

# Oakland County Employees' Retirement System

GASB Statement No. 67 Plan Reporting and Accounting Schedules  
September 30, 2021





December 17, 2021

The Retirement Commission  
Oakland County Employees' Retirement System  
Waterford, MI

Dear Commission Members:

This report provides information required by the Oakland County Employees' Retirement System in connection with the Governmental Accounting Standards Board Statement No. 67 (GASB 67) "Financial Reporting for Pension Plans." The information provided herein was prepared for the purpose of assisting the Retirement System in its efforts to comply with the financial reporting and disclosure requirements of GASB 67. The County's financial statements are the responsibility of County management. Please let us know if any information changes so that we may maintain consistency with the County's financial statements.

The calculation of the liability in this report was performed for the purpose of satisfying the requirements of GASB 67 and is not applicable for purposes of funding the plan. The Net Pension Liability is not an appropriate measure for measuring the sufficiency of plan assets to cover the estimated cost of settling the employer's benefit obligation. The Net Pension Liability is not an appropriate measure for assessing the need for or amount of future employer contributions. A calculation of the plan's liability for other purposes may produce significantly different results. This report may be provided to parties other than the Retirement System only in its entirety and only with the permission of the System. GRS is not responsible for unauthorized use of this report.

The total pension liability, net pension liability, and certain sensitivity information shown in this report are based on an actuarial valuation performed as of September 30, 2020. The total pension liability was "rolled-forward" from September 30, 2020 to the year ending September 30, 2021 using generally accepted actuarial principles. There were no significant events or changes in benefit provisions that required an adjustment to the "rolled-forward" liabilities.

This report is based upon information, furnished by the Retirement System and County, including benefit provisions, membership information, and financial data. This information was checked for internal consistency, but was not audited by us. As a result, we are unable to assume responsibility for the accuracy or completeness of the information provided. The 2020 actuarial valuation report dated April 16, 2021 includes additional information about the nature of actuarial calculations and more information about participant data and economic and demographic assumptions.

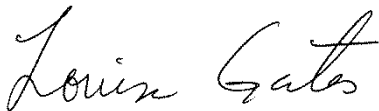
This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

This report was prepared during the recent and still-developing COVID-19 pandemic, which is likely to influence demographic and economic experience in the short term. We will continue to monitor these developments and their impact on the Retirement System. Actual experience will be reflected in each subsequent report, as experience emerges.

To the best of our knowledge, this report is accurate, complete and all calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board. Louise M. Gates and James D. Anderson are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor.

Section H of the report includes actuarial information necessary for completing the 2021 Form 5572 for State of Michigan reporting. This information is not required to be included in your financial statements.

Respectfully submitted,  
Gabriel, Roeder, Smith & Company



Louise M. Gates ASA, FCA, MAAA



James D. Anderson FSA, EA, FCA, MAAA



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# SECTION A

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## EXECUTIVE SUMMARY

# Executive Summary

Actuarial Valuation Date	September 30, 2020
Pension Plan's Fiscal Year Ending Date (Measurement Date & Reporting Date)	September 30, 2021

## Membership <sup>1</sup>

Number of	
- Retirees and Beneficiaries <sup>2</sup>	1,966
- Inactive, Non-Retired Members	52
- Active Members	128
- Total	2,146
Covered Payroll <sup>3</sup>	\$ 8,526,997

## Net Pension Liability

Total Pension Liability	\$ 718,911,003
Plan Fiduciary Net Position	790,825,096
Net Pension Liability	\$ (71,914,093)
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	110.00%
Net Pension Liability as a Percentage of Covered Payroll	(843.37)%

## Development of the Single Discount Rate

Single Discount Rate	7.25%
Long-Term Expected Rate of Return	7.25%
Long-Term Municipal Bond Rate <sup>4</sup>	2.19%
Last Year Ending September 30 in the 2022 to 2121 projection period for which projected benefit payments are fully funded	2121

<sup>1</sup> As of the actuarial valuation date

<sup>2</sup> Includes alternate payees receiving EDRO benefits and beneficiaries of deceased members. Excludes 31 individuals with \$0 pension benefits receiving retiree health benefits only

<sup>3</sup> Valuation payroll projected to fiscal year 2021

<sup>4</sup> Source:

Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of September 30, 2021. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax-exempt securities.

# Discussion

## Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67, “Financial Reporting for Pension Plans,” replaces the requirements of GASB Statement No. 25, “Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans,” and GASB Statement No. 50, “Pension Disclosures.” GASB Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability of employers and non-employer contributing entities for benefits provided through the pension plan.

The following discussion provides a summary of the information that is required to be disclosed under this new accounting standard. A number of these disclosure items are provided in this report. However, certain information, such as notes regarding accounting policies and investments, is not included in this report, and your internal staff will be responsible for preparing that information to comply with this accounting standard.

## Financial Statements

GASB Statement No. 67 requires defined benefit pension plans to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position.

The *statement of fiduciary net position* presents the following items as of the end of the pension plan’s reporting period, such as:

- assets;
- deferred inflows and outflows of resources;
- liabilities; and
- fiduciary net position (assets, plus deferred outflows, minus liabilities, minus deferred inflows).

The *statement of changes in fiduciary net position* presents the following for the plan’s reporting period:

- additions, such as contributions and investment income;
- deductions, such as benefit payments and expenses; and
- net increase or decrease in the fiduciary net position (the difference between additions and deductions).

## Notes to Financial Statements

GASB Statement No. 67 also requires the notes of the plan's financial statements to include additional disclosure information. This disclosure information should include:

- A description of the types of benefits provided by the plan, as well as automatic or ad hoc colas;
- The number and classes of employees covered by the benefit terms;
- The composition of the pension plan's Board and the authority under which benefit terms may be amended;
- A description of the plan's funding policy, which includes member and employer contribution requirements;
- The pension plan's investment policies;
- A description of how fair value is determined;
- Concentrations of investments greater than or equal to 5%;
- Annual money-weighted rate of return on pension plan investments;
- The portion of the present value of benefits to be provided through the pension plan to current active and inactive plan members;
- The pension plan's fiduciary net position;
- The net pension liability;
- The pension plan's fiduciary net position as a percentage of the total pension liability;
- Significant assumptions and methods used to calculate the total pension liability;
- Inputs to the discount rates; and
- Certain information about mortality assumptions and the dates of experience studies.

## Required Supplementary Information

GASB Statement No. 67 requires a 10-year fiscal history of:

- Sources of changes in the net pension liability;
- Information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered-employee payroll;
- Comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy; and
- The annual money-weighted rate of return on pension plan investments for each year.

The tables will be built prospectively as the information becomes available.

## Measurement of the Net Pension Liability

The net pension liability is to be measured as the total pension liability, less the amount of the pension plan's fiduciary net position. In actuarial terms, this will be the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

## Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. For employer reporting, the net pension liability and pension expense should be measured as of a date (measurement date) no earlier than the end of the employer's prior fiscal year, consistently applied from period to period. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The total pension liability shown in this report is based on an actuarial valuation performed as of September 30, 2020 and a measurement date of September 30, 2021.

## Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.25%; the municipal bond rate is 2.19% (based on the daily rate closest to but not later than the measurement date of the Fidelity "20-Year Municipal GO AA Index"); and the resulting Single Discount Rate is 7.25%.

## SECTION B

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### FINANCIAL STATEMENTS

Information in this section of the report was provided by the County and is included here as supporting documentation.

# Statement of Fiduciary Net Position as of September 30, 2021

To be provided by the Retirement System

## Assets

Cash and Deposits

Receivables

Accounts Receivable - Sale of Investments

Accrued Interest and Other Dividends

Contributions

Accounts Receivable - Other

Total Receivables

Investments

Fixed Income

Domestic Equities

International Equities

Real Estate

Other

Total Investments

Total Assets

## Liabilities

Payables

Accounts Payable - Purchase of Investments

Accrued Expenses

Accounts Payable - Other

Total Liabilities

Net Position Restricted for Pensions

\$ 790,825,096

Detailed asset information required by GASB Statement No. 67 will be provided by the Retirement System.



# Statement of Changes in Fiduciary Net Position for Year Ended September 30, 2021

## Additions

### Contributions

Employer	\$ -
Employee	99,693
Other	-
Total Contributions	<u>99,693</u>

### Investment Income

Net Appreciation in Fair Value of Investments	127,472,153
Interest and Dividends	9,914,216
Other Investment Income	-
Less Investment Expense	<u>(2,117,505)</u>
Net Investment Income	<u>135,268,864</u>

Other	-
Total Additions	<u>135,368,557</u>

## Deductions

Benefit payments, including refunds of employee contributions	62,086,459
Pension Plan Administrative Expense	225,652
Other	-
Total Deductions	<u>62,312,111</u>

**Net Increase in Net Position** 73,056,446

## Net Position Restricted for Pensions

Beginning of Year	<u>\$ 717,768,650</u>
End of Year	<u>\$ 790,825,096</u>

## SECTION C

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### **REQUIRED SUPPLEMENTARY INFORMATION**

Auditor's Note – This information is intended to assist in preparation of the financial statements of the Oakland County Employees' Retirement System. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

# Schedule of Required Supplementary Information

## Schedule of Changes in the Employer's Net Pension Liability and Related Ratios

Last 10 Fiscal Years (which may be built prospectively)

Fiscal year ending September 30,	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
<b>Total Pension Liability</b>										
Service Cost	\$ 999,693	\$ 1,338,793	\$ 1,665,384	\$ 2,128,819	\$ 2,483,176	\$ 2,864,098	\$ 3,705,776	\$ 4,196,269		
Interest on the Total Pension Liability	51,454,905	52,040,691	52,604,818	53,272,144	53,389,706	53,131,461	50,740,081	50,492,624		
Benefit Changes	-	-	-	-	-	-	-	-		
Difference between Expected and Actual Experience	(11,723,351)	67,870	(1,895,454)	(5,905,800)	(607,861)	2,639,268	2,621,256	-		
Assumption Changes	-	-	-	-	-	-	29,334,529	-		
Benefit Payments and Refunds	(62,086,459)	(60,628,743)	(59,356,307)	(57,579,562)	(55,839,217)	(53,925,525)	(52,066,966)	(49,993,923)		
<b>Net Change in Total Pension Liability</b>	<b>(21,355,212)</b>	<b>(7,181,389)</b>	<b>(6,981,559)</b>	<b>(8,084,399)</b>	<b>(574,196)</b>	<b>4,709,302</b>	<b>34,334,676</b>	<b>4,694,970</b>		
<b>Total Pension Liability - Beginning</b>	<b>740,266,215</b>	<b>747,447,604</b>	<b>754,429,163</b>	<b>762,513,562</b>	<b>763,087,758</b>	<b>758,378,456</b>	<b>724,043,780</b>	<b>719,348,810</b>		
<b>Total Pension Liability - Ending (a)</b>	<b>\$ 718,911,003</b>	<b>\$ 740,266,215</b>	<b>\$ 747,447,604</b>	<b>\$ 754,429,163</b>	<b>\$ 762,513,562</b>	<b>\$ 763,087,758</b>	<b>\$ 758,378,456</b>	<b>\$ 724,043,780</b>		
<b>Plan Fiduciary Net Position</b>										
Employer Contributions	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,554,832	\$ 5,770,835		
Employee Contributions	99,693	165,954	232,357	301,807	372,273	443,238	473,247	560,091		
Pension Plan Net Investment Income	135,268,864	33,216,390	27,485,137	49,559,010	83,094,349	65,710,783	5,099,460	70,247,939		
Benefit Payments and Refunds	(62,086,459)	(60,628,743)	(59,356,307)	(57,579,562)	(55,839,217)	(53,925,525)	(52,066,966)	(49,993,923)		
Pension Plan Administrative Expense	(225,652)	(179,361)	(218,956)	(240,203)	(259,250)	(245,352)	(296,825)	(2,959,649)		
Other	-	-	-	-	-	-	-	-		
<b>Net Change in Plan Fiduciary Net Position</b>	<b>73,056,446</b>	<b>(27,425,760)</b>	<b>(31,857,769)</b>	<b>(7,958,948)</b>	<b>27,368,155</b>	<b>11,983,144</b>	<b>(42,236,252)</b>	<b>23,625,293</b>		
<b>Plan Fiduciary Net Position - Beginning</b>	<b>717,768,650</b>	<b>745,194,410</b>	<b>777,052,179</b>	<b>785,011,127</b>	<b>757,642,972</b>	<b>745,659,828</b>	<b>787,896,080</b>	<b>764,270,787</b>		
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>\$ 790,825,096</b>	<b>\$ 717,768,650</b>	<b>\$ 745,194,410</b>	<b>\$ 777,052,179</b>	<b>\$ 785,011,127</b>	<b>\$ 757,642,972</b>	<b>\$ 745,659,828</b>	<b>\$ 787,896,080</b>		
<b>Net Pension Liability - Ending (a) - (b)</b>	<b>(71,914,093)</b>	<b>22,497,565</b>	<b>2,253,194</b>	<b>(22,623,016)</b>	<b>(22,497,565)</b>	<b>5,444,786</b>	<b>12,718,628</b>	<b>(63,852,300)</b>		
<b>Plan Fiduciary Net Position as a Percentage</b>										
<b>of Total Pension Liability</b>	<b>110.00 %</b>	<b>96.96 %</b>	<b>99.70 %</b>	<b>103.00 %</b>	<b>102.95 %</b>	<b>99.29 %</b>	<b>98.32 %</b>	<b>108.82 %</b>		
<b>Covered-Employee Payroll</b>	<b>\$ 8,526,997</b>	<b>\$ 10,576,095</b>	<b>\$ 13,385,938</b>	<b>\$ 16,019,655</b>	<b>\$ 18,631,927</b>	<b>\$ 21,834,812</b>	<b>\$ 24,707,298</b>	<b>\$ 29,901,825</b>		
<b>Net Pension Liability as a Percentage</b>										
<b>of Covered-Employee Payroll</b>	<b>(843.37)%</b>	<b>212.72 %</b>	<b>16.83 %</b>	<b>(141.22)%</b>	<b>(120.75)%</b>	<b>24.94 %</b>	<b>51.48 %</b>	<b>(213.54)%</b>		

Note: Covered payroll is valuation payroll projected to determine employer contributions for the indicated fiscal year.

## Schedule of Required Supplementary Information

### Schedule of the Employer's Net Pension Liability Multiyear

<u>FY Ending September 30,</u>	<u>Total Pension Liability</u>	<u>Plan Net Position</u>	<u>Net Pension Liability</u>	<u>Plan Net Position as a % of Total Pension Liability</u>	<u>Covered Payroll</u>	<u>Net Pension Liability as a % of Covered Payroll</u>
2012						
2013						
2014	\$ 724,043,780	\$ 787,896,080	\$ (63,852,300)	108.82%	\$ 29,901,825	(213.54)%
2015	758,378,456	745,659,828	12,718,628	98.32%	24,707,298	51.48 %
2016	763,087,758	757,642,972	5,444,786	99.29%	21,834,812	24.94 %
2017	762,513,562	785,011,127	(22,497,565)	102.95%	18,631,927	(120.75)%
2018	754,429,163	777,052,179	(22,623,016)	103.00%	16,019,655	(141.22)%
2019	747,447,604	745,194,410	2,253,194	99.70%	13,385,938	16.83 %
2020	740,266,215	717,768,650	22,497,565	96.96%	10,576,095	212.72 %
2021	718,911,003	790,825,096	(71,914,093)	110.00%	8,526,997	(843.37)%

Note: Covered payroll is valuation payroll projected to determine employer contributions for the indicated fiscal year.

This schedule includes information for plan fiscal years ending on September 30<sup>th</sup>. Results for all other years within the last 10 are not available. We understand that this information may be developed prospectively beginning in 2014 until, eventually, 10 years of information is available.

## Schedule of Required Supplementary Information

### Schedule of Contributions

<b>FY Ending September 30,</b>	<b>Actuarially Determined Contribution</b>	<b>Actual Contribution</b>	<b>Contribution Deficiency (Excess)</b>	<b>Covered Payroll</b>	<b>Actual Contribution as a % of Covered Payroll</b>
2012					
2013					
2014	\$ 5,770,835	\$ 5,770,835	\$ -	\$ 29,901,825	19.30%
2015	4,554,832	4,554,832	-	24,707,298	18.44%
2016	-	-	-	21,834,812	0.00%
2017	-	-	-	18,631,927	0.00%
2018	-	-	-	16,019,655	0.00%
2019	-	-	-	13,385,938	0.00%
2020	-	-	-	10,576,095	0.00%
2021	-	-	-	8,526,997	0.00%

Note: Covered payroll is valuation payroll projected to determine employer contributions for the indicated fiscal year.

This schedule includes employer contributions for plan fiscal years ending on September 30<sup>th</sup>. Results for other years within the last 10 are not available. We understand that this information may be developed prospectively beginning in 2014 until, eventually, 10 years of information is available.

# Schedule of Required Supplementary Information

## Notes to Schedule of Contributions

**Valuation Date:**

Notes

Actuarially determined contribution amounts for fiscal year 2021 are calculated based upon the results of the September 30, 2019 actuarial valuation.

**Methods and Assumptions Used to Determine Contributions for the Fiscal Year Ending September 30, 2021:**

Actuarial Cost Method	Entry-Age Normal
Amortization Method	Level Dollar
Remaining Amortization Period	10 years, open if over 100% funded
Asset Valuation Method	5-year smoothed market
Salary Increases	3.25% wage inflation
Investment Rate of Return	7.25% net of investment and administrative expenses
Retirement Age	Age-based table of rates that are specific to the type of eligibility condition.
Mortality	RP-2014 Healthy Annuitant Mortality Table (unadjusted) projected to 2021 using a static projection based on the 2-dimensional MP-2014 improvement scales.
Post-Retirement Increases	Cost-of-Living Adjustments: Up to 1.5% per year non-compounding

## SECTION D

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### NOTES TO FINANCIAL STATEMENTS

## Long-Term Expected Return on Plan Assets

The assumed rate of investment return was adopted by System trustees after considering input from the plan's investment consultant(s). Additional information about the assumed rate of investment return is included in our actuarial valuation report as of September 30, 2020.

The approach used to determine the long-term expected rate of return on pension plan investments was based on the building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of plan expenses and inflation) are developed for each major asset class. These real rates of return are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The long-term expected rates of return for each major asset class included in the pension plan's target asset allocation are summarized in the following table:

Asset Class	Target Asset Allocation proxy	Expected * Rate of Return
Domestic Equity	32.5%	7.50%
International Equity	12.5%	8.50%
Domestic Bonds	25.0%	2.50%
International Bonds	5.0%	3.50%
Real Estate	10.0%	4.50%
Alternative Assets	15.0%	5.59%
<b>Total</b>	<b>100.0%</b>	

\* The expected real rate of return shown above was based on an arithmetic calculation and a 10-15 year time horizon. The investment consultant's price inflation assumption was reported to be 2.5% per year.

The information shown in the table above was provided by the Retirement System's investment consultant. Gabriel, Roeder, Smith & Company does not provide investment advice.

The table above includes expected rates of return on Retirement System assets for a 10-15 year time horizon. A review of expected rates of return for a portfolio comparable to the Retirement System portfolio from 12 national investment consulting firms produced 10-year average arithmetic returns varying from 5.05% to 7.20% (an average of 5.78%). Longer term forward looking return expectations were not provided by these consulting firms. We believe that return expectations for longer time periods would likely produce higher average rates of investment return.

## Single Discount Rate

A Single Discount Rate of 7.25% was used to measure the total pension liability. This Single Discount Rate was based on the expected rate of return on pension plan investments of 7.25%. The projection of cash flows used to determine this Single Discount Rate was based on the assumption that plan member contributions will be made at the current contribution rate and that employer contributions will be made in an amount equal to the difference between the actuarially determined contribution and the member contributions. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

As required by GASB Statement No. 67, we have determined the sensitivity of the net pension liability to changes in the Single Discount Rate. The following table presents the plan's net pension liability, calculated using a Single Discount Rate of 7.25%, as well as what the plan's net pension liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

### Results as of September 30, 2021

	6.25%	7.25%	8.25%
Total Pension Liability	\$ 784,764,244	\$ 718,911,003	\$ 662,291,883
Plan Fiduciary Net Position	790,825,096	790,825,096	790,825,096
Net Pension Liability/(Asset)	\$ (6,060,852)	\$ (71,914,093)	\$ (128,533,213)

## Summary of Population Statistics as of September 30, 2020

Retired Plan Members and Beneficiaries Currently Receiving Benefits <sup>1</sup>	1,966
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	52
Active Plan Members	<u>128</u>
Total Plan Members	2,146

<sup>1</sup> Includes alternate payees receiving EDRO benefits and beneficiaries of deceased members. Excludes 31 individuals with \$0 pension benefits receiving retiree health benefits only.

**SECTION E**

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**SUMMARY OF BENEFITS**

## Brief Summary of Benefit Provisions

Eligibility	Amount
<b>Regular Retirement</b>	
Sheriff's Deputies: 25 years of service regardless of age, or age 60 with 8 years of service.	2.2% of final average compensation (FAC) times the first 14 years of service plus 2.5% of FAC for each additional year.
Command Officers: 25 years of service regardless of age, or age 60 with 8 years of service.	Total service times 2.5% of FAC.
All Others: Age 55 with 25 years of service, or age 60 with 8 years.	Total service times 2.0% of FAC for Plan A members (2.2% for years in excess of 14 for contributing members). Total service times 1.8% of FAC for Plan B members (1.98% for years in excess of 14 for contributing members).
	Maximum County Portion is 75% of FAC.
	Type of final average compensation - Highest 5 consecutive years out of the last 10. Some lump sums are included. Sheriff's Deputies hired after 12/31/92, Command Officers entering BU after 5/31/94 and BU48 nurses hired after 12/31/92 overtime pay is excluded from FAC.
<b>Deferred Retirement</b>	
8 years of service - benefit begins at age 60. 25 years of service - benefit at age 55.	Computed as a regular retirement but based upon service and final average compensation at termination date.
<b>Non-Duty Death-in-Service</b>	
10 years of service.	Computed as a regular retirement but actuarially reduced in accordance with a 100% joint and survivor election (50% joint and survivor benefit if less than 15 years of service and under age 60).
<b>Duty Death-in-Service</b>	
No age or service requirements.	Upon termination of Worker's Compensation, a benefit equal to the Worker's Compensation benefit is payable to the spouse, children under age 18 and dependent parents.

## Brief Summary of Benefit Provisions

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### Eligibility

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### Amount

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#### Non-Duty Disability

10 years of service.

Computed as a regular retirement.

#### Duty Disability

No age or service requirements.

Computed as a regular retirement with additional service credited until attainment of age 60. Retirement benefits are offset by Worker's Compensation payments.

#### Cost-of-Living Adjustments

Annual increase based upon change in CPI, not in excess of 1-1/2% of base benefit. Additional one-time increases granted January 1, 1976, 1979, 1981, 1982, July 1, 1984, January 1, 1986, 1987, 1988 and October 1, 1997. A special one-time payment was made to retirees during 1990.

#### Member Contributions

Sheriff's Deputies.

3% of annual earnings for the first 14 years of service and 5% thereafter.

Command Officers.

5% of annual earnings.

All Others.

1% of annual earnings for years after 14 years of service for members electing the 2.2% or 1.98% benefit.

#### County Contributions

Actuarially determined amounts which, together with member contributions, are sufficient to cover value of future benefits during the expected future working lifetimes of present members.

#### Coverage

The System was closed to new hires effective at various dates during 1994 and 1995.

## SECTION F

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### ACTUARIAL METHODS AND ACTUARIAL ASSUMPTIONS

## Valuation Methods

**The Individual Entry-Age Actuarial Cost Method** is a method for determining the normal cost and the allocation of benefit values between service rendered before and after the valuation date. It has the following characteristics:

- (i) The annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement; and
- (ii) Each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Actuarial gains/(losses), as they occur, reduce (increase) the Unfunded Actuarial Accrued Liability.

The individual entry age actuarial cost method is the basis for determining the Total Pension Liability for GASB 67 purposes. Starting with the September 30, 2015 actuarial valuation, the individual entry age cost method was also the basis used to determine employer contributions for funding purposes.

**Valuation Assets** - The funding value of assets recognizes assumed investment income fully each year. Differences between actual and assumed investment income are phased-in over a closed 5-year period. During periods when investment performance exceeds the assumed rate, funding value of assets will tend to be lower than market value. During periods when investment performance is less than the assumed rate, funding value of assets will tend to be greater than market value. The funding value of assets is unbiased with respect to market value. At any time it may be either greater or less than market value. This method was used in the annual funding valuations.

The market value of assets was used for GASB 67 reporting purposes and in the projections shown in Section G of this report.

**The Unfunded Actuarial Accrued Liabilities** shown in sections G and H of this report were amortized over a closed 25 year period (beginning in fiscal year 2021) using a level dollar amortization method.

## Actuarial Assumptions

**Investment Return** (net of expenses): 7.25% per year compounded annually net of investment and administrative expenses. The assumed rate of investment return is the rate of return in excess of either wage or price inflation. Considering a wage inflation assumption of 3.25% per year, the 7.25% nominal return translates into a real rate of return of 4.00% per year return in excess of wage inflation.

**Pay Projections:** These assumptions are used to project current pays to those upon which benefits will be based. The base economic assumption was first used for the September 30, 2015 valuation.

Sample Ages	Annual Rate of Pay Increase for Sample Ages						
	General County Members			Years of Service	Sheriff's Department		
	Base (Economic)	Merit & Longevity	Total		Base (Economic)	Merit & Longevity	Total
20	3.25%	4.00%	7.25%	1 to 7	3.25%	6.00%	9.25%
25	3.25	3.00	6.25	8 to 15	3.25	3.00	6.25
30	3.25	2.00	5.25	thereafter	3.25	0.00	3.25
35	3.25	2.00	5.25				
40	3.25	1.00	4.25				
45	3.25	1.00	4.25				
50	3.25	0.50	3.75				
55	3.25	0.50	3.75				
60	3.25	0.25	3.50				

**Price Inflation:** 2.5% per year.

## Actuarial Assumptions

**Lump Sum Payments:** Lump sum payments for unused sick leave and vacation were assumed to increase final average compensation for the present members by 1%.

**Mortality:** The RP-2014 Healthy Annuitant Mortality Table (unadjusted) projected to 2021 using a static projection based on the 2-dimensional MP-2014 improvement scales. This assumption was first used for the September 30, 2015 valuation. Sample values follow:

Sample Ages	Actuarial Present Value of \$1 Monthly for Life		Future Life Expectancy (Years)	
	Men	Women	Men	Women
50	\$147.31	\$151.52	33.50	36.20
55	140.72	145.66	29.15	31.69
60	132.68	138.11	24.96	27.26
65	122.70	128.61	20.91	22.97
70	110.60	117.00	17.05	18.88
75	96.35	103.26	13.44	15.06
80	80.32	87.66	10.17	11.58

This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each benefit payment being made after retirement. The membership size in this group is not sufficiently large to determine if there is a margin for mortality improvements. However, based upon our experience with a broad cross section of public sector plans similar in nature to this plan, it is our opinion that there is a provision for future mortality improvement in the current mortality assumption.

## Actuarial Assumptions

**Rates of Separation from Active Membership:** The rates do not apply to members eligible to retire and do not include separation on account of death or disability. This assumption measures the probabilities of members remaining in employment.

Sample Ages	Percent of Active Members Separating within Next Year	
	General	Sheriffs
20	5.00%	4.00%
25	5.00	4.00
30	4.00	3.40
35	4.00	2.50
40	3.00	1.80
45	3.00	1.30
50	2.00	0.80
55	1.00	0.40
60	0.50	0.10
65	0.50	0.00

The rates were first used for the September 30, 2007 valuation.

**Rates of Disability:** These rates represent the probabilities of active members becoming disabled.

Sample Ages	Percent Becoming Disabled within Next Year	
	General	Sheriffs
20	0.02%	0.14%
25	0.02	0.15
30	0.04	0.18
35	0.06	0.23
40	0.16	0.30
45	0.19	0.51
50	0.31	1.00
55	0.71	1.55

These rates were first used for the December 31, 1992 valuation.

## Actuarial Assumptions

**Rates of Retirement:** These rates are used to measure the probabilities of an eligible member retiring during the next year.

Percent of Active Members Retiring within One Year					
General County		Sheriff's Department			
Ages	%	Ages	%	Service	%
55	20%	60	20%	25	40%
56	15	61	40	26	35
57	15	62	70	27	35
58	15	63	50	28	35
59	15	64	50	29	35
60	20	65	100	30	40
61	15			31	40
62	25			32	50
63	15			33	70
64	15			34	70
65	35			35	100
66	40				
67	50				
68	70				
69	80				
70	100				

A member was assumed to be eligible for retirement after attaining age 55 with 25 or more years of service (after 25 years of service regardless of age for Deputies and Command Officers), or age 60 with 8 or more years of service.

The rates were first used for the September 30, 2007 valuation.

## **SECTION G**

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### **CALCULATION OF THE SINGLE DISCOUNT RATE**

## Calculation of the Single Discount Rate

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The Single Discount Rate (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.25%; the municipal bond rate is 2.19%; and the resulting Single Discount Rate is 7.25%.

The **Projection of Contributions** table shows the development of expected contributions in future years.

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years.

The **Present Values of Projected Benefit Payments** table shows the development of the Single Discount Rate. It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

There may be cases where schedules do not add, or where they do not exactly balance to other related schedules due to rounding.

The tables in this section provide background for the development of the Single Discount Rate. Note that these projections are specifically used to determine the GASB Single Discount Rate and are different from a funding projection for the System. Therefore, the projections shown on the following pages should not be interpreted as a funding projection or recommendation.

# Single Discount Rate Development

## Projection of Contributions

Year		Current Employees		Normal Cost Contributions		UAL Contributions		Total Contributions
1	\$	80,345	\$	680,614	\$	(680,614)	\$	80,345
2		57,116		543,224		(543,224)		57,116
3		41,685		442,431		(442,431)		41,685
4		30,928		359,950		(359,950)		30,928
5		23,355		290,736		(290,736)		23,355
6		17,646		232,125		(232,125)		17,646
7		13,135		181,843		(181,843)		13,135
8		9,640		140,035		(140,035)		9,640
9		7,060		106,300		(106,300)		7,060
10		5,194		79,853		(79,853)		5,194
11		3,798		59,811		(59,811)		3,798
12		2,727		44,282		(44,282)		2,727
13		1,910		32,595		(32,595)		1,910
14		1,255		23,571		(23,571)		1,255
15		736		16,292		(16,292)		736
16		380		10,714		(10,714)		380
17		167		6,804		(6,804)		167
18		56		4,146		(4,146)		56
19		13		2,378		(2,378)		13
20		2		1,239		(1,239)		2
21		-		590		(590)		-
22		-		221		(221)		-
23		-		55		(55)		-
24		-		7		(7)		-
25		-		-		-		-
26		-		-		-		-
27		-		-		-		-
28		-		-		-		-
29		-		-		-		-
30		-		-		-		-
31		-		-		-		-
32		-		-		-		-
33		-		-		-		-
34		-		-		-		-
35		-		-		-		-
36		-		-		-		-
37		-		-		-		-
38		-		-		-		-
39		-		-		-		-
40		-		-		-		-
41		-		-		-		-
42		-		-		-		-
43		-		-		-		-
44		-		-		-		-
45		-		-		-		-
46		-		-		-		-
47		-		-		-		-
48		-		-		-		-
49		-		-		-		-
50		-		-		-		-

Employer contributions shown in years 2 and beyond were developed for GASB 67 reporting purposes and will differ from those determined by the funding valuation. The projections shown in this report are strictly for the purpose of satisfying GASB requirements and are different from funding projections.

# Single Discount Rate Development

## Projection of Plan Fiduciary Net Position

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Investment Earnings at 7.25%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)=(a)+(b)-(c)+(d)
1	\$ 790,825,096	\$ 80,345	\$ 62,213,177	\$ 55,121,911	\$ 783,814,175
2	783,814,175	57,116	62,928,273	54,587,324	775,530,343
3	775,530,343	41,685	63,383,308	53,969,990	766,158,710
4	766,158,710	30,928	63,626,965	53,281,485	755,844,158
5	755,844,158	23,355	63,752,084	52,528,954	744,644,383
6	744,644,383	17,646	63,679,762	51,719,343	732,701,610
7	732,701,610	13,135	63,417,509	50,862,672	720,159,908
8	720,159,908	9,640	62,998,151	49,968,210	707,139,606
9	707,139,606	7,060	62,391,925	49,045,737	693,800,478
10	693,800,478	5,194	61,593,953	48,107,004	680,318,722
11	680,318,722	3,798	60,624,387	47,164,059	666,862,193
12	666,862,193	2,727	59,504,926	46,228,293	653,588,287
13	653,588,287	1,910	58,235,863	45,311,104	640,665,438
14	640,665,438	1,255	56,818,997	44,424,637	628,272,334
15	628,272,334	736	55,267,455	43,581,378	616,586,993
16	616,586,993	380	53,578,081	42,794,347	605,803,639
17	605,803,639	167	51,755,839	42,077,446	596,125,414
18	596,125,414	56	49,810,462	41,445,057	587,760,064
19	587,760,064	13	47,752,536	40,911,862	580,919,403
20	580,919,403	2	45,593,461	40,492,811	575,818,755
21	575,818,755	-	43,346,014	40,203,059	572,675,799
22	572,675,799	-	41,024,831	40,057,865	571,708,833
23	571,708,833	-	38,645,531	40,072,500	573,135,802
24	573,135,802	-	36,225,358	40,262,152	577,172,596
25	577,172,596	-	33,783,003	40,641,806	584,031,399
26	584,031,399	-	31,337,702	41,226,160	593,919,857
27	593,919,857	-	28,908,894	42,029,577	607,040,540
28	607,040,540	-	26,515,873	43,066,056	623,590,723
29	623,590,723	-	24,177,360	44,349,232	643,762,595
30	643,762,595	-	21,911,002	45,892,411	667,744,004
31	667,744,004	-	19,732,893	47,708,638	695,719,749
32	695,719,749	-	17,657,163	49,810,809	727,873,394
33	727,873,394	-	15,695,690	52,211,807	764,389,512
34	764,389,512	-	13,857,819	54,924,683	805,456,376
35	805,456,376	-	12,150,276	57,962,846	851,268,946
36	851,268,946	-	10,577,229	61,340,283	902,032,000
37	902,032,000	-	9,140,304	65,071,781	957,963,477
38	957,963,477	-	7,838,791	69,173,168	1,019,297,854
39	1,019,297,854	-	6,670,033	73,661,536	1,086,289,356
40	1,086,289,356	-	5,629,772	78,555,470	1,159,215,054
41	1,159,215,054	-	4,712,393	83,875,256	1,238,377,917
42	1,238,377,917	-	3,911,148	89,643,100	1,324,109,869
43	1,324,109,869	-	3,218,408	95,883,339	1,416,774,801
44	1,416,774,801	-	2,625,830	102,622,652	1,516,771,623
45	1,516,771,623	-	2,124,523	109,890,276	1,624,537,377
46	1,624,537,377	-	1,705,293	117,718,225	1,740,550,308
47	1,740,550,308	-	1,358,867	126,141,500	1,865,332,941
48	1,865,332,941	-	1,076,122	135,198,311	1,999,455,131
49	1,999,455,131	-	848,265	144,930,285	2,143,537,152
50	2,143,537,152	-	666,985	155,382,688	2,298,252,855

# Single Discount Rate Development

## Projection of Plan Fiduciary Net Position

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Investment Earnings at 7.25%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)=(a)+(b)-(c)+(d)
51	\$ 2,298,252,855	\$ -	\$ 524,588	\$ 166,604,648	\$ 2,464,332,915
52	2,464,332,915	-	414,108	178,649,388	2,642,568,195
53	2,642,568,195	-	329,377	191,574,463	2,833,813,281
54	2,833,813,281	-	265,041	205,442,023	3,038,990,263
55	3,038,990,263	-	216,548	220,319,082	3,259,092,796
56	3,259,092,796	-	180,124	236,277,812	3,495,190,485
57	3,495,190,485	-	152,711	253,395,871	3,748,433,646
58	3,748,433,646	-	131,906	271,756,741	4,020,058,480
59	4,020,058,480	-	115,870	291,450,113	4,311,392,724
60	4,311,392,724	-	103,212	312,572,296	4,623,861,808
61	4,623,861,808	-	92,913	335,226,672	4,958,995,567
62	4,958,995,567	-	84,233	359,524,179	5,318,435,513
63	5,318,435,513	-	76,647	385,583,845	5,703,942,711
64	5,703,942,711	-	69,787	413,533,361	6,117,406,285
65	6,117,406,285	-	63,400	443,509,698	6,560,852,583
66	6,560,852,583	-	57,326	475,659,771	7,036,455,027
67	7,036,455,027	-	51,474	510,141,156	7,546,544,710
68	7,546,544,710	-	45,805	547,122,860	8,093,621,766
69	8,093,621,766	-	40,321	586,786,142	8,680,367,587
70	8,680,367,587	-	35,055	629,325,402	9,309,657,933
71	9,309,657,933	-	30,057	674,949,130	9,984,577,005
72	9,984,577,005	-	25,384	723,880,929	10,708,432,550
73	10,708,432,550	-	21,092	776,360,609	11,484,772,067
74	11,484,772,067	-	17,225	832,645,361	12,317,400,204
75	12,317,400,204	-	13,813	893,011,023	13,210,397,414
76	13,210,397,414	-	10,867	957,753,425	14,168,139,972
77	14,168,139,972	-	8,382	1,027,189,849	15,195,321,440
78	15,195,321,440	-	6,332	1,101,660,579	16,296,975,687
79	16,296,975,687	-	4,683	1,181,530,571	17,478,501,575
80	17,478,501,575	-	3,388	1,267,191,243	18,745,689,430
81	18,745,689,430	-	2,397	1,359,062,398	20,104,749,431
82	20,104,749,431	-	1,658	1,457,594,275	21,562,342,047
83	21,562,342,047	-	1,121	1,563,269,758	23,125,610,684
84	23,125,610,684	-	741	1,676,606,748	24,802,216,692
85	24,802,216,692	-	478	1,798,160,693	26,600,376,907
86	26,600,376,907	-	301	1,928,527,315	28,528,903,920
87	28,528,903,920	-	185	2,068,345,528	30,597,249,262
88	30,597,249,262	-	111	2,218,300,568	32,815,549,719
89	32,815,549,719	-	65	2,379,127,352	35,194,677,006
90	35,194,677,006	-	37	2,551,614,082	37,746,291,050
91	37,746,291,050	-	21	2,736,606,100	40,482,897,130
92	40,482,897,130	-	11	2,935,010,041	43,417,907,160
93	43,417,907,160	-	6	3,147,798,269	46,565,705,422
94	46,565,705,422	-	3	3,376,013,643	49,941,719,062
95	49,941,719,062	-	2	3,620,774,632	53,562,493,693
96	53,562,493,693	-	1	3,883,280,793	57,445,774,485
97	57,445,774,485	-	0	4,164,818,650	61,610,593,134
98	61,610,593,134	-	0	4,466,768,002	66,077,361,136
99	66,077,361,136	-	0	4,790,608,682	70,867,969,819
100	70,867,969,819	-	-	5,137,927,812	76,005,897,630

# Single Discount Rate Development

## Present Values of Projected Benefit Payments

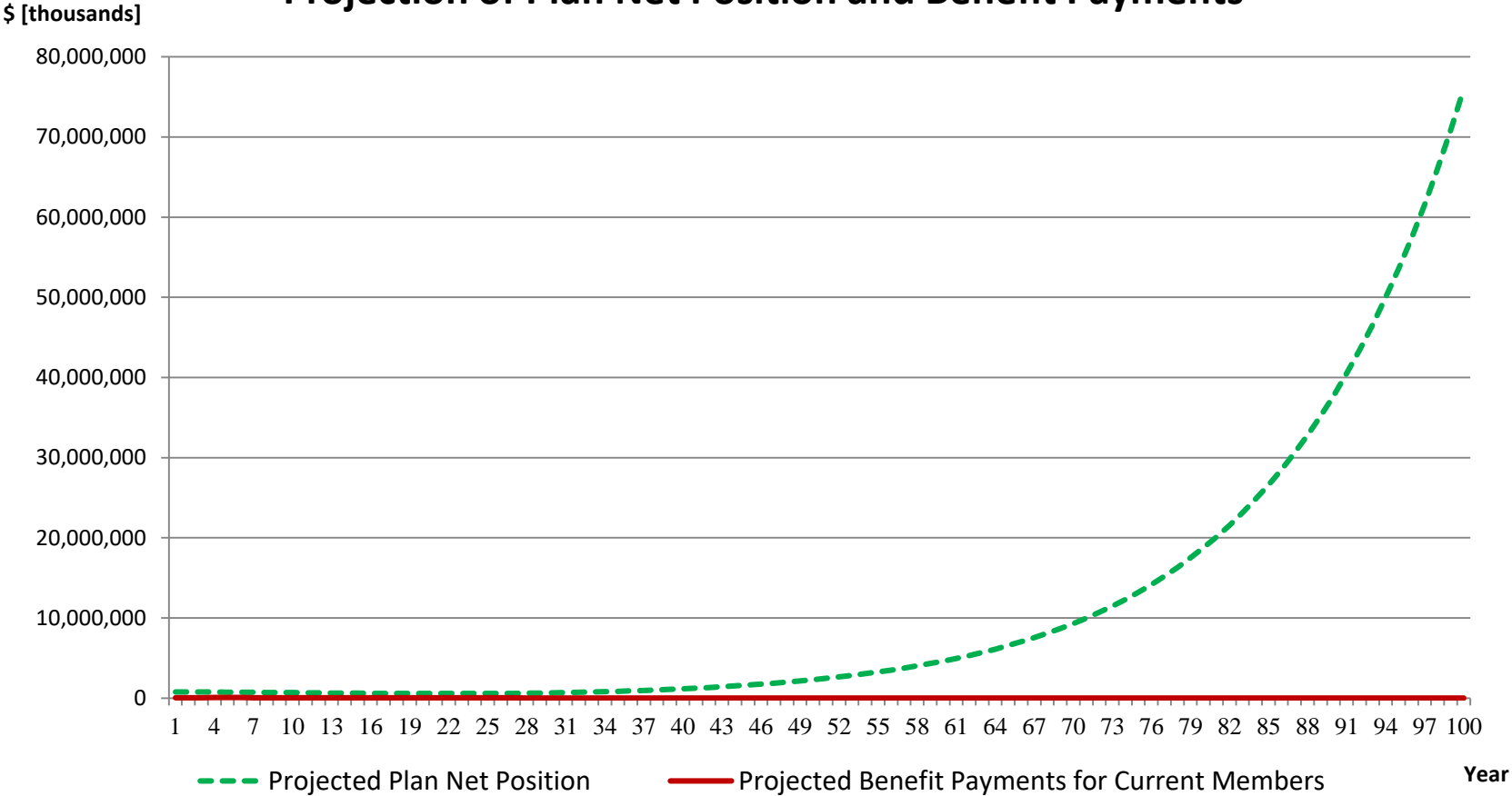
Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=(c)/(1+sdr)^(a-.5)
1	\$ 790,825,096	\$ 62,213,177	\$ 62,213,177	\$ -	\$ 60,073,610	\$ -	\$ 60,073,610
2	783,814,175	62,928,273	62,928,273	-	56,656,515	-	56,656,515
3	775,530,343	63,383,308	63,383,308	-	53,208,578	-	53,208,578
4	766,158,710	63,626,965	63,626,965	-	49,802,444	-	49,802,444
5	755,844,158	63,752,084	63,752,084	-	46,527,159	-	46,527,159
6	744,644,383	63,679,762	63,679,762	-	43,332,752	-	43,332,752
7	732,701,610	63,417,509	63,417,509	-	40,237,105	-	40,237,105
8	720,159,908	62,998,151	62,998,151	-	37,269,027	-	37,269,027
9	707,139,606	62,391,925	62,391,925	-	34,415,282	-	34,415,282
10	693,800,478	61,593,953	61,593,953	-	31,678,435	-	31,678,435
11	680,318,722	60,624,387	60,624,387	-	29,072,053	-	29,072,053
12	666,862,193	59,504,926	59,504,926	-	26,606,268	-	26,606,268
13	653,588,287	58,235,863	58,235,863	-	24,278,634	-	24,278,634
14	640,665,438	56,818,997	56,818,997	-	22,086,658	-	22,086,658
15	628,272,334	55,267,455	55,267,455	-	20,031,275	-	20,031,275
16	616,586,993	53,578,081	53,578,081	-	18,106,270	-	18,106,270
17	605,803,639	51,755,839	51,755,839	-	16,308,120	-	16,308,120
18	596,125,414	49,810,462	49,810,462	-	14,634,160	-	14,634,160
19	587,760,064	47,752,536	47,752,536	-	13,081,163	-	13,081,163
20	580,919,403	45,593,461	45,593,461	-	11,645,421	-	11,645,421
21	575,818,755	43,346,014	43,346,014	-	10,322,966	-	10,322,966
22	572,675,799	41,024,831	41,024,831	-	9,109,716	-	9,109,716
23	571,708,833	38,645,531	38,645,531	-	8,001,290	-	8,001,290
24	573,135,802	36,225,358	36,225,358	-	6,993,203	-	6,993,203
25	577,172,596	33,783,003	33,783,003	-	6,080,851	-	6,080,851
26	584,031,399	31,337,702	31,337,702	-	5,259,397	-	5,259,397
27	593,919,857	28,908,894	28,908,894	-	4,523,796	-	4,523,796
28	607,040,540	26,515,873	26,515,873	-	3,868,835	-	3,868,835
29	623,590,723	24,177,360	24,177,360	-	3,289,166	-	3,289,166
30	643,762,595	21,911,002	21,911,002	-	2,779,341	-	2,779,341
31	667,744,004	19,732,893	19,732,893	-	2,333,851	-	2,333,851
32	695,719,749	17,657,163	17,657,163	-	1,947,179	-	1,947,179
33	727,873,394	15,695,690	15,695,690	-	1,613,868	-	1,613,868
34	764,389,512	13,857,819	13,857,819	-	1,328,573	-	1,328,573
35	805,456,376	12,150,276	12,150,276	-	1,086,124	-	1,086,124
36	851,268,946	10,577,229	10,577,229	-	881,592	-	881,592
37	902,032,000	9,140,304	9,140,304	-	710,328	-	710,328
38	957,963,477	7,838,791	7,838,791	-	568,003	-	568,003
39	1,019,297,854	6,670,033	6,670,033	-	450,642	-	450,642
40	1,086,289,356	5,629,772	5,629,772	-	354,648	-	354,648
41	1,159,215,054	4,712,393	4,712,393	-	276,790	-	276,790
42	1,238,377,917	3,911,148	3,911,148	-	214,198	-	214,198
43	1,324,109,869	3,218,408	3,218,408	-	164,345	-	164,345
44	1,416,774,801	2,625,830	2,625,830	-	125,021	-	125,021
45	1,516,771,623	2,124,523	2,124,523	-	94,315	-	94,315
46	1,624,537,377	1,705,293	1,705,293	-	70,587	-	70,587
47	1,740,550,308	1,358,867	1,358,867	-	52,445	-	52,445
48	1,865,332,941	1,076,122	1,076,122	-	38,725	-	38,725
49	1,999,455,131	848,265	848,265	-	28,462	-	28,462
50	2,143,537,152	666,985	666,985	-	20,867	-	20,867

# Single Discount Rate Development

## Present Values of Projected Benefit Payments

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	h)=(c)/(1+sdr)^(a-.5)
51	\$ 2,298,252,855	\$ 524,588	\$ 524,588	\$ -	\$ 15,302	\$ -	\$ 15,302
52	2,464,332,915	414,108	414,108	-	11,263	-	11,263
53	2,642,568,195	329,377	329,377	-	8,353	-	8,353
54	2,833,813,281	265,041	265,041	-	6,267	-	6,267
55	3,038,990,263	216,548	216,548	-	4,774	-	4,774
56	3,259,092,796	180,124	180,124	-	3,703	-	3,703
57	3,495,190,485	152,711	152,711	-	2,927	-	2,927
58	3,748,433,646	131,906	131,906	-	2,357	-	2,357
59	4,020,058,480	115,870	115,870	-	1,931	-	1,931
60	4,311,392,724	103,212	103,212	-	1,604	-	1,604
61	4,623,861,808	92,913	92,913	-	1,346	-	1,346
62	4,958,995,567	84,233	84,233	-	1,138	-	1,138
63	5,318,435,513	76,647	76,647	-	965	-	965
64	5,703,942,711	69,787	69,787	-	819	-	819
65	6,117,406,285	63,400	63,400	-	694	-	694
66	6,560,852,583	57,326	57,326	-	585	-	585
67	7,036,455,027	51,474	51,474	-	490	-	490
68	7,546,544,710	45,805	45,805	-	407	-	407
69	8,093,621,766	40,321	40,321	-	334	-	334
70	8,680,367,587	35,055	35,055	-	270	-	270
71	9,309,657,933	30,057	30,057	-	216	-	216
72	9,984,577,005	25,384	25,384	-	170	-	170
73	10,708,432,550	21,092	21,092	-	132	-	132
74	11,484,772,067	17,225	17,225	-	100	-	100
75	12,317,400,204	13,813	13,813	-	75	-	75
76	13,210,397,414	10,867	10,867	-	55	-	55
77	14,168,139,972	8,382	8,382	-	40	-	40
78	15,195,321,440	6,332	6,332	-	28	-	28
79	16,296,975,687	4,683	4,683	-	19	-	19
80	17,478,501,575	3,388	3,388	-	13	-	13
81	18,745,689,430	2,397	2,397	-	9	-	9
82	20,104,749,431	1,658	1,658	-	6	-	6
83	21,562,342,047	1,121	1,121	-	3	-	3
84	23,125,610,684	741	741	-	2	-	2
85	24,802,216,692	478	478	-	1	-	1
86	26,600,376,907	301	301	-	1	-	1
87	28,528,903,920	185	185	-	0	-	0
88	30,597,249,262	111	111	-	0	-	0
89	32,815,549,719	65	65	-	0	-	0
90	35,194,677,006	37	37	-	0	-	0
91	37,746,291,050	21	21	-	0	-	0
92	40,482,897,130	11	11	-	0	-	0
93	43,417,907,160	6	6	-	0	-	0
94	46,565,705,422	3	3	-	0	-	0
95	49,941,719,062	2	2	-	0	-	0
96	53,562,493,693	1	1	-	0	-	0
97	57,445,774,485	0	0	-	0	-	0
98	61,610,593,134	0	0	-	0	-	0
99	66,077,361,136	0	0	-	0	-	0
100	70,867,969,819	-	-	-	-	-	-
<b>Totals</b>					\$ 721,706,453	\$ -	\$ 721,706,453

Projection of Plan Net Position and Benefit Payments



## SECTION H

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### **MICHIGAN PUBLIC ACT 202**

## State Reporting As of September 30, 2021

The Protecting Local Government Retirement and Benefits Act, Public Act 202 of 2017 (the Act), has created new reporting requirements for local units of government that sponsor defined benefit plans. Sec. 5(1) of the Act provides the State treasurer with the authority to annually establish uniform actuarial assumptions (UAA) for the purpose of developing the required disclosures. The UAA are available in a memo from the Department of Treasury (DOT) dated October 22, 2020.

The local unit of government must report certain actuarial information related to the Retirement System on the Form 5572. The chart below is an excerpt of this form and includes the information needed for the Fiscal Year 2021 reporting of UAA disclosures for the Oakland County Employees' Retirement System.

23	Uniform Assumptions	
24	Enter retirement pension system's actuarial value of assets using uniform assumptions	\$ 745,563,847
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions	\$ 735,659,567
26	Funded ratio using uniform assumptions	101.3%
27	Actuarially Determined Contribution (ADC) using uniform assumptions <sup>1</sup>	\$ -
28	All systems combined ADC/Governmental fund revenues	Auto <sup>2</sup>

<sup>1</sup>For the fiscal year ending September 30, 2021

<sup>2</sup>Automatically calculated by State of Michigan Form 5572 based on user inputs

The actuarial information provided above was based on the actuarial valuation of the Retirement System as of September 30, 2020. The actuarial assumptions and methods used to develop the information shown above comply with the UAA established by the DOT and are provided in Section F of this report with the following exceptions:

**Assumed rate of investment return:** 7.00% per year.

**Mortality table:** A version of Pub-2010 with mortality projected generationally to 2025 using scale MP-2019.

## SECTION I

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### GLOSSARY OF TERMS

## Glossary of Terms

<b><i>Actuarial Accrued Liability (AAL)</i></b>	The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability."
<b><i>Actuarial Assumptions</i></b>	These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.
<b><i>Accrued Service</i></b>	Service credited under the system which was rendered before the date of the actuarial valuation.
<b><i>Actuarial Equivalent</i></b>	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.
<b><i>Actuarial Cost Method</i></b>	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.
<b><i>Actuarial Gain (Loss)</i></b>	The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.
<b><i>Actuarial Present Value (APV)</i></b>	The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.
<b><i>Actuarial Valuation</i></b>	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions.
<b><i>Actuarial Valuation Date</i></b>	The date as of which an actuarial valuation is performed.

## Glossary of Terms

<b><i>Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)</i></b>	A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.
<b><i>Amortization Payment</i></b>	The amortization payment is the periodic payment including interest and principal required to pay off an interest-discounted amount.
<b><i>Amortization Method</i></b>	The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be “open” (meaning, reset each year) or “closed” (the number of years remaining will decline each year).
<b><i>Cost-of-Living Adjustments</i></b>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<b><i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i></b>	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
<b><i>Covered-Employee Payroll</i></b>	The payroll of employees that are provided with pensions through the pension plan.
<b><i>Deferred Inflows and Outflows</i></b>	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
<b><i>Discount Rate</i></b>	<p>For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically:</p> <ol style="list-style-type: none"><li>1. The benefit payments to be made while the pension plans’ fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and</li><li>2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.</li></ol>

## Glossary of Terms

<b><i>Entry Age Actuarial Cost Method (EAN)</i></b>	The EAN is a cost method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit age(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.
<b><i>GASB</i></b>	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
<b><i>Fiduciary Net Position</i></b>	The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.
<b><i>Long-Term Expected Rate of Return</i></b>	The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.
<b><i>Money-Weighted Rate of Return</i></b>	The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.
<b><i>Multiple-Employer Defined Benefit Pension Plan</i></b>	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
<b><i>Municipal Bond Rate</i></b>	The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.
<b><i>Net Pension Liability (NPL)</i></b>	The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.
<b><i>Non-Employer Contributing Entities</i></b>	Non-employer contributing entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contributing entities.

## Glossary of Terms

<b><i>Normal Cost</i></b>	The portion of the actuarial present value allocated to a valuation year is called the normal cost. For purposes of application to the requirements of this Statement, the term normal cost is the equivalent of service cost.
<b><i>Other Postemployment Benefits (OPEB)</i></b>	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other post-employment benefits do not include termination benefits.
<b><i>Real Rate of Return</i></b>	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
<b><i>Service Cost</i></b>	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
<b><i>Total Pension Expense</i></b>	<p>The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year:</p> <ol style="list-style-type: none"><li>1. Service Cost</li><li>2. Interest on the Total Pension Liability</li><li>3. Current-Period Benefit Changes</li><li>4. Employee Contributions (made negative for addition here)</li><li>5. Projected Earnings on Plan Investments (made negative for addition here)</li><li>6. Pension Plan Administrative Expense</li><li>7. Other Changes in Plan Fiduciary Net Position</li><li>8. Recognition of Outflow (Inflow) of Resources due to Liabilities</li><li>9. Recognition of Outflow (Inflow) of Resources due to Assets</li></ol>
<b><i>Total Pension Liability (TPL)</i></b>	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
<b><i>Unfunded Actuarial Accrued Liability (UAAL)</i></b>	The UAAL is the difference between actuarial accrued liability and valuation assets.
<b><i>Valuation Assets</i></b>	The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement No. 67, the valuation assets are equal to the market value of assets.