San Diego City Employees' Retirement System

City of San Diego

GASB 67/68 Report as of June 30, 2016

Produced by Cheiron

November 2016

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LETTER OF TRANSMITTAL

November 10, 2016

Board of Administration
San Diego City Employees' Retirement System
401 West A Street, Suite 400
San Diego, CA 92101

Dear Members of the Board:

The purpose of this report is to provide accounting and financial disclosure information under the Government Accounting Standards Board Statements 67 and 68 (GASB 67 and GASB 68) for the San Diego City Employees' Retirement System and the City of San Diego. This information includes:

- Projection of the Total Pension Liability from the valuation date to the measurement date,
- Calculation of the Net Pension Liability at the assumed discount rate as well as discount rates 1% higher and lower than the assumed discount rate,
- Changes in the Net Pension Liability,
- Schedule of Employer Contributions,
- Disclosure of Deferred Inflows and Outflows, and
- Calculation of the Annual Pension Expense for the City of San Diego.

If you have any questions about the report or would like additional information, please let us know.

Sincerely,
Cheiron

David Holland, FSA, EA, FCA, MAAA
Consulting Actuary

Gene Kalwarski, FSA, EA, FCA, MAAA
Principal Consulting Actuary

SECTION I - BOARD SUMMARY

The purpose of this report is to provide accounting and financial disclosure information under the Government Accounting Standards Board Statements 67 and 68 for the San Diego City Employees' Retirement System and the City of San Diego. This information includes:

- Projection of the Total Pension Liability from the valuation date to the measurement date,
- Calculation of the Net Pension Liability at the assumed discount rate as well as discount rates 1% higher and lower than the assumed discount rate,
- Changes in the Net Pension Liability,
- Schedule of Employer Contributions,
- Disclosure of Deferred Inflows and Outflows, and
- Calculation of the Annual Pension Expense for the City of San Diego.

Highlights

The reporting date for the San Diego City Employees' Retirement System (SDCERS) is June 30, 2016. Measurements as of the reporting date are based on the fair value of assets as of June 30, 2016 and the Total Pension Liability as of the valuation date, June 30, 2015, updated to June 30, 2016. There were changes in assumptions as of the measurement date so the update procedures include the addition of service cost and interest cost offset by actual benefit payments, plus an adjustment due to the assumption changes.

The table below provides a summary of the key results during this reporting period.

Table I-1
Summary of Results

	Measurement Date	
	6/30/2016	6/30/2015
Net Pension Liability	$ 2,650,553,868	$ 1,713,565,616
Deferred Outflows	(703,059,407)	(30,943,822)
Deferred Inflows	0	118,458,472
Net Impact on Statement of Net Position	$ 1,947,494,460	$ 1,801,080,266
Pension Expense ($ Amount)	$ 405,957,048	$ 105,174,588
Pension Expense (% of Payroll)	84.46%	21.89%

The Net Pension Liability (NPL) increased approximately $937 million since the prior measurement date, primarily due to investment losses and changes in assumptions. There was also an actuarial liability loss that increased the NPL. The investment losses are recognized over five years, and the assumption change and actuarial liability losses are recognized over the average remaining service life, which is three years. Unrecognized amounts are reported as

SECTION I - BOARD SUMMARY

deferred outflows and deferred inflows. As of the end of the reporting year, the City of San Diego would report a Net Pension Liability of $2,650,553,868, Deferred Outflows of $703,059,407, and Deferred Inflows of $0. Consequently, the net impact on the City of San Diego's Statement of Net Position due to SDCERS would be $1,947,494,460 at the end of the reporting year. In addition, any contributions between the measurement date and the reporting date would be reported as deferred outflows to offset the cash outflow reported.

For the measurement year ending June 30, 2016, the annual pension expense is $405,957,048 or 84.46% of expected pensionable payroll. This amount is not related to the City's contribution to SDCERS ($259,542,854), but instead represents the change in the net impact on the City of San Diego's Statement of Net Position plus employer contributions ($1,947,494,460 – $1,801,080,266 + $259,542,854). The pension expense is significantly larger than the expense for the prior year. Volatility in pension expense from year to year is to be expected. It will largely be driven by investment gains or losses, but other changes can also have a significant impact. A breakdown of the components of the net pension expense is shown in the report.

SECTION II - CERTIFICATION

The purpose of this report is to provide accounting and financial reporting information under GASB 67 for the San Diego City Employees' Retirement System (SDCERS) and under GASB 68 for the City of San Diego. This report is for the use of SDCERS, the City of San Diego, and their auditors in preparing financial reports in accordance with applicable law and accounting requirements. This report is not appropriate for other purposes, including the measurement of funding requirements for SDCERS and estimating the price to settle SDCERS' obligation.

In preparing our report, we relied on information (some oral and some written) supplied by SDCERS. This information includes, but is not limited to, the 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.

The membership data, actuarial methods, and plan provisions are the same as were described in the Actuarial Valuation Report for SDCERS-City of San Diego as of June 30, 2015. The SDCERS Board has the authority to select economic and demographic assumptions for the plan. The assumptions used in this report reflect the results of a full experience study performed by Cheiron covering the period July 1, 2010 through June 30, 2015 and adopted by the SDCERS Board in September 2016, as well as an economic experience study performed by Cheiron and presented to the SDCERS Board in November 2015. A full description of these assumptions can be found in Appendix A of this report.

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

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 that 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.

This report was prepared for SDCERS 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 report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

David Holland, FSA, EA, FCA, MAAA	Gene Kalwarski, FSA, EA, FCA, MAAA
Consulting Actuary	Principal Consulting Actuary

SECTION III - DETERMINATION OF DISCOUNT RATE

The discount rate used to measure the Total Pension Liability was 7.0%.

We have assumed that the employees will continue to contribute to SDCERS at the current rates and the City of San Diego will continue their historical practice (since 2006) of contributing to SDCERS based on an actuarially determined contribution, reflecting a payment equal to annual Normal Cost, an amount necessary to amortize the remaining Unfunded Actuarial Liability, the phased-in portion of annual expected administrative expenses, and the amount needed to avoid negative amortization, if any.

We have not performed a formal cash flow projection as described under Paragraph 41 of GASB Statement 67. However, Paragraph 43 allows for alternative methods to confirm the sufficiency of the Net Position if the evaluations "can be made with sufficient reliability without a separate projection of cash flows into and out of the pension plan…" In our professional judgment, adherence to the actuarial funding policy described above will result in the pension plan's projected Fiduciary Net Position being greater than or equal to the benefit payments projected for each future period.

Therefore, the long-term expected rate of return on plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability.

SECTION IV - PROJECTION OF TOTAL PENSION LIABILITY

The Total Pension Liability (TPL) at the end of the measurement year, June 30, 2016, is measured as of a valuation date of June 30, 2015 and projected to June 30, 2016. There were no significant events during the projection period of which we are aware, other than the assumption changes adopted by the Board at their September 2016 meeting. The table below shows how the TPL as of June 30, 2015, measured under the new assumptions, was rolled forward to June 30, 2016. The June 30, 2015 values, therefore, do not match either the June 30, 2015 valuation results (which were based on the prior assumptions), or the June 30, 2015 TPL reported in the prior GASB 67/68 report, which was based on a roll forward from the June 30, 2014 valuation to June 30, 2015.

The table below shows the projection of the TPL at discount rates equal to the rate used for disclosure and plus and minus one percent from the rate used for disclosure.

Table IV-1
Projection of Total Pension Liability from Valuation to Measurement Date

Discount Rate	6.00%	7.00%	8.00%
Valuation Total Pension Liability, 6/30/2015			
Actives	$ 2,883,770,276	$ 2,468,388,647	$ 2,134,022,573
Deferred Vested	333,504,420	291,330,634	257,792,686
Retirees	6,518,014,358	5,934,283,976	5,443,028,780
Total	**$ 9,735,289,054**	**$ 8,694,003,257**	**$ 7,834,844,039**
Service Cost	137,011,322	108,696,240	87,568,931
Benefit Payments	452,780,664	452,780,664	452,780,664
Interest	574,782,250	596,740,956	612,460,090
Total Pension Liability, 6/30/2016	**$ 9,994,301,962**	**$ 8,946,659,789**	**$ 8,082,092,396**

SECTION V - NOTE DISCLOSURES

The table below shows the changes in the Total Pension Liability, the Plan Fiduciary Net Position (i.e., fair value of system assets), and the Net Pension Liability during the Measurement Year.

Table V-1
Change in Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	**Plan Fiduciary Net Position (b)**	**Net Pension Liability (a) - (b)**
Balances at 6/30/2015	$ 8,090,278,137	$ 6,376,712,520	$ 1,713,565,616
Changes for the year:			
Service cost	93,803,776		93,803,776
Interest	573,759,931		573,759,931
Changes of benefits	0		0
Differences between expected and actual experience	21,285,131		21,285,131
Changes of assumptions	620,313,478		620,313,478
Contributions - employer		259,542,854	(259,542,854)
Contributions - member		59,376,773	(59,376,773)
Net investment income		64,155,033	(64,155,033)
Benefit payments	(452,780,664)	(452,780,664)	0
Administrative expense		(10,900,596)	10,900,596
Net changes	856,381,652	(80,606,599)	936,988,251
Balances at 6/30/2016	$ 8,946,659,789	$ 6,296,105,921	$ 2,650,553,868

During the measurement year, the NPL increased by approximately $937 million. The service cost and interest cost increased the NPL by approximately $668 million while contributions and investment income less administrative expenses decreased the NPL by approximately $372 million.

Changes in assumptions at the end of the measurement period increased the NPL by $620 million. There were no changes in benefits during the year. There were actuarial liability experience losses during the year of approximately $21 million.

The TPL as of June 30, 2016 was based upon the same data, actuarial methods, and plan provisions as were used in the actuarial valuation as of June 30, 2015, and which are summarized in the Actuarial Valuation Report for SDCERS-City of San Diego as of June 30, 2015. The SDCERS Board has the authority to select economic and demographic assumptions for the plan. The assumptions used in the calculation of the June 30, 2016 TPL reflect the results of a full experience study performed by Cheiron covering the period July 1, 2010 through June 30, 2015 and adopted by the SDCERS Board in September 2016, as well as an economic experience study performed by Cheiron and presented to the SDCERS Board in November 2015. A full description of these assumptions can be found in Appendix A of this report.

SECTION V - NOTE DISCLOSURES

A summary of the key assumptions is as follows:

- Investment Rate of Return: 7.0%, net of investment expense
- Salary Increases: 3.05% (following assumed freezes in FYs 2015-2018) plus merit component based on employee classification and years of service
- Cost-of-Living Adjustments: 1.9%
- Mortality: Healthy: CalPERS Mortality Tables, projected 20 years from 2009 base year using a variation of scale MP-2015, with a 10% increase to healthy retired female rates. Disabled: CalPERS Work Related Disability Mortality Table, projected 20 years from 2009 base year using a variation of scale MP-2015.

Changes in the discount rate affect the measurement of the TPL. Lower discount rates produce a higher TPL and higher discount rates produce a lower TPL. Because the discount rate does not affect the measurement of assets, the percentage change in the NPL can be very significant for a relatively small change in the discount rate. The table below shows the sensitivity of the NPL to the discount rate.

Table V-2
Sensitivity of Net Pension Liability to Changes in Discount Rate

	1% Decrease 6.00%	Discount Rate 7.00%	1% Increase 8.00%
Total Pension Liability	$ 9,994,301,962	$ 8,946,659,789	$ 8,082,092,396
Plan Fiduciary Net Position	6,296,105,921	6,296,105,921	6,296,105,921
Net Pension Liability	$ 3,698,196,041	$ 2,650,553,868	$ 1,785,986,474
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	63.0%	70.4%	77.9%

A one percent decrease in the discount rate increases the TPL by approximately 12% and increases the NPL by approximately 40%. A one percent increase in the discount rate decreases the TPL by approximately 10% and decreases the NPL by approximately 33%.

SECTION VI - REQUIRED SUPPLEMENTARY INFORMATION

The schedules of Required Supplementary Information generally start with information as of the implementation of GASB 67, and eventually will build up to 10 years of information. The schedule below shows the changes in NPL and related ratios required by GASB for the three years since implementation.

Table VI-1
Schedule of Changes in Net Pension Liability and Related Ratios

	FYE 2016	FYE 2015	FYE 2014
Total Pension Liability			
Service cost (MOY)	$ 93,803,776	$ 102,687,532	$ 107,002,939
Interest (includes interest on service cost)	573,759,931	554,987,977	537,875,335
Changes of benefit terms	0	0	0
Differences between expected and actual experience	21,285,131	46,415,733	0
Changes of assumptions	620,313,478	0	0
Benefit payments, including refunds of member contributions	(452,780,664)	(429,238,413)	(384,979,706)
Net change in total pension liability	**$ 856,381,652**	**$ 274,852,830**	**$ 259,898,569**
Total pension liability - beginning	**8,090,278,137**	**7,815,425,307**	**7,555,526,738**
Total pension liability - ending	**$ 8,946,659,789**	**$ 8,090,278,137**	**$ 7,815,425,307**
Plan fiduciary net position			
Contributions - employer	$ 259,542,854	$ 268,060,666	$ 279,658,715
Contributions - member	59,376,773	59,042,647	65,466,703
Net investment income	64,155,033	207,652,285	935,051,595
Benefit payments, including refunds of member contributions	(452,780,664)	(429,238,413)	(384,979,706)
Administrative expense	(10,900,596)	(8,693,178)	(10,466,941)
Net change in plan fiduciary net position	**$ (80,606,599)**	**$ 96,824,007**	**$ 884,730,366**
Plan fiduciary net position - beginning	**6,376,712,520**	**6,279,888,513**	**5,395,158,148**
Plan fiduciary net position - ending	**$ 6,296,105,921**	**$ 6,376,712,520**	**$ 6,279,888,513**
Net pension liability - ending	**$ 2,650,553,868**	**$ 1,713,565,616**	**$ 1,535,536,794**
Plan fiduciary net position as a percentage of the total pension liability	70.37%	78.82%	80.35%
Covered employee payroll *	$ 480,662,378	$ 480,535,973	$ 499,463,072
Net pension liability as a percentage of covered employee payroll	551.44%	356.59%	307.44%

**Covered-employee payroll is pensionable payroll for SDCERS members as of beginning of the measurement year.*

Because an Actuarially Determined Contribution (ADC) has been calculated historically, the full 10 years of information in the following schedule is required. The ADC contributions in Table VI-2 may differ from employer contributions reported throughout this report since actual employer contributions may also include DROP contributions, supplemental COLA contributions, and members' contributions paid by the employer.

SECTION VI - REQUIRED SUPPLEMENTARY INFORMATION

Table VI-2
Schedule of Employer Contributions

	FYE 2016	FYE 2015	FYE 2014	FYE 2013	FYE 2012	FYE 2011	FYE 2010	FYE 2009	FYE 2008	FYE 2007
Actuarially Determined Contribution	$ 254,900	$ 263,600	$ 275,400	$ 231,100	$ 231,200	$ 229,100	$ 154,200	$ 161,700	$ 137,700	$ 162,000
Contributions in Relation to the Actuarially Determined Contribution	254,900	263,600	275,400	231,143	231,200	229,297	192,533	162,475	165,581	169,126
Contribution Deficiency/(Excess)	$ 0	$ 0	$ 0	$ (43)	$ 0	$ (197)	$ (38,333)	$ (775)	$ (27,881)	$ (7,126)
Covered-Employee Payroll *	$ 480,662	$ 480,536	$ 499,463	$ 511,091	$ 514,265	$ 530,238	$ 536,591	$ 535,774	$ 512,440	$ 534,103
Contributions as a Percentage of Covered-Employee Payroll	53.03%	54.86%	55.14%	45.23%	44.96%	43.24%	35.88%	30.33%	32.31%	31.67%

**Covered-employee payroll is pensionable payroll for SDCERS members as of beginning of the measurement year.* *Amounts in Thousands*

Notes to Schedule

Valuation Date: 6/30/2014

Timing: Actuarially determined contributions for a given fiscal year are calculated based on the actuarial valuation performed at the beginning of the prior fiscal year.

Key Methods and Assumptions Used to Determine Contributions

Actuarial Cost Method: Entry Age Normal. Prior to the 2007 valuation, Projected Unit Credit was used.

Asset Valuation Method: Expected Value Method. Prior to the 2006 valuation, the "book value" smoothing method was used. The actuarial value of assets was set to the market value for the 2006 valuation, with the new smoothing method first applying to investment experience for the 2007 fiscal year.

Amortization Method: Closed periods. Payments are a level percentage of payroll (Police) or level dollar (non-Police). In the 2007 valuation, the amortization period was reduced from 27 to 20 years, with subsequent gains or losses amortized over different periods depending on the source. In the 2012 valuation, as a result of Proposition B, the UAL for the non-Police portion of the plan was re-amortized over a closed 15-year period with level dollar payments.

SECTION VI - REQUIRED SUPPLEMENTARY INFORMATION

Discount Rate:	7.25%. The discount rate was reduced from 8.00% to 7.75% in the 2008 valuation, from 7.75% to 7.50% in the 2011 valuation, and from 7.50% to 7.25% in the 2013 valuation.
Amortization Growth Rate:	3.30%. Same pattern of changes described below for salary increase assumption (excluding freezes).
Wage Inflation:	3.30%. Same pattern of changes described below for salary increase assumption.
Salary Increases:	3.30% (following assumed freezes in FYs 2013 - 2018) plus merit component based on employee classification and years of service. The across-the-board salary increase assumption was reduced from 4.25% to 4.00% in the 2008 valuation, from 4.00% to 3.75% in the 2011 valuation, and from 3.75% to 3.30% in the 2013 valuation. In the 2011 valuation, a two-year salary freeze assumption (for FYs 2013-2014) was added and in the 2013 valuation an additional four-year freeze was assumed (FYs 2015-2018).
Cost-of-Living Adjustments:	2.00%
Mortality:	Healthy retired members use the RP-2000 Combined Mortality Table (male and female). For Safety female members, rates are set forward one year. From 2005-2007 (valuation years), the UP-1994 table was used, with a two-year setback for males and females. From 2008-2010, the RP-2000 Combined Mortality Table was used, with a two-year set forward for males and females.

A complete description of the methods and assumptions used to determine the contribution for the year ending June 30, 2016 can be found in the June 30, 2014 Actuarial Valuation Report.

In addition to the assumption and methods described above, other factors that significantly affected trends in the amounts reported:

- Contributions above the Actuarially Determined Contribution in FYs 2008 and 2010.
- Reflection of contingent liabilities (Corbett, 13th check) beginning with the 2006 valuation.
- Investment losses during the 2008 and 2009 fiscal years.
- Other changes in assumptions resulting from experience studies performed in 2008 and 2011.

SECTION VI - REQUIRED SUPPLEMENTARY INFORMATION

The schedule below shows the annual money-weighted rate of return, net of investment expenses, for SDCERS-City of San Diego, as described by GASB 67.

As directed by SDCERS, we have calculated the money-weighted rate of return, net of investment expense, for the entire system instead of calculating the return separately for each of the three plan sponsors.

Table VI-3
Schedule of Investment Returns

	FYE 2016	FYE 2015	FYE 2014
Annual money-weighted rate of return, net of investment expense	1.00%	3.28%	16.84%

SECTION VII - EMPLOYER REPORTING AMOUNTS

The City of San Diego is required to implement GASB 68 for their reporting date of June 30, 2016. The amounts reported as of June 30, 2016 can be based on either the June 30, 2015 or 2016 measurement dates. We understand the City has elected to use the 2015 measurement date for their 2016 reporting date. As a result, last year's GASB 67/68 report will be used by the City of San Diego for their 2016 reporting and the schedules in this section will be used for their 2017 reporting.

The impact of experience gains or losses and assumption changes on the TPL are recognized in expense over the average expected remaining service life of all active and inactive members of the System. As of the measurement date, this recognition period was 3.0 years.

During the year, there was an experience loss of approximately $21 million. Approximately $7 million of that loss was recognized as an increase to pension expense in the current year and will be recognized in each of the next two years, resulting in a deferred outflow of resources as of June 30, 2016 of approximately $14 million. Unrecognized experience losses from prior periods were approximately $31 million of which $15 million was recognized as an increase in pension expense in the current year. The combination of unrecognized experience losses this year and from prior periods resulted in a deferred outflow of resources as of June 30, 2016 of approximately $30 million.

There were also assumption changes at the end of the measurement period, which resulted in a loss of approximately $620 million. Approximately $207 million of that loss was recognized as an increase to pension expense in the current year and an identical amount will be recognized in each of the next two years, resulting in a deferred outflow of resources as of June 30, 2016 of approximately $414 million.

The impact of investment gains or losses is recognized over a period of five years. During the measurement year, there was an investment loss of approximately $402 million. Approximately $80 million of that loss was recognized in the current year and will be recognized in each of the next four years. Unrecognized investment gains from prior periods were approximately $118 million of which $56 million was recognized as a reduction in pension expense in the current year. The combination of unrecognized investment losses this year and unrecognized net investment gains from prior periods results in a deferred outflow of resources as of June 30, 2016 of approximately $260 million.

The table on the following page summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years.

SECTION VII - EMPLOYER REPORTING AMOUNTS

Table VII-1
Schedule of Deferred Inflows and Outflows of Resources

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual	$ 29,661,998	$ 0
Changes in assumptions	413,542,319	0
Net difference between projected and actual earnings on pension plan investments	259,855,091	0
Total	**$ 703,059,407**	**$ 0**

Amounts reported as deferred outflows and deferred inflows of resources will be recognized in pension expense as follows:

Measurement year ended June 30:	
2017	$ 253,427,173
2018	$ 237,955,263
2019	$ 131,196,445
2020	$ 80,480,526
2021	$ 0
Thereafter	$ 0

The annual pension expense recognized by the City of San Diego can be calculated two different ways. First, it is the change in the amounts reported on the City of San Diego's Statement of Net Position that relate to SDCERS and are not attributable to employer contributions. That is, it is the change in NPL plus the changes in deferred outflows and inflows plus employer contributions.

Alternatively, annual pension expense can be calculated by its individual components. While GASB does not require or suggest the organization of the individual components shown in the table on the following page, we believe it helps to understand the level and volatility of pension expense.

SECTION VII - EMPLOYER REPORTING AMOUNTS

Table VII-2
Calculation of Pension Expense

	Measurement Year Ending 2016	Measurement Year Ending 2015
Change in Net Pension Liability	$ 936,988,251	$ 178,028,823
Change in Deferred Outflows	(672,115,585)	(30,943,822)
Change in Deferred Inflows	(118,458,472)	(309,971,078)
Employer Contributions	259,542,854	268,060,666
Pension Expense	**$ 405,957,048**	**$ 105,174,588**
Pension Expense as % of Payroll	**84.46%**	**21.89%**
Operating Expenses		
Service cost	$ 93,803,776	$ 102,687,532
Employee contributions	(59,376,773)	(59,042,647)
Administrative expenses	10,900,596	8,693,178
Total	$ 45,327,599	$ 52,338,063
Financing Expenses		
Interest cost	$ 573,759,931	$ 554,987,977
Expected return on assets	(466,557,655)	(461,231,898)
Total	$ 107,202,276	$ 93,756,079
Changes		
Benefit changes	$ 0	$ 0
Recognition of assumption changes	206,771,159	0
Recognition of liability gains and losses	22,566,955	15,471,911
Recognition of investment gains and losses	24,089,059	(56,391,465)
Total	$ 253,427,173	$ (40,919,554)
Pension Expense	**$ 405,957,048**	**$ 105,174,588**

First, there are components referred to as operating expenses. These are items directly attributable to the operation of the plan during the measurement year. Service cost less employee contributions represents the increase in employer-provided benefits attributable to the year, and administrative expenses are the cost of operating SDCERS for the year.

SECTION VII - EMPLOYER REPORTING AMOUNTS

Second, there are the financing expenses: the interest on the Total Pension Liability less the expected return on assets. Since the discount rate is equal to the long-term expected return on assets, the financing expense is approximately equal to the interest on the Net Pension Liability.

The final category is changes. This category will drive most of the volatility in pension expense from year to year. It includes any changes in benefits made during the year and the recognized amounts due to assumption changes, gains or losses on the TPL, and investment gains or losses. The total pension expense increased by approximately 286% in the current year, an increase of approximately $301 million. The recognition of changes increased by approximately $294 million, which is close to the total increase in pension expense.

APPENDIX A – ACTUARIAL ASSUMPTIONS

The SDCERS Board has the authority to select economic and demographic assumptions for the plan. The assumptions used in this report reflect the results of a full experience study performed by Cheiron covering the period July 1, 2010 through June 30, 2015, and adopted by the SDCERS Board in September 2016, as well as an economic experience study performed by Cheiron and presented to the SDCERS Board in November 2015.

1. Investment Return Rate

SDCERS' assets are assumed to earn 7.00% net of investment expenses.

2. Inflation Rate

An inflation assumption of 3.05% compounded annually is used for projecting the total annual payroll growth for amortization of the UAL (except for the City non-Police tiers, which is amortized in level dollar amounts).

3. Administrative Expense Assumption

Administrative expenses are assumed to be $11.5 million for FY 2018, increasing by 2.50% annually. Administrative expenses were assumed to be $12.5 million for FY 2016 and $12.8 million for FY 2017, increasing by 2.50% annually. The administrative expenses were phased-in over three years, with one-third, or $4.2 million, included in the FY 2016 ADC and two-thirds, or $8.5 million, included in the FY 2017 ADC. For all fiscal years following, 100% of the expected administrative expenses will be added to the ADC.

4. Interest Credited to Member Contributions

7.00%, compounded annually.

5. Salary Increase Rate

Inflation component: 3.05% (Freezes assumed for FYs 2013 - 2018).

The additional merit component:

Table A-1

Years of Service at Valuation Date	General	Safety
0	5.00%	8.00%
1	4.00%	7.00%
2	3.00%	6.00%
3	2.00%	3.50%
4	1.00%	2.00%
5+	0.50%	0.50%

APPENDIX A – ACTUARIAL ASSUMPTIONS

6. Cost-of-Living Increase in Benefits

Assumed to be 1.9% per annum, compounded.

7. COL Annuity Benefit

For both active and terminated vested Members, the actuarial liability for the COL annuity benefit is valued by adding one-sixth of accumulated member contribution accounts. For active Members, the normal cost of the COL annuity benefit is equal to one-sixth of the employee contribution rate.

Members under the Elected, City Police 2012 No COL Plan, and City Police Prop B Plan do not receive a COL annuity benefit.

8. Member Refunds

All or part of the employee contribution rate is subject to potential “offset” by the employer. That “offset” and the related accumulated interest are not to be refunded to employees at termination. However, such offsets are not directly reflected in either the employee contributions or related refund calculations.

APPENDIX A – ACTUARIAL ASSUMPTIONS

9. Rates of Termination

Table A-2
SDCERS - City of San Diego
Rates of Termination

Service	General	Safety
0	10.00%	10.00%
1	9.00	8.00
2	8.50	6.00
3	7.50	5.00
4	6.50	4.00
5	5.50	3.00
6	4.50	2.75
7	4.25	2.50
8	4.00	2.25
9	3.25	2.00
10	2.75	1.80
11	2.75	1.80
12	2.75	1.80
13	2.75	1.80
14	2.75	1.80
15	2.75	1.60
16	2.75	1.60
17	2.75	1.60
18	2.75	1.60
19	2.75	1.60
20+	2.75	1.50

20% of terminating employees, with 10+ years of service at termination, are assumed to subsequently work for a reciprocal employer and receive 3.55% pay increases per year.

APPENDIX A – ACTUARIAL ASSUMPTIONS

10. Rates of Disability

Table A-3
SDCERS
Rates of Disability at Selected Ages

Age	General	Safety
20	0.01%	0.15%
25	0.02	0.18
30	0.03	0.20
35	0.04	0.27
40	0.05	0.37
45	0.08	0.47
50	0.15	0.57
55	0.20	0.67
60	0.30	--

75% of the General disabilities and 90% of the Safety disabilities are assumed to be industrial disability retirements. Non-industrial disability retirement is subject to a service requirement.

APPENDIX A – ACTUARIAL ASSUMPTIONS

11. Rates of Mortality for Active Lives

Active and Terminated Vested Members use the CalPERS Pre-Retirement Mortality Table base rates from the CalPERS January 2014 experience study, projected 20 years from the 2009 base year using a variation of Scale MP-2015 from the Society of Actuaries. The scale was modified using the Society of Actuaries' model implementation tool with rates converging to the ultimate rate in 2019 (instead of 2029) and an ultimate rate of improvement of 0.75% (instead of 1.0%) up to age 85 and decreasing to 0.60% (instead of 0.85%) at age 95.

Sample rates are as follows (including mortality improvement projection):

Table A-4
SDCERS
Rates of Mortality for Active Lives at Selected Ages

Age	Male	Female
20	0.02%	0.02%
25	0.03	0.02
30	0.04	0.02
35	0.05	0.03
40	0.06	0.04
45	0.09	0.06
50	0.13	0.09
55	0.21	0.14
60	0.31	0.19
65	0.42	0.27
70	0.58	0.38

50% of active Member deaths for Safety Members are assumed to be industrial and all active Member deaths for General Members are assumed to be non-industrial deaths.

APPENDIX A – ACTUARIAL ASSUMPTIONS

12. Rates of Mortality for Retired Healthy Lives

Retired healthy Members use the CalPERS Post-Retirement Healthy Mortality Table base rates from the CalPERS January 2014 Experience Study, with a 10% increase to female rates, projected 20 years from the 2009 base year using a variation of Scale MP-2015 from the Society of Actuaries. The scale was modified using the Society of Actuaries' model implementation tool with rates converging to the ultimate rate in 2019 (instead of 2029) and an ultimate rate of improvement of 0.75% (instead of 1.0%) up to age 85 and decreasing to 0.60% (instead of 0.85%) at age 95.

Sample rates are as follows (including mortality improvement projection):

Table A-5
SDCERS
Rates of Mortality for Retired Healthy Lives at Selected Ages

Age	Male	Female
40	0.09%	0.09%
45	0.18	0.19
50	0.42	0.46
55	0.54	0.45
60	0.71	0.50
65	0.88	0.67
70	1.44	1.13
75	2.42	1.98
80	4.30	3.38
85	7.76	6.13
90	13.54	11.42

APPENDIX A – ACTUARIAL ASSUMPTIONS

13. Rates of Mortality for Retired Disabled Lives

Disabled Members use the CalPERS Work-Related Disability Mortality Table base rates from the CalPERS January 2014 Experience Study, projected 20 years from the 2009 base year using a variation of Scale MP-2015 from the Society of Actuaries. The scale was modified using the Society of Actuaries' model implementation tool with rates converging to the ultimate rate in 2019 (instead of 2029) and an ultimate rate of improvement of 0.75% (instead of 1.0%) up to age 85 and decreasing to 0.60% (instead of 0.85%) at age 95.

Sample rates are as follows (including mortality improvement projection):

Table A-6
SDCERS
Rates of Mortality for Disabled Lives at Selected Ages

Age	Male	Female
40	0.19%	0.17%
45	0.26	0.24
50	0.42	0.42
55	0.54	0.41
60	0.75	0.54
65	1.19	0.86
70	1.80	1.44
75	3.11	2.42
80	5.41	4.14
85	8.55	6.64
90	13.54	10.38

APPENDIX A – ACTUARIAL ASSUMPTIONS

14. Rates of Retirement

Rates of Retirement for City General and City Safety are shown in the two tables below. Retirement rates include both service retirements and entry into DROP.

Table A-7
SDCERS - City of San Diego
Rates of Retirement by Age and Service

	General - Old Plan		Safety - All Plans	
Service	Prior to age 62	Age 62 or greater	Prior to age 55	Age 55 or greater
10	--	45.0%	--	45.0%
11	--	40.0	--	40.0
12	--	40.0	--	40.0
13	--	40.0	--	40.0
14	--	40.0	--	40.0
15	--	40.0	--	35.0
16	--	43.0	--	35.0
17	--	46.0	--	35.0
18	--	49.0	--	35.0
19	--	52.0	--	35.0
20	50.0	55.0	25.0	50.0
21	35.0	40.0	30.0	45.0
22	37.5	40.0	35.0	45.0
23	40.0	40.0	40.0	45.0
24	42.5	40.0	45.0	45.0
25	45.0	40.0	50.0	45.0
26	47.5	40.0	55.0	45.0
27	47.5	40.0	60.0	45.0
28	47.5	40.0	65.0	45.0
29	47.5	40.0	65.0	45.0
30	55.0	40.0	100.0	100.0
31	57.5	40.0	100.0	100.0
32	60.0	40.0	100.0	100.0
33	62.5	40.0	100.0	100.0
34	65.0	40.0	100.0	100.0
35+	100.0	100.0	100.0	100.0

Table A-8
SDCERS - City of San Diego
Rates of Retirement by Age for General 2009 Plan

Age	Rate
55	3.0%
56	3.0
57	3.0
58	5.0
59	5.0
60	10.0
61	15.0
62	20.0
63	30.0
64	40.0
65	50.0
66	50.0
67	50.0
68	50.0
69	50.0
70	100.0

For terminated vested Members, we assume that retirement will occur provided they have at least 10 years of service on the later of attained age or:

General Members: Earlier of age 62 or age 55 and 20+ years of service.

Safety Members: Earlier of age 55 or age 50 and 20+ years of service.

APPENDIX A – ACTUARIAL ASSUMPTIONS

Rates of Retirement for City Elected Officials are based on age and are shown in the table below.

Table A-9
SDCERS - City of San Diego
Rates of Retirement at Selected Ages

Age	Elected Officials
50	--
51	--
52	--
53	15%
54	1
55	5
56	3
57	4
58	5
59	6
60	60
61	25
62	37
63	23
64	34
65	68
66	69
67	74
68	80
69	90
70	100

For terminated vested Elected Officials, we assume that retirement will occur provided they have at least four years of service on the later of attained age or the earlier of age 55 or age 53 and at least eight years of service.

If the inactive participant is not vested, the liability is the participant's contributions with interest.

APPENDIX A – ACTUARIAL ASSUMPTIONS

15. Family Composite Assumptions

80% of men and 55% of women were assumed married at retirement. A female spouse is assumed to be three-years younger than her male spouse.

16. Member Contributions for Spousal Continuance

All active Members contribute towards a 50% survivor continuance. However, Members who are unmarried at retirement may either be refunded that specific part of their contributions, or they may leave such contributions on account and receive an incremental benefit that is the actuarial equivalent of such contributions.

17. Deferred Member Actuarial Accrued Benefit

The benefit was estimated based on information provided by SDCERS staff. The data used to value the estimated deferred benefit were date of birth, date of hire, date of termination, and last pay. Based on the data provided, service credit, highest average salary, and deferred retirement age were estimated. The estimates were used to compute the retirement benefit, upon which the liabilities are based. For those participants without sufficient data or service, accumulated participant contribution balances, with interest, were used as the actuarial accrued liability.

18. DROP Account Balances

For DROP participants still working, the liability for the account balances in the asset information received from SDCERS staff was adjusted to assume average commencement in 2½ years and an interest crediting rate of 1.7%. Thereafter, it was assumed the account balance would be converted to an annuity at an interest rate of 3.0% over an average period of 10 years. The 10-year period was selected to average among the available DROP payment elections, including a lump sum, life expectancy, and 20 years. The liability for pre-2006 DROP account balances still left on account was valued assuming they would be paid out until age 70½, with an interest crediting rate of 1.7%. The liability for the remaining account balances was adjusted based on the DROP annuity rate in effect at the Member's benefit effective date.

These adjustments are applied to the DROP account balance values provided in the financial statements. The account balance liability is allocated to each individual Tier (e.g., General) based on the total amount of the DROP account balances for that Tier in the valuation data.

19. Other

The contribution requirements and benefit values of a plan are calculated by applying actuarial assumptions to the benefit provisions and Member information furnished, using the actuarial funding methods described in the most recently completed actuarial valuation report.

APPENDIX A – ACTUARIAL ASSUMPTIONS

Actual experience of SDCERS will not coincide exactly with assumed experiences, regardless of the choice of the assumptions, the skill of the actuary, or the precision of the many calculations made. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of adjustments to the computed contribution rate. From time to time it becomes appropriate to modify one or more of the assumptions to reflect experience trends, but not random year-to-year fluctuations.

APPENDIX B - GLOSSARY OF TERMS

1. Actuarially Determined Contribution

A target or recommended contribution for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

2. Actuarial Valuation Date

The date as of which an actuarial valuation is performed. This date may be up to 24 months prior to the measurement date and up to 30 months prior to the employer's reporting date.

3. Deferred Inflow of Resources

An acquisition of net assets by a government employer that is applicable to a future reporting period. In the context of GASB 68, these are experience gains on the Total Pension Liability, assumption changes reducing the Total Pension Liability, or investment gains that are recognized in future reporting periods.

4. Deferred Outflow of Resources

A consumption of net assets by a government employer that is applicable to a future reporting period. In the context of GASB 68, these are experience losses on the Total Pension Liability, assumption changes increasing the Total Pension Liability, or investment losses that are recognized in future reporting periods.

5. Entry Age Actuarial Cost Method

The actuarial cost method required for GASB 67 and 68 calculations. Under this method, 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. The portion of this actuarial present value allocated to a valuation year is called the Service Cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future service costs is called the Total Pension Liability.

6. Measurement Date

The date as of which the Total Pension Liability and Plan Fiduciary Net Position are measured. The Total Pension Liability may be projected from the Actuarial Valuation Date to the Measurement Date. The Measurement Date must be the same as the Reporting Date for the plan.

APPENDIX B - GLOSSARY OF TERMS

7. Net Pension Liability

The liability of employers and nonemployer contributing entities for employees for benefits provided through a defined benefit pension plan. It is calculated as the Total Pension Liability less the Plan Fiduciary Net Position.

8. Plan Fiduciary Net Position

The fair or market value of assets.

9. Reporting Date

The last day of the plan or employer's fiscal year.

10. Service Cost

The portion of the actuarial present value of projected benefit payments that is attributed to the current period of employee service in conformity with the requirements of GASB 67 and 68. The Service Cost is the normal cost calculated under the entry age actuarial cost method.

11. Total Pension Liability

The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of GASB 67 and 68. The Total Pension Liability is the actuarial liability calculated under the entry age actuarial cost method. This measurement generally is not appropriate for estimating the cost to settle the Plan's liabilities.