

**MCERA INVESTMENT RETIREMENT BOARD AGENDA  
THURSDAY, JANUARY 24, 2019  
MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
3199 M STREET, MERCED, CA 95348**

**Please turn your cell phone or other electronic device to non-audible mode and please refrain from using them during the Board meeting.**

**CALL TO ORDER: 8:15 A.M.**

- ROLL CALL.
- APPROVAL OF MINUTES – January 10, 2019.

**PUBLIC COMMENT**

Members of the public may comment on any item under the Board's jurisdiction. Matters presented under this item will not be discussed or acted upon by the Board at this time. For agenda items, the public may make comments at the time the item comes up for Board consideration. Persons addressing the Board will be limited to a maximum of five (5) minutes in total. Please state your name for the record.

**CLOSED SESSION**

As provided in the Ralph M. Brown Act, Government Code sections 54950 et seq., the Board may meet in closed session with members of its staff, county employees and its attorneys. These sessions are not open to the public and may not be attended by members of the public. The matters the Board will meet on in closed session are identified below. Any public reports of action taken in the closed session will be made in accordance with Government Code sections 54957.1.

**(1) DISCUSSION AND POSSIBLE ACTION REGARDING INVESTMENTS IN RECOMMENDED FUNDS, ROLL CALL VOTE REQUIRED.**

(Govt. Code § 54956.81)

1. Discussion and possible adoption of buying and selling two funds recommendation(s) – Meketa.
2. Discussion and possible adoption of private equity fund(s) recommendation(s) – Cliffwater.

**RETURN TO OPEN SESSION**

Report on any action taken in closed session.

**BOARD ACTION<sup>1</sup>/DISCUSSION**

Pursuant to Govt. Code § 31594 and MCERA's Investment Objectives & Policy Statement due diligence analysis requirement:

1. Presentation and possible action of Quarterly Investment Performance Report for the period ending September 30, 2018 – Cliffwater.

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<sup>1</sup> "Action" means that the Board may dispose of any item by any action, including but not limited to the following acts: approve, disapprove, authorize, modify, defer, table, take no action, or receive and file.

2. Presentation and possible action of the Quarterly and 2019 Monthly Investment Performance Report with possible board action on any funds – Meketa.
3. Presentation and possible action to adopt the June 30, 2018 Annual Valuation Report for MCERA with rates effective July 1, 2019 – Cheiron.
4. Presentation and possible action on the Monthly and Quarterly Budget Report for the quarter ending December 31, 2018 - Staff.
5. Review calendar of any training sessions and authorize expenditures for Trustees and Plan Administrator. Pursuant to Govt. Code § 31522.8 and MCERA's Trustees Education and Training Policy requirements. Examples of upcoming training and educational sessions:
  - a. Dimensional Fund Advisors Luncheon, February 28, 2019, San Francisco, CA.
  - b. CALAPRS General Assembly, March 2–5, 2019, Monterey, CA.
  - c. Advanced Principles of Pension Management for Trustees, March 27–29, 2019, Los Angeles, CA.
  - d. Pension Bridge Annual Conference, April 9-10, 2019, San Francisco, CA.
  - e. SACRS Spring Conference, May 7-10, 2019, Squaw Valley, CA.
  - f. NCPERS Annual Conference, May 19-22, 2019, Austin, TX.
  - g. Principles of Pension Management for Trustees, August 26-29, 2019 Malibu, CA.
  - h. SACRS Fall Conference, November 12-15, 2019, Monterey, CA.

## **INFORMATION ONLY**

### **MCERA Upcoming Board Meetings:**

Please note: The MCERA Board Meeting and/or Education Day times and dates may be changed in accordance with the Ralph M. Brown Act by the MCERA Board as required.

- February 14, 2019
- February 28, 2019
- March 14, 2019

## **ADJOURNMENT**

All supporting documentation is available for public review in the office of the Merced County Employees' Retirement Association, 3199 M Street, Merced, California, 95348 during regular business hours, 8:00 a.m. – 5:00 p.m., Monday through Friday.

**The agenda is available online at [www.co.merced.ca.us/retirement](http://www.co.merced.ca.us/retirement)**

Any material related to an item on this Agenda submitted to the Merced County Employees' Retirement Association, after distribution of the Agenda packet is available for public inspection in the office of the Merced County Employees' Retirement Association.

Persons who require accommodation for a disability in order to review an agenda, or to participate in a meeting of the Merced County Employees' Retirement Association per the American Disabilities Act (ADA), may obtain assistance by requesting such accommodation in writing addressed to Merced County Employees' Association, 3199 M Street, Merced, CA 95348 or telephonically by calling (209) 726-2724. Any such request for accommodation should be made at least 48 hours prior to the scheduled meeting for which assistance is requested.

**MCERA RETIREMENT BOARD MEETING MINUTES  
THURSDAY, JANUARY 10, 2019  
MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
3199 M STREET, MERCED, CA 95348**

**ROLL CALL: 8:15 A.M.**

**Board Members Present:** Darlene Ingersoll, Karen Adams (arrived at 8:19 am), David Ness (arrived at 8:27 am), Al Peterson (arrived at 8:19 am), Janey Cabral, Ryan Paskin, Michael Rhodes, Jason Goins, Samuel Spangler. **Counsel:** Forrest Hansen. **Staff:** Kristie Santos, Angelo Lamas, Mark Harman, Michelle Lee, Sheri Villagrana and Brenda Mojica.

**Absent:** Sandy Teague (resigned effective 1/10/2019).

**APPROVAL OF MINUTES: December 13, 2018.**

**Motion to approve the December 13, 2018 meeting minutes.**

**Goins/Cabral U/A (5-0).**

**PUBLIC COMMENT**

No public comment.

**CLOSED SESSION**

The meeting went into closed session.

**RETURN TO OPEN SESSION**

***Reorder of items.***

**(1) DISCUSSION AND POSSIBLE ACTION REGARDING THREAT TO PUBLIC SERVICES OR FACILITIES**

(Govt. Code § 54957)

Presentation of Confidential Audit findings - Brown Armstrong.

**No action taken.**

**(2) DISABILITY RETIREMENT APPLICATIONS: PERSONNEL EXCEPTION**

Disability update and possible action:

**No action taken.**

**(3) PUBLIC EMPLOYEE ANNUAL PERFORMANCE EVALUATION**

(Govt. Code § 54957)

Title: Retirement Plan Administrator.

**No action taken.**

**CONSENT CALENDAR**

**RETIREMENTS:**

All items of earnable compensation for service or disability retirements listed below are in compliance with the pay code schedule approved by the Board of Retirement. The retirement is authorized; however, administrative adjustments may be necessary to alter the amount due to: audit, late arrival of data, court order, etc.

a. Martin, Angela	D.A.	24 Yrs. Svc.	Eff. 12/22/2018
b. Pace, Mark	Sheriff	22 Yrs. Svc.	Eff. 12/24/2018
c. Barile, Paul	Sheriff	18 Yrs. Svc.	Eff. 12/28/2018
d. Park, Mary Lou	Planning	6 Yrs. Svc.	Eff. 12/03/2018
e. Dowhaniak, Susan	MCMC	15 Yrs. Svc.	Eff. 12/16/2018
f. O'Banion, Jerald	BOS	32 Yrs. Svc.	Eff. 01/07/2019
g. Berger, Richard	Public Defender	16 Yrs. Svc.	Eff. 01/05/2019
h. Wilkins, Sha'Ron	Library	18 Yrs. Svc.	Eff. 01/05/2019
i. Mason, Deborah	Probation	21 Yrs. Svc.	Eff. 01/05/2019
j. Morse, Larry	D.A.	26 Yrs. Svc.	Eff. 01/08/2019

Fiscal Years corrected in meeting to read as the following;

YTD fiscal year 2018/2019 retirees: 048

YTD fiscal year 2017/2018 retirees: 082

YTD fiscal year 2016/2017 retirees: 065

**REFUND OF SERVICE PURCHASE:** None.

**DEATH BENEFIT:** Chue Yang (in-service death).

**MONTHLY BUDGET REPORT:** Report will be available 1/24/2019.

**Motion to approve Consent Calendar.**

**Rhodes/Adams U/A (8-0).**

## **REGULAR CALENDAR**

### **BOARD ACTION<sup>1</sup>/DISCUSSION**

1. Discussion and possible action on MCERA Annual Audit and CAFR by Brown Armstrong – Andy Paulden & Colin Lo.

**Motion to accept the MCERA Annual Audit and CAFR as presented.**

**Ness/Rhodes U/A (8-0).**

2. Appointment of Ad Hoc Budget Committee for FY 2019/2020 to review draft budget - Chair. **Trustees Rhodes, Cabral and Goins appointed by Chair to the Ad Hoc Budget Committee for FY 2019/2020 to review draft budget and to work with staff.**
3. Review calendar of any training sessions and authorize expenditures for Trustees and Plan Administrator. Pursuant to Govt. Code § 31522.8 and MCERA's Trustees Education and Training Policy requirements. Examples of upcoming training and educational sessions:
  - a. NCPERS Legislative Conference, January 27-29, 2019, Washington DC.
  - b. CALAPRS Trustee Roundtable, February 1, 2019, Oakland, CA.
  - c. Dimensional Fund Advisors Luncheon, February 28, 2019, San Francisco, CA.
  - d. CALAPRS General Assembly, March 2–5, 2019, Monterey, CA.
  - e. Advanced Principles of Pension Management for Trustees, March 27–29, 2019, Los Angeles, CA.

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- f. Pension Bridge Annual Conference, April 9-10, 2019, San Francisco, CA.
- g. SACRS Spring Conference, May 7-10, 2019, Squaw Valley, CA.
- h. NCPERS Annual Conference & Exhibition, May 19-22, 2019, Austin, TX.
- i. Principles of Pension Management for Trustees, August 26-29, 2019 Malibu, CA.
- j. SACRS Fall Conference, November 12-15, 2019, Monterey, CA.

- **Approval for Trustee Cabral to attend CALAPRS General Assembly in Monterey, CA on March 2 – 5, 2019.**
- **Approval for Plan Administrator to attend NCPERS Legislative Conference in Washington, DC on January 27 - 29, 2019.**

**Paskin/Peterson U/A (8-0).**

### **INFORMATION ONLY**

Plan Administrator announced that staff has updated and posted trustee educational hours on the MCERA website. Trustees are encouraged to attend SACRS and CALAPRS events.

Plan Administrator informed the Board of a retiree overpayment error and Staff are in the process of resolving the issue. If more details are necessary, the item will be agendaized for further discussion.

### **ADJOURNMENT**

The meeting adjourned at 9:31 a.m.

Respectfully submitted,

\_\_\_\_\_  
Darlene Ingersoll, Chair

\_\_\_\_\_  
Al Peterson, Secretary

\_\_\_\_\_  
Date

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INVESTMENT ADVISORY SERVICES

Los Angeles • New York

Alternative Investment Performance  
Merced County Employees' Retirement Association

January 24, 2019

# MCERA Private Equity Capital Budget & Implementation Plan

## 15% fund level target

- Annual capital budget target of \$40 million, range of \$30-\$50 million
- Target 4-7 investments, range of \$5-\$15 million per inv; average size of \$8 million per

## Performance comparisons:

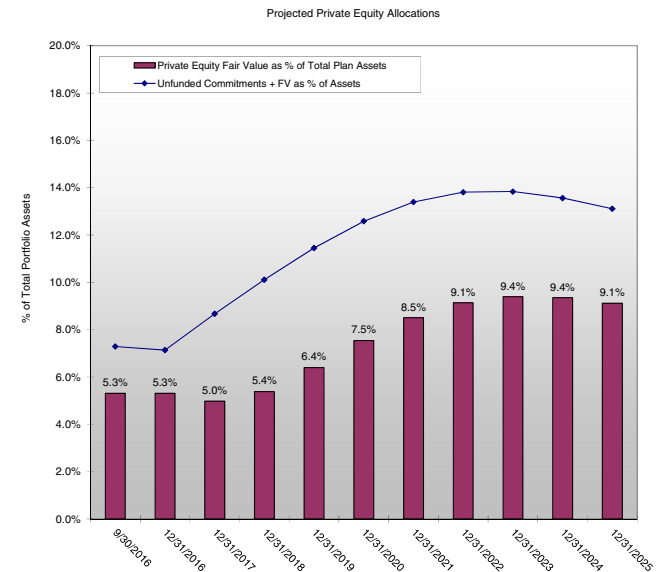
- *Long term investment objective:* Earn a return premium over public equity (Russell 3000 + 3%)
- *Recommended primary asset class benchmark:* Cambridge Associates Global Private Equity & VC Index
- *Recommended fund benchmarks:* Each fund will be compared to the Cambridge Associates strategy universe for the respective vintage years and each vintage year will be compared to Cambridge Associates Global Private Equity & VC Index

## MCERA CY 2017 commitments (\$5 mm each):

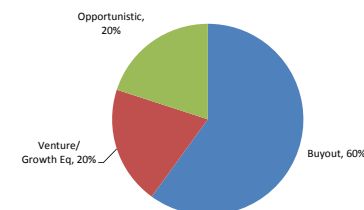
- DK Long Term Opps IV – distressed credit (VY 2018)
- GTCR XII – mid-market buyout (VY 2017)
- Carrick III – mid-market buyout (VY 2018)

## MCERA CY 2018 commitments (\$5 mm each):

- Cressey VI –healthcare services buyout (VY 2018)
- Accel-KKR Growth III– software growth equity (VY 2019)
- TCV X – venture capital (VY 2019)



## Target Strategy Diversification



	Target	Ranges
Buyout	60%	40-80%
Venture/Growth Eq	20%	10-30%
Opportunistic	20%	10-30%
	100%	

Note: MCERA's existing private equity portfolio was modeled using vintage year drawdown/return of capital assumptions patterned after historical category averages. Total fund growth of 5.5%.

# MCERA Private Equity Investment Structure & Portfolio Assessment

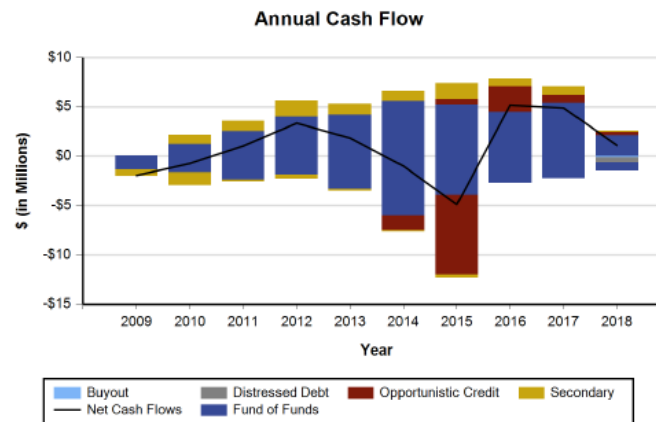
## Investment structure (9% fund target; 4.6% invested as of Jun 2018):

- Current portfolio is barbelled with half of commitments in 2007 & earlier FoFs and half in 2011 & later FoFs
  - Overall portfolio has not met performance expectations; 2011 & later portfolio is still in development with the funds in VY 2017 and 2018 beginning to invest
  - Quarterly performance improvement due to VY 2011 FoFs; net distributions over the past year as the older FoFs are distributing capital
  - Portfolio is diversified by strategy but overall it is in a negative cash flow situation

### Annual Summary

(in thousands)

	Total Partnerships	Total Commitments	(A) Contributions	(B) Distributions	(C) Fair Value	(B+C) Total Value	(B+C-A) Gain/ Loss	Net IRR	Benchmark
June 30, 2017	22	\$68,985	\$57,771	\$42,806	\$36,387	\$79,193	\$21,421	7.64%	10.24%
June 30, 2018	23	\$89,049	\$60,664	\$50,134	\$38,868	\$89,002	\$28,338	8.51%	10.90%
Annual Change	1	\$20,064	\$2,893	\$7,328	\$2,481	\$9,809	\$6,917		



Note: Net cash flow is the for the respective calendar year.



## MCERA Private Equity Performance – as of Jun 30, 2018

Partnership Name (\$000)	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/ Loss	Net IRR	IRR Bench.	TVPI
<b>Vintage Year 2004</b>												
Invesco Partnership Fund IV, L.P.	Fund of Funds	10,000	2,417	7,898	76%	14,344	2,295	16,639	8,741	12.09%	7.34%	2.11
Vintage Year 2004 Total		10,000	2,417	7,898	76%	14,344	2,295	16,639	8,741	12.09%	7.83%	2.11
<b>Vintage Year 2005</b>												
ASP 2005 Non-US Fund	Fund of Funds	1,500	74	1,426	95%	1,569	405	1,974	548	5.14%	5.73%	1.38
ASP 2005 US Fund	Fund of Funds	3,500	177	3,323	95%	4,044	1,018	5,063	1,739	6.85%	7.90%	1.52
Pantheon Ventures Euro Fund IV	Fund of Funds	1,169	56	1,278	95%	1,491	171	1,662	384	4.70%	5.73%	1.30
Pantheon Ventures USA Fund VI	Fund of Funds	3,750	206	3,544	95%	4,472	1,039	5,512	1,968	7.02%	7.90%	1.56
Vintage Year 2005 Total		9,919	513	9,571	95%	11,576	2,633	14,210	4,639	6.42%	7.44%	1.49
<b>Vintage Year 2006</b>												
Pantheon Global Secondary Fund III "B"	Secondary	10,000	540	9,460	95%	9,190	1,432	10,622	1,162	2.14%	N/A	1.12
Vintage Year 2006 Total		10,000	540	9,460	95%	9,190	1,432	10,622	1,162	2.14%	7.48%	1.12
<b>Vintage Year 2007</b>												
ASP 2007 Direct Fund	Fund of Funds	450	14	436	97%	635	338	973	537	11.88%	11.51%	2.23
ASP 2007 Non-US Fund	Fund of Funds	1,575	78	1,497	95%	1,371	908	2,279	782	7.97%	7.42%	1.52
ASP 2007 US Fund	Fund of Funds	2,475	115	2,360	95%	2,776	1,409	4,185	1,825	11.80%	11.51%	1.77
Vintage Year 2007 Total		4,500	207	4,293	95%	4,783	2,654	7,437	3,144	10.59%	9.21%	1.73
<b>Vintage Year 2011</b>												
ASP 2011 Direct Fund	Fund of Funds	500	44	456	91%	413	426	840	383	16.54%	16.28%	1.84
ASP 2011 Emerging Markets Fund	Fund of Funds	500	74	426	85%	121	564	685	259	13.67%	12.47%	1.61
ASP 2011 Non-US Developed Fund	Fund of Funds	1,500	322	1,178	79%	637	1,093	1,730	552	12.41%	12.47%	1.47
ASP 2011 US Fund	Fund of Funds	2,500	326	2,175	87%	1,049	2,290	3,339	1,164	14.35%	16.28%	1.54
Pantheon Asia Fund VI	Fund of Funds	1,000	226	775	77%	273	940	1,213	437	12.26%	12.47%	1.56
Pantheon Euro Fund VII	Fund of Funds	1,630	334	1,380	79%	603	1,368	1,971	591	10.01%	12.47%	1.43
Pantheon Ventures USA Fund IX	Fund of Funds	2,000	372	1,628	81%	644	1,906	2,549	921	12.88%	16.28%	1.57
Vintage Year 2011 Total		9,630	1,699	8,018	82%	3,740	8,586	12,326	4,308	12.91%	13.61%	1.48

Note: The benchmark represents the Cambridge Associates LLC median for the respective strategy and vintage year. At the vintage year level, the Cambridge Associates LLC Global Private Equity & VC ® median is used for the respective vintage year.

## MCERA Private Equity Performance – as of Jun 30, 2018

Partnership Name (\$000)	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/ Loss	Net IRR	IRR Bench.	TVPI
<b>Vintage Year 2013</b>												
Invesco Partnership Fund VI, L.P.	Fund of Funds	5,000	1,833	3,674	63%	526	6,340	6,866	3,192	20.30%	14.15%	1.87
Vintage Year 2013 Total		5,000	1,833	3,674	63%	526	6,340	6,866	3,192	20.30%	13.20%	1.87
<b>Vintage Year 2014</b>												
Ocean Avenue Fund II	Fund of Funds	10,000	2,400	7,600	76%	1,597	9,612	11,208	3,608	15.52%	14.16%	1.47
Raven Asset-Based Opportunity Fund II	Opportunistic Cr	10,000	474	9,526	95%	4,334	4,786	9,120	-406	-1.80%	9.77%	0.96
Vintage Year 2014 Total		20,000	2,874	17,126	86%	5,931	14,397	20,328	3,202	6.92%	14.93%	1.19
<b>Vintage Year 2017</b>												
GTCR XII	Buyout	5,000	4,876	124	2%	44	-14	30	-94	N/M	N/M	N/A
Vintage Year 2017 Total		5,000	4,876	124	2%	44	-14	30	-94	N/M	N/M	N/A
<b>Vintage Year 2018</b>												
Carrick Capital Partners III, L.P.	Buyout	5,000	5,000	0	0%	0	0	0	0	N/M	N/M	N/A
Cressey & Company Fund VI LP	Buyout	5,000	5,000	0	0%	0	0	0	0	N/M	N/M	N/A
Davidson Kempner Long-Term Distressed Opportunit	Distressed Debt	5,000	4,500	500	10%	0	543	543	43	N/M	N/M	N/A
Vintage Year 2018 Total		15,000	14,500	500	3%	0	543	543	43	N/M	N/M	N/A
<b>Total Portfolio:</b>		<b>89,049</b>	<b>29,459</b>	<b>60,664</b>	<b>67%</b>	<b>50,134</b>	<b>38,868</b>	<b>89,002</b>	<b>28,338</b>	<b>8.51%</b>	<b>10.90%</b>	<b>1.47</b>
<b>Portfolio Strategy Totals</b>												
Buyout		15,000	14,876	124	1%	44	-14	30	-94	N/M		N/A
Distressed Debt		5,000	4,500	500	10%	0	543	543	43	N/M		1.09
Fund of Funds		40,175	7,904	33,094	80%	30,501	26,673	57,173	24,080	11.36%		1.73
Non-US		8,874	1,164	7,960	87%	6,065	5,448	11,513	3,553	7.77%		1.44
Opportunistic Credit		10,000	474	9,526	95%	4,334	4,786	9,120	-406	-1.80%		0.96
Secondary		10,000	540	9,460	95%	9,190	1,432	10,622	1,162	2.14%		1.12
<b>Total Portfolio:</b>		<b>89,049</b>	<b>29,459</b>	<b>60,664</b>	<b>67%</b>	<b>50,134</b>	<b>38,868</b>	<b>89,002</b>	<b>28,338</b>	<b>8.51%</b>	<b>10.90%</b>	<b>1.47</b>

Note: The benchmark represents the Cambridge Associates LLC median for the respective strategy and vintage year. At the vintage year level, the Cambridge Associates LLC Global Private Equity & VC ® median is used for the respective vintage year.

# MCERA Real Estate Capital Budget & Implementation Plan

## 8% fund level target

- Annual capital budget target of \$10 million, range of \$5-\$25 million
- Target 2-4 investments, range of \$4-\$7 million per inv
  - Average investment size of \$5 million
  - If an average of 2-4 GP partnership commitments per year, expect a total of 8-16 GP relationships over a 4 year fund raising cycle
- Retain core real estate exposure but lower it to 25% of the portfolio due to current valuations; use it as a source of funding and substitute for private real estate investments (long term target of 75%)

## Performance comparisons:

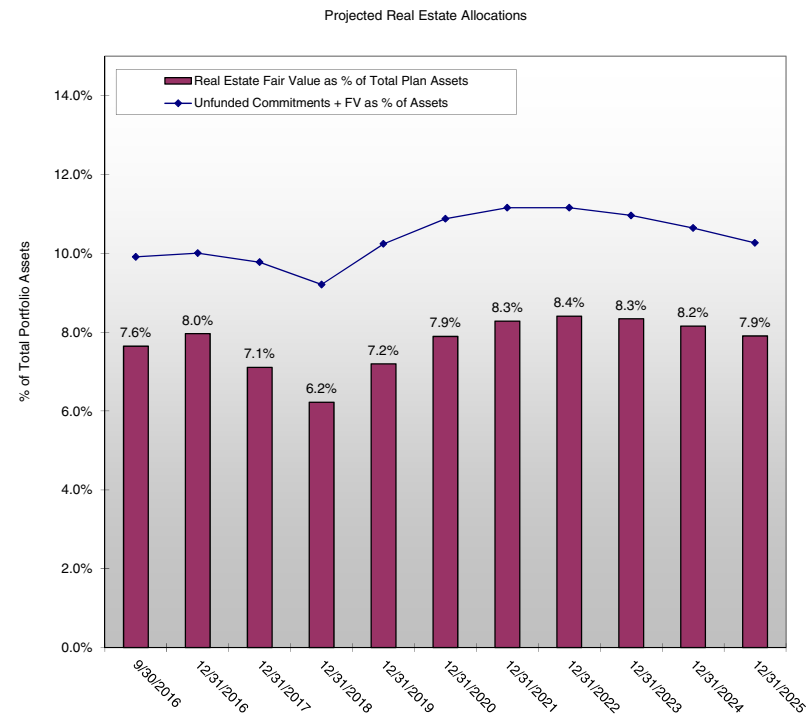
- *Long term investment objective:* Earn a return premium over inflation (CPI-U + 5%)
- *Recommended primary asset class benchmark:* NCREIF NFI-ODCE; revisit over time as the structure of the portfolio changes
- *Recommended fund benchmarks:* Cambridge Associates strategy universe for the respective vintage years and each vintage year will be compared to Cambridge Associates Global Real Estate Index

## MCERA CY 2017 commitments (\$5 mm):

- Carlyle RE VIII – opportunistic RE (VY 2017)

## MCERA CY 2018 commitments (\$5 mm):

- Taconic CRE II –opportunistic RE (VY 2018)
- AG Realty Value X – opportunistic RE (VY 2018)
- Carmel VIII – opportunistic RE (VY 2019)



Note: MCERA's existing real estate portfolio was modeled using vintage year drawdown/return of capital assumptions patterned after historical averages. Total fund growth rate of 5.5%.

## MCERA Real Estate Investment Structure & Portfolio Assessment

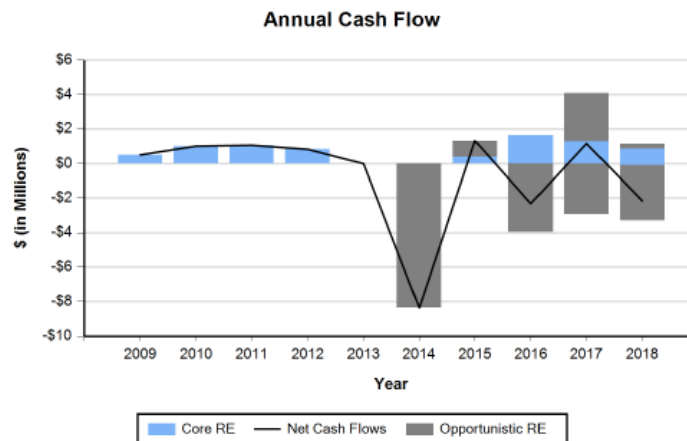
### Real estate investment structure (8% target, 7.5% actual as of Jun 2018)

- MCERA invested in 1999 in a private core real estate fund; gains have been re-invested in the fund
- REITs were introduced in 2014 as were direct investment in opportunistic real estate funds; liquidated in 2017 with assets transferred to a SSgA real assets fund
- Contributions exceeded distributions over the past year as the newer funds are being built out

### Annual Summary

(in thousands)

	Total Partnerships	Total Commitments	(A) Contributions	(B) Distributions	(C) Fair Value	(B+C) Total Value	(B+C-A) Gain/ Loss	Net IRR	Benchmark
June 30, 2017	4	\$43,592	\$28,653	\$19,940	\$55,426	\$75,366	\$46,713	9.40%	8.58%
June 30, 2018	4	\$48,908	\$34,704	\$23,777	\$62,598	\$86,375	\$51,671	9.37%	8.57%
Annual Change	0	\$5,316	\$6,051	\$3,837	\$7,172	\$11,009	\$4,958		



Note: Net cash flow is the for the respective calendar year.

## MCERA Real Estate Performance – as of Jun 30, 2018

### Real Estate Portfolio

- MCERA began investing in the UBS Trumbull core real estate fund in 1999 and this represents the bulk of the real estate portfolio
  - Opportunistic funds began being added in 2014 and they are in the early stages of development with the VY 2016 fund now out of its “j-curve”
- Overall performance has met objectives, driven by the core RE fund; opportunistic fund performance is not meaningful

Partnership Name	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/ Loss	Net IRR	IRR Bench.	TVPI
(in thousands)												
<b>Vintage Year 1999</b>												
UBS Trumbull Property Fund	Core RE	17,000	0	17,098	100%	20,586	42,930	63,516	46,419	9.23%	10.20%	3.71
Vintage Year 1999 Total		17,000	0	17,098	100%	20,586	42,930	63,516	46,419	9.23%	12.76%	3.71
<b>Vintage Year 2014</b>												
Greenfield Acquisition Partners VII, L.P.	Opportunistic RE	13,000	1,876	12,662	86%	2,789	14,712	17,501	4,839	13.84%	12.75%	1.38
Vintage Year 2014 Total		13,000	1,876	12,662	86%	2,789	14,712	17,501	4,839	13.84%	11.35%	1.38
<b>Vintage Year 2016</b>												
Patron Capital Fund V	Opportunistic RE	13,908	9,016	4,876	35%	402	4,982	5,384	508	9.81%	12.87%	1.10
Vintage Year 2016 Total		13,908	9,016	4,876	35%	402	4,982	5,384	508	9.81%	12.63%	1.10
<b>Vintage Year 2017</b>												
Carlyle Realty Partners VIII, L.P.	Opportunistic RE	5,000	4,931	69	1%	0	-26	-26	-95	N/M	N/M	-0.37
Vintage Year 2017 Total		5,000	4,931	69	1%	0	-26	-26	-95	N/M	N/M	-0.37
<b>Total Portfolio:</b>		<b>48,908</b>	<b>15,822</b>	<b>34,704</b>	<b>68%</b>	<b>23,777</b>	<b>62,598</b>	<b>86,375</b>	<b>51,671</b>	<b>9.37%</b>	<b>8.57%</b>	<b>2.49</b>

Note: The benchmark at the total portfolio level is NCREIF NFI-ODCE . Private real estate benchmark at the fund level is the Cambridge Value Add or Opportunistic RE Indices while the Cambridge Global Real Estate Index at the vintage year level.

# MCERA Real Asset Capital Budget & Implementation Plan

## 5% fund level target

- Annual capital budget target of \$10 million, range of \$5-\$15 million
- Target 2-4 investments, range of \$3-\$7 million per inv
  - Average investment size of \$5 million
  - If an average of 2-4 GP partnership commitments per year, expect a total of 8-16 GP relationships over a 4 year fund raising cycle
- Portfolio targeted to be equally split between infrastructure and energy/natural resource funds

## Performance comparisons:

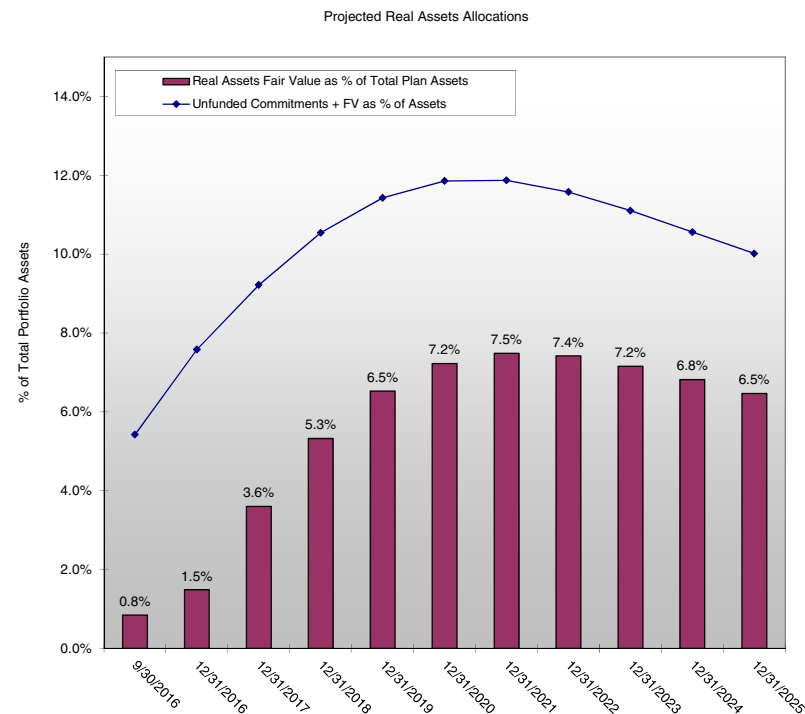
- *Long term investment objective:* Earn a return premium over inflation (CPI-U + 5%)
- *Recommended primary asset class benchmark:* 50/50 Cambridge Global Infrastructure/Cambridge Energy Upstream & Royalties and Private Energy Index
- *Recommended fund benchmarks:* Each fund will be compared to the Cambridge Associates strategy universe for the respective vintage years and each vintage year will be compared to the 50/50 index

## MCERA CY 2017 commitments:

- EnCap XI –upstream energy (\$5 mm) (VY 2017)
- EnCap Flatrock IV – midstream energy (\$3 mm) (VY 2018)

## MCERA CY 2018 commitments (\$5 mm):

- KKR Infrastructure III– global infrastructure (VY 2018)
- Ardian Infrastructure V – global infrastructure (VY 2018)
- BlackRock Infrastructure III – energy & power (VY 2018)



Note: MCERA's existing real asset portfolio was modeled using vintage year drawdown/return of capital assumptions patterned after historical category averages. Total fund growth rate of 5.5%.

## MCERA Real Assets Investment Structure & Portfolio Assessment

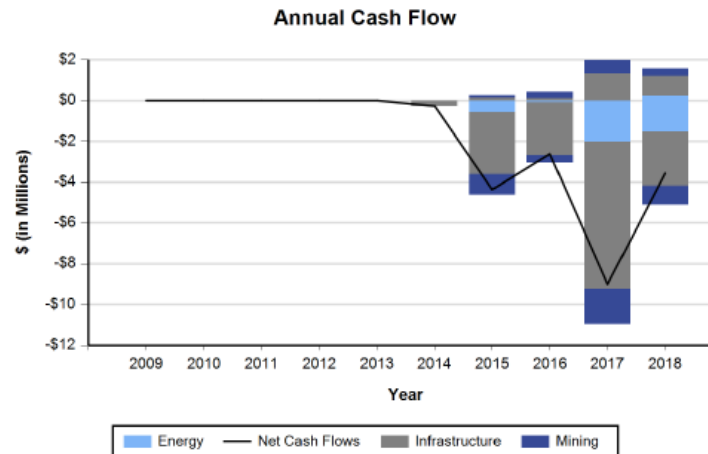
### Real assets investment structure (6% target, 5.9% actual as of Jun 2018)

- Program is designed to be equally divided between private infrastructure and natural resource funds
- Private fund commitments began in 2014 to infrastructure and 2015 to natural resources
- The overall portfolio is immature with the funds in the early stage of development
  - Contributions exceed distributions by \$9 mm as the newer funds are being built out
  - Gains in the infrastructure and mining funds

#### Annual Summary

(in thousands)

	Total Partnerships	Total Commitments	(A) Contributions	(B) Distributions	(C) Fair Value	(B+C) Total Value	(B+C-A) Gain/ Loss	Net IRR	Benchmark
June 30, 2017	6	\$42,500	\$12,716	\$1,755	\$12,217	\$13,972	\$1,256	10.17%	6.62%
June 30, 2018	9	\$55,500	\$24,034	\$4,217	\$23,593	\$27,810	\$3,776	12.88%	5.02%
Annual Change	3	\$13,000	\$11,318	\$2,462	\$11,376	\$13,838	\$2,520		



Note: As of Dec 31, 2017. Net cash flow is the for the respective calendar year.

## MCERA Real Assets Performance – as of Jun 30, 2018

### Real Asset Portfolio

- MCERA began allocating to real assets in 2014 via direct fund commitments
  - Portfolio is approximately equally divided between infrastructure & energy/mining
- Portfolio is in its early stages of development so performance is not meaningful; both the infrastructure funds have come out of the “j-curve” and the Northhaven infrastructure fund has been making distributions; the VY 2017 & 2018 funds have activated

Partnership Name	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/ Loss	Net IRR	IRR Bench.	TVPI
(in thousands)												
<b>Vintage Year 2014</b>												
KKR Global Infrastructure II	Infrastructure	10,000	2,162	8,875	78%	974	9,135	10,108	1,233	10.50%	6.16%	1.14
Vintage Year 2014 Total		10,000	2,162	8,875	78%	974	9,135	10,108	1,233	10.50%		1.14
<b>Vintage Year 2015</b>												
GSO Energy Select Opportunities Fund	Energy	7,500	4,062	3,667	46%	229	4,239	4,468	800	18.39%	18.83%	1.22
North Haven Infrastructure Partners II LP	Infrastructure	10,000	4,765	6,572	52%	1,544	6,035	7,579	1,008	11.09%	7.27%	1.15
Taurus Mining Finance Fund	Mining	5,000	2,855	2,644	43%	1,081	2,137	3,218	574	17.56%	N/A	1.22
Vintage Year 2015 Total		22,500	11,682	12,883	48%	2,854	12,411	15,265	2,382	14.54%		1.18
<b>Vintage Year 2016</b>												
Taurus Mining Finance Annex Fund	Mining	5,000	3,800	1,395	24%	389	1,320	1,709	313	N/M	N/M	1.22
Vintage Year 2016 Total		5,000	3,800	1,395	24%	389	1,320	1,709	313	N/M		1.22
<b>Vintage Year 2017</b>												
EnCap Energy Capital Fund XI, L.P.	Energy	5,000	4,584	416	8%	0	333	333	-82	N/M	N/M	0.80
ISQ Global Infrastructure Fund II	Infrastructure	5,000	4,669	331	7%	0	283	283	-48	N/M	N/M	N/A
Vintage Year 2017 Total		10,000	9,253	747	7%	0	617	617	-130	N/M		0.83
<b>Vintage Year 2018</b>												
EnCap Flatrock Midstream IV, L.P.	Energy	3,000	2,867	133	4%	0	111	111	-22	N/M	N/M	0.83
KKR Global Infrastructure Investors III	Infrastructure	5,000	5,000	0	0%	0	0	0	0	N/M	N/M	0.00
Vintage Year 2018 Total		8,000	7,867	133	2%	0	111	111	-22	N/M		0.83
<b>Total Portfolio:</b>		<b>55,500</b>	<b>34,764</b>	<b>24,034</b>	<b>37%</b>	<b>4,217</b>	<b>23,593</b>	<b>27,810</b>	<b>3,776</b>	<b>12.88%</b>	<b>5.02%</b>	<b>1.16</b>

Note: Benchmark is 50% S&P Natural Resources and 50% S&P Infrastructure. Benchmarks for individual funds are the respective Cambridge strategy benchmark.



## MCERA Hedge Fund Performance – as of Dec 31, 2018

Macro environment has changed in 2018 with rising US interest rates and increased market volatility

- Market neutral and global macro did well in 2018 as volatility picked up & trends reversed
- Managers are being upsized and Taconic was funded at the end of Nov

Fund	Market Value	Actual %	Dec	QTD	YTD	Returns 1 Year	3 Year	5 Year	Incep	Std Dev	Sharpe Ratio	Incep Date
<b>Market Neutral</b>												
KLS Diversified Fund LP	5,079,069	8.4%	-2.76%	-5.39%	1.43%	1.43%	-	-	1.65%	4.55%	-0.09	Oct-17
Laurion Capital, Ltd. Class A 18-07	5,111,320	8.5%	0.12%	1.17%	-	-	-	-	2.23%	2.89%	-	Jul-18
Market Neutral - HF Total	10,190,389	16.9%	-1.34%	-2.21%	4.19%	4.19%	-	-	3.86%	3.25%	0.51	Oct-17
HFRI Relative Value (Total) Index			-0.87%	-2.36%	0.66%	0.66%	-	-	1.39%	2.30%	-0.33	Oct-17
<b>Credit/Distressed</b>												
Silver Point Capital Fund, L.P.	6,890,439	11.5%	-2.15%	-6.00%	-1.00%	-1.00%	-	-	-0.40%	4.66%	-0.55	Dec-17
Credit/Distressed - HF Total	6,890,439	11.5%	-2.15%	-6.00%	-1.00%	-1.00%	-	-	-0.40%	4.66%	-0.55	Dec-17
HFRI ED: Distressed/Restructuring Index			-2.42%	-5.73%	-1.75%	-1.75%	-	-	-0.39%	4.57%	-0.56	Dec-17
<b>Event Driven</b>												
Taconic Opportunity Fund L.P.	9,963,000	16.6%	-0.37%	-	-	-	-	-	-0.37%	-	-	Dec-18
Event Driven - HF Total	9,963,000	16.6%	-0.37%	-	-	-	-	-	-0.37%	-	-	Dec-18
HFRI Event-Driven (Total) Index			-1.93%	-	-	-	-	-	-1.93%	-	-	Dec-18
<b>Equity Long/Short</b>												
Archipelago Partners, L.P.	10,763,722	17.9%	-3.20%	-8.20%	-2.31%	-2.31%	-	-	-0.51%	7.39%	-0.32	Sep-17
MW Eureka Fund Class B2	3,014,045	5.0%	-0.44%	-5.75%	-0.23%	-0.23%	-	-	0.43%	6.17%	-0.27	Dec-17
Equity Long/Short - HF Total	13,777,767	22.9%	-2.33%	-7.43%	-1.76%	-1.76%	-	-	0.23%	6.58%	-0.25	Sep-17
HFRI Equity Hedge (Total) Index			-3.67%	-8.26%	-6.90%	-6.90%	-	-	-1.82%	6.69%	-0.55	Sep-17
<b>Global Macro-Discretionary</b>												
Graham Absolute Return Trading Ltd. - Class A	6,987,486	11.6%	-2.76%	-2.80%	1.21%	1.21%	-	-	0.20%	7.30%	-0.23	Sep-17
Global Macro-Discretionary - HF Total	6,987,486	11.6%	-2.76%	-2.80%	1.21%	1.21%	-	-	0.20%	7.30%	-0.23	Sep-17
HFRI Macro (Total) Index			0.95%	-1.43%	-3.21%	-3.21%	-	-	-1.31%	5.03%	-0.66	Sep-17
<b>Global Macro-Systematic</b>												
Winton Futures Fund Limited - Class B	3,058,693	5.1%	-1.50%	-2.67%	-0.62%	-0.62%	-	-	1.67%	7.89%	-0.03	Nov-17
Global Macro-Systematic - HF Total	3,058,693	5.1%	-1.50%	-2.67%	-0.62%	-0.62%	-	-	1.67%	7.89%	-0.03	Nov-17
HFRI Macro (Total) Index			0.95%	-1.43%	-3.21%	-3.21%	-	-	-2.40%	4.96%	-0.91	Nov-17
<b>Multi-Strategy</b>												
OZ Domestic Partners II, LP	9,287,389	15.4%	-2.13%	-5.48%	-2.12%	-2.12%	4.85%	-	4.09%	5.12%	0.60	Jul-14
Multi-Strategy - HF Total	9,287,389	15.4%	-2.13%	-5.48%	-2.12%	-2.12%	4.85%	-	4.09%	5.12%	0.60	Jul-14
HFRI Relative Value (Total) Index			-0.87%	-2.36%	0.66%	0.66%	4.45%	-	2.71%	2.66%	0.61	Jul-14
MCERA Hedge Fund Portfolio	60,155,163	100.0%	-1.69%	-4.54%	0.28%	0.28%	3.55%	-	3.08%	4.26%	0.48	Jul-14
<b>Benchmarks</b>												
HFRI Fund of Funds Composite Index			-1.16%	-4.41%	-3.48%	-3.48%	1.50%	-	1.21%	3.52%	0.05	Jul-14
<b>Market Indices</b>												
Libor3Month			0.24%	0.67%	2.36%	2.36%	1.47%	-	1.08%	0.23%	-	Jul-14
Bloomberg Barclays US Aggregate Bond Index			1.84%	1.64%	0.02%	0.02%	2.06%	-	1.93%	2.82%	0.31	Jul-14
Bloomberg Barclays US High Yield Bond Index			-2.14%	-4.53%	-2.08%	-2.08%	7.24%	-	3.05%	5.30%	0.39	Jul-14
S&P 500 TR			-9.03%	-13.52%	-4.38%	-4.38%	9.26%	-	7.82%	11.18%	0.63	Jul-14
MSCI AC World Index Free - Net			-7.04%	-12.75%	-9.42%	-9.42%	6.60%	-	3.36%	11.01%	0.26	Jul-14
MSCI EAFE - Net			-4.85%	-12.54%	-13.79%	-13.79%	2.87%	-	-0.45%	11.94%	-0.07	Jul-14
MSCI EMF (Emerging Markets Free) - Net			-2.66%	-7.48%	-14.58%	-14.58%	9.25%	-	0.49%	15.45%	0.04	Jul-14

# Cliffwater Disclosures

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## PERFORMANCE UPDATE

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### Merced County Employees' Retirement Association

Preliminary Performance Update  
As of December 31, 2018



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BOSTON  
MASSACHUSETTS

CHICAGO  
ILLINOIS

MIAMI  
FLORIDA

PORTLAND  
OREGON

SAN DIEGO  
CALIFORNIA

LONDON  
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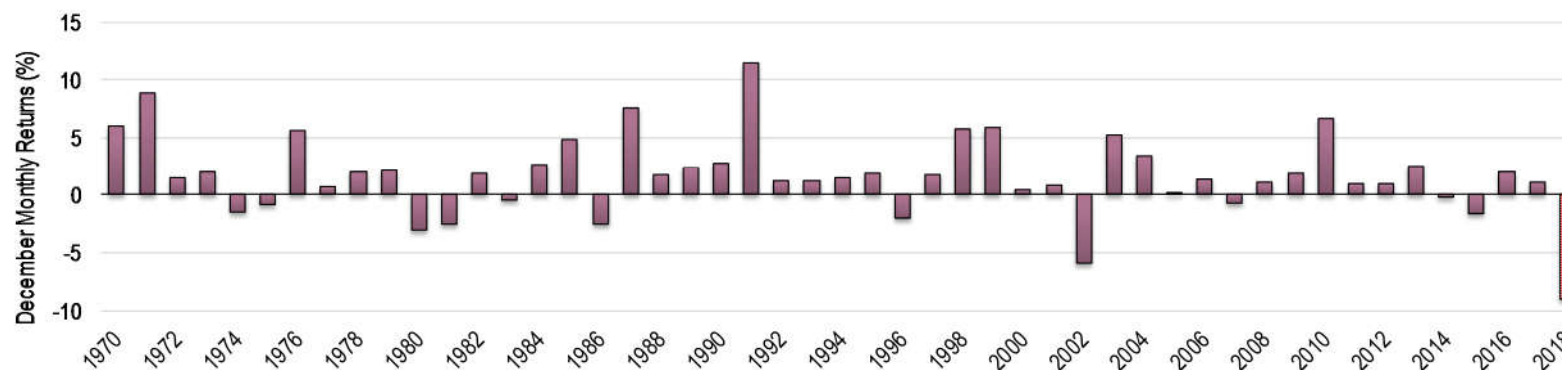
- 1. Performance Highlights**
- 2. Performance Update as of December 31, 2018**
- 3. Disclaimer, Glossary, and Notes**

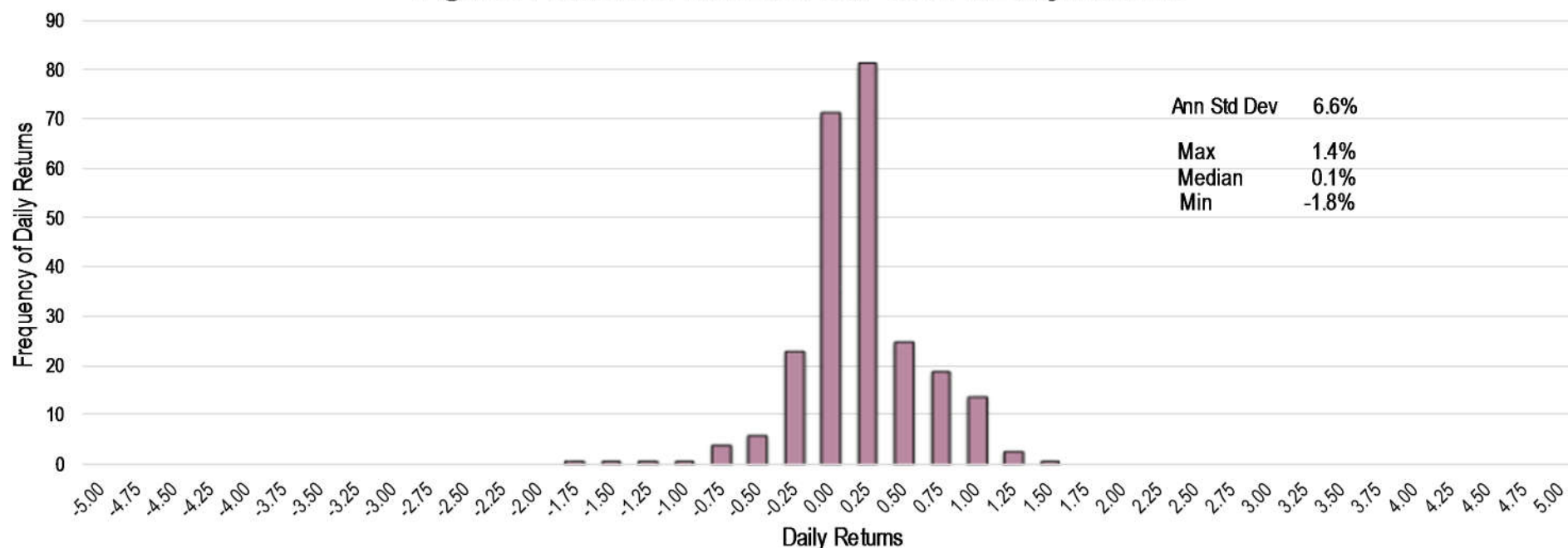
## **Performance Highlights As of December 31, 2018**

## Preliminary Performance Summary for December 2018:

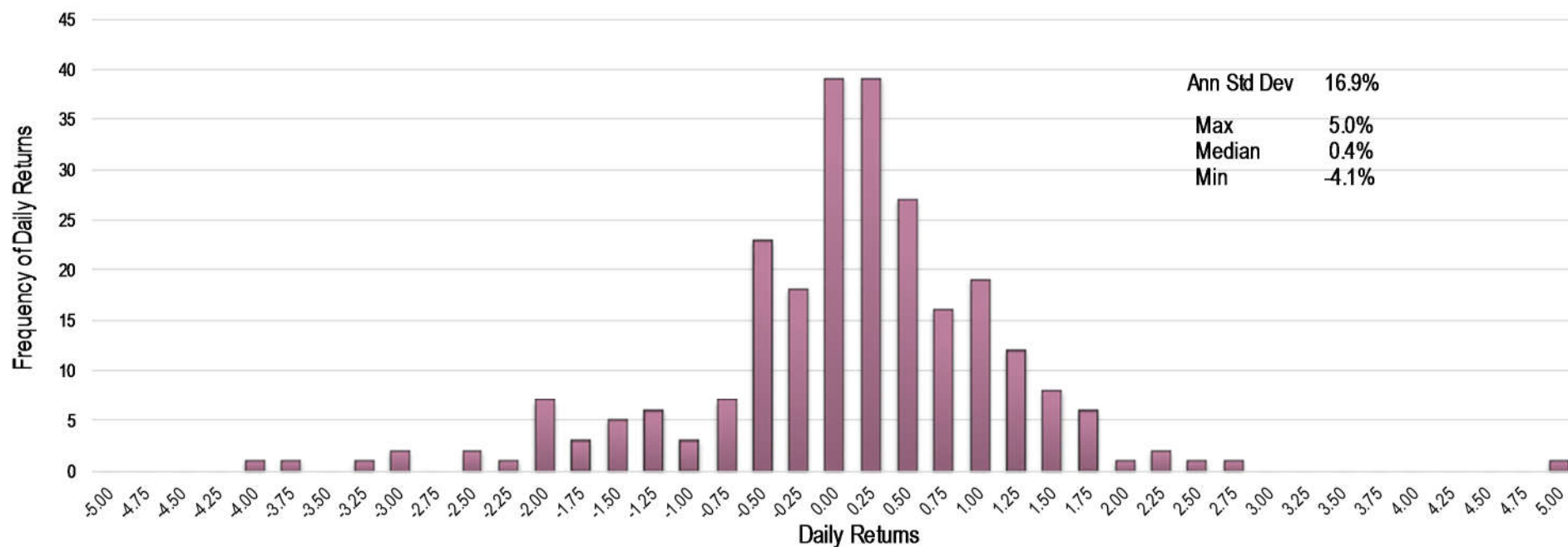
- Historically, December has been a strong month in terms of returns (see figure 1 below for rolling S&P 500 December returns). This was not the case in 2018, as equity markets fell sharply. Despite a late rebound in the month, domestic equities ended significantly lower, regardless of capitalization size or style (growth vs value). International markets also endured a significant sell-off, but fared better than the domestic markets. Even with the December rate hike, investment grade fixed income markets closed out the year on a strong note, as the markets were largely risk-off for the month. The same worries from earlier in the year continued to impact investors: ongoing global trade tensions, interest rates, and signs of a global economic slowdown. These sentiments will likely carry into 2019, along with increased volatility. Please see figures 2 and 3 on the following pages to see how much U.S. equity volatility has increased from 2017 to 2018. For the month, the Fund posted a -3.7% return, with the policy benchmark at -2.6%. A final 4Q 2018 performance report will be provided in the February meeting.
- U.S. equity within the Fund returned -9.6% for the period, exceeding the benchmark by 10 basis points. Notably, Small Cap manager PanAgora exceeded the benchmark by 4.1% for the month. International equity was down -4.6%, trailing the segment benchmark by 70 basis points.
- The fixed income sleeve was up for the month at 1.5%, trailing its benchmark by 20 basis points.

**Figure 1. December Returns for the S&P 500 TR since 1970**



**Figure 2. Calendar Year 2017 S&P 500 PR Daily Returns**

- When looking at daily returns for the S&P 500 during 2017, there were only four days when returns were over 1%, and four days when returns were less than -1%.
- The max and min of the daily returns were within a tight range.

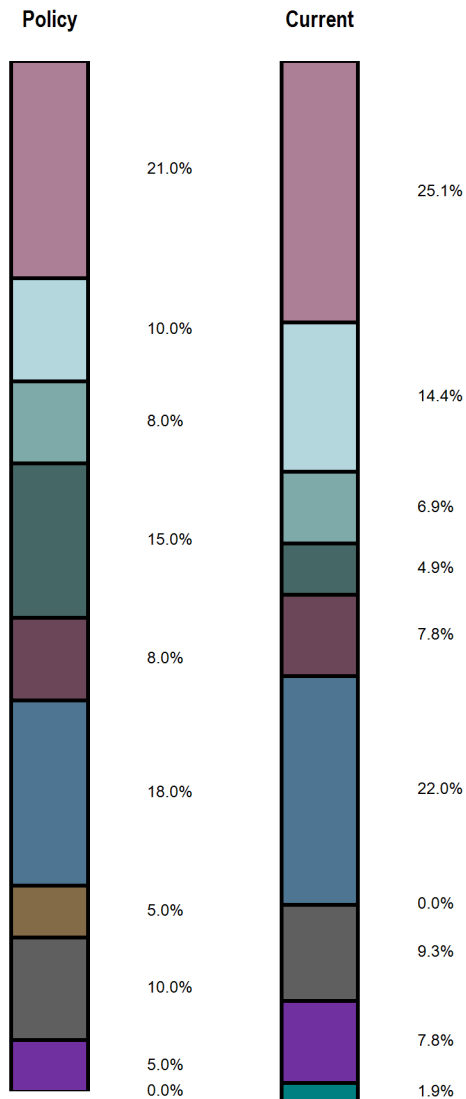
**Figure 3. Calendar Year 2018 S&P 500 PR Daily Returns**

- When looking at daily returns for the S&P 500 during 2018, there were thirty-two days when returns were over 1%, and thirty-two days when returns were less than -1%.
- The range between the max and min of the daily returns were much wider in magnitude for 2018 vs 2017.



## **Performance Update as of December 31, 2018**

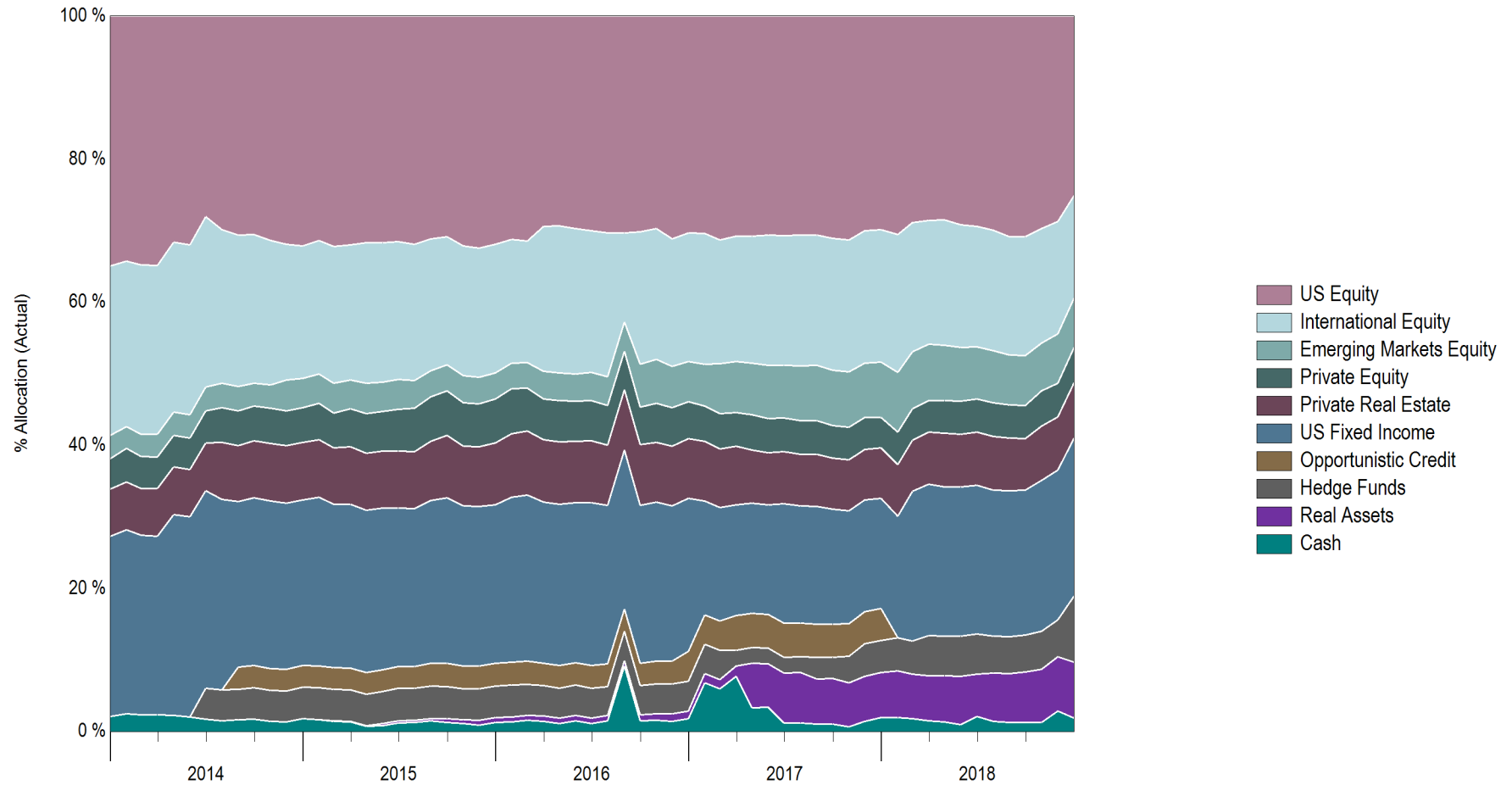
As of December 31, 2018



Cash range displayed for illustrative purposes only.

Allocation vs. Targets and Policy							
	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?	
US Equity	\$194,880,658	25.1%	21.0%	4.1%	15.0% - 26.0%	Yes	
International Equity	\$111,683,723	14.4%	10.0%	4.4%	5.0% - 15.0%	Yes	
Emerging Markets Equity	\$53,681,177	6.9%	8.0%	-1.1%	4.0% - 12.0%	Yes	
Private Equity	\$38,142,341	4.9%	15.0%	-10.1%	5.0% - 20.0%	No	
Private Real Estate	\$60,595,456	7.8%	8.0%	-0.2%	6.0% - 10.0%	Yes	
US Fixed Income	\$171,152,385	22.0%	18.0%	4.0%	13.0% - 23.0%	Yes	
Opportunistic Credit	--	--	5.0%	-5.0%	3.0% - 7.0%	No	
Hedge Funds	\$72,155,163	9.3%	10.0%	-0.7%	5.0% - 15.0%	Yes	
Real Assets	\$60,994,498	7.8%	5.0%	2.8%	3.0% - 7.0%	No	
Cash	\$14,420,899	1.9%	0.0%	1.9%	0.0% - 5.0%	Yes	
<b>Total</b>	<b>\$777,706,300</b>	<b>100.0%</b>	<b>100.0%</b>				

Asset Allocation History  
5 Years Ending December 31, 2018



As of December 31, 2018

## Asset Class Performance Summary

	Market Value (\$)	% of Portfolio	1 Mo (%)	Fiscal YTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fund (Net)*</b>	<b>777,706,300</b>	<b>100.0</b>	<b>-3.7</b>	<b>-5.3</b>	<b>-4.5</b>	<b>-4.5</b>	<b>6.1</b>	<b>4.9</b>	<b>8.5</b>	<b>7.7</b>	<b>Dec-94</b>
<b>Total Fund (Gross)*</b>			<b>-3.7</b>	<b>-5.2</b>	<b>-4.3</b>	<b>-4.3</b>	<b>6.4</b>	<b>5.2</b>	<b>8.8</b>	<b>7.8</b>	
<i>Policy Index</i>			-2.6	-4.3	-3.2	-3.2	7.1	5.5	9.1	5.7	Dec-94
<b>Total Fund w/o Alternatives (Net)</b>	<b>531,397,943</b>	<b>68.3</b>	<b>-4.8</b>	<b>-7.2</b>	<b>-7.3</b>	<b>-7.3</b>	<b>5.9</b>	<b>4.3</b>	<b>--</b>	<b>--</b>	<b>Dec-94</b>
<b>Total Fund w/o Alternatives (Gross)</b>			<b>-4.8</b>	<b>-7.1</b>	<b>-7.0</b>	<b>-7.0</b>	<b>6.2</b>	<b>4.6</b>	<b>--</b>	<b>--</b>	
<i>Policy Index w/o AI</i>			-4.3	-6.1	-6.1	-6.1	6.2	4.4	--	--	Dec-94
<b>US Equity (Net)</b>	<b>194,880,658</b>	<b>25.1</b>	<b>-9.6</b>	<b>-9.6</b>	<b>-6.3</b>	<b>-6.3</b>	<b>9.7</b>	<b>8.5</b>	<b>13.8</b>	<b>9.4</b>	<b>Dec-94</b>
<b>US Equity (Gross)</b>			<b>-9.6</b>	<b>-9.5</b>	<b>-6.0</b>	<b>-6.0</b>	<b>10.0</b>	<b>8.7</b>	<b>13.9</b>	<b>9.5</b>	
<i>80% R1000 / 20% R2000</i>			-9.7	-9.5	-6.0	-6.0	8.8	7.6	13.0	9.4	Dec-94
<b>International Equity (Net)</b>	<b>165,364,900</b>	<b>21.3</b>	<b>-4.6</b>	<b>-12.2</b>	<b>-15.2</b>	<b>-15.2</b>	<b>3.8</b>	<b>0.3</b>	<b>6.8</b>	<b>4.6</b>	<b>Dec-98</b>
<b>International Equity (Gross)</b>			<b>-4.5</b>	<b>-12.0</b>	<b>-14.8</b>	<b>-14.8</b>	<b>4.3</b>	<b>0.9</b>	<b>7.3</b>	<b>4.8</b>	
<i>International Equity Custom</i>			-3.9	-10.1	-13.3	-13.3	5.6	1.5	6.5	3.8	Dec-98
<b>US Fixed Income (Net)</b>	<b>171,152,385</b>	<b>22.0</b>	<b>1.5</b>	<b>1.6</b>	<b>0.4</b>	<b>0.4</b>	<b>3.2</b>	<b>2.8</b>	<b>4.3</b>	<b>5.2</b>	<b>Dec-94</b>
<b>US Fixed Income (Gross)</b>			<b>1.6</b>	<b>1.6</b>	<b>0.6</b>	<b>0.6</b>	<b>3.4</b>	<b>3.0</b>	<b>4.7</b>	<b>5.4</b>	
<i>US Fixed Custom</i>			1.7	1.7	0.8	0.8	3.5	3.0	3.8	5.6	Dec-94
<b>Hedge Fund (Net)</b>	<b>72,155,163</b>	<b>9.3</b>	<b>-2.0</b>	<b>-4.1</b>	<b>0.0</b>	<b>0.0</b>	<b>3.6</b>	<b>--</b>	<b>--</b>	<b>3.1</b>	<b>Jun-14</b>
<b>Hedge Fund (Gross)</b>			<b>-1.9</b>	<b>-4.0</b>	<b>0.2</b>	<b>0.2</b>	<b>3.7</b>	<b>--</b>	<b>--</b>	<b>3.2</b>	
<i>Hedge Fund Custom</i>			-1.6	-4.6	-3.6	-3.6	2.3	--	--	1.8	Jun-14
<b>Private Equity (Net)</b>	<b>38,142,341</b>	<b>4.9</b>	<b>0.0</b>	<b>4.4</b>	<b>17.5</b>	<b>17.5</b>	<b>10.5</b>	<b>11.2</b>	<b>7.3</b>	<b>8.0</b>	<b>Jun-05</b>
<b>Private Equity (Gross)</b>			<b>0.0</b>	<b>4.4</b>	<b>17.5</b>	<b>17.5</b>	<b>10.5</b>	<b>11.2</b>	<b>7.5</b>	<b>8.2</b>	
<i>Thomson Reuters Cambridge Private Equity Index</i>			0.0	0.0	8.7	8.7	16.1	14.1	--	--	Jun-05
<b>Real Assets (Net)</b>	<b>121,589,955</b>	<b>15.6</b>	<b>-1.0</b>	<b>0.5</b>	<b>1.9</b>	<b>1.9</b>	<b>5.9</b>	<b>7.0</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
<b>Real Assets (Gross)</b>			<b>-1.0</b>	<b>0.5</b>	<b>2.0</b>	<b>2.0</b>	<b>6.4</b>	<b>7.8</b>	<b>--</b>	<b>--</b>	
<i>Real Asset Custom</i>			-0.6	-2.7	-0.4	-0.4	8.6	6.5	--	--	Mar-99

Data prior to March 2018 provided by prior consultant



As of December 31, 2018

	Market Value (\$)	% of Portfolio	1 Mo (%)	Fiscal YTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Private Real Estate (Net)</b>	<b>60,595,456</b>	<b>7.8</b>	<b>0.0</b>	<b>3.3</b>	<b>7.7</b>	<b>7.7</b>	<b>7.3</b>	<b>8.0</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
<b>Private Real Estate (Gross)</b>			<b>0.0</b>	<b>3.3</b>	<b>7.7</b>	<b>7.7</b>	<b>7.8</b>	<b>8.8</b>	<b>7.6</b>	<b>8.7</b>	
<i>NCREIF ODCE (net)</i>			<i>1.5</i>	<i>3.4</i>	<i>7.4</i>	<i>7.4</i>	<i>7.3</i>	<i>9.4</i>	<i>6.0</i>	<i>7.5</i>	<i>Mar-99</i>
<b>Private Infrastructure (Net)</b>	<b>21,477,723</b>	<b>2.8</b>	<b>0.0</b>	<b>3.4</b>	<b>7.3</b>	<b>7.3</b>	<b>8.9</b>	<b>--</b>	<b>--</b>	<b>6.6</b>	<b>Dec-14</b>
<b>Private Infrastructure (Gross)</b>			<b>0.0</b>	<b>3.4</b>	<b>7.3</b>	<b>7.3</b>	<b>8.9</b>	<b>--</b>	<b>--</b>	<b>6.6</b>	
<i>S&amp;P Global Infrastructure Net TR USD</i>			<i>-3.2</i>	<i>-7.0</i>	<i>-10.4</i>	<i>-10.4</i>	<i>6.0</i>	<i>3.2</i>	<i>--</i>	<i>1.1</i>	<i>Dec-14</i>
<b>Private Natural Resources (Net)</b>	<b>9,409,166</b>	<b>1.2</b>	<b>0.0</b>	<b>6.1</b>	<b>11.0</b>	<b>11.0</b>	<b>20.3</b>	<b>--</b>	<b>--</b>	<b>18.2</b>	<b>Sep-15</b>
<b>Private Natural Resources (Gross)</b>			<b>0.0</b>	<b>6.1</b>	<b>11.0</b>	<b>11.0</b>	<b>20.3</b>	<b>--</b>	<b>--</b>	<b>18.2</b>	
<i>S&amp;P Global Natural Resources Index TR USD</i>			<i>-5.1</i>	<i>-15.7</i>	<i>-12.6</i>	<i>-12.6</i>	<i>12.4</i>	<i>-0.5</i>	<i>3.1</i>	<i>11.6</i>	<i>Sep-15</i>
<b>Cash (Net)</b>	<b>14,420,899</b>	<b>1.9</b>	<b>0.2</b>	<b>0.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	
<b>Cash (Gross)</b>			<b>0.2</b>	<b>0.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	

\*One or more accounts have been excluded from the composite for the purposes of performance calculations and market value.

As of December 31, 2018

## Trailing Net Performance

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fund(Net)*</b>	<b>777,706,300</b>	<b>100.0</b>	<b>--</b>	<b>-3.7</b>	<b>-5.3</b>	<b>-4.5</b>	<b>6.1</b>	<b>4.9</b>	<b>8.5</b>	<b>7.7</b>	<b>Dec-94</b>
<i>Policy Index</i>				-2.6	-4.3	-3.2	7.1	5.5	9.1	5.7	Dec-94
<b>Total Fund w/o Alternatives(Net)</b>	<b>531,397,943</b>	<b>68.3</b>	<b>68.3</b>	<b>-4.8</b>	<b>-7.2</b>	<b>-7.3</b>	<b>5.9</b>	<b>4.3</b>	<b>--</b>	<b>--</b>	<b>Dec-94</b>
<i>Policy Index w/o AI</i>				-4.3	-6.1	-6.1	6.2	4.4	--	--	Dec-94
<b>US Equity(Net)</b>	<b>194,880,658</b>	<b>25.1</b>	<b>36.7</b>	<b>-9.6</b>	<b>-9.6</b>	<b>-6.3</b>	<b>9.7</b>	<b>8.5</b>	<b>13.8</b>	<b>9.4</b>	<b>Dec-94</b>
<i>80% R1000 / 20% R2000</i>				-9.7	-9.5	-6.0	8.8	7.6	13.0	9.4	Dec-94
Mellon Dynamic US Equity(Net)	69,946,631	9.0	35.9	-9.9	-8.5	-6.6	11.1	10.4	--	14.7	Dec-12
<i>S&amp;P 500</i>				-9.0	-6.9	-4.4	9.3	8.5	13.1	12.2	Dec-12
Mellon Large Cap(Net)	93,886,352	12.1	48.2	-9.4	-7.9	-5.3	--	--	--	9.3	Mar-16
<i>Russell 1000</i>				-9.1	-7.4	-4.8	9.1	8.2	13.3	9.5	Mar-16
DFA Small Cap(Net)	15,633,216	2.0	8.0	-11.8	-16.7	-12.0	7.0	--	--	4.5	Jun-14
<i>Russell 2000</i>				-11.9	-17.3	-11.0	7.4	4.4	12.0	4.2	Jun-14
PanAgora(Net)	15,414,459	2.0	7.9	-7.8	-16.2	-5.0	8.2	5.9	--	7.5	Sep-13
<i>Russell 2000</i>				-11.9	-17.3	-11.0	7.4	4.4	12.0	5.9	Sep-13
<b>International Equity(Net)</b>	<b>165,364,900</b>	<b>21.3</b>	<b>31.1</b>	<b>-4.6</b>	<b>-12.2</b>	<b>-15.2</b>	<b>3.8</b>	<b>0.3</b>	<b>6.8</b>	<b>4.6</b>	<b>Dec-98</b>
<i>International Equity Custom</i>				-3.9	-10.1	-13.3	5.6	1.5	6.5	3.8	Dec-98
Copper Rock(Net)	18,224,785	2.3	11.0	-6.9	-20.3	-23.1	-2.4	0.5	--	2.1	Sep-13
<i>MSCI World ex USA Small Cap</i>				-6.4	-16.9	-18.1	3.8	2.3	10.1	3.2	Sep-13
Mellon International(Net)	93,458,938	12.0	56.5	-4.8	-11.3	-13.5	--	--	--	4.7	Mar-16
<i>MSCI EAFE</i>				-4.9	-11.4	-13.8	2.9	0.5	6.3	4.3	Mar-16
Wells Capital(Net)	53,681,177	6.9	32.5	-3.3	-10.9	-15.2	9.0	1.6	--	1.3	Mar-12
<i>MSCI Emerging Markets</i>				-2.7	-8.5	-14.6	9.2	1.6	8.0	1.4	Mar-12

Historical returns for the US Equity Composite prior to January 2012 and for the International Equity Composite prior to December 2010 are gross only.



As of December 31, 2018

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>US Fixed Income(Net)</b>	<b>171,152,385</b>	<b>22.0</b>	<b>32.2</b>	<b>1.5</b>	<b>1.6</b>	<b>0.4</b>	<b>3.2</b>	<b>2.8</b>	<b>4.3</b>	<b>5.2</b>	<b>Dec-94</b>
<i>US Fixed Custom</i>				1.7	1.7	0.8	3.5	3.0	3.8	5.6	Dec-94
Barrow Hanley(Net)	133,976,457	17.2	78.3	1.7	1.6	-0.1	2.0	2.5	--	3.1	Mar-10
<i>BBgBarc US Aggregate TR</i>				1.8	1.7	0.0	2.1	2.5	3.5	3.1	Mar-10
Vanguard Short-Term Treasury Index Fund(Net)	37,175,928	4.8	21.7	0.8	1.5	--	--	--	--	1.9	Feb-18
<i>BBgBarc US Govt 1-3 Yr TR</i>				0.8	1.5	1.6	1.0	0.8	1.0	1.9	Feb-18
<b>Hedge Fund(Net)</b>	<b>72,155,163</b>	<b>9.3</b>	<b>9.3</b>	<b>-2.0</b>	<b>-4.1</b>	<b>0.0</b>	<b>3.6</b>	<b>--</b>	<b>--</b>	<b>3.1</b>	<b>Jun-14</b>
<i>Hedge Fund Custom</i>				-1.6	-4.6	-3.6	2.3	--	--	1.8	Jun-14
OZ Domestic II(Net)	9,287,389	1.2	12.9	-2.1	-6.4	-2.2	4.8	--	--	4.1	Jun-14
Graham Absolute Return(Net)	6,987,486	0.9	9.7	-2.9	-4.3	0.8	--	--	--	-0.2	Aug-17
Wellington-Archipelago(Net)	10,763,722	1.4	14.9	-3.3	-6.6	-2.6	--	--	--	-0.8	Aug-17
KLS Diversified(Net)	9,079,069	1.2	12.6	-2.5	-3.0	1.4	--	--	--	1.5	Oct-17
Winton(Net)	6,058,693	0.8	8.4	-1.4	-1.8	-0.6	--	--	--	1.7	Oct-17
Marshall Wace Eureka(Net)	3,014,045	0.4	4.2	-0.6	-5.6	-0.6	--	--	--	0.1	Nov-17
Silver Point Capital(Net)	11,890,439	1.5	16.5	-2.1	-4.6	-1.1	--	--	--	-0.5	Nov-17
<i>HFRI Fund of Funds Composite Index</i>				-1.6	-4.6	-3.9	1.3	1.4	3.1	-2.8	Nov-17
Laurion Capital(Net)	5,111,320	0.7	7.1	0.2	--	--	--	--	--	3.2	Aug-18
Taconic Opportunity Fund(Net)	9,963,000	1.3	13.8	--	--	--	--	--	--	--	Dec-18

The market values for KLS Diversified, Winton, and Silver Point Capital have been adjusted to reflect the additional subscriptions that took place during the month.

Historical returns for the US Fixed Income Composite prior to December 2010 and for Barrow Hanley prior to June 2010 are gross only.

As of December 31, 2018

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Private Equity(Net)</b>	<b>38,142,341</b>	<b>4.9</b>	<b>4.9</b>	<b>0.0</b>	<b>4.4</b>	<b>17.5</b>	<b>10.5</b>	<b>11.2</b>	<b>7.3</b>	<b>8.0</b>	<b>Jun-05</b>
<i>Thomson Reuters Cambridge Private Equity Index</i>				0.0	0.0	8.7	16.1	14.1	--	--	Jun-05
Adams Street(Net)	7,880,471	1.0	20.7	0.0	8.8	17.8	13.1	14.0	9.7	7.1	Sep-05
Invesco IV(Net)	824,985	0.1	2.2	0.0	-0.6	75.1	13.8	15.2	9.6	10.0	Jun-05
Invesco VI(Net)	6,339,930	0.8	16.6	0.0	3.6	14.5	11.2	14.7	--	12.1	Jun-13
Ocean Avenue II(Net)	8,661,694	1.1	22.7	0.0	1.5	19.2	17.6	--	--	10.4	Jun-14
Pantheon I(Net)	1,019,139	0.1	2.7	0.0	3.9	6.5	6.5	6.4	5.0	3.8	Dec-05
Pantheon II(Net)	4,008,282	0.5	10.5	0.0	7.4	11.6	14.2	14.7	--	11.7	Dec-11
Pantheon Secondary(Net)	1,252,233	0.2	3.3	0.0	13.2	9.1	4.9	3.9	0.8	3.8	Jun-07
Raven Asset Fund II(Net)	3,289,508	0.4	8.6	0.0	1.8	12.5	-2.3	--	--	-2.4	Aug-14
Davidson Kempner Long-Term Distressed Opportunities Fund IV(Net)	1,639,602	0.2	4.3	0.0	12.0	--	--	--	--	12.8	Apr-18
GTCR Fund XII(Net)	713,916	0.1	1.9	0.0	0.0	--	--	--	--	0.0	Jun-18
Carrick Capital Partners III(Net)	762,581	0.1	2.0	0.0	--	--	--	--	--	-4.8	Aug-18
Taconic CRE Dislocation Fund II(Net)	1,250,000	0.2	3.3	0.0	--	--	--	--	--	0.0	Nov-18

All private markets performance and market values reflect a 9/30/2018 capital account balance unless otherwise noted.

The market values for the following funds reflect a 6/30/2018 capital account balance: Invesco IV, Invesco VI, Ocean Avenue II, Pantheon I, Pantheon II, Pantheon Secondary, Raven Asset Fund II and GTCR Fund XII.

Adams Street includes Adams Street 2005, Adams Street 2007, and Adams Street 2011.

Historical returns for Invesco IV prior to April 2012 are gross only.

Pantheon I includes Pantheon US Fund VI and Pantheon Europe Fund IV.

Pantheon II includes Pantheon US Fund IX, Pantheon Asia Fund VI, and Pantheon Europe Fund VII.

Pantheon Secondary includes Pantheon GLO SEC III B.





As of December 31, 2018

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Cressey & Company Fund VI(Net)	500,000	0.1	1.3	--	--	--	--	--	--	--	Jan-19
<b>Real Assets(Net)</b>	<b>121,589,955</b>	<b>15.6</b>	<b>15.6</b>	<b>-1.0</b>	<b>0.5</b>	<b>1.9</b>	<b>5.9</b>	<b>7.0</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
Real Asset Custom				-0.6	-2.7	-0.4	8.6	6.5	--	--	Mar-99
SSgA(Net)	30,107,609	3.9	24.8	-3.8	-7.8	-7.4	--	--	--	-0.3	Apr-17
Real Asset Custom				-0.6	-2.7	-0.4	8.6	6.5	--	5.1	Apr-17
<b>Private Real Estate(Net)</b>	<b>60,595,456</b>	<b>7.8</b>	<b>49.8</b>	<b>0.0</b>	<b>3.3</b>	<b>7.7</b>	<b>7.3</b>	<b>8.0</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
NCREIF ODCE (net)				1.5	3.4	7.4	7.3	9.4	6.0	7.5	Mar-99
Greenfield Gap VII(Net)	12,386,436	1.6	20.4	0.0	5.2	12.9	13.7	--	--	12.9	Dec-14
Patron Capital V(Net)	5,282,118	0.7	8.7	0.0	0.9	27.0	--	--	--	15.5	Jan-16
UBS Trumbull Property(Net)	42,653,574	5.5	70.4	0.0	3.2	4.9	5.1	7.5	5.5	7.3	Mar-99
Carlyle Realty VIII(Net)	273,328	0.0	0.5	0.0	-23.9	-44.5	--	--	--	-44.5	Dec-17
<b>Private Infrastructure(Net)</b>	<b>21,477,723</b>	<b>2.8</b>	<b>17.7</b>	<b>0.0</b>	<b>3.4</b>	<b>7.3</b>	<b>8.9</b>	<b>--</b>	<b>--</b>	<b>6.6</b>	<b>Dec-14</b>
S&P Global Infrastructure Net TR USD				-3.2	-7.0	-10.4	6.0	3.2	--	1.1	Dec-14
KKR Global II(Net)	10,396,231	1.3	48.4	0.0	6.0	10.1	9.1	--	--	10.5	Dec-14
North Haven Infrastructure II(Net)	9,482,945	1.2	44.2	0.0	2.8	6.5	10.3	--	--	6.0	May-15
ISQ Global Infrastructure Fund II(Net)	1,252,108	0.2	5.8	0.0	-31.9	--	--	--	--	-31.9	Jul-18
DJ Brookfield Global Infrastructure Net TR USD				-4.8	-6.7	-7.9	6.3	3.6	10.7	-6.7	Jul-18
KKR Global Infrastructure Investors III(Net)	346,439	0.0	1.6	0.0	--	--	--	--	--	--	Jan-19
<b>Private Natural Resources(Net)</b>	<b>9,409,166</b>	<b>1.2</b>	<b>7.7</b>	<b>0.0</b>	<b>6.1</b>	<b>11.0</b>	<b>20.3</b>	<b>--</b>	<b>--</b>	<b>18.2</b>	<b>Sep-15</b>
S&P Global Natural Resources Index TR USD				-5.1	-15.7	-12.6	12.4	-0.5	3.1	11.6	Sep-15

The market value for North Haven Infrastructure reflects a 6/30/2018 capital account balance.



As of December 31, 2018

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
EnCap XI(Net)	434,832	0.1	4.6	0.0	-9.9	-25.9	--	--	--	-37.7	Jul-17
EnCap IV(Net)	799,241	0.1	8.5	0.0	-9.6	--	--	--	--	-17.0	Feb-18
GSO Energy Opportunities(Net)	4,504,791	0.6	47.9	0.0	5.0	11.7	19.5	--	--	19.0	Nov-15
Taurus Mining(Net)	2,181,344	0.3	23.2	0.0	7.7	12.8	19.5	--	--	17.2	Sep-15
Taurus Mining Annex(Net)	1,488,958	0.2	15.8	0.0	15.3	21.6	--	--	--	31.2	Jan-17
<b>Cash(Net)</b>	<b>14,420,899</b>	<b>1.9</b>	<b>1.9</b>	<b>0.2</b>	<b>0.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	
Cash(Net)	7,839,966	1.0	54.4	0.3	0.8	1.2	1.0	0.7	--	--	Sep-03
Treasury Cash(Net)	6,580,933	0.8	45.6								

\*One or more accounts have been excluded from the composite for the purposes of performance calculations and market value.

The market value for Taurus Mining reflects a 6/30/2018 capital account balance.



As of December 31, 2018

### Benchmark History

As of December 31, 2018

#### Total Fund

12/31/2018	Present	21% US Equity Custom / 18% International Equity Custom / 23% US Fixed Custom / 10% Hedge Fund Custom / 15% Thomson Reuters Cambridge Private Equity Index / 13% Real Asset Custom
1/1/2017	12/30/2018	27% US Equity Custom / 23% International Equity Custom / 22% US Fixed Custom / 5% Hedge Fund Custom / 9% Thomson Reuters Cambridge Private Equity Index / 14% Real Asset Custom
7/1/2014	12/31/2016	22.7% Russell 1000 / 5.7% Russell 2000 / 23.6% International Equity Custom / 28.5% US Fixed Custom / 4.5% Hedge Fund Custom / 8% NCREIF ODCE (net) / 7% Cambridge Assoc. U.S. Private Equity Index

#### International Equity

12/31/2018	Present	56% MSCI EAFE Gross / 44% MSCI Emerging Markets Gross
1/1/2017	12/30/2018	69.56% MSCI EAFE Gross / 30.44% MSCI Emerging Markets Gross
7/1/2013	12/31/2016	MSCI ACWI ex USA Gross

#### Real Assets

12/31/2018	Present	62% NCREIF ODCE (net) / 19% S&P Global Natural Resources Index TR USD / 19% S&P Global Infrastructure TR USD
6/1/2013	12/30/2018	57.14% NCREIF ODCE (net) / 21.43% S&P Global Natural Resources Index TR USD / 21.43% S&P Global Infrastructure TR USD

As of December 31, 2018

**Annual Investment Expense Analysis**  
As Of December 31, 2018

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
<b>Total Fund w/o Alternatives</b>		<b>\$531,397,943</b>		
<b>US Equity</b>		<b>\$194,880,658</b>		
Mellon Dynamic US Equity	0.30% of Assets	\$69,946,631	\$209,840	0.30%
Mellon Large Cap	0.04% of First 100.0 Mil, 0.02% Thereafter	\$93,886,352	\$37,555	0.04%
DFA Small Cap	0.35% of Assets	\$15,633,216	\$54,716	0.35%
PanAgora	0.80% of Assets	\$15,414,459	\$123,316	0.80%
<b>International Equity</b>		<b>\$165,364,900</b>		
Copper Rock	0.85% of Assets	\$18,224,785	\$154,911	0.85%
Mellon International	0.04% of Assets	\$93,458,938	\$37,384	0.04%
Wells Capital	0.90% of First 100.0 Mil, 0.85% Thereafter	\$53,681,177	\$483,131	0.90%
<b>US Fixed Income</b>		<b>\$171,152,385</b>		
Barrow Hanley	0.30% of First 50.0 Mil, 0.20% of Next 100.0 Mil, 0.15% Thereafter	\$133,976,457	\$317,953	0.24%
Vanguard Short-Term Treasury Index Fund	0.05% of Assets	\$37,175,928	\$18,588	0.05%
<b>Hedge Fund</b>		<b>\$72,155,163</b>		
OZ Domestic II	Performance-based 1.50 and 20.00	\$9,287,389	\$139,311	1.50%
Graham Absolute Return	Performance-based 1.75 and 20.00	\$6,987,486	\$122,281	1.75%
Wellington-Archipelago	Performance-based 1.00 and 20.00	\$10,763,722	\$107,637	1.00%
KLS Diversified	Performance-based 2.00 and 20.00	\$9,079,069	\$181,581	2.00%
Winton	Performance-based 0.90 and 20.00	\$6,058,693	\$54,528	0.90%
Marshall Wace Eureka	Performance-based 2.00 and 20.00	\$3,014,045	\$60,281	2.00%
Silver Point Capital	Performance-based 2.00 and 20.00	\$11,890,439	\$237,809	2.00%
Laurion Capital		\$5,111,320		
Taconic Opportunity Fund		\$9,963,000		

As of December 31, 2018

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Invesco IV		\$824,985		
Invesco VI		\$6,339,930		
Ocean Avenue II		\$8,661,694		
Pantheon I		\$1,019,139		
Pantheon II		\$4,008,282		
Pantheon Secondary		\$1,252,233		
Raven Asset Fund II		\$3,289,508		
Davidson Kempner Long-Term Distressed Opportunities Fund IV		\$1,639,602		
GTCR Fund XII		\$713,916		
Carrick Capital Partners III		\$762,581		
Taconic CRE Dislocation Fund II		\$1,250,000		
Cressey & Company Fund VI		\$500,000		
<b>Real Assets</b>		<b>\$121,589,955</b>		
SSgA	0.30% of First 50.0 Mil, 0.27% of Next 50.0 Mil, 0.25% Thereafter	\$30,107,609	\$90,323	0.30%
<b>Private Real Estate</b>		<b>\$60,595,456</b>		
Greenfield Gap VII		\$12,386,436		
Patron Capital V		\$5,282,118		
UBS Trumbull Property		\$42,653,574		
Carlyle Realty VIII		\$273,328		
<b>Private Infrastructure</b>		<b>\$21,477,723</b>		
KKR Global II		\$10,396,231		

As of December 31, 2018

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
North Haven Infrastructure II		\$9,482,945		
ISQ Global Infrastructure Fund II		\$1,252,108		
KKR Global Infrastructure Investors III		\$346,439		
<b>Private Natural Resources</b>		<b>\$9,409,166</b>		
EnCap XI		\$434,832		
EnCap IV		\$799,241		
GSO Energy Opportunities		\$4,504,791		
Taurus Mining		\$2,181,344		
Taurus Mining Annex		\$1,488,958		
<b>Cash</b>		<b>\$14,420,899</b>		
Cash		\$7,839,966		
Treasury Cash		\$6,580,933		

As of December 31, 2018

## Excess Performance Vs. Benchmark

	Benchmark	1 Mo Perf vs Benchmark (%)	3 Mo Perf vs Benchmark (%)	1 Yr Perf vs Benchmark (%)	3 Yrs Perf vs Benchmark (%)	5 Yrs Perf vs Benchmark (%)
<b>Total Fund</b>	<b>Policy Index</b>	<b>-1.1</b>	<b>-1.1</b>	<b>-1.3</b>	<b>-1.0</b>	<b>-0.6</b>
<b>Total Fund w/o Alternatives</b>	<b>Policy Index w/o AI</b>	<b>-0.5</b>	<b>-1.0</b>	<b>-1.2</b>	<b>-0.3</b>	<b>-0.1</b>
<b>US Equity</b>	<b>80% R1000 / 20% R2000</b>	<b>0.1</b>	<b>-0.4</b>	<b>-0.3</b>	<b>0.9</b>	<b>0.9</b>
Mellon Dynamic US Equity	S&P 500	-0.9	-2.1	-2.2	1.8	1.9
Mellon Large Cap	Russell 1000	-0.3	-0.5	-0.5	--	--
DFA Small Cap	Russell 2000	0.1	0.8	-1.0	-0.4	--
PanAgora	Russell 2000	4.1	1.7	6.0	0.8	1.5
<b>International Equity</b>	<b>International Equity Custom</b>	<b>-0.7</b>	<b>-1.1</b>	<b>-1.9</b>	<b>-1.8</b>	<b>-1.2</b>
Copper Rock	MSCI World ex USA Small Cap	-0.5	-2.2	-5.0	-6.2	-1.8
Mellon International	MSCI EAFE	0.1	0.0	0.3	--	--
Wells Capital	MSCI Emerging Markets	-0.6	-0.2	-0.6	-0.2	0.0
<b>US Fixed Income</b>	<b>US Fixed Custom</b>	<b>-0.2</b>	<b>-0.3</b>	<b>-0.4</b>	<b>-0.3</b>	<b>-0.2</b>
Barrow Hanley	BBgBarc US Aggregate TR	-0.1	-0.1	-0.1	-0.1	0.0
Vanguard Short-Term Treasury Index Fund	BBgBarc US Govt 1-3 Yr TR	0.0	0.0	--	--	--
<b>Hedge Fund</b>	<b>Hedge Fund Custom</b>	<b>-0.4</b>	<b>0.0</b>	<b>3.6</b>	<b>1.3</b>	<b>--</b>
<b>Private Equity</b>	<b>Thomson Reuters Cambridge Private Equity Index</b>	<b>0.0</b>	<b>0.9</b>	<b>8.8</b>	<b>-5.6</b>	<b>-2.9</b>
<b>Real Assets</b>	<b>Real Asset Custom</b>	<b>-0.4</b>	<b>2.8</b>	<b>2.3</b>	<b>-2.7</b>	<b>0.5</b>
SSgA	Real Asset Custom	-3.2	-3.5	-7.0	--	--
<b>Private Real Estate</b>	<b>NCREIF ODCE (net)</b>	<b>-1.5</b>	<b>-0.2</b>	<b>0.3</b>	<b>0.0</b>	<b>-1.4</b>
<b>Private Infrastructure</b>	<b>S&amp;P Global Infrastructure Net TR USD</b>	<b>3.2</b>	<b>7.8</b>	<b>17.7</b>	<b>2.9</b>	<b>--</b>
<b>Private Natural Resources</b>	<b>S&amp;P Global Natural Resources Index TR USD</b>	<b>5.1</b>	<b>17.5</b>	<b>23.6</b>	<b>7.9</b>	<b>--</b>



## **Disclaimer, Glossary, and Notes**



WE HAVE PREPARED THIS REPORT (THIS "REPORT") FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE "RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM," "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

**Credit Risk:** Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

**Duration:** Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

**Information Ratio:** This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

**Jensen's Alpha:** A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk.  $\text{Portfolio Return} - [\text{Risk Free Rate} + \text{Beta} * (\text{market return} - \text{Risk Free Rate})]$ .

**Market Capitalization:** For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

**Market Weighted:** Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

**Maturity:** The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

**Prepayment Risk:** The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

**Price-Book Value (P/B) Ratio:** The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

**Price-Earnings (P/E) Ratio:** A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about its future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

**Quality Rating:** The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

**Sharpe Ratio:** A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

**Standard Deviation:** A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

**STIF Account:** Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

**Style:** The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

**Yield to Maturity:** The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a “basis book.” For example, a 5% bond pays \$5 a year interest on each \$100 par value. To figure its current yield, divide \$5 by \$95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay \$100 for the bond that can be bought now for \$95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\% \text{ (discount)}}{5 \text{ (yrs. to maturity)}} = 1\% \text{ pro rata, plus } 5.26\% \text{ (current yield)} = 6.26\% \text{ (yield to maturity)}$$

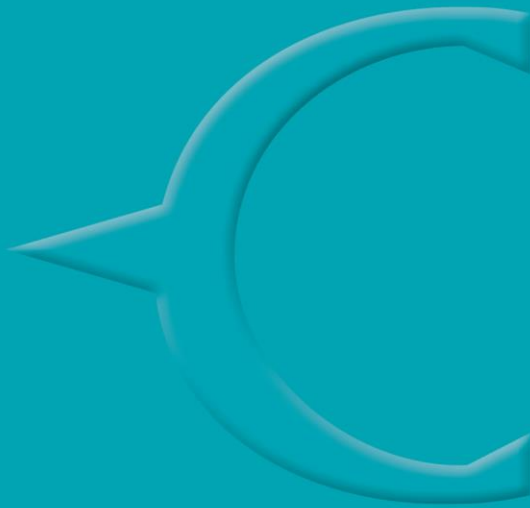
Sources: [Investment Terminology](#), International Foundation of Employee Benefit Plans, 1999.  
[The Handbook of Fixed Income Securities](#), Fabozzi, Frank J., 1991.

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Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.

**Item 3**

**Merced County  
Employees'  
Retirement Association**

**Actuarial Valuation Report  
as of June 30, 2018**

**Produced by Cheiron**

**January 2019**

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January 17, 2019

Retirement Board of Merced  
County Employees' Retirement Association  
3199 M Street  
Merced, CA 95348

Dear Members of the Board:

At your request, we have conducted an actuarial valuation of the Merced County Employees' Retirement Association (MCERA, the Fund, the Plan) as of June 30, 2018. This report contains information on the Plan's assets, liabilities, and discloses employer contribution levels. Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report.

The purpose of this report is to present the results of the annual actuarial valuation of MCERA. This report is for the use of the Retirement Board of MCERA and its auditors in preparing financial reports in accordance with applicable law and accounting requirements. Any other user of this report is not an intended user and is considered a third party.

This report was prepared for the Retirement Board of MCERA for the purposes described herein and for the use by the plan auditor in completing an audit related to the matters herein. Other users of this valuation report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to such other users.

To the best of our knowledge, this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

Sincerely,  
Cheiron

A handwritten signature in blue ink that reads "Graham Schmidt".

Graham A. Schmidt, ASA, EA, FCA, MAAA  
Consulting Actuary

A handwritten signature in blue ink that reads "Anne Harper".

Anne D. Harper, FSA, EA, MAAA  
Consulting Actuary



**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**FOREWORD**

Cheiron has performed the actuarial valuation of the Merced County Employees' Retirement Association as of June 30, 2018. The valuation is organized as follows:

- In Section I, the **Executive Summary**, we describe the purpose of an actuarial valuation, summarize the key results found in this valuation, and disclose important trends.
- The **Main Body** of the report presents details on the Plan's
  - Section II – Assets
  - Section III – Liabilities
  - Section IV – Contributions
  - Section V – Comprehensive Annual Financial Reporting Information
- In the **Appendices** we conclude our report with detailed information describing plan membership (Appendix A), actuarial assumptions and methods employed in the valuation (Appendix B), a summary of pertinent plan provisions (Appendix C), tables containing member contribution rates (Appendix D), and a glossary of key actuarial terms (Appendix E).

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

In preparing our report, we relied on information (some oral and written) supplied by the MCERA staff. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

## SECTION I – EXECUTIVE SUMMARY

The primary purpose of the actuarial valuation and this report is to measure, describe, and identify the following as of the valuation date:

- The financial condition of the Plan,
- Past and expected trends in the financial progress of the Plan,
- Employer and employee contribution rates for Fiscal Year 2020, and
- Information required by the GFOA for the Comprehensive Annual Financial Report.

In the balance of this Executive Summary, we present (A) the basis upon which this year's valuation was completed, (B) the key findings of this valuation including a summary of all key financial results, (C) an examination of the historical trends, and (D) the projected financial outlook for the Plan.

### A. Valuation Basis

This valuation determines the employer contributions for the fiscal year ending June 30, 2020. The Plan's funding policy is to collect contributions from the employers and employees equal to the sum of:

- The normal cost under the Entry Age Normal Cost Method,
- Amortization of the Unfunded Actuarial Liability, and
- The Plan's expected administrative expenses.

The Unfunded Actuarial Liability payment is determined as the amount needed to fund the outstanding Unfunded Actuarial Liability (UAL). The UAL as of June 30, 2013 is amortized over a closed 16-year period. Effective with the June 30, 2014 valuation, any new sources of UAL due to actuarial gains and losses or method changes are amortized over a closed 24-year period, with a five-year ramp up period at the beginning of the period, a four-year ramp down at the end of the period, and 15 years of level payments as a percentage of payroll between the ramping periods. Assumption changes will be amortized over a closed 22-year period, with a three-year ramp up period, two-year ramp down period, and 17 years of level payments as a percentage of payroll. This amortization method is similar to a traditional five or three year asset smoothing and a 20-year amortization period with level payments as a percentage of payroll. The Board also adopted a policy to replace the smoothed Actuarial Value of Assets with the Market Value of Assets for valuation purposes. These amortization and funding policies in conjunction are a type of policy known as direct rate smoothing.

Experience studies are performed every three years. This valuation was performed on the basis of the economic and demographic assumptions and methods that were determined in the Actuarial Experience Study dated February 15, 2017. A summary of the assumptions and methods used in the current valuation is shown in Appendix B.

This valuation was prepared based on the Plan provisions shown in Appendix C. Employee contribution rates are shown in Appendix D. The rates for PEPRA members will be recomputed each year to be one-half of the total normal cost rate.

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**SECTION I – EXECUTIVE SUMMARY**

**B. Key Findings of this Valuation**

The following discussion summarizes the key results of the June 30, 2018 valuation and how they compare to the results from the June 30, 2017 valuation.

**Summary of Key Valuation Results**

Table I-1 summarizes the key results of the valuation with respect to assets, liabilities, and contributions.

<b>Table I-1</b>		
<b>Merced County Employees' Retirement Association</b>		
<b>Summary of Key Valuation Results</b>		
(in millions)		
<b>Valuation Date Fiscal Year End</b>	<b>June 30, 2018 2020</b>	<b>June 30, 2017 2019</b>
Actuarial Liability	\$ 1,301.9	\$ 1,259.7
Market Value of Assets	826.7	753.8
Unfunded Actuarial Liability	\$ 475.3	\$ 505.9
Funded Ratio	63.5%	59.8%
Net Employer Contribution Rate	49.15%	50.20%

More discussion of the factors that affected these results can be found in the remainder of this section, but some key points are as follows:

- The employer contribution rate decreased from 50.20% to 49.15%.
- The Unfunded Actuarial Liability (UAL) is the excess of the Plan's Actuarial Liability over the Market Value of Assets. The Plan's UAL decreased from \$505.9 million to \$475.3 million. This decrease in UAL was primarily due to investment gains from assets.
- The Plan's funded ratio, the ratio of market assets over Actuarial Liability, increased from 59.8% last year to 63.5% as of June 30, 2018.

MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018

SECTION I – EXECUTIVE SUMMARY

**Plan Membership**

Table I-2 summarizes Plan membership as of June 30, 2018 and June 30, 2017. More detailed membership statistics are shown in Appendix A.

Table I-2 Membership Total			
Item	June 30, 2018	June 30, 2017	% Change
Actives	2,149	2,096	2.5%
Deferred Members	850	788	7.9%
Retired Members	2,310	2,263	2.1%
Total Members	5,309	5,147	3.1%
Active Member Payroll	\$ 137,667,629	\$ 129,624,256	6.2%
Average Pay per Active	64,061	61,844	3.6%

Some key points are as follows:

- Total Plan membership increased by 3.1%, mostly driven by the increase in active and deferred members. The active membership count increased by 2.5% and deferred membership increased by 7.9%.
- The pay figures reflect the annualized rate as of June 30, plus expected increases for the upcoming year. Total payroll increased by 6.2% compared to the assumed payroll growth of 2.75% while the average pay per active member increased by 3.6%.

MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018

SECTION I – EXECUTIVE SUMMARY

**Components of UAL Change between June 30, 2017 and June 30, 2018**

Table I-3 is a detailed reconciliation of the components that affected the UAL between June 30, 2017 and June 30, 2018.

Table I-3 Change in Unfunded Actuarial Liability	
Experience	in millions
Unfunded actuarial liability, 6/30/2017	\$ 505.9
Expected change in unfunded actuarial liability	\$ (16.3)
Unfunded decrease due to investment gains	(16.0)
Unfunded increase due to contributions less than expected (including impact of 12-month rate delay)	0.5
Unfunded increase due to liability loss	1.2
Unfunded increase due to assumption changes	0.0
Total change in unfunded actuarial liability	(30.6)
Unfunded actuarial liability, 6/30/2018	\$ 475.3

The Plan's UAL decreased from \$505.9 million as of June 30, 2017 to \$475.3 million as of June 30, 2018. As shown above, the largest contributing factors were investment gains of \$16.0 million and UAL contributions which paid off \$16.3 million of principal on the UAL. Contributions less than expected increased the UAL by \$0.5 million, largely resulting from the 12-month delay in implementation of the contribution rates offset by more employer and employee contributions due to higher than expected actual payroll. There were losses on Actuarial Liabilities of \$1.2 million, most of which was from cost-of-living adjustments for retirees that were slightly higher than assumed.

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**SECTION I – EXECUTIVE SUMMARY**

**Employer Contribution Reconciliation**

Table I-4 is a detailed reconciliation between the Fiscal Year 2019 and Fiscal Year 2020 employer contribution rates, in total and by component.

Table I-4 Employer Contribution Reconciliation				
Item	Total	Normal Cost	Amortization	Expenses
FYE 2019 Net Employer Contribution Rate	50.20%	9.13%	39.58%	1.49%
Expected Change due to phase-in	0.83%	0.00%	0.83%	0.00%
Change due to investment gain	-0.20%	0.00%	-0.20%	0.00%
Change due to contributions less than expected (including impact of 12-month rate delay)	0.01%	0.00%	0.01%	0.00%
Change due to PEPPA new hires	-0.32%	-0.32%	0.00%	0.00%
Change due to liability changes	-0.02%	-0.03%	0.01%	0.00%
Change due to effect of payroll on amort / expense	-1.35%	0.00%	-1.30%	-0.05%
Change due to change in assumptions	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
Total change	-1.05%	-0.35%	-0.65%	-0.05%
FYE 2020 Net Employer Contribution Rate	49.15%	8.78%	38.93%	1.44%

The employer contribution rate decreased from 50.20% for Fiscal Year 2019 to 49.15% for Fiscal Year 2020:

- The phase-in of the net UAL experience from the four years since the adoption of direct rate smoothing (based on a net gain in FYE 2014 and FYE 2017, and a net loss in FYE 2015 and FYE 2016, including assumption changes) increased the contribution rate by 0.83%. These net losses will continue to be phased-in for one more year, resulting in similar increases in the employer UAL contribution rates. However, these increases are expected to be partially offset by reductions in the employer normal cost rates, as more PEPPA members enter the system.
- The investment gain for the current fiscal year decreased the current year contribution rate by 0.20% of pay. The assets of the Plan returned 9.36% (net of investment expenses) on a market basis, which is higher than the assumed rate of 7.25%. The amortization credit (a negative payment, which offsets the employers' contributions) for the current year investment gains will continue to be phased-in over the next four years.
- A larger than expected increase in the projected payroll decreased the employer contribution rate by 1.35% of pay, since it results in the Plan's Unfunded Actuarial Liability and administrative expenses being spread over a larger-than-anticipated payroll base.

## SECTION I – EXECUTIVE SUMMARY

- Contributions less than expected increased the employer contribution rate by 0.01% of pay, largely due to the 12-month delay in implementation of the contribution rates.
- Demographic experience was favorable for a net decrease in cost of about 0.02% of pay, 0.03% of which was for changes in the employer normal cost, offset by 0.01% of which was for changes in the UAL amortization payment. As with the investment losses, the changes in the UAL payment will continue to be phased-in over the next four years. The replacement of legacy members by PEPPRA members further decreased the normal cost by about 0.32% of pay.

### Plan Risk

Table I-5 Asset to Payroll Ratio as of June 30, 2018		
Active Member Payroll	\$	137,667,629
Assets (Market Value)		826,653,970
Ratio of Assets to Payroll		6.00
Ratio with 100% Funding		9.46

One of the most important measures of a plan's risk is the ratio of plan assets to payroll. The table above shows MCERA's assets as a percentage of active member payroll. This ratio indicates the sensitivity of the Plan to the returns earned on Plan assets. We note in the table that assets currently are six times covered payroll for the Plan; as funding improves and the Plan reaches 100% funding, the ratio of assets to payroll will increase to over nine times payroll, perhaps higher depending on the Plan's future demographic makeup.

To appreciate the impact of the ratio of assets to payroll on contributions rates, consider the situation for a new plan with almost no assets. Even if the assets suffer a bad year of investment returns, the impact on the contribution rate is nil, because the assets are so small.

On the other hand, consider the situation for MCERA. Suppose MCERA's assets lose 10% of their value in a year. Since they were assumed to earn 7.25%, there is an actuarial loss of 17.25% of plan assets. Based on the current ratio of assets to payroll (600%), that means the loss in assets is about 103.5% of active payroll (600% of the 17.25% loss). There is only one source of funding to make up for this loss: the employers. Consequently, barring future offsetting investment gains, the employers must make up the asset loss in future contributions. In this example of a one-year loss of 10%, this shortfall will eventually require an additional amortization payment in the vicinity of 8.2% of payroll once fully phased-in, if amortized over the Plan's 24-year schedule for gains and losses.

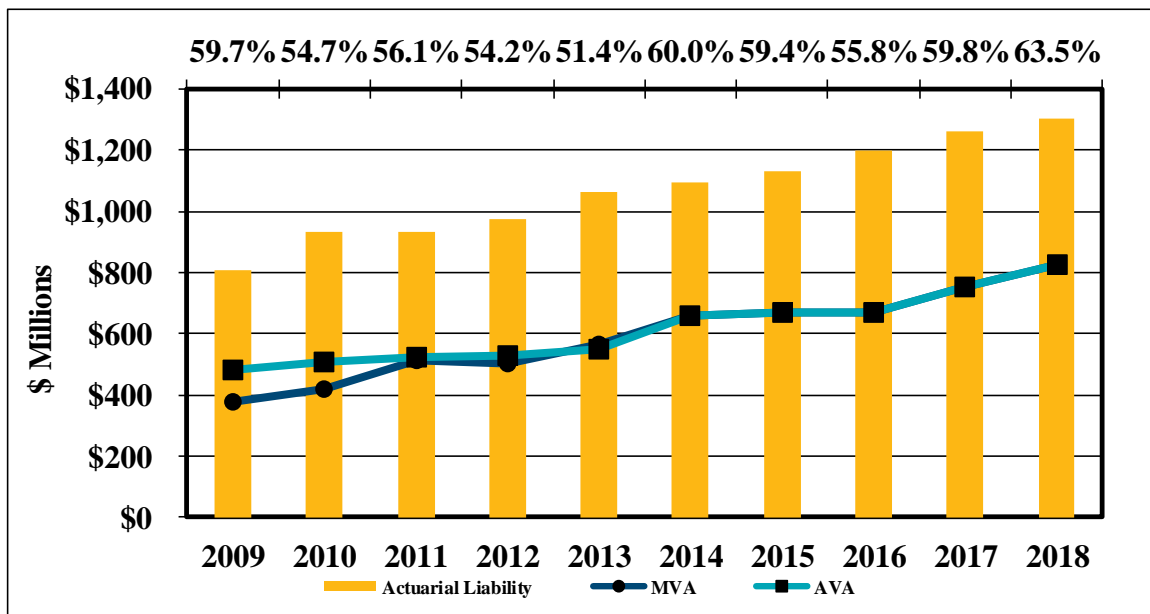
## SECTION I – EXECUTIVE SUMMARY

### C. Historical Trends

Despite the fact that for most retirement plans the greatest attention is given to the current valuation results and in particular, the size of the current Unfunded Actuarial Liability and the employer contribution, it is important to remember that each valuation is merely a snapshot in the long-term progress of a pension fund. It is more important to judge a current year's valuation result relative to historical trends, as well as trends expected into the future.

#### Assets and Liabilities

The chart below compares the Market Value of Assets (MVA) and Actuarial Value of Assets (AVA) to the Actuarial Liabilities. The percentage shown at the top of each bar is the ratio of the Actuarial Value of Assets to the Actuarial Liability (the funded ratio). Beginning June 30, 2014, the Actuarial Value of Assets is equal to the market value, and thus the funded ratios shown in 2014 and after are based on the Market Value of Assets. The funded ratio has increased from 59.7% in 2009 to 63.5% as of June 30, 2018.



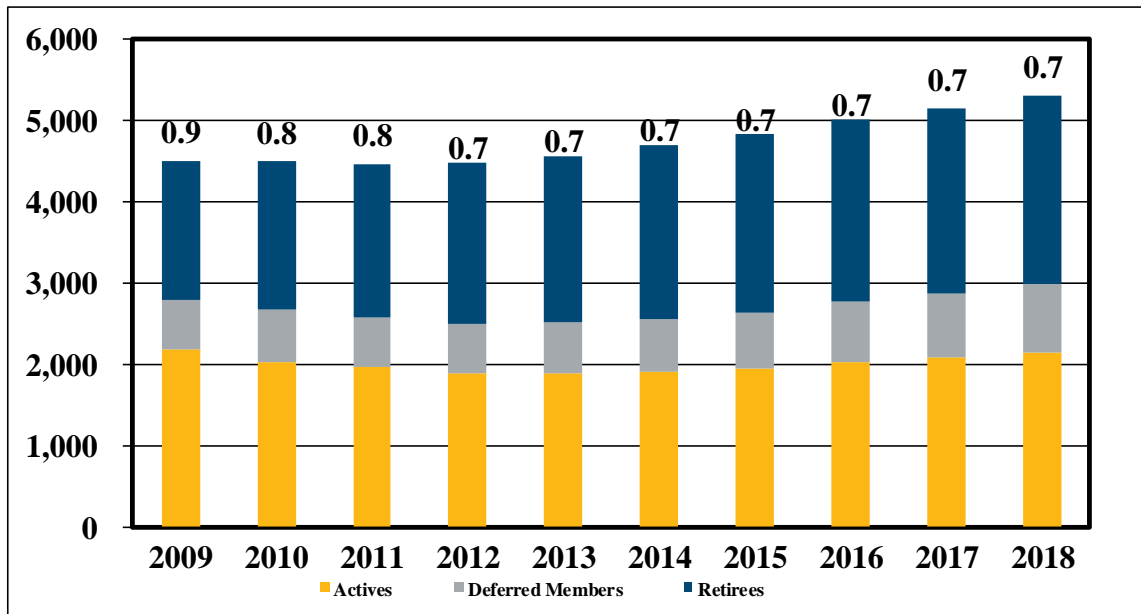
The extraordinary asset loss of 2008 adversely affected the funded ratio from 2009 to 2013. The 2014 funded ratio increased as a result of asset and liability gains in 2014, and as a result of resetting the Actuarial Value of Assets to the market value. The 2016 funded ratio decreased as a result of investment losses and losses from assumption changes. The 2017 and 2018 funded ratios increased as a result of investment gains and contributions by the members and employers.



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SECTION I – EXECUTIVE SUMMARY

Participant Trends



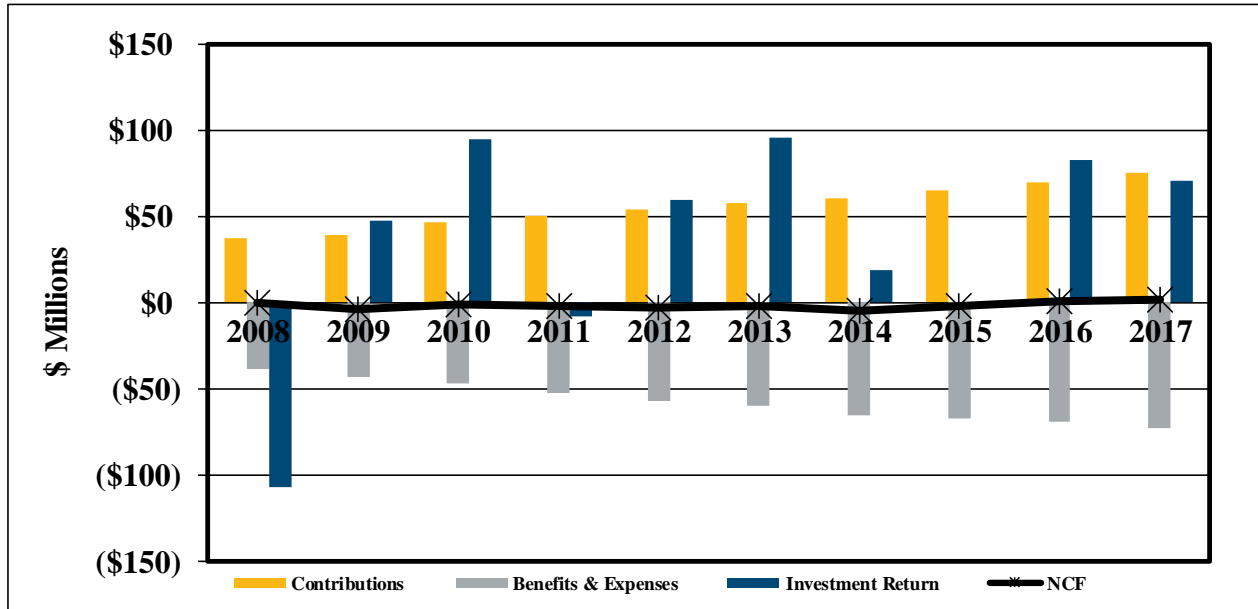
The chart above provides a measure for Plan maturity by comparing the ratio of active members to inactive members (retirees and deferred members). These ratios are given at the top of each bar. The active-to-inactive ratio has decreased from 2009 to 2018 indicating the ongoing maturation of the Plan. While this is neither good nor bad in itself, it does have implications for the risk profile of the Plan, as discussed under Table I-5 earlier in this section.

MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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SECTION I – EXECUTIVE SUMMARY

Cash Flows

The chart shows the Plan's cash flow (contribution less benefit payments). This is a critical measure, as it reflects the ability to have funds available to meet benefit payments without having to make difficult investment decisions, especially during volatile markets.



In the chart above, the contributions, outflows (benefit payments and expenses), and investment returns are shown as bars and the Plan's net cash flow (NCF) is shown as a black line. The NCF, which is equal to contributions less benefits and expenses, has been close to zero for the entire period shown. A plan in a significantly negative cash flow position magnifies the losses during a market decline hindering the Plan in its ability to absorb market fluctuations; however, this is not currently the case for MCERA.

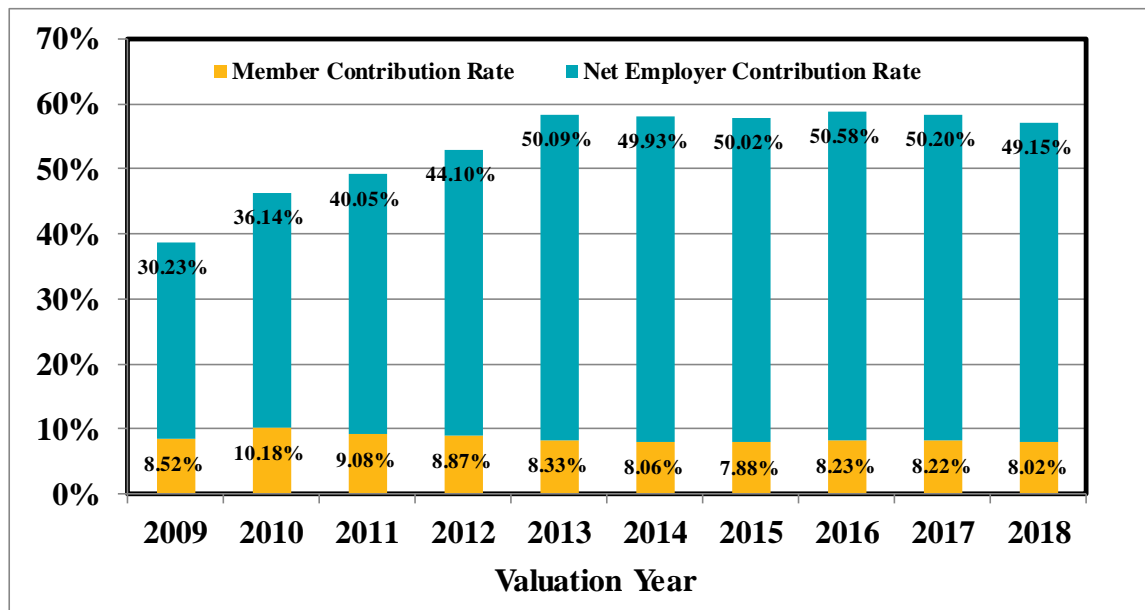
MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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SECTION I – EXECUTIVE SUMMARY

**Contributions**

The chart below shows the historical member and employer contribution rates. The employer contribution rate increased significantly from 30.2% to 36.1% with the 2010 valuation due to demographic and economic assumption changes as well as investment losses. The steady increase in the contribution rate from 36.1% to 50.1% during 2010-2013 is a result of the 2008-2009 investment losses that were recognized over a 5-year period. Since 2013, the employer contribution rate has remained relatively stable.

The member rates increased slightly in 2010 due to mortality and economic assumption changes. With the implementation of PEPRA in 2013, the employee rates have gradually decreased since the contribution rates for PEPRA members are generally lower than the Non-PEPRA member rates. There was a slight increase in 2016 as projected mortality improvements increased.



## SECTION I – EXECUTIVE SUMMARY

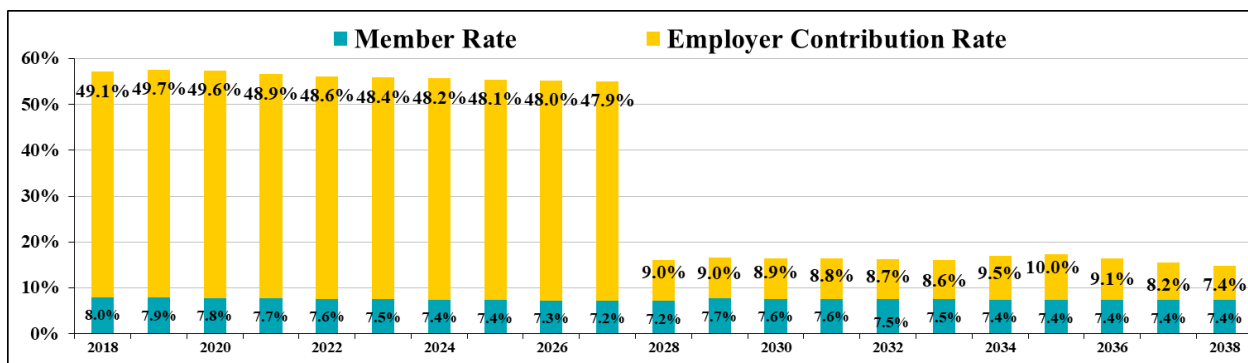
### D. Future Expected Financial Trends

The analysis of projected financial trends is perhaps the most important component of this valuation. In this section, we present our assessment of the implications of the June 30, 2018 valuation results in terms of contributions and benefit security (assets compared to liabilities). All the projections in this section are based on the current interest rate assumption of 7.25%. We have assumed increases in future pensionable payroll of 2.75% per year.

#### Contribution Projections:

The following graph shows the expected employer and member contribution rates based on actually achieving the 7.25% assumption each year for the next 20 years, which is clearly impossible.

#### Projection of Employer and Member Contributions, 7.25% return each year



The graph above shows employer contributions peaking at 49.7% in the June 30, 2019 valuation (for Fiscal Year 2021), decreasing slightly in the subsequent years, and then dropping off significantly in 2028 once the amortization of the bulk of the Unfunded Actuarial Liability is complete.

Note that the graph above does not forecast any actuarial gains or losses. Even relatively modest losses relative to the 7.25% assumed return could push the employer contribution rate above 50% in the next few years.

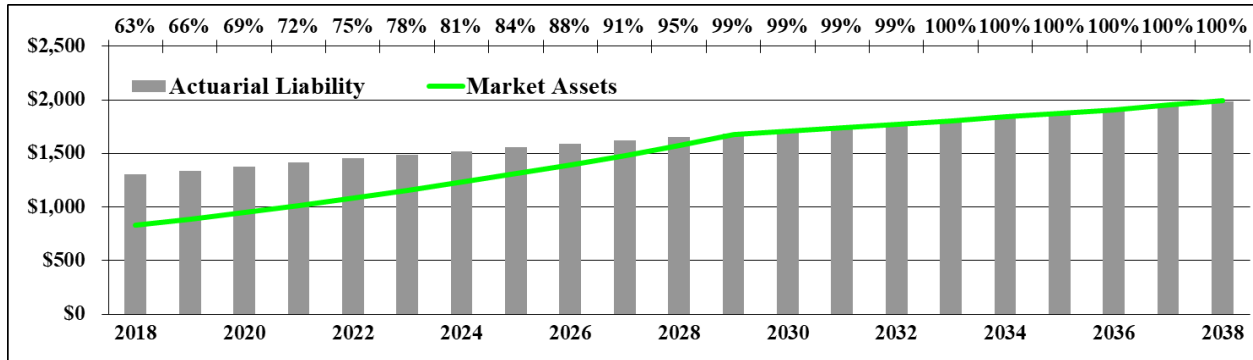
MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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SECTION I – EXECUTIVE SUMMARY

**Asset and Liability Projections:**

The graph shows the projection of assets and liabilities assuming that assets will earn the 7.25% assumption each year during the projection period. The percentages along the top of the graph represent the funded ratio or status of the System.

**Projection of Assets and Liabilities, 7.25% return each year**



The graph shows that the projected funded status increases over the next 15 years to 100%, assuming the actuarial assumptions are achieved. However, as noted on the previous page, it is the actual return on plan assets that will determine the future funded status and contribution rates.

## SECTION II – ASSETS

Pension Plan assets play a key role in the financial operation of the Plan and in the decisions the Board may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, employer contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on Plan assets including:

- **Disclosure** of Plan assets as of June 30, 2017 and June 30, 2018,
- Statement of the **changes** in market values during the year,
- Comparison of the actual and expected investment performance during the year, and
- Historical **investment performance**.

As of June 30, 2014, an Actuarial Value of Assets distinct from the Market Value of Assets is no longer used in the calculations of the Unfunded Actuarial Liability or funded status due to the implementation of the new funding policy adopted by the Board on January 22, 2015. This policy change was made in conjunction with 24-year (22-year for assumption changes) layered amortization of any unexpected changes in the Unfunded Actuarial Liability starting with the June 30, 2014 valuation. The calculation of the Actuarial Value of Assets is no longer shown in the valuation report, except to show the history of returns on the actuarial assets in Table II-3.

Also in prior valuations, a distinction was made between actuarial assets and valuation assets, with the latter reduced for non-valuation reserves, such as the Contingency Reserve. Since there are no such reserves as of June 30, 2017 and June 30, 2018, the two asset values are equal, and throughout this report we have used the term Market Value of Assets exclusively, except to show the history of returns on the valuation assets in Table II-3.

### **Disclosure**

The market value represents “snap-shot” or “cash-out” values that provide the principal basis for measuring financial performance from one year to the next.

Table II-1 on the next page discloses and compares each asset value as of June 30, 2017 and June 30, 2018.

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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**SECTION II – ASSETS**

<b>Table II-1 Statement of Assets at Market Value</b>		
<b>Assets</b>	<b>June 30, 2018</b>	<b>June 30, 2017</b>
<b>Cash and Short-Term Investments:</b>		
Cash invested with Merced County Treasurer	\$ 5,842,004	\$ 3,853,727
Cash invested with BNY Mellon	0	5,292,717
Other cash and cash equivalents with BNY Mellon	0	1,742,959
Cash invested with Northern Trust	10,944,975	0
Other cash and cash equivalents with Northern Trust	2,265,078	0
Securities lending collateral	0	0
Total Cash and Short-Term Investments	\$ 19,052,057	\$ 10,889,403
<b>Receivables:</b>		
Bond interest	\$ 815,971	\$ 704,271
Dividends	81,839	108,303
Contributions	1,597,575	1,512,670
Distributions	8,485,104	431,815
Securities sold	0	0
Other	67,218	5,124
Total Receivables	\$ 11,047,707	\$ 2,762,183
<b>Investments at Market Value:</b>		
U.S. government and agency obligations	\$ 72,311,297	\$ 67,194,200
Domestic fixed income	95,697,250	90,688,858
Common stocks (domestic)	43,334,808	40,925,272
Common stocks (index funds)	198,239,163	189,256,179
Common stocks (international)	82,837,521	82,898,638
Common stocks (international index funds)	115,367,843	107,338,378
Real estate	62,191,187	54,991,688
Alternative investments	126,076,024	105,322,608
Total Investments at Market Value	\$ 796,055,093	\$ 738,615,821
<b>Other Assets:</b>		
Prepaid expense	\$ 35,470	\$ 113,692
Capital assets, net of accumulated depreciation of \$855,247 and \$610,802 respectively	1,849,495	2,095,256
<b>Total Assets</b>	<b>828,039,822</b>	<b>754,476,355</b>
<b>Liabilities</b>		
Accounts payable	\$ 715,680	\$ 621,624
Securities lending obligation	0	0
Securities purchased	577,731	0
Unclaimed contributions	112,441	85,403
<b>Total Liabilities</b>	<b>1,385,852</b>	<b>707,027</b>
<b>Market Value of Assets</b>	<b>\$ 826,653,970</b>	<b>\$ 753,769,328</b>

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**SECTION II – ASSETS**

**Changes in Market Value**

The components of asset change are:

- Contributions (employer and employee)
- Benefit payments
- Expenses (investment and administrative)
- Investment income (realized and unrealized)

Table II-2 shows the components of change in the Market Value of Assets during 2017 and 2018.

<b>Table II-2 Changes in Market Values</b>		
	<b>Fiscal Year ending June 30, 2018</b>	<b>Fiscal Year ending June 30, 2017</b>
<b>Additions</b>		
Contributions:		
Employer	\$ 64,757,288	\$ 60,349,189
Plan members	10,441,876	9,384,621
Total Contributions	\$ 75,199,164	\$ 69,733,810
Investment Income/(Loss) from Investment Activities:		
Net appreciation/(depreciation) in fair value of investments	\$ 66,985,134	\$ 79,215,883
Investment income	6,926,711	6,482,887
Other revenue	42,618	22,243
Less investment expenses	(3,265,379)	(2,631,692)
Total Investment Income/(Loss) from Investment Activities	\$ 70,689,084	\$ 83,089,321
Securities Lending Income:		
Securities lending income	\$ 0	\$ (4,743)
Securities lending rebates	0	12,838
Total Securities Lending Income	\$ 0	\$ 8,095
Total Investment Income/(Loss)	\$ 70,689,084	\$ 83,097,416
<b>Total Additions</b>	<b>145,888,248</b>	<b>152,831,226</b>
<b>Deductions</b>		
Benefits paid	\$ 69,836,223	\$ 66,116,108
Refunds of contributions	883,987	788,207
Administrative expense	2,177,186	1,966,898
Actuarial expense	106,210	206,509
<b>Total Deductions</b>	<b>73,003,606</b>	<b>69,077,722</b>
Net Increase/(Decrease)	\$ 72,884,642	\$ 83,753,504
Market Value of Assets, Beginning of Year	753,769,328	670,015,824
<b>Market Value of Assets, End of Year</b>	<b>\$ 826,653,970</b>	<b>\$ 753,769,328</b>



MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018

SECTION II – ASSETS

**Investment Performance**

The following table shows the development of the asset gain/(loss) and investment return.

Table II-3 Development of Asset Return		
Market Value of Assets, Beginning of Year	\$	753,769,328
Contributions		75,199,164
Benefit Paid and Refunds of Contributions		(70,720,210)
Administrative Expense		(2,283,396)
Expected Investment Earnings (7.25%)		54,726,473
Expected Market Value of Assets, End of Year	\$	810,691,359
Investment Gain / (Loss)		15,962,611
Market Value of Assets, End of Year		\$826,653,970
Actual Investment Earnings	\$	70,689,084
Return		9.36%

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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**SECTION II – ASSETS**

The table below shows the historical annual asset returns on a market value and actuarial value basis, as well in the increase in the Consumer Price Index (CPI) since 1995. Beginning June 30, 2014, the Actuarial Value of Assets is equal to the Market Value of Assets, so the net returns are the same for FY 2015 onwards.

Table II-4 Net Return on Assets vs. Increase in Consumer Price Index				
Year Ended June 30	Net Return at Market Value	Net Return at Actuarial Value	Net Return at Valuation Assets	Increase in Consumer Price Index <sup>1</sup>
1995		4.4%		3.0%
1996	9.8%	9.8%		2.8%
1997	16.7%	11.6%		2.3%
1998	13.9%	12.7%		1.7%
1999	10.0%	12.3%		2.0%
2000	9.1%	11.5%		3.7%
2001	-3.6%	8.6%		3.2%
2002	-5.6%	4.9%		1.1%
2003	4.6%	3.3%		2.1%
2004	12.6%	3.3%		3.3%
2005	8.7%	2.5%		2.5%
2006	7.6%	4.7%		4.3%
2007	16.3%	8.9%		2.7%
2008	-6.7%	1.2%		5.0%
2009	-22.1%	-4.9%	2.7%	-1.4%
2010	12.7%	7.0%	6.0%	1.1%
2011	22.6%	2.6%	2.7%	3.6%
2012	-1.6%	0.6%	1.0%	1.7%
2013	11.8%	3.8%	3.8%	1.8%
2014	17.1%	11.8%	11.8%	2.1%
2015	2.9%	2.9%	2.9%	0.1%
2016	-0.1%	-0.1%	-0.1%	1.0%
2017	12.4%	12.4%	12.4%	1.6%
2018	9.4%	9.4%	9.4%	2.9%
<b>15-Year Compound Average</b>	<b>6.3%</b>	<b>4.3%</b>	<b>N/A</b>	<b>2.1%</b>
<b>10-Year Compound Average</b>	<b>5.8%</b>	<b>4.4%</b>	<b>5.2%</b>	<b>1.4%</b>
<b>5-Year Compound Average</b>	<b>8.2%</b>	<b>7.2%</b>	<b>7.2%</b>	<b>1.5%</b>

<sup>1</sup> Based on All Urban Consumers - U.S. City Average, June indices.

### SECTION III – LIABILITIES

In this section, we present detailed information on Plan liabilities including:

- **Disclosure** of Plan liabilities at June 30, 2017 and June 30, 2018, and
- Plan liabilities by **tier** as of June 30, 2018.

#### Disclosure

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them. Note that these liabilities are not applicable for settlement purposes, including the purchase of annuities and the payment of lump sums.

- **Present Value of Future Benefits:** Used for measuring all future Plan obligations, represents the amount of money needed today to fully fund all benefits of the Plan both earned as of the valuation date and those to be earned in the future by current plan participants, under the current Plan provisions.
- **Actuarial Liability:** Used for funding calculations, this liability is calculated taking the Present Value of Future Benefits and subtracting the present value of future Member Contributions and future employer normal costs under an acceptable actuarial funding method. The method used for this Plan is called the **Entry Age Normal** (EAN) funding method.
- **Unfunded Actuarial Liability:** The excess of the Actuarial Liability over the Market Value of Assets.

Table III-1 on the following page discloses each of these liabilities for the current and prior valuations.

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**SECTION III – LIABILITIES**

Table III-1			
Present Value of Future Benefits and Actuarial Liability			
(in thousands)			
Item	June 30, 2018		June 30, 2017
Present Value of Future Benefits			
Actives	\$	535,293	\$ 526,050
Deferred Members		51,294	48,546
Retirees		750,337	716,455
Disabled		68,049	65,928
Beneficiaries		52,709	52,260
Total MCERA	\$	1,457,682	\$ 1,409,240
Actuarial Liability			
Total Present Value of Benefits	\$	1,457,682	\$ 1,409,240
Present Value of Future Normal Costs			
Employer Portion		79,385	76,670
Employee Portion		76,379	72,868
Actuarial Liability	\$	1,301,919	\$ 1,259,702
Market Value of Assets	\$	826,654	\$ 753,769
Unfunded Actuarial Liability/(Surplus)	\$	475,265	\$ 505,933

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**SECTION III – LIABILITIES**

Table III-2 discloses the liabilities of the Plan as of June 30, 2018, split by tier.

<b>Table III-2</b> <b>Liabilities by Group as of June 30, 2018</b> (in thousands)												
<b>Present Value of Future Benefits</b>	<b>Tier 1</b>	<b>Tier 2</b>	<b>General</b>				<b>Tier 1</b>	<b>Tier 2</b>	<b>Safety</b>	<b>Tier 4</b>	<b>Total</b>	<b>All Total</b>
			<b>Tier 3</b>	<b>Tier 3R</b>	<b>Tier 4</b>	<b>Total</b>			<b>Tier 3</b>			
Actives	\$ 93,326	\$ 264,744	\$ 6,131	\$ 259	\$ 55,768	\$ 420,229	\$ 26,975	\$ 70,870	\$ 804	\$ 16,415	\$ 115,064	\$ 535,293
Deferred Members	12,956	28,381	269	0	502	42,107	1,266	7,661	50	211	9,187	51,294
Retirees	549,151	78,646	56	0	0	627,854	118,177	4,307	0	0	122,483	750,337
Disabled	17,212	5,973	0	0	0	23,185	37,402	7,463	0	0	44,864	68,049
Beneficiaries	32,480	2,383	0	0	0	34,863	17,086	761	0	0	17,847	52,709
<b>Total</b>	<b>\$ 705,125</b>	<b>\$ 380,127</b>	<b>\$ 6,456</b>	<b>\$ 259</b>	<b>\$ 56,270</b>	<b>\$ 1,148,236</b>	<b>\$ 200,905</b>	<b>\$ 91,061</b>	<b>\$ 854</b>	<b>\$ 16,626</b>	<b>\$ 309,446</b>	<b>\$ 1,457,682</b>
<b>Actuarial Liability</b>												
Actives	\$ 85,986	\$ 200,553	\$ 1,935	\$ 0	\$ 11,871	\$ 300,346	\$ 25,586	\$ 50,659	\$ 225	\$ 2,714	\$ 79,183	\$ 379,529
Deferred Members	12,956	28,381	269	0	502	42,107	1,266	7,661	50	211	9,187	51,294
Retirees	549,151	78,646	56	0	0	627,854	118,177	4,307	0	0	122,483	750,337
Disabled	17,212	5,973	0	0	0	23,185	37,402	7,463	0	0	44,864	68,049
Beneficiaries	32,480	2,383	0	0	0	34,863	17,086	761	0	0	17,847	52,709
<b>Total</b>	<b>\$ 697,785</b>	<b>\$ 315,936</b>	<b>\$ 2,259</b>	<b>\$ 0</b>	<b>\$ 12,373</b>	<b>\$ 1,028,353</b>	<b>\$ 199,516</b>	<b>\$ 70,850</b>	<b>\$ 275</b>	<b>\$ 2,925</b>	<b>\$ 273,565</b>	<b>\$ 1,301,919</b>

## SECTION IV – CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the Plan. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

For this Plan, the actuarial funding method used to determine the normal cost and the Unfunded Actuarial Liability is the **Entry Age Normal (EAN) Cost Method**. There are three primary components to the total contribution: the **normal cost rate** (employee and employer), the **Unfunded Actuarial Liability rate** (UAL rate), and the **administrative expense rate**.

The normal cost rate is determined in the following steps. First, an individual normal cost rate is determined by taking the value, as of entry age into the Plan, of each member's projected future benefits. This value is then divided by the value, also at entry age, of the member's expected future salary producing a normal cost rate that should remain relatively constant over a member's career.

The total normal cost is computed by adding the expected dollar amount of each active member's normal cost for the current year - known as the Individual Entry Age Method. The total normal cost is adjusted with interest to the middle of the year, to reflect the fact that the normal cost contributions are paid throughout the year as member payroll payments are made. Finally, the total normal cost rate, calculated by dividing the total normal cost by expected payroll of the closed group, is reduced by the member contribution rate to produce the employer normal cost rate.

Starting with the June 30, 2014 valuation, the Unfunded Actuarial Liability (UAL) is the difference between the EAN Actuarial Liability and the Market Value of Assets. The Unfunded Actuarial Liability payment is determined as the amount needed to fund the outstanding Unfunded Actuarial Liability as of June 30, 2013 over a closed period of 16 years (with 11 years remaining as of the current valuation), as a level percentage of pay. Any subsequent unexpected change in the Unfunded Actuarial Liability after June 30, 2013 is amortized over 24 years (22 years for assumption changes) that includes a five-year phase-in/four-year phase-out (three-year phase-in/two-year phase-out for assumption changes) of the payments/credits for each annual layer.

The administrative expenses are assumed to be \$2.3 million for the current Plan year, and are expected to increase by the inflation rate in future years. The administrative expenses are split between the employees and employers based on each group's share of the normal cost and UAL rates.

MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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SECTION IV – CONTRIBUTIONS

The table below and on the next page present the employer contribution rates for the Plan for this valuation.

Table IV-1 Development of the Net Employer Contribution Rate as of June 30, 2018 for FYE 2020		
	June 30, 2018	June 30, 2017
1. Total Normal Cost Rate	16.56%	17.11%
2. Member Contribution Rate <sup>1</sup>	<u>7.78%</u>	<u>7.98%</u>
3. Employer Normal Cost Rate (1-2)	8.78%	9.13%
4. UAL Amortization Rate	38.93%	39.58%
5. Administrative Expense Rate	1.44%	1.49%
6. Net Employer Contribution Rate (3+4+5)	49.15%	50.20%

<sup>1</sup> Not including member's share of administrative expenses.

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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**SECTION IV – CONTRIBUTIONS**

Table IV-2  
FYE 2020 Net Employer Contribution Rate by Group

	Tier 1	Tier 2	General Tier 3	Tier 4	Total	Tier 1	Tier 2	Safety Tier 3	Tier 4	Total	All Total
<b>County</b>											
1. Total Normal Cost Rate	22.89%	17.29%	13.14%	11.53%	15.42%	30.53%	22.37%	21.49%	19.95%	22.19%	16.56%
2. Member Contribution Rate <sup>1</sup>	<u>11.02%</u>	<u>8.42%</u>	<u>5.60%</u>	<u>5.77%</u>	<u>7.53%</u>	<u>10.63%</u>	<u>8.34%</u>	<u>8.00%</u>	<u>9.98%</u>	<u>9.03%</u>	<u>7.78%</u>
3. Employer Normal Cost Rate (1-2)	11.87%	8.87%	7.54%	5.76%	7.89%	19.90%	14.03%	13.49%	9.97%	13.16%	8.78%
4. UAL Amortization Rate	37.04%	37.04%	37.04%	37.04%	37.04%	48.23%	48.23%	48.23%	48.23%	48.23%	38.93%
5. Administrative Expense Rate	<u>1.48%</u>	<u>1.39%</u>	<u>1.35%</u>	<u>1.29%</u>	<u>1.36%</u>	<u>2.06%</u>	<u>1.88%</u>	<u>1.86%</u>	<u>1.76%</u>	<u>1.85%</u>	<u>1.44%</u>
<b>6. Net Employer Contribution Rate (3+4+5)</b>	<b>50.39%</b>	<b>47.30%</b>	<b>45.93%</b>	<b>44.09%</b>	<b>46.29%</b>	<b>70.19%</b>	<b>64.14%</b>	<b>63.58%</b>	<b>59.96%</b>	<b>63.24%</b>	<b>49.15%</b>
	Cemetery Tier 2	Cemetery Tier 2R	County Tier 3R	Courts Tier 2R				Tier 3R			
1. Total Normal Cost Rate	14.17%	13.92%	15.46%	16.97%				21.13%			
2. Member Contribution Rate <sup>1</sup>	<u>7.65%</u>	<u>7.48%</u>	<u>5.83%</u>	<u>8.23%</u>				<u>7.82%</u>			
3. Employer Normal Cost Rate (1-2)	6.52%	6.44%	9.63%	8.74%				13.31%			
4. UAL Amortization Rate	37.04%	37.04%	37.04%	37.04%				48.23%			
5. Administrative Expense Rate	<u>1.32%</u>	<u>1.31%</u>	<u>1.41%</u>	<u>1.38%</u>				<u>1.86%</u>			
<b>6. Net Employer Contribution Rate (3+4+5)</b>	<b>44.88%</b>	<b>44.79%</b>	<b>48.08%</b>	<b>47.16%</b>				<b>63.40%</b>			

<sup>1</sup> Not including member's share of administrative expenses.



**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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**SECTION IV – CONTRIBUTIONS**

The assets of the Plan are allocated between the General and Safety groups based on their share of the liability for non-active members. If the assets of the Plan exceed the liabilities of the non-active members, the remaining assets are allocated between the General and Safety groups based on their share of the liabilities for active members.

Table IV-3 Allocation of the June 30, 2018 UAL and Development of UAL Amortization Rates for FYE 2020			
	General	Safety	Total
1. Market Value of Assets			\$ 826,653,970
2. Inactive Actuarial Liability	728,007,774	194,381,812	922,389,586
3. Allocation of Assets for Inactives	78.93%	21.07%	100.00%
4. Total Assets for Inactives	652,447,215	174,206,755	826,653,970
5. Net Assets for Distribution (4 - 2 not less than zero)			\$ 0
6. Active Actuarial Liability	\$ 300,345,723	\$ 79,183,264	\$ 379,528,987
7. Allocation of Remaining Assets	79.14%	20.86%	100.00%
8. Total Assets for Actives (7 x 5)	0	0	0
9. Market Value of Assets (4 + 8)	\$ 652,447,215	\$ 174,206,755	\$ 826,653,970
10. Total Actuarial Liability	1,028,353,497	273,565,076	1,301,918,573
<b>11. Unfunded Actuarial Liability (UAL) (10 - 9)</b>	<b>\$ 375,906,282</b>	<b>\$ 99,358,321</b>	<b>\$ 475,264,603</b>
12. UAL Amortization (see table IV-4)	42,385,587	11,203,220	53,588,807
13. Total Payroll	114,441,255	23,226,374	137,667,629
<b>14. UAL Amortization Rate (2 divided by 3)</b>	<b>37.04%</b>	<b>48.23%</b>	<b>38.93%</b>

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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**SECTION IV – CONTRIBUTIONS**

Table IV-4 presents the calculation of the UAL payments for the System.

<b>Table IV-4 Development of Amortization Payment For the June 30, 2018 Actuarial Valuation</b>									
<b>Type of Base</b>	<b>Date Established</b>	<b>Initial Amount</b>	<b>Initial Amortization Years</b>	<b>June 30, 2018 Outstanding Balance</b>	<b>Remaining Amortization Years</b>	<b>Current Phase In/Out Percentage</b>	<b>Amortization Amount</b>	<b>% of Pay</b>	<b>% of Pay After Phase-In</b>
1. Initial UAL	6/30/2013	\$ 518,034,325	16	\$ 453,864,379	11	100%	\$ 52,459,869	38.11%	38.11%
2. (Gain)/Loss Base	6/30/2014	(71,384,203)	24	(81,364,411)	20	100%	(6,585,568)	-4.78%	-4.78%
3. (Gain)/Loss Base	6/30/2015	34,000,650	24	38,339,152	21	80%	2,432,484	1.77%	2.21%
4. (Gain)/Loss Base	6/30/2016	47,466,429	24	52,074,632	22	60%	2,468,115	1.79%	2.99%
5. (Gain)/Loss Assumption	6/30/2016	38,112,827	22	40,599,659	20	100%	3,168,217	2.30%	2.30%
6. (Gain)/Loss Base	6/30/2017	(29,098,191)	24	(30,713,091)	23	40%	(981,684)	-0.71%	-1.78%
7. (Gain)/Loss Assumption	6/30/2017	15,960,129	22	16,683,434	21	67%	860,810	0.63%	0.94%
8. (Gain)/Loss Base	6/30/2018	(14,219,151)	24	<u>(14,219,151)</u>	24	20%	<u>(233,436)</u>	<u>-0.17%</u>	<u>-0.85%</u>
<b>Total</b>				\$ 475,264,603			\$ 53,588,807	38.93%	39.13%

The single period equivalent amortization period – i.e., the length of time required to amortize the overall UAL as a level percentage of payroll based on the total current amortization payment – is approximately 11 years.

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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**SECTION V – COMPREHENSIVE ANNUAL FINANCIAL REPORTING INFORMATION**

The GASB adopted Statement Nos. 67 and 68 which replaced GASB Statement Nos. 25 and 27. GASB 67 is effective for periods beginning after June 15, 2013 (first effective for the fiscal year ending June 30, 2014 for the Plan) and GASB 68 is effective for fiscal years beginning after June 15, 2014 (first effective for the fiscal year ending June 30, 2015 for the Employer). The disclosures needed to satisfy the new GASB requirements can be found in the MCERA GASB 67/68 Report as of June 30, 2018.

In accordance with Governmental Finance Officers Association (GFOA) and their recommended checklist for Comprehensive Annual Financial Reports (CAFRSs), we continue to prepare the following disclosures:

*Analysis of Financial Experience*

This schedule shows the history of gains or losses arising from investment and liability sources, as well as non-recurring items.

*Schedule of Funded Liabilities by Type*

The schedule of funded liabilities by type (formerly referred to as the solvency test) shows the portion of Actuarial Liabilities for active member contributions, inactive members, and the employer financed portion of the active members that are covered by the Actuarial Value of Assets.

*Actuarial Balance Sheet*

The actuarial balance sheet shows the components of the Actuarial Liabilities of the Plan and the actuarial assets that are intended to satisfy those liabilities.

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**SECTION V – COMPREHENSIVE ANNUAL FINANCIAL REPORTING INFORMATION**

<p style="text-align: center;">Table V-1 Analysis of Financial Experience Gain (or Loss) in Actuarial Liability During Years Ended June 30 Resulting from Differences Between Assumed Experience and Actual Experience (in thousands) Gain (or Loss) for Year Ending June 30</p>										
Type of Activity	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Investment Income and Expenses	\$ 15,963	\$ 34,498	\$ (52,420)	\$ (31,459)	\$ 22,058	\$ (20,749)	\$ (40,054)	\$ (30,955)	\$ (16,151)	\$ (66,987)
Combined Liability Experience	<u>(1,158)</u>	<u>(2,720)</u>	<u>8,327</u>	<u>5,096</u>	<u>12,533</u>	<u>(4,199)</u>	<u>(11,401)</u>	<u>13,824</u>	<u>(8,100)</u>	<u>(23,892)</u>
Gain (or Loss) During Year from Financial Experience	\$ 14,805	\$ 31,778	\$ (44,093)	\$ (26,363)	\$ 34,591	\$ (24,948)	\$ (51,455)	\$ (17,131)	\$ (24,251)	\$ (90,879)
Non-Recurring Gain (or Loss) Items	<u>(576)</u>	<u>(18,639)</u>	<u>(41,488)</u>	<u>(7,636)</u>	<u>36,803</u>	<u>(49,294)</u>	<u>16,069</u>	<u>12,918</u>	<u>(63,410)</u>	<u>-</u>
Composite Gain (or Loss) During Year	\$ 14,229	\$ 13,139	\$ (85,581)	\$ (33,999)	\$ 71,394	\$ (74,242)	\$ (35,386)	\$ (4,213)	\$ (87,661)	\$ (90,879)

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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**SECTION V – COMPREHENSIVE ANNUAL FINANCIAL REPORTING INFORMATION**

<p style="text-align: center;"><b>Table V-2</b> <b>Schedule of Funded Liabilities by Type</b> (dollars in thousands)</p>								
Valuation Date June 30,	(A) Active Member Contributions	(B) Retirees And Beneficiaries	(C) Remaining Active Members' Liabilities <sup>1</sup>	Reported Assets <sup>2</sup>	Portion of Actuarial Liabilities Covered by Reported Assets			
					(A)	(B)	(C)	
2018	\$ 86,585	\$ 871,095	\$ 344,239	\$ 826,654	100%	85%	0%	
2017	85,150	834,643	339,909	753,769	100%	80%	0%	
2016 <sup>3</sup>	81,880	804,658	314,657	670,016	100%	73%	0%	
2015	78,078	765,738	287,365	672,319	100%	78%	0%	
2014	75,582	739,428	281,231	657,325	100%	79%	0%	
2013 <sup>4</sup>	73,311	694,137	297,850	547,264	100%	68%	0%	
2012 <sup>5</sup>	66,407	632,319	276,882	528,728	100%	73%	0%	
2011 <sup>6</sup>	65,723	558,483	309,711	523,980	100%	82%	0%	
2010 <sup>7</sup>	64,917	532,695	333,220	509,561	100%	83%	0%	
2009	65,126	448,231	296,324	483,145	100%	93%	0%	

<sup>1</sup> Includes deferred members.

<sup>2</sup> Actuarial Value of Assets. As of June 30, 2014, the Market Value of Assets is used.

<sup>3</sup> Reflects revised economic and demographic assumptions.

<sup>4</sup> Reflects revised economic and demographic assumptions.

<sup>5</sup> Reflects revised demographic assumptions.

<sup>6</sup> Reflects revised EAN methodology and economic assumptions.

<sup>7</sup> Reflects revised economic and demographic assumptions.

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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**SECTION V – COMPREHENSIVE ANNUAL FINANCIAL REPORTING INFORMATION**

Table V-3 Actuarial Balance Sheet as of June 30, 2018		
<b>Assets</b>		
1. Market value of assets	\$	826,653,970
2. Present value of future contributions by members		76,378,527
3. Present value of future employer contributions for normal cost		79,385,039
4. Present value of other future employer contributions (UAL)		475,264,603
5. <b>Total actuarial assets</b>	<b>\$</b>	<b>1,457,682,139</b>
<b>Liabilities</b>		
6. Present value of retirement allowances payable to retired/disabled members and their survivors	\$	871,095,160
7. Present value of service retirement allowances payable to presently active members and their survivors		468,621,168
8. Present value of allowances payable to current and future vested terminated and their survivors		86,607,139
9. Present value of disability retirement allowances payable to presently active members and their survivor		19,197,597
10. Present value of death benefits payable on behalf of presently active members		3,683,733
11. Present value of members' contributions to be returned upon withdrawal		8,477,342
12. Special Reserves		-
13. <b>Total actuarial liabilities</b>	<b>\$</b>	<b>1,457,682,139</b>

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX A – MEMBERSHIP INFORMATION**

Summary of Participant Data (By Group) as of June 30, 2018			
	General	Safety	Total
<b>Active Participants</b>			
Number	1,827	322	2,149
Average Age	43.42	38.78	42.72
Average Service	9.72	10.05	9.77
Average Pay	\$59,150	\$68,379	\$60,533
<b>Service Retired</b>			
Number	1,613	195	1,808
Average Age	70.59	65.77	70.07
Average Annual Total Benefit	\$32,408	\$45,849	\$33,858
<b>Beneficiaries &amp; QDROs</b>			
Number	253	64	317
Average Age	75.59	70.14	74.49
Average Annual Total Benefit	\$15,575	\$26,077	\$17,695
<b>Duty Disabled</b>			
Number	51	88	139
Average Age	69.67	62.66	65.23
Average Annual Total Benefit	\$26,968	\$34,564	\$31,777
<b>Non-Duty Disabled</b>			
Number	43	3	46
Average Age	69.73	63.72	69.34
Average Annual Total Benefit	\$16,167	\$22,125	\$16,555
<b>Total Receiving Benefits</b>			
Number	1,960	350	2,310
Average Age	71.19	65.77	70.37
Average Annual Total Benefit	\$29,737	\$39,193	\$31,170
<b>Terminated Vested</b>			
Number	261	46	307
Average Age	49.59	40.96	48.30
Average Service	10.66	9.82	10.53
<b>Transfers</b>			
Number	186	49	235
Average Age	51.05	43.33	49.44
Average Service	18.83	18.02	18.66
<b>Funds on Account</b>			
Number	268	40	308
Average Age	40.46	33.24	39.52
Average Service	1.43	1.76	1.47
<b>Total Deferred</b>			
Number	715	135	850
Average Age	46.55	39.53	45.43
Average Service	9.33	10.41	9.50

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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Summary of Participant Data (General) as of June 30, 2018						
	General Tier 1	General Tier 2	General Tier 3	General Tier 4	General Tier 3R	General Total
Active Participants						
Number	106	876	53	789	3	1,827
Average Age	55.74	47.89	40.60	36.97	45.09	43.42
Average Service	25.78	14.37	9.65	2.42	5.81	9.72
Average Pay	\$84,991	\$63,384	\$68,796	\$50,315	\$63,183	\$59,150
Service Retired						
Number	1,246	363	4	N/A	N/A	1,613
Average Age	71.82	66.48	62	N/A	N/A	70.59
Average Annual Total Benefit	\$36,205	\$19,721	1,021	N/A	N/A	\$32,408
Beneficiaries & QDROs						
Number	229	24	N/A	N/A	N/A	253
Average Age	77.38	58.44	N/A	N/A	N/A	75.59
Average Annual Total Benefit	\$16,261	\$9,034	N/A	N/A	N/A	\$15,575
Duty Disabled						
Number	37	14	N/A	N/A	N/A	51
Average Age	73.11	60.57	N/A	N/A	N/A	69.67
Average Annual Total Benefit	\$27,410	\$25,802	N/A	N/A	N/A	\$26,968
Non-Duty Disabled						
Number	31	12	N/A	N/A	N/A	43
Average Age	73.08	61.08	N/A	N/A	N/A	69.73
Average Annual Total Benefit	\$17,463	\$12,817	N/A	N/A	N/A	\$16,167
Total Receiving Benefits						
Number	1,543	413	4	N/A	N/A	1,960
Average Age	72.70	65.65	62	N/A	N/A	71.19
Average Annual Total Benefit	\$32,658	\$19,105	1,021	N/A	N/A	\$29,737
Terminated Vested						
Number	54	190	13	4	N/A	261
Average Age	58.35	47.42	43.21	55.30	N/A	49.59
Average Service	10.80	10.44	13.13	11.48	N/A	10.66
Transfers						
Number	39	136	1	10	N/A	186
Average Age	58.33	49.75	50	40.41	N/A	51.05
Average Service	30.38	16.77	4	3.27	N/A	18.83
Funds on Account						
Number	7	93	8	160	N/A	268
Average Age	59.36	45.86	34.09	36.81	N/A	40.46
Average Service	1.88	2.07	1.86	1.01	N/A	1.43
Total Deferred						
Number	100	419	22	174	N/A	715
Average Age	58.41	47.83	40.20	37.45	N/A	46.55
Average Service	17.81	10.64	8.64	1.38	N/A	9.33



**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX A – MEMBERSHIP INFORMATION**

Summary of Participant Data (Safety) as of June 30, 2018					
	Safety Tier 1	Safety Tier 2	Safety Tier 3	Safety Tier 4	Safety Total
<b>Active Participants</b>					
Number	22	176	5	119	322
Average Age	52.21	41.69	35.97	32.11	38.78
Average Service	25.40	13.45	8.84	2.23	10.05
Average Pay	\$96,671	\$72,876	\$66,921	\$56,560	\$68,379
<b>Service Retired</b>					
Number	179	16	N/A	N/A	195
Average Age	66.17	61.32	N/A	N/A	65.77
Average Annual Total Benefit	\$47,918	\$22,708	N/A	N/A	\$45,849
<b>Beneficiaries &amp; QDROs</b>					
Number	61	3	N/A	N/A	64
Average Age	71.25	47.52	N/A	N/A	70.14
Average Annual Total Benefit	\$26,396	\$19,589	N/A	N/A	\$26,077
<b>Duty Disabled</b>					
Number	67	21	N/A	N/A	88
Average Age	66.01	51.96	N/A	N/A	62.66
Average Annual Total Benefit	\$37,030	\$26,697	N/A	N/A	\$34,564
<b>Non-Duty Disabled</b>					
Number	2	1	N/A	N/A	3
Average Age	60.19	70.78	N/A	N/A	63.72
Average Annual Total Benefit	\$23,609	\$19,156	N/A	N/A	\$22,125
<b>Total Receiving Benefits</b>					
Number	309	41	N/A	N/A	350
Average Age	67.10	55.75	N/A	N/A	65.77
Average Annual Total Benefit	\$41,151	\$24,437	N/A	N/A	\$39,193
<b>Terminated Vested</b>					
Number	1	43	1	1	46
Average Age	52.07	40.92	42.89	29.98	40.96
Average Service	7.83	9.86	11.39	8.26	9.82
<b>Transfers</b>					
Number	8	38	N/A	3	49
Average Age	52.08	42.66	N/A	28.52	43.33
Average Service	29.11	16.92	N/A	2.49	18.02
<b>Funds on Account</b>					
Number	1	8	2	29	40
Average Age	63.14	39.41	29.60	30.75	33.24
Average Service	17.51	1.46	0.39	1.39	1.76
<b>Total Deferred</b>					
Number	10	89	3	33	135
Average Age	53.18	41.52	34.03	30.53	39.53
Average Service	25.82	12.12	4.06	1.70	10.41

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX A – MEMBERSHIP INFORMATION**

Change in Plan Membership: Total									
	Actives	Transfers	Non-Vested Terminations	Vested Terminations	Non - Duty Disabled	Duty Disabled	Retired	Beneficiaries & QDROs	Total
<b>July 1, 2017</b>	<b>2,096</b>	<b>235</b>	<b>264</b>	<b>289</b>	<b>48</b>	<b>135</b>	<b>1,760</b>	<b>320</b>	<b>5,147</b>
New Entrants	275	0	33	0	0	0	0	0	308
Rehires	10	0	(6)	(4)	0	0	0	0	0
Duty Disabilities	(5)	(1)	0	0	0	6	0	0	0
Non-Duty Disabilities	0	0	0	0	0	0	0	0	0
Retirements	(66)	(8)	(1)	(16)	0	0	91	0	0
Dual Service Retirements	0	0	0	0	0	0	0	0	0
Vested Terminations	(44)	0	0	44	0	0	0	0	0
Transfers	(13)	13	0	0	0	0	0	0	0
Non-Vested Terminations with Funds on Account	(45)	(1)	46	0	0	0	0	0	0
Withdrawals Paid	(58)	(1)	(28)	(7)	0	0	0	0	(94)
Died, With Beneficiary	(1)	0	0	0	0	(2)	(13)	16	0
Died, Without Beneficiary	(1)	0	0	(1)	(2)	(1)	(31)	0	(36)
Beneficiary Deaths	0	0	0	0	0	0	0	(24)	(24)
Domestic Relations Orders	0	0	0	0	0	0	0	4	4
Data Corrections	1	(2)	0	2	0	1	1	1	4
<b>July 1, 2018</b>	<b>2,149</b>	<b>235</b>	<b>308</b>	<b>307</b>	<b>46</b>	<b>139</b>	<b>1,808</b>	<b>317</b>	<b>5,309</b>

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX A – MEMBERSHIP INFORMATION**

Change in Plan Membership: General									
	Actives	Transfers	Non-Vested Terminations	Vested Terminations	Non - Duty Disabled	Duty Disabled	Retired	Beneficiaries & QDROs	Total
<b>July 1, 2017</b>	<b>1,783</b>	<b>185</b>	<b>226</b>	<b>245</b>	<b>45</b>	<b>51</b>	<b>1,570</b>	<b>253</b>	<b>4,358</b>
New Entrants	235	0	33	0	0	0	0	0	268
Rehires	9	0	(6)	(3)	0	0	0	0	0
Duty Disabilities	0	0	0	0	0	0	0	0	0
Non-Duty Disabilities	0	0	0	0	0	0	0	0	0
Retirements	(59)	(7)	(1)	(16)	0	0	83	0	0
Dual Service Retirements	0	0	0	0	0	0	0	0	0
Vested Terminations	(38)		0	38	0	0	0	0	0
Transfers	(11)	11	0	0	0	0	0	0	0
Non-Vested Terminations with Funds on Account	(40)	(1)	41	0	0	0	0	0	0
Withdrawals Paid	(50)	(1)	(24)	(5)	0	0	0	0	(80)
Died, With Beneficiary	(1)	0	0	0	0	0	(12)	13	0
Died, Without Beneficiary	(1)	0	0	(1)	(2)	0	(30)	0	(34)
Beneficiary Deaths	0	0	0	0	0	0	0	(18)	(18)
Domestic Relations Orders	0	0	0	0	0	0	0	4	4
Data Corrections	0	(1)	(1)	3	0	0	2	1	4
<b>July 1, 2018</b>	<b>1,827</b>	<b>186</b>	<b>268</b>	<b>261</b>	<b>43</b>	<b>51</b>	<b>1,613</b>	<b>253</b>	<b>4,502</b>

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX A – MEMBERSHIP INFORMATION**

Change in Plan Membership: Safety									
	Actives	Transfers	Non-Vested Terminations	Vested Terminations	Non - Duty Disabled	Duty Disabled	Retired	Beneficiaries & QDROs	Total
<b>July 1, 2017</b>	<b>313</b>	<b>50</b>	<b>38</b>	<b>44</b>	<b>3</b>	<b>84</b>	<b>190</b>	<b>67</b>	<b>789</b>
New Entrants	40	0	0	0	0	0	0	0	40
Rehires	1	0	0	(1)	0	0	0	0	0
Duty Disabilities	(5)	(1)	0	0	0	6	0	0	0
Non-Duty Disabilities	0	0	0	0	0	0	0	0	0
Retirements	(7)	(1)	0	0	0	0	8	0	0
Dual Service Retirements	0	0	0	0	0	0	0	0	0
Vested Terminations	(6)	0	0	6	0	0	0	0	0
Transfers	(2)	2	0	0	0	0	0	0	0
Non-Vested Terminations with Funds on Account	(5)	0	5	0	0	0	0	0	0
Withdrawals Paid	(8)	0	(4)	(2)	0	0	0	0	(14)
Died, With Beneficiary	0	0	0	0	0	(2)	(1)	3	0
Died, Without Beneficiary	0	0	0	0	0	(1)	(1)	0	(2)
Beneficiary Deaths	0	0	0	0	0	0	0	(6)	(6)
Domestic Relations Orders	0	0	0	0	0	0	0	0	0
Data Corrections	1	(1)	1	(1)	0	1	(1)	0	0
<b>July 1, 2018</b>	<b>322</b>	<b>49</b>	<b>40</b>	<b>46</b>	<b>3</b>	<b>88</b>	<b>195</b>	<b>64</b>	<b>807</b>

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX A – MEMBERSHIP INFORMATION**

Valuation at Year End	Active Member Data by Plan			Average Annual Salary	Average Salary Increase
	Plan Type	Member Count	Annual Payroll		
<b>2009</b>	General	1,848	\$99,266,589	\$53,716	12.02%
	Safety	342	\$19,363,697	\$56,619	12.00%
	<b>Total</b>	<b>2,190</b>	<b>\$118,630,286</b>	<b>\$54,169</b>	<b>12.05%</b>
<b>2010</b>	General	1,708	\$94,915,436	\$55,571	3.45%
	Safety	330	\$19,692,515	\$59,674	5.40%
	<b>Total</b>	<b>2,038</b>	<b>\$114,607,951</b>	<b>\$56,236</b>	<b>3.81%</b>
<b>2011</b>	General	1,659	\$94,976,978	\$57,250	3.02%
	Safety	321	\$19,768,859	\$61,585	3.20%
	<b>Total</b>	<b>1,980</b>	<b>\$114,745,837</b>	<b>\$57,952</b>	<b>3.05%</b>
<b>2012</b>	General	1,596	\$90,706,280	\$56,834	-0.73%
	Safety	305	\$19,145,091	\$62,771	1.93%
	<b>Total</b>	<b>1,901</b>	<b>\$109,851,371</b>	<b>\$57,786</b>	<b>-0.29%</b>
<b>2013</b>	General	1,604	\$91,737,348	\$57,193	0.63%
	Safety	295	\$18,699,145	\$63,387	0.98%
	<b>Total</b>	<b>1,899</b>	<b>\$110,436,493</b>	<b>\$58,155</b>	<b>0.64%</b>
<b>2014</b>	General	1,624	\$91,704,083	\$56,468	-1.27%
	Safety	300	\$18,620,870	\$62,070	-2.08%
	<b>Total</b>	<b>1,924</b>	<b>\$110,324,953</b>	<b>\$57,341</b>	<b>-1.40%</b>
<b>2015</b>	General	1,664	\$93,938,857	\$56,454	-0.03%
	Safety	298	\$18,397,233	\$61,736	-0.54%
	<b>Total</b>	<b>1,962</b>	<b>\$112,336,090</b>	<b>\$57,256</b>	<b>-0.15%</b>
<b>2016</b>	General	1,729	\$97,337,917	\$56,297	-0.28%
	Safety	311	\$19,394,922	\$62,363	1.02%
	<b>Total</b>	<b>2,040</b>	<b>\$116,732,839</b>	<b>\$57,222</b>	<b>-0.06%</b>
<b>2017</b>	General	1,783	\$102,498,328	\$57,486	2.11%
	Safety	313	\$20,136,322	\$64,333	3.16%
	<b>Total</b>	<b>2,096</b>	<b>\$122,634,651</b>	<b>\$58,509</b>	<b>2.25%</b>
<b>2018</b>	General	1,827	\$108,067,248	\$59,150	2.89%
	Safety	322	\$22,018,174	\$68,379	6.29%
	<b>Total</b>	<b>2,149</b>	<b>\$130,085,423</b>	<b>\$60,533</b>	<b>3.46%</b>

Payroll figures represent active members' annualized pay rates on June 30.

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX A – MEMBERSHIP INFORMATION**

Retirants and Beneficiaries Added to and Removed from Retiree Payroll										
Fiscal Year	Beginning of Year	Added During Year	Allowances Added	Removed During Year	Allowances Removed	End of Year	Annual Retirement Payroll (in 000s)	Total Allowance Percentage Increase	Average Annual Allowance	Average Allowance Percentage Increase
2005	1,441	109	2,445,000	49	450,000	1,501	24,867,000	9.16%	16,567	4.80%
2006	1,477	98	2,007,000	53	785,000	1,522	27,297,000	9.77%	16,836	1.62%
2007	1,521	136	4,419,000	38	560,000	1,619	31,823,000	16.58%	17,947	6.60%
2008	1,620	105	2,757,000	67	902,000	1,658	34,603,000	8.74%	19,644	9.46%
2009	1,658	105	3,402,523	52	812,828	1,711	37,747,525	9.09%	22,062	12.31%
2010	1,711	171	6,097,956	56	981,465	1,826	43,653,374	15.65%	23,907	8.36%
2011	1,826	103	2,627,234	44	781,283	1,885	46,116,686	5.64%	24,465	2.34%
2012	1,885	175	6,484,652	64	960,185	1,996	52,887,845	14.68%	26,497	8.31%
2013	1,996	103	3,028,612	49	855,980	2,050	56,048,022	5.98%	27,340	3.18%
2014	2,050	116	3,950,045	31	590,636	2,135	60,297,112	7.58%	28,242	3.30%
2015	2,135	100	2,508,828	35	720,242	2,200	63,254,229	4.90%	28,752	1.80%
2016	2,200	68	1,716,361	34	946,189	2,234	65,505,679	3.56%	29,322	1.98%
2017	2,234	85	2,282,779	56	1,022,708	2,263	68,476,111	4.53%	30,259	3.20%
2018	2,263	120	3,617,034	73	1,671,956	2,310	72,002,829	5.15%	31,170	3.01%

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX A – MEMBERSHIP INFORMATION**

**GENERAL**

**Count**

Age	Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 20	0	0	0	0	0	0	0	0	0	0	0
20 to 25	16	6	0	0	0	0	0	0	0	0	22
25 to 29	46	119	14	1	0	0	0	0	0	0	180
30 to 34	50	142	55	18	1	0	0	0	0	0	266
35 to 39	41	118	50	93	31	0	0	0	0	0	333
40 to 44	21	70	37	63	58	18	0	0	0	0	267
45 to 49	15	34	25	47	50	33	10	0	0	0	214
50 to 54	11	27	17	37	60	31	16	6	0	0	205
55 to 59	5	14	24	34	66	25	27	12	1	0	208
60 to 64	1	14	8	25	35	13	5	2	1	0	104
65 to 69	0	2	5	4	5	4	4	0	0	0	24
70 & up	0	0	2	0	0	1	1	0	0	0	4
Total	206	546	237	322	306	125	63	20	2	0	1,827

**Compensation**

Age	Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 20	0	0	0	0	0	0	0	0	0	0	0
20 to 25	38,640	40,514	0	0	0	0	0	0	0	0	39,151
25 to 29	41,941	45,187	60,650	63,980	0	0	0	0	0	0	45,664
30 to 34	41,836	49,898	57,051	51,732	78,801	0	0	0	0	0	50,094
35 to 39	48,127	50,593	58,899	64,093	64,336	0	0	0	0	0	56,586
40 to 44	55,948	48,109	59,614	65,935	66,144	66,000	0	0	0	0	59,650
45 to 49	54,192	54,381	61,633	72,571	68,410	70,840	61,798	0	0	0	65,372
50 to 54	61,313	58,920	55,869	59,285	60,051	74,520	76,830	81,295	0	0	63,604
55 to 59	66,506	57,464	74,819	56,354	69,593	68,573	74,715	73,561	55,494	0	67,845
60 to 64	223,621	80,733	65,012	59,927	65,845	74,823	147,378	117,241	57,189	0	73,827
65 to 69	0	45,738	100,837	79,180	52,374	96,166	69,977	0	0	0	76,617
70 & up	0	0	38,852	0	0	50,825	106,015	0	0	0	58,636
Total	47,723	50,384	61,290	63,494	65,662	71,667	79,165	80,249	56,342	0	59,150

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX A – MEMBERSHIP INFORMATION**

**SAFETY**

**Count**

Age	Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 20	0	0	0	0	0	0	0	0	0	0	0
20 to 25	8	5	0	0	0	0	0	0	0	0	13
25 to 29	10	36	1	0	0	0	0	0	0	0	47
30 to 34	7	20	12	15	0	0	0	0	0	0	54
35 to 39	3	17	12	34	8	0	0	0	0	0	74
40 to 44	1	3	3	28	16	1	0	0	0	0	52
45 to 49	2	3	5	6	13	10	4	0	0	0	43
50 to 54	1	1	2	4	6	7	4	0	0	0	25
55 to 59	0	2	1	2	2	2	1	3	0	0	13
60 to 64	0	0	1	0	0	0	0	0	0	0	1
65 to 69	0	0	0	0	0	0	0	0	0	0	0
70 & up	0	0	0	0	0	0	0	0	0	0	0
Total	32	87	37	89	45	20	9	3	0	0	322

**Compensation**

Age	Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 20	0	0	0	0	0	0	0	0	0	0	0
20 to 25	41,896	48,154	0	0	0	0	0	0	0	0	44,303
25 to 29	55,713	56,062	49,354	0	0	0	0	0	0	0	55,845
30 to 34	43,419	59,315	71,669	72,286	0	0	0	0	0	0	63,602
35 to 39	59,557	58,560	70,645	70,896	69,639	0	0	0	0	0	67,426
40 to 44	76,690	70,867	78,737	71,389	83,586	97,201	0	0	0	0	76,134
45 to 49	61,183	56,630	67,871	67,791	73,406	82,685	93,232	0	0	0	74,242
50 to 54	82,555	93,344	58,791	71,918	77,013	80,813	99,834	0	0	0	80,330
55 to 59	0	86,011	59,294	92,619	74,514	88,879	71,453	119,291	0	0	90,205
60 to 64	0	0	61,147	0	0	0	0	0	0	0	61,147
65 to 69	0	0	0	0	0	0	0	0	0	0	0
70 & up	0	0	0	0	0	0	0	0	0	0	0
Total	51,766	58,491	69,479	71,610	76,886	83,375	93,746	119,291	0	0	68,379



**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX A – MEMBERSHIP INFORMATION**

Service Retired Benefits						
Current Age	Number	<u>General</u>	Number	<u>Safety</u>	Number	<u>Total</u>
		Annual Average Benefit		Annual Average Benefit		Annual Average Benefit
0-24	0	\$0	0	\$0	0	\$0
25-29	0	\$0	0	\$0	0	\$0
30-34	0	\$0	0	\$0	0	\$0
35-39	0	\$0	0	\$0	0	\$0
40-44	0	\$0	0	\$0	0	\$0
45-49	0	\$0	1	\$52,362	1	\$52,362
50-54	20	\$27,795	25	\$56,305	45	\$43,634
55-59	131	\$28,797	30	\$40,833	161	\$31,040
60-64	289	\$35,280	34	\$49,383	323	\$36,765
65-69	388	\$38,559	44	\$44,418	432	\$39,156
70-74	341	\$32,478	34	\$44,725	375	\$33,588
75-79	214	\$28,794	16	\$36,098	230	\$29,302
80-84	121	\$25,825	6	\$51,390	127	\$27,033
85-89	70	\$22,900	3	\$37,332	73	\$23,493
90-94	28	\$21,445	2	\$51,854	30	\$23,473
95+	11	\$20,362	0	\$0	11	\$20,362
<b>All Ages</b>	<b>1,613</b>	<b>\$32,408</b>	<b>195</b>	<b>\$45,849</b>	<b>1,808</b>	<b>\$33,858</b>

Duty Disabled Benefits						
Current Age	Number	<u>General</u>	Number	<u>Safety</u>	Number	<u>Total</u>
		Annual Average Benefit		Annual Average Benefit		Annual Average Benefit
0-24	0	\$0	0	\$0	0	\$0
25-29	0	\$0	0	\$0	0	\$0
30-34	0	\$0	0	\$0	0	\$0
35-39	0	\$0	4	\$22,777	4	\$22,777
40-44	0	\$0	4	\$22,063	4	\$22,063
45-49	3	\$32,422	6	\$46,663	9	\$41,916
50-54	1	\$51,973	7	\$34,750	8	\$36,903
55-59	7	\$23,630	9	\$42,159	16	\$34,053
60-64	4	\$25,147	17	\$31,162	21	\$30,016
65-69	13	\$27,990	16	\$26,327	29	\$27,072
70-74	8	\$24,317	16	\$42,855	24	\$36,676
75-79	6	\$28,137	9	\$35,882	15	\$32,784
80-84	4	\$20,618	0	\$0	4	\$20,618
85-89	3	\$16,958	0	\$0	3	\$16,958
90-94	2	\$49,790	0	\$0	2	\$49,790
95+	0	\$0	0	\$0	0	\$0
<b>All Ages</b>	<b>51</b>	<b>\$26,968</b>	<b>88</b>	<b>\$34,564</b>	<b>139</b>	<b>\$31,777</b>

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX A – MEMBERSHIP INFORMATION**

Non-Duty Disabled Benefits						
Current Age	<u>General</u>		<u>Safety</u>		<u>Total</u>	
	Number	Annual Average Benefit	Number	Annual Average Benefit	Number	Annual Average Benefit
0-24	0	\$0	0	\$0	0	\$0
25-20	0	\$0	0	\$0	0	\$0
30-34	0	\$0	0	\$0	0	\$0
35-39	0	\$0	0	\$0	0	\$0
40-44	0	\$0	0	\$0	0	\$0
45-49	1	\$15,437	1	\$29,666	2	\$22,551
50-54	3	\$15,937	0	\$0	3	\$15,937
55-59	5	\$20,356	0	\$0	5	\$20,356
60-64	6	\$16,097	0	\$0	6	\$16,097
65-69	7	\$15,339	0	\$0	7	\$15,339
70-74	7	\$14,556	2	\$18,354	9	\$15,400
75-79	6	\$14,616	0	\$0	6	\$14,616
80-84	3	\$21,671	0	\$0	3	\$21,671
85-89	4	\$17,503	0	\$0	4	\$17,503
90-94	1	\$1,567	0	\$0	1	\$1,567
95+	0	\$0	0	\$0	0	\$0
<b>All Ages</b>	<b>43</b>	<b>\$16,167</b>	<b>3</b>	<b>\$22,125</b>	<b>46</b>	<b>\$16,555</b>

Surviving Beneficiary & QDRO Benefits						
Current Age	<u>General</u>		<u>Safety</u>		<u>Total</u>	
	Number	Annual Average Benefit	Number	Annual Average Benefit	Number	Annual Average Benefit
0-24	1	\$14,577	0	\$0	1	\$14,577
25-29	1	\$1,389	0	\$0	1	\$1,389
30-34	0	\$0	0	\$0	0	\$0
35-39	2	\$19,058	1	\$36,028	3	\$24,714
40-44	3	\$8,350	1	\$44,396	4	\$17,362
45-49	5	\$5,817	2	\$10,200	7	\$7,070
50-54	7	\$8,427	1	\$0	8	\$7,374
55-59	16	\$15,192	8	\$15,787	24	\$15,390
60-64	19	\$10,198	6	\$22,835	25	\$13,231
65-69	25	\$25,881	7	\$27,965	32	\$26,337
70-74	28	\$17,598	17	\$31,269	45	\$22,763
75-79	32	\$13,855	8	\$29,732	40	\$17,031
80-84	49	\$14,423	7	\$21,142	56	\$15,263
85-89	31	\$14,426	5	\$33,013	36	\$17,007
90-94	26	\$19,467	1	\$26,550	27	\$19,729
95+	8	\$11,661	0	\$0	8	\$11,661
<b>All Ages</b>	<b>253</b>	<b>\$15,575</b>	<b>64</b>	<b>\$26,077</b>	<b>317</b>	<b>\$17,695</b>

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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**APPENDIX B -- STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS**

The assumptions and methods used in the actuarial valuation reflect the results of an experience study performed by Cheiron covering the period from July 1, 2013 through June 30, 2016 and adopted by the Board. More details on the rationale for the demographic and economic assumptions can be found in the experience analysis dated February 15, 2017.

**A. Actuarial Assumptions**

**1. Rate of Return**

Assets are assumed to earn 7.25% net of investment expenses.

**2. Administrative Expenses**

Administrative expenses are assumed to be \$2.311 million for the next year to be allocated between the employer and employees based on each group's share of the non-expense related contributions. Administrative expenses in future years are expected to increase with the Consumer Price Index (CPI).

**3. Cost of Living**

The cost of living as measured by the Consumer Price Index (CPI) will increase at the rate of 2.50% per year.

**4. Post Retirement COLA**

Benefits are assumed to increase after retirement at the rate of 2.40% per year for Tier 1 members.

**5. Increases in Pay**

Wage inflation component: 2.75%

Additional longevity and promotion component:

<b>Years of Service</b>	<b>General</b>	<b>Safety</b>
0-1	7.00%	7.50%
2-3	5.00%	5.00%
4	5.00%	3.00%
5	3.00%	1.50%
6-9	2.00%	1.50%
10-14	1.50%	1.00%
15-19	1.00%	1.00%
20+	0.50%	0.50%

## APPENDIX B -- STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

### 6. Final Average Compensation Load

The final average compensation (FAC) for members projected to receive a service retirement benefit has increased based on the assumption that members will have elements of pay included in their FAC which are not included in the annual pay provided to the actuary (Ventura decision pays). The FAC for Tier 1 members has been increased by 6.92% and the FAC for Tier 2 and Tier 3 members by 2.31%.

### 7. Family Composition

50% of female General members, 70% of male General members, and 90% of Safety members are assumed to be married at retirement. Male members are assumed to be three years older than their spouses and female members are assumed to be two years younger than their spouses.

### 8. Rates of Mortality

Mortality rates for actives, retirees, disabled members, beneficiaries, terminated vesteds, and reciprocal transfers are based on the sex-distinct employee and annuitant CalPERS mortality tables as described below. Future mortality improvements are reflected by applying the SOA MP-2016 projection scale on a generational basis from the base year of 2009.

Category	Base Mortality Table
Healthy Annuitant	CalPERS 2009 Healthy Annuitant Mortality Table
Disabled Annuitant	CalPERS 2009 Industrial Disability Mortality Table
Healthy Non-Annuitant	CalPERS 2009 Non-Industrial Employees Mortality Table
Actives, Line of Duty (Safety only)	CalPERS 2009 Industrial Employees Mortality Table

## APPENDIX B -- STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

### 9. Rates of Termination

Sample rates of termination<sup>1</sup> are shown in the following table.

Years of Service	General Male	General Female	Safety
0	22.5%	12.0%	20.8%
5	8.2%	7.5%	4.6%
10	4.5%	3.6%	4.6%
15	4.5%	3.0%	2.5%
20	4.5%	3.0%	0.0%
25	4.5%	3.0%	0.0%
30	0.0%	0.0%	0.0%

<sup>1</sup> Termination rates do not apply once a member is eligible for retirement.

There are three types of terminations: withdrawals, reciprocal transfers, and vested terminations. Rates of withdrawal apply to active Members who terminate their employment and withdraw their member contributions, forfeiting entitlement to future Plan benefits. Rates of reciprocal transfer are for members who leave their member contributions on deposit and engage in employment covered by a pension plan with a reciprocal relationship with MCERA. Finally, rates of vested termination apply to active Members who terminate their employment and leave their member contributions on deposit with the Plan.

The table below shows the percentages of total terminations falling into these categories.

	Years of Service				
	General			Safety	
	0 – 4	5 – 14	15+	0 – 4	5+
Withdrawals	90.0%	40.0%	10.0%	90.0%	30.0%
Transfers	10.0%	10.0%	10.0%	10.0%	25.0%
Vested Terminations	0.0%	50.0%	80.0%	0%	45.0%

Vested terminated General Members are assumed to begin receiving benefits at age 59; vested terminated Safety Members are assumed to begin receiving benefits at age 53. Future reciprocal transfer General members are assumed to begin receiving benefits at age 61; future reciprocal transfer safety members are assumed to begin receiving benefits at age 55. Current reciprocal transfer members are assumed to begin receiving benefits based on the probabilities of retirement applied to the active members.

Future reciprocal transfers' pay growth is assumed to be 3.25% while employed by a reciprocal employer. Current reciprocal transfers' pay growth is assumed to increase according to the assumptions applied to the active members until the assumed retirement age.

**APPENDIX B -- STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS**

**10. Rates of Service-Connected Disability**

Sample service-connected disability rates of active participants are provided in the table.

Age	Safety	General	
	All	Male	Female
20	0.0000%	0.0027%	0.0040%
25	0.0825%	0.0053%	0.0075%
30	0.2380%	0.0133%	0.0115%
35	0.3940%	0.0240%	0.0150%
40	0.5500%	0.0320%	0.0190%
45	0.7060%	0.0480%	0.0340%
50	0.9230%	0.0640%	0.0600%
55	2.3925%	0.0800%	0.1050%
60	3.0120%	0.1120%	0.1575%
65	3.6385%	0.0000%	0.0000%

**11. Rates of Non Service-Connected Disability**

Sample non service-connected disability rates of active participants are provided in the table. Rates are applied once members have at least five years of service.

Age	Safety	General	
	All	Male	Female
20	0.0050%	0.0000%	0.0000%
25	0.0050%	0.0267%	0.0033%
30	0.0100%	0.0533%	0.0067%
35	0.0150%	0.0533%	0.0100%
40	0.0200%	0.0867%	0.0133%
45	0.0250%	0.1267%	0.0300%
50	0.0400%	0.1600%	0.0600%
55	0.0650%	0.2133%	0.0933%
60	0.1000%	0.2800%	0.1533%
65	0.1000%	0.0000%	0.0000%

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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**12. Rates of Retirement**

Rates of retirement are based on age and service according to the following table.

General Male				General Female			Safety		
Years of Service				Years of Service			Years of Service		
Age	10 – 19	20 – 29	30+	10 – 19	20 – 29	30+	Age	10 – 19	20+
50	5.00%	10.00%	7.50%	2.50%	7.50%	25.00%	40	0.00%	3.10%
51	5.00%	10.00%	7.50%	2.50%	7.50%	25.00%	41	0.00%	3.10%
52	5.00%	10.00%	15.00%	5.00%	12.50%	25.00%	42	0.00%	3.10%
53	5.00%	10.00%	15.00%	5.00%	12.50%	25.00%	43	0.00%	3.10%
54	5.00%	10.00%	15.00%	5.00%	12.50%	25.00%	44	0.00%	3.10%
55	10.00%	12.50%	27.00%	12.00%	25.00%	35.00%	45	0.00%	7.60%
56	10.00%	12.50%	22.50%	8.50%	25.00%	35.00%	46	0.00%	7.60%
57	10.00%	12.50%	22.50%	8.50%	25.00%	35.00%	47	0.00%	7.60%
58	10.00%	12.50%	22.50%	8.50%	25.00%	35.00%	48	0.00%	7.60%
59	10.00%	12.50%	22.50%	10.00%	30.00%	35.00%	49	0.00%	7.60%
60	20.00%	25.00%	37.50%	15.00%	30.00%	35.00%	50	15.00%	32.90%
61	20.00%	25.00%	37.50%	27.50%	40.00%	45.00%	51	12.80%	32.90%
62	20.00%	25.00%	37.50%	27.50%	40.00%	45.00%	52	12.80%	32.90%
63	20.00%	25.00%	37.50%	27.50%	40.00%	45.00%	53	12.80%	32.90%
64	20.00%	25.00%	37.50%	27.50%	40.00%	45.00%	54	12.80%	32.90%
65	35.00%	50.00%	40.00%	40.00%	50.00%	50.00%	55	25.00%	32.90%
66	35.00%	50.00%	45.00%	45.00%	50.00%	50.00%	56	25.00%	32.90%
67	35.00%	50.00%	50.00%	50.00%	50.00%	50.00%	57	25.00%	32.90%
68	35.00%	50.00%	60.00%	60.00%	60.00%	60.00%	58	25.00%	32.90%
69	35.00%	50.00%	80.00%	80.00%	80.00%	80.00%	59	25.00%	32.90%
70+	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	60	100.00%	100.00%

**13. Changes Since Last Valuation**

The assumed administrative expenses increased from \$2.255 million to \$2.311 million.

**APPENDIX B -- STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS**

**B. Actuarial Methods**

**1. Actuarial Funding Method**

The Entry Age Normal actuarial funding method was used for active employees, whereby the normal cost is computed as the level annual percentage of pay required to fund the retirement benefits between each Member's date of hire and assumed retirement. The Actuarial Liability is the difference between the Present Value of Future Benefits and the Present Value of Future Normal Cost. The Unfunded Actuarial Liability is the difference between the Actuarial Liability and the Actuarial Value of Assets.

The UAL (or Surplus Funding) is amortized as a percentage of the projected salaries of present and future members of MCERA. Effective with the June 30, 2013 valuation, the UAL as of June 30, 2013 is amortized over a closed 16-year period. Effective with the June 30, 2014 valuation, any new sources of UAL due to actuarial gains and losses or method changes is amortized over a closed 24-year period, with five-year ramp up period at the beginning of the period, a four-year ramp down at the end of the period, and 15 years of level payments as a percentage of payroll. Assumption changes will be amortized over a closed 22-year period, with a three-year ramp up period, two-year ramp down period, and 17 years of level payments as a percentage of payroll. This method is a type of direct rate smoothing method.

**2. Asset Valuation Method**

As of June 30, 2014, the Market Value of Assets is used to determine the System's UAL.

**3. Changes Since Last Valuation**

None.



**APPENDIX C – SUMMARY OF PLAN PROVISIONS**

**A. Definitions**

**Compensation:** Compensation means the cash remuneration for services paid by the employer. It includes base pay and certain differential, incentive, and special pay allowances defined by the Board of Retirement. Overtime is excluded, with the exception of overtime paid under the Fair Labor Standards Act that is regular and recurring.

PEPRA: For members joining the Plan on and after January 1, 2013 (Tier 4 Members), only pensionable compensation up to the Social Security Taxable Wage Base (\$113,700 for 2013) will count for computing Plan benefits and employee contributions and employer contributions for those participating in Social Security. For those not participating in Social Security, the compensation cap is 120% of the Taxable Wage Base (\$136,440 for 2013.) In future years, the cap on pensionable compensation will increase with the increase in the CPI-U, rather than the increase in the Taxable Wage Base. In addition, it is possible that some sources of compensation, such as any payments deemed to be terminal or special pays, may be excluded from benefit and contribution computations for Tier 4 Members.

**Credited Service:** In general, Credited Service is earned for the period during which Member Contributions are paid. One year of service credit is earned for each 2,080 hours worked (not including overtime), not to exceed one year of service per year.

Temporary service for which the Member was not credited, or service for which the Member withdrew his or her Member Contributions, may be purchased by paying or repaying the Member Contributions with interest. The categories of services for which credit may be purchased are listed below:

**Prior Part-Time Service:** If a Member worked for an employer within the Association on a part-time or 'extra help' basis before his membership in the Retirement Association, the Member may buyback this service.

**Intermittent Part-Time Service.**

**Prior Full-Time Service:** Member may buyback full-time service that may have been cashed out upon termination.

**Leave of Absence (Including Absence with State Disability or Worker's Compensation):** No unpaid leave of absence can be bought back except for absence due to medical reasons up to one year.

## APPENDIX C – SUMMARY OF PLAN PROVISIONS

**Public Service:** Members may purchase service credit for prior service in the following public agencies: Federal Civil Service, Military Service, and some public employers in California. This service is only eligible for purchase when the Board of Supervisors opens the window for purchase.

**Military Time:** Members who resign or obtain a leave of absence to enter the military may purchase service credit for the period of military service. Members must re-enter employment within one year of terminating military service to be eligible to purchase service.

At retirement, Members have the option to convert 100% of sick leave time into retirement years of service credit. Unrepresented Management and Unit 7 will instead have some or all of their sick leave contributed to the Post Employment Health Plan.

### Final

**Compensation:** For Tier 1 Members, Final Compensation means the highest average Compensation earned during any 26 consecutive pay periods of the Member's employment. For Tier 2 and Tier 3 Members, Final Compensation means the highest average Compensation earned during any 78 consecutive pay periods of the Member's employment.

The following compensation may be included in the Final Compensation computation:

- Loyalty Bonus
- Up to 160 hours of vacation payoff
- Sick Leave sold back during 25<sup>th</sup> pay period
- Vacation sold back during 25<sup>th</sup> pay period (management only)

The vacation payoff amounts are not included in the Final Compensation computation for members of Tier 3R (Courts Tier 2R) or Tier 4.

For Tier 4 Members, highest average Compensation will be based on the highest 36 consecutive months of the Member's employment.

**General Member:** Any Member who is not a Safety Member is a General Member.

**Public Service:** During designated periods of time authorized by the County Board of Supervisors, Members may elect to purchase Public Service for time spent while employed in another recognized public agency. The public agency must have a reciprocal agreement with the Plan or be one of several specified municipalities, counties, special districts, or State and Federal agencies. Public Service cannot be purchased if it is used for eligibility for another pension.

## APPENDIX C – SUMMARY OF PLAN PROVISIONS

The cost to purchase Public Service is twice the Member Contributions and interest applicable for the period of time purchased. Public Service is used to compute benefits, but does not count toward eligibility for benefits or vesting.

Safety Member: Any sworn Member engaged in law enforcement or as a probation officer is a Safety Member.

### B. Membership

Eligibility: All full-time and variable-shift permanent employees of Merced County and other participating employers become Members on their first date of service. Membership is mandatory; only elected officials and those entering employment at age 60 or older who are not reciprocal members of another system may choose not to participate.

PEPRA: A New Member is any Member joining the Plan for the first time on or after January 1, 2013. Employees who transfer from and are eligible for reciprocity with another public employer will not be Tier 4 Members if their service in the reciprocal system was under a pre-PEPRA tier. Employees who were Members of MCERA prior to January 1, 2013, experienced a break in service of more than six months, and then were re-employed by a *different* MCERA-participating employer on or after January 1, 2013 will be considered Tier 4 Members for all subsequent service.

#### Member

Contributions: Each Member contributes a percentage of Compensation to the Plan through a pre-tax payroll deduction. The percentage contributed depends on the Member's age upon joining the Plan. Complete Rates are shown in Appendix D.

Members covered by Social Security have their contributions reduced by one-third on the first \$161.54 of biweekly Compensation. General Members who joined the Plan prior to March 7, 1973, and who have earned 30 years of Credited Service do not contribute; Safety Members do not contribute after earning 30 years of Credited Service.

PEPRA: Tier 4 Members must contribute half of the normal cost of the Plan. Contributions for these Members will be based on the Normal Cost associated with their benefits; General and Safety members will pay different Rates.

Tier 4 Members will pay a single contribution rate, not a rate based on entry age. All Tier 4 Members are expected to continue contributing after earning 30 years of service.

**APPENDIX C – SUMMARY OF PLAN PROVISIONS**

Interest is credited semi-annually to each Member's accumulated contributions. The crediting rate is set by the Board, and will fluctuate between zero and two percent less than the assumed rate of return (currently  $7.25\% - 2.00\% = 5.25\%$ ), based in part on the investment earnings during that period.

**C. Service Retirement:**

Eligibility: Tier 1 General Members are eligible to retire at age 50 if they have earned 10 years of Credited Service. Tier 1 General Members hired prior to December 31, 1978, may retire upon reaching age 65 with no service requirement.

Tier 2 and Tier 3 General Members are eligible to retire at age 55 if they have earned 10 years of Credited Service or upon reaching age 70 with no service requirement.

Alternatively, all Tier 1, 2, and 3 General Members are eligible to retire at any age after having earned 30 years of Credited Service, or upon reaching age 70 with no service requirement.

Safety Members are eligible to retire at age 50 if they have earned 10 years of Credited Service. Alternatively, Safety Members are eligible to retire at any age after having earned 20 years of Credited Service, or upon reaching age 70 with no service requirement. All Tier 1, 2, and 3 Safety Members hired prior to December 31, 1978, may retire upon reaching age 65 with no service requirement.

PEPRA: Tier 4 General Members are eligible to retire upon attaining age 52 and completing five or more years of service. Tier 4 Safety Members are eligible to retire upon attaining age 50 and completing five or more years of service. Tier 4 Members are eligible to retire, regardless of service, after attaining age 70.

Benefit Amount: The Service Retirement Benefit payable to the Member is equal to the Member's Final Compensation multiplied by credited service, the benefit factor from Table 1, and the age factor from Table 2 corresponding to the Member's code section. The appropriate code sections for each group are listed in Table 1. For General Members in the Merced County Cemetery District and those in Deferred Inactive Reciprocity status prior to March 15, 2005, benefits are calculated using the formula in Government Code Section 31676.11 or 31676.1.

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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**APPENDIX C – SUMMARY OF PLAN PROVISIONS**

For Tiers 1, 2, and 3, the percentage of Final Compensation may not exceed 100%. For those members integrated with Social Security, Retirement Benefits based on the first \$350 of monthly Final Average Compensation are reduced by one-third.

**Table 1:**

Group	Open or Closed	FAP	Max COLA	Code Section	Description	Top Retirement Factor Age	Benefit Factor
General Tier 1	Closed	1	3	31676.17	3% at 60	60	2.00%
General Tier 2	Closed	3	0	31676.17	3% at 60	60	2.00%
General Tier 2R (Courts)	Open	3	0	31676.17	3% at 60	60	2.00%
General Tier 2 (Cemetery)	Closed	3	0	31676.11	2% at 58 1/2	65	1.67%
General Tier 2R (Cemetery)	Open	3	0	31676.11	2% at 58 1/2	65	1.67%
General Tier 3	Closed	3	0	31676.1	2.43% at 65	65	1.67%
General Tier 3R	Open	3	0	31676.1	2.43% at 65	65	1.67%
General Tier 4	Open	3	0	7522.20(a)	PEPRA	67	1.00%
Safety Tier 1	Closed	1	3	31664.1	3% at 50	50	3.00%
Safety Tier 2	Closed	3	0	31664.1	3% at 50	50	3.00%
Safety Tier 3	Closed	3	0	31664	2% at 50	55	2.00%
Safety Tier 3R	Open	3	0	31664	2% at 50	55	2.00%
Safety Tier 4	Open	3	0	7522.25(d)	PEPRA	57	1.00%

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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**APPENDIX C – SUMMARY OF PLAN PROVISIONS**

**Table 2:**

Age	General 3% @ 60 CERL: 31676.17	General 2% @ 58 1/2 CERL: 31676.11	General 2.43% @ 65 CERL: 31676.1	General PEPRA GC: 7522.20(a)	Safety 3% @ 50 CERL: 31664.1	Safety 2% @ 50 CERL: 31664	Safety PEPRA GC: 7522.25(d)
41	N/A	N/A	N/A	N/A	0.6258	0.6258	N/A
42	N/A	N/A	N/A	N/A	0.6625	0.6625	N/A
43	N/A	N/A	N/A	N/A	0.7004	0.7004	N/A
44	N/A	N/A	N/A	N/A	0.7397	0.7397	N/A
45	N/A	N/A	N/A	N/A	0.7805	0.7805	N/A
46	N/A	N/A	N/A	N/A	0.8226	0.8226	N/A
47	N/A	N/A	N/A	N/A	0.8678	0.8678	N/A
48	N/A	N/A	N/A	N/A	0.9085	0.9085	N/A
49	N/A	N/A	N/A	N/A	0.9522	0.9522	N/A
50	1.0000	0.7454	0.7091	N/A	1.0000	1.0000	2.0000
51	1.0500	0.7882	0.7457	N/A	1.0000	1.0516	2.1000
52	1.1000	0.8346	0.7816	1.0000	1.0000	1.1078	2.2000
53	1.1500	0.8850	0.8181	1.1000	1.0000	1.1692	2.3000
54	1.2000	0.9399	0.8556	1.2000	1.0000	1.2366	2.4000
55	1.2500	1.0000	0.8954	1.3000	1.0000	1.3099	2.5000
56	1.3000	1.0447	0.9382	1.4000	1.0000	1.3099	2.6000
57	1.3500	1.1048	0.9846	1.5000	1.0000	1.3099	2.7000
58	1.4000	1.1686	1.0350	1.6000	1.0000	1.3099	2.7000
59	1.4500	1.2365	1.0899	1.7000	1.0000	1.3099	2.7000
60	1.5000	1.3093	1.1500	1.8000	1.0000	1.3099	2.7000
61	1.5000	1.3608	1.1947	1.9000	1.0000	1.3099	2.7000
62	1.5000	1.4123	1.2548	2.0000	1.0000	1.3099	2.7000
63	1.5000	1.4638	1.3186	2.1000	1.0000	1.3099	2.7000
64	1.5000	1.5153	1.3865	2.2000	1.0000	1.3099	2.7000
65	1.5000	1.5668	1.4593	2.3000	1.0000	1.3099	2.7000
66	1.5000	1.5668	1.4593	2.4000	1.0000	1.3099	2.7000
67	1.5000	1.5668	1.4593	2.5000	1.0000	1.3099	2.7000

Form of Benefit: The Service Retirement Benefit will be paid monthly beginning at retirement and for the life of the Member. If the member selects the unmodified benefit form, in the event of the Member's death 60% of the benefit will continue for the life of the Member's eligible spouse, domestic partner, or to the age of majority of dependent minor children if there is no eligible spouse or domestic partner. To be eligible to receive this benefit, a surviving spouse or domestic partner must be married or state-registered at least one year prior to retirement. In the event there is no eligible surviving spouse, domestic partner, or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms are also available.

## APPENDIX C – SUMMARY OF PLAN PROVISIONS

Annually on April 1, Tier 1 benefits are increased to reflect increases in the CPI for the San Francisco Bay Area. Annual increases may not exceed 3%, but CPI increases in excess of 3% are “banked” and used for future increases when the CPI increases by less than 3%.

A lump sum benefit of \$3,000 will be payable upon the death of a retired member.

### D. Service-Connected Disability

**Eligibility:** Members are eligible for Service-Connected Disability Retirement benefits at any age if they are permanently disabled as a result of injuries or illness sustained in the line of duty.

**Benefit Amount:** The Service-Connected Disability Retirement Benefit payable to Members is equal to the greater of 50% of their Final Compensation or – if the Member is eligible at disability for a Service Retirement Benefit – the Service Retirement Benefit accrued on the date of disability.

Members who return to work at a different position with lower pay may receive a Supplemental Disability Allowance that, when added to their new pay, may bring the Member's total income up to the current pay for his or her position at the time of disability. The Supplemental Disability Allowance may not exceed the Service-Connected Disability Retirement benefit.

**Form of Benefit:** The Service-Connected Disability Retirement Benefit will be paid monthly beginning at the effective date of disability retirement and for the life of the Member; in the event of the Member's death, 100% of the benefit will continue for the life of the Member's eligible spouse, domestic partner, or to the age of majority of dependent minor children if there is no eligible spouse or domestic partner. In the event there is no eligible surviving spouse, domestic partner, or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms are also available.

Annually on April 1, Tier 1 benefits are increased to reflect increases in the CPI for the San Francisco Bay Area. Annual increases may not exceed 3%, but CPI increases in excess of 3% are “banked” and used for future increases when the CPI increases by less than 3%.

A lump sum benefit of \$3,000 will be payable upon the death of a retired member.

**APPENDIX C – SUMMARY OF PLAN PROVISIONS**

**E. Non Service-Connected Disability**

**Eligibility:** Members are eligible for Non Service-Connected Disability Retirement benefits if they are permanently disabled at any age after earning five years of Credited Service or after becoming eligible for a deferred vested benefit.

**Benefit Amount:** The Non Service-Connected Disability Retirement Benefit payable to General Members is equal to the greatest of:

- 1.5% of Final Compensation at disability multiplied by years of Credited Service at disability,
- 1.5% of Final Compensation at disability multiplied by years of Credited Service projected to age 65, but not to exceed one-third of Final Compensation, or
- If the Member is eligible at disability for a Service Retirement Benefit, the Service Retirement Benefit accrued on the date of disability.

The Non Service-Connected Disability Retirement Benefit payable to Safety Members is equal to the greatest of:

- 1.8% of Final Compensation at disability multiplied by years of Credited Service at disability,
- 1.8% of Final Compensation at disability multiplied by years of Credited Service projected to age 55, but not to exceed one-third of Final Compensation, or
- If the Member is eligible at disability for a Service Retirement Benefit, the Service Retirement Benefit accrued on the date of disability.

Members who return to work at a different position with lower pay may receive a Supplemental Disability Allowance that, when added to their new pay, may bring the Member's total income up to the current pay for his or her position at the time of disability. The Supplemental Disability Allowance may not exceed the Non Service-Connected Disability Retirement benefit.



**APPENDIX C – SUMMARY OF PLAN PROVISIONS**

**Form of Benefit:** The Non Service-Connected Disability Retirement Benefit will be paid monthly beginning at the effective date of disability retirement, and for the life of the Member; in the event of the Member's death, 60% of the benefit will continue for the life of the Member's eligible spouse, domestic partner, or to the age of majority of dependent minor children if there is no spouse. In the event there is no eligible surviving spouse, domestic partner, or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms are also available.

Annually on April 1, Tier 1 benefits are increased to reflect increases in the CPI for the San Francisco Bay Area. Annual increases may not exceed 3%, but CPI increases in excess of 3% are "banked" and used for future increases when the CPI increases by less than 3%.

A lump sum benefit of \$3,000 will be payable upon the death of a retired member.

**F. Service-Connected Death**

**Eligibility:** A Member's survivors are eligible to receive Service-Connected Death benefits if the Member's death resulted from injury or illness sustained in connection with the Member's duties.

**Benefit Amount:** The Service-Connected Death benefit payable to an eligible surviving spouse, domestic partner, or minor children will be 50% of the Member's Final Compensation.

Furthermore, for Safety Members only, there will be an additional lump sum benefit of 12 months of pay at the time of death. An additional benefit of 25% of the above basic benefit will be paid for the first minor child, 15% for the second, and 10% for the third.

**Form of Benefit:** The Service-Connected Death Benefit will be paid monthly beginning at the Member's death and for the life of the eligible surviving spouse, domestic partner, or to the age of majority of dependent minor children if there is no eligible surviving spouse or domestic partner.

Annually on April 1, Tier 1 benefits are increased to reflect increases in the CPI for the San Francisco Bay Area. Annual increases may not exceed 3%, but CPI increases in excess of 3% are "banked" and used for future increases when the CPI increases by less than 3%.

**APPENDIX C – SUMMARY OF PLAN PROVISIONS**

**G. Non Service-Connected Death**

**Eligibility:** A Member's survivors are eligible to receive Non Service-Connected Death benefits if the Member's death arose from causes unrelated to the Member's duties.

**Benefit Amount:** In the event the Member had earned fewer than five years of Credited Service and has no or insufficient reciprocity service from another system, the Non Service-Connected Death benefit will be a refund of the Member's accumulated contributions with interest plus a payment of one month of Final Compensation for each year of Credited Service, not to exceed six months.

In the event the Member had earned five or more years of Credited Service, the Non Service-Connected Death benefit payable to an eligible surviving spouse, domestic partner, or minor children will be 60% of the amount the Member would have received as a Non Service-Connected Disability Retirement Benefit on the date of death.

**Form of Benefit:** For Members who had earned fewer than five years of Credited Service at death, the benefit will be paid as a lump sum.

For Members with five or more years of Credited Service, the Non Service-Connected Death Benefit will be paid monthly beginning at the Member's death and for the life of the eligible surviving spouse, domestic partner, or to the age of majority of dependent minor children if there is no eligible spouse or domestic partner.

Annually on April 1, Tier 1 benefits are increased to reflect increases in the CPI for the San Francisco Bay Area. Annual increases may not exceed 3%, but CPI increases in excess of 3% are "banked" and used for future increases when the CPI increases by less than 3%.

**H. Withdrawal Benefit:**

**Eligibility:** A Member is eligible for a Withdrawal Benefit upon termination of employment.

**Benefit Amount:** The Withdrawal Benefit is a refund of the Member's accumulated Contributions with interest. Upon receipt of the Withdrawal Benefit, the Member forfeits all Credited Service.

**Form of Benefit:** The Withdrawal Benefit is paid in a lump sum upon election by the Member.

**APPENDIX C – SUMMARY OF PLAN PROVISIONS**

**I. Deferred Vested Benefit:**

**Eligibility:** A Member is eligible for a Deferred Vested Benefit upon termination of employment after earning five years of Credited Service, including reciprocity service from another system. The Member must leave his or her Member Contributions with interest on deposit with the Plan.

**Benefit Amount:** The Deferred Vested Benefit is computed in the same manner as the Service Retirement Benefit, but it is based on Credited Service and Final Compensation on the date of termination.

**Form of Benefit:** The Deferred Vested Benefit will be paid monthly beginning at retirement and for the life of the Member; in the event of the Member's death, 60% of the benefit will continue for the life of the Member's eligible surviving spouse, domestic partner, or to the age of majority of dependent minor children if there is no eligible surviving spouse or domestic partner. In the event there is no eligible surviving spouse, domestic partner, or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms are also available.

Annually on April 1, Tier 1 benefits are increased to reflect increases in the CPI for the San Francisco Bay Area. Annual increases may not exceed 3%, but CPI increases in excess of 3% are "banked" and used for future increases when the CPI increases by less than 3%.

A lump sum benefit of \$3,000 will be payable upon the death of a retired member.

**J. Reciprocal Benefit:**

**Eligibility:** A Member is eligible for a Reciprocal Benefit upon termination of employment and entry, within a specified period of time, into another retirement system recognized as a reciprocal system by the Plan. In addition, the Member must leave his or her Member Contributions with interest on deposit with the Plan.

**Benefit Amount:** The Reciprocal Benefit is computed in the same manner as the Service Retirement Benefit, but it is based on Credited Service on the date of termination and Final Compensation on the date of retirement; Final Compensation is based on the highest of the Compensation earned under this Plan or the reciprocal plan.

MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
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**APPENDIX C – SUMMARY OF PLAN PROVISIONS**

Form of Benefit: The Reciprocal Benefit will be paid monthly beginning at retirement and for the life of the Member; in the event of the Member's death, 60% of the benefit will continue for the life of the Member's eligible surviving spouse, domestic partner, or to the age of majority of dependent minor children if there is no eligible surviving spouse or domestic partner. In the event there is no eligible surviving spouse, domestic partner, or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms are also available.

Annually on April 1, Tier 1 benefits are increased to reflect increases in the CPI for the San Francisco Bay Area. Annual increases may not exceed 3%, but CPI increases in excess of 3% are "banked" and used for future increases when the CPI increases by less than 3%.

A lump sum benefit may be payable upon the death of a retired Member by the last system under which the Member's service was covered.

**K. Changes Since Last Valuation**

None.

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX D – MEMBER CONTRIBUTION RATES**

## **Contribution Rates**

Employee contribution rates vary by member Group and Tier. For non-PEPRA members, the rates were updated in 2016, following an experience study covering the period July 1, 2013 – June 30, 2016. In 2017, the rates were updated to reflect the reinstatement of the final average compensation load and the updated administrative expense load. For 2018, the rates were re-computed for PEPRA members only, in accordance with the requirement that employees pay half of the total normal cost rate from the most recent actuarial valuation.

### Non-PEPRA Members

- The basic rates are determined based on Government Code Section 31621.8 for General Tier 1 and Tier 2 members (31621.1 for Tier 2 members under benefit section 31676.11), 31621 for General Tier 3 members, and Section 31639.25 for Safety members. The COLA Rates for members in Tier 1 are determined based on 50% of the normal cost associated with the expected COLA benefits, including joint and survivor benefits, determined for each individual entry age.
- The rates are determined based on an interest rate of 7.25% per annum, an average salary increase of 2.75% per year (plus service-based increases for merit/longevity and the additional final average compensation load – except for the new County Tier 3R and Court Tier 2R), and the CalPERS 2009 Healthy Annuitants & Employees, projected using Projection Scale MP-2016 to 2037. The rates are blended based on a male/female weighting of 30% male / 70% female for General members, and 70% male / 30% female for Safety members.
- Effective with the June 30, 2013 valuation, an administrative expense load was added to the rates. The expense load added is currently 3.1%. This load was determined to account for the employees' share of the assumed administrative expense assumption, assuming the employer and employees would share administrative expenses in proportion to their overall share of the contributions. The load produces an average increase in the employee rates of approximately 0.24% of payroll.

### PEPRA Members

- Employee contribution rates are equal to half of the total normal cost rate from the actuarial valuation, determined separately for General and Safety. Due to the passage of SB13, contribution rates for PEPRA members are not rounded, and will be recomputed each year.
- An administrative expenses load of 3.1% was applied to the PEPRA rates.

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX D – MEMBER CONTRIBUTION RATES**

**Current and Prior Year Contribution Rates (General Non-PEPRA):**

Entry Age	Basic		Tier 1 COLA		Total		Tier 2 Basic		Tier 2 (Cemetery) Basic		Tier 2R (Cemetery) Basic		Tier 2R (Courts) Basic		Tier 3 Basic		Tier 3R Basic	
	First \$350	Over \$350	First \$350	Over \$350	First \$350	Over \$350	First \$350	Over \$350	First \$350	Over \$350	First \$350	Over \$350	First \$350	Over \$350	First \$350	Over \$350	First \$350	Over \$350
16	4.63%	6.93%	1.09%	1.64%	5.72%	8.57%	4.29%	6.43%	3.58%	5.36%	3.49%	5.23%	4.19%	6.28%	3.00%	4.50%	2.94%	4.40%
17	4.63%	6.93%	1.09%	1.64%	5.72%	8.57%	4.29%	6.43%	3.58%	5.36%	3.49%	5.23%	4.19%	6.28%	3.00%	4.50%	2.94%	4.40%
18	4.63%	6.93%	1.09%	1.64%	5.72%	8.57%	4.29%	6.43%	3.58%	5.36%	3.49%	5.23%	4.19%	6.28%	3.00%	4.50%	2.94%	4.40%
19	4.63%	6.93%	1.09%	1.64%	5.72%	8.57%	4.29%	6.43%	3.58%	5.36%	3.49%	5.23%	4.19%	6.28%	3.00%	4.50%	2.94%	4.40%
20	4.63%	6.93%	1.09%	1.64%	5.72%	8.57%	4.29%	6.43%	3.58%	5.36%	3.49%	5.23%	4.19%	6.28%	3.00%	4.50%	2.94%	4.40%
21	4.73%	7.10%	1.14%	1.71%	5.87%	8.81%	4.39%	6.58%	3.66%	5.48%	3.58%	5.37%	4.30%	6.44%	3.08%	4.61%	3.01%	4.51%
22	4.85%	7.27%	1.18%	1.78%	6.03%	9.05%	4.50%	6.75%	3.75%	5.63%	3.67%	5.49%	4.40%	6.59%	3.15%	4.73%	3.08%	4.63%
23	4.98%	7.46%	1.24%	1.85%	6.22%	9.31%	4.60%	6.91%	3.83%	5.76%	3.75%	5.63%	4.50%	6.76%	3.22%	4.84%	3.16%	4.74%
24	5.10%	7.64%	1.29%	1.93%	6.39%	9.57%	4.73%	7.09%	3.94%	5.91%	3.84%	5.77%	4.61%	6.92%	3.31%	4.97%	3.23%	4.85%
25	5.22%	7.83%	1.33%	2.00%	6.55%	9.83%	4.84%	7.26%	4.03%	6.05%	3.94%	5.92%	4.73%	7.10%	3.39%	5.09%	3.32%	4.98%
26	5.35%	8.02%	1.38%	2.07%	6.73%	10.09%	4.95%	7.44%	4.13%	6.20%	4.04%	6.06%	4.85%	7.27%	3.47%	5.21%	3.40%	5.10%
27	5.48%	8.22%	1.43%	2.15%	6.91%	10.37%	5.08%	7.62%	4.23%	6.35%	4.14%	6.21%	4.97%	7.45%	3.56%	5.35%	3.48%	5.22%
28	5.61%	8.43%	1.49%	2.24%	7.10%	10.67%	5.21%	7.82%	4.34%	6.52%	4.24%	6.36%	5.09%	7.63%	3.65%	5.55%	3.56%	5.35%
29	5.76%	8.64%	1.55%	2.32%	7.31%	10.96%	5.35%	8.01%	4.46%	6.68%	4.35%	6.53%	5.22%	7.83%	3.74%	5.61%	3.66%	5.48%
30	5.90%	8.86%	1.60%	2.40%	7.50%	11.26%	5.47%	8.21%	4.56%	6.84%	4.46%	6.68%	5.35%	8.02%	3.83%	5.75%	3.74%	5.61%
31	6.06%	9.09%	1.66%	2.48%	7.72%	11.57%	5.61%	8.42%	4.68%	7.02%	4.58%	6.86%	5.49%	8.23%	3.92%	5.89%	3.84%	5.76%
32	6.21%	9.31%	1.71%	2.56%	7.92%	11.87%	5.76%	8.63%	4.80%	7.19%	4.68%	7.03%	5.62%	8.44%	4.03%	6.04%	3.93%	5.90%
33	6.38%	9.56%	1.76%	2.65%	8.14%	12.21%	5.89%	8.84%	4.91%	7.37%	4.80%	7.20%	5.76%	8.64%	4.13%	6.19%	4.03%	6.05%
34	6.54%	9.81%	1.82%	2.73%	8.36%	12.54%	6.03%	9.04%	5.03%	7.53%	4.91%	7.37%	5.89%	8.84%	4.23%	6.35%	4.13%	6.20%
35	6.68%	10.01%	1.87%	2.81%	8.55%	12.82%	6.16%	9.24%	5.13%	7.70%	5.02%	7.52%	6.02%	9.02%	4.34%	6.50%	4.23%	6.36%
36	6.82%	10.23%	1.94%	2.90%	8.76%	13.13%	6.29%	9.44%	5.24%	7.87%	5.13%	7.68%	6.15%	9.22%	4.44%	6.66%	4.35%	6.52%
37	6.97%	10.46%	2.00%	3.00%	8.97%	13.46%	6.43%	9.64%	5.36%	8.03%	5.23%	7.86%	6.28%	9.43%	4.56%	6.84%	4.46%	6.69%
38	7.12%	10.68%	2.06%	3.09%	9.18%	13.77%	6.56%	9.84%	5.47%	8.20%	5.35%	8.02%	6.42%	9.62%	4.67%	7.00%	4.56%	6.85%
39	7.28%	10.93%	2.11%	3.17%	9.39%	14.10%	6.69%	10.03%	5.58%	8.36%	5.45%	8.18%	6.54%	9.81%	4.77%	7.16%	4.67%	7.00%
40	7.42%	11.13%	2.16%	3.24%	9.58%	14.37%	6.81%	10.22%	5.68%	8.52%	5.54%	8.32%	6.65%	9.98%	4.87%	7.31%	4.77%	7.15%
41	7.55%	11.33%	2.18%	3.28%	9.73%	14.61%	6.93%	10.40%	5.78%	8.67%	5.66%	8.48%	6.79%	10.18%	4.99%	7.48%	4.87%	7.30%
42	7.71%	11.56%	2.20%	3.31%	9.91%	14.87%	7.08%	10.61%	5.90%	8.84%	5.76%	8.63%	6.91%	10.36%	5.09%	7.63%	4.98%	7.47%
43	7.86%	11.78%	2.23%	3.34%	10.09%	15.12%	7.20%	10.80%	6.00%	9.00%	5.87%	8.80%	7.04%	10.56%	5.20%	7.80%	5.08%	7.62%
44	8.01%	12.02%	2.25%	3.37%	10.26%	15.39%	7.32%	10.99%	6.10%	9.16%	5.97%	8.95%	7.16%	10.74%	5.29%	7.94%	5.18%	7.77%
45	8.15%	12.23%	2.27%	3.40%	10.42%	15.63%	7.45%	11.18%	6.21%	9.32%	6.07%	9.10%	7.28%	10.92%	5.40%	8.10%	5.27%	7.91%
46	8.29%	12.44%	2.28%	3.41%	10.57%	15.85%	7.58%	11.37%	6.32%	9.48%	6.18%	9.26%	7.41%	11.11%	5.49%	8.24%	5.37%	8.06%
47	8.46%	12.69%	2.29%	3.43%	10.75%	16.12%	7.71%	11.56%	6.43%	9.63%	6.28%	9.42%	7.53%	11.30%	5.60%	8.41%	5.47%	8.21%
48	8.64%	12.96%	2.30%	3.45%	10.94%	16.41%	7.78%	11.66%	6.48%	9.72%	6.33%	9.50%	7.60%	11.40%	5.70%	8.55%	5.57%	8.36%
49	8.77%	13.15%	2.32%	3.47%	11.09%	16.62%	7.80%	11.69%	6.50%	9.74%	6.34%	9.52%	7.61%	11.42%	5.80%	8.70%	5.68%	8.51%
50	8.77%	13.14%	2.32%	3.48%	11.09%	16.62%	7.79%	11.68%	6.49%	9.73%	6.34%	9.51%	7.61%	11.41%	5.90%	8.85%	5.77%	8.65%
51	8.77%	13.14%	2.30%	3.45%	11.07%	16.59%	7.74%	11.61%	6.45%	9.68%	6.31%	9.46%	7.57%	11.35%	6.01%	9.00%	5.87%	8.81%
52	8.78%	13.16%	2.26%	3.39%	11.04%	16.55%	7.66%	11.50%	6.38%	9.58%	6.24%	9.36%	7.49%	11.23%	6.11%	9.16%	5.96%	8.95%
53	8.66%	13.00%	2.21%	3.32%	10.87%	16.32%	7.92%	11.88%	6.60%	9.90%	6.45%	9.68%	7.74%	11.61%	6.16%	9.24%	6.02%	9.02%
54	8.56%	12.85%	2.16%	3.24%	10.72%	16.09%	8.19%	12.29%	6.83%	10.24%	6.67%	10.01%	8.00%	12.01%	6.17%	9.26%	6.04%	9.05%
55	8.49%	12.73%	2.12%	3.18%	10.61%	15.91%	8.13%	12.19%	6.78%	10.16%	6.62%	9.93%	7.94%	11.91%	6.17%	9.25%	6.03%	9.04%
56	8.41%	12.61%	2.05%	3.08%	10.46%	15.69%	8.05%	12.07%	6.71%	10.06%	6.55%	9.83%	7.86%	11.79%	6.13%	9.20%	6.00%	8.99%
57	8.32%	12.48%	1.99%	2.99%	10.31%	15.47%	7.96%	11.95%	6.63%	9.96%	6.49%	9.73%	7.79%	11.68%	6.07%	9.11%	5.93%	8.90%
58	8.23%	12.35%	1.93%	2.89%	10.16%	15.24%	7.88%	11.82%	6.57%	9.85%	6.41%	9.63%	7.69%	11.55%	6.27%	9.40%	6.13%	9.20%
59+	8.14%	12.21%	1.87%	2.81%	10.01%	15.02%	7.79%	11.68%	6.49%	9.73%	6.34%	9.51%	7.61%	11.41%	6.49%	9.73%	6.35%	9.52%

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX D – MEMBER CONTRIBUTION RATES**

**Current and Prior Year Contribution Rates (Safety Non-PEPRA):**

Entry Age	Basic		Tier 1 COLA		Total		Tiers 2 and 3 Basic		Tier 3R Basic	
	First \$350	Over \$350	First \$350	Over \$350	First \$350	Over \$350	First \$350	Over \$350	First \$350	Over \$350
20	5.21%	7.82%	2.09%	3.13%	7.30%	10.95%	4.83%	7.24%	4.72%	7.08%
21	5.34%	8.00%	2.15%	3.23%	7.49%	11.23%	4.94%	7.42%	4.83%	7.25%
22	5.47%	8.20%	2.24%	3.35%	7.71%	11.55%	5.07%	7.60%	4.95%	7.43%
23	5.59%	8.40%	2.30%	3.45%	7.89%	11.85%	5.19%	7.79%	5.08%	7.61%
24	5.74%	8.60%	2.38%	3.56%	8.12%	12.16%	5.32%	7.97%	5.19%	7.79%
25	5.87%	8.81%	2.44%	3.67%	8.31%	12.48%	5.45%	8.17%	5.33%	7.98%
26	6.02%	9.02%	2.51%	3.77%	8.53%	12.79%	5.57%	8.36%	5.45%	8.18%
27	6.17%	9.25%	2.58%	3.86%	8.75%	13.11%	5.72%	8.57%	5.58%	8.37%
28	6.31%	9.48%	2.64%	3.96%	8.95%	13.44%	5.84%	8.77%	5.72%	8.57%
29	6.48%	9.71%	2.70%	4.05%	9.18%	13.76%	5.97%	8.96%	5.84%	8.76%
30	6.60%	9.91%	2.75%	4.13%	9.35%	14.04%	6.09%	9.14%	5.95%	8.93%
31	6.74%	10.11%	2.79%	4.18%	9.53%	14.29%	6.21%	9.32%	6.08%	9.12%
32	6.87%	10.31%	2.82%	4.23%	9.69%	14.54%	6.34%	9.51%	6.19%	9.29%
33	7.01%	10.52%	2.86%	4.30%	9.87%	14.82%	6.47%	9.70%	6.32%	9.49%
34	7.16%	10.73%	2.92%	4.38%	10.08%	15.11%	6.60%	9.91%	6.46%	9.68%
35	7.30%	10.96%	2.98%	4.47%	10.28%	15.43%	6.75%	10.12%	6.58%	9.88%
36	7.47%	11.20%	3.07%	4.60%	10.54%	15.80%	6.88%	10.32%	6.73%	10.09%
37	7.62%	11.43%	3.16%	4.74%	10.78%	16.17%	7.04%	10.55%	6.87%	10.31%
38	7.80%	11.69%	3.26%	4.88%	11.06%	16.57%	7.18%	10.76%	7.01%	10.53%
39	7.97%	11.96%	3.36%	5.04%	11.33%	17.00%	7.32%	10.98%	7.16%	10.73%
40	8.13%	12.19%	3.47%	5.20%	11.60%	17.39%	7.46%	11.19%	7.28%	10.93%
41	8.28%	12.42%	3.48%	5.22%	11.76%	17.64%	7.60%	11.40%	7.43%	11.15%
42	8.46%	12.69%	3.51%	5.26%	11.97%	17.95%	7.77%	11.65%	7.59%	11.38%
43	8.65%	12.98%	3.55%	5.34%	12.20%	18.32%	7.90%	11.86%	7.73%	11.59%
44	8.87%	13.31%	3.62%	5.42%	12.49%	18.73%	7.98%	11.98%	7.81%	11.71%
45	9.01%	13.53%	3.68%	5.51%	12.69%	19.04%	8.00%	12.01%	7.83%	11.74%
46	9.01%	13.53%	3.72%	5.57%	12.73%	19.10%	7.96%	11.94%	7.78%	11.66%
47	9.04%	13.57%	3.76%	5.64%	12.80%	19.21%	7.86%	11.79%	7.68%	11.53%
48	8.91%	13.37%	3.84%	5.76%	12.75%	19.13%	8.13%	12.19%	7.94%	11.92%
49+	8.79%	13.17%	3.93%	5.90%	12.72%	19.07%	8.41%	12.61%	8.22%	12.33%

**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2018**

**APPENDIX D – MEMBER CONTRIBUTION RATES**

**Current Year Contribution Rates (PEPRA):**

PEPRA Rates		
	General	Safety
	5.95%	10.29%
Assumptions:		
Interest	7.25%	
Salary	2018 Valuation Scale (service-based, includes inflation at 2.5%)	
Mortality	CalPERS 2009 tables, projected with MP-2016	
Other	Same as June 30, 2018 valuation (see Appendix B)	

**Prior Year Contribution Rates (PEPRA):**

PEPRA Rates		
	General	Safety
	5.89%	9.98%
Assumptions:		
Interest	7.25%	
Salary	2017 Valuation Scale (service-based, includes inflation at 2.5%)	
Mortality	CalPERS 2009 tables, projected with MP-2016	
Other	Same as June 30, 2017 valuation (see Appendix B)	



## APPENDIX E – GLOSSARY

### 1. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs such as mortality, withdrawal, disability, retirement, changes in compensation, and rates of investment return.

### 2. Actuarial Cost Method

A procedure for determining the Actuarial Present Value of Pension Plan Benefits and expenses and for developing an allocation of such value to each year of service, usually in the form of a normal cost and an Actuarial Liability.

### 3. Actuarial Gain (Loss)

The difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

### 4. Actuarial Liability

The portion of the Actuarial Present Value of Projected Benefits which will not be paid by future normal costs. It represents the value of the past normal costs with interest to the valuation date.

### 5. Actuarial Present Value (Present Value)

The value as of a given date of a future amount or series of payments. The actuarial present value discounts the payments to the given date at the assumed investment return and includes the probability of the payment being made.

### 6. Actuarial Valuation

The determination, as of a specified date, of the normal cost, Actuarial Liability, Actuarial Value of Assets, and related actuarial present values for a pension plan.

### 7. Actuarial Value of Assets

The value of cash, investments, and other property belonging to a pension plan as used by the actuary for the purpose of an actuarial valuation. The purpose of an Actuarial Value of Assets is to smooth out fluctuations in market values. No longer applicable as of the June 30, 2014 actuarial valuation.

**APPENDIX E – GLOSSARY**

**8. Actuarially Equivalent**

Of equal actuarial present value, determined as of a given date, with each value based on the same set of actuarial assumptions.

**9. Amortization Payment**

The portion of the pension plan contribution that is designed to pay interest and principal on the Unfunded Actuarial Liability in order to pay for that liability in a given number of years.

**10. Entry Age Normal 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 of the individual between entry age and assumed exit ages.

**11. Funded Ratio**

The ratio of the Market Value of Assets to the Actuarial Liabilities.

**12. Normal Cost**

That portion of the Actuarial Present Value of Pension Plan Benefits and expenses, which is allocated to a valuation year by the actuarial cost method.

**13. Projected Benefits**

Those pension plan benefit amounts which are expected to be paid in the future under a particular set of actuarial assumptions, taking into account such items as increases in future compensation and service credits.

**14. Unfunded Actuarial Liability**

The excess of the Actuarial Liability over the Market Value of Assets.



*Classic Values, Innovative Advice*

Merced County Employees' Retirement Association  
Quarterly Budget Report (Preliminary)  
For the Fiscal Quarter Ended December 31, 2018

Professional Service Budget										
	Current Appropriation	Q1 Expended	Q1 %	Q2 Expended	Q2 %	Total Expended	Remaining Appropriation	% Exp	Current Encumbrances	Available/ Unrealized
21800 Professional & Special Services	\$ 3,400,000.00	\$ 154,488.65	5%	\$ 799,467.33	24%	\$ 953,955.98	\$ 2,446,044.02	28%	-	\$ 2,446,044.02
21802 Prof & Spec Serv-Actuarial Service	175,000.00	-	0%	17,617.89	10%	17,617.89	157,382.11	10%	-	157,382.11
21812 Prof & Spec Serv-Data Processing	120,000.00	8,775.50	7%	17,904.03	15%	26,679.53	93,320.47	22%	-	93,320.47
21840 Prof & Spec Sv-Administrative Serv	115,000.00	27,624.47	24%	3,460.28	3%	31,084.75	83,915.25	27%	-	83,915.25
22350 Spec Dept Exp-Software	250,000.00	74,437.47	30%	56,736.62	23%	131,174.09	118,825.91	52%	-	118,825.91
Depreciation Expense	242,777.87	-	0%	-	0%	-	242,777.87	0%	-	242,777.87
<b>Total Professional Service Budget</b>	<b>\$ 4,302,777.87</b>	<b>\$ 265,326.09</b>	<b>6%</b>	<b>\$ 895,186.15</b>	<b>21%</b>	<b>\$ 1,160,512.24</b>	<b>\$ 3,142,265.63</b>	<b>27%</b>	<b>\$ -</b>	<b>\$ 2,899,487.76</b>
Capital Asset Budget										
	Current Appropriation	Q1 Expended	Q1 %	Q2 Expended	Q2 %	Total Expended	Remaining Appropriation	% Exp	Current Encumbrances	Available/ Unrealized
84170 Retirement Carpet	\$ 41,000.00	\$ -	0%	\$ 38,202.59	93%	\$ 38,202.59	\$ 2,797.41	93%	-	\$ 2,797.41
<b>Total Capital Asset Budget</b>	<b>\$ 41,000.00</b>	<b>\$ -</b>	<b>0%</b>	<b>\$ 38,202.59</b>	<b>93%</b>	<b>\$ 38,202.59</b>	<b>\$ 2,797.41</b>	<b>93%</b>	<b>\$ -</b>	<b>\$ 2,797.41</b>
Administrative Service Budget										
	Current Appropriation	Q1 Expended	Q1 %	Q2 Expended	Q2 %	Total Expended	Remaining Appropriation	% Exp	Current Encumbrances	Available/ Unrealized
10110 Salaries And Wages	\$ 1,178,153.89	\$ 198,941.62	17%	\$ 282,599.01	24%	\$ 481,540.63	\$ 696,613.26	41%	-	\$ 696,613.26
20600 Communications	5,050.00	702.09	14%	1,043.77	21%	1,745.86	3,304.14	35%	-	3,304.14
20900 Household Expense	10,600.00	1,797.66	17%	2,902.58	27%	4,700.24	5,899.76	44%	636.00	5,263.76
21000 Insurance-Other	85,000.00	79,292.00	93%	-	0%	79,292.00	5,708.00	93%	-	5,708.00
21001 Insurance-General Liability	3,072.00	608.90	20%	880.53	29%	1,489.43	1,582.57	48%	-	1,582.57
21200 Maintenance-Equipment	5,000.00	1,572.36	31%	2,193.05	44%	3,765.41	1,234.59	75%	-	1,234.59
21301 Maint Struct Improvements & Gr	19,100.00	3,402.00	18%	5,865.31	31%	9,267.31	9,832.69	49%	300.00	9,532.69
21500 Membership	6,500.00	4,000.00	62%	1,860.00	29%	5,860.00	640.00	90%	-	640.00
21700 Office Expense-General	21,000.00	15,570.33	74%	2,146.35	10%	17,716.68	3,283.32	84%	-	3,283.32
21710 Office Expense-Postage	15,750.00	2,364.82	15%	3,091.59	20%	5,456.41	10,293.59	35%	91.36	10,202.23
21805 Prof & Spec Serv-Audits	55,000.00	16,504.13	30%	32,170.49	58%	48,674.62	6,325.38	88%	-	6,325.38
21808 Prof & Spec Serv-Bd Membership	12,000.00	2,100.00	18%	2,600.00	22%	4,700.00	7,300.00	39%	400.00	6,900.00
21811 Prof & Spec Serv-Court Reporters	2,000.00	-	0%	-	0%	-	2,000.00	0%	-	2,000.00
21816 Prof & Spec Serv-Medical Services	80,000.00	3,000.00	4%	730.80	1%	3,730.80	76,269.20	5%	-	76,269.20
21834 Prof & Spec Serv-Legal Services	300,000.00	67,837.40	23%	33,368.70	11%	101,206.10	198,793.90	34%	-	198,793.90
21872 Prof & Spec Serv-Investigations	1,000.00	-	0%	-	0%	-	1,000.00	0%	-	1,000.00
21900 Publications & Legal Notices	4,500.00	2,400.00	53%	-	0%	2,400.00	2,100.00	53%	-	2,100.00
22300 Spec Dept Expense-Other	500.00	57.00	11%	-	0%	57.00	443.00	11%	-	443.00
22310 Spec Dept Expense-Election Expense	5,000.00	-	0%	-	0%	-	5,000.00	0%	-	5,000.00
22327 Spec Dept Exp-Cost Allocation Plan	151,282.00	37,820.49	25%	37,820.49	25%	75,640.98	75,641.02	50%	-	75,641.02
22500 Transportation & Travel	800.00	30.47	4%	83.60	10%	114.07	685.93	14%	-	685.93
22505 Trans & Travel-Staff Development	4,000.00	-	0%	120.00	3%	120.00	3,880.00	3%	-	3,880.00
22515 Trans & Travel-In State Overnite	55,000.00	12,355.16	22%	2,002.30	4%	14,357.46	40,642.54	26%	-	40,642.54
22516 Trans & Travel-Out Of State	9,000.00	-	0%	-	0%	-	9,000.00	0%	-	9,000.00
22527 Trans & Travel-Expense/Car Allow	14,000.00	2,538.52	18%	3,230.85	23%	5,769.37	8,230.63	41%	-	8,230.63
22600 Utilities	12,500.00	2,929.65	23%	2,807.74	22%	5,737.39	6,762.61	46%	685.46	6,077.15
Depreciation Expense	13,130.08	-	0%	-	0%	-	13,130.08	0%	-	13,130.08
<b>Total Administrative Service Budget</b>	<b>\$ 2,068,937.97</b>	<b>\$ 455,824.60</b>	<b>22%</b>	<b>\$ 417,517.16</b>	<b>20%</b>	<b>\$ 873,341.76</b>	<b>\$ 1,195,596.21</b>	<b>42%</b>	<b>2,112.82</b>	<b>1,193,483.39</b>
<b>Total MCERA</b>	<b>\$ 6,412,715.84</b>	<b>\$ 721,150.69</b>	<b>11%</b>	<b>\$ 1,350,905.90</b>	<b>21%</b>	<b>\$ 2,072,056.59</b>	<b>\$ 4,340,659.25</b>	<b>32%</b>	<b>\$ 2,112.82</b>	<b>\$ 4,095,768.56</b>

Professional Service Budget	Adopted	Current Budget	Expended 12/2018	Expended YTD	Encumbrances	Bal Remaining	% Exp YTD
<b>21800 · Professional &amp; Special Services - Consultant and Management Fees</b>	<b>3,400,000.00</b>	<b>3,400,000.00</b>	<b>168,758.76</b>	<b>953,955.98</b>	<b>-</b>	<b>2,446,044.02</b>	<b>28%</b>
12/4/2018 Cliffwater - 2018-11 PE & HF Consulting			33,333.33				
12/13/2018 Mellon LC SIF - 2018-Q3 Mgt Fee			11,644.86				
12/13/2018 Mellon Dynamic - 2018-Q3 Mgt Fee			62,623.70				
12/13/2018 Mellon Int SIF - 2018-Q3 Mgt Fee			11,791.94				
12/18/2018 Reimb For Exps Re: Wilm Trust Sec Litigation			(14,252.82)				
12/20/2018 GFOA - 2018-12-17 - CAFR Cert of Achievement			580.00				
12/28/2018 Nossaman - 2018-11 - PE&I Advice			110.70				
12/28/2018 Nossaman - 2018-11 - ISO GIF II			139.50				
12/28/2018 Nossaman - 2018-11 - Taconic CRE Fund II			7,789.05				
12/28/2018 Nossaman - 2018-11 - Accel-KKR GCP III			83.70				
12/28/2018 Nossaman - 2018-11 - AGRV Fund X			131.40				
12/28/2018 Nossaman - 2018-11 - Ardian Infra Fund V			20,130.75				
12/28/2018 Nossaman - 2018-11 - BlackRock GE&P Infra			5,032.35				
12/28/2018 Nossaman - 2018-11 - Taconic Opp Fund			5,288.85				
12/30/2018 SSgA - 2018 - Q3 Mgt Fees			24,331.45				
Total 21800 · Professional & Special Services - Consultant and Management Fees			<b>168,758.76</b>				
<b>21802 · Professional &amp; Special Services - Actuarial Service</b>	<b>175,000.00</b>	<b>175,000.00</b>	<b>-</b>	<b>17,617.89</b>	<b>-</b>	<b>157,382.11</b>	<b>10%</b>
Total 21802 · Professional & Special Services - Actuarial Service			<b>-</b>				
<b>21812 · Prof &amp; Spec-Data Processing</b>	<b>120,000.00</b>	<b>120,000.00</b>	<b>4,639.35</b>	<b>26,679.53</b>	<b>-</b>	<b>93,320.47</b>	<b>22%</b>
12/27/2018 2018-11 IS Billing			4,639.35				
Total 21812 · Prof & Spec-Data Processing			<b>4,639.35</b>				
<b>21840 · Prof &amp; Spec Sv-Administrative Serv</b>	<b>115,000.00</b>	<b>115,000.00</b>	<b>1,046.48</b>	<b>31,084.75</b>	<b>-</b>	<b>83,915.25</b>	<b>27%</b>
12/5/2018 2018-11 NT STIF Income - Custodial Fee			946.48				
12/31/2018 Nov 2018 Wires			100.00				
Total 21840 · Prof & Spec Sv-Administrative Serv			<b>1,046.48</b>				
<b>22350 · Spec Dept Exp-Software</b>	<b>250,000.00</b>	<b>250,000.00</b>	<b>14,519.00</b>	<b>131,174.09</b>	<b>-</b>	<b>118,825.91</b>	<b>52%</b>
12/12/2018 CPAS - 2019-01 Maint			1,919.00				
12/12/2018 CPAS - 2019-01 Support			12,600.00				
Total 22350 · Spec Dept Exp-Software			<b>14,519.00</b>				
<b>Depreciation Expense</b>	<b>242,777.87</b>	<b>242,777.87</b>					
<b>Total Professional Service Budget</b>	<b>4,302,777.87</b>	<b>4,302,777.87</b>	<b>188,963.59</b>	<b>1,160,512.24</b>	<b>-</b>	<b>3,142,265.63</b>	<b>27%</b>
Capital Asset Budget	Adopted	Current Budget	Expended 12/2018	Expended YTD	Encumbrances	Bal Remaining	% Exp YTD
<b>84170 - Retirement Carpet</b>	<b>41,000.00</b>	<b>41,000.00</b>	<b>38,202.59</b>	<b>38,202.59</b>	<b>-</b>	<b>2,797.41</b>	<b>93%</b>
12/3/2018 Core - Teardown & Reinstall			9,507.65				
12/3/2018 Tri County Flooring - Flooring Match			12,000.00				
12/3/2018 Tri County Flooring - Carpet Install			15,343.19				
12/3/2018 Tri County Flooring - Vinyl Install			1,351.75				
Total 84170 - Retirement Carpet			<b>38,202.59</b>				
<b>Total Capital Asset Budget Budget</b>	<b>41,000.00</b>	<b>41,000.00</b>	<b>38,202.59</b>	<b>38,202.59</b>	<b>-</b>	<b>2,797.41</b>	<b>93%</b>
Administrative Service Budget	Adopted	Current Budget	Expended 12/2018	Expended YTD	Encumbrances	Bal Remaining	% Exp YTD
<b>10110 - Salaries &amp; Wages</b>	<b>1,178,153.89</b>	<b>1,178,153.89</b>	<b>86,745.63</b>	<b>488,799.47</b>	<b>-</b>	<b>689,354.42</b>	<b>41%</b>
12/14/2018 PP 25 Office payroll 10110-10360			47,529.24				
12/18/2018 October 2018 PARS			6.75				
12/28/2018 PP 26 Office payroll 10110-10360			39,209.64				
Total 10110 · Salaries & Wages			<b>86,745.63</b>				
<b>20600 · Communications</b>	<b>5,050.00</b>	<b>5,050.00</b>	<b>347.48</b>	<b>1,745.86</b>	<b>-</b>	<b>3,304.14</b>	<b>35%</b>
12/4/2018 AT&T - 2018-11 Comm Chgs			135.64				
12/27/2018 2018-11 Comm Billing			211.84				
Total 20600 · Communications			<b>347.48</b>				
<b>20900 · Household Expense</b>	<b>10,600.00</b>	<b>10,600.00</b>	<b>764.58</b>	<b>4,700.24</b>	<b>636.00</b>	<b>5,263.76</b>	<b>44%</b>
12/3/2018 Core - Cubicle Panel Cleaning			574.25				
12/11/2018 Bob's Pest Control - 2018-11 Svcs			40.00				
12/20/2018 ADT - 2019-Q1 Security Svcs			150.33				
Total 20900 · Household Expense			<b>764.58</b>				

Administrative Service Budget (Cont'd)	Adopted	Current Budget	Expended 12/2018	Expended YTD	Encumbrances	Bal Remaining	% Exp YTD
<b>21000 · Insurance-Other</b>	<b>85,000.00</b>	<b>85,000.00</b>	<b>-</b>	<b>79,292.00</b>	<b>-</b>	<b>5,708.00</b>	<b>93%</b>
Total 21000 · Insurance-Other			-				
<b>21001 · Insurance-General Liability</b>	<b>3,072.00</b>	<b>3,072.00</b>	<b>274.12</b>	<b>1,489.43</b>	<b>-</b>	<b>1,582.57</b>	<b>48%</b>
12/14/2018 PP 25 - General Liability			152.64				
12/28/2018 PP 26 - General Liability			121.48				
Total 21001 · Insurance- General Liability			274.12				
<b>21200 · Maintenance-Equipment</b>	<b>5,000.00</b>	<b>5,000.00</b>	<b>170.01</b>	<b>3,595.40</b>	<b>-</b>	<b>1,404.60</b>	<b>72%</b>
12/27/2018 Spriggs - Bizhub Lease			170.01				
Total 21200 · Maintenance-Equipment			170.01				
<b>21301 · Maintenance Structure Improvement</b>	<b>19,100.00</b>	<b>19,100.00</b>	<b>1,326.20</b>	<b>9,267.31</b>	<b>300.00</b>	<b>9,532.69</b>	<b>49%</b>
12/3/2018 Core - Non-capitalizable Travel			1,326.20				
Total 21301 · Maintenance Structure Improvement			1,326.20				
<b>21500 · Membership</b>	<b>6,500.00</b>	<b>6,500.00</b>	<b>1,250.00</b>	<b>5,860.00</b>	<b>-</b>	<b>640.00</b>	<b>90%</b>
12/3/2018 NCPERS - New Membership			250.00				
12/27/2018 CALAPRS - 2019 Membership Dues			1,000.00				
Total 21500 · Membership			1,250.00				
<b>21700 · Office Expense-General</b>	<b>21,000.00</b>	<b>21,000.00</b>	<b>678.15</b>	<b>17,716.68</b>	<b>-</b>	<b>3,283.32</b>	<b>84%</b>
12/11/2018 First Choice - 2018-11 Water Svc			27.17				
12/11/2018 First Choice - 2018-11 Cooler Rental			7.00				
12/28/2018 2018-11 Stores Billing			633.98				
12/28/2018 2018-11 Pacific Shredding			10.00				
Total 21700 · Office Expense-General			678.15				
<b>21710 · Office Expense-Postage</b>	<b>15,750.00</b>	<b>15,750.00</b>	<b>1,015.66</b>	<b>5,456.41</b>	<b>91.36</b>	<b>10,202.23</b>	<b>35%</b>
12/27/2018 2018-11 IS Postage			911.60				
12/27/2018 2018-11 Mail Room Chgs			104.06				
Total 21710 · Office Expense-Postage			1,015.66				
<b>21805 · Prof &amp; Spec Service-Audits</b>	<b>55,000.00</b>	<b>55,000.00</b>	<b>6,665.38</b>	<b>48,674.62</b>	<b>-</b>	<b>6,325.38</b>	<b>88%</b>
12/14/2018 Brown Armstrong - FY 17-18 Audit Progress Through 2018-11			6,665.38				
Total 21805 · Prof & Spec Service-Audits			6,665.38				
<b>21808 · Prof &amp; Spec-BD Membership</b>	<b>12,000.00</b>	<b>12,000.00</b>	<b>500.00</b>	<b>4,700.00</b>	<b>400.00</b>	<b>6,900.00</b>	<b>39%</b>
12/3/2018 2018-11 Bd Mtgs			100.00				
12/3/2018 2018-11 Bd Mtgs			100.00				
12/3/2018 2018-11 Bd Mtgs			100.00				
12/3/2018 2018-11 Bd Mtgs			100.00				
12/3/2018 2018-11 Bd Mtgs			100.00				
Total 21808 · Prof & Spec-BD Membership Fee			500.00				
<b>21811 · Prof &amp; Spec-Court Reporters</b>	<b>2,000.00</b>	<b>2,000.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2,000.00</b>	<b>0%</b>
Total 21811 · Prof & Spec-Court Reporters			-				
<b>21816 · Prof &amp; Spec -Medical Services</b>	<b>80,000.00</b>	<b>80,000.00</b>	<b>600.00</b>	<b>3,730.80</b>	<b>-</b>	<b>76,269.20</b>	<b>5%</b>
12/27/2018 NDE - Record Review & Report			600.00				
Total 21816 · Prof & Spec -Medical Services			600.00				

Administrative Service Budget (Cont'd)	Adopted	Current Budget	Expended 12/2018	Expended YTD	Encumbrances	Bal Remaining	% Exp YTD
<b>21834 · Prof &amp; Spec -Legal Services</b>	<b>300,000.00</b>	<b>300,000.00</b>	<b>8,267.15</b>	<b>101,206.10</b>	<b>-</b>	<b>198,793.90</b>	<b>34%</b>
12/3/2018 Ted Cabral - 2018-11 Disab Legal Svcs			61.15				
12/3/2018 Ted Cabral - 2018-11 Disab Legal Svcs			7,887.50				
12/12/2018 PPC - 2018-10 Legal Svcs			265.00				
12/28/2018 Nossaman - 2018-11 - AB 197 Lit			53.50				
Total 21834 · Prof & Spec -Legal Services			<u>8,267.15</u>				
<b>21872 · Prof &amp; Spec Sv - Investigations</b>	<b>1,000.00</b>	<b>1,000.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,000.00</b>	<b>0%</b>
Total 21872 · Prof & Spec Sv - Investigations			<u>-</u>				
<b>21900 · Publications &amp; Legal Notices</b>	<b>4,500.00</b>	<b>4,500.00</b>	<b>-</b>	<b>2,400.00</b>	<b>-</b>	<b>2,100.00</b>	<b>53%</b>
Total 21900 · Publications & Legal Notices			<u>-</u>				
<b>22300 · Spec Dept Exp - Other</b>	<b>500.00</b>	<b>500.00</b>	<b>-</b>	<b>57.00</b>	<b>-</b>	<b>443.00</b>	<b>11%</b>
Total 22300 · Spec Dept Exp - Other			<u>-</u>				
<b>22310 · Spec Dept Exp - Election Expense</b>	<b>5,000.00</b>	<b>5,000.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>5,000.00</b>	<b>0%</b>
Total 22300 · Spec Dept Exp - Other			<u>-</u>				
<b>22327 · Spec Dept Exp-Cost Allocation</b>	<b>151,282.00</b>	<b>151,282.00</b>	<b>12,606.83</b>	<b>75,640.98</b>	<b>-</b>	<b>75,641.02</b>	<b>50%</b>
12/6/2018 2018-12 Cost Allocation			12,606.83				
Total 22327 · Spec Dept Exp-Cost Allocation			<u>12,606.83</u>				
<b>22500 · Transportation &amp; Travel</b>	<b>800.00</b>	<b>800.00</b>	<b>11.99</b>	<b>114.07</b>	<b>-</b>	<b>685.93</b>	<b>14%</b>
12/3/2018 2018-11 Mail Runs			11.99				
Total 22500 · Transportation & Travel			<u>11.99</u>				
<b>22505 · Trans &amp; Travel -Staff Development</b>	<b>4,000.00</b>	<b>4,000.00</b>	<b>-</b>	<b>120.00</b>	<b>-</b>	<b>3,880.00</b>	<b>3%</b>
Total 22505 · Trans & Travel -Staff Development			<u>-</u>				
<b>22515 · Trans &amp; Travel -In State</b>	<b>55,000.00</b>	<b>55,000.00</b>	<b>687.12</b>	<b>14,357.46</b>	<b>-</b>	<b>40,642.54</b>	<b>26%</b>
12/3/2018 SACRS 2018 Fall Conf - Travel Reimb			996.33				
12/20/2018 SACRS - Hotel Deposit Credit			(684.21)				
12/27/2018 CALAPRS - Disability Course			250.00				
12/27/2018 CALAPRS - Attorneys' RT			125.00				
Total 22515 · Trans & Travel -In State			<u>687.12</u>				
<b>22516 · Trans &amp; Travel -Out of State</b>	<b>9,000.00</b>	<b>9,000.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>9,000.00</b>	<b>0%</b>
Total 22516 · Trans & Travel -Out of State			<u>-</u>				
<b>22527 · Trans &amp; Travel- Car Allowance</b>	<b>14,000.00</b>	<b>14,000.00</b>	<b>923.10</b>	<b>5,769.37</b>	<b>-</b>	<b>8,230.63</b>	<b>41%</b>
12/14/2018 PP 25 - Car Allowance			461.55				
12/28/2018 PP 26 - Car Allowance			461.55				
Total 22527 · Trans & Travel- Car Allowance			<u>923.10</u>				
<b>22600 · Utilities</b>	<b>12,500.00</b>	<b>12,500.00</b>	<b>307.09</b>	<b>5,737.39</b>	<b>685.46</b>	<b>6,077.15</b>	<b>46%</b>
12/11/2018 City of Merced - 2018-11 WS&G			307.09				
Total 22600 · Utilities			<u>307.09</u>				
<b>Depreciation Expense</b>	<b>13,130.08</b>	<b>13,130.08</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>13,130.08</b>	
<b>Total Administrative Service Budget</b>	<b>2,068,937.97</b>	<b>2,068,937.97</b>	<b>123,140.49</b>	<b>880,430.59</b>	<b>2,112.82</b>	<b>1,186,394.56</b>	<b>43%</b>