FAS3 x Yrs)
	55	(1.30% x FAS3 x Yrs)
	60	(1.80% x FAS3 x Yrs)
	62	(2.00% x FAS3 x Yrs)
	65	(2.30% x FAS3 x Yrs)
	67 or later	(2.50% x FAS3 x Yrs)

Summary of Major Plan Provisions

(continued)

Benefit Formula: Safety Plans

Plan E (§31664.1)	50	(3.00% x FAS1 x Yrs)
Tier 1	55	(3.00% x FAS1 x Yrs)
	60 or later	(3.00% x FAS1 x Yrs)
Plan F (§31664.1)	50	(3.00% x FAS3 x Yrs)
Tier 2	55	(3.00% x FAS3 x Yrs)
	60 or later	(3.00% x FAS3 x Yrs)

Plan Q (§31664.2)	50	(2.29% x FAS1 x Yrs)
Tier 1	55	(3.00% x FAS1 x Yrs)
	60 or later	(3.00% x FAS1 x Yrs)
Plan R (§31664.2)	50	(2.29% x FAS3 x Yrs)
Tier 2	55	(3.00% x FAS3 x Yrs)
	60 or later	(3.00% x FAS3 x Yrs)
Plan V (§7522.25(d))	50	(2.00% x FAS3 x Yrs)
	55	(2.50% x FAS3 x Yrs)
	57 or later	(2.70% x FAS3 x Yrs)

Summary of Major Plan Provisions

(continued)

Maximum Benefit:

Plans A, B, E, F, G, H, I, J, M, N, O, P, Q, R, S, T and W	100% of Highest Average Compensation. (§31676.01, §31676.1, §31676.12, §31676.16, §31676.18, §31676.19, §31664.1, §31664.2)
Plans U and V	None

Ordinary Disability:

General Plans:

Plans A, B, G, H, I, J, M, N, O, P, S, T, U and W

Eligibility — Five years of service. (§31720)

Benefit Formula — Plans A, G, I, M, and O:
1.8% per year of service. If the benefit does not exceed one-third of Final Compensation, the service is projected to 62, but the total benefit cannot be more than one-third of Final Compensation. (§31727.1)

Plans B, H, J, N, P, S, T, U and W:
1.5% per year of service. If the benefit does not exceed one-third of Final Compensation, the service is projected to 65, but the total benefit cannot be more than one-third of Final Compensation. (§31727)

Safety Plans:

Plans E, F, Q, R and V

Eligibility — Five years of service. (§31720)

Benefit Formula — 1.8% per year of service. If the benefit does not exceed one-third of Final Compensation, the service is projected to 55, but the total benefit cannot be more than one-third of Final Compensation (§31727.2)

For all members, 100% of the service retirement benefit will be paid, if greater.

Line-of-Duty Disability:

All Members:

Eligibility — No age or service requirements. (§31720)

Benefit Formula — 50% of the Final Compensation or 100% of Service Retirement benefit, if greater. (§31727.4)

Pre-Retirement Death

All Members:

Eligibility — None

Benefit — Refund of employee contributions with interest plus one month's compensation for each year of service to a maximum of six month's compensation. (§31781) A lump sum benefit in the amount of $1,000 is payable upon death of a member (with 10 years of service) to his/her eligible beneficiary. (§31790)

Death in line of duty — 50% of Final Compensation or 100% of Service Retirement benefit, if greater, payable to spouse or minor-children. (§31787)

Or

Vested Members:

Eligibility — Five years of service.

Benefit — 60% of the greater of Service or Ordinary Disability Retirement benefit payable to eligible surviving spouse (§31765.1, §31781.1), in lieu of §31781.

Summary of Major Plan Provisions

(continued)

Death After Retirement:

All Members:

Service or Ordinary Disability Retirement	60% of member's unmodified allowance continued to eligible spouse. (§31760.1) A lump sum benefit in the amount of $1,000 is payable upon death of a member (with 10 years of service) to his/her eligible beneficiary. (§31790) An eligible spouse is a surviving spouse who was married to or registered with the member one year prior to the effective retirement date. Certain surviving spouses or domestic partners may also be eligible if marriage or domestic partnership was at least two years prior to the date of death and the surviving spouse or domestic partner has attained age 55. (§31760.1)
Line-of-Duty Disability	100% of member's allowance continued to eligible spouse. (§31786) A lump sum benefit in the amount of $1,000 is payable upon death of a member (with 10 years of service) to his/her eligible beneficiary. (§31790)

Withdrawal Benefits:

Less than Five Years of Service	Refund of accumulated employee contributions with interest or earned benefit at age 70 (§31628). Effective January 1, 2003, a member may also elect to leave their contributions on deposit in the retirement fund. (§31629.5)
Five or More Years of Service	If contributions left on deposit, entitled to earned benefits commencing at any time after eligible to retire. (§31700)

Post-retirement Cost-of-Living Benefits:

Future changes based on Consumer Price Index to a maximum of 3% per year, excess "banked." (§31870.1)

Supplemental Benefit:

Non-vested supplemental COLA and medical benefits are also paid by the System to eligible retirees and survivors. These benefits have been excluded from this valuation.

Member Contributions:

Non-CalPEPRA General Plans:

Plan A	
Basic	Provide for an average annuity at age 60 equal to 1/200 of FAS1. (§31621.5)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.
Plan B	
Basic	Provide for an average annuity at age 60 equal to 1/120 of FAS3. (§31621)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.
Plans G, H, I and J	
Basic	Provide for an average annuity at age 55 equal to 1/100 of FAS3 (FAS1 for Plans G and I). (§31621.8)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.
Plans M, N, O and P	
Basic	Provide for an average annuity payable at age 60 equal to 1/120 of FAS3 (FAS1 for Plans M and O). (§31621)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.
Plan S	
Basic	Provide for an average annuity at age 60 equal to 1/100 of FAS3. (§31621.2)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.

Summary of Major Plan Provisions

(continued)

Member Contributions: (continued)

Non-CalPEPRA Safety Plans:

Plans E and Q	
Basic	Provide for an average annuity at age 50 equal to 1/200 FAS1. (§31639.5)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.
Plans F and R	
Basic	Provide for an average annuity at age 50 equal to 1/100 of FAS3. (§31639.25)
Cost-of-Living	Provide for 50% of future Cost-of-Living costs.
CalPEPRA Plans:	
Plans T, U, V and W	50% of total Normal Cost rate.

Other Information:

Non-CalPEPRA Safety members with 30 or more years of service are exempt from paying members contributions. The same applies for General members hired on or before March 7, 1973.

Note: The summary of major plan provisions is designed to outline principal plan benefits as interpreted for purposes of the actuarial valuation. If the System should find the plan summary not in accordance with the actual provisions, the System should alert the actuary so that both can be sure the proper provisions are valued.

Experience Analysis

(2007 - 2011)

(Dollars in Thousands)

Gains & Losses in Actuarial Accrued Liabilities During Years Ended December 31, Resulting from Differences Between Assumed Experience & Actual Experience

Type of Activity	Gains (or Losses) Per Year				
	2007	2008	2009	2010	2011
Retirements	$ -	$ (54,911)	$ -	$ -	$ -
Pay Increases	(136,417)	(97,561)	77,858	215,936	154,946
COLA Increases	-	-	-	-	-
Investment Income	176,681	(257,752)	(322,523)	(224,044)	(388,935)
Other	(43,538)	(17,159)	(14,931)	63,174	(38,159)
Gain (or Loss) During Year From Experience	$ (3,274)	$ (427,383)	$ (259,596)	$ 55,066	$ (272,148)
Nonrecurring Items:					
Method and Procedure Changes	-	-	-	-	-
Plan Amendments and Assumption Changes	(237,147)	(115,764)	-	-	(363,842)
Correction to Include All Premium Pay Items	-	-	(228,051)	-	-
Composite Gain (or Loss) During Year	$ (240,421)	$ (543,147)	$ (487,647)	$ 55,066	$ (635,990)

(2012-2016)

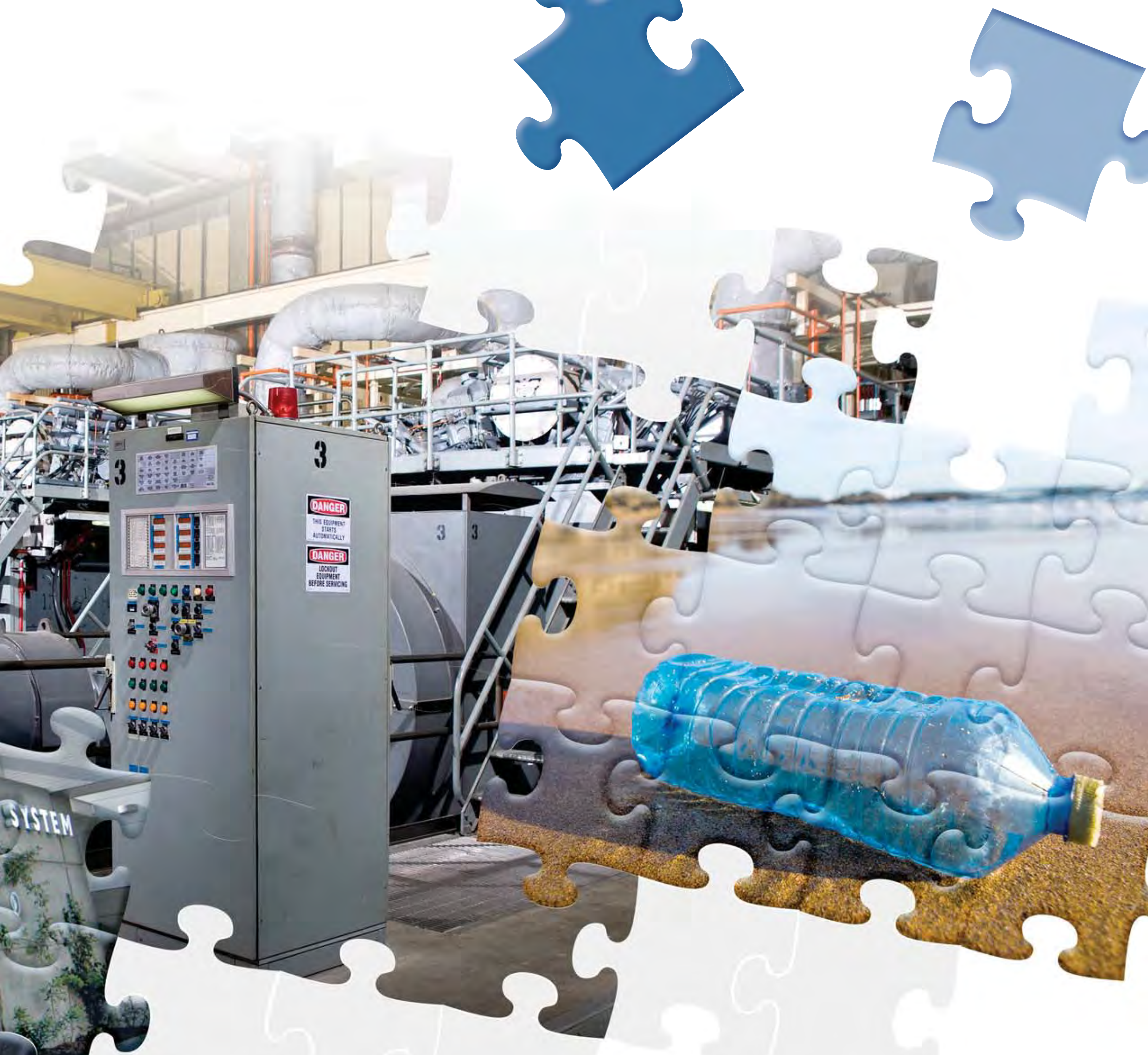
(Dollars in Thousands)

Gains & Losses in Actuarial Accrued Liabilities During Years Ended December 31, Resulting from Differences Between Assumed Experience & Actual Experience

Type of Activity	Gains (or Losses) Per Year				
	2012	2013	2014	2015	2016
Retirements	$ -	$ -	$ -	$ (62,070)	$ -
Pay Increases	244,750	294,326	125,746	282,696	(204,603)
COLA Increases	-	-	153,484	119,367	186,039
Investment Income	(387,808)	176,930	9,570	(229,138)	(113,103)
Other	(19,979)	30,354	(4,476)	10,056	(4,119)
Gain (or Loss) During Year From Experience	$ (163,037)	$ 501,610	$ 284,324	$ 120,911	$ (135,786)
Nonrecurring Items:					
Method of Procedure Changes	-	-	-	-	92,587[1]
Plan Amendments and Assumption Changes	(934,619)	-	122,171	-	-
Correction to Include All Premium Pay Items	-	-	-	-	-
Composite Gain (or Loss) During Year	$ (1,097,656)	$ 501,610	$ 406,495	$ 120,911	$ (43,199)

[1] Includes leap year salary adjustment, revised benefit and eligibility service credits from V3 pension administration system and automatic continuance benefit for child beneficiary.

Section V
Statistical



Orange County Sanitation District (OCSD)

The Orange County Sanitation District's mission is to protect public health and the environment by providing effective wastewater collection, treatment and disposal services for approximately 2.6 million residents in central and northwest Orange County. In order to fulfill this mission and meet customers needs and expectations, OCSD employs the best possible workforce in terms of safety, productivity, customer service and training, as well as partnering with others. Through an innovative partnership with the Orange County Water District, OCSD provides 130 million gallons of treated wastewater to the Groundwater Replenishment System (GWRS), which produces up to 100 million gallons of purified water for residents of Orange County. OCSD also safely collects, treats and recycles, on a daily basis, the millions of gallons of wastewater generated by residents in northern and central Orange County through miles of regional sewers and pump stations to the treatment facilities. Other important services include recycling and reducing the amount of organic material entering our landfills and collecting and treating up to 10 million gallons per day of dry weather urban runoff to help protect local beaches from contamination.

Statistical Section Review

The Statistical Section of the Comprehensive Annual Financial Report provides additional information in order to promote a more comprehensive understanding of the financial statements, note disclosures and supplemental information.

The Governmental Accounting Standards Board (GASB) established five categories of information to be provided in the Statistical Section: Financial Trends, Revenues, Expenses, Demographic and Economic, and Operating Information.

This section provides multi-year trend information to facilitate an understanding of how OCERS as an organization has changed over time.

Information of financial trends, revenues and expenses for the last ten years is presented in the Schedules of Changes in Fiduciary Net Position, Schedule and Graph of Fiduciary Revenue by Source, and Schedule and Graph of Expenses by Type.

Schedule of Changes in Fiduciary Net Position - Pension Trust Fund

2008 – 2017
(Dollars in Thousands)

Years Ended December 31	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Additions										
Employer Contributions	$ 433,911	$ 377,976	$ 372,437	$ 387,585	$ 406,805	$ 427,095	$ 625,520	$ 571,298	$ 567,196	$ 572,104
Employee Contributions	172,291	171,928	177,929	183,820	191,215	209,301	232,656	249,271	258,297	262,294
Investment Income/ (Loss)	(1,625,928)	1,076,073	886,693	48,753	1,002,763	1,151,193	497,760	(11,903)	1,060,040	1,938,025
Net Securities Lending	6,145	3,989	1,849	1,703	2,007	1,454	1,435	1,030	1,203	1,610
Total Additions	$ (1,013,581)	$ 1,629,966	$ 1,438,908	$ 621,861	$ 1,602,790	$ 1,789,043	$ 1,357,371	$ 809,696	$ 1,886,736	$ 2,774,033
Deductions										
Benefits	$ 419,502	$ 461,530	$ 459,383	$ 493,749	$ 541,154	$ 586,284	$ 630,678	$ 675,963	$ 717,976	$ 764,344
Administrative Expenses	11,006	10,947	12,368	12,828	14,209	11,705	11,905	12,521	16,870	17,002
Total Deductions	$ 430,508	$ 472,477	$ 471,751	$ 506,577	$ 555,363	$ 597,989	$ 642,583	$ 688,484	$ 734,846	$ 781,346
Changes in Fiduciary Net Position	$ (1,444,089)	$ 1,157,489	$ 967,157	$ 115,284	$ 1,047,427	$ 1,191,054	$ 714,788	$ 121,212	$ 1,151,890	$ 1,992,687

Schedule of Changes in Fiduciary Net Position - Health Care Fund - County

2008 – 2017
(Dollars in Thousands)

Years Ended December 31	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Additions										
Employer Contributions	N/A	N/A	$ 14,582	$ 39,694	$ 27,395	$ 66,057	$ 64,852	$ 36,557	$ 42,411	$ 59,864
Investment Income/(Loss)	N/A	N/A	8,561	(641)	10,308	13,702	7,374	(698)	16,902	34,087
Net Securities Lending	N/A	N/A	18	18	21	20	25	18	21	32
Total Additions	$ -	$ -	$ 23,161	$ 39,071	$ 37,724	$ 79,779	$ 72,251	$ 35,877	$ 59,334	$ 93,983
Deductions										
Benefits	N/A	N/A	$ 25,514	$ 26,250	$ 27,089	$ 28,293	$ 29,299	$ 30,107	$ 30,818	$ 32,042
Administrative Expenses	N/A	N/A	18	18	19	20	20	22	22	22
Total Deductions	$ -	$ -	$ 25,532	$ 26,268	$ 27,108	$ 28,313	$ 29,319	$ 30,129	$ 30,840	$ 32,064
Changes in Fiduciary Net Position	$ -	$ -	$ (2,371)	$ 12,803	$ 10,616	$ 51,466	$ 42,932	$ 5,748	$ 28,494	$ 61,919

Schedule of Changes in Fiduciary Net Position - Health Care Fund - OCFA

2008 – 2017
(Dollars in Thousands)

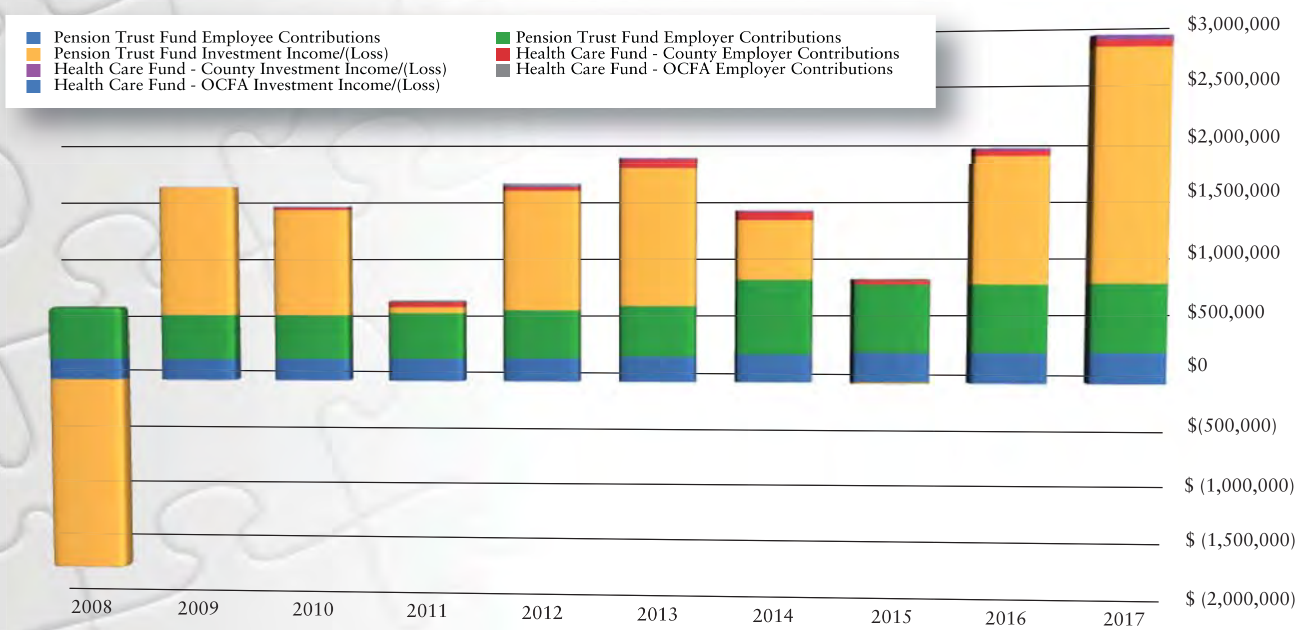
Years Ended December 31	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Additions										
Employer Contributions	N/A	N/A	$ 3,634	$ 3,660	$ 3,590	$ 18,349	$ 2,667	$ 2,624	$ 2,414	$ 2,380
Investment Income/(Loss)	N/A	N/A	1,358	(7)	1,736	1,963	1,583	(99)	2,845	5,113
Net Securities Lending	N/A	N/A	3	3	3	4	5	3	3	4
Total Additions	$ -	$ -	$ 4,995	$ 3,656	$ 5,329	$ 20,316	$ 4,255	$ 2,528	$ 5,262	$ 7,497
Deductions										
Benefits	N/A	N/A	$ 2,158	$ 2,649	$ 2,804	$ 2,550	$ 3,138	$ 3,448	$ 3,867	$ 3,978
Administrative Expenses	N/A	N/A	9	9	9	14	22	22	22	27
Total Deductions	$ -	$ -	$ 2,167	$ 2,658	$ 2,813	$ 2,564	$ 3,160	$ 3,470	$ 3,889	$ 4,005
Changes in Fiduciary Net Position	$ -	$ -	$ 2,828	$ 998	$ 2,516	$ 17,752	$ 1,095	$ (942)	$ 1,373	$ 3,492

N/A: Detailed information not available.

Schedule and Graph of Fiduciary Revenues by Source

2008 – 2017
(Dollars in Thousands)

Years Ended December 31	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Pension Trust Fund										
Employee Contributions	$ 172,291	$ 171,928	$ 177,929	$ 183,820	$ 191,215	$ 209,301	$ 232,656	$ 249,271	$ 258,297	$ 262,294
Employer Contributions	433,911	377,976	372,437	387,585	406,805	427,095	625,520	571,298	567,196	572,104
Investment Income /(Loss)[1, 2]	(1,619,783)	1,080,062	888,542	50,456	1,004,770	1,152,647	499,195	(10,873)	1,061,243	1,939,635
Health Care Fund - County										
Employer Contributions	N/A	N/A	14,582	39,694	27,395	66,057	64,852	36,557	42,411	59,864
Investment Income /(Loss)[1]	N/A	N/A	8,579	(623)	10,329	13,722	7,399	(680)	16,923	34,119
Health Care Fund - OCFA										
Employer Contributions	N/A	N/A	3,634	3,660	3,590	18,349	2,667	2,624	2,414	2,380
Investment Income /(Loss)[1]	N/A	N/A	1,361	(4)	1,739	1,967	1,588	(96)	2,848	5,117
Total	$ (1,013,581)	$ 1,629,966	$ 1,467,064	$ 664,588	$ 1,645,843	$ 1,889,138	$ 1,433,877	$ 848,101	$ 1,951,332	$ 2,875,513



N/A: Detailed information not available.

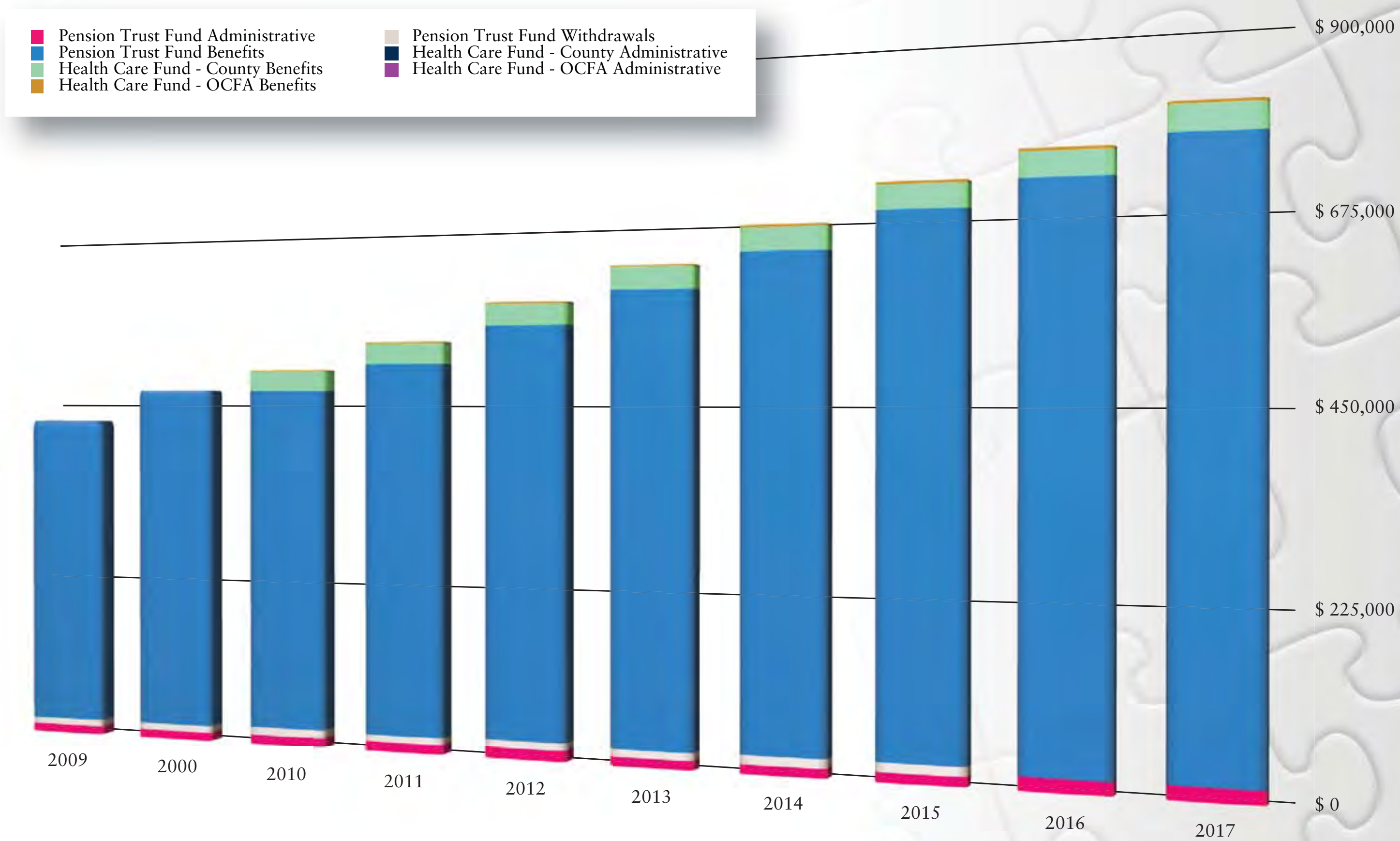
[1] Investment Income / (Loss) includes net appreciation/(depreciation) less investment manager fees, security lending fees and commission recapture.

[2] Beginning in 2013, Investment Income / (Loss) includes net appreciation/(depreciation) less investment manager fees, investment department expenses, security lending fees and commission recapture.

Schedule and Graph of Expenses by Type

2008 – 2017
(Dollars in Thousands)

Years Ended December 31	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Pension Trust Fund										
Administrative	$ 11,006	$ 10,947	$ 12,368	$ 12,828	$ 14,209	$ 11,705	$ 11,905	$ 12,521	$ 16,870	$ 17,002
Withdrawals										
Separation	7,022	7,604	8,566	6,833	8,078	7,516	9,843	10,764	9,411	9,294
Death	1,337	1,448	1,880	2,041	2,019	2,348	1,887	1,093	4,232	4,572
Benefits	411,143	452,478	448,937	484,875	531,057	576,420	618,948	664,106	704,333	750,478
Health Care Fund - County										
Administrative	N/A	N/A	18	18	19	20	20	22	22	22
Benefits	N/A	N/A	25,514	26,250	27,089	28,293	29,299	30,107	30,818	32,042
Health Care Fund - OCFA										
Administrative	N/A	N/A	9	9	9	14	22	22	22	27
Benefits	N/A	N/A	2,158	2,649	2,804	2,550	3,138	3,448	3,867	3,978
Total	$ 430,508	$ 472,477	$499,450	$ 535,503	$ 585,284	$ 628,866	$ 675,062	$ 722,083	$ 769,575	$ 817,415

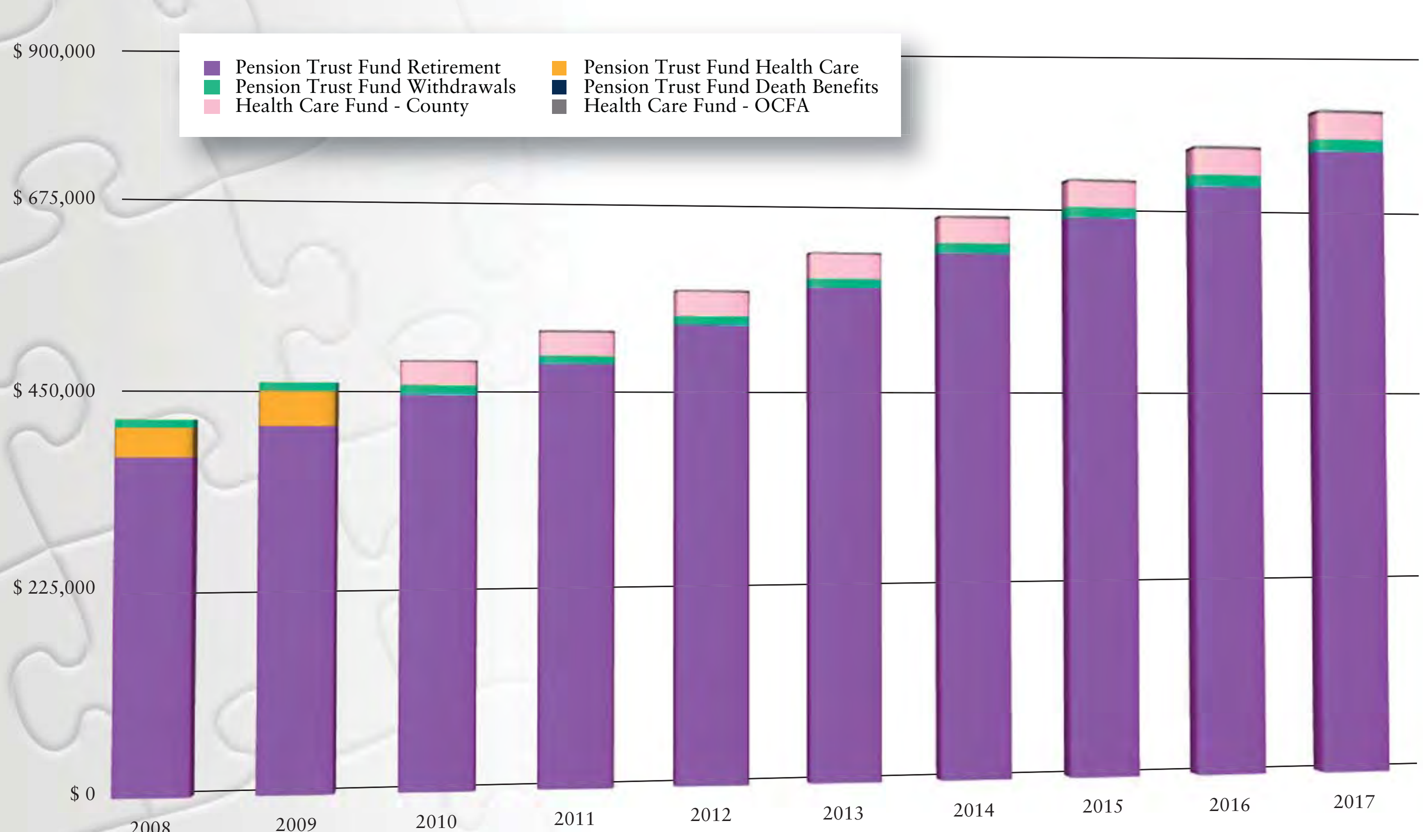


N/A: Detailed information not available.

Schedule and Graph of Benefit Expenses by Type

2008 – 2017
(Dollars in Thousands)

Years Ended December 31	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Pension Trust Fund										
Retirement	$ 376,937	$ 411,959	$ 448,099	$ 484,012	$ 530,269	$ 575,633	$ 618,233	$ 663,582	$ 703,949	$ 749,784
Health Care [1]	33,480	39,858	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Withdrawals	8,359	9,052	10,446	8,874	10,097	9,864	11,730	11,857	13,643	13,866
Death Benefits	726	661	838	863	788	787	715	524	384	694
Health Care Fund - County										
Health Care	N/A	N/A	25,514	26,250	27,089	28,293	29,299	30,107	30,818	32,042
Health CareFund - OCFA										
Health Care	N/A	N/A	2,158	2,649	2,804	2,550	3,138	3,448	3,867	3,978
Total	$ 419,502	$ 461,530	$ 487,055	$ 522,648	$ 571,047	$ 617,127	$ 663,115	$ 709,518	$ 752,661	$ 800,364



N/A: Detailed information not available.

[1] Health care benefits for 2008 and 2009 encompass all plans, including 401(h), which are reported as trust funds, and 115, which are reported as agency funds.

Schedule and Graph of Average Monthly Pension Check

2008 – 2017

Years Ended December 31	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
General	$ 2,373	$ 2,508	$ 2,621	$ 2,714	$ 2,836	$ 2,924	$ 2,991	$ 3,103	$ 3,142	$ 3,244
Safety	$ 4,724	$ 4,926	$ 5,141	$ 5,297	$ 5,516	$ 5,679	$ 5,914	$ 5,974	$ 5,917	$ 6,017

* Year 2006 includes health grant

Source: OCERS' Pension Gold Information System and V3 Pension Administration System Solution

Schedule of Average Pension Benefit Payments by Years of Service

Service Retirement Effective Dates	Years of Service 0-5	5-10	10-15	15-20	20-25	25-30	30 & Over
Period 1/1/08-12/31/08							
Average Monthly Pension Benefits	$ 321	$ 876	$ 1,784	$ 2,451	$ 3,793	$ 5,323	$ 7,687
Monthly Final Average Salary	$ 2,539	$ 4,166	$ 5,512	$ 5,330	$ 6,484	$ 6,864	$ 8,424
Number of Retired Members	19	31	83	90	78	91	97
Period 1/1/09-12/31/09							
Average Monthly Pension Benefits	$ 381	$ 950	$ 1,821	$ 2,716	$ 3,711	$ 5,852	$ 7,467
Monthly Final Average Salary	$ 3,766	$ 4,228	$ 5,564	$ 6,006	$ 6,417	$ 7,669	$ 8,378
Number of Retired Members	26	45	102	87	110	106	124
Period 1/1/10-12/31/10							
Average Monthly Pension Benefits	$ 587	$ 986	$ 1,855	$ 2,929	$ 4,046	$ 5,922	$ 6,856
Monthly Final Average Salary	$ 3,666	$ 4,800	$ 5,537	$ 6,291	$ 6,962	$ 7,764	$ 7,741
Number of Retired Members	23	45	108	106	130	127	129
Period 1/1/11-12/31/11							
Average Monthly Pension Benefits	$ 678	$ 1,057	$ 1,689	$ 3,054	$ 4,257	$ 5,910	$ 6,766
Monthly Final Average Salary	$ 4,843	$ 5,825	$ 5,475	$ 6,497	$ 7,314	$ 7,874	$ 7,650
Number of Retired Members	16	55	111	86	120	123	155
Period 1/1/12-12/31/12							
Average Monthly Pension Benefits	$ 647	$ 1,142	$ 1,701	$ 2,957	$ 4,058	$ 5,802	$ 7,015
Monthly Final Average Salary	$ 5,988	$ 5,398	$ 5,672	$ 6,347	$ 6,759	$ 7,702	$ 7,750
Number of Retired Members	20	71	128	88	187	145	172
Period 1/1/13-12/31/13							
Average Monthly Pension Benefits	$ 435	$ 1,166	$ 2,039	$ 2,946	$ 3,794	$ 6,409	$ 7,732
Monthly Final Average Salary	$ 8,199	$ 6,347	$ 6,458	$ 6,492	$ 6,431	$ 8,432	$ 8,482
Number of Retired Members	29	55	139	82	161	147	131
Period 1/1/14-12/31/14							
Average Monthly Pension Benefits	$ 421	$ 1,152	$ 1,925	$ 3,188	$ 4,117	$ 6,444	$ 6,719
Monthly Final Average Salary	$ 8,176	$ 6,955	$ 6,301	$ 6,961	$ 7,003	$ 8,463	$ 7,349
Number of Retired Members	23	45	146	96	143	192	138
Period 1/1/15-12/31/15							
Average Monthly Pension Benefits	$ 582	$ 1,263	$ 1,755	$ 2,850	$ 3,895	$ 5,679	$ 7,235
Monthly Final Average Salary	$ 8,802	$ 6,888	$ 5,970	$ 6,673	$ 6,800	$ 7,893	$ 8,352
Number of Retired Members	22	63	128	119	110	200	182
Period 1/1/16-12/31/16							
Average Monthly Pension Benefits	$ 427	$ 1,244	$ 2,135	$ 2,886	$ 4,272	$ 5,549	$ 6,782
Monthly Final Average Salary	$ 8,298	$ 6,907	$ 6,911	$ 6,580	$ 7,383	$ 7,651	$ 7,762
Number of Retired Members	24	56	121	120	113	195	163
Period 1/1/17-12/31/17							
Average Monthly Pension Benefits	$ 541	$ 1,215	$ 2,073	$ 3,062	$ 4,513	$ 5,851	$ 7,069
Monthly Final Average Salary	$ 7,952	$ 6,800	$ 6,844	$ 6,810	$ 7,743	$ 7,975	$ 7,931
Number of Retired Members	21	47	122	147	112	190	153

Source: OCERS' Pension Gold Information System and V3 Pension Administration System Solution

Schedule of Pension Benefit Recipients by Type of Benefit

December 31, 2017

Monthly Benefit	Normal Retirement for Age and Service	Survivor Payment - Normal Retirement	Service-Connected Disability Retirement	Nonservice-Connected Disability Retirement	Survivor Payment - Disbaility Retirement	DRO (Domestic Relations Order Payees)	Active Deaths	Total
$1-500	591	125	3	7	13	73	14	826
$501-1,000	1,066	249	2	28	37	96	94	1,572
$1,001-1,500	1,326	203	12	76	25	91	84	1,817
$1,501-2,000	1,140	146	96	77	23	58	47	1,587
$2,001-2,500	1,143	122	223	22	27	48	24	1,609
$2,501-3,000	996	104	208	21	37	35	12	1,413
$3,001-3,500	860	74	124	11	16	25	6	1,116
$3,501-4,000	748	56	107	9	17	11	7	955
$4,001-4,500	650	41	120	1	16	4	6	838
$4,501-5,000	643	34	51	3	14	5	7	757
$5,001-5,500	530	27	38	3	3	7	2	610
$5,501-6,000	509	16	32	2	5	1	3	568
$6,001-6,500	435	13	20	-	1	1	-	470
$6,501-7,000	388	10	24	-	3	-	2	427
Over $7,000	2,215	24	125	1	15	-	2	2,382
Total	13,240	1,244	1,185	261	252	455	310	16,947

Definition of Terms

Eligible Spouse: A member's spouse is considered eligible if the member has been legally married for at least one year at the time of retirement and remains married throughout the member's retirement. Eligible Spouse also includes Qualified Domestic Partner registered in accordance with applicable Family Law provisions.

Eligible Child: An eligible child is an unmarried child under the age of 18, or under the age of 22 if a full-time student. This includes adopted children. Eligible Child can also include a stepchild living or domiciled with the member at the time of the member's death for purposes of an active member Nonservice-connected or Service-connected death benefit only.

Source: OCERS' Pension Gold Information System and V3 Pension Administration System Solution

Schedule of Pension Benefit Recipients by Option Selected

December 31, 2017

Monthly Benefit	UM	OP1	OP2	OP3	OP4	DB	UMC	O2C	O3C	O4C	SCDC	NSCDC	LSRC	AN	Total
$1-500	558	1	30	2	2	73	120	10	8	-	1	12	1	8	826
$501-1,000	1,045	1	47	1	2	96	269	13	4	2	12	64	16	-	1,572
$1,001-1,500	1,364	1	45	3	1	91	219	10	1	-	6	70	6	-	1,817
$1,501-2,000	1,269	1	36	5	2	58	160	10	3	1	3	33	6	-	1,587
$2,001-2,500	1,353	-	29	-	6	48	136	16	-	-	1	18	2	-	1,609
$2,501-3,000	1,203	-	16	4	2	35	135	6	1	-	3	8	-	-	1,413
$3,001-3,500	966	1	23	3	2	25	79	12	-	-	1	4	-	-	1,116
$3,501-4,000	843	1	10	2	8	11	69	7	-	-	1	1	2	-	955
$4,001-4,500	749	-	16	2	4	4	56	4	-	-	2	1	-	-	838
$4,501-5,000	674	-	17	2	4	5	46	5	-	-	1	3	-	-	757
$5,001-5,500	551	-	15	1	4	7	26	5	1	-	-	-	-	-	610
$5,501-6,000	530	1	7	-	5	1	19	3	-	-	1	1	-	-	568
$6,001-6,500	441	-	10	-	4	1	12	2	-	-	-	-	-	-	470
$6,501-7,000	402	1	4	-	5	-	12	2	-	-	-	1	-	-	427
Over $7,000	2,304	1	23	2	11	-	35	5	-	-	-	-	1	-	2,382
Total	**14,252**	**9**	**328**	**27**	**62**	**455**	**1,393**	**110**	**18**	**3**	**32**	**216**	**34**	**8**	**16,947**

Definition of Options:

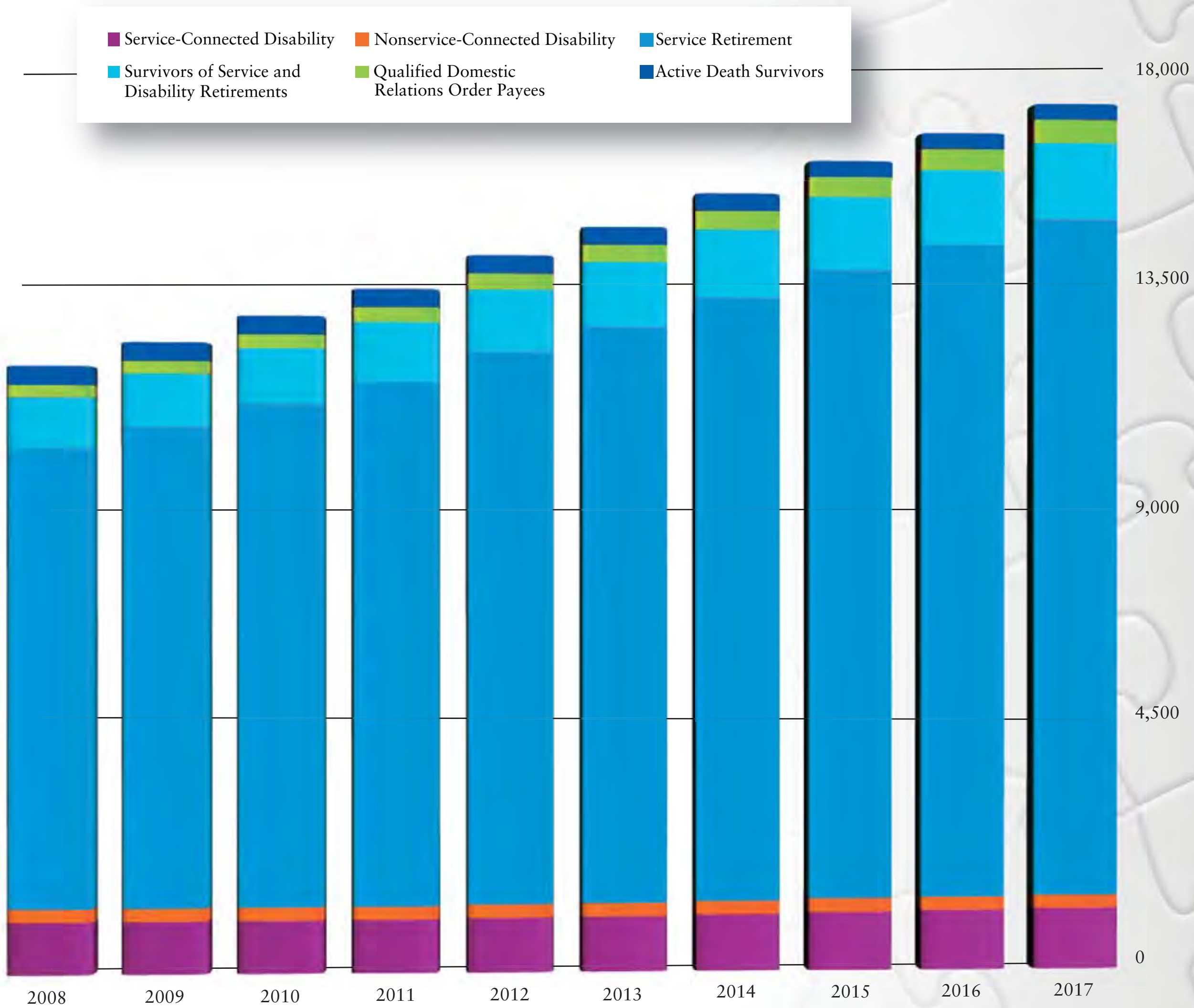
UM: Unmodified -- Maximum retirement allowance
OP1: Option 1 -- Reduced retirement allowance, at death of retiree beneficiary receives remaining balance on account
OP2: Option 2 -- Reduced retirement allowance
OP3: Option 3 -- Reduced retirement allowance
OP4: Option 4 -- Reduced retirement allowance
DB: DRO benefit -- Benefit as provided in Domestic Relations Order
UMC: Unmodified continuance -- Beneficiary receives 60% of maximum retirement allowance
O2C: Option 2 continuance -- Beneficiary receives same monthly allowance
O3C: Option 3 continuance -- Beneficiary receives 50% of monthly allowance
O4C: Option 4 continuance -- Multiple beneficiaries receive allowance as previously approved
SCDC: SCD continuance -- Service Connected Disability
NSCDC: NSCD continuance -- Non Service Connected Disability
LSRC: Lump sum and reduced continuance
AN: Annuity

Source: OCERS' Pension Gold Information System and V3 Pension Administration System Solution

Schedule and Graph of Pension Benefit Recipients

2008 – 2017

Years Ended December 31	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Service-Connected Disability	1,009	1,022	1,027	1,032	1,059	1,072	1,098	1,131	1,161	1,185
Nonservice-Connected Disability	258	252	254	259	260	263	265	271	257	261
Service Retirement	8,924	9,322	9,767	10,189	10,739	11,226	11,760	12,278	12,768	13,240
Survivors of Service and Disability Retirements	978	1,031	1,079	1,160	1,221	1,261	1,336	1,423	1,448	1,496
Qualified Domestic Relations Order Payees	238	248	272	289	314	340	366	399	426	455
Active Death Survivors	371	368	363	360	354	343	344	308	309	310
Total	**11,778**	**12,243**	**12,762**	**13,289**	**13,947**	**14,505**	**15,169**	**15,810**	**16,369**	**16,947**



Source: OCERS' Pension Gold Information System and V3 Pension Administration System Solution

Schedule of Average Retirement Age

2008 – 2017

Years Ended December 31	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
General	59.82	60.31	60.55	60.65	60.42	61.32	60.79	59.37	59.44	60.79
Safety	54.03	54.98	54.18	54.56	54.33	54.80	54.06	53.51	53.58	55.09

Schedule of Average Years of Service at Retirement

2008 – 2017

Years Ended December 31	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
General	20.44	20.79	20.53	20.82	20.88	20.00	21.13	18.22	19.56	21.41
Safety	23.77	22.63	23.91	25.27	24.41	24.25	24.47	24.18	22.81	23.92

Schedule of Beneficiaries Receiving a Pension

2008 – 2017

Years Ended December 31	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
General	1,214	1,253	1,286	1,352	1,398	1,503	1,457	1,498	1,514	1,540
Safety	135	146	156	168	177	187	223	233	243	266
Total	1,349	1,399	1,442	1,520	1,575	1,690	1,680	1,731	1,757	1,806

Schedule of Active and Deferred Members

2008 – 2017

Years Ended December 31	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
General										
Active	19,795	18,873	18,155	17,717	17,559	17,637	17,873	17,838	18,072	17,941
Deferred	3,560	3,707	3,905	3,998	3,980	4,205	4,380	4,668	4,940	5,341
Safety										
Active	3,925	3,760	3,587	3,704	3,730	3,731	3,587	3,687	3,674	3,780
Deferred	321	387	403	408	402	408	409	424	430	462
Total	27,601	26,727	26,050	25,827	25,671	25,981	26,249	26,617	27,116	27,524

Source: OCERS' Pension Gold Information System and V3 Pension Administration System Solution

Schedule of Participating Employers - Pension Plan

2008 – 2017

Years Ended December 31		Total	Orange County	OCTA	Superior Court	Fire Authority	OC Sanitation District	City of San Juan Capistrano	TCA	All Other Sponsors
2008	Number of Covered Employees	23,720	17,798	2,022	1,812	1,121	615	93	93	166
	Percentage to Total System	100%	75.03%	8.52%	7.64%	4.73%	2.59%	0.39%	0.39%	0.70%
2009	Number of Covered Employees	22,633	17,021	1,836	1,711	1,114	611	88	92	160
	Percentage to Total System	100%	75.20%	8.11%	7.56%	4.92%	2.70%	0.39%	0.41%	0.71%
2010	Number of Covered Employees	21,742	16,486	1,639	1,635	1,064	594	87	79	158
	Percentage to Total System	100%	75.83%	7.54%	7.52%	4.89%	2.73%	0.40%	0.36%	0.73%
2011	Number of Covered Employees	21,421	16,084	1,549	1,638	1,244	596	80	80	150
	Percentage to Total System	100%	75.09%	7.23%	7.65%	5.81%	2.78%	0.37%	0.37%	0.70%
2012	Number of Covered Employees	21,289	16,118	1,509	1,569	1,195	596	80	74	148
	Percentage to Total System	100%	75.70%	7.09%	7.37%	5.61%	2.80%	0.38%	0.35%	0.70%
2013	Number of Covered Employees	21,368	16,281	1,519	1,492	1,185	587	81	77	146
	Percentage to Total System	100%	76.19%	7.11%	6.98%	5.55%	2.75%	0.38%	0.36%	0.68%
2014	Number of Covered Employees	21,460	16,453	1,454	1,460	1,213	594	80	65	141
	Percentage to Total System	100%	76.67%	6.78%	6.80%	5.65%	2.77%	0.37%	0.30%	0.66%
2015	Number of Covered Employees	21,525	16,574	1,409	1,462	1,224	572	75	63	146
	Percentage to Total System	100%	77.00%	6.55%	6.79%	5.69%	2.66%	0.35%	0.29%	0.68%
2016	Number of Covered Employees	21,746	16,756	1,372	1,486	1,263	578	80	68	143
	Percentage to Total System	100%	77.05%	6.31%	6.83%	5.81%	2.66%	0.37%	0.31%	0.66%
2017	Number of Covered Employees	21,721	16,778	1,313	1,455	1,288	592	81	64	150
	Percentage to Total System	100%	77.24%	6.04%	6.70%	5.93%	2.73%	0.37%	0.29%	0.69%

Source: OCERS' Pension Gold Information System and V3 Pension Administration System Solution

History of Actuarial Assumption Rates

For the Period January 1945 - December 2017

The table shown below is a comprehensive history of the change in interest rate assumption and the salary assumption rates corresponding to the Orange County Employees Retirement System since the inception of the System. These rates are adopted by the Retirement Board and used by the consulting actuary in the creation of the actuarial valuation of the System.

Specifically, the interest rate assumption estimates the rate at which the funds of the System's investment portfolio will realize earnings over many years into the future. The salary assumption rate estimates the relative increases in the salary of a member from the date of the valuation to the estimated date of separation of the member from active service.

Effective Date	Interest Rate	Salary Assumption Rate
1/1/1945	2.50%	0.00%
7/1/1962	3.50%	0.00%
12/31/1965	4.00%	0.00%
7/1/1969	4.50%	0.00%
6/30/1970	5.00%	0.00%
8/31/1973	5.75%	0.00%
7/1/1975	6.00%	0.00%
7/1/1981	7.25%	5.00%
7/1/1989	7.50%	5.50%
7/1/1991	8.00%	6.00%
7/1/1996	8.00%	3.50%
7/1/2000	8.00%	5.50%
7/1/2003	7.50%	4.50%
12/31/2004	7.75%	3.50%[1]
12/31/2007	7.75%	3.50%[2]
12/31/2011	7.75%	3.50%[3]
12/31/2012	7.25%	3.25%[4]
12/31/2014	7.25%	3.50%[4]
12/31/2017	7.00%	3.25%[4]

[1] Inflation per year plus merit and promotion increases ranging from 0.6% to 0.7%
[2] Inflation per year plus merit and promotion increases ranging from 1% to 10%
[3] Inflation per year plus 0.25% across-the-board real salary increases plus merit and promotion increases ranging from 1% to 14%
[4] Inflation per year plus 0.50% across-the-board real salary increase

Source: The Segal Company

ORANGE COUNTY

OCERS

EMPLOYEES RETIREMENT SYSTEM

Section VI
Glossary

Glossary of Terms

Accrual Basis

The recording of the financial effects on a government of transactions and other events and circumstances that have financial consequences for the government in the periods in which those transactions, events and circumstances occur, rather than only in the periods in which cash is received or paid by the government.

Accumulated Plan Benefits

Benefits attributable under the provisions of a pension plan to employees for services rendered to the benefit information date.

Actuarial Accrued Liability

The actuarial accrued liability, as determined by a particular cost method, equals the total present value of benefits that is attributable to past service credit.

Actuarial Assumptions

Assumptions used in the actuarial valuation process as to the occurrence of future events affecting pension costs, such as mortality, withdrawal, disablement and retirement; changes in compensation and national pension benefits; rates of investments earnings and asset appreciation or depreciation: procedures used to determine the actuarial value of assets; characteristics of future entrants for open group actuarial cost methods and other relevant items.

Actuarial Determined Contribution

A target or recommended contribution to a defined benefit pension plan for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

Actuarial Gain (Loss)

A measure of the difference between actuarial and expected experience based upon a set of actuarial assumptions. Examples include higher than expected salaries increases (loss) and a higher return on fund assets than anticipated (gain).

Actuarial Present Value

The discounted value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of actuarial assumptions.

Amortization

1. The portion of the cost of a limited-life or intangible asset charged as an expense during a particular period.

2. The reduction of debt by regular payments of principal and interest sufficient to retire the debt by maturity.

Comprehensive Annual Financial Report (CAFR)

The CAFR is the official annual report of a governmental entity. It includes the basic financial statements and their related notes prepared in conformity with GAAP. It also includes supporting schedules necessary to demonstrate compliance with finance-related legal and contractual provisions, required supplementary information, extensive introductory material and a detailed statistical section.

Cost-sharing Multiple-employer Defined Benefit Pension Plan (cost-sharing pension plan)

A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.

Glossary of Terms

(Continued)

Discount Rate

The single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the total of the following:

1. The actuarial present value of benefit payments projected to be made in future periods in which (a) the amount of the pension plan's fiduciary net position is projected (under the requirements of GASB Statement No. 67) to be greater than the benefit payments that are projected to be made in that period and (b) pension plan assets up to that point are expected to be invested using a strategy to achieve the long-term expected rate of return, calculated using the long-term expected rate of return on pension plan investments.

2. The actuarial present value of projected benefit payments not included in (1), calculated using the municipal bond rate.

Entry Age Actuarial Cost Method

A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on the level basis over the earnings or services of the individual between entry age and assumed exit age(s).

Independent Auditor's Report

In the context of a financial audit, a statement by the auditor describing the scope of the audit and the auditing standards applied in the examination, and setting forth the auditor's opinion on the fairness of presentation of the basic financial statements in conformity with generally accepted accounting principles (GAAP).

Money-weighted Rate of Return

A method of calculating period-by-period returns on pension plan investments that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.

Net Pension Liability

The liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.

Normal Cost

The ongoing annual cost allocated to the system by a particular actuarial cost method for providing benefits (future cost). Normal cost payments are made during the working lifetime of the member.

Pension Contribution

The amount paid into a pension plan by an employer (and/or employee), pursuant to the terms of the plan, state law, actuarial calculations or some other basis for determinations.

Pension Trust Fund

A fund used to account for public employee retirement benefits. Pension trust funds use the accrual basis of accounting and have a capital maintenance focus.

Total Pension Liability

The portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service in conformity with the requirements of GASB Statement No. 67.

Unfunded Actuarial Accrued Liability (UAAL)

The excess of the actuarial accrued liability over the actuarial value of assets represents the unfunded actuarial accrued liability.

UAAL Amortization Payment

The UAAL amortization payment is the portion of pension contributions, which is designed to pay off (amortize) the UAAL in a systematic fashion. Equivalently, it is a series of periodic payments required to pay off a debt.

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

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GASB 67 ACTUARIAL VALUATION

Orange County Employees Retirement System

Governmental Accounting Standards Board (GASB) Statement 67
Actuarial Valuation as of December 31, 2017

Segal Consulting

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May 16, 2018

Board of Retirement
Orange County Employees Retirement System
2223 Wellington Avenue
Santa Ana, CA 92701

Dear Board Members:

We are pleased to submit this Governmental Accounting Standards Board (GASB) Statement 67 Actuarial Valuation as of December 31, 2017. It contains various information that will need to be disclosed in order to comply with GASB Statement 67.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the System. The census and financial information on which our calculations were based was prepared by OCERS. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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; and changes in plan provisions or applicable law.

The actuarial calculations were completed under the supervision of Andy Yeung, ASA, MAAA, FCA, Enrolled Actuary. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and expectations for the System.

We look forward to reviewing this report with you and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

Paul Angelo, FSA, MAAA, FCA, EA	*Andy Yeung, ASA, MAAA, FCA, EA*
Senior Vice President and Actuary	*Vice President and Actuary*

AW/gxk

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SECTION 1

VALUATION SUMMARY

SECTION 2

GASB STATEMENT 67 INFORMATION

Purpose

This report has been prepared by Segal Consulting to present certain disclosure information required by Governmental Accounting Standards Board (GASB) Statement 67 as of December 31, 2017. This valuation is based on:

- The benefit provisions of OCERS, as administered by the Board of Retirement;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of December 31, 2016, provided by OCERS;
- The assets of the Plan as of December 31, 2017, provided by OCERS;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board for the December 31, 2017 valuation; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc. adopted by the Board for the December 31, 2017 valuation.

General Observations on GASB 67 Actuarial Valuation

The following points should be considered when reviewing this GASB 67 report:

- The Governmental Accounting Standards Board (GASB) rules only define pension liability and expense for financial reporting purposes, and do not apply to contribution amounts for pension funding purposes. Employers and plans still develop and adopt funding policies under current practices.
- When measuring pension liability GASB uses the same actuarial cost method (Entry Age method) and the same type of discount rate (expected return on assets) as OCERS uses for funding. This means that the Total Pension Liability (TPL) measure for financial reporting shown in this report is determined on generally the same basis as OCERS' Actuarial Accrued Liability (AAL) measure for funding. We note that the same is generally true for the Normal Cost component of the annual plan cost for funding and financial reporting.
- The Net Pension Liability (NPL) is equal to the difference between the TPL and the Plan's Fiduciary Net Position. The Plan's Fiduciary Net Position is equal to the market value of assets and therefore, the NPL measure is very similar to an Unfunded Actuarial Accrued Liability (UAAL) calculated on a market value basis.

Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- For this report, the reporting dates for the Plan are December 31, 2017 and 2016. The NPL's measured as of December 31, 2017 and 2016 have been determined by rolling forward the TPL as of December 31, 2016 and 2015, respectively. The Plan Fiduciary Net Positions were valued as of the measurement dates. In addition, any changes in actuarial assumptions or plan provisions that occurred between the valuation date and the measurement date have been reflected.
- The NPL decreased slightly from $5,191.2 million as of December 31, 2016 to $4,952.1 million as of December 31, 2017 primarily as a result of a 14.79% return on the market value of assets during 2017 that was greater than the assumed return of 7.25%. The gain was offset to some extent by the $827.2 million loss from changes in actuarial assumptions. Changes in these values during the last two fiscal years ending December 31, 2016 and December 31, 2017 can be found in Exhibit 3.
- The discount rates originally used to determine the TPL and NPL as of December 31, 2017 and December 31, 2016 were 7.25% and 7.25%, respectively, following the same assumptions used by OCERS in the pension funding valuations as of December 31, 2016 and December 31, 2015. However, as the Board has approved a new discount rate of 7.00% (together with other new actuarial assumptions) for use in the next pension funding valuation as of December 31, 2017, we have estimated the impact of this assumption change by (1) revaluing the actuarial valuation TPL as of December 31, 2016 (before the roll forward) and (2) using this revalued TPL in rolling forward the results from December 31, 2016 to December 31, 2017. The detailed calculations used in this derivation of the TPL and NPL as of December 31, 2017 can be found in Exhibit 5 of Section 2. Various other information that is required to be disclosed can be found throughout Exhibits 1 through 4 in Section 2.
- The Plan's Fiduciary Net Position of $12,809,208,000 as of December 31, 2016 is equal to the final market value of assets in the Pension Trust Fund as of December 31, 2016. This differs from the $12,657,418,000 market value of assets used in our December 31, 2016 funding valuation because the funding valuation excludes $117,723,000 in the County Investment Account and $34,067,000 in O.C. Sanitation District UAAL Deferred Account.

  The Plan's Fiduciary Net Position of $14,801,895,000 as of December 31, 2017 is equal to the final market value of assets in the Pension Trust Fund as of December 31, 2017. This differs from the $14,652,607,000 market value of assets used in our December 31, 2017 funding valuation because the funding valuation excludes $134,417,000 in the County Investment Account and $14,871,000 in O.C. Sanitation District UAAL Deferred Account (after transfer of $24,042,000 required for O.C. Sanitation District to offset UAAL increase for assumption changes).

Summary of Key Valuation Results

	December 31, 2017	December 31, 2016
Disclosure elements for plan year ending December 31:		
Service cost[1]	$452,412,003	$427,473,217
Total Pension Liability	19,753,994,401	18,000,424,603
Plan's Fiduciary Net Position	14,801,895,000	12,809,208,000
Net Pension Liability	4,952,099,401	5,191,216,603
Schedule of contributions for plan year ending December 31:		
Actuarially determined contributions[2]	$536,726,000[3]	$521,447,000
Actual contributions[2]	572,104,000[3]	567,196,000
Contribution deficiency (excess)	(35,378,000)[4]	(45,749,000)[5]
Demographic data for plan year ending December 31:		
Number of retired members and beneficiaries	16,947	16,369
Number of vested terminated members	5,803	5,370
Number of active members	21,721	21,746
Key assumptions as of December 31:		
Investment rate of return	7.00%	7.25%
Inflation rate	2.75%	3.00%
Projected salary increases[6]	General: 4.25% to 12.25% and Safety: 4.75% to 17.25%	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%

(1) *The service cost is based on the previous year's valuation, meaning the 2017 and 2016 values are based on the valuations as of December 31, 2016 and December 31, 2015, respectively. Both of the service costs have been calculated using the assumptions shown in the December 31, 2016 column as there had been no changes in the actuarial assumptions between the December 31, 2016 and December 31, 2015 valuations.*

(2) *Reduced by discount for prepaid contributions and transfer from County Investment Account, if any.*

(3) *$24,042,000 transfer from O.C. Sanitation District Deferred UAAL Account required to offset UAAL increase for the assumption changes has been excluded from both these amounts.*

(4) *Includes additional contributions of $32,096,000 made by O.C. Fire Authority, $1,538,000 made by Law Library and $1,744,000 made by O.C. Children and Families Commission towards the reduction of their UAAL.*

(5) *Includes additional contributions of $5,133,000 made by O.C. Fire Authority, $1,500,000 made by Law Library and $5,587,000 made by O.C. Sanitation District towards the reduction of their UAAL as well as $33,529,000 made by O.C. Sanitation District to their UAAL Deferred Account.*

(6) *Includes inflation at 2.75% plus real across-the-board salary increases of 0.50% plus merit and promotional increases for December 31, 2017 and includes inflation at 3.00% plus real across-the-board salary increases of 0.50% plus merit and promotional increases for December 31, 2016.*

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare an actuarial valuation, Segal Consulting ("Segal") relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan description in this report (as well as the plan summary included in our funding valuation report) to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by OCERS. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Assets** This valuation is based on the market value of assets as of the valuation date, as provided by OCERS.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The valuation is prepared at the request of the Board to assist OCERS in preparing items related to the pension plan in their financial reports. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term

cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

- If OCERS is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of OCERS, it is not a fiduciary in its capacity as actuaries and consultants with respect to OCERS.

EXHIBIT 1

General Information – "Financial Statements", Note Disclosures and Required Supplementary Information for a Cost-Sharing Pension Plan

Plan Description

Plan administration. The Orange County Employees Retirement System (OCERS) was established by the County of Orange in 1945. OCERS is administered by the Board of Retirement and governed by the County Employees' Retirement Law of 1937 (California Government Code Section 31450 et. seq.). OCERS is a cost-sharing multiple employer public employee retirement system whose main function is to provide service retirement, disability, death and survivor benefits to the Safety and General members employed by the County of Orange. OCERS also provides retirement benefits to the employee members of the Orange County Courts, the Orange County Retirement System, two cities and twelve special districts.

The management of OCERS is vested with the Orange County Board of Retirement. The Board consists of nine members and one alternate. The County Treasurer is a member of the Board of Retirement by law. Four members are appointed by the Board of Supervisors, one of whom may be a County Supervisor. Two members are elected by the General membership; one member and one alternate are elected by the Safety membership, one member is elected by the retired members of the System. All members of the Board of Retirement serve terms of three years except for the County Treasurer whose term runs concurrent with the County Treasurer term.

Plan membership. At December 31, 2017, pension plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	16,947
Vested terminated members entitled to, but not yet receiving benefits	5,803
Active members	21,721
Total	44,471

Note: Data as of December 31, 2017 is not used in the measurement of the TPL as of December 31, 2017.

Benefits provided. OCERS provides service retirement, disability, death and survivor benefits to eligible employees. All regular full-time employees of the County of Orange or contracting agencies who work a minimum of 20 hours per week become members of OCERS effective on the first day of employment in an eligible position. There are separate retirement plans for General and Safety member employees. Safety membership is extended to those involved in active law enforcement, fire suppression, and certain probation officers. Any new Safety member who becomes a member on or after January 1, 2013 is designated PEPRA Safety and is subject to the provisions of California Public Employees' Pension Reform Act of 2013 (PEPRA), California Government Code 7522 et seq. All other employees are classified as General members. New General members employed after January 1, 2013 are designated as PEPRA General subject to the provisions of California Government Code 7522 et. seq.

General members hired prior to January 1, 2013, including all members of Plan T and Plan W hired on or after January 1, 2013, are eligible to retire once they attain the age of 50 and have acquired ten or more years of retirement service credit. A member with thirty years of service is eligible to retire regardless of age. General members who are first hired on or after January 1, 2013, excluding members of Plan T and Plan W, are eligible to retire once they have attained the age of 52, and have acquired five years of retirement service credit.

Safety members hired prior to January 1, 2013, are eligible to retire once they attain the age of 50 and have acquired ten or more years of retirement service credit. A member with twenty years of service is eligible to retire regardless of age. Safety members who are first hired on or after January 1, 2013, are eligible to retire once they have attained the age of 50, and have acquired five years of retirement service credit.

All General and Safety members can also retire at the age of 70 regardless of service.

The retirement benefit the member will receive is based upon age at retirement, final average compensation, years of retirement service credit and retirement plan and tier.

General member benefits are calculated pursuant to the provisions of Sections 31676.01, 31676.1, 31676.12, 31676.16, 31676.18 or 31676.19. For Section 31676.01, the monthly allowance is equal to 1/90th of final compensation times years of accrued retirement service credit times age factor from that Section. For Section 31676.1, the monthly allowance is equal to 1/60th of final compensation times years of accrued retirement service credit times age factor from that Section. For Sections 31676.12, 31676.16, 31676.18 or 31676.19, the monthly allowance is equal to 1/50th of final compensation times years of accrued retirement service credit times age factor from the corresponding Section. General member benefits for those who are first hired on or after January 1, 2013, excluding members of Plan T and Plan W, are calculated pursuant to the provision of California Government Code Section 7522.20(a). The monthly allowance is equal to the final compensation multiplied by years of accrued retirement credit multiplied by the age factor from Section 7522.20(a).

Safety member benefits are calculated pursuant to the provisions of California Government Code Sections 31664.1 and 31664.2. The monthly allowance is equal to 3% of final compensation times years of accrued retirement service credit times age factor from the corresponding Section. Safety member benefits for those who are first hired on or after January 1, 2013, are calculated pursuant to the provision of California Government Code Section 7522.25(d). The monthly allowance is equal to the final compensation multiplied by years of accrued retirement credit multiplied by the age factor from Section 7522.25(d).

For members with membership dates before January 1, 2013, including all members of Plan T and Plan W hired on or after January 1, 2013, the maximum monthly retirement allowance is 100% of final compensation. There is no maximum for members with membership dates on or after January 1, 2013, excluding members of Plan T and Plan W.

Final average compensation consists of the highest 12 consecutive months for a General Tier 1 or Safety Tier 1 member and the highest 36 consecutive months for a General Tier 2, General PEPRA, Safety Tier 2 or Safety PEPRA member.

The member may elect an unmodified retirement allowance, or choose an optional retirement allowance. The unmodified retirement allowance provides the highest monthly benefit and a 60% continuance to an eligible surviving spouse or domestic partner. An eligible surviving spouse or domestic partner is one married to or registered with the member one year prior to the effective retirement date. Certain surviving spouses or domestic partners may also be eligible if marriage or domestic partnership was at least two years prior to the date of death and the surviving spouse or domestic partner has attained age 55. There are four optional retirement allowances the member may choose. Each of the optional retirement allowances requires a reduction in the unmodified retirement allowance in order to allow the member the ability to provide certain benefits to a surviving spouse, domestic partner, or named beneficiary having an insurable interest in the life of the member.

OCERS provides an annual cost-of-living benefit to all retirees. The cost-of-living adjustment, based upon the Consumer Price Index for All Urban Consumers for the Los Angeles-Long Beach-Anaheim Area, is capped at 3.0%.

The County of Orange and contracting agencies contribute to the retirement plan based upon actuarially determined contribution rates adopted by the Board of Retirement. Employer contribution rates are adopted annually based upon recommendations received from OCERS' actuary after the completion of the annual actuarial valuation. The average employer contribution rate for the first six months of calendar year 2017 or the second half of fiscal year 2016-2017 (based on the December 31, 2014 valuation) was 37.41%[1] of compensation. The average employer contribution rate for the last six months of calendar year 2017 or the first half of fiscal year 2017-2018 (based on the December 31, 2015 valuation) was 37.25%[1] of compensation.

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[1] *These employer contribution rates are higher than the composite rate for 2017 as shown on page 8 of this report because these rates have not been adjusted to reflect any pick-ups or reverse pick-ups. These employer contribution rates also do not reflect the shift in payroll to the lower cost plans from the valuation date to the date of rate implementation.*

All members are required to make contributions to OCERS regardless of the retirement plan or tier in which they are included. The average member contribution rate for the first six months of calendar year 2017 or the second half of fiscal year 2016-2017 (based on the December 31, 2014 valuation) was 12.42%[2] of compensation. The average member contribution rate for the last six months of calendar year 2017 or the first half of fiscal year 2017-2018 (based on the December 31, 2015 valuation) was 12.21%[2] of compensation.

[2] *It should be noted that these member contribution rates provided above have not been adjusted to reflect any pick-ups or reverse pick-ups.*

EXHIBIT 2

Net Pension Liability

The components of the Net Pension Liability as follows:

	December 31, 2017	**December 31, 2016**
Total Pension Liability	$19,753,994,401	$18,000,424,603
Plan's Fiduciary Net Position	(14,801,895,000)	(12,809,208,000)
Net Pension Liability	$4,952,099,401	$5,191,216,603
Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	74.93%	71.16%

The Net Pension Liability (NPL) was measured as of December 31, 2017 and 2016. The Plan's Fiduciary Net Position (plan assets) was valued as of the measurement date while the Total Pension Liability (TPL) was determined based upon rolling forward the TPL from actuarial valuations as of December 31, 2016 and 2015, respectively.

Plan provisions. The plan provisions used in the measurement of the NPL as of December 31, 2017 and 2016 are the same as those used in the OCERS actuarial valuation as of December 31, 2017 and 2016, respectively.

Actuarial assumptions. The TPL as of December 31, 2017 was remeasured by (1) revaluing the TPL as of December 31, 2016 (before the roll forward) to include the following actuarial assumptions that the Retirement Board has adopted for use in the pension funding valuation as of December 31, 2017 and (2) using this revalued TPL in rolling forward the results from December 31, 2016 to December 31, 2017:

Inflation	2.75%
Salary increases	General: 4.25% to 12.25% and Safety: 4.75% to 17.25%, vary by service, including inflation
Investment rate of return	7.00%, net of pension plan investment expense, including inflation
Other assumptions	See analysis of actuarial experience during the period January 1, 2014 through December 31, 2016

The TPL as of December 31, 2016 was determined by actuarial valuations as of December 31, 2015. The actuarial assumptions used were based on the results of an experience study for the period from January 1, 2011 through December 31, 2013 and they are the same assumptions used in the December 31, 2016 funding valuation for OCERS.

Inflation	3.00%
Salary increases	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%, vary by service, including inflation
Investment rate of return	7.25%, net of pension plan investment expense, including inflation
Other assumptions	See analysis of actuarial experience during the period January 1, 2011 through December 31, 2013

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage, adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before deducting investment expenses, used in the derivation of the December 31, 2017 long-term expected investment rate of return assumption are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Arithmetic Real Rate of Return
Global Equity	35.0%	6.38%
Core Bonds	13.0%	1.03%
High Yield Bonds	4.0%	3.52%
Bank Loan	2.0%	2.86%
TIPS	4.0%	0.96%
Emerging Market Debt	4.0%	3.78%
Real Estate	10.0%	4.33%
Core Infrastructure	2.0%	5.48%
Natural Resources	10.0%	7.86%
Risk Mitigation	5.0%	4.66%
Mezzanine/Distressed Debts	3.0%	6.53%
Private Equity	8.0%	9.48%
Total	100.0%	

Discount rate: The discount rate used to measure the TPL were 7.00% and 7.25% as of December 31, 2017 and 2016, respectively. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the actuarially determined contribution rates. For this purpose, only employer contributions that are intended to fund benefits for current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service costs for future plan members and their beneficiaries, as well as projected contributions from future plan members, are not included. Based on those assumptions, the Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments for current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the TPL as of both December 31, 2017 and 2016.

Sensitivity of the Net Pension Liability to changes in the discount rate. The following presents the NPL as of December 31, 2017, calculated using the discount rate of 7.00%, as well as what the NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (6.00%) or 1-percentage-point higher (8.00%) than the current rate:

	1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
Net Pension Liability as of December 31, 2017	$7,854,145,623	$4,952,099,401	$2,594,546,898

EXHIBIT 3

Schedule of Changes in OCERS Net Pension Liability – Last Two Plan Years

	2017	2016
Total Pension Liability		
1. Service cost	$452,412,003	$427,473,217
2. Interest	1,305,268,322	1,241,079,174
3. Change of benefit terms	0	0
4. Differences between expected and actual experience	(66,963,603)	(323,565,741)
5. Changes of assumptions	827,197,076	0
6. Benefit payments, including refunds of member contributions	(764,344,000)	(717,976,000)
7. Transfer of members among Rate Groups	0	0
8. Other[1]	0	(508,788)
9. Net change in Total Pension Liability	$1,753,569,798	$626,501,862
10. Total Pension Liability – beginning	18,000,424,603	17,373,922,741
11. Total Pension Liability – ending	$19,753,994,401	$18,000,424,603
Plan Fiduciary Net Position		
12. Contributions – employer[2]	$572,104,000[3]	$567,196,000
13. Contributions – plan members	262,294,000	258,297,000
14. Net investment income	1,939,635,000	1,061,243,000
15. Benefit payments, including refunds of member contributions	(764,344,000)	(717,976,000)
16. Transfer of members among Rate Groups	0	0
17. Administrative expense	(17,002,000)	(16,870,000)
18. Other	0	0
19. Net change in Plan Fiduciary Net Position	$1,992,687,000	$1,151,890,000
20. Plan Fiduciary Net Position – beginning	12,809,208,000	11,657,318,000
21. Plan Fiduciary Net Position – ending	$14,801,895,000	$12,809,208,000
22. Net Pension Liability – ending (11) – (21)	$4,952,099,401	$5,191,216,603
23. Plan Fiduciary Net Position as a percentage of the Total Pension Liability	74.93%	71.16%
24. Covered payroll[4]	$1,678,322,000	$1,602,675,000
25. Plan Net Pension Liability as percentage of covered payroll	295.06%	323.91%

(1) *O.C. Law Library was separated out from O.C. Sanitation District in Rate Group #3 and put into their own Rate Group (Rate Group #12) after the December 31, 2015 valuation. As we previously described in our October 2016 letters to OCERS for these two employers, there was an adjustment to the UAAL for Rate Group #3 that we originally included in our December 31, 2015 valuation. This was a credit of $509,000 given to O.C. Law Library to reflect that their future service enhancement did not increase the UAAL.*

(2) *Reduced by discount for prepaid contributions and transfer from County Investment Account, if any.*

(3) *$24,042,000 transfer from O.C. Sanitation District Deferred UAAL Account required to offset UAAL increase for the assumption changes has been excluded from this amount.*

(4) *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 4

Schedule of OCERS' Contributions – Last Ten Plan Years

Year Ended December 31	Actuarially Determined Contributions(1),(2)	Contributions in Relation to the Actuarially Determined Contributions(1),(2)	Contribution Deficiency (Excess)	Covered Payroll(3)	Contributions as a Percentage of Covered Payroll(1),(2)
2008	$359,673,000	$360,365,000(4)	$(692,000)	$1,526,113,000	23.61%
2009	337,496,000	338,387,000(5)	(891,000)	1,598,888,000	21.16%
2010	372,437,000	372,437,000	0	1,511,569,000	24.64%
2011	387,585,000	387,585,000	0	1,498,914,000	25.86%
2012	406,521,000	406,521,000	0	1,497,475,000	27.15%
2013	426,020,000	427,095,000(6)	(1,075,000)	1,494,745,000	28.57%
2014	476,320,000	625,520,000(7)	(149,200,000)	1,513,206,000	41.34%
2015	502,886,000	571,298,000(8)	(68,412,000)	1,521,036,000	37.56%
2016	521,447,000	567,196,000(9)	(45,749,000)	1,602,675,000	35.40%
2017	536,726,000(10)	572,104,000(10),(11)	(35,378,000)	1,678,322,000	34.09%

(1) *Reduced by transfers from County Investment Account (funded by pension obligation proceeds held by OCERS). Those transfers are as follows:*

Plan Year Ended December 31	*Transfers from County Investment Account*	*Plan Year Ended December 31*	*Transfers from County Investment Account*
2008	*$0*	*2013*	*$5,000,000*
2009	*34,900,000*	*2014*	*5,000,000*
2010	*11,000,000*	*2015*	*0*
2011	*11,000,000*	*2016*	*0*
2012	*5,500,000*	*2017*	*0*

(2) *Reduced by discount for prepaid contributions.*

(3) *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

(4) *Includes additional contributions of $692,000 made by O.C. Fire Authority towards the reduction of their UAAL.*

(5) *Includes additional contributions of $891,000 made by O.C. Fire Authority towards the reduction of their UAAL.*

(6) *Includes additional contributions of $1,075,000 made by O.C. Fire Authority towards the reduction of their UAAL.*

(7) *Includes additional contributions of $1,663,000 made by O.C. Cemetery District, $22,537,000 made by O.C. Fire Authority and $125,000,000 made by O.C. Sanitation District towards the reduction of their UAAL.*

EXHIBIT 4 (continued)

Schedule of OCERS' Contributions – Last Ten Plan Years

(8) *Includes additional contributions of $18,412,000 made by O.C. Fire Authority and $50,000,000 made by O.C. Sanitation District towards the reduction of their UAAL.*

(9) *Includes additional contributions of $5,133,000 made by O.C. Fire Authority, $1,500,000 made by Law Library and $5,587,000 made by O.C. Sanitation District towards the reduction of their UAAL as well as $33,529,000 made by O.C. Sanitation District to their UAAL Deferred Account.*

(10) *$24,042,000 transfer from O.C. Sanitation District Deferred UAAL Account required to offset UAAL increase for the assumption changes has been excluded from both these amounts.*

(11) *Includes additional contributions of $32,096,000 made by O.C. Fire Authority, $1,538,000 made by Law Library and $1,744,000 made by O.C. Children and Families Commission towards the reduction of their UAAL.*

Notes to Exhibit 4

Methods and assumptions used to establish "actuarially determined contribution" rates:

Valuation date	Actuarially determined contribution rates for the first six months of calendar year 2017 or the second half of fiscal year 2016-2017 are calculated based on the December 31, 2014 valuation. Actuarially determined contribution rates for the last six months of calendar year 2017 or the first half of fiscal year 2017-2018 are calculated based on the December 31, 2015 valuation.
Actuarial cost method	Entry Age Actuarial Cost Method
Amortization method	Level percent of payroll for total unfunded actuarial accrued liability
Remaining amortization period	Effective December 31, 2013, the outstanding balance of the UAAL from the December 31, 2012 valuation was combined and re-amortized over a declining 20-year period. Any changes in UAAL due to actuarial gains or losses or due to changes in assumptions or methods will be amortized over separate 20-year periods. Any changes in UAAL due to plan amendments will be amortized over separate 15-year periods and any change in UAAL due to early retirement incentive programs will be amortized over a separate period of up to 5 years.
Asset valuation method	The Actuarial Value of Assets is determined by recognizing any difference between the actual and the expected market return over a five-year period. The Valuation Value of Assets is the Actuarial Value of Assets reduced by the value of the non-valuation reserves.

Notes to Exhibit 4 – continued

Actuarial assumptions:

December 31, 2014 valuation

Investment rate of return	7.25%, net of pension plan investment expense, including inflation
Inflation rate	3.00%
Real across-the-board salary increase	0.50%
Projected salary increases	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%, vary by service, including inflation
Cost of living adjustments	3.00% of retirement income
Other assumptions	Same as those used in the December 31, 2014 funding actuarial valuation

December 31, 2015 valuation

Investment rate of return	7.25%, net of pension plan investment expense, including inflation
Inflation rate	3.00%
Real across-the-board salary increase	0.50%
Projected salary increases	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%, vary by service, including inflation
Cost of living adjustments	3.00% of retirement income
Other assumptions	Same as those used in the December 31, 2015 funding actuarial valuation

EXHIBIT 5

Projection of Pension Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of December 31, 2017 ($ in millions)

Year Beginning January 1	Projected Beginning Plan's Fiduciary Net Position (a)	Projected Total Contributions * (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Plan's Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2017	$12,809	$834	$764	$17	$1,940	$14,802
2018	14,802	912	844	20	1,038	15,888
2019	15,888	919	901	21	1,112	16,997
2020	16,997	918	960	23	1,188	18,121
2021	18,121	904	1,021	24	1,264	19,243
2022	19,243	889	1,083	26	1,339	20,363
2023	20,363	890	1,151	27	1,415	21,490
2024	21,490	894	1,221	29	1,492	22,627
2025	22,627	899	1,291	30	1,569	23,774
2026	23,774	904	1,362	32	1,647	24,932
2042	35,318	181	2,571	47	2,388	35,269
2043	35,269	171	2,625	47	2,383	35,151
2044	35,151	161	2,671	47	2,373	34,967
2045	34,967	152	2,713	46	2,358	34,717
2046	34,717	144	2,750	46	2,339	34,405
2091	23,017	46	221	31	1,604	24,417
2092	24,417	46	181	32	1,703	25,953
2093	25,953	47	147	34	1,812	27,630
2094	27,630	48	118	37	1,930	29,454
2095	29,454	49	93	39	2,059	31,430
2132	356,925	474	0 **	474	24,985	381,910
2133	381,910					
2133 Discounted Value:	160 ***					

* Of all the projected total contributions, only the first year's (i.e., 2017) contribution has been reduced by discount for prepaid contributions, transfers from County Investment Account and O.C. Sanitation District UAAL Deferred Account, if any.

** Less than $1 million, when rounded.

*** $381,910 million when discounted with interest at the rate of 7.00% per annum has a value of $160 million as of December 31, 2017. Of this amount, about $134 million is the balance available in the County Investment Account and $15 million is the O.C. Sanitation District UAAL Deferred Acount as of December 31, 2017.

Note: We have not utilized the balance in the County Investment Account and O.C. Sanitation District UAAL Deferred Account to change the projected total contributions even though those amounts have been used to reduce the NPL for the County and O.C. Sanitation District as of December 31, 2017.

EXHIBIT 5

Projection of Pension Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of December 31, 2017 ($ in millions) – continued

Notes:

(1) Amounts may not total exactly due to rounding.

(2) Amounts shown in the year beginning January 1, 2017 row are actual amounts, based on the financial statements provided by OCERS.

(3) Years 2027-2041, 2047-2090, and 2096-2131 have been omitted from this table.

(4) Column (a): Except for the "discounted value" shown for 2133, all of the projected beginning Plan's Fiduciary Net Position amounts shown have not been adjusted for the time value of money.

(5) Column (b): Projected total contributions include member and employer normal cost rates applied to closed group projected payroll (based on covered active members as of December 31, 2016), plus employer contributions to the Unfunded Actuarial Accrued Liability. Contributions are assumed to occur halfway through the year, on average.

(6) Column (c): Projected benefit payments have been determined in accordance with paragraph 39 of GASB Statement No. 67, and are based on the closed group of active, inactive vested, retired members, and beneficiaries as of December 31, 2016. The projected benefit payments reflect the cost of living increase assumptions used in the December 31, 2017 valuation report. The 2017 benefit payments have been increased by the balance of the Medicare Insurance Reserve as of December 31, 2017.

(7) Column (d): Projected administrative expenses are calculated as approximately 0.13% of the projected beginning Plan's Fiduciary Net Position amount. The 0.13% portion was based on the actual calendar year 2017 administrative expenses (unaudited) as a percentage of the actual beginning Plan's Fiduciary Net Position as of January 1, 2017. Administrative expenses are assumed to occur halfway through the year, on average.

(8) Column (e): Projected investment earnings are based on the assumed investment rate of return of 7.00% per annum.

(9) As illustrated in this Exhibit, the Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments for current Plan members. In other words, there is no projected "cross-over date" when projected benefits are not covered by projected assets. Therefore, the long-term expected rate of return on Plan investments of 7.00% per annum was applied to all periods of projected benefit payments to determine the total pension liability as of December 31, 2017 shown earlier in this report, pursuant to paragraph 44 of GASB Statement No. 67.

MGO REPORTS

MGO Certified Public Accountants

June 7, 2018

To the Audit Committee of the
Orange County Employees Retirement System
Santa Ana, California

We have audited the financial statements of the System for the year ended December 31, 2017. Professional standards require that we provide you with information about our responsibilities under generally accepted auditing standards and *Government Auditing Standards*, as well as certain information related to the planned scope and timing of our audit. We have communicated such information in our meeting with the Audit Committee on March 28, 2018. Professional standards also require that we communicate to you the following information related to our audit.

Significant Audit Findings

Qualitative Aspects of Accounting Practices

Management is responsible for the selection and use of appropriate accounting policies. The significant accounting policies used by the System are described in Note 2 to the basic financial statements. No new accounting policies were adopted and the application of existing policies was not changed during 2017. We noted no transactions entered into by the System during the year for which there is a lack of authoritative guidance or consensus. All significant transactions have been recognized in the financial statements in the proper period.

Accounting estimates are an integral part of the financial statements and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting them may differ significantly from those expected. The most sensitive estimates affecting the financial statements were:

- Actuarial valuations of the total pension liability and actuarially determined contributions for the Defined Benefit Pension Plan.

  The actuarial pension data contained in Note 8 to the basic financial statements and required supplementary information is based on actuarial calculations performed by the System's actuary in accordance with the parameters set forth in GASB Statement No. 67, *Financial Reporting for Pension Plans – an amendment of GASB Statement No. 25*. The actuarial pension valuation is very sensitive to the underlying assumptions, including the discount rate.

- Fair value of real assets, private equity, absolute return, risk mitigation and diversified credit investments, including derivative investments, and related income.

  Directly held real estate investment fair values are based on recent estimates provided by independent third-party appraisers. Fair values for timber, energy and agriculture are based on independent appraisals and/or estimates made in good faith by the general partner or management. Commingled real estate funds are based on the investment's net asset value per share provided by the investment manager firms/general partners. The fair value of commodities is determined by quoted market prices. The fair value of private equity and absolute return investments that are not publicly traded were determined by management, in consultation with the general partner and valuation specialists, based on the net asset value per share (or its equivalent) of OCERS' ownership interest in partner's capital. The fair values of diversified credit investments and risk mitigation funds structured as partnerships are based on net asset value per share of the investment. The fair values for diversified credit investments comprised of mortgages, direct lending and energy-based credit funds are based on the general partner's estimates considering factors such as market quotes, earnings-multiple analysis or discounted cash flow analysis.

We evaluated the key factors and assumptions used to develop these estimates in determining that they are reasonable in relation to the financial statements taken as a whole.

Certain financial statement disclosures are particularly sensitive because of their significance to financial statement users. The most sensitive disclosures affecting the financial statements were:

- Participating employers' net pension liability, which is based on the total pension liability determined in the actuarial valuation of December 31, 2016, and rolled forward to December 31, 2017, and the related sensitivity analysis.

As described in Note 8 to the basic financial statements, the actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future, and these amounts and assumptions are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future.

The financial statement disclosures are neutral, consistent, and clear.

Difficulties Encountered in Performing the Audit

We encountered no significant difficulties in dealing with management in performing and completing our audit.

Corrected and Uncorrected Misstatements

Professional standards require us to accumulate all known and likely misstatements identified during the audit, other than those that are clearly trivial, and communicate them to the appropriate level of management. There were no such misstatements identified other than those that are clearly trivial.

Disagreements with Management

For purposes of this letter, professional standards define a disagreement with management as a financial accounting, reporting, or auditing matter, whether or not resolved to our satisfaction, that could be significant to the financial statements or the auditor's report. We are pleased to report that no such disagreements arose during the course of our audit.

Management Representations

We have requested certain representations from management that are included in the management representation letter dated June 7, 2018.

Management Consultations with Other Independent Accountants

In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a "second opinion" on certain situations. If a consultation involves application of an accounting principle to the governmental unit's financial statements or a determination of the type of auditor's opinion that may be expressed on those statements, our professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To our knowledge, there were no such consultations with other accountants.

Other Audit Findings or Issues

We generally discuss a variety of matters, including the application of accounting principles and auditing standards, with management each year prior to retention as the System's auditors. However, these discussions occurred in the normal course of our professional relationship and our responses were not a condition to our retention.

Other Matters

We applied certain limited procedures to Management's Discussion and Analysis, the Schedule of Changes in Net Pension Liability of Participating Employers, Schedule of Investment Returns, Schedule of Employer Contributions and Notes to the Required Supplementary Information, which are required supplementary information (RSI) that supplements the basic financial statements. Our procedures consisted of inquiries of management regarding the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We did not audit the RSI and do not express an opinion or provide any assurance on the RSI.

We were engaged to report on other supplementary information, which accompanies the financial statements, but are not RSI. With respect to this supplementary information, we made certain inquiries of management and evaluated the form, content, and methods of preparing the information to determine that the information complies with accounting principles generally accepted in the United States of America, the method of preparing it has not changed from the prior period, and the information is appropriate and complete in relation to our audit of the financial statements. We compared and reconciled the supplementary information to the underlying accounting records used to prepare the financial statements or to the financial statements themselves.

We were not engaged to report on the introductory, investment, actuarial, and statistical sections, which accompany the financial statements, but are not RSI. Such information has not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on it.

Restriction on Use

This information is intended solely for the use of the Audit Committee and management of OCERS and is not intended to be and should not be used by anyone other than these specified parties.

Very truly yours,

Macias Gini & O'Connell LLP

Certified
Public
Accountants

Independent Auditor's Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance With *Government Auditing Standards*

To the Board of Retirement of the
Orange County Employees Retirement System
Santa Ana, California

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the Orange County Employees Retirement System (the System) as of and for the year ended December 31, 2017, and the related notes to the financial statements, which collectively comprise the System's basic financial statements, and have issued our report thereon dated June 7, 2018. Our report contained an emphasis-of-matter paragraph that describes the System's net pension liability as of December 31, 2017.

Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered the System's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the System's internal control. Accordingly, we do not express an opinion on the effectiveness of the System's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the System's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the System's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Macias Gini & O'Connell LLP

Newport Beach, California
June 7, 2018

Orange County Employees Retirement System

FY 2017 Audit Results

PRESENTED BY

Linda Hurley

Partner

June 7, 2018

MGO Certified Public Accountants

Overview

Certified Public Accountants

Deliverables/Report Products:

- **Independent Auditor's Report – Basic Financial Statements**
- **Independent Auditor's Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed In Accordance with Government Auditing Standards**
- **Schedule of Allocated Pension Amounts by Employer**
- **Required Communications**

Audit Results

MGO Certified Public Accountants

Basic Financial Statements:

- **Framework**
    - U.S. Generally Accepted Accounting Principles
    - U.S. Generally Accepted Auditing Standards
    - Government Auditing Standards

- **Unmodified Opinion on Financial Statements**

Audit Results

Required Communications:

- **Qualitative Aspects of Accounting Practices**
  - Significant Accounting Policies
  - Accounting Estimates
- **Difficulties Encountered in Performing the Audit**
- **Corrected and Uncorrected Misstatements**
- **Disagreements with Management**
- **Management Representations**
- **Management Consultations with Other Independent Accountants**
- **Other Audit Findings or Issues**
- **Other Matters**

Questions?

MGO | Certified Public Accountants

A-4

Memorandum

DATE: June 7, 2018

TO: Members of the Board of Retirement

FROM: Brenda Shott, Assistant CEO, Finance and Internal Operations; Tracy Bowman, Director of Finance

SUBJECT: **GASB 68 VALUATION AND AUDIT REPORT**

Recommendations

Approve the following recommendations from the Audit Committee during a meeting held on June 7, 2018.

1. Approve OCERS' audited Schedule of Allocated Pension Amounts by Employer as of and for the Year Ended December 31, 2017.
2. Approve the Governmental Accounting Standards Board (GASB) Statement 68 Actuarial Valuation as of December 31, 2017 for distribution to employers.

Background/Discussion

GASB Statement No. 68, *Accounting and Financial Reporting for Pensions – an Amendment of GASB Statement No. 27*, requires employers to record their proportionate share of the total pension liability less the plan's fiduciary net position (i.e., net pension liability) on the face of their financial statements. A proportionate share of the total pension expense and collective deferred inflows of resources and deferred outflows of resources of the pension trust fund at OCERS will also be shown on the face of each employer's financial statements.

Net Pension Liability vs. Unfunded Actuarial Accrued Liability

The attached GASB 68 valuation is used for financial reporting purposes and was prepared by Segal Consulting. This report is *separate and distinct from the funding actuarial valuation*. The net pension liability (NPL) shown in Exhibit 2 of the GASB 68 valuation as of December 31, 2017 is $4,952,099,401 compared to the unfunded actuarial accrued liability (UAAL) of $5,438,302,000 in the funding actuarial valuation as of December 31, 2017. The differences between the NPL and the UAAL are a direct result of the different liability and asset values used in measuring these amounts. The primary differences can be attributed to NPL being calculated using the Plan's current market value of assets, including the proceeds available in the County Investment Account, and the UAAL is calculated by adjusting the market value of assets for asset smoothing per OCERS Actuarial Funding Policy and excluding the County Investment Account reserves. Differences are also created by timing differences of when actuarial gains and losses are recognized in the liability calculation for financial reporting purposes compared to funding valuation purposes.

Schedule of Allocated Pension Amounts by Employer

The attached Schedule of Allocated Pension Amounts by Employer as of and for the Year Ended December 31, 2017 and related notes were audited by OCERS' independent auditor, Macias Gini & O'Connell LLP (MGO).

The proportionate share allocation is based on rate groups. All rate groups, with the exception of rate groups 1 and 2, have only one active employer, so all of the NPL for those rate groups is allocated to that employer. For rate groups 1 and 2, the NPL is allocated based on the actual employer contributions within the rate group and excludes employers with inactive membership. If an employer participates in several rate groups, the employer's total proportionate share of the NPL is the sum of its allocated NPL from each rate group.

The audit report and GASB 68 valuation, once approved by the Audit Committee and Board of Retirement, will be made available to participating employers with the following disclaimer:

> *To complete its financial statements, each participating employer will need to record its own proportionate share of collective pension amounts for all benefits provided through OCERS'cost-sharing multiple-employer defined benefit pension plan. OCERS has provided a schedule of pension amounts by employer, prepared by independent actuary Segal Consulting, in accordance with the methodology set forth in GASB 68, based on data maintained and provided by OCERS. This schedule has been audited by independent auditor, MGO. Please note that OCERS is not responsible for employers' compliance with the requirements of GASB 68. Employers are solely responsible for accurately presenting their financial statements within the requirements of GASB 68.*

Submitted by:	**Approved by:**
	Brenda M Shott
Tracy Bowman	Brenda Shott
Director of Finance	Asst. CEO, Finance & Internal Operations

2011

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

GASB 68 Valuation and Audit Report

Presented on June 18, 2018

by

Brenda Shott and Tracy Bowman

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

Recommendation

- Approve the following recommendations from the Audit Committee during a meeting held on June 7, 2018:
  1. Approve OCERS' audited Schedule of Allocated Pension Amounts by Employer as of and for the Year Ended December 31, 2017
  2. Approve the Governmental Accounting Standards Board (GASB) Statement 68 Actuarial Valuation as of December 31, 2017 for distribution to employers

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

Overview

- This information is needed by Plan Sponsors for their annual financial reporting.
- **Reports are prepared for GASB reporting purposes only - there are no actionable decisions to be made on content.**
- This item is brought before you because the Audit Committee Charter requires approval of all audit reports.

Audit Report on GASB 68 Schedules

- Using the NPL calculated for GASB 67, Segal prepares the Schedule of Allocated Pension Amounts by Employer (included in Appendix B of the full GASB 68 valuation - Section 3, pg. 148)
- MGO audits this schedule which includes amounts and information required for GASB 68 reporting for each employer
- MGO has issued a "clean opinion" on the 2017 schedule and related notes which will allow our Plan Sponsors' auditors to rely on MGO's work, avoiding multiple audits of OCERS' information.

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

Conclusion

Questions?

Attachment 1 – Audited Schedule of Allocated Pension Amounts by Employer

ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM

Cost-Sharing Multiple-Employer Defined Benefit Pension Plan

Schedule of Allocated Pension Amounts by Employer

As of and for the Year Ended December 31, 2017

Orange County Employees Retirement System

Cost-Sharing Multiple-Employer Defined Benefit Pension Plan

Schedule of Allocated Pension Amounts by Employer

As of and for the Year Ended December 31, 2017

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Independent Auditor's Report

To the Board of Retirement of the
Orange County Employees Retirement System
Santa Ana, California

We have audited the employer allocations and the total for all employers of the rows titled total deferred outflows of resources, total deferred inflows of resources, net pension liability, and total pension expense excluding employer-paid member contributions (specified row totals) included in the accompanying Schedule of Allocated Pension Amounts by Employer (Schedule) of the Orange County Employees Retirement System (OCERS) Cost-Sharing Multiple-Employer Defined Benefit Pension Plan as of and for the year ended December 31, 2017, and the related notes to the Schedule of Allocated Pension Amounts by Employer.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of the Schedule in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the Schedule that is free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express opinions on the employer allocations and the specified row totals in the Schedule based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the Schedule is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the Schedule. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the Schedule, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the Schedule in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the Schedule.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the Schedule referred to above presents fairly, in all material respects, the employer allocations, and the total deferred outflows of resources, total deferred inflows of resources, net pension liability, and total pension expense excluding employer-paid member contributions for the total of all participating employers for the Orange County Employees Retirement System Cost-Sharing Multiple-Employer Defined Benefit Pension Plan as of and for the year ended December 31, 2017, in accordance with accounting principles generally accepted in the United States of America.

Other Matter

We have audited, in accordance with auditing standards generally accepted in the United States of America, the financial statements of OCERS as of and for the year ended December 31, 2017, and our report thereon dated June 7, 2018, expressed an unmodified opinion on those financial statements.

Restriction on Use

Our report is intended solely for the information and use of OCERS' management, the Board of Retirement, the Orange County Employees Retirement System Cost-Sharing Multiple-Employer Defined Benefit Pension Plan employers and their auditors and is not intended to be and should not be used by anyone other than these specified parties.

Macias Gini & O'Connell LLP

Newport Beach, California
June 7, 2018

Orange County Employees Retirement System
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan
Schedule of Allocated Pension Amounts by Employer
As of and for the Year Ended December 31, 2017

Deferred Outflows of Resources	**Orange County**	**O.C. Cemetery District**	**O.C. Law Library**	**O.C. Vector Control District**	**O.C. Retirement System**
Differences Between Expected and Actual Experience	$12,560,694	$19,195	$-	$286,098	$-
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	-	-	720,135	-	-
Changes of Assumptions	578,664,495	406,838	357,488	724,719	2,798,016
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	19,581,719	-	111,626	-	1,233,255
Total Deferred Outflows of Resources	$610,806,908	$426,033	$1,189,249	$1,010,817	$4,031,271
Deferred Inflows of Resources					
Differences Between Expected and Actual Experience	$358,243,068	$397,300	$789,153	$1,258,406	$2,024,402
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	382,978,964	347,199	-	850,918	2,055,551
Changes of Assumptions	80,224,845	71,399	369,550	-	632,877
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	149,391	-	1,296,565	-	443,441
Total Deferred Inflows of Resources	$821,596,268	$815,898	$2,455,268	$2,109,324	$5,156,271
Net Pension Liability/(Asset) as of December 31, 2017	$3,983,695,231	$(173,677)	$(36,317)	$1,166,920	$21,427,080
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions					
Proportionate Share of Plan Pension Expense	$408,348,478	$82,093	$452,690	$(3,673)	$1,703,046
Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	5,016,038	-	(372,508)	-	335,339
Total Employer Pension Expense Excluding That Attributable to Employer-Paid Member Contributions	$413,364,516	$82,093	$80,182	($3,673)	$2,038,385

Orange County Employees Retirement System
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan
Schedule of Allocated Pension Amounts by Employer
As of and for the Year Ended December 31, 2017

Deferred Outflows of Resources	**O.C. Fire Authority**	**Cypress Recreation & Parks**	**Department of Education**	**Transportation Corridor Agency**	**City of San Juan Capistrano**
Differences Between Expected and Actual Experience	$942,161	$3,559,994	$372,992	$156,559	$-
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	-	-	-	-	-
Changes of Assumptions	59,656,589	117,072	295,919	1,465,362	3,413,294
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	-	-	-	1,980,885
Total Deferred Outflows of Resources	$60,598,750	$3,677,066	$668,911	$1,621,921	$5,394,179
Deferred Inflows of Resources					
Differences Between Expected and Actual Experience	$60,331,638	$-	$1,201,641	$1,592,621	$2,469,564
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	54,643,600	3,201,831	380,914	1,316,602	2,507,562
Changes of Assumptions	1,586,390	-	122,153	340,496	772,045
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	-	-	-	2,167,638
Total Deferred Inflows of Resources	$116,561,628	$3,201,831	$1,704,708	$3,249,719	$7,916,809
Net Pension Liability as of December 31, 2017	$370,674,668	$718,340	$2,530,324	$10,242,769	$26,138,852
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions					
Proportionate Share of Plan Pension Expense	$63,001,786	$243,105	$97,769	$1,349,900	$2,077,542
Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	-	-	-	(76,591)
Total Employer Pension Expense Excluding That Attributable to Employer-Paid Member Contributions	$63,001,786	$243,105	$97,769	$1,349,900	$2,000,951

(Continued)

Orange County Employees Retirement System
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan
Schedule of Allocated Pension Amounts by Employer
As of and for the Year Ended December 31, 2017

Deferred Outflows of Resources	**O.C. Sanitation District**	**O.C. Transportation Authority**	**U.C.I.**	**O.C. Children and Families Commission**	**Local Agency Formation Commission**
Differences Between Expected and Actual Experience	$-	$638,231	$748,341	$-	$-
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	-	-	-	-	-
Changes of Assumptions	20,491,177	36,486,297	2,372,163	125,648	165,597
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	1,296,565	-	-	-	278,946
Total Deferred Outflows of Resources	$21,787,742	$37,124,528	$3,120,504	$125,648	$444,543
Deferred Inflows of Resources					
Differences Between Expected and Actual Experience	$15,393,406	$28,750,678	$4,572,031	$90,908	$119,812
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	28,250,197	25,896,634	3,774,776	92,307	121,655
Changes of Assumptions	4,517,168	7,211,596	964,138	28,420	37,456
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	111,626	-	-	1,070,900	192,297
Total Deferred Inflows of Resources	$48,272,397	$61,858,908	$9,310,945	$1,282,535	$471,220
Net Pension Liability/(Asset) as of December 31, 2017	$(39,571,102)	$212,117,162	$27,644,960	$962,204	$1,268,133
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions					
Proportionate Share of Plan Pension Expense	$948,974	$23,783,337	$530,932	$76,476	$100,792
Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	372,508	-	-	(289,199)	28,915
Total Employer Pension Expense Excluding That Attributable to Employer-Paid Member Contributions	$1,321,482	$23,783,337	$530,932	$(212,723)	$129,707

(Continued)

Orange County Employees Retirement System
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan
Schedule of Allocated Pension Amounts by Employer
As of and for the Year Ended December 31, 2017

Deferred Outflows of Resources	**Rancho Santa Margarita**	**O.C. Superior Court**	**O.C. IHSS Public Authority**	**Total for all Employers**
Differences Between Expected and Actual Experience	$965	$-	$-	$19,285,230
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	3,235	-	-	723,370
Changes of Assumptions	798	43,430,635	277,121	751,249,228
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	-	149,391	24,632,387
Total Deferred Outflows of Resources	$4,998	$43,430,635	$426,512	$795,890,215
Deferred Inflows of Resources				
Differences Between Expected and Actual Experience	$9,768	$31,422,648	$300,636	$508,967,680
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	-	31,906,130	97,200	538,422,040
Changes of Assumptions	377	9,823,473	43,138	106,745,521
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	19,200,529	-	24,632,387
Total Deferred Inflows of Resources	$10,145	$92,352,780	$440,974	$1,178,767,628
Net Pension Liability/(Asset) as of December 31, 2017	$(2,320)	$332,589,831	$706,343	$4,952,099,401
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions				
Proportionate Share of Plan Pension Expense	$782	$26,434,585	$146,859	$529,375,473
Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	(5,054,972)	40,470	-
Total Employer Pension Expense Excluding That Attributable to Employer-Paid Member Contributions	$782	$21,379,613	$187,329	$529,375,473

Orange County Employees Retirement System

Cost-Sharing Multiple-Employer Defined Benefit Pension Plan

Notes to the Schedule of Allocated Pension Amounts by Employer

As of and for the Year Ended December 31, 2017

NOTE 1 – PLAN DESCRIPTION

The Orange County Employees Retirement System (OCERS or System) administers a cost-sharing multiple-employer defined benefit pension plan (the Plan) for the County of Orange, Orange County Superior Court of California, City of San Juan Capistrano, and ten special districts: Orange County Cemetery District, Orange County Children and Families Commission, Orange County Employees Retirement System, Orange County Fire Authority, Orange County In-Home Supportive Services Public Authority, Orange County Local Agency Formation Commission, Orange County Public Law Library, Orange County Sanitation District, Orange County Transportation Authority and the Transportation Corridor Agencies. The Orange County Department of Education, University of California, Irvine Medical Center and Campus, Capistrano Beach, Cypress Recreation & Parks District, Orange County Vector Control and City of Rancho Santa Margarita are no longer active employers, but retired members and their beneficiaries, as well as deferred members, remain in the System. Capistrano Beach is not presented in the accompanying schedule as this employer is no longer in existence and OCERS does not have the ability to collect any unfunded liabilities from this inactive employer. OCERS is legally and fiscally independent of the County of Orange.

OCERS provides retirement, disability and death benefits to general and safety members. Safety membership includes those members serving in active law enforcement, fire suppression and as probation officers. General membership applies to all other occupations. Plan retirement benefits are tiered based upon the date of OCERS membership. Additional information regarding the pensions plan's benefit structure is included in the Summary of Plan Description that is available on the web at: www.ocers.org/member_active/spd.htm.

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation and Basis of Accounting

Employers participating in the Plan are required to report pension information in their financial statements in accordance with Governmental Accounting Standards Board (GASB) Statement No. 68, *Accounting and Financial Reporting for Pensions – an Amendment of GASB Statement No. 27*. The Schedule of Allocated Pension Amounts by Employer (the Schedule) along with OCERS' audited financial statements, the GASB Statement 67 Actuarial Valuation as of December 31, 2017 and the GASB Statement 68 Actuarial Valuation Based on December 31, 2017 Measurement Date for Employer Reporting as of June 30, 2018, prepared by OCERS' third-party actuary, provide the required information for financial reporting related to the Plan that employers may use in their financial statements.

The accompanying Schedule was prepared by OCERS' third-party actuary and was derived from information provided by OCERS in accordance with accounting principles generally accepted in the United States of America (GAAP) as applicable to governmental organizations.

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Basis of Presentation and Basis of Accounting (Continued)

Legally or statutorily required employer contributions for the year ended December 31, 2017, less any amounts of those legally or statutorily required contributions that are paid by the employees (referred to as reverse pick-ups), are used as the basis for determining each employer's proportion of total contributions. For the year ended December 31, 2017, employer-paid member contributions of $985,000 under Government Code Section 31581.1, which OCERS reports as employer contributions as these payments do not become part of the accumulated employee contributions, have been excluded in determining each employer's proportion of total contributions. Contributions made by the employer on behalf of employees under Government Code Section 31581.2 are classified as employee contributions and are not included in the proportionate share calculation for the year ended December 31, 2017.

Employer contributions have not been reduced for discount due to prepaid contributions. Contributions for each employer are assigned to its respective participating Rate Group. Rate Groups are a collection of members who are or were employed by employers that offer similar pension benefit formula(s). Rate Groups exist for the purpose of risk-pooling and the contribution rates developed by the actuary should, in the long-term, fairly and accurately reflect the benefits offered/promised to members in each group. Rate Groups can contain one or more employers and employers may be included in one or more Rate Groups. If an employer participates in several Rate Groups, the employer's total proportionate share of the Net Pension Liability (NPL) and related allocated pension amounts is the sum of its NPL and allocated pension amounts from each Rate Group.

The following Rate Groups have only one active employer, so all of the NPL for that Rate Group is allocated to the corresponding employer:

Rate Group	Employer
3	Orange County Sanitation District
4	City of Rancho Santa Margarita
5	Orange County Transportation Authority
6	County of Orange (Probation)
7	County or Orange (Law Enforcement)
8	Orange County Fire Authority (Safety)
9	Transportation Corridor Agencies
10	Orange County Fire Authority (General)
11	Orange County Cemetery District
12	Orange County Public Law Library

The total Plan contributions are determined through OCERS' annual actuarial valuation process. The actuarially determined rate is the estimated amount necessary to finance the costs of benefits earned by employees during the year, with an additional amount to finance any unfunded accrued liability. California Government Code Title 3, Division 4, Parts 3 and 3.9, Articles 6 and 6.8 define the methodology used to calculate member basic contribution rates for General members and Safety members. The employer is required to contribute the difference between the actuarially determined rate and the contribution rate of employees. Legally or statutorily required employer contributions were determined by multiplying the employer's contribution rate by the employers' payrolls for the fiscal year.

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Basis of Presentation and Basis of Accounting (Continued)

The NPL is the Total Pension Liability (TPL) minus the Plan Fiduciary Net Position (plan assets). The TPL for each Rate Group is obtained from valuation results. The Fiduciary Net Position for each Rate Group is estimated by adjusting the valuation value of assets for each membership class by the ratio of the total Plan Fiduciary Net Position (excluding the balance of the County of Orange (County) Investment Account and the Orange County Sanitation District (OCSD) Unfunded Actuarial Accrued Liability (UAAL) Deferred Account) to total OCERS' valuation value of assets. The County Investment Account is then allocated among the four County Rate Groups using the proportion of the County's most recent contributions that were derived from the proceeds of the Pension Obligation Bonds for each of the four County Rate Groups. The OCSD UAAL Deferred Account balance of $14,871,000 as of December 31, 2017 was allocated entirely to Rate Group 3. The NPL is then allocated to the respective employers based on the legally or statutorily required employer contributions within each Rate Group.

In developing the pension expense amounts, the NPL proportionate share percentage is used to calculate the employer's pension expense components (service cost, interest, change in benefit terms, differences between expected and actual experience, changes in assumptions and benefit payments, including refunds of employee contributions), with the exception of Vector Control, Cypress Recreation and Parks District (CRPD), University of California, Irvine Medical Center and Campus (UCI) and the Orange County Department of Education (OCDE) which were adjusted to reflect the appropriate amount of service costs based on their current inactive membership.

The employer contributions used to determine the NPL proportionate share percentage for Rate Group 1 excludes UCI and OCDE employer contributions of $2,948,000 and $524,000, respectively and Rate Group 2 excludes Orange County Children and Families Commission's employer contributions of $1,744,000. These employer contributions were intended to reduce the NPL of the specific employer, not the respective Rate Group as a whole. The percentages of contributions by employer do not equal the percentages used to allocate the NPL by employer because the NPL for the County has been reduced to reflect the portion of the County Investment Account, as described above. The amounts of the County Investment Account that have been allocated to those Rate Groups are as follows:

Rate Group	2017
1	$4,967,147
2	82,611,101
6	8,585,705
7	38,253,047
Total	$134,417,000

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Basis of Presentation and Basis of Accounting (Continued)

In addition, the NPL for Rate Group 1 was adjusted by the Orange County Vector Control District withdrawal liability and the NPL for the OCDE, UCI and CRPD prior to allocating the net NPL to the other employers in Rate Group 1. The NPL for these four employers were calculated separately as follows:

> The Orange County Vector Control District is no longer an active employer, but retired members and their beneficiaries, as well as deferred members, remain in the Plan. For this employer, the allocated net pension liability is based on the most recent estimate of the withdrawal liability and adjusted to reflect the Plan Fiduciary Net Position as of December 31, 2017.
>
> The participation in the Plan for the OCDE and UCI is closed to new members. The funding obligation for these employers' UAAL is no longer pro-rata based on its payroll as there are no active members. Instead, the employer's UAAL is determined based on its specific actuarial accrued liability and a share of assets allocated to the employer. The employer's contributions for its UAAL are to be paid at level, fixed-dollar amounts over a period not to exceed twenty years. The employer will also be liable, or receive a credit, for any change in its funding obligation determined annually thereafter as a result of actuarial experience or changes in actuarial assumptions.
>
> On October 19, 2015, the Board of Retirement approved the amortization schedule for payment of the OCDE UAAL and UCI UAAL of $3,238,000 and $27,586,000, respectively. These balances were calculated based on the December 31, 2014 actuarial valuation assuming fixed-dollar payments over twenty years beginning on July 1, 2016. As per the Declining Payroll Policy, the UAAL balances were updated as of the December 31, 2016 actuarial valuation to reflect actuarial gains or losses and other events that will be captured in a new twenty-year closed amortization layer. The amortization schedules for the new UAAL layers for the OCDE and UCI, after being adjusted for interest to December 31, 2017, can be found on OCERS' website as discussed in Note 5 – Additional Financial and Actuarial Information.
>
> CRPD and Capistrano Beach Sanitary District (Capistrano) are no longer active employers. CRPD has twenty-one retired members and beneficiaries, as well as seven deferred members, and Capistrano has four retired members remaining in the Plan. At the time these employers left the System, OCERS did not have an express policy addressing how the UAAL would be funded for inactive employers. OCERS is currently in discussions with the City of Cypress to approve a funding agreement for collecting the UAAL associated with CRPD members, estimated at $853,000 as of December 31, 2017. Capistrano is no longer in existence and OCERS does not have the ability to collect any UAAL from this inactive employer under OCERS' Declining Employer Payroll Policy; unpaid liabilities from this employer are deemed immaterial.

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Use of Estimates in the Preparation of Financial Schedules

The preparation of the Schedule in conformity with GAAP requires management to make significant estimates and assumptions that affect the reported amounts during the reporting period. Actual results could differ from those estimates.

The components of the NPL related to OCERS' plan at December 31, 2017, are as follows (dollars in thousands):

	2017
Total pension liability	$ 19,753,994
Less: Plan fiduciary net position	(14,801,895)
Net pension liability	$ 4,952,099

For the measurement period ended December 31, 2017 (the measurement date), total pension liability was determined by rolling forward the December 31, 2016 (the valuation date) total pension liability. The actuarial assumptions used were based on the results of an experience study for the period from January 1, 2014 through December 31, 2016.

NOTE 3 -- ACTUARIAL METHODS AND ASSUMPTIONS

Actuarial Methods and Assumptions Used to Determine Total Pension Liability

The December 31, 2017 total pension liability was based on the following actuarial methods and assumptions:

Actuarial Experience Study	Three-Year Period Ending December 31, 2016
Actuarial Cost Method	Entry Age in accordance with the requirements of GASB Statement No. 68
Actuarial Assumptions	
Investment Rate of Return	7.00% net of pension plan investment expenses; including inflation
Inflation Rate	2.75%
Projected Salary Increases	General: 4.25% to 12.25% and Safety: 4.75% to 17.25% Vary by service, including inflation
Cost of Living Adjustments	2.75% of retirement income

NOTE 3 – ACTUARIAL METHODS AND ASSUMPTIONS (CONTINUED)

Actuarial Methods and Assumptions Used to Determine Total Pension Liability (Continued)

Mortality Assumptions

The mortality assumptions used in the TPL at December 31, 2017 were based on the results of the actuarial experience study for the period January 1, 2014 through December 31, 2016 using the Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table as a starting point, projected generationally using the two-dimensional Scale MP-2016, with age adjustments, and adjusted separately for healthy and disabled for both general and safety members.

Discount Rate

The discount rate used to measure the TPL as of December 31, 2017 was 7.00 percent. In determining the discount rate OCERS took into account the projection of cash flows and assumed plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the actuarially determined contribution rates. For this purpose, only employer contributions that are intended to fund benefits for current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service costs for future plan members and their beneficiaries, as well as projected contributions from future plan members, are not included. Based on those assumptions, the Plan's fiduciary net position was projected to be available to make all projected future benefit payments for current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability as of December 31, 2017.

According to Paragraph 30 of Statement 68, the long-term expected rate of return should be determined net of pension plan investment expense but without reduction for pension plan administrative expense. The 7.00 percent investment return assumption used in the actuarial valuation for funding is net of administrative expenses. Administrative expenses are assumed to be 14 basis points. The investment return assumption remained the same for reporting purposes due to the immaterial impact administrative expenses has on the overall assumed rate of return.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rate of return by the target asset allocation percentage and by adding expected inflation and deducting expected investment expenses. Additional information on the target allocation and projected arithmetic real rate of return for each major asset class is available in the OCERS' Comprehensive Annual Financial Report for the year ended December 31, 2017.

NOTE 3 – ACTUARIAL METHODS AND ASSUMPTIONS (CONTINUED)

Actuarial Methods and Assumptions Used to Determine Total Pension Liability (Continued)

Amortization of Deferred Outflows and Deferred Inflows of Resources

The net difference between projected and actual investment earnings on pension plan investments in the Schedule represents the unamortized balance relating to the current measurement period and the prior measurement periods on a net basis. The net difference between projected and actual investment earnings on pension plan investments is amortized over a five-year period on a straight-line basis beginning with the year in which they occur. One-fifth was recognized in pension expense during the measurement period, and the remaining net difference between projected and actual investment earnings on pension plan investments at the measurement date is to be amortized over the remaining period.

Deferred outflows of resources and deferred inflows of resources related to the differences between expected and actual experience, changes of assumptions, and changes in proportion and differences between employer contributions and proportionate share of contributions are recognized over the average of the expected remaining service lives of all employees that are provided with pensions through the Plan determined as of December 31, 2016 (the beginning of the measurement period ending December 31, 2017), which is 6.01 years. Prior measurement period differences between expected and actual experience, changes of assumptions, and changes in proportion and differences between employer contributions and proportionate share of contributions continue to be recognized based on the expected remaining service lives of all employees calculated as of the beginning of those measurement periods.

The Schedule of Allocated Pension Amounts by Employer does not reflect contributions made to OCERS subsequent to the measurement date as defined in GASB Statement No. 68 paragraph 57. Appropriate treatment of such amounts is the responsibility of the employers.

NOTE 4 - LITIGATION

On February 23, 2016, the OCDE filed a declaratory relief action against OCERS, seeking a declaration that the OCDE was not obligated after the OCDE no longer had any active employees to continue making employer contributions towards the portion of the UAAL attributable to the benefits owed to the OCDE's retirees and beneficiaries. OCERS vigorously defended the action, contending the OCDE remained liable to make contributions and counter-sued the OCDE for the amount owed. Based on calculations performed by OCERS' third-party actuary, the OCDE's share of UAAL is approximately $2.9 million, if amortized in the ordinary course, as of December 31, 2017. On January 27, 2017, the Court entered a judgment in favor of OCERS and ordered the OCDE to pay the payments that were due between July 2016 and December 2016, including interest at 7.25% per annum from the due date of each payment to the date paid. The OCDE complied with the Court's order. Subsequently, on June 19, 2017, the Court granted OCERS' Motion for Judgment on the Pleadings and held that OCERS was within its authority to assess the UAAL against the OCDE and that the OCDE's obligation to pay OCERS is ministerial and mandatory. OCDE has filed an appeal of the Court's order. All briefing on the appeal is complete and the parties are waiting for the Fourth District Court of Appeal to set oral argument. OCERS intends to pursue collection from the OCDE of OCERS' legal fees and administrative costs incurred in connection with this matter pursuant to Government Code section 31580.1.

NOTE 5 - ADDITIONAL FINANCIAL AND ACTUARIAL INFORMATION

Additional financial and actuarial information required for GASB Statement No. 68 disclosures is presented in OCERS' Comprehensive Annual Financial Report as of and for the year ended December 31, 2017, the OCERS' GASB Statement No. 67 Actuarial Valuation as of December 31, 2017, the OCERS' GASB Statement No. 68 Actuarial Valuation Based on the December 31, 2017, Measurement Date for Employer Reporting as of June 30, 2018, and the Unfunded Actuarial Liability and Associated Amortization Schedules as of the December 31, 2016 valuation for the Orange County Department Education and University of California, Irvine Medical Center and Campus, which can be found on OCERS' website at www.ocers.org.

Attachment 2 – GASB 68 Actuarial Valuation

Orange County Employees Retirement System

Governmental Accounting Standards Board (GASB) Statement 68

Actuarial Valuation Based on December 31, 2017 Measurement Date for Employer Reporting as of June 30, 2018

Segal Consulting

This report has been prepared at the request of the Board of Retirement to assist the sponsors of the Fund in preparing their financial report for their liabilities associated with the OCERS pension plan. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Retirement and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

Segal Consulting

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June 1, 2018

Board of Retirement
Orange County Employees Retirement System
2223 Wellington Avenue
Santa Ana, CA 92701

Dear Board Members:

We are pleased to submit this Governmental Accounting Standards Board (GASB) Statement 68 Actuarial Valuation based on December 31, 2017 measurement date for employer reporting as of June 30, 2018. It contains various information that will need to be disclosed in order for OCERS employers to comply with GASB 68.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist the sponsors in preparing their financial report for their liabilities associated with the OCERS pension plan. The census and financial information on which our calculations were based was provided by OCERS. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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; and changes in plan provisions or applicable law.

The actuarial calculations were completed under the supervision of Andy Yeung, ASA, MAAA, FCA, Enrolled Actuary. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and expectations for OCERS.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

Paul Angelo, FSA, MAAA, FCA, EA	*Andy Yeung, ASA, MAAA, FCA, EA*
Senior Vice President and Actuary	*Vice President and Actuary*

AW/jl

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Purpose

This report has been prepared by Segal Consulting to present certain disclosure information required by Governmental Accounting Standards Board (GASB) Statement 68 for employer reporting as of June 30, 2018. The results used in preparing this GASB 68 report are comparable to those used in preparing the Governmental Accounting Standards Board (GASB) Statement 67 report for the plan based on a reporting date and a measurement date as of December 31, 2017. This valuation is based on:

- The benefit provisions of OCERS, as administered by the Board of Retirement;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of December 31, 2016, provided by OCERS;
- The assets of the Plan as of December 31, 2017, provided by OCERS;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board for the December 31, 2017 valuation; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc. adopted by the Board for the December 31, 2017 valuation.

General Observations on GASB 68 Actuarial Valuation

The following points should be considered when reviewing this GASB 68 report:

- The Governmental Accounting Standards Board (GASB) rules only define pension liability and expense for financial reporting purposes, and do not apply to contribution amounts for pension funding purposes. Employers and plans still develop and adopt funding policies under current practices.
- When measuring pension liability GASB uses the same actuarial cost method (Entry Age method) and the same type of discount rate (expected return on assets) as OCERS uses for funding. This means that the Total Pension Liability (TPL) measure for financial reporting shown in this report is determined on generally the same basis as OCERS' Actuarial Accrued Liability (AAL) measure for funding. We note that the same is generally true for the Normal Cost component of the annual plan cost for funding and financial reporting.

- The Net Pension Liability (NPL) is equal to the difference between the TPL and the Plan's Fiduciary Net Position. The Plan's Fiduciary Net Position is equal to the market value of assets and therefore, the NPL measure is very similar to an Unfunded Actuarial Accrued Liability (UAAL) calculated on a market value basis.

Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- The NPL's measured as of December 31, 2017 and 2016 have been determined by rolling forward the TPL as of December 31, 2016 and 2015, respectively. The Plan's Fiduciary Net Positions were valued as of the measurement dates. In addition, any changes in actuarial assumptions or plan provisions that occurred between the valuation date and the measurement date have been reflected.
- The NPL decreased slightly from $5,191.2 million as of December 31, 2016 to $4,952.1 million as of December 31, 2017 primarily as a result of a 14.79% return on the market value of assets during 2017 that was greater than the assumed return of 7.25%. The gain was offset to some extent by the $827.2 million loss from changes in actuarial assumptions. Changes in these values during the last two plan years ending December 31, 2016 and December 31, 2017 can be found in Exhibit 5.
- The discount rates originally used to determine the TPL and NPL as of December 31, 2017 and December 31, 2016 were 7.25% and 7.25%, respectively, following the same assumptions used by OCERS in the pension funding valuations as of December 31, 2016 and December 31, 2015. However, as the Board has approved a new discount rate of 7.00% (together with other new actuarial assumptions) for use in the next pension funding valuation as of December 31, 2017, we have estimated the impact of this assumption change by (1) revaluing the actuarial valuation TPL as of December 31, 2016 (before the roll forward) and (2) using this revalued TPL in rolling forward the results from December 31, 2016 to December 31, 2017. The detailed calculation of the discount rate of 7.00% used in the calculation of the TPL and NPL as of December 31, 2017 can be found in Appendix A of Section 3. Various other information that is required to be disclosed can be found throughout Exhibits 1 through 13 in Section 2.
- The Plan's Fiduciary Net Position of $12,809,208,000 as of December 31, 2016 is equal to the final market value of assets in the Pension Trust Fund as of December 31, 2016. This differs from the $12,657,418,000 market value of assets used in our December 31, 2016 funding valuation because the funding valuation excludes $117,723,000 in the County Investment Account and $34,067,000 in O.C. Sanitation District UAAL Deferred Account.

The Plan's Fiduciary Net Position of $14,801,895,000 as of December 31, 2017 is equal to the final market value of assets in the Pension Trust Fund as of December 31, 2017. This differs from the $14,652,607,000 market value of assets used in our December 31, 2017 funding valuation because the funding valuation excludes $134,417,000 in the County Investment Account and $14,871,000 in O.C. Sanitation District UAAL Deferred Account (after transfer of $24,042,000 required for O.C. Sanitation District to offset the UAAL increase due to the assumption changes).

- In Appendix B, we show the Schedule of Pension Amounts by Employer. The expanded information shown in Appendix B has been used to prepare Exhibits 8 and 9.
- Results shown in this report exclude any employer contributions made after the measurement date of December 31, 2017. Employers should consult with their auditors to determine the deferred outflow that should be created for these contributions.
- All Rate Groups except Rate Groups #1 and #2 only have one active employer, so all of the NPL for those Rate Groups is allocated to that employer.

  For Rate Groups #1[1] and #2, the NPL is allocated based on the actual employer contributions within the Rate Group. The steps we used are as follows:

  - Calculate ratio of employer's contributions to the total contributions for the Rate Group.
  - Multiply this ratio by the NPL for the Rate Group to determine the employer's proportionate share of the NPL for the Rate Group.

  If the employer is in several Rate Groups, the employer's total allocated NPL is the sum of its allocated NPL from each Rate Group. Proportionate share of total plan NPL is then the ratio of the employer's total allocated NPL to the total NPL of all employers. The NPL allocation can be found in Exhibit 7 in Section 2.

[1] *The NPL for Rate Group #1 was adjusted by the NPLs for the O.C. Vector Control District, Cypress Parks and Recreation, Department of Education and U.C.I. prior to allocating the net NPL to the other employers in Rate Group #1 as the NPLs for these four employers were calculated separately.*

Summary of Key Valuation Results

Reporting Date for Employer under GASB 68[1]	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Disclosure elements for plan year ending December 31:		
1. Service cost[2]	$452,412,003	$427,473,217
2. Total Pension Liability	19,753,994,401	18,000,424,603
3. Plan's Fiduciary Net Position	14,801,895,000	12,809,208,000
4. Net Pension Liability	4,952,099,401	5,191,216,603
5. Pension expense	529,375,473	600,371,307
Schedule of contributions for plan year ending December 31:		
6. Actuarially determined contributions[3]	$536,726,000[4]	$521,447,000
7. Actual contributions[3]	572,104,000[4][5]	567,196,000[6]
8. Contribution deficiency (excess) (6) – (7)	(35,378,000)[5]	(45,749,000)[6]
Demographic data for plan year ending December 31:		
9. Number of retired members and beneficiaries	16,947	16,369
10. Number of vested terminated members	5,803	5,370
11. Number of active members	21,721	21,746
Key assumptions as of December 31:		
12. Investment rate of return	7.00%	7.25%
13. Inflation rate	2.75%	3.00%
14. Projected salary increases[7]	General: 4.25% to 12.25% and Safety: 4.75% to 17.25%	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%

(1) *The reporting date and measurement date for the plan are December 31, 2017 and December 31, 2016.*

(2) *The service cost is based on the previous year's valuation, meaning the 2017 and 2016 values are based on the valuations as of December 31, 2016 and December 31, 2015, respectively. Both of the service costs have been calculated using the assumptions shown in the December 31, 2016 column as there had been no changes in the actuarial assumptions between the December 31, 2016 and December 31, 2015 valuations.*

(3) *Reduced by discount for prepaid contributions and transfer from County Investment Account, if any.*

(4) *$24,042,000 transfer from O.C. Sanitation District Deferred UAAL Account required to offset the UAAL increase due to the assumption changes has been excluded from both these amounts.*

(5) *Includes additional contributions of $32,096,000 made by O.C. Fire Authority, $1,538,000 made by Law Library and $1,744,000 made by O.C. Children and Families Commission towards the reduction of their UAAL.*

(6) *Includes additional contributions of $5,133,000 made by O.C. Fire Authority, $1,500,000 made by Law Library and $5,587,000 made by O.C. Sanitation District towards the reduction of their UAAL as well as $33,529,000 made by O.C. Sanitation District to their UAAL Deferred Account.*

(7) *Includes inflation at 2.75% plus real across-the-board salary increases of 0.50% plus merit and promotional increases for December 31, 2017 and includes inflation at 3.00% plus real across-the-board salary increases of 0.50% plus merit and promotional increases for December 31, 2016.*

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare an actuarial valuation, Segal Consulting ("Segal") relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan description in this report (as well as the plan summary included in our funding valuation report) to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by OCERS. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Assets** This valuation is based on the market value of assets as of the valuation date, as provided by OCERS.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The valuation is prepared at the request of the Board to assist the sponsors of the Fund in preparing items related to the pension plan in their financial reports. Segal is not responsible for the use or misuse of its report, particularly by any other party.

- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- If OCERS is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of OCERS, it is not a fiduciary in its capacity as actuaries and consultants with respect to OCERS.

EXHIBIT 1

General Information – "Financial Statements", Note Disclosures and Required Supplementary Information for a Cost-Sharing Pension Plan

Plan Description

Plan administration. The Orange County Employees Retirement System (OCERS) was established by the County of Orange in 1945. OCERS is administered by the Board of Retirement and governed by the County Employees' Retirement Law of 1937 (California Government Code Section 31450 et. seq.). OCERS is a cost-sharing multiple employer public employee retirement system whose main function is to provide service retirement, disability, death and survivor benefits to the Safety and General members employed by the County of Orange. OCERS also provides retirement benefits to the employee members of the Orange County Courts, the Orange County Retirement System, two cities and twelve special districts.

The management of OCERS is vested with the Orange County Board of Retirement. The Board consists of nine members and one alternate. The County Treasurer is a member of the Board of Retirement by law. Four members are appointed by the Board of Supervisors, one of whom may be a County Supervisor. Two members are elected by the General membership; one member and one alternate are elected by the Safety membership, one member is elected by the retired members of the System. All members of the Board of Retirement serve terms of three years except for the County Treasurer whose term runs concurrent with the County Treasurer term.

Plan membership. At December 31, 2017, pension plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	16,947
Vested terminated members entitled to, but not yet receiving benefits	5,803
Active members	21,721
Total	44,471

Note: Data as of December 31, 2017 is not used in the measurement of the TPL as of December 31, 2017.

Benefits provided. OCERS provides service retirement, disability, death and survivor benefits to eligible employees. All regular full-time employees of the County of Orange or contracting agencies who work a minimum of 20 hours per week become members of OCERS effective on the first day of employment in an eligible position. There are separate retirement plans for General and Safety member employees. Safety membership is extended to those involved in active law enforcement, fire suppression, and certain probation officers. Any new Safety member who becomes a member on or after January 1, 2013 is designated PEPRA Safety and is subject to the provisions of California Public Employees' Pension Reform Act of 2013 (PEPRA), California Government Code 7522 et seq. All other employees are classified as General members. New General members employed after January 1, 2013 are designated as PEPRA General subject to the provisions of California Government Code 7522 et. seq.

General members hired prior to January 1, 2013, including all members of Plan T and Plan W hired on or after January 1, 2013, are eligible to retire once they attain the age of 50 and have acquired ten or more years of retirement service credit. A member with thirty years of service is eligible to retire regardless of age. General members who are first hired on or after January 1, 2013, excluding members of Plan T and Plan W, are eligible to retire once they have attained the age of 52, and have acquired five years of retirement service credit.

Safety members hired prior to January 1, 2013, are eligible to retire once they attain the age of 50 and have acquired ten or more years of retirement service credit. A member with twenty years of service is eligible to retire regardless of age. Safety members who are first hired on or after January 1, 2013, are eligible to retire once they have attained the age of 50, and have acquired five years of retirement service credit.

All General and Safety members can also retire at the age of 70 regardless of service.

The retirement benefit the member will receive is based upon age at retirement, final average compensation, years of retirement service credit and retirement plan and tier.

General member benefits are calculated pursuant to the provisions of Sections 31676.01, 31676.1, 31676.12, 31676.16, 31676.18 or 31676.19. For Section 31676.01, the monthly allowance is equal to 1/90th of final compensation times years of accrued retirement service credit times age factor from that Section. For Section 31676.1, the monthly allowance is equal to 1/60th of final compensation times years of accrued retirement service credit times age factor from that Section. For Sections 31676.12, 31676.16, 31676.18 or 31676.19, the monthly allowance is equal to 1/50th of final compensation times years of accrued retirement service credit times age factor from the corresponding Section. General member benefits for those who are first hired on or after January 1, 2013, excluding members of Plan T and Plan W, are calculated pursuant to the provision of California Government Code Section 7522.20(a). The monthly allowance is equal to the final compensation multiplied by years of accrued retirement credit multiplied by the age factor from Section 7522.20(a).

Safety member benefits are calculated pursuant to the provisions of California Government Code Sections 31664.1 and 31664.2. The monthly allowance is equal to 3% of final compensation times years of accrued retirement service credit times age factor from the corresponding Section. Safety member benefits for those who are first hired on or after January 1, 2013, are calculated pursuant to the provision of California Government Code Section 7522.25(d). The monthly allowance is equal to the final compensation multiplied by years of accrued retirement credit multiplied by the age factor from Section 7522.25(d).

For members with membership dates before January 1, 2013, including all members of Plan T and Plan W hired on or after January 1, 2013, the maximum monthly retirement allowance is 100% of final compensation. There is no maximum for members with membership dates on or after January 1, 2013, excluding members of Plan T and Plan W.

Final average compensation consists of the highest 12 consecutive months for a General Tier 1 or Safety Tier 1 member and the highest 36 consecutive months for a General Tier 2, General PEPRA, Safety Tier 2 or Safety PEPRA member.

The member may elect an unmodified retirement allowance, or choose an optional retirement allowance. The unmodified retirement allowance provides the highest monthly benefit and a 60% continuance to an eligible surviving spouse or domestic partner. An eligible surviving spouse or domestic partner is one married to or registered with the member one year prior to the effective retirement date. Certain surviving spouses or domestic partners may also be eligible if marriage or domestic partnership was at least two years prior to the date of death and the surviving spouse or domestic partner has attained age 55. There are four optional retirement allowances the member may choose. Each of the optional retirement allowances requires a reduction in the unmodified retirement allowance in order to allow the member the ability to provide certain benefits to a surviving spouse, domestic partner, or named beneficiary having an insurable interest in the life of the member.

OCERS provides an annual cost-of-living benefit to all retirees. The cost-of-living adjustment, based upon the Consumer Price Index for All Urban Consumers for the Los Angeles-Long Beach-Anaheim Area, is capped at 3.0%.

The County of Orange and contracting agencies contribute to the retirement plan based upon actuarially determined contribution rates adopted by the Board of Retirement. Employer contribution rates are adopted annually based upon recommendations received from OCERS' actuary after the completion of the annual actuarial valuation. The average employer contribution rate for the first six months of calendar year 2017 or the second half of fiscal year 2016-2017 (based on the December 31, 2014 valuation) was 37.41%[1] of compensation. The average employer contribution rate for the last six months of calendar year 2017 or the first half of fiscal year 2017-2018 (based on the December 31, 2015 valuation) was 37.25%[1] of compensation.

All members are required to make contributions to OCERS regardless of the retirement plan or tier in which they are included. The average member contribution rate for the first six months of calendar year 2017 or the second half of fiscal year 2016-2017 (based on the December 31, 2014 valuation) was 12.42%[2] of compensation. The average member contribution rate for the last six months of calendar year 2017 or the first half of fiscal year 2017-2018 (based on the December 31, 2015 valuation) was 12.21%[2] of compensation.

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[1] *These employer contribution rates are higher than the composite rate for 2017 as shown on page 9 of this report because these rates have not been adjusted to reflect any pick-ups or reverse pick-ups. These employer contribution rates also do not reflect the shift in payroll to the lower cost plans from the valuation date to the date of rate implementation.*

[2] *It should be noted that these member contribution rates provided above have not been adjusted to reflect any pick-ups or reverse pick-ups.*

EXHIBIT 2

Net Pension Liability

Reporting Date for Employer under GASB 68 Measurement Date for Employer under GASB 68	June 30, 2018 December 31, 2017	June 30, 2017 December 31, 2016
The components of the Net Pension Liability are as follows:		
Total Pension Liability	$19,753,994,401	$18,000,424,603
Plan's Fiduciary Net Position	(14,801,895,000)	(12,809,208,000)
Net Pension Liability	$4,952,099,401	$5,191,216,603
Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	74.93%	71.16%

The Net Pension Liability (NPL) was measured as of December 31, 2017 and 2016. The Plan's Fiduciary Net Position (plan assets) was valued as of the measurement date while the Total Pension Liability (TPL) was determined based upon rolling forward the TPL from actuarial valuations as of December 31, 2016 and 2015, respectively.

Plan provisions. The plan provisions used in the measurement of the NPL as of December 31, 2017 and 2016 are the same as those used in the OCERS actuarial valuations as of December 31, 2017 and 2016, respectively.

Actuarial assumptions. The TPL as of December 31, 2017 was remeasured by (1) revaluing the TPL as of December 31, 2016 (before the roll forward) to include the following actuarial assumptions that the Retirement Board has adopted for use in the pension funding valuation as of December 31, 2017 and (2) using this revalued TPL in rolling forward the results from December 31, 2016 to December 31, 2017:

Inflation	2.75%
Salary increases	General: 4.25% to 12.25% and Safety: 4.75% to 17.25%, vary by service, including inflation
Investment rate of return	7.00%, net of pension plan investment expense, including inflation
Other assumptions	See analysis of actuarial experience during the period January 1, 2014 through December 31, 2016

The TPL as of December 31, 2016 was determined by an actuarial valuation as of December 31, 2015. The actuarial assumptions used were based on the results of an experience study for the period from January 1, 2011 through December 31, 2013 and they are the same assumptions used in the December 31, 2016 funding valuation for OCERS.

EXHIBIT 2 (continued)

Net Pension Liability

Inflation	3.00%
Salary increases	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%, vary by service, including inflation
Investment rate of return	7.25%, net of pension plan investment expense, including inflation
Other assumptions	See analysis of actuarial experience during the period January 1, 2011 through December 31, 2013

EXHIBIT 3
Target Asset Allocation

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage, adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before deducting investment expenses, used in the derivation of the December 31, 2017 long-term expected investment rate of return assumption are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Arithmetic Real Rate of Return
Global Equity	35.0%	6.38%
Core Bonds	13.0%	1.03%
High Yield Bonds	4.0%	3.52%
Bank Loan	2.0%	2.86%
TIPS	4.0%	0.96%
Emerging Market Debt	4.0%	3.78%
Real Estate	10.0%	4.33%
Core Infrastructure	2.0%	5.48%
Natural Resources	10.0%	7.86%
Risk Mitigation	5.0%	4.66%
Mezzanine/Distressed Debts	3.0%	6.53%
Private Equity	8.0%	9.48%
Total	100.0%	

EXHIBIT 3 (continued)

Target Asset Allocation

Discount rate. The discount rates used to measure the TPL were 7.00% and 7.25% as of December 31, 2017 and 2016, respectively. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the actuarially determined contribution rates. For this purpose, only employer contributions that are intended to fund benefits for current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service costs for future plan members and their beneficiaries, as well as projected contributions from future plan members, are not included. Based on those assumptions, the Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments for current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the TPL as of both December 31, 2017 and 2016.

EXHIBIT 4

Discount Rate Sensitivity

Sensitivity of the Net Pension Liability to changes in the discount rate. The following presents the NPL as of December 31, 2017, calculated using the discount rate of 7.00%, as well as what the NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (6.00%) or 1-percentage-point higher (8.00%) than the current rate:

Employer	1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
Orange County	$6,138,092,034	$3,983,695,231	$2,233,515,119
O.C. Cemetery District	1,257,143	(173,677)	(1,336,041)
O.C. Law Library	1,484,732	(36,317)	(1,271,981)
O.C. Vector Control District	5,335,981	1,166,920	(2,219,924)
O.C. Retirement System	32,650,996	21,427,080	12,309,040
O.C. Fire Authority	649,140,476	370,674,668	144,455,748
Cypress Parks and Recreation	2,310,431	718,340	(575,036)
Department of Education	4,388,612	2,530,324	1,020,696
Transportation Corridor Agency	16,738,791	10,242,769	4,965,557
City of San Juan Capistrano	39,830,885	26,138,852	15,015,774
O.C. Sanitation District	57,945,374	(39,571,102)	(118,791,140)
O.C. Transportation Authority	348,497,798	212,117,162	101,324,816
U.C.I.	43,977,243	27,644,960	14,377,007
O.C. Children and Families Comm.	2,388,100	962,204	(196,159)
Local Agency Formation Comm.	1,932,406	1,268,133	728,494
Rancho Santa Margarita	4,617	(2,320)	(7,955)
O.C. Superior Court	506,806,776	332,589,831	191,060,178
O.C. IHSS Public Authority	1,363,228	706,343	172,705
Total for all Employers	$7,854,145,623	$4,952,099,401	$2,594,546,898

EXHIBIT 5

Schedule of Changes in Net Pension Liability – Last Two Plan Years

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Total Pension Liability		
1. Service cost	$452,412,003	$427,473,217
2. Interest	1,305,268,322	1,241,079,174
3. Change of benefit terms	0	0
4. Differences between expected and actual experience	(66,963,603)	(323,565,741)
5. Changes of assumptions	827,197,076	0
6. Benefit payments, including refunds of member contributions	(764,344,000)	(717,976,000)
7. Transfer of members among Rate Groups	0	0
8. Other[(1)]	0	(508,788)
9. Net change in Total Pension Liability	$1,753,569,798	$626,501,862
10. Total Pension Liability – beginning	18,000,424,603	17,373,922,741
11. Total Pension Liability – ending	$19,753,994,401	$18,000,424,603
Plan's Fiduciary Net Position		
12. Contributions – employer[(2)]	$572,104,000[(3)]	$567,196,000
13. Contributions – plan members	262,294,000	258,297,000
14. Net investment income	1,939,635,000	1,061,243,000
15. Benefit payments, including refunds of member contributions	(764,344,000)	(717,976,000)
16. Transfer of members among Rate Groups	0	0
17. Administrative expense	(17,002,000)	(16,870,000)
18. Other	0	0
19. Net change in Plan's Fiduciary Net Position	$1,992,687,000	$1,151,890,000
20. Plan's Fiduciary Net Position – beginning	12,809,208,000	11,657,318,000
21. Plan's Fiduciary Net Position – ending	$14,801,895,000	$12,809,208,000
22. Net Pension Liability – ending (11) – (21)	$4,952,099,401	$5,191,216,603
23. Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	74.93%	71.16%
24. Covered payroll[(4)]	$1,678,322,000	$1,602,675,000
25. Plan Net Pension Liability as percentage of covered payroll	295.06%	323.91%

EXHIBIT 5 (continued)

Schedule of Changes in Net Pension Liability – Last Two Plan Years

(1) *O.C. Law Library was separated out from O.C. Sanitation District in Rate Group #3 and put into their own Rate Group (Rate Group #12) after the December 31, 2015 valuation. As we previously described in our October 2016 letters to OCERS for these two employers, there was an adjustment to the UAAL for Rate Group #3 that we originally included in our December 31, 2015 valuation. This was a credit of $509,000 given to O.C. Law Library to reflect that their future service enhancement did not increase the UAAL.*

(2) *Reduced by discount for prepaid contributions and transfers from County Investment Account, if any.*

(3) *$24,042,000 transfer from O.C. Sanitation District Deferred UAAL Account required to offset the UAAL increase for the assumption changes has been excluded from this amount.*

(4) *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 6

Schedule of OCERS' Contributions – Last Ten Plan Years

Year Ended December 31	Actuarially Determined Contributions[(1),(2)]	Contributions in Relation to the Actuarially Determined Contributions[(1),(2)]	Contribution Deficiency (Excess)	Covered Payroll[(3)]	Contributions as a Percentage of Covered Payroll[(1),(2)]
2008	$359,673,000	$360,365,000[(4)]	$(692,000)	$1,526,113,000	23.61%
2009	337,496,000	338,387,000[(5)]	(891,000)	1,598,888,000	21.16%
2010	372,437,000	372,437,000	0	1,511,569,000	24.64%
2011	387,585,000	387,585,000	0	1,498,914,000	25.86%
2012	406,521,000	406,521,000	0	1,497,475,000	27.15%
2013	426,020,000	427,095,000[(6)]	(1,075,000)	1,494,745,000	28.57%
2014	476,320,000	625,520,000[(7)]	(149,200,000)	1,513,206,000	41.34%
2015	502,886,000	571,298,000[(8)]	(68,412,000)	1,521,036,000	37.56%
2016	521,447,000	567,196,000[(9)]	(45,749,000)	1,602,675,000	35.40%
2017	536,726,000[(10)]	572,104,000[(10),(11)]	(35,378,000)	1,678,322,000	34.09%

(1) *Reduced by transfers from County Investment Account (funded by pension obligation proceeds held by OCERS). Those transfers are as follows:*

Plan Year Ended December 31	*Transfers from County Investment Account*	*Plan Year Ended December 31*	*Transfers from County Investment Account*
2008	*$0*	*2013*	*$5,000,000*
2009	*34,900,000*	*2014*	*5,000,000*
2010	*11,000,000*	*2015*	*0*
2011	*11,000,000*	*2016*	*0*
2012	*5,500,000*	*2017*	*0*

(2) *Reduced by discount for prepaid contributions.*

(3) *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

(4) *Includes additional contributions of $692,000 made by O.C. Fire Authority towards the reduction of their UAAL.*

(5) *Includes additional contributions of $891,000 made by O.C. Fire Authority towards the reduction of their UAAL.*

(6) *Includes additional contributions of $1,075,000 made by O.C. Fire Authority towards the reduction of their UAAL.*

(7) *Includes additional contributions of $1,663,000 made by O.C. Cemetery District, $22,537,000 made by O.C. Fire Authority and $125,000,000 made by O.C. Sanitation District towards the reduction of their UAAL.*

EXHIBIT 6 (continued)

Schedule of OCERS' Contributions – Last Ten Plan Years

(8) *Includes additional contributions of $18,412,000 made by O.C. Fire Authority and $50,000,000 made by O.C. Sanitation District towards the reduction of their UAAL.*

(9) *Includes additional contributions of $5,133,000 made by O.C. Fire Authority, $1,500,000 made by Law Library and $5,587,000 made by O.C. Sanitation District towards the reduction of their UAAL as well as $33,529,000 made by O.C. Sanitation District to their UAAL Deferred Account.*

(10) *$24,042,000 transfer from O.C. Sanitation District Deferred UAAL Account required to offset the UAAL increase for the assumption changes has been excluded from both these amounts.*

(11) *Includes additional contributions of $32,096,000 made by O.C. Fire Authority, $1,538,000 made by Law Library and $1,744,000 made by O.C. Children and Families Commission towards the reduction of their UAAL.*

Notes to Exhibit 6

Methods and assumptions used to establish "actuarially determined contribution" rates:	
Valuation date	Actuarially determined contribution rates for the first six months of calendar year 2017 or the second half of fiscal year 2016-2017 are calculated based on the December 31, 2014 valuation. Actuarially determined contribution rates for the last six months of calendar year 2017 or the first half of fiscal year 2017-2018 are calculated based on the December 31, 2015 valuation.
Actuarial cost method	Entry Age Actuarial Cost Method
Amortization method	Level percent of payroll for total unfunded actuarial accrued liability
Remaining amortization period	Effective December 31, 2013, the outstanding balance of the UAAL from the December 31, 2012 valuation was combined and re-amortized over a declining 20-year period. Any changes in UAAL due to actuarial gains or losses or due to changes in assumptions or methods will be amortized over separate 20-year periods. Any changes in UAAL due to plan amendments will be amortized over separate 15-year periods and any change in UAAL due to early retirement incentive programs will be amortized over a separate period of up to 5 years.
Asset valuation method	The Actuarial Value of Assets is determined by recognizing any difference between the actual and the expected market return over a five-year period. The Valuation Value of Assets is the Actuarial Value of Assets reduced by the value of the non-valuation reserves.

Notes to Exhibit 6 – continued

Actuarial assumptions:

December 31, 2014 valuation

Investment rate of return	7.25%, net of pension plan investment expense, including inflation
Inflation rate	3.00%
Real across-the-board salary increase	0.50%
Projected salary increases	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%, vary by service, including inflation
Cost of living adjustments	3.00% of retirement income
Other assumptions	Same as those used in the December 31, 2014 funding actuarial valuation

December 31, 2015 valuation

Investment rate of return	7.25%, net of pension plan investment expense, including inflation
Inflation rate	3.00%
Real across-the-board salary increase	0.50%
Projected salary increases	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%, vary by service, including inflation
Cost of living adjustments	3.00% of retirement income
Other assumptions	Same as those used in the December 31, 2015 funding actuarial valuation

EXHIBIT 7

Determination of Proportionate Share

Actual Contributions (Excluding Employer Paid Member Contributions and not Reduced for Discount due to Prepaid Contributions) by Employer and Rate Group
January 1, 2016 to December 31, 2016

Employer	Rate Group #1	Rate Group #1 Percentage	Rate Group #2	Rate Group #2 Percentage	Rate Group #3	Rate Group #3 Percentage
Orange County	$14,670,000	98.721%	$247,553,000	87.257%	$0	0.000%
O.C. Cemetery District	0	0.000%	0	0.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	0	0.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	1,975,000	0.696%	0	0.000%
O.C. Fire Authority	0	0.000%	0	0.000%	0	0.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	0	0.000%
City of San Juan Capistrano	0	0.000%	2,264,000	0.798%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	9,764,000	100.000%
O.C. Transportation Authority	0	0.000%	0	0.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	285,000	0.100%	0	0.000%
Local Agency Formation Comm.	0	0.000%	121,000	0.043%	0	0.000%
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	31,509,000	11.106%	0	0.000%
O.C. IHSS Public Authority	190,000	1.279%	0	0.000%	0	0.000%
Total for all Employers	$14,860,000	100.000%	$283,707,000	100.000%	$9,764,000	100.000%

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Actual Contributions (Excluding Employer Paid Member Contributions and not Reduced for Discount due to Prepaid Contributions) by Employer and Rate Group
January 1, 2016 to December 31, 2016

Employer	Rate Group #4	Rate Group #4 Percentage	Rate Group #5	Rate Group #5 Percentage	Rate Group #9	Rate Group #9 Percentage
Orange County	$0	0.000%	$0	0.000%	$0	0.000%
O.C. Cemetery District	0	0.000%	0	0.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	0	0.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	0	0.000%	0	0.000%
O.C. Fire Authority	0	0.000%	0	0.000%	0	0.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	1,799,000	100.000%
City of San Juan Capistrano	0	0.000%	0	0.000%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	0	0.000%
O.C. Transportation Authority	0	0.000%	24,584,000	100.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	0	0.000%	0	0.000%
Local Agency Formation Comm.	0	0.000%	0	0.000%	0	0.000%
Rancho Santa Margarita	0	100.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	0	0.000%	0	0.000%
O.C. IHSS Public Authority	0	0.000%	0	0.000%	0	0.000%
Total for all Employers	$0	100.000%	$24,584,000	100.000%	$1,799,000	100.000%

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Actual Contributions (Excluding Employer Paid Member Contributions and not Reduced for Discount due to Prepaid Contributions) by Employer and Rate Group
January 1, 2016 to December 31, 2016

Employer	Rate Group #10	Rate Group #10 Percentage	Rate Group #11	Rate Group #11 Percentage	Rate Group #12	Rate Group #12 Percentage
Orange County	$0	0.000%	$0	0.000%	$0	0.000%
O.C. Cemetery District	0	0.000%	160,000	100.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	316,000	100.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	0	0.000%	0	0.000%
O.C. Fire Authority	8,105,000	100.000%	0	0.000%	0	0.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	0	0.000%
City of San Juan Capistrano	0	0.000%	0	0.000%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	0	0.000%
O.C. Transportation Authority	0	0.000%	0	0.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	0	0.000%	0	0.000%
Local Agency Formation Comm.	0	0.000%	0	0.000%	0	0.000%
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	0	0.000%	0	0.000%
O.C. IHSS Public Authority	0	0.000%	0	0.000%	0	0.000%
Total for all Employers	$8,105,000	100.000%	$160,000	100.000%	$316,000	100.000%

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Actual Contributions (Excluding Employer Paid Member Contributions and not Reduced for Discount due to Prepaid Contributions) by Employer and Rate Group
January 1, 2016 to December 31, 2016

Employer	Rate Group #6	Rate Group #6 Percentage	Rate Group #7	Rate Group #7 Percentage	Rate Group #8	Rate Group #8 Percentage
Orange County	$25,628,000	100.000%	$118,592,000	100.000%	$0	0.000%
O.C. Cemetery District	0	0.000%	0	0.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	0	0.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	0	0.000%	0	0.000%
O.C. Fire Authority	0	0.000%	0	0.000%	54,594,000	100.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	0	0.000%
City of San Juan Capistrano	0	0.000%	0	0.000%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	0	0.000%
O.C. Transportation Authority	0	0.000%	0	0.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	0	0.000%	0	0.000%
Local Agency Formation Comm.	0	0.000%	0	0.000%	0	0.000%
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	0	0.000%	0	0.000%
O.C. IHSS Public Authority	0	0.000%	0	0.000%	0	0.000%
Total for all Employers	$25,628,000	100.000%	$118,592,000	100.000%	$54,594,000	100.000%

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Actual Contributions (Excluding Employer Paid Member Contributions and not Reduced for Discount due to Prepaid Contributions) by Employer and Rate Group
January 1, 2016 to December 31, 2016

Employer	Total Contributions[1]	Total Percentage
Orange County	$406,443,000	74.974%
O.C. Cemetery District	160,000	0.030%
O.C. Law Library	316,000	0.058%
O.C. Vector Control District	0	0.000%
O.C. Retirement System	1,975,000	0.364%
O.C. Fire Authority	62,699,000	11.566%
Department of Education	0	0.000%
Transportation Corridor Agency	1,799,000	0.332%
City of San Juan Capistrano	2,264,000	0.418%
O.C. Sanitation District	9,764,000	1.801%
O.C. Transportation Authority	24,584,000	4.535%
U.C.I.	0	0.000%
O.C. Children and Families Comm.	285,000	0.053%
Local Agency Formation Comm.	121,000	0.022%
Rancho Santa Margarita	0	0.000%
O.C. Superior Court	31,509,000	5.812%
O.C. IHSS Public Authority	190,000	0.035%
Total for all Employers	$542,109,000	100.000%

[1] Excludes combined additional contributions of $12,220,000 made by O.C. Law Library, O.C. Fire Authority and O.C. Sanitation District towards the reduction of their UAALs, $33,529,000 made by O.C. Sanitation District towards their UAAL Deferred Account, combined contributions of $1,315,000 made by U.C.I. and combined employer pick-up contributions of $2,376,000.

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2016 Net Pension Liability						
Employer	**Rate Group #1**	**Rate Group #1 Percentage**	**Rate Group #2**	**Rate Group #2 Percentage**	**Rate Group #3**	**Rate Group #3 Percentage**
Orange County	$55,990,224	56.573%	$2,670,961,353	86.955%	$0	0.000%
O.C. Cemetery District	0	0.000%	0	0.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	0	0.000%
O.C. Vector Control District(2)	1,669,793	1.687%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	21,886,393	0.713%	0	0.000%
O.C. Fire Authority	0	0.000%	0	0.000%	0	0.000%
Department of Education(2)	4,415,517	4.461%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	0	0.000%
City of San Juan Capistrano	0	0.000%	25,089,009	0.817%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	(10,384,510)	100.000%
O.C. Transportation Authority	0	0.000%	0	0.000%	0	0.000%
U.C.I.(2)	36,113,699	36.489%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	3,158,290	0.103%	0	0.000%
Local Agency Formation Comm.	0	0.000%	1,340,888	0.044%	0	0.000%
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	349,173,850	11.368%	0	0.000%
O.C. IHSS Public Authority	781,506	0.790%	0	0.000%	0	0.000%
Total for all Employers	$98,970,739	100.000%	$3,071,609,783	100.000%	$(10,384,510)	100.000%

(2) In determining the NPLs for the O.C. Vector Control District, Department of Education and U.C.I., we first start by rolling forward the VVAs of these employers as of December 31, 2015 to December 31, 2016 for the actual contributions, benefit payments and return on their VVAs during 2016. Those VVAs are then marked to the Plan's Fiduciary Net Position as of December 31, 2016. The TPLs for these employers are obtained from internal valuation results (by rolling forward their TPLs from December 31, 2015).

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2016 Net Pension Liability						
Employer	Rate Group #4	Rate Group #4 Percentage	Rate Group #5	Rate Group #5 Percentage	Rate Group #9	Rate Group #9 Percentage
Orange County	$0	0.000%	$0	0.000%	$0	0.000%
O.C. Cemetery District	0	0.000%	0	0.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	0	0.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	0	0.000%	0	0.000%
O.C. Fire Authority	0	0.000%	0	0.000%	0	0.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	12,423,364	100.000%
City of San Juan Capistrano	0	0.000%	0	0.000%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	0	0.000%
O.C. Transportation Authority	0	0.000%	230,260,478	100.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	0	0.000%	0	0.000%
Local Agency Formation Comm.	0	0.000%	0	0.000%	0	0.000%
Rancho Santa Margarita	9,332	100.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	0	0.000%	0	0.000%
O.C. IHSS Public Authority	0	0.000%	0	0.000%	0	0.000%
Total for all Employers	$9,332	100.000%	$230,260,478	100.000%	$12,423,364	100.000%

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2016 Net Pension Liability						
Employer	Rate Group #10	Rate Group #10 Percentage	Rate Group #11	Rate Group #11 Percentage	Rate Group #12	Rate Group #12 Percentage
Orange County	$0	0.000%	$0	0.000%	$0	0.000%
O.C. Cemetery District	0	0.000%	222,409	100.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	1,770,282	100.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	0	0.000%	0	0.000%
O.C. Fire Authority	66,956,418	100.000%	0	0.000%	0	0.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	0	0.000%
City of San Juan Capistrano	0	0.000%	0	0.000%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	0	0.000%
O.C. Transportation Authority	0	0.000%	0	0.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	0	0.000%	0	0.000%
Local Agency Formation Comm.	0	0.000%	0	0.000%	0	0.000%
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	0	0.000%	0	0.000%
O.C. IHSS Public Authority	0	0.000%	0	0.000%	0	0.000%
Total for all Employers	$66,956,418	100.000%	$222,409	100.000%	$1,770,282	100.000%

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2016 Net Pension Liability						
Employer	Rate Group #6	Rate Group #6 Percentage	Rate Group #7	Rate Group #7 Percentage	Rate Group #8	Rate Group #8 Percentage
Orange County	$217,761,584	100.000%	$1,099,142,482	100.000%	$0	0.000%
O.C. Cemetery District	0	0.000%	0	0.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	0	0.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	0	0.000%	0	0.000%
O.C. Fire Authority	0	0.000%	0	0.000%	402,474,242	100.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	0	0.000%
City of San Juan Capistrano	0	0.000%	0	0.000%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	0	0.000%
O.C. Transportation Authority	0	0.000%	0	0.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	0	0.000%	0	0.000%
Local Agency Formation Comm.	0	0.000%	0	0.000%	0	0.000%
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	0	0.000%	0	0.000%
O.C. IHSS Public Authority	0	0.000%	0	0.000%	0	0.000%
Total for all Employers	$217,761,584	100.000%	$1,099,142,482	100.000%	$402,474,242	100.000%

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2016 Net Pension Liability		
Employer	**Total NPL**	**Total Percentage**
Orange County	$4,043,855,643	77.898%
O.C. Cemetery District	222,409	0.004%
O.C. Law Library	1,770,282	0.034%
O.C. Vector Control District(2)	1,669,793	0.032%
O.C. Retirement System	21,886,393	0.422%
O.C. Fire Authority	469,430,660	9.043%
Department of Education(2)	4,415,517	0.085%
Transportation Corridor Agency	12,423,364	0.239%
City of San Juan Capistrano	25,089,009	0.483%
O.C. Sanitation District	(10,384,510)	(0.200%)
O.C. Transportation Authority	230,260,478	4.436%
U.C.I.(2)	36,113,699	0.696%
O.C. Children and Families Comm.	3,158,290	0.061%
Local Agency Formation Comm.	1,340,888	0.026%
Rancho Santa Margarita	9,332	0.000%
O.C. Superior Court	349,173,850	6.726%
O.C. IHSS Public Authority	781,506	0.015%
Total for all Employers	$5,191,216,603	100.000%

(2) In determining the NPLs for the O.C. Vector Control District, Department of Education and U.C.I., we first start by rolling forward the VVAs of these employers as of December 31, 2015 to December 31, 2016 for the actual contributions, benefit payments and return on their VVAs during 2016. Those VVAs are then marked to the Plan's Fiduciary Net Position as of December 31, 2016. The TPLs for these employers are obtained from internal valuation results (by rolling forward their TPLs from December 31, 2015).

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Notes Regarding Determination of Proportionate Share as of December 31, 2016 Measurement Date:

1. Based on the January 1, 2016 through December 31, 2016 employer contributions as provided by OCERS. These contributions have been adjusted to exclude employer paid member contributions and they have not been reduced for discount due to prepaid contributions. (It should be noted that we would also have included transfers made from the County Investment Account had those transfers been made in 2016.)

2a. The Net Pension Liability (NPL) for each Rate Group is the Total Pension Liability (TPL) minus the Plan's Fiduciary Net Position (plan assets). The TPL for each Rate Group is obtained from internal valuation results. The Plan's Fiduciary Net Position for each Rate Group is estimated by adjusting the Valuation Value of Assets (VVA) for each membership class by the ratio of the total OCERS Plan's Fiduciary Net Position (excluding the balance of the County Investment Account and the O.C. Sanitation District UAAL Deferred Account) to total OCERS VVA. As previously directed by OCERS, the County Investment Account is then allocated among the four County Rate Groups using the proportions of County POB contributions made during 2016. Again, as there were no such County POB contributions made during 2016, we have continued to apply the same proportions determined in 2014 for each of the four County Rate Groups to allocate the $117,723,000 in the County Investment Accout as of December 31, 2016. These amounts are provided in item 3. The O.C. Sanitation District UAAL Deferred Account is allocated entirely to Rate Group #3.

b. Each of General Rate Groups #3, #4, #5, #9, #10, #11 and #12 and Safety Rate Groups #6, #7 and #8 have only one active employer, so all of the NPL for that Rate Group is allocated to the corresponding employer.

c. For General Rate Groups #1 and #2, the NPL is allocated based on the actual employer contributions within the General Rate Group.

- The NPL for Rate Group #1 was adjusted by the NPLs for the O.C. Vector Control District, Department of Education and U.C.I. prior to allocating the net NPL to the other employers in Rate Group #1 as the NPLs for these three employers were calculated separately.
- Calculate ratio of employer's contributions to the total contributions for the Rate Group. For this purpose, the employer contributions exclude the following amounts:
  (i) Rate Group #1 (U.C.I.): $1,315,000
- Multiply this ratio (unrounded) by the NPL for the Rate Group to determine the employer's proportionate share of the NPL for the Rate Group.
- The UAAL contribution referenced in (i) above is adjusted with interest to December 31, 2016 and is used to reduced the NPL for the employer as of December 31, 2016.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Notes Regarding Determination of Proportionate Share as of December 31, 2016 Measurement Date:

3. The percentages of contributions by employer are not exactly equal to the percentages we use to allocate the NPL by employer because the NPL for the County has been reduced to reflect the portion of the County Investment Account that has been allocated among the four County Rate Groups. The amounts of the County Investment Account that have been allocated to those Rate Groups are as follows:

Rate Group #1:	$4,350,249
Rate Group #2:	72,351,166
Rate Group #6:	7,519,398
Rate Group #7:	33,502,187
Total:	$117,723,000

4. If the employer is in several Rate Groups, the employer's total allocated NPL is the sum of its allocated NPL from each Rate Group. Proportionate share of total plan NPL is then the ratio of the employer's total allocated NPL to the total NPL of all employers.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Actual Contributions (Excluding Employer Paid Member Contributions and not Reduced for Discount due to Prepaid Contributions) by Employer and Rate Group January 1, 2017 to December 31, 2017

Employer	Rate Group #1	Rate Group #1 Percentage	Rate Group #2	Rate Group #2 Percentage	Rate Group #3	Rate Group #3 Percentage
Orange County	$14,766,000	98.637%	$247,280,000	87.558%	$0	0.000%
O.C. Cemetery District	0	0.000%	0	0.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	0	0.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	1,960,000	0.694%	0	0.000%
O.C. Fire Authority	0	0.000%	0	0.000%	0	0.000%
Cypress Parks and Recreation(1)	0	0.000%	0	0.000%	0	0.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	0	0.000%
City of San Juan Capistrano	0	0.000%	2,391,000	0.847%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	7,625,000	100.000%
O.C. Transportation Authority	0	0.000%	0	0.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	249,000	0.088%	0	0.000%
Local Agency Formation Comm.	0	0.000%	116,000	0.041%	0	0.000%
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	30,423,000	10.772%	0	0.000%
O.C. IHSS Public Authority	204,000	1.363%	0	0.000%	0	0.000%
Total for all Employers	$14,970,000	100.000%	$282,419,000	100.000%	$7,625,000	100.000%

(1) After the December 31, 2016 funding valuation, we have applied the Board's withdrawing employer policy to allocate a portion of the Unfunded Actuarial Accrued Liability to the District as of December 31, 2016. However, no UAAL contributions have been made by the District during 2017.

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Actual Contributions (Excluding Employer Paid Member Contributions and not Reduced for Discount due to Prepaid Contributions) by Employer and Rate Group
January 1, 2017 to December 31, 2017

Employer	Rate Group #4	Rate Group #4 Percentage	Rate Group #5	Rate Group #5 Percentage	Rate Group #9	Rate Group #9 Percentage
Orange County	$0	0.000%	$0	0.000%	$0	0.000%
O.C. Cemetery District	0	0.000%	0	0.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	0	0.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	0	0.000%	0	0.000%
O.C. Fire Authority	0	0.000%	0	0.000%	0	0.000%
Cypress Parks and Recreation	0	0.000%	0	0.000%	0	0.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	1,738,000	100.000%
City of San Juan Capistrano	0	0.000%	0	0.000%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	0	0.000%
O.C. Transportation Authority	0	0.000%	24,310,000	100.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	0	0.000%	0	0.000%
Local Agency Formation Comm.	0	0.000%	0	0.000%	0	0.000%
Rancho Santa Margarita	0	100.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	0	0.000%	0	0.000%
O.C. IHSS Public Authority	0	0.000%	0	0.000%	0	0.000%
Total for all Employers	$0	100.000%	$24,310,000	100.000%	$1,738,000	100.000%

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Actual Contributions (Excluding Employer Paid Member Contributions and not Reduced for Discount due to Prepaid Contributions) by Employer and Rate Group
January 1, 2017 to December 31, 2017

Employer	Rate Group #10	Rate Group #10 Percentage	Rate Group #11	Rate Group #11 Percentage	Rate Group #12	Rate Group #12 Percentage
Orange County	$0	0.000%	$0	0.000%	$0	0.000%
O.C. Cemetery District	0	0.000%	170,000	100.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	264,000	100.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	0	0.000%	0	0.000%
O.C. Fire Authority	8,348,000	100.000%	0	0.000%	0	0.000%
Cypress Parks and Recreation	0	0.000%	0	0.000%	0	0.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	0	0.000%
City of San Juan Capistrano	0	0.000%	0	0.000%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	0	0.000%
O.C. Transportation Authority	0	0.000%	0	0.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	0	0.000%	0	0.000%
Local Agency Formation Comm.	0	0.000%	0	0.000%	0	0.000%
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	0	0.000%	0	0.000%
O.C. IHSS Public Authority	0	0.000%	0	0.000%	0	0.000%
Total for all Employers	$8,348,000	100.000%	$170,000	100.000%	$264,000	100.000%

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Actual Contributions (Excluding Employer Paid Member Contributions and not Reduced for Discount due to Prepaid Contributions) by Employer and Rate Group
January 1, 2017 to December 31, 2017

Employer	Rate Group #6	Rate Group #6 Percentage	Rate Group #7	Rate Group #7 Percentage	Rate Group #8	Rate Group #8 Percentage
Orange County	$26,930,000	100.000%	$131,526,000	100.000%	$0	0.000%
O.C. Cemetery District	0	0.000%	0	0.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	0	0.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	0	0.000%	0	0.000%
O.C. Fire Authority	0	0.000%	0	0.000%	56,891,000	100.000%
Cypress Parks and Recreation	0	0.000%	0	0.000%	0	0.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	0	0.000%
City of San Juan Capistrano	0	0.000%	0	0.000%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	0	0.000%
O.C. Transportation Authority	0	0.000%	0	0.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	0	0.000%	0	0.000%
Local Agency Formation Comm.	0	0.000%	0	0.000%	0	0.000%
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	0	0.000%	0	0.000%
O.C. IHSS Public Authority	0	0.000%	0	0.000%	0	0.000%
Total for all Employers	$26,930,000	100.000%	$131,526,000	100.000%	$56,891,000	100.000%

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Actual Contributions (Excluding Employer Paid Member Contributions and not Reduced for Discount due to Prepaid Contributions) by Employer and Rate Group
January 1, 2017 to December 31, 2017

Employer	Total Contributions[2]	Total Percentage
Orange County	$420,502,000	75.740%
O.C. Cemetery District	170,000	0.030%
O.C. Law Library	264,000	0.047%
O.C. Vector Control District	0	0.000%
O.C. Retirement System	1,960,000	0.353%
O.C. Fire Authority	65,239,000	11.751%
Cypress Parks and Recreation[1]	0	0.000%
Department of Education	0	0.000%
Transportation Corridor Agency	1,738,000	0.313%
City of San Juan Capistrano	2,391,000	0.431%
O.C. Sanitation District	7,625,000	1.373%
O.C. Transportation Authority	24,310,000	4.379%
U.C.I.	0	0.000%
O.C. Children and Families Comm.	249,000	0.045%
Local Agency Formation Comm.	116,000	0.021%
Rancho Santa Margarita	0	0.000%
O.C. Superior Court	30,423,000	5.480%
O.C. IHSS Public Authority	204,000	0.037%
Total for all Employers	$555,191,000	100.000%

[1] After the December 31, 2016 funding valuation, we have applied the Board's withdrawing employer policy to allocate a portion of the Unfunded Actuarial Accrued Liability to the District as of December 31, 2016. However, no UAAL contributions have been made by the District during 2017.

[2] Excludes combined additional contributions of $35,378,000 made by O.C. Law Library, O.C. Fire Authority and O.C. Children and Families Comm. towards the reduction of their UAALs, combined contributions of $3,472,000 made by Department of Education and U.C.I. and combined employer pick-up contributions of $985,000.

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2017 Net Pension Liability						
Employer	Rate Group #1	Rate Group #1 Percentage	Rate Group #2	Rate Group #2 Percentage	Rate Group #3	Rate Group #3 Percentage
Orange County	$46,159,638	58.485%	$2,620,699,334	87.267%	$0	0.000%
O.C. Cemetery District	0	0.000%	0	0.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	0	0.000%
O.C. Vector Control District[3]	1,166,920	1.478%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	21,427,080	0.714%	0	0.000%
O.C. Fire Authority	0	0.000%	0	0.000%	0	0.000%
Cypress Parks and Recreation[3]	718,340	0.910%	0	0.000%	0	0.000%
Department of Education[3]	2,530,324	3.206%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	0	0.000%
City of San Juan Capistrano	0	0.000%	26,138,852	0.870%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	(39,571,102)	100.000%
O.C. Transportation Authority	0	0.000%	0	0.000%	0	0.000%
U.C.I.[3]	27,644,960	35.026%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	962,204	0.032%	0	0.000%
Local Agency Formation Comm.	0	0.000%	1,268,133	0.042%	0	0.000%
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	332,589,831	11.075%	0	0.000%
O.C. IHSS Public Authority	706,343	0.895%	0	0.000%	0	0.000%
Total for all Employers	$78,926,525	100.000%	$3,003,085,434	100.000%	$(39,571,102)	100.000%

[3] In determining the NPLs for the O.C. Vector Control District, Cypress Parks and Recreation, Department of Education and U.C.I., we first start by rolling forward the VVAs of these employers as of December 31, 2016 to December 31, 2017 for the actual contributions, benefit payments and return on their VVAs during 2017. Those VVAs are then marked to the Plan's Fiduciary Net Position as of December 31, 2017. The TPLs for these employers are obtained from internal valuation results (by rolling forward their TPLs from December 31, 2016).

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2017 Net Pension Liability						
Employer	**Rate Group #4**	**Rate Group #4 Percentage**	**Rate Group #5**	**Rate Group #5 Percentage**	**Rate Group #9**	**Rate Group #9 Percentage**
Orange County	$0	0.000%	$0	0.000%	$0	0.000%
O.C. Cemetery District	0	0.000%	0	0.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	0	0.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	0	0.000%	0	0.000%
O.C. Fire Authority	0	0.000%	0	0.000%	0	0.000%
Cypress Parks and Recreation	0	0.000%	0	0.000%	0	0.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	10,242,769	100.000%
City of San Juan Capistrano	0	0.000%	0	0.000%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	0	0.000%
O.C. Transportation Authority	0	0.000%	212,117,162	100.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	0	0.000%	0	0.000%
Local Agency Formation Comm.	0	0.000%	0	0.000%	0	0.000%
Rancho Santa Margarita	(2,320)	100.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	0	0.000%	0	0.000%
O.C. IHSS Public Authority	0	0.000%	0	0.000%	0	0.000%
Total for all Employers	$(2,320)	100.000%	$212,117,162	100.000%	$10,242,769	100.000%

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2017 Net Pension Liability						
Employer	Rate Group #10	Rate Group #10 Percentage	Rate Group #11	Rate Group #11 Percentage	Rate Group #12	Rate Group #12 Percentage
Orange County	$0	0.000%	$0	0.000%	$0	0.000%
O.C. Cemetery District	0	0.000%	(173,677)	100.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	(36,317)	100.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	0	0.000%	0	0.000%
O.C. Fire Authority	49,719,504	100.000%	0	0.000%	0	0.000%
Cypress Parks and Recreation	0	0.000%	0	0.000%	0	0.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	0	0.000%
City of San Juan Capistrano	0	0.000%	0	0.000%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	0	0.000%
O.C. Transportation Authority	0	0.000%	0	0.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	0	0.000%	0	0.000%
Local Agency Formation Comm.	0	0.000%	0	0.000%	0	0.000%
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	0	0.000%	0	0.000%
O.C. IHSS Public Authority	0	0.000%	0	0.000%	0	0.000%
Total for all Employers	$49,719,504	100.000%	$(173,677)	100.000%	$(36,317)	100.000%

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2017 Net Pension Liability						
Employer	**Rate Group #6**	**Rate Group #6 Percentage**	**Rate Group #7**	**Rate Group #7 Percentage**	**Rate Group #8**	**Rate Group #8 Percentage**
Orange County	$237,985,846	100.000%	$1,078,850,413	100.000%	$0	0.000%
O.C. Cemetery District	0	0.000%	0	0.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	0	0.000%
O.C. Vector Control District	0	0.000%	0	0.000%	0	0.000%
O.C. Retirement System	0	0.000%	0	0.000%	0	0.000%
O.C. Fire Authority	0	0.000%	0	0.000%	320,955,164	100.000%
Cypress Parks and Recreation	0	0.000%	0	0.000%	0	0.000%
Department of Education	0	0.000%	0	0.000%	0	0.000%
Transportation Corridor Agency	0	0.000%	0	0.000%	0	0.000%
City of San Juan Capistrano	0	0.000%	0	0.000%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	0	0.000%
O.C. Transportation Authority	0	0.000%	0	0.000%	0	0.000%
U.C.I.	0	0.000%	0	0.000%	0	0.000%
O.C. Children and Families Comm.	0	0.000%	0	0.000%	0	0.000%
Local Agency Formation Comm.	0	0.000%	0	0.000%	0	0.000%
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	0	0.000%	0	0.000%
O.C. IHSS Public Authority	0	0.000%	0	0.000%	0	0.000%
Total for all Employers	$237,985,846	100.000%	$1,078,850,413	100.000%	$320,955,164	100.000%

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

	Allocation of December 31, 2017 Net Pension Liability	
Employer	**Total NPL**	**Total Percentage**
Orange County	$3,983,695,231	80.445%
O.C. Cemetery District	(173,677)	(0.004%)
O.C. Law Library	(36,317)	(0.001%)
O.C. Vector Control District(3)	1,166,920	0.024%
O.C. Retirement System	21,427,080	0.433%
O.C. Fire Authority	370,674,668	7.485%
Cypress Parks and Recreation(3)	718,340	0.015%
Department of Education(3)	2,530,324	0.051%
Transportation Corridor Agency	10,242,769	0.207%
City of San Juan Capistrano	26,138,852	0.528%
O.C. Sanitation District	(39,571,102)	(0.799%)
O.C. Transportation Authority	212,117,162	4.283%
U.C.I.(3)	27,644,960	0.558%
O.C. Children and Families Comm.	962,204	0.019%
Local Agency Formation Comm.	1,268,133	0.026%
Rancho Santa Margarita	(2,320)	(0.000%)
O.C. Superior Court	332,589,831	6.716%
O.C. IHSS Public Authority	706,343	0.014%
Total for all Employers	$4,952,099,401	100.000%

(3) In determining the NPLs for the O.C. Vector Control District, Cypress Parks and Recreation, Department of Education and U.C.I., we first start by rolling forward the VVAs of these employers as of December 31, 2016 to December 31, 2017 for the actual contributions, benefit payments and return on their VVAs during 2017. Those VVAs are then marked to the Plan's Fiduciary Net Position as of December 31, 2017. The TPLs for these employers are obtained from internal valuation results (by rolling forward their TPLs from December 31, 2016).

Note: Results may not total due to rounding.

EXHIBIT 7 (continued)

Determination of Proportionate Share

Notes Regarding Determination of Proportionate Share as of December 31, 2017 Measurement Date:

1. Based on the January 1, 2017 through December 31, 2017 employer contributions as provided by OCERS. These contributions have been adjusted to exclude employer paid member contributions and they have not been reduced for discount due to prepaid contributions. (It should be noted that we would also have included transfers made from the County Investment Account had those transfers been made in 2017.)

2a. The Net Pension Liability (NPL) for each Rate Group is the Total Pension Liability (TPL) minus the Plan's Fiduciary Net Position (plan assets). The TPL for each Rate Group is obtained from internal valuation results. The Plan's Fiduciary Net Position for each Rate Group is estimated by adjusting the Valuation Value of Assets (VVA) for each membership class by the ratio of the total OCERS Plan's Fiduciary Net Position (excluding the balance of the County Investment Account and the O.C. Sanitation District UAAL Deferred Account) to total OCERS VVA. As previously directed by OCERS, the County Investment Account is then allocated among the four County Rate Groups using the proportions of County POB contributions made during 2017. Again, as there were no such County POB contributions made during 2017, we have continued to apply the same proportions determined in 2014 for each of the four County Rate Groups to allocate the $134,417,000 in the County Investment Accout as of December 31, 2017. These amounts are provided in item 3. The O.C. Sanitation District UAAL Deferred Account is allocated entirely to Rate Group #3 and the balance in that account has been reduced by $24,042,000 to $14,871,000 at the end of the year to mitigate the additional UAAL due to the changes in assumptions approved by the Board for the December 31, 2017 valuation (and that UAAL was measured on a VVA basis). Nonetheless, the balance of the O.C. Sanitation District UAAL Deferred Account was used to reduce the NPL for O.C. Sanitation District as of the measurement date.

b. Each of General Rate Groups #3, #4, #5, #9, #10, #11 and #12 and Safety Rate Groups #6, #7 and #8 have only one active employer, so all of the NPL for that Rate Group is allocated to the corresponding employer.

c. For General Rate Groups #1 and #2, the NPL is allocated based on the actual employer contributions within the General Rate Group.

- The NPL for Rate Group #1 was adjusted by the NPLs for the O.C. Vector Control District, Cypress Parks and Recreation, Department of Education and U.C.I. prior to allocating the net NPL to the other employers in Rate Group #1 as the NPLs for these four employers were calculated separately.
- Calculate ratio of employer's contributions to the total contributions for the Rate Group. For this purpose, the employer contributions exclude the following amounts:

(i) Rate Group #1 (Department of Education):	$524,000
(ii) Rate Group #1 (U.C.I.):	$2,948,000
(iii) Rate Group #2 (O.C. Children and Families Comm.):	$1,744,000

- Multiply this ratio (unrounded) by the NPL for the Rate Group to determine the employer's proportionate share of the NPL for the Rate Group.
- The UAAL contributions referenced in (i), (ii) and (iii) above are adjusted with interest to December 31, 2017 and are used to reduce the NPL for the three employers as of December 31, 2017.

EXHIBIT 7 (continued)
Determination of Proportionate Share

Notes Regarding Determination of Proportionate Share as of December 31, 2017 Measurement Date:

3. The percentages of contributions by employer are not exactly equal to the percentages we use to allocate the NPL by employer because the NPL for the County has been reduced to reflect the portion of the County Investment Account that has been allocated among the four County Rate Groups. The amounts of the County Investment Account that have been allocated to those Rate Groups are as follows:

Rate Group #1:	$4,967,147
Rate Group #2:	82,611,101
Rate Group #6:	8,585,705
Rate Group #7:	38,253,047
Total:	$134,417,000

4. If the employer is in several Rate Groups, the employer's total allocated NPL is the sum of its allocated NPL from each Rate Group. Proportionate share of total plan NPL is then the ratio of the employer's total allocated NPL to the total NPL of all employers.

For the active employers, the following items are allocated based on the corresponding proportionate share within each Rate Group:

- 1) Net Pension Liability
- 2) Service cost
- 3) Interest on the Total Pension Liability
- 4) Expensed portion of current-period benefit changes
- 5) Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability
- 6) Expensed portion of current-period changes of assumptions or other inputs
- 7) Member contributions
- 8) Projected earnings on plan investments
- 9) Expensed portion of current-period differences between actual and projected earnings on plan investments
- 10) Administrative expense
- 11) Recognition of beginning of year deferred outflows of resources as pension expense
- 12) Recognition of beginning of year deferred inflows of resources as pension expense

EXHIBIT 8

Pension Expense: Total for all Employers

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Components of Pension Expense		
1. Service cost	$452,412,003	$427,473,217
2. Interest on the Total Pension Liability	1,305,268,323	1,241,079,174
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(11,142,029)	(54,472,347)
6. Expensed portion of current-period changes of assumptions or other inputs	137,636,784	0
7. Member contributions[1]	(263,279,000)	(260,673,000)
8. Projected earnings on plan investments	(929,983,428)	(847,260,430)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(201,930,314)	(42,796,514)
10. Administrative expense	17,002,000	16,870,000
11. Other[2]	0	(508,788)
12. Recognition of beginning of year deferred outflows of resources as pension expense	258,095,232	257,782,993
13. Recognition of beginning of year deferred inflows of resources as pension expense	(234,704,098)	(137,122,998)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
Pension Expense	$529,375,473	$600,371,307

(1) *Member contributions include employer paid member contributions, if any.*

(2) *O.C. Law Library was separated out from O.C. Sanitation District in Rate Group #3 and put into their own Rate Group (Rate Group #12) after the valuation as of December 31, 2015. As we previously described in our October 2016 letters to OCERS for these two employers, there was an adjustment to the UAAL for Rate Group #3 that we originally included in our December 31, 2015 valuation. This was a credit or a reduction in pension expense of $509,000 (or $508,788 before the credit was rounded to the nearest $1,000) given to O.C. Law Library to reflect that their future service enhancement did not increase the UAAL.*

EXHIBIT 8 (continued)

Pension Expense: Orange County

Reporting Date for Employer under GASB 68 Measurement Date for Employer under GASB 68 Components of Pension Expense	June 30, 2018 December 31, 2017	June 30, 2017 December 31, 2016
1. Service cost	$331,004,944	$310,677,756
2. Interest on the Total Pension Liability	965,662,018	913,821,313
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	1,348,921	2,433,278
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(2,367,219)	(41,565,082)
6. Expensed portion of current-period changes of assumptions or other inputs	105,720,645	0
7. Member contributions[1]	(201,833,900)	(199,977,528)
8. Projected earnings on plan investments	(670,274,220)	(610,558,840)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(144,893,476)	(31,008,753)
10. Administrative expense	12,328,336	11,987,403
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	189,480,429	189,096,136
13. Recognition of beginning of year deferred inflows of resources as pension expense	(176,479,079)	(103,441,319)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	3,667,117	1,233,839
Pension Expense	$413,364,516	$442,698,203

[1] *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: O.C. Cemetery District

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Components of Pension Expense		
1. Service cost	$266,508	$252,024
2. Interest on the Total Pension Liability	632,926	601,969
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(34,941)	(33,320)
6. Expensed portion of current-period changes of assumptions or other inputs	81,205	0
7. Member contributions[(1)]	(131,000)	(122,000)
8. Projected earnings on plan investments	(623,108)	(569,032)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(132,686)	(26,224)
10. Administrative expense	5,970	5,579
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	151,243	151,243
13. Recognition of beginning of year deferred inflows of resources as pension expense	(134,024)	(74,480)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
Pension Expense	$82,093	$185,759

(1) *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: O.C. Law Library

Reporting Date for Employer under GASB 68 **Measurement Date for Employer under GASB 68** **Components of Pension Expense**	**June 30, 2018** **December 31, 2017**	**June 30, 2017** **December 31, 2016**
1. Service cost	$293,545	$279,061
2. Interest on the Total Pension Liability	680,271	637,114
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(11,212)	(27,568)
6. Expensed portion of current-period changes of assumptions or other inputs	71,355	0
7. Member contributions[1]	(163,000)	(168,000)
8. Projected earnings on plan investments	(553,962)	(400,416)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(135,333)	(15,858)
10. Administrative expense	39,754	40,198
11. Other[2]	0	(47,635)
12. Recognition of beginning of year deferred outflows of resources as pension expense	711,421	711,421
13. Recognition of beginning of year deferred inflows of resources as pension expense	(480,149)	(436,723)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	(372,508)	(372,508)
Pension Expense	$80,182	$199,086

(1) *Member contributions include employer paid member contributions, if any.*

(2) *O.C. Law Library was separated out from O.C. Sanitation District in Rate Group #3 and put into their own Rate Group (Rate Group #12) after the valuation as of December 31, 2015. As we previously described in our October 2016 letters to OCERS for these two employers, there was an adjustment to the UAAL for Rate Group #3 that we originally included in our December 31, 2015 valuation. This was a credit or a reduction in pension expense of $509,000 (or $508,788 before the credit was rounded to the nearest $1,000) given to O.C. Law Library to reflect that their future service enhancement did not increase the UAAL. In addition, there was an adjustment of $461,153 (which increased the pension expense) to true up the TPL and Plan's Fiduciary Net Position for O.C. Sanitation District to account for the separation of O.C. Law Library from O.C. Sanitation District in Rate Group #3 into their own Rate Group (Rate Group #12) after the valuation as of December 31, 2015.*

EXHIBIT 8 (continued)

Pension Expense: O.C. Vector Control District

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Components of Pension Expense		
1. Service cost	$0	$0
2. Interest on the Total Pension Liability	1,912,655	1,865,032
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	55,049	2,615
6. Expensed portion of current-period changes of assumptions or other inputs	144,654	0
7. Member contributions[1]	(4,000)	0
8. Projected earnings on plan investments	(1,767,751)	(1,723,119)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(368,815)	(85,909)
10. Administrative expense	82	0
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	521,606	518,991
13. Recognition of beginning of year deferred inflows of resources as pension expense	(497,153)	(411,244)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
Pension Expense	$(3,673)	$166,366

[1] *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: O.C. Retirement System

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Components of Pension Expense		
1. Service cost	$1,689,285	$1,600,895
2. Interest on the Total Pension Liability	5,190,896	4,937,984
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	8,281	(112,549)
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(21,922)	(243,301)
6. Expensed portion of current-period changes of assumptions or other inputs	558,486	0
7. Member contributions[1]	(1,214,802)	(1,231,971)
8. Projected earnings on plan investments	(3,600,833)	(3,297,426)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(780,091)	(166,647)
10. Administrative expense	64,326	64,645
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	898,870	897,655
13. Recognition of beginning of year deferred inflows of resources as pension expense	(1,081,169)	(669,760)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	327,058	439,607
Pension Expense	$2,038,385	$2,219,132

[1] *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: O.C. Fire Authority

Reporting Date for Employer under GASB 68 Measurement Date for Employer under GASB 68 Components of Pension Expense	June 30, 2018 December 31, 2017	June 30, 2017 December 31, 2016
1. Service cost	$54,227,641	$51,569,319
2. Interest on the Total Pension Liability	126,475,589	120,041,748
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(4,002,910)	(5,249,320)
6. Expensed portion of current-period changes of assumptions or other inputs	9,375,593	0
7. Member contributions[1]	(22,249,000)	(20,637,000)
8. Projected earnings on plan investments	(93,925,010)	(83,957,811)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(20,480,172)	(3,959,396)
10. Administrative expense	2,400,825	1,771,539
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	28,417,306	28,178,179
13. Recognition of beginning of year deferred inflows of resources as pension expense	(17,238,076)	(7,790,233)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
Pension Expense	$63,001,786	$79,967,025

[1] *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: Cypress Parks and Recreation

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Components of Pension Expense		
1. Service cost	$0	$0
2. Interest on the Total Pension Liability	299,448	0
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	710,578	0
6. Expensed portion of current-period changes of assumptions or other inputs	23,368	0
7. Member contributions[1]	0	0
8. Projected earnings on plan investments	10,169	0
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(800,458)	
10. Administrative expense	0	0
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	0	0
13. Recognition of beginning of year deferred inflows of resources as pension expense	0	0
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
Pension Expense	$243,105	$0

[1] *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: Department of Education

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Components of Pension Expense		
1. Service cost	$0	$0
2. Interest on the Total Pension Liability	872,268	979,191
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(205,455)	(1,101)
6. Expensed portion of current-period changes of assumptions or other inputs	59,066	0
7. Member contributions[1]	0	0
8. Projected earnings on plan investments	(663,547)	(667,430)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(140,158)	(39,279)
10. Administrative expense	10,677	0
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	323,520	323,520
13. Recognition of beginning of year deferred inflows of resources as pension expense	(158,602)	(118,222)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
Pension Expense	$97,769	$476,679

[1] *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: Transportation Corridor Agency

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Components of Pension Expense		
1. Service cost	$1,481,244	$1,410,755
2. Interest on the Total Pension Liability	2,926,806	2,837,696
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(264,613)	32,522
6. Expensed portion of current-period changes of assumptions or other inputs	292,487	0
7. Member contributions[1]	(692,000)	(724,000)
8. Projected earnings on plan investments	(2,117,402)	(1,886,066)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(467,722)	(92,608)
10. Administrative expense	47,844	49,701
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	514,489	481,967
13. Recognition of beginning of year deferred inflows of resources as pension expense	(371,233)	(278,625)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
Pension Expense	$1,349,900	$1,831,342

[1] *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: City of San Juan Capistrano

Reporting Date for Employer under GASB 68 **Measurement Date for Employer under GASB 68** **Components of Pension Expense**	**June 30, 2018** **December 31, 2017**	**June 30, 2017** **December 31, 2016**
1. Service cost	$2,060,755	$1,835,153
2. Interest on the Total Pension Liability	6,332,364	5,660,555
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	278,735	(295,453)
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(26,743)	(278,903)
6. Expensed portion of current-period changes of assumptions or other inputs	681,296	0
7. Member contributions[1]	(1,481,934)	(1,412,245)
8. Projected earnings on plan investments	(4,392,649)	(3,779,936)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(951,631)	(191,032)
10. Administrative expense	78,471	74,105
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	1,096,529	1,029,009
13. Recognition of beginning of year deferred inflows of resources as pension expense	(1,318,916)	(767,766)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	(355,326)	(59,873)
Pension Expense	$2,000,951	$1,813,614

(1) *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: O.C. Sanitation District

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Components of Pension Expense		
1. Service cost	$14,599,044	$14,366,332
2. Interest on the Total Pension Liability	44,099,066	42,188,934
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(912,523)	(809,609)
6. Expensed portion of current-period changes of assumptions or other inputs	4,090,055	0
7. Member contributions[1]	(7,496,000)	(7,328,000)
8. Projected earnings on plan investments	(44,715,731)	(39,478,918)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(9,558,791)	(2,005,313)
10. Administrative expense	301,020	1,139,179
11. Other[2]	0	(461,153)
12. Recognition of beginning of year deferred outflows of resources as pension expense	8,696,006	8,696,006
13. Recognition of beginning of year deferred inflows of resources as pension expense	(8,153,172)	(5,338,250)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	372,508	372,508
Pension Expense	$1,321,482	$11,341,716

[1] *Member contributions include employer paid member contributions, if any.*

[2] *There was an adjustment of $(461,153) (which decreased the pension expense) to true up the TPL and Plan's Fiduciary Net Position for O.C. Sanitation District to account for the separation of O.C. Law Library from O.C. Sanitation District in Rate Group #3 into their own Rate Group (Rate Group #12) after the valuation as of December 31, 2015.*

EXHIBIT 8 (continued)

Pension Expense: O.C. Transportation Authority

Reporting Date for Employer under GASB 68 Measurement Date for Employer under GASB 68 Components of Pension Expense	June 30, 2018 December 31, 2017	June 30, 2017 December 31, 2016
1. Service cost	$20,177,368	$19,401,018
2. Interest on the Total Pension Liability	61,058,113	59,200,130
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(2,891,372)	(2,389,215)
6. Expensed portion of current-period changes of assumptions or other inputs	7,282,694	0
7. Member contributions[1]	(8,926,000)	(9,069,000)
8. Projected earnings on plan investments	(45,299,139)	(41,830,640)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(9,816,088)	(2,173,058)
10. Administrative expense	652,940	660,214
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	11,640,577	11,640,577
13. Recognition of beginning of year deferred inflows of resources as pension expense	(10,095,756)	(5,533,483)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
Pension Expense	$23,783,337	$29,906,543

[1] *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: U.C.I.

Reporting Date for Employer under GASB 68 Measurement Date for Employer under GASB 68 Components of Pension Expense	June 30, 2018 December 31, 2017	June 30, 2017 December 31, 2016
1. Service cost	$0	$32,564
2. Interest on the Total Pension Liability	7,693,145	8,229,536
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(791,340)	36,729
6. Expensed portion of current-period changes of assumptions or other inputs	473,486	0
7. Member contributions[1]	0	(2,000)
8. Projected earnings on plan investments	(5,525,591)	(5,609,543)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(1,167,612)	(330,201)
10. Administrative expense	60,070	26,915
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	1,514,390	1,477,661
13. Recognition of beginning of year deferred inflows of resources as pension expense	(1,725,616)	(1,395,415)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
Pension Expense	$530,932	$2,466,246

[1] *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: O.C. Children and Families Comm.

Reporting Date for Employer under GASB 68 Measurement Date for Employer under GASB 68 Components of Pension Expense	June 30, 2018 December 31, 2017	June 30, 2017 December 31, 2016
1. Service cost	$75,858	$231,015
2. Interest on the Total Pension Liability	233,102	712,570
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	(74,128)	(100,828)
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(984)	(35,109)
6. Expensed portion of current-period changes of assumptions or other inputs	25,079	0
7. Member contributions(1)	(54,552)	(177,778)
8. Projected earnings on plan investments	(161,699)	(475,831)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(35,031)	(24,048)
10. Administrative expense	2,889	9,329
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	40,365	129,535
13. Recognition of beginning of year deferred inflows of resources as pension expense	(48,551)	(96,649)
14. Net amortization of deferred amounts from changes in proportion and differences between employer’s contributions and proportionate share of contributions	(215,071)	(114,243)
Pension Expense	$(212,723)	$57,963

(1) *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: Local Agency Formation Comm.

Reporting Date for Employer under GASB 68 Measurement Date for Employer under GASB 68 Components of Pension Expense	June 30, 2018 December 31, 2017	June 30, 2017 December 31, 2016
1. Service cost	$99,978	$98,081
2. Interest on the Total Pension Liability	307,216	302,530
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	(8,500)	51,545
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(1,297)	(14,906)
6. Expensed portion of current-period changes of assumptions or other inputs	33,053	0
7. Member contributions[1]	(71,896)	(75,478)
8. Projected earnings on plan investments	(213,110)	(202,020)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(46,169)	(10,210)
10. Administrative expense	3,807	3,961
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	53,198	54,996
13. Recognition of beginning of year deferred inflows of resources as pension expense	(63,988)	(41,033)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	37,415	(14,130)
Pension Expense	$129,707	$153,336

[1] *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: Rancho Santa Margarita

Reporting Date for Employer under GASB 68 Measurement Date for Employer under GASB 68 Components of Pension Expense	June 30, 2018 December 31, 2017	June 30, 2017 December 31, 2016
1. Service cost	$0	$0
2. Interest on the Total Pension Liability	3,263	3,734
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(1,287)	(635)
6. Expensed portion of current-period changes of assumptions or other inputs	159	0
7. Member contributions[(1)]	0	0
8. Projected earnings on plan investments	(3,147)	(3,524)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(998)	1,246
10. Administrative expense	0	0
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	3,869	2,623
13. Recognition of beginning of year deferred inflows of resources as pension expense	(1,077)	(442)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
Pension Expense	$782	$3,002

[(1)] *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: O.C. Superior Court

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Components of Pension Expense		
1. Service cost	$26,220,982	$25,540,564
2. Interest on the Total Pension Liability	80,572,779	78,780,220
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	(1,564,112)	(1,984,092)
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(340,280)	(3,881,603)
6. Expensed portion of current-period changes of assumptions or other inputs	8,668,789	0
7. Member contributions[1]	(18,856,078)	(19,654,778)
8. Projected earnings on plan investments	(55,891,915)	(52,606,887)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(12,108,524)	(2,658,671)
10. Administrative expense	998,464	1,031,349
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	13,952,203	14,321,126
13. Recognition of beginning of year deferred inflows of resources as pension expense	(16,781,835)	(10,685,305)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	(3,490,860)	(1,506,768)
Pension Expense	$21,379,613	$26,695,155

[1] *Member contributions include employer paid member contributions, if any.*

EXHIBIT 8 (continued)

Pension Expense: O.C. IHSS Public Authority

Reporting Date for Employer under GASB 68 **Measurement Date for Employer under GASB 68** **Components of Pension Expense**	**June 30, 2018** **December 31, 2017**	**June 30, 2017** **December 31, 2016**
1. Service cost	$214,851	$178,680
2. Interest on the Total Pension Liability	316,398	278,918
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	10,803	8,099
4. Expensed portion of current-period benefit changes	0	0
5. Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(33,558)	(14,541)
6. Expensed portion of current-period changes of assumptions or other inputs	55,314	0
7. Member contributions[1]	(104,838)	(93,222)
8. Projected earnings on plan investments	(264,783)	(212,991)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	(46,559)	(10,553)
10. Administrative expense	6,525	5,883
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	79,211	72,348
13. Recognition of beginning of year deferred inflows of resources as pension expense	(75,702)	(44,049)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	29,667	21,568
Pension Expense	$187,329	$190,140

[1] *Member contributions include employer paid member contributions, if any.*

EXHIBIT 9

Deferred Outflows of Resources and Deferred Inflows of Resources: Total for all Employers

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$24,632,387	$21,323,498
2. Changes of assumptions or other inputs	751,249,228	89,986,612
3. Difference between projected and actual earnings on pension plan investments	399,097,683	627,991,311
4. Difference between expected and actual experience in the Total Pension Liability	19,285,230	3,792,676
5. Total Deferred Outflows of Resources	$1,194,264,528	$743,094,097
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$24,632,387	$21,323,498
7. Changes of assumptions or other inputs	106,745,521	155,711,355
8. Difference between projected and actual earnings on pension plan investments	936,796,353	172,554,667
9. Difference between expected and actual experience in the Total Pension Liability	508,967,680	579,008,315
10. Total Deferred Inflows of Resources	$1,577,141,941	$928,597,835

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$23,391,134
2019	$(52,044,426)	23,391,133
2020	(110,053,434)	(34,617,875)
2021	(219,865,402)	(144,429,843)
2022	(128,673,848)	(53,238,287)
2023	126,494,755	0
2024	1,264,942	0
Thereafter	0	0

[1] *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: Orange County

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$19,581,719	$16,466,285
2. Changes of assumptions or other inputs	578,664,495	71,482,998
3. Difference between projected and actual earnings on pension plan investments	289,836,042	455,782,748
4. Difference between expected and actual experience in the Total Pension Liability	12,560,694	0
5. Total Deferred Outflows of Resources	$900,642,950	$543,732,031
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$149,391	$124,932
7. Changes of assumptions or other inputs	80,224,845	116,628,948
8. Difference between projected and actual earnings on pension plan investments	672,815,006	124,035,010
9. Difference between expected and actual experience in the Total Pension Liability	358,243,068	441,331,575
10. Total Deferred Inflows of Resources	$1,111,432,310	$682,120,465

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$16,748,100
2019	$(23,522,660)	16,748,104
2020	(67,689,625)	(27,320,778)
2021	(146,661,529)	(106,192,104)
2022	(78,664,919)	(38,371,756)
2023	104,702,347	0
2024	1,047,026	0
Thereafter	0	0

[1] *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: O.C. Cemetery District

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[(1)]	$0	$0
2. Changes of assumptions or other inputs	406,838	0
3. Difference between projected and actual earnings on pension plan investments	262,218	407,188
4. Difference between expected and actual experience in the Total Pension Liability	19,195	25,468
5. Total Deferred Outflows of Resources	$688,251	$432,656
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[(1)]	$0	$0
7. Changes of assumptions or other inputs	71,399	104,151
8. Difference between projected and actual earnings on pension plan investments	609,417	104,895
9. Difference between expected and actual experience in the Total Pension Liability	397,300	297,296
10. Total Deferred Inflows of Resources	$1,078,116	$506,342

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$17,219
2019	$(69,205)	17,217
2020	(96,923)	(10,501)
2021	(153,101)	(66,679)
2022	(117,366)	(30,942)
2023	46,264	0
2024	466	0
Thereafter	0	0

(1) *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: O.C. Law Library

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$111,626	$162,832
2. Changes of assumptions or other inputs	357,488	0
3. Difference between projected and actual earnings on pension plan investments	1,309,037	2,020,458
4. Difference between expected and actual experience in the Total Pension Liability	0	0
5. Total Deferred Outflows of Resources	$1,778,151	$2,183,290
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$1,296,565	$1,720,279
7. Changes of assumptions or other inputs	369,550	539,068
8. Difference between projected and actual earnings on pension plan investments	588,902	63,430
9. Difference between expected and actual experience in the Total Pension Liability	789,153	1,027,751
10. Total Deferred Inflows of Resources	$3,044,170	$3,350,528

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$(141,236)
2019	$(216,425)	(141,235)
2020	(330,232)	(255,042)
2021	(650,724)	(575,534)
2022	(129,379)	(54,191)
2023	60,143	0
2024	598	0
Thereafter	0	0

(1) *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: O.C. Vector Control District

	June 30, 2018	June 30, 2017
Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
2. Changes of assumptions or other inputs	724,719	0
3. Difference between projected and actual earnings on pension plan investments	882,069	1,401,060
4. Difference between expected and actual experience in the Total Pension Liability	286,098	12,918
5. Total Deferred Outflows of Resources	$1,892,886	$1,413,978
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
7. Changes of assumptions or other inputs	0	0
8. Difference between projected and actual earnings on pension plan investments	1,732,987	343,635
9. Difference between expected and actual experience in the Total Pension Liability	1,258,406	1,669,650
10. Total Deferred Inflows of Resources	$2,991,393	$2,013,285

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$24,453
2019	$(144,660)	24,452
2020	(300,571)	(131,459)
2021	(663,649)	(494,537)
2022	(191,329)	(22,216)
2023	199,703	0
2024	1,999	0
Thereafter	0	0

[1] *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: O.C. Retirement System

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$1,233,255	$1,631,373
2. Changes of assumptions or other inputs	2,798,016	0
3. Difference between projected and actual earnings on pension plan investments	1,565,430	2,460,971
4. Difference between expected and actual experience in the Total Pension Liability	0	0
5. Total Deferred Outflows of Resources	$5,596,701	$4,092,344
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$443,441	$555,990
7. Changes of assumptions or other inputs	632,877	921,940
8. Difference between projected and actual earnings on pension plan investments	3,620,981	666,587
9. Difference between expected and actual experience in the Total Pension Liability	2,024,402	2,535,127
10. Total Deferred Inflows of Resources	$6,721,701	$4,679,644

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$145,005
2019	$(90,487)	145,005
2020	(322,796)	(86,990)
2021	(699,315)	(463,194)
2022	(562,695)	(327,126)
2023	544,845	0
2024	5,448	0
Thereafter	0	0

[1] *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: O.C. Fire Authority

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
2. Changes of assumptions or other inputs	59,656,589	18,503,614
3. Difference between projected and actual earnings on pension plan investments	39,155,278	61,514,711
4. Difference between expected and actual experience in the Total Pension Liability	942,161	1,181,288
5. Total Deferred Outflows of Resources	$99,754,028	$81,199,613
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
7. Changes of assumptions or other inputs	1,586,390	2,314,092
8. Difference between projected and actual earnings on pension plan investments	93,798,878	15,837,586
9. Difference between expected and actual experience in the Total Pension Liability	60,331,638	52,828,035
10. Total Deferred Inflows of Resources	$155,716,906	$70,979,713

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$11,179,230
2019	$(3,928,262)	11,179,227
2020	(9,491,844)	5,615,645
2021	(27,705,314)	(12,597,825)
2022	(20,263,866)	(5,156,377)
2023	5,372,683	0
2024	53,725	0
Thereafter	0	0

(1) *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: Cypress Parks and Recreation

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
2. Changes of assumptions or other inputs	117,072	0
3. Difference between projected and actual earnings on pension plan investments	0	0
4. Difference between expected and actual experience in the Total Pension Liability	3,559,994	0
5. Total Deferred Outflows of Resources	$3,677,066	$0
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
7. Changes of assumptions or other inputs	0	0
8. Difference between projected and actual earnings on pension plan investments	3,201,831	0
9. Difference between expected and actual experience in the Total Pension Liability	0	0
10. Total Deferred Inflows of Resources	$3,201,831	$0

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$0
2019	$(66,512)	0
2020	(66,512)	0
2021	(66,512)	0
2022	(66,511)	0
2023	733,946	0
2024	7,336	0
Thereafter	0	0

[1] *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: Department of Education

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions(1)	$0	$0
2. Changes of assumptions or other inputs	295,919	0
3. Difference between projected and actual earnings on pension plan investments	304,850	457,274
4. Difference between expected and actual experience in the Total Pension Liability	372,992	544,088
5. Total Deferred Outflows of Resources	$973,761	$1,001,362
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions(1)	$0	$0
7. Changes of assumptions or other inputs	122,153	178,187
8. Difference between projected and actual earnings on pension plan investments	685,764	171,705
9. Difference between expected and actual experience in the Total Pension Liability	1,201,641	228,305
10. Total Deferred Inflows of Resources	$2,009,558	$578,197

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$164,918
2019	$(121,629)	164,918
2020	(114,333)	172,214
2021	(361,107)	(74,560)
2022	(290,872)	(4,325)
2023	(146,389)	0
2024	(1,467)	0
Thereafter	0	0

(1) *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: Transportation Corridor Agency

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
2. Changes of assumptions or other inputs	1,465,362	0
3. Difference between projected and actual earnings on pension plan investments	832,113	1,304,793
4. Difference between expected and actual experience in the Total Pension Liability	156,559	198,368
5. Total Deferred Outflows of Resources	$2,454,034	$1,503,161
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
7. Changes of assumptions or other inputs	340,496	496,686
8. Difference between projected and actual earnings on pension plan investments	2,148,715	370,433
9. Difference between expected and actual experience in the Total Pension Liability	1,592,621	389,345
10. Total Deferred Inflows of Resources	$4,081,832	$1,256,464

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$143,256
2019	$(296,591)	143,257
2020	(409,840)	30,008
2021	(540,804)	(100,956)
2022	(408,718)	31,132
2023	27,874	0
2024	281	0
Thereafter	0	0

(1) *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: City of San Juan Capistrano

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$1,980,885	$852,511
2. Changes of assumptions or other inputs	3,413,294	0
3. Difference between projected and actual earnings on pension plan investments	1,909,665	2,821,082
4. Difference between expected and actual experience in the Total Pension Liability	0	0
5. Total Deferred Outflows of Resources	$7,303,844	$3,673,593
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$2,167,638	$2,791,050
7. Changes of assumptions or other inputs	772,045	1,056,846
8. Difference between projected and actual earnings on pension plan investments	4,417,227	764,129
9. Difference between expected and actual experience in the Total Pension Liability	2,469,564	2,906,090
10. Total Deferred Inflows of Resources	$9,826,474	$7,518,115

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$(564,018)
2019	$(596,055)	(564,018)
2020	(879,449)	(829,961)
2021	(1,384,189)	(1,317,158)
2022	(605,555)	(569,367)
2023	933,288	0
2024	9,330	0
Thereafter	0	0

[1] *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: O.C. Sanitation District

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$1,296,565	$1,720,279
2. Changes of assumptions or other inputs	20,491,177	0
3. Difference between projected and actual earnings on pension plan investments	16,000,909	24,696,915
4. Difference between expected and actual experience in the Total Pension Liability	0	0
5. Total Deferred Outflows of Resources	$37,788,651	$26,417,194
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$111,626	$162,832
7. Changes of assumptions or other inputs	4,517,168	6,589,263
8. Difference between projected and actual earnings on pension plan investments	44,251,106	8,021,253
9. Difference between expected and actual experience in the Total Pension Liability	15,393,406	14,897,427
10. Total Deferred Inflows of Resources	$64,273,306	$29,670,775

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$915,342
2019	$(5,465,917)	915,342
2020	(6,857,020)	(475,761)
2021	(10,219,274)	(3,838,015)
2022	(7,151,750)	(770,489)
2023	3,177,532	0
2024	31,774	0
Thereafter	0	0

[1] *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: O.C. Transportation Authority

Reporting Date for Employer under GASB 68		**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68		**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources			
1.	Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
2.	Changes of assumptions or other inputs	36,486,297	0
3.	Difference between projected and actual earnings on pension plan investments	19,886,895	31,318,900
4.	Difference between expected and actual experience in the Total Pension Liability	638,231	846,803
5.	Total Deferred Outflows of Resources	$57,011,423	$32,165,703
Deferred Inflows of Resources			
6.	Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
7.	Changes of assumptions or other inputs	7,211,596	10,519,667
8.	Difference between projected and actual earnings on pension plan investments	45,783,529	8,692,234
9.	Difference between expected and actual experience in the Total Pension Liability	28,750,678	18,879,529
10.	Total Deferred Inflows of Resources	$81,745,803	$38,091,430

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$1,544,821
2019	$(3,879,944)	1,544,822
2020	(6,857,061)	(1,432,295)
2021	(10,774,496)	(5,349,730)
2022	(7,658,112)	(2,233,345)
2023	4,391,322	0
2024	43,911	0
Thereafter	0	0

(1) *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: U.C.I.

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
2. Changes of assumptions or other inputs	2,372,163	0
3. Difference between projected and actual earnings on pension plan investments	2,560,794	3,841,190
4. Difference between expected and actual experience in the Total Pension Liability	748,341	982,335
5. Total Deferred Outflows of Resources	$5,681,298	$4,823,525
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
7. Changes of assumptions or other inputs	964,138	1,406,403
8. Difference between projected and actual earnings on pension plan investments	6,335,570	2,669,842
9. Difference between expected and actual experience in the Total Pension Liability	4,572,031	886,050
10. Total Deferred Inflows of Resources	$11,871,739	$4,962,295

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$(211,226)
2019	$(1,696,693)	(211,227)
2020	(1,022,172)	463,294
2021	(1,711,436)	(225,970)
2022	(1,439,106)	46,359
2023	(317,854)	0
2024	(3,180)	0
Thereafter	0	0

[1] *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: O.C. Children and Families Comm.

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
2. Changes of assumptions or other inputs	125,648	0
3. Difference between projected and actual earnings on pension plan investments	70,297	355,127
4. Difference between expected and actual experience in the Total Pension Liability	0	0
5. Total Deferred Outflows of Resources	$195,945	$355,127
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$1,070,900	$914,592
7. Changes of assumptions or other inputs	28,420	133,039
8. Difference between projected and actual earnings on pension plan investments	162,604	96,191
9. Difference between expected and actual experience in the Total Pension Liability	90,908	365,828
10. Total Deferred Inflows of Resources	$1,352,832	$1,509,650

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$(241,342)
2019	$(308,321)	(241,342)
2020	(318,753)	(274,820)
2021	(285,145)	(264,380)
2022	(194,136)	(132,639)
2023	(50,033)	0
2024	(499)	0
Thereafter	0	0

[1] *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: Local Agency Formation Comm.

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$278,946	$365,286
2. Changes of assumptions or other inputs	165,597	0
3. Difference between projected and actual earnings on pension plan investments	92,648	150,773
4. Difference between expected and actual experience in the Total Pension Liability	0	0
5. Total Deferred Outflows of Resources	$537,191	$516,059
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$192,297	$198,634
7. Changes of assumptions or other inputs	37,456	56,483
8. Difference between projected and actual earnings on pension plan investments	214,303	40,839
9. Difference between expected and actual experience in the Total Pension Liability	119,812	155,317
10. Total Deferred Inflows of Resources	$563,868	$451,273

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$26,261
2019	$3,713	26,261
2020	(10,036)	12,048
2021	(52,387)	(30,770)
2022	8,548	30,986
2023	23,256	0
2024	229	0
Thereafter	0	0

(1) *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: Rancho Santa Margarita

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
2. Changes of assumptions or other inputs	798	0
3. Difference between projected and actual earnings on pension plan investments	7,228	10,654
4. Difference between expected and actual experience in the Total Pension Liability	965	1,408
5. Total Deferred Outflows of Resources	$8,991	$12,062
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
7. Changes of assumptions or other inputs	377	551
8. Difference between projected and actual earnings on pension plan investments	3,993	0
9. Difference between expected and actual experience in the Total Pension Liability	9,768	4,224
10. Total Deferred Inflows of Resources	$14,138	$4,775

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$2,792
2019	$666	2,792
2020	(206)	1,920
2021	(1,731)	395
2022	(2,739)	(612)
2023	(1,128)	0
2024	(9)	0
Thereafter	0	0

(1) *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: O.C. Superior Court

	June 30, 2018	June 30, 2017
Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
2. Changes of assumptions or other inputs	43,430,635	0
3. Difference between projected and actual earnings on pension plan investments	24,298,513	39,262,139
4. Difference between expected and actual experience in the Total Pension Liability	0	0
5. Total Deferred Outflows of Resources	$67,729,148	$39,262,139
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$19,200,529	$14,855,189
7. Changes of assumptions or other inputs	9,823,473	14,708,557
8. Difference between projected and actual earnings on pension plan investments	56,204,643	10,634,686
9. Difference between expected and actual experience in the Total Pension Liability	31,422,648	40,445,221
10. Total Deferred Inflows of Resources	$116,651,293	$80,643,653

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$(6,395,313)
2019	$(11,664,619)	(6,395,314)
2020	(15,270,511)	(10,096,552)
2021	(17,904,480)	(12,826,378)
2022	(10,914,578)	(5,667,957)
2023	6,764,398	0
2024	67,645	0
Thereafter	0	0

(1) *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: O.C. IHSS Public Authority

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$149,391	$124,932
2. Changes of assumptions or other inputs	277,121	0
3. Difference between projected and actual earnings on pension plan investments	123,697	185,328
4. Difference between expected and actual experience in the Total Pension Liability	0	0
5. Total Deferred Outflows of Resources	$550,209	$310,260
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions[1]	$0	$0
7. Changes of assumptions or other inputs	43,138	57,474
8. Difference between projected and actual earnings on pension plan investments	220,897	42,212
9. Difference between expected and actual experience in the Total Pension Liability	300,636	161,545
10. Total Deferred Inflows of Resources	$564,671	$261,231

Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:

Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	$32,872
2019	$19,175	32,872
2020	(15,550)	1,155
2021	(30,209)	(12,448)
2022	(20,765)	(5,422)
2023	32,558	0
2024	329	0
Thereafter	0	0

[1] *Calculated in accordance with Paragraphs 54 and 55 of GASB 68.*

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources

There are changes in each employer's proportionate share of the total NPL during the measurement period ended December 31, 2017. The net effect of the change on the employer's proportionate share of the collective NPL and collective deferred outflows of resources and deferred inflows of resources for the current periord (i.e., 2017) is recognized over the average of the expected remaining service lives of all employees that are provided with pensions through OCERS which is 6.01 years determined as of December 31, 2016 (the beginning of the measurement period ended December 31, 2017). This is described in Paragraph 33a. of GASB 68.

In addition, the difference between the actual employer contributions and the proportionate share of the employer contributions during the measurement period ended December 31, 2017 is recognized over the same period.

The net effects of the change on the employer's proportionate share of the collective NPL and collective deferred outflows of resources and deferred inflows of resources for prior periods are continued to be recognized based on the expected remaining service lives of all employees calculated as of those prior measurement dates.

The average of the expected service lives of all employees is determined by:

- Calculating each active employees' expected remaining service life as the present value of $1 per year of future service at zero percent interest.
- Setting the remaining service life to zero for each nonactive or retired member.
- Dividing the sum of the above amounts by the total number of active employee, nonactive and retired members.

EXHIBIT 10

Schedule of Proportionate Share of the Net Pension Liability: Total for all Employers

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	100.000%	$5,291,126,088	$1,494,745,333	353.98%	67.16%
2015	100.000%	5,082,480,673	1,513,206,357	335.87%	69.42%
2016	100.000%	5,716,604,741	1,521,035,820	375.84%	67.10%
2017	100.000%	5,191,216,603	1,602,675,426	323.91%	71.16%
2018	100.000%	4,952,099,401	1,678,322,080	295.06%	74.93%

(1) *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: Orange County

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	74.198%	$3,925,918,613	$1,086,993,804	361.17%	66.88%
2015	76.680%	3,897,232,634	1,107,550,873	351.88%	68.16%
2016	76.813%	4,391,070,880	1,117,547,827	392.92%	65.66%
2017	77.898%	4,043,855,643	1,199,272,843	337.19%	69.56%
2018	80.445%	3,983,695,231	1,246,487,036	319.59%	72.85%

[1] *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: O.C. Cemetery District

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	0.034%	$1,820,018	$1,183,960	153.72%	76.02%
2015	(0.002%)	(95,350)	1,202,916	(7.93%)	101.24%
2016	0.009%	533,906	1,247,006	42.82%	93.62%
2017	0.004%	222,409	1,288,388	17.26%	97.47%
2018	(0.004%)	(173,677)	1,419,045	(12.24%)	101.78%

[1] *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: O.C. Law Library

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	0.063%	$3,314,766	$1,191,662	278.16%	63.14%
2015	0.063%	3,221,570	1,193,852	269.85%	66.76%
2016	0.061%	3,472,003	1,153,022	301.12%	62.38%
2017	0.034%	1,770,282	1,106,587	159.98%	80.96%
2018	(0.001%)	(36,317)	1,095,599	(3.31%)	100.35%

[1] *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: O.C. Vector Control District

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	0.047%	$2,464,723	$0	N/A	91.24%
2015	0.057%	2,900,367	0	N/A	89.85%
2016	0.034%	1,941,891	0	N/A	92.66%
2017	0.032%	1,669,793	0	N/A	93.78%
2018	0.024%	1,166,920	0	N/A	95.89%

(1) *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: O.C. Retirement System

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[(1)]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	0.402%	$21,259,813	$5,368,550	396.01%	64.40%
2015	0.406%	20,656,114	5,655,725	365.22%	67.15%
2016	0.433%	24,747,342	6,063,327	408.15%	64.73%
2017	0.422%	21,886,393	6,190,905	353.52%	68.69%
2018	0.433%	21,427,080	6,486,488	330.33%	71.95%

(1) *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: O.C. Fire Authority

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	8.366%	$442,651,348	$129,689,221	341.32%	69.66%
2015	9.188%	466,968,323	129,187,729	361.46%	70.35%
2016	9.056%	517,669,806	129,452,647	399.89%	68.90%
2017	9.043%	469,430,660	124,514,004	377.01%	73.11%
2018	7.485%	370,674,668	148,890,685	248.96%	80.44%

[1] *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: Cypress Parks and Recreation

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	0.000%	$0	$0	N/A	N/A
2015	0.000%	0	0	N/A	N/A
2016	0.000%	0	0	N/A	N/A
2017	0.000%	0	0	N/A	N/A
2018	0.015%	718,340	0	N/A	83.78%

[1] *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: Department of Education

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	0.051%	$2,691,224	$62,538	4303.34%	81.08%
2015	0.072%	3,637,615	0	N/A	75.31%
2016	0.075%	4,306,689	0	N/A	69.50%
2017	0.085%	4,415,517	0	N/A	68.18%
2018	0.051%	2,530,324	0	N/A	80.00%

[1] *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: Transportation Corridor Agency

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	0.215%	$11,359,334	$6,054,822	187.61%	66.44%
2015	0.210%	10,682,807	6,118,067	174.61%	69.62%
2016	0.222%	12,713,136	6,088,331	208.81%	66.45%
2017	0.239%	12,423,364	6,431,272	193.17%	69.93%
2018	0.207%	10,242,769	6,775,031	151.18%	76.84%

(1) *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: City of San Juan Capistrano

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	0.535%	$28,312,625	$6,324,207	447.69%	64.40%
2015	0.548%	27,866,378	6,863,345	406.02%	67.15%
2016	0.512%	29,249,120	6,464,876	452.43%	64.73%
2017	0.483%	25,089,009	6,636,488	378.05%	68.69%
2018	0.528%	26,138,852	7,227,226	361.67%	71.95%

[1] *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: O.C. Sanitation District

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	3.832%	$202,747,516	$58,954,754	343.90%	63.14%
2015	1.130%	57,418,760	58,641,163	97.92%	89.61%
2016	0.742%	42,439,759	59,789,927	70.98%	92.74%
2017	(0.200%)	(10,384,510)	60,000,017	(17.31%)	101.70%
2018	(0.799%)	(39,571,102)	62,341,796	(63.47%)	105.96%

[1] *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: O.C. Transportation Authority

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	4.112%	$217,568,793	$92,199,745	235.98%	71.77%
2015	4.006%	203,591,950	95,061,437	214.17%	74.00%
2016	4.377%	250,192,983	93,109,984	268.71%	69.82%
2017	4.436%	230,260,478	94,507,309	243.64%	73.17%
2018	4.283%	212,117,162	94,528,116	224.40%	77.15%

[1] *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: U.C.I.

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	0.609%	$32,214,491	$643,375	5007.11%	74.44%
2015	0.523%	26,578,391	574,780	4624.10%	77.81%
2016	0.633%	36,184,065	285,025	12695.05%	69.50%
2017	0.696%	36,113,699	43,707	82626.81%	68.96%
2018	0.558%	27,644,960	14,874	185860.97%	75.13%

[1] *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: O.C. Children and Families Comm.

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	0.087%	$4,590,845	$1,116,074	411.34%	64.40%
2015	0.078%	3,957,425	1,043,030	379.42%	67.15%
2016	0.071%	4,066,523	1,042,786	389.97%	64.73%
2017	0.061%	3,158,290	925,031	341.43%	68.69%
2018	0.019%	962,204	849,266	113.30%	90.09%

(1) *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: Local Agency Formation Comm.

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	0.022%	$1,187,537	$273,719	433.85%	64.40%
2015	0.026%	1,303,484	334,804	389.33%	67.15%
2016	0.020%	1,156,534	287,698	402.00%	64.73%
2017	0.026%	1,340,888	374,792	357.77%	68.69%
2018	0.026%	1,268,133	394,760	321.24%	71.95%

[1] *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: Rancho Santa Margarita

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	(0.000%)	$(4,181)	$0	N/A	108.66%
2015	0.000%	1,729	0	N/A	96.78%
2016	0.000%	6,660	0	N/A	88.06%
2017	0.000%	9,332	0	N/A	82.95%
2018	(0.000%)	(2,320)	0	N/A	104.91%

[1] *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: O.C. Superior Court

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[(1)]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	7.415%	$392,321,750	$103,987,082	377.28%	64.40%
2015	7.002%	355,886,410	99,034,265	359.36%	67.15%
2016	6.926%	395,957,480	97,656,241	405.46%	64.73%
2017	6.726%	349,173,850	100,413,439	347.74%	68.69%
2018	6.716%	332,589,831	100,683,255	330.33%	71.95%

(1) *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: O.C. IHSS Public Authority

Reporting Date for Employer under GASB 68 as of June 30	Proportion of the Net Pension Liability	Proportionate share of Net Pension Liability	Covered payroll[1]	Proportionate share of the Net Pension Liability as a percentage of its covered payroll	Plan's Fiduciary Net Position as a percentage of the Total Pension Liability
2014	0.013%	$706,873	$701,820	100.72%	73.15%
2015	0.013%	672,066	744,371	90.29%	75.26%
2016	0.016%	895,964	847,123	105.77%	73.52%
2017	0.015%	781,506	970,644	80.51%	79.30%
2018	0.014%	706,343	1,128,903	62.57%	84.20%

[1] *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of retirement benefits are included.*

EXHIBIT 11

Schedule of Reconciliation of Net Pension Liability: Total for all Employers

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$5,191,216,603	$5,716,604,741
2. Pension Expense	529,375,473	600,371,307
3. Employer Contributions	(571,119,000)	(564,820,000)
4. New Net Deferred Inflows/Outflows	(173,982,541)	(440,279,450)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0	0
6. New Net Deferred Flows Due to Change in Proportion[(1)]	0	0
7. Recognition of Prior Deferred Inflows/Outflows	(23,391,134)	(120,659,995)
8. Recognition of Prior Deferred Flows Due to Change in Proportion[(1)]	0	0
9. Ending Net Pension Liability	$4,952,099,401	$5,191,216,603

[(1)] *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: Orange County

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$4,043,855,643	$4,391,070,880
2. Pension Expense	413,364,516	442,698,203
3. Employer Contributions	(401,124,000)	(385,953,000)
4. New Net Deferred Inflows/Outflows	(61,773,234)	(329,366,525)
5. Change in Allocation of Prior Deferred Inflows/Outflows	(717,319)	274,357
6. New Net Deferred Flows Due to Change in Proportion(1)	6,758,092	12,020,384
7. Recognition of Prior Deferred Inflows/Outflows	(13,001,350)	(85,654,817)
8. Recognition of Prior Deferred Flows Due to Change in Proportion(1)	(3,667,117)	(1,233,839)
9. Ending Net Pension Liability	$3,983,695,231	$4,043,855,643

(1) *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Cemetery District

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$222,409	$533,906
2. Pension Expense	82,093	185,759
3. Employer Contributions	(162,000)	(151,000)
4. New Net Deferred Inflows/Outflows	(298,960)	(269,493)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0	0
6. New Net Deferred Flows Due to Change in Proportion[1]	0	0
7. Recognition of Prior Deferred Inflows/Outflows	(17,219)	(76,763)
8. Recognition of Prior Deferred Flows Due to Change in Proportion[1]	0	0
9. Ending Net Pension Liability	$(173,677)	$222,409

[1] *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Law Library

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$1,770,282	$3,472,003
2. Pension Expense	80,182	199,086
3. Employer Contributions	(1,788,000)	(1,799,000)
4. New Net Deferred Inflows/Outflows	(240,017)	(199,617)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0	0
6. New Net Deferred Flows Due to Change in Proportion(1)	0	0
7. Recognition of Prior Deferred Inflows/Outflows	(231,272)	(274,698)
8. Recognition of Prior Deferred Flows Due to Change in Proportion(1)	372,508	372,508
9. Ending Net Pension Liability	$(36,317)	$1,770,282

(1) *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Vector Control District

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$1,669,793	$1,941,891
2. Pension Expense	(3,673)	166,366
3. Employer Contributions	0	0
4. New Net Deferred Inflows/Outflows	(474,747)	(330,717)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0	0
6. New Net Deferred Flows Due to Change in Proportion(1)	0	0
7. Recognition of Prior Deferred Inflows/Outflows	(24,453)	(107,747)
8. Recognition of Prior Deferred Flows Due to Change in Proportion(1)	0	0
9. Ending Net Pension Liability	$1,166,920	$1,669,793

(1) *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Retirement System

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$21,886,393	$24,747,342
2. Pension Expense	2,038,385	2,219,132
3. Employer Contributions	(1,960,000)	(1,975,000)
4. New Net Deferred Inflows/Outflows	(432,179)	(1,868,493)
5. Change in Allocation of Prior Deferred Inflows/Outflows	(2,249)	(13,096)
6. New Net Deferred Flows Due to Change in Proportion(1)	41,489	(555,990)
7. Recognition of Prior Deferred Inflows/Outflows	182,299	(227,895)
8. Recognition of Prior Deferred Flows Due to Change in Proportion(1)	(327,058)	(439,607)
9. Ending Net Pension Liability	$21,427,080	$21,886,393

(1) *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Fire Authority

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$469,430,660	$517,669,806
2. Pension Expense	63,001,786	79,967,025
3. Employer Contributions	(95,575,000)	(66,049,000)
4. New Net Deferred Inflows/Outflows	(55,003,548)	(41,769,225)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0	0
6. New Net Deferred Flows Due to Change in Proportion(1)	0	0
7. Recognition of Prior Deferred Inflows/Outflows	(11,179,230)	(20,387,946)
8. Recognition of Prior Deferred Flows Due to Change in Proportion(1)	0	0
9. Ending Net Pension Liability	$370,674,668	$469,430,660

(1) *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: Cypress Parks and Recreation

Reporting Date for Employer under GASB 68		**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68		**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability			
1.	Beginning Net Pension Liability	$0	$0
2.	Pension Expense	243,105	0
3.	Employer Contributions	0	0
4.	New Net Deferred Inflows/Outflows	475,235	0
5.	Change in Allocation of Prior Deferred Inflows/Outflows	0	0
6.	New Net Deferred Flows Due to Change in Proportion[(1)]	0	0
7.	Recognition of Prior Deferred Inflows/Outflows	0	0
8.	Recognition of Prior Deferred Flows Due to Change in Proportion[(1)]	0	0
9.	Ending Net Pension Liability	$718,340	$0

[(1)] *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: Department of Education

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$4,415,517	$4,306,689
2. Pension Expense	97,769	476,679
3. Employer Contributions	(524,000)	0
4. New Net Deferred Inflows/Outflows	(1,294,044)	(162,553)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0	0
6. New Net Deferred Flows Due to Change in Proportion(1)	0	0
7. Recognition of Prior Deferred Inflows/Outflows	(164,918)	(205,298)
8. Recognition of Prior Deferred Flows Due to Change in Proportion(1)	0	0
9. Ending Net Pension Liability	$2,530,324	$4,415,517

(1) *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: Transportation Corridor Agency

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$12,423,364	$12,713,136
2. Pension Expense	1,349,900	1,831,342
3. Employer Contributions	(1,656,000)	(1,708,000)
4. New Net Deferred Inflows/Outflows	(1,731,239)	(209,772)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0	0
6. New Net Deferred Flows Due to Change in Proportion(1)	0	0
7. Recognition of Prior Deferred Inflows/Outflows	(143,256)	(203,342)
8. Recognition of Prior Deferred Flows Due to Change in Proportion(1)	0	0
9. Ending Net Pension Liability	$10,242,769	$12,423,364

(1) *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: City of San Juan Capistrano

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$25,089,009	$29,249,120
2. Pension Expense	2,000,951	1,813,614
3. Employer Contributions	(2,273,000)	(2,140,000)
4. New Net Deferred Inflows/Outflows	(527,215)	(2,141,908)
5. Change in Allocation of Prior Deferred Inflows/Outflows	(125,066)	(30,909)
6. New Net Deferred Flows Due to Change in Proportion[1]	1,396,460	(1,459,538)
7. Recognition of Prior Deferred Inflows/Outflows	222,387	(261,243)
8. Recognition of Prior Deferred Flows Due to Change in Proportion[1]	355,326	59,873
9. Ending Net Pension Liability	$26,138,852	$25,089,009

[1] *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Sanitation District

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$(10,384,510)	$42,439,759
2. Pension Expense	1,321,482	11,341,716
3. Employer Contributions	(7,277,000)	(48,415,000)
4. New Net Deferred Inflows/Outflows	(22,315,732)	(12,020,721)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0	0
6. New Net Deferred Flows Due to Change in Proportion[1]	0	0
7. Recognition of Prior Deferred Inflows/Outflows	(542,834)	(3,357,756)
8. Recognition of Prior Deferred Flows Due to Change in Proportion[1]	(372,508)	(372,508)
9. Ending Net Pension Liability	$(39,571,102)	$(10,384,510)

[1] *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Transportation Authority

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$230,260,478	$250,192,983
2. Pension Expense	23,783,337	29,906,543
3. Employer Contributions	(23,118,000)	(23,237,000)
4. New Net Deferred Inflows/Outflows	(17,263,832)	(20,494,954)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0	0
6. New Net Deferred Flows Due to Change in Proportion(1)	0	0
7. Recognition of Prior Deferred Inflows/Outflows	(1,544,821)	(6,107,094)
8. Recognition of Prior Deferred Flows Due to Change in Proportion(1)	0	0
9. Ending Net Pension Liability	$212,117,162	$230,260,478

(1) *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: U.C.I.

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$36,113,699	$36,184,065
2. Pension Expense	530,932	2,466,246
3. Employer Contributions	(2,948,000)	(1,315,000)
4. New Net Deferred Inflows/Outflows	(6,262,897)	(1,139,366)
5. Change in Allocation of Prior Deferred Inflows/Outflows	0	0
6. New Net Deferred Flows Due to Change in Proportion(1)	0	0
7. Recognition of Prior Deferred Inflows/Outflows	211,226	(82,246)
8. Recognition of Prior Deferred Flows Due to Change in Proportion(1)	0	0
9. Ending Net Pension Liability	$27,644,960	$36,113,699

(1) *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Children and Families Comm.

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$3,158,290	$4,066,523
2. Pension Expense	(212,723)	57,963
3. Employer Contributions	(1,981,000)	(269,000)
4. New Net Deferred Inflows/Outflows	(19,407)	(269,631)
5. Change in Allocation of Prior Deferred Inflows/Outflows	165,166	(10,834)
6. New Net Deferred Flows Due to Change in Proportion[(1)]	(371,379)	(498,088)
7. Recognition of Prior Deferred Inflows/Outflows	8,186	(32,886)
8. Recognition of Prior Deferred Flows Due to Change in Proportion[(1)]	215,071	114,243
9. Ending Net Pension Liability	$962,204	$3,158,290

[(1)] *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: Local Agency Formation Comm.

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$1,340,888	$1,156,534
2. Pension Expense	129,707	153,336
3. Employer Contributions	(111,000)	(115,000)
4. New Net Deferred Inflows/Outflows	(25,578)	(114,475)
5. Change in Allocation of Prior Deferred Inflows/Outflows	3,329	5,691
6. New Net Deferred Flows Due to Change in Proportion[1]	(42,588)	254,635
7. Recognition of Prior Deferred Inflows/Outflows	10,790	(13,963)
8. Recognition of Prior Deferred Flows Due to Change in Proportion[1]	(37,415)	14,130
9. Ending Net Pension Liability	$1,268,133	$1,340,888

[1] *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: Rancho Santa Margarita

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$9,332	$6,660
2. Pension Expense	782	3,002
3. Employer Contributions	0	0
4. New Net Deferred Inflows/Outflows	(9,642)	1,851
5. Change in Allocation of Prior Deferred Inflows/Outflows	0	0
6. New Net Deferred Flows Due to Change in Proportion[1]	0	0
7. Recognition of Prior Deferred Inflows/Outflows	(2,792)	(2,181)
8. Recognition of Prior Deferred Flows Due to Change in Proportion[1]	0	0
9. Ending Net Pension Liability	$(2,320)	$9,332

[1] *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Superior Court

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$349,173,850	$395,957,480
2. Pension Expense	21,379,613	26,695,155
3. Employer Contributions	(30,423,000)	(31,509,000)
4. New Net Deferred Inflows/Outflows	(6,708,263)	(29,809,804)
5. Change in Allocation of Prior Deferred Inflows/Outflows	683,339	(229,513)
6. New Net Deferred Flows Due to Change in Proportion[1]	(7,836,200)	(9,801,415)
7. Recognition of Prior Deferred Inflows/Outflows	2,829,632	(3,635,821)
8. Recognition of Prior Deferred Flows Due to Change in Proportion[1]	3,490,860	1,506,768
9. Ending Net Pension Liability	$332,589,831	$349,173,850

[1] *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. IHSS Public Authority

Reporting Date for Employer under GASB 68	**June 30, 2018**	**June 30, 2017**
Measurement Date for Employer under GASB 68	**December 31, 2017**	**December 31, 2016**
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	$781,506	$895,964
2. Pension Expense	187,329	190,140
3. Employer Contributions	(199,000)	(185,000)
4. New Net Deferred Inflows/Outflows	(77,242)	(114,047)
5. Change in Allocation of Prior Deferred Inflows/Outflows	(7,200)	4,304
6. New Net Deferred Flows Due to Change in Proportion(1)	54,126	40,012
7. Recognition of Prior Deferred Inflows/Outflows	(3,509)	(28,299)
8. Recognition of Prior Deferred Flows Due to Change in Proportion(1)	(29,667)	(21,568)
9. Ending Net Pension Liability	$706,343	$781,506

(1) *Includes differences between employer contributions and proportionate share of contributions.*

EXHIBIT 12

Schedule of Recognition of Changes in Total Net Pension Liability

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience on Total Pension Liability

Reporting Date for Employer under GASB 68 Year Ended June 30	Differences between Expected and Actual Experience	Recognition Period (Years)	Reporting Date for Employer under GASB 68 Year Ended June 30: 2015	2016	2017	2018	2019	2020	2021	2022
2015	$(327,402,088)	6.18	$(52,977,684)	$(52,977,684)	$(52,977,684)	$(52,977,684)	$(52,977,684)	$(52,977,684)	$(9,535,984)	$0
2016	(205,462,673)	6.06	N/A	(33,904,732)	(33,904,732)	(33,904,732)	(33,904,732)	(33,904,732)	(33,904,732)	(2,034,281)
2017	(323,565,741)	5.94	N/A	N/A	(54,472,347)	(54,472,347)	(54,472,347)	(54,472,347)	(54,472,347)	(51,204,006)
2018	(66,963,603)	6.01	N/A	N/A	N/A	(11,142,029)	(11,142,029)	(11,142,029)	(11,142,029)	(11,142,029)
Net increase (decrease) in pension expense			$(52,977,684)	$(86,882,416)	$(141,354,763)	$(152,496,792)	$(152,496,792)	$(152,496,792)	$(109,055,092)	$(64,380,316)

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience on Total Pension Liability

Reporting Date for Employer under GASB 68 Year Ended June 30	Differences between Expected and Actual Experience	Recognition Period (Years)	Reporting Date for Employer under GASB 68 Year Ended June 30: 2023	2024	2025	2026	2027	2028	2029	2030
2015	$(327,402,088)	6.18	$0	$0	$0	$0	$0	$0	$0	$0
2016	(205,462,673)	6.06	0	0	0	0	0	0	0	0
2017	(323,565,741)	5.94	0	0	0	0	0	0	0	0
2018	(66,963,603)	6.01	(11,142,029)	(111,429)	0	0	0	0	0	0
Net increase (decrease) in pension expense			$(11,142,029)	$(111,429)	$0	$0	$0	$0	$0	$0

As described in Exhibit 9, for the current period, the average of the expected remaining service lives of all employees that are provided with pensions through OCERS (active and inactive employees) determined as of December 31, 2016 (the beginning of the measurement period ending December 31, 2017) is 6.01 years.

EXHIBIT 12 (continued)

Schedule of Recognition of Changes in Total Net Pension Liability

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Assumption Changes

Reporting Date for Employer under GASB 68 Year Ended June 30	Effects of Assumption Changes	Recognition Period (Years)	Reporting Date for Employer under GASB 68 Year Ended June 30: 2015	2016	2017	2018	2019	2020	2021	2022
2015	$(127,729,220)	6.18	$(20,668,159)	$(20,668,159)	$(20,668,159)	$(20,668,159)	$(20,668,159)	$(20,668,159)	$(3,720,266)	$0
2016	0	6.06	N/A	0	0	0	0	0	0	0
2017	0	5.94	N/A	N/A	0	0	0	0	0	0
2018	827,197,075	6.01	N/A	N/A	N/A	137,636,784	137,636,784	137,636,784	137,636,784	137,636,784
Net increase (decrease) in pension expense			$(20,668,159)	$(20,668,159)	$(20,668,159)	$116,968,625	$116,968,625	$116,968,625	$133,916,518	$137,636,784

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Assumption Changes

Reporting Date for Employer under GASB 68 Year Ended June 30	Effects of Assumption Changes	Recognition Period (Years)	Reporting Date for Employer under GASB 68 Year Ended June 30: 2023	2024	2025	2026	2027	2028	2029	2030
2015	$(127,729,220)	6.18	$0	$0	$0	$0	$0	$0	$0	$0
2016	0	6.06	0	0	0	0	0	0	0	0
2017	0	5.94	0	0	0	0	0	0	0	0
2018	827,197,075	6.01	137,636,784	1,376,371	0	0	0	0	0	0
Net increase (decrease) in pension expense			$137,636,784	$1,376,371	$0	$0	$0	$0	$0	$0

As described in Exhibit 9, for the current period, the average of the expected remaining service lives of all employees that are provided with pensions through OCERS (active and inactive employees) determined as of December 31, 2016 (the beginning of the measurement period ending December 31, 2017) is 6.01 years.

EXHIBIT 12 (continued)

Schedule of Recognition of Changes in Total Net Pension Liability

Increase (Decrease) in Pension Expense Arising from the Recognition of Differences between Projected and Actual Earnings on Pension Plan Investments

Reporting Date for Employer under GASB 68 Year Ended June 30	Differences between Projected and Actual Earnings	Recognition Period (Years)	Reporting Date for Employer under GASB 68 Year Ended June 30: 2015	2016	2017	2018	2019	2020	2021	2022
2015	$290,045,074	5.00	$58,009,015	$58,009,015	$58,009,015	$58,009,015	$58,009,014	$0	$0	$0
2016	851,007,781	5.00	N/A	170,201,555	170,201,555	170,201,555	170,201,555	170,201,561	0	0
2017	(213,982,570)	5.00	N/A	N/A	(42,796,514)	(42,796,514)	(42,796,514)	(42,796,514)	(42,796,514)	0
2018	(1,009,651,572)	5.00	N/A	N/A	N/A	(201,930,314)	(201,930,314)	(201,930,314)	(201,930,314)	(201,930,316)
Net increase (decrease) in pension expense			$58,009,015	$228,210,570	$185,414,056	$(16,516,258)	$(16,516,259)	$(74,525,267)	$(244,726,828)	$(201,930,316)

Increase (Decrease) in Pension Expense Arising from the Recognition of Differences between Projected and Actual Earnings on Pension Plan Investments

Reporting Date for Employer under GASB 68 Year Ended June 30	Differences between Projected and Actual Earnings	Recognition Period (Years)	Reporting Date for Employer under GASB 68 Year Ended June 30: 2023	2024	2025	2026	2027	2028	2029	2030
2015	$290,045,074	5.00	$0	$0	$0	$0	$0	$0	$0	$0
2016	851,007,781	5.00	0	0	0	0	0	0	0	0
2017	(213,982,570)	5.00	0	0	0	0	0	0	0	0
2018	(1,009,651,572)	5.00	0	0	0	0	0	0	0	0
Net increase (decrease) in pension expense			$0	$0	$0	$0	$0	$0	$0	$0

The differences between projected and actual earnings on pension plan investments are recognized over a five-year period per Paragraph 33b. of GASB 68.

EXHIBIT 12 (continued)

Schedule of Recognition of Changes in Total Net Pension Liability

Total Increase (Decrease) in Pension Expense

Reporting Date for Employer under GASB 68 Year Ended June 30	Total Differences	Reporting Date for Employer under GASB 68 Year Ended June 30: 2015	2016	2017	2018	2019	2020	2021	2022
2015	$(165,086,234)	$(15,636,828)	$(15,636,828)	$(15,636,828)	$(15,636,828)	$(15,636,829)	$(73,645,843)	$(13,256,250)	$0
2016	645,545,108	N/A	136,296,823	136,296,823	136,296,823	136,296,823	136,296,829	(33,904,732)	(2,034,281)
2017	(537,548,311)	N/A	N/A	(97,268,861)	(97,268,861)	(97,268,861)	(97,268,861)	(97,268,861)	(51,204,006)
2018	(249,418,100)	N/A	N/A	N/A	(75,435,559)	(75,435,559)	(75,435,559)	(75,435,559)	(75,435,561)
Net increase (decrease) in pension expense		$(15,636,828)	$120,659,995	$23,391,134	$(52,044,425)	$(52,044,426)	$(110,053,434)	$(219,865,402)	$(128,673,848)

Total Increase (Decrease) in Pension Expense

Reporting Date for Employer under GASB 68 Year Ended June 30	Total Differences	Reporting Date for Employer under GASB 68 Year Ended June 30: 2023	2024	2025	2026	2027	2028	2029	2030
2015	$(165,086,234)	$0	$0	$0	$0	$0	$0	$0	$0
2016	645,545,108	0	0	0	0	0	0	0	0
2017	(537,548,311)	0	0	0	0	0	0	0	0
2018	(249,418,100)	126,494,755	1,264,942	0	0	0	0	0	0
Net increase (decrease) in pension expense		$126,494,755	$1,264,942	$0	$0	$0	$0	$0	$0

EXHIBIT 13

Allocation of Changes in Total Net Pension Liability

In addition to the amounts shown in Exhibit 12, there are changes in each employer's proportionate share of the total Net Pension Liability (NPL) during the measurement period ending on December 31, 2017. The net effect of the change in the employer's proportionate share of the collective NPL and collective deferred outflows of resources and deferred inflows of resources is also recognized over the average of the expected remaining service lives of all employees shown above. The difference between the actual employer contributions and the proportionate share of the employer contributions during the measurement period ending on December 31, 2017 is recognized over the same periods. These amounts are shown below. While these amounts are different for each employer, they sum to zero over the entire OCERS.

EXHIBIT 13 (continued)

Allocation of Changes in Total Net Pension Liability

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of the Change in Proportion and Change in Employer Contributions for the Year Ended December 31, 2017

	Total Change to be Recognized	Recognition Period (Years)	Reporting Date for Employer under GASB 68 Year Ended June 30: 2018	2019	2020	2021	2022	2023	Thereafter
Orange County	$8,107,013	6.01	$1,348,921	$1,348,921	$1,348,921	$1,348,921	$1,348,921	$1,348,921	$13,487
O.C. Cemetery District	0	6.01	0	0	0	0	0	0	0
O.C. Law Library	0	6.01	0	0	0	0	0	0	0
O.C. Vector Control District	0	6.01	0	0	0	0	0	0	0
O.C. Retirement System	49,770	6.01	8,281	8,281	8,281	8,281	8,281	8,281	84
O.C. Fire Authority	0	6.01	0	0	0	0	0	0	0
Cypress Parks and Recreation	0	6.01	0	0	0	0	0	0	0
Department of Education	0	6.01	0	0	0	0	0	0	0
Transportation Corridor Agency	0	6.01	0	0	0	0	0	0	0
City of San Juan Capistrano	1,675,195	6.01	278,735	278,735	278,735	278,735	278,735	278,735	2,785
O.C. Sanitation District	0	6.01	0	0	0	0	0	0	0
O.C. Transportation Authority	0	6.01	0	0	0	0	0	0	0
U.C.I.	0	6.01	0	0	0	0	0	0	0
O.C. Children and Families Comm.	(445,507)	6.01	(74,128)	(74,128)	(74,128)	(74,128)	(74,128)	(74,128)	(739)
Local Agency Formation Comm.	(51,088)	6.01	(8,500)	(8,500)	(8,500)	(8,500)	(8,500)	(8,500)	(88)
Rancho Santa Margarita	0	6.01	0	0	0	0	0	0	0
O.C. Superior Court	(9,400,312)	6.01	(1,564,112)	(1,564,112)	(1,564,112)	(1,564,112)	(1,564,112)	(1,564,112)	(15,640)
O.C. IHSS Public Authority	64,929	6.01	10,803	10,803	10,803	10,803	10,803	10,803	111
Total for all Employers	$0		$0	$0	$0	$0	$0	$0	$0

EXHIBIT 13 (continued)

Allocation of Changes in Total Net Pension Liability

The amounts as of December 31, 2016 are as follows:

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of the Change in Proportion and Change in Employer Contributions for the Year Ended December 31, 2016

	Total Change to be Recognized	Recognition Period (Years)	Reporting Date for Employer under GASB 68 Year Ended June 30: 2017	2018	2019	2020	2021	2022	Thereafter
Orange County	$14,453,662	5.94	$2,433,278	$2,433,278	$2,433,278	$2,433,278	$2,433,278	$2,287,272	$0
O.C. Cemetery District	0	5.94	0	0	0	0	0	0	0
O.C. Law Library	0	5.94	0	0	0	0	0	0	0
O.C. Vector Control District	0	5.94	0	0	0	0	0	0	0
O.C. Retirement System	(668,539)	5.94	(112,549)	(112,549)	(112,549)	(112,549)	(112,549)	(105,794)	0
O.C. Fire Authority	0	5.94	0	0	0	0	0	0	0
Department of Education	0	5.94	0	0	0	0	0	0	0
Transportation Corridor Agency	0	5.94	0	0	0	0	0	0	0
City of San Juan Capistrano	(1,754,991)	5.94	(295,453)	(295,453)	(295,453)	(295,453)	(295,453)	(277,726)	0
O.C. Sanitation District	0	5.94	0	0	0	0	0	0	0
O.C. Transportation Authority	0	5.94	0	0	0	0	0	0	0
U.C.I.	0	5.94	0	0	0	0	0	0	0
O.C. Children and Families Comm.	(598,916)	5.94	(100,828)	(100,828)	(100,828)	(100,828)	(100,828)	(94,776)	0
Local Agency Formation Comm.	306,180	5.94	51,545	51,545	51,545	51,545	51,545	48,455	0
Rancho Santa Margarita	0	5.94	0	0	0	0	0	0	0
O.C. Superior Court	(11,785,507)	5.94	(1,984,092)	(1,984,092)	(1,984,092)	(1,984,092)	(1,984,092)	(1,865,047)	0
O.C. IHSS Public Authority	48,111	5.94	8,099	8,099	8,099	8,099	8,099	7,616	0
Total for all Employers	$0		$0	$0	$0	$0	$0	$0	$0

EXHIBIT 13 (continued)

Allocation of Changes in Total Net Pension Liability

The amounts as of December 31, 2015 are as follows:

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of the Change in Proportion and Change in Employer Contributions for the Year Ended December 31, 2015

	Total Change to be Recognized	Recognition Period (Years)	Reporting Date for Employer under GASB 68 Year Ended June 30: 2016	2017	2018	2019	2020	2021	Thereafter
Orange County	$2,736,401	6.06	$451,552	$451,552	$451,552	$451,552	$451,552	$451,552	$27,089
O.C. Cemetery District	0	6.06	0	0	0	0	0	0	0
O.C. Law Library	(2,567,707)	6.06	(423,714)	(423,714)	(423,714)	(423,714)	(423,714)	(423,714)	(25,423)
O.C. Vector Control District	0	6.06	0	0	0	0	0	0	0
O.C. Retirement System	1,607,456	6.06	265,257	265,257	265,257	265,257	265,257	265,257	15,914
O.C. Fire Authority	0	6.06	0	0	0	0	0	0	0
Department of Education	0	6.06	0	0	0	0	0	0	0
Transportation Corridor Agency	0	6.06	0	0	0	0	0	0	0
City of San Juan Capistrano	(1,987,430)	6.06	(327,959)	(327,959)	(327,959)	(327,959)	(327,959)	(327,959)	(19,676)
O.C. Sanitation District	2,567,707	6.06	423,714	423,714	423,714	423,714	423,714	423,714	25,423
O.C. Transportation Authority	0	6.06	0	0	0	0	0	0	0
U.C.I.	0	6.06	0	0	0	0	0	0	0
O.C. Children and Families Comm.	(366,436)	6.06	(60,468)	(60,468)	(60,468)	(60,468)	(60,468)	(60,468)	(3,628)
Local Agency Formation Comm.	(296,484)	6.06	(48,925)	(48,925)	(48,925)	(48,925)	(48,925)	(48,925)	(2,934)
Rancho Santa Margarita	0	6.06	0	0	0	0	0	0	0
O.C. Superior Court	(1,805,959)	6.06	(298,013)	(298,013)	(298,013)	(298,013)	(298,013)	(298,013)	(17,881)
O.C. IHSS Public Authority	112,452	6.06	18,556	18,556	18,556	18,556	18,556	18,556	1,116
Total for all Employers	$0		$0	$0	$0	$0	$0	$0	$0

EXHIBIT 13 (continued)

Allocation of Changes in Total Net Pension Liability

The amounts as of December 31, 2014 are as follows:

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of the Change in Proportion and Change in Employer Contributions for the Year Ended December 31, 2014

	Total Change to be Recognized	Recognition Period (Years)	Reporting Date for Employer under GASB 68 Year Ended June 30: 2015	2016	2017	2018	2019	2020	Thereafter
Orange County	$4,834,533	6.18	$782,287	$782,287	$782,287	$782,287	$782,287	$782,287	$140,811
O.C. Cemetery District	0	6.18	0	0	0	0	0	0	0
O.C. Law Library	316,450	6.18	51,206	51,206	51,206	51,206	51,206	51,206	9,214
O.C. Vector Control District	0	6.18	0	0	0	0	0	0	0
O.C. Retirement System	1,077,481	6.18	174,350	174,350	174,350	174,350	174,350	174,350	31,381
O.C. Fire Authority	0	6.18	0	0	0	0	0	0	0
Department of Education	0	6.18	0	0	0	0	0	0	0
Transportation Corridor Agency	0	6.18	0	0	0	0	0	0	0
City of San Juan Capistrano	1,656,769	6.18	268,086	268,086	268,086	268,086	268,086	268,086	48,253
O.C. Sanitation District	(316,450)	6.18	(51,206)	(51,206)	(51,206)	(51,206)	(51,206)	(51,206)	(9,214)
O.C. Transportation Authority	0	6.18	0	0	0	0	0	0	0
U.C.I.	0	6.18	0	0	0	0	0	0	0
O.C. Children and Families Comm.	(332,329)	6.18	(53,775)	(53,775)	(53,775)	(53,775)	(53,775)	(53,775)	(9,679)
Local Agency Formation Comm.	215,036	6.18	34,795	34,795	34,795	34,795	34,795	34,795	6,266
Rancho Santa Margarita	0	6.18	0	0	0	0	0	0	0
O.C. Superior Court	(7,470,106)	6.18	(1,208,755)	(1,208,755)	(1,208,755)	(1,208,755)	(1,208,755)	(1,208,755)	(217,576)
O.C. IHSS Public Authority	18,616	6.18	3,012	3,012	3,012	3,012	3,012	3,012	544
Total for all Employers	$0		$0	$0	$0	$0	$0	$0	$0

Actuarial Assumptions and Methods
For December 31, 2017 Measurement Date and Employer Reporting as of June 30, 2018

Rationale for Assumptions:	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the January 1, 2014 through December 31, 2016 Actuarial Experience Study dated August 14, 2017 and PowerPoint presentation dated October 16, 2017. Unless otherwise noted, all actuarial assumptions and methods shown below apply to members for all tiers.
<u>**Economic Assumptions**</u>	
Net Investment Return:	7.00%; net of investment expenses.
Member Contribution Crediting Rate:	5.00%, compounded semi-annually.
Consumer Price Index:	Increase of 2.75% per year, retiree COLA increases due to CPI subject to a 3.0% maximum change per year.
Payroll Growth:	Inflation of 2.75% per year plus “across the board” real salary increases of 0.50% per year.
Increase in Section 7522.10 Compensation Limit:	Increase of 2.75% per year from the valuation date.

Individual Salary Increases:

Annual Rate of Compensation Increase (%)

Inflation: 2.75% per year, plus "across the board" real salary increases of 0.50% per year, plus the following merit and promotional increases:

Years of Service	General	Safety
Less than 1	9.00%	14.00%
1	7.25	10.00
2	6.00	7.75
3	5.00	6.00
4	4.00	5.50
5	3.50	4.50
6	2.50	3.75
7	2.25	3.25
8	1.75	2.50
9	1.50	2.25
10	1.50	1.75
11	1.50	1.75
12	1.50	1.75
13	1.50	1.75
14	1.50	1.75
15	1.50	1.75
16	1.00	1.50
17	1.00	1.50
18	1.00	1.50
19	1.00	1.50
20 & over	1.00	1.50

In addition to the individual salary increase assumptions, we have applied an average of two hours of additional salary annually for leap-year salary adjustment.

Demographic Assumptions

Post – Retirement Mortality Rates:

Healthy:	For General Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table, projected generationally with the two-dimensional MP-2016 projection scale. For Safety Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set back four years, projected generationally with the two-dimensional MP-2016 projection scale.
Disabled:	For General Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set forward five years, projected generationally with the two-dimensional MP-2016 projection scale. For Safety Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table, projected generationally with the two-dimensional MP-2016 projection scale.
Beneficiaries:	Beneficiaries are assumed to have the same mortality as a General Member of the opposite sex who is receiving a service (non-disability) retirement.

The RP-2014 mortality tables and adjustments as shown above reflect the mortality experience as of the measurement date. The generational projection is a provision for future mortality improvement.

Member Contribution Rates:	For General Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016, weighted 40% male and 60% female. For Safety Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016 set back four years, weighted 80% male and 20% female.
Optional Forms of Benefits:	For General Service Retirees: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016, weighted 40% male and 60% female. For Safety Service Retirees: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016 set back four years, weighted 80% male and 20% female. For General Disabled Retirees: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016 set forward five years, weighted 40% male and 60% female.

For Safety Disabled Retirees: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016, weighted 80% male and 20% female.

For General Beneficiaries: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016, weighted 60% male and 40% female.

For Safety Beneficiaries: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females), projected 20 years with the two-dimensional mortality improvement scale MP-2016, weighted 20% male and 80% female.

Pre-Retirement Mortality Rates: For General and Safety Members: Headcount-Weighted RP-2014 Employee Mortality Table times 80%, projected generationally with the two-dimensional MP-2016 projection scale.

Termination Rates Before Retirement:

	Rate (%)	
	Mortality (General and Safety)	
Age	Male	Female
25	0.05	0.02
30	0.05	0.02
35	0.05	0.03
40	0.06	0.04
45	0.10	0.07
50	0.17	0.11
55	0.27	0.17
60	0.45	0.24
65	0.78	0.36
70	1.27	0.59

Note that generational projections beyond the base year (2014) are not reflected in the above mortality rates.

All General pre-retirement deaths are assumed to be non-service connected. For Safety, 90% of pre-retirement deaths are assumed to be non-service connected. The other 10% are assumed to be service connected.

Termination Rates Before Retirement (Continued):

	Rate (%)			
	Disability			
Age	General All Other[1]	General OCTA[2]	Safety - Law & Fire[3]	Safety - Probation[4]
20	0.00	0.00	0.00	0.00
25	0.00	0.00	0.01	0.03
30	0.01	0.03	0.04	0.08
35	0.03	0.20	0.14	0.10
40	0.08	0.36	0.23	0.13
45	0.13	0.43	0.40	0.21
50	0.18	0.48	1.10	0.28
55	0.23	0.65	2.40	0.42
60	0.31	1.26	4.80	0.20

(1) *60% of General All Other disabilities are assumed to be service connected disabilities. The other 40% are assumed to be non-service connected.*

(2) *65% of General OCTA disabilities are assumed to be service connected disabilities. The other 35% are assumed to be non-service connected.*

(3) *100% of Safety Law Enforcement and Fire disabilities are assumed to be service connected disabilities.*

(4) *75% of Safety Probation disabilities are assumed to be service connected disabilities. The other 25% are assumed to be non-service connected.*

Termination Rates Before Retirement (Continued):

	Rate (%) Termination			
Years of Service	**General All Other**	**General OCTA**	**Safety – Law & Fire**	**Safety - Probation**
0	11.00	17.50	4.50	14.00
1	7.50	11.00	2.50	13.00
2	6.50	9.00	2.00	10.00
3	5.00	8.50	1.50	5.00
4	4.50	7.50	1.25	4.00
5	4.25	7.00	1.00	3.50
6	3.75	4.50	0.95	2.75
7	3.25	4.00	0.90	2.00
8	3.00	3.50	0.85	2.00
9	2.75	3.00	0.80	1.75
10	2.50	3.00	0.75	1.75
11	2.00	3.00	0.65	1.50
12	2.00	3.00	0.60	1.25
13	1.75	2.50	0.55	1.00
14	1.50	2.50	0.50	0.75
15	1.40	2.50	0.45	0.75
16	1.30	2.00	0.40	0.75
17	1.20	1.80	0.35	0.25
18	1.10	1.60	0.30	0.25
19	1.00	1.40	0.25	0.25
20 +	0.90	1.20	0.20	0.25

Termination Rates Before Retirement (Continued):

	Election for Withdrawal of Contributions (%)			
Years of Service	General All Other	General OCTA	Safety – Law & Fire	Safety - Probation
0 – 4	35.0	40.0	20.0	25.0
5 – 9	30.0	35.0	20.0	25.0
10 – 14	25.0	30.0	20.0	25.0
15 or more	20.0	20.0	20.0	25.0

Retirement Rates:

	Rate (%)							
Age	**General - Enhanced**	**General - Non-Enhanced[1]**	**General - SJC (31676.12)**	**Safety - Law (31664.1)[2]**	**Safety - Law (31664.2)[2]**	**Safety - Fire (31664.1)**	**Safety - Fire (31664.2)**	**Safety - Probation[2]**
48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49	30.0	25.0	0.0	12.0	0.0	2.0	0.0	0.0
50	2.5	2.0	3.0	18.0	11.5	5.0	8.0	3.3
51	2.0	2.0	3.0	18.0	12.0	7.0	10.0	3.3
52	2.5	2.0	3.0	17.0	12.7	9.5	11.0	4.3
53	2.5	2.8	3.0	17.0	17.9	10.5	12.0	4.3
54	5.5	2.8	3.0	22.0	18.8	15.0	14.0	7.0
55	15.0	3.3	4.0	22.0	30.7	18.0	24.0	12.0
56	10.0	3.5	5.0	20.0	20.0	20.0	23.0	12.0
57	10.0	5.5	6.0	20.0	20.0	21.0	27.0	18.0
58	11.0	5.5	7.0	20.0	25.0	28.0	27.0	18.0
59	11.0	6.5	9.0	26.0	30.0	28.0	36.0	18.0
60	12.0	9.3	11.0	35.0	40.0	30.0	40.0	20.0
61	12.0	12.0	13.0	35.0	40.0	30.0	40.0	20.0
62	14.0	16.0	15.0	40.0	40.0	35.0	40.0	25.0
63	16.0	16.0	15.0	40.0	40.0	35.0	40.0	40.0
64	16.0	18.0	20.0	40.0	40.0	35.0	40.0	40.0
65	22.0	22.0	20.0	100.0	100.0	100.0	100.0	100.0
66	22.0	28.0	24.0	100.0	100.0	100.0	100.0	100.0
67	23.0	24.0	24.0	100.0	100.0	100.0	100.0	100.0
68	23.0	24.0	24.0	100.0	100.0	100.0	100.0	100.0
69	23.0	20.0	24.0	100.0	100.0	100.0	100.0	100.0
70	25.0	20.0	50.0	100.0	100.0	100.0	100.0	100.0
71	25.0	25.0	50.0	100.0	100.0	100.0	100.0	100.0
72	25.0	25.0	50.0	100.0	100.0	100.0	100.0	100.0
73	25.0	25.0	50.0	100.0	100.0	100.0	100.0	100.0
74	25.0	25.0	50.0	100.0	100.0	100.0	100.0	100.0
75	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(1) *These assumptions are also used for the CalPEPRA 1.62% @ 65 formula (Plan T and Plan W).*

(2) *Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.*

Retirement Rates (Continued):

	Rate (%)			
Age	**CalPEPRA 2.5% @ 67 General Formula**	**CalPEPRA Safety - Probation Formula[1]**	**CalPEPRA Safety - Law Formula[1]**	**CalPEPRA Safety - Fire Formula**
50	0.0	2.5	11.0	6.0
51	0.0	2.5	11.5	7.0
52	4.0	3.0	12.0	9.0
53	1.5	3.0	16.0	10.0
54	1.5	5.5	17.0	11.5
55	2.5	10.0	28.0	21.0
56	3.5	10.0	18.0	20.0
57	5.5	15.0	17.5	22.0
58	7.5	20.0	22.0	25.0
59	7.5	20.0	26.0	30.0
60	7.5	40.0	40.0	40.0
61	7.5	40.0	40.0	40.0
62	14.0	40.0	40.0	40.0
63	14.0	40.0	40.0	40.0
64	14.0	40.0	40.0	40.0
65	18.0	100.0	100.0	100.0
66	22.0	100.0	100.0	100.0
67	23.0	100.0	100.0	100.0
68	23.0	100.0	100.0	100.0
69	23.0	100.0	100.0	100.0
70	25.0	100.0	100.0	100.0
71	25.0	100.0	100.0	100.0
72	25.0	100.0	100.0	100.0
73	25.0	100.0	100.0	100.0
74	25.0	100.0	100.0	100.0
75	100.0	100.0	100.0	100.0

(1) *Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.*

Retirement Age and Benefit for Deferred Vested Members:	For current deferred vested members, we make the following retirement age assumptions: General Age: 59 Safety Age: 53 We assume that 15% of future General and 25% of future Safety deferred vested members will continue to work for a reciprocal employer. For reciprocals, we assume 4.25% compensation increases for General and 4.75% for Safety per annum.
Liability Calculation for Current Deferred Vested Members:	Liability for a current deferred vested member is calculated based on salary (adjusted with the additional cashout assumptions for non-CalPEPRA members), service, and eligibility for reciprocal benefit as provided by the Retirement System. For those members without salary information that have 3 or more years of service, we used an average salary. For those members without salary information that have less than 3 years of service or for those members without service information, we assumed a refund of account balance.
Future Benefit Accruals:	1.0 year of service per year of employment. There is no assumption to anticipate conversion of unused sick leave at retirement.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Percent Married:	75% of male members and 55% of female members are assumed to be married at retirement or time of pre-retirement death.
Age of Spouse:	Female (or male) three years younger (or older) than spouse.

Additional Cashout Assumptions:

Non-CalPEPRA Formulas

Additional compensation amounts are expected to be received during a member's final average earnings period. The percentages used in this valuation are:

	Final One Year Salary	Final Three Year Salary
General Members	3.00%	2.80%
Safety - Probation	3.80%	3.40%
Safety - Law	5.20%	4.60%
Safety - Fire	2.00%	1.70%

The additional cashout assumptions are the same for service and disability retirements.

CalPEPRA Formulas

None

Actuarial Methods

Actuarial Cost Method:

Entry Age Actuarial Cost Method. Entry Age is the current age minus Vesting Credit. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salaries.

Please note that for Probation members who have prior benefit service in another General OCERS plan, the normal cost rate for the current plan is calculated assuming their Entry Age is the date they entered service with their current plan.

Expected Remaining Service Lives:

The average of the expected service lives of all employees is determined by:

- Calculating each active employee's expected remaining service life as the present value of $1 per year of future service at zero percent interest.
- Setting the remaining service life to zero for each nonactive or retired member.

- Dividing the sum of the above amounts by the total number of active employee, nonactive and retired members.

Changes in Actuarial Assumptions and Methods: Based on the Actuarial Experience Study, the following assumptions were changed. Previously, these assumptions were as follows:

Economic Assumptions

Net Investment Return: 7.25%; net of investment expenses.

Consumer Price Index: Increase of 3.00% per year, retiree COLA increases due to CPI subject to a 3.0% maximum change per year.

Payroll Growth: Inflation of 3.00% per year plus "across the board" real salary increases of 0.50% per year.

Increase in Section 7522.10 Compensation Limit: Increase of 3.00% per year from the valuation date.

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Individual Salary Increases:

Annual Rate of Compensation Increase (%)

Inflation: 3.00% per year, plus "across the board" real salary increases of 0.50% per year, plus the following merit and promotional increases:

Years of Service	General	Safety
Less than 1	10.00%	14.00%
1	7.25	10.00
2	6.00	8.50
3	4.75	6.75
4	4.00	5.25
5	3.25	4.50
6	2.25	3.50
7	2.00	3.25
8	1.50	2.25
9	1.25	2.25
10	1.25	1.75
11	1.25	1.75
12	1.25	1.75
13	1.25	1.75
14	1.25	1.75
15	1.25	1.75
16	0.75	1.50
17	0.75	1.50
18	0.75	1.50
19	0.75	1.50
20 & over	0.75	1.50

In addition to the individual salary increase assumptions, we have applied an average two hours of additional salary annually for leap-year salary adjustment.

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Demographic Assumptions

Post – Retirement Mortality Rates:

Healthy:	For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020. For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 with ages set back two years.
Disabled:	For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 with ages set forward six years for males and set forward three years for females. For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020.
Beneficiaries:	Beneficiaries are assumed to have the same mortality as a General Member of the opposite sex who is receiving a service (non-disability) retirement.

The mortality tables shown above were determined to contain about a 10% margin to reflect future mortality improvement, based on a review of the mortality experience as of the measurement date.

Member Contribution Rates:	For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 40% male and 60% female. For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 with ages set back two years weighted 80% male and 20% female.
Optional Forms of Benefits:	For General Service Retirees: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 40% male and 60% female. For Safety Service Retirees: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 with ages set back two years weighted 80% male and 20% female. For General Disabled Retirees: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 with ages set forward six years for males and set forward three years for females weighted 40% male and 60% female. For Safety Disabled Retirees: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 80% male and 20% female. For General Beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 60% male and 40% female. For Safety Beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020 weighted 20% male and 80% female.

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Termination Rates Before Retirement:

	Rate (%) Mortality			
	General		Safety	
Age	Male	Female	Male	Female
25	0.04	0.02	0.04	0.02
30	0.04	0.02	0.04	0.02
35	0.07	0.04	0.06	0.04
40	0.10	0.07	0.09	0.06
45	0.14	0.11	0.12	0.09
50	0.20	0.16	0.18	0.14
55	0.34	0.25	0.27	0.21
60	0.59	0.41	0.48	0.33
65	1.00	0.76	0.82	0.60

All General pre-retirement deaths are assumed to be non-service connected. For Safety, 90% of pre-retirement deaths are assumed to be non-service connected. The other 10% are assumed to be service connected.

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Termination Rates Before Retirement (Continued):

	Rate (%) Disability			
Age	**General All Other[1]**	**General OCTA[2]**	**Safety - Law & Fire[3]**	**Safety - Probation[3]**
20	0.00	0.00	0.00	0.00
25	0.00	0.00	0.01	0.03
30	0.01	0.03	0.04	0.08
35	0.03	0.20	0.14	0.10
40	0.08	0.36	0.26	0.10
45	0.11	0.43	0.42	0.16
50	0.14	0.48	0.92	0.20
55	0.18	0.74	1.98	0.23
60	0.29	1.41	5.20	0.10

(1) *55% of General All Other disabilities are assumed to be service connected disabilities. The other 45% are assumed to be non-service connected.*

(2) *65% of General - OCTA disabilities are assumed to be service connected disabilities. The other 35% are assumed to be non-service connected.*

(3) *100% of Safety – Law Enforcement, Fire and Probation disabilities are assumed to be service connected disabilities.*

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Termination Rates Before Retirement (Continued):

	Rate (%) Termination			
Years of Service	General All Other(1)	General OCTA(2)	Safety – Law & Fire(3)	Safety - Probation(4)
0	11.00	17.50	4.00	16.00
1	8.00	13.50	3.00	13.00
2	7.00	10.50	2.00	10.00
3	5.00	10.00	1.00	6.00
4	4.00	9.00	1.00	4.00
5	3.75	7.00	1.00	3.50
6	3.50	5.00	0.95	3.00
7	3.00	5.00	0.90	2.50
8	2.75	4.00	0.85	2.25
9	2.50	3.50	0.80	2.00
10	2.25	3.50	0.75	1.75
11	2.00	3.50	0.65	1.75
12	2.00	3.00	0.60	1.50
13	1.75	3.00	0.50	1.25
14	1.75	3.00	0.50	1.00
15	1.75	3.00	0.50	1.00
16	1.50	3.00	0.50	1.00
17	1.50	2.75	0.50	0.50
18	1.50	2.75	0.50	0.50
19	1.50	2.75	0.50	0.50
20 +	1.25	1.75	0.25	0.50

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

(1) *40% of all terminated members with less than 5 years of service and 25% of all terminated members with 5 or more years of service will choose a refund of contributions.*

(2) *45% of all terminated members with less than 5 years of service and 35% of all terminated members with 5 or more years of service will choose a refund of contributions.*

(3) *20% of all terminated members with less than 5 years of service and 20% of all terminated members with 5 or more years of service will choose a refund of contributions.*

(4) *40% of all terminated members with less than 5 years of service and 30% of all terminated members with 5 or more years of service will choose a refund of contributions.*

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Retirement Rates:

	Rate (%)							
Age	General - Enhanced	General - Non-Enhanced[1]	General - SJC (31676.12)	Safety - Law (31664.1)[2]	Safety - Law (31664.2)[2]	Safety - Fire (31664.1)[2]	Safety - Fire (31664.2)[2]	Safety - Probation[2]
49	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0
50	2.5	2.5	3.0	16.0	11.5	6.0	8.0	3.0
51	2.0	2.5	3.0	16.0	12.0	8.0	10.0	3.0
52	2.0	2.5	3.0	16.0	12.7	9.0	11.0	4.0
53	2.0	2.5	3.0	16.0	17.9	10.0	12.0	4.0
54	5.0	2.5	3.0	22.0	18.8	16.0	14.0	6.0
55	15.0	3.0	4.0	22.0	30.7	19.0	24.0	11.0
56	10.0	3.5	5.0	20.0	20.0	20.0	23.0	11.0
57	10.0	5.0	6.0	20.0	20.0	23.0	27.0	17.0
58	10.0	5.0	7.0	20.0	25.0	30.0	27.0	20.0
59	11.0	7.0	9.0	26.0	30.0	30.0	36.0	20.0
60	12.0	9.0	11.0	45.0	100.0	45.0	100.0	20.0
61	12.0	10.0	13.0	45.0	100.0	45.0	100.0	20.0
62	15.0	16.0	15.0	45.0	100.0	45.0	100.0	25.0
63	16.0	16.0	15.0	45.0	100.0	45.0	100.0	50.0
64	16.0	18.0	20.0	45.0	100.0	45.0	100.0	50.0
65	21.0	21.0	20.0	100.0	100.0	100.0	100.0	100.0
66	22.0	26.0	24.0	100.0	100.0	100.0	100.0	100.0
67	23.0	21.0	24.0	100.0	100.0	100.0	100.0	100.0
68	23.0	21.0	24.0	100.0	100.0	100.0	100.0	100.0
69	23.0	21.0	24.0	100.0	100.0	100.0	100.0	100.0
70	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
71	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
72	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
73	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
74	40.0	30.0	100.0	100.0	100.0	100.0	100.0	100.0
75	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(1) *These assumptions are also used for the CalPEPRA 1.62% @ 65 formula (Plan T and Plan W).*

(2) *Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.*

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Retirement Rates (continued):

	Rate (%)			
Age	CalPEPRA 2.5% @ 67 General Formula	CalPEPRA Safety - Probation Formula[1]	CalPEPRA Safety - Law Formula[1]	CalPEPRA Safety - Fire Formula[1]
50	0.0	2.5	11.0	6.5
51	0.0	2.5	11.5	8.0
52	4.0	3.0	12.0	9.0
53	1.5	3.0	16.0	10.0
54	1.5	5.5	17.0	12.0
55	2.5	10.0	28.0	21.0
56	3.5	10.0	18.0	20.0
57	5.5	15.0	17.5	22.0
58	7.5	20.0	22.0	25.0
59	7.5	20.0	26.0	31.5
60	7.5	100.0	100.0	100.0
61	7.5	100.0	100.0	100.0
62	14.0	100.0	100.0	100.0
63	14.0	100.0	100.0	100.0
64	14.0	100.0	100.0	100.0
65	18.0	100.0	100.0	100.0
66	22.0	100.0	100.0	100.0
67	23.0	100.0	100.0	100.0
68	23.0	100.0	100.0	100.0
69	23.0	100.0	100.0	100.0
70	30.0	100.0	100.0	100.0
71	30.0	100.0	100.0	100.0
72	30.0	100.0	100.0	100.0
73	30.0	100.0	100.0	100.0
74	30.0	100.0	100.0	100.0
75	100.0	100.0	100.0	100.0

(1) *Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.*

Changes in Actuarial Assumptions and Methods (previous assumptions continued):

Retirement Age and Benefit for Deferred Vested Members: For current deferred vested members, we make the following retirement age assumptions:

General Age:	58
Safety Age:	53

We assume that 20% of future General and 30% of future Safety deferred vested members will continue to work for a reciprocal employer. For reciprocals, we assume 4.25% compensation increases for General and 5.00% for Safety per annum.

Percent Married: 75% of male members and 50% of female members are assumed to be married at retirement or time of pre-retirement death.

Additional Cashout Assumptions:

Non-CalPEPRA Formulas Additional compensation amounts are expected to be received during a member's final average earnings period. The percentages used in this valuation are:

	Final One Year Salary	Final Three Year Salary
General Members	3.50%	2.80%
Safety - Probation	3.80%	2.80%
Safety - Law	5.20%	4.70%
Safety - Fire	2.00%	2.00%

The additional cashout assumptions are the same for service and disability retirements.

CalPEPRA Formulas None

APPENDIX A

Projection of Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of December 31, 2017 ($ in millions)

Year Beginning January 1	Projected Beginning Plan's Fiduciary Net Position (a)	Projected Total Contributions * (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Plan's Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2017	$12,809	$834	$764	$17	$1,940	$14,802
2018	14,802	912	844	20	1,038	15,888
2019	15,888	919	901	21	1,112	16,997
2020	16,997	918	960	23	1,188	18,121
2021	18,121	904	1,021	24	1,264	19,243
2022	19,243	889	1,083	26	1,339	20,363
2023	20,363	890	1,151	27	1,415	21,490
2024	21,490	894	1,221	29	1,492	22,627
2025	22,627	899	1,291	30	1,569	23,774
2026	23,774	904	1,362	32	1,647	24,932
2042	35,318	181	2,571	47	2,388	35,269
2043	35,269	171	2,625	47	2,383	35,151
2044	35,151	161	2,671	47	2,373	34,967
2045	34,967	152	2,713	46	2,358	34,717
2046	34,717	144	2,750	46	2,339	34,405
2091	23,017	46	221	31	1,604	24,417
2092	24,417	46	181	32	1,703	25,953
2093	25,953	47	147	34	1,812	27,630
2094	27,630	48	118	37	1,930	29,454
2095	29,454	49	93	39	2,059	31,430
2132	356,925	474	0 **	474	24,985	381,910
2133	381,910					
2133 Discounted Value:	160 ***					

* Of all the projected total contributions, only the first year's (i.e., 2017) contribution has been reduced by discount for prepaid contributions, transfers from County Investment Account and O.C. Sanitation District UAAL Deferred Account, if any.

** Less than $1 million, when rounded.

*** $381,910 million when discounted with interest at the rate of 7.00% per annum has a value of $160 million as of December 31, 2017. Of this amount, about $134 million is the balance available in the County Investment Account and $15 million is the O.C. Sanitation District UAAL Deferred Acount as of December 31, 2017.

Note: We have not utilized the balance in the County Investment Account and O.C. Sanitation District UAAL Deferred Account to change the projected total contributions even though those amounts have been used to reduce the NPL for the County and O.C. Sanitation District as of December 31, 2017.

APPENDIX A (continued)

Projection of Plan’s Fiduciary Net Position for Use in Calculation of Discount Rate as of December 31, 2017 ($ in millions)

Notes:

(1) Amounts may not total exactly due to rounding.

(2) Amounts shown in the year beginning January 1, 2017 row are actual amounts, based on the financial statements provided by OCERS.

(3) Years 2027-2041, 2047-2090, and 2096-2131 have been omitted from this table.

(4) Column (a): Except for the "discounted value" shown for 2133, all of the projected beginning Plan's Fiduciary Net Position amounts shown have not been adjusted for the time value of money.

(5) Column (b): Projected total contributions include member and employer normal cost rates applied to closed group projected payroll (based on covered active members as of December 31, 2016), plus employer contributions to the Unfunded Actuarial Accrued Liability. Contributions are assumed to occur halfway through the year, on average.

(6) Column (c): Projected benefit payments have been determined in accordance with paragraph 39 of GASB Statement No. 67, and are based on the closed group of active, inactive vested, retired members, and beneficiaries as of December 31, 2016. The projected benefit payments reflect the cost of living increase assumptions used in the December 31, 2017 valuation report. The 2017 benefit payments have been increased by the balance of the Medicare Insurance Reserve as of December 31, 2017.

(7) Column (d): Projected administrative expenses are calculated as approximately 0.13% of the projected beginning Plan's Fiduciary Net Position amount. The 0.13% portion was based on the actual calendar year 2017 administrative expenses (unaudited) as a percentage of the actual beginning Plan's Fiduciary Net Position as of January 1, 2017. Administrative expenses are assumed to occur halfway through the year, on average.

(8) Column (e): Projected investment earnings are based on the assumed investment rate of return of 7.00% per annum.

(9) As illustrated in this Exhibit, the Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments for current Plan members. In other words, there is no projected "cross-over date" when projected benefits are not covered by projected assets. Therefore, the long-term expected rate of return on Plan investments of 7.00% per annum was applied to all periods of projected benefit payments to determine the total pension liability as of December 31, 2017 shown earlier in this report, pursuant to paragraph 44 of GASB Statement No. 67.

APPENDIX B

Schedule of Pension Amounts by Employer as of December 31, 2017

Deferred Outflows of Resources	Orange County	O.C. Cemetery District	O.C. Law Library	O.C. Vector Control District	O.C. Retirement System
Differences Between Expected and Actual Experience	$12,560,694	$19,195	$0	$286,098	$0
Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	289,836,042	262,218	1,309,037	882,069	1,565,430
Changes of Assumptions	578,664,495	406,838	357,488	724,719	2,798,016
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	19,581,719	0	111,626	0	1,233,255
Total Deferred Outflows of Resources	$900,642,950	$688,251	$1,778,151	$1,892,886	$5,596,701
Deferred Inflows of Resources					
Differences Between Expected and Actual Experience	$358,243,068	$397,300	$789,153	$1,258,406	$2,024,402
Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	672,815,006	609,417	588,902	1,732,987	3,620,981
Changes of Assumptions	80,224,845	71,399	369,550	0	632,877
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	149,391	0	1,296,565	0	443,441
Total Deferred Inflows of Resources	$1,111,432,310	$1,078,116	$3,044,170	$2,991,393	$6,721,701
Net Pension Liability as of December 31, 2016	$4,043,855,643	$222,409	$1,770,282	$1,669,793	$21,886,393
Net Pension Liability as of December 31, 2017	$3,983,695,231	$(173,677)	$(36,317)	$1,166,920	$21,427,080
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions					
Proportionate Share of Allocable Plan Pension Expense	$408,348,478	$82,093	$452,690	$(3,673)	$1,703,046
Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	5,016,038	0	(372,508)	0	335,339
Total Employer Pension Expense Excluding That Attributable to Employer-Paid Member Contributions	$413,364,516	$82,093	$80,182	$(3,673)	$2,038,385

APPENDIX B (continued)

Schedule of Pension Amounts by Employer as of December 31, 2017

Deferred Outflows of Resources	**O.C. Fire Authority**	**Cypress Parks and Recreation**	**Department of Education**	**Transportation Corridor Agency**	**City of San Juan Capistrano**
Differences Between Expected and Actual Experience	$942,161	$3,559,994	$372,992	$156,559	$0
Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	39,155,278	0	304,850	832,113	1,909,665
Changes of Assumptions	59,656,589	117,072	295,919	1,465,362	3,413,294
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	0	0	0	0	1,980,885
Total Deferred Outflows of Resources	$99,754,028	$3,677,066	$973,761	$2,454,034	$7,303,844
Deferred Inflows of Resources					
Differences Between Expected and Actual Experience	$60,331,638	$0	$1,201,641	$1,592,621	$2,469,564
Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	93,798,878	3,201,831	685,764	2,148,715	4,417,227
Changes of Assumptions	1,586,390	0	122,153	340,496	772,045
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	0	0	0	0	2,167,638
Total Deferred Inflows of Resources	$155,716,906	$3,201,831	$2,009,558	$4,081,832	$9,826,474
Net Pension Liability as of December 31, 2016	$469,430,660	$0	$4,415,517	$12,423,364	$25,089,009
Net Pension Liability as of December 31, 2017	$370,674,668	$718,340	$2,530,324	$10,242,769	$26,138,852
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions					
Proportionate Share of Allocable Plan Pension Expense	$63,001,786	$243,105	$97,769	$1,349,900	$2,077,542
Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	0	0	0	0	(76,591)
Total Employer Pension Expense Excluding That Attributable to Employer-Paid Member Contributions	$63,001,786	$243,105	$97,769	$1,349,900	$2,000,951

APPENDIX B (continued)

Schedule of Pension Amounts by Employer as of December 31, 2017

Deferred Outflows of Resources	**O.C. Sanitation District**	**O.C. Transportation Authority**	**U.C.I.**	**O.C. Children and Families Comm.**	**Local Agency Formation Comm.**
Differences Between Expected and Actual Experience	$0	$638,231	$748,341	$0	$0
Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	16,000,909	19,886,895	2,560,794	70,297	92,648
Changes of Assumptions	20,491,177	36,486,297	2,372,163	125,648	165,597
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	1,296,565	0	0	0	278,946
Total Deferred Outflows of Resources	$37,788,651	$57,011,423	$5,681,298	$195,945	$537,191
Deferred Inflows of Resources					
Differences Between Expected and Actual Experience	$15,393,406	$28,750,678	$4,572,031	$90,908	$119,812
Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	44,251,106	45,783,529	6,335,570	162,604	214,303
Changes of Assumptions	4,517,168	7,211,596	964,138	28,420	37,456
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	111,626	0	0	1,070,900	192,297
Total Deferred Inflows of Resources	$64,273,306	$81,745,803	$11,871,739	$1,352,832	$563,868
Net Pension Liability as of December 31, 2016	$(10,384,510)	$230,260,478	$36,113,699	$3,158,290	$1,340,888
Net Pension Liability as of December 31, 2017	$(39,571,102)	$212,117,162	$27,644,960	$962,204	$1,268,133
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions					
Proportionate Share of Allocable Plan Pension Expense	$948,974	$23,783,337	$530,932	$76,476	$100,792
Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	372,508	0	0	(289,199)	28,915
Total Employer Pension Expense Excluding That Attributable to Employer-Paid Member Contributions	$1,321,482	$23,783,337	$530,932	$(212,723)	$129,707

APPENDIX B (continued)

Schedule of Pension Amounts by Employer as of December 31, 2017

Deferred Outflows of Resources	**Rancho Santa Margarita**	**O.C. Superior Court**	**O.C. IHSS Public Authority**	**Total for all Employers**
Differences Between Expected and Actual Experience	$965	$0	$0	$19,285,230
Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	7,228	24,298,513	123,697	399,097,683
Changes of Assumptions	798	43,430,635	277,121	751,249,228
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	0	0	149,391	24,632,387
Total Deferred Outflows of Resources	$8,991	$67,729,148	$550,209	$1,194,264,528
Deferred Inflows of Resources				
Differences Between Expected and Actual Experience	$9,768	$31,422,648	$300,636	$508,967,680
Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	3,993	56,204,643	220,897	936,796,353
Changes of Assumptions	377	9,823,473	43,138	106,745,521
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	0	19,200,529	0	24,632,387
Total Deferred Inflows of Resources	$14,138	$116,651,293	$564,671	$1,577,141,941
Net Pension Liability as of December 31, 2016	$9,332	$349,173,850	$781,506	$5,191,216,603
Net Pension Liability as of December 31, 2017	$(2,320)	$332,589,831	$706,343	$4,952,099,401
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions				
Proportionate Share of Allocable Plan Pension Expense	$782	$26,434,585	$146,859	$529,375,473
Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	0	(5,054,972)	40,470	0
Total Employer Pension Expense Excluding That Attributable to Employer-Paid Member Contributions	$782	$21,379,613	$187,329	$529,375,473

APPENDIX B (continued)

Schedule of Pension Amounts by Employer as of December 31, 2017

Notes:
Amounts shown in this exhibit were allocated by employer based on the Employer Allocation Percentage calculated in Exhibit 7 in this report.

In determining the pension expense:

- Any differences between projected and actual investment earnings on pension plan investments are recognized over a period of five years beginning with the year in which they occur.
- Current-period (i.e., 2017) differences between expected and actual experience and changes of assumptions are recognized over the average of the expected remaining service lives of all employees that are provided with pensions through OCERS determined as of December 31, 2016 (the beginning of the measurement period ending December 31, 2017) and is 6.01 years.
- Prior-period differences between expected and actual experience and changes of assumptions are continued to be recognized based on the expected remaining service lives of all employees calculated as of those prior measurement dates.

The average of the expected remaining service lives of all employees was determined by:

- Calculating each active employee’s expected remaining service life as the present value of $1 per year of future service at zero percent interest.
- Setting the remaining service life to zero for each nonactive or retired members.
- Dividing the sum of the above amounts by the total number of active employee, nonactive and retired members.

Note: Results may not total due to rounding.

APPENDIX C

GLOSSARY

Definitions of certain terms *as they are used in Statement 68;* the terms may have different meanings in other contexts.

Active employees
Individuals employed at the end of the reporting or measurement period, as applicable.

Actual contributions
Cash contributions recognized as additions to a Pension Plan's Fiduciary Net Position.

Actuarial present value of projected benefit payments
Projected benefit payments discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.

Actuarial valuation
The determination, as of a point in time (the actuarial valuation date), of the service cost, Total Pension Liability, and related actuarial present value of projected benefit payments for pensions performed in conformity with Actuarial Standards of Practice unless otherwise specified by the GASB.

Actuarial valuation date
The date as of which an actuarial valuation is performed.

Actuarially determined contribution
A target or recommended contribution to a defined benefit pension plan for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

Ad hoc cost-of-living adjustments (ad hoc COLAs)
Cost-of-living adjustments that require a decision to grant by the authority responsible for making such decisions.

APPENDIX C (continued)

GLOSSARY

Automatic cost-of-living adjustments (automatic COLAs)
Cost-of-living adjustments that occur without a requirement for a decision to grant by a responsible authority, including those for which the amounts are determined by reference to a specified experience factor (such as the earnings experience of the pension plan) or to another variable (such as an increase in the consumer price index).

Closed period
A specific number of years that is counted from one date and declines to zero with the passage of time. For example, if the recognition period initially is five years on a closed basis, four years remain after the first year, three years after the second year, and so forth.

Collective deferred outflows of resources and deferred inflows of resources related to pensions
Deferred outflows of resources and deferred inflows of resources related to pensions arising from certain changes in the collective Net Pension Liability.

Collective Net Pension Liability
The Net Pension Liability for benefits provided through (1) a cost-sharing pension plan or (2) a single-employer or agent pension plan in circumstances in which there is a special funding situation.

Collective pension expense
Pension expense arising from certain changes in the collective Net Pension Liability.

Contributions
Additions to a Pension Plan's Fiduciary Net Position for amounts from employers, nonemployer contributing entities (for example, state government contributions to a local government pension plan), or employees. Contributions can result from cash receipts by the pension plan or from recognition by the pension plan of a receivable from one of these sources.

Cost-of-living adjustments
Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.

Cost-sharing employer
An employer whose employees are provided with pensions through a cost-sharing multiple-employer defined benefit pension plan.

APPENDIX C (continued)

GLOSSARY

Cost-sharing multiple-employer defined benefit pension plan (cost-sharing pension plan)
A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.

Covered payroll
The payroll of members that are provided with pensions through the pension plan.

Defined benefit pension plans
Pension plans that are used to provide defined benefit pensions.

Defined benefit pensions
Pensions for which the income or other benefits that the employee will receive at or after separation from employment are defined by the benefit terms. The pensions may be stated as a specified dollar amount or as an amount that is calculated based on one or more factors such as age, years of service, and compensation. (A pension that does not meet the criteria of a defined contribution pension is classified as a defined benefit pension for purposes of Statement 68.)

Defined contribution pension plans
Pension plans that are used to provide defined contribution pensions.

Defined contribution pensions
Pensions having terms that (1) provide an individual account for each employee; (2) define the contributions that an employer is required to make (or the credits that it is required to provide) to an active employee's account for periods in which that employee renders service; and (3) provide that the pensions an employee will receive will depend only on the contributions (or credits) to the employee's account, actual earnings on investments of those contributions (or credits), and the effects of forfeitures of contributions (or credits) made for other employees, as well as pension plan administrative costs, that are allocated to the employee's account.

APPENDIX C (continued)

GLOSSARY

Discount rate
The single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the total of the following:

1. The actuarial present value of benefit payments projected to be made in future periods in which (a) the amount of the Pension Plan's Fiduciary Net Position is projected (under the requirements of Statement 68) to be greater than the benefit payments that are projected to be made in that period and (b) pension plan assets up to that point are expected to be invested using a strategy to achieve the long-term expected rate of return, calculated using the long-term expected rate of return on pension plan investments.

2. The actuarial present value of projected benefit payments not included in (1), calculated using the municipal bond rate.

Entry age actuarial cost method
A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age(s). The portion of this actuarial present value allocated to a valuation year is called the *normal cost.* The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is called the *actuarial accrued liability.*

Inactive employees
Terminated individuals that have accumulated benefits but are not yet receiving them, and retirees or their beneficiaries currently receiving benefits.

Measurement period
The period between the prior and the current measurement dates.

Multiple-employer defined benefit pension plan
A defined benefit pension plan that is used to provide pensions to the employees of more than one employer.

APPENDIX C (continued)

GLOSSARY

Net Pension Liability
The liability of employers and nonemployer contributing entities to employees for benefits provided through a defined benefit pension plan.

Pension plans
Arrangements through which pensions are determined, assets dedicated for pensions are accumulated and managed, and benefits are paid as they come due.

Pensions
Retirement income and, if provided through a pension plan, postemployment benefits other than retirement income (such as death benefits, life insurance, and disability benefits). Pensions do not include postemployment healthcare benefits and termination benefits.

Plan members
Individuals that are covered under the terms of a pension plan. Plan members generally include (1) employees in active service (active plan members) and (2) terminated employees who have accumulated benefits but are not yet receiving them and retirees or their beneficiaries currently receiving benefits (inactive plan members).

Postemployment
The period after employment.

Postemployment benefit changes
Adjustments to the pension of an inactive employee.

Projected benefit payments
All benefits estimated to be payable through the pension plan to current active and inactive employees as a result of their past service and their expected future service.

Public employee retirement system
A special-purpose government that administers one or more pension plans; also may administer other types of employee benefit plans, including postemployment healthcare plans and deferred compensation plans.

APPENDIX C (continued)

GLOSSARY

Real rate of return
The rate of return on an investment after adjustment to eliminate inflation.

Service costs
The portions of the actuarial present value of projected benefit payments that are attributed to valuation years.

Termination benefits
Inducements offered by employers to active employees to hasten the termination of services, or payments made in consequence of the early termination of services. Termination benefits include early-retirement incentives, severance benefits, and other termination-related benefits.

Total Pension Liability
The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of Statement 68.

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Attachment 3 – Reconciliation of December 31, 2017 NPL and UAAL

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VIA E-MAIL and USPS

June 1, 2018

Mr. Steve Delaney
Chief Executive Officer
Orange County Employees Retirement System
2223 Wellington Avenue
Santa Ana, CA 92701

**Re: Orange County Employees Retirement System
Reconciliation of the Plan's December 31, 2017 Net Pension Liability (NPL) and Unfunded Actuarial Accrued Liability (UAAL)**

Dear Steve:

We have been requested by the Retirement System to reconcile, for each Rate Group, the December 31, 2017 Net Pension Liability (NPL) and the Unfunded Actuarial Accrued Liability (UAAL) as shown in the December 31, 2017 Governmental Accounting Standards Board (GASB) Statement 67 addendum letter and funding valuation report, respectively. (The breakdown of the NPL as disclosed in the GASB 67 addendum letter also appears in our GASB 68 financial report.)

The reconciliation is provided in Attachment A of this letter. The difference between the NPL and the UAAL is a direct result of the different liability and asset values we used in those developments.

LIABILITY

The Total Pension Liability (TPL) shown in the GASB 67 addendum letter was measured based on the December 31, 2016 demographic data by: (i) revaluing the TPL as of December 31, 2016 (before the roll forward) using the actuarial assumptions adopted for the December 31, 2017 funding valuation, (ii) rolling forward the liability from December 31, 2016 to December 31, 2017 and (iii) assuming that the actuarial experience of the System would match with that anticipated by the demographic assumptions. On the other hand, the Actuarial Accrued Liability (AAL) shown in the funding valuation report was measured based on the December 31, 2017 demographic data.

The differences between the TPL and the AAL were primarily due to: (a) actuarial gains/losses on the liability items as documented on pages 144 and 145 of the December 31, 2017 funding valuation report for each Rate Group and (b) differences between the rolled forward liabilities and the actual liabilities.

ASSETS

The Plan Fiduciary Net Position shown in the GASB 67 report as of December 31, 2017 (that we subsequently used for our GASB 67 addendum letter) was based on the plan's Market Value of Assets (MVA) including the proceeds available in the County Investment Account and remaining O.C. Sanitation District (OCSD) UAAL Deferred Account. On the other hand, the funding valuation report used the Valuation Value of Assets (VVA) after adjusting the MVA for asset smoothing and excluding the non-valuation reserve.

The differences between the Plan Fiduciary Net Position and the VVA were primarily due to adjustment of deferred investment gain and the non-valuation reserve.

The NPL and UAAL were calculated by taking the TPL and the AAL and subtracting the Plan Fiduciary Net Position and the VVA, respectively.

The undersigned is a member of the American Academy of Actuaries and meets the Qualification Standard of the American Academy of Actuaries to render the actuarial opinion contained herein.

Please let us know if you have any questions or comments.

Sincerely,

Andy Yeung

Andy Yeung

AW/bbf
Enclosure

cc: Tracy Bowman
Brenda Shott

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Attachment A
All Rate Groups (Results are as of December 31, 2017)

(A) Liability Reconciliation	Rate Group #1	Rate Group #2	Rate Group #3	Rate Group #4
(1) Total Pension Liability Included in the development of the GASB 67 Addendum Letter	$484,749,429	$11,008,619,691	$663,786,781	$47,220
(2) (Gain)/Loss from (Lower)/Higher than Expected Salary Increases*	$2,805,000	($43,129,000)	$1,667,000	$0
(3) (Gain)/Loss from (Lower)/Higher than Expected COLA Increases*	($2,168,000)	($50,225,000)	($2,859,000)	$0
(4) Other Experience (Gain)/Loss*	($1,137,000)	$22,091,000	$3,531,000	($2,000)
(5) Difference in Impact from Assumption Changes**	$309,465	$10,671,648	$935,768	$1,043
(6) Other (Gain)/Loss from Rolled Forward Liabilities to Actual Liabilities	($220,894)	($72,339)	$23,451	$1,737
(7) Actuarial Accrued Liability Included in the Funding Valuation Report (1) + (2) + (3) + (4) + (5) + (6)	$484,338,000	$10,947,956,000	$667,085,000	$48,000

** These actuarial gain/loss items can be found on pages 144 and 145 of our draft December 31, 2017 funding valuation report.*

*** There is a difference between applying the new assumptions in measuring the liability using the membership data as of December 31, 2017 (in the funding valuation) and the rolled forward liability using the membership data as of December 31, 2016 (in the financial reporting valuation.)*

(B) Asset Reconciliation	Rate Group #1	Rate Group #2	Rate Group #3	Rate Group #4
(1) Market Value of Assets Excluding County Investment Account and OCSD UAAL Deferred Account	$400,855,757	$7,922,923,156	$688,486,883	$49,540
(2) County Investment Account and OCSD UAAL Deferred Account	$4,967,147	$82,611,101	$14,871,000	$0
(3) Plan's Fiduciary Net Position Included in the development of the GASB 67 Addendum Letter (1) + (2)	$405,822,904	$8,005,534,257	$703,357,883	$49,540
(4) Adjustment for Deferred Investment Return and Non-Valuation Reserve	($12,460,757)	($246,287,156)	($21,401,883)	($1,540)
(5) Valuation of Assets Included in the Funding Valuation Report (1) + (4)	$388,395,000	$7,676,636,000	$667,085,000	$48,000

	Rate Group #1	Rate Group #2	Rate Group #3	Rate Group #4
Net Pension Liability Shown in the GASB 67 Addendum Letter (A1) - (B3)	$78,926,525	$3,003,085,434	($39,571,102)	($2,320)
Unfunded Actuarial Accrued Liability Shown in the Funding Valuation Report (A7) - (B5)	$95,943,000	$3,271,320,000	$0	$0

Attachment A
All Rate Groups (Results are as of December 31, 2017)

(A) Liability Reconciliation	Rate Group #5	Rate Group #9	Rate Group #10	Rate Group #11
(1) Total Pension Liability Included in the development of the GASB 67 Addendum Letter	$928,331,979	$44,217,899	$230,763,322	$9,739,477
(2) (Gain)/Loss from (Lower)/Higher than Expected Salary Increases*	($5,421,000)	$274,000	($793,000)	$134,000
(3) (Gain)/Loss from (Lower)/Higher than Expected COLA Increases*	($3,465,000)	($170,000)	($1,043,000)	($23,000)
(4) Other Experience (Gain)/Loss*	($3,004,000)	($187,000)	$1,598,000	$6,000
(5) Difference in Impact from Assumption Changes**	($287,991)	($92,849)	$101,245	$28,957
(6) Other (Gain)/Loss from Rolled Forward Liabilities to Actual Liabilities	$41,012	($8,050)	($50,567)	$566
(7) Actuarial Accrued Liability Included in the Funding Valuation Report (1) + (2) + (3) + (4) + (5) + (6)	$916,195,000	$44,034,000	$230,576,000	$9,886,000

** These actuarial gain/loss items can be found on pages 144 and 145 of our draft December 31, 2017 funding valuation report.*

*** There is a difference between applying the new assumptions in measuring the liability using the membership data as of December 31, 2017 (in the funding valuation) and the rolled forward liability using the membership data as of December 31, 2016 (in the financial reporting valuation.)*

(B) Asset Reconciliation	Rate Group #5	Rate Group #9	Rate Group #10	Rate Group #11
(1) Market Value of Assets Excluding County Investment Account and OCSD UAAL Deferred Account	$716,214,817	$33,975,130	$181,043,818	$9,913,154
(2) County Investment Account and OCSD UAAL Deferred Account	$0	$0	$0	$0
(3) Plan's Fiduciary Net Position Included in the development of the GASB 67 Addendum Letter (1) + (2)	$716,214,817	$33,975,130	$181,043,818	$9,913,154
(4) Adjustment for Deferred Investment Return and Non-Valuation Reserve	($22,263,817)	($1,056,130)	($5,627,818)	($308,154)
(5) Valuation of Assets Included in the Funding Valuation Report (1) + (4)	$693,951,000	$32,919,000	$175,416,000	$9,605,000

	Rate Group #5	Rate Group #9	Rate Group #10	Rate Group #11
Net Pension Liability Shown in the GASB 67 Addendum Letter (A1) - (B3)	$212,117,162	$10,242,769	$49,719,504	($173,677)
Unfunded Actuarial Accrued Liability Shown in the Funding Valuation Report (A7) - (B5)	$222,244,000	$11,115,000	$55,160,000	$281,000

Attachment A
All Rate Groups (Results are as of December 31, 2017)

(A) Liability Reconciliation	Rate Group #12	Rate Group #6	Rate Group #7	Rate Group #8	Total
(1) Total Pension Liability Included in the development of the GASB 67 Addendum Letter	$10,353,659	$838,283,136	$3,870,370,850	$1,664,730,958	$19,753,994,401
(2) (Gain)/Loss from (Lower)/Higher than Expected Salary Increases*	($169,000)	($6,385,000)	$560,000	($15,942,000)	($66,399,000)
(3) (Gain)/Loss from (Lower)/Higher than Expected COLA Increases*	($29,000)	($2,771,000)	($24,422,000)	($8,621,000)	($95,796,000)
(4) Other Experience (Gain)/Loss*	($84,000)	($1,158,000)	($5,331,000)	$1,025,000	$17,348,000
(5) Difference in Impact from Assumption Changes**	$9,157	$356,744	$7,960,297	$6,347,441	$26,340,925
(6) Other (Gain)/Loss from Rolled Forward Liabilities to Actual Liabilities	($816)	$114,120	$236,853	($126,399)	($61,326)
(7) Actuarial Accrued Liability Included in the Funding Valuation Report (1) + (2) + (3) + (4) + (5) + (6)	$10,080,000	$828,440,000	$3,849,375,000	$1,647,414,000	$19,635,427,000

** These actuarial gain/loss items can be found on pages 144 and 145 of our draft December 31, 2017 funding valuation report.*

*** There is a difference between applying the new assumptions in measuring the liability using the membership data as of December 31, 2017 (in the funding valuation) and the rolled forward liability using the membership data as of December 31, 2016 (in the financial reporting valuation.)*

(B) Asset Reconciliation	Rate Group #12	Rate Group #6	Rate Group #7	Rate Group #8	Total
(1) Market Value of Assets Excluding County Investment Account and OCSD UAAL Deferred Account	$10,389,976	$591,711,585	$2,753,267,390	$1,343,775,794	$14,652,607,000
(2) County Investment Account and OCSD UAAL Deferred Account	$0	$8,585,705	$38,253,047	$0	$149,288,000
(3) Plan's Fiduciary Net Position Included in the development of the GASB 67 Addendum Letter (1) + (2)	$10,389,976	$600,297,290	$2,791,520,437	$1,343,775,794	$14,801,895,000
(4) Adjustment for Deferred Investment Return and Non-Valuation Reserve	($322,976)	($18,393,585)	($85,586,390)	($41,771,794)	($455,482,000)
(5) Valuation of Assets Included in the Funding Valuation Report (1) + (4)	$10,067,000	$573,318,000	$2,667,681,000	$1,302,004,000	$14,197,125,000

	Rate Group #12	Rate Group #6	Rate Group #7	Rate Group #8	Total
Net Pension Liability Shown in the GASB 67 Addendum Letter (A1) - (B3)	($36,317)	$237,985,846	$1,078,850,413	$320,955,164	$4,952,099,401
Unfunded Actuarial Accrued Liability Shown in the Funding Valuation Report (A7) - (B5)	$13,000	$255,122,000	$1,181,694,000	$345,410,000	$5,438,302,000

I-1

Orange County Employees Retirement System
Retirement Board Meeting
June 18, 2018
Application Notices

Member Name	Agency/Employer	Retirement Date
Aguirre, Patricia	Auditor-Controller	3/16/2018
Alston, Shawn	Probation	4/10/2018
Alvarez, Josephine	County Executive Office (CEO)	3/30/2018
Ashe, Tangela	OC Community Resources	3/16/2018
Babilonia, Lisa	OC Community Resources	3/30/2018
Baker, Eric	OC Waste and Recycling	4/13/2018
Barnes, Sandra	Auditor-Controller	3/29/2018
Barry, Sean	Probation	3/30/2018
Baust, Carl	Fire Authority (OCFA)	3/30/2018
Begin, Angie	Social Services Agency	3/30/2018
Bieber, Christopher	Probation	3/30/2018
Binaei, Soheil	OC Public Works	3/29/2018
Blackburn, Donald	Fire Authority (OCFA)	3/30/2018
Bo, Thu	Social Services Agency	3/30/2018
Bond, Jeffrey	Transportation Corridor Agency	3/3/2018
Booe, Everette	OCTA	3/31/2018
Bosley, Kelleen	City Of San Juan Capistrano	3/30/2018
Boyer, Erminia	Transportation Corridor Agency	4/15/2018
Brant, David	Sheriff's Dept	3/30/2018
Brinshot, Aurora	Public Defender	3/30/2018
Cagle, Ronald	Sheriff's Dept	3/30/2018
Caley, Kenneth	Fire Authority (OCFA)	3/30/2018
Campbell, Kathleen	OCTA	4/21/2018
Campbell, Mark	Social Services Agency	3/30/2018
Caringer, Russell	Fire Authority (OCFA)	3/30/2018
Castillo, Norma	Registrar Of Voters	3/30/2018
Chay, Julie	OC Waste and Recycling	3/30/2018
Cherness, Mitchell	Health Care Agency	3/30/2018
Chilton, Russell	Sheriff's Dept	3/16/2018
Christoffersen, Janet	Superior Court	3/31/2018
Comsa, Paul	Sheriff's Dept	3/30/2018
D'Agostino, Joseph	District Attorney	3/30/2018
Davidson, Christopher	John Wayne Airport	3/30/2018
Davis, Evelyn	Probation	3/30/2018
Davis, Wayne	Public Defender	3/30/2018
Delfin, Lorraine	Probation	3/16/2018
Derr, Susan	OC Community Resources	3/30/2018
Dixon, Donald	Sheriff's Dept	3/30/2018
Dorantes, Joe	OC Public Works	11/27/2017
Doss, Jerry	Sanitation District	3/16/2018
Drake, James	OCTA	3/30/2018
Dullat, Jaswinder	OCTA	4/1/2018
Dumlao, Allan	Sanitation District	3/30/2018
Duvall, Dina	OC Community Resources	3/30/2018
Dworakowski, David	Public Defender	1/5/2018
Eddy, Matt	Sanitation District	3/16/2018
Edmundson, Judith	Social Services Agency	3/30/2018
Egge, Mark	Sheriff's Dept	3/30/2018
Elgenson, Richard	OC Public Works	3/30/2018

Member Name	Agency/Employer	Retirement Date
Ellison, Roy	District Attorney	3/30/2018
Enfield, Thomas	Fire Authority (OCFA)	3/30/2018
Ferdig, David	Fire Authority (OCFA)	3/30/2018
Figueroa, Ramona	Sheriff's Dept	3/30/2018
Fleming, Donna	Health Care Agency	3/30/2018
Freeman, Bruce	Health Care Agency	3/30/2018
Fry, Grant	Sheriff's Dept	3/30/2018
Gabriel, Benigno	Sanitation District	3/30/2018
Gamboa, Jodi	Superior Court	3/30/2018
Garcia, Susan	Superior Court	3/30/2018
Garfias, Frances	Health Care Agency	3/30/2018
Garrett, Glenn	City Of San Juan Capistrano	3/17/2018
Garza, Oscar	OC Waste and Recycling	3/30/2018
Gelzhiser, Selina	Superior Court	3/31/2018
Germain, Heidi	Superior Court	3/31/2018
Gil, Steven	Sheriff's Dept	3/30/2018
Gipson, Melvalois	County Executive Office (CEO)	3/30/2018
Gonzales, Diane	Social Services Agency	3/30/2018
Green, Douglas	Superior Court	1/5/2018
Grine, Charles Edward	OCTA	3/31/2018
Guillen, Victor	OCTA	3/31/2018
Guillermo, Gilberto	OCTA	3/31/2018
Ha, Khanh	Social Services Agency	3/30/2018
Hale, Mary	Health Care Agency	3/31/2018
Haller, William	Health Care Agency	3/30/2018
Harte, James	Health Care Agency	3/30/2018
Heard-Rodriguez, Geraldine	Human Resources Division	4/1/2018
Helman, Robert	OC Public Works	3/30/2018
Hermes, Julia	Health Care Agency	3/10/2018
Hernandez, Moses	Auditor-Controller	3/30/2018
Hobbs, Thomas	Fire Authority (OCFA)	3/30/2018
Hood, Rosalie	Auditor-Controller	3/30/2018
Houston, Heather	Sheriff's Dept	3/30/2018
Houston, Stephen	Social Services Agency	3/30/2018
Hoyt, Melinda	Superior Court	3/31/2018
Husain, Zareen	Auditor-Controller	3/30/2018
Huth, Mary	Child Support Services	3/30/2018
Ilkhanipour, Mahrooz	OC Public Works	3/30/2018
Inthavong, Calvin	Social Services Agency	3/30/2018
Jaeger, Norbert	OCTA	3/26/2018
Jensen, Michael	Sheriff's Dept	3/30/2018
Jones, Gloria	OCTA	3/31/2018
Kang, Grace	OC Community Resources	3/30/2018
Kea, Steven	Sheriff's Dept	3/16/2018
Kelly, Paul	District Attorney	3/30/2018
Koo, Jayoon	Registrar Of Voters	3/30/2018
Kovac, Lilia	Sanitation District	3/30/2018
Kozma, Ronald	OC Public Works	3/30/2018
Krall, Joyce	Health Care Agency	3/30/2018
Kuebler, Sherri	Superior Court	3/30/2018
Lassiter, Brenda	Health Care Agency	3/30/2018
Le, Chau	OC Public Works	3/30/2018
Le, Nga	Sheriff's Dept	3/30/2018
Le, Phu	Social Services Agency	3/30/2018
Lechner, Jesse	Sanitation District	3/30/2018
Leclair, Rene	Social Services Agency	3/30/2018
Lewis, Michelle	Auditor-Controller	3/16/2018

Member Name	Agency/Employer	Retirement Date
Lona, Cynthia	Child Support Services	3/30/2018
Lopez, Jose	OC Community Resources	3/30/2018
Lowe, David	Transportation Corridor Agency	1/6/2018
Lowry, Lisa	Social Services Agency	3/30/2018
Lozano, Ines	County Executive Office (CEO)	3/30/2018
Lubinski, Michael	District Attorney	3/30/2018
Lucero, Danilo	Sheriff's Dept	3/30/2018
Lum, Darrell	Sheriff's Dept	3/30/2018
Luong, Vivian	Social Services Agency	3/30/2018
Luu, Louis	Social Services Agency	3/30/2018
Luu, Melinda	Social Services Agency	3/30/2018
Madruga, Kathy	District Attorney	3/30/2018
Mahmood, Ijaz	Auditor-Controller	3/30/2018
Mahoney, Paul	Sanitation District	3/30/2018
Martinazzi, Kathryn	Health Care Agency	3/30/2018
Martinez, Alicia	Social Services Agency	3/30/2018
Mc Collom, Richard	Fire Authority (OCFA)	3/31/2018
Mc Fadden, Georgia	Sheriff's Dept	3/30/2018
Mcney, Dennis	Sheriff's Dept	3/28/2018
Medina-Davidson, Martha	Health Care Agency	3/29/2018
Mendez, Thomas	Sanitation District	3/30/2018
Mengel, Michael	Sanitation District	3/30/2018
Metzer, Robert	Fire Authority (OCFA)	3/30/2018
Miller, George	Sheriff's Dept	4/1/2018
Montoya, Sandra	Probation	3/2/2018
Moore, John	Health Care Agency	3/31/2018
Moore, Meldie	District Attorney	4/12/2018
Moreno, Guillermo	OC Community Resources	4/13/2018
Moreno, Oscar	OCTA	4/1/2018
Morris, Robert	Sanitation District	3/1/2018
Morton, Dawn	Superior Court	3/31/2018
Moynihan, Claire	Auditor-Controller	3/30/2018
Mueller, Gary	Sheriff's Dept	3/30/2018
Murphy, Donald	OCTA	4/14/2018
Murray, Michael	Sanitation District	3/16/2018
Navarrete, Sylvia	Social Services Agency	3/30/2018
Naylor, Jeanne	Social Services Agency	3/30/2018
Neder, Barbara	OC Community Resources	3/30/2018
Negrete, John	OCTA	3/31/2018
Nevares, Virginia	Health Care Agency	3/30/2018
Nguyen, Ha	OCTA	3/31/2018
Nguyen, Hien	Probation	3/30/2018
Nguyen, Lena	Child Support Services	3/30/2018
Nguyen, Minh	Health Care Agency	3/30/2018
Nguyen, Tuan	Social Services Agency	3/30/2018
Nguyen, Willy	Social Services Agency	3/30/2018
Niemann, Wilfried	OC Public Works	3/30/2018
Niksch, Dennis	OC Public Works	3/30/2018
Nolan, Dennis	Public Defender	3/30/2018
Nolen, James	Probation	3/16/2018
Novella, Cecilia	Auditor-Controller	3/31/2018
Nunes, Susan	Auditor-Controller	3/30/2018
Oller, Jesse	Sheriff's Dept	3/30/2018
O'Meara, David	Social Services Agency	3/30/2018
Ortega, Robert	Sanitation District	3/30/2018
Pak, Hong	OC Public Works	3/26/2018
Park, Woon	OC Community Resources	3/30/2018

Member Name	Agency/Employer	Retirement Date
Parker, Chet	Sheriff's Dept	3/30/2018
Pascual, Antonio	OC Public Works	3/30/2018
Pavone, Peter	Social Services Agency	3/30/2018
Pearson, Pamela	Social Services Agency	3/30/2018
Peelle, Brian	Sheriff's Dept	3/30/2018
Pelser, Michelle	Social Services Agency	3/30/2018
Perez, Lucia	Superior Court	3/16/2018
Petersen, Scott	District Attorney	2/1/2018
Pham, Anh	Social Services Agency	3/30/2018
Pickrell, Lori	Superior Court	3/30/2018
Purcell, Darren	Fire Authority (OCFA)	3/30/2018
Quezada, Evangelina	Superior Court	3/22/2018
Rashall, Glenn	Sheriff's Dept	3/30/2018
Regambal, Richard	OCTA	3/30/2018
Reid, Linda	Superior Court	3/30/2018
Riley, Tonya	Auditor-Controller	3/30/2018
Rivas, Robert	Sheriff's Dept	3/30/2018
Rivera, Patrick	Sheriff's Dept	3/3/2018
Rivers, Daniel	Health Care Agency	4/13/2018
Robb, Edward	OC Public Works	3/30/2018
Roberts, Janet	Sanitation District	4/1/2018
Roche, John	Sheriff's Dept	3/9/2018
Rodriguez, Doris	Sheriff's Dept	3/30/2018
Rodriguez, Sonia	Social Services Agency	3/30/2018
Rupp, Cristina	Health Care Agency	3/30/2018
Sampson, Tina	Health Care Agency	3/30/2018
San Roman-Ball, Adriana	Social Services Agency	3/30/2018
Saucedo, Robert	OC Public Works	3/24/2018
Scavuzzo, Teresa	Auditor-Controller	3/30/2018
Schmutz, Brian	Sheriff's Dept	3/16/2018
Schultz, Eric	Fire Authority (OCFA)	3/29/2018
Schwabl, Kathryn	Health Care Agency	4/1/2018
Sevilla, Josephine	OC Public Works	3/31/2018
Sharp, Martin	OCTA	3/30/2018
Silva, Elia	Probation	3/30/2018
Sliwa-Luce, Elzbieta	Health Care Agency	3/30/2018
Smith, Jim	Sheriff's Dept	3/30/2018
Smith, Joseph	District Attorney	3/15/2018
Smith, Linda	OC Public Works	3/30/2018
Snitowsky, Howard	Health Care Agency	3/30/2018
Spalding, Scott	Sheriff's Dept	3/30/2018
Spencer, Alan	Sheriff's Dept	3/30/2018
Steffen, David	Fire Authority (OCFA)	3/30/2018
Stephens, Samuel	Health Care Agency	3/16/2018
Tapia, Diana	Social Services Agency	3/30/2018
Thomsen, Stuart	Sheriff's Dept	3/30/2018
Toro, Ricardo	Social Services Agency	3/30/2018
Torres, Betty	Social Services Agency	3/30/2018
Tran, Lien	Social Services Agency	3/30/2018
Tran, Rose	Social Services Agency	3/30/2018
Tran, Thanh-Xuan	Social Services Agency	3/31/2018
Usher, David	Sanitation District	3/30/2018
Uzo-Diribe, Charity	OC Public Works	3/30/2018
Van Deusen, Eric	Transportation Corridor Agency	3/30/2018
Vargas, Olga	Superior Court	3/30/2018
Vartolomei, George	OCTA	4/11/2018
Vaudreuil, Glenn	Probation	3/30/2018

Member Name	*Agency/Employer*	*Retirement Date*
Velasquez, Josie	Auditor-Controller	3/30/2018
Vieau, Gwen	Superior Court	3/30/2018
Villanueva, Carmencita	OC Public Works	3/30/2018
Vu, Hoai-My	Social Services Agency	3/30/2018
Vu, Khanh	Sheriff's Dept	3/30/2018
Vu, Kimoanh	Social Services Agency	3/30/2018
Vuong, Tuyet	Human Resources Division	3/30/2018
Wang, Mitchell	Sheriff's Dept	3/16/2018
Watkins, Donna	OC Community Resources	3/30/2018
White, Michael	Sanitation District	3/30/2018
Witting-Hertsch, Denise	Sheriff's Dept	3/30/2018
Woodley, Todd	Fire Authority (OCFA)	3/30/2018
Yamachika, Nira	OC Public Works	3/30/2018
Zaun, George	OC Public Works	3/30/2018
Zawacki, Joseph	Fire Authority (OCFA)	3/30/2018
Zuanich, Betsy	Superior Court	3/30/2018

Orange County Employees Retirement
Retirement Board Meeting
June 18, 2018
Death Notices

Active Members	*Agency/Employer*
New, Jane	Superior Court

Retired Members	*Agency/Employer*
Adams, John	OC Community Resources
Brantley, Raymond	OC Public Works
Cregut, Evelyn	Health Care Agency
Elmes, Roy	OC Public Works
Gates, Bonnie	Superior Court
Goss, Janice	OC Waste & Recycling
Kasules, Marty	Sheriff's Dept
Kempler, Irwin	Health Care Agency
Key, Virginia	OC Community Resources
Kratsch, William	OC Public Works
Leiby, David	OC Public Works
Medina, Trinidad	Social Services Agency
Miles, Shirley	OCTA
Radko, Zbigniew	Assessor
Robinson, Madeline	Auditor-Controller
Ruiz, Manuel	Probation
Salovesh, Charles	Sheriff's Dept
Thomas, Joan	Superior Court
Webster, John	OC Public Works
Winn, Long	Superior Court
Wolters, Floy	County Clerk/Recorder

Surviving Spouses	
Heisler, Ronald	
Macluskie, Helen	
Ortner, Marilyn	
Picarski, Robert	
Spencer, Dorothy	

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ORANGE COUNTY
OCERS
EMPLOYEES RETIREMENT SYSTEM

Memorandum

DATE: June 18, 2018

TO: Members of the Board of Retirement

FROM: Steve Delaney, Chief Executive Officer

SUBJECT: **CEO FUTURE AGENDAS AND 2018 OCERS BOARD WORK PLAN**

Written Report

AGENDA TOPICS FOR THE OCERS BOARD OF RETIREMENT

JULY

Travel and Training Expense Report
Strategic Planning Agenda – Final
Early payment of contributions for fiscal year 2018-2019
Lean Process Improvement Project

AUGUST

OCERS By the Numbers
The Evolution of the OCERS UAAL
Employer/Employee Contribution Matrix
Quarterly Securities Litigation Update
Quality of Member Services
CEM Benchmarking

SEPTEMBER

Strategic Planning Workshop

Submitted by:

Steve Delaney
Chief Executive Officer

OCERS RETIREMENT BOARD - 2018 Work Plan

	Jan	Feb	Mar	Apr	Jun	Jul	Aug	Sep (Offsite)	Oct	Nov	Dec
System Oversight		STAR COLA Posting **(I)**	Approve 2018 STAR COLA **(A)**		Mid-Year Review of 2018 Business Plan Progress **(I)**	Approve Early Payment Rates for Fiscal Year 2018-19 **(A)**	Review 2nd Quarter Budget to Actuals Financial Report **(I)**	Strategic Planning Workshop **(I)**	Overview of 2019 Administrative Budget and Investment (Workshop) **(I)**	Review 3rd Quarter Budget to Actuals Financial Report **(I)**	CEO Compensation **(A)**
		Approve 2018 COLA **(A)**	Quarterly 2018-2020 Strategic Plan Review **(A)**		Approve December 31, 2017 Actuarial Valuation & Funded Status of OCERS **(A)**		Receive OCERS by the Numbers **(I)**		Approve 2019-2021 Strategic Plan **(A)**	Approve 2019 Administrative (Operating) Budget **(A)**	
					Approve 2017 CAFR **(A)**		Receive Evolution of the UAAL **(I)**		Approve 2019 Business Plan **(A)**	Annual CEO Performance Review **(A)**	
					Quarterly 2018-2020 Strategic Plan Review **(A)**						
Board Governance				Brown Act Training **(I)**						Adopt 2019 Board Meeting Calendar **(A)**	Adopt Annual Work Plan for 2019 **(A)**
				Conflict of Interest Training **(I)**							Vice-Chair Election **(A)**
Regulation / Policies											
Compliance			State of OCERS **(A)**	Form 700 and OCERS Annual Disclosure Due **(A)**	Receive Financial Audit **(I)**					Status of Board Education Hours for 2018 **(I)**	

(A) = Action	**(I) = Information**

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ORANGE COUNTY
OCERS
EMPLOYEES RETIREMENT SYSTEM

Memorandum

DATE: May 31, 2018

TO: Members of the Board of Retirement

FROM: Steve Delaney, Chief Executive Officer

SUBJECT: **QUIET PERIOD – NON-INVESTMENT CONTRACTS**

Written Report

Background/Discussion

1. Quiet Period Policy Guidelines – Named Service Providers

The following guidelines established by the Quiet Period Policy, section 3.c, will govern a search process for Named Service Providers:

"All Board and Investment Committee Members, and staff not directly involved in the search process, shall refrain from communicating with Service Provider candidates regarding any product or service related to the search offered by the candidate throughout the quiet period,…"

2. Quiet Period Guidelines – Non-Named Service Providers

There are no policy guidelines regarding a quiet period for non-Named Service Providers. However, the following language is included in all distributed RFP's:

"From the date of issuance of this RFP until the selection of one or more respondents is completed and announced, respondents are not permitted to communicate with any OCERS staff member or Board Members regarding this procurement, except through the Point of Contact named herein. Respondents violating the communications prohibition may be disqualified at OCERS' discretion. Respondents having current business with OCERS must limit their communications to the subject of such business."

Distributed RFP's

The RFP's noted below are subject to the quiet period until such time as a contract(s) is finalized.

- We distributed an RFP for <u>Investment Counsel Services</u> April 2nd. The responses are being evaluated.
- An RFP to complete a <u>Compensation Study</u> for the OCERS direct employees was released on March 19th. We received three bids. The proposals are currently being evaluated.
- We distributed an RFP on March 30th for a vendor to complete an <u>NTIS Certification Assessment</u>. Two responses were received April 30th. We are currently evaluating the bids.

Memorandum

Submitted by:

Steve Delaney
Chief Executive Officer

I-4

Memorandum

DATE: June 18, 2018

TO: Members of the Board of Retirement

FROM: Gina M. Ratto, General Counsel

SUBJECT: **LEGISLATIVE UPDATE**

Written Report

Background/Discussion

The California Legislature reconvened on January 3, 2018 to commence the second year of the 2017 - 2018 legislative session. The 2018 Legislative Calendar is attached for the Board's information.

A comprehensive list and description of the pending bills that staff is monitoring is attached. Below is a brief summary of the bills that may be of greater interest to the Board. **Updates to the last report to the Board are indicated in bold and underlined text.**

SACRS Sponsored Bills

- **SB 1270 (Vidak)** The CERL authorizes the retirement boards of five specified counties to appoint assistant administrators and chief investment officers who, following appointment, are outside county charter, civil service, and merit system rules, except as specified. The CERL provides that these administrators and officers are employees of the county, as specified, while serving at the pleasure of the appointing boards, and that they may be dismissed without cause. This bill would apply these provisions to any county if the board of supervisors for that county, by resolution adopted by majority vote, makes those provisions applicable in the county. **(STATUS: In Assembly PERSS Committee. June 6 hearing postponed by Committee.)**

Bills That Would Amend the CERL or Other Laws That Apply to OCERS

- **AB 283 (Cooper)** would amend the CERL to require, for purposes of determining permanent incapacity of certain peace officers, that those members be evaluated by the retirement system to determine if they can perform all of the usual and customary duties of a peace officer as described under Section 830 of the Penal Code. The bill would apply to members who file applications for disability on or after the effective date of the bill, except for cases on appeal at that time. **(STATUS: In Senate PE&R Committee.)**

- **AB 1912 (Rodriguez)** Under existing law, the Joint Exercise of Powers Act ("JPA Act"), the debts, liabilities and obligations of a joint powers authority ("JPA") are the debts, liabilities and obligations of the parties to the JPA agreement "unless the agreement specifies otherwise." This bill would amend this provision of the JPA Act to state that the parties to the JPA agreement are not permitted to "agree otherwise" with respect to the retirement liabilities of the JPA if the JPA contracts with a public retirement system (including a CERL system). So, in other words, the JPA agreement can't relieve any of the parties to the agreement of their liability for the pension obligation. This provision of the bill is prospective.

AB 1912 would also add a section to the JPA Act to state that a JPA that contracts with a public retirement system and the members of the JPA – both current and former – shall mutually agree among them as to the apportionment of the JPA's retirement obligations, provided that the agreement equals the total retirement liability of the JPA. A copy of the mutual agreement must be provided to the retirement board.

- Under the previous version of AB 1912, the new section of the JPA Act would have specified that all current and former members of the JPA are jointly and severally liable for the retirement liability of the JPA. Note that a different provision of AB 1912 would amend the PERL to state that "On or after January 1, 2019, the [CalPERS] board shall not contract with any [JPA] unless all the parties to [the JPA] agreement, including all amendments thereto, are jointly and severally liable for all of the … obligations to the [CalPERS] system."

Further, if the members of the JPA are unable to mutually agree to apportionment of the total retirement liability, then the board of the retirement system shall apportion the retirement liability to each member of the JPA based on the share of service received from the JPA by each member of the JPA or the population of each member of the JPA, such that the apportionment equals the total retirement liability of the JPA, and the apportionment shall be reflected in the agreement between the JPA and the retirement board. However, if, after the board of the retirement system apportions the retirement liability, the members of the JPA mutually agree to the apportionment, the agreement of the members of the JPA on apportionment will control. The new section of the JPA Act applies retroactively to all parties, current and former, to the JPA agreement.

The bill also amends several other provisions of the PERL with respect to JPAs participating in the CalPERS plan and PERL provisions affecting termination of participation by JPAs in the CalPERS plan. **(STATUS: In Senate.)**

- **AB 2076 (Rodriguez)** The CERL authorizes the Los Angeles County Employees Retirement Association (LACERA) to adjust retirement payments due to errors or omissions, as specified, permits a member permanently incapacitated for duty to retire for disability only if specified criteria are met, and requires the LACERA board to determine the effective date of retirement in those cases, as specified. This bill would authorize LACERA to correct a prior board decision determining the effective date of retirement for a member permanently incapacitated for disability that was made between January 1, 2013, and December 31, 2015, and was based upon an error of law existing at the time of the decision, as specified. The bill would authorize a member seeking correction under these provisions to file an application with the board no later than one year from the date these provision, become operative. **(STATUS: Referred to Senate PE&R Committee on 4/19/18.)**

- **SB 1244 (Wieckowski)** The California Public Records Act (CPRA) requires state and local agencies to make their public records available for public inspection and to make copies available upon request and payment of a fee, unless the public records are exempt from disclosure. The CPRA makes specified records exempt from disclosure and provides that disclosure by a state or local agency of a public record that is otherwise exempt constitutes a waiver of the exemption.

  Further, the CPRA requires a court to award court costs and reasonable attorney fees to the plaintiff if the plaintiff prevails in litigation filed pursuant to the CPRA, and requires the court to award court costs and reasonable attorney fees to the public agency if the court finds that the plaintiff's case is clearly frivolous. This bill would replace "plaintiff" with "requester" in that provision. **(STATUS: In Assembly.)**

Other Bills of Interest

- **AB 2571 (Fletcher)** This bill, if consistent with fiduciary responsibilities of a public investment fund as determined by its board, would require a public investment fund to require alternative investment vehicles to report at least annually certain information concerning specified hospitality employers relating to race and gender pay equity and sexual harassment. The bill would require a public investment fund to disclose the information provided to the fund at least once annually in a report presented at a meeting open to the public and would require the fund to provide the report upon request to a member of the Legislature. The bill would authorize the Department of Fair Employment and Housing to issue regulations for the implementation of these reporting requirements. The bill would define terms for purposes of the reporting provisions and repeal the reporting provisions on January 1, 2022.

  Existing law provides that board members and other officers and employees of CalPERS and CalSTRS, and certain other entities, shall be held harmless and eligible for indemnification from the General Fund in connection with prescribed actions relating to prohibited investments. The bill would additionally provide that board members of any public pension or retirement system, other officers and employees, and investment managers under contract with the system would also be held harmless and eligible for indemnification from the General Fund in connection with actions taken pursuant to the bill. **(STATUS: In Assembly PRSS Committee.)**

- **AB 3084 (Levine)** Existing law requires all state and local public retirement systems to submit audited financial statements to the State Controller at the earliest practicable opportunity within 6 months of the close of each fiscal year. This bill would require each governing body of a public agency that provides other postemployment benefits to, in an annual financial statement submitted to the Controller, in a form prescribed by the Controller, show that the public agency has met or if it has not met, detail why it has not met, and what the public agency is doing to meet, specified parameters related to the provision of other postemployment benefits, including (a) Making targeted prefunding contributions on a timely basis; (b) Depositing contributions in an irrevocable qualified trust for the exclusive benefit of plan members; (c) Investing contributions in excess of any pay-as-you-go amounts in a diversified investment portfolio with a defined investment policy; and (d) Ensuring that the discounted rate used to develop the actuarial account liability and normal cost recognizes the expected return of the entire portfolio. **(STATUS: In APPR Committee. Held under submission.)**

- **AB 3150 (Brough)** Existing law requires each state and local public pension or retirement system, on and after the 90th day following the completion of the annual audit of the system, to provide a concise annual report on the investments and earnings of the system, as specified, to any member who makes a request and pays a fee, if required, for the costs incurred in preparation and dissemination of that report. This bill would also require each state and local pension or retirement system to post a concise annual audit of the information described above on that system's Internet Web site no later than the 90th day following the audit's completion. By imposing new duties on local retirement systems, the bill would impose a state-mandated local program. **(STATUS: In Assembly PRSS Committee.)**

Bills that apply to CalPERS and/or CalSTRS Only:

- **SB 964 (Allen)** This bill would, until January 1, 2035, require CalPERS and CalSTRS to analyze climate-related financial risk, as defined, to the extent the CalPERS and CalSTRS boards identify the risk as a material risk to the retirement system. The bill, by January 1, 2020, and every 3 years thereafter, would require each board to publicly report on the climate-related financial risk of its public market portfolio, including alignment of each system with a specified climate agreement and California climate policy goals and the exposure of the fund to long-term risks, as specified. The bill would provide that it does not require either board to take action unless the board determines in good faith that the action is consistent with its fiduciary responsibilities. **(STATUS: In Assembly.)**

- **SB 1033 (Moorlach)** The PERL authorizes retirement systems to enter into agreements to provide certain reciprocal benefits to employees that are employed by other agencies that are parties to the agreement if the employees meet specified requirements, a practice commonly referred to as reciprocity. Reciprocity provides for the application of the final compensation paid by a subsequent employer to service provided to a prior employer. The PERL provides that a public agency that has agreed to reciprocity with CalPERS also has reciprocity with all other agencies that have entered into those agreements with CalPERS, among others. The PERL requires the CalPERS Board to ensure that a contracting agency that creates a significant increase in actuarial liability as a result of increased compensation paid to a nonrepresented employee bears the associated liability, except as specified, including a portion that would otherwise be borne by another contracting agency. The PERL requires the system actuary to assess an increase in liability, in this regard, to the employer that created it at the time the increase is determined and to make adjustments to that employer's contribution rates to account for the increased liability. This bill would require that an agency participating in CalPERS that increases the compensation of a member who was previously employed by a different agency to bear all actuarial liability for the action, if it results in an increased actuarial liability beyond what would have been reasonably expected for the member. The bill would require, in this context, that the increased actuarial liability be in addition to reasonable compensation growth that is anticipated for a member who works for an employer or multiple employers over an extended time. The bill would require, if multiple employers cause increased liability, that the liability be apportioned equitably among them. The bill would apply to an increase in actuarial liability, as specified, due to increased compensation paid to an employee on and after January 1, 2019. **(STATUS: In Senate PE&R Committee.)**

- **SB 1124 (Leyva) Amended May 25, 2018. This bill would establish new procedures under the PERL for cases in which a member's benefits are erroneously calculated by the state or a contracting agency. The bill, with respect to a memorandum of understanding (MOU) entered into before January 1, 2019, would require the system, upon determining that compensation for an employee member covered by that MOU reported by the state or a contracting agency conflicts with specified law, to discontinue the reporting of the disallowed compensation and not to pay benefits based on the disallowed compensation, except as provided. The bill would require the contributions made on the disallowed compensation, for active members, to be credited against future contributions on behalf of the member. The bill would require CalPERS, with respect to retired members or beneficiaries whose final compensation at retirement was predicated upon disallowed compensation, to permanently adjust the benefit to reflect the inclusion of the disallowed compensation. The bill would also require that the retired member or beneficiary be permitted to retain the benefit level and not be required to repay that benefit, if, among other things, the member was unaware the compensation was disallowed when reported. The bill would require the applicable state or contracting agency to pay the cost associated with the new entitlement, as specified. This bill contains other related provisions and other existing laws. (STATUS: Passed Senate and ordered to Assembly.)**

- **SB 1166 (Pan) Amended May 25, 2018. This bill would require that any CalPERS contracting agency that fails to make its required employer contributions on time to notify members and retired members who are current or past employees of that agency, or their beneficiaries, of the agency's delinquency by mail within 30 days of the payment having become delinquent. The bill would require the board to provide contact information in a specified format to contracting agencies for the purpose of providing notice to members and retired members who are current or past employees of that agency, or to their beneficiaries, and would prescribe a process in this regard. The bill would immunize contracting agencies for failure to provide notice if the contact information is incomplete or incorrect. (STATUS: Passed Senate and ordered to Assembly.)**

- **SB 1413 (Nielsen) Amended May 25, 2018. This bill would enact the California Employers' Pension Prefunding Trust Program and establish the California Employers' Pension Prefunding Trust Fund to allow state and local public agency employers that participate in CalPERS and provide a defined benefit pension plan to their employees to prefund their required pension contributions. The bill contains other related provisions. (STATUS: Passed Senate and ordered to Assembly.)**

Divestment Proposals (CalPERS and CalSTRS Only)

- **AB 1597 (Nazarian)** This bill would prohibit new investments and require liquidation of existing investments of CalPERS and CalSTRS in investment vehicles issued, owned, controlled or managed by the government of Turkey. **(STATUS: In Senate PE&R Committee.)**

Attachments

Submitted by:

Gina M. Ratto
General Counsel

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

2017—2018 LEGISLATIVE SESSION BILLS OF INTEREST
LEGISLATIVE UPDATE (June 18, 2018) – ATTACHMENT

AB 283 (Cooper): The CERL currently provides that a member who is permanently incapacitated shall be retired for disability despite age if, among other conditions, the member's incapacity is a result of injury or disease arising out of and in the course of the member's appointment, and that employment contributes substantially to that incapacity or the member has completed five years of service and not waived retirement in respect to the particular incapacity or aggravation thereof, as specified. The bill would amend the CERL to require, for purposes of determining permanent incapacity of certain peace officers, that those members be evaluated to determine if they can perform all of the usual and customary duties of a peace officer as described under Section 830 of the Penal Code. The bill would apply to members who file applications for disability on or after the effective date of the bill , except for cases on appeal at that time. **(STATUS: In Senate PE&R Committee.)**

AB 526 (Cooper) This bill would make the Sacramento County Employees Retirement System a district under the CERL. **(STATUS: In Senate PE&R Committee.)**

AB 1597 (Nazarian) This bill would prohibit CalPERS and CalSTRS from making additional or new investments, or renewing existing investments, in an investment vehicle in Turkey that is issued by the government of Turkey or that is owned, controlled, or managed by the government of Turkey. The bill would also require the boards to liquidate existing investments in Turkey in these types of investment vehicles within six months of the passage of a federal law imposing sanctions on Turkey. **(STATUS: In Senate PE&R Committee.)**

AB 1912 (Rodriguez) Under the Joint Exercise of Powers Act ("JPA Act"), the debts, liabilities and obligations of a joint powers authority ("JPA") are the debts, liabilities and obligations of the parties to the JPA agreement "unless the agreement specifies otherwise." This bill would amend this provision of the JPA Act to state that the parties to the JPA agreement are not permitted to "agree otherwise" with respect to the retirement liabilities of the JPA if the JPA contracts with a public retirement system (including a CERL system). So, in other words, the JPA agreement can't relieve any of the parties to the agreement of their liability for the pension obligation. This provision of the bill is prospective.

AB 1912 would also add a section to the JPA Act to state that a JPA that contracts with a public retirement system and the members of the JPA – both current and former – shall mutually agree among them as to the apportionment of the JPA's retirement obligations, provided that the agreement equals the total retirement liability of the JPA. A copy of the mutual agreement must be provided to the retirement board.

- Under the previous version of AB 1912, the new section of the JPA Act would have specified that all current and former members of the JPA are jointly and severally liable for the retirement liability of the JPA. Note that a different provision of AB 1912 would amend the PERL to state that "On or after January 1, 2019, the [CalPERS] board shall not contract with any [JPA] unless all the parties to [the

> JPA] agreement, including all amendments thereto, are jointly and severally liable for all of the … obligations to the [CalPERS] system."

Further, if the members of the JPA are unable to mutually agree to apportionment of the total retirement liability, then the board of the retirement system shall apportion the retirement liability to each member of the JPA based on the share of service received from the JPA by each member of the JPA or the population of each member of the JPA, such that the apportionment equals the total retirement liability of the JPA, and the apportionment shall be reflected in the agreement between the JPA and the retirement board. However, if, after the board of the retirement system apportions the retirement liability, the members of the JPA mutually agree to the apportionment, the agreement of the members of the JPA on apportionment will control. The new section of the JPA Act applies retroactively to all parties, current and former, to the JPA agreement.

The bill also amends several other provisions of the PERL with respect to JPAs participating in the CalPERS plan and PERL provisions affecting termination of participation by JPAs in the CalPERS plan. **(STATUS: <u>In Senate</u>.)**

AB 2076 (Rodriguez) The CERL authorizes a county retirement system in Los Angeles County to adjust retirement payments due to errors or omissions, as specified, and permits a member permanently incapacitated for duty to retire for disability only if specified criteria are met and requires the board to determine the effective date of retirement in those cases, as specified. This bill would authorize a county retirement system in Los Angeles County to correct a prior board decision determining the effective date of retirement for a member permanently incapacitated for disability that was made between January 1, 2013, and December 31, 2015, and was based upon an error of law existing at the time of the decision, as specified. The bill would authorize a member seeking correction under these provisions to file an application with the board no later than one year from the date these provision, become operative. **(STATUS: Referred to Senate PE&R Committee on 4/19/18.)**

AB 2196 (Cooper) (1) Under the PERL, members may make certain elections, including elections to purchase service credit for various types of public service, upon payment of additional contributions. Existing law permits a member who retires before paying off the entire amount for service credit to pay the balance due or total amount if no payroll deductions had been made prior to retirement by deductions from his or her retirement allowance equal to those authorized as payroll deductions, as specified. This bill would permit the member, survivor, or beneficiary, as an alternative, to elect to receive an allowance that is reduced by the actuarial equivalent of any balance remaining unpaid by the member. The bill would also provide that all elections taking effect on or after January 1, 2019, including elections for normal contributions, arrears contributions, absences, or public service, would become due and payable at the time of member's retirement or preretirement death. The bill would additionally require the member, survivor, or beneficiary to have his or her allowance reduced by the actuarial equivalent of any balance remaining unpaid by the member, except as specified.

(2) Existing law permits a member of CalPERS who has elected to receive credit for service and who retires for disability, including a safety member who retires due to industrial disability, to elect to cancel the installments prospectively, in accordance with certain provisions. This bill would specify that for an election taking place on

or after January 1, 2019, the amount of the election remaining for normal contributions, arrears, contributions, absences, or public service would become due and payable at the time of the member's retirement or preretirement death. The bill would provide that in these circumstances the member, survivor, or beneficiary would have his or her allowance reduced by the actuarial equivalent of any balance remaining unpaid by the member.

(3) Existing law specifies that an election by a member to receive credit for service under the PERL is effective only if accompanied by a lump-sum payment or an authorization for payments, in accordance with regulations of the CalPERS board; authorizes a member paying for credit for service in after-tax installments to suspend these payments for a period not to exceed 12 months, with payments automatically resuming at the end of the period or earlier, if requested by the member; and permits a member who retires during the suspension period to make, prior to retirement, a lump-sum payment for the recalculated balance due or cancel installment payments. This bill would permit a member, as an alternative to these two options, to reduce his or her allowance by the actuarial equivalent of the recalculated balance remaining unpaid by the member.

(4) Under the provisions of the PERL governing the payment of additional service credit, a member's failure to elect to make a lump-sum payment of the election to cancel installment payments results in the resumption of installment payments as of the member's retirement date. This bill would revise that provision to instead provide that, effective on or after January 1, 2019, a member's failure to elect to make a lump-sum payment or cancel his or her installment payments would result in the member's allowance being reduced by the actuarial equivalent of the recalculated balance remaining unpaid.

(5) The PERL establishes retirement formulas, known as the Second Tier, modified First Tier, and First Tier, which are applicable to specified members of the retirement system, and a member who elects to be subject to Second Tier benefits is paid his or her accumulated contributions plus interest, subject to specified conditions. Effective January 1, 2000, a member who received service credit subject to Second Tier benefits may elect to become subject to First Tier benefits and contribution rates. That law requires a member who elects to become subject to First Tier benefits to deposit accumulated contributions the member withdrew while he or she was subject to Second Tier benefits, plus interest, as specified, and this deposit requirement may be satisfied by an actuarial equivalent reduction in the member's retirement allowance. This bill would instead specify that this deposit requirement may be satisfied by an election to reduce the member's allowance by the actuarial equivalent of any balance remaining unpaid by the number at the time of the member's retirement or preretirement death. The bill would also specify that, for a member who elects to receive First Tier Credit on or after January 1, 2019, any unpaid balance of that member would become due and payable at the time of the member's retirement or preretirement death, with the member, survivor, or beneficiary's allowance reduced by the actuarial equivalent of any balance remaining unpaid by the member. **(STATUS: <u>In Senate PE&R Committee</u>.)**

AB 2571 (Fletcher) Amended 4/11/18 This bill, if consistent with fiduciary responsibilities of a public investment fund as determined by its board, would require a public investment fund to require alternative investment vehicles to report at least annually certain information concerning specified hospitality employers relating to race and gender pay equity and sexual harassment. The bill would require the fund to disclose the information it receives at least once annually in a report presented at a meeting open to the public and would require the fund to provide the report upon request to a member of the Legislature. The bill would authorize the Department of Fair Employment and Housing to issue regulations for the implementation of these reporting requirements. The bill would define terms for purposes of the reporting provisions and repeal the reporting provisions on January 1, 2022.

Existing law provides that board members and other officers and employees of CalPERS and CalSTRS, and certain other entities, shall be held harmless and eligible for indemnification from the General Fund in connection with prescribed actions relating to prohibited investments. The bill would additionally provide that board members of any public pension or retirement system, other officers and employees, and investment managers under contract with the system shall also be held harmless and be eligible for indemnification from the General Fund in connection with actions taken pursuant to the bill. **(STATUS: In Assembly PRSS Committee.)**

AB 3084 (Levine) Amended April 10, 2018. Existing law requires all state and local public retirement systems to submit audited financial statements to the State Controller at the earliest practicable opportunity within 6 months of the close of each fiscal year. This bill would require each governing body of a public agency that provides other postemployment benefits to, in an annual financial statement submitted to the Controller, in a form prescribed by the Controller, show that the public agency has met or if it has not met, detail why it has not met, and what the public agency is doing to meet, specified parameters related to the provision of other postemployment benefits, including (a) Making targeted prefunding contributions on a timely basis; (b) Depositing contributions in an irrevocable qualified trust for the exclusive benefit of plan members; (c) Investing contributions in excess of any pay-as-you-go amounts in a diversified investment portfolio with a defined investment policy; and (d) Ensuring that the discounted rate used to develop the actuarial account liability and normal cost recognizes the expected return of the entire portfolio. **(STATUS: In APPR Committee. Held under submission.)**

AB 3150 (Brough) Existing law requires each state and local public pension or retirement system, on and after the 90th day following the completion of the annual audit of the system, to provide a concise annual report on the investments and earnings of the system, as specified, to any member who makes a request and pays a fee, if required, for the costs incurred in preparation and dissemination of that report. This bill would also require each state and local pension or retirement system to post a concise annual audit of the information described above on that system's Internet Web site no later than the 90th day following the audit's completion. By imposing new duties on local retirement systems, the bill would impose a state-mandated local program. This bill contains other related provisions and other existing laws. **(STATUS: In Assembly PRSS Committee.)**

SB 964 (Allen) Amended March 14, 2018. This bill would, until January 1, 2035, require CalPERS and CalSTRS to analyze climate-related financial risk, as defined, to the extent the CalPERS and CalSTRS boards identify the risk as a material risk to the retirement system. The bill, by January 1, 2020, and every 3 years thereafter, would require each board to publicly report on the climate-related financial risk of its public market portfolio, including alignment of each system with a specified climate agreement and California climate policy goals and the exposure of the fund to long-term risks, as specified. The bill would provide that it does not require either board to take action unless the board determines in good faith that the action is consistent with its fiduciary responsibilities. **(STATUS: In Assembly.)**

SB 1033 (Moorlach) The PERL authorizes retirement systems to enter into agreements to provide certain reciprocal benefits to employees that are employed by other agencies that are parties to the agreement if the employees meet specified requirements, a practice commonly referred to as reciprocity. Reciprocity provides for the application of the final compensation paid by a subsequent employer to service provided to a prior employer. The PERL provides that a public agency that has agreed to reciprocity with CalPERS also has reciprocity with all other agencies that have entered into those agreements with CalPERS, among others. The PERL requires the CalPERS Board to ensure that a contracting agency that creates a significant increase in actuarial liability as a result of increased compensation paid to a nonrepresented employee bears the associated liability, except as specified, including a portion that would otherwise be borne by another contracting agency. The PERL requires the system actuary to assess an increase in liability, in this regard, to the employer that created it at the time the increase is determined and to make adjustments to that employer's contribution rates to account for the increased liability. This bill would require that an agency participating in CalPERS that increases the compensation of a member who was previously employed by a different agency to bear all actuarial liability for the action, if it results in an increased actuarial liability beyond what would have been reasonably expected for the member. The bill would require, in this context that the increased actuarial liability be in addition to reasonable compensation growth that is anticipated for a member who works for an employer or multiple employers over an extended time. The bill would require, if multiple employers cause increased liability, that the liability be apportioned equitably among them. The bill would apply to an increase in actuarial liability, as specified, due to increased compensation paid to an employee on and after January 1, 2019. **(STATUS: In Senate PE&R Committee.)**

SB 1060, 1061, 1062 (Mendoza) The PERL requires certain public employers to contribute moneys to CalPERS. Existing law prohibits the state, school employers, and contracting agencies, as defined, from refusing to pay the employers' contribution as required by the PERL. SB 1060 would require a contracting agency that fails to make a required contribution to CalPERS to notify members of the delinquency within 30 days, as specified. The State Teachers' Retirement Law establishes the Defined Benefit Program of the CalSTRS. The law requires certain employers, as defined, to contribute moneys to the CalSTRS). SB 1061 would require an employer that fails to make a required contribution to CalSTRS to notify members of the delinquency within 30 days, as specified. SB 1062 would require certain employers that fail to make a required employer contribution to CalSTRS or CalPERS to notify members of the delinquency within 30 days, as specified. **(STATUS: In Senate; pending referral.)**

SB 1124 (Leyva) Amended May 25, 2018. This bill would establish new procedures under the PERL for cases in which a member's benefits are erroneously calculated by the state or a contracting agency. The bill, with respect to a memorandum of understanding (MOU) entered into before January 1, 2019, would require the system, upon determining that compensation for an employee member covered by that MOU reported by the state or a contracting agency conflicts with specified law, to discontinue the reporting of the disallowed

compensation and not to pay benefits based on the disallowed compensation, except as provided. The bill would require the contributions made on the disallowed compensation, for active members, to be credited against future contributions on behalf of the member. The bill would require CalPERS, with respect to retired members or beneficiaries whose final compensation at retirement was predicated upon disallowed compensation, to permanently adjust the benefit to reflect the inclusion of the disallowed compensation. The bill would also require that the retired member or beneficiary be permitted to retain the benefit level and not be required to repay that benefit, if, among other things, the member was unaware the compensation was disallowed when reported. The bill would require the applicable state or contracting agency to pay the cost associated with the new entitlement, as specified. This bill contains other related provisions and other existing laws. (STATUS: Passed Senate and ordered to Assembly.)

SB 1166 (Pan) Amended May 25, 2018. This bill would require that any CalPERS contracting agency that fails to make its required employer contributions on time to notify members and retired members who are current or past employees of that agency, or their beneficiaries, of the agency's delinquency by mail within 30 days of the payment having become delinquent. The bill would require the board to provide contact information in a specified format to contracting agencies for the purpose of providing notice to members and retired members who are current or past employees of that agency, or to their beneficiaries, and would prescribe a process in this regard. The bill would immunize contracting agencies for failure to provide notice if the contact information is incomplete or incorrect. (STATUS: Passed Senate and ordered to Assembly.)

SB 1244 (Wieckowski) The California Public Records Act (CPRA) requires state and local agencies to make their public records available for public inspection and to make copies available upon request and payment of a fee, unless the public records are exempt from disclosure. The CPRA makes specified records exempt from disclosure and provides that disclosure by a state or local agency of a public record that is otherwise exempt constitutes a waiver of the exemption.

Further, the CPRA requires a court to award court costs and reasonable attorney fees to the plaintiff if the plaintiff prevails in litigation filed pursuant to the CPRA, and requires the court to award court costs and reasonable attorney fees to the public agency if the court finds that the plaintiff's case is clearly frivolous. This bill would replace "plaintiff" with "requester" in that provision. **(STATUS: In Assembly.)**

SB 1270 (Vidak) The CERL authorizes the retirement boards of five specified counties to appoint assistant administrators and chief investment officers who, following appointment, are outside county charter, civil service, and merit system rules, except as specified. The CERL provides that these administrators and officers are employees of the county, as specified, while serving at the pleasure of the appointing boards, and that they may be dismissed without cause. This bill would apply these provisions to any county if the board of supervisors for that county, by resolution adopted by majority vote, makes those provisions applicable in the county. **(STATUS: In Assembly PERSS Committee. June 6 hearing postponed by Committee.)**

SB 1413 (Nielsen) Amended May 25, 2018. This bill would enact the California Employers' Pension Prefunding Trust Program and establish the California Employers' Pension Prefunding Trust Fund to allow state and local

public agency employers that participate in the CalPERS plan that provide a defined benefit pension plan to their employees to prefund their required pension contributions. The bill contains other related provisions. (STATUS: Passed Senate and ordered to Assembly.)

2018 TENTATIVE LEGISLATIVE CALENDAR

COMPILED BY THE OFFICE OF THE SECRETARY OF THE SENATE

Revised 11/16/16

DEADLINES

JANUARY						
S	M	T	W	TH	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Jan. 1 Statutes take effect (Art. IV, Sec. 8(c)).

Jan. 3 **Legislature Reconvenes** (J.R. 51(a)(4)).

Jan. 10 Budget must be submitted by Governor (Art. IV, Sec. 12(a)).

Jan. 12 Last day for **policy committees** to hear and report **to fiscal committees** fiscal bills introduced in their house in the **odd-numbered year** (J.R. 61(b)(1)).

Jan. 15 Martin Luther King, Jr. Day.

Jan. 19 Last day for any committee to hear and report to the **floor** bills introduced in that house in the odd-numbered year (J.R. 61(b)(2)). Last day to **submit bill requests** to the Office of Legislative Counsel.

Jan. 31 Last day for each house **to pass bills introduced** in that house in the odd-numbered year (J.R. 61(b)(3), (Art. IV, Sec. 10(c)).

FEBRUARY						
S	M	T	W	TH	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

Feb. 16 Last day for bills to be **introduced** (J.R. 61(b)(4), (J.R. 54(a)).

Feb. 19 Presidents' Day.

MARCH						
S	M	T	W	TH	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Mar. 22 **Spring Recess** begins upon adjournment of this day's session (J.R. 51(b)(1)).

Mar. 30 Cesar Chavez Day observed.

APRIL						
S	M	T	W	TH	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Apr. 2 **Legislature Reconvenes** from Spring Recess (J.R. 51(b)(1)).

Apr. 27 Last day for **policy committees** to hear and report to **fiscal committees** **fiscal bills** introduced in their house (J.R. 61(b)(5)).

MAY						
S	M	T	W	TH	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

May 11 Last day for **policy committees** to hear and report to the floor **nonfiscal** bills introduced in their house (J.R. 61(b)(6)).

May 18 Last day for **policy committees** to meet prior to June 4 (J.R. 61(b)(7)).

May 25 Last day for **fiscal committees** to hear and report to the floor bills introduced in their house (J.R. 61(b)(8)).
Last day for **fiscal committees** to meet prior to June 4 (J.R. 61(b)(9)).

May 28 Memorial Day.

May 29- June 1 Floor Session only. No committees, other than conference or Rules committees, may meet for any purpose (J.R. 61 (b)(10)).

*Holiday schedule subject to Senate Rules committee approval

JUNE						
S	M	T	W	TH	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

June 1 Last day for each **house to pass bills** introduced in that house (J.R. 61(b)(11)).

June 4 Committee meetings may resume (J.R. 61(b)(12)).

June 15 Budget Bill must be passed by **midnight** (Art. IV, Sec. 12(c)(3)).

June 28 Last day for a legislative measure to qualify for the Nov. 6 General Election ballot (Elections code Sec. 9040).

June 29 Last day for **policy committees** to hear and report **fiscal bills** to fiscal committees (J.R. 61(b)(13)).

JULY						
S	M	T	W	TH	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

July 4 Independence Day.

July 6 Last day for **policy committees** to meet and report bills (J.R. 61(b)(14)).
Summer Recess begins upon adjournment provided Budget Bill has been passed (J.R. 51(b)(2)).

AUGUST						
S	M	T	W	TH	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Aug. 6 **Legislature Reconvenes** (J.R. 51(b)(2)).

Aug. 17 Last day for **fiscal committees** to meet and report bills (J.R. 61(b)(15)).

Aug. 20-31 **Floor Session only.** No committees, other than Conference and Rules Committees, may meet for any purpose (J.R. 61(b)(16)).

Aug. 24 Last day to **amend** on the floor (J.R. 61(b)(17)).

Aug. 31 Last day for **each house to pass bills**, except bills that take effect immediately or bills in Extraordinary Session (Art. IV, Sec. 10(c), (J.R. 61(b)(18)).
Final Recess begins upon adjournment (J.R. 51(b)(3)).

*Holiday schedule subject to Senate Rules committee approval

IMPORTANT DATES OCCURRING DURING INTERIM STUDY RECESS

2018

Sept. 30 Last day for Governor to sign or veto bills passed by the Legislature before Sept. 1 and in the Governor's possession on or after Sept. 1 (Art. IV, Sec. 10(b)(2)).

Nov. 6 General Election

Nov. 30 Adjournment *Sine Die* at midnight (Art. IV, Sec. 3(a)).

Dec. 3 12 Noon convening of the 2019-20 Regular Session (Art. IV, Sec. 3(a)).

2019

Jan. 1 Statutes take effect (Art. IV, Sec. 8(c)).

I-5

Memorandum

DATE: May 31, 2018

TO: Members of the Board of Retirement

FROM: Steve Delaney, Chief Executive Officer

SUBJECT: **2018 STRATEGIC PLANNING WORKSHOP – PROPOSED AGENDA TOPICS**

Written Report

Background/Discussion

It's time to begin planning for OCERS' annual Strategic Planning Workshop scheduled for Wednesday, September 12 and Thursday, September 13, 2018, to be held at the Embassy Suites Santa Ana Orange County Airport North.

The workshop has multiple goals:

- Combine both education and discussion on topics pertinent to operations and investments over the next several years. Seek consensus on Board and agency priorities for the coming calendar year.
- Focus is generally on operational issues as they relate to the agency's strategic objectives, and their funding. Investment operations and strategic goals are covered as well.
- Presentations and discussions provide the opportunity for sharing of ideas among OCERS' trustees, staff and consultants.

Though held off-site, this is a public meeting, and has consistently had an audience of a size similar to regular OCERS Board meetings.

Possible Agenda Items:

The annual Strategic Planning workshop is the first occasion for the Board to review staff's proposals for the coming year's business plan goals, as well as any updates to the multi-year strategic plan.

For general administration issues:

1. STAKEHOLDER COMMENTS

For the past ten years we have started the day's sessions with presentations from both plan sponsors and labor representatives. This allows the Board of Trustees to hear directly from our stakeholders regarding the economic and life challenges being faced by employers and members in relation to the retirement benefits this Board administers.

2. <u>FUTURE ACTUARIAL CONSIDERATIONS</u>

   Paul Angelo of Segal is prepared to do an in-depth review of various actuarial issues that may be presented to the Board for consideration at some point in the future – such as percent of salary compared to level payment of liabilities and benefit weighted mortality.

3. <u>OCERS STAFFING</u>

   Ms. Christine Porter, of the San Bernardino Employees Retirement Association (SBCERA) is prepared to outline their experience in converting their County employees into SBCERA direct-hire staff.

For Investment issues:

4. <u>ESG DISCUSSION PANEL</u>
5. <u>GLOBAL REAL ESTATE DISCUSSION WITH TOWNSEND GROUP</u>
6. <u>PRIVATE EQUITY DISCUSSION WITH TORREY COVE</u>
7. <u>GOVERNANCE BEST PRACTICES – GUEST SPEAKER</u>
8. <u>ASSET ALLOCATION DISCUSSION</u>
9. <u>RISK MITIGATING STRATEGIES – NEXT STEPS</u>
10. <u>CTA/ALTERNATIVE RISK PREMIA EDUCATION</u>
11. <u>ALSO POSSIBLE FOR REVIEW: ASSET LIABILITY STUDY DISCUSSION</u>

<u>Prior Agenda Items</u>

Trustees may wish to recommend other topics. As a reminder of the kinds of issues that have been considered at prior Strategic Planning meetings, I've included a sampling of topics that have been discussed over the past decade or more:

Ancillary Benefits/Excess Earnings Policy

Review the history and current status of excess earnings policy and uses, and discuss future courses of action.

Employer Wellness and Hiring Screening Efforts

Enhance understanding of efforts to manage the risks of future disabilities, through presentations by plan sponsor representatives.

Disabilities – Review of Standards that Apply and Latitude Afforded to the Board

Review and discuss the standards that apply, including recent case law, focusing on stress related claims, rehabilitation and accommodation issues.

Corporate Governance Issues

Consider what issues OCERS may wish to pursue and what methods OCERS may want to adopt in the corporate governance arena.

Contribution Rate Stability

Discuss the tools currently in use, and prospective tools, to maintain relatively stable employer contribution rates. Provide foundation for future decisions.

OCERS Reserve Policies

The details behind how OCERS uses its accounting reserves, especially when distributing earnings to member accounts can be complicated. A review of the current process would assist in crafting an official Board policy guiding the use of those reserves.

Please let me know if there is a topic that you would like explored at this year's workshop and I will work with the Board Chair and Investment Committee Chair to give each request full consideration. I will return in July with a final proposed agenda for the annual Strategic Planning Workshop for the Board's final review and approval.

Submitted by:

Steve Delaney

Steve Delaney
Chief Executive Officer

I-6

Memorandum

DATE: June 6, 2018

TO: Members of the Board of Retirement

FROM: Jenny Sadoski, Director of Information Technology

SUBJECT: **BUSINESS CONTINUITY AND DISASTER RECOVERY PLAN UPDATE**

Written Report

Update

April saw the relocation of the remaining equipment from OCERS' headquarters to the Nevada data center. Staff was onsite at the Nevada facility from April 17 through 19 to receive and install the equipment and begin configuration of networking and replication with the primary data center located in Irvine. Also coordinated for this visit was the delivery, installation and configuration of the new storage area network (SAN) equipment discussed in the April business continuity/disaster recovery (BC/DR) Board memo. This completes the installation of all required equipment in the Nevada colocation facility. Configuration and testing of replication continued through the month of May and is set to go live as of this writing.

Table 1: Revised Colocation and WAN Services Project Timeline

Colocation and WAN Services Project Phase	Targeted Completion Date	Estimated Completion Date
Phase I: Preparation of Primary (Irvine) Colocation Facility	end of August 2017	COMPLETED
Phase II: Cutover to Primary (Irvine) Colocation Facility	end of November 2017	COMPLETED
Phase III: Configure Replication with Legacy Equipment	end of December 2017	3rd Quarter 2018
Phase IV: Legacy Equipment Relocation to Secondary (Nevada) Colocation Facility	end of March 2018	
Phase V: Knowledge Transfer and Project Closing	mid-1st Quarter 2018	3rd Quarter 2018

Background and History of Project

At the September 2014 Strategic Planning meeting, OCERS' Board of Retirement directed staff to hire a business continuity consulting firm to provide professional services to assist in the development of a new BC/DR plan. The cost for the professional services was budgeted as part of the OCERS 2015 budget which was reviewed at the OCERS 2014 Budget Workshop and approved at the November 17, 2014 regular Board meeting. The total project was budgeted at $2.3 million.

At the April 15, 2015 regular Board meeting, OCERS staff presented to the Board the results of the business continuity consulting services RFP. The Board approved staff's recommendation to acquire the services of Avalution Consulting for a cost of $102,500 and procurement of the Catalyst online software solution at an annual cost of $3,000. The Avalution project team began work in June 2015, conducting the business impact analysis and developing OCERS' business continuity and disaster recovery plan with staff, including a crisis management plan.

OCERS staff presented the methodology, deliverables and recommendations from Avalution Consulting to the Board at the October 19, 2015 regular Board meeting. Avalution's recommendations, based on industry best practices, were:

1. **Identify Alternate Workspace**
    - Identify solution that can support all personnel required for response and recovery from a disruption.
2. **Develop and Implement Disaster Recovery Capabilities**
    - Identify a suitable alternate location for the data center as well as develop and implement disaster recovery procedures to recover and relocate its network systems.
3. **Develop and Implement a Crisis Management Structure**
    - Establish a crisis management team to lead the response to a disruption event.
    - Implement and document strategies to address a loss of employees who perform critical activities and implement succession planning for critical personnel.
    - Implement and validate (test) work from home or alternate location capabilities.
    - Communicate and train OCERS staff on business continuity planning and procedures.
4. **Develop and Document Manual Workarounds**
    - Document manual workarounds and alternate process procedures and make documents available by storing in Catalyst business continuity software.

At the October 19, 2015 Board meeting, staff presented to the Board the following next steps for the project:

- Develop annual BC/DR testing and maintenance schedule.
- Pursue and implement options for alternate workspaces for OCERS staff in case of disruption of service.
- Draft and implement redundant and high availability solutions for OCERS data center and pursue out of state co-location of OCERS data center.
- Establish communications systems including new Voice-over-IP phone system, to support member communications, reporting, and crisis management.
- Investigate cost and feasibility of building improvement options such power generators and new data center equipment (UPS, HVAC).

In June 2016, OCERS released a RFP for IT BC/DR implementation services which received four responses and culminated in the selection in July 2016 of Sidepath as our technology partner for this initiative.

At the November 14, 2016 regular Board meeting, the Board approved staff's recommendation to establish a hybrid (private/public) cloud infrastructure solution, relocate the primary OCERS data center to a local, professionally-managed facility, establish a secondary site out-of-state and implement a public cloud-based telephony system in order to enhance OCERS' business continuity and disaster recovery capabilities at a cost not to exceed the 2017 budgeted amount of $1.235 million. At that meeting, the Board requested bi-monthly status updates to be included in the consent agenda.

On November 21, 2016, OCERS issued a purchase order to our technology partner, Sidepath, to allow them to begin procurement of the hardware, software and support required for the project. The bill of materials for this procurement was subject to a competitive bid process for which we received three responses.

At the March 20, 2017 regular Board meeting, staff reported that we had completed procurement of the hardware, software and training required for the data center colocation project at a total cost of $654,276.88.

Additionally, it was noted that staff was working closely with our technology partner, Sidepath, to review responses to the RFP used to select a vendor to provide the local and out-of-state colocation facilities and WAN connectivity services.

At the May 15, 2017 regular Board meeting, staff reported that selection of colocation site vendors and a WAN connectivity provider had been completed and contract negotiations had begun with each vendor. Additionally, IT staff, working with OCERS staff, particularly Member Services and Executive Management, obtained approval to migrate the on-premise ShoreTel telephony system to the ShoreTel Connect CLOUD system.

At the June 12, 2017 regular Board meeting, in response to questions raised by the Board at the May 15 regular Board meeting, staff presented an overview of the business continuity and disaster recovery plan and the current status of the project. Following presentation of the information, the Board reaffirmed their approval of the project and directed staff to continue their efforts.

At the August 14, 2017 regular Board meeting, staff reported that both the colocation facility and cloud-based telephony projects were well under way and proceeding smoothly.

At the November 13, 2017 regular Board meeting, staff reported on the successful transfer of telephony service to ShoreTel's cloud-based solution and the rearrangement of the project timeline.

At the February 13th, 2018 regular Board meeting, staff reported that progress continued to be made on the project, including the installation of the fiber-optic connection to the secondary colocation facility in Nevada and the migration of systems from OCERS' headquarters to the primary colocation facility in Irvine.

At the April 18th, 2018 regular Board meeting, staff reported that equipment had begun to be installed and configured at the Nevada colocation facility. Staff also noted the need to use contingency funds in the amount of approximately $87,000 to purchase a new SAN to replace the existing SAN which was nearing its end-of-support period.

OCERS defined a budget of $1.235 million in 2017 to proceed with a hybrid cloud solution which includes the costs shown in Table 2.

Table 2: Approved 2017 Project Budget, Actuals-to-Date and Estimated Remaining Expenses

Description	Established Budget	Actual Expenses-to-Date	Estimated Remaining Expenses
Hardware and Software	$ 671,000.00	$ 651,741.84	$ 0.00
Professional Services	$ 80,000.00	$ 31,500.00	$ 48,000.00
Staff Training	$ 4,000.00	$ 4,080.69	$ 0.00
Public Cloud-based Telephony System	$ 250,000.00	$ 19,444.23	$ 0.00
Initial Setup and First Year Recurring Costs	$ 140,000.00	$ 68,450.00*	$ 0.00
Contingency	$ 90,000.00	$ 86,969.00	$ 0.00
Total	**$ 1,235,000.00**	**$ 862,185.76**	**$ 48,000.00**

* These expenses have not been incurred; rather, they represent the contractually negotiated costs for initial setup and first year recurring costs.

Submitted by:

OCERS J.S. - Approved

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Jenny Sadoski
OCERS Director of Information Technology

I-7

Memorandum

DATE: May 31, 2018

TO: Members of the Board of Retirement

FROM: Steve Delaney, Chief Executive Officer

SUBJECT: **2018 ANNUAL BUSINESS PLAN PROGRESS – MID-YEAR REVIEW**

Written Report

Background/Discussion

The OCERS Board's Planning Policy requires the following:

> **Review of Business Plan Initiatives**
>
> On a semi-annual basis, the Chief Executive Officer will review for the Board the status of each initiative in the Business Plan, regardless of whether any progress was made.

Attached you will find a copy of the 2018 Business Plan.

Each assigned manager has provided a brief update as to current status of 2018 initiatives. We will be prepared to respond to any questions these may raise at the June 18, 2018 meeting of the Board.

Submitted by:

Steve Delaney
Chief Executive Officer

Orange County Employees Retirement System
2223 East Wellington Avenue | Santa Ana | 92701

2018
BUSINESS PLAN

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

MISSION, VISION AND VALUES

MISSION STATEMENT:

We provide secure retirement and disability benefits with the highest standards of excellence.

VISION STATEMENT:

To be a trusted partner providing premier pension administration, distinguished by consistent, quality member experiences and prudent financial stewardship.

VALUES:

- **O**pen and Transparent
- **C**ommitment to Superior Service
- **E**ngaged and Dedicated Workforce
- **R**eliable and Accurate
- **S**ecure and Sustainable

2018-2020 STRATEGIC GOALS

- Fund Sustainability
- Excellent Service and Support
- Risk Management
- Talent Management

FUND SUSTAINABILITY

GOAL: STRENGTHEN THE LONG-TERM STABILITY OF THE PENSION FUND

Business Plan Initiatives

Objective: Mitigate the Risk of Significant Investment Loss
Executive Lead – Molly Murphy

1. Fund the Risk Mitigating asset class
    a. Completed the initial 5% allocation
    b. Presenting discussion at the September workshop regarding potential for an increased allocation in 2019

2. Explore and evaluate investment/risk management systems
    a. Implemented Backstop system
    b. Currently integrating Bridgewater risk portal

Objective: Develop an Integrated View of Pension Assets and Liabilities
Executive Leads – Molly Murphy; Gina Ratto

1. Update the asset liability study
    a. In process with probable update to Board at September workshop

2. Develop procedure for new employers entering the system
    a. Administrative Procedure, Worksheet for staff's use in evaluating new plan sponsors, and new template for Participation Agreement with plan sponsors in process.

Objective: Employ a Governance Structure that Supports a Dynamic Investment Program
Executive Lead – Molly Murphy

1. Evaluate governance best practices (year one)
   a. Delegated authority approved
   b. ESG and potential Chris Ailman discussions at September workshop

Objective: Prudent Use of Resources
Executive Leads – Molly Murphy; Brenda Shott

1. Using CEM Benchmarking, evaluate the cost and efficiency of OCERS' plan administration
   a. Draft CEM Benchmarking report received. Initial review by executive staff. To be reviewed further with CEM benchmarking staff analyst in June, with presentation to OCERS Board of outcomes and suggested goals by late summer.

2. Increase transparency of investment management fees and investigate actionable items to reduce fees in the future
   a. AB2833 incorporated into annual fee report
   b. New enhancements to annual fee report this year will include the concept of gross alpha to fees ratio
   c. Currently working on a new fee philosophy for OCERS

3. Study and enhance private equity capabilities and activities
   a. Conducted RFP for Illiquid Investments Advisor resulting in the hiring of Torrey Cove and Townsend
   b. Additional staff expertise with two new hires
   c. Held initial education with Torrey Cove at April Investment Committee meeting with more information to be presented at the September workshop
   d. PE target list identified with Torrey Cove in April

e. Staff to participate in two day training with Torrey Cove
f. Made first direct investment into PE fund in April 2018.

EXCELLENT SERVICE AND SUPPORT

GOAL: ACHIEVE EXCELLENCE IN THE SERVICE AND SUPPORT WE PROVIDE TO OUR MEMBERS AND PLAN SPONSORS

Business Plan Initiatives

Objective: Provide Accurate and Timely Benefits
Executive Leads – Suzanne Jenike; Gina Ratto

1. Develop and communicate OCERS Administrative Procedures – ongoing
   a. Disability Process and Benefit Determination Appeal OPAs have been developed and communicated to plan sponsors and members.
   b. New benefit determination appeal process effective June 1, 2018.

2. Streamline the disability determination and appeals processes – ongoing
   a. Disability Committee of the Board has been created and the committee met on April 24 and June 5, 2018.

b. New administrative appeal process effective June 1, 2018. Two training sessions took place to educate attorneys, hearing officers and Plan Sponsors.

c. LEAN process completed and action items are being implemented for the initial disability determination process.

3. Streamline the benefit appeals process
   a. New process approved by the Board effective June 1, 2018.

4. Update and create desk manuals and procedures – ongoing

5. Improve customer service standards – ongoing
   a. Turnaround time for refunds due to reciprocity has been shortened from 6 months to 6 weeks. Service credit purchase process has been evaluated and improved process put in place to reduce process time and address the backlog.

6. Perform a comprehensive review of all employer pay items to determine pensionable attributes – ongoing
   a. The majority of Plan Sponsor MOUs have been reviewed and pay items documented. Templates have been drafted for training materials, criteria for determining compensation earnable and pensionable compensation has been developed, and Board resolutions drafted.

Objective: Provide Education to our Members and Plan Sponsors
Executive Lead – Suzanne Jenike

1. Web site redesign (year two) – ongoing
   a. Procurement has been completed and vendor selected. Kick off meetings began in June.

2. Circular letters to employers – ongoing

3. Roll out updated Summary Plan Descriptions – ongoing
   a. Employer specific Summary Plan Descriptions have been drafted and are being circulated to the Plan Sponsors for review and input.

RISK MANAGEMENT

GOAL: CULTIVATE A RISK-INTELLIGENT ORGANIZATION

Business Plan Initiatives

Objective: Provide System and Data Security and a Robust Business Continuity Solution
Executive Lead – Jenny Sadoski

1. Implement tools to mitigate the risk of data or financial loss or information disclosure
   Planned activities and their current status are as follows:
   a. Procure and Implement Managed Security Services
      Status: Deferred to Q3 2018 when new Director of Cyber Security position is filled.
   b. Procure and Implement upgraded Email Security and Protection Services
      Status: Deferred to Q3 2018 when new Director of Cyber Security position is filled.
   c. Upgrade to Wells Fargo Payment Manager solution
      Status: Project is in progress. Discussions related to requirements gathering with Wells Fargo are underway.
   d. Revise OCERS Data Classification structure and assign risks
      Status: Project on track to begin discussions and planning in June of 2018.

a. Develop and implement formalized IT governance framework
   Status: In process

b. Enhance crisis and security management program
   The planned activities to accomplish this initiative and the status of each are as follows:
   a. Partner with cyber security consulting firm to audit OCERS and assist in the development of revised rapid recovery and incident response program
      Status: Deferred to Q3 2018 when new Director of Cyber Security position is filled.
   b. Consider creation of Board-Staff-Public Cyber Security Committee
      Status: Deferred to Q3 2018 when new Director of Cyber Security position is filled
   c. Evaluate best implementation of new Director of Cyber Security position
      Status: In process. Job posted, second interviews conducted with tentative selection by end May or early June
   d. Develop security training schedule for 2018
      Status: In process, Q1 and Q2 Security Training completed. Q3 training to be deployed in July 2018 and anti-phishing campaigns conducted weekly.
   e. Develop IT and security training for new hires
      Status: Complete. Materials developed and incorporated into new hire orientation process.

Objective: Implement Operational Risk Management Program
Executive Lead – Brenda Shott

1. Define the scope of the Operational Risk Management Program and implement an operational risk management process
   Status: In Progress. An Operational Risk Management Committee was formed and has begun working on compiling information in an operational risk database

2. Determine if a risk management system is needed
Status: Complete, Staff will utilize SharePoint and in-house programming staff resources for the initial implementation of the program.

Objective: Ensure a Safe and Secure Workplace and Public Service Facility
Executive Lead – Brenda Shott

1. Evaluate building security and access system and upgrade if necessary
Status: In Progress - a comprehensive work space evaluation is underway that includes reviewing the building security and access system

2. Improve employee resources and training
Status: In Progress – an all staff training session is scheduled for June 2018

3. Evaluate functionality of the agency's existing work space
Status: Complete. After review of the space needs of the agency and the size of the existing facility it was determined that by occupying the 3rd floor the work space needs could be met.

4. Plan and implement facility upgrades and space management projects
Status: In Progress – the property management company has hired an interior architectural design firm that has begun collecting information that will lead to a conceptual design that will address OCERS needs.

TALENT MANAGEMENT

GOAL: RECRUIT, RETAIN AND INSPIRE A HIGH-PERFORMING WORKFORCE

Business Plan Initiatives

Objective: Recruit and Retain a High-Performing Workforce to Meet Organizational Priorities
Executive Lead – Cynthia Hockless

1. Enhance onboarding and transitioning of new hires into the organization
   Status: In Progress – New Hire Orientation now includes an in-person presentation from the CEO and each department to allow a new employee to start to become fully integrated with the agency rules and culture on DAY-ONE.

2. Implement recommendations from workforce analysis
   Status: In Progress – The Workforce Analysis include a total of 30 recommendations. The recommendations are being reviewed and implemented as deemed appropriate.

3. Develop a comprehensive and competitive compensation package
   Status: In Progress – Compensation Study RFP has been completed and study is scheduled to begin with Consultant CPS-HR.

Objective: Develop and Empower Every Member of the Team
Executive Lead – Steve Delaney

1. Implement a comprehensive training program covering OCERS policies, processes and procedures – In process
   With assistance of former LACERS CEO, we have begun compilation of all training materials for use in developing training programs tied to individual department requirements.

2. Recognize individual needs and career goals within OCERS – In process
   In third month of CEO one-on-one meetings with every OCERS staff member to discuss career goals and determine training needs.

3. Create or update executive management charters – second half of year

4. Create succession plans across the agency
   Based on discussion outcomes of #2 above, these will be developed in second half of year.

Objective: Cultivate a Collaborative, Inclusive and Creative Culture
Executive Lead – Steve Delaney

1. Launch cultural celebration initiative – In process
   Year End Committee of staff volunteers recast as Vision and Values Committee. That committee is now working with CEO to better define and encourage culture of collaborative creativity. Committee goals being established.

I-8

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

Memorandum

DATE: May 31, 2018

TO: Members of the Board of Retirement

FROM: Steve Delaney, Chief Executive Officer

SUBJECT: **OCERS 2018-2020 STRATEGIC PLAN PROGRESS – MID YEAR REVIEW**

Written Report

Background/Discussion

This is our first year of the simplified Strategic Plan format. More details discussing of each objective are found in the related 2018 Annual Business Plan. I am continuing to review our plan format with an eye to possible amplification to assist the public.

No changes or modifications have been made to the version presented here for your review.

Since 2009 OCERS has been working with and modifying the use of a multi-year strategic plan. In 2011 the Board requested that the OCERS Strategic Plan document be reviewed on a quarterly basis.

Submitted by:

Steve Delaney
Chief Executive Officer

Orange County Employees Retirement System
2223 East Wellington Avenue | Santa Ana | 92701

2018-2020 STRATEGIC PLAN

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

MISSION, VISION AND VALUES

MISSION STATEMENT:

We provide secure retirement and disability benefits with the highest standards of excellence.

VISION STATEMENT:

To be a trusted partner providing premier pension administration, distinguished by consistent, quality member experiences and prudent financial stewardship.

VALUES:

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- **E**ngaged and Dedicated Workforce
- **R**eliable and Accurate
- **S**ecure and Sustainable

2018 BUSINESS PLAN

2018-2020 STRATEGIC GOALS

- Fund Sustainability
- Excellent Service and Support
- Risk Management
- Talent Management

FUND SUSTAINABILITY

STRENGTHEN THE LONG-TERM STABILITY OF THE PENSION FUND

Objective: Mitigate the risk of significant investment loss

Objective: Develop an integrated view of pension assets and liabilities

Objective: Employ a governance structure that supports a dynamic investment program

Objective: Prudent use of resources

EXCELLENT SERVICE AND SUPPORT

ACHIEVE EXCELLENCE IN THE SERVICE AND SUPPORT WE PROVIDE TO OUR MEMBERS AND PLAN SPONSORS

Objective: Provide Accurate and Timely Benefits

Objective: Provide Education to our Members and Plan Sponsors

RISK MANAGEMENT

CULTIVATE A RISK-INTELLIGENT ORGANIZATION

Objective: Enhance Security and Continuity of Infrastructure and Services

Objective: Implement Operational Risk Management Program

TALENT MANAGEMENT

RECRUIT, RETAIN AND INSPIRE A HIGH-PERFORMING WORKFORCE

Objective: Recruit and Retain a High-Performing Workforce to Meet Organizational Priorities

Objective: Develop and Empower Every Member of the Team

Objective: Cultivate a Collaborative, Inclusive and Creative Culture

I-9

Memorandum

DATE: June 06, 2018

TO: Members of the Board of Retirement

FROM: Cynthia Hockless, Director of Administrative Services

SUBJECT: **UPDATE BOARD ELECTION, SAFETY MEMBER AND ALTERNATE SAFETY MEMBER RESULTS**

Written Report

Background/Discussion:

OCERS contacted the Registrar of Voters on January 05, 2018, with a request to conduct an election for the position of Safety Member and Alternate Safety Member with a term of office from July 1, 2018 through June 30, 2021.

The following two candidates submitted completed nomination paperwork and biographical statements and were determined qualified candidates:

- Roger Hilton, Deputy Sheriff/OCERS Board Member
- Jeremy Vallone, Firefighter

On May 15, the Registrar of Voters declared Roger Hilton as the candidate receiving the highest total of votes and elected to the Safety Member seat thus electing Jeremy Vallone as the Alternate Safety Member.

The Orange County Board of Supervisors certified the election results on May 22, 2018.

Attachments:

A. Election Certification from OC Registrar of Voters
B. OC Board of Supervisors Agenda Staff Report

Submitted by:

C.H. – APPROVED

Cynthia Hockless
Director of Administrative Services

ELECTION CERTIFICATION

I, Neal Kelley, Registrar of Voters of Orange County, State of California, hereby certify that I conducted an election among the Safety Members of the Orange County Employees Retirement System for the purpose of electing a Safety Member and Alternate Member to the Board of Retirement of the County of Orange for terms commencing July 1, 2018 and ending June 30, 2021.

I further certify that the results of the votes indicate that Roger Hilton was elected the Safety Member and Jeremy Vallone was elected the Alternate Member. I further certify the following to be a complete tally of the votes cast:

SAFETY AND ALTERNATE MEMBERS
ORANGE COUNTY BOARD OF RETIREMENT

ROGER HILTON	519
JEREMY VALLONE	300
TOTAL BALLOTS CAST:	820

WITNESS my hand and Official Seal this 15th day of May, 2018.

NEAL KELLEY
Registrar of Voters
Orange County

Agenda Item

AGENDA S)RT

ASR Control 18-000500

MEETING DATE:	05/22/18
LEGAL ENTITY TAKING ACTION:	Board of Supervisors
BOARD OF SUPERVISORS DISTRICT(S):	All Districts
SUBMITTING AGENCY/DEPARTMENT:	Registrar of Voters (Approved)
DEPARTMENT CONTACT PERSON(S):	Neal Kelley (714) 567-5139
	Kimberly Golden (714) 567-5107

SUBJECT : Certification of May 15, 2018, Retirement Board Election

CEO CONCUR	C. UNTY COUNSEL REVIEW	CLERK OF THE BOARD
Concur	No Legal Objection	Discussion 3 Votes Board Majority

Budgeted: N/A   Current Year Cost: N/A   Annual Cost: N/A

Staffing Impact: No   # of Positions: Sole Source: N/A

Current Fiscal Year Revenue: N/A

Funding Source: N/A   County Audit in last 3 years: No

Prior Board Action: N/A

RECOMMENDED ACTION(S):

1. Receive and file the Election Certification and Certification of Registrar of Voters as to the results of the canvass of the election returns for the May 15, 2018, election for the Board of Retirement of the Orange County Employees Retirement System.

2. Declare the candidate receiving the highest total of votes elected to the position of Safety Member of the Board of Retirement of the Orange County Employees Retirement System for a three-year term beginning on July 1, 2018, through June 30, 2021.

3. Declare the candidate receiving the second highest total of votes elected to the position of Alternate Safety Member of the Board of Retirement of the Orange County Employees Retirement System for a three-year term beginning on July 1, 2018, through June 30, 2021.

SUMMARY:

Declaring the results and receiving the Certification of Registrar of Voters as to the results of the canvass of the election returns for the May 15, 2018, election for the Board of Retirement of the Orange County Employees Retirement System will support compliance with the Election Procedures for the Board of Retirement amended by the Board of Retirement on July 20, 2015.

BACKGROUND INFORMATION:

The Orange County Employees Retirement System requested the Registrar of Voters to conduct an election for the positions of Safety Member and Alternate Safety Member of the Board of Retirement for three-year terms beginning on July 1, 2018, through June 30, 2021. Nomination Papers were available to candidates at the Registrar of Voters' office from February 26, 2018, through March 16, 2018, 5 p.m. Two candidates filed nomination papers by the deadline and were determined qualified candidates.

All costs for this election will be charged to the Orange County Employees Retirement System.

FINANCIAL IMP ACT:

N/A

STAFFING IMP ACT:

N/A

ATTACHMENT(S):

Attachment A - Election Certification
Attachment B - Certification of Registrar of Voters Results of the Canvass of the Election Returns
Attachment C - OCERS Election Procedures

I-10

ORANGE COUNTY
OCERS
EMPLOYEES RETIREMENT SYSTEM

Form

Report of Attendance at Conference or Seminar

Name of Member Attending: Suzanne Jenike

Name of Conference/Seminar: NIPA Annual Forum and Expo (NAFE)

Location of Conference/Seminar: Las Vegas Nevada

Conference/Seminar Sponsor: National Institute of Pension Administrators (NIPA)

Dates of Attendance: May 20 – 23, 2018

Total Cost of Attendance: $2,700 ($1,225 registration + hotel air fare misc. expenses)

Brief Summary of Information and Knowledge Gained:

Conference sessions included discussions on administrative policies and procedures, cyber security, IRS reporting and qualified domestic relations orders. The keynote speaker was the former US Ambassador to Germany Mr. John Emerson. Mr. Emerson described his interactions with diplomats and government officials throughout the world and touched on current US government challenges like tariffs and the nuclear power issues of Iran and North Korea. One session attended discussed the changes to American demographics with baby boomers retiring and millennials increasing in the workforce. The new challenges national social programs and retirement plans will face with the changing demographics.

Evaluation of the Conference or Seminar:

The content of the conference was geared to ERISA plans and third party administrators of such plans. The sessions like cyber security and ethics, were very basic and geared towards someone with minimal exposure in those areas.

Recommendation Concerning Future Attendance:

In the future I would recommend that OCERS expend training dollars at events more applicable to our business. The location was convenient however cost of attendance exceeded the knowledge gained.

Signature

Return to: Executive Assistant

Copies to: Board Members
Chief Executive Officer
Assistant Chief Executive Officers

NA E

2018 NIPA ANNUAL

FORUM &

EXPO

LEARN.

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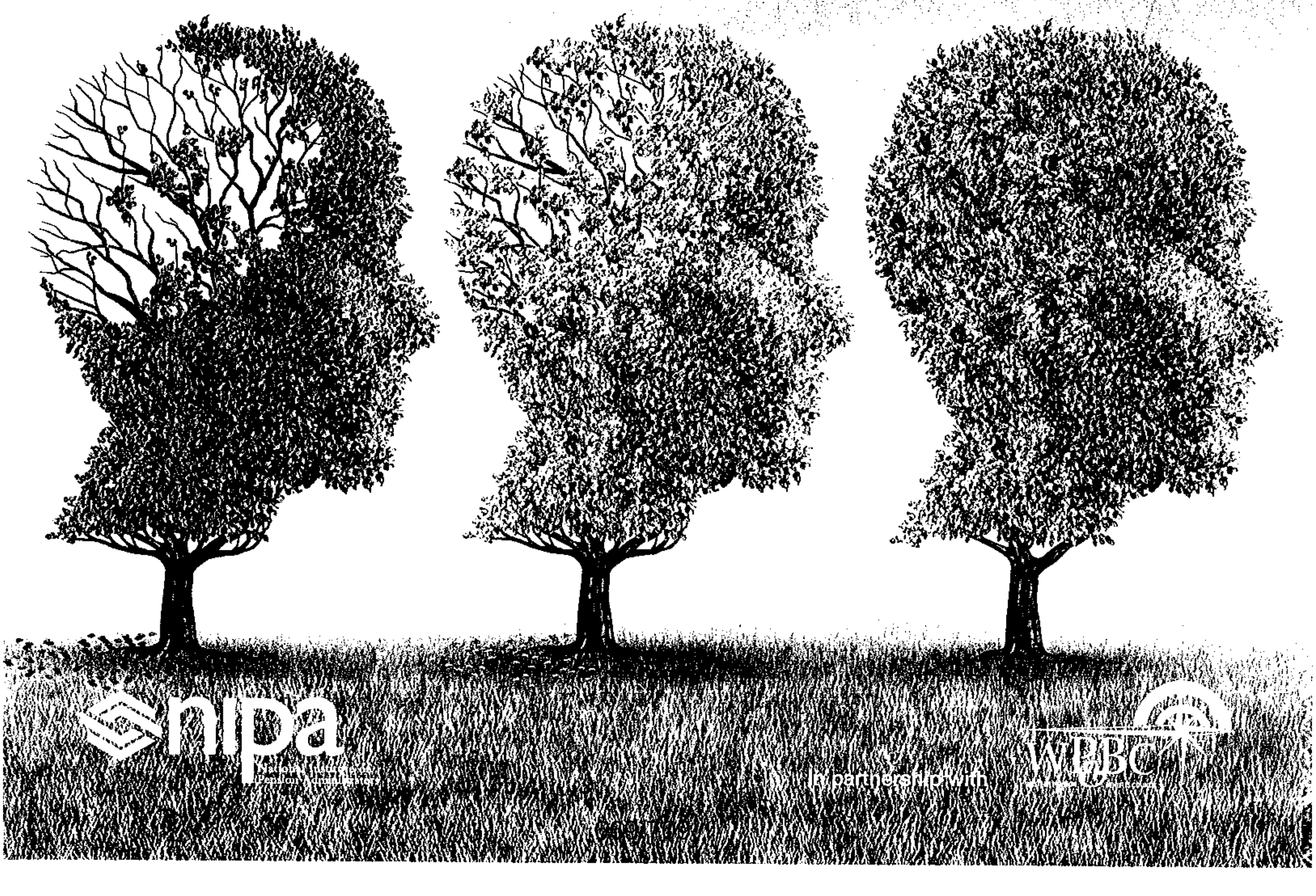

The 2018 NIPA Annual Forum & Expo (2018NAFE), May 20-23 in Las Vegas, offers enriching, relevant world-class education to enhance the services you provide to your organization's clients. Every year, this conference helps you discover innovative solutions for strengthening and expanding your business.

This four-day event is the most cost-effective option for receiving up-to-date information on all aspects of the retirement plan industry, including day-to-day tasks, the impact of recent or forthcoming legislation, industry trends and practical tools that will expand your pension administration knowledge.

Come for the Benefits...

Access tips for business growth and learn about productivity enhancements that will allow you to bill more, work more plans and make more money!

Earn up to **22 NIPA and ERPA CPE credits** as well as credits from JBEA and NASBA. See general CPE information on page 14.

Grow lifelong relationships with your peers and colleagues; there will be plenty of time for networking sessions and casual conversation. Some of the best learning comes from people just like you!

Expand your knowledge with world-class speakers in **more than 50 educational sessions** focused on the most pressing issues you face each day.

Enjoy **five different educational tracks** including business topics, defined benefit, defined contribution, health and welfare, and executive compensation, brought to you by NIPA and Western Pension & Benefits Council (WP&BC).

Explore the latest industry products and services in the marketplace from 40 top industry vendors.

Learn about cutting-edge technology, products and services in Vendor Solution Presentations.

Leave With Newfound Knowledge...

At the conclusion of this conference, participants will be able to:

- Understand and apply best practices in various aspects of defined contribution and defined benefit plan design and administration
- Understand the latest in legislative and regulatory guidance
- Navigate the world of retirement plan testing
- Recognize trends in the retirement industry to help shape business practices
- Understand adaptive selling and marketing techniques
- Know how to hire top talent and navigate critical conversations
- Understand the nuances for Form 5500 filings and how to work with a plan's auditor

New This Year, Even More Great Education...

In 2018, NIPA is partnering with Western Pension & Benefits Council (WP&BC) for the 2018NAFE to offer five educational tracks that will benefit your entire office team:

Business Topics: Specifically designed for office managers, operations directors, HR staff and those who fulfill multiple roles in your office.

Defined Benefit: This track will cover critical areas of interest for TPAs, including traditional DB offerings, cash balance plans, funding and more.

Defined Contribution: TPAs will gain expertise and insight across all areas of DC plan management, including managing contributions, eligibility and testing.

Specialty Topics: This track will cover topics like ERISA updates, audits, ethics and multiple specialty plan formats, including 403(b) and non qualified.

WP&BC

New! WP&BC Track: This track will cover topics such as health and welfare and executive compensation. For more information about the WP&BC track, visit www.nipa.org/nafe.

See the Latest Industry Innovations...

Representatives from the industry's top firms are on hand at the 2018NAFE Expo Hall to demonstrate their products and services and are eager to help you find the perfect solution for your needs. The following industry vendors will be present at the 2018NAFE:

Exhibitors*

- Actuarial Systems Corporation
- American Funds
- Boutwell Fay LLP
- BPAS
- CliftonLarsonAllen
- Colonial Surety Company
- Creative Benefit Strategies
- CUNA Mutual Retirement Solutions
- DATAIR Employee Benefit Systems Inc.
- Empower Retirement
- Enterprise Iron Financial Industry Solutions Inc.
- FPS Trust Company
- John Hancock Retirement Plan Services
- Lincoln Financial Group
- MassMutual Financial Group
- Millennium Trust
- Nationwide
- OneAmerica
- PenChecks Trust
- PensionPro
- Pinnacle Plan Design, LLC
- PriceKubeka
- Risk Strategies Company
- Transamerica
- Vanguard
- Voya
- Wolters Kluwer

Expo Hall Hours

[illegible]

[illegible]

[illegible]

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Thank you to the 2018NAFE sponsors:

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- Colonial Surety Company
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- Empower Retirement
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- Millennium Trust
- Nationwide
- OneAmerica
- Transamerica
- Wolters Kluwer

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(As of 2/22/2018)

Enjoy everything you and your employees love about the NAFE, year-round!

Our Virtual Conference has been a big success! Your staff members can "virtually" benefit and attain needed credits from three days of live educational sessions from this component of the 2018NAFE, held on May 20-22. The 2018NAFE Virtual Conference is a cost-effective way for everyone to experience the event from the convenience of your home or office!

The 2018NAFE Virtual Conference allows you to:

- Offer cost-effective continuing professional education to multiple employees at a great value.
- Earn up to **19 NIPA and ERPA CPE credits**, by attending all three days of the virtual sessions – more than a year's minimum of CPE credits in just three days!
- Save on travel and hotel costs by participating in live streaming sessions where participants will have the ability to see the speaker and session materials and interact live with the event from their office.
- Attend sessions during the event in Las Vegas via livestream or as recorded sessions – available for year-round access.

NIPA is offering a robust schedule of virtual sessions for 2018NAFE. Virtual Conference sessions include:

- A Conversation With the Former U.S. Ambassador to Germany
- Compensation – The Backbone of Retirement Plan Testing
- Compliance Coordination
- Defined Contribution Plan Document Update
- EPCRS – Part 1
- Ethics – Life in the Real World
- Government Forms "What's New, What's Surprising, What's Coming"
- Is It Time to Add a Defined Benefit Plan?
- Let's Get Ethical
- New Comparability 2 – Advanced Design and Testing
- Personal Story Power: How to Communicate So People Listen
- Processing Hardships – Has It Become a Hardship Itself?
- Red Flags Revealed: Are You Overlooking These 10 Holes in Your Retirement Plan Processes?
- The Interplay of Eligibility and Coverage
- What's New in Washington

[illegible] DC **Specialty Topics** = Virtual Conference Sessions

Schedule subject to change.

Sunday, May 20

9:00 a.m. – 6:30 p.m. **Registration Open**

12:15 p.m. – 12:45 p.m. **New Attendee Orientation**

1:00 p.m. – 2:30 p.m. **General Session: What's New in Washington**
Ilene Ferenczy, Esq., APA, CPC, Managing Partner, Ferenczy Benefits Law Center

2:30 p.m. – 3:00 p.m. **Afternoon Break**

3:00 p.m. – 4:15 p.m. **Educational Sessions:**

[illegible]
Randy Fuss, CFP, Registered Corporate Coach and Practice Management Consultant, CUNA Mutual Retirement Solutions

Kevin Donovan, CPA, MSPA, Managing Member, Pinnacle Plan Design, LLC

Compliance Coordination
Kim Martin, APA, CPC, QPA, Director of Education, NIPA; Account Executive, Bates and Company, Inc.

Mergers and Acquisitions – A Case Study Approach
David Schultz, APM, J.D., Educator and Product Manager, FIS Relius

4:15 p.m. – 4:30 p.m. **Afternoon Break**

4:30 p.m. – 5:45 p.m. **Educational Sessions:**

[illegible]
Claudia St. John, SHRM-SCP, SPHR, President, Affinity HR Group, Inc.

Lorraine Dorsa, CEBS, EA, FCA, MAAA, MSPA, Actuary, Aegis Pension Services, Inc.

Government Forms "What's New, What's Surprising, What's Coming"
Kristina Kananen, APA, QKA, QPA, Customer Support, DATAIR Employee Benefit Systems, Inc.

403(b) Issues and Compliance
Nathan Glassey, QKA, TGPC, Vice President, Non-ERISA Retirement Services, National Benefit Services

5:45 p.m. – 7:15 p.m. **Welcome Reception in the Expo Hall**
Sponsored by AMERICAN FUNDS® From Capital Group

7:00 p.m. – 8:00 p.m. **Beers with Peers***
**Under 40 Networking Event*

Monday, May 21

7:30 a.m. – 6:00 p.m. **Registration Open**

7:30 a.m. – 8:15 a.m. **Continental Breakfast in Expo Hall**

7:45 a.m. – 8:15 a.m. **Annual Business Meeting**

8:15 a.m. – 9:45 a.m. **General Session: A Conversation With the Former U.S. Ambassador to Germany**
John Emerson, Vice Chairman, Capital Group International, Inc.

9:45 a.m. – 10:15 a.m. **Morning Break in Expo Hall**

10:15 a.m. – 11:05 a.m. **Educational Sessions:**

[illegible]
Claudia St. John, SHRM-SCP, SPHR, President, Affinity HR Group, Inc.

William C. Grossman, APA, ERPA, QPA, Managing Member, WCG ERISA CONSULTING, LLC

Compensation – The Backbone of Retirement Plan Testing
Robert Richter, J.D., LLM, Vice President, FIS

Data Gathering: Friend or Foe?
Virginia Sutton, QKA, Consultant, VKS Consulting and Account Executive, Johnson & Dugan Insurance Services Corp.

11:05 a.m. – 11:25 a.m. **Morning Break in Expo Hall**

11:25 a.m. – 12:15 p.m. **Educational Sessions:**

[illegible]
Raechel Parolisi, J.D., LLM, Attorney and Pension Consultant, Law Office of Raechel Parolisi

John P. Griffin, J.D., LLM, Principal, ASC Institute

New Comparability 1 – Nuts and Bolts
Norman Levinrad, CPC, EA, FSPA, MAAA, President and Chief Actuary, Summit Benefit and Actuarial Services, Inc.

Red Flags Revealed: Are You Overlooking These 10 Holes in Your Retirement Plan Processes?
Kimberly Veal, AICPA, CPA, Supervisor, Rea & Associates, Inc.

12:15 p.m. – 1:15 p.m. **Box Lunch in Expo Hall**

1:15 p.m. – 2:30 p.m. **Educational Sessions:**

[illegible]
Sarah Simoneaux, CPC, President, Simoneaux & Stroud Consulting Services; Darren Holsey, APA, APR, ERPA, QPA, QKA, Owner and Senior Consultant, Premier RPS; Christopher Tipper, Chief Executive Officer, Hunter Benefits Consulting Group, Inc.

Charlie Steingas, EA, MAAA, MSPA, Qwner and Chief Actuary, Cash Balance Actuaries, LLC

The Interplay of Eligibility and Coverage
Jane Armstrong, J.D., Partner, Phelps Dunbar, LLP

Fiduciary Types and Responsibilities
Brian Furgala, Esq., CPC, QPA, Shareholder, GrayRobinson

2:30 p.m. – 2:50 p.m. **Afternoon Break in Expo Hall**

2:50 p.m. – 3:20 p.m. **Vendor Solution Presentations**

3:20 p.m. – 3:40 p.m. **Afternoon Break in Expo Hall**

3:40 p.m. – 4:30 p.m. **Educational Sessions:**

[illegible]
Kimberly Veal, AICPA, CPA, Supervisor, Rea & Associates, Inc.

Kevin Donovan, CPA, MSPA, Managing Member, Pinnacle Plan Design, LLC

EPCRS – Part 1
Alison J. Cohen, CPC, Esq., J.D., Partner, Ferenczy Benefits Law Center LLP

Qualified Domestic Relations Orders
Raechel Parolisi, J.D., LLM, Attorney and Pension Consultant, Law Office of Raechel Parolisi

4:30 p.m. – 4:50 p.m. **Afternoon Break in Expo Hall**

4:50 p.m. – 5:40 p.m. **Educational Sessions:**

[illegible]
Andy Hudson, President, Step Strategic

**Information about the WP&BC track can be found at www.nipa.org/nafe.*

Lorraine Dorsa, CEBS, EA, FCA, MAAA, MSPA, Actuary, Aegis Pension Services, Inc.

EPCRS – Part 2
Alison J. Cohen, Esq., CPC, J.D., Partner, Ferenczy Benefits Law Center LLP

Understanding an Accountant's Role in Retirement Plans
Charlie Steingas, EA, MAAA, MSPA, Owner and Chief Actuary, Cash Balance Actuaries, LLC

5:40 p.m. – 7:10 p.m. **Networking Reception and Exhibitor Raffle Drawings in Expo Hall**

Tuesday, May 22

7:45 a.m. – 5:20 p.m. **Registration Open**

7:45 a.m. – 8:15 a.m. **Continental Breakfast in Expo Hall**

8:15 a.m. – 9:45 a.m. **General Session: Personal Story Power: How to Communicate So People Listen**
Sarah Simoneaux, CPC, President, Simoneaux & Stroud Consulting Services

9:45 a.m. – 10:15 a.m. **Morning Break in Expo Hall**

10:15 a.m. – 11:05 a.m. **Educational Sessions:**

Applying Military [illegible]
Derren Burrell, AIF, CDFM, DFMCP LVL 3, Chief Operating Officer, TAG Resources, LLC

Richard Kutikoff, CFA, EA, FSA, MAAA, MSPA, President, Pacific Benefit Services

Let's Get Ethical
Alison J. Cohen, Esq., CPC, J.D., Partner, Ferenczy Benefits Law Center LLP

Complex World of ADP/ACP Testing
Kim Martin, APA, CPC, QPA, Director of Education, NIPA; Account Executive, Bates and Company, Inc.

11:05 a.m. – 11:25 a.m. **Morning Break in Expo Hall**

11:25 a.m. – 12:15 p.m. **Educational Sessions:**

[illegible]
Jason Brady, QKA, QPA, Business Development Manager, American Funds

Thomas Finnegan, FCA, FSPA, MAAA, Executive Vice President, CBIZ Retirement Plan Services

Top Heavy Testing in the "World of Small Plans"
Virginia Sutton, QKA, Consultant, VKS Consulting and Account Executive, Johnson & Dugan Insurance Services Corp.

Ethics – Life in the Real World
Alison J. Cohen, Esq., CPC, J.D., Partner, Ferenczy Benefits Law Center LLP

12:15 p.m. – 1:45 p.m. **Awards Luncheon**

1:45 p.m. – 3:00 p.m. **Educational Sessions:**

[illegible]
Michael J. DiCenso, President, DiCenso Consulting

Thomas Finnegan, FCA, FSPA, MAAA, Executive Vice President, CBIZ Retirement Plan Services

Defined Contribution Plan Document Update
John P. Griffin, J.D., LLM, Principal, ASC Institute

Panel Discussion – Working With the Plan's Auditor
Kristina Kananen, APA, QKA, QPA, Customer Support, DATAIR Employee Benefit Systems, Inc.; Christopher Tipper, Chief Executive Officer, Hunter Benefits Consulting Group, Inc.; Michael F. Smith, QKA, QPA, Vice President, Qualified Plan Consulting, Voya Financial

3:00 p.m. – 3:20 p.m. **Afternoon Break in Expo Hall**

3:20 p.m. – 4:10 p.m. **Educational Sessions:**

[illegible]
Marc M. Roberts, APR, ERPA, President, Associated Pension Consultants; Christopher Tipper, Chief Executive Officer, Hunter Benefits Consulting Group, Inc.

Richard Kutikoff, CFA, EA, FSA, MAAA, MSPA, President, Pacific Benefit Services

New Comparability 2 – Advanced Design and Testing
Norman Levinrad, CPC, EA, FSPA, MAAA, President and Chief Actuary, Summit Benefit and Actuarial Services, Inc.

457(b) Governmental and Top Hat Plans
Margaret A. Younis, APA, APR, CPC, ERPA, QKA, QPA, TGPC, Senior Consultant, Retirement Plan Design and Consulting Group, Lincoln Financial Group

4:10 p.m. – 4:30 p.m. **Afternoon Break**

4:30 p.m. – 5:20 p.m. **Educational Sessions:**

[illegible]
Darren Conner, Chief Technology Officer, PensionPro

Norman Levinrad, CPC, EA, FSPA, MAAA, President and Chief Actuary, Summit Benefit and Actuarial Services, Inc.

Processing Hardships – Has It Become a Hardship Itself?
David Schultz, APM, J.D., Educator and Product Manager, FIS Relius

The Future of Health Savings Accounts
Andy Lovell, APA, APR, ERPA, MBA, QKA, Vice President, ERSA Retirement Services, National Benefit Services, LLC

6:30 p.m. **"Night on the Town" Event**
Michael Jackson ONE
Sponsored by John Hancock RETIREMENT PLAN SERVICES

Wednesday, May 23

8:00 a.m. – 11:15 a.m. **Registration Open**

8:00 a.m. – 8:30 a.m. **Continental Breakfast**

8:30 a.m. – 9:45 a.m. **Educational Sessions:**

Internal Controls [illegible]
Paul Perry, CISM, CITP, CPA, FHFMA, Member, Risk and Controls Practice Leader, Warren Averett, LLC

Automatic Enrollment – Are You In or Are You Out?
Robert Richter, J.D., LLM, Vice President, FIS

State Administered Retirement Plans
Michael J. DiCenso, President, DiCenso Consulting

9:45 a.m. – 10:00 a.m. **Morning Break**

10:00 a.m. – 11:15 a.m. **Educational Sessions:**

[illegible]
Andy Lovell, APA, APR, ERPA, MBA, QKA, Vice President, ERSA Retirement Services, National Benefit Services, LLC

Required Minimum Distributions – Defined Contribution Plans
William C. Grossman, APA, ERPA, QPA, Managing Member, WCG ERISA CONSULTING, LLC

Multiple Employer Plans – MEP-to-PEP
Terrance Power, AIFA, CFP, ChFC, CLU, CPFA, CRPS, QPA, President, The Platinum 401k, Inc.

Sunday, May 20

1:00 p.m. – 2:30 p.m.

General Session: What's New in Washington
Ilene Ferenczy, Esq., APA, CPC, Managing Partner, Ferenczy Benefits Law Center

We are one year into Trump's presidency. How has the past year affected the retirement industry? With tax reform and ongoing changes with state run retirement plans, this session will provide an update on current IRS and DOL initiatives as well as proposed Congressional legislation.

3:00 p.m. – 4:15 p.m. Educational Sessions:

Adaptive Selling to Plan Sponsors
Randy Fuss, CFP, Registered Corporate Coach and Practice Management Consultant, CUNA Mutual Retirement Solutions
Level: Intermediate

Sometimes you only get one chance to state your case for winning or retaining the business. Designed specifically for the TPA, you will leave this session with a greater understanding of what your natural selling style is as well as learning four distinct plan sponsor buying styles. Most importantly, strategies will be discussed to identify when and how to adapt your sales presentation and ultimately increase your chances of winning the business.

Kevin Donovan, CPA, MSPA, Managing Member, Pinnacle Plan Design, LLC
Level: Intermediate

Cash balance plans are increasingly popular with "small" employers looking for larger tax deductions than those available in a 401(k) plan. A cash balance plan can often provide owners and key employees considerably larger benefits with relatively modest increases in costs for staff. Cash balance plans are typically paired with a defined contribution (DC) plan, so it is imperative that even "primarily DC" practitioners understand this popular retirement arrangement. This session includes numerous plan design case studies and a primer on the interest crediting rate.

Compliance Coordination
Kim Martin, APA, CPC, QPA, Director of Education, NIPA; Account Executive, Bates and Company, Inc.
Level: Intermediate

Accurate compliance testing and informed plan design are hallmarks of an "excellent" TPA; adding real value and differentiating them from bundled providers. Understanding the interplay between the compliance tests as they relate to different plan designs is key to both. The examples presented in this session will be a kickoff for this year's DC Track and its focus on "testing," so expect to come away understanding:

- What testing your plan design dictates
- Testing in the correct order
- Identifying and navigating testing perils

Mergers and Acquisitions – A Case Study Approach
David Schultz, J.D., APM, Educator and Product Manager, FIS Relius
Level: Advanced

When a client informs us they have acquired another company or have agreed to be acquired by another company, what are our first thoughts? Do we know the right questions that we should be asking? The speaker will discuss several case studies from both the acquiring firm's position and that of the firm being acquired. Come to this session to learn:

- Why it matters what type of transaction occurs
- What can be done if the transaction has already occurred
- How communication and the timing of the transaction is important

4:30 p.m. – 5:45 p.m. Educational Sessions:

Claudia St. John, SHRM-SCP, SPHR, President, Affinity HR Group, Inc.
Level: Intermediate

Is hiring and retaining top talent keeping you up at night? Are you wondering how you can improve your hiring process and get better talent? This session will explore cutting edge recruiting strategies for improving your in-house hiring efforts. Join us as we discuss:

- How to find and assess top talent
- Best-in-class interview tips and techniques
- How to engage and retain new talent

Lorraine Dorsa, CEBS, EA, FCA, MAAA, MSPA, Actuary, Aegis Pension Services, Inc.
Level: Intermediate

The actuary has completed the annual report and all you see are numbers. What exactly do these numbers mean? Here is your chance to hear an explanation of the many numbers, taking the mystery out of the actuarial report. Attendees will:

- Learn the important terms
- Gain an understanding of the contribution ranges
- Determine the plan's funded status
- Be able to communicate better not only with the client but with the actuary

Government Forms "What's New, What's Surprising, What's Coming"
Kristina Kananen, APA, QKA, QPA, Customer Support, DATAIR Employee Benefit Systems, Inc.
Level: Intermediate

How well do you know your "5000" Forms? Learn what's new with the 2017 Forms, surprising tripping points and an update on modernization. TPAs have more than just the 5500 to worry about with the 5558, 5330 and 8955-SSA being possibilities for their clients. In this session you will learn:

- When and why you prepare particular Forms
- Why sometimes the simplest answers can lead to additional Forms and filings
- The potential for IRS/DOL scrutiny on less than perfect filings

403(b) Issues and Compliance
Nathan Glassey, TGPC, QKA, Vice President, Non-ERISA Retirement Services, National Benefit Services
Level: Intermediate

The 403(b) restatement will provide an opportunity for administrators and plan sponsors to review their current plan design and analyze their plan operations. Attend this session to discuss:

- Common 403(b) mistakes
- Current 403(b) trends and best practices
- Leveraging the 403(b) rules to optimize plan design

Monday, May 21

Data Gathering: Friend or Foe?
Virginia Sutton, QKA, Consultant, VKS Consulting and Account Executive, Johnson & Dugan Insurance Services Corp.
Level: Intermediate

Census data can be considered a necessary evil but it doesn't have to be. Gathering the right data points through an efficient census process can generate valuable information for more than just compliance testing. Join this session to discuss:

- Utilizing payroll and recordkeeper partners in your process
- Best practices for verifying census data received from the plan
- Items that your peers are gathering that you may have overlooked
- Ideas for utilizing the data gathered beyond the traditional year-end testing

8:15 a.m. – 9:45 a.m.

General Session: A Conversation With the Former U.S. Ambassador to Germany
John Emerson, Vice Chairman, Capital Group International, Inc.

John Emerson, now Vice Chairman of Capital International (a subsidiary of Capital Group, parent company of American Funds) served as ambassador to Germany during a particularly momentous time, from August 2013 through January 2017. Join us for a presentation and Q&A on a broad range of global topics. We will discuss everything from the current administration's policy on North Korea, the rise of populism in Europe and at home, the upcoming 2018 primary season, to what it's like being an ambassador to a major European power like Germany.

10:15 a.m. – 11:05 a.m. Educational Sessions:

Navigating Critical Conversations
Claudia St. John, SHRM-SCP, SPHR, President, Affinity HR Group, Inc.
Level: Intermediate

In life and work, we are faced with difficult conversations you need to have, but may not necessarily know how to approach them. Speaking with a remote employee, a client via skype or your neighboring coworker over the cubical wall, conversations can be challenging and at times intimidating. Join this session to learn:

- How to prepare for critical topics
- Why your approach may differ with in-person, phone or e-mail conversations
- The way generational demographics and personalities play a role in your delivery

William C. Grossman, APA, ERPA, QPA, Managing Member, WCG ERISA CONSULTING, LLC
Level: Advanced

This session will examine the special quirks of DB plans when it comes to RMDs. The attendee will learn:

- How the annuity distribution method differs from the account balance distribution method
- When spousal consent is required
- How to handle non-spouse beneficiaries
- The impact of a participant's death before and after the required beginning date

Compensation – The Backbone of Retirement Plan Testing
Robert Richter, J.D., LLM, Vice President, FIS
Level: Advanced

Compensation, although defined in the plan document for benefit purposes, can be determined differently for testing purposes. Other issues can arise when there are exclusions that lead to a discriminatory definition of compensation. This session will cover:

- Some possible compensation definitions;
- When and how you can stray from the plan's definition of compensation for testing purposes
- How to deal with a plan that fails 414(s)

11:25 a.m. – 12:15 p.m. Educational Sessions:

[illegible]
Raechel Parolisi, J.D., LLM, Attorney and Pension Consultant, Law Office of Raechel Parolisi
Level: Intermediate

Does your firm suggest the use of separate policies that accompany the plan document? Are you recommending administrative policies to your clients for the handling of plan provisions such as in-plan Roth conversions, deferral change or auto-enrollment processing? Join us to discuss:

- Best practices on using separate polices and procedures
- Plan sponsor document retention requirements and storage
- What records a TPA should retain for active plans as well as those that have terminated or transferred to new TPAs

John P. Griffin, J.D., LLM, Principal, ASC Institute
Level: Advanced

The PPA restatement period for defined benefit plans is here, with the added bonus that we now have a pre-approved document for cash balance plans. This session will provide attendees:

- Options if the current document is not a pre-approved one
- What design options to avoid
- How to decide whether an individually designed document vs. pre-approved works better

New Comparability I – Nuts and Bolts
Norman Levinrad, CPC, EA, FSPA, MAAA, President and Chief Actuary, Summit Benefit and Actuarial Services, Inc.
Level: Intermediate

Learn the basics of how new comparability (cross-tested) formulas work, and determine whether this is an option for your employer. This session will help you to:

- Design an effective formula; understand how the 401(a)(4) testing is performed
- Maximize the benefit to the business owners or key employees
- Determine how age demographics can affect your test

Red Flags Revealed: Are You Overlooking These 10 Holes in Your Retirement Plan Processes?
Kimberly Veal, AICPA, CPA, Supervisor, Rea & Associates, Inc.
Level: Intermediate

Do your employers have gaps in their retirement plan processes? Join us for a face-to-face session with a professional retirement plan auditor to learn:

- The 10 most common areas to be questioned on examination
- How to help your employer's identify any critical gaps in their processes
- How to close those gaps to avoid DOL penalties

1:15 p.m. – 2:30 p.m. Educational Sessions:

Sarah Simoneaux, CPC, President, Simoneaux & Stroud Consulting Services; Darren Holsey, APA, APR, ERPA, QKA, QPA, Owner and Senior Consultant, Premier RPS; Christopher Tipper, Chief Executive Officer, Hunter Benefits Consulting Group, Inc.
Level: Intermediate

You're managing the business, but are you leading it? This panel will explore current and emerging trends in the TPA world to help keep your firm moving forward. It will touch upon a broad array of topics from marketing your business to daily operations.

Charlie Steingas, EA, MAAA, MSPA, Owner and Chief Actuary, Cash Balance Actuaries, LLC
Level: Advanced

The deferment of taxes is a major incentive to adopt a qualified retirement plan. Sometimes, knowing general deduction limits is just not enough! Join this session for an advanced discussion on:

- How deductions are affected by multiple plans
- Short tax years or a plan year that differs from the tax year
- Multiple tax entities
- Cash vs. accrual basis tax filers
- How the deduction year relates to Schedule SB reporting

⇱ The Interplay of Eligibility and Coverage

Jane Armstrong, J.D., Partner, Phelps Dunbar, LLP
Level: Advanced

Multiple eligibility requirements in a plan can wreak havoc on coverage testing, but when it's "what your client wants," what can you do? This session reviews:

- Different eligibility provisions and their impact on coverage testing
- Best practices for fixing eligibility and still passing coverage
- What to do when nothing works

Fiduciary Types and Responsibilities

Brian Furgala, Esq., CPC, QPA, Shareholder, GrayRobinson
Level: Intermediate

Fiduciary responsibility continues to be a concern for plan sponsors but with the various fiduciary types and services out there, how do you know what is best for your plan? Join this session to learn some of the key differences and limitations between each of the types of fiduciaries available. Additionally, during this session attendees will learn tips to help educate and guide plan sponsors through the establishment and ongoing fiduciary committee best practices.

3:40 p.m. – 4:30 p.m. Educational Sessions:

Kimberly Veal, AICPA, CPA, Supervisor, Rea & Associates, Inc.
Level: Intermediate

Do you know what all of the financial numbers mean when you hear your business owner talking about your firm's bottom line? This session will provide a basic understanding of financial management, focusing on:

- Accounting principles of the standard accounting reports
- Advantages and disadvantages of the various business entity types
- Cash flow management and reporting
- How an administrator contributes to the bottom line

Kevin Donovan, CPA, MSPA, Managing Member, Pinnacle Plan Design, LLC
Level: Intermediate

Sometimes it seems inevitable! Despite best efforts, retirement plans can run into problems. Whether stemming from bad data, participant distribution problems, shifting demographics, or plan design, your clients will be looking to you for solutions. Using case studies, this session will focus on: some common and not-so-common problems; DB/DC retirement arrangements; and, where applicable, available EPCRS remedies. You're invited to add to the discussion.

⇱ EPCRS – Part 1

Alison J. Cohen, Esq., CPC, J.D., Partner, Ferenczy Benefits Law Center LLP
Level: Intermediate

OOPS! You've discovered a minor plan defect during the annual compliance work! What do you do now? This session will use a case study approach to identify when a plan has a compliance issue and demonstrate how to correct minor plan defects under the most up to date guidance on the Self Correction Program (SCP). We will work through case studies to identify compliance issues, determine whether they can be self-corrected and how to document the correction methods utilized.

Qualified Domestic Relations Orders

Raechel Parolisi, J.D., LLM, Attorney and Pension Consultant, Law Office of Raechel Parolisi
Level: Intermediate

What makes a Domestic Relations Order a QDRO? Join us as we review ERISA requirements for Qualified Domestic Relations Orders (QDROs) and the steps required to ensure your QDRO review is efficient and cost effective. This session will cover:

- Differences between in-house reviews and outsourced QDRO administration
- Pitfalls and difficulties in administering QDROs
- Best practices for QDRO administration

4:50 p.m. – 5:40 p.m. Educational Sessions:

Andy Hudson, President, Step Strategic
Level: Intermediate

In order to grow and maintain your TPA business, referrals from financial advisors are key. Odds are the same 50-200 advisors receiving content about your firm are also inundated with sales messages from your competitors and other industry partners. This session will discuss where to find content that best suits your needs and, perhaps more importantly, how to cut through the other marketing noise to get the results you want.

⇱

Lorraine Dorsa, CEBS, EA, FCA, MAAA, MSPA, Actuary, Aegis Pension Services, Inc.
Level: Intermediate

Your plan sponsor wants more... When is the right time to add a defined benefit or cash balance plan? This workshop will provide insight to identifying prospects and ensuring a smooth implementation. Attendees will learn:

- How to identify if your client is a candidate
- How to identify key communication points that the plan sponsor must understand
- The coordination necessary with a DC plan

EPCRS – Part 2

Alison J. Cohen, Esq., CPC, J.D., Partner, Ferenczy Benefits Law Center LLP
Level: Advanced

OH GOOD GRIEF! You've discovered an even bigger plan defect during the annual compliance work that doesn't qualify for the SCP. What now? This session will use a case study approach to demonstrate how to resolve compliance defects under the most up to date guidance on the Voluntary Compliance Program (VCP) and highlight the benefits of thinking "outside the box" when it comes to plan corrections. We will work through case studies to identify compliance issues, determine eligibility for VCP and formulate the most advantageous correction methods.

Understanding an Accountant's Role in Retirement Plans

Charlie Steingas, EA, MAAA, MSPA, Owner and Chief Actuary, Cash Balance Actuaries, LLC

Level: Advanced

This session will take you through an accountant's involvement in different types of retirement plans. Topics will cover how decisions are made regarding contributions and tax return deductions. In addition, we will discuss what IRS auditors look for, how to avoid mistakes beforehand and the requirements for audited financial statements.

Tuesday, May 22

8:15 a.m. – 9:45 a.m.

General Session: Personal Story Power: How to Communicate So People Listen

Sarah Simoneaux, CPC, President, Simoneaux & Stroud Consulting Services

"When I was nine years old, I had a dream." Doesn't this opening sentence make you want to know more? Find out why the power of your personal story can captivate any audience. Learn how to tell your story using powerful words, a more powerful tone, and then discover how to link that story to your daily communication. Attend this session to learn:

- Why a personal story is universal to your audience
- How to tell your story to win over clients, advisors and members of your team
- How to link your story to any retirement services presentation

10:15 a.m. – 11:05 a.m. Educational Sessions:

Applying Military Principles to Your Firm

Derren Burrell, AIF, CDFM, DFMCP LVL 3, Chief Operating Officer, TAG Resources, LLC

Level: Intermediate

Is your firm facing high-intensity, high-stress environments that are constantly changing? Then you are on a battlefield every day. In this session you will learn to use the principles speaker Derren Burrell used in his 21 years of military service to become a strategic leader. Using the lessons he learned during his numerous deployments from the White House to Iraq/Afghanistan, Derren will share how to:

- Be proactive rather than reactive
- Deal with potential "landmines" in handling internal and external forces
- Manage "up" to take care of your bosses

Richard Kutikoff, CFA, EA, FSA, MAAA, MSPA, President, Pacific Benefit Services

Level: Advanced

Designing a defined benefit plan for an owner, owner/spouse or single participant comes with unique considerations aside from testing. This session will focus on how a plan's benefit formula, whether traditional or cash balance, is developed, including how it is affected by the 415(b) limit, fluctuating annual income, anticipated investment volatility, performance, and more.

Complex World of ADP/ACP Testing

Kim Martin, APA, CPC, QPA, Director of Education, NIPA; Account Executive, Bates and Company, Inc.

Level: Intermediate

ADP and ACP tests are a couple of the most complex areas of compliance testing that TPAs perform. Often there are unforeseen circumstances with the employers themselves, demographics or participation that make the "normal" testing unfeasible. In this session you will learn:

- How to proceed when there are complicated testing issues
- The various correction methods
- When to use the "otherwise excludable" testing options
- How you can effectively use permissive disaggregation

Let's Get Ethical

Alison J. Cohen, Esq., CPC, J.D., Partner, Ferenczy Benefits Law Center LLP

Level: Intermediate

In today's fast pace environment and social media world, are you applying appropriate skills when providing services to clients? Do you take short-cuts because the business world is shifting toward instant messages and 140 characters? This session will cover:

- The knowledge you should have about business ethics
- How to develop an effective code of ethics for your business
- Circular 230 requirements

11:25 a.m. – 12:15 p.m. Educational Sessions:

[illegible]

Jason Brady, QKA, QPA, Business Development Manager, American Funds

Level: Advanced

Since the Pension Protection Act (PPA) made target date funds eligible as a qualified default investment alternative (QDIA), they have exploded in popularity. As a result, target date funds may be a plan's single largest holding. Attend this session to learn:

- The benefits of target date funds.
- Five factors for evaluating target date funds.
- Analysis suggestions for a plan to use when choosing target date funds.
- How to utilize target date funds in a plan.

Thomas Finnegan, FCA, FSPA, MAAA, Executive Vice President, CBIZ Retirement Plan Services

Level: Advanced

What do you do when your defined benefit plan is overfunded? This session will discuss what can be done to get the funded status to a more appropriate level. You will learn about the following options with regard to both single person DBs and those with covered employees:

- Ways to utilize the excess assets
- Technical and communication strategies for this situation
- How to terminate these types of plans
- What happens if you can not use up all of the excess assets

Top Heavy Testing in the "World of Small Plans"

Virginia Sutton, QKA, Consultant, VKS Consulting and Account Executive, Johnson & Dugan Insurance Services Corp.

Level: Advanced

Top heavy testing is required of all plans, but it's really "small plans" that it impacts most. For the small plan, it rules the design, testing and funding required to make them compliant and run smoothly. This session will focus on:

- 416 testing itself and how it can be complicated by catch-up contributions and off-calendar year plans
- How you determine the required funding when you have multiple eligibility
- What effect top heavy minimum funding has on the other testing

Ethics – Life in the Real World

Alison J. Cohen, Esq., CPC, J.D., Partner, Ferenczy Benefits Law Center LLP

Level: Intermediate

We all encounter situations where we are standing on the ethical line and have to decide whether or not to cross that line. This interactive session will review real world examples with a discussion on possible solutions and potential consequences to these ethical cases.

1:45 p.m. – 3:00 p.m. Educational Sessions:

Demographic [illegible]

Michael J. DiCenso, President, DiCenso Consulting
Level: Intermediate

American demographics are evolving with baby boomers retiring and millennials increasing in the workforce. National social programs and retirement plans are faced with new challenges and opportunities as the demographics change. This session will present:

- The statistics and data behind these challenges
- Solutions to overcome these obstacles
- Ideas on how to benefit from this evolution

Thomas Finnegan, FSPA, FCA, MAAA, Executive Vice President, CBIZ Retirement Plan Services
Level: Advanced

The session will discuss the calculation and timing of the AFTAP. It will also illustrate how and when the AFTAP status restricts benefits. After attending this session, participants will be able to:

- Determine a plan's AFTAP
- Determine the extent to which an AFTAP status restricts benefits
- Cover what sponsors can do to avoid the application of benefit restrictions
- How to make up for benefits lost during a restriction period

Defined Contribution Plan Document Update

John P. Griffin, J.D., LLM, Principal, ASC Institute
Level: Advanced

The IRS is making significant modifications to the determination letter program which has raised a host of new concerns for document preparers. The speaker will cover the latest developments affecting individually designed and pre-approved plan documents for 401(a) plans, as well as 403(b) plans. The session will look at:

- The different document choices
- The availability of "reliance" (with and without an IRS submission)
- Potential liability risks for plan sponsors

Panel Discussion – Working With the Plan's Auditor

Kristina Kananen, APA, QKA, QPA, Customer Support, DATAIR Employee Benefit Systems, Inc.; Christopher Tipper, Chief Executive Officer, Hunter Benefits Consulting Group, Inc.; Michael F. Smith, QKA, QPA, Vice President, Qualified Plan Consulting, Voya Financial
Level: Intermediate

The list of required audit documents and sample employee groups gets longer and longer each year. Your plan sponsor relies on you to make sure the process goes smoothly. But how do you deal with a difficult auditor or one who wants you to do all the work without increasing your expenses? Join us as our panel reviews:

- Information that is required by auditors and why
- How and when to engage other service providers
- Proposed AICPA changes
- The modernization initiative
- Best practices for your TPA firm

3:20 p.m. – 4:10 p.m. Educational Sessions:

[illegible]

Marc M. Roberts, APR, ERPA, President, Associated Pension Consultants; Christopher Tipper, Chief Executive Officer, Hunter Benefits Consulting Group, Inc.
Level: Advanced

When it comes to acquisitions, is your firm prepared to buy or sell? Do you know the right questions to ask and understand the key information required for a successful transaction? This panel will participate in a Q&A discussion focusing on:

- The right time to value your firm
- How to value your firm and steps to take to increase the value
- Tips for negotiating a deal
- Lessons learned from past acquisition experience
- The modernization initiative

Richard Kutikoff, CFA, EA, FSA, MAAA, MSPA, President, Pacific Benefit Services
Level: Advanced

What is ASC 715? This session will help you understand the disclosure, accounting and reporting requirements related to single-employer defined benefit pension plans. Attendees will learn:

- How the discount rate is determined
- How the plan liability and expenses are determined
- The information needed for plan termination

New Comparability 2 – Advanced Design and Testing

Norman Levinrad, CPC, EA, FSPA, MAAA, President and Chief Actuary, Summit Benefit and Actuarial Services, Inc.
Level: Advanced

Now that you know the basics of new comparability, it's time to cover more advanced plan design opportunities. This session will help you to:

- Effectively design a formula to allow owner family members to benefit
- Determine other assumptions that you can make to get a 401(a)(4) test to pass
- Tweak the "basic" testing when it doesn't pass (such as component testing)
- How generational volatility can impact the testing

457(b) Governmental and Top Hat Plans

Margaret A. Younis, APA, APR, CPC, ERPA, QKA, QPA, TGPC, Senior Consultant, Retirement Plan Design and Consulting Group, Lincoln Financial Group
Level: Intermediate

457(b) plans are an often underutilized benefit offering, primarily because their value is misunderstood. Join this session to learn which plan types are best paired with a 457(b) plan or when to let it stand on its own. Additionally, attendees will learn the key differences and value between a 457(b) governmental plan and a 457(b) top hat plan.

4:30 p.m. – 5:20 p.m. Educational Sessions:

[illegible]
Darren Conner, Chief Technology Officer, PensionPro
Level: Intermediate

As more and more aspects of our industry are moving to the web with cloud based computing and storage, data security is a topic that we are constantly faced with. Are your firm's data management policies enough? Join this session to learn:

- How to feel confident that your data is both stored and transmitted securely
- What it really means to move your business to the cloud
- How to transition your business to make the move to cloud servers
- What security measures you should be taking to meet industry standards

Norman Levinrad, CPC, EA, FSPA, MAAA, President and Chief Actuary, Summit Benefit and Actuarial Services, Inc.
Level: Advanced

Now that you have designed a functional new comparability plan formula in your DC plan, the owner wants more! It's time to look at the addition of a Defined Benefit/Cash Balance (DB/CB) plan. This session will help you to:

- Examine the design changes you may need in your DC plan
- Determine the formula for your DB/CB Plan
- Understand how the 401(a)(4) testing is performed when combining a DB/DC plan
- Identify contribution adjustments or corrections needed

Processing Hardships - Has It Become a Hardship Itself?
David Schultz, APM, J.D., Educator and Product Manager, FIS Relius
Level: Intermediate

Hardships are often misunderstood distributions. Employees and employers alike often do not know which situations are eligible for hardship and which ones are not. This session will discuss:

- When and why a hardship can be taken
- How hardships are processed
- The IRS substantiation guidelines
- The current exceptions for disaster relief

The Future of Health Savings Accounts
Andy Lovell, APA, APR, ERPA, MBA, QKA, Vice President, ERISA Retirement Services, National Benefit Services, LLC
Level: Intermediate

HSAs are growing in popularity as a general employee benefit. Do your plan sponsors consider it as part of their retirement benefits? This session will provide a background on HSA plans, how to provide a high level of education to a plan sponsor, and how to incorporate HSAs as part of an overall growth strategy.

Wednesday, May 23

9:30 a.m. – 9:45 a.m. Educational Sessions:

[illegible]
Paul Perry, CISM, CITP, CPA, FHFMA, Member, Risk and Controls Practice Leader, Warren Averett, LLC
Level: Intermediate

With fraud on the rise, are your internal controls effective and sufficient to prevent fraud within your organization? Join us as we review how the right controls can help mitigate fraud through:

- Implementation of an internal controls model
- Risk assessments
- Analysis of System and Organization Controls (SOC) Reports

Automatic Enrollment – Are You In or Are You Out?
Robert Richter, J.D., LLM, Vice President, FIS
Level: Advanced

Are employees prepared for retirement? What can employers do to help? This session will explore the array of automatic enrollment design options available to them. Attendees will learn:

- How automatic enrollment works and what the notice requirements are
- The pros and cons of various automatic enrollment designs
- How to identify the trends in automatic escalation and reenrollment
- All of this and much more, if you don't "opt out!"

State Administered Retirement Plans
Michael J. DiCenso, President, DiCenso Consulting
Level: Intermediate

80 million working Americans do not have access to a retirement plan and one-third of Americans have saved NOTHING for retirement. As a result, eight states and two cities are launching retirement programs with 27 additional states considering doing the same. What does this mean for our industry? In this session wa will learn:

- The ins-and-outs of the Department of Labor regulations
- How the programs may differ from state to state
- The proposed plan designs, implementation dates and eligibility requirements
- The anticipated flawed pricing set by those lawmakers involved

10:00 a.m. – 11:15 a.m. Educational Sessions:

[illegible]
Andy Lovell, APA, APR, ERPA, MBA, QKA, Vice President, ERISA Retirement Services, National Benefit Services, LLC
Level: Intermediate

If it ain't broke, don't fix it. However, what if what is not broken does not add value? This session will outline the process of value stream mapping, focusing on:

- Identifying the value points of your services and products
- How to recognize necessary non-value adding steps
- How to eliminate waste to create greater efficiency

Required Minimum Distributions – Defined Contribution Plans
William C. Grossman, APA, ERPA, QPA, Managing Member, WCG ERISA CONSULTING, LLC
Level: Advanced

In applying the RMD rules each participant's circumstance can be different and present a challenge for TPAs. This session will discuss the rules, real-life scenarios and solutions. Attendees will learn:

- How to identify circumstances that can impact the RMD
- An understanding of the guidance as well as "best practices" when guidance doesn't exist
- How to deal with illiquid assets
- The impact of Roth assets and multiple plans

Multiple Employer Plans – MEP-to-PEP
Terrance Power, AIFA, CFP, ChFC, CLU, CPFA, CRPS, ERPA, QPA, President, The Platinum 401k, Inc.
Level: Intermediate

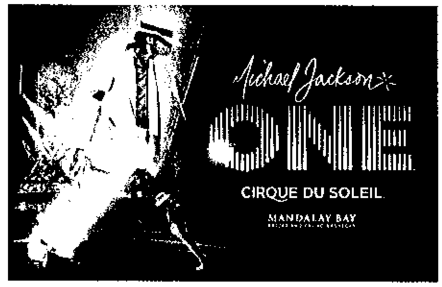
In this session we will discuss the historic shift in the proposed tax law changes regarding Multiple Employer Plans (MEP). We will review the formalized structure which allows employers to band together under Pooled Employer Plans (PEP) beginning in 2021. You will leave this session with an understanding of:

- What's changed with MEPs/PEPs under the new tax laws
- Benefiting from the changes today
- How to position your firm for future growth under the changes
- How advisors and TPAs can become Pooled Plan Providers

Events

New Attendee Orientation

Sunday, May 20 | 12:15 p.m. – 12:45 p.m.
Is this your first NIPA conference? Learn how to make the most of your experience at the 2018NAFE by attending the New Attendee Orientation. You will have the opportunity to meet fellow new attendees along with NIPA leaders and staff members.



Welcome Reception in the Expo Hall

Sunday, May 20 | 5:45 p.m. – 7:15 p.m.
Join your peers and industry vendors in the Expo Hall, featuring the most innovative business solutions in the retirement industry.

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John Hancock RETIREMENT PLAN SERVICES

Monday Night Networking Reception and Exhibitor Raffle Drawings in Expo Hall

Monday, May 21 | 5:40 p.m. – 7:10 p.m.
Unwind from an education-filled day with your fellow attendees during this fun networking event in the Expo Hall. Refreshments and light hors d'oeuvres will be served.

Internet Café

Need to check your work or personal email during the 2018NAFE? Looking for the opportunity to browse exhibitors' websites before visiting their booths? Take advantage of the Internet Café's computer terminals, complete with high-speed Internet access at no charge to attendees. The Internet Café will be conveniently located near the Expo Hall, events and educational sessions.

Registered attendees will receive a link to download all presentations prior to the conference. Additionally, all attendees will receive a web link via email to the audio recordings and PowerPoint® presentations (submitted by speakers) from each educational session following the 2018NAFE.

This special attendee benefit gives you the opportunity to access the 2018NAFE sessions online all year long. The web link will be available within four weeks of the event.

Housing & Travel

Accommodations

Reserve Your Room by April 20, 2018

Housing at The Cosmopolitan of Las Vegas is available on a first come, first-served basis! A special discounted rate of $209 per night (single/double occupancy) has been arranged exclusively for you by NIPA. The reservation deadline for this special rate is April 20, 2018. Contact The Cosmopolitan of Las Vegas directly at 702.698.7575 for reservations and hotel information, and be sure to mention that you are participating in NIPA's 2018NAFE by **referencing NIPA's group code SNIPA8.** Book online at www.nipa.org/nafehotel.

3708 Las Vegas Boulevard South, Las Vegas, NV 89109
702.698.7575 • www.cosmopolitanlasvegas.com

Continuing Professional Education (CPE) Credits

2018NAFE attendees can earn CPE credits through the National Registry of CPE sponsors, the Joint Board for the Enrollment of Actuaries (JBEA), the IRS for Enrolled Retirement Plan Agent (ERPA) and the National Association of State Boards of Accountancy (NASBA). Details will be posted on NIPA's website at www.nipa.org/nafe.

NIPA is registered with NASBA, a sponsor of continuing professional education for the National Registry of CPE Sponsors. The State Boards of Accountancy have final authority on the acceptance of individual courses for CPE credit. Complaints regarding registered sponsors may be addressed to the National Registry of CPE Sponsors through its website: www.learningmarket.org

More information is available on NIPA's website, www.nipa.org.

Register online at www.nipa.org/nafe

[illegible]	[illegible]	[illegible]	[illegible]
Business Owner Member/Executive Member	$925	$1,025	$1,225
WP&BC Member	$925	$1,025	$1,225
Affiliate Member	$950	$1,050	$1,250
Non-member	$1,225	$1,325	$1,525
New APA/APR*	$538	$638	$838
Guest Registration**	$475	$550	$550

Employer Group Discount

$925 for 1st registered employee + $875 for each additional employee.

To receive this discount, two or more employees from the same firm must register at the same time and pay all together in one check or credit card payment. This can be completed in one transaction when you register online. Applicable for in-person attendance only. Does not apply to Virtual Conference registration.

*New APAs and APRs Save Big

If you earned your designation(s) in 2017, you are eligible for this significant discount.

Registration Is Easy – Choose Your Method:

1. Register yourself and your staff online in one convenient transaction at .
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If sending via FedEx, UPS or special carrier:

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Itasca, IL 60143

Please note: NIPA membership is individual. If you are not an individual member, please join before registering or pay the non-member fee. For multiple attendees of the same organization, each registrant must complete a separate online registration form.

***The guest registration admits guests of 2018NAFE attendees to all food functions and evening events. The "Night on the Town" celebration tickets are not included in this price. Guest registration does not permit attendance at general sessions or educational sessions.*

Night on the Town

2018NAFE Virtual Conference Registration

Individual rate $750/person
No other employees attending 2018NAFE in Las Vegas

Individual rate + 1 . . . . $695/person
At least 1 other employee from the same company attending 2018NAFE in Las Vegas

Group rate $595/person
At least 1 other employee from the same company attending 2018NAFE in Las Vegas and 2 or more employees from the same company attending Virtual Conference

To register, visit and click on Register Now for the Virtual Conference.

Or, add employees when you register for the in-person conference for one easy and convenient transaction! You will receive an email confirmation with all of the details about how to log on and acquire session materials prior to the conference.

National Institute of Pension Administrators
330 North Wabash, Suite 2000
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Phone: 800.999.NIPA (6472)
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Mike Bourne, President, Atessa Benefits, Inc.

EARN UP TO 22 NIPA AND ERPA CPE CREDITS!

I-11

ORANGE COUNTY
OCERS
EMPLOYEES RETIREMENT SYSTEM

Form

Report of Attendance at Conference or Seminar

Name of Member Attending: Molly A. Murphy & Shanta Chary

Name of Conference/Seminar: 2018 Milken Institute

Location of Conference/Seminar: Beverly Hills, CA

Conference/Seminar Sponsor: Various

Dates of Attendance: April 29- May 2, 2018

Total Cost of Attendance: $2,431 ($1,215 per person for 3 hotel nights)

Brief Summary of Information and Knowledge Gained:

Conference sessions included applying intelligence to business, global capital markets panels, growth and opportunity in Brazil, conversations with US House Majority leader Kevin McCarthy and Senate Democratic leader Chuck Schumer, preserving the promise of cancer immunotherapy, hunt for yield in the credit markets, future of open world economy, combating the crisis of opioids, activist investing, future of Europe, Financial regulation, investing in American infrastructure, future of American home ownership ,impact of tax cuts, gun discussion in American culture, distressed debt, strategic Investing in Middle East & North Africa, conversation with Speaker Paul Ryan and investing in disruptive technologies.

Evaluation of the Conference or Seminar:

The conference is packed with content allowing the attendees to seek out discussions and panels that are of interest. There were more than 4,000 attendees at the conference, with Bloomberg, CNBC streaming interviews throughout the day, OCERS received two invites as part of the Global Capital Markets Advisory Council, otherwise, the registration fee is highly prohibitive. Attendance at the conference was worth the time and is highly recommended.

Recommendation Concerning Future Attendance:

Conference is heavily attended by individuals from various businesses providing a wonderful opportunity to network as well as enhance knowledge in various areas outside of the norm. The breakout sessions with GPs and LPS were rich in content.

Form

Report of Attendance at Conference or Seminar

Signature

Return to: Executive Assistant

Copies to: Board Members
Chief Executive Officer
Assistant Chief Executive Officers

Agenda at a Glance
2018 Global Conference Sessions • April 29 – May 2, 2018, Los Angeles

MILKEN INSTITUTE
2018 GLOBAL CONFERENCE

Day	Time	International Ballroom	Beverly Hills Ballroom	Wilshire Ballroom	International Terrace	Whittier	Brighton	Dayton	Oakhurst	Palm	Canon	Pavilion
		INTERNATIONAL / BEVERLY HILLS COLLECTION ROOMS				EXECUTIVE CENTER ROOMS						
MONDAY	8:00 am	Global Capital Markets	The Future of Health									
MONDAY	9:30 am	How to Maintain Investment Momentum	Kevin McCarthy & Chuck Schumer	Navigating a World in Transition	What's Next in the Hunt for Yield in Credit?	Mobility in the Future	Promise of Cancer Immunotherapy	Checking In With Cloobeck	The Impact Investing Continuum	The Future of Higher Education		A Conversation With Jane Goodall
MONDAY	10:45 am		A Conversation With Tom Brady	Strategy and Leadership in an Age of Disruption	A.I.: Beyond the Robot Singularity	Can the Open World Economy Be Saved?	Investing in Climate Action	Reading the Tea Leaves	Using Prevention to Improve Global Health	Global Food Industry Leaders	Big Tech and Antitrust	Digital Pioneers: Joe Tsai & Jerry Yang
MONDAY	12:00 pm	Lunch Program	**Part 1** Navigating an Uncertain World, With Tony Blair and David Petraeus **Part 2** A Conversation With Steven Mnuchin, U.S. Treasury Secretary **(This session also will be simulcast in the Beverly Hills Ballroom, Wilshire Garden and Pavilion.)**									
MONDAY	2:30 pm	Global Risk	Real Estate Outlook	Promoting Prosperity in Middle America	Momentum of #MeToo and #TimesUp	Institutional Investors: Thriving Amid Change	FinTech	Combatting the Crisis of Opioids		Earth on the Brink	Alzheimer's Disease: Rewriting the Playbook	How to Build a Brand
MONDAY	3:45 pm	Credit Market Outlook	Entrepreneurship	Innovating the Future of Food	Financial Regulation	Europe: Past Tense, Future Perfect?	Social Media and the Social Contract	A.I. and Machine Learning in Medicine	Enterprising Families: Business in Mexico	Mental Health and the Next Generation	Expanding Access to Higher Education	U.S. Politics: What's the State of our Nation
MONDAY	5:00 pm		The Sustainability Revolution, With Al Gore	Investing in China	Educate, Elevate, Empower: Girls and Women	Next Generation: Redefining Social Impact						The Future of Human Performance
MONDAY	7:00 pm	Dinner Program	Inspiring Couples (Motsepes & Camerons)									
MONDAY	9:00 pm	LATE NIGHT • INTERNATIONAL BALLROOM										
TUESDAY	7:45 am	Part 1: Wilbur L. Ross, Jr. Part 2: U.S. Economy										
TUESDAY	8:15 am		Asset Management Outlook	Investing in American Infrastructure	(8:30 am) Conversation With Jeb Hensarling	Japan's Economy, Jump-Started						A Conversation With Steve Ballmer
TUESDAY	9:30 am	The Evolution of Hedge Fund Management	Entertainment Leaders: Defining Your Brand	Leadership & Workforce in the Age of Prediction	Breakthroughs in Philanthropy	Private Equity: Creating Value	Eating Right	Macroeconomic Outlook	Energy Gap in Sub-Saharan Africa	Urban Revolution for an Aging Population	Health Issues for Veterans	The Power of Mindfulness
TUESDAY	10:45 am		Global Overview	Want to Live to a Healthy 100?	Institutional Investors: Long-Term Value	Big Data & A.I.: Creating Customer Growth	American Homeownership	India as a Driver of Global Growth	Patients: The New Economy of Healthcare	De-Risking Emerging Markets Investments	New Tax Cuts & Our Fiscal Future	Town Hall: The Gun Discussion in America
TUESDAY	12:00 pm	Lunch Program	Promoting Prosperity in a World in Transition **(This session also will be simulcast in the Beverly Hills Ballroom, Wilshire Garden and Pavilion.)**									
TUESDAY	2:30 pm	Global Private Equity Outlook	Technology Trends & Your Portfolio	Great Britain and Europe in 2019	Avoiding War With North Korea	Entitlements: Fiscal Reality	Meat and More: Alternative Proteins	Disrupting the Healthcare and R&D Landscape	Building Tomorrow's Workforce Today	Investing in Underserved Small Businesses	Investing in Migrants and Refugees	How to Be a Man in 2018
TUESDAY	3:45 pm	Common Sense From Uncommon Investors	Energy Markets: The Year Ahead	The Future of Finance	Beyond "Brotopia"	The Global M&A Outlook	Strategic Investing: Middle East and North Africa	Developing Capital Markets: Emerging Markets		Virtual, Augmented & Mixed Realities	Innovators Who Are Changing Asia	Frank Luntz: Words that Work, 2018
TUESDAY	5:00 pm	Blockchain		Gen-X: High Achievers and the New Midlife Crisis	Using Music to Make the World a Better Place	China's Belt and Road Initiative						
TUESDAY	6:00 pm											Women's Reception: Building Meaningful Lives
WEDNESDAY	7:30 am		Workshop: Designing a More Meaningful Life									Workshop: Master Your Memory and Mind
WEDNESDAY	8:45 am	A Conversation With Paul Ryan		Cryptocurrencies	The Business of Aging							
WEDNESDAY	10:00 am		Things That Will Blow Your Mind	A Conversation With Bob Gates	Art, Politics and Popular Culture	Emerging Markets Outlook	The Sustainable Investing Challenge	Philanthropy in Transition		Paying for Cures	Agritech, Vertical Farming and Food Security	eSports: Next Major Sport?
WEDNESDAY	11:15 am		Big Data: Risk Management	Luxury Brands: Radical Transparency	Business Case for Equality, Diversity, Inclusion	Cybersecurity Lessons From the C-suite	Solving Life-Threatening Problems in Oncology	The Promise of National and Military Service			"Crazy Rich Asians" Author Kevin Kwan	The International Business of Sports
WEDNESDAY	12:30 pm	Lunch Program	**Part 1** Humanity, Revised? Editing and Augmenting the Human Species **Part 2** The Results Are In: Predictive Technology and Your DNA Map **(This session also will be simulcast in the Beverly Hills Ballroom, Wilshire Garden and Pavilion.)**									
WEDNESDAY	2:45 pm		Trends in Venture Capital	Space as a Business Opportunity	Building Bridges to Developing Economies	Power Plant? Exploring the Cannabis Industry						Gaming Breaks Into the Mainstream
WEDNESDAY	4:00 pm	The World in Transition: Africa and the Middle East										So You Want to Be an eSports Owner
WEDNESDAY	5:00 pm	CLOSING RECEPTION • POOLSIDE - WEST										

688/709

Private sessions not shown. View the full program at www.globalconference.org or with the Global Conference mobile app, MIGLOBAL.

International Collection
1 International Ballroom
2 International Terrace
3 International Gallery

Beverly Hills Collection
4 Beverly Hills Ballroom
5 Beverly Hills Salon
6 Rodeo Gallery
7 Wilshire Ballroom

The Oasis
8 Global Conference Bookstore
9 Global Conference Pavilion
10 Security

Executive Center
11 Whittier
12 Palm
13 Sunset
14 Dayton
15 Board Room
16 Canon
17 Oakhurst
18 Brighton
19 Roxbury (Press Room)
20 Maple

Le Chateau
21 (Executive Lounge)
22 Instagram

Elevators to Stardust and Hotel Rooms
R Hotel Registration/Concierge
Elevators
Men's Room
Ladies' Room
Stairs

MILKEN INSTITUTE 2018 GLOBAL CONFERENCE

I-12

Memorandum

DATE: May 23, 2018

TO: Members of the Board of Retirement

FROM: Brenda Shott, Assistant CEO, Internal Operations

SUBJECT: **BUSINESS CONTINUITY AND DISASTER RECOVERY PLAN EXERCISE EXECUTIVE SUMMARY**

Written Report

Background/Discussion

Recognizing that business continuity and disaster recovery planning is a critical component of meeting our obligation to generate member benefit payments each month and perform other core processes, OCERS engaged the services of Avalution Consulting in 2015 to assist with the creation of a formal business continuity (BC) and disaster recovery (DR) program. This process consisted of conducting business impact analyses for each of the major departments in OCERS, identifying and prioritizing core business processes, defining recovery time objectives and creating department recovery plans as well as agency-wide crisis management and crisis communications plans. OCERS now has a Crisis Management Team (CMT) which meets quarterly to review and discuss BC/DR matters. Additionally, the CMT conducts two tabletop exercises each calendar year, which allows the team to role-play scenarios involving the loss of one or more of the following areas: facility, technology, personnel, and/or critical third-party vendor(s).

The objectives of the tabletop exercises are four-fold:

- **Create awareness**: Prepare for a real event by creating awareness among recovery stakeholders of processes, plans and tools.
- **Enable improvement**: Further develop plans, strategies, and tools based on lessons learned and participant feedback.
- **Gain plan familiarity**: Familiarize participants with the crisis management plan and department recovery plans, and provide a forum that allows participants to practice using plans.
- **Validate strategies**: Validate strategies and procedures that enable successful response and recovery efforts

2018 Q1 Tabletop Exercise Report

On Tuesday, January 30, 2018, OCERS' CMT conducted its fourth tabletop exercise to test and improve upon its business continuity crisis management plan. Members of the CMT and alternates gathered in the Silverado Room at the OCERS headquarters facility at 9:00 A.M. Jon Gossard (primary BC Program Coordinator) and Jim Doezie (alternate BC Program Coordinator) kicked off the meeting with a brief introduction of the day's agenda before running through a 30-minute refresher on the BC program, opportunities for improving the maturity of the BC/DR program, as well as reviewing the objectives for the exercise. After reorienting the CMT to the BC/DR program, the facilitators began the exercise at approximately 9:30 A.M.

The OCERS 2018 Q1 tabletop exercise involved a three-phase (initial response, recovery, and return to normal) scenario centered around a regional wildfire event that created resource availability constraints. The scenario forced the team to determine the logistics of working without access to the OCERS headquarters facility for a period of over one week during a critical member payroll window. Part of this exercise focused on the stress caused by the unavailability of personnel due to evacuations and other fire-related emergencies. Additionally, the scenario forced the CMT to work through how the team would communicate both internally as well as externally to interested stakeholders. During each phase of the exercise, the facilitators presented facts about the situation, after which the team discussed how they would respond to the scenario. After working through each phase, the facilitators paused the conversation to recap and pose several questions designed to evaluate if the team was considering key points.

Participation among the CMT group was excellent, with all members of the group offering information and thoughts relevant to the scenario. The objectives of the tabletop exercise were met, with team members reiterating awareness of individual roles and responsibilities, identifying areas of improvement in the crisis management plan, reinforcing high-level recovery strategies and validating those strategies, insofar as possible when role-playing a disaster scenario.

The next BC/DR plan tabletop exercise is scheduled for Tuesday, July 31, 2018. The BC Coordinator team is currently working with Avalution Consulting to develop the scenario. During the week prior to the tabletop exercise, the Coordinators will be working with Avalution to review and update each department's business impact analysis and department recovery plan to ensure that our program remains up to date.

Submitted by:

Brenda M Shott

Brenda Shott
Assistant CEO, Internal Operations

I-13

Memorandum

DATE: June 7, 2018

TO: Members of the Board of Retirement

FROM: Jenny Sadoski, Director of Information Technology

SUBJECT: **DISPOSITION OF EQUIPMENT**

Written Report

Background/Discussion

Each year the OCERS IT and Admin/HR departments review their current inventory of computer and office equipment, furniture and supplies to determine if there are any items that are no longer in service or operational and should be disposed of in accordance with the Board's Disposition of Equipment Policy. Attached is the 2018 surplus list of OCERS IT equipment we are requesting to surplus.

Hard drives and other writeable media have been removed from all applicable equipment and are not included as part of the surplus equipment list. Any hard drives and other writeable media that are slated to be disposed of will first be wiped of all data in accordance with the U.S. Department of Defense 5220.00-M "National Industrial Security Program Operating Manual" (NISPOM) standards and then destroyed through a third party certified destruction process.

The approved surplus list will be posted to OCERS public website for silent auction, either by item or by the lot. Any item(s) that do not receive a bid may be donated to any California public institution. Items not sold or accepted as a donation may be disposed or recycled per State of California regulations such as the Electronic Waste Recycling Act of 2003.

Submitted by:

OCERS J.S. - Approved

Jenny Sadoski
Director of Information Technology

OCERS Surplus Equipment List

Item #	Item Description	Item Type	Serial Number	Purchase Year	Item Age	Item Condition	Reason for Disposal
1	18 Monitors	Monitors	n/a			Fair	Obsolete/Broken
2	2 laptop docking stations		n/a	2013	5	Bad	Broken
3	MS Surface docking station		n/a	2015	3	Bad	Broken
4	Netgear Access Point	wireless	n/a	2013	5	Bad	Broken
5	Toshiba SATELLITE L670	laptop	YA439097K	2010	8	Fair	Obsolete
6	Toshiba SATELLITE L670	laptop	YA439109K	2010	8	Fair	Obsolete
7	Toshiba SATELLITE L670	laptop	YA439116K	2010	8	Fair	Obsolete
8	Toshiba SATELLITE L670	laptop	YA439124K	2010	8	Fair	Obsolete
9	Toshiba SATELLITE L670	laptop	YA439134K	2010	8	Fair	Obsolete
10	Toshiba SATELLITE L670	laptop	YA439147K	2010	8	Fair	Obsolete
11	Toshiba SATELLITE L670	laptop	YA439154K	2010	8	Fair	Obsolete
12	Toshiba SATELLITE L670	laptop	YA439158K	2010	8	Fair	Obsolete
13	Toshiba SATELLITE L670	laptop	YA439164K	2010	8	Fair	Obsolete
14	Toshiba SATELLITE L670	laptop	YA439169K	2010	8	Fair	Obsolete
15	Toshiba SATELLITE L670	laptop	YA439178K	2010	8	Fair	Obsolete
16	Toshiba SATELLITE L670	laptop	YA439188K	2010	8	Fair	Obsolete
17	Toshiba SATELLITE L670	laptop	YA439199K	2010	8	Fair	Obsolete
18	Toshiba SATELLITE L670	laptop	YA439206K	2010	8	Fair	Obsolete

19	Toshiba SATELLITE L670	laptop	YA439216K	2010	8	Fair	Obsolete
20	Toshiba SATELLITE L670	laptop	YA439221K	2010	8	Fair	Obsolete
21	Toshiba SATELLITE L670	laptop	YA439231K	2010	8	Fair	Obsolete
22	Toshiba SATELLITE L670	laptop	YA439235K	2010	8	Fair	Obsolete
23	Toshiba SATELLITE L670	laptop	YA439247K	2010	8	Fair	Obsolete
24	Toshiba SATELLITE L670	laptop	YA439250K	2010	8	Fair	Obsolete
25	Brother IntelliFax 4750e	fax	U60283L3V476694	2009	9	Fair	Obsolete
26	Brother IntelliFax 4750e	fax	U60283A8J771803	2009	9	Fair	Obsolete
27	HP d7800	PC	n/a	2007	11	Fair	Obsolete
28	HP d7800	PC	n/a	2007	11	Fair	Obsolete
29	HP/Compaq dc7700	PC	MXL70600P5	2006	12	Fair	Broken
30	HP Pavilion Elite	PC	MXV951036P	2010	8	Fair	Broken
31	HP Pavilion Elite	PC	2MD0250KS6	2010	8	Fair	Broken
46							
47							
48							
49							
50							

I-14

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

Memorandum

DATE: June 18, 2018

TO: Members of the Board of Retirement

FROM: Steve Delaney, Chief Executive Officer

SUBJECT: **BOARD COMMUNICATION**

Written Report

Background/Discussion

To ensure that the public has free and open access to those items that could have bearing on the decisions of the Trustees of the Board of Retirement, the OCERS Board has directed that all written communications to the entire Board during the interim between regular Board meetings be included in a monthly communications summary.

News Links

The various news and informational articles that have been shared with the full Board are being provided to you here by web link address. By providing the links in this publicly available report, we comply with both the Brown Act public meeting requirements, as well as avoid any copyright issues.

The following news and informational links were received by OCERS staff for distribution to the entire Board:

Shawn Dewane:

- Why Pensions and Politics Don't Mix
  http://www.cetusnews.com/business/Why-Pensions-and-Politics-Don%E2%80%99t-Mix-.HykUlFWpf.html

Attachment: Needed Assistance Regarding the OCFA Attorney Withdrawal Opinion Memo

Submitted by:

Steve Delaney
Chief Executive Officer

Stephen M. Wontrobski
Mission Viejo, CA 92692

June 5, 2018

Orange County Board of Supervisors
333 W. Santa Ana Blvd.
Santa Ana, CA 92701

City of Irvine City Council Members
1 Civic Center Plaza
Irvine, CA 92606

Ref: Needed Assistance Regarding the OCFA Attorney Withdrawal Opinion

Dear Board Members,

Background Information

At the OCFA May 24, 2018 Board of Directors meeting in a public comment, I recommended as an option to SFF member cities that they consider leaving the OCFA and rejoining the OCFA in 2020 as a contract member city only for fire services. I have always recommended that all overcharged contract and SFF member cities use non-OCFA private paramedic company services for their 911 EMS paramedic response requirements. These cities would thereby: a) bypass very costly OCFA 911 EMS paramedic response services; b) save millions of dollars each year; and c) avoid future UAAL pension liability associated with those OCFA services.

At the conclusion of the meeting, the OCFA Attorney, Mr. David Kendig, advised me that the my recommendation option was flawed advice. He referred me to the AB 302 (Mendoza) bill, which was passed into law last year. He stated that if Irvine left the OCFA, it not only would have to pay:

1. Costs for a new Fire/EMS Department (I use a hypothetical annual cost of $45 million); and

2. Its continued OCFA SFF tax dollars, which now approximate $65 million.

In other words, Irvine would be double charged for its Fire/EMS services. I stated that:

1. It did not seem logical that Irvine would still have its property tax SFF funds for fire and EMS services continue to go to the OCFA, after it had ceased membership in the OCFA JPA; and

2. I believed the Irvine City Attorney had more than likely looked into this matter and would not advise its City Council members to subject Irvine residents to double taxation for Fire/EMS services.

Mr. Kendig advised me to research the issue. I advised him that I would address this concern with County Counsel and the City Attorney for Irvine, who would be way more knowledgeable than me on this matter. He then subsequently sent me the attached e-mail with legislative history attached.

What is now very interesting to me is that in a past conversation with a Dana Point City Council member, I was basically advised of the same assertion. Dana Point is one of the most overcharged SFF cities on a per resident basis.

So more than likely, OCFA Executive staff has been advising Dana Point and possibly other SFF cities of this same OCFA contention. This would certainly dampen any SFF city's desire to lower Fire/EMS costs by leaving membership in the OCFA.

Request for Information from County Counsel and the Irvine City Attorney

Can the Irvine City Attorney and County Counsel please provide information to me, the public, and all OCFA member cities regarding the OCFA's legal contention regarding double taxation for Fire/EMS services.

This information is needed by the following:

a) OCFA Member City Councils (including Irvine) and their residents, who are considering leaving the OCFA in order to lower their out-sized Fire/EMS costs; and

b) The Orange County Board of Supervisors.

OCFA Member City Councils and Their Residents

OCFA Member City Councils and their residents desperately need the information because of the following:

1. For most, if not all OCFA member cities, OCFA Fire and EMS service cost represents their second largest city expense item.

2. Various cities, such as, Irvine, Villa Park, Aliso Viejo, Dana Point, and Laguna Niguel have had to endure millions of dollars of overcharges for countless years of OCFA Fire and EMS services with no end in sight.

3. Member cities, such as, Placentia, Seal Beach, Laguna Woods and Westminster are cash strapped and need economic cost relief for Fire and EMS services.

4. Various member cities are headed down the road to city bankruptcy due to ever increasing public safety cost. It was reported that Laguna Woods is currently destined for city bankruptcy by 2020, unless something is done to address its public safety costs.

5. Santa Ana and other member cities may desire to outsource their 911 EMS response services to private ambulance companies supplying both 911 EMS paramedic response and ambulance transport services. This could be done, while maintaining in-house overall management and oversight control of this operation. It wasn't many years ago that Santa Ana actually handled its own 911 EMS services.

6. The legal opinion information is needed by the County, various OCFA member City Councils, Member Cities' Financial Review Committees, and member cities and County residents to aid them in their decision making process regarding such matters as:

a) Whether or not to file a required notice of withdrawal by June 30, 2018 from the OCFA.

b) Whether to seek through an RFP process more economical fire services from neighboring City Fire Departments or private firefighting companies.

c) Whether to outsource 911 EMS paramedic response and ambulance transport services on a competitive RFP bid basis to outside private paramedic staffed ambulance companies to achieve major cost savings.

d) Whether to bundle and outsource Fire and 911 EMS paramedic response and ambulance transport services on a competitive RFP bid basis to private companies that provide both fire and private paramedic ambulance services to achieve even a higher amount of cost savings.

e) Whether to establish a separate fire department to serve an individual OCFA member city or a group of cities.

f) Whether cities should form a mini-JPA to provide non-OCFA fire and EMS services.

Board of Supervisors

Board members will be asked in the near future, if they wish to exit membership in the OCFA. Based on my own cost studies, the County would save millions of dollars each year by exiting the OCFA's Fire/EMS coverage for the County's unincorporated areas. Everyone appears to know that the County has been for years, and currently is, severely overcharged for OCFA services.

As one option, the County could consider that future Fire/EMS services be secured by issuance and award of one or more separate competitively bid RFP's for Fire and EMS services.

a) Fire Services

The County could consider putting out a competitively bid RFP for County unincorporated area fire services to: a) private fire suppression companies; b) the OCFA; and c) the following Fire Departments: Brea/Fullerton Fire Department, Garden Grove Fire Department, Anaheim Fire Department, City of Orange Fire Department and any other interested agency fire department.

b) EMS Services

The County could consider putting out a competitively bid RFP for its unincorporated area 911 EMS paramedic response and ambulance transport services to private paramedic ambulance companies, the OCFA, and other interested City Fire Departments.

c) Bundling of Fire and EMS Response Services

The County could consider outsourcing Fire and 911 EMS paramedic response and ambulance transport services on a competitive RFP bid basis to outside companies that provide both fire and private paramedic ambulance services to achieve the greatest amount of cost savings.

Legal Issues Concerning the OCFA JPA Notice of Withdrawal

The ability to withdraw from the OCFA JPA has changed from the Original OCFA JPA to the subsequent Amended OCFA JPA. The Original OCFA JPA provided that after an initial three year period, an OCFA member could withdraw on an annual basis. The Amended OCFA JPA provides that unless a member gives its notice to withdraw from the OCFA by June 30, 2018, it is locked into and additional ten year period with the OCFA.

However, the Amended OCFA JPA (Article VII, Section 1, “City Member Withdrawal”, Sub-paragraph D, “Rescission of Notice”) provides:

“Any notice required hereunder may be rescinded by the member with the approval of the Board of Directors.”

The questions then arise:

1. Is it pragmatic for <u>all overcharged SFF member cities and the County</u> to give notices of withdrawal by June 30, 2018?

2. And if no more economical fire/EMS model is found in the future to compete with a possibly radically reformed OCFA cost structure model, then simply rejoin the OCFA in 2020 as a contract (non-SFF) member? This would result in greatly reduced costs for fire and EMS services that are based on actual costs.

<u>Conclusion</u>

Residents in the OCFA SFF member cities of Villa Park, Irvine, Dana Point, Laguna Niguel and Aliso Viejo know that they have been and are continuing to be massively overcharged by the OCFA for Fire/EMS services. It can be expected that their member City Councils will be asked by their residents for a non-biased, non-union, and non-OCFA recommendation to continue with or exit the OCFA. This recommendation will also address whether to switch to private fire suppression and paramedic companies for fire and 911 EMS paramedic response and ambulance transport services in order to save each city millions of dollars every year. The information requested above would aid their City Managers and City Council members in their decision making process of whether to withdraw from the OCFA.

I thank you for any assistance you could provide in this matter.

Sincerely,

Stephen Wontrobski BOSOCFAattorneyResponse-NeededAssistance-6-5-18

cc: OCEMS; State EMSA Director (Dr. Backer); Overcharged OCFA City Councils of Dana Point, Aliso Viejo, Laguna Niguel, Irvine, and Villa Park; and City Councils of Seal Beach, Westminster, Placentia, Santa Ana, San Clemente, San Juan Capistrano, Lake Forest, Mission Viejo, Laguna Hills and Rancho Santa Margarita

I-15

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

Memorandum

DATE: June 6, 2018

TO: Members of the Board of Retirement

FROM: Jenny Sadoski, Director of Information Technology

SUBJECT: **BOARD SURFACE TABLET DEPLOYMENT**

Written Report and Presentation

Background/Discussion

In January 2012 OCERS made the move from paper to electronic board packets for all Regular and Committee meetings. To support the distribution and review of electronic materials, OCERS Board of Retirement adopted the use of OCERS-issued mobile devices, and in 2013 OCERS staff issued Apple iPads to each Board member and select Executive staff. To take advantage of new and emerging technologies, OCERS staff will be replacing the current iPads with Microsoft Surface Pro tablets in 2018.

MICROSOFT SURFACE PRO SPECIFICATIONS

FEATURES	TECHNICAL SPECS
• Enterprise Enabled, Mobility + Security • Windows 10 & Office 2016 • 4G LTE and Wireless Support • Hardware Drive Encryption • Mobile Device and App Management through Microsoft Intune	• Processor: Intel Core i5 • Hard Drive: 256GB SSD Memory: 8GB RAM • Display: 12.3" PixelSense • Size: 11.50 x 7.93 x .033 in • Weight: 1.70lbs (770 g) • Battery: Up to 13.5 hours video playback
ACCESSORIES PROVIDED	
Surface Case, Keyboard, Wireless Mouse, and Power Adapter (*Surface Pro Pen not included*)	

PROPOSED SURFACE TABLET DEPLOYMENT SCHEDULE

The proposed timeline for the distribution of Surface tablets to OCERS Board of Retirement is:

BOARD MEETING - JUNE 18, 2018

1. Overview and proposed schedule for new Surface tablet deployment presented to the Board.

SPECIAL BOARD MEETING - JUNE 27, 2018 at 9:00am (prior to Investment Committee Meeting)

1. OCERS staff will issue new Surface tablets and have Board members review and sign new Mobile Device Usage Policy authorization/check-out forms.

2. OCERS staff will provide presentation and training for the following:

    - Logging onto tablets
    - Navigation overview
    - Accessing OCERS Email and BoardVantage applications
    - Windows 10 and other additional training materials

3. Board Members will return OCERS-issued iPads and accessories at the close of Investment Committee meeting.

Estimated Time: 60 minutes

POST DEPLOYMENT ACTIVITIES:

1. On-going Support
2. Deploy Surface tablets to designated OCERS staff
    a. Replace existing laptops
        i. Recoup and refresh laptops for reuse within the organization
    b. Extend deployment to OCERS staff with Business Continuity and Disaster Recovery responsibilities
3. Recoup and Refresh Apple iPads for reuse within the organization
    a. iPads will be wiped and reset to factory defaults and recommissioned for use by OCERS staff

Submitted by:

J.S. – APPROVED
Jenny Sadoski
Director of Information Technology

ORANGE COUNTY
OCERS
EMPLOYEES RETIREMENT SYSTEM

Board of Retirement
MS Surface Tablet Deployment

June 18, 2018

Microsoft Surface Pro Specifications

FEATURES	TECHNICAL SPECS
• Enterprise Enabled, Mobility + Security • Windows 10 & Office 2016 • 4G LTE and Wireless Support • Hardware Drive Encryption • Mobile Device and App Management through Microsoft Intune	• Processor: Intel Core i5 • Hard Drive: 256GB SSD Memory: 8GB RAM • Display: 12.3" PixelSense • Size: 11.50 x 7.93 x .033 in • Weight: 1.70lbs (770 g) • Battery: Up to 13.5 hours video playback

ACCESSORIES PROVIDED
Surface Case, Keyboard, Wireless Mouse, and Power Adapter (Surface Pro Pen not included)

"We provide secure retirement and disability benefits with the highest standards of excellence."

ORANGE COUNTY OCERS EMPLOYEES RETIREMENT SYSTEM

Surface Deployment Timetable

- **BOARD MEETING - JUNE 18, 2018**
  - Overview and proposed schedule for new Surface tablet deployment presented to the Board.
- **INVESTMENT COMMITTEE MEETING - JUNE 27, 2018**
- OCERS staff will issue new Surface tablets and have Board members review and sign new Mobile Device Usage Policy authorization/check-out forms.
- OCERS staff will provide presentation and training for the following:
  - Logging onto tablets
  - Navigation overview
  - Accessing OCERS Email and BoardVantage applications
  - Windows 10 and other additional training materials
- Board Members will return OCERS-issued iPads and accessories ***at the close of*** the Investment Committee meeting.
- Estimated Time: 60 minutes

"We provide secure retirement and disability benefits with the highest standards of excellence."

Post Deployment Activities

- Provide on-going Support
- Deploy Surface tablets to designated OCERS staff
  - Replace existing laptops
    - Recoup and refresh laptops for reuse within the organization
  - Extend deployment to OCERS staff with Business Continuity and Disaster Recovery responsibilities
- Recoup and Refresh Apple iPads for reuse within the organization
  - iPads will be wiped and reset to factory defaults and recommissioned for use by OCERS staff