

ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM

**BOARD OF RETIREMENT
2223 WELLINGTON AVENUE, SUITE 100
SANTA ANA, CA 92701**

**AUDIT COMMITTEE MEETING
June 6, 2019
1:00 p.m.**

Members of the Committee

Frank Eley, Chair
Charles Packard, Vice Chair
Jeremy Vallone
Shari Freidenrich

AGENDA

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

OPEN SESSION

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. **Persons wishing to provide public comment at this time should fill out a speaker card located on the counter at the back of the room and deposit it in the Recording Secretary's inbox on the wall near the middle of the room.** 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.

CONSENT AGENDA

C-1 APPROVE AUDIT COMMITTEE MINUTES

Audit Committee Meeting Minutes

March 26, 2019

ACTION ITEMS

NOTE: Public comment on matters listed in this agenda will be taken at the time the item is addressed, prior to the Committee's discussion of the item. **Persons wishing to provide public**

comment at this time should fill out a speaker card located on the counter at the back of the room and deposit it in the Recording Secretary's inbox on the wall near the middle of the room.

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

A-2 2018 FINANCIAL STATEMENT AUDIT

Presentation by Linda Hurley and Amy Chiang, Macias Gini & O'Connell

Recommendations:

1. Approve OCERS' audited financial statements for the year ended December 31, 2018;
2. Direct staff to finalize OCERS' 2018 Comprehensive Annual Financial Report (CAFR);
3. Approve the Governmental Accounting Standards Board (GASB) Statement 67 Actuarial Valuation as of December 31, 2018; and
4. Receive and file Macias, Gini & O'Connell LLP's (MGO) "OCERS' Report to the Audit Committee for the Year Ended December 31, 2018" and its "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-3 GASB 68 VALUATION AND AUDIT REPORT

Presentation by Brenda Shott, Assistant CEO of Internal Operations

Recommendations:

1. Approve OCERS' audited Schedule of Allocated Pension Amounts by Employer as of and for the Year Ended December 31, 2018; and
2. Approve the Governmental Accounting Standards Board (GASB) Statement 68 Actuarial Valuation as of December 31, 2018 for distribution to employers.

A-4 AUDIT OF EMPLOYER AND EMPLOYEE CONTRIBUTIONS ACCOUNTING

Presentation by David Kim, Director of Internal Audit and Mark Adviento, Internal Auditor

Recommendation: Receive and file.

A-5 MANAGEMENT ACTION PLAN VERIFICATION

Presentation by David Kim, Director of Internal Audit

Recommendation: Receive and file.

A-6 HOTLINE UPDATE

Presentation by David Kim, Director of Internal Audit

Recommendation: Receive and file.

INFORMATION ITEMS

I-1 STATUS UPDATE OF 2019 AUDIT PLAN

Written Report

I-2 TRAVEL REPORT - LACERA

Written Report

******* END OF OPEN SESSION AGENDA *******

CLOSED SESSION

E-1 THREAT TO PUBLIC SERVICES OR FACILITIES (GOVERNMENT CODE SECTION 54957)

Adjourn into Closed Session pursuant to Government Code section 54957 to consult with *Steve Delaney, CEO, Brenda Shott, Asst. CEO; Matthew Eakin, Director of Cyber Security; Jenny Sadoski, Director of Information Technology; Jon Gossard, Information Security Manager; and Gina M. Ratto, General Counsel*

Recommendation: Take appropriate action.

******* END OF CLOSED SESSION AGENDA *******

COMMITTEE MEMBER COMMENTS

CHIEF EXECUTIVE OFFICER/STAFF COMMENTS

COUNSEL COMMENTS

ADJOURNMENT

NOTICE OF NEXT MEETINGS

REGULAR BOARD MEETING

June 17, 2019

9:00 A.M.

ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM

2223 E. WELLINGTON AVENUE, SUITE 100

SANTA ANA, CA 92701

INVESTMENT COMMITTEE MEETING

June 26, 2019

9:00 A.M.

Audit Committee Meeting
June 6, 2019

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

**DISABILITY COMMITTEE MEETING
July 2, 2019
10:00 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 by calling 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

ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM

**BOARD OF RETIREMENT
2223 WELLINGTON AVENUE, SUITE 100
SANTA ANA, CA 92701**

**AUDIT COMMITTEE MEETING
March 26, 2019
1:00 p.m.**

Members of the Committee

Frank Eley, Chair
Charles Packard, Vice Chair
Jeremy Vallone
Shari Freidenrich

MINUTES

OPEN SESSION

The Chair called the meeting to order at 1:01 p.m.

Attendance was as follows:

Committee Members: Frank Eley, Chair; Charles Packard, Vice Chair; Jeremy Vallone; Shari Freidenrich

Staff: David Kim, Director of Internal Audit; Brenda Shott, Assistant CEO of Internal Operations; Suzanne Jenike, Assistant CEO External Operations; Mark Adviento, Internal Auditor; Jim Doezie, Contracts Administrator; Sonal Sharma, Recording Secretary; Javier Lara, IT Manager

PUBLIC COMMENT

None.

CONSENT AGENDA

C-1 APPROVE AUDIT COMMITTEE MINUTES

Audit Committee Meeting Minutes

February 7, 2019

A **motion** was made by Mr. Packard, **seconded** by Ms. Freidenrich to approve the minutes.

I-1 2018 FINANCIAL STATEMENT AUDIT – ENTRANCE CONFERENCE

Presentation by Linda Hurley and Amy Chiang, Macias Gini & O'Connell

I-2 OPERATIONAL RISK MANAGEMENT PROGRAM UPDATE

Presentation by Brenda Shott, Assistant CEO of Internal Operations, OCERS and David Kim, Director, Internal Audit

A-3 IIA EXTERNAL QUALITY PEER REVIEW REPORT

6/436

Presentation by George Shemo, IIA Quality Services (via teleconference)

Recommendation: Receive and file.

IIA External Auditor, George Shemo, noted the rating of Generally Conforms is the highest rating that can be achieved in a Quality Review. Mr. Shemo highlighted the details from the report, including findings and best practice recommendations. Specifically for findings, OCERS Internal Audit to begin formally verifying management's action plans. Mr. Shemo also noted that the audit profession has progressed beyond assurance functions and can provide advisory services. However, in an assurance capacity, Internal Audit is expected to evaluate and improve the effectiveness of management's controls as opposed to acting in the capacity of management's control.

A **motion** was made by Mr. Packard, **seconded** by Ms. Freidenrich to receive and file.

A-2 HOTLINE UPDATE

Presentation by David Kim, Director of Internal Audit

Recommendation: Receive and file.

A **motion** was made by Mr. Packard, **seconded** by Mr. Vallone to receive and file.

I-3 STATUS UPDATE OF 2019 AUDIT PLAN

Written Report

COMMITTEE MEMBER COMMENTS

None.

CHIEF EXECUTIVE OFFICER/STAFF COMMENTS

None.

COUNSEL COMMENTS

None.

ADJOURNMENT

The Chair adjourned the meeting at 2:46pm.

A-2

Memorandum

DATE: May 30, 2019
TO: Audit Committee Members
FROM: Brenda Shott, Assistant CEO, Finance and Internal Operations; Tracy Bowman, Director of Finance
SUBJECT: 2018 AUDITED FINANCIAL STATEMENTS

Recommendation

Recommend to the Board of Retirement the following:

1. Approve OCERS' audited financial statements for the year ended December 31, 2018
2. Direct staff to finalize OCERS' 2018 Comprehensive Annual Financial Report (CAFR)
3. Approve the Governmental Accounting Standards Board (GASB) Statement 67 Actuarial Valuation as of December 31, 2018
4. Receive and file Macias, Gini & O'Connell LLP's (MGO) "OCERS' Report to the Audit Committee for the Year Ended December 31, 2018" 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' 2018 CAFR, including the audited financial statements and related notes for the year ended December 31, 2018, is considered to be in substantially final form and includes a draft of the unmodified (clean) audit opinion from MGO, OCERS' independent auditors. MGO will issue the signed audit opinion after presenting the draft financial statements to the Audit Committee. The audited financial statements and related notes are included in the Financial Section of OCERS' 2018 CAFR.

The attached Governmental Accounting Standards Board (GASB) Statement 67 Actuarial Valuation as of December 31, 2018 is used for reporting purposes and is separate and distinct from the funding actuarial valuation. This valuation contains necessary information and schedules that have been incorporated into OCERS' 2018 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 a draft of their "Report to the Audit Committee" that includes the required communications of the independent auditors, comments and recommendations based on their 2018 audit of OCERS, and the status of prior year comments and recommendations reported to the Audit Committee related to their 2017 audit of OCERS (which there were none). MGO has also issued a draft "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 will be present at the Audit Committee Meeting on June 6, 2019. They will provide the Committee with a verbal report on their audit. A draft of the 2018 CAFR in substantially final form will be presented to the Board at its regularly scheduled Board meeting on June 17, 2019. The final signed audit reports and the CAFR will be distributed to the Board once finalized.

Memorandum

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, 2018, staff will file a timely submission of the State Controller's Report and submit OCERS' 2018 CAFR and the Actuarial Valuation (for funding purposes) as of December 31, 2017 by the deadline of June 30, 2019.

Submitted by:



Tracy Bowman
Director of Finance

Approved by:



Brenda Shott
Asst. CEO, Finance & Internal Operations

2011



2018 Audited Financial Statements

Presented on June 6, 2019

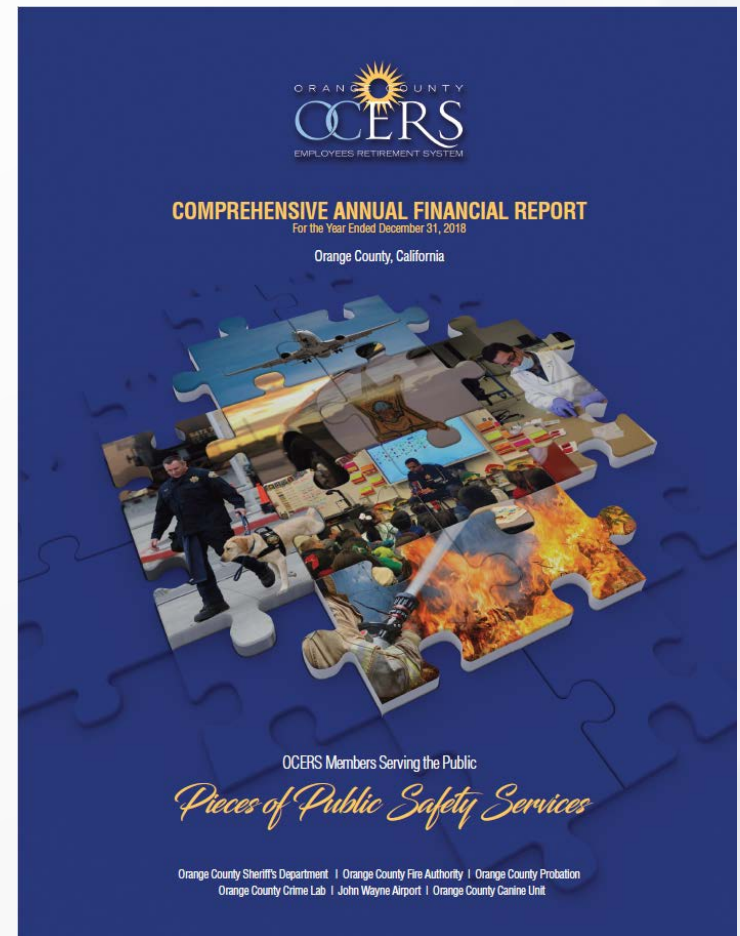
by

Brenda Shott and Tracy Bowman

Recommend to the Board of Retirement the following:

1. Approve OCERS' audited financial statements for the year ended December 31, 2018
2. Direct staff to finalize OCERS' 2018 Comprehensive Annual Financial Report (CAFR)
3. Approve the Governmental Accounting Standards Board (GASB) Statement 67 Actuarial Valuation as of December 31, 2018
4. Receive and file Macias, Gini & O'Connell LLP's (MGO) "OCERS' Report to the Audit Committee for the Year Ended December 31, 2018" 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"

- Theme: OCERS Members Serving the Public
 - Pieces of Public Safety Services
- Preliminary unaudited financial statements provided to the Board in February
 - No material changes reflected in final audited version included in the CAFR
- No new GASB reporting requirements implemented during 2018



Financial Highlights – MD&A

- Net position totaled \$14.8 billion, a decrease of \$0.3 billion from the prior year
 - Net investment losses were -\$331.2 million, or -1.67% vs. a net return of 14.51% in the prior year
 - Employee and employer contributions for pension and health care added \$908 million
- Increases offset by member pension benefit payments of \$814 million, an increase of 8.5% or \$64 million from the prior year

Table 2 : Changes in Fiduciary Net Position
 For the Years Ended December 31, 2018 and 2017
 (Dollars in Thousands)

	12/31/2018	12/31/2017	Increase / (Decrease)	Percentage Change
Additions				
Employer Pension Contributions	\$ 580,905	\$ 572,104	\$ 8,801	1.5%
Employer Health Care Contributions	57,056	62,244	(5,188)	-8.3%
Employee Pension Contributions	270,070	262,294	7,776	3.0%
Net Investment Income/(Loss)	(331,206)	1,978,871	(2,310,077)	-116.7%
Total Additions	576,825	2,875,513	(2,298,688)	-79.9%
Deductions				
Participant Benefits - Pension	813,775	749,784	63,991	8.5%
Participant Benefits - Health Care	38,367	36,020	2,347	6.5%
Death Benefits	570	694	(124)	-17.9%
Member Withdrawals and Refunds	13,933	13,866	67	0.5%
Administrative Expenses - Pension	18,284	17,002	1,282	7.5%
Administrative Expenses - Health Care	50	49	1	2.0%
Total Deductions	884,979	817,415	67,564	8.3%
Increase/(Decrease) in Net Position Restricted for Pension and Other Postemployment Benefits	(308,154)	2,058,098	(2,366,252)	-115.0%
Net Position Restricted for Pension and Other Postemployment Benefits				
Beginning of the Year	15,135,949	13,077,851		
End of the Year	\$ 14,827,795	\$ 15,135,949		

Financial Highlights – MD&A (continued)

Table 3 : Membership Data
 As of December 31, 2018 and 2017

	12/31/2018	12/31/2017	Increase/ (Decrease)	Percentage Change
Active Members	21,929	21,721	208	1.0%
Retired Members	17,674	16,947	727	4.3%
Deferred Members	6,026	5,803	223	3.8%
Total Membership	45,629	44,471	1,158	2.6%

- 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 4.3% or 727, for a total of 17,674 payees as of December 31, 2018
 - The average benefit paid to retired members and beneficiaries during 2018 was \$46,044 vs. \$44,243 in 2017

Financial Highlights – MD&A (continued)

- CAFR includes information from the December 31, 2017 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 72.30% versus 74.62% if market gains and losses were recognized immediately
 - In comparison, in the December 31, 2018 funding valuation to be presented at the June Board meeting, the funding status based on actuarial value of assets was 72.40% versus 69.30% if market gains and losses were recognized immediately

Note 1 – Pension Plan Membership

OCERS Membership - General Members
 As of December 31, 2018

Rate Group	Benefit Plan	Tier	Active Vested	Active Non-Vested	Retired Members & Beneficiaries	Deferred Members	Total
1	A	I	3	-	358	1	362
1	B	II	763	10	411	280	1,464
1	U	II-PEPRA	139	698	2	235	1,074
Rate Group 1 Total			905	708	771	516	2,900
2	A	I	-	-	3,050	11	3,061
2	B	II	-	-	1,918	723	2,641
2	I	I	27	-	1,137	-	1,164
2	J	II	9,419	153	5,384	2,301	17,257
2	P	II	169	20	5	86	280
2	S	II	6	10	-	6	22
2	T	II-PEPRA	395	3,853	2	912	5,162
2	U	II-PEPRA	21	193	-	39	253
2	W	II-PEPRA	-	1	-	-	1
Rate Group 2 Total			10,037	4,230	11,496	4,078	29,841
3	A	I	-	-	87	1	88
3	B	II	43	13	62	38	156
3	G	I	1	-	29	-	30
3	H	II	350	-	308	54	712
3	U	II-PEPRA	20	189	-	24	233
Rate Group 3 Total			414	202	486	117	1,219
4	H	II	-	-	1	-	1
Rate Group 4 Total			-	-	1	-	1
5	A	II	3	-	382	3	388
5	B	II	977	64	1,020	526	2,587
5	U	II-PEPRA	1	234	-	61	296
Rate Group 5 Total			981	298	1,402	590	3,271
9	A	I	-	-	4	-	4
9	B	II	-	-	10	11	21
9	N	II	29	2	39	42	112
9	U	II-PEPRA	1	30	1	9	41
Rate Group 9 Total			30	32	54	62	178
10	A	I	-	-	8	-	8
10	B	II	-	-	40	9	49
10	I	I	-	-	16	-	16
10	J	II	133	-	119	85	337
10	N	II	17	21	1	13	52
10	U	II-PEPRA	6	97	1	71	175
Rate Group 10 Total			156	118	185	178	637
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	12	-	7	2	21
12	U	II-PEPRA	-	2	-	-	2
Rate Group 12 Total			12	2	12	4	30
Total General Members			12,553	5,597	14,416	5,547	38,113

OCERS Membership - Safety Members
 As of December 31, 2018

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	-	-	45	-	45
6	F	II	705	3	211	179	1,098
6	V	II-PEPRA	6	50	-	8	64
Rate Group 6 Total			711	53	390	222	1,376
7	C	I	-	-	474	-	474
7	D	II	-	-	260	46	306
7	E	I	-	-	283	-	283
7	F	II	1,126	-	1,119	86	2,331
7	R	II	378	12	2	27	419
7	V	II-PEPRA	89	422	2	20	533
Rate Group 7 Total			1,593	434	2,140	179	4,346
8	C	I	-	-	25	-	25
8	D	II	-	-	69	5	74
8	E	I	-	-	17	-	17
8	F	II	700	1	616	46	1,363
8	R	II	23	72	1	7	103
8	V	II-PEPRA	19	173	-	20	212
Rate Group 8 Total			742	246	728	78	1,794
Total Safety Members			3,046	733	3,258	479	7,516
Grand Total			15,599	6,330	17,674	6,026	45,629

Page 31 and 32

- 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 2017 valuation to the December 31, 2018 measurement date
- 2018 NPL increased from \$4.9 billion to \$6.2 billion, primarily due to lower than expected returns
 - 2018 NPL is amount used in GASB 68 proportionate share calculation

Questions?



Please refer to the OCERS website at
[https://www.ocers.org/sites/default/files/file-
attachments/2018cafr.pdf](https://www.ocers.org/sites/default/files/file-attachments/2018cafr.pdf)

to view the final version of the 2018 audited
financial statements included in the
**Comprehensive Annual Financial Report for the
Fiscal Year Ended December 31, 2018.**



**Orange County Employees
Retirement System**
Governmental Accounting Standards Board
(GASB) Statement 67
Actuarial Valuation as of December 31, 2018

This report has been prepared at the request of the Board of Retirement to assist in administering the 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, unless expressly authorized by Segal. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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180 Howard Street, Suite 1100 San Francisco, CA 94105-6147
T 415.263.8200 www.segalco.com

May 10, 2019

*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, 2018. 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 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 expectations for the System.

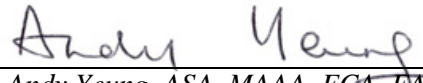
We look forward to reviewing this report with you and to answering any questions.

Sincerely,

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

By: 

Paul Angelo, FSA, MAAA, FCA, EA
Senior Vice President and Actuary



Andy Yeung, ASA, MAAA, FCA, EA
Vice President and Actuary

AW/jl

SECTION 1

VALUATION SUMMARY

Purpose i

General Observations on
GASB 67 Actuarial Valuation . i

Significant Issues in Valuation
Year..... ii

Summary of Key Valuation
Results..... iv

Important Information about
Actuarial Valuations v

SECTION 2

**GASB STATEMENT 67
INFORMATION**

EXHIBIT 1
General Information – “Financial
Statements”, Note Disclosures
and Required Supplementary
Information for a Cost-Sharing
Pension Plan 1

EXHIBIT 2
Net Pension Liability 5

EXHIBIT 3
Schedules of Changes in Net
Pension Liability – Last Two
Plan Years 8

EXHIBIT 4
Schedule of Employer
Contributions – Last Ten Plan
Years 9

EXHIBIT 5
Calculation of Discount Rate as
of December 31, 2018 13

SECTION 1: Valuation Summary for the Orange County Employees Retirement System

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, 2018. 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, 2017, provided by OCERS;
- The assets of the Plan as of December 31, 2018, provided by OCERS;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board for the December 31, 2018 valuation; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc. adopted by the Board for the December 31, 2018 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.

SECTION 1: Valuation Summary for the Orange County Employees Retirement System

- For this report, the reporting dates for the Plan are December 31, 2018 and 2017. The NPL's measured as of December 31, 2018 and 2017 have been determined by rolling forward the TPL as of December 31, 2017 and 2016, 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.

Significant Issues in Valuation Year

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

- The NPL increased from \$4,952.1 million as of December 31, 2017 to \$6,197.2 million as of December 31, 2018 primarily as a result a -2.46%¹ return on the market value of assets during 2018 that was lower than the assumed return of 7.00% of approximately \$1,388 million. This loss was offset to some extent by the gains from lower than expected active salary increases and lower than expected retiree COLA increases during 2017 (because liabilities are rolled forward from December 31, 2017 to December 31, 2018, these changes are not reflected until this valuation as of December 31, 2018)². Changes in these values during the last two fiscal years ending December 31, 2018 and December 31, 2017 can be found in Exhibit 3.
- The discount rate used to determine the TPL and NPL as of both December 31, 2018 and 2017 was 7.00% following the same assumption used by the System in the pension funding valuations as of the same dates. The detailed calculation of the discount rate of 7.00% used in the calculation of the TPL and NPL as of December 31, 2018 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 \$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

¹ As documented in the funding valuation report, return on market value was calculated using a modified dollar-weighted approach based on pension plan assets net of accounting liabilities. Actual investment loss on net pension plan assets was \$361,321,000 during 2018 after including both the administrative expenses and discount for prepaid contributions while excluding the losses credited to County Investment Account and O.C. Sanitation District UAAL Deferred Account. Without these adjustments, the actual investment loss was \$324,628,000.

² It should be noted that because of the use of roll forward, any difference between actual and expected COLA increases during 2018 would not be reflected until the next valuation as of December 31, 2019.

SECTION 1: Valuation Summary for the Orange County Employees Retirement System

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).

The Plan's Fiduciary Net Position of \$14,481,680,000 as of December 31, 2018 is equal to the final market value of assets in the Pension Trust Fund as of December 31, 2018. This differs from the \$14,349,790,000 market value of assets used in our December 31, 2018 funding valuation because the funding valuation excludes \$131,890,000 in the County Investment Account. (The balance in the O.C. Sanitation District UAAL Deferred Account as of December 31, 2018 is \$0 after transfer of \$14,589,000 to offset a portion of the District's UAAL as of December 31, 2018.)

SECTION 1: Valuation Summary for the Orange County Employees Retirement System

Summary of Key Valuation Results

	December 31, 2018	December 31, 2017
Disclosure elements for plan year ending December 31:		
Service cost ⁽¹⁾	\$491,372,822	\$452,412,003
Total Pension Liability	20,678,882,089	19,753,994,401
Plan's Fiduciary Net Position	14,481,680,000	14,801,895,000
Net Pension Liability	6,197,202,089	4,952,099,401
Schedule of contributions for plan year ending December 31:		
Actuarially determined contributions ^{(2),(3)}	\$556,728,000	\$536,726,000
Actual contributions ^{(2),(3)}	580,905,000	572,104,000
Contribution deficiency (excess) ⁽⁴⁾	(24,177,000)	(35,378,000)
Demographic data for plan year ending December 31:		
Number of retired members and beneficiaries	17,674	16,947
Number of vested terminated members	6,026	5,803
Number of active members	21,929	21,721
Key assumptions as of December 31:		
Investment rate of return	7.00%	7.00%
Inflation rate	2.75%	2.75%
Projected salary increases ⁽⁵⁾	General: 4.25% to 12.25% and Safety: 4.75% to 17.25%	General: 4.25% to 12.25% and Safety: 4.75% to 17.25%

⁽¹⁾ The service cost is based on the previous year's valuation, meaning the 2018 and 2017 values are based on the valuations as of December 31, 2017 and December 31, 2016, respectively. The 2018 service cost has been calculated using the assumptions shown in the December 31, 2017 column and the 2017 service cost has been calculated using the assumptions used in the December 31, 2016 valuation. The key assumptions as of December 31, 2016 are as follows:

Key assumptions as of December 31, 2016:

Investment rate of return	7.25%
Inflation rate	3.00%
Projected salary increases*	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%

* Includes inflation at 3.00% plus real across-the-board salary increases of 0.50% plus merit and promotional increases.

⁽²⁾ Reduced by discount for prepaid contributions and transfer from County Investment Account, if any.

⁽³⁾ Exclude transfers of \$14,589,000 and \$24,042,000 from O.C. Sanitation District Deferred UAAL Account required to offset UAAL increase as of December 31, 2018 and December 31, 2017, respectively.

⁽⁴⁾ Includes additional contributions made by employers toward the reduction of their UAAL. Details are shown in Exhibit 4 of this report.

⁽⁵⁾ Includes inflation at 2.75% plus real across-the-board salary increases of 0.50% plus merit and promotional increases.

SECTION 1: Valuation Summary for the Orange County Employees Retirement System

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 measurement 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

SECTION 1: Valuation Summary for the Orange County Employees Retirement System

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.

SECTION 2: GASB Information for Orange County Employees Retirement System

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 thirteen 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, 2018, pension plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	17,674
Vested terminated members entitled to, but not yet receiving benefits	6,026
Active members	<u>21,929</u>
Total	45,629

Note: Data as of December 31, 2018 is not used in the measurement of the TPL as of December 31, 2018.

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

SECTION 2: GASB Information for Orange County Employees Retirement System

designated PEPRSA 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 on or 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

SECTION 2: GASB Information for Orange County Employees Retirement System

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 2018 or the second half of fiscal year 2017-2018 (based on the December 31, 2015 valuation) was 37.25%³ of compensation. The average employer contribution rate for the last six months of calendar year 2018 or the first half of fiscal year 2018-2019 (based on the December 31, 2016 valuation) was 36.56%³ of compensation.

³ *These employer contribution rates are higher than the composite rate for 2018 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.*

SECTION 2: GASB Information for Orange County Employees Retirement System

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 2018 or the second half of fiscal year 2017-2018 (based on the December 31, 2015 valuation) was 12.21%⁴ of compensation. The average member contribution rate for the last six months of calendar year 2018 or the first half of fiscal year 2018-2019 (based on the December 31, 2016 valuation) was 12.01%² of compensation.

⁴ It should be noted that these member contribution rates provided above have not been adjusted to reflect any pick-ups or reverse pick-ups.

SECTION 2: GASB Information for Orange County Employees Retirement System

EXHIBIT 2

Net Pension Liability

The components of the Net Pension Liability as follows:	December 31, 2018	December 31, 2017
Total Pension Liability	\$20,678,882,089	\$19,753,994,401
Plan's Fiduciary Net Position	<u>(14,481,680,000)</u>	<u>(14,801,895,000)</u>
Net Pension Liability	\$6,197,202,089	\$4,952,099,401
Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	70.03%	74.93%

The Net Pension Liability (NPL) was measured as of December 31, 2018 and 2017. 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, 2017 and 2016, respectively.

Plan provisions. The plan provisions used in the measurement of the NPL as of December 31, 2018 and 2017 are the same as those used in the OCERS actuarial valuations as of December 31, 2018 and 2017, respectively.

Actuarial assumptions. The TPLs as of December 31, 2018 and 2017 were determined by actuarial valuations as of December 31, 2017 and 2016, respectively. The actuarial assumptions used were based on the results of an experience study for the period from January 1, 2014 through December 31, 2016 and they are the same assumptions used in the December 31, 2018 and 2017 funding valuations for OCERS. In particular, the following actuarial assumptions were applied to all periods included in the measurement:

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 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

SECTION 2: GASB Information for Orange County Employees Retirement System

deducting investment expenses are shown in the following table. This information was used in the derivation of the long-term expected investment rate of return assumption for the December 31, 2018 and 2017 actuarial valuations. This information will change every three years based on the actuarial experience study.

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	<u>8.0%</u>	9.48%
Total	100.0%	

Discount rate: The discount rate used to measure the TPL was 7.00% as of December 31, 2018 and 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 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, 2018 and 2017.

SECTION 2: GASB Information for Orange County Employees Retirement System

Sensitivity of the Net Pension Liability to changes in the discount rate. The following presents the NPL as of December 31, 2018, 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, 2018	\$9,210,629,685	\$6,197,202,089	\$3,747,612,367

SECTION 2: GASB Information for Orange County Employees Retirement System

EXHIBIT 3

Schedule of Changes in OCERS Net Pension Liability – Last Two Plan Years

	2018	2017
Total Pension Liability		
1. Service cost	\$491,372,822	\$452,412,003
2. Interest	1,379,917,267	1,305,268,322
3. Change of benefit terms	0	0
4. Differences between expected and actual experience	(118,124,401)	(66,963,603)
5. Changes of assumptions	0	827,197,076
6. Benefit payments, including refunds of member contributions	(828,278,000)	(764,344,000)
7. Transfer of members among Rate Groups	0	0
8. Other	<u>0</u>	<u>0</u>
9. Net change in Total Pension Liability	\$924,887,688	\$1,753,569,798
10. Total Pension Liability – beginning	<u>19,753,994,401</u>	<u>18,000,424,603</u>
11. Total Pension Liability – ending	<u>\$20,678,882,089</u>	<u>\$19,753,994,401</u>
Plan Fiduciary Net Position		
12. Contributions – employer ⁽¹⁾	\$580,905,000 ⁽²⁾	\$572,104,000 ⁽³⁾
13. Contributions – plan members	270,070,000	262,294,000
14. Net investment income/(loss)	(324,628,000)	1,939,635,000
15. Benefit payments, including refunds of member contributions	(828,278,000)	(764,344,000)
16. Transfer of members among Rate Groups	0	0
17. Administrative expense	(18,284,000)	(17,002,000)
18. Other	<u>0</u>	<u>0</u>
19. Net change in Plan Fiduciary Net Position	\$(320,215,000)	\$1,992,687,000
20. Plan Fiduciary Net Position – beginning	<u>14,801,895,000</u>	<u>12,809,208,000</u>
21. Plan Fiduciary Net Position – ending	\$14,481,680,000	\$14,801,895,000
22. Net Pension Liability – ending (11) – (21)	<u>\$6,197,202,089</u>	<u>\$4,952,099,401</u>
23. Plan Fiduciary Net Position as a percentage of the Total Pension Liability	70.03%	74.93%
24. Covered payroll ⁽⁴⁾	\$1,718,798,000	\$1,678,322,000
25. Plan Net Pension Liability as percentage of covered payroll	360.55%	295.06%

⁽¹⁾ Reduced by discount for prepaid contributions and transfer from County Investment Account, if any.

⁽²⁾ \$14,589,000 transfer from O.C. Sanitation District Deferred UAAL Account required to offset UAAL increase for the actuarial losses as of December 31, 2018 has been excluded from this amount.

⁽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 payroll on which contributions to the pension plan are based.

SECTION 2: GASB Information for Orange County Employees Retirement System

EXHIBIT 4

Schedule of Employer 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)}
2009	\$337,496,000	\$338,387,000 ⁽⁴⁾	\$(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 ⁽⁵⁾	(1,075,000)	1,494,745,000	28.57%
2014	476,320,000	625,520,000 ⁽⁶⁾	(149,200,000)	1,513,206,000	41.34%
2015	502,886,000	571,298,000 ⁽⁷⁾	(68,412,000)	1,521,036,000	37.56%
2016	521,447,000	567,196,000 ⁽⁸⁾	(45,749,000)	1,602,675,000	35.40%
2017	536,726,000 ⁽⁹⁾	572,104,000 ^{(9),(10)}	(35,378,000)	1,678,322,000	34.09%
2018	556,728,000 ⁽¹¹⁾	580,905,000 ^{(11),(12)}	(24,177,000)	1,718,798,000	33.80%

⁽¹⁾ Reduced by transfers from County Investment Account (funded by pension obligation proceeds held by OCERS). Those transfers are as follows:

<i>Plan Year Ended December 31</i>	<i>Transfers from County Investment Account</i>	<i>Plan Year Ended December 31</i>	<i>Transfers from County Investment Account</i>
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
2013	5,000,000	2018	0

⁽²⁾ Reduced by discount for prepaid contributions.

⁽³⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

⁽⁴⁾ Includes additional contributions of \$891,000 made by O.C. Fire Authority towards the reduction of their UAAL.

⁽⁵⁾ Includes additional contributions of \$1,075,000 made by O.C. Fire Authority towards the reduction of their UAAL.

⁽⁶⁾ 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.

SECTION 2: GASB Information for Orange County Employees Retirement System

EXHIBIT 4 (continued)

Schedule of OCERS' Contributions – Last Ten Plan Years

- ⁽⁷⁾ *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.*
- ⁽⁸⁾ *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.*
- ⁽⁹⁾ *\$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.*
- ⁽¹⁰⁾ *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.*
- ⁽¹¹⁾ *\$14,589,000 transfer from O.C. Sanitation District Deferred UAAL Account required to offset UAAL increase for the actuarial losses as of December 31, 2018 has been excluded from both these amounts.*
- ⁽¹²⁾ *Includes additional contributions of \$23,437,000 made by O.C. Fire Authority and \$740,000 made by Cypress Recreation and Parks District towards the reduction of their UAAL.*

SECTION 2: GASB Information for Orange County Employees Retirement System

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 2018 or the second half of fiscal year 2017-2018 are calculated based on the December 31, 2015 valuation. Actuarially determined contribution rates for the last six months of calendar year 2018 or the first half of fiscal year 2018-2019 are calculated based on the December 31, 2016 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.

SECTION 2: GASB Information for Orange County Employees Retirement System

Notes to Exhibit 4 – continued

Actuarial assumptions:

December 31, 2015 valuation

<i>Investment rate of return</i>	7.25%, net of pension plan investment expense, including inflation
<i>Inflation rate</i>	3.00%
<i>Real across-the-board salary increase</i>	0.50%
<i>Projected salary increases</i>	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%, vary by service, including inflation
<i>Cost of living adjustments</i>	3.00% of retirement income
<i>Other assumptions</i>	Same as those used in the December 31, 2015 funding actuarial valuation

December 31, 2016 valuation

<i>Investment rate of return</i>	7.25%, net of pension plan investment expense, including inflation
<i>Inflation rate</i>	3.00%
<i>Real across-the-board salary increase</i>	0.50%
<i>Projected salary increases</i>	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%, vary by service, including inflation
<i>Cost of living adjustments</i>	3.00% of retirement income
<i>Other assumptions</i>	Same as those used in the December 31, 2016 funding actuarial valuation

SECTION 2: GASB Information for Orange County Employees Retirement System

EXHIBIT 5

Calculation of Discount Rate as of December 31, 2018

Projection of Pension Plan's Fiduciary Net Position (\$ 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)
2018	\$14,802	\$851	\$828	\$18	-\$325	\$14,482
2019	14,482	945	900	18	1,015	15,523
2020	15,523	967	960	19	1,086	16,598
2021	16,598	978	1,021	21	1,160	17,694
2022	17,694	994	1,084	22	1,235	18,818
2023	18,818	1,023	1,150	23	1,312	19,980
2024	19,980	1,030	1,219	25	1,391	21,157
2025	21,157	1,039	1,288	26	1,472	22,354
2026	22,354	1,049	1,359	28	1,553	23,569
2027	23,569	1,059	1,433	29	1,636	24,801
2043	36,099	176	2,645	45	2,441	36,027
2044	36,027	166	2,696	45	2,433	35,886
2045	35,886	156	2,743	44	2,421	35,677
2046	35,677	147	2,786	44	2,405	35,399
2047	35,399	138	2,824	44	2,384	35,054
2092	19,045	39	238	24	1,325	20,148
2093	20,148	39	196	25	1,404	21,369
2094	21,369	39	160	26	1,491	22,712
2095	22,712	39	129	28	1,586	24,180
2096	24,180	40	102	30	1,689	25,776
2131	255,087	315	0 **	315	17,856	272,944
2132	272,944					
2132 Discounted Value:	131 ***					

* Of all the projected total contributions, only the first year's (i.e., 2018) contribution has been reduced by discount for prepaid contributions and transfers from County Investment Account, if any.

** Less than \$1 million, when rounded.

*** \$272,944 million when discounted with interest at the rate of 7.00% per annum has a value of \$131 million as of December 31, 2018, which is about the balance in the County Investment Account as of December 31, 2018.

Note: We have not utilized the balance in the County Investment Account to reduce the projected total contributions in column (b) even though those amounts have been used to reduce the NPL for the County as of December 31, 2018.

SECTION 2: GASB Information for Orange County Employees Retirement System

EXHIBIT 5

Calculation of Discount Rate as of December 31, 2018

Projection of Pension Plan's Fiduciary Net Position (\$ in millions)

Notes:

- (1) Amounts may not total exactly due to rounding.
- (2) Amounts shown in the year beginning January 1, 2018 row are actual amounts, based on the financial statements provided by OCERS.
- (3) Years 2028-2042, 2048-2091, and 2097-2130 have been omitted from this table.
- (4) Column (a): Except for the "discounted value" shown for 2132, 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, 2017), 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, 2017. The projected benefit payments reflect the cost of living increase assumptions used in the December 31, 2018 valuation report. The 2018 benefit payments have been increased by the balance of the Medicare Insurance Reserve as of December 31, 2018.
- (7) Column (d): Projected administrative expenses are calculated as approximately 0.12% of the projected beginning Plan's Fiduciary Net Position amount. The 0.12% portion was based on the actual calendar year 2018 administrative expenses (unaudited) as a percentage of the actual beginning Plan's Fiduciary Net Position as of January 1, 2018. 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, 2018 shown earlier in this report, pursuant to paragraph 44 of GASB Statement No. 67.

5575865v1/05794.015

Orange County Employees Retirement System

FY 2018 Audit Results

PRESENTED BY

Linda Hurley

Partner

June 6, 2019

mgo

Certified
Public
Accountants

1977436

Overview

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

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?



Certified
Public
Accountants

2017/18

**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), California, as of and for the year ended December 31, 2018, 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 X, 2019. Our report contained an emphasis-of-matter paragraph that describes the System's net pension liability as of December 31, 2018.

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.

Newport Beach, California

June X, 2019

DRAFT

A-3

Memorandum

DATE: May 30, 2019
TO: Audit Committee Members
FROM: Brenda Shott, Assistant CEO, Finance and Internal Operations; Tracy Bowman, Director of Finance
SUBJECT: GASB 68 VALUATION AND AUDIT REPORT

Recommendation

Recommend to the Board of Retirement the following:

1. Approve OCERS' audited Schedule of Allocated Pension Amounts by Employer as of and for the Year Ended December 31, 2018.
2. Approve the Governmental Accounting Standards Board (GASB) Statement 68 Actuarial Valuation as of December 31, 2018 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 is shown on the face of each employer's financial statements.

Net Pension Liability vs. Unfunded Actuarial Accrued Liability

The Governmental Accounting Standards Board (GASB) Statement 68 Actuarial Valuation Based on December 31, 2018 Measurement Date for Employer Reporting as of June 30, 2019 is used for financial reporting purposes and was prepared by Segal Consulting ([Attachment 1](#)). 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, 2018 is \$6,197.2 million compared to the unfunded actuarial accrued liability (UAAL) of \$5,708.9 million in the funding actuarial valuation as of December 31, 2018. The differences between the NPL and the UAAL are a direct result of the different liability and asset values used in measuring these amounts as detailed in the attached letter from Segal Consulting which includes a reconciliation of the Plan's December 31, 2018 NPL and UAAL ([Attachment 2](#)). 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 Orange County Sanitation District UAAL Deferred Account; the UAAL is calculated by adjusting the market value of assets for asset smoothing per OCERS Actuarial Funding Policy and excludes 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.

Memorandum

Schedule of Allocated Pension Amounts by Employer

The Schedule of Allocated Pension Amounts by Employer as of and for the Year Ended December 31, 2018 and related notes were audited by OCERS' independent auditor, Macias Gini & O'Connell LLP (MGO) ([Attachment 3](#)). 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:



Tracy Bowman
Director of Finance

Approved by:



Brenda Shott
Asst. CEO, Finance & Internal Operations

2011



GASB 68 Valuation and Audit Report

Presented on June 6, 2019

by

Brenda Shott and Tracy Bowman

- Recommend to the Board of Retirement the following:
 1. Approve OCERS' audited Schedule of Allocated Pension Amounts by Employer as of and for the Year Ended December 31, 2018
 2. Approve the Governmental Accounting Standards Board (GASB) Statement 68 Actuarial Valuation as of December 31, 2018 for distribution to employers

- 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)
- 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 2018 schedule and related notes which will allow our Plan Sponsors’ auditors to rely on MGO’s work, avoiding multiple audits of OCERS’ information.

Questions?



Orange County Employees Retirement System

**Governmental Accounting Standards Board
(GASB) Statement 68**

**Actuarial Valuation Based on December 31, 2018
Measurement Date for Employer Reporting
as of June 30, 2019**



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, unless expressly authorized by Segal. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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180 Howard Street, Suite 1100 San Francisco, CA 94105-6147
T 415.263.8200 www.segalco.com

June 4, 2019

*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, 2018 measurement date for employer reporting as of June 30, 2019. 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; 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 expectations for the System.

Sincerely,

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

By: 

*Paul Angelo, FSA, MAAA, FCA, EA
Senior Vice President and Actuary*



*Andy Yeung, ASA, MAAA, FCA, EA
Vice President and Actuary*

AW/
5580339v1/05794.014

SECTION 1

VALUATION SUMMARY

Purpose i
General Observations on
GASB 68 Actuarial Valuation . i
Significant Issues in Valuation
Year..... ii
Summary of Key Valuation
Results..... iv
Important Information about
Actuarial Valuations vi

SECTION 2

GASB 68 INFORMATION

EXHIBIT 1
General Information – “Financial
Statements”, Note Disclosures and
Required Supplementary
Information for a Cost-Sharing
Pension Plan 1
EXHIBIT 2
Net Pension Liability 4
EXHIBIT 3
Target Asset Allocation 5
EXHIBIT 4
Discount Rate Sensitivity 7
EXHIBIT 5
Schedule of Changes in Net
Pension Liability – Last Two Plan
Years..... 8
EXHIBIT 6
Schedule of Employer
Contributions – Last Ten Plan
Years..... 9
EXHIBIT 7
Determination of Proportionate
Share 13

SECTION 2 (CONTINUED)

EXHIBIT 8
Pension Expense 37
EXHIBIT 9
Deferred Outflows of Resources
and Deferred Inflows of
Resources..... 56
EXHIBIT 10
Schedule of Proportionate Share
of the Net Pension Liability 76
EXHIBIT 11
Schedule of Reconciliation of Net
Pension Liability 95
EXHIBIT 12
Schedule of Recognition of
Changes in Total Net Pension
Liability 114
EXHIBIT 13
Allocation of Changes in Total
Net Pension Liability 118

SECTION 3

**ACTUARIAL ASSUMPTIONS
AND METHODS AND
APPENDICES**

Actuarial Assumptions and
Methods 124
Appendix A
Calculation of Discount Rate as
of December 31, 2018 136
Appendix B
Schedule of Pension Amounts
by Employer as of
December 31, 2018 138
Appendix C
Glossary of Terms..... 143

SECTION 1: Valuation Summary for the Orange County Employees Retirement System

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, 2019. 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, 2018. 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, 2017, provided by OCERS;
- The assets of the Plan as of December 31, 2018, provided by OCERS;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board for the December 31, 2018 valuation; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc. adopted by the Board for the December 31, 2018 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.

SECTION 1: Valuation Summary for the Orange County Employees Retirement System

- 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.
- For this report, the reporting dates for the employers are June 30, 2019 and 2018. The NPL's measured as of December 31, 2018 and 2017 have been determined by rolling forward the TPL as of December 31, 2017 and 2016, 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.

Significant Issues in Valuation Year

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

- The NPL increased from \$4,952.1 million as of December 31, 2017 to \$6,197.2 million as of December 31, 2018 primarily as a result a -2.46%¹ return on the market value of assets during 2018 that was lower than the assumed return of 7.00% of approximately \$1,388 million. This loss was offset to some extent by the gains from lower than expected active salary increases and lower than expected retiree COLA increases during 2017 (because liabilities are rolled forward from December 31, 2017 to December 31, 2018, these changes are not reflected until this valuation as of December 31, 2018)². Changes in these values during the last two plan years ending December 31, 2018 and December 31, 2017 can be found in Exhibit 5.
- The discount rate used to determine the TPL and NPL as of both December 31, 2018 and 2017 was 7.00% following the same assumption used by the System in the pension funding valuations as of the same dates. The detailed calculation of the discount rate of 7.00% used in the calculation of the TPL and NPL as of December 31, 2018 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.

¹ As documented in the funding valuation report, return on market value was calculated using a modified dollar-weighted approach based on pension plan assets net of accounting liabilities. Actual investment loss on net pension plan assets was \$361,321,000 during 2018 after including both the administrative expenses and discount for prepaid contributions while excluding the losses credited to County Investment Account and O.C. Sanitation District UAAL Deferred Account. Without these adjustments, the actual investment loss was \$324,628,000.

² It should be noted that because of the use of roll forward, any difference between actual and expected COLA increases during 2018 would not be reflected until the next valuation as of December 31, 2019.

SECTION 1: Valuation Summary for the Orange County Employees Retirement System

- 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).

The Plan's Fiduciary Net Position of \$14,481,680,000 as of December 31, 2018 is equal to the final market value of assets in the Pension Trust Fund as of December 31, 2018. This differs from the \$14,349,790,000 market value of assets used in our December 31, 2018 funding valuation because the funding valuation excludes \$131,890,000 in the County Investment Account. (The balance in the O.C. Sanitation District UAAL Deferred Account as of December 31, 2018 is \$0 after transfer of \$14,589,000 to offset a portion of the District's UAAL as of December 31, 2018.)

- 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, 2018. 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 #1³ 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.

³ The NPL for Rate Group #1 was adjusted by the NPLs for the O.C. Vector Control District, Cypress Recreation and Parks, 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.

SECTION 1: Valuation Summary for the Orange County Employees Retirement System

Summary of Key Valuation Results

Reporting Date for Employer under GASB 68⁽¹⁾	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Disclosure elements for plan year ending December 31:		
1. Service cost ⁽²⁾	\$491,372,822	\$452,412,003
2. Total Pension Liability	20,678,882,089	19,753,994,401
3. Plan's Fiduciary Net Position	14,481,680,000	14,801,895,000
4. Net Pension Liability	6,197,202,089	4,952,099,401
5. Pension expense	783,713,497	529,375,473
Schedule of contributions for plan year ending December 31:		
6. Actuarially determined contributions ^{(3),(4)}	\$556,728,000	\$536,726,000
7. Actual contributions ^{(3),(4)}	580,905,000	572,104,000
8. Contribution deficiency (excess) ⁽⁵⁾ (6) – (7)	(24,177,000)	(35,378,000)
Demographic data for plan year ending December 31:		
9. Number of retired members and beneficiaries	17,674	16,947
10. Number of vested terminated members	6,026	5,803
11. Number of active members	21,929	21,721
Key assumptions as of December 31:		
12. Investment rate of return	7.00%	7.00%
13. Inflation rate	2.75%	2.75%
14. Projected salary increases ⁽⁶⁾	General: 4.25% to 12.25% and Safety: 4.75% to 17.25%	General: 4.25% to 12.25% and Safety: 4.75% to 17.25%

⁽¹⁾ The reporting date and measurement date for the plan are December 31, 2018 and December 31, 2017.

⁽²⁾ The service cost is based on the previous year's valuation, meaning the 2018 and 2017 measurement date values are based on the valuations as of December 31, 2017 and December 31, 2016, respectively. The 2018 service cost has been calculated using the assumptions shown in the December 31, 2017 column and the 2017 service cost has been calculated using the assumptions used in the December 31, 2016 valuation. The key assumptions as of December 31, 2016 are as follows:

Key assumptions as of December 31, 2016:

Investment rate of return	7.25%
Inflation rate	3.00%
Projected salary increases*	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%

* Includes inflation at 3.00% plus real across-the-board salary increases of 0.50% plus merit and promotional increases.

SECTION 1: Valuation Summary for the Orange County Employees Retirement System

⁽³⁾ *Reduced by discount for prepaid contributions and transfer from County Investment Account, if any.*

⁽⁴⁾ *Exclude transfers of \$14,589,000 and \$24,042,000 from O.C. Sanitation District Deferred UAAL Account required to offset UAAL increase as of December 31, 2018 and December 31, 2017, respectively.*

⁽⁵⁾ *Includes additional contributions made by employers toward the reduction of their UAAL. Details are shown in Exhibit 6 of this report.*

⁽⁶⁾ *Includes inflation at 2.75% plus real across-the-board salary increases of 0.50% plus merit and promotional increases.*

SECTION 1: Valuation Summary for the Orange County Employees Retirement System

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 measurement 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.

SECTION 1: Valuation Summary for the Orange County Employees Retirement System

- 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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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 thirteen 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, 2018, pension plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	17,674
Vested terminated members entitled to, but not yet receiving benefits	6,026
Active members	<u>21,929</u>
Total	45,629

Note: Data as of December 31, 2018 is not used in the measurement of the TPL as of December 31, 2018.

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

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

members employed on or 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).

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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 2018 or the second half of fiscal year 2017-2018 (based on the December 31, 2015 valuation) was 37.25%¹ of compensation. The average employer contribution rate for the last six months of calendar year 2018 or the first half of fiscal year 2018-2019 (based on the December 31, 2016 valuation) was 36.56%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 2018 or the second half of fiscal year 2017-2018 (based on the December 31, 2015 valuation) was 12.21%² of compensation. The average member contribution rate for the last six months of calendar year 2018 or the first half of fiscal year 2018-2019 (based on the December 31, 2016 valuation) was 12.01%² of compensation.

¹ *These employer contribution rates are higher than the composite rate for 2018 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.*

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 2

Net Pension Liability

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
The components of the Net Pension Liability are as follows:		
Total Pension Liability	\$20,678,882,089	\$19,753,994,401
Plan's Fiduciary Net Position	<u>(14,481,680,000)</u>	<u>(14,801,895,000)</u>
Net Pension Liability	\$6,197,202,089	\$4,952,099,401
Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	70.03%	74.93%

The Net Pension Liability (NPL) was measured as of December 31, 2018 and 2017. 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, 2017 and 2016, respectively.

Plan provisions. The plan provisions used in the measurement of the NPL as of December 31, 2018 and 2017 are the same as those used in the OCERS actuarial valuations as of December 31, 2018 and 2017, respectively.

Actuarial assumptions. The TPLs as of December 31, 2018 and 2017 were determined by actuarial valuations as of December 31, 2017 and 2016, respectively. The actuarial assumptions used were based on the results of an experience study for the period from January 1, 2014 through December 31, 2016 and they are the same assumptions used in the December 31, 2018 and 2017 funding valuations for OCERS. In particular, the following actuarial assumptions were applied to all periods included in the measurement:

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

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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 are shown in the following table. This information was used in the derivation of the long-term expected investment rate of return assumption for the December 31, 2018 and 2017 actuarial valuations. This information will change every three years based on the actuarial experience study.

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	<u>8.0%</u>	9.48%
Total	100.0%	

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 3 (continued)

Target Asset Allocation

Discount rate. The discount rate used to measure the TPL was 7.00% as of December 31, 2018 and 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 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, 2018 and 2017.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2018, 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	\$7,162,237,483	\$4,918,576,912	\$3,094,724,273
O.C. Cemetery District	2,522,723	962,119	(306,483)
O.C. Law Library	2,131,439	573,252	(693,385)
O.C. Vector Control District	6,493,528	2,492,695	(759,548)
O.C. Retirement System	41,606,979	28,844,760	18,470,461
O.C. Fire Authority	757,726,799	466,731,526	230,183,938
Cypress Recreation and Parks	1,772,444	408,781	(699,729)
Department of Education	5,334,034	3,517,372	2,040,623
Transportation Corridor Agency	20,108,650	13,253,632	7,681,246
City of San Juan Capistrano	46,363,150	32,142,058	20,581,853
O.C. Sanitation District	131,317,068	29,029,145	(54,119,840)
O.C. Transportation Authority	410,027,534	269,788,642	155,789,636
U.C.I.	50,627,765	34,808,679	21,949,478
O.C. Children and Families Comm.	1,710,176	630,610	(246,960)
Local Agency Formation Comm.	2,282,962	1,582,703	1,013,468
Rancho Santa Margarita	8,165	1,284	(4,310)
O.C. Superior Court	566,535,998	392,760,910	251,500,616
O.C. IHSS Public Authority	<u>1,822,788</u>	<u>1,097,009</u>	<u>507,030</u>
Total for all Employers	\$9,210,629,685	\$6,197,202,089	\$3,747,612,367

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 5

Schedule of Changes in OCERS Net Pension Liability – Last Two Plan Years

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Total Pension Liability		
1. Service cost	\$491,372,822	\$452,412,003
2. Interest	1,379,917,267	1,305,268,322
3. Change of benefit terms	0	0
4. Differences between expected and actual experience	(118,124,401)	(66,963,603)
5. Changes of assumptions	0	827,197,076
6. Benefit payments, including refunds of member contributions	(828,278,000)	(764,344,000)
7. Transfer of members among Rate Groups	0	0
8. Other	0	0
9. Net change in Total Pension Liability	\$924,887,688	\$1,753,569,798
10. Total Pension Liability – beginning	<u>19,753,994,401</u>	<u>18,000,424,603</u>
11. Total Pension Liability – ending	<u>\$20,678,882,089</u>	<u>\$19,753,994,401</u>
Plan's Fiduciary Net Position		
12. Contributions – employer ⁽¹⁾	\$580,905,000 ⁽²⁾	\$572,104,000 ⁽³⁾
13. Contributions – plan members	270,070,000	262,294,000
14. Net investment income/(loss)	(324,628,000)	1,939,635,000
15. Benefit payments, including refunds of member contributions	(828,278,000)	(764,344,000)
16. Transfer of members among Rate Groups	0	0
17. Administrative expense	(18,284,000)	(17,002,000)
18. Other	0	0
19. Net change in Plan's Fiduciary Net Position	\$(320,215,000)	\$1,992,687,000
20. Plan's Fiduciary Net Position – beginning	<u>14,801,895,000</u>	<u>12,809,208,000</u>
21. Plan's Fiduciary Net Position – ending	\$14,481,680,000	\$14,801,895,000
22. Net Pension Liability – ending (11) – (21)	<u>\$6,197,202,089</u>	<u>\$4,952,099,401</u>
23. Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	70.03%	74.93%
24. Covered payroll ⁽⁴⁾	\$1,718,798,000	\$1,678,322,000
25. Plan Net Pension Liability as percentage of covered payroll	360.55%	295.06%

⁽¹⁾ Reduced by discount for prepaid contributions and transfer from County Investment Account, if any.

⁽²⁾ \$14,589,000 transfer from O.C. Sanitation District Deferred UAAL Account required to offset UAAL increase for the actuarial losses as of December 31, 2018 has been excluded from this amount.

⁽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 payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 6

Schedule of Employer 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)}
2009	\$337,496,000	\$338,387,000 ⁽⁴⁾	\$(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 ⁽⁵⁾	(1,075,000)	1,494,745,000	28.57%
2014	476,320,000	625,520,000 ⁽⁶⁾	(149,200,000)	1,513,206,000	41.34%
2015	502,886,000	571,298,000 ⁽⁷⁾	(68,412,000)	1,521,036,000	37.56%
2016	521,447,000	567,196,000 ⁽⁸⁾	(45,749,000)	1,602,675,000	35.40%
2017	536,726,000 ⁽⁹⁾	572,104,000 ^{(9),(10)}	(35,378,000)	1,678,322,000	34.09%
2018	556,728,000 ⁽¹¹⁾	580,905,000 ^{(11),(12)}	(24,177,000)	1,718,798,000	33.80%

⁽¹⁾ Reduced by transfers from County Investment Account (funded by pension obligation proceeds held by OCERS). Those transfers are as follows:

<i>Plan Year Ended December 31</i>	<i>Transfers from County Investment Account</i>	<i>Plan Year Ended December 31</i>	<i>Transfers from County Investment Account</i>
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
2013	5,000,000	2018	0

⁽²⁾ Reduced by discount for prepaid contributions.

⁽³⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

⁽⁴⁾ Includes additional contributions of \$891,000 made by O.C. Fire Authority towards the reduction of their UAAL.

⁽⁵⁾ Includes additional contributions of \$1,075,000 made by O.C. Fire Authority towards the reduction of their UAAL.

⁽⁶⁾ 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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 6 (continued)

Schedule of OCERS' Contributions – Last Ten Plan Years

- ⁽⁷⁾ *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.*
- ⁽⁸⁾ *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.*
- ⁽⁹⁾ *\$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.*
- ⁽¹⁰⁾ *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.*
- ⁽¹¹⁾ *\$14,589,000 transfer from O.C. Sanitation District Deferred UAAL Account required to offset UAAL increase for the actuarial losses as of December 31, 2018 has been excluded from both these amounts.*
- ⁽¹²⁾ *Includes additional contributions of \$23,437,000 made by O.C. Fire Authority and \$740,000 made by Cypress Recreation and Parks District towards the reduction of their UAAL.*

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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 2018 or the second half of fiscal year 2017-2018 are calculated based on the December 31, 2015 valuation. Actuarially determined contribution rates for the last six months of calendar year 2018 or the first half of fiscal year 2018-2019 are calculated based on the December 31, 2016 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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

Notes to Exhibit 6 (continued)

Actuarial assumptions:

December 31, 2015 valuation

<i>Investment rate of return</i>	7.25%, net of pension plan investment expense, including inflation
<i>Inflation rate</i>	3.00%
<i>Real across-the-board salary increase</i>	0.50%
<i>Projected salary increases</i>	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%, vary by service, including inflation
<i>Cost of living adjustments</i>	3.00% of retirement income
<i>Other assumptions</i>	Same as those used in the December 31, 2015 funding actuarial valuation

December 31, 2016 valuation

<i>Investment rate of return</i>	7.25%, net of pension plan investment expense, including inflation
<i>Inflation rate</i>	3.00%
<i>Real across-the-board salary increase</i>	0.50%
<i>Projected salary increases</i>	General: 4.25% to 13.50% and Safety: 5.00% to 17.50%, vary by service, including inflation
<i>Cost of living adjustments</i>	3.00% of retirement income
<i>Other assumptions</i>	Same as those used in the December 31, 2016 funding actuarial valuation

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2017 to December 31, 2017						
Employer	Rate Group #1		Rate Group #2		Rate Group #3	
	Rate Group #1	Percentage	Rate Group #2	Percentage	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 Recreation and Parks ⁽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	<u>204,000</u>	<u>1.363%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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 #5		Rate Group #9	
	Rate Group #4	Percentage	Rate Group #5	Percentage	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 Recreation and Parks	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	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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 #11		Rate Group #12	
	Rate Group #10	Percentage	Rate Group #11	Percentage	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 Recreation and Parks	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	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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 #7		Rate Group #8	
	Rate Group #6	Percentage	Rate Group #7	Percentage	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 Recreation and Parks	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	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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 Recreation and Parks ⁽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	<u>204,000</u>	<u>0.037%</u>
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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2017 Net Pension Liability							
Employer	Rate Group #1		Rate Group #2		Rate Group #3		
	Rate Group #1	Percentage	Rate Group #2	Percentage	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 Recreation and Parks ⁽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	<u>706,343</u>	<u>0.895%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	
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 Recreation and Parks, 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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2017 Net Pension Liability						
Employer	Rate Group #4		Rate Group #5		Rate Group #9	
	Rate Group #4	Percentage	Rate Group #5	Percentage	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 Recreation and Parks	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	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2017 Net Pension Liability						
Employer	Rate Group #10		Rate Group #11		Rate Group #12	
	Rate Group #10	Percentage	Rate Group #11	Percentage	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 Recreation and Parks	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	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2017 Net Pension Liability						
Employer	Rate Group #6		Rate Group #7		Rate Group #8	
	Rate Group #6	Percentage	Rate Group #7	Percentage	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 Recreation and Parks	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	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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 Recreation and Parks ⁽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	<u>706,343</u>	<u>0.014%</u>
Total for all Employers	\$4,952,099,401	100.000%

⁽³⁾ In determining the NPLs for the O.C. Vector Control District, Cypress Recreation and Parks, 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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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 Account 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 assumption 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 Recreation and Parks, 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 reduced the NPL for the three employers as of December 31, 2017.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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:	<u>38,253,047</u>
Total:	\$134,417,000

In addition, the NPL for Rate Group #2 was allocated prior to applying the adjusted balance of the \$1,744,454 in additional UAAL contributions made by O.C. Children and Families Commission on November 15, 2017. That balance is equal to \$1,759,910 as of December 31, 2017 when adjusted with interest from November 15, 2017 to December 31, 2017. We would continue to maintain the outstanding balance of the additional UAAL contributions for use in determining the NPL for this employer.

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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2018 to December 31, 2018						
Employer	Rate Group #1		Rate Group #2		Rate Group #3	
	Rate Group #1	Percentage	Rate Group #2	Percentage	Rate Group #3	Percentage
Orange County	\$13,361,000	98.591%	\$252,306,000	87.908%	\$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%	2,187,000	0.762%	0	0.000%
O.C. Fire Authority	0	0.000%	0	0.000%	0	0.000%
Cypress Recreation and Parks	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%	2,437,000	0.849%	0	0.000%
O.C. Sanitation District	0	0.000%	0	0.000%	7,728,000	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%	185,000	0.064%	0	0.000%
Local Agency Formation Comm.	0	0.000%	120,000	0.042%	0	0.000%
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%
O.C. Superior Court	0	0.000%	29,779,000	10.375%	0	0.000%
O.C. IHSS Public Authority	<u>191,000</u>	<u>1.409%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
Total for all Employers	\$13,552,000	100.000%	\$287,014,000	100.000%	\$7,728,000	100.000%

Note: Results may not total due to rounding.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2018 to December 31, 2018						
Employer	Rate Group #4		Rate Group #5		Rate Group #9	
	Rate Group #4	Percentage	Rate Group #5	Percentage	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 Recreation and Parks	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%	1,641,000	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%	24,725,000	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	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
Total for all Employers	\$0	100.000%	\$24,725,000	100.000%	\$1,641,000	100.000%

Note: Results may not total due to rounding.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2018 to December 31, 2018						
Employer	Rate Group #10		Rate Group #11		Rate Group #12	
	Rate Group #10	Percentage	Rate Group #11	Percentage	Rate Group #12	Percentage
Orange County	\$0	0.000%	\$0	0.000%	\$0	0.000%
O.C. Cemetery District	0	0.000%	171,000	100.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	169,000	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	8,206,000	100.000%	0	0.000%	0	0.000%
Cypress Recreation and Parks	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	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
Total for all Employers	\$8,206,000	100.000%	\$171,000	100.000%	\$169,000	100.000%

Note: Results may not total due to rounding.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2018 to December 31, 2018						
Employer	Rate Group #6		Rate Group #7		Rate Group #8	
	Rate Group #6	Percentage	Rate Group #7	Percentage	Rate Group #8	Percentage
Orange County	\$28,033,000	100.000%	\$143,462,000	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%	59,905,000	100.000%
Cypress Recreation and Parks	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	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
Total for all Employers	\$28,033,000	100.000%	\$143,462,000	100.000%	\$59,905,000	100.000%

Note: Results may not total due to rounding.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2018 to December 31, 2018**

Employer	Total Contributions⁽¹⁾	Total Percentage
Orange County	\$437,162,000	76.079%
O.C. Cemetery District	171,000	0.030%
O.C. Law Library	169,000	0.029%
O.C. Vector Control District	0	0.000%
O.C. Retirement System	2,187,000	0.381%
O.C. Fire Authority	68,111,000	11.854%
Cypress Recreation and Parks	0	0.000%
Department of Education	0	0.000%
Transportation Corridor Agency	1,641,000	0.286%
City of San Juan Capistrano	2,437,000	0.424%
O.C. Sanitation District	7,728,000	1.345%
O.C. Transportation Authority	24,725,000	4.303%
U.C.I.	0	0.000%
O.C. Children and Families Comm.	185,000	0.032%
Local Agency Formation Comm.	120,000	0.021%
Rancho Santa Margarita	0	0.000%
O.C. Superior Court	29,779,000	5.183%
O.C. IHSS Public Authority	<u>191,000</u>	<u>0.033%</u>
Total for all Employers	\$574,606,000	100.000%

⁽¹⁾ Excludes additional contributions of \$23,437,000 made by O.C. Fire Authority towards the reduction of their UAALs, combined contributions of \$3,916,000 made by Cypress Recreation and Parks, Department of Education and U.C.I. and combined employer pick-up contributions of \$164,000.

Note: Results may not total due to rounding.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2018 Net Pension Liability							
Employer	Rate Group #1		Rate Group #2		Rate Group #3		
	Rate Group #1	Percentage	Rate Group #2	Percentage	Rate Group #3	Percentage	
Orange County	\$71,865,137	62.935%	\$3,246,653,910	87.685%	\$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⁾	2,492,695	2.183%	0	0.000%	0	0.000%	
O.C. Retirement System	0	0.000%	28,844,760	0.779%	0	0.000%	
O.C. Fire Authority	0	0.000%	0	0.000%	0	0.000%	
Cypress Recreation and Parks ⁽²⁾	408,781	0.358%	0	0.000%	0	0.000%	
Department of Education ⁽²⁾	3,517,372	3.080%	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%	32,142,058	0.868%	0	0.000%	
O.C. Sanitation District	0	0.000%	0	0.000%	29,029,145	100.000%	
O.C. Transportation Authority	0	0.000%	0	0.000%	0	0.000%	
U.C.I. ⁽²⁾	34,808,679	30.483%	0	0.000%	0	0.000%	
O.C. Children and Families Comm.	0	0.000%	630,610	0.017%	0	0.000%	
Local Agency Formation Comm.	0	0.000%	1,582,703	0.043%	0	0.000%	
Rancho Santa Margarita	0	0.000%	0	0.000%	0	0.000%	
O.C. Superior Court	0	0.000%	392,760,910	10.608%	0	0.000%	
O.C. IHSS Public Authority	<u>1,097,009</u>	<u>0.961%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	
Total for all Employers	\$114,189,673	100.000%	\$3,702,614,951	100.000%	\$29,029,145	100.000%	

⁽²⁾ In determining the NPLs for the O.C. Vector Control District, Cypress Recreation and Parks, Department of Education and U.C.I., we first start by rolling forward the VVAs of these employers as of December 31, 2017 to December 31, 2018 for the actual contributions, benefit payments and return on their VVAs during 2018. Those VVAs are then marked to the Plan's Fiduciary Net Position as of December 31, 2018. The TPLs for these employers are obtained from internal valuation results (by rolling forward their TPLs from December 31, 2017).

Note: Results may not total due to rounding.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2018 Net Pension Liability						
Employer	Rate Group #4		Rate Group #5		Rate Group #9	
	Rate Group #4	Percentage	Rate Group #5	Percentage	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 Recreation and Parks	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%	13,253,632	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%	269,788,642	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	1,284	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	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
Total for all Employers	\$1,284	100.000%	\$269,788,642	100.000%	\$13,253,632	100.000%

Note: Results may not total due to rounding.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2018 Net Pension Liability						
Employer	Rate Group #10		Rate Group #11		Rate Group #12	
	Rate Group #10	Percentage	Rate Group #11	Percentage	Rate Group #12	Percentage
Orange County	\$0	0.000%	\$0	0.000%	\$0	0.000%
O.C. Cemetery District	0	0.000%	962,119	100.000%	0	0.000%
O.C. Law Library	0	0.000%	0	0.000%	573,252	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	55,836,641	100.000%	0	0.000%	0	0.000%
Cypress Recreation and Parks	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	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
Total for all Employers	\$55,836,641	100.000%	\$962,119	100.000%	\$573,252	100.000%

Note: Results may not total due to rounding.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2018 Net Pension Liability						
Employer	Rate Group #6		Rate Group #7		Rate Group #8	
	Rate Group #6	Percentage	Rate Group #7	Percentage	Rate Group #8	Percentage
Orange County	\$289,061,877	100.000%	\$1,310,995,988	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%	410,894,885	100.000%
Cypress Recreation and Parks	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	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>	<u>0</u>	<u>0.000%</u>
Total for all Employers	\$289,061,877	100.000%	\$1,310,995,988	100.000%	\$410,894,885	100.000%

Note: Results may not total due to rounding.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 7 (continued)

Determination of Proportionate Share

Allocation of December 31, 2018 Net Pension Liability		
Employer	Total NPL	Total Percentage
Orange County	\$4,918,576,912	79.367%
O.C. Cemetery District	962,119	0.016%
O.C. Law Library	573,252	0.009%
O.C. Vector Control District ⁽²⁾	2,492,695	0.040%
O.C. Retirement System	28,844,760	0.465%
O.C. Fire Authority	466,731,526	7.531%
Cypress Recreation and Parks ⁽²⁾	408,781	0.007%
Department of Education ⁽²⁾	3,517,372	0.057%
Transportation Corridor Agency	13,253,632	0.214%
City of San Juan Capistrano	32,142,058	0.519%
O.C. Sanitation District	29,029,145	0.468%
O.C. Transportation Authority	269,788,642	4.353%
U.C.I. ⁽²⁾	34,808,679	0.562%
O.C. Children and Families Comm.	630,610	0.010%
Local Agency Formation Comm.	1,582,703	0.026%
Rancho Santa Margarita	1,284	0.000%
O.C. Superior Court	392,760,910	6.338%
O.C. IHSS Public Authority	<u>1,097,009</u>	<u>0.018%</u>
Total for all Employers	\$6,197,202,089	100.000%

⁽²⁾ In determining the NPLs for the O.C. Vector Control District, Cypress Recreation and Parks, Department of Education and U.C.I., we first start by rolling forward the VVAs of these employers as of December 31, 2017 to December 31, 2018 for the actual contributions, benefit payments and return on their VVAs during 2018. Those VVAs are then marked to the Plan's Fiduciary Net Position as of December 31, 2018. The TPLs for these employers are obtained from internal valuation results (by rolling forward their TPLs from December 31, 2017).

Note: Results may not total due to rounding.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 7 (continued)

Determination of Proportionate Share

Notes Regarding Determination of Proportionate Share as of December 31, 2018 Measurement Date:

1. Based on the January 1, 2018 through December 31, 2018 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 2018.)
- 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) 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 2018. Again, as there were no such County POB contributions made during 2018, we have continued to apply the same proportions determined in 2014 for each of the four County Rate Groups to allocate the \$131,890,000 in the County Investment Account as of December 31, 2018. These amounts are provided in item 3. The O.C. Sanitation District UAAL Deferred Account is allocated entirely to Rate Group #3 and the remaining balance of \$14,589,000 in that account has been transferred at the end of the year to partially offset the actuarial losses (primarily from investment after smoothing) during 2018. The balance of the O.C. Sanitation District UAAL Deferred Account is \$0 at the end of the year after the transfer.
- 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 Recreation and Parks, 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):	\$301,000
(ii) Rate Group #1 (U.C.I.):	\$2,875,000
(iii) Rate Group #1 (Cypress Recreation and Parks):	\$740,000
 - 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, 2018 and are used to reduced the NPL for the three employers as of December 31, 2018.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 7 (continued)

Determination of Proportionate Share

Notes Regarding Determination of Proportionate Share as of December 31, 2018 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:	\$4,873,766
Rate Group #2:	81,058,036
Rate Group #6:	8,424,297
Rate Group #7:	<u>37,533,901</u>
Total:	\$131,890,000

In addition, the NPL for Rate Group #2 was allocated prior to applying the adjusted balance of the \$1,744,454 in additional UAAL contributions made by O.C. Children and Families Commission on November 15, 2017. That balance is equal to \$1,809,390 as of December 31, 2018 when adjusted with interest for the entire year and UAAL contribution offset starting from July 1, 2018 to December 31, 2018. We would continue to maintain the outstanding balance of the additional UAAL contributions for use in determining the NPL for this employer.

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

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8

Pension Expense: Total for all Employers

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$491,372,822	\$452,412,003
2. Interest on the Total Pension Liability	1,379,917,267	1,305,268,323
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	(19,987,206)	(11,142,029)
6. Expensed portion of current-period changes of assumptions or other inputs	0	137,636,784
7. Member contributions ⁽¹⁾	(270,234,000)	(263,279,000)
8. Projected earnings on plan investments	(1,035,650,701)	(929,983,428)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	272,055,741	(201,930,314)
10. Administrative expense	18,284,000	17,002,000
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	399,004,768	258,095,232
13. Recognition of beginning of year deferred inflows of resources as pension expense	(451,049,194)	(234,704,098)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>0</u>	<u>0</u>
Pension Expense	\$783,713,497	\$529,375,473

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: Orange County

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$361,704,111	\$331,004,944
2. Interest on the Total Pension Liability	1,025,915,198	965,662,018
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	2,225,549	1,348,921
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	(14,167,674)	(2,367,219)
6. Expensed portion of current-period changes of assumptions or other inputs	0	105,720,645
7. Member contributions ⁽¹⁾	(207,127,558)	(201,833,900)
8. Projected earnings on plan investments	(748,179,749)	(670,274,220)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	195,956,417	(144,893,476)
10. Administrative expense	13,464,032	12,328,336
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	298,563,409	189,480,429
13. Recognition of beginning of year deferred inflows of resources as pension expense	(327,351,945)	(176,479,079)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>5,016,038</u>	<u>3,667,117</u>
Pension Expense	\$606,017,828	\$413,364,516

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: O.C. Cemetery District

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$348,025	\$266,508
2. Interest on the Total Pension Liability	708,227	632,926
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	24,792	(34,941)
6. Expensed portion of current-period changes of assumptions or other inputs	0	81,205
7. Member contributions ⁽¹⁾	(141,000)	(131,000)
8. Projected earnings on plan investments	(696,211)	(623,108)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	185,536	(132,686)
10. Administrative expense	6,553	5,970
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	232,446	151,243
13. Recognition of beginning of year deferred inflows of resources as pension expense	(301,651)	(134,024)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>0</u>	<u>0</u>
Pension Expense	\$366,717	\$82,093

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: O.C. Law Library

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$322,890	\$293,545
2. Interest on the Total Pension Liability	710,772	680,271
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	(59,333)	(11,212)
6. Expensed portion of current-period changes of assumptions or other inputs	0	71,355
7. Member contributions ⁽¹⁾	(159,000)	(163,000)
8. Projected earnings on plan investments	(726,252)	(553,962)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	193,384	(135,333)
10. Administrative expense	6,897	39,754
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	782,777	711,421
13. Recognition of beginning of year deferred inflows of resources as pension expense	(626,694)	(480,149)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>(372,508)</u>	<u>(372,508)</u>
Pension Expense	\$72,933	\$80,182

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: O.C. Vector Control District

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$0	\$0
2. Interest on the Total Pension Liability	1,848,812	1,912,655
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	(196,473)	55,049
6. Expensed portion of current-period changes of assumptions or other inputs	0	144,654
7. Member contributions ⁽¹⁾	0	(4,000)
8. Projected earnings on plan investments	(1,848,408)	(1,767,751)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	497,306	(368,815)
10. Administrative expense	0	82
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	721,308	521,606
13. Recognition of beginning of year deferred inflows of resources as pension expense	(865,968)	(497,153)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>0</u>	<u>0</u>
Pension Expense	\$156,577	\$(3,673)

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: O.C. Retirement System

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$1,995,184	\$1,689,285
2. Interest on the Total Pension Liability	5,980,605	5,190,896
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	368,482	8,281
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	(79,280)	(21,922)
6. Expensed portion of current-period changes of assumptions or other inputs	0	558,486
7. Member contributions ⁽¹⁾	(1,344,479)	(1,214,802)
8. Projected earnings on plan investments	(4,355,868)	(3,600,833)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	1,144,155	(780,091)
10. Administrative expense	75,152	64,326
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	1,591,215	898,870
13. Recognition of beginning of year deferred inflows of resources as pension expense	(2,056,153)	(1,081,169)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>335,339</u>	<u>327,058</u>
Pension Expense	\$3,654,352	\$2,038,385

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: O.C. Fire Authority

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$57,116,725	\$54,227,641
2. Interest on the Total Pension Liability	132,967,401	126,475,589
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	(2,961,807)	(4,002,910)
6. Expensed portion of current-period changes of assumptions or other inputs	0	9,375,593
7. Member contributions ⁽¹⁾	(23,623,000)	(22,249,000)
8. Projected earnings on plan investments	(107,511,750)	(93,925,010)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	28,451,707	(20,480,172)
10. Administrative expense	2,443,231	2,400,825
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	37,792,896	28,417,306
13. Recognition of beginning of year deferred inflows of resources as pension expense	(41,721,158)	(17,238,076)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>0</u>	<u>0</u>
Pension Expense	\$82,954,245	\$63,001,786

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: Cypress Recreation and Parks

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$0	\$0
2. Interest on the Total Pension Liability	300,934	299,448
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	3,345	710,578
6. Expensed portion of current-period changes of assumptions or other inputs	0	23,368
7. Member contributions ⁽¹⁾	0	0
8. Projected earnings on plan investments	(259,495)	10,169
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	70,660	(800,458)
10. Administrative expense	15,899	0
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	733,946	0
13. Recognition of beginning of year deferred inflows of resources as pension expense	(800,458)	0
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>0</u>	<u>0</u>
Pension Expense	\$64,831	\$243,105

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: Department of Education

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$0	\$0
2. Interest on the Total Pension Liability	856,137	872,268
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	34,113	(205,455)
6. Expensed portion of current-period changes of assumptions or other inputs	0	59,066
7. Member contributions ⁽¹⁾	0	0
8. Projected earnings on plan investments	(675,747)	(663,547)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	180,008	(140,158)
10. Administrative expense	6,477	10,677
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	382,586	323,520
13. Recognition of beginning of year deferred inflows of resources as pension expense	(504,215)	(158,602)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>0</u>	<u>0</u>
Pension Expense	\$279,359	\$97,769

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: Transportation Corridor Agency

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$1,693,722	\$1,481,244
2. Interest on the Total Pension Liability	3,137,101	2,926,806
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	(31,117)	(264,613)
6. Expensed portion of current-period changes of assumptions or other inputs	0	292,487
7. Member contributions ⁽¹⁾	(840,000)	(692,000)
8. Projected earnings on plan investments	(2,396,991)	(2,117,402)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	624,025	(467,722)
10. Administrative expense	51,803	47,844
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	806,977	514,489
13. Recognition of beginning of year deferred inflows of resources as pension expense	(1,103,568)	(371,233)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>0</u>	<u>0</u>
Pension Expense	\$1,941,952	\$1,349,900

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: City of San Juan Capistrano

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$2,223,256	\$2,060,755
2. Interest on the Total Pension Liability	6,664,259	6,332,364
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	(24,181)	278,735
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	(88,342)	(26,743)
6. Expensed portion of current-period changes of assumptions or other inputs	0	681,296
7. Member contributions ⁽¹⁾	(1,498,168)	(1,481,934)
8. Projected earnings on plan investments	(4,853,795)	(4,392,649)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	1,274,945	(951,631)
10. Administrative expense	83,742	78,471
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	1,773,109	1,096,529
13. Recognition of beginning of year deferred inflows of resources as pension expense	(2,291,196)	(1,318,916)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>(76,591)</u>	<u>(355,326)</u>
Pension Expense	\$3,187,038	\$2,000,951

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: O.C. Sanitation District

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$16,436,454	\$14,599,044
2. Interest on the Total Pension Liability	46,856,849	44,099,066
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	558,074	(912,523)
6. Expensed portion of current-period changes of assumptions or other inputs	0	4,090,055
7. Member contributions ⁽¹⁾	(7,825,000)	(7,496,000)
8. Projected earnings on plan investments	(48,767,818)	(44,715,731)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	13,140,559	(9,558,791)
10. Administrative expense	327,747	301,020
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	12,786,061	8,696,006
13. Recognition of beginning of year deferred inflows of resources as pension expense	(18,624,486)	(8,153,172)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>372,508</u>	<u>372,508</u>
Pension Expense	\$15,260,948	\$1,321,482

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: O.C. Transportation Authority

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$21,969,087	\$20,177,368
2. Interest on the Total Pension Liability	64,268,721	61,058,113
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	(2,053,634)	(2,891,372)
6. Expensed portion of current-period changes of assumptions or other inputs	0	7,282,694
7. Member contributions ⁽¹⁾	(9,162,000)	(8,926,000)
8. Projected earnings on plan investments	(49,856,360)	(45,299,139)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	13,108,760	(9,816,088)
10. Administrative expense	705,212	652,940
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	18,923,272	11,640,577
13. Recognition of beginning of year deferred inflows of resources as pension expense	(22,803,216)	(10,095,756)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>0</u>	<u>0</u>
Pension Expense	\$35,099,842	\$23,783,337

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: U.C.I.

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$0	\$0
2. Interest on the Total Pension Liability	7,453,561	7,693,145
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	115,980	(791,340)
6. Expensed portion of current-period changes of assumptions or other inputs	0	473,486
7. Member contributions ⁽¹⁾	0	0
8. Projected earnings on plan investments	(5,577,083)	(5,525,591)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	1,483,017	(1,167,612)
10. Administrative expense	61,773	60,070
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	1,987,876	1,514,390
13. Recognition of beginning of year deferred inflows of resources as pension expense	(3,684,569)	(1,725,616)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>0</u>	<u>0</u>
Pension Expense	\$1,840,555	\$530,932

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: O.C. Children and Families Comm.

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$43,618	\$75,858
2. Interest on the Total Pension Liability	130,749	233,102
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	(61,098)	(74,128)
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	(1,733)	(984)
6. Expensed portion of current-period changes of assumptions or other inputs	0	25,079
7. Member contributions ⁽¹⁾	(29,393)	(54,552)
8. Projected earnings on plan investments	(95,229)	(161,699)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	25,014	(35,031)
10. Administrative expense	1,643	2,889
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	34,787	40,365
13. Recognition of beginning of year deferred inflows of resources as pension expense	(44,952)	(48,551)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>(289,199)</u>	<u>(215,071)</u>
Pension Expense	\$(285,793)	\$(212,723)

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: Local Agency Formation Comm.

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$109,475	\$99,978
2. Interest on the Total Pension Liability	328,154	307,216
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	2,334	(8,500)
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	(4,350)	(1,297)
6. Expensed portion of current-period changes of assumptions or other inputs	0	33,053
7. Member contributions ⁽¹⁾	(73,771)	(71,896)
8. Projected earnings on plan investments	(239,005)	(213,110)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	62,779	(46,169)
10. Administrative expense	4,124	3,807
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	87,309	53,198
13. Recognition of beginning of year deferred inflows of resources as pension expense	(112,820)	(63,988)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>28,915</u>	<u>37,415</u>
Pension Expense	\$193,144	\$129,707

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: Rancho Santa Margarita

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$0	\$0
2. Interest on the Total Pension Liability	3,220	3,263
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	132	(1,287)
6. Expensed portion of current-period changes of assumptions or other inputs	0	159
7. Member contributions ⁽¹⁾	0	0
8. Projected earnings on plan investments	(3,328)	(3,147)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	586	(998)
10. Administrative expense	0	0
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	4,028	3,869
13. Recognition of beginning of year deferred inflows of resources as pension expense	(3,362)	(1,077)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>0</u>	<u>0</u>
Pension Expense	\$1,276	\$782

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: O.C. Superior Court

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$27,167,159	\$26,220,982
2. Interest on the Total Pension Liability	81,434,123	80,572,779
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	(2,508,769)	(1,564,112)
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	(1,079,499)	(340,280)
6. Expensed portion of current-period changes of assumptions or other inputs	0	8,668,789
7. Member contributions ⁽¹⁾	(18,306,917)	(18,856,078)
8. Projected earnings on plan investments	(59,311,106)	(55,891,915)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	15,579,236	(12,108,524)
10. Administrative expense	1,023,291	998,464
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	21,666,565	13,952,203
13. Recognition of beginning of year deferred inflows of resources as pension expense	(27,997,338)	(16,781,835)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>(5,054,972)</u>	<u>(3,490,860)</u>
Pension Expense	\$32,611,773	\$21,379,613

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 8 (continued)

Pension Expense: O.C. IHSS Public Authority

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Components of Pension Expense		
1. Service cost	\$243,116	\$214,851
2. Interest on the Total Pension Liability	352,444	316,398
3. Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	(2,317)	10,803
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	(400)	(33,558)
6. Expensed portion of current-period changes of assumptions or other inputs	0	55,314
7. Member contributions ⁽¹⁾	(103,714)	(104,838)
8. Projected earnings on plan investments	(296,506)	(264,783)
9. Expensed portion of current-period differences between actual and projected earnings on plan investments	77,647	(46,559)
10. Administrative expense	6,424	6,525
11. Other	0	0
12. Recognition of beginning of year deferred outflows of resources as pension expense	134,201	79,211
13. Recognition of beginning of year deferred inflows of resources as pension expense	(155,445)	(75,702)
14. Net amortization of deferred amounts from changes in proportion and differences between employer's contributions and proportionate share of contributions	<u>40,470</u>	<u>29,667</u>
Pension Expense	\$295,920	\$187,329

⁽¹⁾ Member contributions include employer paid member contributions, if any.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 9

Deferred Outflows of Resources and Deferred Inflows of Resources: Total for all Employers

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$30,727,591	\$24,632,387
2. Changes of assumptions or other inputs	585,314,769	751,249,228
3. Difference between projected and actual earnings on pension plan investments	1,258,427,015	399,097,683
4. Difference between expected and actual experience in the Total Pension Liability	<u>18,724,448</u>	<u>19,285,230</u>
5. Total Deferred Outflows of Resources	\$1,893,193,823	\$1,194,264,528
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$30,727,591	\$24,632,387
7. Changes of assumptions or other inputs	57,779,687	106,745,521
8. Difference between projected and actual earnings on pension plan investments	691,386,466	936,796,353
9. Difference between expected and actual experience in the Total Pension Liability	<u>454,047,301</u>	<u>508,967,680</u>
10. Total Deferred Inflows of Resources	\$1,233,941,045	\$1,577,141,941

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:

2019	N/A	\$(52,044,426)
2020	\$142,015,101	(110,053,434)
2021	32,203,133	(219,865,402)
2022	123,394,687	(128,673,848)
2023	378,563,286	126,494,755
2024	(16,923,429)	1,264,942
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: Orange County

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$25,452,653	\$19,581,719
2. Changes of assumptions or other inputs	451,779,162	578,664,495
3. Difference between projected and actual earnings on pension plan investments	907,051,313	289,836,042
4. Difference between expected and actual experience in the Total Pension Liability	<u>10,053,569</u>	<u>12,560,694</u>
5. Total Deferred Outflows of Resources	\$1,394,336,697	\$900,642,950
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$108,921	\$149,391
7. Changes of assumptions or other inputs	43,625,464	80,224,845
8. Difference between projected and actual earnings on pension plan investments	498,410,128	672,815,006
9. Difference between expected and actual experience in the Total Pension Liability	<u>315,142,849</u>	<u>358,243,068</u>
10. Total Deferred Inflows of Resources	\$857,287,362	\$1,111,432,310

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:

2019	N/A	\$(23,522,660)
2020	\$115,938,471	(67,689,625)
2021	36,829,538	(146,661,529)
2022	105,067,064	(78,664,919)
2023	289,031,435	104,702,347
2024	(9,817,173)	1,047,026
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
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	325,633	406,838
3. Difference between projected and actual earnings on pension plan investments	859,393	262,218
4. Difference between expected and actual experience in the Total Pension Liability	<u>134,653</u>	<u>19,195</u>
5. Total Deferred Outflows of Resources	\$1,319,679	\$688,251
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	38,647	71,399
8. Difference between projected and actual earnings on pension plan investments	450,507	609,417
9. Difference between expected and actual experience in the Total Pension Liability	<u>287,311</u>	<u>397,300</u>
10. Total Deferred Inflows of Resources	\$776,465	\$1,078,116

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:

2019	N/A	\$(69,205)
2020	\$113,405	(96,923)
2021	57,227	(153,101)
2022	92,962	(117,366)
2023	256,591	46,264
2024	23,029	466
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$60,420	\$111,626
2. Changes of assumptions or other inputs	286,133	357,488
3. Difference between projected and actual earnings on pension plan investments	1,371,152	1,309,037
4. Difference between expected and actual experience in the Total Pension Liability	<u>0</u>	<u>0</u>
5. Total Deferred Outflows of Resources	\$1,717,705	\$1,778,151
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$872,851	\$1,296,565
7. Changes of assumptions or other inputs	200,032	369,550
8. Difference between projected and actual earnings on pension plan investments	437,711	588,902
9. Difference between expected and actual experience in the Total Pension Liability	<u>774,494</u>	<u>789,153</u>
10. Total Deferred Inflows of Resources	\$2,285,088	\$3,044,170

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:

2019	N/A	\$(216,425)
2020	\$(196,181)	(330,232)
2021	(516,673)	(650,724)
2022	4,672	(129,379)
2023	194,195	60,143
2024	(53,396)	598
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: O.C. Vector Control District

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
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	580,065	724,719
3. Difference between projected and actual earnings on pension plan investments	2,352,302	882,069
4. Difference between expected and actual experience in the Total Pension Liability	<u>228,434</u>	<u>286,098</u>
5. Total Deferred Outflows of Resources	\$3,160,801	\$1,892,886
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	1,278,263	1,732,987
9. Difference between expected and actual experience in the Total Pension Liability	<u>1,811,847</u>	<u>1,258,406</u>
10. Total Deferred Inflows of Resources	\$3,090,110	\$2,991,393

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:

2019	N/A	\$(144,660)
2020	\$262	(300,571)
2021	(362,816)	(663,649)
2022	109,504	(191,329)
2023	500,535	199,703
2024	(176,794)	1,999
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$2,594,615	\$1,233,255
2. Changes of assumptions or other inputs	2,445,231	2,798,016
3. Difference between projected and actual earnings on pension plan investments	5,304,404	1,565,430
4. Difference between expected and actual experience in the Total Pension Liability	<u>0</u>	<u>0</u>
5. Total Deferred Outflows of Resources	\$10,344,250	\$5,596,701
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$330,892	\$443,441
7. Changes of assumptions or other inputs	374,031	632,877
8. Difference between projected and actual earnings on pension plan investments	2,919,627	3,620,981
9. Difference between expected and actual experience in the Total Pension Liability	<u>1,894,371</u>	<u>2,024,402</u>
10. Total Deferred Inflows of Resources	\$5,518,921	\$6,721,701

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:

2019	N/A	\$(90,487)
2020	\$1,050,111	(322,796)
2021	652,140	(699,315)
2022	826,474	(562,695)
2023	2,027,486	544,845
2024	269,118	5,448
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
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	44,462,250	59,656,589
3. Difference between projected and actual earnings on pension plan investments	130,602,672	39,155,278
4. Difference between expected and actual experience in the Total Pension Liability	<u>703,034</u>	<u>942,161</u>
5. Total Deferred Outflows of Resources	\$175,767,956	\$99,754,028
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	858,688	1,586,390
8. Difference between projected and actual earnings on pension plan investments	69,359,310	93,798,878
9. Difference between expected and actual experience in the Total Pension Liability	<u>58,320,223</u>	<u>60,331,638</u>
10. Total Deferred Inflows of Resources	\$128,538,221	\$155,716,906

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:

2019	N/A	\$(3,928,262)
2020	\$15,998,056	(9,491,844)
2021	(2,215,414)	(27,705,314)
2022	5,226,034	(20,263,866)
2023	30,862,579	5,372,683
2024	(2,641,520)	53,725
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: Cypress Recreation and Parks

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
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	93,704	117,072
3. Difference between projected and actual earnings on pension plan investments	282,642	0
4. Difference between expected and actual experience in the Total Pension Liability	<u>2,865,838</u>	<u>3,559,994</u>
5. Total Deferred Outflows of Resources	\$3,242,184	\$3,677,066
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	2,401,373	3,201,831
9. Difference between expected and actual experience in the Total Pension Liability	<u>0</u>	<u>0</u>
10. Total Deferred Inflows of Resources	\$2,401,373	\$3,201,831

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:

2019	N/A	\$(66,512)
2020	\$7,493	(66,512)
2021	7,493	(66,512)
2022	7,494	(66,511)
2023	807,953	733,946
2024	10,378	7,336
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: Department of Education

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
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	236,853	295,919
3. Difference between projected and actual earnings on pension plan investments	872,456	304,850
4. Difference between expected and actual experience in the Total Pension Liability	<u>369,390</u>	<u>372,992</u>
5. Total Deferred Outflows of Resources	\$1,478,699	\$973,761
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	66,119	122,153
8. Difference between projected and actual earnings on pension plan investments	499,033	685,764
9. Difference between expected and actual experience in the Total Pension Liability	<u>940,191</u>	<u>1,201,641</u>
10. Total Deferred Inflows of Resources	\$1,505,343	\$2,009,558

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:

2019	N/A	\$(121,629)
2020	\$99,788	(114,333)
2021	(146,986)	(361,107)
2022	(76,751)	(290,872)
2023	67,730	(146,389)
2024	29,575	(1,467)
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: Transportation Corridor Agency

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
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	1,172,875	1,465,362
3. Difference between projected and actual earnings on pension plan investments	2,855,534	832,113
4. Difference between expected and actual experience in the Total Pension Liability	<u>114,750</u>	<u>156,559</u>
5. Total Deferred Outflows of Resources	\$4,143,159	\$2,454,034
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	184,306	340,496
8. Difference between projected and actual earnings on pension plan investments	1,588,385	2,148,715
9. Difference between expected and actual experience in the Total Pension Liability	<u>1,358,355</u>	<u>1,592,621</u>
10. Total Deferred Inflows of Resources	\$3,131,046	\$4,081,832

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:

2019	N/A	\$(296,591)
2020	\$183,068	(409,840)
2021	52,104	(540,804)
2022	184,190	(408,718)
2023	620,784	27,874
2024	(28,033)	281
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$1,434,064	\$1,980,885
2. Changes of assumptions or other inputs	2,724,750	3,413,294
3. Difference between projected and actual earnings on pension plan investments	5,910,760	1,909,665
4. Difference between expected and actual experience in the Total Pension Liability	<u>0</u>	<u>0</u>
5. Total Deferred Outflows of Resources	\$10,069,574	\$7,303,844
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$1,662,955	\$2,167,638
7. Changes of assumptions or other inputs	416,787	772,045
8. Difference between projected and actual earnings on pension plan investments	3,253,375	4,417,227
9. Difference between expected and actual experience in the Total Pension Liability	<u>2,110,920</u>	<u>2,469,564</u>
10. Total Deferred Inflows of Resources	\$7,444,037	\$9,826,474

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:

2019	N/A	\$(596,055)
2020	\$285,103	(879,449)
2021	(218,881)	(1,384,189)
2022	558,425	(605,555)
2023	2,093,974	933,288
2024	(93,084)	9,330
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$872,851	\$1,296,565
2. Changes of assumptions or other inputs	16,401,122	20,491,177
3. Difference between projected and actual earnings on pension plan investments	59,867,140	16,000,909
4. Difference between expected and actual experience in the Total Pension Liability	<u>2,740,145</u>	<u>0</u>
5. Total Deferred Outflows of Resources	\$79,881,258	\$37,788,651
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$60,420	\$111,626
7. Changes of assumptions or other inputs	2,445,073	4,517,168
8. Difference between projected and actual earnings on pension plan investments	32,687,002	44,251,106
9. Difference between expected and actual experience in the Total Pension Liability	<u>10,405,119</u>	<u>15,393,406</u>
10. Total Deferred Inflows of Resources	\$45,597,614	\$64,273,306

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:

2019	N/A	\$(5,465,917)
2020	\$6,841,613	(6,857,020)
2021	3,479,359	(10,219,274)
2022	6,546,883	(7,151,750)
2023	16,876,166	3,177,532
2024	539,623	31,774
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
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	29,203,603	36,486,297
3. Difference between projected and actual earnings on pension plan investments	60,889,928	19,886,895
4. Difference between expected and actual experience in the Total Pension Liability	<u>429,659</u>	<u>638,231</u>
5. Total Deferred Outflows of Resources	\$90,523,190	\$57,011,423
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	3,903,525	7,211,596
8. Difference between projected and actual earnings on pension plan investments	33,794,383	45,783,529
9. Difference between expected and actual experience in the Total Pension Liability	<u>31,328,024</u>	<u>28,750,678</u>
10. Total Deferred Inflows of Resources	\$69,025,932	\$81,745,803

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:

2019	N/A	\$(3,879,944)
2020	\$4,198,065	(6,857,061)
2021	280,630	(10,774,496)
2022	3,397,014	(7,658,112)
2023	15,446,447	4,391,322
2024	(1,824,898)	43,911
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: U.C.I.

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
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	1,898,677	2,372,163
3. Difference between projected and actual earnings on pension plan investments	7,212,467	2,560,794
4. Difference between expected and actual experience in the Total Pension Liability	<u>1,083,806</u>	<u>748,341</u>
5. Total Deferred Outflows of Resources	\$10,194,950	\$5,681,298
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	521,873	964,138
8. Difference between projected and actual earnings on pension plan investments	4,163,238	6,335,570
9. Difference between expected and actual experience in the Total Pension Liability	<u>3,502,059</u>	<u>4,572,031</u>
10. Total Deferred Inflows of Resources	\$8,187,170	\$11,871,739

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:

2019	N/A	\$(1,696,693)
2020	\$576,825	(1,022,172)
2021	(112,439)	(1,711,436)
2022	159,891	(1,439,106)
2023	1,281,144	(317,854)
2024	102,359	(3,180)
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
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	53,458	125,648
3. Difference between projected and actual earnings on pension plan investments	115,966	70,297
4. Difference between expected and actual experience in the Total Pension Liability	<u>0</u>	<u>0</u>
5. Total Deferred Outflows of Resources	\$169,424	\$195,945
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$1,081,690	\$1,070,900
7. Changes of assumptions or other inputs	8,177	28,420
8. Difference between projected and actual earnings on pension plan investments	63,829	162,604
9. Difference between expected and actual experience in the Total Pension Liability	<u>41,415</u>	<u>90,908</u>
10. Total Deferred Inflows of Resources	\$1,195,111	\$1,352,832

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:

2019	N/A	\$(308,321)
2020	\$(342,726)	(318,753)
2021	(304,205)	(285,145)
2022	(221,833)	(194,136)
2023	(99,138)	(50,033)
2024	(57,785)	(499)
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$204,067	\$278,946
2. Changes of assumptions or other inputs	134,169	165,597
3. Difference between projected and actual earnings on pension plan investments	291,051	92,648
4. Difference between expected and actual experience in the Total Pension Liability	<u>0</u>	<u>0</u>
5. Total Deferred Outflows of Resources	\$629,287	\$537,191
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$134,872	\$192,297
7. Changes of assumptions or other inputs	20,523	37,456
8. Difference between projected and actual earnings on pension plan investments	160,199	214,303
9. Difference between expected and actual experience in the Total Pension Liability	<u>103,944</u>	<u>119,812</u>
10. Total Deferred Inflows of Resources	\$419,538	\$563,868

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:

2019	N/A	\$3,713
2020	\$50,250	(10,036)
2021	7,729	(52,387)
2022	68,962	8,548
2023	84,409	23,256
2024	(1,601)	229
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: Rancho Santa Margarita

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
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	639	798
3. Difference between projected and actual earnings on pension plan investments	6,148	7,228
4. Difference between expected and actual experience in the Total Pension Liability	<u>1,170</u>	<u>965</u>
5. Total Deferred Outflows of Resources	\$7,957	\$8,991
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	203	377
8. Difference between projected and actual earnings on pension plan investments	2,995	3,993
9. Difference between expected and actual experience in the Total Pension Liability	<u>7,578</u>	<u>9,768</u>
10. Total Deferred Inflows of Resources	\$10,776	\$14,138

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:

2019	N/A	\$666
2020	\$512	(206)
2021	(1,013)	(1,731)
2022	(2,021)	(2,739)
2023	(408)	(1,128)
2024	111	(9)
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 9 (continued)

Deferred Outflows of Resources and Deferred Inflows of Resources: O.C. Superior Court

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
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	33,295,171	43,430,635
3. Difference between projected and actual earnings on pension plan investments	72,226,722	24,298,513
4. Difference between expected and actual experience in the Total Pension Liability	<u>0</u>	<u>0</u>
5. Total Deferred Outflows of Resources	\$105,521,893	\$67,729,148
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$26,463,615	\$19,200,529
7. Changes of assumptions or other inputs	5,092,945	9,823,473
8. Difference between projected and actual earnings on pension plan investments	39,754,715	56,204,643
9. Difference between expected and actual experience in the Total Pension Liability	<u>25,794,457</u>	<u>31,422,648</u>
10. Total Deferred Inflows of Resources	\$97,105,732	\$116,651,293

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:

2019	N/A	\$(11,664,619)
2020	\$(2,848,528)	(15,270,511)
2021	(5,329,545)	(17,904,480)
2022	1,391,461	(10,914,578)
2023	18,403,968	6,764,398
2024	(3,201,195)	67,645
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Deferred Outflows of Resources		
1. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$108,921	\$149,391
2. Changes of assumptions or other inputs	221,274	277,121
3. Difference between projected and actual earnings on pension plan investments	354,965	123,697
4. Difference between expected and actual experience in the Total Pension Liability	<u>0</u>	<u>0</u>
5. Total Deferred Outflows of Resources	\$685,160	\$550,209
Deferred Inflows of Resources		
6. Changes in proportion and differences between employer's contributions and proportionate share of contributions ⁽¹⁾	\$11,375	\$0
7. Changes of assumptions or other inputs	23,294	43,138
8. Difference between projected and actual earnings on pension plan investments	162,393	220,897
9. Difference between expected and actual experience in the Total Pension Liability	<u>224,144</u>	<u>300,636</u>
10. Total Deferred Inflows of Resources	\$421,206	\$564,671

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:

2019	N/A	\$19,175
2020	\$59,514	(15,550)
2021	44,885	(30,209)
2022	54,262	(20,765)
2023	107,436	32,558
2024	(2,143)	329
2025	0	0
Thereafter	0	0

⁽¹⁾ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2018. 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 period (i.e., 2018) is recognized over the average of the expected remaining service lives of all employees that are provided with pensions through OCERS which is 5.91 years determined as of December 31, 2017 (the beginning of the measurement period ended December 31, 2018). 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, 2018 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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	100.000%	6,197,202,089	1,718,798,287	360.55%	70.03%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	79.367%	4,918,576,912	1,271,800,976	386.74%	68.06%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	0.016%	962,119	1,518,808	63.35%	91.02%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	0.009%	573,252	1,075,119	53.32%	94.64%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	0.040%	2,492,695	0	N/A	90.92%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	0.465%	28,844,760	7,501,588	384.52%	67.06%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	7.531%	466,731,526	155,479,486	300.19%	76.63%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 10 (continued)

Schedule of Proportionate Share of the Net Pension Liability: Cypress Recreation and Parks

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%
2019	0.007%	408,781	0	N/A	90.81%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	0.057%	3,517,372	0	N/A	71.79%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	0.214%	13,253,632	6,609,886	200.51%	71.83%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	0.519%	32,142,058	7,253,654	443.12%	67.06%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	0.468%	29,029,145	66,475,479	43.67%	95.86%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	4.353%	269,788,642	97,229,545	277.48%	71.97%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	0.562%	34,808,679	0	N/A	67.93%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	0.010%	630,610	966,061	65.28%	91.49%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	0.026%	1,582,703	419,538	377.25%	67.06%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	0.000%	1,284	0	N/A	97.28%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	6.338%	392,760,910	101,374,099	387.44%	67.06%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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%
2019	0.018%	1,097,009	1,094,048	100.27%	77.97%

⁽¹⁾ Covered payroll represents payroll on which contributions to the pension plan are based.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11

Schedule of Reconciliation of Net Pension Liability: Total for all Employers

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$4,952,099,401	\$5,191,216,603
2. Pension Expense	783,713,497	529,375,473
3. Employer Contributions	(580,741,000)	(571,119,000)
4. New Net Deferred Inflows/Outflows	990,085,765	(173,982,541)
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	52,044,426	(23,391,134)
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>0</u>	<u>0</u>
9. Ending Net Pension Liability	\$6,197,202,089	\$4,952,099,401

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: Orange County

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$3,983,695,231	\$4,043,855,643
2. Pension Expense	606,017,828	413,364,516
3. Employer Contributions	(418,974,842)	(401,124,000)
4. New Net Deferred Inflows/Outflows	714,262,376	(61,773,234)
5. Change in Allocation of Prior Deferred Inflows/Outflows	(1,123,621)	(717,319)
6. New Net Deferred Flows Due to Change in Proportion ⁽¹⁾	10,927,442	6,758,092
7. Recognition of Prior Deferred Inflows/Outflows	28,788,536	(13,001,350)
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>(5,016,038)</u>	<u>(3,667,117)</u>
9. Ending Net Pension Liability	\$4,918,576,912	\$3,983,695,231

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Cemetery District

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$(173,677)	\$222,409
2. Pension Expense	366,717	82,093
3. Employer Contributions	(164,000)	(162,000)
4. New Net Deferred Inflows/Outflows	863,874	(298,960)
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	69,205	(17,219)
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>0</u>	<u>0</u>
9. Ending Net Pension Liability	\$962,119	\$(173,677)

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Law Library

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$(36,317)	\$1,770,282
2. Pension Expense	72,933	80,182
3. Employer Contributions	(162,000)	(1,788,000)
4. New Net Deferred Inflows/Outflows	482,211	(240,017)
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	(156,083)	(231,272)
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>372,508</u>	<u>372,508</u>
9. Ending Net Pension Liability	\$573,252	\$(36,317)

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Vector Control District

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$1,166,920	\$1,669,793
2. Pension Expense	156,577	(3,673)
3. Employer Contributions	0	0
4. New Net Deferred Inflows/Outflows	1,024,538	(474,747)
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	144,660	(24,453)
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>0</u>	<u>0</u>
9. Ending Net Pension Liability	\$2,492,695	\$1,166,920

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Retirement System

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$21,427,080	\$21,886,393
2. Pension Expense	3,654,352	2,038,385
3. Employer Contributions	(2,187,000)	(1,960,000)
4. New Net Deferred Inflows/Outflows	4,187,357	(432,179)
5. Change in Allocation of Prior Deferred Inflows/Outflows	(175,876)	(2,249)
6. New Net Deferred Flows Due to Change in Proportion ⁽¹⁾	1,809,248	41,489
7. Recognition of Prior Deferred Inflows/Outflows	464,938	182,299
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>(335,339)</u>	<u>(327,058)</u>
9. Ending Net Pension Liability	\$28,844,760	\$21,427,080

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Fire Authority

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$370,674,668	\$469,430,660
2. Pension Expense	82,954,245	63,001,786
3. Employer Contributions	(90,090,000)	(95,575,000)
4. New Net Deferred Inflows/Outflows	99,264,351	(55,003,548)
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	3,928,262	(11,179,230)
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>0</u>	<u>0</u>
9. Ending Net Pension Liability	\$466,731,526	\$370,674,668

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: Cypress Recreation and Parks

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$718,340	\$0
2. Pension Expense	64,831	243,105
3. Employer Contributions	(739,966)	0
4. New Net Deferred Inflows/Outflows	299,064	475,235
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	66,512	0
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>0</u>	<u>0</u>
9. Ending Net Pension Liability	\$408,781	\$718,340

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: Department of Education

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$2,530,324	\$4,415,517
2. Pension Expense	279,359	97,769
3. Employer Contributions	(301,464)	(524,000)
4. New Net Deferred Inflows/Outflows	887,524	(1,294,044)
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	121,629	(164,918)
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>0</u>	<u>0</u>
9. Ending Net Pension Liability	\$3,517,372	\$2,530,324

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: Transportation Corridor Agency

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$10,242,769	\$12,423,364
2. Pension Expense	1,941,952	1,349,900
3. Employer Contributions	(1,571,000)	(1,656,000)
4. New Net Deferred Inflows/Outflows	2,343,320	(1,731,239)
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	296,591	(143,256)
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>0</u>	<u>0</u>
9. Ending Net Pension Liability	\$13,253,632	\$10,242,769

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: City of San Juan Capistrano

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$26,138,852	\$25,089,009
2. Pension Expense	3,187,038	2,000,951
3. Employer Contributions	(2,332,000)	(2,273,000)
4. New Net Deferred Inflows/Outflows	4,666,022	(527,215)
5. Change in Allocation of Prior Deferred Inflows/Outflows	6,197	(125,066)
6. New Net Deferred Flows Due to Change in Proportion ⁽¹⁾	(118,729)	1,396,460
7. Recognition of Prior Deferred Inflows/Outflows	518,087	222,387
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>76,591</u>	<u>355,326</u>
9. Ending Net Pension Liability	\$32,142,058	\$26,138,852

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Sanitation District

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$(39,571,102)	\$(10,384,510)
2. Pension Expense	15,260,948	1,321,482
3. Employer Contributions	(7,429,000)	(7,277,000)
4. New Net Deferred Inflows/Outflows	55,302,382	(22,315,732)
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	5,838,425	(542,834)
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>(372,508)</u>	<u>(372,508)</u>
9. Ending Net Pension Liability	\$29,029,145	\$(39,571,102)

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Transportation Authority

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$212,117,162	\$230,260,478
2. Pension Expense	35,099,842	23,783,337
3. Employer Contributions	(23,660,000)	(23,118,000)
4. New Net Deferred Inflows/Outflows	42,351,694	(17,263,832)
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	3,879,944	(1,544,821)
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>0</u>	<u>0</u>
9. Ending Net Pension Liability	\$269,788,642	\$212,117,162

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: U.C.I.

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$27,644,960	\$36,113,699
2. Pension Expense	1,840,555	530,932
3. Employer Contributions	(2,875,057)	(2,948,000)
4. New Net Deferred Inflows/Outflows	6,501,528	(6,262,897)
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	1,696,693	211,226
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>0</u>	<u>0</u>
9. Ending Net Pension Liability	\$34,808,679	\$27,644,960

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$962,204	\$3,158,290
2. Pension Expense	(285,793)	(212,723)
3. Employer Contributions	(177,000)	(1,981,000)
4. New Net Deferred Inflows/Outflows	91,545	(19,407)
5. Change in Allocation of Prior Deferred Inflows/Outflows	40,279	165,166
6. New Net Deferred Flows Due to Change in Proportion ⁽¹⁾	(299,989)	(371,379)
7. Recognition of Prior Deferred Inflows/Outflows	10,165	8,186
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>289,199</u>	<u>215,071</u>
9. Ending Net Pension Liability	\$630,610	\$962,204

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: Local Agency Formation Comm.

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$1,268,133	\$1,340,888
2. Pension Expense	193,144	129,707
3. Employer Contributions	(115,000)	(111,000)
4. New Net Deferred Inflows/Outflows	229,759	(25,578)
5. Change in Allocation of Prior Deferred Inflows/Outflows	(1,390)	3,329
6. New Net Deferred Flows Due to Change in Proportion ⁽¹⁾	11,461	(42,588)
7. Recognition of Prior Deferred Inflows/Outflows	25,511	10,790
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>(28,915)</u>	<u>(37,415)</u>
9. Ending Net Pension Liability	\$1,582,703	\$1,268,133

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: Rancho Santa Margarita

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$(2,320)	\$9,332
2. Pension Expense	1,276	782
3. Employer Contributions	0	0
4. New Net Deferred Inflows/Outflows	2,994	(9,642)
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	(666)	(2,792)
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>0</u>	<u>0</u>
9. Ending Net Pension Liability	\$1,284	\$(2,320)

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. Superior Court

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$332,589,831	\$349,173,850
2. Pension Expense	32,611,773	21,379,613
3. Employer Contributions	(29,779,000)	(30,423,000)
4. New Net Deferred Inflows/Outflows	57,016,602	(6,708,263)
5. Change in Allocation of Prior Deferred Inflows/Outflows	1,254,017	683,339
6. New Net Deferred Flows Due to Change in Proportion ⁽¹⁾	(12,318,058)	(7,836,200)
7. Recognition of Prior Deferred Inflows/Outflows	6,330,773	2,829,632
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>5,054,972</u>	<u>3,490,860</u>
9. Ending Net Pension Liability	\$392,760,910	\$332,589,831

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 11 (continued)

Schedule of Reconciliation of Net Pension Liability: O.C. IHSS Public Authority

Reporting Date for Employer under GASB 68	June 30, 2019	June 30, 2018
Measurement Date for Employer under GASB 68	December 31, 2018	December 31, 2017
Reconciliation of Net Pension Liability		
1. Beginning Net Pension Liability	\$706,343	\$781,506
2. Pension Expense	295,920	187,329
3. Employer Contributions	(183,671)	(199,000)
4. New Net Deferred Inflows/Outflows	308,624	(77,242)
5. Change in Allocation of Prior Deferred Inflows/Outflows	394	(7,200)
6. New Net Deferred Flows Due to Change in Proportion ⁽¹⁾	(11,375)	54,126
7. Recognition of Prior Deferred Inflows/Outflows	21,244	(3,509)
8. Recognition of Prior Deferred Flows Due to Change in Proportion ⁽¹⁾	<u>(40,470)</u>	<u>(29,667)</u>
9. Ending Net Pension Liability	\$1,097,009	\$706,343

⁽¹⁾ Includes differences between employer contributions and proportionate share of contributions.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 12

Schedule of Recognition of Changes in Total Net Pension Liability

Reporting Date for Employer under GASB 68 Year Ended June 30	Differences between Expected and Actual Experience	Recognition Period (Years)	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:								
			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)	\$(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)	(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)	(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)	(11,142,029)
2019	(118,124,401)	5.91	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>(19,987,206)</u>	<u>(19,987,206)</u>	<u>(19,987,206)</u>	<u>(19,987,206)</u>	<u>(19,987,206)</u>
Net increase (decrease) in pension expense			\$(52,977,684)	\$(86,882,416)	\$(141,354,763)	\$(152,496,792)	\$(172,483,998)	\$(172,483,998)	\$(172,483,998)	\$(129,042,298)	\$(84,367,522)

Reporting Date for Employer under GASB 68 Year Ended June 30	Differences between Expected and Actual Experience	Recognition Period (Years)	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:								
			2023	2024	2025	2026	2027	2028	2029	2030	
2015	\$(327,402,088)	6.18	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2016	(205,462,673)	6.06	0	0	0	0	0	0	0	0	0
2017	(323,565,741)	5.94	0	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	0
2019	(118,124,401)	5.91	<u>(19,987,206)</u>	<u>(18,188,371)</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Net increase (decrease) in pension expense			\$(31,129,235)	\$(18,299,800)	\$0	\$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, 2017 (the beginning of the measurement period ending December 31, 2018) is 5.91 years.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 12 (continued)

Schedule of Recognition of Changes in Total Net Pension Liability

Reporting Date for Employer under GASB 68 Year Ended June 30	Effects of Assumption Changes	Recognition Period (Years)	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:							
			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
2019	0	5.91	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
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

Reporting Date for Employer under GASB 68 Year Ended June 30	Effects of Assumption Changes	Recognition Period (Years)	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:							
			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
2019	0	5.91	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
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, 2017 (the beginning of the measurement period ending December 31, 2018) is 5.91 years.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 12 (continued)

Schedule of Recognition of Changes in Total Net Pension Liability

Reporting Date for Employer under GASB 68 Year Ended June 30	Differences between Projected and Actual Earnings	Recognition Period (Years)	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:							
			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)
2019	1,360,278,701	5.00	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>272,055,741</u>	<u>272,055,741</u>	<u>272,055,741</u>	<u>272,055,741</u>
Net increase (decrease) in pension expense			\$58,009,015	\$228,210,570	\$185,414,056	\$(16,516,258)	\$255,539,482	\$197,530,474	\$27,328,913	\$70,125,425

Reporting Date for Employer under GASB 68 Year Ended June 30	Differences between Projected and Actual Earnings	Recognition Period (Years)	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:								
			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	
2019	1,360,278,701	5.00	<u>272,055,737</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	
Net increase (decrease) in pension expense			\$272,055,737	\$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.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 12 (continued)

Schedule of Recognition of Changes in Total Net Pension Liability

Reporting Date for Employer under GASB 68 Year Ended June 30	Total Differences	Total Increase (Decrease) in Pension Expense							
		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)
2019	1,242,154,300	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>252,068,535</u>	<u>252,068,535</u>	<u>252,068,535</u>	<u>252,068,535</u>
Net increase (decrease) in pension expense		\$(15,636,828)	\$120,659,995	\$23,391,134	\$(52,044,425)	\$200,024,109	\$142,015,101	\$32,203,133	\$123,394,687

Reporting Date for Employer under GASB 68 Year Ended June 30	Total Differences	Total Increase (Decrease) in Pension Expense							
		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
2019	1,242,154,300	<u>252,068,531</u>	<u>(18,188,371)</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Net increase (decrease) in pension expense		\$378,563,286	\$(16,923,429)	\$0	\$0	\$0	\$0	\$0	\$0

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2018. 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, 2018 is recognized over the same periods. These amounts are shown on the following table, with the corresponding amounts for the measurement periods ending on December 31 beginning in 2014 shown on the following pages. While these amounts are different for each employer, they sum to zero over the entire OCERS.

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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, 2018

	Total Change to be Recognized	Recognition Period (Years)	Reporting Date for Employer under GASB 68 Year Ended June 30:						Thereafter
			2019	2020	2021	2022	2023	2024	
Orange County	\$13,152,991	5.91	\$2,225,549	\$2,225,549	\$2,225,549	\$2,225,549	\$2,225,549	\$2,025,246	\$0
O.C. Cemetery District	0	5.91	0	0	0	0	0	0	0
O.C. Law Library	0	5.91	0	0	0	0	0	0	0
O.C. Vector Control District	0	5.91	0	0	0	0	0	0	0
O.C. Retirement System	2,177,730	5.91	368,482	368,482	368,482	368,482	368,482	335,320	0
O.C. Fire Authority	0	5.91	0	0	0	0	0	0	0
Cypress Recreation and Parks	0	5.91	0	0	0	0	0	0	0
Department of Education	0	5.91	0	0	0	0	0	0	0
Transportation Corridor Agency	0	5.91	0	0	0	0	0	0	0
City of San Juan Capistrano	(142,910)	5.91	(24,181)	(24,181)	(24,181)	(24,181)	(24,181)	(22,005)	0
O.C. Sanitation District	0	5.91	0	0	0	0	0	0	0
O.C. Transportation Authority	0	5.91	0	0	0	0	0	0	0
U.C.I.	0	5.91	0	0	0	0	0	0	0
O.C. Children and Families Comm.	(361,087)	5.91	(61,098)	(61,098)	(61,098)	(61,098)	(61,098)	(55,597)	0
Local Agency Formation Comm.	13,795	5.91	2,334	2,334	2,334	2,334	2,334	2,125	0
Rancho Santa Margarita	0	5.91	0	0	0	0	0	0	0
O.C. Superior Court	(14,826,827)	5.91	(2,508,769)	(2,508,769)	(2,508,769)	(2,508,769)	(2,508,769)	(2,282,982)	0
O.C. IHSS Public Authority	<u>(13,692)</u>	5.91	<u>(2,317)</u>	<u>(2,317)</u>	<u>(2,317)</u>	<u>(2,317)</u>	<u>(2,317)</u>	<u>(2,107)</u>	<u>0</u>
Total for all Employers	\$0		\$0	\$0	\$0	\$0	\$0	\$0	\$0

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 13 (continued)

Allocation of Changes in Total Net Pension Liability

The amounts as of December 31, 2017 are as follows:

	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 Recreation and Parks	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	<u>64,929</u>	6.01	<u>10,803</u>	<u>10,803</u>	<u>10,803</u>	<u>10,803</u>	<u>10,803</u>	<u>10,803</u>	<u>111</u>
Total for all Employers	\$0		\$0	\$0	\$0	\$0	\$0	\$0	\$0

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 13 (continued)

Allocation of Changes in Total Net Pension Liability

The amounts as of December 31, 2016 are as follows:

	Total Change to be Recognized	Recognition Period (Years)	Reporting Date for Employer under GASB 68 Year Ended June 30:						Thereafter
			2017	2018	2019	2020	2021	2022	
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	<u>48,111</u>	5.94	<u>8,099</u>	<u>8,099</u>	<u>8,099</u>	<u>8,099</u>	<u>8,099</u>	<u>7,616</u>	<u>0</u>
Total for all Employers	\$0		\$0	\$0	\$0	\$0	\$0	\$0	\$0

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

EXHIBIT 13 (continued)

Allocation of Changes in Total Net Pension Liability

The amounts as of December 31, 2015 are as follows:

	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	<u>112,452</u>	6.06	<u>18,556</u>	<u>18,556</u>	<u>18,556</u>	<u>18,556</u>	<u>18,556</u>	<u>18,556</u>	<u>1,116</u>
Total for all Employers	\$0		\$0	\$0	\$0	\$0	\$0	\$0	\$0

SECTION 2: GASB 68 Information for the Orange County Employees Retirement System

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	<u>18,616</u>	6.18	<u>3,012</u>	<u>3,012</u>	<u>3,012</u>	<u>3,012</u>	<u>3,012</u>	<u>3,012</u>	<u>544</u>
Total for all Employers	\$0		\$0	\$0	\$0	\$0	\$0	\$0	\$0

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

Actuarial Assumptions and Methods

For December 31, 2018 Measurement Date and Employer Reporting as of June 30, 2019

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.

Economic Assumptions

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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

Demographic Assumptions

Post – Retirement Mortality Rates:

Healthy:

For General Members and All Beneficiaries: 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, projected generationally with the two-dimensional MP-2016 projection scale, setback four years.

Disabled:

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

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

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, setback 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, setback 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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

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:

Age	Rate (%)	
	Mortality (General and Safety)	
	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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

Termination Rates Before Retirement (Continued):

Age	Rate (%)			
	Disability			
	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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

Termination Rates Before Retirement (Continued):

Years of Service	Rate (%)			
	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

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

Termination Rates Before Retirement (Continued):

<u>Years of Service</u>	<u>Election for Withdrawal of Contributions (%)</u>			
	<u>General All Other</u>	<u>General OCTA</u>	<u>Safety – Law & Fire</u>	<u>Safety - Probation</u>
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

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

Retirement Rates:

Age	Rate (%)							
	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	30.00	25.00	0.00	12.00	0.00	2.00	0.00	0.00
50	2.50	2.00	3.00	18.00	11.50	5.00	8.00	3.25
51	2.00	2.00	3.00	18.00	12.00	7.00	10.00	3.25
52	2.50	2.00	3.00	17.00	12.70	9.50	11.00	4.25
53	2.50	2.75	3.00	17.00	17.90	10.50	12.00	4.25
54	5.50	2.75	3.00	22.00	18.80	15.00	14.00	7.00
55	15.00	3.25	4.00	22.00	30.70	18.00	24.00	12.00
56	10.00	3.50	5.00	20.00	20.00	20.00	23.00	12.00
57	10.00	5.50	6.00	20.00	20.00	21.00	27.00	18.00
58	11.00	5.50	7.00	20.00	25.00	28.00	27.00	18.00
59	11.00	6.50	9.00	26.00	30.00	28.00	36.00	18.00
60	12.00	9.25	11.00	35.00	40.00	30.00	40.00	20.00
61	12.00	12.00	13.00	35.00	40.00	30.00	40.00	20.00
62	14.00	16.00	15.00	40.00	40.00	35.00	40.00	25.00
63	16.00	16.00	15.00	40.00	40.00	35.00	40.00	40.00
64	16.00	18.00	20.00	40.00	40.00	35.00	40.00	40.00
65	22.00	22.00	20.00	100.00	100.00	100.00	100.00	100.00
66	22.00	28.00	24.00	100.00	100.00	100.00	100.00	100.00
67	23.00	24.00	24.00	100.00	100.00	100.00	100.00	100.00
68	23.00	24.00	24.00	100.00	100.00	100.00	100.00	100.00
69	23.00	20.00	24.00	100.00	100.00	100.00	100.00	100.00
70	25.00	20.00	50.00	100.00	100.00	100.00	100.00	100.00
71	25.00	25.00	50.00	100.00	100.00	100.00	100.00	100.00
72	25.00	25.00	50.00	100.00	100.00	100.00	100.00	100.00
73	25.00	25.00	50.00	100.00	100.00	100.00	100.00	100.00
74	25.00	25.00	50.00	100.00	100.00	100.00	100.00	100.00
75	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

⁽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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

Retirement Rates (Continued):

Age	Rate (%)			
	CalPEPRA 2.5% @ 67 General Formula	CalPEPRA Safety Formula - Probation ⁽¹⁾	CalPEPRA Safety Formula - Law ⁽¹⁾	CalPEPRA Safety Formula - Fire
50	0.00	2.50	11.00	6.00
51	0.00	2.50	11.50	7.00
52	4.00	3.00	12.00	9.00
53	1.50	3.00	16.00	10.00
54	1.50	5.50	17.00	11.50
55	2.50	10.00	28.00	21.00
56	3.50	10.00	18.00	20.00
57	5.50	15.00	17.50	22.00
58	7.50	20.00	22.00	25.00
59	7.50	20.00	26.00	30.00
60	7.50	40.00	40.00	40.00
61	7.50	40.00	40.00	40.00
62	14.00	40.00	40.00	40.00
63	14.00	40.00	40.00	40.00
64	14.00	40.00	40.00	40.00
65	18.00	100.00	100.00	100.00
66	22.00	100.00	100.00	100.00
67	23.00	100.00	100.00	100.00
68	23.00	100.00	100.00	100.00
69	23.00	100.00	100.00	100.00
70	25.00	100.00	100.00	100.00
71	25.00	100.00	100.00	100.00
72	25.00	100.00	100.00	100.00
73	25.00	100.00	100.00	100.00
74	25.00	100.00	100.00	100.00
75	100.00	100.00	100.00	100.00

⁽¹⁾ Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

Retirement Age and Benefit for Deferred Vested Members:

General Retirement Age: 59
Safety Retirement Age: 53

Future deferred vested members who terminate with less than five years of service and are not vested are assumed to retire at age 70 for both General and Safety if they decide to leave their contributions on deposit.

15% of future General and 25% of future Safety deferred vested members are assumed to continue to work for a reciprocal employer. For reciprocals, 4.25% and 4.75% compensation increases are assumed per annum for General and Safety, respectively.

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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

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:

	<u>Final One Year Salary</u>	<u>Final Three Year Salary</u>
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 based on costs allocated as a level percentage of compensation, as if the current benefit formula for each individual has always been in effect (i.e., “replacement life within a tier”).

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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

- 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:

None.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

APPENDIX A

Calculation of Discount Rate as of December 31, 2018

Projection of Pension Plan's Fiduciary Net Position (\$ 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)
2018	\$14,802	\$851	\$828	\$18	-\$325	\$14,482
2019	14,482	945	900	18	1,015	15,523
2020	15,523	967	960	19	1,086	16,598
2021	16,598	978	1,021	21	1,160	17,694
2022	17,694	994	1,084	22	1,235	18,818
2023	18,818	1,023	1,150	23	1,312	19,980
2024	19,980	1,030	1,219	25	1,391	21,157
2025	21,157	1,039	1,288	26	1,472	22,354
2026	22,354	1,049	1,359	28	1,553	23,569
2027	23,569	1,059	1,433	29	1,636	24,801
2043	36,099	176	2,645	45	2,441	36,027
2044	36,027	166	2,696	45	2,433	35,886
2045	35,886	156	2,743	44	2,421	35,677
2046	35,677	147	2,786	44	2,405	35,399
2047	35,399	138	2,824	44	2,384	35,054
2092	19,045	39	238	24	1,325	20,148
2093	20,148	39	196	25	1,404	21,369
2094	21,369	39	160	26	1,491	22,712
2095	22,712	39	129	28	1,586	24,180
2096	24,180	40	102	30	1,689	25,776
2131	255,087	315	0 **	315	17,856	272,944
2132	272,944					
2132 Discounted Value:	131 ***					

* Of all the projected total contributions, only the first year's (i.e., 2018) contribution has been reduced by discount for prepaid contributions and transfers from County Investment Account, if any.

** Less than \$1 million, when rounded.

*** \$272,944 million when discounted with interest at the rate of 7.00% per annum has a value of \$131 million as of December 31, 2018, which is about the balance in the County Investment Account as of December 31, 2018.

Note: We have not utilized the balance in the County Investment Account to reduce the projected total contributions in column (b) even though those amounts have been used to reduce the NPL for the County as of December 31, 2018.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

APPENDIX A (continued)

Calculation of Discount Rate as of December 31, 2018

Projection of Pension Plan's Fiduciary Net Position (\$ in millions)

Notes:

- (1) Amounts may not total exactly due to rounding.
- (2) Amounts shown in the year beginning January 1, 2018 row are actual amounts, based on the financial statements provided by OCERS.
- (3) Years 2028-2042, 2048-2091, and 2097-2130 have been omitted from this table.
- (4) Column (a): Except for the "discounted value" shown for 2132, 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, 2017), 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, 2017. The projected benefit payments reflect the cost of living increase assumptions used in the December 31, 2018 valuation report. The 2018 benefit payments have been increased by the balance of the Medicare Insurance Reserve as of December 31, 2018.
- (7) Column (d): Projected administrative expenses are calculated as approximately 0.12% of the projected beginning Plan's Fiduciary Net Position amount. The 0.12% portion was based on the actual calendar year 2018 administrative expenses (unaudited) as a percentage of the actual beginning Plan's Fiduciary Net Position as of January 1, 2018. 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 Appendix, 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, 2018 shown earlier in this report, pursuant to paragraph 44 of GASB Statement No. 67.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

APPENDIX B

Schedule of Pension Amounts by Employer as of December 31, 2018

	Orange County	O.C. Cemetery District	O.C. Law Library	O.C. Vector Control District	O.C. Retirement System
Deferred Outflows of Resources					
Differences Between Expected and Actual Experience	\$10,053,569	\$134,653	\$0	\$228,434	\$0
Difference Between Projected and Actual Investment					
Earnings on Pension Plan Investments	907,051,313	859,393	1,371,152	2,352,302	5,304,404
Changes of Assumptions	451,779,162	325,633	286,133	580,065	2,445,231
Changes in Proportion and Differences Between Employer					
Contributions and Proportionate Share of Contributions	<u>25,452,653</u>	<u>0</u>	<u>60,420</u>	<u>0</u>	<u>2,594,615</u>
Total Deferred Outflows of Resources	\$1,394,336,697	\$1,319,679	\$1,717,705	\$3,160,801	\$10,344,250
Deferred Inflows of Resources					
Differences Between Expected and Actual Experience	\$315,142,849	\$287,311	\$774,494	\$1,811,847	\$1,894,371
Difference Between Projected and Actual Investment					
Earnings on Pension Plan Investments	498,410,128	450,507	437,711	1,278,263	2,919,627
Changes of Assumptions	43,625,464	38,647	200,032	0	374,031
Changes in Proportion and Differences Between Employer					
Contributions and Proportionate Share of Contributions	<u>108,921</u>	<u>0</u>	<u>872,851</u>	<u>0</u>	<u>330,892</u>
Total Deferred Inflows of Resources	\$857,287,362	\$776,465	\$2,285,088	\$3,090,110	\$5,518,921
Net Pension Liability as of December 31, 2017	\$3,983,695,231	\$(173,677)	\$(36,317)	\$1,166,920	\$21,427,080
Net Pension Liability as of December 31, 2018	\$4,918,576,912	\$962,119	\$573,252	\$2,492,695	\$28,844,760
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions					
Proportionate Share of Allocable Plan Pension Expense	\$598,776,241	\$366,717	\$445,441	\$156,577	\$2,950,531
Net Amortization of Deferred Amounts from Changes in					
Proportion and Differences Between Employer					
Contributions and Proportionate Share of Contributions	<u>7,241,587</u>	<u>0</u>	<u>(372,508)</u>	<u>0</u>	<u>703,821</u>
Total Employer Pension Expense Excluding That					
Attributable to Employer-Paid Member Contributions	\$606,017,828	\$366,717	\$72,933	\$156,577	\$3,654,352

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

APPENDIX B (continued)

Schedule of Pension Amounts by Employer as of December 31, 2018

	O.C. Fire Authority	Cypress Recreation and Parks	Department of Education	Transportation Corridor Agency	City of San Juan Capistrano
Deferred Outflows of Resources					
Differences Between Expected and Actual Experience	\$703,034	\$2,865,838	\$369,390	\$114,750	\$0
Difference Between Projected and Actual Investment					
Earnings on Pension Plan Investments	130,602,672	282,642	872,456	2,855,534	5,910,760
Changes of Assumptions	44,462,250	93,704	236,853	1,172,875	2,724,750
Changes in Proportion and Differences Between Employer					
Contributions and Proportionate Share of Contributions	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1,434,064</u>
Total Deferred Outflows of Resources	\$175,767,956	\$3,242,184	\$1,478,699	\$4,143,159	\$10,069,574
Deferred Inflows of Resources					
Differences Between Expected and Actual Experience	\$58,320,223	\$0	\$940,191	\$1,358,355	\$2,110,920
Difference Between Projected and Actual Investment					
Earnings on Pension Plan Investments	69,359,310	2,401,373	499,033	1,588,385	3,253,375
Changes of Assumptions	858,688	0	66,119	184,306	416,787
Changes in Proportion and Differences Between Employer					
Contributions and Proportionate Share of Contributions	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1,662,955</u>
Total Deferred Inflows of Resources	\$128,538,221	\$2,401,373	\$1,505,343	\$3,131,046	\$7,444,037
Net Pension Liability as of December 31, 2017	\$370,674,668	\$718,340	\$2,530,324	\$10,242,769	\$26,138,852
Net Pension Liability as of December 31, 2018	\$466,731,526	\$408,781	\$3,517,372	\$13,253,632	\$32,142,058
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions					
Proportionate Share of Allocable Plan Pension Expense	\$82,954,245	\$64,831	\$279,359	\$1,941,952	\$3,287,810
Net Amortization of Deferred Amounts from Changes in					
Proportion and Differences Between Employer					
Contributions and Proportionate Share of Contributions	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>(100,772)</u>
Total Employer Pension Expense Excluding That					
Attributable to Employer-Paid Member Contributions	\$82,954,245	\$64,831	\$279,359	\$1,941,952	\$3,187,038

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

APPENDIX B (continued)

Schedule of Pension Amounts by Employer as of December 31, 2018

	O.C. Sanitation District	O.C. Transportation Authority	U.C.I.	O.C. Children and Families Comm.	Local Agency Formation Comm.
Deferred Outflows of Resources					
Differences Between Expected and Actual Experience	\$2,740,145	\$429,659	\$1,083,806	\$0	\$0
Difference Between Projected and Actual Investment					
Earnings on Pension Plan Investments	59,867,140	60,889,928	7,212,467	115,966	291,051
Changes of Assumptions	16,401,122	29,203,603	1,898,677	53,458	134,169
Changes in Proportion and Differences Between Employer					
Contributions and Proportionate Share of Contributions	<u>872,851</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>204,067</u>
Total Deferred Outflows of Resources	\$79,881,258	\$90,523,190	\$10,194,950	\$169,424	\$629,287
Deferred Inflows of Resources					
Differences Between Expected and Actual Experience	\$10,405,119	\$31,328,024	\$3,502,059	\$41,415	\$103,944
Difference Between Projected and Actual Investment					
Earnings on Pension Plan Investments	32,687,002	33,794,383	4,163,238	63,829	160,199
Changes of Assumptions	2,445,073	3,903,525	521,873	8,177	20,523
Changes in Proportion and Differences Between Employer					
Contributions and Proportionate Share of Contributions	<u>60,420</u>	<u>0</u>	<u>0</u>	<u>1,081,690</u>	<u>134,872</u>
Total Deferred Inflows of Resources	\$45,597,614	\$69,025,932	\$8,187,170	\$1,195,111	\$419,538
Net Pension Liability as of December 31, 2017	\$(39,571,102)	\$212,117,162	\$27,644,960	\$962,204	\$1,268,133
Net Pension Liability as of December 31, 2018	\$29,029,145	\$269,788,642	\$34,808,679	\$630,610	\$1,582,703
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions					
Proportionate Share of Allocable Plan Pension Expense	\$14,888,440	\$35,099,842	\$1,840,555	\$64,504	\$161,895
Net Amortization of Deferred Amounts from Changes in					
Proportion and Differences Between Employer					
Contributions and Proportionate Share of Contributions	<u>372,508</u>	<u>0</u>	<u>0</u>	<u>(350,297)</u>	<u>31,249</u>
Total Employer Pension Expense Excluding That					
Attributable to Employer-Paid Member Contributions	\$15,260,948	\$35,099,842	\$1,840,555	\$(285,793)	\$193,144

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

APPENDIX B (continued)

Schedule of Pension Amounts by Employer as of December 31, 2018

	Rancho Santa Margarita	O.C. Superior Court	O.C. IHSS Public Authority	Total for all Employers
Deferred Outflows of Resources				
Differences Between Expected and Actual Experience	\$1,170	\$0	\$0	\$18,724,448
Difference Between Projected and Actual Investment				
Earnings on Pension Plan Investments	6,148	72,226,722	354,965	1,258,427,015
Changes of Assumptions	639	33,295,171	221,274	585,314,769
Changes in Proportion and Differences Between Employer				
Contributions and Proportionate Share of Contributions	<u>0</u>	<u>0</u>	<u>108,921</u>	<u>30,727,591</u>
Total Deferred Outflows of Resources	\$7,957	\$105,521,893	\$685,160	\$1,893,193,823
Deferred Inflows of Resources				
Differences Between Expected and Actual Experience	\$7,578	\$25,794,457	\$224,144	\$454,047,301
Difference Between Projected and Actual Investment				
Earnings on Pension Plan Investments	2,995	39,754,715	162,393	691,386,466
Changes of Assumptions	203	5,092,945	23,294	57,779,687
Changes in Proportion and Differences Between Employer				
Contributions and Proportionate Share of Contributions	<u>0</u>	<u>26,463,615</u>	<u>11,375</u>	<u>30,727,591</u>
Total Deferred Inflows of Resources	\$10,776	\$97,105,732	\$421,206	\$1,233,941,045
Net Pension Liability as of December 31, 2017	\$(2,320)	\$332,589,831	\$706,343	\$4,952,099,401
Net Pension Liability as of December 31, 2018	\$1,284	\$392,760,910	\$1,097,009	\$6,197,202,089
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions				
Proportionate Share of Allocable Plan Pension Expense	\$1,276	\$40,175,514	\$257,767	\$783,713,497
Net Amortization of Deferred Amounts from Changes in				
Proportion and Differences Between Employer				
Contributions and Proportionate Share of Contributions	<u>0</u>	<u>(7,563,741)</u>	<u>38,153</u>	<u>0</u>
Total Employer Pension Expense Excluding That				
Attributable to Employer-Paid Member Contributions	\$1,276	\$32,611,773	\$295,920	\$783,713,497

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

APPENDIX B (continued)

Schedule of Pension Amounts by Employer as of December 31, 2018

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., 2018) 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, 2017 (the beginning of the measurement period ending December 31, 2018) and is 5.91 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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

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.

SECTION 3: Actuarial Assumptions and Methods and Appendices for the Orange County Employees Retirement System

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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VIA E-MAIL & USPS

June 3, 2019

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, 2018 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, 2018 Net Pension Liability (NPL) and the Unfunded Actuarial Accrued Liability (UAAL) as shown in the December 31, 2018 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, 2017 demographic data by: (i) rolling forward the liability from December 31, 2017 to December 31, 2018 and (ii) 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, 2018 demographic data.

The differences between the TPL and the AAL were primarily due to: (a) actuarial gains/losses on the liability items as documented in Section 4, Exhibit VI of the December 31, 2018 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, 2018 (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. 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.

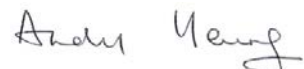
The differences between the Plan Fiduciary Net Position and the VVA were primarily due to adjustment of deferred investment gain and the non-valuation reserve.

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

AW/hy

Enclosures

cc: Tracy Bowman
Brenda Shott

Attachment A
All Rate Groups (Results are as of December 31, 2018)

(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	\$506,303,601	\$11,493,354,005	\$701,924,912	\$47,220
(2) (Gain)/Loss from (Lower)/Higher than Expected Salary Increases*	(\$4,473,000)	(\$73,793,000)	(\$1,042,000)	\$0
(3) (Gain)/Loss from (Lower)/Higher than Expected COLA Increases*	\$513,000	\$12,980,000	\$968,000	\$0
(4) Other Experience (Gain)/Loss*	(\$1,345,000)	\$48,521,000	\$9,017,000	\$0
(5) Other (Gain)/Loss from Rolled Forward Liabilities to Actual Liabilities	<u>\$93,399</u>	<u>\$4,872,995</u>	<u>\$9,088</u>	<u>\$780</u>
(6) Actuarial Accrued Liability Included in the Funding Valuation Report (1) + (2) + (3) + (4) + (5)	\$501,092,000	\$11,485,935,000	\$710,877,000	\$48,000

* These actuarial gain/loss items can be found in Section 4, Exhibit VI of our December 31, 2018 funding valuation report.

(B) Asset Reconciliation	Rate Group #1	Rate Group #2	Rate Group #3	Rate Group #4
(1) Market Value of Assets Excluding County Investment Account	\$387,240,162	\$7,709,681,018	\$672,895,767	\$45,936
(2) County Investment Account	<u>\$4,873,766</u>	<u>\$81,058,036</u>	<u>\$0</u>	<u>\$0</u>
(3) Plan's Fiduciary Net Position Included in the development of the GASB 67 Addendum Letter (1) + (2)	\$392,113,928	\$7,790,739,054	\$672,895,767	\$45,936
(4) Adjustment for Deferred Investment Return and Non-Valuation Reserve	<u>\$17,395,838</u>	<u>\$346,338,982</u>	<u>\$30,228,233</u>	<u>\$2,064</u>
(5) Valuation of Assets Included in the Funding Valuation Report (1) + (4)	\$404,636,000	\$8,056,020,000	\$703,124,000	\$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)	\$114,189,673	\$3,702,614,951	\$29,029,145	\$1,284
Unfunded Actuarial Accrued Liability Shown in the Funding Valuation Report (A6) - (B5)	\$96,456,000	\$3,429,915,000	\$7,753,000	\$0

Attachment A
All Rate Groups (Results are as of December 31, 2018)

(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	\$962,353,808	\$47,040,823	\$243,895,544	\$10,709,252
(2) (Gain)/Loss from (Lower)/Higher than Expected Salary Increases*	\$1,296,000	\$217,000	(\$144,000)	(\$391,000)
(3) (Gain)/Loss from (Lower)/Higher than Expected COLA Increases*	\$1,348,000	\$60,000	\$397,000	\$6,000
(4) Other Experience (Gain)/Loss*	(\$631,000)	\$363,000	(\$426,000)	(\$108,000)
(5) Other (Gain)/Loss from Rolled Forward Liabilities to Actual Liabilities	<u>\$531,192</u>	<u>\$14,177</u>	<u>\$12,456</u>	<u>\$4,748</u>
(6) Actuarial Accrued Liability Included in the Funding Valuation Report (1) + (2) + (3) + (4) + (5)	\$964,898,000	\$47,695,000	\$243,735,000	\$10,221,000

* These actuarial gain/loss items can be found in Section 4, Exhibit VI of our December 31, 2018 funding valuation report.

(B) Asset Reconciliation	Rate Group #5	Rate Group #9	Rate Group #10	Rate Group #11
(1) Market Value of Assets Excluding County Investment Account	\$692,565,166	\$33,787,191	\$188,058,903	\$9,747,133
(2) County Investment Account	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
(3) Plan's Fiduciary Net Position Included in the development of the GASB 67 Addendum Letter (1) + (2)	\$692,565,166	\$33,787,191	\$188,058,903	\$9,747,133
(4) Adjustment for Deferred Investment Return and Non-Valuation Reserve	<u>\$31,111,834</u>	<u>\$1,517,809</u>	<u>\$8,448,097</u>	<u>\$437,867</u>
(5) Valuation of Assets Included in the Funding Valuation Report (1) + (4)	\$723,677,000	\$35,305,000	\$196,507,000	\$10,185,000

	Rate Group #5	Rate Group #9	Rate Group #10	Rate Group #11
Net Pension Liability Shown in the GASB 67 Addendum Letter (A1) - (B3)	\$269,788,642	\$13,253,632	\$55,836,641	\$962,119
Unfunded Actuarial Accrued Liability Shown in the Funding Valuation Report (A6) - (B5)	\$241,221,000	\$12,390,000	\$47,228,000	\$36,000

Attachment A
All Rate Groups (Results are as of December 31, 2018)

(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	\$10,692,662	\$886,964,280	\$4,062,610,316	\$1,752,985,666	\$20,678,882,089
(2) (Gain)/Loss from (Lower)/Higher than Expected Salary Increases*	(\$102,000)	(\$13,206,000)	\$2,710,000	\$17,020,000	(\$71,908,000)
(3) (Gain)/Loss from (Lower)/Higher than Expected COLA Increases*	\$8,000	\$675,000	\$4,868,000	\$2,456,000	\$24,279,000
(4) Other Experience (Gain)/Loss*	\$153,000	\$656,000	(\$979,000)	\$9,275,000	\$64,496,000
(5) Other (Gain)/Loss from Rolled Forward Liabilities to Actual Liabilities	<u>\$55,338</u>	<u>\$638,720</u>	<u>\$1,161,684</u>	<u>\$205,334</u>	<u>\$7,599,911</u>
(6) Actuarial Accrued Liability Included in the Funding Valuation Report (1) + (2) + (3) + (4) + (5)	\$10,807,000	\$875,728,000	\$4,070,371,000	\$1,781,942,000	\$20,703,349,000

* These actuarial gain/loss items can be found in Section 4, Exhibit VI of our December 31, 2018 funding valuation report.

(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	\$10,119,410	\$589,478,106	\$2,714,080,427	\$1,342,090,781	\$14,349,790,000
(2) County Investment Account	<u>\$0</u>	<u>\$8,424,297</u>	<u>\$37,533,901</u>	<u>\$0</u>	<u>\$131,890,000</u>
(3) Plan's Fiduciary Net Position Included in the development of the GASB 67 Addendum Letter (1) + (2)	\$10,119,410	\$597,902,403	\$2,751,614,328	\$1,342,090,781	\$14,481,680,000
(4) Adjustment for Deferred Investment Return and Non-Valuation Reserve	<u>\$454,590</u>	<u>\$26,480,894</u>	<u>\$121,923,573</u>	<u>\$60,290,219</u>	<u>\$644,630,000</u>
(5) Valuation of Assets Included in the Funding Valuation Report (1) + (4)	\$10,574,000	\$615,959,000	\$2,836,004,000	\$1,402,381,000	\$14,994,420,000

	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)	\$573,252	\$289,061,877	\$1,310,995,988	\$410,894,885	\$6,197,202,089
Unfunded Actuarial Accrued Liability Shown in the Funding Valuation Report (A6) - (B5)	\$233,000	\$259,769,000	\$1,234,367,000	\$379,561,000	\$5,708,929,000

**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, 2018

DRAFT

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, 2018

Table of Contents

	<i>Pages</i>
Independent Auditor's Report.....	1
Schedule of Allocated Pension Amounts by Employer	3
Notes to the Schedule of Allocated Pension Amounts by Employer.....	7

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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, 2018, 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, 2018, 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, 2018, and our report thereon dated June X, 2019, 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.

Newport Beach, California
June X, 2019

**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, 2018**

Deferred Outflows of Resources	Orange County	O.C. Cemetery District	O.C. Public Law Library	O.C. Mosquito and Vector Control District	O.C. Employees Retirement System
Differences Between Expected and Actual Experience	\$10,053,569	\$134,653	\$-	\$228,434	\$-
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	408,641,185	408,886	933,441	1,074,039	2,384,777
Changes of Assumptions	451,779,162	325,633	286,133	580,065	2,445,231
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	25,452,653	-	60,420	-	2,594,615
Total Deferred Outflows of Resources	\$895,926,569	\$869,172	\$1,279,994	\$1,882,538	\$7,424,623
Deferred Inflows of Resources					
Differences Between Expected and Actual Experience	\$315,142,849	\$287,311	\$774,494	\$1,811,847	\$1,894,371
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	-	-	-	-	-
Changes of Assumptions	43,625,464	38,647	200,032	-	374,031
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	108,921	-	872,851	-	330,892
Total Deferred Inflows of Resources	\$358,877,234	\$325,958	\$1,847,377	\$1,811,847	\$2,599,294
Net Pension Liability as of December 31, 2018	\$4,918,576,912	\$962,119	\$573,252	\$2,492,695	\$28,844,760
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions					
Proportionate Share of Plan Pension Expense	\$598,776,241	\$366,717	\$445,441	\$156,577	\$2,950,531
Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	7,241,587	-	(372,508)	-	703,821
Total Employer Pension Expense Excluding That Attributable to Employer-Paid Member Contributions	\$606,017,828	\$366,717	\$72,933	\$156,577	\$3,654,352

(Continued)

The accompanying notes are an integral part of these schedules.

**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, 2018**

	O.C. Fire Authority	Cypress Recreation & Parks District	Orange County Department of Education	Transportation Corridor Agencies	City of San Juan Capistrano
Deferred Outflows of Resources					
Differences Between Expected and Actual Experience	\$703,034	\$2,865,838	\$369,390	\$114,750	\$-
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	61,243,362	-	373,423	1,267,149	2,657,385
Changes of Assumptions	44,462,250	93,704	236,853	1,172,875	2,724,750
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	-	-	-	1,434,064
Total Deferred Outflows of Resources	\$106,408,646	\$2,959,542	\$979,666	\$2,554,774	\$6,816,199
Deferred Inflows of Resources					
Differences Between Expected and Actual Experience	\$58,320,223	\$-	\$940,191	\$1,358,355	\$2,110,920
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	-	2,118,731	-	-	-
Changes of Assumptions	858,688	-	66,119	184,306	416,787
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	-	-	-	1,662,955
Total Deferred Inflows of Resources	\$59,178,911	\$2,118,731	\$1,006,310	\$1,542,661	\$4,190,662
Net Pension Liability as of December 31, 2018	\$466,731,526	\$408,781	\$3,517,372	\$13,253,632	\$32,142,058
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions					
Proportionate Share of Plan Pension Expense	\$82,954,245	\$64,831	\$279,359	\$1,941,952	\$3,287,810
Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	-	-	-	(100,772)
Total Employer Pension Expense Excluding That Attributable to Employer-Paid Member Contributions	\$82,954,245	\$64,831	\$279,359	\$1,941,952	\$3,187,038

(Continued)

The accompanying notes are an integral part of these schedules.

**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, 2018**

	O.C. Sanitation District	O.C. Transportation Authority	U.C.I. Medical Center and Campus	Children & Families Commission of OC	OC Local Agency Formation Commission
Deferred Outflows of Resources					
Differences Between Expected and Actual Experience	\$2,740,145	\$429,659	\$1,083,806	\$-	\$-
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	27,180,138	27,095,545	3,049,229	52,137	130,852
Changes of Assumptions	16,401,122	29,203,603	1,898,677	53,458	134,169
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	872,851	-	-	-	204,067
Total Deferred Outflows of Resources	\$47,194,256	\$56,728,807	\$6,031,712	\$105,595	\$469,088
Deferred Inflows of Resources					
Differences Between Expected and Actual Experience	\$10,405,119	\$31,328,024	\$3,502,059	\$41,415	\$103,944
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	-	-	-	-	-
Changes of Assumptions	2,445,073	3,903,525	521,873	8,177	20,523
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	60,420	-	-	1,081,690	134,872
Total Deferred Inflows of Resources	\$12,910,612	\$35,231,549	\$4,023,932	\$1,131,282	\$259,339
Net Pension Liability as of December 31, 2018	\$29,029,145	\$269,788,642	\$34,808,679	\$630,610	\$1,582,703
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions					
Proportionate Share of Plan Pension Expense	\$14,888,440	\$35,099,842	\$1,840,555	\$64,504	\$161,895
Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	372,508	-	-	(350,297)	31,249
Total Employer Pension Expense Excluding That Attributable to Employer-Paid Member Contributions	\$15,260,948	\$35,099,842	\$1,840,555	\$(285,793)	\$193,144

(Continued)

The accompanying notes are an integral part of these schedules.

**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, 2018**

	City of Rancho Santa Margarita	O.C. Superior Court of California	O.C. IHSS Public Authority	Total for all Employers
Deferred Outflows of Resources				
Differences Between Expected and Actual Experience	\$1,170	\$-	\$-	\$18,724,448
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	3,153	32,472,007	192,572	569,159,280
Changes of Assumptions	639	33,295,171	221,274	585,314,769
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	-	108,921	30,727,591
Total Deferred Outflows of Resources	\$4,962	\$65,767,178	\$522,767	\$1,203,926,088
Deferred Inflows of Resources				
Differences Between Expected and Actual Experience	\$7,578	\$25,794,457	\$224,144	\$454,047,301
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	-	-	-	2,118,731
Changes of Assumptions	203	5,092,945	23,294	57,779,687
Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	26,463,615	11,375	30,727,591
Total Deferred Inflows of Resources	\$7,781	\$57,351,017	\$258,813	\$544,673,310
Net Pension Liability as of December 31, 2018	\$1,284	\$392,760,910	\$1,097,009	\$6,197,202,089
Pension Expense Excluding That Attributable to Employer-Paid Member Contributions				
Proportionate Share of Plan Pension Expense	\$1,276	\$40,175,514	\$257,767	\$783,713,497
Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	(7,563,741)	38,153	-
Total Employer Pension Expense Excluding That Attributable to Employer-Paid Member Contributions	\$1,276	\$32,611,773	\$295,920	\$783,713,497

The accompanying notes are an integral part of these schedules.

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, 2018

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, 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, 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 Sanitation District, Cypress Recreation & Parks District, Orange County Mosquito and Vector Control District 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: <https://www.ocers.org/summary-plan-description>.

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, 2018 and the GASB Statement 68 Actuarial Valuation Based on the December 31, 2018 Measurement Date for Employer Reporting as of June 30, 2019, 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.

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, 2018

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, 2018, 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, 2018, employer paid member contributions of \$164,000 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, 2018.

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 of 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 employers’ contribution rate by the employers’ payrolls for the fiscal year.

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, 2018

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) 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 Orange County Sanitation District (OCSD) Unfunded Actuarial Accrued Liability (UAAL) Deferred Account balance of \$14,589,000 was allocated entirely to Rate Group 3 and was transferred at the end of the year to partially offset actuarial losses incurred during 2018, resulting in an account balance of \$0 as of December 31, 2018. 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 the Orange County Mosquito and Vector Control District (Vector Control), Cypress Recreation & 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, OCDE and CRPD employer contributions of \$2,875,000, \$301,000 and \$740,000, respectively. 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	2018
1	\$4,873,766
2	81,058,036
6	8,424,297
7	37,533,901
Total	<u>\$131,890,000</u>

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, 2018

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 NPL for Vector Control, 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 Vector Control 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, 2018.

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, 2017 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, 2018, can be found on OCERS' website as discussed in Note 5 – Additional Financial and Actuarial Information.

CRPD and Capistrano Beach Sanitary District (CBSD) are no longer active employers. CRPD has twenty-three retired members and beneficiaries, as well as five deferred members, and CBSD 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. On October 15, 2018, OCERS entered into a withdrawing employer and continuing contribution agreement with the City of Cypress and received payment of the UAAL associated with CRPD members, including interest through October 14, 2018, for a total of \$740,000. As of December 31, 2020, and every three years thereafter, CRPD's UAAL obligation will be recalculated and in the event there is any new UAAL obligation, CRPD will have three years following the effective date of the recalculation to satisfy the obligation in full, including accrued interest. As of December 31, 2018, 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, 2018. CBSD 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.

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, 2018

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, 2018, are as follows (dollars in thousands):

	2018
Total pension liability	\$ 20,678,882
Less: Plan fiduciary net position	<u>(14,481,680)</u>
Net pension liability	<u>\$ 6,197,202</u>

For the measurement period ended December 31, 2018 (the measurement date), total pension liability was determined by rolling forward the December 31, 2017 (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, 2018 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

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, 2018

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, 2018, 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, 2018 was 7.00%. 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, 2018.

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% investment return assumption used in the actuarial valuation for funding is net of administrative expenses. Administrative expenses are assumed to be 12 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, 2018.

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, 2018

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, 2017 (the beginning of the measurement period ending December 31, 2018) which is 5.91 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, 2018. 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 appealed to the Fourth District Court of Appeal. On January 23, 2019, the court unanimously affirmed the trial court judgment in favor of OCERS, holding that the OCERS' Board acted entirely within its statutory and constitutional authority to prudently fund the benefits owed to retired OCDE employees and their beneficiaries and that OCDE lacked any basis in law or fact to support its refusal to pay. The time for OCDE to appeal the decision of the Court of Appeal has expired. 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.

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, 2018

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, 2018, the OCERS' GASB Statement No. 67 Actuarial Valuation as of December 31, 2018, the OCERS' GASB Statement No. 68 Actuarial Valuation Based on the December 31, 2018, Measurement Date for Employer Reporting as of June 30, 2019, and the Unfunded Actuarial Liability and Associated Amortization Schedules as of the December 31, 2017 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.

DRAFT

A-4

Memorandum

DATE: June 6, 2019
TO: Members of the Audit Committee
FROM: David Kim, Director of Internal Audit
SUBJECT: **AUDIT REPORT – EMPLOYER AND EMPLOYEE CONTRIBUTIONS ACCOUNTING**

Recommendation

Receive and file.

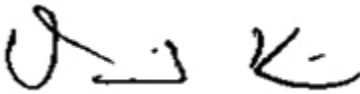
Background/Discussion

As per the 2019 Audit Plan, Internal Audit performed an audit of OCERS Finance Division's Internal Controls over the Employer and Employee Contributions Accounting.

There was one audit finding directed towards OCERS management regarding user access reviews. Further details on the finding and management's response is provided in the audit report.

The full audit report is attached along with an overview of the changes to the audit report format.

Submitted by:



David Kim
Director of Internal Audit

2011



Audit Report Format

June 6, 2019

Audit Report Enhancements

- Added an overall opinion as well as summarizing the report for executive level review.
- Added IIA Standard language as a result of the recent External Quality Assessment rating of Generally Conforms.
- Included the distribution for the Audit Report.
- Provided additional administrative details to Managements' Action Plans (Responsible Party and Expected Due Dates).

Responsible Party:

Name, Title

Completion Date:

- Month/Day/Year



Types of Control Exceptions

Priority Issues

These are observation(s) that represent critical exceptions to the audit objective(s) and/or business goals. Such conditions may involve either actual or potential large dollar errors or be of such a nature as to compromise OCERS' reputation or integrity. Management is expected to address Priority Issues brought to its attention immediately.

Important Observations

These items are important to the process owner and they do impact the control environment and/or could be observations for improving the efficiency and/or effectiveness of OCERS' operations. Management is expected to address within six to twelve months.



Types of Audit Report Opinions

Satisfactory – No issues or limited to “Important Observations”.

Opportunities for Improvement – Majority of issues classified as “Important Observations” with limited or no “Priority Issues”.

Inadequate – Usually rendered when multiple issues are classified as “Priority”, together with one or more other issues classified as “Important Observations”. The Priority Issues identified have a major effect on processes, plan sponsors/members, financials, and/or regulatory requirements. A follow-up audit is performed once corrective actions have been implemented.





Audit of Employer and Employee Contributions Accounting

Report Date: May 16, 2019

Internal Audit Department

David Kim, Director of Internal Audit

Mark Adviento, Internal Auditor

Table of Contents

Audit Objective and Scope.....	1
Conclusion and Executive Summary.....	1
Background.....	1
Observation Summary.....	2
Observation Detail.....	3

Audit Objective and Scope

The objective of this audit was to provide an independent **review of the OCERS Finance Division's controls** that help ensure the accuracy, completeness and proper supporting documentation over the recording of contributions received from employees and Plan Sponsors. The audit was performed in conformance with the International Standards for the Professional Practice of Internal Auditing.

The scope of the audit included employee and Plan Sponsor pension contributions received between January 2017 and December 2018.

Conclusion / Executive Summary

Opinion: *Satisfactory*

Overall, controls are in place to ensure the accuracy, completeness and proper supporting documentation over the recording of pension contributions received from employees and Plan Sponsors. There was one Important Observation identified during the audit regarding the review of user access to internal OCERS applications.

Background

The Finance Department works together with the Plan Sponsors, Member Services, Information Technology (IT) and State Street Bank to process employee and employer pension contributions in a timely manner. Most employer contributions are paid through OCERS' contributions prepayment program, with remaining employer contributions paid bi-weekly. All employee contributions, however, are paid bi-weekly. The Plan Sponsors also submit corresponding employee and employer contribution information and other demographic data via transmittal files¹ in V3. After the Finance Division reconciles contribution payments to V3 transmittal files, the Finance Division records (e.g., posts) the payments to the general ledger system (Dynamics).

As per OCERS' CAFR (in millions):

	YE 12/31/2016	YE 12/31/2017	YE 12/31/2018
Employer Contributions	\$567.2	\$572.1	\$580.9
Employee Contributions	\$258.3	\$262.3	\$270.1
Total Pension Contributions	\$825.5	\$834.4	\$851.0

¹ Internal Audit performs Plan Sponsor payroll transmittal audits separately to verify that employee and employer contributions comply with the Board's adopted contribution rates.

Important Observation

- ▶ **A formal periodic review of proper user access to OCERS applications and network is not documented by the appropriate members of the business.** Our review noted that Finance personnel responsible for reviewing user access to Dynamics did not document the results. Additionally, the review of the network access is limited to IT personnel and did not incorporate formal approval from the Finance Department, resulting in the lack of input from business divisions who are more familiar with their personnel. In response to our observation, OCERS IT and the Executive management team are developing Account Management and Access Control Policies; creating an annual User Account review process; and establishing a SharePoint electronic workflow process to complete and track reviews initiated with IT managed systems.

Copies to:

S. Delaney
S. Jenike
M. Murphy

G. Ratto
B. Shott
T. Bowman

J. Sadoski
Audit Committee Members

Observation	Action Plan / Responsible Party / Completion Date
<p align="center">Important Observation</p>	
<p>1. A formal periodic review of proper user access to OCERS applications and network is not documented by the appropriate members of the business.</p> <p>In one instance, a Finance Manager was tasked with performing the review of Dynamics' user access for appropriate access and current list of users to reflect new hires, turnover and promotions within the department. (The Finance Division is the program administrator of the Dynamics software.) However, the Finance Manager did not formally document the results of the review to evidence that such a review was conducted on an annual basis, or other routine timeline. Internal Audit did note that, at the time of our testing, the users for Dynamics were appropriate.</p> <p>In another instance, we noted that, annually, the Director of IT and the IT Operations Supervisor perform a manual review of user access to OCERS' network. However, this review does not include providing a list of users by department to each of OCERS' business divisions as part of the approval process.</p> <p>When Internal Audit tested the above control, it was noted that a Finance contractor's network access was disabled but not deleted. IT had disabled the user's account but did not delete the account because this contractor had typically worked for a few months on an annually recurring basis with the Finance Division. However, IT did not know Finance had planned to no longer use this contractor. The</p>	<p>Action Plan: Per IT Governance and Information Security action items to address Center for Internet Security (CIS) Control 16: Account Monitoring and Control, OCERS IT and the Executive management team are establishing the following:</p> <ol style="list-style-type: none"> 1. Develop Account Management and Access Control Policies. 2. Create an annual User Account review process and supporting documentation. 3. Setup means for staff to review and enter data in SharePoint with associated workflow to complete and track reviews initiated with IT managed systems. <p>Responsible Party: Jenny Sadoski – Director of Information Technology</p> <p>Completion Dates:</p> <ul style="list-style-type: none"> • Policy Development: 6/30/2019 • Account review process: 6/30/2019 • User account review: 7/31/2019

Observation	Action Plan / Responsible Party / Completion Date
<p>contractor last worked with OCERS approximately two years ago.</p> <p>User access provisioning controls include proper on-boarding and off-boarding procedures. Routine user access review is a compensating control if proper on-boarding and off-boarding procedures are not followed. However, user access reviews should be formalized and properly documented to help ensure this control is performed on a routine basis.</p> <p>Risk: While the risk is low in this specific instance, as the list of users was appropriate or the unauthorized user's access was disabled, routine user access reviews that are not complete, accurate or adequately documented may result in unauthorized access to applications or data.</p>	

Categories of Control Exceptions:

Priority Issue:

These are observation(s) that represent critical exceptions to the audit objective(s) and/or business goals. Such conditions may involve either actual or potential large dollar errors or be of such a nature as to compromise OCERS' reputation or integrity. Management is expected to address Priority Issues brought to its attention immediately.

Important Observations:

These items are important to the process owner and they do impact the control environment and/or could be observations for improving the efficiency and/or effectiveness of OCERS' operations. Management is expected to address within six to twelve months.

A-5

Memorandum

DATE: June 6, 2019
TO: Members of the Audit Committee
FROM: David Kim, Director of Internal Audit
SUBJECT: MANAGEMENT ACTION PLAN VERIFICATION REPORT

Recommendation

Receive and file.

Background/Discussion

Background

Under the International Standards for the Professional Practice of Internal Auditing (“Standards”), Internal Audit must establish and maintain a system to monitor the disposition of results communicated to management. This includes a follow-up process to monitor and ensure that management action plans have been implemented or that management and the Audit Committee has accepted the risk of not taking action.

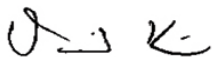
Internal Audit has developed a process to follow-up on management action plans (MAPs):

- Confirming management has implemented an action plan.
- Internal Audit has tested the operational effectiveness MAP.

The following report contains the status of the MAPs that have been reported to the Audit Committee. The report has two main sections:

- For the MAPs noted as Open, Internal Audit will continue to work with the respective parties until the MAP is closed and verified.
- For the MAPs noted as Verified, Internal Audit has confirmed the MAP has been implemented and operating effectively.

Submitted by:



David Kim
Director of Internal Auditor

Management Action Plan Follow-up Status						
	Member Services	Finance	Investments	IT	Plan Sponsors	Total
Open	13	0	8	2	4	27
IA Verified	13	14	1	0	9	37
Total	26	14	9	2	13	64

Total Management Action Plans 64

IA Verification

1. Confirm Management has implemented the action plan
2. Perform testing of action plan

Open Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Member Services		
Audit of OCERS' Death Match Process (2016)		
Debt collection versus debt forgiveness	Management agreed to the following recommendation: For overpayments in which Member Services has exhausted internal collection efforts, Member Services should inquire of the CEO and/or Board to forgive or partially forgive overpayments to these deceased payees or possibly make use of a collections agency for additional collection efforts.	Member Services management to discuss a formal policy to address overpayments that have both exhausted currently in place internal collection efforts and are beyond the thresholds set forth in OCERS' Write-Off Policy.
Overpayment to deceased members	The deceased members identified by Internal Audit will be processed immediately according to the specific circumstances of the accounts. Overpayments will be processed according to policy and beneficiaries will be contacted regarding lump sum payment options for refunds. Management will investigate possible options for instituting a multi-step review process to ensure entries are made into V3 or a quarterly/annually comparison of the database with the information from a death match service provider.	Member Services has repaid \$421,402 of the \$990,694 of the 24 deferred members. Additionally, Member Services has recovered \$16,008 of the \$20,620 from the four deceased payees.
Manual query of V3 until new report is created	The overpayment to the specific member and DRO payee identified by Internal Audit will be dealt with immediately according to current policy. As V3 is currently configured the system will prevent future overpayments from occurring by suspending the benefit once a death date is entered. The items on the overpayment log need to be reconciled with V3 as a post-go live project but it was envisioned that V3 will replace the need for a manual spreadsheet outside of the system. A query or report may be needed during the transition period.	Member Services is continuing to investigate this matter.

Open Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Certification letters	<p>Management agreed to the following recommendation: OCERS’ management should consider sending a certification letter to payees over a selected age to confirm the status of the payee. Management should consider stopping benefit payments if OCERS does not receive a response after a reasonable number of attempts in order to incentivize the payee to return the letter. OCERS’ management should also consider the costs/benefits of hiring a third party to perform random physical alive and well checks with payees that meet a given profile.</p> <p>However clear communication will need to be developed as the payees within this demographic may be the hardest to reach. In addition, the implications to payee’s medical insurance needs to be considered any time a benefit is suspended.</p>	<p>Member Services management to discuss formulating a formal policy addressing when such certification letters should be sent and to whom after the result of a cost benefit analysis to be performed.</p>
Death data vendors	<p>Management agreed to the following recommendation: OCERS management should consider using only death audit vendors that hire external auditors to review its client data security controls. OCERS should require that death audit vendors provide copies of the audit report and the audit results to OCERS on an annual basis for review. OCERS management should consider using the RFP process to compare the services of death audit vendors and obituary review service vendors. Quality of services, price, and data security controls of vendors should be compared.</p>	<p>Management to discuss the approach for obtaining and reviewing vendor security report.</p>

Open Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Member banking information within V3	Management agreed to the following recommendation: To reduce the possibility of fraudulently diverting benefit payments for deceased members, OCERS should implement automated checks and balances within the V3 system to ensure that no one employee can unilaterally change a payee's banking information without supervisory approval. The resulting change to V3 may require an additional change order to reconfigure the V3 system. However, the headline risk to OCERS outweighs the financial cost of making such a change.	Member Services to work with IT to discuss the creation of automated reports identifying abnormal changes to members' banking information for follow up purposes.
Audit of OCERS' Service Credit Purchase Process (2016)		
Work in Process reporting	OCERS' management agrees to initiate discussions with Vitech for best cost-benefit solutions to building work-in-process reporting to track the status of buybacks throughout its business processes to provide additional management oversight of staffing and resources; track compliance with business goals; and improve customer service response times to members.	IA verified that OCERS has implemented automated work-in-process tracking within SharePoint. IA to verify the new Service Credit Purchase V3 Workflow once it has been implemented later this year.

Open Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Audit of the Benefit Setup Process (2012)		
Manual FAS override	Management agreed to the following recommendation: Subsequent changes made to FAS after the initial benefit setup process should require a supervisory approval prior to making an override in the system. Additionally, management should use a system-generated report from V3 that lists all manual overrides to identify all such changes made in the system. Management should review and sign off on each manual override on that report for propriety and accuracy to mitigate the risk of unauthorized or incorrect amounts being entered in the system.	IA to confirm action plan has been implemented in Q3 2019 and to perform testing in Q4 2019
Manual FAS supporting documentation	Management agreed to the following recommendation: All manual overrides to data should be fully documented with the staff that made the change, date the change was made, prior amount, revised amount, and reason for the change with supervisory approval documented in V3 in accordance with the current method of maintaining supporting documentation for benefits calculation. Member Services personnel are required to document V3 via note for any member file that requires a manual override.	IA to confirm action plan has been implemented in Q3 2019 and to perform testing in Q4 2019
FAS audit trail	Management agreed to the following recommendation: We recommend that the new pension administration system (V3) include an audit trail within the system for manual override and other changes made to records. There should be a better audit trail in the new pension administration system to account for changes made in the system instead of relying only on records scanned into LibertyNET or similar imaging software for an explanation.	IA to confirm action plan has been implemented in Q3 2019 and to perform testing in Q4 2019

Open Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Audit of the V3 Benefit Setup Process (2016)		
Use of 2,088 hours for benefit calculation	Management will follow up with staff regarding the applicability of 2,088 to all retiring members and will review all benefits established in V3 to ensure the appropriate salary was used regardless of status. The part-time member's benefit identified by Internal Audit as being incorrect will be recalculated to reflect the salary associated to 2,088 hours.	IA to test implemented action plan.
V3 workflow process	The workflow module in V3 was an area that contained defects when we went live with the new system which prevented effective use. The majority of the defects have been addressed and staff is utilizing the workflows as part of their daily operations. However, we have found that a workflow can be completed without all of the steps being marked individually and as a result additional modifications to the overall configuration are being discussed. Management will work with staff to ensure that proper use of the workflow is being followed for all benefit setups. In addition, we will review the workflow steps as currently configured and make enhancements as needed to ensure all critical steps in the process are appropriated captured.	IA to test implemented action plan.
Disability Payment Audit (2018)		
Disability payment calculation	<p>Member Services will be continuing to review with increased diligence or newly implementing to ensure accuracy of Disability benefits that are setup:</p> <ul style="list-style-type: none"> • Ensure that all disability benefits are peer audited (FAS calc) before benefit setup, including disability recalculations (from Service Retirement to SCD, Service Retirement to NSCD, NSCD to SCD) • Verify selected data points on the "New Benefit Setup Validation Report" (which will contain a subset of 16 reports – expected to be ready by Q3 2019) • Additional training will be provided to the RPS assigned to the disability department (this was a new position in 2018). These types of benefits are more specialized than regular retirement setups, and the Disability RPS will be trained to look for specific factors that affect the benefit, such as gaps in service, measuring period compression, manual calculations of FAS, recalculation issues. 	IA to confirm action plan has been implemented in Q4 2019 and to perform testing in Q1 2020

Open Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Investment Department		
Audit of OCERS' Private Equity Managers Abbott Capital and Pantheon (2016)		
Consideration of ILPA best practices	<p>OCERS should implement Institute of Limited Partners Association (ILPA) best practices in LPAs with direct investment private equity funds if OCERS goes into direct private equity program. In considering whether OCERS should adopt a direct private equity program, OCERS' Investments management should consider the cost of implementing the ILPA best practices.</p> <p>OCERS investment staff will first work with our private equity fund of funds managers to monitor their use of ILPA guidelines and best practices, as we further our own internal education about these evolving standards.</p>	Internal Audit to follow-up during the Investment Consulting Engagement
Audit of OCERS' Due Diligence Process (2015)		
No Due Diligence Policy	<p>Management has agreed to the recommendation: The CIO and his staff should create written procedures that specifically document the steps necessary to conduct adequate due diligence.</p> <p>We concur with the recommendation that written procedures are desirable, and staff is working on the development of a document that would fulfill this objective.</p>	Internal Audit to follow-up during the Investment Consulting Engagement
Operational Due Diligence	<p>Management has agreed to the recommendation: For non-traditional pension fund managers that have not undergone an operational due diligence review from the OCERS' investment consultants, OCERS should consider the following on a case-by-case basis or at the CIO's discretion. A criteria or threshold (e.g., a dollar amount of an investment) should be set by the CIO to trigger when such a review will occur.</p> <p>Management agrees that a "deeper dive" could be appropriate for certain non-traditional managers, but only if a majority of the Board considers such measures to be necessary, cost-beneficial or justifiable on a risk-vs-cost basis. Cost-sharing strategies and outsourcing-versus-internal capacity should be explored and considered, along with a prioritization protocol.</p>	Internal Audit to follow-up during the Investment Consulting Engagement

Open Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Due diligence for RFP managers	<p>Management has agreed to the recommendation: For RFP-sourced managers, there should be consistent narrative due diligence reporting provided to the Investment Committee. Investments should consider using a checklist to make sure all documents are included for the Investment Committee to consider. We agree that our written procedures and future practices should include routine reporting of internal due diligence when the RFP channel is deployed for manager selection. The Director of Investment Operations has already included this step in the working draft of written procedures we are formulating and refining.</p>	Internal Audit to follow-up during the Investment Consulting Engagement
Manager RFP standardized questioning	<p>Management has agreed to the recommendation: Future RFP questionnaires should include interrogatories regarding a manager’s operational infrastructure and negative findings disclosed from their annual external audit. We agree that future RFPs should include standard (first-stage or second stage) provisions and questions that are relatively uniform regarding due diligence, operations, and related legal, regulatory and compliance risks. The cited incident was an oversight that need not recur. Written procedures and a process to review those routinely will be helpful to assure consistency.</p>	Internal Audit to follow-up during the Investment Consulting Engagement
Consultant due diligence documentation	<p>Management has agreed to the recommendation: As part of its due diligence process, OCERS’ Investments staff should obtain and review NEPC’s Investment Due Diligence Research Report for all managers NEPC recommends to OCERS. We agree that consultant documentation or pertinent summaries of their due diligence should routinely and consistently be included in Committee materials when managers are presented, or subsequently as a validating consent agenda item if their work follows a provisional approval.</p>	Internal Audit to follow-up during the Investment Consulting Engagement

Open Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Review of OCERS' Derivatives Investments (2014)		
<p>Annual reporting of derivatives to the Investment Committee</p>	<p>Currently, the quarterly Derivatives Report provides information relating to the separately managed accounts. The commingled fund investments do not provide similar level of transparency, therefore the quarterly report does not include commingled funds data.</p> <p>The Investments staff has created a template (undergoing internal review) which could be used as a tool to receive information relating to derivatives directly from the investment managers. Such a disclosure and declaration is outside the norm, so it is difficult to predict how many or if the investment managers will comply. As soon as the template is finalized, staff will send it out to gather responses from the various investment managers. Our current expectation is that OCERS will not be able to impose periodic reporting requirements of our own on certain managers, and that in some if not most cases, we will be compelled to accept data as it can be provided by them on their annual cycles. Efforts will be made to achieve more-frequent reporting, but at this time there can be no assurance that such efforts will be successful.</p> <p>The Investment Policy Statement, approved at the 6/25/14 Investment Committee meeting, was amended in part to include the following: "The compliance report for separate account managers will be reviewed with the Investment Committee on a quarterly basis. The CIO shall report to the Committee annually on the staff and consultants' surveillance of diversification and risk controls associated with [derivatives]."</p>	<p>Internal Audit to follow-up during the Investment Consulting Engagement</p>

Open Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Counterparty risk reporting	<p>Management has agreed to the recommendation: Counterparty risk, the risk that a financial institution will not honor the terms of a derivative contract due to poor financial health, is a key risk for derivatives.</p> <p>The Board is not getting complete information on the counterparty risks of all investment managers. Because many of OCERS' investment managers use the same institutions as counterparties, if a counterparty fails, it would affect several investment managers in the OCERS' portfolio simultaneously. Therefore, reporting on total counterparty risk to OCERS would be useful for accessing a concentration of risk with a single counterparty.</p> <p>OCERS' custodian bank, State Street, provides data on investment holdings and counterparty holdings that can be used to create a compilation of counterparties in the OCERS portfolio, though this will only include the OCERS' separately managed accounts.</p> <p>OCERS should request that State Street on a quarterly basis provide a report listing derivatives holdings by counterparty with amounts of currency forward contracts, swaps, and total fair value. The report should also include a credit rating agency's rating.</p> <p>This report should be included with the derivatives report to the Investment Committee.</p>	Internal Audit to follow-up during the Investment Consulting Engagement
Information Technology		
Audit of Orange County Fire Authority (2018)		
V3 contribution rate configurations SOD	<p>Management agreed to the following recommendation: OCERS' management should re-assign the duties of configuring updated rates in V3 from OCERS' Director of IT to the appropriate personnel for cross-training, process documentation, and backup purposes.</p> <p>The revised process will encompass multiple departments, and will segregate duties related to preparing the rate schedules, data input into V3 and verification/audit of contribution rates.</p>	Internal Audit has spoken with management about this action plan and will verify when duties are transitioned in time for the 2019 annual rate change in V3. ETA mid-2019.

Open Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Employer and Employee Contributions Accounting Audit (2019)		
<p>A formal periodic review of proper user access to OCERS applications and network is not documented by the appropriate members of the business.</p>	<p>Per IT Governance and Information Security action items to address Center for Internet Security (CIS) Control 16: Account Monitoring and Control, OCERS IT and the Executive management team are establishing the following:</p> <ol style="list-style-type: none"> 1. Develop Account Management and Access Control Policies. 2. Create an annual User Account review process and supporting documentation. 3. Setup means for staff to review and enter data in SharePoint with associated workflow to complete and track reviews initiated with IT managed systems. 	<p>IA to test in August 2019 when MAP is complete.</p>
Plan Sponsors		
Audit of City of San Juan Capistrano Payroll Transmittals (2017)		
<p>Manual transmittal file adjustments</p>	<p>Management agreed to the following recommendation: San Juan Capistrano should consider the costs and benefits of adjusting GEMS or making manual adjustments to the transmittal file to continue reporting to OCERS pay records, including zero contributions, for employees who have reached the IRS rule 401 (a) limit.</p> <p>San Juan Capistrano will submit manual payroll adjustments into V3 that contain the payroll records required by OCERS for every subsequent pay period until year-end.</p>	<p>Internal Audit to follow-up with plan sponsor</p>
<p>Contribution basis dates</p>	<p>San Juan Capistrano's V3 transmittal file should reflect the correct reciprocal start date or the correct enrollment date with OCERS in the transmittal file field labeled "Reported Contribution Basis Date" in order to prevent these payroll exceptions from occurring again in V3.</p> <p>San Juan Capistrano concurs with this recommendation, which has been addressed based on information provided by OCERS' Member Services to SJC's Payroll Accountant.</p>	<p>Internal Audit to follow-up with plan sponsor</p>

Open Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Earnable salary records	San Juan Capistrano will submit manual payroll adjustments into V3 that contain earnable salary payroll records required by OCERS during each pay period that the employee is out on leave of absence.	Internal Audit to follow-up with plan sponsor
Audit of Orange County Superior Court Payroll Transmittal (2018)		
Independent contractor status complies with IRS rules	Superior Court to review independent contractors working for court reporting services, court language services and court technology to determine if their independent contractor status complies with IRS rules defined for independent contractors.	Internal Audit has spoken with management about this action plan and will verify when policies are updated, 3Q 2019.

Verified Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Member Services		
Audit of the Benefit Setup Process (2012)		
Benefit setup checklist	A check list that contains all of the required forms and documents necessary for each type of benefit setup will be created and scanned into LibertyNET until we have fully implemented V3. We have configured several workflows in V3 which will act as an electronic check list to ensure that all required documents are not only received but verified and audited by supervisors.	IA has verified the use of a workflow process in V3 in V3 benefit setup audits performed after V3 go-live in December 2014.
Update written procedures	Member Services has agreed to revise its written procedures to explicitly state the reviewer's practice of signing and dating the spreadsheet template to indicate approval of the FAS calculation. Management recently updated to include this recommendation. However, at the time of the audit it was pending final manager sign off.	IA has verified the signature requirement process with benefit setup audits performed after the V3 go-live date in December 2014.
Automation with V3 system	Every attempt is being done to incorporate as many of the manual processes into V3 as possible so the application is automated.	IA has verified the implementation of automated process in V3 that were previously manual within PensionGold. Processes related to reciprocity, service credit purchases, interest postings, domestic relations orders, and initial FAS calculations were tested.

Verified Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Audit of OCERS' Reciprocity Process (2017)		
Member educational efforts	<p>Consideration will be given to the following: OCERS should take additional steps to educate members of the benefits of reciprocity and the importance of timely notifying OCERS of previous public service. OCERS' welcome letters to new members could also include existing pamphlets describing the benefits of reciprocity. Furthermore, OCERS should inquire with the County if it would allow OCERS to present the benefits of reciprocity during the County's lunch time seminars available to County staff. In addition, staff should use the OCERS' At Your Service newsletter, the County Connection magazine, and other sources of communications with members to publicize the need for members to notify OCERS early about their eligibility for reciprocity. Member Services will work with Legal on the following: OCERS should consider recognizing a member's reciprocity only on a go-forward basis from the date of the member's reciprocity request, after confirming eligibility with the reciprocal system.</p>	<p>IA verified that quarterly newsletters to OCERS membership discussed the benefits of establishing reciprocity with other systems as well as the steps necessary to establish reciprocity. IA verified that OCERS has put in place a self-certification process to recognize reciprocity on a go-forward basis pending verification with the reciprocal system.</p>

Verified Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Member educational efforts	<p>Consideration will be given to the following: OCERS should take additional steps to educate members of the benefits of reciprocity and the importance of timely notifying OCERS of previous public service. OCERS' welcome letters to new members could also include existing pamphlets describing the benefits of reciprocity. Furthermore, OCERS should inquire with the County if it would allow OCERS to present the benefits of reciprocity during the County's lunch time seminars available to County staff. In addition, staff should use the OCERS' At Your Service newsletter, the County Connection magazine, and other sources of communications with members to publicize the need for members to notify OCERS early about their eligibility for reciprocity. OCERS Welcome Letter is intended to direct the new member to the website where Summary Plan Descriptions (SPD) containing a comprehensive amount of information regarding their OCERS benefits can be accessed.</p> <p>Member Services will work with Legal on the following: OCERS should consider recognizing a member's reciprocity only on a go-forward basis from the date of the member's reciprocity request, after confirming eligibility with the reciprocal system. This would eliminate the need for Member Services to recalculate contributions for pay periods prior to the member's request and free up Member Services' staff time for</p>	<p>IA verified that quarterly newsletters to OCERS membership discussed the benefits of establishing reciprocity with other systems as well as the steps necessary to establish reciprocity.</p> <p>IA verified that OCERS has put in place a self-certification process to recognize reciprocity on a go-forward basis pending verification with the reciprocal system.</p>
Calculation of OCFA reciprocity refunds	<p>Management agreed to the following recommendation: Member Services staff should be trained, with the assistance of OCFA payroll personnel, in how OCFA calculates reciprocity refunds so that Member Services can add its own secondary review process over OCFA reciprocity refunds. Management has been in contact with the payroll team at OCFA and we have taken steps to reinstate the review process.</p>	<p>IA verified that OCERS Member Services is now calculating OCFA's reciprocity refund calculations. The calculations are reviewed by management.</p>
Write off	<p>Management agreed to the following recommendation: Member Services should write off the \$36 due to immateriality or attempt to recover the \$36 overpayment from the member.</p>	<p>IA verified that Member Services has written off the amount as per OCERS Write-Off policy.</p>
Audit of OCERS' Service Credit Purchase Process (2016)		
Reconfigure V3 data entry sheet	<p>Management agreed to investigate the costs versus benefits of reconfiguring V3's SCP datasheet for faster data entry.</p>	<p>IA verified that OCERS has implemented an automated data entry process for SCP calculations.</p>

Verified Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Audit of City of San Juan Capistrano Payroll Transmittals (2017)		
Incorrect age of entry	Member Services will notify the member that there was an error in the contribution basis date used to collect contributions since their date of entry. Member Services will update V3 accordingly and finalize the calculation of contributions due from the member plus interest. OCERS staff will offer the member a payment plan pursuant to our standard process and work with SJC to establish the collection via payroll deductions from the member's biweekly paycheck.	IA verified that the Member Services communicated the age of entry error to the member and that the member repaid undercollected contributions via payroll adjustments.
Audit of Orange County Transportations Authority (2018)		
Contributions on PTO cashouts	<p>OCERS is in the process of reviewing and evaluating all pay items in order to categorize and document in policy each item of compensation earnable for Legacy members and pensionable compensation for PEPRAs members. OCERS intends to present this policy to the OCERS Board for review and approval by 1st quarter of 2019.</p> <p>The majority of OCERS' plan sponsors do not apply the contribution rates to cashouts (as does OCTA); instead, they rely on the actuarial cash out assumption (Load Factor) to pay for the actuarial cost of adding vacation pay and sick pay to a Legacy member's FAS calculation upon retirement. OCERS believes this is the better approach and will incorporate this in the new policy in order to have consistency among all plan sponsors. In addition to the new policy, by 1st quarter of 2019, OCERS intends to distribute a circular letter to all plan sponsors informing them of this approach to not collect contributions on these cashouts.</p>	Internal Audit confirmed the circular letters have been posted to the OCERS website.
Audit of Orange County Superior Court Payroll Transmittal (2018)		
Member Affidavit	Beginning in 4th quarter 2018, OCERS' Member Services will run a recently updated V3 report ("Missing Member Affidavit" report) that flags any member account without the Member Affidavit document type. OCERS' Member Services' Payroll Transmittal Team will monitor this quarterly report and contact plan sponsors to request a completed Member Affidavit for any members flagged in the above report.	Confirmed missing Member Affidavit was received and Member Services has scheduled the Missing Member Affidavit to be run on a monthly basis.

Verified Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Audit of Orange County Fire Authority (2018)		
Contributions - Vacation Excess Pay	<p>Management agreed to the following recommendation: On a go-forward basis, OCERS should now require that OCFA and its Legacy employees pay employer and employee contributions on the "Vacation Excess" pensionable pay item on a bi-weekly basis. This would also require OCERS to reconfigure the "Vacation Excess" pay item in V3 to expect bi-weekly contributions from OCFA via the bi-weekly payroll transmittal process.</p> <p>OCERS management agrees that any pensionable pay item should be reported biweekly and subject to employer and employee contributions. This would include "Vacation Excess" for Legacy members employed at OCFA. OCERS is in the process of reviewing the pay of all Plan Sponsors so that OCERS' management can ensure accurate reporting on a biweekly basis as well as consistency across the organization.</p>	Internal Audit confirmed OCERS management sent a memo to OCFA on the Vacation Excess contributions and that V3 was configured to address the bi-weekly contributions
Contributions - On Call Pay	<p>Management agreed to the following recommendation: On a go-forward basis, OCERS should now require that OCFA report "On Call" pay to Legacy members as a pensionable pay item in its automated bi-weekly payroll transmittals and that OCFA and its employees pay both employer and Legacy employee contributions on a bi-weekly basis.</p> <p>OCERS management agrees that any pensionable pay item should be reported biweekly and subject to employer and employee contributions. This would include "On Call" pay for Legacy members employed at OCFA. OCERS is in the process of reviewing the pay of all Plan Sponsors so that OCERS' management can ensure accurate reporting on a biweekly basis as well as consistency across the organization.</p>	Internal Audit confirmed OCERS management sent a memo to OCFA on the On Call contributions

Verified Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Finance		
Audit of OCERS' Bank Wire and ACH Transfer Process (2016)		
Finance review of new manager funding	<p>Management agreed to the following recommendation: Before sending a written wire request to State Street to fund a new manager or rebalance the investment portfolio, the Investments Divisions should also obtain approval from authorized initiators within the Finance Division. The Finance Division should review the wire transfer request letter prepared by the Investments Division against the money manager's wire instructions or funding agreement.</p> <p>Management concurs that the Finance Department should review wire transfer request letters prepared by the Investment Department and compare against the investment manager's wire instructions or funding agreement for transactions related to initial funding of investments and portfolio rebalancing transfers.</p>	Internal audit confirmed Finance is following proposed audit report resolution response as noted via email with appropriate attachments and inclusion of both Finance and Investments in confirmation email.
Verification call backs on all wire transfer amounts	<p>Management agreed to the following recommendation: Finance Division should instruct State Street to telephone OCERS' authorized verifiers to verify wire transfer request letters for amounts under \$100,000.</p> <p>Management concurs that all wires should be verified regardless of amount.</p> <p>State Street has a standard limit where call backs are not completed on wires under \$100,000. OCERS' Client Service Representative at State Street is looking into whether the limit can be removed and call backs placed on all wires.</p>	IA verified that under the new eCFM (State Street's web-based wire transfer system) that transfer amounts under \$100,000 require dual approval.
Timely review of bank account reconciliations	<p>Management agreed to the following recommendation: In addition to the daily reconciliations of online bank activity, the Finance Division should perform monthly bank reconciliations ideally within 30 days after month-end.</p> <p>Management concurs that bank reconciliations should be performed and reviewed on a timely basis.</p>	IA verified that the monthly Wells Fargo bank reconciliation is being performed in a timely manner.

Verified Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
System limits for wire transfer amount authorizations	Management agreed to the following recommendation: Management should consider decreasing the cumulative dollar limit for daily wire transfers within CEO Portal® to appropriate business levels. Current monthly wire transfer activity is approximately \$5.2 million. Management concurs that the cumulative dollar limit for daily wire transfers can be reduced from its current limit of \$20 million to \$6 million.	Cumulative daily dollar limit for wire transfers has been reduced from \$20 million to \$6 million, and has been adjusted to \$8 million based on current activity.
Encryption of payroll file	Management agreed to the following recommendation: Management should consider encrypting the ACH file before uploading to Wells Fargo's CEO Portal® in order to add another layer of protection over payees' confidential banking information. Encrypted files intercepted by fraudsters are unreadable.	IA verified that the monthly payroll file is encrypted before it is sent to Wells Fargo bank.
Audit of OCERS' Practices and Procedures for the Recording and Reconciliation the Investments (2013)		
Automated journal voucher entries	Management agreed to the following recommendation: Finance should consider use of State Street's General Ledger Feed software or consider building a Microsoft Access database. We are in the process of working with State Street to implement an automated process for downloading the trial balances with a goal of completing this by year end. Manual JV preparation will continue until detailed research/analysis is successfully completed with regards to automation of the GL feed with State Street in 2013. Target Completion Date: December 31, 2013.	IA verified that Finance is no longer manually entering State Street trial balance information, but uploading a State Street spreadsheet file into the monthly Investment Journal Entry worksheet.
Update policy over manager statement reconciliations	Management agreed to the following recommendation: Finance should enforce timely due dates for when quarterly investment manager reconciliations are to be completed; the policy should be updated accordingly. Due date for the quarterly investment reconciliation between investment managers and State Street will be established to reflect 45-60 days after quarter-end. Policy will be updated to include the changes effective January 2013. Finance has prepared both the 1st quarter 2012 and 2nd quarter 2012 reconciliations and are pending review and approval by management. Target Completion Date: March 31, 2013.	IA verified that policy requires a reconciliation after Investment Managers Reports are collected from emailed statements and working trial balances are received from the State Street website. Private investment statements are often not available after the 45-60 day period.

Verified Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Update Finance manual for manager statement reconciliations	Management agreed to the following recommendation: Management should revise appropriate sections of the policy to reflect the current practice of performing quarterly, not monthly, reconciliations of investment manager statements and State Street trial balances.	IA verified that policy requires a reconciliation after Investment Managers Reports are collected from emailed statements and working trial balances are received from the State Street website. Private investment statements are often not available after the 45-60 day period.
Finance manager signoff for reconciliations	Management agreed to the following recommendation: Finance should revise its policy to require management signoff of the reconciliation of the general ledger to evidence review and approval. Furthermore, Finance should perform these reconciliations on a monthly basis to help ensure that reconciling items are resolved in a timely manner. The Trial Balance Reconciliation process and policy will be revised to include Management signoff requirement. The revised policy will also show that the reconciliation process will be performed on a monthly basis in 2013 and the worksheet will reflect the names of preparer, approver, and approval date. Target Completion Date: March 31, 2013.	IA verified that internal policy now requires a management signoff review of the monthly trial balance reconciliation for investment accounts.
Manager review of CIO Investment report reconciliation	Management agreed to the following recommendation: A supervisor should review and approve reconciliations of the CIO Investment Report. As evidence of review, the supervisor should sign and date the reconciliations, and note any discrepancies found. Finance policies and procedures should be updated accordingly. Current policy will be updated to include management signoff of the reconciliation. The reconciliation worksheet will reflect the names of preparer, approver, and approval date. Target Completion Date: December 31, 2012.	IA verified that policy requires management signoff on the reconciliation with the worksheet reflecting the names of the preparer, approver and approval date.
State Street bank - customer services issues	We believe management has addressed customer service issues with State Street custodian bank. We recommend that OCERS staff continue to monitor State Street's compliance with the action plan.	OCERS staff continues to monitor and address any issues/discrepancies in State Street reporting. This occurs through emails and periodic meetings between OCERS investments and finance staff and State Street staff. Annually, the review of the custodial relationship with State Street is presented to the Investment Committee.

Verified Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Audit of OCERS' Private Equity Managers Abbott Capital and Pantheon (2016)		
Estimated management fees	The Investments Division staff will coordinate with Finance to review the management fees for the 40 funds with OCERS' four private equity managers on a sampling or rotation basis. Finance concurs with this recommendation and will compare expected management fees provided by Investments to actual fees disclosed in the private equity managers' quarterly financial statements.	Management modified the approach with approval from the Board to use the annual Investment Fee Report prepared in accordance with the Board's Investment Fee Policy as the method by which OCERS' investment management costs are and will be tracked, reported and managed.
State Street reporting of manager fees	Management agreed to the following recommendation: OCERS' Finance should consult with State Street to ensure that State Street includes the management fees for Abbott Capital and Pantheon in the information for monthly journal entries provided to OCERS, since these fees are disclosed on the managers' quarterly investment statements. OCERS is currently working with State Street on the consistency of their reporting and directing them to capture all non-cash investment management fees in their custodial reports.	IA verified that Finance is reconciling fees noted on the manager statements are being captured in State Street journal entries.
CAFR fee disclosures	Management agreed to the following recommendation: OCERS' financial management should consider stating that the "Schedule of Investment Expenses" disclosure does not include underlying fund management fees and performance fees which are netted with investment returns. Finance will consider adding this disclosure in OCERS' 2015 CAFR as part of an overall review of all investment-related disclosures with its external auditors, Macias Gini & O'Connell LLP, and ensure that any changes in the disclosures are in compliance with GASB.	Disclosure has been added to the CAFR and confirmed by IA.

Verified Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Investment Department		
Review of OCERS' Derivatives Investments (2014)		
Use of derivatives policy	<p>OCERS should either follow the current investment policy and discontinue the practice of using derivatives for speculative purposes, or amend the Investment Policy Statement to follow the current practice.</p> <p>Staff has clarified the language on the derivatives within the Investment Policy Statement and the Investment Committee approved the changes at the 6/25/14 meeting.</p>	Internal Audit reviewed the minutes of the June 25, 2014 Investment Committee meeting and the updated Investment Policy Statement
Plan Sponsors		
Audit of Orange County Fire Authority (2018)		
Contributions - Vacation Excess Pay	<p>OCFA management agrees that pensionable pay items should be reported biweekly and subject to employee and employer contributions. OCFA staff provided the OCERS auditor with eight (8) correspondence dating back to 2005 from OCERS senior staff concurring with OCFA's practice of not paying retirement on vacation excess. The documents are included as an attachment to this audit report.</p> <p>While we would rather wait for OCERS completion of the comprehensive review of all OCFA's earnings as part of the 2018 OCERS Business Plan prior to implementing the change, we understand that this may not be complete until the end of the calendar year. Therefore, OCFA's planned implementation date for collection of employee and employer retirement contributions on vacation excess (for legacy members only) on a biweekly basis beginning pay period 16 that will be paid August 10, 2018.</p>	IA confirmed that OCFA and Legacy OCFA employees are paying contributions directly on VE (Vacation Excess) Pay.

Verified Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Contributions - On Call Pay	<p>OCFA management agrees that pensionable pay items should be reported biweekly and subject to employee and employer contributions. OCFA staff provided the OCERS auditor with various correspondence dating back to 2005 from OCERS senior staff concurring with OCFA's practice of not paying retirement on "On Call" pay.</p> <p>While we would rather wait for OCERS completion of the comprehensive review of all OCFA's earnings as part of the 2018 OCERS Business Plan prior to implementing the change, we understand that this may not be complete until the end of the calendar year. Therefore, OCFA's planned implementation date for collection of employee and employer retirement contributions on "On Call" (for Legacy members) on a biweekly basis beginning pay period 16 that will be paid August 10, 2018.</p> <p>A comprehensive review of all OCFA employees that have retired within the last three years determined that no retiree was eligible for additional compensation to be included in their Final Average Salary (FAS) as a result of "On Call" pay not being included in the final compensation calculation.</p>	<p>IA confirmed that both OCFA and Legacy OCFA employees are paying contributions directly on (On Call) Pay.</p>
OCFA's employer paid pickups of Legacy employee contributions	<p>OCFA agrees that this needs to be corrected, but not by a side letter. Effective pay period 21 (pay date 10/19/18) OCFA management corrected the OCFA payroll interface to the OCERS' V3 system to be consistent with the Firefighter MOU. Per CERL 31581.2 the employer paid pickup of employee contributions are to be considered vested with the employee.</p>	<p>Internal audit verified that OCFA employer paid pickups of employee contributions are properly classified as § 31581.2 pickups on the transmittal files.</p>

Verified Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Transition to OCFA Payroll Manager	As discussed and agreed to by OCERS Internal Auditor, this is not reflective of an internal control weakness for OCFA. The original intent of having both OCFA and OCERS staff maintain the spreadsheets was to prevent the errors that would occur due to either rounding differences or applying actuarial discounts differently. OCFA staff will take over the maintenance of the spreadsheets from OCERS Director of Technology. OCERS would need to ensure that the OCFA rates reflected in the rate spreadsheets provided by OCFA staff to OCERS are the same rates as those entered into the V3 system. The above transition from OCERS to OCFA took place beginning with Pay Period #14 in 2018.	Internal audit confirmed that maintenance of the spreadsheets has transitioned to OCFA's payroll manager.
Audit of Orange County Superior Court Payroll Transmittal (2018)		
CRR Pay Certification	Superior Court will implement a process in October 2018 by which Court Reporters receiving CRR pay must provide proof of active certification (such as proof of training transcripts over a three year period) within 90 days or have the CRR pay removed. Record of this will be placed in the employee's electronic personnel file. Additionally, a reminder in the Court's training system will be flagged on these employees to check for certification every 3 years.	IA confirmed a notification had been distributed noting the requirements for CRR pay and CRR documentation for court reporters has been recorded.
QRR Pay Certification	Superior Court will implement annually signed attestations beginning October 2018. Employees currently receiving QRR pay will need to complete the annual 45 day attestation within 90 days of the announcement to maintain the QRR pay. If no attestation is received, QRR pay will be removed for that employee. The Court will verify that at least 45 days of realtime court reporting services have been worked by the employee over the course of the last year.	IA confirmed a notification had been distributed noting the requirements for QRR pay and QRR documentation for court reporters has been recorded
OCERS' retirees independent contractor court reporters compliance with CERL and PEPRA 960 hour rule limit	Superior Court will monitor hours worked for all retired independent contractor court reporters to ensure they do not work more than 960 hours in a fiscal year. A new report has been established through Superior Court's RITS tracking system and will be monitored monthly. Current retired independent contractors who have already worked more than 960 hours in the current fiscal year will not work hours until the next fiscal year.	IA confirmed Superior Court is monitoring the hourly limit for retired members and the retired members have not exceeded 960 hours.

Verified Management Action Plans

Finding Title	Management Response	IA Follow-Up Summary
Member Affidavit	<p>Superior Court Human Resources was able to obtain a new OCERS member affidavit from employee and submitted it to OCERS on 4/11/18. OCERS acknowledged receipt of the member affidavit on 4/18/18. A scanned copy has been placed in the employee's electronic personnel file. The employee did not remember signing an affidavit when first hired.</p>	<p>Confirmed missing Member Affidavit was received and Member Services has scheduled the Missing Member Affidavit to be run on a monthly basis.</p>
Employees On-Leave Status	<p>Orange County Superior Court currently uses the CAPS+ system that is administered by Orange County Auditor Controller. The current CAPS+ system has known limitations for employees in an "O" (unpaid leave) status. These employees are not included on the regular transmittal file to OCERS and thus no earnable record is generated. They do appear on the missing member report from OCERS</p> <p>Auditor Controller is working on a long-term solution for "O" status employees to still appear on the OCERS transmittal file. There is no current timeline for implementation.</p> <p>However, in the meantime, Superior Court's human resources staff will create updated employment records indicating a "Leave of Absence" in V3 for the above employees. Also, on a go-forward basis Superior Court's human resources staff will perform the same step in V3 for each employee who becomes classified with the above "O" status in CAPS+. This will allow OCERS personnel to more easily identify the reason for gaps in earnable salary records until the point in time when Auditor-Controller can correct the above CAPS+ limitations.</p>	<p>Internal Audit and management agreed that currently existing controls are sufficient to address the risk of missing pay periods.</p> <p>Internal Audit verified in V3 the automated messages that help the retirement specialist identify potential missing pay periods when retiring a member.</p>

A-6

Memorandum

DATE: June 6, 2019
TO: Members of the Audit Committee
FROM: David Kim, Director of Internal Audit
SUBJECT: HOTLINE UPDATE

Recommendation

Receive and file.

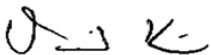
Background/Discussion

Internal Audit regularly updates the Audit Committee when new reports are made to the hotline.

Internal Audit received three reports from the hotline:

- March 28, 2019 – anonymous complaint regarding a member that was returning to work shortly after retiring from an appointed position, violating the six month break in service requirement. Upon review of supporting documentation and confirmation with the County of Orange, Internal Audit confirmed the member in question had not returned to work.
- April 29, 2019 – a complaint was made questioning the disability status of a public safety officer participating in a volunteer activity. Our review noted that due to his age, OCERS is not allowed by CERL (31729) to require any further examinations and, as he is engaged in volunteer activity, he is within his rights to do so.
- May 4, 2019 – a complaint was made regarding the eligibility of a specialty pay item of an OCFA member. OCERS Internal Audit is coordinating with OCFA on the investigation of this claim.

Submitted by:



David Kim
Director of Internal Audit

I-1

Memorandum

DATE: June 6, 2019
TO: Members of the Audit Committee
FROM: David Kim, Director of Internal Audit
SUBJECT: STATUS OF 2019 INTERNAL AUDIT PLAN

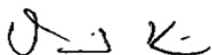
Written Report

Background/Discussion

Following is a brief description of status of in-progress projects for the 2019 audit plan.

- **Benefits and Lump Sum Accounting:** Planning is underway with Finance Division. The objective of the audit is to review Finance Division controls that ensure the recording of benefit payments to the GL are complete, accurate and timely.
- **IT Audit Program:** Walkthroughs with the IT Division and co-sourced IT Auditor are underway. The consultant will develop the Information Technology Risk Assessment and long term IT Audit Program plus test OCERS' IT General Controls under the direction of Internal Audit.
- **Management's Risk and Control Matrices:** Internal Audit is continuing to work with management to update management's inventory of key business objectives, associated risks, and management's controls to mitigate these risks.
- **Business Continuity and Disaster Recovery:** Planning has begun with management. The objective of the audit is to review the controls over the business continuity and disaster recovery process.
- **Management Action Plan Verification:** Ongoing review of prior action plans to confirm completion and perform testing of the action plans.
- **Annual Plan Sponsor Report:** Compiling data from various plan sponsors (CAFRs and budget reports) and received guidance from OCERS CEO on presentation of the report.
- **Investment Consulting Project:** Planning is underway, entrance meeting held with Investment Department to discuss agreed upon procedures.
- **Continuous Improvement Program:** Ongoing monitoring of submissions and system maintenance.

Submitted by:



David Kim
Director of Internal Auditor

I-2

Memorandum

DATE: June 6, 2019
TO: Members of the Audit Committee
FROM: David Kim, Director of Internal Audit
SUBJECT: TRAVEL REPORT – PROFESSIONAL VISIT TO LACERA

Background

Annually, all members of the Executive Management Team are required to visit a peer pension system to collaborate, share and learn best practices.

On March 19, 2019, David Kim and Mark Adviento visited the offices of the Los Angeles County Employees Retirement System (LACERA).

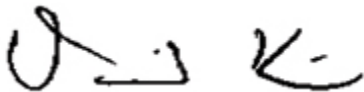
The total cost for the trip as follows:

- Transportation - \$39.00

Meeting Summary

Richard Bendall, LACERA Chief, Internal Audit and Leisha Collins, Principal Internal Auditor, hosted David and Mark at the LACERA office. The items discussed were audit reporting, management action plan follow-up, audit and risk assessment methodologies, audit scoping for a business continuity and disaster recovery audit, interactions with external auditors and plan sponsors outside of scheduled audits, and reference checking a LACERA vendor that was also a finalist for OCERS' IT Auditing services RFP. In particular of interest was the distribution of the draft audit reports to members of the Audit Committee to garner questions or comments prior to the Audit Committee meeting. Additionally, our discussion on the business continuity and disaster recovery audit provided insightful testing elements for consideration during our audit planning. The meeting lasted approximately three hours and we had agreed to continue sharing best practices between the two teams.

Submitted by:



David Kim
Director of Internal Audit