Financial Services
Audit Committee Communication

Date: May 27, 2022

To: Great Lakes Water Authority Audit Committee

From: Kim Garland, CPA, Financial Services Area Chief of Staff

Re: General Retirement System Financial Report and Annual Actuarial Valuation for Year End June 30, 2021 (City of Detroit Component II)

Background: The Great Lakes Water Authority (GLWA) assumed a portion of the legacy pension commitment assigned to the Detroit Water & Sewerage Department (DWSD) pursuant to the terms of the regional water and sewer system leases. For this reason, GLWA monitors activity related to the City of Detroit General Retirement System (GRS). While there are two plans managed by GRS, GLWA is impacted by only the Component II plan. Component II was closed as of June 30, 2014 under the City of Detroit bankruptcy plan of adjustment and is commonly referred to as the 'legacy plan'.

The following reports have been presented to the GRS Board and are attached.

1. Letter from the GRS external audit firm to those charged with governance for the General Retirement System of the City of Detroit for the year ending June 30, 2021
2. Audited Financial Report for the General Retirement System of the City of Detroit (dated November 30, 2021)
3. GASB Statement No. 67 and 68 Accounting and Financial Reporting of Financial Plans of Component II June 30, 2020 (dated October 29, 2021)
4. Annual Actuarial Valuation as of June 30, 2021 (dated March 11, 2022)

While the external auditor letter (#1 above) to those charged with governance did highlight areas for improvement, the overall financial audit for the GRS combined plans received an unqualified opinion for the year ending June 30, 2021. The balance of this discussion will focus on the remaining reports: the results of the Audited Financial Report (#2 above) and GASB Statement No. 67 and 68 Report (#3 above) which are based on prior year actuarial results and serve as the basis for the DWSD and GLWA pension expense and liability to be reported in FY 2022. Finally, we will address the most recent June 30, 2021 Actuarial Valuation Report (#4 above) which provides insight into future pension expense and liability expectations.

Analysis: This report addresses five key areas.

1. Financial Position of the GRS as a Whole
2. Financial Position of the DWSD Unit with the GRS
3. Administrative Expenses
4. Planning for the Tail Liability (Unfunded Actuarial Accrued Liability - UAAL)
5. Impact on GLWA Financial Forecast

Financial Position of the GRS as a Whole

As reported in the GASB Statement No. 67 and 68 Accounting and Financial Report, and shown below in Table 1, the June 30, 2021 Component II Net Pension Liability is $885.5 million as of June 30, 2021 (approximately 20%) for the GRS as whole. This is a decrease of approximately 20% from the prior year liability of $1.1 billion.

Table 1: GASB Statement No. 67 and 68 Report - Executive Summary

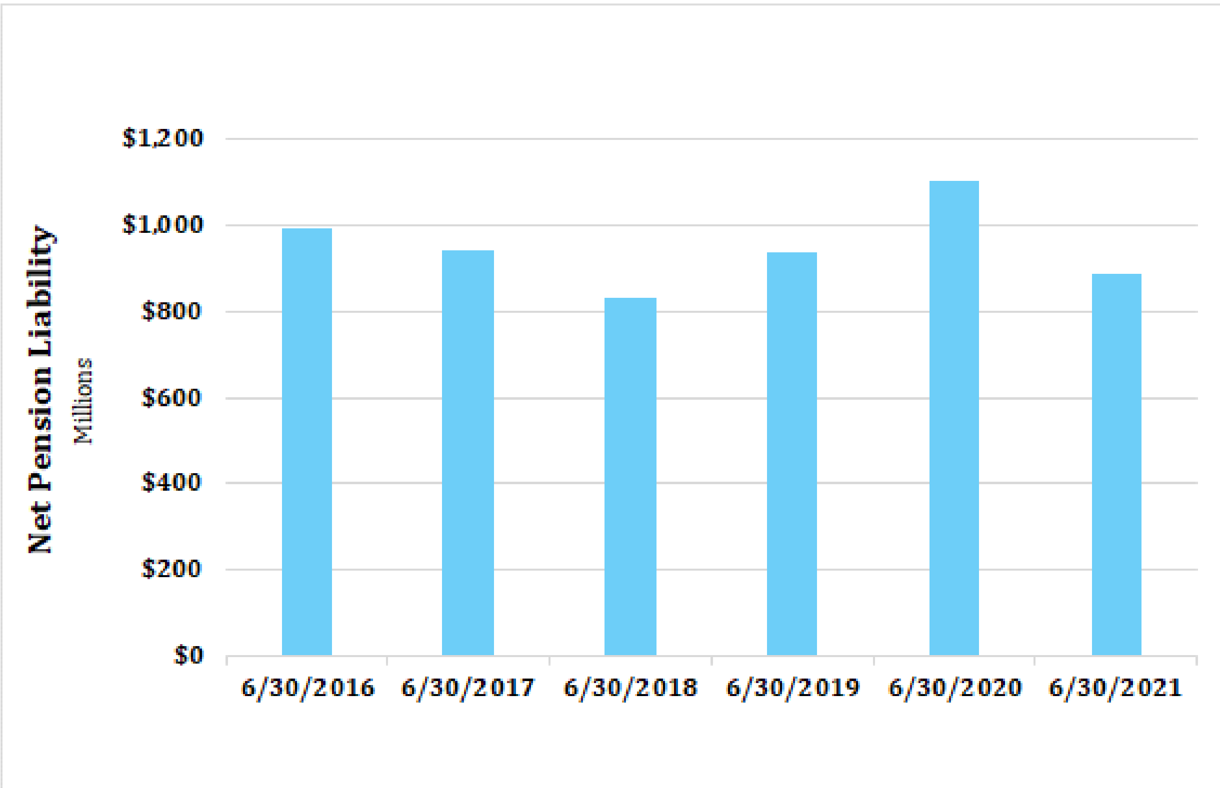
Executive Summary
as of June 30, 2021

Actuarial Valuation Date	June 30, 2020
Measurement Date of the Net Pension Liability	June 30, 2021
Employer's Fiscal Year Ending Date (GASB No. 68 Reporting Date)	June 30, 2022
Membership	
Number of	
- Retirees and Beneficiaries	11,220
- Inactive, Nonretired Members	2,728
- Active Members	2,403
- Total	16,351
Covered Payroll	$ 111,124,304
Net Pension Liability	
Total Pension Liability	$ 2,704,110,233
Plan Fiduciary Net Position	1,818,649,298
Net Pension Liability	$ 885,460,935
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	67.25%
Net Pension Liability as a Percentage of Covered Payroll	796.82%
Development of the Single Discount Rate	
Single Discount Rate	6.50%
Long-Term Expected Rate of Investment Return	6.50%
Long-Term Municipal Bond Rate*	1.92%
Last year ending June 30 in the 2022 to 2121 projection period for which projected benefit payments are fully funded	2121
Total Pension Expense	$ 97,970,192

Source: GASB Statement Nos. 67 and 68 Accounting and Financial Reporting for Pension Plans of Component II, June 30, 2021 (dated October 29, 2021), p 1.

The June 30, 2021 pension liability decrease is largely attributed to the increase in the actual net investment return which was 28.31% as compared to June 30, 2020 long-term expected rate of investment return of 7.06% and to the June 30, 2021 long-term expected rate of return of 6.50%. Chart 1 below highlights the overall net pension liability trend for the GRS as a whole since GLWA was formed in 2016.

Chart 1: Net Pension Liability Trend for GRS in Total



Source: GASB Statement Nos. 67 and 68 Accounting and Financial Reporting for Pension Plans of Component II. Multiple Years.

Financial Position of the DWSD Unit with the GRS

The GASB Statement No. 67 and 68 Accounting and Financial Report also provides a breakdown by unit as shown below in Table 2. The DWSD unit reflects the combined DWSD and GLWA pension obligation. As of June 30, 2021, the DWSD Net Pension Liability is $92.8 million. This is a decrease of nearly 54.8% from $205.3 million DWSD Net Pension Liability as of June 30, 2020). This decrease is largely a result of actual net investment return exceeding the expected rate of investment return.

Table 2: GASB Statement No. 67 and 68 Report - DWSD Changes in Net Pension Liability

Schedule of Changes in Net Pension Liability and Related Ratios Current Period Fiscal Year Ended June 30, 2021*

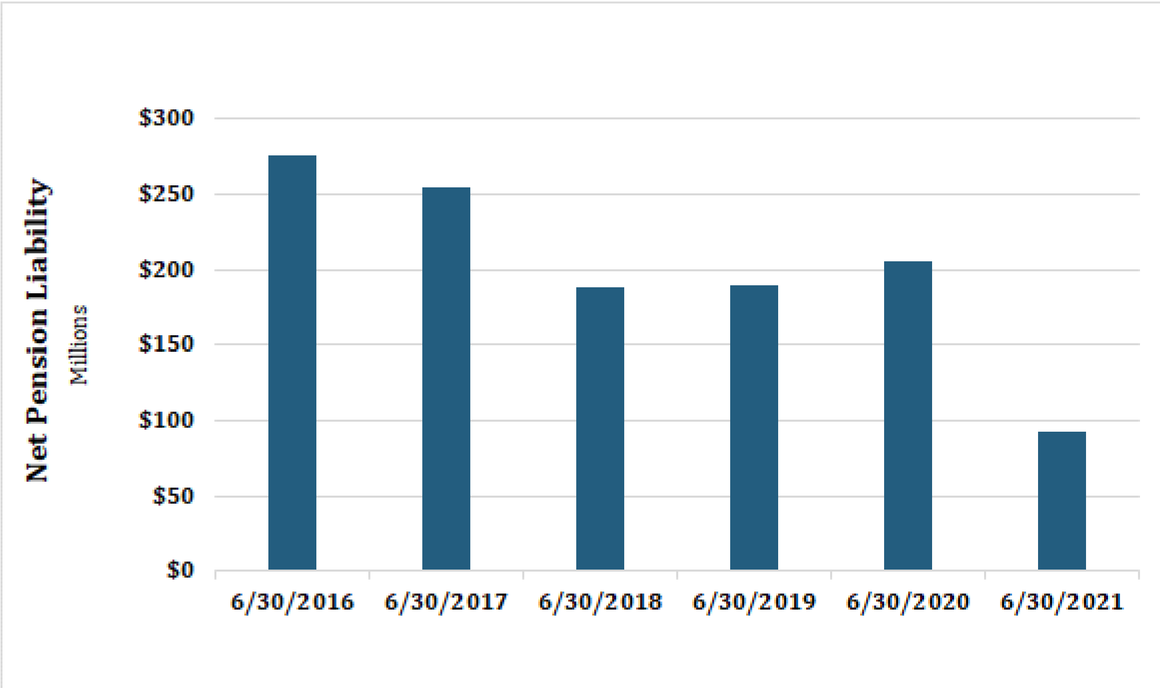
A. Total Pension Liability	General	DOT	DWSD	Library	Total
1. Service Cost	$ -	$ -	$ -	$ -	$ -
2. Interest on the Total Pension Liability	98,821,058	28,380,977	48,808,307	6,129,763	182,140,105
3. Changes of benefit terms	-	-	-	-	-
4. Difference between expected and actual experience of the Total Pension Liability	(35,563,723)	(10,172,786)	(13,092,918)	(403,422)	(59,232,849)
5. Changes of assumptions	63,835,479	19,062,298	33,101,322	3,877,595	119,876,694
6. Benefit payments, including refunds of employee contributions	(129,915,040)	(36,393,303)	(63,209,867)	(7,605,567)	(237,123,777)
7. Net change in Total Pension Liability	$ (2,822,226)	$ 877,186	$ 5,606,844	$ 1,998,369	$ 5,660,173
8. Total Pension Liability – Beginning	1,464,689,205	420,193,498	722,940,733	90,626,624	2,698,450,060
9. Total Pension Liability – Ending	**$ 1,461,866,979**	**$ 421,070,684**	**$ 728,547,577**	**$ 92,624,993**	**$ 2,704,110,233**
B. Plan Fiduciary Net Position					
1. Contributions – employer	$ 2,765,012	$ 109,988	$ 42,900,000	$ 2,500,000	$ 48,275,000
2. Contributions – employee	-	-	-	-	-
3. Net investment income	220,167,491	31,642,313	136,536,628	18,631,485	406,977,917
4. Benefit payments, including refunds of employee contributions	(129,915,040)	(36,393,303)	(63,209,867)	(7,605,567)	(237,123,777)
5. Pension Plan Administrative Expense	(1,717,931)	(174,636)	-	(94,626)	(1,987,193)
6. Other	3,462,963	929,607	1,874,921	137,871	6,405,362
7. Net change in Plan Fiduciary Net Position	$ 94,762,495	$ (3,886,031)	$ 118,101,682	$ 13,569,163	$ 222,547,309
8. Plan Fiduciary Net Position – Beginning	862,162,401	140,266,264	517,670,180	76,003,144	1,596,101,989
9. Plan Fiduciary Net Position – Ending	**$ 956,924,896**	**$ 136,380,233**	**$ 635,771,862**	**$ 89,572,307**	**$ 1,818,649,298**
C. Net Pension Liability	**$ 504,942,083**	**$ 284,690,451**	**$ 92,775,715**	**$ 3,052,686**	**$ 885,460,935**
D. Plan Fiduciary Net Position as a percentage of the Total Pension Liability	**65.46%**	**32.39%**	**87.27%**	**96.70%**	**67.25%**
E. Covered-employee payroll	**$ 72,060,511**	**$ 15,783,013**	**$ 14,485,553**	**$ 8,795,227**	**$ 111,124,304**
F. Net Pension Liability as a percentage of covered-employee payroll	**700.72%**	**1803.78%**	**640.47%**	**34.71%**	**796.82%**

**Totals may not add due to rounding.*

Source: GASB Statement Nos. 67 and 68 Accounting and Financial Reporting for Pension Plans of Component II, June 30, 2021 (dated October 29, 2021), p 22.

Chart 2 below provides the trend of the overall net pension liability trend for the DWSD unit since GLWA was formed in 2016.

Chart 2: Net Pension Liability Trend for DWSD Unit



On January 24, 2017, under a pension reporting agreement, the parties agreed that 70.3 percent of the liability allocated to the DWSD unit in the table above was attributable to GLWA regional operations and 29.7 percent to DWSD. This is the basis of allocation for future pension contributions with additional allocation within each entity between Water and Sewer funds. This is summarized in Table 3 below and applied to the current June 30, 2021 liability.

Table 3: Liability Allocation Between GLWA and DWSD as of June 30, 2021

Entity	Percent	Liability Allocation	
DWSD - Water	17.80%	$	16,514,077
DWSD - Sewer	11.90%	$	11,040,310
GLWA - Water	25.20%	$	23,379,480
GLWA - Sewer	45.10%	$	41,841,847
	100.00%	**$**	**92,775,715**

Administrative Expenses

Through June 30, 2023, as part of the City of Detroit bankruptcy plan of adjustment (POA), GLWA and DWSD contribute $2.5 million annually towards administrative expenses for the combined plan. GRS allocates 60% of overall administrative expenses to Component II and 40% to Component I. An allocation of overall pension administrative expense is provided in the GRS Annual Financial Report Statement of Changes in Fiduciary Net Position by Division shown in Table 4 below.

Table 4: Statement of Changes in Fiduciary Net Position by Division

Combined Plan for the General Retirement System of the City of Detroit

Statement of Changes in Fiduciary Net Position by Division - Legacy Defined Benefit Plan

For the Year Ended June 30, 2021

	DWSD Subdivisions		General Retirement System - Divisions				
	GLWA	DWSD-R	DWSD - Division Total (all DWSD Subdivisions)	General Division	DOT	Library	Total - General Retirement System (all Divisions)
Beginning Net Position - July 1, 2020	$ 363,922,133	$ 153,748,047	$ 517,670,180	$ 862,162,401	$ 140,266,264	$ 76,003,144	$ 1,596,101,989
Additions:							
Investment income:							
Interest and dividends	7,725,429	3,263,801	10,989,230	18,464,632	3,218,894	1,671,668	34,344,424
Net increase in fair value of investments	90,314,459	38,155,612	128,470,071	206,398,388	29,085,100	17,354,631	381,308,190
Net unrealized gain on collateralized securities	62,296	26,319	88,615	142,367	20,062	11,971	263,015
Investment related expenses	(2,116,935)	(894,353)	(3,011,288)	(4,837,896)	(681,743)	(406,786)	(8,937,713)
Net investment income	95,985,249	40,551,379	136,536,628	220,167,491	31,642,313	18,631,484	406,977,916
Contributions:							
Employer contributions:							
Originating from DWSD:							
Regular pension contribution	30,158,700	12,741,300	42,900,000	-	-	-	42,900,000
Contribution for administrative expenses	1,757,500	742,500	2,500,000	-	-	-	2,500,000
DWSD transfer to General Division for administrative expenses	(1,757,500)	(742,500)	(2,500,000)	2,500,000	-	-	-
Total contributions originating from DWSD	30,158,700	12,741,300	42,900,000	2,500,000	-	-	45,400,000
Contributions from other divisions	-	-	-	-	-	2,500,000	2,500,000
Total employer contributions	30,158,700	12,741,300	42,900,000	2,500,000	-	2,500,000	47,900,000
Foundation for Detroit's Future	-	-	-	265,012	109,988	-	375,000
Total contributions	30,158,700	12,741,300	42,900,000	2,765,012	109,988	2,500,000	48,275,000
ASF recoupment interest	1,297,270	548,064	1,845,334	3,604,194	1,136,912	153,418	6,739,858
Other income	203,320	85,898	289,218	454,041	57,070	36,690	837,019
Total additions - net	127,644,539	53,926,641	181,571,180	226,990,738	32,946,283	21,321,592	462,829,793
Deductions:							
Member refunds and withdrawals	1,040,916	439,761	1,480,677	4,066,345	4,875,528	911,054	11,333,604
Retirees' pension and annuity benefits	43,395,620	18,333,569	61,729,189	125,848,697	31,517,775	6,694,512	225,790,173
General and administrative expenses	453,093	191,421	644,514	1,073,418	174,636	94,626	1,987,194
ASF Recoupment Write-off	182,521	77,111	259,632	595,269	264,375	52,237	1,171,513
Transfer of general and administrative expenses to General Division	(453,093)	(191,421)	(644,514)	644,514	-	-	-
Total deductions	44,619,057	18,850,441	63,469,498	132,228,243	36,832,314	7,752,429	240,282,484
Net Increase (Decrease) in Net Position	83,025,482	35,076,200	118,101,682	94,762,495	(3,886,031)	13,569,163	222,547,309
End of Year Net Position Restricted for Pensions - June 30, 2021	**$ 446,947,615**	**$ 188,824,247**	**$ 635,771,862**	**$ 956,924,896**	**$ 136,380,233**	**$ 89,572,307**	**$ 1,818,649,298**

Source: Audited Financial Report for the General Retirement System of the City of Detroit (dated November 30, 2021), p 47.

GLWA Great Lakes Water Authority

Of the $2.5 million paid by GLWA and DWSD, $645 thousand is attributable to the current year and is transferred to the General Division. The remainder is recorded as a prepaid toward future administrative expenses after June 30, 2024 summarized in Table 5 below.

Table 5: Schedule of DWSD/GLWA Contributions Toward Administrative Expenses

Combined Plan for the General Retirement System of the City of Detroit

Schedule of DWSD/GLWA Contributions Toward Administrative Expenses as Compared to Actual DWSD/GLWA Allocable Administrative Expenses

For the Year Ended June 30, 2021

	DWSD Division Total	
	GLWA	DWSD-R
Amount Paid in Excess of Administrative Expenses Otherwise Allocable - June 30, 2020	$ 5,630,243	$ 2,378,641
DWSD/GLWA contribution for administrative expenses in accordance with plan of adjustment and bankruptcy order	1,757,500	742,500
Administrative expenses otherwise allocable to DWSD/GLWA	(453,093)	(191,421)
Cumulative Amount Paid in Excess of Administrative Expenses Otherwise Allocable - June 30, 2021	**$ 6,934,650**	**$ 2,929,720**

Source: Audited Financial Report for the General Retirement System of the City of Detroit (dated November 30, 2021), p 48.

Planning for the Tail Liability (UAAL)

Under the POA, GLWA and DWSD make combined, Component II annual pension payments of $45.4 million, of which $2.5 million is specific to administrative expenses discussed above. Those fixed payments are reduced after June 30, 2023 based upon the terms of a pension agreement that addresses the tail liability. The actual amount of this remaining, unfunded liability will vary based upon plan performance and the outstanding liability at that time.

The June 30, 2021 Actuarial Report estimates the total Component II unfunded actuarial accrued liability (UAAL) for the GRS as a whole to be $727.0 million with $17.2 million as the DWSD-GLWA share of that liability June 30, 2022.

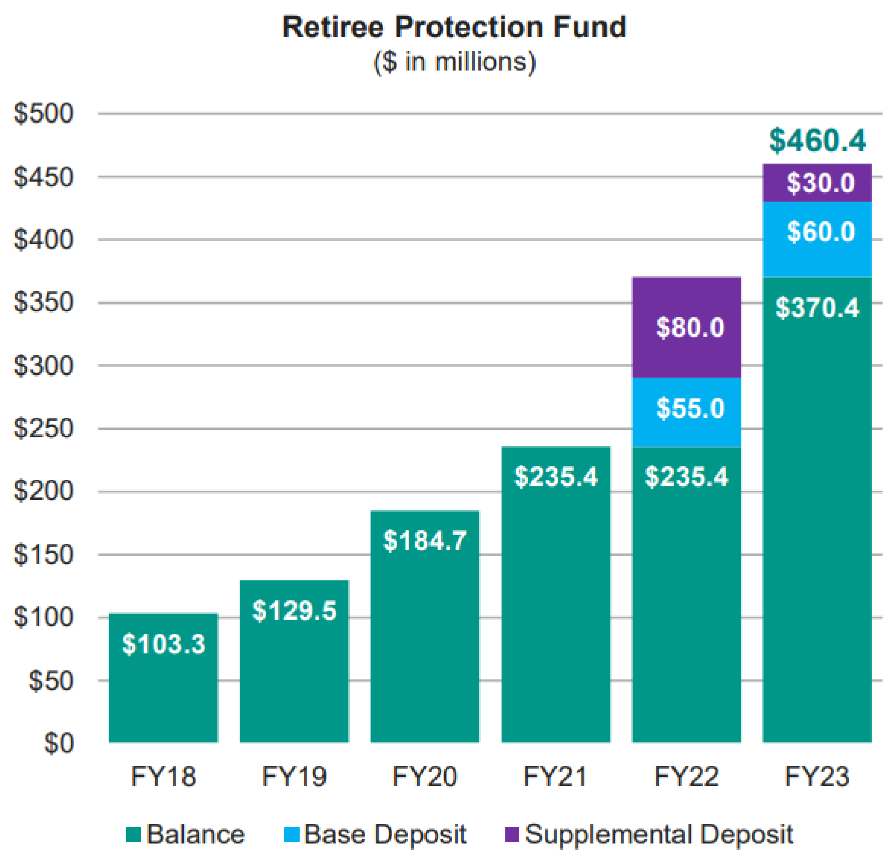
- The City of Detroit is also focused on preparing for the future. Under the POA, the City is not required to make contributions to the GRS until FY 2024. The City is, however, contributing to a Retiree Protection Fund (RPF). The City of Detroit Bankruptcy Plan of Adjustment provided a 10-year deferment of pension costs to allow for investments in the City and to improve City Services. The "Grand Bargain" provided for pension contributions from several sources. Pursuant meeting requirements of the Plan of Adjustment, the City of Detroit created an irrevocable Internal Revenue Code Section 115 trust fund exclusively for satisfying its legacy pension obligations and adopted a funding strategy for its frozen legacy pension plan obligations to set aside $335M in funding by FY 2023. The trust was established to: Build up RPF assets plus investment earnings to be used to partially offset annual required legacy pension contributions that resume in FY 2024.

- Allows the City to begin gradually building up its budget capacity now to meet the annual required contributions in the future.
- Review the funding plan annually based on updated information and revise if needed during the annual budget and planning process. *

**Cited from the FY 2020 Long-Term Forecast Report, March 29, 2019*

The balance in the Retirement Protection Fund by year is shown in Chart 3 below. The chart was taken from the Adopted FY 2023 Budget presented by the Financial Review Commission and confirms the current value of that fund as June 30, 2022, as well as the FY 2023 budget projection.

Chart 3: City of Detroit Retiree Protection Fund



Source: https://detroitmi.gov/sites/detroitmi.localhost/files/2022-05/FY%202023-2026%20Four%20Year%20Financial%20Plan%20Adopted%20-%20Section%20A%20-%20Overview.pdf

Funded ratio is a metric used to measure a plan's ability to cover future obligations based on projected contributions. The Component II funded ratio for the period ending June 30, 2021 is 71.53% up from 58.76% the prior year with best practice benchmarks being a 75% minimum and 100% maximum funded ratio.

As noted above, the POA established a funding policy for GLWA and DWSD. Adoption of a funding policy by the City of Detroit is necessary to reduce the UAAL moving forward. Two funding options available to the City are proposed in the June 30, 2021 Actuarial Report which ultimately impact the amount of the tail liability that GLWA and DWSD will be responsible for beginning in FY 2024. Table 6 below summarizes this UAAL by unit and provides a range for annual contribution requirements beginning in FY 2024.

Strong investment returns in FY 2021, a 30-year amortization period and currently adopted interest rate of 6.75% result in a projected negative UAAL and no annual pension contributions for DWSD. The report reflects a required contribution of $0.6 million for the annual administrative expense, which needs to be reviewed as noted by the actuary based on the various agreements. The actual FY 2022 investment returns, and the actuarial assumptions adopted by the Board and Investment Committee will impact actual FY 2023 results.

Table 6: Projected Annual Contribution & UAAL/Tail Liability

Unfunded Actuarial Accrued Liability (UAAL)

	($ Millions)				
	General City	D.O.T.	DWSD	Library	System Total
UAAL as of June 30, 2021	$ 416.4	$ 257.2	$ 56.3	$ (5.9)	$ 724.0
Anticipated POA Contribution (EOY)	(2.7)	(0.1)	(42.9)	(2.5)	(48.3)
Anticipated Expenses[1]	1.9	0.3	-	0.1	2.3
Interest at 6.75%	28.2	17.4	3.8	(0.4)	48.9
Projected UAAL as of June 30, 2022	$ 443.7	$ 274.8	$ 17.2	$ (8.7)	$ 727.0
Anticipated POA Contributions for FY 2023	**2.7**	**0.1**	**42.9**	**2.5**	**48.3**
Estimated Employer Contributions for FY 2024[2, 3]					
Alternate 1: 30-Year Level Principal					
UAAL Contribution	$ 47.7	$ 29.6	$ (2.5)	$ (1.2)	$ 73.6
$0 Minimum UAAL Contribution	47.7	29.6	-	-	77.3
Administrative Expense Contribution[4]	1.3	0.3	0.6	0.1	2.3
Total Contribution	**$ 49.0**	**$ 29.9**	**$ 0.6**	**$ 0.1**	**$ 79.6**
Alternate 2: 30-Year Level Dollar[5]					
UAAL Contribution	$ 37.2	$ 23.1	$ (1.9)	$ (0.9)	$ 57.4
$0 Minimum UAAL Contribution	37.2	23.1	-	-	60.2
Administrative Expense Contribution[4]	1.3	0.3	0.6	0.1	2.3
Total Contribution	**$ 38.5**	**$ 23.4**	**$ 0.6**	**$ 0.1**	**$ 62.5**

Totals may not add due to rounding.

1 *Administrative expenses for DWSD are paid by General City through 2023.*

2 *Assuming the POA contributions through 2023 and a 30-year closed amortization thereafter. When determining the contributions through 2023, only the total contributions and the DWSD contributions are stipulated in the POA. The remaining amounts were allocated to the other groups as described on page 2. A different allocation would result in different results by group.*

3 *Total employer contributions, including amounts paid by the employer but funded from other sources as required by POA.*

4 *We recommend that the proposed administrative expense contribution for DWSD be reviewed in the context of the 2015 agreement between the City, the Retirement System, and the Great Lakes Water Authority.*

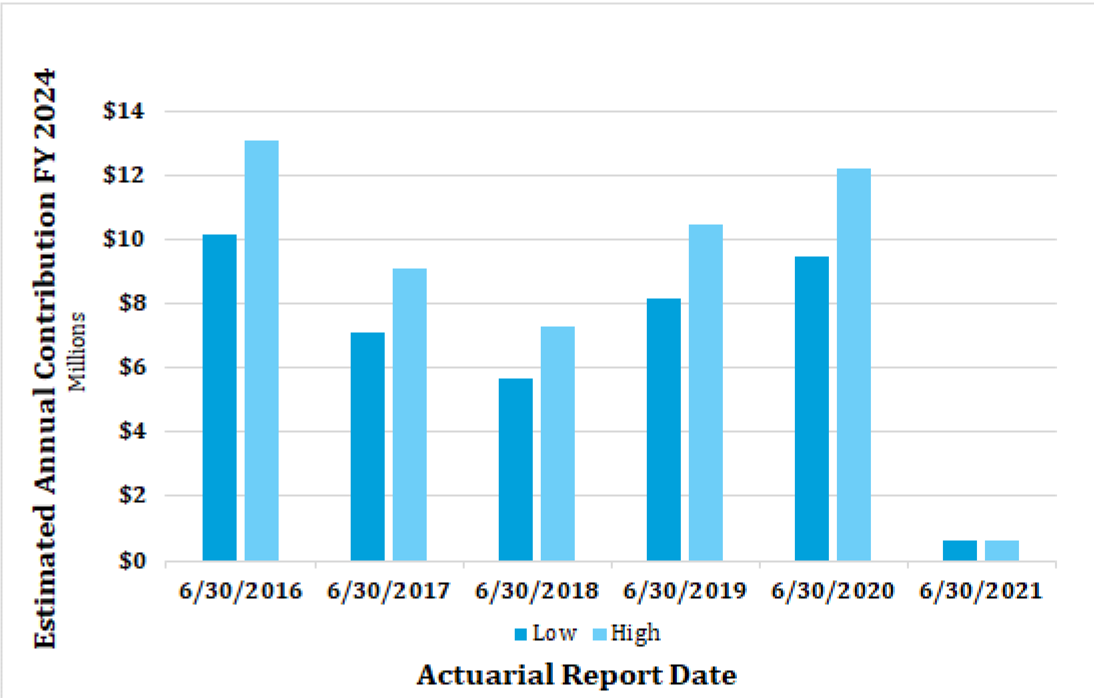
5 ***Contributions at this level may not be sufficient to prevent fund depletion prior to satisfaction of all benefit payments. This scenario is included at Retirement System's request (see page 4).***

Source: Annual Actuarial Valuation of Component II, June 30, 2021 (dated March 11, 2022), p 3.

Impact on GLWA Financial Forecast

Based on the funding policy ultimately adopted by the City of Detroit for FY 2024, the annual contribution for GLWA and DWSD is $0.6 million for administrative expense contribution only. The prior year actuarial for FY 2024 placed that range between $9.5 and $12.2 million. The annual contribution based on the tail liability is highlighted in Chart 4 below.

Chart 4: GLWA and DWSD Estimated Annual Contribution for FY 2024



Source: Annual Actuarial Valuation of Component II, June 30, 2021 (dated March 11, 2022), p 3.

GLWA will continue to monitor and report on Component II activity, specifically as it relates to funding policy actions taken by the City of Detroit. GLWA has also engaged an independent actuarial firm to review the current valuation and the impacts of any funding policy actions taken by the City and GRS. The firm and GLWA staff will report to the GLWA Audit Committee on these findings when they become available. In addition, GLWA staff continues to attend the monthly GRS Board meetings to monitor and report on the current events and impact on the Plan's investment assets.

Proposed Action: Receive and file this report.

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November 30, 2021

To the Board of Trustees and the
Investment Committee
General Retirement System
of the City of Detroit

We have audited the financial statements of the General Retirement System of the City of Detroit (the "System") as of and for the year ended June 30, 2021 and have issued our report thereon dated November 30, 2021. Professional standards require that we provide you with the following information related to our audit, which is divided into the following sections:

Section I - Internal Control Related Matters Identified in an Audit - This includes any deficiencies we observed in the System's accounting principles and internal control that we believe are significant. Current auditing standards require us to formally communicate on an annual basis matters we note about the System's accounting policies and internal control. The System has been diligent in its efforts to remedy many of the previously identified internal control deficiencies. Due to its efforts, the condition of the accounting records at the start of the audit and supporting documentation continues to improve.

Section II - Required Communications with Those Charged with Governance - This includes information that current auditing standards require independent auditors to communicate to those individuals charged with governance. We will report this information annually to the board of trustees and the investment committee of the System.

Section III - Other Recommendations and Related Information - This presents recommendations related to internal control, procedures, and other matters noted during our current year audit. These comments are offered in the interest of helping the System in its efforts toward continuous improvement, not just in the areas of internal control and accounting procedures, but also in operational or administrative efficiency and effectiveness.

We would like to take this opportunity to thank the System's staff for the cooperation and courtesy extended to us during our audit. The assistance and professionalism of the System's staff are invaluable and greatly appreciated.

This report is intended solely for the use of the board of trustees, the investment committee, and management of the General Retirement System of the City of Detroit and is not intended to be and should not be used by anyone other than these specified parties.

We welcome any questions you may have regarding the following communications, and we would be willing to discuss these or any other questions that you might have at your convenience.

Very truly yours,

Plante & Moran, PLLC

Michelle Watterworth

Michelle M. Watterworth, CPA

Spencer Tawa

Spencer Tawa, CPA

Section I - Internal Control Related Matters Identified in an Audit

In planning and performing our audit of the financial statements of the System as of and for the year ended June 30, 2021, in accordance with auditing standards generally accepted in the United States of America, we considered the System's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the System's internal control. Accordingly, we do not express an opinion on the effectiveness of the System's internal control.

Our consideration of internal control was for the limited purpose described in the preceding paragraph and was not designed to identify all deficiencies in internal control that might be significant deficiencies or material weaknesses, and, therefore, material weaknesses or significant deficiencies may exist that were not identified. However, as discussed below, we identified certain deficiencies in internal control that we consider to be material weaknesses and another deficiency that we consider to be a significant deficiency.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis.

A material weakness is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis.

We consider the following deficiencies in the System's internal control to be material weaknesses:

Controls Over the System's Census Data and Actuarial Valuation Process (Repeat Finding)

Background: The System has to accumulate and transmit voluminous member data to the actuary. The System accumulates member data based on information from the City of Detroit, Michigan (the "City"), as well as data the System independently obtains. The System relies on data it extracts from the City of Detroit, Michigan's databases primarily for active and deferred members. The System is responsible for data on retirees, as it will obtain additional information when a member commences retirement.

The actuary then uses this information to prepare the actuarial valuation, which impacts the calculation of the actuarially determined contribution (ADC) and the actuarial accrued liability (AAL) for funding purposes and, under GASB Statement No. 67, impacts the total pension liability disclosed in the System's financial statements.

It is key that the information provided to the actuary is complete and accurate in order to ensure that the funding levels, AAL, and disclosures under GASB Statement No. 67, including the total pension liability, also are accurate.

Issues and recommendations: The System has had issues with the accuracy of the member data for many years. While some data appears to have improved (i.e., active payroll for Component I members), we continued to identify a number of errors with the census data. The more significant errors are as follows:

- Inaccuracies with the average final compensation (AFC) and service years being used in the calculation of frozen accrued benefits (Component II only). Based on our procedures, it was noted that the majority of our sample's actual AFC was higher than reported in the census data. The majority of the discrepancies ranged from 3 to 8 percent of AFC. Reporting lower AFC than actual leads to a potential understatement of the plan's total pension liability. Based on follow-up with the System, the discrepancy in the data is not clear. We recommend the System perform a comprehensive review to determine how to pull the most accurate AFC information to provide to the actuary.

- Missing census data - The actuary noted that inactive vested members for Component I have not been fully processed by the System. As a result, the actuary took members who have retired under Component II with a deferred Component I benefit to include as deferred vested under Component I (actuary identified 307 members). Due to getting the information from the active or retired files for Component II, some information was missing, and the actuary had to make assumptions (i.e., if AFC was unavailable, the actuary assumed an AFC of $36,000 for general DOT members and $42,500 for water/sewage and library members). We recommend the System identify deferred vested members under Component I and ensure all data elements needed are provided to the actuary.

- Service years - During our testing procedures, we noted changes to service years for active and deferred members in Component II. We do not expect any changes in benefit service years given this plan is frozen as of June 30, 2014. We recommend the System perform procedures in analyzing changes in service years to ensure the only changes relate to data corrections.

We acknowledge that both the System and the actuary perform certain tests and cleanup work on the data before it is utilized in the valuations. Unfortunately, the magnitude of the issues identified during our testing is still extremely significant, particularly with AFC and, if not corrected in the coming years, may cause issues with being able to conclude that the data utilized in the valuations is accurate enough not to materially misstate financial data.

Controls Over the System's Information Technology Processes (Repeat Finding)

The System has complex modifiable information technology that integrates with the City of Detroit, Michigan's various payroll databases. The System's IT department is independent of the City and the System's other departments. The security provided by the IT system is important to the validity and the accuracy of the data maintained, including the census information provided to the actuary.

Although the System is currently in the process of modifying the information technology system, we offer the following, which the System should keep in mind as it continues to fully implement the new ERP system:

- Use of automated logs - The System uses customized software for a majority of the System's needs, which includes maintaining the census data and benefits calculation application, which are managed internally by the System's IT personnel and can be modified by the IT department. For all changes to that software, there should be an automated log maintained listing those changes, and no single individual should be able to effect a change without proper authorization. Currently, the System has a process to review, authorize, and track changes, but it is not automated; therefore, it is subject to human error and possible circumvention.

- Master file changes - Additionally, it is recommended that the System implement processes to ensure that master file changes are documented, authorized, and reviewed. The lack of this documentation could result in unauthorized and undocumented changes that go undetected by the System.

- Segregation of duties - Segregation of duty controls provide a separation of users with access to program source code and users with the ability to make or implement changes into the production environment. The ability to make or implement program source code changes should be limited to individuals who cannot access and edit source code. The lack of this control could result in inaccurate or unauthorized changes.

Section I - Internal Control Related Matters Identified in an Audit (Continued)

A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance. We consider the following deficiency in the System's internal control to be a significant deficiency:

Controls Over Year-end Investment Valuation

The System has approximately $914 million in investments that do not have a readily determinable market value. For approximately $865 million of this amount, management's estimate of the investments' fair value is based on capital statements provided by investment managers and general partners. The System's process is to accumulate the capital statements for all these investments to record fair value as of June 30, 2021. For investments for which the June 30, 2021 capital statements are not available timely, the System uses March 31, 2021 (or later) capital statements and adjusts for any cash flow activity during the gap period (generally April 1, 2021 through June 30, 2021) to approximate fair value as of June 30, 2021. The System maintains an Excel workpaper to track adjustments to these investments. This process is designed to ensure investment valuation is accurately estimated at June 30, 2021; however, during our audit, we noted one error related to this process:

- An investment was overstated by approximately $6,500,000. The System incorrectly used the March 31, 2020 capital statement instead of March 31, 2021 to initially value the investment (prior to accounting for cash flows for the gap period). The investment value recorded by the System was approximately $39 million but should have been $32.5 million. After we identified this error, the System subsequently recorded this change, and it is reflected in the June 30, 2021 financial statements.

We recommend the System implement additional controls over the System's valuation of investments to ensure investments continue to be recorded in compliance with generally accepted accounting principles. This would include adding another layer of review by obtaining and reviewing capital statements included in the tracker and ensuring formulas are correct in the Excel tracker.

Section II - Required Communications with Those Charged with Governance

Our Responsibility Under U.S. Generally Accepted Auditing Standards

As stated in our engagement letters dated June 18, 2021 and September 21, 2021, our responsibility, as described by professional standards, is to express an opinion about whether the financial statements prepared by management with your oversight are fairly presented, in all material respects, in conformity with U.S. generally accepted accounting principles. Our audit of the financial statements does not relieve you or management of your responsibilities. Our responsibility is to plan and perform the audit to obtain reasonable, but not absolute, assurance that the financial statements are free of material misstatement.

As part of our audit, we considered the internal control of the System. Such considerations were solely for the purpose of determining our audit procedures and not to provide any assurance concerning such internal control.

We are responsible for communicating significant matters related to the audit that are, in our professional judgment, relevant to your responsibilities in overseeing the financial reporting process. However, we are not required to design procedures specifically to identify such matters.

Planned Scope and Timing of the Audit

We performed the audit according to the planned scope and timing previously communicated to you in our meeting about planning matters on August 23, 2021.

Significant Audit Findings

Qualitative Aspects of Accounting Practices

Management is responsible for the selection and use of appropriate accounting policies. In accordance with the terms of our engagement letter, we will advise management about the appropriateness of accounting policies and their application. The significant accounting policies used by the System are described in Note 1 to the financial statements. There were several new accounting standards effective for the System this year, including GASB Statement No. 84 on fiduciary activities, which the System analyzed and determined had no impact. As a result, no new accounting policies were adopted, and the application of existing policies was not changed during year.

We noted no transactions entered into by the System during the year for which there is a lack of authoritative guidance or consensus.

There are no significant transactions that have been recognized in the financial statements in a different period than when the transaction occurred.

Accounting estimates are an integral part of the financial statements prepared by management and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting them may differ significantly from those expected.

The following are the significant estimates affecting the financial statements:

Investment valuations:

The financial statements include investments valued at approximately $49 million (2 percent of net position) at June 30, 2021 whose fair values have been estimated by management in the absence of readily determinable market values.

The valuation of alternative investments constitutes a very sensitive and significant estimate affecting the financial statements. Management uses various means to value the investments, including utilizing a third-party valuation firm, confirmations from the investment managers, periodic appraisals, guidance from real estate advisors, etc. These estimates are very subjective and highly sensitive to change. We believe management's estimates are in accordance with GAAP.

Estimates inherent in the development of the total pension liability:

The financial statement disclosures and required supplemental information schedules contain information about the System's total pension liability. In order to determine the total pension liability, the actuary must apply certain assumptions that are highly sensitive to estimation. The most sensitive estimates used in the valuation were as follows:

- Assumed long-term rate of return - For the purpose of GASB Statement No. 67, as of June 30, 2021, the System is currently using 6.50 percent for the assumed long-term expected rate of return based on information provided by the System's investment advisor combined with calculations performed by the System. This assumed rate of return was also the single discount rate used at the end of the year. Nationally, this long-term rate of return assumption has garnered significant public attention, with many being critical of the average return assumption used by plans across the United States, which, according to a February 2021 National Association of State Retirement Administrators (NASRA) study, was 7.18 percent. Nationally, the trend continues to show a continued decline in this assumption, and we believe that trend will continue. We commend the System on continuing to be critical of this significant assumption, watching the trends nationally, and reevaluating the return assumption annually with a critical eye. Please note that this assumption related to the long-term assumed rate of return is for financial reporting purposes only; the Plan of Adjustment requires that the projected rate of return for funding purposes be 6.75 percent.

- Single discount rate calculation - The calculation of the single discount rate under GASB Statement No. 67, which is calculated using the long-term assumed rate of return as one of many assumptions, is highly sensitive to estimates the actuary makes about future contributions and future benefit payments. Inherent in those assumptions is some subjectivity surrounding the projection of future contributions, since the System does not have a fully approved and agreed upon funding policy dictating contributions after 2023, although we do understand that the board of trustees has adopted a funding policy, but it has not yet been approved by the investment committee, nor has that funding policy been put in place. The assumption made in the GASB 67 valuation is that the actuarially assumed contributions will be made at rates sufficient to fund the benefits by amortizing the unfunded liability over a closed 30-year period. The adoption of a shorter amortization period, if that were the route taken, would not alter the current assumption that no depletion date exists.

- Mortality assumptions - The assumptions about mortality were estimated by the actuary based on the results of an experience study issued in February 2015. Generally, the actuary used the RP-2014 Blue Collar Annuitant Table for males and females, projected on a fully generational basis. In early 2019, the Society of Actuaries published new mortality tables called the Pub-2010 tables. These were the first mortality tables issued based solely on United States public sector employees (public safety, teachers, and general employment categories). Given the applicability of these tables to the public sector, it will be likely the System will need to consider these tables. We understand that the System is currently undergoing a new experience study but that no results are yet available and no new assumptions have yet been adopted as a result of that study, which is ongoing.

- Other assumptions - All other assumptions in the actuarial valuation are based on an experience study for the period from 2002-2007. In order to avoid any results that could be skewed due to the City's bankruptcy, we understand that the System has waited to perform an updated experience study, which is currently in process. It is possible that the results of this next experience study for the period from July 1, 2015 through June 30, 2020 could impact the total pension liability.

We evaluated the key factors and assumptions used to develop the estimates above and determined that they are reasonable in relation to the financial statements taken as a whole.

The disclosure of these assumptions and resultant sensitivity of the discount rate can be found in Notes 7 and 8 to the financial statements.

The disclosures in the financial statements are neutral, consistent, and clear. Certain financial statement disclosures are particularly sensitive because of their significance to financial statement and schedule users. The most sensitive disclosures affecting the financial statements and the schedules are the disclosures related to GASB Statement No. 67, including the actuarial valuation results.

Difficulties Encountered in Performing the Audit

We are required to inform those charged with governance of any difficulties encountered related to the performance of the audit. While we had no difficulties in dealing with management related to the performance of the audit, we did encounter significant difficulties due to the magnitude of the census data errors we found during our audit test work.

Disagreements with Management

For the purpose of this letter, professional standards define a disagreement with management as a financial accounting, reporting, or auditing matter, whether or not resolved to our satisfaction, that could be significant to the financial statements or the auditor's report. We are pleased to report that no such disagreements arose during the course of our audit.

Corrected and Uncorrected Misstatements

Professional standards require us to accumulate all known and likely misstatements identified during the audit, other than those that are trivial, and communicate them to the appropriate level of management. None of the misstatements detected as a result of audit procedures and corrected by management were material, either individually or in the aggregate, to the financial statements taken as a whole. The following summarizes uncorrected misstatements of the financial statements:

- The total pension liability, as calculated by the actuary, is based on census information that is either incomplete or inaccurate. The total pension liability would be different had accurate and complete information been provided to the actuary.

- In the schedule of changes in the city's net pension liability and related ratios (Legacy Plan), covered payroll is required to be presented. This information was unavailable and has been noted as not available.

- The money-weighted rate of return, net of investment expenses for the pension plans calculated return is 28.31 percent. We are unable to audit this rate of return.

Management has determined that their effects are immaterial, both individually and in the aggregate, to the financial statements taken as a whole.

Significant Findings or Issues

We generally discuss a variety of matters, including the application of accounting principles and auditing standards, business conditions affecting the System, and business plans and strategies that may affect the risks of material misstatement, with management each year prior to our retention as the System's auditors. However, these discussions occurred in the normal course of our professional relationship, and our responses were not a condition of our retention.

Management Representations

We have requested certain representations from management that are included in the management representation letter dated November 30, 2021.

Management Consultations with Other Independent Accountants

In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a second opinion on certain situations. If a consultation involves application of an accounting principle to the System's financial statements or a determination of the type of auditor's opinion that may be expressed on those statements, our professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To our knowledge, there were no such consultations with other accountants.

Section III - Other Recommendations and Related Information

During our audit, we noted areas where we believe there are opportunities for the System to further strengthen internal control or to increase operating efficiencies. Our observations on those areas are presented below for your consideration:

Investment Distributions

- The System receives investment cash distributions for interest, dividends, return of capital, and other investment-type income. While the majority of the distributions are received by the System's custodian, Bank of New York, there are distributions that also run through the passive investments. The controls over these distributions are critical to ensuring that all distributions that should go to the System ultimately are received.

  When the System sets up a new alternative investment, such as private equity and hedge funds, subscription agreements are signed by authorized individuals of the System (i.e., trustees and executive director). The agreements may also assign the chief investment officer (CIO) to be the authorized agent on behalf of the System, include a list of individuals that the investment fund should include in some of its correspondences, and indicate the Bank of New York banking information where future distributions are to be sent.

  As an authorized agent, the CIO is able to change the wire instructions after they are initially established. As a detective control to ensure inappropriate changes are not made, when a distribution is sent, in most cases the investment funds send distribution letters simultaneously to the accounting staff at the System in addition to the CIO, which can then be reconciled to the receipt. This control is imperative to ensure distribution wire instructions are correct and funds are being properly received by the designated Bank of New York account.

  As there are some investments initially funded many years ago, the correspondence list and contact information may need to be updated given personnel changes at the System. This is to ensure all distribution notices are received by the accounting department and follow the System's controls - reviewing distribution notices to verify the banking information and follow-up procedures to verify that all current distributions are ultimately received.

- The System's components of investment income are separated in the general ledger and in the financial statements between (a) interest income, dividend income, and other income and (b) net increase (decrease) in fair value of investments (which includes realized and unrealized gains and losses). The plan's current processes and controls do not always result in an accurate allocation between these two components of investment income, although in total investment income would not be affected.

  For investments where Bank of New York is the custodian of the System's investments, the accounting department records the activity using the individual investment reports as the source document. The System appropriately performs a reconciliation of these amounts monthly.

  For investments for which Bank of New York is not the custodian, the accounting department uses information obtained on each distribution notice to determine the income statement classification of the funds received. While the System's processes and controls have improved significantly in this reporting from prior years, during the audit we identified certain adjustments between the classification of investment income. To be clear, this does not have an effect on the System's end of year net position but is merely a misclassification between these two types of income accounts; however, proper accounting is critical to ensure the plan's accounting supports the underlying transactions that are occurring and supports the accuracy of the System's external financial reporting.

  As distribution notices and capital statement formats differ between investment funds, we recommend the System's accounting department continue to work with the chief investment officer on any uncertain distributions to properly classify the distribution within the System's general ledger.

Benefit Payment Classification

The System processes monthly benefit payments for each retiree that are summarized and journalized in a monthly entry. These monthly payroll entries are based on the plan to which each retiree is coded (Component II or I). During testing, it was identified that some individuals' pensions are incorrectly classified between Component I and Component II. While the number of individuals incorrectly classified was insignificant, we recommend the System implement a control to ensure proper classification of members in the IT system. This will become more important as the longevity of Component I grows.

Information Technology Processes

- Currently, there is no formal process to fill out a production release form. Usually a member of the IT department will inform Ray Tchou to review a production change. Ray is the only individual with the ability to release a production change. We recommend the System have a formal policy for individuals to submit a production release form to document change requests and maintain proper support of approval of any changes.

- It was noted there are administrative user profiles that remained in the System for users no longer employed at the System. These profiles have remained active, as staff need to access old files. In addition, we noted duplicate administrative user profiles for current employees. We recommend the System perform a user profile review and only allow one user profile for each current employee and that user profiles for former employees be immediately deleted upon ceasing employment.

Benefit Payment Calculations

Pension factors are used in calculating an individual's pension payment based on age and option selected. Currently, the pension factor used in the calculation of benefit payments is using an old mortality table (1984 table) and a 7.5 percent rate of return. Pension factors should be updated with a newer mortality table (RP-2014 Mortality Table is currently being used in the actuarial valuations) and rate of return of 6.75 percent (current rate of return used for funding purposes, as stipulated by the Plan of Adjustment). Our understanding is the System will update these amounts once the benefit calculation software is implemented.

Informational Items

Income Stabilization Fund

As you are aware, based on the Plan of Adjustment, the investment committee may recommend to the board of trustees that a portion or all of the assets that exceed the income stabilization benefits to be paid in the future be used to fund regular pension payments (up to $35 million). This is allowed beginning in 2022 and requires agreement from at least 75 percent of the independent members of the investment committee on the recommendation. As of June 30, 2021, the Income Stabilization Fund's net position was $14,210,563. The investment committee may want to utilize this option; if so, it will need to utilize an actuary to assist in making this determination.

Upcoming Accounting and Auditing Standards - Fiscal Year Ending June 30, 2022

AICPA State and Local Government Client Affiliates

The AICPA has adopted a revised auditor independence interpretation, which impacts entities reporting under the GASB framework. The new rules define four types of affiliates (entities affiliated with your financial statements) that may expand the scope of required auditor independence as it relates to your audit. Under these revised standards, one type of affiliate includes certain investments held by the audit client. For the System, it is possible that you hold several investments that meet the definition of an affiliate and, therefore, require independence.

Because auditor independence is a shared responsibility between your organization and Plante & Moran, PLLC, you should be aware of and understand these changes. In addition, we will need your help to perform an initial evaluation under these revised standards and will also likely need your continuing assistance to comply with these rules in the future. The changes are effective for years beginning after December 15, 2021, which means we must be independent of your affiliates as of the first day of the year of required adoption, or July 1, 2022. For more information on these changes, please view our on-demand webinar here.

Auditor Reporting Standards

The AICPA Auditing Standards Board (ASB) issued several new standards which are coming effective shortly, that will significantly change the independent auditor's report and make some changes to certain required audit procedures. The standards discussed below are both first effective for your fiscal year ending June 30, 2022.

Statement on Auditing Standards No. 137 addresses auditors' responsibilities relating to "other information included in annual reports." This new standard may increase the scope of audit procedures and may result in some audit work being performed outside of the normal timing. To the extent that the System issues a document meeting the AICPA's definition of an annual report under the standard, additional audit procedures will need to be performed on these separate documents before issuance.

Statement on Auditing Standards No.134 requires changes in the form and content of the auditor's report issued as a result of an audit of financial statements in order to provide financial statement users with more meaningful information about the audit process and meaning of auditor opinions. This is the first significant change to auditor's reports in years.

Significant elements of the new standard include the following:

- Revised order for elements of the opinion letter, including moving the auditor's opinion to the top of the letter
- Expansion of information to be included within a basis of opinion section and notification to the user that the auditor is required to be independent of the entity and to meet other ethical responsibilities
- Explanation of how misstatements to financial statements are determined to be material
- Addition of definition of "reasonable assurance" and identifying that the risk of material misstatement due to fraud is greater than the risk due to error
- Enhanced reporting related to going concern, including a description of management's responsibilities when required by the applicable reporting framework
- Description of the auditor's responsibilities, including responsibilities relating to professional judgment and professional skepticism, internal controls, identification of risks of material misstatement to the financial statements, evaluation of accounting policies used, conclusion on the entity's ability to continue as a going concern, and the auditor's communications with those charged with governance

We are happy to discuss these changes with you so that you are well prepared.

GASB Statement No. 87 - Leases

This new accounting pronouncement will be effective for reporting periods beginning after June 15, 2021. This statement requires recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and recognized as inflows of resources or outflows of resources based on the payment provisions of the contract. It establishes a single model for lease accounting based on the foundational principle that leases are financings of the right to use an underlying asset. Under this statement, a lessee is required to recognize a lease liability and an intangible right-to-use lease asset, and a lessor is required to recognize a lease receivable and a deferred inflow of resources.

Section III - Other Recommendations and Related Information (Continued)

We recommend beginning to accumulate information now related to all significant lease agreements in order to more efficiently implement this new standard once it becomes effective.

Plante & Moran, PLLC has already provided several trainings on this new standard, which are all available on demand if you missed the original sessions or want a refresher. We also have a workaid available to help you implement the new standard. Please reach out to us for assistance in getting started; we are happy to help.

General Retirement System of the City of Detroit

Financial Report
with Supplemental Information
June 30, 2021

Contents

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Independent Auditor's Report

To the Board of Trustees
General Retirement System of the City of Detroit

Report on the Financial Statements

We have audited the accompanying financial statements of the General Retirement System of the City of Detroit (the "System") as of and for the year ended June 30, 2021 and the related notes to the financial statements, which collectively comprise the General Retirement System of the City of Detroit's basic financial statements, as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the General Retirement System of the City of Detroit as of June 30, 2021 and the changes in its fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

To the Board of Trustees
General Retirement System of the City of Detroit

Other Matters

Required Supplemental Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and other required supplemental information, as identified in the table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, which considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplemental information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Supplemental Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the General Retirement System of the City of Detroit's basic financial statements. The other supplemental information, as identified in the table of contents, is presented for the purpose of additional analysis and is not a required part of the basic financial statements.

The other supplemental information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the other supplemental information is fairly stated in all material respects in relation to the basic financial statements as a whole.

Plante & Moran, PLLC

November 30, 2021

As management of the General Retirement System of the City of Detroit (DGRS or the “System”), we offer readers this narrative overview and analysis of the financial activities for the year ended June 30, 2021.

Using This Annual Report

This annual report consists of three parts: (1) management's discussion and analysis (this section), (2) the basic financial statements, and (3) the required supplemental information. The financial statements also include notes that explain some of the information in the financial statements and provide more detailed data. The financial statements are followed by sections of required supplemental information that further explain and support the information in the financial statements.

Financial Highlights

There have been great strides in tackling the coronavirus pandemic. Although the virus has not been eradicated, we are now in a better economic position than we were last year at this same point in time. Businesses are open, many at normal capacity. The federal stimulus provided to businesses and citizens has had mixed results. It has put more money in the hands of those who really needed it, while also allowing for excess cash for others to be invested in the U.S. financial markets. The excess money in the economy has brought on some challenges. Businesses are having a tough time finding employees to staff their operations, limiting some organizations' ability to maximize profits, and inflation is on the rise. Home prices are up nearly 20 percent, and inflation is up nearly 4 percent. Overall, the financial markets have been strong this year, allowing for double-digit returns benefiting the System and its membership.

Here at the System, we have returned to the office. While still adhering to COVID-19 safety recommendations, most employees are working in the office three days per week and working remotely two days per week.

Maximizing the use of technology remains a priority for the System. Through the use of technology, we will continue work to improve our members' experience dealing with the System and to streamline our internal processes. With that thought in mind, various components of the new ERP system have been brought online and made available to our members. The current features available relate to payroll and annuity. These two areas represent just a small portion of the ERP system's capabilities. We look forward to more features coming online as the year progresses.

This year, the City of Detroit, Michigan (the "City") adopted the provisions of GASB Statement No. 84. As part of that implementation, it was determined that the Death Benefit Fund was no longer a fiduciary activity of the City and would be excluded from the City's financial statements. As a result, the System's board of trustees, wanting to ensure the Death Benefit Fund continued to get reported and audited, concluded to change the reporting focus on the system financial statements from just reporting on the pension plans to a full reporting on the System by now including the Death Benefit Fund in the system financial statements.

Condensed Financial Information

The tables below compare key financial information in a condensed format between the current year and the prior year:

	2021	2020
Assets	$ 2,170,799,791	$ 1,865,118,309
Liabilities	93,946,613	80,261,165
Fiduciary Net Position		
Restricted:		
Pension	2,046,753,718	1,760,362,269
Postemployment benefits other than pension	30,099,460	24,494,875
Total fiduciary net position	**$ 2,076,853,178**	**$ 1,784,857,144**

	2021	2020
Additions		
Net investment income (loss):		
Interest, dividends, and other income	$ 37,998,415	$ 65,120,608
Net increase in fair value of investments	429,689,222	(73,621,461)
Investment-related expenses	(9,999,193)	(8,077,985)
Net investment income	457,688,444	(16,578,838)
Securities lending income	523,749	322,235
Contributions:		
Employer	59,705,774	60,529,703
Employee	14,634,129	16,028,824
Foundation	375,000	375,000
Total contributions	74,714,903	76,933,527
ASF recoupment interest	6,739,858	6,214,543
Transfer from Component II to Component I	-	1,178,130
Other income	870,543	1,889,540
Total additions	540,537,497	69,959,137
Deductions		
Benefit payments	228,564,857	233,118,633
Member refunds and withdrawals	15,465,278	12,242,608
Transfer to Component I from Component II	-	1,178,130
General and administrative expenses	3,339,815	3,893,024
ASF recoupment write-off	1,171,513	1,710,757
Total deductions	248,541,463	252,143,152
Net Increase (Decrease) in Net Position Held in Trust	**$ 291,996,034**	**$ (182,184,015)**

Fund Overview, Membership, and Governance

The pension plans of the General Retirement System of the City of Detroit consist of defined benefit pension plans and defined contribution plans for the nonuniformed employees of the City of Detroit, Michigan, composed of Component I and Component II, which are memorialized in a document titled the Combined Plan for the General Retirement System of the City of Detroit, Michigan, made effective July 1, 2014, as amended and restated December 8, 2014 (the “Combined Plan”). The System also manages open and closed death benefit funds (collectively, the "Death Benefit Plans"). The Death Benefit Plans are held in a separate trust; the board of the Death Benefit Plans is substantially the same as the board of the pension plans. This discussion and its accompanying financial statements are concerned primarily with Component I, a new pension plan created by the City effective July 1, 2014 for active nonuniformed employees of the City to earn pension benefits on and after that date (also referred to as the “Hybrid Plan”), and Component II, the legacy pension plan where benefits were earned through June 30, 2014 (the "Legacy Plan").

As discussed in greater detail below, at the conclusion of the 2014 fiscal year, the City froze Component II. The freeze of Component II, which was the pension plan that existed as of June 30, 2014, means that no further benefit accruals occurred after that date, and no new employees are allowed to participate as members.

DGRS exists to pay benefits to its members. Members of the System include active nonuniformed city employees, retirees, and their beneficiaries. Active members still employed with the City on and after July 1, 2014 earn service credit that entitles them to receive benefits in the future in Component I but not in Component II, which, as noted above, has been frozen. Both the employer and municipal plan sponsor for the System, the City, and actively employed members have historically contributed to the System (the employee contributions were voluntary prior to July 1, 2014). Retirees, their beneficiaries, and disabled members are those currently receiving benefits, though the City elected in fiscal year 2015 to transition new disability claims from the benefit program administered by the System to one administered by a third-party insurance carrier.

Component I of DGRS is a newly created plan (effective July 1, 2014), with more active members earning service credit than members eligible to receive or receiving benefits. As of June 30, 2020, there were 5,106 active members, with 508 retirees and 880 terminated plan members entitled to but not yet receiving benefits.

Component II of DGRS is a relatively mature plan in that there are more members receiving current benefits than active members. As of June 30, 2020, in Component II there were 2,403 active members, with 11,220 members receiving benefits and 2,728 terminated plan members entitled to but not yet receiving benefits. On June 30, 2014, the emergency manager of the City of Detroit, Michigan issued Order No. 30, which froze Component II. After that date, no new employees were allowed to participate in Component II, and benefit accruals for members with respect to service rendered prior to July 1, 2014 were frozen based on the member's years of service, average final compensation, and the pension multiplier formula as of the freeze date. Employees working after July 1, 2014 are now earning service credit in the Hybrid Plan, or Component I.

By way of background, a brief review of the City's migration from the Legacy Plan to the Hybrid Plan is appropriate. On June 30, 2014, the emergency manager of the City of Detroit, Michigan issued Order No. 30, which froze Component II. After that date, no new employees were allowed to participate in Component II, and benefit accruals for members with respect to service rendered prior to July 1, 2014 were frozen based on the member's years of service, average final compensation, and the pension multiplier formula as of the freeze date. Employees working after July 1, 2014 are now earning service credit in the Hybrid Plan, or Component I. On July 1, 2014, the City first published the Combined Plan with the city clerk. By August 1, 2014, the City completed the payroll information systems project transitions required to allow the now mandatory employee contributions to be contributed to Component I.

On October 19, 2014, the emergency manager issued Order No. 43, which amended and restated the Combined Plan. On December 8, 2014, before leaving office, the emergency manager issued Order No. 44, which again amended and restated the Combined Plan. According to Order No. 44, the latest amendments and restatements to the Combined Plan conformed the combined plan terms to the requirements of the City's bankruptcy plan and made clarifying modifications. The Combined Plan is available at DGRS' website, www.rscd.org.

In December 2014, DGRS governance was modified as part of the City's bankruptcy plan. DGRS is governed by a board of trustees (the “Board”). Although DGRS' investment management is now the ultimate responsibility of a seven-member investment committee (the “Investment Committee”), the Board maintains its role as the governing board vested with responsibility for the general administration, management, and operation of the System, with which the Investment Committee assists, pursuant to Michigan law.

The Board is composed of 10 members. Five members are elected by the active membership to serve six-year terms. A sixth member is elected by the retiree membership to serve a two-year term. A seventh member is appointed by the mayor of the City of Detroit, Michigan from the citizens of the City to serve a six-year term. The three remaining members serve ex officio, these members being the mayor of the City (or designee), the city treasurer, and one representative from the Detroit City Council. Expirations of terms of elected trustees are staggered, while the remaining trustees serve in accordance with their office or as a designee of an office.

The Investment Committee has five independent members appointed to initial terms with staggered expirations, which terms will all eventually become six years. Two additional members, one active and one retired, serve on the Investment Committee based on appointment by the Board. The Investment Committee will be in place through at least December 2034.

Contributions to the System

Historically, both the City and active employees have made regular contributions to the System, with employee contributions being optional in Component II, essentially before July 1, 2014, though there was a period of transition due to the City's aging information technology infrastructure, which meant that voluntary employee contributions to Component II continued through July 2014, and mandatory employee contributions to Component I from active payroll were implemented as of August 1, 2014.

Basic pension and disability benefits in Component II had been funded through employer contributions plus investment earnings on those contributions, but employee contributions are mandatory in Component I. The required employer contributions had been determined by the System's actuaries using the entry age normal cost method, which is still the case. Assumptions used by the actuaries are subject to experience testing every five years, which is also still the case. Effective December 10, 2014, as part of the resolution of the Chapter 9 case, the investment return assumption and discount rate used by the System's actuary for the purpose of determining the System's assets and liabilities for funding purposes was fixed at 6.75 percent through the period ending June 30, 2023. This applies to both Component I and Component II.

The obligations for contributions to support Component II of the System through 2023 are determined as fixed amounts by the provisions in the Plan of Adjustment. Pursuant to the Plan of Adjustment, the System is expected to receive contributions totaling $718.6 million through fiscal year 2023. The Plan of Adjustment calls for the System to receive $98.8 million from the State of Michigan; $428.5 million from the Detroit Water and Sewer Department (DWSD); $31.7 million from UTGO settlement proceeds; the present value equivalent or actual contribution of $50 million from the Detroit Institute of Arts (DIA) and its foundation donors during a 10-year period ending in 2024; the present value equivalent or actual contribution of $18.3 million per year from 2025 through 2034 from certain foundations; and $114.6 million from the other city-related employer contribution sources, such as the General Fund, Detroit Library Commission, and COBO Authority, over a 10-year period covering fiscal year 2014 through fiscal year 2023. After 2023, the City and various other employer constituents, such as the library, DWSD, and COBO Authority, will retain responsibility for the full funding obligations of Component II of the System, consistent with Michigan law.

The Plan of Adjustment allows for certain of the Legacy Plan's funding obligations to DGRS through 2034 to be met by prepayment of the present value equivalent using a discount rate of 6.75 percent. In the fiscal year ended June 30, 2016, a portion of the DIA obligation to make annual $5 million contributions over 10 years ending in 2034 was prepaid. This present value prepayment resulted in DGRS receiving $32,511,827 on June 30, 2016 from the DIA, which represents the present value, using a 6.75 percent discount rate, of $4,625,000 per year for the 9 years remaining on that annual $5,000,000 commitment ending in 2024. Pursuant to the Plan of Adjustment, DGRS still expects to receive the equivalent or actual remaining $375,000 per year from the DIA for that 10-year period ending in 2024 and also received, on June 30, 2016, the amount of $375,000 in satisfaction of the fiscal year 2016 obligation from the DIA that was not prepaid.

In addition, the City was to remit payments on the UTGO Stub Bonds to the Combined Plan through 2028. In fiscal year 2017, the City of Detroit, Michigan refunded all of its outstanding UTGO Stub Bonds. Upon refunding, the payments to the Combined Plan were accelerated, with a majority of the outstanding balance paid to the Combined Plan in fiscal year 2017; as a result, the Combined Plan received approximately $7.7 million in the ISP and $18.3 million in Component II related to this transaction.

With respect to Component I, the Hybrid Plan, nonuniformed employees who are members of DGRS are now required to make mandatory contributions of 4 percent of pay toward their defined benefit pensions earned with the City, and the City contributes an additional 5 percent of pay. The City no longer counts overtime in the calculation of its employer contribution.

The City is also setting aside an additional 0.75 percent of payroll to meet the premium payments required for the disability insurance established with a third-party carrier. DGRS is not administering those disability benefits managed by the third-party carrier.

On June 30, 2021, the City met its obligation for Component I employer contributions by contributing $11,690,984 to DGRS.

Impact of City of Detroit, Michigan Collective Bargaining and Bankruptcy Pension Adjustments

Pursuant to Emergency Manager Order No. 30, the existing Component II defined contribution plan and defined benefit plan were frozen, preventing any future accruals or new members in Component II effective June 30, 2014.

The following changes became effective July 1, 2014, with the advent of Component I:

- The Hybrid Plan's defined benefit plan commenced with mandatory contributions of 4 percent of base pay. The City contributes 5 percent of employee base pay, not including overtime.
- A new Hybrid Plan defined contribution plan commenced for the annuity savings fund. Employees may make voluntary annuity savings fund contributions of up to 7 percent of total after-tax pay. Interest will be credited at the actual net investment rate of return of DGRS, but in no event will it be lower than 0 percent or higher than 5.25 percent.
- The Hybrid Plan provides that future duty disability and nonduty disability retirement allowances for members who become disabled after July 1, 2014 move to a commercial insurance program through the City.

Benefit Payments

The System exists to pay the benefits that its members have earned pursuant to benefits promised by the City, subject to the Chapter 9 case benefit adjustments going forward in the Legacy Plan and the new promises in the Hybrid Plan. Benefits are paid monthly. In fiscal year 2021, DGRS paid out $242,800,000 in benefits, consisting of $227,300,000 in benefits to retirees and beneficiaries plus $15,500,000 in refunds of annuity savings fund balances and mandatory contributions. The benefits and refunds represent approximately 12 percent of the net position of the System as of June 30, 2021. Employer, foundation, and employee contributions were $74,500,000, or 4 percent of the net position of the System. The excess of benefits over contributions of $168.3 million is funded through investment income. The public capital markets represent the primary source of opportunities to earn investment income.

Asset Allocation

The Board and the Investment Committee of DGRS believe that the principal determinant of total fund investment performance over long periods of time is asset allocation. DGRS' asset allocation is built upon the foundation that the obligations of the System to pay the benefits promised to its members are very long-term obligations. Accordingly, the Board and the Investment Committee must make investment decisions that they believe will be the most beneficial to the System over many years, not just one or two years.

DGRS has established asset allocation policies that are expected to deliver investment income over a very long period of time to satisfy the obligations to pay the benefits promised to the members of the System. The following is a summary of the DGRS asset allocation policy as of June 30, 2021:

Asset Class	Target Allocation
Global equity	46.00 %
Global fixed income	33.00
Real estate/Real assets	13.00
Diversifying strategies	8.00

DGRS' asset allocation policies comply with Michigan law.

Investment Results

DGRS calculates investment results on a time-weighted Global Investment Performance Standard (GIPS) basis unless explicitly stated otherwise. All returns for periods of one year or greater have been annualized.

Total Fund Composite

DGRS' total fund composite return for the year was 28.3 percent, net of fees and expenses using a time-weighted methodology. The fund returned 9.9 percent, 10.2 percent, and 8.3 percent for its 3-, 5-, and 10-year annualized returns, respectively, net of fees and expenses.

Financial markets wrapped up the fiscal year ended June 2021 at record highs, yielding strong returns for the DGRS portfolio, with investors defying pessimistic projections of a broader pullback and pushing past concerns of rising inflation and potential rate hikes.

Outweighing these concerns, the dramatic changes brought on by successful COVID-19 vaccination efforts helped fuel an economic comeback. Financial markets have also been bolstered by significant spending from Congress and an aggressive monetary policy from the Federal Reserve, as well as improving corporate earnings.

As part of the resolution of the City of Detroit, Michigan's Chapter 9 bankruptcy case, the discount rate assumption used to meet current and future benefit obligations was set at 6.75 percent through the period ending June 30, 2023. This discount rate assumption provided in the Chapter 9 case does not purport to establish an investment return assumption or discount rate for purposes of, or in accordance with, generally accepted accounting principles. Although the fund's return for this year fell below this assumption, the fund's longer-term return expectation, which this assumption is intended to characterize, still exceeds this assumption.

Total plan returns, net of fees and expenses, for the recent prior fiscal years ended June 30 are shown below:

2020	(0.96)%
2019	3.40
2018	6.50
2017	14.10
2016	1.40
2015	2.60
2014	14.50
2013	11.70
2012	0.10

Money-weighted Rate of Return

GASB Statement No. 67 requires the disclosure of the annual money-weighted rate of return. A money-weighted rate of return (as opposed to the time-weighted rate of return discussed in the previous section) considers both the size and timing of cash flows over the course of the year to determine an internal rate of return (sometimes referred to as IRR). This return is calculated net of expenses and uses cash flows determined on a monthly basis. The DGRS money-weighted rate of return for the year using month-end cash flows was 28.31 percent.

Requests for Further Information

This financial report is intended to provide a general overview of the System's finances and investment results in relation to actuarial projections. It shows the System's accountability for the money it receives from employer and employee contributions. If you have questions about this report or need additional information, we welcome you to contact the System's office or visit its website at www.rscd.org.

Statement of Fiduciary Net Position

June 30, 2021

	Component II Plan (Legacy)		Component I Plan (Hybrid)		
	Defined Benefit Fund	Income Stabilization Fund	Defined Benefit Fund	Death Benefit Plans	Total
Assets					
Cash and cash equivalents (Note 3)	$ 18,515,365	$ 257,274	$ 4,203,304	$ 1,866,631	$ 24,842,574
Investments: (Notes 3 and 4)					
Global equities	860,095,029	6,755,683	98,246,942	17,528,704	982,626,358
Global fixed income	315,709,740	3,090,359	46,988,043	2,360,426	368,148,568
Real estate	211,477,802	1,661,069	24,821,447	2,067,511	240,027,829
Private equity	113,487,179	891,397	12,963,415	233,318	127,575,309
Diversifying strategies	193,992,595	1,523,730	22,159,387	6,063,736	223,739,448
Receivables:					
Investment income	1,761,023	13,832	201,155	-	1,976,010
Contributions (Note 1)	-	-	2,814,486	-	2,814,486
Other receivables	2,442,416	17,919	-	-	2,460,335
ASF recoupment receivable (Note 1)	97,994,122	-	-	-	97,994,122
Notes receivable from participants	2,972,014	-	510,483	-	3,482,497
Receivables from investment sales	3,179,136	24,971	363,146	-	3,567,253
Cash and investments held as collateral for securities lending: (Note 3)					
Asset-backed securities	4,067,132	31,946	464,580	-	4,563,658
Certificate of deposit	9,247,183	72,633	1,056,287	-	10,376,103
Repurchase agreements	14,863,156	116,744	1,697,789	-	16,677,689
U.S. corporate floating rate	42,611,354	334,694	4,867,410	-	47,813,458
Commercial paper	2,450,394	19,247	279,904	-	2,749,545
Money market funds	4,417,678	34,699	504,623	-	4,957,000
Capital assets - Net (Note 1)	2,647,165	-	1,760,384	-	4,407,549
Total assets	1,901,930,483	14,846,197	223,902,785	30,120,326	2,170,799,791
Liabilities					
Accrued expenses	2,765,946	6,007	852,348	20,866	3,645,167
Payables for investment purchases	3,571,443	28,052	407,959	-	4,007,454
Due to the City of Detroit, Michigan	354,690	-	-	-	354,690
Amounts due to broker under securities lending agreements (Note 3)	76,589,106	601,575	8,748,621	-	85,939,302
Total liabilities	83,281,185	635,634	10,008,928	20,866	93,946,613
Net Position - Restricted for					
Pension	1,818,649,298	14,210,563	213,893,857	-	2,046,753,718
Postemployment benefits other than pension	-	-	-	30,099,460	30,099,460
Total net position	**$ 1,818,649,298**	**$14,210,563**	**$ 213,893,857**	**$30,099,460**	**$ 2,076,853,178**

See notes to financial statements.

Statement of Changes in Fiduciary Net Position

Year Ended June 30, 2021

	Component II Plan (Legacy)		Component I Plan (Hybrid)		
	Defined Benefit Fund	Income Stabilization Fund	Defined Benefit Fund	Death Benefit Plans	Total
Additions					
Investment income (loss):					
Interest, dividends, and other income	$ 34,154,617	$ 255,386	$ 3,408,358	$ 180,054	$ 37,998,415
Net increase in fair value of investments	381,308,190	2,848,035	38,971,158	6,561,839	429,689,222
Investment-related expenses	(8,937,713)	(67,403)	(919,077)	(75,000)	(9,999,193)
Net investment income	406,525,094	3,036,018	41,460,439	6,666,893	457,688,444
Securities lending income:					
Interest and dividends	189,807	1,411	18,556	-	209,774
Net gain on collateralized securities	263,015	2,463	48,497	-	313,975
Total securities lending income	452,822	3,874	67,053	-	523,749
Contributions:					
Employer	47,900,000	-	11,690,984	114,790	59,705,774
Employee	-	-	14,517,266	116,863	14,634,129
Foundation	375,000	-	-	-	375,000
Total contributions	48,275,000	-	26,208,250	231,653	74,714,903
ASF recoupment interest (Note 1)	6,739,858	-	-	-	6,739,858
Other income	837,019	1,280	32,244	-	870,543
Total additions - Net	462,829,793	3,041,172	67,767,986	6,898,546	540,537,497
Deductions					
Benefit payments	225,790,173	530,184	986,730	1,257,770	228,564,857
Member refunds and withdrawals	11,333,604	-	4,131,674	-	15,465,278
General and administrative expenses	1,987,194	-	1,316,430	36,191	3,339,815
ASF recoupment write-off	1,171,513	-	-	-	1,171,513
Total deductions	240,282,484	530,184	6,434,834	1,293,961	248,541,463
Net Increase in Fiduciary Net Position	222,547,309	2,510,988	61,333,152	5,604,585	291,996,034
Net Position Restricted for Pension/OPEB - Beginning of year	1,596,101,989	11,699,575	152,560,705	24,494,875	1,784,857,144
Net Position Restricted for Pension/OPEB - End of year	**$ 1,818,649,298**	**$14,210,563**	**$ 213,893,857**	**$30,099,460**	**$ 2,076,853,178**

See notes to financial statements.

Note 1 - Significant Accounting Policies

Reporting Entity

The pension plans of the General Retirement System of the City of Detroit (the "System" or DGRS) and the Death Benefit Funds are managed by the Retirement System of the City of Detroit. The City of Detroit, Michigan (the "City") sponsors these plans, which consist of four single-employer retirement plans - two pension plans (the "Combined Plan") and two other postemployment benefit plans (the "Death Benefit Plans"), as described below.

In previous years, the pension plans and Death Benefit Funds were reported as fiduciary funds of the City of Detroit, Michigan. In the current year, due to the City's implementation of GASB Statement 84, *Fiduciary Activities*, the pension plans and Death Benefit Funds are no longer reported in the City's financial statements. This is the first year that the Death Benefit Funds are included in these separately issued financial statements for the System.

Pension Plans

Component II

This is the legacy plan (the "Legacy Plan") that is the original defined benefit plan, which includes a defined benefit component and a defined contribution component. Component II generally applies to benefits accrued by members prior to July 1, 2014. On June 30, 2014, as a result of negotiations between the City and the public employee unions, the existing plan benefit formulas were frozen, and no employees were allowed to earn benefits under the existing plan. The emergency manager issued Order No. 30 (General Retirement System of the City of Detroit) on June 30, 2014, which put these changes into effect. Except as specifically provided in the Combined Plan, benefits provided under Component II are frozen effective June 30, 2014.

Component II also includes the Income Stabilization Fund. The fund, which is part of Component II only and established as a special plan of adjustment provision, was established for the sole purpose of paying the Income Stabilization Benefits and Income Stabilization Benefits Plus to eligible pensioners. A portion of the funds received by the Combined Plan from UTGO Stub Bonds tax proceeds is credited to the Income Stabilization Fund. The allocation is based on the aggregate payments to plan assignees included in the Eighth Amended Plan for the Adjustment of Debts of the City of Detroit (the "Plan of Adjustment" or the "POA"). After 2022, the Investment Committee may recommend to the board that a portion or all of the assets that exceed income stabilization benefits (including Income Stabilization Benefits Plus) to be paid in the future be used to fund regular pension payments.

Nonemployer Contributing Entity within Component II

On September 9, 2014, a memorandum of understanding (the "MOU") was entered into by the emergency manager and mayor of the City of Detroit, Michigan; the county executive of each of the charter counties of Wayne and Macomb, Michigan; the County of Oakland, Michigan; and the governor of the State of Michigan. The purpose of the MOU was to establish a framework for the creation of a regional authority (known as Great Lakes Water Authority or GLWA) pursuant to Act 233 of 1955 to operate, control, and improve the regional assets of the water supply system and the sewage disposal system owned by the City.

Pursuant to the MOU, the City of Detroit, Michigan and GLWA entered into two lease agreements: the Regional Water Supply System Lease dated June 12, 2015 and the Regional Sewage Supply System Lease dated June 12, 2015. Under the provisions of the lease agreements, GLWA leases the regional assets of the City for a period of at least 40 years.

Note 1 - Significant Accounting Policies (Continued)

Pursuant to the lease agreements, on December 1, 2015, a triparty agreement between the City of Detroit, Michigan; the General Retirement System of the City of Detroit (DGRS); and GLWA was signed (referred to as the pension reporting agreement). Per the POA and Section 4.3 of the lease agreements, GLWA is required to pay a portion of the pension obligation that will be allocable to the Detroit Water and Sewer Department (DWSD). The purpose of the pension reporting agreement is to set forth determining the funding status for the DWSD pension pool and for DGRS to agree to provide GLWA with certain actuarial and other reports to enable GLWA to properly manage and pay its portion of the pension obligation that is allocable to DWSD.

Effective January 1, 2016, GLWA was launched. Accordingly, the prior DWSD division was split into two - one representing the ongoing DWSD department, now referenced as DWSD-Retail (DWSD-R), and another to represent Great Lakes Water Authority. In accordance with the pension reporting agreement, the net position and liabilities of DWSD were allocated to DWSD-R and GLWA in accordance with written directions received from DWSD-R and GLWA. Per written directions, GLWA is to be allocated 70.3 percent of the net position and liabilities of DWSD. Because GLWA has no employees or retirees in the Combined Plan, GLWA is considered a nonemployer contributing entity in accordance with GASB Statement No. 67.

The financial statements of the Combined Plan reflect the net position and pension liabilities of the plan as a whole, which includes the portion allocable to GLWA. GLWA's portion of the total Component II net pension liability of $885,460,935 at June 30, 2021 was $65,221,328, with the remainder allocable to the City of Detroit, Michigan and related entities.

Component I

As of July 1, 2014, all current and future employees participate in the new hybrid pension plan (the "Hybrid Plan"), or Component I. Active city employees who participated in the Legacy Plan will receive the benefits they have earned under the plan through June 30, 2014 plus an additional benefit under the new hybrid plan formula, assuming all vesting requirements are met.

Other Postemployment Benefit Plans

Death Benefit Plans

Death benefits are provided to certain employees and retirees of the City of Detroit, Michigan through an employee benefit trust. The following are the benefit plans paid through the trust, both of which are defined benefit plans under GAAP:

- Closed Death Benefit Plan (Closed Plan) - This plan covers those retirees who retired on or before December 10, 2014
- Death Benefit Plan (Open Plan) - This plan is open to all employees providing services after December 10, 2014

System Reporting

The Combined Plan and the Death Benefit Plan are separate and independent trusts qualified under applicable provisions of the Internal Revenue Code; they are independent entities (separate and distinct from the employer/plan sponsor) as required by (1) state law and (2) Internal Revenue Code provisions setting forth qualified plan status. The trustees of the Combined Plan and the Death Benefit Plan have a fiduciary obligation and legal liability for any violations of fiduciary duties as independent trustees. The Combined Plan provides retirement, disability, and survivor benefits to plan members and beneficiaries. The Death Benefit Plan provides death benefits for plan members.

The assets of the System include no securities of or loans to the City or other related parties.

Note 1 - Significant Accounting Policies (Continued)

Plan Sponsor Financial Condition - Impact on the System

In the past, the City of Detroit, Michigan (the "plan sponsor") has experienced significant financial difficulty and liquidity concerns. As of June 2013, the City had defaulted on approximately $36 million of pension contributions due to the Combined Plan. During fiscal year 2014, the City did not pay any employer contributions into the Combined Plan, despite the fact that there were actuarially required contributions.

In February 2013, the governor appointed a financial review team, which determined that a local government financial emergency existed in the City. This culminated in bankruptcy proceedings, which the City initiated in July 2013. Part of the federal court's ruling in December 2013 indicated that the bankruptcy status usurped whatever protections may be offered to governmental pensions under the Michigan Constitution. On December 10, 2014, the City exited from bankruptcy through confirmation of the Eighth Amended Plan for the Adjustment of Debts of the City of Detroit. The POA specifies certain provisions pertinent to the legacy and hybrid plans, including contributions and benefits.

In fiscal year 2021, the contributions received by the Combined Plan were made in accordance with the provisions of the POA. See Note 11 for significant changes that were implemented by the Combined Plan under the POA.

The POA also resulted in the City closing the existing supplemental death benefit plan to new members effective December 10, 2014. Benefits to be paid to individuals retiring prior to that date are limited to the assets allocated to that closed plan. There are no further contribution requirements for the City for plan members who were retired as of that date.

Summary of Significant Accounting Policies

The following is a summary of the significant accounting policies used by the General Retirement System of the City of Detroit.

Accounting and Reporting Principles

The System follows accounting principles generally accepted in the United States of America (GAAP), as applicable to governmental units. Accounting and financial reporting pronouncements are promulgated by the Governmental Accounting Standards Board.

Basis of Accounting

The System uses the economic resources measurement focus and the full accrual basis of accounting. Revenue is recorded when earned, and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows. Plan member contributions are recognized in the period in which the contributions are due. Employer contributions are recognized when due pursuant to legal requirements. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

Specific Balances and Transactions

Cash and Cash Equivalents

The System considers cash on hand, demand deposits, and short-term investments with an original maturity of three months or less when purchased to be cash equivalents.

Investments

Investments are reported at fair value or estimated fair value. Short-term investments are reported at cost, which approximates fair value. Securities traded on a national or international exchange are valued at the last reported sale price at current exchange rates. Mortgages are valued on the basis of future principal and interest payments. The fair value of real estate investments is based on periodic appraisals, as well as the judgment of independent real estate advisors and management. Investments that do not have an established market value are reported at estimated fair value determined by the System's management.

Note 1 - Significant Accounting Policies (Continued)

Approximately $914,300,000, or 44 percent, of the System's net position as of June 30, 2021 does not have a readily determinable market value. Of this balance, approximately $49,500,000 has been estimated by management. The remaining $864,800,000 is valued based on valuations performed by the investee company management, which is subject to annual audits (generally as of December 31).

Investments for which market quotations are readily available are generally priced by the custodian using nationally recognized pricing services and practices. For investments that do not have readily observable market prices, including but not limited to private equity, public and private real estate, alternatives, and direct loans, management's estimate of their fair value is based on information provided by investment managers, general partners, real estate advisors, and other means. These sources are held to a standard of reasonable care in verifying that the valuations presented reasonably reflect the underlying fair value of the investments. A variety of factors is considered in the valuation process, including the nature of the investment, local market conditions, trading values on public exchanges for comparable investments, and current and projected operating performance. However, due to the inherent uncertainty and the degree of judgment involved in determining fair value for such investments, the values reflected in the financial statements may differ significantly from values that would have been used had a readily determinable market value for the investments existed, and the difference could be material.

Contributions Receivable

At June 30, 2021, there was $2,814,486 in employer contributions receivable. This amount relates to fiscal year 2021 Component I contributions and was paid in July 2021.

ASF Recoupment Receivable - Component II (Legacy)

For members who elected to make employee contributions into the defined contributions-style program, referred to as the annuity savings fund (ASF), between July 1, 2003 and June 30, 2013, the POA called for recoupment of amounts that the City calculated were excess interest credited to individual ASF accounts. In 2011, the City Council adopted an ordinance that limited ASF interest credits to the plan's actual net investment return, with a cap of 7.9 percent and a floor of 0 percent. The POA calculation of excess interest applies the interest formula in the 2011 ordinance to the July 1, 2003 - June 30, 2013 recoupment period, recouping all interest paid in excess of the lower of 7.9 percent or the plan's actual return for that year, with a cap on the recoupment amount of 20 percent of the highest ASF balance in this period. The recoupment amount is also capped at 15.5 percent of the retiree's monthly pension check. The City offered a limited lump sum or a monthly payment option. Repayment of these excess interest amounts is not optional. As of June 30, 2021, the System has approximately $98,000,000 to be collected. The receivable will be collected, with 6.75 percent interest, as a reduction to monthly pension benefits for those with recoupment balances outstanding.

Receivable/Payable from Investment Sales/Purchases

The System liquidated investments prior to year end and reported a receivable from investment sales at June 30, 2021 in the amount of $3,567,253. The proceeds from the sales were received subsequent to year end. In addition, the System purchased investments prior to year end and reported a payable from investment purchases at June 30, 2021 in the amount of $4,007,454. This amount was paid subsequent to year end.

Note 1 - Significant Accounting Policies (Continued)

Notes Receivable from Participants

In Component II (Legacy) and Component I (Hybrid), any active general employee who is or has been a participant in the 1973 defined contribution plan (annuity savings fund) may be eligible for the employee loan program. The minimum amount of the loan was established at $1,000. The maximum loan is the lesser of 50 percent of the member's account balance in the annuity savings fund or $10,000. Members can borrow as either a general purpose loan payable in 1 to 5 years or a residential loan payable in 1 to 15 years. A member can have only two outstanding loans. The balance of these loans for the year ended June 30, 2021 was $2,972,014 and $510,483 for Legacy and Hybrid, respectively. The balance is measured at the unpaid principal balance plus any accrued but unpaid interest. Participant notes receivable are written off when deemed uncollectible.

Capital Assets

Capital assets for the System include software, office equipment, and furniture. Depreciation expense is calculated by allocating the net cost of the assets over their estimated useful lives.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the Unites States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of additions and deductions during the reporting period. Actual results could differ from those estimates.

Note 2 - Pension Plan Description

Component II (Legacy Plan) and Component I (Hybrid Plan)

Plan Administration

The Combined Plan's governance was modified in December 2014 as part of the City's bankruptcy plan. The Combined Plan's board of trustees and the Investment Committee administer the General Retirement System of the City of Detroit Pension Plan - a single-employer defined benefit and defined contribution plan that provides retirement benefits, as well as survivor and disability benefits, for plan members and beneficiaries. Plan members include active employees, retirees, and beneficiaries from various departments within the City of Detroit, Michigan. Benefit terms have been established by contractual agreements between the City and the employees' collective bargaining unit, as modified by the POA. Future amendments are subject to the same process. However, pursuant to the POA, pension benefit terms presently expressed in the Combined Plan are not subject to amendment before June 30, 2023, unless an amendment is required to maintain the tax-qualified status of the plans. The obligation to contribute to and maintain the Combined Plan was established by the city charter and negotiations with the employees' collective bargaining units.

The board is composed of 10 members. Five members of the board are elected by the active membership to serve six-year terms. One retiree member is elected by the retiree membership to serve a two-year term. One member is appointed by the mayor of the City of Detroit, Michigan from the citizens of the City to serve a six-year term. Three members serve ex officio, these members being the mayor of the City (or designee), the city treasurer, and one representative from the Detroit City Council. Expirations of terms of elected trustees are staggered.

The Investment Committee has five independent members appointed to initial terms with staggered expirations, which terms will all eventually become six years. Two additional members, one active and one retired, serve on the Investment Committee based on appointment by the board. The Investment Committee will be in place through at least December 2034.

Note 2 - Pension Plan Description (Continued)

Benefits Provided

The Combined Plan provides retirement and disability benefits. Benefit terms had been established by negotiations between the City Council and the employees' collective bargaining unit and subject to amendment by the City Council. Further changes to benefits were provided for under the POA.

Employees Covered by Benefit Terms

The following members were covered by the benefit terms:

	Component II (Legacy Plan)	Component I (Hybrid Plan)
Date of member count	June 30, 2020	June 30, 2020
Inactive plan members or beneficiaries currently receiving benefits	11,220	508
Inactive plan members entitled to but not yet receiving benefits	2,728	880
Active plan members	2,403	5,106
Total employees covered by the plan	16,351	6,494

As of June 30, 2014, Component II has been frozen. As of that date, no new participants were allowed to enter the plan, and no new benefit accruals were allowed for existing participants.

After July 1, 2014, active members will retain existing service credit in the Legacy Plan but will only earn existing service credit in the new Hybrid Plan.

Contributions

Article 9, Section 24 of the State of Michigan Constitution requires that financial benefits arising on account of employee service rendered in each year be funded during that year. Accordingly, in the past, the Combined Plan had retained an independent actuary to determine the annual contribution. The actuarially determined rate was the estimated amount necessary to finance the costs of benefits earned by plan members during the year, with an additional amount to finance any unfunded accrued liability. However, until 2024, contributions are based on specific provisions in accordance with the Plan of Adjustment.

Employer and Nonemployer Contributing Entity Contributions

Component II

For Component II, during fiscal year 2021, employer contributions are not actuarially determined but rather are determined by the provisions of the POA detailed under Exhibit II.B.3.r.ii.A of the POA. Included within contributions for fiscal year 2021 in Component II are contributions from the Foundation for Detroit's Future (the "Foundation") in the amount of $375,000 and $47.9 million of contributions from the city-related entities and GLWA.

Note 2 - Pension Plan Description (Continued)

Component I

For Component I, during fiscal year 2021, employer contributions are not actuarially determined but rather are determined by the provisions of the Combined Plan detailed under Section 9.3 of Component I. Per Section 9.3, commencing on July 1, 2014 and ending on June 30, 2023, the City is required to contribute 5 percent of compensation of active members. A portion of the employer's annual contribution for each plan year, as determined by the City, shall be credited to the rate stabilization fund reserve, with the remainder allocated to the pension accumulation fund reserve. During fiscal year 2021, the City and related entities contributed $11,690,984 into the Hybrid Plan. Beginning in 2024, the employer contributions will be actuarially determined based on the amount necessary to fund the plan on an actuarial basis.

Because there were no actuarially determined contributions for Component I, there is no required schedule of city contributions included within these financial statements.

Employee Contributions

Component II

Contribution requirements of plan members historically were established and amended by the board of trustees in accordance with the city charter, union contracts, and plan provisions. For the year ended June 30, 2021, there were no employee contributions into Component II, as the plan was frozen as of June 30, 2014.

Component I

Contribution requirements of plan members are established in Sections 9.3 and 10.1 of Component I of the Combined Plan. For the year ended June 30, 2021, the required active member contribution rate for employees was 4.0 percent of annual pay. Additionally, employees can make voluntary contributions of 3 percent, 5 percent, or 7 percent of annual pay. During fiscal year 2021, the plan received mandatory and voluntary employee contributions of $14,517,266.

Fiscal Responsibility Provision

To safeguard the long-term actuarial and financial integrity of the Combined Plan, in the event the funding level of Component I projected over a five-year period falls below 100 percent, certain remedial actions are required, as set forth in Section 9.5 of Component I of the Combined Plan, including elimination of COLA, transfers from the rate stabilization fund reserve to the pension accumulation fund reserve, and increases in mandatory employee contributions from 4 percent to 5 percent.

In the event the funding level of Component I is projected to fall below 80 percent, additional remedial actions are required, including further increasing the mandatory employee contributions to 6 percent and the potential for reducing the retirement allowance.

As of June 30, 2021, the enactment of the remedial actions has not been required based on actuarial projections of the funding levels.

Note 3 - Deposits and Investments

The System is authorized by Michigan Public Act 314 of 1965, as amended, to invest, within the pension and Death Benefit Funds, in certain reverse repurchase agreements, stocks, diversified investment companies, annuity investment contracts, real estate leased to public entities, mortgages, real estate, debt or equity of certain small businesses, certain state and local government obligations, and certain other specified investment vehicles.

The investment policy adopted by the board is in accordance with Public Act 196 of 1997 and has authorized investments according to Michigan Public Act 314 of 1965, as amended. The System's deposits and investment policies are in accordance with statutory authority.

Note 3 - Deposits and Investments (Continued)

The System invests in various investment securities. Investment securities are exposed to various risks, such as interest rate, market, credit risks, and overall market volatility. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect the amounts reported on the statement of changes in fiduciary net position.

The System's cash and investments are subject to several types of risk, which are examined in more detail below:

Custodial Credit Risk of Bank Deposits

Custodial credit risk is the risk that, in the event of a bank failure, the System's deposits may not be returned to it. The System does not have a deposit policy for custodial credit risk. Approximately $4.4 million of the System's checking account balances was uninsured and uncollateralized at June 30, 2021. The System believes that, due to the dollar amounts of cash deposits and the limits of FDIC insurance, it is impractical to insure all deposits. As a result, the System evaluates each financial institution with which it deposits funds and assesses the level of risk of each institution; only those institutions with an acceptable estimated risk level are used as depositories.

Interest Rate Risk

Interest rate risk is the risk that the value of investments will decrease as a result of a rise in interest rates. The System's investment policy does not restrict investment maturities.

At year end, the System had the following investments and maturities:

Investment (in Thousands)	Fair Value	Less Than 1 Year	1-5 Years	6-10 Years	More Than 10 Years
Corporate bonds	$ 170,218	$ 7,556	$ 116,700	$ 33,507	$ 12,455
U.S. government mortgage-backed securities	29,073	256	11,569	1,431	15,817
Mutual fund	36,619	-	34,259	2,360	-
Government securities	560	-	-	246	314
U.S. government securities	74,894	7,116	55,589	9,500	2,689
Asset backed	368	-	-	368	-

Not all fixed-income securities are subject to interest rate risk.

Credit Risk

State law limits investments in commercial paper to the top two ratings issued by nationally recognized statistical rating organizations. The System has no investment policy that would further limit its investment choices.

At June 30, 2021, the credit quality ratings of debt securities (other than those guaranteed by the U.S. government), as rated by Standard & Poor's, are as follows:

Investment (in Thousands)	AAA	AA	A	BBB	BB	B or lower	NR
Corporate bonds	$ 1,610	$ 1,881	$ 12,595	$ 18,051	$ 34,981	$ 26,053	$ 75,048
U.S. government mortgage-backed securities	-	15,551	-	-	-	-	-
Mutual funds	-	-	-	-	-	-	36,619
Government securities	-	686	-	-	-	-	130
Asset backed	368	-	-	-	-	-	-
Total	$ 1,978	$ 18,118	$ 12,595	$ 18,051	$ 34,981	$ 26,053	$ 111,797

Note 3 - Deposits and Investments (Continued)

Foreign Currency Risk

Foreign currency risk is the risk that an investment denominated in the currency of a foreign country could reduce its U.S. dollar value as a result of changes in foreign currency exchange rates. The System does not restrict the amount of investments in foreign currency.

The following securities are subject to foreign currency risk:

Currency (in Thousands)	Equity	Net Investment (Payable) Receivable
Brazil real	$ 1,492	$ -
British pound sterling	4,615	-
Canadian dollar	4,580	104
Chinese yuan renminbi	-	22
Eurocurrency unit	22,777	282
Hong Kong dollar	3,198	1
Japanese yen	7,972	96
Mexican peso	1,136	-
New Taiwan dollar	3,158	6
Norwegian krone	3,189	45
Singapore dollar	1,222	-
South Korean won	1,387	5
Swiss franc	1,428	108
Ukraine hryvana	1	-
Total	$ 56,155	$ 669

Securities Lending

As permitted by state statutes and under the provisions of a securities lending authorization agreement, the System, through the Combined Plan, lends securities to broker-dealers and banks for collateral that will be returned for the same securities in the future. The System's custodial bank manages the securities lending program and receives cash, government securities, or irrevocable bank letters of credit as collateral. The custodial bank does not have the ability to pledge or sell collateral securities unless the borrower defaults. Borrowers are required to deliver collateral for each loan equal to no less than 102 percent of the market value of the loaned securities.

As of June 30, 2021, the collateral provided was 102.63 percent of the market value of the loaned securities, which is more than the required 102 percent.

The System did not impose any restrictions during the fiscal year on the amount of loans made on its behalf by the custodial bank. There were no failures by any borrowers to return loaned securities or pay distributions thereon during the fiscal year. Moreover, there were no losses during the fiscal year resulting from a default of the borrowers or custodial bank.

The System and the borrower maintain the right to terminate all securities lending transactions on demand. The cash collateral received on each loan was invested, together with the cash collateral of other lenders, in an investment pool. The average duration of such investment pool as of June 30, 2021 was 27.05 days. Because the loans are terminable on demand, their duration did not generally match the duration of the investments made with cash collateral. On June 30, 2021, the System had no credit risk exposure to borrowers. The collateral held (at cost) and the fair market value of the underlying securities on loans for the System as of June 30, 2021 were $85,939,302 and $83,733,905, respectively.

Note 3 - Deposits and Investments (Continued)

The following represents the balances relating to the securities lending transactions as of June 30, 2021; investments are reported at fair value:

Securities Lent	Underlying Securities
U.S. corporate fixed income	$ 21,313,210
U.S. equities	57,262,637
Non-U.S. equities	1,828,710
U.S. governments	3,329,348
Total	$ 83,733,905

The fair market value of the collateral pool related to securities lending at June 30, 2021 was $87,137,453. The investments were in asset-backed securities, floating-rate notes, commercial paper, certificates of deposit, money funds, and repurchase agreements. Approximately 95 percent of these securities had a duration of less than 1 year, 2 percent had a duration between 1 and 3 years, and 3 percent had a duration over 15 years.

The credit ratings of the securities lending collateral pool held at June 30, 2021, as rated by S&P, are as follows:

Ratings	Amount
AAA	$ 1,780,789
AA	15,678,393
A	32,135,066
A-1	13,125,647
CC	1,825,278
D	951,228
NR	21,641,052
Total	$ 87,137,453

Note 4 - Fair Value Measurements

In accordance with GASB Statement No. 72, *Fair Value Measurement and Application*, the notes to the financial statements now include enhanced disclosures about fair value measurement, the level of fair value hierarchy, and valuation techniques.

The System categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset. Level 1 inputs are quoted prices in active markets for identical assets, Level 2 inputs are significant other observable inputs, and Level 3 inputs are significant unobservable inputs. Investments that are measured at fair value using net asset value per share (NAV) (or its equivalent) as a practical expedient are not classified in the fair value hierarchy below.

In instances where inputs used to measure fair value fall into different levels in the fair value hierarchy, fair value measurements in their entirety are categorized based on the lowest level input that is significant to the valuation. The System's assessment of the significance of particular inputs to these fair value measurements requires judgment and considers factors specific to each asset.

Note 4 - Fair Value Measurements (Continued)

The System has the following recurring fair value measurements as of June 30, 2021:

	Assets Measured at Fair Value on a Recurring Basis at June 30, 2021			
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Balance at June 30, 2021
Fixed income:				
Government securities (U.S. and other)	$ 74,894,089	$ 13,501,332	$ -	$ 88,395,421
Corporate bonds	-	169,415,736	-	169,415,736
U.S. government mortgage-backed	-	16,132,047	-	16,132,047
Asset-backed securities	-	4,931,972	-	4,931,972
Corporate floating rate notes	-	47,813,458	-	47,813,458
Certificate of deposit (negotiable)	-	10,376,103	-	10,376,103
Commercial paper	-	2,749,545	-	2,749,545
Mutual funds	36,619,345	-	-	36,619,345
Privately negotiated debt	-	803,771	-	803,771
Total fixed income	111,513,434	265,723,964	-	377,237,398
Equity:				
Common stock	698,767,728	-	-	698,767,728
Preferred stock	6,502,630	4,733,605	-	11,236,235
Total equity	705,270,358	4,733,605	-	710,003,963
Multiasset mutual fund	6,063,736	-	-	6,063,736
Private equity funds	-	-	2,800,000	2,800,000
Partnership investments	-	-	2,530,000	2,530,000
Real estate private equity funds	-	-	6,000,000	6,000,000
Real estate-related investments	-	-	38,154,643	38,154,643
Total	$ 822,847,528	$ 270,457,569	$ 49,484,643	1,142,789,740
Investments measured at NAV:				
International equity funds				303,186,126
Fixed-income funds				45,513,708
Hedge funds				217,675,712
Real estate funds				176,204,686
Private equity funds				122,250,304
Total investments measured at NAV				864,830,536
Total investments measured at fair value				$ 2,007,620,276

A total of $21,634,689 of money market funds and repurchase agreements recorded at amortized cost is not included in the fair value table above.

Equity securities, U.S. government securities, and mutual funds classified in Level 1 are valued using prices quoted in active markets for those securities.

Note 4 - Fair Value Measurements (Continued)

The fair value of preferred stock and fixed-income securities at June 30, 2021 was determined primarily based on Level 2 inputs. The System estimates the fair value of these investments using other inputs, such as interest rates and yield curves, that are observable at commonly quoted intervals for identical or similar assets.

The fair value of the remaining investments at June 30, 2021 was determined primarily based on Level 3 inputs. The System estimates the fair value of these investments using the System's own pricing estimate methodology, pricing models, discounted cash flow methodologies, or similar techniques taking into account the characteristics of the asset.

The valuation method for investments measured at net asset value per share (or its equivalent) is presented in the table below.

Investments in Entities that Calculate Net Asset Value per Share

The System holds shares or interests in investment companies where the fair value of the investments is measured on a recurring basis using net asset value per share (or its equivalent) of the investment companies as a practical expedient.

As of June 30, 2021, the fair value, unfunded commitments, and redemption rules of those investments are as follows:

	Fair Value	Unfunded Commitments	Redemption Frequency, if Eligible	Redemption Notice Period
International equity funds	$ 303,186,126	$ -	Monthly	Up to 30 days
Fixed-income funds	45,513,708	-	Daily	10 business days
Hedge funds	217,675,712	-	Quarterly	100 days
Real estate funds	176,204,686	8,220,175	Quarterly	90 days
Private equity funds	122,250,304	41,193,420	N/A	N/A
Total investments measured at NAV	$ 864,830,536	$ 49,413,595		

Multiple funds are held in each category. For reporting purposes, the redemption frequency and redemption notice period provided are the most restrictive of any of the funds in the category.

The international equity funds class includes investments in funds that invest in predominantly equity securities of non-U.S. companies. The funds invest in developed and emerging market countries and utilize investments across the capitalization spectrum from large to small companies. The fair values of the investments in this class have been estimated using net asset value per share of the investments.

The fixed-income funds class includes investments in funds that invest in predominantly fixed-income instruments in the U.S. and developed and emerging market countries. The funds invest across a diverse group of security types, including government, corporate, and mortgage-backed debt, and across the credit quality spectrum of investment grade and high yield. The fair values of the investments in this class have been estimated using net asset value per share of the investments.

Note 4 - Fair Value Measurements (Continued)

The hedge funds class includes investments in funds that achieve capital appreciation through multimanager and/or multistrategy investments. Within this group of funds, there is exposure to investment strategies, including, but not limited to, credit, event-driven, equity, and relative value. The funds have the ability to invest across all markets and across all asset classes to implement their various strategies. The fair values of the investments in this class have been estimated using net asset value per share of the investments. Approximately 1 percent of the value of the investments in the hedge fund class above is in the process of being liquidated by the fund manager. Distributions from each fund will be received as the underlying investments of the fund are liquidated. It is estimated that the underlying investments of the fund will be liquidated over the next 12 to 18 months.

The real estate funds class includes investments in funds whose objective is to operate a core portfolio of real estate investments predominantly located in the U.S. The funds acquire ownership in underlying investments either through direct real estate ownership or ownership in real estate companies or the equity of real estate investment trusts. The funds predominantly target purchases in office, industrial, retail, or multifamily real estate classes. The fair values of the investments in this class have been estimated using net asset value per share of the investments (or its equivalent).

The private equity funds class is an alternative investment class and consists of investments in companies that are not listed on a public exchange. The General Retirement System of the City of Detroit maintains a diversified portfolio of private equity investments by both style (buyout, turnaround, venture capital, etc.) and vintage year exposure. With its private equity allocation, the General Retirement System of the City of Detroit seeks to take advantage of the illiquidity premium associated with these private equity investments. The fair values of the investments in this class have been estimated using net asset value per share of the investments (or its equivalent).

Note 5 - Pension Plan Investments - Policy and Rate of Return

Component II (Legacy Plan) and Component I (Hybrid Plan)

Investment Policy

The assets of Components II and I are commingled and invested together, as allowed by the POA. The Combined Plan's policy in regard to the allocation of invested assets is established and may be amended by governance by a majority vote of its members. It is the policy of the governance to pursue an investment strategy that manages risk through the prudent diversification of the portfolio across a broad selection of distinct asset classes. The Combined Plan's investment policy discourages the use of cash equivalents, except for liquidity purposes, and aims to refrain from dramatically shifting asset class allocations over short time spans. The following was the governance's adopted asset allocation policy as of June 30, 2021:

Asset Class	Target Allocation
Global equity	46.00 %
Global fixed income	33.00
Real estate/Real assets	13.00
Diversifying strategies	8.00
Total	100.00 %

Rate of Return

For the year ended June 30, 2021, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 28.31 percent. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Note 6 - Pension Plan Reserves

Component II (Legacy Plan)

In accordance with the Combined Plan for the General Retirement System of the City of Detroit and state law, the following reserves are required to be set aside within the Component II (Legacy) pension plan:

The annuity reserve fund is an accumulation of transfers that is made from the annuity savings fund when an employee retires or becomes disabled or if a surviving spouse elects an annuity rather than a lump-sum payout of accumulated employee contributions.

The pension reserve fund represents funded pension benefits available for retired members and is funded by actuarially determined transfers from the pension accumulation fund. The transfers from the pension accumulation fund to the pension reserve fund for fiscal year 2021 retirements have not yet been determined.

The employee reserve (annuity savings fund or ASF) is credited as employee contributions are received throughout the year; the ASF maintains a record of the amount contributed by each employee and credits interest annually at a rate approved by the board. During fiscal year 2021, the board approved the interest rate at 5.25 percent. Eligible active members may elect to withdraw their accumulated (annuity) contributions plus investment earnings. Upon retirement, members can elect to annuitize or receive a lump sum of their accumulated contribution and interest earnings. When an employee retires or becomes disabled or if a surviving spouse elects an annuity rather than a lump-sum payout of accumulated employee contributions, the balance is transferred to the annuity reserve fund. See Note 11 for disclosure of significant changes to the ASF going forward.

The pension accumulation fund is the fund that will accumulate reserves for the pensions and other benefits payable from the contributions made by the City, including various departments thereof, and certain third parties pursuant to the POA and from which pensions and other benefits will be paid on account of members with prior service credit and transfers, as provided in Section E-18. Contributions to the pension accumulation fund from the effective date of the POA through fiscal year 2023 shall be made only in the amounts and from the sources identified in the POA.

The expense fund is the fund that will be credited with all money provided by the City to pay the administrative expenses of the Combined Plan and from which all the expenses necessary in connection with the administration and operation of the Combined Plan will be paid. At year end, this reserve balance is zero, as all employer contributions were credited to the pension accumulation fund.

The income fund shall be the fund to which all interest, dividends, and other income derived from the investments of Component II of the Combined Plan will be credited. Transfers from the income fund will be made to credit earnings and losses to various reserves of the Combined Plan in accordance with the provisions of Component II of the combined plan document. Amounts credited to the income fund in excess of amounts needed to credit earnings and losses of the Combined Plan, as provided in Component II, for any plan year shall be transferred to the pension accumulation fund and used to pay retirement allowances and other benefits on account of members. During fiscal year 2021, the income fund reserve was not utilized, and all investment income was credited to the pension accumulation fund.

The balances of the reserve accounts for Component II (excluding the Income Stabilization Fund) as of June 30, 2021 are included in the table below. The reserve balances as of June 30, 2021 shown below do not include the current year transfer amount related to fiscal year 2021 retirements for amounts that are transferred from the pension accumulation fund to the pension reserve fund.

Note 6 - Pension Plan Reserves (Continued)

The balances of the reserve accounts at June 30, 2021 are as follows:

	Required Reserve	Amount Funded
Annuity savings fund	$ 104,783,035	$ 104,783,035
Pension reserve fund	2,022,510,702	1,713,866,263
Annuity reserve fund	-	-
Pension accumulation fund	N/A	-

Component I (Hybrid Plan)

In accordance with the Combined Plan for the General Retirement System of the City of Detroit and state law, the following reserves are required to be set aside within the Component I (Hybrid) pension plan:

The accumulated mandatory employee contribution fund shall be the fund in which shall be accumulated the contributions of members to provide their retirement allowances. Upon the retirement, termination, or death of a member with a vested retirement allowance, the member's accumulated mandatory employee contributions shall be deemed to be part of the pension reserve that shall be used to pay the member's retirement allowance.

The accumulated voluntary employee contribution fund shall be the fund in which shall be accumulated the voluntary after-tax contributions of members together with earnings thereon.

The pension accumulation fund shall be the fund in which shall be accumulated reserves for the retirement allowances and other benefits payable from that portion of the employer's annual contribution that is not credited to the rate stabilization fund and amounts transferred to Component I and from which shall be paid retirement allowances and other benefits on account of members. During fiscal year 2021, all employer contributions were directed by the City into the pension accumulation fund, and no amounts were credited to the rate stabilization fund.

The rate stabilization fund shall be the fund that shall be credited with the employer's annual contributions in excess of the amount of the employer's contribution that is credited to the pension accumulation fund and amounts transferred to Component I, as provided in Section E-16(C) of Component II. See Note 10 for details on the transfer provisions related to transfers between Component II and Component I. During fiscal year 2021, no amounts were credited to the rate stabilization fund. Therefore, this reserve balance is zero.

The medical benefit fund shall be the fund that will be credited with contributions made for the purpose of funding medical benefits. During the year, no such contributions were made, and, therefore, this reserve balance is zero.

The expense fund shall be the fund to which will be credited any money provided by the employers to pay the administrative expenses of the Combined Plan and from which certain expenses incurred in connection with the administration and operation of the Combined Plan will be paid. At year end, this reserve balance is zero, as all employer contributions were credited to the pension accumulation fund.

The income fund shall be the fund to which all interest, dividends, and other income derived from the investments of Component I of the Combined Plan will be credited. Transfers from the income fund will be made to credit earnings and losses to various reserves of the Combined Plan in accordance with the provisions of Component I of the combined plan document. Amounts credited to the income fund in excess of amounts needed to credit earnings and losses of the Combined Plan, as provided in Component I, for any plan year shall be transferred to the pension accumulation fund. During fiscal year 2021, investment income was transferred to other reserve funds, and, therefore, this reserve balance at June 30, 2021 remains unfunded.

Note 6 - Pension Plan Reserves (Continued)

The balances of the reserve accounts for Component I as of June 30, 2021 are included in the table below. As of June 30, 2021, not all transfers from the accumulated mandatory employee contribution fund to the pension accumulation fund for retirements have occurred.

The balances of the above reserves for Component I that were funded as of June 30, 2021 are as follows:

	Required Reserve	Amount Funded
Accumulated mandatory employee contribution fund	$ 53,155,011	$ 53,155,011
Accumulated voluntary employee contribution fund	33,233,074	33,233,074
Pension accumulation fund	-	127,505,772

Note 7 - Net Pension Liability for Component II (Legacy Plan)

The net pension liability has been measured as of June 30, 2021 and is composed of the following:

Total pension liability	$ 2,704,110,233
Plan fiduciary net position	1,818,649,298
City's pension liability	$ 885,460,935
Plan fiduciary net position as a percentage of the total pension liability	67.25 %

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of June 30, 2020, which used update procedures to roll forward the estimated liability to June 30, 2021. The valuation used the following actuarial assumptions applied to all periods included in the measurement:

Inflation	N/A	
Salary increases	N/A	No inflation assumption or salary increases due to plan freeze as of June 30, 2014
Investment rate of return	6.50%	Net of pension plan investment expense, including inflation

Note that the long-term assumed rate of return used for the purpose of the GASB Statement No. 67 valuations was determined in accordance with generally accepted accounting principles. This should not be confused with the provisions in the Plan of Adjustment, which established a 6.75 percent assumed rate of return for the purpose of the various provisions within the plan; the Plan of Adjustment did not attempt to dictate the long-term rate of return to be used for accounting purposes.

Based on an experience study from 2008-2013 issued in February 2015, the mortality table assumption was based on the RP-2014 Blue Collar Annuitant Table for males and females. The tables are projected to be fully generational based on the two-dimensional sex-distinct mortality scale MP-2014.

The actuarial assumptions, other than mortality and the investment rate of return, used in the June 30, 2020 valuation to calculate the total pension liability as of June 30, 2021 were based on the results of an actuarial experience study for the period from 2002-2007. While the System routinely has an experience study performed by an actuary every five years, the last experience study for the period from July 1, 2007 through June 30, 2012 was started but not completed due to the City's bankruptcy. To avoid any distortions from the bankruptcy period, the System has chosen to have the next experience study performed for the period from July 1, 2015 through June 30, 2020. The experience study is currently in progress.

Note 7 - Net Pension Liability for Component II (Legacy Plan) (Continued)

Attribution Period

As addressed more fully in Note 11, as of June 30, 2014, the plan was frozen such that no new benefit accruals were allowed, and no new members could join. Starting on July 1, 2014, the participants in the Legacy Plan (Component II) will now be earning benefits under a newly created defined benefit plan (Component I). GASB Statement No. 67 requires that the service costs of all pensions be attributed through all assumed exit ages through retirement. Neither GASB Statement No. 67 nor any other GASB standard has set forth guidance specifically related to frozen plans with successor plans in place. Absent any guidance to the contrary, due to the status as a frozen plan combined with the fact that individuals are now earning service in a new defined benefit pension plan, the retirement date for the purpose of attribution was assumed to be June 30, 2014 for all members. Therefore, the total pension liability at June 30, 2021 is equal to the present value of projected benefit payments.

Discount Rate

The discount rate used to measure the total pension liability as of June 30, 2021 was 6.50 percent; however, the single discount rate used at the beginning of the year was 7.06 percent. The projection of cash flows used to determine the discount rate assumed that employee contributions will be made at the current contribution rate and that city contributions will be made at rates equal to the difference between actuarially determined contribution rates and the employee rate.

Projected Cash Flows

Based on the above assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current active and inactive employees at both the beginning of the year and the end of the year. 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. The projection of cash flows used to determine the discount rate assumed that employee contributions will be made at the current contribution rate. Contributions to the Combined Plan are projected to be at the minimum amounts required by the Plan of Adjustment through 2023, followed by actuarially determined contributions beginning in 2024. While no funding policy has been adopted by the City of Detroit, Michigan, the projection of cash flows assumes full funding of contributions such that the plan's net position will be sufficient to make all benefit payments. The System believes that the funding practice adopted by the City will be consistent with the underlying objective used in the projection to develop the single discount rate.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges 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. Best estimates of arithmetic real rates of return as of June 30, 2021 for each major asset class included in the pension plan's target asset allocation, as disclosed in the investment footnote, are summarized in the following table:

Asset Class	Long-term Expected Real Rate of Return
Global equity	5.80 %
Global fixed income	3.28
Real estate/Real assets	5.94
Diversifying strategies	3.22

Note 7 - Net Pension Liability for Component II (Legacy Plan) (Continued)

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability, calculated using the discount rate of 6.50 percent, as well as what the net pension liability would be if it were calculated using a discount rate that is 1 percentage point lower (5.50 percent) or 1 percentage point higher (7.50 percent) than the current rate:

	1 Percentage Point Decrease (5.50%)	Current Discount Rate (6.50%)	1 Percentage Point Increase (7.50%)
Net pension liability	$ 1,128,013,810	$ 885,460,935	$ 678,357,195

Note 8 - Net Pension Asset of the City for Component I (Hybrid Plan)

The net pension asset of the City has been measured as of June 30, 2021 based on benefits in force as of that date and is composed of the following:

Total pension liability	$ 210,116,172
Plan fiduciary net position	213,893,857
City's net pension asset	$ (3,777,685)
Plan fiduciary net position as a percentage of the total pension liability	101.80 %

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of June 30, 2020, which used update procedures to roll forward the estimated liability to June 30, 2021. The following are the significant assumptions:

Wage inflation assumption was 2 percent for five years, 2.5 percent for the next five years, and 3 percent thereafter.

The investment rate of return (net of pension plan investment expense, including inflation) applied to the beginning of year total pension liability was 7.06 percent as compared to 6.50 percent, which was the assumed long-term rate of return as of the end of year. The rates were determined in accordance with generally accepted accounting principles. This should not be confused with the provisions in the Plan of Adjustment, which established a 6.75 percent assumed rate of return for the purpose of the various provisions within the plan; the Plan of Adjustment did not attempt to dictate the long-term rate of return to be used for accounting purposes.

Based on an experience study from 2008-2013 issued in February 2015, the mortality table assumption was based on the RP-2014 Blue Collar Annuitant Table for males and females. The tables are projected to be fully generational based on the two-dimensional sex-distinct mortality scale MP-2014. Other than mortality and the investment rate of return, the actuarial assumptions used in the June 30, 2020 valuation to calculate the total pension liability as of June 30, 2021 were based on the results of an actuarial experience study for the period from 2002-2007, modified as necessary to account for the difference in eligibility of this new plan. While the System routinely has an experience study performed by an actuary every five years, to avoid any distortions from the bankruptcy period, the System has chosen to have the next experience study performed for the period from July 1, 2015 through June 30, 2020. That experience study is currently in progress.

Note 8 - Net Pension Asset of the City for Component I (Hybrid Plan) (Continued)

Cost of living adjustments (COLA): This plan has a postretirement COLA feature known as the Variable Pension Improvement Factor (VPIF) of a 2 percent simple COLA. It can be granted beginning on July 1, 2018 only if the five-year projection shows the plan's funded status at 100 percent based upon 6.75 percent future investment return. For the purpose of the total pension liability, the actuary assumed a 0.50 percent simple COLA beginning in fiscal year 2020 to model the potential average COLA over time. Had no COLA been assumed, the net pension asset would have been $11,154,971. Had the full 2 percent COLA been assumed, the net pension liability would have been $18,467,339.

There were no changes in benefit provisions during the year affecting the total pension liability.

Discount Rate

The discount rate used to measure the total pension liability as of June 30, 2021 was 6.50 percent; however, the single discount rate used at the beginning of the year was 7.06 percent. The projection of cash flows used to determine the discount rate assumed that employee contributions will be made at the current contribution rate and that city contributions will be made at rates equal to the difference between actuarially determined contribution rates and the employee rate.

Projected Cash Flows

Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current active and inactive employees at both the beginning of the year and the end of the year. 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. The projection of cash flows used to determine the discount rate assumed that employee contributions will be made at the current contribution rate. Contributions to the Combined Plan are projected to be at the minimum amounts required by the Plan of Adjustment through 2023, followed by actuarially determined contributions beginning in 2024. While no funding policy has been adopted by the City of Detroit, Michigan, the projection of cash flows assumes full funding of contributions such that the plan's net position will be sufficient to make all benefit payments. The System believes that the funding practice adopted by the City will be consistent with the underlying objective used in the projection to develop the single discount rate.

The long-term expected rate of return on future pension plan investments is the same as Component II given that the assets are commingled (see Note 7).

Sensitivity of the Net Pension Asset to Changes in the Discount Rate

The following presents the net pension asset of the City, calculated using the discount rate of 6.50 percent, as well as what the City's net pension liability (asset) would be if it were calculated using a discount rate that is 1 percentage point lower (5.50 percent) or 1 percentage point higher (7.50 percent) than the current rate:

	1 Percentage Point Decrease (5.50%)	Current Discount Rate (6.50%)	1 Percentage Point Increase (7.50%)
Net pension liability (asset) of the City	$ 26,903,450	$ (3,777,685)	$ (28,485,188)

Note 9 - Other Postemployment Benefit Plan

Closed Death Benefit Plan (Closed Plan) and Death Benefit Plan (Open Plan)

Plan Description

The City of Detroit Employees Death Benefit Board of Trustees administers the Death Benefit Plans, which are single-employer defined benefit OPEB plans used to provide death benefits to employees and retirees. The Death Benefit Board of Trustees is the same as the board of trustees of the General Retirement System of the City of Detroit, with the exception of the civilian member. Also, the one representative from the Detroit City Council is the City Council president.

Benefits Provided

In accordance with Section 13, Article 8 of the City of Detroit, Michigan Code of Ordinances, effective July 1, 1999 and prior to the member's retirement from the City, a death benefit of $10,000 will be paid. After retirement of the member from the City, the amount of death benefits paid is based upon the retiree's years of city service ranging from $1,860 (for 8 to 10 years of service) to $3,720 (for 30 years of service). For years of service beyond 30 years, $93 will be added per year for each additional year of service.

Employees Covered by Benefit Terms

In accordance with the City of Detroit, Michigan's plan of adjustment, the Death Benefit Plan was split into two parts: an Open Plan and a Closed Plan. Members retired on or before December 10, 2014 are in the Closed Plan. Members who retire after December 10, 2014 (provided they were active on or after December 10, 2014) are in the Open Plan. The City has no further obligations to Closed Plan members. Closed Plan members will receive benefits only if the Closed Plan assets are sufficient. As of June 30, 2020, 9,623 retirees are covered by the benefit terms in the Closed Plan.

The following members were covered by the benefit terms in the Open Plan:

Date of member count	June 30, 2020
Retirees and beneficiaries	2,694
Active plan members	7,665
Total employees covered by the plan	10,359

Contributions

Open Plan

The City of Detroit Employee Benefit Plan board establishes contribution rates for the Death Benefit Plan; however, the City of Detroit, Michigan is under no legal obligation to prefund the plan benefits. The board's policy is to develop an employer contribution that is the greater of (1) the per active person rate in the City of Detroit, Michigan Ordinance or (2) normal cost plus a 29-year closed (30-year closed period beginning with the June 30, 2019 valuation) amortization of unfunded actuarial accrued liability on a per active person basis. Currently, the per person contributions provided in the ordinance are greater than the normal cost plus amortization of unfunded actuarial accrued liability. For the year ended June 30, 2021, the employer contribution rate for each active member was $13.30 a year, except for police lieutenants and sergeants and fire equivalents. For police lieutenants and sergeants and fire equivalents, the employer contribution rate for each member was $20.70 a year. For retirees, no employer contribution is required. Active plan members are required to contribute $10.40 a year, except for police lieutenants and sergeants and fire equivalents, who contribute $13.00 a year. For retired plan members, required contributions are $1.08 a year. During the year ended June 30, 2021, the Open Plan received employer contributions of $114,790 and employee contributions of $96,996.

Note 9 - Other Postemployment Benefit Plan (Continued)

Closed Plan

The City of Detroit, Michigan allocated $30,423,997 to the Closed Death Benefit Plan as of December 31, 2014 to fully fund the plan. There are no required additional employer contributions. For retired plan members, required employee contributions are $1.08 a year.

Net OPEB Liability

Closed Plan

The Closed Death Benefit Plan will provide future benefits only to the extent that plan assets are available to pay them. After the contribution in 2014, no further employer contributions will be made to the Plan. As such, the total OPEB liability as of June 30, 2021 is equal to the plan net position of $24,966,569.

Open Plan

The net OPEB liability has been measured as of June 30, 2021 and is composed of the following:

Total OPEB liability	$ 5,521,109
Plan fiduciary net position	5,132,891
Net OPEB liability of the City	$ 388,218
Plan fiduciary net position as a percentage of the total OPEB liability	92.97 %

Actuarial Assumptions

The total OPEB liability was determined by an actuarial valuation as of June 30, 2020, which used update procedures to roll forward the estimated liability to June 30, 2021. The valuation used the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

Inflation assumption was 2.5 percent. The investment rate of return (net of pension plan investment expense, including inflation) applied to the beginning of year total OPEB liability was 7.00 percent as compared to 5.99 percent, which was the assumed long-term rate of return as of the end of year. The rates were determined in accordance with generally accepted accounting principles.

Based on an experience study from 2008-2013 issued in February 2015, the mortality table assumption for general, EMS, and D.O.T. was 100 percent of the RP-2014 Blue Collar Annuitant Table set forward one year for males and 100 percent of the RP-2014 Blue Collar Annuitant Table set forward one year for females. For police and fire, the mortality tables used in evaluating death benefits to be paid to retired members was 100 percent of the RP-2014 Blue Collar Annuitant Table with no set-forward for males or females. Tables were extended below age 50 with a cubic spline to the published juvenile rates.

Discount Rate

The discount rate used to measure the total OPEB liability was 5.99 percent. The projection of cash flows used to determine the discount rate assumed that employer contributions will be made at the current contribution rate.

Based on those assumptions, the OPEB plan's fiduciary net position was projected to be available to make all projected future benefit payments of current active and inactive employees. 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 OPEB liability.

Note 9 - Other Postemployment Benefit Plan (Continued)

Investment Rate of Return

The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges 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 board has not adopted a formal investment policy; however, the pension board approved a formal investment allocation in August 2014. The target allocation and best estimates of geometric real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Long-term Expected Real Rate of Return
Domestic equity	26.00 %	4.24 %
International equities	25.00	4.88
Bonds	25.00	1.38
REITs	4.00	3.71
Global multisector fixed income	20.00	1.29
Total	100.00 %	

Sensitivity of the City's Net OPEB Liability to Changes in the Discount Rate

The following presents the net OPEB liability of the City, calculated using the discount rate of 5.99 percent, as well as what the City's net OPEB liability would be if it were calculated using a discount rate that is 1 percentage point lower (4.99 percent) or 1 percentage point higher (6.99 percent) than the current rate:

	1 Percentage Point Decrease (4.99%)	Current Discount Rate (5.99%)	1 Percentage Point Increase (6.99%)
Net OPEB liability (asset) of the City	$ 1,404,966	$ 388,128	$ (410,987)

Since the OPEB benefits in this plan are life insurance only, there is no health care trend assumption. The sensitivity of net OPEB liability using +/-1 percent health care trend is not applicable to this plan.

Rate of Return

For the year ended June 30, 2021, the annual money-weighted rate of return on OPEB plan investments, net of OPEB plan investment expense, was 24.52 percent. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Note 10 - Commitments

When the System enters into various investments, it may not completely fund the entire investment at the beginning. Rather, it enters into commitments to fund remaining capital amounts at certain points in time. At June 30, 2021, the remaining capital funding commitment for the Combined Plan is approximately $49 million.

Note 10 - Commitments (Continued)

In addition, the Combined Plan document setting forth the Legacy Plan (Component II) contains a provision for the transfer of certain excess investment returns to the new Hybrid Plan (Component I). In any plan year during the period beginning on or after July 1, 2014 and ending on June 30, 2023, if the annual rate of return credited to member annuity savings fund accounts is less than the actual rate of return net of expenses of the plan's invested assets for the second plan year preceding the plan year in which the annual rate of return is credited, the excess earned shall be transferred to the pension accumulation fund maintained under Component I of the Combined Plan and will be used to fund transition costs related to Component I. The transition cost is a measure of the liability that Component I of the Combined Plan has at its inception due to the fact that members in Component I receive vesting and eligibility credit under Component I for service that was earned prior to July 1, 2014 and is otherwise credited to members under Component II. Such transition costs have been calculated by the plan's actuary. Yearly transfers to fund these costs are required in the second year following the year in which the return is earned based on a two-year look-back; therefore, as an example, any transfers based on the plan year ended June 30, 2019 will be calculated and transferred during the plan year ended June 30, 2021.

Based on these provisions, $0, $1,178,130, and $9,015,677 was transferred from Component II to Component I toward the transition costs in the fiscal years ended June 30, 2021, 2020, and 2019, respectively.

Note 11 - City of Detroit's Chapter 9 Bankruptcy Plan of Adjustment and Continuing Impact on the Plan

In March 2013, after enduring years of financial difficulty, the City of Detroit, Michigan filed for bankruptcy protection. The Eighth Amended Plan for Adjustment of Debts of the City of Detroit was filed with the Bankruptcy Court on October 22, 2014. In November 2014, after a confirmation hearing lasting several weeks, the Bankruptcy Court confirmed the Plan of Adjustment, which became effective December 10, 2014.

Legacy Plan (Component II)

The pension settlement, as part of the Plan of Adjustment, compromised pension claims and provided funding support for legacy pension benefit obligations under the General Retirement System of the City of Detroit Component II from the State of Michigan, the Detroit Institute of Arts, and certain foundation donors. The Plan of Adjustment also required certain governance changes for DGRS. Those governance changes included establishment of the Investment Committee effective December 10, 2014, which officially marked the beginning of implementation of the Plan of Adjustment, although DGRS had for months already undertaken contingency planning for all of the pension adjustments. In addition to governance changes, the POA requires of the System, through its board of trustees and the Investment Committee, certain periodic and interim reporting obligations to the City, the Foundation for Detroit's Future, and the State of Michigan. Although there were some delays in meeting certain obligations because of new actuarial reporting requirements for governmental systems, which in turn impacted the preparation of the System's audited financial statements, the System believes it has ultimately met its special reporting obligations in fiscal year 2016 and continued to do so in fiscal years 2017, 2018, 2019, and 2020.

For DGRS, with respect to Component II benefit adjustments, the pension settlement (for which benefit levels were and are contingent on other factors, including receipt of outside contributions) is provided for the following:

- A loss of cost of living adjustments, or escalators, paid after July 1, 2014
- A 4.5 percent cut to the remaining accrued pension benefit after the COLA loss

Note 11 - City of Detroit's Chapter 9 Bankruptcy Plan of Adjustment and Continuing Impact on the Plan (Continued)

- For DGRS members who participated in the annuity savings fund plan between 2003 and 2013, subject to certain caps, recoupment of certain amounts of interest deemed by the City to be in excess of that which should have been credited to individual ASF accounts, referred to as "ASF Recoupment." ASF Recoupment, like other provisions of the pension settlement, was not optional. Most members will pay their ASF Recoupment by a monthly deduction from their future pension benefits for a set term of months, including interest calculated at 6.75 percent. All members were offered a lump-sum cash option, which was limited in the aggregate to $30 million in member recoupment. In fiscal year 2016, the Bankruptcy Court approved certain additional members whose application submissions were not timely received to participate in the lump-sum cash option.

- The possibility of restoration of certain pension benefit cuts, based on a program for the most financially vulnerable pensioners and beneficiaries through the State of Michigan Treasury Department, as well as a new feature of Component II allowing restoration depending on the System's funding level over time

- An Income Stabilization Program (the “ISF Program”) was established as part of the State Contribution Agreement, another facet of the pension settlement. The ISF Program, supported by city funds arising from an unlimited tax general obligation bonds settlement, is intended to ensure that the most financially vulnerable retirees and beneficiaries do not fall below the poverty line as a result of bankruptcy-related pension changes. Beginning on March 1, 2015, certain DGRS members also received benefit pension cut restoration under the ISF Program administered by DGRS, pursuant to the State Contribution Agreement, based on eligibility and benefit payments calculated by the State of Michigan. Following the close of the fiscal year ended June 30, 2016 and pursuant to Component II of the Combined Plan and the State Contribution Agreement, the System implemented the first annual ISF Program benefit adjustments effective July 1, 2016.

- The POA also discusses a restoration plan. Terms of the pension restoration are contained in Exhibit II.B.3.r.ii.C of the POA, and the terms govern how accrued pensions, including COLA benefits that were reduced as a part of the POA, may be restored over the 30-year period following the confirmation order. The Investment Committee will supervise the restoration process in accordance with the restoration plan. The restoration plan shall be deemed a part of Component II. The funding levels have not been attained as of June 30, 2021 for the restoration process to initiate.

Going forward, the obligations for contributions to support Component II of the System through 2023 are determined as fixed amounts by the provisions in the Plan of Adjustment. Pursuant to the Plan of Adjustment, the System is expected to receive contributions totaling $718.6 million through fiscal year 2023. The Plan of Adjustment calls for the System to receive $98.8 million from the State of Michigan; $428.5 million from DWSD; $31.7 million from UTGO settlement proceeds; the actual or present value equivalent of $50 million from the DIA and its foundation donors; and $114.6 million from the other city-related employer contribution sources, such as the General Fund, Detroit Library Commission, and COBO Authority, over a 10-year period covering fiscal year 2014 through fiscal year 2023. Between 2025 and 2034, DGRS will receive $18.3 million per year from certain foundation donors. After 2023, the City, and various other employer constituents, such as the Library, DWSD, and COBO Authority, will retain responsibility for the full funding obligations of Component I of the System, consistent with Michigan law.

Note 11 - City of Detroit's Chapter 9 Bankruptcy Plan of Adjustment and Continuing Impact on the Plan (Continued)

In fiscal year 2017, DGRS received from the City, its employer-related contribution sources, and the DIA and its foundation donors all contributions required by the Plan of Adjustment. The City was to remit payments on the UTGO Stub Bonds to the Combined Plan through 2028. In fiscal year 2017, the City of Detroit, Michigan refunded all of its outstanding UTGO Stub Bonds. Upon refunding, the payments to the Combined Plan were accelerated, with a majority of the outstanding balance paid to the Combined Plan in fiscal year 2017; as a result, the Combined Plan received approximately $9.4 million in the ISF and $18.3 million in the Component II Defined Benefit Fund related to this transaction.

DGRS continues to implement the POA, which includes ongoing compliance and additional reporting requirements by the board and the Investment Committee, annual review of benefit levels, and essentially provides for a 40-year plan to close the DGRS Legacy Component II underfunded liability. ASF Recoupment, in particular, is a notable facet of the Plan of Adjustment that will continue to be implemented as members apply for Component II pension benefits over time.

Note 12 - City of Detroit Commitment to Future Funding

In anticipation of significant actuarially required contributions commencing in fiscal year 2024, the City, independent of the System, has established a Retiree Protection Trust Fund (the "Trust"). The Trust, a permanent irrevocable trust under Sections 115 and 414(d) of the Internal Revenue Code, is to receive, maintain, and invest city funds restricted for future deposits to the General Retirement System Plan and the Police and Fire Retirement System Plan as part of an effort to manage and stabilize future required city contributions to the plans. The City has set aside approximately $235 million for this Trust as of June 30, 2021 for future contributions to the General Retirement System Plan and the Police and Fire Retirement System Plan. Contributions to the System will be recognized as the City makes distributions from this independent trust to the System.

Required Supplemental Information

Required Supplemental Information
Schedule of Changes in the Net Pension Liability and Related Ratios
Legacy Plan

Last Eight Fiscal Years

	2021	2020	2019	2018	2017	2016	2015	2014
Total Pension Liability								
Service cost	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 32,736,019
Interest	182,140,105	192,888,245	195,489,643	192,359,745	201,919,236	214,011,164	263,007,329	242,611,073
Changes in benefit terms	-	-	-	-	-	-	(731,824,895)	(113,311,571)
Differences between expected and actual experience	(59,232,849)	(55,836,749)	13,596,902	34,154,327	(27,508,380)	(43,719,112)	24,644,530	-
Changes in assumptions	119,876,694	67,677,535	-	(110,274,515)	76,925,957	90,034,927	(101,559,893)	(271,190,194)
Benefit payments, including refunds	(237,123,777)	(239,881,652)	(248,790,017)	(253,442,630)	(267,249,539)	(292,282,179)	(297,538,990)	(397,733,807)
Net Change in Total Pension Liability	5,660,173	(35,152,621)	(39,703,472)	(137,203,073)	(15,912,726)	(31,955,200)	(843,271,919)	(506,888,480)
Total Pension Liability - Beginning of year	2,698,450,060	2,733,602,681	2,773,306,153	2,910,509,226	2,926,421,952	2,958,377,152	3,801,649,071	4,308,537,551
Total Pension Liability - End of year	**$ 2,704,110,233**	**$ 2,698,450,060**	**$ 2,733,602,681**	**$ 2,773,306,153**	**$ 2,910,509,226**	**$ 2,926,421,952**	**$ 2,958,377,152**	**$ 3,801,649,071**
Plan Fiduciary Net Position								
Contributions - Employer, state, and foundation	$ 48,275,000	$ 48,275,000	$ 68,275,000	$ 68,275,000	$ 91,238,402	$ 104,792,657	$ 189,282,094	$ 25,126,131
Contributions - Employee	-	-	-	-	-	-	609,073	10,241,761
Net investment income (loss)	406,977,916	(14,002,111)	47,170,004	155,423,193	206,896,568	(12,450,547)	93,054,981	289,789,607
Administrative expenses	(1,987,194)	(2,351,273)	(3,023,939)	(3,313,418)	(6,021,837)	(3,742,618)	(4,617,194)	(11,237,767)
Benefit payments, including refunds	(237,123,777)	(239,881,652)	(248,790,017)	(253,442,630)	(267,249,539)	(292,282,179)	(297,538,991)	(397,733,807)
Other (includes ASF recoupment)	6,405,364	5,155,198	(5,347,863)	6,952,522	8,324,074	5,945,783	135,280,369	-
Net Change in Plan Fiduciary Net Position	222,547,309	(202,804,838)	(141,716,815)	(26,105,333)	33,187,668	(197,736,904)	116,070,332	(83,814,075)
Plan Fiduciary Net Position - Beginning of year	1,596,101,989	1,798,906,827	1,940,623,642	1,966,728,975	1,933,541,307	2,131,278,211	2,015,207,879	2,099,021,954
Plan Fiduciary Net Position - End of year	**$ 1,818,649,298**	**$ 1,596,101,989**	**$ 1,798,906,827**	**$ 1,940,623,642**	**$ 1,966,728,975**	**$ 1,933,541,307**	**$ 2,131,278,211**	**$ 2,015,207,879**
Net Pension Liability - Ending	**$ 885,460,935**	**$ 1,102,348,071**	**$ 934,695,854**	**$ 832,682,511**	**$ 943,780,251**	**$ 992,880,645**	**$ 827,098,941**	**$ 1,786,441,192**
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	67.25 %	59.15 %	65.81 %	69.98 %	67.57 %	66.07 %	72.04 %	53.01 %
Covered Payroll	$ -	$ 149,373,313	$ 141,646,750	$ 246,173,916	$ 199,307,986	$ 185,147,364	$ 188,210,536	$ 238,669,871
Net Pension Liability as a Percentage of Covered Payroll	- %	737.98 %	659.88 %	338.25 %	473.70 %	536.27 %	439.45 %	748.50 %

GASB Statement No. 67 was implemented on June 30, 2014 and does not require retroactive implementation. Data will be added as information is available until 10 years of such information is available.

GASB Statement No. 67, as amended, requires covered payroll to be presented, as well as the net pension liability as a percentage of covered payroll. Covered payroll for 2021 is not available.

Required Supplemental Information
Schedule of Investment Returns
Legacy and Hybrid Plans

Last Eight Fiscal Years

Years Ended June 30

	2021	2020	2019	2018	2017	2016	2015	2014*
Annual money-weighted rate of return - Net of investment expense	28.31 %	(0.78)%	3.28 %	6.70 %	12.60 %	1.10 %	2.40 %	16.30 %

*GASB Statement No. 67 was implemented on June 30, 2014 and does not require retroactive implementation. Data will be added as information is available until 10 years of such information is available.

Fiscal years 2014 and 2015 do not include information related to the Hybrid Plan. The Hybrid Plan was effective July 1, 2014, and for the first year (fiscal year 2015) it did not invest in anything other than cash and cash equivalents.

See notes to required supplemental information schedules.

Required Supplemental Information
Schedule of Pension Contributions
Legacy Plan

Last Ten Fiscal Years

Years Ended June 30

	2021*	2020*	2019*	2018*	2017*	2016*	2015*	2014	2013	2012
Actuarially determined contribution	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 72,643,307	$ 62,297,432	$ 64,065,214
Contributions in relation to the actuarially determined contribution	-	-	-	-	-	-	-	25,126,131	26,515,782	64,065,214
Contribution Deficiency	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ (47,517,176)**	**$ (35,781,650)**	**$ -**
Covered Payroll	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 238,669,871	$ 213,291,089	$ 257,992,240
Contributions as a Percentage of Covered Payroll	- %	- %	- %	- %	- %	- %	- %	10.53 %	12.43 %	24.83 %

*The contributions starting with fiscal year 2015 were determined by the provisions of the POA; the contributions were not actuarially determined and, therefore, not subject to disclosure within this schedule in accordance with GASB Statement No. 67.

Notes to Schedule of Pension Contributions (Legacy Plan)

Actuarial valuation information relative to the determination of contributions:

N/A - Starting in fiscal year 2015, contributions are not actuarially determined.

Required Supplemental Information
Schedule of Changes in the City's Net Pension (Asset) Liability and Related Ratios
Hybrid Plan

Last Seven Fiscal Years

	2021	2020	2019	2018	2017	2016	2015
Total Pension Liability							
Service cost	$ 25,208,118	$ 22,532,002	$ 20,171,596	$ 17,056,732	$ 18,417,036	$ 18,302,706	$ 19,318,576
Interest	12,218,430	10,270,622	7,531,400	5,438,061	4,084,390	2,495,896	695,469
Differences between expected and actual experience	(10,183,406)	(7,464,424)	7,556,858	4,546,865	(4,667,487)	(1,263,760)	(1,202,108)
Changes in assumptions	14,453,739	6,518,200	-	(5,758,189)	2,780,462	2,111,451	-
Voluntary employee contributions	5,183,291	5,723,982	5,804,274	5,302,650	5,043,347	5,213,744	5,775,885
Benefit payments, including refunds	(5,118,404)	(3,629,833)	(3,539,384)	(2,390,592)	(2,134,809)	(2,287,214)	-
Net Change in Total Pension Liability	41,761,768	33,950,549	37,524,744	24,195,527	23,522,939	24,572,823	24,587,822
Total Pension Liability - Beginning of year	168,354,404	134,403,855	96,879,111	72,683,584	49,160,645	24,587,822	-
Total Pension Liability - End of year	**$ 210,116,172**	**$ 168,354,404**	**$ 134,403,855**	**$ 96,879,111**	**$ 72,683,584**	**$ 49,160,645**	**$ 24,587,822**
Plan Fiduciary Net Position							
Contributions - Employer	$ 11,690,984	$ 12,515,861	$ 12,205,699	$ 14,673,644	$ 9,484,992	$ 9,048,831	$ 8,811,369
Mandatory employee contributions	9,333,975	10,205,770	9,765,911	8,837,967	7,752,058	7,345,515	6,970,544
Net investment income (loss)	41,527,492	(2,216,167)	3,270,862	8,445,590	9,109,732	(76,608)	20,690
Administrative expenses	(1,316,430)	(1,540,433)	(1,942,064)	(2,171,693)	(2,648,385)	(3,094,197)	(1,481,590)
Voluntary employee contributions	5,183,291	5,723,982	5,804,274	5,302,650	5,043,347	5,213,744	5,786,488
Benefit payments, including refunds of mandatory contributions	(2,743,760)	(2,048,198)	(1,920,550)	(1,308,550)	(1,021,847)	(1,031,060)	(10,603)
Refunds based on voluntary contributions	(2,374,644)	(1,581,635)	(1,618,834)	(1,082,042)	(1,112,962)	(1,256,154)	-
Other	32,244	1,237,613	9,066,288	12,436	61,834	6,586	-
Net Change in Plan Fiduciary Net Position	61,333,152	22,296,793	34,631,586	32,710,002	26,668,769	16,156,657	20,096,898
Plan Fiduciary Net Position - Beginning of year	152,560,705	130,263,912	95,632,326	62,922,324	36,253,555	20,096,898	-
Plan Fiduciary Net Position - End of year	**$ 213,893,857**	**$ 152,560,705**	**$ 130,263,912**	**$ 95,632,326**	**$ 62,922,324**	**$ 36,253,555**	**$ 20,096,898**
City's Net Pension (Asset) Liability - Ending	**$ (3,777,685)**	**$ 15,793,699**	**$ 4,139,943**	**$ 1,246,785**	**$ 9,761,260**	**$ 12,907,090**	**$ 4,490,924**
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	101.80 %	90.62 %	96.92 %	98.71 %	86.57 %	73.75 %	81.74 %
Covered Payroll	$ 233,681,019	$ 245,732,111	$ 224,726,503	$ 246,173,916	$ 199,307,987	$ 185,147,364	$ 180,069,852
City's Net Pension (Asset) Liability as a Percentage of Covered Payroll	(1.62)%	6.43 %	1.84 %	0.51 %	4.90 %	6.97 %	2.49 %

See notes to required supplemental information schedules.

Required Supplemental Information
Schedule of Changes in the City's Net OPEB Liability and Related Ratios
Open Death Benefit Plan

Last Five Fiscal Years

	2021	2020	2019	2018	2017
Total OPEB Liability					
Service cost	$ 129,692	$ 142,198	$ 129,558	$ 114,919	$ 103,457
Interest	311,172	281,348	255,501	223,231	215,053
Differences between expected and actual experience	2,304	215,945	197,652	325,148	-
Changes in assumptions	806,689	-	-	-	-
Benefit payments, including refunds	(213,821)	(205,148)	(234,422)	(184,826)	(230,000)
Net Change in Total OPEB Liability	1,036,036	434,343	348,289	478,472	88,510
Total OPEB Liability - Beginning of year	4,485,073	4,050,730	3,702,441	3,223,969	3,135,459
Total OPEB Liability - End of year	**$ 5,521,109**	**$ 4,485,073**	**$ 4,050,730**	**$ 3,702,441**	**$ 3,223,969**
Plan Fiduciary Net Position					
Contributions - Employer	$ 114,790	$ 113,842	$ 92,990	$ 107,627	$ 88,709
Contributions - Employee	96,996	86,147	73,457	96,337	80,151
Net investment income	1,128,321	11,617	246,685	296,957	315,310
Administrative expenses	(18,094)	(55,108)	(61,160)	(32,001)	(61,755)
Benefit payments, including refunds	(213,821)	(205,148)	(234,422)	(184,826)	(230,000)
Other	-	-	-	(221,948)	-
Net Change in Plan Fiduciary Net Position	1,108,192	(48,650)	117,550	62,146	192,415
Plan Fiduciary Net Position - Beginning of year	4,024,699	4,073,349	3,955,799	3,893,653	3,701,238
Plan Fiduciary Net Position - End of year	**$ 5,132,891**	**$ 4,024,699**	**$ 4,073,349**	**$ 3,955,799**	**$ 3,893,653**
City's Net OPEB Liability (Asset) - Ending	**$ 388,218**	**$ 460,374**	**$ (22,619)**	**$ (253,358)**	**$ (669,684)**
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability	92.97 %	89.74 %	100.56 %	106.84 %	120.77 %

Contributions to the OPEB plan are not based on a measure of pay; therefore, no covered payroll is presented.

GASB Statement No. 74 was implemented on June 30, 2017 and does not require retroactive implementation. Data will be added as information is available until 10 years of such information is available.

See notes to required supplemental information schedules.

Required Supplemental Information
Schedule of OPEB Contributions
Open Death Benefit Plan

Last Five Fiscal Years

Year Ended June 30

	2021	2020	2019	2018	2017
Actuarially determined contribution	$ 114,790	$ 113,842	$ 92,990	$ 93,797	$ 104,659
Contributions in relation to the actuarially determined contribution	114,790	113,842	92,990	107,627	88,709
Contribution Excess (Deficiency)	**$ -**	**$ -**	**$ -**	**$ 13,830**	**$ (15,950)**

GASB Statement No. 74 was implemented for the fiscal year ended June 30, 2017 and does not require retrospective implementation. Data will be added as information is available until 10 years of such information is reported.

Notes to Schedule of Contributions

Actuarial valuation information relative to the determination of contributions:

Valuation date	Actuarially determined contribution rates are calculated as of June 30, two years prior to the end of the fiscal year in which the contributions are reported.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Level dollar entry age normal
Amortization method	Level dollar, closed
Remaining amortization period	30 years, board policy
Asset valuation method	3-year smoothed market, no corridor
Inflation	N/A
Investment rate of return	7.00 percent, net of OPEB plan expenses, including price inflation at 2.50 percent
Retirement age	Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	General, EMS, and DDOT - 100 percent of the RP-2014 Blue Collar Annuitant Table set forward one year for males and females Police and Fire -100 percent of the RP-2014 Blue Collar Annuitant Table with no set forward
Other information	There were no benefit changes during the year.

See notes to required supplemental information schedules.

Required Supplemental Information
Schedule of OPEB Investment Returns
Open and Closed Death Benefit Plans

Last Five Fiscal Years

Year Ended June 30

	2021	2020	2019	2018	2017
Annual money-weighted rate of return, net of investment expense	24.52 %	0.30 %	2.97 %	5.93 %	7.23 %

GASB Statement No. 74 was implemented for the fiscal year ended June 30, 2017 and does not require retrospective implementation. Data will be added as information is available until 10 years of such information is reported.

See notes to required supplemental information schedules.

Required Supplemental Information
Schedule of Changes in the City's Net OPEB Liability and Related Ratios
Closed Death Benefit Plan

Last Five Fiscal Years

	2021	2020	2019	2018	2017
Total OPEB Liability -					
(Decrease) increase in total OPEB liability due to availability of assets	$ 4,496,393	$ (944,616)	$ 12,295	$ 38,822	$ (15,035)
Total OPEB Liability - Beginning of year	20,470,176	21,414,792	21,402,497	21,363,675	21,378,710
Total OPEB Liability - End of year	**$ 24,966,569**	**$ 20,470,176**	**$ 21,414,792**	**$ 21,402,497**	**$ 21,363,675**
Plan Fiduciary Net Position					
Retiree contribution	$ 19,867	$ 12,925	$ 9,080	$ 9,528	$ -
Net investment income	5,538,571	63,605	1,295,090	1,416,686	1,996,352
Administrative expenses	(18,096)	-	-	-	-
Benefit payments, including refunds	(1,043,949)	(1,074,935)	(1,230,715)	(1,355,391)	(1,949,612)
Other	-	53,789	(61,160)	(32,001)	(61,775)
Net Change in Plan Fiduciary Net Position	4,496,393	(944,616)	12,295	38,822	(15,035)
Plan Fiduciary Net Position - Beginning of year	20,470,176	21,414,792	21,402,497	21,363,675	21,378,710
Plan Fiduciary Net Position - End of year	**$ 24,966,569**	**$ 20,470,176**	**$ 21,414,792**	**$ 21,402,497**	**$ 21,363,675**
City's Net OPEB Liability - Ending	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %

GASB Statement No. 74 was implemented for the fiscal year ended June 30, 2017 and does not require retrospective implementation. Data will be added as information is available until 10 years of such information is reported.

As the plan will provide future benefits only to the extent that plan assets are available to pay them, the total OPEB liability is equal to the plan's ending net position.

Contributions to the OPEB plan are not based on a measure of pay nor is there applicable payroll; therefore, no covered payroll is presented.

See notes to required supplemental information schedules.

Pension Information

Benefit Changes

Legacy Plan

In 2014, the pension plan was frozen. No new employees are allowed to participate in the plan. All benefits for actives were frozen as of June 30, 2014 based on service and average final compensation accrued as of that date.

In 2015, benefits were reduced by 4.5 percent, and the cost of living adjustments were eliminated.

Changes in Assumptions

Legacy Plan

In 2014, amounts reported as changes of assumptions resulted from adjustment of the discount rate from 5.88 percent to 7.2 percent and updating the mortality tables from RP-2000 Combined Table to RP-2014 Blue Collar Mortality Table, and adjustments for longevity and unused sick leave were eliminated.

Legacy and Hybrid Plan

In 2015, amounts reported as changes of assumptions resulted from adjustment of the discount rate from 7.2 to 7.61 percent.

In 2016, amounts reported as changes of assumptions resulted from adjustment of the discount rate from 7.61 to 7.23 percent.

In 2017, amounts reported as changes of assumptions resulted from adjustment of the discount rate from 7.23 to 6.91 percent.

In 2018, amounts reported as changes of assumptions resulted from adjustment of the discount rate from 6.91 to 7.38 percent.

In 2020, amounts reported as changes of assumptions resulted from adjustment of the discount rate from 7.38 to 7.06 percent.

In 2021, amounts reported as changes of assumptions resulted from adjustment of the discount rate from 7.06 to 6.50 percent.

OPEB Information

Changes in Assumptions

In 2021, the discount rate changed from 7.00 to 5.99 percent.

Other Supplemental Information

Statement of Changes in Fiduciary Net Position by Division - Legacy Defined Benefit Plan

For the Year Ended June 30, 2021

	DWSD Subdivisions		General Retirement System - Divisions				
	GLWA	DWSD-R	DWSD - Division Total (all DWSD Subdivisions)	General Division	DOT	Library	Total - General Retirement System (all Divisions)
Beginning Net Position - July 1, 2020	$ 363,922,133	$ 153,748,047	$ 517,670,180	$ 862,162,401	$ 140,266,264	$ 76,003,144	$ 1,596,101,989
Additions:							
Investment income:							
Interest and dividends	7,725,429	3,263,801	10,989,230	18,464,632	3,218,894	1,671,668	34,344,424
Net increase in fair value of investments	90,314,459	38,155,612	128,470,071	206,398,388	29,085,100	17,354,631	381,308,190
Net unrealized gain on collateralized securities	62,296	26,319	88,615	142,367	20,062	11,971	263,015
Investment related expenses	(2,116,935)	(894,353)	(3,011,288)	(4,837,896)	(681,743)	(406,786)	(8,937,713)
Net investment income	95,985,249	40,551,379	136,536,628	220,167,491	31,642,313	18,631,484	406,977,916
Contributions:							
Employer contributions:							
Originating from DWSD:							
Regular pension contribution	30,158,700	12,741,300	42,900,000	-	-	-	42,900,000
Contribution for administrative expenses	1,757,500	742,500	2,500,000	-	-	-	2,500,000
DWSD transfer to General Division for administrative expenses	(1,757,500)	(742,500)	(2,500,000)	2,500,000	-	-	-
Total contributions originating from DWSD	30,158,700	12,741,300	42,900,000	2,500,000	-	-	45,400,000
Contributions from other divisions	-	-	-	-	-	2,500,000	2,500,000
Total employer contributions	30,158,700	12,741,300	42,900,000	2,500,000	-	2,500,000	47,900,000
Foundation for Detroit's Future	-	-	-	265,012	109,988	-	375,000
Total contributions	30,158,700	12,741,300	42,900,000	2,765,012	109,988	2,500,000	48,275,000
ASF recoupment interest	1,297,270	548,064	1,845,334	3,604,194	1,136,912	153,418	6,739,858
Other income	203,320	85,898	289,218	454,041	57,070	36,690	837,019
Total additions - net	127,644,539	53,926,641	181,571,180	226,990,738	32,946,283	21,321,592	462,829,793
Deductions:							
Member refunds and withdrawals	1,040,916	439,761	1,480,677	4,066,345	4,875,528	911,054	11,333,604
Retirees' pension and annuity benefits	43,395,620	18,333,569	61,729,189	125,848,697	31,517,775	6,694,512	225,790,173
General and administrative expenses	453,093	191,421	644,514	1,073,418	174,636	94,626	1,987,194
ASF Recoupment Write-off	182,521	77,111	259,632	595,269	264,375	52,237	1,171,513
Transfer of general and administrative expenses to General Divisior	(453,093)	(191,421)	(644,514)	644,514	-	-	-
Total deductions	44,619,057	18,850,441	63,469,498	132,228,243	36,832,314	7,752,429	240,282,484
Net Increase (Decrease) in Net Position	83,025,482	35,076,200	118,101,682	94,762,495	(3,886,031)	13,569,163	222,547,309
End of Year Net Position Restricted for Pensions - June 30, 2021	**$ 446,947,615**	**$ 188,824,247**	**$ 635,771,862**	**$ 956,924,896**	**$ 136,380,233**	**$ 89,572,307**	**$ 1,818,649,298**

Combined Plan for the General Retirement System of the City of Detroit

Schedule of DWSD/GLWA Contributions Toward Administrative Expenses as Compared to Actual DWSD/GLWA Allocable Administrative Expenses

For the Year Ended June 30, 2021

	DWSD Division Total	
	GLWA	DWSD-R
Amount Paid in Excess of Administrative Expenses Otherwise Allocable - June 30, 2020	$ 5,630,243	$ 2,378,641
DWSD/GLWA contribution for administrative expenses in accordance with plan of adjustment and bankruptcy order	1,757,500	742,500
Administrative expenses otherwise allocable to DWSD/GLWA	(453,093)	(191,421)
Cumulative Amount Paid in Excess of Administrative Expenses Otherwise Allocable - June 30, 2021	**$ 6,934,650**	**$ 2,929,720**

Allocation Between Divisions

The Combined Plan's allocation methodology to allocate fiscal year 2021 activity between the four main divisions (General Division, DOT, DWSD, and Library) is dependent upon each revenue or expense type. Below is a description of the allocation methodology used by the Combined Plan. Where applicable, the allocation methodology outlined in the pension reporting agreement was utilized.

Investment Income - Investment income (including income from securities lending activity) and investment expenses were allocated to the divisions, with the exception of the allocation between DWSD-R and GLWA, based on the net position of each division compared to total net position (excluding the Annuity Savings Fund) as of fiscal year ended June 30, 2020. The investment income and expenses allocated were after adjusting for interest credited to the Annuity Savings Fund.

Administrative Expenses - In accordance with Section 2.3 of the pension reporting agreement, DWSD-R and GLWA's collective allocable share of administrative expenses of approximately $645,000 has been allocated to the general division. Correspondingly, the expenses transferred to the general division are offset by a $2.5 million contribution made by DWSD-R and GLWA, collectively, for administrative expenses, which was credited to the general division. This will occur until 2023, at which point the City and GLWA will mutually determine and resolve whether any aggregate over- or underpayment will impact the obligation of DWSD-R and GLWA to make payments to GRS under the pension reporting agreement.

Contributions - In fiscal year 2021, the Plan received contributions from the divisions and the Foundation for Detroit's Future. The employer contributions were allocated between the divisions according to which division the contribution was received from, with the exception of DWSD-R and GLWA's collective payments of $45,400,00, which were allocated as outlined in the POA and/or the pension reporting agreement (see below). Of the total payment of $45,400,000, $2,500,000 reflects DWSD-R and GLWA's agreed-upon share of administrative expenses which, per the pension reporting agreement, is to be transferred to the credit of the general division. The payment from the Foundation was allocated based on a common understanding from the bankruptcy proceedings, which was ultimately determined by the City of Detroit and agreed to by the other divisions. The Foundation proceeds were allocated solely to the general division and DOT in proportion to their respective net pension liability as determined by the City's actuary as of June 30, 2020.

ASF Recoupment - Revenue from the ASF recoupment was allocated between the divisions, other than between DWSD-R and GLWA, according to the division under which the individual's ASF earnings were originally accumulated and paid out.

Member Refunds, Withdrawals, Retirees' Pension, and Annuity Benefits - These deductions were allocated, other than the allocation between DWSD-R and GLWA, based on the original division from which benefits were being provided and withdrawals were being made.

Allocation between DWSD-R and GLWA - Once the above activity was allocated to the divisions, the DWSD division was further subdivided between DWSD-R and GLWA in accordance with the pension reporting agreement, which stipulated such allocation would be dictated to the Plan by DWSD-R and GLWA. Per those instructions, the Plan allocated the DWSD activity between GLWA (70.3 percent) and DWSD-R (29.7 percent).

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November 30, 2021

To the Board of Trustees and the
Investment Committee
General Retirement System
of the City of Detroit

We have audited the financial statements of the General Retirement System of the City of Detroit (the "System") as of and for the year ended June 30, 2021 and have issued our report thereon dated November 30, 2021. Professional standards require that we provide you with the following information related to our audit, which is divided into the following sections:

Section I - Internal Control Related Matters Identified in an Audit - This includes any deficiencies we observed in the System's accounting principles and internal control that we believe are significant. Current auditing standards require us to formally communicate on an annual basis matters we note about the System's accounting policies and internal control. The System has been diligent in its efforts to remedy many of the previously identified internal control deficiencies. Due to its efforts, the condition of the accounting records at the start of the audit and supporting documentation continues to improve.

Section II - Required Communications with Those Charged with Governance - This includes information that current auditing standards require independent auditors to communicate to those individuals charged with governance. We will report this information annually to the board of trustees and the investment committee of the System.

Section III - Other Recommendations and Related Information - This presents recommendations related to internal control, procedures, and other matters noted during our current year audit. These comments are offered in the interest of helping the System in its efforts toward continuous improvement, not just in the areas of internal control and accounting procedures, but also in operational or administrative efficiency and effectiveness.

We would like to take this opportunity to thank the System's staff for the cooperation and courtesy extended to us during our audit. The assistance and professionalism of the System's staff are invaluable and greatly appreciated.

This report is intended solely for the use of the board of trustees, the investment committee, and management of the General Retirement System of the City of Detroit and is not intended to be and should not be used by anyone other than these specified parties.

We welcome any questions you may have regarding the following communications, and we would be willing to discuss these or any other questions that you might have at your convenience.

Very truly yours,

Plante & Moran, PLLC

Michelle Watterworth

Michelle M. Watterworth, CPA

Spencer Tawa

Spencer Tawa, CPA

Section I - Internal Control Related Matters Identified in an Audit

In planning and performing our audit of the financial statements of the System as of and for the year ended June 30, 2021, in accordance with auditing standards generally accepted in the United States of America, we considered the System's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the System's internal control. Accordingly, we do not express an opinion on the effectiveness of the System's internal control.

Our consideration of internal control was for the limited purpose described in the preceding paragraph and was not designed to identify all deficiencies in internal control that might be significant deficiencies or material weaknesses, and, therefore, material weaknesses or significant deficiencies may exist that were not identified. However, as discussed below, we identified certain deficiencies in internal control that we consider to be material weaknesses and another deficiency that we consider to be a significant deficiency.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis.

A material weakness is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity’s financial statements will not be prevented, or detected and corrected, on a timely basis.

We consider the following deficiencies in the System’s internal control to be material weaknesses:

Controls Over the System’s Census Data and Actuarial Valuation Process (Repeat Finding)

Background: The System has to accumulate and transmit voluminous member data to the actuary. The System accumulates member data based on information from the City of Detroit, Michigan (the “City”), as well as data the System independently obtains. The System relies on data it extracts from the City of Detroit, Michigan’s databases primarily for active and deferred members. The System is responsible for data on retirees, as it will obtain additional information when a member commences retirement.

The actuary then uses this information to prepare the actuarial valuation, which impacts the calculation of the actuarially determined contribution (ADC) and the actuarial accrued liability (AAL) for funding purposes and, under GASB Statement No. 67, impacts the total pension liability disclosed in the System’s financial statements.

It is key that the information provided to the actuary is complete and accurate in order to ensure that the funding levels, AAL, and disclosures under GASB Statement No. 67, including the total pension liability, also are accurate.

Issues and recommendations: The System has had issues with the accuracy of the member data for many years. While some data appears to have improved (i.e., active payroll for Component I members), we continued to identify a number of errors with the census data. The more significant errors are as follows:

- Inaccuracies with the average final compensation (AFC) and service years being used in the calculation of frozen accrued benefits (Component II only). Based on our procedures, it was noted that the majority of our sample’s actual AFC was higher than reported in the census data. The majority of the discrepancies ranged from 3 to 8 percent of AFC. Reporting lower AFC than actual leads to a potential understatement of the plan’s total pension liability. Based on follow-up with the System, the discrepancy in the data is not clear. We recommend the System perform a comprehensive review to determine how to pull the most accurate AFC information to provide to the actuary.

- Missing census data - The actuary noted that inactive vested members for Component I have not been fully processed by the System. As a result, the actuary took members who have retired under Component II with a deferred Component I benefit to include as deferred vested under Component I (actuary identified 307 members). Due to getting the information from the active or retired files for Component II, some information was missing, and the actuary had to make assumptions (i.e., if AFC was unavailable, the actuary assumed an AFC of $36,000 for general DOT members and $42,500 for water/sewage and library members). We recommend the System identify deferred vested members under Component I and ensure all data elements needed are provided to the actuary.

- Service years - During our testing procedures, we noted changes to service years for active and deferred members in Component II. We do not expect any changes in benefit service years given this plan is frozen as of June 30, 2014. We recommend the System perform procedures in analyzing changes in service years to ensure the only changes relate to data corrections.

We acknowledge that both the System and the actuary perform certain tests and cleanup work on the data before it is utilized in the valuations. Unfortunately, the magnitude of the issues identified during our testing is still extremely significant, particularly with AFC and, if not corrected in the coming years, may cause issues with being able to conclude that the data utilized in the valuations is accurate enough not to materially misstate financial data.

Controls Over the System's Information Technology Processes (Repeat Finding)

The System has complex modifiable information technology that integrates with the City of Detroit, Michigan's various payroll databases. The System's IT department is independent of the City and the System's other departments. The security provided by the IT system is important to the validity and the accuracy of the data maintained, including the census information provided to the actuary.

Although the System is currently in the process of modifying the information technology system, we offer the following, which the System should keep in mind as it continues to fully implement the new ERP system:

- Use of automated logs - The System uses customized software for a majority of the System's needs, which includes maintaining the census data and benefits calculation application, which are managed internally by the System's IT personnel and can be modified by the IT department. For all changes to that software, there should be an automated log maintained listing those changes, and no single individual should be able to effect a change without proper authorization. Currently, the System has a process to review, authorize, and track changes, but it is not automated; therefore, it is subject to human error and possible circumvention.

- Master file changes - Additionally, it is recommended that the System implement processes to ensure that master file changes are documented, authorized, and reviewed. The lack of this documentation could result in unauthorized and undocumented changes that go undetected by the System.

- Segregation of duties - Segregation of duty controls provide a separation of users with access to program source code and users with the ability to make or implement changes into the production environment. The ability to make or implement program source code changes should be limited to individuals who cannot access and edit source code. The lack of this control could result in inaccurate or unauthorized changes.

Section I - Internal Control Related Matters Identified in an Audit (Continued)

A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance. We consider the following deficiency in the System's internal control to be a significant deficiency:

Controls Over Year-end Investment Valuation

The System has approximately $914 million in investments that do not have a readily determinable market value. For approximately $865 million of this amount, management's estimate of the investments' fair value is based on capital statements provided by investment managers and general partners. The System's process is to accumulate the capital statements for all these investments to record fair value as of June 30, 2021. For investments for which the June 30, 2021 capital statements are not available timely, the System uses March 31, 2021 (or later) capital statements and adjusts for any cash flow activity during the gap period (generally April 1, 2021 through June 30, 2021) to approximate fair value as of June 30, 2021. The System maintains an Excel workpaper to track adjustments to these investments. This process is designed to ensure investment valuation is accurately estimated at June 30, 2021; however, during our audit, we noted one error related to this process:

- An investment was overstated by approximately $6,500,000. The System incorrectly used the March 31, 2020 capital statement instead of March 31, 2021 to initially value the investment (prior to accounting for cash flows for the gap period). The investment value recorded by the System was approximately $39 million but should have been $32.5 million. After we identified this error, the System subsequently recorded this change, and it is reflected in the June 30, 2021 financial statements.

We recommend the System implement additional controls over the System's valuation of investments to ensure investments continue to be recorded in compliance with generally accepted accounting principles. This would include adding another layer of review by obtaining and reviewing capital statements included in the tracker and ensuring formulas are correct in the Excel tracker.

Section II - Required Communications with Those Charged with Governance

Our Responsibility Under U.S. Generally Accepted Auditing Standards

As stated in our engagement letters dated June 18, 2021 and September 21, 2021, our responsibility, as described by professional standards, is to express an opinion about whether the financial statements prepared by management with your oversight are fairly presented, in all material respects, in conformity with U.S. generally accepted accounting principles. Our audit of the financial statements does not relieve you or management of your responsibilities. Our responsibility is to plan and perform the audit to obtain reasonable, but not absolute, assurance that the financial statements are free of material misstatement.

As part of our audit, we considered the internal control of the System. Such considerations were solely for the purpose of determining our audit procedures and not to provide any assurance concerning such internal control.

We are responsible for communicating significant matters related to the audit that are, in our professional judgment, relevant to your responsibilities in overseeing the financial reporting process. However, we are not required to design procedures specifically to identify such matters.

Planned Scope and Timing of the Audit

We performed the audit according to the planned scope and timing previously communicated to you in our meeting about planning matters on August 23, 2021.

Significant Audit Findings

Qualitative Aspects of Accounting Practices

Management is responsible for the selection and use of appropriate accounting policies. In accordance with the terms of our engagement letter, we will advise management about the appropriateness of accounting policies and their application. The significant accounting policies used by the System are described in Note 1 to the financial statements. There were several new accounting standards effective for the System this year, including GASB Statement No. 84 on fiduciary activities, which the System analyzed and determined had no impact. As a result, no new accounting policies were adopted, and the application of existing policies was not changed during year.

We noted no transactions entered into by the System during the year for which there is a lack of authoritative guidance or consensus.

There are no significant transactions that have been recognized in the financial statements in a different period than when the transaction occurred.

Accounting estimates are an integral part of the financial statements prepared by management and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting them may differ significantly from those expected.

The following are the significant estimates affecting the financial statements:

Investment valuations:

The financial statements include investments valued at approximately $49 million (2 percent of net position) at June 30, 2021 whose fair values have been estimated by management in the absence of readily determinable market values.

The valuation of alternative investments constitutes a very sensitive and significant estimate affecting the financial statements. Management uses various means to value the investments, including utilizing a third-party valuation firm, confirmations from the investment managers, periodic appraisals, guidance from real estate advisors, etc. These estimates are very subjective and highly sensitive to change. We believe management's estimates are in accordance with GAAP.

Estimates inherent in the development of the total pension liability:

The financial statement disclosures and required supplemental information schedules contain information about the System's total pension liability. In order to determine the total pension liability, the actuary must apply certain assumptions that are highly sensitive to estimation. The most sensitive estimates used in the valuation were as follows:

- Assumed long-term rate of return - For the purpose of GASB Statement No. 67, as of June 30, 2021, the System is currently using 6.50 percent for the assumed long-term expected rate of return based on information provided by the System's investment advisor combined with calculations performed by the System. This assumed rate of return was also the single discount rate used at the end of the year. Nationally, this long-term rate of return assumption has garnered significant public attention, with many being critical of the average return assumption used by plans across the United States, which, according to a February 2021 National Association of State Retirement Administrators (NASRA) study, was 7.18 percent. Nationally, the trend continues to show a continued decline in this assumption, and we believe that trend will continue. We commend the System on continuing to be critical of this significant assumption, watching the trends nationally, and reevaluating the return assumption annually with a critical eye. Please note that this assumption related to the long-term assumed rate of return is for financial reporting purposes only; the Plan of Adjustment requires that the projected rate of return for funding purposes be 6.75 percent.

- Single discount rate calculation - The calculation of the single discount rate under GASB Statement No. 67, which is calculated using the long-term assumed rate of return as one of many assumptions, is highly sensitive to estimates the actuary makes about future contributions and future benefit payments. Inherent in those assumptions is some subjectivity surrounding the projection of future contributions, since the System does not have a fully approved and agreed upon funding policy dictating contributions after 2023, although we do understand that the board of trustees has adopted a funding policy, but it has not yet been approved by the investment committee, nor has that funding policy been put in place. The assumption made in the GASB 67 valuation is that the actuarially assumed contributions will be made at rates sufficient to fund the benefits by amortizing the unfunded liability over a closed 30-year period. The adoption of a shorter amortization period, if that were the route taken, would not alter the current assumption that no depletion date exists.

- Mortality assumptions - The assumptions about mortality were estimated by the actuary based on the results of an experience study issued in February 2015. Generally, the actuary used the RP-2014 Blue Collar Annuitant Table for males and females, projected on a fully generational basis. In early 2019, the Society of Actuaries published new mortality tables called the Pub-2010 tables. These were the first mortality tables issued based solely on United States public sector employees (public safety, teachers, and general employment categories). Given the applicability of these tables to the public sector, it will be likely the System will need to consider these tables. We understand that the System is currently undergoing a new experience study but that no results are yet available and no new assumptions have yet been adopted as a result of that study, which is ongoing.

- Other assumptions - All other assumptions in the actuarial valuation are based on an experience study for the period from 2002-2007. In order to avoid any results that could be skewed due to the City's bankruptcy, we understand that the System has waited to perform an updated experience study, which is currently in process. It is possible that the results of this next experience study for the period from July 1, 2015 through June 30, 2020 could impact the total pension liability.

We evaluated the key factors and assumptions used to develop the estimates above and determined that they are reasonable in relation to the financial statements taken as a whole.

The disclosure of these assumptions and resultant sensitivity of the discount rate can be found in Notes 7 and 8 to the financial statements.

The disclosures in the financial statements are neutral, consistent, and clear. Certain financial statement disclosures are particularly sensitive because of their significance to financial statement and schedule users. The most sensitive disclosures affecting the financial statements and the schedules are the disclosures related to GASB Statement No. 67, including the actuarial valuation results.

Difficulties Encountered in Performing the Audit

We are required to inform those charged with governance of any difficulties encountered related to the performance of the audit. While we had no difficulties in dealing with management related to the performance of the audit, we did encounter significant difficulties due to the magnitude of the census data errors we found during our audit test work.

Disagreements with Management

For the purpose of this letter, professional standards define a disagreement with management as a financial accounting, reporting, or auditing matter, whether or not resolved to our satisfaction, that could be significant to the financial statements or the auditor's report. We are pleased to report that no such disagreements arose during the course of our audit.

Corrected and Uncorrected Misstatements

Professional standards require us to accumulate all known and likely misstatements identified during the audit, other than those that are trivial, and communicate them to the appropriate level of management. None of the misstatements detected as a result of audit procedures and corrected by management were material, either individually or in the aggregate, to the financial statements taken as a whole. The following summarizes uncorrected misstatements of the financial statements:

- The total pension liability, as calculated by the actuary, is based on census information that is either incomplete or inaccurate. The total pension liability would be different had accurate and complete information been provided to the actuary.

- In the schedule of changes in the city's net pension liability and related ratios (Legacy Plan), covered payroll is required to be presented. This information was unavailable and has been noted as not available.

- The money-weighted rate of return, net of investment expenses for the pension plans calculated return is 28.31 percent. We are unable to audit this rate of return.

Management has determined that their effects are immaterial, both individually and in the aggregate, to the financial statements taken as a whole.

Significant Findings or Issues

We generally discuss a variety of matters, including the application of accounting principles and auditing standards, business conditions affecting the System, and business plans and strategies that may affect the risks of material misstatement, with management each year prior to our retention as the System's auditors. However, these discussions occurred in the normal course of our professional relationship, and our responses were not a condition of our retention.

Management Representations

We have requested certain representations from management that are included in the management representation letter dated November 30, 2021.

Management Consultations with Other Independent Accountants

In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a second opinion on certain situations. If a consultation involves application of an accounting principle to the System's financial statements or a determination of the type of auditor's opinion that may be expressed on those statements, our professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To our knowledge, there were no such consultations with other accountants.

Section III - Other Recommendations and Related Information

During our audit, we noted areas where we believe there are opportunities for the System to further strengthen internal control or to increase operating efficiencies. Our observations on those areas are presented below for your consideration:

Investment Distributions

- The System receives investment cash distributions for interest, dividends, return of capital, and other investment-type income. While the majority of the distributions are received by the System's custodian, Bank of New York, there are distributions that also run through the passive investments. The controls over these distributions are critical to ensuring that all distributions that should go to the System ultimately are received.

  When the System sets up a new alternative investment, such as private equity and hedge funds, subscription agreements are signed by authorized individuals of the System (i.e., trustees and executive director). The agreements may also assign the chief investment officer (CIO) to be the authorized agent on behalf of the System, include a list of individuals that the investment fund should include in some of its correspondences, and indicate the Bank of New York banking information where future distributions are to be sent.

  As an authorized agent, the CIO is able to change the wire instructions after they are initially established. As a detective control to ensure inappropriate changes are not made, when a distribution is sent, in most cases the investment funds send distribution letters simultaneously to the accounting staff at the System in addition to the CIO, which can then be reconciled to the receipt. This control is imperative to ensure distribution wire instructions are correct and funds are being properly received by the designated Bank of New York account.

  As there are some investments initially funded many years ago, the correspondence list and contact information may need to be updated given personnel changes at the System. This is to ensure all distribution notices are received by the accounting department and follow the System's controls - reviewing distribution notices to verify the banking information and follow-up procedures to verify that all current distributions are ultimately received.

- The System's components of investment income are separated in the general ledger and in the financial statements between (a) interest income, dividend income, and other income and (b) net increase (decrease) in fair value of investments (which includes realized and unrealized gains and losses). The plan's current processes and controls do not always result in an accurate allocation between these two components of investment income, although in total investment income would not be affected.

  For investments where Bank of New York is the custodian of the System's investments, the accounting department records the activity using the individual investment reports as the source document. The System appropriately performs a reconciliation of these amounts monthly.

  For investments for which Bank of New York is not the custodian, the accounting department uses information obtained on each distribution notice to determine the income statement classification of the funds received. While the System's processes and controls have improved significantly in this reporting from prior years, during the audit we identified certain adjustments between the classification of investment income. To be clear, this does not have an effect on the System's end of year net position but is merely a misclassification between these two types of income accounts; however, proper accounting is critical to ensure the plan's accounting supports the underlying transactions that are occurring and supports the accuracy of the System's external financial reporting.

  As distribution notices and capital statement formats differ between investment funds, we recommend the System's accounting department continue to work with the chief investment officer on any uncertain distributions to properly classify the distribution within the System's general ledger.

Benefit Payment Classification

The System processes monthly benefit payments for each retiree that are summarized and journalized in a monthly entry. These monthly payroll entries are based on the plan to which each retiree is coded (Component II or I). During testing, it was identified that some individuals' pensions are incorrectly classified between Component I and Component II. While the number of individuals incorrectly classified was insignificant, we recommend the System implement a control to ensure proper classification of members in the IT system. This will become more important as the longevity of Component I grows.

Information Technology Processes

- Currently, there is no formal process to fill out a production release form. Usually a member of the IT department will inform Ray Tchou to review a production change. Ray is the only individual with the ability to release a production change. We recommend the System have a formal policy for individuals to submit a production release form to document change requests and maintain proper support of approval of any changes.

- It was noted there are administrative user profiles that remained in the System for users no longer employed at the System. These profiles have remained active, as staff need to access old files. In addition, we noted duplicate administrative user profiles for current employees. We recommend the System perform a user profile review and only allow one user profile for each current employee and that user profiles for former employees be immediately deleted upon ceasing employment.

Benefit Payment Calculations

Pension factors are used in calculating an individual's pension payment based on age and option selected. Currently, the pension factor used in the calculation of benefit payments is using an old mortality table (1984 table) and a 7.5 percent rate of return. Pension factors should be updated with a newer mortality table (RP-2014 Mortality Table is currently being used in the actuarial valuations) and rate of return of 6.75 percent (current rate of return used for funding purposes, as stipulated by the Plan of Adjustment). Our understanding is the System will update these amounts once the benefit calculation software is implemented.

Informational Items

Income Stabilization Fund

As you are aware, based on the Plan of Adjustment, the investment committee may recommend to the board of trustees that a portion or all of the assets that exceed the income stabilization benefits to be paid in the future be used to fund regular pension payments (up to $35 million). This is allowed beginning in 2022 and requires agreement from at least 75 percent of the independent members of the investment committee on the recommendation. As of June 30, 2021, the Income Stabilization Fund's net position was $14,210,563. The investment committee may want to utilize this option; if so, it will need to utilize an actuary to assist in making this determination.

Upcoming Accounting and Auditing Standards - Fiscal Year Ending June 30, 2022

AICPA State and Local Government Client Affiliates

The AICPA has adopted a revised auditor independence interpretation, which impacts entities reporting under the GASB framework. The new rules define four types of affiliates (entities affiliated with your financial statements) that may expand the scope of required auditor independence as it relates to your audit. Under these revised standards, one type of affiliate includes certain investments held by the audit client. For the System, it is possible that you hold several investments that meet the definition of an affiliate and, therefore, require independence.

Section III - Other Recommendations and Related Information (Continued)

Because auditor independence is a shared responsibility between your organization and Plante & Moran, PLLC, you should be aware of and understand these changes. In addition, we will need your help to perform an initial evaluation under these revised standards and will also likely need your continuing assistance to comply with these rules in the future. The changes are effective for years beginning after December 15, 2021, which means we must be independent of your affiliates as of the first day of the year of required adoption, or July 1, 2022. For more information on these changes, please view our on-demand webinar here.

Auditor Reporting Standards

The AICPA Auditing Standards Board (ASB) issued several new standards which are coming effective shortly, that will significantly change the independent auditor's report and make some changes to certain required audit procedures. The standards discussed below are both first effective for your fiscal year ending June 30, 2022.

Statement on Auditing Standards No. 137 addresses auditors' responsibilities relating to "other information included in annual reports." This new standard may increase the scope of audit procedures and may result in some audit work being performed outside of the normal timing. To the extent that the System issues a document meeting the AICPA's definition of an annual report under the standard, additional audit procedures will need to be performed on these separate documents before issuance.

Statement on Auditing Standards No.134 requires changes in the form and content of the auditor's report issued as a result of an audit of financial statements in order to provide financial statement users with more meaningful information about the audit process and meaning of auditor opinions. This is the first significant change to auditor's reports in years.

Significant elements of the new standard include the following:

- Revised order for elements of the opinion letter, including moving the auditor's opinion to the top of the letter
- Expansion of information to be included within a basis of opinion section and notification to the user that the auditor is required to be independent of the entity and to meet other ethical responsibilities
- Explanation of how misstatements to financial statements are determined to be material
- Addition of definition of "reasonable assurance" and identifying that the risk of material misstatement due to fraud is greater than the risk due to error
- Enhanced reporting related to going concern, including a description of management's responsibilities when required by the applicable reporting framework
- Description of the auditor's responsibilities, including responsibilities relating to professional judgment and professional skepticism, internal controls, identification of risks of material misstatement to the financial statements, evaluation of accounting policies used, conclusion on the entity's ability to continue as a going concern, and the auditor's communications with those charged with governance

We are happy to discuss these changes with you so that you are well prepared.

GASB Statement No. 87 - Leases

This new accounting pronouncement will be effective for reporting periods beginning after June 15, 2021. This statement requires recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and recognized as inflows of resources or outflows of resources based on the payment provisions of the contract. It establishes a single model for lease accounting based on the foundational principle that leases are financings of the right to use an underlying asset. Under this statement, a lessee is required to recognize a lease liability and an intangible right-to-use lease asset, and a lessor is required to recognize a lease receivable and a deferred inflow of resources.

Section III - Other Recommendations and Related Information (Continued)

We recommend beginning to accumulate information now related to all significant lease agreements in order to more efficiently implement this new standard once it becomes effective.

Plante & Moran, PLLC has already provided several trainings on this new standard, which are all available on demand if you missed the original sessions or want a refresher. We also have a workaid available to help you implement the new standard. Please reach out to us for assistance in getting started; we are happy to help.

The General Retirement System of the City of Detroit

GASB Statement Nos. 67 and 68 Accounting and Financial Reporting for Pension Plans of Component II

June 30, 2021

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

October 29, 2021

Board of Trustees
The General Retirement System of the City of Detroit

Dear Board Members:

This report provides information required for the General Retirement System of the City of Detroit in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67 "Financial Reporting for Pension Plans" and Statement No. 68 "Employer Reporting for Pension Plans." These calculations have been made on a basis that is consistent with our understanding of this Statement. This information is subject to a review by the System's Auditor. Please let us know if the System's Auditor recommends any changes. This report covers the General Retirement System Plan known as Component II (also known as the Legacy Plan). Since Component I is a separate plan, it is detailed in a separate report.

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of satisfying the requirements of GASB Statement Nos. 67 and 68. The calculation of the plan's liability for this report is not applicable for funding purposes of the plan. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement Nos. 67 and 68 may produce significantly different results. In particular, this is not a funding report and nothing in this report should be construed as a funding recommendation. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The Appendix of this report also provides some of the information necessary to complete the reporting requirements for the State of Michigan's Local Government Retirement System Annual Report (Form No. 5572). This information is not required to be included in your financial statements. The calculations in the Appendix are based on assumptions that satisfy the Uniform Assumptions criteria published by the Michigan Treasury for Fiscal Year 2021 reporting requirements.

This report is based upon information, furnished to us by System staff, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. This report is based on the valuation date of June 30, 2020. The total pension liability was rolled-forward from the valuation date to the plan year ending June 30, 2021 using generally accepted actuarial principles. The asset information as of June 30, 2021 was provided by the System. This information was checked for internal consistency, but it was not audited by Gabriel, Roeder, Smith & Company. A description of the adjustments made to the data is incorporated in this report (either directly or by reference). GRS is not responsible for the accuracy of the data provided by the Retirement System. This report is based upon estimates of frozen accrued benefits. Future measurements based on final calculation of benefit amounts will differ.

At the direction of the System and approval of the System's Auditor, the long-term expected return on assets used to determine the discount rate is 6.50%, net of investment expenses, as of June 30, 2021, down from 7.06% as of June 30, 2020. We have reviewed this assumption based on the System's asset allocation and have determined it does not significantly conflict with what, in our professional judgement, would be reasonable for purposes of the measurement.

To the best of our knowledge, the information contained within this report is accurate and fairly represents the actuarial position of the System on the measurement date for purposes of GASB Statement Nos. 67 and 68 reporting. 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.

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. We are relying on the GRS actuaries and Internal Software, Training, and Processes Team who developed and maintain the model.

The signing individuals are independent of the plan sponsor.

David T. Kausch, Judith A. Kermans, and Jamal Adora 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.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

David T Kausch

David T. Kausch, FSA, EA, FCA, MAAA, PhD
Senior Consultant and Chief Actuary

Judith A. Kermans

Judith A. Kermans, EA, FCA, MAAA
Senior Consultant and President

Jamal Adora

Jamal Adora, ASA, EA, MAAA
Senior Analyst

DTK/JAK/JA:bd

Table of Contents

SECTION A

EXECUTIVE SUMMARY

Executive Summary
as of June 30, 2021

Actuarial Valuation Date	June 30, 2020
Measurement Date of the Net Pension Liability	June 30, 2021
Employer's Fiscal Year Ending Date (GASB No. 68 Reporting Date)	June 30, 2022

Membership		
Number of		
- Retirees and Beneficiaries		11,220
- Inactive, Nonretired Members		2,728
- Active Members		2,403
- Total		16,351
Covered Payroll	$	111,124,304
Net Pension Liability		
Total Pension Liability	$	2,704,110,233
Plan Fiduciary Net Position		1,818,649,298
Net Pension Liability	$	885,460,935
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		67.25%
Net Pension Liability as a Percentage of Covered Payroll		796.82%
Development of the Single Discount Rate		
Single Discount Rate		6.50%
Long-Term Expected Rate of Investment Return		6.50%
Long-Term Municipal Bond Rate*		1.92%
Last year ending June 30 in the 2022 to 2121 projection period for which projected benefit payments are fully funded		2121
Total Pension Expense	$	97,970,192

Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	$ -	$ -
Changes in assumptions	-	-
Net difference between projected and actual earnings on pension plan investments	119,508,010	245,801,617
Total	$ 119,508,010	$ 245,801,617

*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 June 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

Changes Compared to Funding Valuation

For purposes of determining the Total Pension Liability (TPL) as of June 30, 2021, we note the following differences from the assumptions used in the June 30, 2020 funding valuation:

- At the direction of the System and approval of the System's Auditor, the long-term expected return on assets was 6.50% net of investment expenses, as of June 30, 2021. It was 6.75% net of investment and administrative expenses, in the June 30, 2020 funding valuation, as required by the Plan of Adjustment.
- Administrative expenses are assumed to be shared 60% with Component II and 40% with Component I. This was reflected in our modeling, where appropriate.

All other actuarial assumptions were the same as those used in the June 30, 2020 actuarial valuation (the funding valuation).

Changes Compared to Prior Year's GASB Report

The changes in actuarial assumptions compared to the June 30, 2019 GASB No. 68 reporting was:

- The long-term expected rate of investment return and single discount rate decreased from 7.06% to 6.50%.

This change increased the TPL by $120 million resulting in a new deferred outflow for recognition in the pension expense.

Data Approximations and Assumptions

A description of the data approximations and assumptions used in completing this report are included in the June 30, 2020 funding valuation report.

Discussion

Development of Employer Proportionate Shares

As instructed, we have developed the proportionate employer shares as follows:

- General, DOT, DWSD, and Library have contribution rates assessed on separate relationships and are, therefore, accounted for separately under Paragraph 49 of GASB Statement No. 68.
- The component units in the General Division were 1) General City; 2) Parking; and 3) Airport.
- Proportionate shares in the General Division were determined by prorating based on the Total Pension Liability.

Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68 establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the net pension liability, pension expense, and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. 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 the retirement system and/or plan sponsor will be responsible for preparing and disclosing that information to comply with these accounting standards.

Financial Statements

GASB Statement No. 68 requires state or local governments to recognize the net pension liability and the pension expense on their financial statements. The net pension liability is the difference between the total pension liability and the plan's fiduciary net position. In traditional actuarial terms, this is analogous to 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).

Paragraph 57 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to the General Retirement System of the City of Detroit subsequent to the measurement date of June 30, 2021.

Discussion

The pension expense recognized each fiscal year is equal to the change in the net pension liability from the beginning of the year to the end of the year, adjusted for deferred recognition of the certain changes in the liability and investment experience.

Pension plans that prepare their own, stand-alone financial statements are required to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position in accordance with GASB Statement No. 67. The *statement of fiduciary net position* presents the assets and liabilities of the pension plan at the end of the pension plan's reporting period. The *statement of changes in fiduciary net position* presents the additions, such as contributions and investment income, and deductions, such as benefit payments and expenses, and net increase or decrease in the fiduciary net position.

Notes to Financial Statements

GASB Statement No. 68 requires the notes of the employer's financial statements to disclose the total pension expense, the pension plan's liabilities and assets, and deferred outflows and inflows of resources related to pensions.

GASB Statement Nos. 67 and 68 require the notes of the financial statements for the employers and pension plans to include certain additional information. The list of disclosure items should include:

- A description of benefits provided by the plan;
- The type of employees and number of members covered by the pension plan;
- A description of the plan's funding policy, which includes member and employer contribution requirements;
- The pension plan's investment policies;
- The pension plan's fiduciary net position and the net pension liability;
- The net pension liability using a discount rate that is 1% higher and 1% lower than used to calculate the total pension liability and net pension liability for financial reporting purposes;
- 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.

Retirement systems that issue stand-alone financial statements are required to disclose additional information in accordance with GASB Statement No. 67. This information includes:

- The composition of the pension plan's Board and the authority under which benefit terms may be amended;
- A description of how fair value is determined;
- Information regarding certain reserves and investments, which include concentrations of investments greater than or equal to 5%, receivables, and insurance contracts excluded from plan assets; and
- Annual money-weighted rate of return.

Discussion

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; and
- A comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. The net pension liability and pension expense should be measured as of the pension plan's fiscal year end (measurement date) on a date that is within the employer's prior fiscal year. 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 June 30, 2020, rolled to the plan year end of June 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 6.50% the municipal bond rate is 1.92% (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 6.50%.

The expected rate of return was provided by the Retirement System and approved by the System's auditor.

Discussion

Limitation of Assets as a Percent of Total Pension Liability Measurements

This report includes a measure of the plan fiduciary net position as a percent of total pension liability (67.25% as of June 30, 2021). Unless otherwise indicated, with regard to any such measurements presented in this report:

(1) This measurement is not intended to be a funded ratio or a measure of funded progress.
(2) This measurement is inappropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations.
(3) The measurement is inappropriate for assessing the need for or amount of future employer contributions.

Limitations of Project Scope

Actuarial Standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entities to make required contributions when due. Such an evaluation was not within the scope of this project and is not within our area of expertise. Consequently, we have not made such an evaluation.

ASF Recoupments

The reported June 30, 2021 assets included a receivable, computed by the System's auditor, that accounts for future ASF recoupments. We understand this amount was originally determined as of June 30, 2015 and updated to June 30, 2021 in accordance with GAAP.

SECTION B

FINANCIAL STATEMENTS

This information is subject to the System's Auditor's review. Please let us know if the System's Auditor recommends any changes.

Statement of Fiduciary Net Position
as of June 30, 2021

Assets	
Cash and Cash Equivalents	$ 81,684,767
Receivables	108,348,712
Investments at Fair Value	1,631,592,944
Cash and Investments held as collateral for securities lending	77,656,896
Capital Assets - Net	2,647,165
Total Assets	$ 1,901,930,484
Liabilities	
Accounts Payable	$ 83,281,186
Total Liabilities	$ 83,281,186
Net Position Restricted for Pensions	$ 1,818,649,298
ASF Reserve	$ 104,783,035
Other Reserves	1,713,866,263
Plan Fiduciary Net Position	$ 1,818,649,298

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

Additions		
Contributions		
Employer	$	47,900,000
Employee		-
Foundation Contribution		375,000
Total Contributions	$	48,275,000
Investment Income		
Investment Income	$	406,977,917
Net Investment Income	$	406,977,917
Other Income (Including ASF Interest)^	$	7,576,875
Total Additions	$	462,829,792
Deductions		
Benefit Payments, including Refunds of Employee Contributions	$	237,123,777
Pension Plan Administrative Expense		1,987,193
Other (including ASF write-offs and transfers to Comp I)		1,171,513
Total Deductions	$	240,282,483
Net Increase in Net Position	$	222,547,309
Net Position Restricted for Pensions		
Beginning of Year	$	1,596,101,989
End of Year	$	1,818,649,298

^ *Following discussions with the auditor, we understand that for purposes of determining the Pension Expense for GASB Statement No. 68, ASF Interest should be treated as Other Changes in Plan Fiduciary Net Position and recognized immediately.*

Statement of Pension Expense Under GASB Statement No. 68
Fiscal Year Ended June 30, 2021*

A. Expense	General	DOT	DWSD	Library	Total
1. Service Cost	$ -	$ -	$ -	$ -	$ -
2. Interest on the Total Pension Liability	98,821,058	28,380,977	48,808,307	6,129,763	182,140,105
3. Current-Period Benefit Changes	-	-	-	-	-
4. Employee Contributions (made negative for addition here)	-	-	-	-	-
5. Projected Earnings on Plan Investments (made negative for addition here)	(56,441,869)	(8,648,648)	(35,896,761)	(5,187,122)	(106,174,400)
6. Pension Plan Administrative Expense	1,717,931	174,636	-	94,626	1,987,193
7. Other Changes in Plan Fiduciary Net Position	(3,462,963)	(929,607)	(1,874,921)	(137,871)	(6,405,362)
8. Recognition of Outflow (Inflow) of Resources due to Liabilities	28,271,756	8,889,512	20,008,404	3,474,173	60,643,845
9. Recognition of Outflow (Inflow) of Resources due to Assets	(19,081,501)	(2,525,029)	(11,250,854)	(1,363,805)	(34,221,189)
10. Total Pension Expense	**$ 49,824,412**	**$ 25,341,841**	**$ 19,794,175**	**$ 3,009,764**	**$ 97,970,192**

**Totals may not add due to rounding.*

Statement of Outflows and Inflows Arising from Current Reporting Period Fiscal Year Ended June 30, 2021*

A. Outflows (Inflows) of Resources due to Liabilities	General	DOT	DWSD	Library	Total
1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	$ (35,563,723)	$ (10,172,786)	$ (13,092,918)	$ (403,422)	$ (59,232,849)
2. Assumption Changes (gains) or losses	$ 63,835,479	$ 19,062,298	$ 33,101,322	$ 3,877,595	$ 119,876,694
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	1.0000	1.0000	1.0000	1.0000	1.0000
4. Outflow (Inflow) of Resources to be recognized in the current pension expense for the difference between expected and actual experience of the Total Pension Liability	$ (35,563,723)	$ (10,172,786)	$ (13,092,918)	$ (403,422)	$ (59,232,849)
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	$ 63,835,479	$ 19,062,298	$ 33,101,322	$ 3,877,595	$ 119,876,694
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	$ 28,271,756	$ 8,889,512	$ 20,008,404	$ 3,474,173	$ 60,643,845
7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the difference between expected and actual experience of the Total Pension Liability	$ -	$ -	$ -	$ -	$ -
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	$ -	$ -	$ -	$ -	$ -
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	$ -	$ -	$ -	$ -	$ -
B. Outflows (Inflows) of Resources due to Assets					
1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	$ (163,725,622)	$ (22,993,665)	$ (100,639,867)	$ (13,444,363)	$ (300,803,517)
2. Recognition period for Assets {in years}	5.0000	5.0000	5.0000	5.0000	5.0000
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets	$ (32,745,124)	$ (4,598,733)	$ (20,127,973)	$ (2,688,873)	$ (60,160,703)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	$ (130,980,498)	$ (18,394,932)	$ (80,511,894)	$ (10,755,490)	$ (240,642,814)

**Totals may not add due to rounding.*

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods
Fiscal Year Ended June 30
General

A. Outflows and Inflows of Resources Due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	$ 63,835,479	$ 35,563,723	$ 28,271,756
2. Due to Assets	25,427,451	44,508,952	(19,081,501)
3. Total	$ 89,262,930	$ 80,072,675	$ 9,190,255

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ -	$ 35,563,723	$ (35,563,723)
2. Assumption Changes	63,835,479	-	63,835,479
3. Net Difference between projected and actual earnings on pension plan investments	25,427,451	44,508,952	(19,081,501)
4. Total	$ 89,262,930	$ 80,072,675	$ 9,190,255

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	$ -	$ -	$ -
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	66,289,191	134,132,407	(67,843,216)
4. Total	$ 66,289,191	$ 134,132,407	$ (67,843,216)

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows of Resources General Total
2022	$ (10,469,582)
2023	(7,317,675)
2024	(17,310,833)
2025	(32,745,126)
2026	-
Thereafter	-
Total	$ (67,843,216)

Recognition of Deferred Outflows and Inflows of Resources
Fiscal Year Ended June 30, 2021
General

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2017	$ (23,006,975)	1.0000	$ -	$ -	0.0000
2018	3,041,504	1.0000	-	-	0.0000
2019	10,605,505	1.0000	-	-	0.0000
2020	(30,326,230)	1.0000	-	-	0.0000
2021	(35,563,723)	1.0000	(35,563,723)	-	0.0000
Total			**$ (35,563,723)**	**$ -**	
Deferred Outflow (Inflow) due to Assumption Changes					
2017	$ 41,844,061	1.0000	$ -	$ -	0.0000
2018	(59,163,587)	1.0000	-	-	0.0000
2019	-	1.0000	-	-	0.0000
2020	36,247,728	1.0000	-	-	0.0000
2021	63,835,479	1.0000	63,835,479	-	0.0000
Total			**$ 63,835,479**	**$ -**	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2017	$ (43,059,585)	5.0000	$ (8,611,917)	$ -	0.0000
2018	(15,759,553)	5.0000	(3,151,911)	(3,151,909)	1.0000
2019	49,965,808	5.0000	9,993,162	19,986,322	2.0000
2020	77,171,447	5.0000	15,434,289	46,302,869	3.0000
2021	(163,725,622)	5.0000	(32,745,124)	(130,980,498)	4.0000
Total			**$ (19,081,501)**	**$ (67,843,216)**	

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30 DOT

A. Outflows and Inflows of Resources Due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	$ 19,062,298	$ 10,172,786	$ 8,889,512
2. Due to Assets	4,064,434	6,589,463	(2,525,029)
3. Total	$ 23,126,732	$ 16,762,249	$ 6,364,483

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ -	$ 10,172,786	$ (10,172,786)
2. Assumption Changes	19,062,298	-	19,062,298
3. Net Difference between projected and actual earnings on pension plan investments	4,064,434	6,589,463	(2,525,029)
4. Total	$ 23,126,732	$ 16,762,249	$ 6,364,483

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	$ -	$ -	$ -
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	10,517,052	18,811,364	(8,294,312)
4. Total	$ 10,517,052	$ 18,811,364	$ (8,294,312)

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows of Resources
2022	$ (950,731)
2023	(534,297)
2024	(2,210,551)
2025	(4,598,733)
2026	-
Thereafter	-
Total	$ (8,294,312)

Recognition of Deferred Outflows and Inflows of Resources
Fiscal Year Ended June 30, 2021
DOT

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2017	$ (5,802,247)	1.0000	$ -	$ -	0.0000
2018	32,573,900	1.0000	-	-	0.0000
2019	(1,582,543)	1.0000	-	-	0.0000
2020	(7,081,563)	1.0000	-	-	0.0000
2021	(10,172,786)	1.0000	(10,172,786)	-	0.0000
Total			**$ (10,172,786)**	**$ -**	
Deferred Outflow (Inflow) due to Assumption Changes					
2017	$ 11,022,689	1.0000	$ -	$ -	0.0000
2018	(17,236,637)	1.0000	-	-	0.0000
2019	-	1.0000	-	-	0.0000
2020	10,660,029	1.0000	-	-	0.0000
2021	19,062,298	1.0000	19,062,298	-	0.0000
Total			**$ 19,062,298**	**$ -**	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2017	$ (7,871,494)	5.0000	$ (1,574,298)	$ -	0.0000
2018	(2,082,160)	5.0000	(416,432)	(416,432)	1.0000
2019	8,381,262	5.0000	1,676,252	3,352,506	2.0000
2020	11,940,910	5.0000	2,388,182	7,164,546	3.0000
2021	(22,993,665)	5.0000	(4,598,733)	(18,394,932)	4.0000
Total			**$ (2,525,029)**	**$ (8,294,312)**	

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods
Fiscal Year Ended June 30
DWSD

A. Outflows and Inflows of Resources due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	$ 33,101,322	$ 13,092,918	$ 20,008,404
2. Due to Assets	14,258,921	25,509,775	(11,250,854)
3. Total	$ 47,360,243	$ 38,602,693	$ 8,757,550

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ -	$ 13,092,918	$ (13,092,918)
2. Assumption Changes	33,101,322	-	33,101,322
3. Net Difference between projected and actual earnings on pension plan investments	14,258,921	25,509,775	(11,250,854)
4. Total	$ 47,360,243	$ 38,602,693	$ 8,757,550

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	$ -	$ -	$ -
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	37,407,153	81,947,581	(44,540,428)
4. Total	$ 37,407,153	$ 81,947,581	$ (44,540,428)

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows of Resources
2022	$ (7,304,739)
2023	(5,869,050)
2024	(11,238,664)
2025	(20,127,975)
2026	-
Thereafter	-
Total	$ (44,540,428)

Recognition of Deferred Outflows and Inflows of Resources
Fiscal Year Ended June 30, 2021
DWSD

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2017	$ 3,370,105	1.0000	$ -	$ -	0.0000
2018	(456,059)	1.0000	-	-	0.0000
2019	4,924,609	1.0000	-	-	0.0000
2020	(14,601,904)	1.0000	-	-	0.0000
2021	(13,092,918)	1.0000	(13,092,918)	-	0.0000
Total			**$ (13,092,918)**	**$ -**	
Deferred Outflow (Inflow) due to Assumption Changes					
2017	$ 21,554,914	1.0000	$ -	$ -	0.0000
2018	(30,363,241)	1.0000	-	-	0.0000
2019	-	1.0000	-	-	0.0000
2020	18,638,831	1.0000	-	-	0.0000
2021	33,101,322	1.0000	33,101,322	-	0.0000
Total			**$ 33,101,322**	**$ -**	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2017	$ (19,730,574)	5.0000	$ (3,946,114)	$ -	0.0000
2018	(7,178,439)	5.0000	(1,435,688)	(1,435,687)	1.0000
2019	26,848,067	5.0000	5,369,613	10,739,228	2.0000
2020	44,446,541	5.0000	8,889,308	26,667,925	3.0000
2021	(100,639,867)	5.0000	(20,127,973)	(80,511,894)	4.0000
Total			**$ (11,250,854)**	**$ (44,540,428)**	

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods
Fiscal Year Ended June 30
Library

A. Outflows and Inflows of Resources Due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	$ 3,877,595	$ 403,422	$ 3,474,173
2. Due to Assets	2,023,734	3,387,539	(1,363,805)
3. Total	$ 5,901,329	$ 3,790,961	$ 2,110,368

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ -	$ 403,422	$ (403,422)
2. Assumption Changes	3,877,595	-	3,877,595
3. Net Difference between projected and actual earnings on pension plan investments	2,023,734	3,387,539	(1,363,805)
4. Total	$ 5,901,329	$ 3,790,961	$ 2,110,368

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	$ -	$ -	$ -
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	5,294,614	10,910,265	(5,615,651)
4. Total	$ 5,294,614	$ 10,910,265	$ (5,615,651)

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows of Resources
2022	$ (819,914)
2023	(665,137)
2024	(1,441,729)
2025	(2,688,871)
2026	-
Thereafter	-
Total	$ (5,615,651)

Recognition of Deferred Outflows and Inflows of Resources
Fiscal Year Ended June 30, 2021
Library

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2017	$ (2,069,263)	1.0000	$ -	$ -	0.0000
2018	(1,005,018)	1.0000	-	-	0.0000
2019	(350,671)	1.0000	-	-	0.0000
2020	(3,827,052)	1.0000	-	-	0.0000
2021	(403,422)	1.0000	(403,422)	-	0.0000
Total			**$ (403,422)**	**$ -**	
Deferred Outflow (Inflow) due to Assumption Changes					
2017	$ 2,504,293	1.0000	$ -	$ -	0.0000
2018	(3,511,050)	1.0000	-	-	0.0000
2019	-	1.0000	-	-	0.0000
2020	2,130,947	1.0000	-	-	0.0000
2021	3,877,595	1.0000	3,877,595	-	0.0000
Total			**$ 3,877,595**	**$ -**	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2017	$ (2,719,454)	5.0000	$ (543,890)	$ -	0.0000
2018	(773,879)	5.0000	(154,776)	(154,775)	1.0000
2019	3,882,957	5.0000	776,591	1,553,184	2.0000
2020	6,235,716	5.0000	1,247,143	3,741,430	3.0000
2021	(13,444,363)	5.0000	(2,688,873)	(10,755,490)	4.0000
Total			**$ (1,363,805)**	**$ (5,615,651)**	

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods
Fiscal Year Ended June 30
Total

A. Outflows and Inflows of Resources Due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	$ 119,876,694	$ 59,232,849	$ 60,643,845
2. Due to Assets	45,774,540	79,995,729	(34,221,189)
3. Total	$ 165,651,234	$ 139,228,578	$ 26,422,656

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ -	$ 59,232,849	$ (59,232,849)
2. Assumption Changes	119,876,694	-	119,876,694
3. Net Difference between projected and actual earnings on pension plan investments	45,774,540	79,995,729	(34,221,189)
4. Total	$ 165,651,234	$ 139,228,578	$ 26,422,656

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	$ -	$ -	$ -
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	119,508,010	245,801,617	(126,293,607)
4. Total	$ 119,508,010	$ 245,801,617	$ (126,293,607)

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows of Resources
2022	$ (19,544,966)
2023	(14,386,159)
2024	(32,201,777)
2025	(60,160,705)
2026	-
Thereafter	-
Total	$ (126,293,607)

Schedule of Proportionate Employer Share
for Year Ended June 30, 2021
General Subgroup*

TPL	Employer	Prop. Share	Net Pension Liability	Deferred Outflows of Resources: Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes of Assum.	Changes in Proportion and Differences Between Employer Cont. and Share of Cont.	Total Deferred Outflows of Resources
$ 1,437,453,800	General City	98.33%	$ 496,509,550	$ -	$ 65,182,162	$ -	$ -	$ 65,182,162
21,489,445	Parking	1.47%	7,422,649	-	974,451	-	-	974,451
2,923,734	Airport	0.20%	1,009,884	-	132,578	-	-	132,578
$ 1,461,866,979	***Total for All Employers***	**100.00%**	**$ 504,942,083**	**$ -**	**$ 66,289,191**	**$ -**	**$ -**	**$ 66,289,191**

Employer	Deferred Inflows of Resources: Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes of Assum.	Changes in Proportion and Differences Between Employer Cont. and Share of Cont.	Total Deferred Inflows of Resources	Pension Expense: Prop. Share of Plan Pension Expense	Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributins and Proportionate	Total Employer Pension Expense
General City	$ -	$ 131,892,396	$ -	$ -	$ 131,892,396	$ 48,992,344	$ 481,157	$ 49,473,501
Parking	-	1,971,746	-	-	1,971,746	732,419	(183,219)	549,200
Airport	-	268,265	-	-	268,265	99,649	(297,938)	(198,289)
Total for All Employers	**$ -**	**$ 134,132,407**	**$ -**	**$ -**	**$ 134,132,407**	**$ 49,824,412**	**$ -**	**$ 49,824,412**

** Totals may not add due to rounding.*

Schedule of Proportionate Employer Share
for Year Ended June 30, 2021
General Subgroup*

Employer	Employer Allocation Percentage	2022	2023	2024	2025	2026	Thereafter	Total
		Schedule of Deferred Inflows and Outflows						
General City	98.33%	$ (10,294,740)	$ (7,195,470)	$ (17,021,742)	$ (32,198,282)	$ -	$ -	$ (66,710,234)
Parking	1.47%	(153,903)	(107,570)	(254,469)	(481,353)	-	-	(997,295)
Airport	0.20%	(20,939)	(14,635)	(34,622)	(65,490)	-	-	(135,686)
TOTAL	100.00%	$ (10,469,582)	$ (7,317,675)	$ (17,310,833)	$ (32,745,125)	$ -	$ -	$ (67,843,215)

** Totals may not add due to rounding.*

Determination of Employer Contribution Allocation
for Year Ended June 30, 2021

Employer	General City	Parking	Airport	General Total	DOT	DWSD	Library	Total
Contributions Before General Breakdown				$ 2,765,012	$ 109,988	$ 42,900,000	$ 2,500,000	$ 48,275,000
General Employer Allocation Percent	100.00%	0.00%	0.00%	100.00%	N/A	N/A	N/A	N/A
Times General Total	2,765,012	2,765,012	2,765,012	2,765,012	N/A	N/A	N/A	N/A
Contribution Allocation Dollar	$ 2,765,012	$ -	$ -	$ 2,765,012	$ 109,988	$ 42,900,000	$ 2,500,000	$ 48,275,000

We understand that the General contributions should be split between the General component units (General City, Parking, and Airport) according to the above schedule. Please let us know if a different allocation should be used.

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in Net Pension Liability and Related Ratios Current Period
Fiscal Year Ended June 30, 2021*

A. Total Pension Liability	General	DOT	DWSD	Library	Total
1. Service Cost	$ -	$ -	$ -	$ -	$ -
2. Interest on the Total Pension Liability	98,821,058	28,380,977	48,808,307	6,129,763	182,140,105
3. Changes of benefit terms	-	-	-	-	-
4. Difference between expected and actual experience of the Total Pension Liability	(35,563,723)	(10,172,786)	(13,092,918)	(403,422)	(59,232,849)
5. Changes of assumptions	63,835,479	19,062,298	33,101,322	3,877,595	119,876,694
6. Benefit payments, including refunds of employee contributions	(129,915,040)	(36,393,303)	(63,209,867)	(7,605,567)	(237,123,777)
7. Net change in Total Pension Liability	$ (2,822,226)	$ 877,186	$ 5,606,844	$ 1,998,369	$ 5,660,173
8. Total Pension Liability – Beginning	1,464,689,205	420,193,498	722,940,733	90,626,624	2,698,450,060
9. Total Pension Liability – Ending	**$ 1,461,866,979**	**$ 421,070,684**	**$ 728,547,577**	**$ 92,624,993**	**$ 2,704,110,233**
B. Plan Fiduciary Net Position					
1. Contributions – employer	$ 2,765,012	$ 109,988	$ 42,900,000	$ 2,500,000	$ 48,275,000
2. Contributions – employee	-	-	-	-	-
3. Net investment income	220,167,491	31,642,313	136,536,628	18,631,485	406,977,917
4. Benefit payments, including refunds of employee contributions	(129,915,040)	(36,393,303)	(63,209,867)	(7,605,567)	(237,123,777)
5. Pension Plan Administrative Expense	(1,717,931)	(174,636)	-	(94,626)	(1,987,193)
6. Other	3,462,963	929,607	1,874,921	137,871	6,405,362
7. Net change in Plan Fiduciary Net Position	$ 94,762,495	$ (3,886,031)	$ 118,101,682	$ 13,569,163	$ 222,547,309
8. Plan Fiduciary Net Position – Beginning	862,162,401	140,266,264	517,670,180	76,003,144	1,596,101,989
9. Plan Fiduciary Net Position – Ending	**$ 956,924,896**	**$ 136,380,233**	**$ 635,771,862**	**$ 89,572,307**	**$ 1,818,649,298**
C. Net Pension Liability	**$ 504,942,083**	**$ 284,690,451**	**$ 92,775,715**	**$ 3,052,686**	**$ 885,460,935**
D. Plan Fiduciary Net Position as a percentage of the Total Pension Liability	**65.46%**	**32.39%**	**87.27%**	**96.70%**	**67.25%**
E. Covered-employee payroll	**$ 72,060,511**	**$ 15,783,013**	**$ 14,485,553**	**$ 8,795,227**	**$ 111,124,304**
F. Net Pension Liability as a percentage of covered-employee payroll	**700.72%**	**1803.78%**	**640.47%**	**34.71%**	**796.82%**

**Totals may not add due to rounding.*

A Special Funding Situation may occur if a non-city entity has a legal obligation to contribute directly to the Retirement System. The Net Pension Liability shown here has not been adjusted for any potential special funding situation.

Schedules of Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios Multiyear

Ultimately 10 Fiscal Years will be Displayed

Fiscal year ending June 30,	2021	2020	2019	2018	2017	2016	2015	2014
Total Pension Liability								
Service Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 32,736,019
Interest on the Total Pension Liability	182,140,105	192,888,245	195,489,643	192,359,745	201,919,236	214,011,164	263,007,329	242,611,073
Benefit Changes	-	-	-	-	-	-	(731,824,895)	(113,311,571)
Difference between Expected and Actual Experience	(59,232,849)	(55,836,749)	13,596,900	34,154,327	(27,508,380)	(43,719,112)	24,644,530	-
Assumption Changes	119,876,694	67,677,535	-	(110,274,515)	76,925,957	90,034,927	(101,559,893)	(271,190,194)
Benefit Payments	(225,790,173)	(230,537,598)	(235,153,732)	(239,301,938)	(242,938,006)	(242,470,451)	(253,217,949)	(253,683,194)
Refunds*	(11,333,604)	(9,344,054)	(13,636,283)	(14,140,692)	(24,311,533)	(49,811,728)	(44,321,041)	(144,050,613)
Net Change in Total Pension Liability	5,660,173	(35,152,621)	(39,703,472)	(137,203,073)	(15,912,726)	(31,955,200)	(843,271,919)	(506,888,480)
Total Pension Liability - Beginning	2,698,450,060	2,733,602,681	2,773,306,153	2,910,509,226	2,926,421,952	2,958,377,152	3,801,649,071	4,308,537,551
Total Pension Liability - Ending (a)	$ 2,704,110,233	$ 2,698,450,060	$ 2,733,602,681	$ 2,773,306,153	$ 2,910,509,226	$ 2,926,421,952	$ 2,958,377,152	$ 3,801,649,071
Plan Fiduciary Net Position								
Employer Contributions	$ 48,275,000	$ 47,900,000	$ 67,900,000	$ 68,275,000	$ 91,238,402	$ 104,792,657	$ 189,282,095	$ 25,126,131
Employee Contributions	-	-	-	-	-	-	609,073	10,241,761
Pension Plan Net Investment Income	406,977,917	(14,002,111)	47,170,007	155,423,193	206,896,567	(7,865,094)	93,054,978	289,789,607
Benefit Payments	(225,790,173)	(230,537,598)	(235,153,732)	(239,301,938)	(242,938,006)	(242,470,451)	(253,217,949)	(253,683,194)
Refunds*	(11,333,604)	(9,344,054)	(13,636,283)	(14,140,692)	(24,311,533)	(49,811,728)	(44,321,041)	(144,050,613)
Pension Plan Administrative Expense	(1,987,193)	(2,351,273)	(3,023,943)	(3,313,418)	(6,021,837)	(3,742,618)	(7,556,822)	(11,237,767)
Other	6,405,362	5,530,198	(4,972,864)	6,952,522	8,324,075	1,360,330	138,219,998	-
Net Change in Plan Fiduciary Net Position	222,547,309	(202,804,838)	(141,716,815)	(26,105,333)	33,187,668	(197,736,904)	116,070,332	(83,814,075)
Plan Fiduciary Net Position - Beginning	1,596,101,989	1,798,906,827	1,940,623,642	1,966,728,975	1,933,541,307	2,131,278,211	2,015,207,879	2,099,021,954
Plan Fiduciary Net Position - Ending (b)	$ 1,818,649,298	$ 1,596,101,989	$ 1,798,906,827	$ 1,940,623,642	$ 1,966,728,975	$ 1,933,541,307	$ 2,131,278,211	$ 2,015,207,879
Net Pension Liability - Ending (a) - (b)	$ 885,460,935	$ 1,102,348,071	$ 934,695,854	$ 832,682,511	$ 943,780,251	$ 992,880,645	$ 827,098,941	$ 1,786,441,192
Plan Fiduciary Net Position as a Percentage								
of Total Pension Liability	67.25 %	59.15 %	65.81 %	69.98 %	67.57 %	66.07 %	72.04 %	53.01 %
Covered-Employee Payroll	$ 111,124,304	$ 142,215,060	$ 149,373,313	$ 141,454,717	$ 143,882,722	$ 200,722,197	$ 203,507,079	$ 213,291,083
Net Pension Liability as a Percentage								
of Covered-Employee Payroll	796.82 %	775.13 %	625.74 %	588.66 %	655.94 %	494.65 %	406.42 %	837.56 %
Notes to Schedule:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

** For FY 2017, includes approximately $2.9 million of adjusted loan balances that were treated as refunds of ASF contributions.*

A Special Funding Situation may occur if a non-city entity has a legal obligation to contribute directly to the Retirement System. The Net Pension Liability shown here has not been adjusted for any potential funding situation. Our understanding is that the City makes all the employer contributions into the fund, even though the City may receive monies from other entities as a result of the POA.

Schedules of Required Supplementary Information
Schedule of the Net Pension Liability Multiyear

Ultimately 10 Fiscal Years will be Displayed

FY Ending June 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll*	Net Pension Liability as a % of Covered Payroll
2014	$ 3,801,649,071	$ 2,015,207,879	$ 1,786,441,192	53.01%	$ 213,291,083	837.56%
2015	2,958,377,152	2,131,278,211	827,098,941	72.04%	203,507,079	406.42%
2016	2,926,421,952	1,933,541,307	992,880,645	66.07%	200,722,197	494.65%
2017	2,910,509,226	1,966,728,975	943,780,251	67.57%	143,882,722	655.94%
2018	2,773,306,153	1,940,623,642	832,682,511	69.98%	141,454,717	588.66%
2019	2,733,602,681	1,798,906,827	934,695,854	65.81%	149,373,313	625.74%
2020	2,698,450,060	1,596,101,989	1,102,348,071	59.15%	142,215,060	775.13%
2021	2,704,110,233	1,818,649,298	885,460,935	67.25%	111,124,304	796.82%

** Covered payroll shown is the reported payroll on the actuarial valuation date (census date). Actual covered payroll paid during the year was unavailable.*

Schedule of Contributions Multiyear

Ultimately 10 Fiscal Years will be Displayed

FY Ending June 30,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll*	Actual Contribution as a % of Covered Payroll
2014	$80,627,791	$ 25,126,131	$55,501,660	$213,291,083	11.78%
2015	N/A	189,282,095	N/A	203,507,079	93.01%
2016	N/A	104,792,657	N/A	200,722,197	52.21%
2017	N/A	91,238,402	N/A	143,882,722	63.41%
2018	N/A	68,275,000	N/A	141,454,717	48.27%
2019	N/A	68,275,000	N/A	149,373,313	45.71%
2020	N/A	48,275,000	N/A	142,215,060	33.95%
2021	N/A	48,275,000	N/A	111,124,304	43.44%

** Covered payroll shown is the reported payroll from the actuarial valuation date (census date). Actual covered payroll paid during the year was unavailable.*

Notes to Schedule of Contributions

Contribution Requirement: Required contributions to the Plan through FY 2023 are provided in the POA. Certain agreements (as allowed for in the POA) have resulted in some of the contributions being accelerated. The schedule below details our understanding of the remaining contributions required by the POA.

Contribution Source

	For DWSD		For Other Liabilities					
Fiscal Year	DWSD	Transfers	UTGO	State	DIA	Other	Transfers from DWSD	Total
2022	45.4	(2.5)	-	-	0.4	2.5	2.5	48.3
2023	45.4	(2.5)	-	-	0.4	2.5	2.5	48.3

We have assumed the contributions outlined above as called for in the POA (with adjustments) will not change. An estimate of the probability of those payments being made was outside the scope of this project, not required by Actuarial Standards, and was not made.

Beginning with Fiscal Year 2024, employer contributions will be actuarially determined.

Schedule of Investment Returns

This information should be provided by the plan's investment consultant.

SECTION D

NOTES TO FINANCIAL STATEMENTS

Single Discount Rate

A Single Discount Rate of 6.50%, net of investment expenses, was used to measure the total pension liability as of June 30, 2021. This Single Discount Rate was based on the expected rate of return on pension plan investments of 6.50% as directed by the System and approved by the System's Auditor. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions ceased as of June 30, 2014, and that employer contributions will be made at rates equal to those set by the final Plan of Adjustment through June 30, 2023 and contributions consistent with PERSIA and the intention to fully fund the System by 2053 as determined in the bankruptcy (POA). 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.

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 6.50%, 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.

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

	1% Decrease 5.50%	Current Single Discount Rate Assumption 6.50%	1% Increase 7.50%
Total Pension Liability (TPL)	$2,946,663,108	$2,704,110,233	$2,497,006,493
Net Position Restricted for Pensions	1,818,649,298	1,818,649,298	1,818,649,298
Net Pension Liability (NPL)	$1,128,013,810	$ 885,460,935	$ 678,357,195

Users of this report should be aware that, in the actuary's judgement, a discount rate of 7.50% would not be a reasonable assumption for funding purposes.

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	11,220
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	2,728
Active Plan Members	2,403
Total Plan Members	16,351

Additional information regarding the plan population may be found in the June 30, 2020 actuarial valuation of the System.

Additional Note

Potential future asset transfers from this Plan to Component I for payment of Transition Costs were not included in this calculation.

SECTION E

SUMMARY OF BENEFITS

Summary of Benefit Provisions Evaluated

Component II Frozen Benefits

All Component II benefits are frozen as of June 30, 2014 based on service and average final compensation accrued as of that date and the provisions of the Detroit General Retirement System as it existed on June 30, 2014. Frozen benefits are further reduced by 4.5% and all future Cost-of-Living Adjustments ("COLAs") were eliminated. Benefits resulting from the Annuity Savings Fund and benefits paid from the Annuity Reserve Fund were subject to a separate reduction described as a "Claw-back." Details of the claw-back provision are complicated and can be found in the Eighth Amended Plan of Adjustment. The benefits evaluated in this report are the frozen reduced benefits after the claw-back. Component II benefits are payable after separation from service, upon meeting the eligibility conditions of the plan as it existed on June 30, 2014, regardless of whether the individual is eligible to receive a Component I benefit at that time.

Our understanding of the June 30, 2014 plan provisions is provided below for completeness. The material below does not have legal standing and is not intended to cover all potential situations that could occur. If there are discrepancies between the description below, and appropriate legal documents, the latter necessarily govern.

Age and Service Pension

Eligibility - Any age (minimum age 55 for non-EMS members hired after 1995) with 30 years of service (25 for EMS members), or age 60 with 10 years of service, or age 65 with 8 years of service.

Annual Amount - **EMS Members:** Sum of a) a basic pension of $12 for each of the first 10 years of service, plus b) a pension equal to 2.0% of AFC multiplied by years of service. Maximum benefit is 90% of AFC.

Other Members: Sum of a) a basic pension of $12 for each of the first 10 years of service, plus b) a pension equal to the first 10 years of service multiplied by 1.6% of AFC, plus 1.8% of AFC for each year of service greater than 10 years up to 20 years, plus 2.0% of AFC for each year of service greater than 20 years up to 25 years, plus 2.2% of AFC for each year of service greater than 25 years. Future benefit accruals for certain active members (depending on bargaining unit) were reduced to 1.5% of final average compensation per year of service.

Type of Average Final Compensation (AFC) - Highest 3 consecutive years out of the last 10. Pension benefits will not be diminished if compensation is reduced because of a fiscal emergency. Effective July 1, 1999, in computing the AFC, a member shall have the option of adding the value of 25% of unused accrued sick leave to the earnings used in computing the AFC. Longevity is added to AFC in accordance with the following schedule: $150 after 5 years, $300 after 10 years, $450 after 15 years, $600 after 20 years, and $750 after 25 years.

Early Retirement

Eligibility - Any age with 25 or more years of service (min. age 55 for members hired after 1995).

Annual Amount - Same as regular retirement but actuarially reduced.

Summary of Benefit Provisions Evaluated (Continued)

Deferred Retirement (Vested Benefit)

Eligibility - Hired prior to 7-1-80: Age 40 with 8 years of service. Hired on or after 7-1-80: Any age with 10 years of service.

Benefit Commencement - APTE hired prior to July 1, 1988: Benefit begins at the age the member would have become eligible for regular retirement if service had continued. ***SAAA, Non-Union and lawyers hired prior to June 30, 1986:*** Benefit begins at the age the member would have become eligible for regular retirement. ***Others:*** Benefits based on service rendered by June 30, 1986 begin at the age the member would have become eligible for regular retirement. Benefits based on service rendered after July 1, 1986 begin at age 62.

Annual Amount - Same as regular retirement but based on average final compensation and service at the time of termination.

Duty Disability Retirement

Eligibility - Service related disability before eligibility for service retirement prior to July 1, 2014. No service requirement.

Annual Amount - An annuity which is the actuarial equivalent of the accumulated contributions at date of disability plus a pension of two-thirds of average final compensation at time of disability. The maximum annual pension is $5,700 ($9,000 for EMS). At the earliest of when the member would have accrued 30 years of service credit (25 for EMS) or age 60, the annuity is recomputed assuming contributions would have continued at a salary level equal to final compensation. The pension is recomputed with additional service credit granted from the date of disability to age 60 (or 30 years of service credit) or June 30, 2014, whichever is earlier. Benefits payable prior to conversion/re-computation, if any, were assumed to be paid outside the trust.

Non-Duty Disability Retirement

Eligibility - Disability from any cause before age 60 with 10 or more years of service prior to July 1, 2014.

Annual Amount - Computed in the same manner as a regular retirement benefit. Maximum annual pension to age 60 is $6,000. Benefit is recomputed at age 60 with no maximum. Benefits payable prior to age 60, if any, were assumed to be paid from outside the trust.

Duty Death Before Retirement

Eligibility - Death from service related causes. No age or service requirements.

Annual Amount - One-third of final compensation as of June 30, 2014 to the surviving spouse for life or until remarriage, plus an equal share of 1/4 of final compensation to each unmarried child under age 18. If there is no eligible spouse, eligible children each receive 1/4 of final compensation; if there are more than 2 such children, each child shares an equal part of 1/2 of final compensation. Maximum total amount for spouse and children is $9,000 annually. If there is no eligible spouse or children, dependent parents each receive 1/6 of deceased’s final compensation, to a total maximum of $600 annually.

Summary of Benefit Provisions Evaluated (Concluded)

Non-Duty Death Before Retirement

Eligibility - Death-in-service at any age with 15 years of service; or after age 60 with 10 years of service; or after age 65 with 8 years of service.

Annual Amount - To Surviving Spouse: Computed as a regular retirement benefit but reduced in accordance with a 100% joint and survivor election for members with 20 or more years of service. For members with 15 years of service but less than 20, benefit is reduced in accordance with a 50% joint and survivor election. To Dependent Children if no Surviving Spouse: $9,000 payable to age 19 of the youngest child or for life if child is physically or mentally impaired for members with 20 or more years of service ($6,000 if less than 20 years of service).

Post-Retirement Cost-of-Living Adjustments

Benefit is increased annually by 2.25% of the **original** pension amount at retirement. Post-retirement cost-of-living increases were eliminated on future accruals for certain active members (depending on bargaining unit).

Member Contributions

Members had the option of choosing one of four contribution amounts: (1) 0%; (2) 3.0% of compensation up to the Social Security wage base, plus 5.0% of compensation in excess of the Social Security wage base; (3) 5.0% of total compensation; or (4) 7.0% of total compensation. Member contributions can be paid as a lump sum or annuitized at retirement to provide an annuity in addition to the pension (which is not affected by the level of member contributions).

SECTION F

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Summary of Assumptions and Methods Used for GASB Actuarial Valuations Adopted by Board of Trustees

All assumptions are estimates of future experience except as noted. The rationale for the assumptions is based on experience studies where noted.

Economic Assumptions

The investment return rate is 6.50% per year, compounded annually (net after investment expenses) as of June 30, 2021. This assumption was provided by the Retirement System.

Price inflation is not directly used in the valuation. For purposes of assessing the reasonability of the investment return assumptions, we assumed price inflation of 2.25% per year.

Non-Economic Assumptions

The mortality table used to measure retired life mortality was 100% of the RP-2014 Blue Collar Annuitant Table set-forward 1 year for males and 100% of the RP-2014 Blue Collar Annuitant Table set-forward 1 year for females. Tables were extended below age 50 with a cubic spline to the published Juvenile rates. Pre-retirement mortality is based on the corresponding Employee tables with corresponding set-forward. The tables are projected to be fully generational, based on the 2-dimensional, sex distinct mortality improvement scale MP-2014 (which was published and intended to be used with RP-2014). 75% of all deaths-in-service are assumed to be non-duty related. This table was first used as of June 30, 2014. For disabled members, the same tables are used. The rationale for the mortality assumption is based on the 2008-2013 Mortality Experience Study issued February 4, 2015.

The probabilities of retirement for members eligible to retire are shown on pages 34 and 35. These probabilities were revised for the June 30, 2008 valuation. The rationale is based on the 2002-2007 Experience Study.

The probabilities of separation from service (including *disability)* are shown for sample ages on page 36. These probabilities were revised for the June 30, 2008 valuation. The rationale is based on the 2002-2007 Experience Study.

Single Life Retirement Values
Based on RP-2014 Blue Collar
100% of Male Rates Set-Forward 1 Year
100% of Female Rates Set-Forward 1 Year

Sample Attained Ages in 2020	Future Life Expectancy (years)	
	Men	Women
45	38.83	42.17
50	33.87	37.11
55	29.10	32.20
60	24.54	27.44
65	20.23	22.86
70	16.23	18.54
75	12.59	14.57
80	9.39	11.05

Rationale for assumption is based upon a 2008 to 2013 study of mortality experience dated February 4, 2015.

Probabilities of Age/Service Retirement for Members Eligible to Retire

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year With Unreduced Benefits		
	EMS	D.O.T.	Others
45	25%		
46	25%		
47	25%		
48	22%		
49	20%		
50	18%	55%	50%
51	15%	50%	50%
52	15%	50%	45%
53	15%	50%	45%
54	15%	55%	40%
55	15%	50%	30%
56	15%	50%	30%
57	15%	50%	30%
58	15%	50%	30%
59	15%	55%	40%
60	40%	40%	25%
61	30%	30%	25%
62	30%	30%	25%
63	30%	30%	25%
64	30%	30%	25%
65	30%	30%	35%
66	30%	30%	30%
67	30%	30%	25%
68	30%	50%	25%
69	30%	50%	25%
70	100%	100%	20%
71			20%
72			20%
73			20%
74			20%
75			20%
76			20%
77			20%
78			20%
79			20%
80			100%
Ref	537	1648	1647

Rationale for assumption is 2002 to 2007 Experience Study. Additional retirement rates for Component I (Hybrid Plan) eligibility are not reflected in this valuation due to materiality.

Probabilities of Early Retirement for Members Eligible for Early Retirement

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year With Reduced Benefits
55	7%
56	8%
57	9%
58	10%
59	12%
60	12%
61	12%
62	12%
63	12%
64	12%
Ref	1649

Rationale for assumption is based upon a 2002 to 2007 Experience Study.

Sample Rates of Separation from Active Employment Before Retirement

Sample Ages	Years of Service	% of Active Members Separating Within Next Year			
		Withdrawal			
				Others	
		EMS	D.O.T.	Men	Women
ALL	0	11.00%	18.00%	18.00%	20.00%
	1	10.00%	16.00%	15.00%	16.00%
	2	8.00%	14.00%	13.00%	14.00%
	3	8.00%	11.00%	11.00%	12.00%
	4	7.00%	9.00%	10.00%	10.00%
25	5 & Over	6.70%	8.00%	7.60%	7.60%
30		5.90%	7.60%	7.22%	7.22%
35		5.20%	5.56%	5.28%	5.28%
40		4.40%	4.26%	4.05%	4.05%
45		3.40%	3.69%	3.51%	3.51%
50		2.40%	3.50%	3.33%	3.33%
55		2.00%	3.50%	3.33%	3.33%
60		0.00%	3.50%	3.33%	3.33%
Ref		338 1068	143 212	584 212 x 0.95	188 212 x 0.95

Sample Ages	% of Active Members Becoming Disabled Within Next Year			
	D.O.T.		Others	
	Ordinary	Duty	Ordinary	Duty
25	0.02%	0.03%	0.01%	0.25%
30	0.05%	0.08%	0.04%	0.29%
35	0.14%	0.21%	0.11%	0.34%
40	0.27%	0.42%	0.21%	0.39%
45	0.51%	0.79%	0.40%	0.45%
50	0.66%	1.03%	0.51%	0.52%
55	0.76%	1.18%	0.59%	0.60%
60	0.86%	1.34%	0.67%	0.70%
Ref	23 x 0.45	23 x 0.70	23 x 0.35	423 x 0.90

Rationale for assumption is based upon a 2002 to 2007 Experience Study.

Miscellaneous and Technical Assumptions

Benefit Service	Exact Fractional service is used to determine the amount of benefit payable.
Decrement Operation	Disability and mortality decrements do not operate during the first 5 years of service. Disability and withdrawal also do not operate during retirement eligibility.
Decrement Timing	Decrements of all types are assumed to occur mid-year.
Eligibility Testing	Eligibility for benefits is determined based upon the age nearest birthday and rounded service on the date the decrement is assumed to occur.
Forfeitures	None.
Marriage Assumption	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Normal Form of Benefit	Straight life is the normal form of benefit. The Board adopted assumptions for Actuarial Equivalence to be an 80%/20% unisex blend of RP-2014 mortality (Male/Female) with Blue Collar Adjustment, set ahead 1 year for males and females, projected 11 years with MP-2014, an interest rate of 6.75, and no COLA for optional forms of payment and early retirement reduction. Assumptions for annuitizing member contributions are the same except for using a 60%/40% unisex blend and a 5.25% assumed interest rate of interest. Prior to that, actuarial equivalent factors were based on 7.5% interest and 1984 Group Annuity Mortality table.
Service Credit Accruals	Service accruals stop as of June 30, 2014 for measurement of Component II liabilities. However, future service in Component I may be used to satisfy benefit eligibility requirement in Component II. Members who became duty disabled prior to June 30, 2014 are assumed to get projected service from date of disability to conversion date. Members who become disabled after June 30, 2014 are assumed to get their frozen accrued benefit as of June 30, 2014 at date of conversion.
Administrative Expenses	3.00% of Component I payroll. 60% was allocated to Component II and 40% to Component I.
Sick Leave	Sick leave banks as of June 30, 2014 were included in the 2014 data file provided by the System.
Member Contributions	Member contributions to this Component II plan are assumed to have ceased with the bankruptcy.
Pop-Up Benefits	For current retirees with a pop-up benefit, the value of the pop-up was estimated by valuing a non-pop-up option and increasing the associated liabilities by 2%.

Rationale for assumption is based upon a 2002 to 2007 Experience Study, modified as necessary for changes in data or administration.

SECTION G

CALCULATION OF THE SINGLE DISCOUNT RATE

Calculation of the Single Discount Rate at End of Year

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 6.50%; the municipal bond rate is 1.92%; and the resulting Single Discount Rate is 6.50% as of June 30, 2021.

The tables in this section provide background for the development of the Single Discount Rate.

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities). For purposes of determining the discount rate as of June 30, 2021, the employer contributions for the 10-year period ending June 30, 2023 were set by the 8th Amended Plan of Adjustment (POA), as adjusted by subsequent agreements. Subsequent employer contributions were determined by a closed 30-year level principle amortization of any unfunded actuarial accrued liability (as required by State law) using 6.50% interest, net of investment expenses, consistent with the 100% funded target by 2053 in the POA.

Rates of Return: Note that these projections are specifically used to determine the SDR and should not be interpreted as a funding recommendation. The 6.50% rate of return was before administrative expenses. Therefore, the projections assumed that any administrative expenses incurred by the plan will directly increase employer contributions beginning with FY 2024. The rate is net of investment expenses.

Administrative Expenses: For purposes of the projection using a 6.50% rate of return, administrative expenses were assumed to be related to payroll. Payroll was increased by an assumed wage inflation as of June 30, 2014 of 2.00% for 5 years, 2.50% for the next 5 years and 3.00% thereafter. Since benefits are frozen, the wage inflation assumption does not affect anything other than the administrative expenses.

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

Unfunded Actuarial Accrued Liabilities. Actual employer contributions through June 30, 2023 are set by the POA. The amortization period and method after 2023 has not yet been established by the Board.

Calculation of the Single Discount Rate at End of Year

The **Present Values of Projected Benefit Payments** table shows the development of the SDR. It breaks down the benefit payments into present values for funded and unfunded portions (if any) and shows the equivalent total at the SDR. For purposes of determining the discount rate as of June 30, 2021, the benefit payments reflect the plan provisions in force as of June 30, 2021.

Single Discount Rate Development
Projection of Contributions
End of Year

Fiscal Year Ending June 30,	Projected Contributions from Current Employees	Projected Service Cost	Administrative Expense Contributions	Projected UAL Contributions	Projected Total Contributions
2022	$ -	$ -	$ 4,176,397	$ 44,098,603	$ 48,275,000
2023	-	-	3,882,715	44,392,285	48,275,000
2024	-	-	3,659,350	86,712,707	90,372,057
2025	-	-	3,476,712	84,802,088	88,278,800
2026	-	-	3,323,625	82,891,469	86,215,094
2027	-	-	3,165,379	80,980,850	84,146,229
2028	-	-	3,000,204	79,070,231	82,070,435
2029	-	-	2,834,697	77,159,612	79,994,309
2030	-	-	2,667,903	75,248,993	77,916,896
2031	-	-	2,504,881	73,338,374	75,843,255
2032	-	-	2,353,332	71,427,755	73,781,087
2033	-	-	2,209,042	69,517,137	71,726,179
2034	-	-	2,073,504	67,606,518	69,680,022
2035	-	-	1,947,524	65,695,899	67,643,423
2036	-	-	1,828,248	63,785,280	65,613,528
2037	-	-	1,713,822	61,874,661	63,588,483
2038	-	-	1,606,611	59,964,042	61,570,653
2039	-	-	1,506,746	58,053,423	59,560,169
2040	-	-	1,411,440	56,142,804	57,554,244
2041	-	-	1,321,064	54,232,185	55,553,249
2042	-	-	1,234,735	52,321,566	53,556,301
2043	-	-	1,153,312	50,410,947	51,564,259
2044	-	-	1,074,259	48,500,328	49,574,587
2045	-	-	995,058	46,589,709	47,584,767
2046	-	-	917,092	44,679,090	45,596,182
2047	-	-	838,925	42,768,471	43,607,396
2048	-	-	758,501	40,857,852	41,616,353
2049	-	-	675,222	38,947,233	39,622,455
2050	-	-	589,105	37,036,614	37,625,719
2051	-	-	503,258	35,125,995	35,629,253
2052	-	-	422,553	33,215,376	33,637,929
2053	-	-	349,523	31,304,757	31,654,280
2054	-	-	285,410	-	285,410
2055	-	-	229,852	-	229,852
2056	-	-	182,474	-	182,474
2057	-	-	143,163	-	143,163
2058	-	-	110,639	-	110,639
2059	-	-	83,235	-	83,235
2060	-	-	60,828	-	60,828
2061	-	-	43,687	-	43,687
2062	-	-	30,912	-	30,912
2063	-	-	21,617	-	21,617
2064	-	-	14,985	-	14,985
2065	-	-	10,343	-	10,343
2066	-	-	7,125	-	7,125
2067	-	-	4,852	-	4,852
2068	-	-	3,269	-	3,269
2069	-	-	2,195	-	2,195
2070	-	-	1,458	-	1,458
2071	-	-	959	-	959

Employer contributions as shown may differ substantially from those determined by a funding valuation.

Single Discount Rate Development
Projection of Plan Fiduciary Net Position
End of Year

Fiscal Year Ending June 30,	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected ASF Refund	Projected Administrative Expenses	Projected Investment Earnings at 6.50% (5.25% for ASF)	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)	(g)=(a)+(b)-(c)-(d)-(e)+(f)
2022	$ 1,818,649,298	$ 48,275,000	$ 233,194,114	$ 13,388,175	$ 4,176,397	$ 110,506,615	$ 1,726,672,226
2023	1,726,672,226	48,275,000	231,632,170	13,388,175	3,882,715	104,690,389	1,630,734,554
2024	1,630,734,554	90,372,057	229,678,354	13,388,175	3,659,350	99,979,029	1,574,359,761
2025	1,574,359,761	88,278,800	227,304,484	13,388,175	3,476,712	96,443,502	1,514,912,693
2026	1,514,912,693	86,215,094	224,685,515	13,388,175	3,323,625	92,722,104	1,452,452,576
2027	1,452,452,576	84,146,229	221,397,592	13,388,175	3,165,379	88,832,556	1,387,480,215
2028	1,387,480,215	82,070,435	217,509,671	13,388,175	3,000,204	84,805,536	1,320,458,135
2029	1,320,458,135	79,994,309	213,077,133	13,388,175	2,834,697	80,669,684	1,251,822,123
2030	1,251,822,123	77,916,896	208,419,369	13,388,175	2,667,903	76,443,477	1,181,707,050
2031	1,181,707,050	75,843,255	203,389,387	13,388,175	2,504,881	72,140,769	1,110,408,631
2032	1,110,408,631	73,781,087	198,138,917	-	2,353,332	68,123,277	1,051,820,747
2033	1,051,820,747	71,726,179	192,584,977	-	2,209,042	64,431,609	993,184,515
2034	993,184,515	69,680,022	186,651,092	-	2,073,504	60,748,951	934,888,892
2035	934,888,892	67,643,423	180,244,810	-	1,947,524	57,103,545	877,443,525
2036	877,443,525	65,613,528	173,567,870	-	1,828,248	53,522,063	821,182,998
2037	821,182,998	63,588,483	166,644,813	-	1,713,822	50,025,468	766,438,313
2038	766,438,313	61,570,653	159,629,229	-	1,606,611	46,630,363	713,403,489
2039	713,403,489	59,560,169	152,339,671	-	1,506,746	43,355,163	662,472,404
2040	662,472,404	57,554,244	144,880,268	-	1,411,440	40,222,139	613,957,079
2041	613,957,079	55,553,249	137,333,560	-	1,321,064	37,248,932	568,104,636
2042	568,104,636	53,556,301	129,720,807	-	1,234,735	34,450,926	525,156,320
2043	525,156,320	51,564,259	122,124,781	-	1,153,312	31,841,152	485,283,637
2044	485,283,637	49,574,587	114,559,511	-	1,074,259	29,430,311	448,654,765
2045	448,654,765	47,584,767	107,016,987	-	995,058	27,229,589	415,457,076
2046	415,457,076	45,596,182	99,582,406	-	917,092	25,248,442	385,802,201
2047	385,802,201	43,607,396	92,317,166	-	838,925	23,492,161	359,745,668
2048	359,745,668	41,616,353	85,247,151	-	758,501	21,963,527	337,319,896
2049	337,319,896	39,622,455	78,417,540	-	675,222	20,663,202	318,512,791
2050	318,512,791	37,625,719	71,854,495	-	589,105	19,589,564	303,284,474
2051	303,284,474	35,629,253	65,587,238	-	503,258	18,739,085	291,562,316
2052	291,562,316	33,637,929	59,635,025	-	422,553	18,106,429	283,249,095
2053	283,249,095	31,654,280	54,015,782	-	349,523	17,684,702	278,222,773
2054	278,222,773	285,410	48,740,916	-	285,410	16,525,338	246,007,195
2055	246,007,195	229,852	43,807,028	-	229,852	14,589,152	216,789,320
2056	216,789,320	182,474	39,221,860	-	182,474	12,836,662	190,404,122
2057	190,404,122	143,163	34,983,031	-	143,163	11,257,218	166,678,308
2058	166,678,308	110,639	31,084,807	-	110,639	9,839,738	145,433,239
2059	145,433,239	83,235	27,518,405	-	83,235	8,572,892	126,487,726
2060	126,487,726	60,828	24,272,131	-	60,828	7,445,276	109,660,871
2061	109,660,871	43,687	21,331,784	-	43,687	6,445,588	94,774,674
2062	94,774,674	30,912	18,681,379	-	30,912	5,562,767	81,656,062
2063	81,656,062	21,617	16,303,628	-	21,617	4,786,118	70,138,552
2064	70,138,552	14,985	14,180,323	-	14,985	4,105,400	60,063,630
2065	60,063,630	10,343	12,292,667	-	10,343	3,510,914	51,281,876
2066	51,281,876	7,125	10,621,566	-	7,125	2,993,555	43,653,866
2067	43,653,866	4,852	9,148,084	-	4,852	2,544,869	37,050,650
2068	37,050,650	3,269	7,853,870	-	3,269	2,157,060	31,353,840
2069	31,353,840	2,195	6,721,398	-	2,195	1,822,993	26,455,435
2070	26,455,435	1,458	5,734,171	-	1,458	1,536,177	22,257,441
2071	22,257,441	959	4,876,741	-	959	1,290,735	18,671,435

Employer contributions as shown may differ substantially from those determined by a funding valuation.

Single Discount Rate Development
Projection of Plan Fiduciary Net Position
End of Year (Concluded)

Fiscal Year Ending June 30,	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected ASF Refund	Projected Administrative Expenses	Projected Investment Earnings at 6.50% (5.25% for ASF)	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)	(g)=(a)+(b)-(c)-(d)-(e)+(f)
2072	$ 18,671,435	$ 624	$ 4,134,710	$ -	$ 624	$ 1,081,381	$ 15,618,105
2073	15,618,105	399	3,494,810	-	399	903,384	13,026,679
2074	13,026,679	251	2,944,909	-	251	752,531	10,834,301
2075	10,834,301	155	2,473,956	-	155	625,092	8,985,437
2076	8,985,437	89	2,071,951	-	89	517,775	7,431,261
2077	7,431,261	47	1,729,905	-	47	427,695	6,129,051
2078	6,129,051	24	1,439,774	-	24	352,332	5,041,609
2079	5,041,609	11	1,194,454	-	11	289,496	4,136,651
2080	4,136,651	5	987,706	-	5	237,287	3,386,233
2081	3,386,233	2	814,082	-	2	194,064	2,766,214
2082	2,766,214	-	668,842	-	-	158,409	2,255,781
2083	2,255,781	-	547,869	-	-	129,100	1,837,012
2084	1,837,012	-	447,562	-	-	105,089	1,494,539
2085	1,494,539	-	364,753	-	-	85,477	1,215,263
2086	1,215,263	-	296,673	-	-	69,502	988,093
2087	988,093	-	240,911	-	-	56,520	803,701
2088	803,701	-	195,393	-	-	45,990	654,299
2089	654,299	-	158,352	-	-	37,464	533,410
2090	533,410	-	128,300	-	-	30,568	435,678
2091	435,678	-	103,986	-	-	24,993	356,684
2092	356,684	-	84,371	-	-	20,486	292,799
2093	292,799	-	68,585	-	-	16,838	241,051
2094	241,051	-	55,904	-	-	13,880	199,028
2095	199,028	-	45,730	-	-	11,474	164,772
2096	164,772	-	37,577	-	-	9,508	136,703
2097	136,703	-	31,036	-	-	7,893	113,559
2098	113,559	-	25,761	-	-	6,557	94,356
2099	94,356	-	21,479	-	-	5,446	78,322
2100	78,322	-	17,980	-	-	4,516	64,858
2101	64,858	-	15,093	-	-	3,733	53,499
2102	53,499	-	12,686	-	-	3,072	43,884
2103	43,884	-	10,660	-	-	2,511	35,736
2104	35,736	-	8,934	-	-	2,037	28,839
2105	28,839	-	7,451	-	-	1,636	23,024
2106	23,024	-	6,169	-	-	1,299	18,153
2107	18,153	-	5,059	-	-	1,018	14,113
2108	14,113	-	4,100	-	-	786	10,799
2109	10,799	-	3,277	-	-	597	8,119
2110	8,119	-	2,579	-	-	445	5,985
2111	5,985	-	1,992	-	-	325	4,319
2112	4,319	-	1,509	-	-	232	3,042
2113	3,042	-	1,119	-	-	162	2,084
2114	2,084	-	810	-	-	110	1,384
2115	1,384	-	571	-	-	72	885
2116	885	-	390	-	-	45	539
2117	539	-	259	-	-	27	307
2118	307	-	166	-	-	15	156
2119	156	-	103	-	-	7	60
2120	60	-	62	-	-	2	-
2121	-	-	-	-	-	0	0

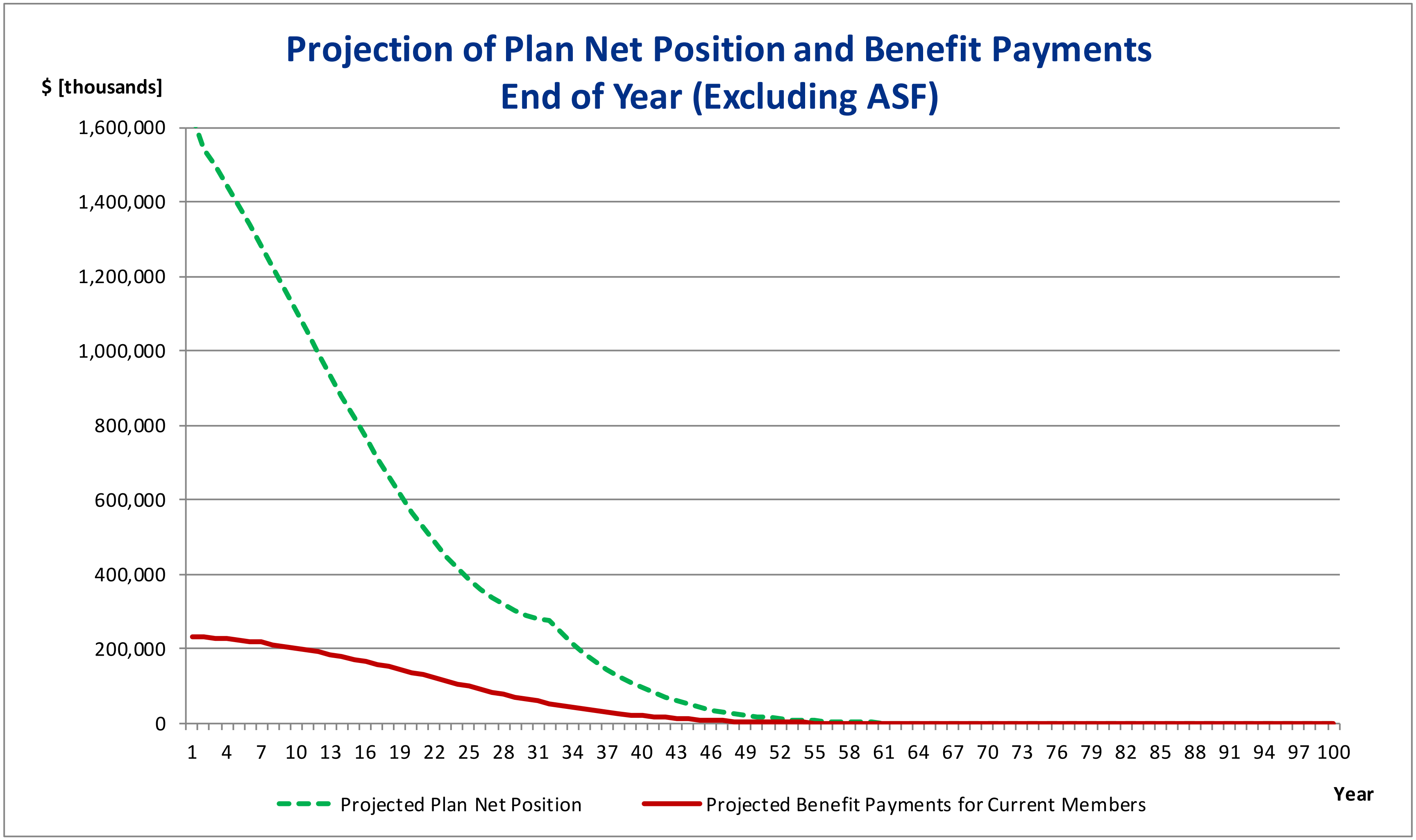
Employer contributions as shown may differ substantially from those determined by a funding valuation.

Single Discount Rate Development
Present Values of Projected Benefits
End of Year
(Excluding ASF)

Fiscal Year Ending June 30,	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)
2022	$ 1,713,866,263	$ 233,194,114	$ 233,194,114	$ -	$ 225,965,835	$ -	$ 225,965,835
2023	1,630,123,201	231,632,170	231,632,170	-	210,753,339	-	210,753,339
2024	1,542,851,825	229,678,354	229,678,354	-	196,221,255	-	196,221,255
2025	1,495,598,308	227,304,484	227,304,484	-	182,341,018	-	182,341,018
2026	1,445,751,383	224,685,515	224,685,515	-	169,239,541	-	169,239,541
2027	1,393,395,417	221,397,592	221,397,592	-	156,584,962	-	156,584,962
2028	1,339,057,674	217,509,671	217,509,671	-	144,446,200	-	144,446,200
2029	1,283,228,531	213,077,133	213,077,133	-	132,866,283	-	132,866,283
2030	1,226,373,084	208,419,369	208,419,369	-	122,029,944	-	122,029,944
2031	1,168,657,055	203,389,387	203,389,387	-	111,816,788	-	111,816,788
2032	1,110,408,631	198,138,917	198,138,917	-	102,281,928	-	102,281,928
2033	1,051,820,747	192,584,977	192,584,977	-	93,347,333	-	93,347,333
2034	993,184,515	186,651,092	186,651,092	-	84,949,424	-	84,949,424
2035	934,888,892	180,244,810	180,244,810	-	77,027,014	-	77,027,014
2036	877,443,525	173,567,870	173,567,870	-	69,646,616	-	69,646,616
2037	821,182,998	166,644,813	166,644,813	-	62,787,455	-	62,787,455
2038	766,438,313	159,629,229	159,629,229	-	56,473,394	-	56,473,394
2039	713,403,489	152,339,671	152,339,671	-	50,605,169	-	50,605,169
2040	662,472,404	144,880,268	144,880,268	-	45,189,912	-	45,189,912
2041	613,957,079	137,333,560	137,333,560	-	40,221,599	-	40,221,599
2042	568,104,636	129,720,807	129,720,807	-	35,673,250	-	35,673,250
2043	525,156,320	122,124,781	122,124,781	-	31,534,593	-	31,534,593
2044	485,283,637	114,559,511	114,559,511	-	27,775,698	-	27,775,698
2045	448,654,765	107,016,987	107,016,987	-	24,363,346	-	24,363,346
2046	415,457,076	99,582,406	99,582,406	-	21,287,136	-	21,287,136
2047	385,802,201	92,317,166	92,317,166	-	18,529,661	-	18,529,661
2048	359,745,668	85,247,151	85,247,151	-	16,066,278	-	16,066,278
2049	337,319,896	78,417,540	78,417,540	-	13,877,109	-	13,877,109
2050	318,512,791	71,854,495	71,854,495	-	11,939,609	-	11,939,609
2051	303,284,474	65,587,238	65,587,238	-	10,233,069	-	10,233,069
2052	291,562,316	59,635,025	59,635,025	-	8,736,518	-	8,736,518
2053	283,249,095	54,015,782	54,015,782	-	7,430,329	-	7,430,329
2054	278,222,773	48,740,916	48,740,916	-	6,295,517	-	6,295,517
2055	246,007,195	43,807,028	43,807,028	-	5,312,903	-	5,312,903
2056	216,789,320	39,221,860	39,221,860	-	4,466,494	-	4,466,494
2057	190,404,122	34,983,031	34,983,031	-	3,740,644	-	3,740,644
2058	166,678,308	31,084,807	31,084,807	-	3,120,955	-	3,120,955
2059	145,433,239	27,518,405	27,518,405	-	2,594,257	-	2,594,257
2060	126,487,726	24,272,131	24,272,131	-	2,148,563	-	2,148,563
2061	109,660,871	21,331,784	21,331,784	-	1,773,036	-	1,773,036
2062	94,774,674	18,681,379	18,681,379	-	1,457,974	-	1,457,974
2063	81,656,062	16,303,628	16,303,628	-	1,194,746	-	1,194,746
2064	70,138,552	14,180,323	14,180,323	-	975,726	-	975,726
2065	60,063,630	12,292,667	12,292,667	-	794,215	-	794,215
2066	51,281,876	10,621,566	10,621,566	-	644,364	-	644,364
2067	43,653,866	9,148,084	9,148,084	-	521,102	-	521,102
2068	37,050,650	7,853,870	7,853,870	-	420,075	-	420,075
2069	31,353,840	6,721,398	6,721,398	-	337,562	-	337,562
2070	26,455,435	5,734,171	5,734,171	-	270,405	-	270,405
2071	22,257,441	4,876,741	4,876,741	-	215,936	-	215,936

Single Discount Rate Development
Present Values of Projected Benefits
End of Year
(Excluding ASF) (Concluded)

Fiscal Year Ending June 30,	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)
2072	$ 18,671,435	$ 4,134,710	$ 4,134,710	$ -	$ 171,906	$ -	$ 171,906
2073	15,618,105	3,494,810	3,494,810	-	136,433	-	136,433
2074	13,026,679	2,944,909	2,944,909	-	107,949	-	107,949
2075	10,834,301	2,473,956	2,473,956	-	85,151	-	85,151
2076	8,985,437	2,071,951	2,071,951	-	66,962	-	66,962
2077	7,431,261	1,729,905	1,729,905	-	52,495	-	52,495
2078	6,129,051	1,439,774	1,439,774	-	41,024	-	41,024
2079	5,041,609	1,194,454	1,194,454	-	31,957	-	31,957
2080	4,136,651	987,706	987,706	-	24,813	-	24,813
2081	3,386,233	814,082	814,082	-	19,203	-	19,203
2082	2,766,214	668,842	668,842	-	14,814	-	14,814
2083	2,255,781	547,869	547,869	-	11,394	-	11,394
2084	1,837,012	447,562	447,562	-	8,740	-	8,740
2085	1,494,539	364,753	364,753	-	6,688	-	6,688
2086	1,215,263	296,673	296,673	-	5,108	-	5,108
2087	988,093	240,911	240,911	-	3,895	-	3,895
2088	803,701	195,393	195,393	-	2,966	-	2,966
2089	654,299	158,352	158,352	-	2,257	-	2,257
2090	533,410	128,300	128,300	-	1,717	-	1,717
2091	435,678	103,986	103,986	-	1,307	-	1,307
2092	356,684	84,371	84,371	-	996	-	996
2093	292,799	68,585	68,585	-	760	-	760
2094	241,051	55,904	55,904	-	582	-	582
2095	199,028	45,730	45,730	-	447	-	447
2096	164,772	37,577	37,577	-	345	-	345
2097	136,703	31,036	31,036	-	267	-	267
2098	113,559	25,761	25,761	-	208	-	208
2099	94,356	21,479	21,479	-	163	-	163
2100	78,322	17,980	17,980	-	128	-	128
2101	64,858	15,093	15,093	-	101	-	101
2102	53,499	12,686	12,686	-	80	-	80
2103	43,884	10,660	10,660	-	63	-	63
2104	35,736	8,934	8,934	-	50	-	50
2105	28,839	7,451	7,451	-	39	-	39
2106	23,024	6,169	6,169	-	30	-	30
2107	18,153	5,059	5,059	-	23	-	23
2108	14,113	4,100	4,100	-	18	-	18
2109	10,799	3,277	3,277	-	13	-	13
2110	8,119	2,579	2,579	-	10	-	10
2111	5,985	1,992	1,992	-	7	-	7
2112	4,319	1,509	1,509	-	5	-	5
2113	3,042	1,119	1,119	-	4	-	4
2114	2,084	810	810	-	2	-	2
2115	1,384	571	571	-	2	-	2
2116	885	390	390	-	1	-	1
2117	539	259	259	-	1	-	1
2118	307	166	166	-	0	-	0
2119	156	103	103	-	0	-	0
2120	60	62	62	-	0	-	0
2121	0	-	-	-	-	-	-
				Totals	$ 2,599,327,198	$ -	$ 2,599,327,198


Projection of Plan Net Position and Benefit Payments
End of Year (Excluding ASF)
$ [thousands]
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58 61 64 67 70 73 76 79 82 85 88 91 94 97 100
Year
Projected Plan Net Position
Projected Benefit Payments for Current Members

SECTION H

GLOSSARY OF TERMS

Glossary of Terms

Actuarial Accrued Liability (AAL)	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."
Actuarial Assumptions	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.
Accrued Service	Service credited under the system which was rendered before the date of the actuarial valuation.
Actuarial Equivalent	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.
Actuarial Cost Method	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.
Actuarial Gain (Loss)	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.
Actuarial Present Value (APV)	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.
Actuarial Valuation	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.
Actuarial Valuation Date	The date as of which an actuarial valuation is performed.
Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)	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.

Glossary of Terms

AFC	Average Final Compensation.
Amortization Payment	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
Amortization Method	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).
APTE	Association of Professional and Technical Employees.
ASF	Annuity Savings Fund.
Cost-of-Living Adjustments	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
Covered-Employee Payroll	The payroll of covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.
Deferred Inflows and Outflows	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.
DIA	Detroit Institute of Art.
Discount Rate	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: 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 2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.

Glossary of Terms

D.O.T.	Department of Transportation.
DWSD	Detroit Water and Sewerage Department.
EMS	Emergency Medical Service.
Entry Age Actuarial Cost Method (EAN)	The EAN is a funding 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.
GASB	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
GLWA	Great Lakes Water Authority.
Fiduciary Net Position	The fiduciary net position is the value of the assets of the trust.
Long-Term Expected Rate of Return	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.
Money-Weighted Rate of Return	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.
Multiple-Employer Defined Benefit Pension Plan	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
Municipal Bond Rate	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.
Net Pension Liability (NPL)	The NPL is the liability of employers and non-employer contribution entities to plan members for benefits provided through a defined benefit pension plan.

Glossary of Terms

Non-Employer Contribution Entities	Non-employer contribution 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 statement plan members are not considered non-employer contribution entities.
Normal Cost	The actuarial present value of the pension trust benefits allocated to the current year by the actuarial cost method. Also known as service cost.
POA	The 8th Amended Plan for the Adjustment of the Debt of the City of Detroit.
SAAA	Senior Accountants, Analysts, and Appraisers Association.
UTGO	Unlimited Tax General Obligation.

APPENDIX

MICHIGAN PUBLIC ACT 202

State Reporting Assumptions for Fiscal Year 2021
Calculations as of June 30, 2020

The Protecting Local Government Retirement and Benefits Act, Public Act 202 of 2017, was put into law effective December 20, 2017. One outcome of the law is the requirement for the local unit of government to provide select reporting disclosures to the State. Sec. 5(1) of the Act provides the State treasurer with the authority to annually establish uniform actuarial assumptions for purposes of developing the requisite disclosures. Below you will find information which may be used to assist the local unit of government with required reporting.

Uniform Assumptions, as applicable to the measurement and the required disclosures under uniform assumptions, are denoted below. Additional discussion of PA 202 and uniform assumptions may be found on the State website in the *Public Act 202: Selection of the Uniform Assumptions for Fiscal Year 2021* memo dated October 22, 2020.

	PA 202	Assumptions used for GASB	Uniform Assumptions used for Fiscal Year 2020
Investment Rate of Return Discount Rate	**Maximum of 7.00%^**	7.06%	**7.00%^**
Salary Increase	Minimum of 3.00% or based on experience study within last 5 years	**N/A**	**N/A**
Mortality	**Version of Pub-2010 with future mortality improvement projected generationally using Scale MP-2019 or based on experience study within last 5 years**	A version of RP-2014. First used for the September 30, 2014 valuation.	**Pub-2010, Amount Weighted, General tables with fully generational projection using Scale MP-2019. The corresponding Disabled Retiree and Employee tables are used for disability and pre-retirement mortality, respectively.**
Amortization of the Unfunded Accrued Actuarial Liability: Period	Maximum Period of 18 Years	N/A	**18**
Method	**Closed Plans: Level Dollar Open Plans: Level Percent of Payroll or Level Dollar**	Other	**Level Dollar**

^ *A blended rate calculated using GASB Statement No. 68 methodology. For periods in which projected plan assets are sufficient to make projected benefit payments – maximum of 7.00%; for periods in which projected plan assets are NOT sufficient to make projected benefit payments – 2.20%.*

The calculations for PA 202 use a June 30, 2020 valuation date and a June 30, 2020 measurement date. The 7.06% Investment Rate of Return was used as the Long Term Expected Rate of Return for GASB disclosures with a measurement date of June 30, 2020. With exception of the assumptions and methods listed above, all other assumptions and methods are the same as those listed in June 30, 2021 GASB report.

State Reporting for Fiscal Year 2021
Calculations as of June 30, 2020

The following information has been prepared to provide some of the information necessary to complete the pension reporting requirements for the State of Michigan's Local Government Retirement System Annual Report (Form 5572). The local unit of government is required to complete/develop all of the remaining reporting requirements necessary for Form 5572. Additional resources are available on the State website.

Line	Descriptive Information	
18	**Actuarial Assumptions**	
19	Actuarial assumed Rate of Investment Return	6.75%
20	Amortization method utilized for funding the system's unfunded actuarial accrued liability, if any	Other
21	Amortization period utilized for funding the system's unfunded actuarial accrued liability, if any	N/A
22	Is each division within the system closed to new employees? ~	yes
23	**Uniform Assumptions^**	
24	Enter retirement pension system's actuarial value of assets using uniform assumptions[+]	$ 1,596,101,989.00
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions	$ 2,727,913,413.00
26	Funded ratio using uniform assumptions	58.5%
27	Actuarially Determined Contribution (ADC) using uniform assumptions	$ 112,516,318.00
28	All systems combined ADC/Governmental fund revenues	Auto*

^ *Information on lines 23-28 is based on the Uniform Assumptions used, listed on the prior page, as of the most recent valuation date, June 30, 2020.*

[+] *The actuarial value of assets is equal to the market value of assets as of the June 30, 2020.*

* *Automatically calculated by State of Michigan Form 5572.*

~ *This Component II plan is closed to new employees. The Component I plan is open to new employees and its PA 202 information is in the Component I GASB Statement No. 68 report.*

The General Retirement System of the City of Detroit

Annual Actuarial Valuation of Component II

June 30, 2021

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

March 11, 2022

Board of Trustees
The General Retirement System of the City of Detroit

Dear Board Members:

This report provides key results from the **Annual Actuarial Valuation** of the annuity and pension liabilities of the General Retirement System of the City of Detroit – Component II benefits. The date of the valuation was **June 30, 2021.**

The City of Detroit filed for bankruptcy on July 18, 2013. A final Plan of Adjustment ("POA") was confirmed on November 7, 2014 and the official exit from bankruptcy was on December 10, 2014. In connection with the POA, very significant changes were made to the benefits that the General Retirement System provides and to the contributions that it will receive. In particular, the benefits provided by the Retirement System were divided into two separate plans, referred to as "Component I" and "Component II." The benefits provided in each component are effective July 1, 2014 and are described in detail in Emergency Manager Order No. 44, dated December 8, 2014. In very general terms, Component I provides benefits for service rendered on and after July 1, 2014 and Component II provides benefits for services rendered prior to July 1, 2014.

The results provided herein relate solely to the Component II benefits. Component I benefits will be the subject of a separate report. The purposes of the valuation are:

1) To measure the funding progress of Component II in accordance with the terms of the POA;
2) To provide illustrative actuarially determined contribution amounts for FY 2023;
3) To compare the illustrative actuarially determined contributions to the POA mandated contributions; and
4) To estimate the FY 2024 actuarially determined contributions (the first year the employer will be required to make actuarially determined contributions adopted by the Board and Investment Committee) under possible funding policies amounts.

The results of the valuation are not applicable for other purposes. In particular, the information provided in this report is not suitable for financial reporting in connection with GASB Statement No. 67. Such information is provided in a separate report. Information regarding potential benefit restoration as allowed for in the POA will also be provided in a separate report, at the Board's request.

The contribution amounts on page 7 include POA mandated contributions plus two illustrative contribution amounts from potential alternate funding policies. Users of this report should be aware that contributions made at these amounts do not guarantee benefit security.

One Towne Square | Suite 800 | Southfield, Michigan 48076-3723

This report was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the Retirement System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as: plan experience differing from that anticipated by the economic and demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

This valuation was based upon records maintained and furnished by the Retirement System staff concerning active members, retirees and beneficiaries, and financial accounts as of the valuation date. Data was checked for year-to-year consistency, but was not audited by the actuary. We are not responsible for the completeness or accuracy of the data. Certain necessary data was not available in time to be considered in this report and, therefore, it was necessary for us to use approximations. Please see related discussion in the Comments section as well as the Data section of this report.

The assumptions used in the valuations concerning future experience are summarized in Section D of this report. Except for the assumed rate of investment return, the actuarial assumptions used for the valuation are set by the Board based upon advice of the actuary and other parties. **Other than the prescribed assumed rate of return, this report reflects the new actuarial assumptions as adopted by the Board and the Investment Committee based on the July 1, 2015 to June 30, 2020 experience study.** The assumed rate of investment return was set to 6.75% in the POA and is, therefore, a "prescribed assumption set by another party" as discussed in Actuarial Standard of Practice No. 4. In our judgement, all of the actuarial assumptions used for this valuation are reasonable for purposes of the measurement being made.

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 has been prepared by actuaries who have substantial experience valuing public sector retirement systems. To the best of our knowledge, this report is complete and accurate and was made in accordance with Actuarial Standards of Practice promulgated by the Actuarial Standards Board.

The signing actuaries are independent of the plan sponsor.

David T. Kausch, Judith A. Kermans and Jamal Adora 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.

This report does not evaluate the plan sponsor's ability or willingness to make contributions to the Retirement System.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

David T. Kausch

David T. Kausch, FSA, EA, FCA, MAAA, PhD

Judith A. Kermans

Judith A. Kermans, EA, FCA, MAAA

Jamal Adora, ASA, EA, MAAA

DTK/JAK/JA:sc

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SECTION A

VALUATION RESULTS

Executive Summary

($ in Millions)

Valuation Date	June 30, 2021	June 30, 2020
Contributions For Fiscal Year Ending	June 30, 2023	June 30, 2022
POA Mandated Employer Contributions	$ 48.3	$ 48.3
Membership		
Number of:		
Active Members	2,185	2,403
Retirees and Beneficiaries	11,173	11,220
Inactive, Nonretired Members	2,645	2,728
Total	16,003	16,351
Valuation Payroll	$ 102.7	$ 111.1
Assets		
Market Value (1)	$ 1,818.6	$ 1,596.1
Return on Market Value (net of all expenses)	27.84 %	(0.60)%
Actuarial Information		
Actuarial Accrued Liability (2)	$ 2,542.6	$ 2,716.5
Unfunded Actuarial Accrued Liability: (2) - (1)	724.0	1,120.4
Funded Ratio: (1) / (2)	71.53 %	58.76 %
Risk Metrics		
Actuarial Accrued Liability Divided by Payroll	24.8	24.4
Market Value of Assets Divided by Payroll	17.7	14.4

Valuation Results

Required contributions to the Plan through FY 2023 are provided in the POA. The schedule below details our understanding of the remaining contributions required by the POA.

Contribution Source
($ Millions)

Fiscal Year	For DWSD Liabilities: DWSD	For DWSD Liabilities: Transfers	For Other Liabilities: UTGO	For Other Liabilities: State	For Other Liabilities: DIA	For Other Liabilities: Other	For Other Liabilities: Transfers from DWSD	Total
2022	$ 45.4	$ (2.5)	$ -	$ -	$ 0.4	$ 2.5	$ 2.5	$ 48.3
2023	45.4	(2.5)	-	-	0.4	2.5	2.5	48.3

We have assumed the contributions outlined above as called for in the POA (with adjustments) will not change. An estimate of the probability of those payments being made was outside the scope of this project, not required by Actuarial Standards, and was not made.

In order to develop divisional valuation results in accordance with POA provisions, we allocated the above contributions to the various divisions as instructed by the Retirement System staff. This was done by allocating DWSD transfer amounts to the General City division and remaining DWSD contributions to the DWSD division; allocating $2.5 million per year to the Library; and allocating remaining contributions to DOT and General in proportion to their unfunded liabilities as of June 30, 2021.

The chart below shows this allocation.

	General	D.O.T.	Subtotal	Library	DWSD	Totals
	$ Thousands					
Unfunded Liabilities (6/30/2021)	$ 416,356	$ 257,229	$ 673,585	$ (5,905)	$ 56,301	$ 723,980
% of Subtotal	61.8%	38.2%	100.0%	N/A	N/A	
FY 2022 Contributions	$ 232	$ 143	$ 375	$ 2,500	$ 45,400	$ 48,275
Transfers	$ 2,500	$ -	$ 2,500	$ -	$ (2,500)	$ -
FY 2022 UAAL Contributions	**$ 2,732**	**$ 143**	**$ 2,875**	**$ 2,500**	**$ 42,900**	**$ 48,275**

A different allocation procedure would produce different results. If a different allocation procedure should be used, please let us know and we will revise this report.

Valuation Results (Continued)

Unfunded Actuarial Accrued Liability (UAAL)

	($ Millions)				
	General City	D.O.T.	DWSD	Library	System Total
UAAL as of June 30, 2021	$ 416.4	$ 257.2	$ 56.3	$ (5.9)	$ 724.0
Anticipated POA Contribution (EOY)	(2.7)	(0.1)	(42.9)	(2.5)	(48.3)
Anticipated Expenses[1]	1.9	0.3	-	0.1	2.3
Interest at 6.75%	28.2	17.4	3.8	(0.4)	48.9
Projected UAAL as of June 30, 2022	$ 443.7	$ 274.8	$ 17.2	$ (8.7)	$ 727.0
Anticipated POA Contributions for FY 2023	**2.7**	**0.1**	**42.9**	**2.5**	**48.3**
Estimated Employer Contributions for FY 2024[2, 3]					
Alternate 1: 30-Year Level Principal					
UAAL Contribution	$ 47.7	$ 29.6	$ (2.5)	$ (1.2)	$ 73.6
$0 Minimum UAAL Contribution	47.7	29.6	-	-	77.3
Administrative Expense Contribution[4]	1.3	0.3	0.6	0.1	2.3
Total Contribution	**$ 49.0**	**$ 29.9**	**$ 0.6**	**$ 0.1**	**$ 79.6**
Alternate 2: 30-Year Level Dollar[5]					
UAAL Contribution	$ 37.2	$ 23.1	$ (1.9)	$ (0.9)	$ 57.4
$0 Minimum UAAL Contribution	37.2	23.1	-	-	60.2
Administrative Expense Contribution[4]	1.3	0.3	0.6	0.1	2.3
Total Contribution	**$ 38.5**	**$ 23.4**	**$ 0.6**	**$ 0.1**	**$ 62.5**

Totals may not add due to rounding.

1 *Administrative expenses for DWSD are paid by General City through 2023.*

2 *Assuming the POA contributions through 2023 and a 30-year closed amortization thereafter. When determining the contributions through 2023, only the total contributions and the DWSD contributions are stipulated in the POA. The remaining amounts were allocated to the other groups as described on page 2. A different allocation would result in different results by group.*

3 *Total employer contributions, including amounts paid by the employer but funded from other sources as required by POA.*

4 *We recommend that the proposed administrative expense contribution for DWSD be reviewed in the context of the 2015 agreement between the City, the Retirement System, and the Great Lakes Water Authority.*

5 ***Contributions at this level may not be sufficient to prevent fund depletion prior to satisfaction of all benefit payments. This scenario is included at Retirement System's request (see page 4).***

The POA contributions are well below actuarially determined amounts and, as such, result in a defunding of the plan between now and June 30, 2023, which was contemplated by the POA. In fact, the anticipated POA contributions are not expected to result in benefit restoration even if all assumptions are met (including the POA mandated assumed rate of return of 6.75%).

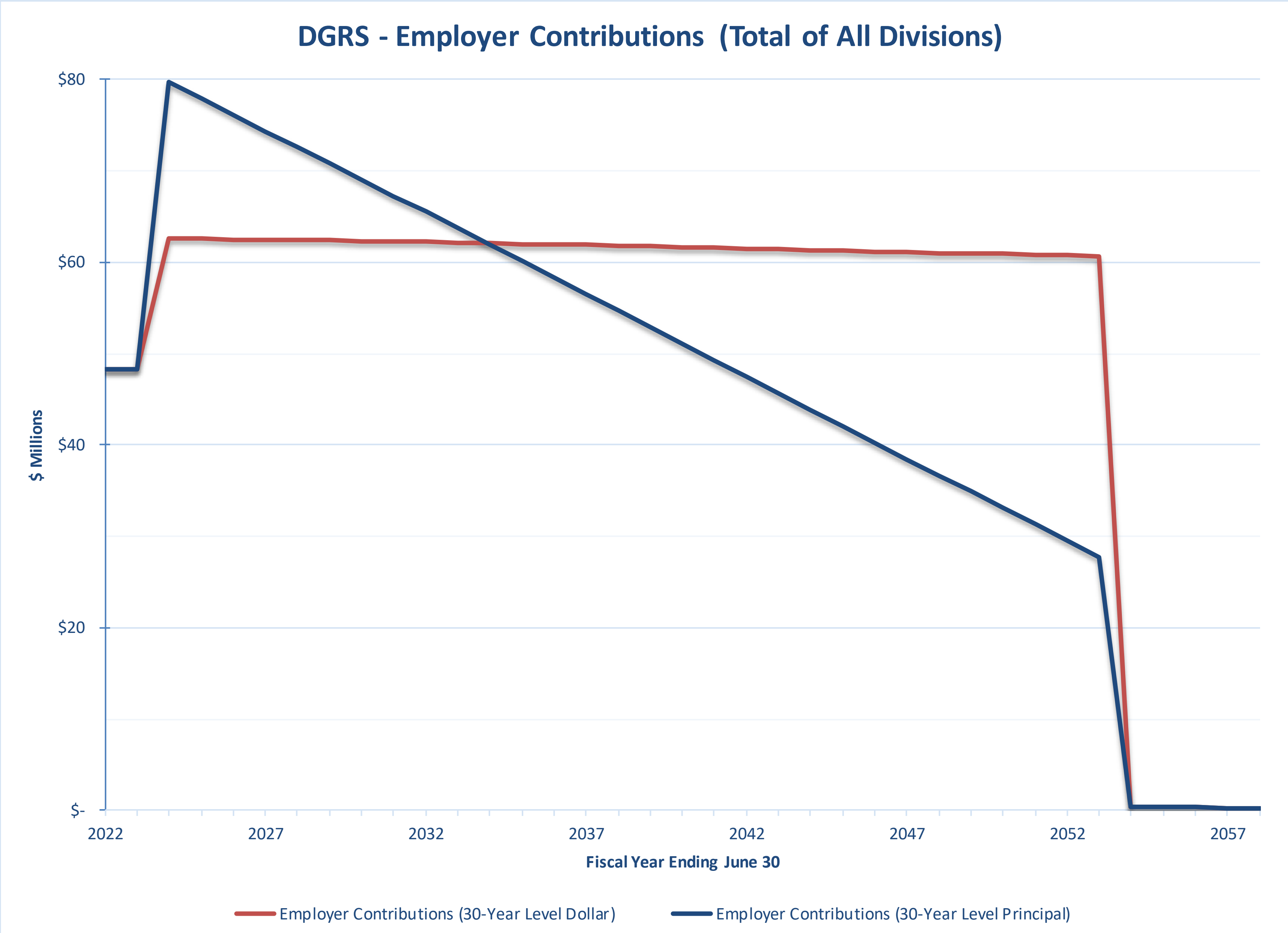
Also, the total FY 2022 to 2023 contributions are less than the amount of nominal interest that accrues on the UAAL.

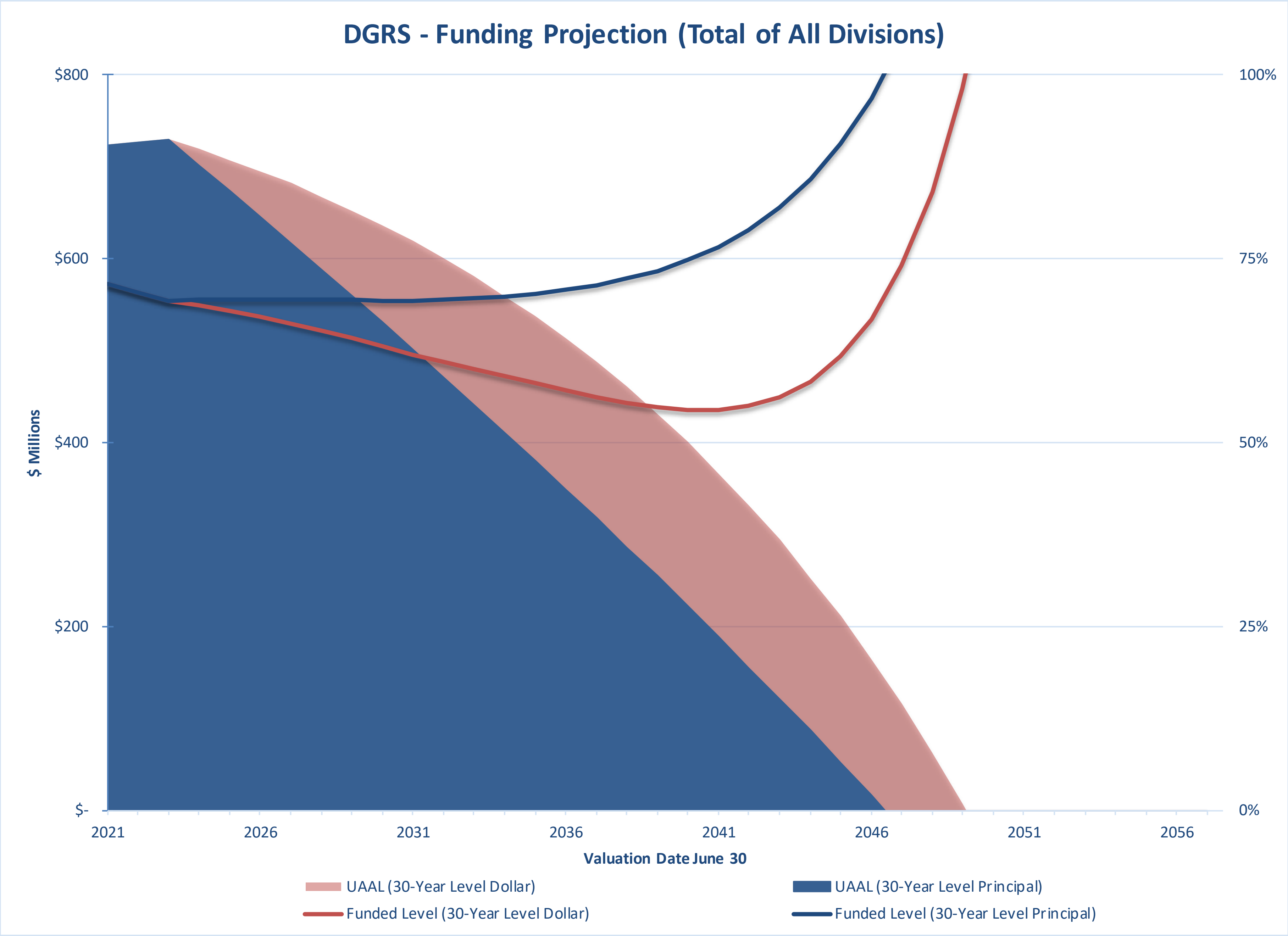
The Estimated Employer Contribution for FY 2024 is based on a projection of results assuming only the POA contributions are made and all future experience between the actuarial valuation date and FY 2024 is as assumed. Actual experience will result in changes to this estimate and the final result (from the June 30, 2022 actuarial valuation) could be materially different than shown on the previous page.

We understand that the City has set aside additional money in a side fund to be contributed to the pension plans in the future. This potential additional contribution has not been considered in this valuation.

The charts that follow show a 37-year projection of the funded status and employer contributions under a 30-year level principal and 30-year level dollar policy starting in FY 2024. For purposes of these projections, we have assumed the objective would be for each group (General City, DOT, DWSD, and Library) to separately fund their UAAL. These projections assume that if any division's assets deplete, no extra contributions will be assessed. Separately assessing extra contributions by divisions may result in a different projected total employer contribution than those shown here. We have also assumed that each group would have a $0 minimum UAL contribution. We will continue to work with the Board and Investment Committee to develop a funding policy. For the projections in this report, we note the following:

- The DWSD and Library groups are projected to be more than 100% funded on June 30, 2023. As a result, starting in FY 2024 the only contributions for those groups is for administrative expenses and the funded ratio is projected to continue growing which means that the total funded ratio is expected to exceed 100% once the other divisions achieve full funding.
- The funded ratio for DOT is projected to be 21% funded on June 30, 2023. We note the following implication of the low DOT funded status.
    - Under the 30-Year Level Principal method, the funded status for DOT is projected to fall below 15% on June 30, 2040.
    - Under the 30-Year Level Dollar method, the assets allocated for DOT are projected to be depleted by June 30, 2032. At that point, we have assumed that DOT would not be responsible for making additional contributions equal to the benefit payments.
- The projected UAL contributions for DWSD decrease to $0 beginning in FY 2024 in this valuation (there is a small contribution requirement for administrative expenses). Note that in prior post-POA valuations, the projected DWSD contribution was greater than zero. At any point in the future, plan experience may result in an unfunded actuarial accrued liability for DWSD. In addition, under a different assumption set (such as a lower assumed rate of return), the DWSD may have an unfunded actuarial accrued liability. We understand that the City, System and GLWA have a Memorandum of Understanding dated December 1, 2015 for assessing contributions, if any, to GLWA. This report does not reflect that agreement.


DGRS - Employer Contributions (Total of All Divisions)
$80
$60
$40
$20
$-
$ Millions
2022
2027
2032
2037
2042
2047
2052
2057
Fiscal Year Ending June 30
Employer Contributions (30-Year Level Dollar)
Employer Contributions (30-Year Level Principal)



DGRS - Funding Projection (Total of All Divisions)
$800
$600
$400
$200
$-
$ Millions
100%
75%
50%
25%
0%
2021
2026
2031
2036
2041
2046
2051
2056
Valuation Date June 30
UAAL (30-Year Level Dollar)
UAAL (30-Year Level Principal)
Funded Level (30-Year Level Dollar)
Funded Level (30-Year Level Principal)

Valuation Results (Continued)

We have recommended that the Board establish a funding policy for the contribution determinations on and after Fiscal Year 2024. The Board has begun the process. Once that process has been completed, we will incorporate the adopted policy into future valuation reports. Until that process is completed, we will continue to show the following two possible policies.

In the chart below, the first policy funds the UAAL over the expected remaining active service life of this group. The second policy is similar to the Board's pre-bankruptcy policy, but with accelerated principle payments of the UAAL to prevent insolvency prior to the end of the funding period. The illustrations are intended to show that there are a broad range of possible funding policies, but are not intended to provide a specific recommendation or a minimum or maximum level of contributions.

Funding Policy 1 is based on amortizing the UAAL over the average remaining service life of active members (8 years for General; 7 years for DOT; 8 years for DWSD; and 8 years for Library) using level dollar amortization.

Funding Policy 2 is based on amortizing the UAAL with level principal payments over a closed 30-year period plus interest. This method is also known as level principal declining interest amortization.

Illustrative Contribution Shortfall

	($ Millions)				
	General City	D.O.T.	DWSD	Library	System Total
(1) Illustrative Contribution for FY 2023 (Funding Policy 1)					
UAAL Contribution	$ 73.6	$ 50.5	$ 2.9	$ (1.4)	$ 125.5
$0 Minimum UAAL Contribution	73.6	50.5	2.9	-	127.0
Administrative Expense Contribution	1.3	0.3	0.6	0.1	2.4
Total Contribution	74.9	50.9	3.5	0.1	129.4
(2) Illustrative Contribution for FY 2023 (Funding Policy 2)					
UAAL Contribution	44.7	27.7	1.7	(0.9)	73.3
$0 Minimum UAAL Contribution	44.7	27.7	1.7	-	74.2
Administrative Expense Contribution	1.3	0.3	0.6	0.1	2.4
Total Contribution	46.1	28.0	2.4	0.1	76.6
(3) Actual Contributions for FY 2023 (POA)	2.7	0.1	42.9	2.5	48.3
Fiscal Year 2023 Shortfall - Funding Policy 1: (1) - (3)	$ 72.2	$ 50.7	$ (39.4)	$ (2.4)	$ 81.1
Fiscal Year 2023 Shortfall - Funding Policy 2: (2) - (3)	$ 43.3	$ 27.9	$ (40.5)	$ (2.4)	$ 28.3

We understand the Employer continues to set aside money in a separate side fund account to contribute to the Pension Plans in the future. Since the account is outside of the trust fund and the portion of the fund this Plan will receive (vs. the Police and Fire Plan) has not been determined, we have not taken those assets into account in our calculations. We commend the Employer for taking proactive steps to manage the estimated increase in funding requirements beginning in FY 2024 from a budgeting perspective. In the meantime, we recommend continued consideration of increasing contributions actually deposited into the trust.

Valuation Results (Concluded)

In addition, as the Board works through the funding policy, we would suggest considering a funding period less than 30 years. Given the fact that not all of the retiree liabilities are funded, a period of 15 years or less should be considered.

Present Value	June 30, 2021	June 30, 2020
Accrued Pension Liabilities (Employer Financed)		
Retirees and beneficiaries	$1,915,878,072	$2,022,510,702
Inactive members future deferred pensions	214,790,496	223,061,249
Active members	209,090,483	256,033,419
Total accrued pensions	2,339,759,051	2,501,605,370
Pension fund balances	1,741,300,968	1,500,667,694
Unfunded accrued pension liabilities	$ 598,458,083	$1,000,937,676
Accrued Annuity Liabilities (Member Financed)		
Retirees and beneficiaries		
Future annuities	$ 98,087,136	$ 100,671,026
Member annuities & future refunds	104,783,035	114,225,043
Total accrued annuity liabilities	202,870,171	214,896,069
Annuity fund balances	77,348,330	95,434,295
Unfunded accrued annuity liabilities*	$ 125,521,841	$ 119,461,774
Totals		
Actuarial Accrued Liabilities (AAL)	**$2,542,629,222**	**$2,716,501,439**
Market Value of Assets (MVA)	**1,818,649,298**	**1,596,101,989**
Unfunded Actuarial Accrued Liabilities (UAAL)	**$ 723,979,924**	**$1,120,399,450**
POA Funded Status	**71.5%**	**58.8%**

* *Liabilities are gross before accounting for ASF claw-back. Assets currently include a receivable of approximately $98.0 million related to the ASF claw-back. We believe the receivable is included in the pension fund balances.*

Historical Results ($ Millions)

	2019	2018	2017	2016	2015	2014
Total AAL	$2,866.1	$2,929.1	$2,995.8	$3,032.3	$3,139.1	$3,222.4
MVA	1,798.9	1,940.6	1,966.7	1,933.5	2,131.3	2,015.2
UAAL	1,067.2	988.4	1,029.1	1,098.8	1,007.8	1,207.1
POA Funded Status	62.8%	66.3%	65.6%	63.8%	67.9%	62.5%

Funded Ratio - POA

		Defined Benefit	ASF	Total
A	Actuarial Accrued Liability (AAL)	$2,437,846,187	$104,783,035	$2,542,629,222
B	Market Value of Assets	$1,713,866,263	$104,783,035	$1,818,649,298
C	Unfunded Actuarial Accrued Liability (A-B)	$ 723,979,924	$ 0	$ 723,979,924
D	Funded Ratio (B/A)	70.3%	100.0%	71.5%

The POA Funded Ratio measurement above is an expected return-based measurement of the pension obligation. It is based upon the mandated 6.75% interest rate assumption (assumption prescribed by the POA). It determines an amount (AAL) that will be sufficient to provide benefits if the portfolio earns the expected 6.75% return on assets and all other assumptions are met. This measure is appropriate for assessing the need for or amount of future contributions (if all assumptions are met). This measure is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligation, in other words, of transferring the obligation to a third party in a market value type transaction.

Funded Ratio - Solvency

		Defined Benefit	ASF	Total
A	Market-Based Liability (MBL)	$3,923,406,427	$104,783,035	$4,028,189,462
B	Market Value of Assets	$1,713,866,263	$104,783,035	$1,818,649,298
C	Unfunded Market-Based Liability (A-B)	$2,209,540,164	$ 0	$2,209,540,164
D	Funded Ratio (B/A)	43.7%	100.0%	45.1%

The Solvency Funded Ratio is a market-based measurement of the pension obligation. It estimates the amount (MBL) the plan would need to invest in low risk securities to provide the benefits with greater certainty. For this purpose, the MBL is computed at 1.92% interest as of June 30, 2021, based on the long-term municipal bond rate ("20-Year Municipal GO AA Index" rate from the Fidelity Index as of June 30, 2021). We are not able to assess the credit quality of the plan sponsor and, as such, no adjustment has been made for the credit quality of the plan sponsor. This measure may not be appropriate for assessing the need for or amount of future contributions. This measure may not be appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligation.

The difference between the two measures (POA and Solvency) is one illustration of the savings the sponsor anticipates by taking on the risk in a diversified portfolio.

Comments

Experience

Experience was more favorable than assumed during the year ending June 30, 2021. The chart below shows the estimated gain by division.

Development of Actuarial Gain or Loss

	($ Millions)				
	General City	D.O.T.	DWSD	Library	System Total
(1) UAAL as of June 30, 2020 (BOY)	$ 608.6	$ 282.4	$ 212.6	$ 16.7	$ 1,120.4
(2) Actual POA Contribution (EOY)	2.8	0.1	42.9	2.5	48.3
(3) Interest at 6.75%	41.1	19.1	14.4	1.1	75.6
(4) Benefit Changes	-	-	-	-	-
(5) Assumption Changes	(71.4)	(18.7)	(24.6)	(6.2)	(120.8)
(6) Projected UAAL* as of June 30, 2021	$ 575.5	$ 282.7	$ 159.5	$ 9.2	$ 1,027.0
(7) Actual UAAL* as of June 30, 2021	416.4	257.2	56.3	(5.9)	724.0
Gain or Loss: (6) - (7)	$ 159.2	$ 25.5	$ 103.2	$ 15.1	$ 303.0
Gain or Loss from Investments	$ 168.1	$ 24.2	$ 105.6	$ 13.8	$ 311.7
Gain or Loss from Excess Interest Transfers (Inc. FY 2021)	$ (11.1)	$ (4.4)	$ (3.4)	$ (1.5)	$ (20.4)
Gain or Loss from Liabilities	$ 2.2	$ 5.8	$ 1.0	$ 2.9	$ 11.8

* *Unfunded actuarial accrued liability.*

Source of Actuarial Gain or Loss

	Gain (Loss) in Period	
Type of Risk Area	Totals ($ in Millions)	Percent of Liabilities
Data Improvements	$ 5.6	0.2 %
ASF Transfers	0.0	0.0 %
Excess Interest Transfers (Inc. FY 2021)	(20.4)	(0.8)%
Risks Related to Experience		
Economic Risk Areas:		
Investment Return	311.7	11.5 %
Demographic Risk Areas:		
Full and Reduced Service Retirements	7.6	0.3 %
Death Benefits	0.1	0.0 %
Disability Benefits	(0.1)	0.0 %
Other Terminations	2.0	0.1 %
Post-Retirement Mortality	(3.5)	(0.1)%
Total Gain or Loss Related to Experience	317.8	11.7 %
Total Gain or Loss During Period	303.0	11.2 %
Beginning of Year Accrued Liabilities	2,716.5	100.0 %

Comments (Continued)

Experience (Continued)

The estimated FY 2024 contributions are very sensitive to changes in year-to-year experience. The chart below reconciles our estimate from the June 30, 2020 valuation to our estimate from this valuation (June 30, 2021).

The June 30, 2021 gain, primarily due to investments, improved the funded status of the plan.

Reconciliation of Projected June 30, 2024 UAAL Contributions – Level Principal

	($ Millions)				
	General City	D.O.T.	DWSD	Library	System Total*
Estimated FY 2024 UAAL Contribution from 2020 Valuation	$ 73.8	$ 34.6	$ 12.2	$ 1.2	$ 121.8
Gain or Loss from Investments	(19.3)	(2.8)	(12.1)	(1.6)	(35.8)
Gain or Loss from Excess Interest Transfers (Inc. FY 2021)	1.3	0.5	0.4	0.2	2.3
Gain or Loss from Liabilities	(0.2)	(0.7)	(0.1)	(0.3)	(1.4)
Modified Contributions (see below)	-	-	-	-	-
Actual FY 2021 Contribution above/(below) Expected	-	-	-	-	-
Benefit Changes	-	-	-	-	-
Assumption Changes	(7.8)	(2.1)	(2.8)	(0.7)	(13.4)
Adjustment for $0 minimum	-	-	2.5	1.2	3.7
Estimated FY 2024 UAAL Contribution from 2021 Valuation	$ 47.7	$ 29.6	$ -	$ -	$ 77.3

* *Totals may not add due to rounding.*

Reconciliation of Projected June 30, 2024 UAAL Contributions – Level Dollar

	($ Millions)				
	General City	D.O.T.	DWSD	Library	System Total*
Estimated FY 2024 UAAL Contribution from 2020 Valuation	$ 57.5	$ 27.0	$ 9.5	$ 1.0	$ 94.9
Gain or Loss from Investments	(15.1)	(2.2)	(9.5)	(1.2)	(27.9)
Gain or Loss from Excess Interest Transfers (Inc. FY 2021)	1.0	0.4	0.3	0.1	1.8
Gain or Loss from Liabilities	(0.2)	(0.5)	(0.1)	(0.3)	(1.1)
Modified Contributions (see below)	-	-	-	-	-
Actual FY 2021 Contribution above/(below) Expected	-	-	-	-	-
Benefit Changes	-	-	-	-	-
Assumption Changes	(6.1)	(1.6)	(2.2)	(0.5)	(10.4)
Adjustment for $0 minimum	-	-	1.9	0.9	2.9
Estimated FY 2024 UAAL Contribution from 2021 Valuation	$ 37.2	$ 23.1	$ -	$ -	$ 60.2

* *Totals may not add due to rounding.*

Comments (Continued)

Experience (Continued)

Demographic Experience

	Number Count		
	Actual	Expected	
	A	E	A/E%
Retirement (including early)	126	261	48%
Disability	0	15	0%
Vested Terminations	112	40	277%
Other Terminations (including pre-retirement death)	58	24	237%
Post-Retirement Death	397	414	96%

Expected counts are based on the assumptions used in the prior valuation.

Member Experience Additional Comments

Retirements were less than one-half the number expected.

Vested Terminations were nearly three times the number expected.

Other Termination were over double expected.

Active member experience this year was very different from expectations. We believe this is partly due to the pandemic and resulting economic uncertainties as well as the City's response, which was to implement furloughs and a workshare program. Based on some number counts that the System's Staff provided, we suspect that a lot of the terminations are actually temporary. The System provided information on members participating in the work share program and we have confirmed that the vast majority of those members are included as active members on June 30, 2020. If the furloughed members return to full time active status in the future, this could result in a liability loss in that future year. We have considered setting up a liability reserve for this potential future loss and decided not to include such a reserve for the following reasons:

1) It is unknown how many of the furloughed members will return to active service; and
2) The liability loss in this plan related to those members returning to active status would likely be small, since it would only affect future eligibility service and not the frozen accrued benefit.

New Members

We continue to see active members added to the Legacy data. We have assumed these were either data corrections or re-hires. We have observed this every year since 2014. The change this year is included in the "Data Improvements" source of gains/losses on page 10. This year 78 members were added as active to this plan. This resulted in an increase in accrued liabilities of approximately $1.6 million, after accounting for those members that were known to come from the deferred and retiree rolls.

Actuarial Assumptions

As a result of the recent experience study there were many assumption changes related to administrative expenses, mortality rates, withdrawal rates, disability rates, normal and early retirement rates, and merit and longevity pay increases. A full description of current assumptions can be in Section D of this report, and justification for these assumptions can be found in our Experience Study dated February 4, 2022. These changes decreased the AAL by approximately $121 million.

In the Experience Study, we noted the continuing decrease in capital market expectations which suggests that the assumed rate of return may need to be lowered in the near future. We understand that the Board may continue to explore changes in the assumed rate of return. However, per legal counsel, we also understand that for the annual actuarial valuation the 6.75% assumed rate of return cannot be changed until the June 30, 2024 report, including for purposes of calculating the actuarially determined contribution.

We anticipate the next comprehensive review of experience to cover the period from July 1, 2020 to June 30, 2025.

Annuity Savings Fund (ASF) Claw-Back Data

For the June 30, 2015 valuation, the System's auditors determined a receivable in accordance with GAAP accounting that was included in the reported June 30, 2015 assets. The reported assets for the June 30, 2021 status valuation also included a receivable for the remaining claw-back payments. We have assumed this information, received by the System's auditors, was reasonable. This assumption is in compliance with the Actuarial Standards of Practice.

Annuity Reserve Fund (ARF)

Typically, we would compare the Annuity Reserve Fund (ARF) to the ARF liabilities and recommend a transfer if liabilities exceed assets. However, the annuity claw-back receivable created by the Bankruptcy (which relates to the ARF and the ASF) makes this analysis much more complicated. If the System would like us to perform this calculation, we will need additional information not routinely provided for the valuation. Please let us know if this is needed.

In general, assets were reviewed for reasonableness. During that review, we discovered that the ARF does not appear to have been credited any interest. As a result, we recommend that all the reserve amounts be reviewed.

Plan Provisions

Section B-1 (b) of the plan provides that members who terminate employment and are subsequently rehired before incurring a six-year break in service are eligible to earn additional vesting and eligibility service under the plan. For purposes of this valuation, we have assumed no terminated members will be rehired in the future. Rehires will, therefore, cause a loss when they occur.

Based on our discussions with System staff, we understand that current EMT members may elect to enter the Police and Fire Retirement System and that future EMT will go into in the Police and Fire Retirement System. Our understanding is that it is unlikely that a current EMT member would elect to transfer to the Police and Fire Retirement System and have assumed that no current EMT members would elect to do so.

Comments (Continued)

Allocation of Contributions Between General and DOT

Our understanding of the allocation of contributions between General and DOT is discussed on page 2 of this report. Based on the reported assets, a different allocation method appears to have been used in FY 2020 and FY 2021. If the System supplies us with this asset allocation method actually used, we can incorporate that method in future valuations.

Annuity Savings Fund (ASF) Interest Credits

The ASF fund is credited with the lesser of 5.25% interest and the total fund earnings. We understand that any earnings in excess of 5.25% (that otherwise would have been credited to the ASF fund if not for the 5.25% cap) will be transferred to Component I assets, to the extent needed, for funding of transition liability. Since ASF liabilities are equal to ASF balances, we did not model any such future excess earnings as part of this valuation. However, since the fund earned 28% during FY 2021, we expect that there will be a transfer of excess ASF interest in FY 2023 related to this year's performance. Approximately $20.4 million was added to the liabilities in this report to account for anticipated excess earnings expected to occur as a result of return on assts in the 2021 fiscal year. No additional liabilities were included in this report to account for anticipated excess earnings expected to occur as a result of return on assets. We have discussed the potential for additional liability with the Plan's accountants and have been instructed that the excess earnings should not be included as a liability in the GASB Statement Nos. 67 and 68 reports.

We understand that the System has adopted a procedure for computing the ASF interest credits lagging the actual experience of the assets. We have not reviewed or audited this procedure. If the Retirement System can provide the methodology for determining the transfer, we may be able to more accurately reflect it in advance.

As of June 30, 2021, it appears that Component I may be fully funded under a 0.0% assumed VPIF. There does not currently exist a policy that allocates that unfunded amount between Transition Costs and non-Transition Costs. Since future excess interest transfers are affected by whether or not the Transition Costs are fully funded, we recommend that the Board adopt a method of allocating any unfunded amounts (after exclusion of the RSF) between Transition Costs and other liabilities. If the Board wishes, we can work with legal counsel and suggest a few methods for consideration and discuss the advantages and disadvantages with the Board.

For purposes of this valuation we have assumed the Component I Transition Cost is fully funded as of June 30, 2021. For Component II, this assumption only affects ASF Return Excess transfers calculated starting with the June 30, 2022 valuation.

Comments (Continued)

Estimated Excess Interest Transfers

Fiscal Year Transfer is Expected (A)	ASF Balance BOY (B)	Assumed ASF Payment (C)	ASF Balance EOY (D)	FY 2 Years Prior to Transfer: Year (E)	FY 2 Years Prior to Transfer: Estimated Return (F)	Investment Return Excess Percent (G) = (F) - 5.25%	ASF Return Excess (H) = (G) x (B)	Estimated Component I Funded Transition Cost Status (I)	Resulting Percent Transfer (J)	Assets to be Transferred Out (BOY) (K) = (H) x (J)
2022	$ 104,783,035	$ 13,388,175	$ 96,549,025	2020	-0.60%	0.00%	$ -	<100%	100%	$ -
2023	96,549,025	13,388,175	87,882,729	2021	27.84%	22.59%	21,810,425	<100%	100%	21,810,425
2024	87,882,729	13,388,175	78,761,453					**>=100%**		

We understand this calculation will be performed by staff and may be different than shown above. The estimates above are used to approximate the effect on UAAL.

Section E-16(c) of the Combined General Plan is shown below:

In any Plan Year during the period beginning on or after July 1, 2014 and ending June 30, 2023 in which the annual rate of return credited to the accounts of members investing in the Annuity Savings Fund as provided in paragraph (b) is less than the actual rate of return net of expenses of the Retirement System's invested assets for the second Plan Year immediately preceding the Plan Year in which the annual rate of return is credited ("ASF Return Excess"), an amount equal to the value of the ASF Return Excess shall be transferred to the Pension Accumulation Fund maintained under Component I of the Combined Plan and shall be used to fund the Transition Cost relating to Component I. The Transition Cost is a measure of the liability that Component I of the Retirement System has at its inception; due to the fact that at its inception, members in Component I of the Retirement System receive vesting and eligibility credit under Component I for service that was earned prior to July 1, 2014 and is otherwise credited to members under Component II of the Retirement System. Transition Cost is calculated by the Plan Actuary. In the event there is an ASF return excess for a Plan Year following the Plan Year in which such transfers have fully funded the Transition Costs relating to Component I, fifty percent (50%) of such ASF Return Excess shall be transferred to the Pension Accumulation Fund maintained under Component II and the remaining fifty percent (50%) of such ASF Return Excess shall be transferred to Component I and credited to the Rate Stabilization Fund maintained under Component I. "Transition Cost" shall be determined by the Plan Actuary.

Comments (Continued)

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Plan’s funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan’s future financial condition include:

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability Mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution Risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan’s funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

Comments (Continued)

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2021	2020
Ratio of the market value of assets to total payroll*	6.8	5.9
Ratio of actuarial accrued liability to payroll*	9.5	10.0
Ratio of actives to retirees and beneficiaries	0.2	0.2
Ratio of net cash flow to market value of assets	-10.4%	-12.1%
Duration of the actuarial accrued liability	8.2	8.6

** Payroll for this purpose is Component I payroll of $267.0 million for 2021 and $271.4 million for 2020.*

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Comments (Continued)

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of actives to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make benefits payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Duration of Actuarial Accrued Liability

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, a duration of 10 indicates that the liability would increase approximately 10% if the assumed rate of return were lowered 1%.

Additional Risk Assessment

The Solvency Liability shown on page 9 may be considered as a risk assessment. Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, and stress tests. We included additional risk assessments in the funding policy discussions based on the 2017 actuarial valuation. We can update those at the Board’s request.

Census Data and Approximations

Data was reported separately for Component I and Component II. Additional time was needed to reconcile these two data sets as they came from different source data. Processing time for the valuation could be shortened if data for future valuations is reconciled before being provided to GRS. We would be happy to work with the Retirement System staff to help them provide the information that is needed for the valuation. Additional information about the data approximations and assumptions may be found on page 27.

Option Factors

The Board adopted new option factors for the Plan based on the mortality study completed in 2015. We have not been provided with a specific effective date for the new factors. However, we understand the intent is to implement the new factors with the new data system. For the sake of simplicity, we have assumed the new factors apply to all retirements after the valuation date. We will continue to work with the System in the calculation of optional forms of payment. In particular, the Board may want to consider updating the assumptions used in optional forms of payment in order to recognize recent changes to the assumptions used in the annual actuarial valuations.

Comments (Continued)

Restoration

This valuation assumes no future restoration of Component II benefits (consistent with the expectation of the POA). Any future restoration will be reflected beginning in the next valuation after being granted.

DWSD (Water/Sewer) Projections

As a result of gains in this valuation year, the DWSD (Water/Sewer) division is now expected to be fully funded by 2024. As a result, no additional contributions are expected to be needed in FY 2024 to fund DWSD liabilities.

The DWSD contributions and liabilities determined in this report do not consider the separation of DWSD-R and GLWA from the DWSD. For the illustrative employer contributions in this report, we have assumed that contributions would be assessed to the City based on the total unfunded liability for DWSD and without regard to any contribution agreement with GLWA. Our understanding is that the split of DWSD liabilities between DWSD-R and GLWA will be determined by the System's staff under previously established procedures.

DWSD Members

For the June 30, 2017 valuation we received a separate file indicating the June 30, 2014 DWSD status of members. Any members that were indicated as being DWSD division members on that file were valued under the DWSD for this valuation, regardless of the division reported on the main valuation data (which we understand to be the division as of June 30, 2021 in the Component I plan).

New Data System

We understand that the Retirement System is in the process of moving to a new data system and that future valuation data will be provided from that system beginning with the 2022 or 2023 valuation. We also understand that data may have gone through additional cleaning/auditing as it has been entered into the new system. We anticipate that data will be more precise for valuation purposes once the new system is providing that data. Please note that changes in data may impact future valuation results and generate gains or losses.

Recommendation

We recommend the Board consider updating the assumptions used in optional forms of payment in order to recognize recent changes to the assumptions used in the annual actuarial valuations.

We recommend that every potential action be taken to increase contributions to the Retirement System. Benefit payments to retirees in the Plan were almost $236 million compared to the FY 2021 contribution of $48.3 million. See benefit projections on page 32.

We strongly recommend that the Board and Investment Committee adopt a funding policy in the next few months so that the funding policy can be incorporated in the June 30, 2022 valuation.

Comments (Concluded)

Divisional Results

Divisional results are shown on page 21. One result that stands out is the funded status of the DOT division at 35%. This is much lower than the other divisions. We expect that all of the assets back all of the liabilities. Therefore, if this division runs out of money before all of its benefits are paid, the plan will pay DOT benefits from other divisional assets. In that case, the total plan funded status is a better measure than individual division funded ratios. However, the manner in which divisional contributions have historically been determined treats each division as a standalone plan for the purpose of determining the actuarially determined contribution. Assuming the Board continues this method for Fiscal Year 2024 (the first year actuarially determined contributions are assessed to the employer), this low funded status for the DOT (relative to the other divisions) could result in a higher DOT employer contribution (relative to the other divisions). The Board may also want to consider a more aggressive funding policy for the DOT division if they want to avoid using other divisional assets to pay DOT benefits. Please let us know if the Board would like us to do any special projects related to this situation, such as divisional cash flow projections or divisional funding policy suggestions.

Conclusion

It is likely that the funded status will decline and the unfunded actuarial accrued liability will increase between now and June 30, 2023. On a market value basis, the funded status is projected to decline to approximately 69% as of June 30, 2023 if the market rate of return equals 6.75% and all other assumptions are met.

Liability by Division - POA

($ Thousands)

	General	D.O.T.	DWSD	Library	Totals
Accrued Pension Liabilities					
Retirees and beneficiaries	$1,031,632	$285,129	$549,107	$ 50,010	$1,915,878
Inactive members future deferred pensions	111,145	31,013	67,979	4,653	214,790
Active members	119,774	44,402	26,921	17,994	209,091
Total accrued pension liabilities	1,262,551	360,544	644,007	72,657	2,339,759
Pension fund balance#	916,566	114,498	626,926	83,312	1,741,302
Unfunded accrued pension liabilities	345,985	246,046	17,081	(10,655)	598,457
Accrued Annuity Liabilities					
Retirees and beneficiaries#	53,896	10,282	30,800	3,109	98,087
Members annuities & future refunds	56,834	22,783	17,265	7,900	104,782
Total accrued annuity liabilities	110,730	33,065	48,065	11,009	202,869
Annuity fund balances	40,359	21,883	8,846	6,260	77,348
Unfunded accrued annuity liabilities#	70,371	11,182	39,219	4,749	125,521
Totals					
Actuarial Accrued Liabilities	1,373,281	393,609	692,072	83,666	2,542,628
Accrued Assets	956,925	136,381	635,772	89,572	1,818,650
Funded Ratio	69.7%	34.6%	91.9%	107.1%	71.5%
Unfunded Actuarial Accrued Liabilities	**$ 416,356**	**$257,228**	**$56,300**	**$ (5,906)**	**$723,978**

Totals may be off slightly due to rounding.

 # The pension fund balance includes a receivable of approximately $98.0 million for future claw-back payments. Liabilities are shown gross, before the annuity savings claw-back.

SECTION B

FUND ASSETS

Statement of Plan Assets
(Reported Assets at Market Value)

Market Value - June 30, 2021	
Cash and Cash Equivalents	$ 81,684,767
Investments at Fair Value	1,631,592,944
Receivables	108,348,712
Cash and Investments held as collateral for securities lending	77,656,896
Capital Assets - Net	2,647,165
Accounts Payable	(83,281,186)
Total Current Assets	**$ 1,818,649,298**

Market Value of Assets

Reserve Accounts

Funds	Fund Balances June 30, 2021	Fund Balances June 30, 2020
Annuity Savings	$ 104,783,035	$ 114,225,043
Annuity Reserve	(27,434,705)	(18,790,748)
Pension Accumulation	(65,451,896)	(370,423,727)
Pension Reserve	1,806,752,864	1,871,091,421
Total Fund Balances	**$ 1,818,649,298**	**$1,596,101,989**

Revenues and Expenditures

	Pension Funds	Annuity Funds	Total Funds
Balance, July 1, 2020	$1,500,667,694	$95,434,295	$1,596,101,989
Prior valuation audit adjustment	0	0	0
Market Value July 1, 2020	$1,500,667,694	$95,434,295	$1,596,101,989
Revenues			
Employer Contributions	47,900,000	0	47,900,000
Employee Contributions	0	0	0
Foundation Contributions	375,000	0	375,000
ASF Recoupment Interest	6,739,857	0	6,739,857
Investment Income (Net of Investment Expenses)	403,573,894	3,404,023	406,977,917
Other Income	961,366	(124,348)	837,018
Total	$ 459,550,117	$ 3,279,675	$ 462,829,792
Expenditures			
Benefit Payments	215,758,136	10,032,037	225,790,173
Refund of Member Contributions	0	11,333,604	11,333,604
ASF Recoupment Write Off	1,171,513	0	1,171,513
Transfer to Component I (Transition Cost)	0	0	0
Administrative Expenses	1,987,193	0	1,987,193
Total	$ 218,916,842	$ 21,365,641	$ 240,282,483
Market Value June 30, 2021	$1,741,300,969	$ 77,348,329	$1,818,649,298
Market Value Rate of Return (Net of all expenses)	29.3%	3.9%	27.8%
Net Cash Flow as Percent of Assets	(11.2)%	(22.4)%	(11.8)%

Rates of return are dollar-weighted estimates assuming contributions occur at the end of the year and remaining items are mid-year cash flows. “ASF Recoupment Interest” and “Other” items are treated as investment cash flows.

Note that interest credits to the ASF (and other reserves) are determined by Plan provisions and Board policy (including any timing issues) as calculated by the Retirement System’s staff.

Allocation of Assets Used for Valuation by Reserve Account and Division

	June 30, 2020	Adjustments	Contributions	Benefit Payments	Other	Investment Return (Net of All Expenses)	June 30, 2021
Annuity Savings Fund							
General	$ 60,036,933	$ 0	$ 0	$ (4,066,345)	$ (853,307)	$ 1,716,897	$ 56,834,178
D.O.T.	27,232,918	0	0	(4,875,528)	(432,865)	858,849	22,783,374
DWSD	18,397,307	0	0	(1,480,677)	(216,400)	564,813	17,265,043
Library	8,557,885	0	0	(911,054)	(9,856)	263,465	7,900,440
Totals	114,225,043	0	0	(11,333,604)	(1,512,428)	3,404,024	104,783,035
Annuity Reserve Fund							
General	(11,671,540)	0	0	(5,591,350)	788,048	0	(16,474,842)
D.O.T.	(399,737)	0	0	(906,471)	405,450	0	(900,758)
DWSD	(5,504,800)	0	0	(3,107,999)	193,814	0	(8,418,985)
Library	(1,214,671)	0	0	(426,217)	768	0	(1,640,120)
Totals	(18,790,748)	0	0	(10,032,037)	1,388,080	0	(27,434,705)
Pension Accumulation Fund							
General	(199,690,877)	(84,956,115)	2,765,012	0	3,528,222	216,732,663	(61,621,095)
D.O.T.	(155,570,180)	(23,189,737)	109,988	0	957,022	30,608,828	(147,084,079)
DWSD	(34,893,810)	(37,598,517)	42,900,000	0	1,897,507	135,971,815	108,276,995
Library	19,731,140	(5,675,210)	2,500,000	0	146,959	18,273,394	34,976,283
Totals	(370,423,727)	(151,419,579)	48,275,000	0	6,529,710	401,586,700	(65,451,896)
Pension Reserve Fund							
General	1,013,487,885	84,956,115	0	(120,257,345)	0	0	978,186,655
D.O.T.	269,003,263	23,189,737	0	(30,611,304)	0	0	261,581,696
DWSD	539,671,483	37,598,517	0	(58,621,191)	0	0	518,648,809
Library	48,928,790	5,675,210	0	(6,268,296)	0	0	48,335,704
Totals	1,871,091,421	151,419,579	0	(215,758,136)	0	0	1,806,752,864
Retirement System Totals	$1,596,101,989	$ 0	$48,275,000	$ (237,123,777)	$ 6,405,362	$ 404,990,724	$1,818,649,298

SECTION C

PARTICIPANT DATA

Reconciliation of Raw Data

Active Members

A) Count reported in Legacy file	2,518
B) In Legacy file but not in Hybrid file	(41)
C) Hired after plan closed	(101)
D) Non-active Status	(166)
E) Agency "88"	(17)
F) Non-eligible class code & bargaining unit	(2)
G) No hire date in Hybrid file	-
H) Zero salary in Hybrid file	(6)
I) Number of records to value	2,185

Inactive Vested Members

A) Number of records reported on data file	2,669
B) In Legacy active file but not otherwise in database and not in Hybrid active file	1
C) Valued as inactive in prior year and would not have otherwise been valued in Legacy this year	49
D) Valued as a vested active member in prior year but not in this year's active file and would not have otherwise been valued in Legacy this year	100
E) Deceased	-
F) Less than 8 years of vesting service	(174)
G) Number of records to value	2,645

Retired Members and Beneficiaries

A) Number of records reported on data file	45,058
B) Number of records in P/F plan	(16,857)
C) Records not currently in receipt of benefits based on reported status codes	(16,549)
D) Component I (Hybrid) Records	(479)
E) Number of records valued	11,173

Notes:

Active Row B: There were 41 records that appeared in the Legacy active file but did not appear in the Hybrid active file. It was assumed that these members were no longer active in the General plan.

Active Row D: The Active data file contains a field titled "Stat." Active members were only valued if the record for this field had a value of "1." In 2021, members were also valued if this field had a status of "71" (LOA).

Active Row E: Agency "88" is the 36th District Court. We understand that members in that agency are not eligible to receive benefits.

Active Row F: We have received a separate list of Class Codes and Bargaining Units that are not eligible to receive benefits.

Inactive Vested Row B: See the note for Row B of the active member reconciliation (of the 41 members removed from the active file, only 1 appeared to be vested and added to the deferred file).

Inactive Vested Row C: Only includes records that appear in the raw database last year.

Retired Row C: The Retired Life file has a field named "STATUS." We understand that if this field is populated with a number that is one or greater, the member is no longer receiving a benefit and should not be valued.

Reconciliation of Year-to-Year Data
as of June 30, 2021

	Active		Term. Vested	Retirees		Totals
	Count	Pay#	Count	Count	Monthly Benefits	Count
2020	**2,403**	**$111,124,304**	**2,728**	**11,220**	**$17,863,859**	**16,351**
Change in Pay/Pensions	N/A	1,359,046	N/A	N/A	(84,737)	
Rehired (Not Vested)	47	1,601,690				47
Rehired (Vested)	31	1,079,240	(31)	-	-	-
New Beneficiary				99	109,859	99
Retired	(126)	(5,375,835)	(113)	243	334,012	4
Non-Duty Disabled				-	-	-
Duty Disabled				-	-	-
Assumed Death/Removals			(59)	(397)	(510,683)	(456)
Vested Term	(112)	(4,478,728)	112			-
Non-Vested Terminated	(58)	(2,656,081)				(58)
Data Adjustment	-	-	8	8	13,847	16
2021	**2,185**	**$102,653,636**	**2,645**	**11,173**	**$17,726,157**	**16,003**

 # This represents current pay and is not used for the Component II (Legacy) valuation.

Notable Data Changes:

4 new Retirees came from nowhere. We believe most of these are a result of EDRO's.

59 Terminated Vested members were valued last year but will not be valued this year. We have assumed these members refunded and forfeited their defined benefit.

The data adjustments relate to records where we could not specifically identify the activity during the year. This could be the result of duplicate Social Security numbers or corrected Social Security numbers.

Data Approximations and Assumptions

As part of our review of the data received from the System, we discussed questionable or missing data with System staff and developed approximations and assumptions in order to perform the valuation. We provided System staff with a letter dated December 17, 2021 with additional information regarding data reconciliation, processing instructions, and assumptions regarding unresolved issues. Note, that letter disclosed our remaining data processing procedures and assumptions and details our reconciliation and final valuation data. System staff has approved the detail and final data disclosed in that letter.

The purpose of this section in this report is to summarize any unresolved concerns about questionable data that are relevant and could have a significant effect on the valuation as disclosed in that letter. This summary also discusses any significant steps we have taken to improve the data due to identifying questionable data values or relationships, significant judgments, or assumptions we have applied to the data.

Active

For active members, frozen AFC amounts and frozen service as of June 30, 2014 was reported. For purposes of this valuation, we matched the June 30, 2021 actives to the active data reported for the June 30, 2014 valuation to check against AFC as of June 30, 2014. In cases where the frozen AFC as reported in the 2021 data file was less than 75% of the AFC as reported on the 2014 data file, the AFC as reported on the 2014 data file was used. This boundary was determined after an analysis of the raw AFC data showed that the AFC for several members was unreasonably low. In cases where AFC was reported in to be $0 in both the current data file and the 2014 data file, the current salary was used in place of the AFC.

Deferred Vested

Data provided for deferred vested members was incomplete. As part of the processing of deferred member data, in cases where AFC was incomplete, we used $30,000 to estimate the AFC. Component II benefit service is not directly provided on the file. The Component II (Legacy) file includes total vesting service and the Component I (Hybrid) file includes Component I benefit service. Since Component II benefit service was frozen as of June 30, 2014 for members that terminated after June 30, 2014, Component II (Legacy) benefit service was determined by subtracting service in the Component I (Hybrid) inactive file from total vesting service in the corresponding Component II (Legacy) inactive file. Members with vesting service of less than 8 years were assumed to be non-vested and were not valued. We estimated the commencement date with the following rules:

- Age 55 if 30 or more years of service and hired before July 1986;
- Age 60 if less than 30 years of service, but more than 10 years of service and hired before 1986; and
- Age 62 for all others.

The entire amount of the deferred benefit was assumed to commence at the same time regardless of the date of hire.

Retired and Beneficiary

It is our understanding that the current pension amount provided in the retiree data includes the 4.5% reduction as mandated in the POA. However, for members that retired prior to July 1, 2015, the other pension amounts provided in the data (original pension amount, equated pension amount, and prior year's pension amount) did not reflect the 4.5% reduction and, as such, were reduced by 4.5% when valuing any related liability. Other adjustments/assumptions include:

- In cases where the benefit is identified to be a joint and survivor benefit and a beneficiary is not listed in the data, it was assumed that male spouses were 3 years older than females;
- Benefits for dependent children are assumed to cease at age 21; and
- For non-converted disabled members, converted benefits are:
  - assumed to commence at age 60; and
  - estimated, based on reported service and projected service from the date of disability to age 60.

Summary of Member Data
June 30, 2021

Active Members

	General	D.O.T.	DWSD	Library	Totals^
Number	1,327	368	293	197	2,185
% Change in active members	(7.0)%	(14.4)%	(12.8)%	(6.2)%	(9.1)%
Annual payroll ($ millions)	$ 68.0	$ 13.5	$ 12.8	$ 8.3	$ 102.7
Average pay	$51,265	$36,814	$43,610	$42,128	$46,981
% Change in average pay	1.5 %	0.3 %	1.2 %	0.6 %	1.6 %

^ *May not add due to rounding.*

Retired Members and Survivor Beneficiaries

	General	D.O.T.	DWSD	Library	Totals
Number	6,541	1,609	2,707	316	11,173
Annual benefits ($ millions) #	$ 123.9	$ 31.2	$ 61.1	$ 6.5	$ 222.8
Average benefits #	$18,949	$19,378	$22,588	$20,558	$19,938
% Change in reported average benefit	(0.1)%	0.3 %	(0.7)%	(2.0)%	(0.3)%

Includes annuities. Does not include reductions resulting from the annuity claw-backs.

Inactive Vested Members

	General	D.O.T.	DWSD	Library	Totals
Number	1,429	354	779	83	2,645
Average AFC	$39,902	$45,252	$49,269	$33,245	$43,168
Average years of service	15.2	15.1	15.1	13.6	15.1
Annual benefits ($ millions)	$ 14.2	$ 4.0	$ 9.5	$ 0.6	$ 28.3
Average benefits	$9,918	$11,169	$12,227	$ 7,524	$10,690
% Change in average years of service	(1.1)%	(0.5)%	(0.8)%	(1.6)%	(0.9)%
% Change in average AFC	(0.4)%	(0.4)%	(0.5)%	(2.2)%	(0.4)%

Active Members as of June 30, 2021
by Attained Age and Years of Service
Retirement System Totals

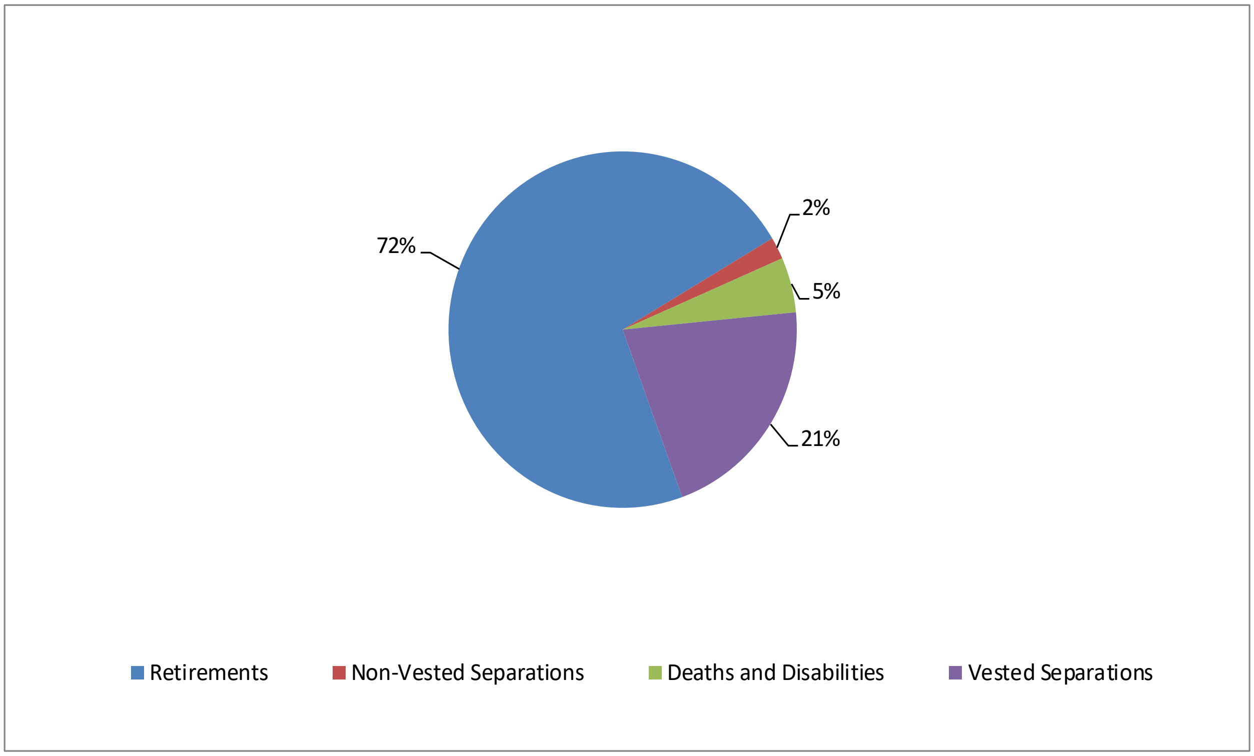
Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	0							0	$ 0
20-24	0	0						0	0
25-29	0	1	0					1	39,398
30-34	4	32	9	0				45	1,652,774
35-39	3	20	27	10	4			64	2,488,489
40-44	6	28	43	51	37	2		167	7,152,916
45-49	4	54	38	63	93	24	0	276	12,649,367
50-54	6	30	50	106	162	81	36	471	22,562,792
55-59	4	39	41	72	176	96	115	543	25,725,762
60-64	2	29	36	58	89	77	147	438	20,878,415
65-69	0	20	17	9	30	12	41	129	6,893,194
70-74	0	4	5	8	11	3	6	37	1,886,883
75-79	0	2	2	2	3	1	4	14	723,646
Totals	**29**	**259**	**268**	**379**	**605**	**296**	**349**	**2,185**	**$102,653,636**

Group Averages:

Age: 54.4 years
Benefit Service: 14.9 years
Eligibility Service: 20.9 years
Annual Pay: $46,981

Service shown in this schedule is Legacy Benefit service plus Hybrid Benefit service.

Expected Terminations from Active Employment for Current Active Members



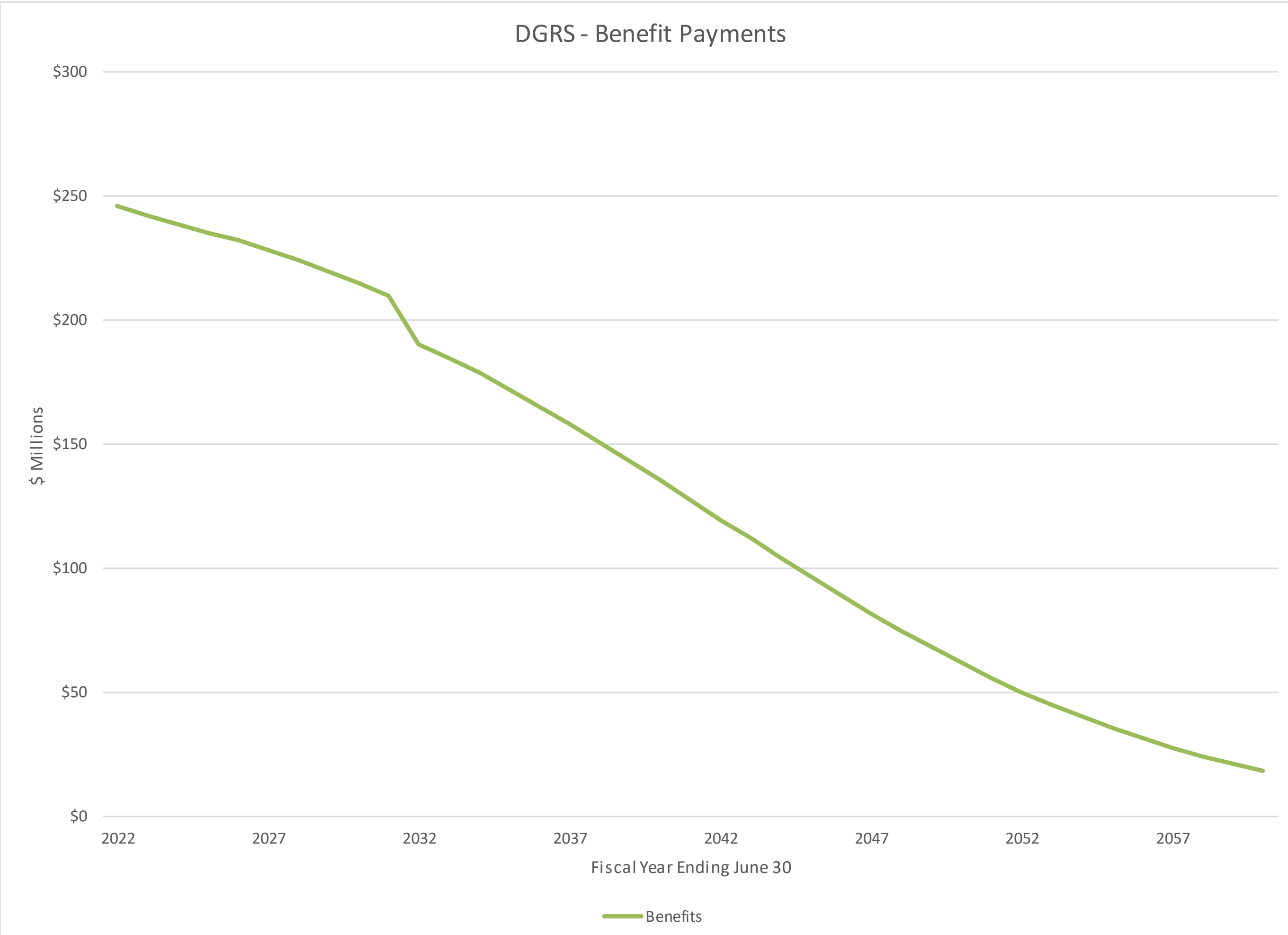
The chart shows the expected future development of the present population in simplified terms. The Retirement System presently covers 2,185 active members. Eventually, 43 people are expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. 2,029 people are expected to receive monthly retirement benefits either by retiring directly from active service, or by retiring from vested deferred status. 113 people are expected to become eligible for benefits as a result of death-in-service or disability. Vested Separations may include members eligible to retire in this Component II (Legacy) plan but not yet eligible to retire in the Component I (Hybrid) plan. A detailed discussion on how members eligible to retire in Component II (Legacy) but not eligible to retire in Component I (Hybrid) are treated is included in Section D of this report.

Actual versus expected retirements for the 2021 fiscal year is shown below:

Year Ended June 30,	Expected	Actual
2021	261	126

Expected Benefit Payments

Shown below is a graph of projected benefit payments remaining in the Retirement System.



The graph above shows the projection of future expected benefit payments (solid green line) derived from the June 30, 2021 actuarial valuation data.

Retirees and Beneficiaries as of June 30, 2021
Tabulated by Attained Ages
Retirement System Totals

Attained Ages	Age & Years of Service#		Disability		Death-in-Service		Totals	
	No.	Monthly Allowances	No.	Monthly Allowances	No.	Monthly Allowances	No.	Monthly Allowances
Under 20*	31	$ 36,589	0	$ 0	1	$ 478	32	$ 37,067
20-24	7	8,401					7	8,401
25-29	4	4,671					4	4,671
30-34	17	11,973	0	0			17	11,973
35-39	14	7,330	0	0	1	2,311	15	9,641
40-44	18	11,884	4	1,681	1	500	23	14,065
45-49	41	34,813	17	11,637	4	2,205	62	48,655
50-54	130	183,264	37	25,695	8	7,360	175	216,319
55-59	483	861,923	89	81,027	14	17,097	586	960,047
60-64	1,349	2,404,877	188	249,060	40	48,172	1,577	2,702,109
65-69	2,046	3,493,434	208	243,698	32	37,296	2,286	3,774,428
70-74	2,150	3,900,796	160	176,872	44	77,026	2,354	4,154,694
75-79	1,452	2,512,890	91	98,277	34	45,899	1,577	2,657,066
80-84	919	1,359,772	48	45,620	24	26,654	991	1,432,046
85-89	657	835,852	19	14,990	21	21,258	697	872,100
90-94	453	530,712	13	8,241	27	20,590	493	559,543
95 and Over	242	235,321	11	9,245	24	18,766	277	263,332
Totals	**10,013**	**$16,434,502**	**885**	**$966,043**	**275**	**$325,612**	**11,173**	**$17,726,157**

** May include records with defective birth dates.*
 # Includes survivor beneficiaries of deceased retirees.

Retirees and Beneficiaries as of June 30, 2021
Tabulated by Year of Retirement

Year of Retirement	No.	Monthly Allowances Total	Monthly Allowances Average
1950 & before	3	$ 5,931	$1,977
1951-1955	3	5,323	1,774
1956-1960	0	0	0
1961-1965	6	2,314	386
1966-1970	16	7,053	441
1971-1975	57	35,080	615
1976-1980	173	125,533	726
1981-1985	359	351,736	980
1986-1990	547	570,932	1,044
1991-1995	1,049	1,285,104	1,225
1996-2000	1,306	1,953,004	1,495
2001-2005	1,813	3,405,188	1,878
2006-2010	2,011	3,745,914	1,863
2011-2015	2,405	4,145,307	1,724
2016	398	684,389	1,720
2017	248	336,603	1,357
2018	234	308,558	1,319
2019	232	306,624	1,322
2020	212	310,897	1,466
2021	101	140,667	1,393
Totals	**11,173**	**$17,726,157**	**$1,587**

SECTION D

METHODS AND ASSUMPTIONS

Summary of Assumptions and Methods Used for Actuarial Valuations Adopted by the Board of Trustees

All assumptions are estimates of future experience except as noted. The rationale for the assumptions is based on experience studies where noted.

Economic Assumptions

The investment return rate used in making the valuation was 6.75% per year, compounded annually (net after investment expenses). This assumption is prescribed by the Eighth Amended Plan for the Adjustment of Debts of the City of Detroit (POA).

Price inflation is not directly used in the valuation. For purposes of assessing the reasonability of the investment return assumptions, we assumed price inflation of 2.50% per year.

Future ***administrative expenses*** are assumed to be 1.01% of benefit payments and refunds.

Non-Economic Assumptions

For healthy post-retirement mortality, the PubG-2010(B) Below-Median General Retiree table was used for mortality assumptions going forward, decreased by 3% for males and increased by 26% for females.

For disabled post-retirement mortality, PubNS-2010 Non-Safety Disabled Retiree mortality table was used, increased 4% for males and decreased 2% for females.

For pre-retirement mortality rates, the PubG-2010(B) Below-Median General Employee mortality table was used for both males and females.

The tables are projected to be fully generational, based on the 2-dimensional, sex distinct mortality improvement scale MP-2021 (which was intended to be used with the Pub-2010). 75% of all deaths-in-service are assumed to be non-duty related. This table was first used as of June 30, 2021. The rationale for the mortality assumption is based on the 2015-2020 Mortality Experience Study issued February 4, 2022.

The probabilities of retirement for members eligible to retire are shown on pages 38 and 39. These probabilities were revised for the June 30, 2021 valuation. The rationale is based on the 2015-2020 Experience Study.

The probabilities of separation from service (including *death-in-service* and *disability*) are shown for sample ages on page 40. These probabilities were revised for the June 30, 2021 valuation. The rationale is based on the 2015-2020 Experience Study.

Summary of Assumptions and Methods Used for Actuarial Valuations Adopted by the Board of Trustees (Concluded)

Funding Methods

The unit credit cost method was used in determining age & service pension liabilities, vesting liabilities, and casualty pension liabilities. Under this method, there is no normal cost since benefits are frozen and there are no future accruals and actuarial accrued liability is the present value of each individual's accrued benefit.

Unfunded Actuarial Accrued Liabilities. Actual employer contributions through June 30, 2023 are set by the POA. The amortization period and method after 2023 has not yet been established by the Board.

Employer contribution dollars were assumed to be paid at the end of the employer fiscal year.

Present assets are set equal to the Market Value.

The data about persons now covered and about present assets was furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary.

Single Life Retirement Values

Based on PubG-2010(B)
97% of Male Rates/126% of Female Rates
Using Projection Scale MP-2021

Sample Attained Ages in 2021	Future Life Expectancy (Years)	
	Men	Women
45	37.47	39.95
50	32.54	34.89
55	28.16	30.31
60	23.94	25.80
65	19.86	21.37
70	15.90	17.05
75	12.26	13.04
80	9.07	9.51

Probabilities of Age/Service Retirement for Members Eligible to Retire

Retirement Ages	Percent of Eligible Active Members Retiring within Next Year with Unreduced Benefits		
	EMS	D.O.T.	Others
62	40%	20%	20%
63	40%	20%	20%
64	40%	20%	20%
65	40%	20%	20%
66	40%	20%	20%
67	40%	30%	20%
68	40%	30%	20%
69	40%	30%	20%
70	100%	100%	20%
71			20%
72			20%
73			20%
74			20%
75			20%
76			20%
77			20%
78			20%
79			20%
80			100%
Ref	851	3304	3305

All members are assumed to retire while eligible for Component I (Hybrid) retirement only. The rationale is based on the 2015-2020 Experience Study.

Probabilities of Early Retirement for Members Eligible for Early Retirement

Retirement Ages	Percent of Eligible Active Members Retiring within Next Year with Reduced Benefits
55	6.5%
56	6.5%
57	6.5%
58	7.5%
59	8.5%
60	9.5%
61	9.5%
62	9.5%
Ref	3303

All members are assumed to retire while eligible for Component I (Hybrid) retirement only. The rationale is based on the 2015-2020 Experience Study.

Sample Rates of Separation from Active Employment Before Retirement

Sample Ages	Years of Service	% of Active Members Separating within Next Year — Withdrawal	
		EMS	Other
ALL	0	16.00%	28.00%
	1	15.00%	19.00%
	2	15.00%	15.00%
	3	11.00%	14.00%
	4	11.00%	14.00%
25	5 & Over	10.05%	13.00%
30		8.85%	11.91%
35		7.80%	9.25%
40		6.60%	7.19%
45		5.10%	5.91%
50		3.60%	5.00%
55		3.00%	5.00%
60		3.00%	5.00%
Ref		1405 1608	1406 1609

Sample Ages	% of Active Members Becoming Disabled within Next Year			
	D.O.T.		Others	
	Ordinary	Duty	Ordinary	Duty
25	0.16%	0.24%	0.03%	0.03%
30	0.19%	0.28%	0.04%	0.04%
35	0.26%	0.39%	0.05%	0.05%
40	0.37%	0.56%	0.08%	0.08%
45	0.56%	0.84%	0.12%	0.12%
50	0.70%	1.05%	0.15%	0.15%
55	0.82%	1.23%	0.17%	0.17%
60	0.94%	1.41%	0.20%	0.20%
Ref	1238 x 1.20	1238 x 1.80	1238 x 0.25	1238 x 0.25

The rationale is based on the 2015-2020 Experience Study.

Miscellaneous and Technical Assumptions

Benefit Service	Exact Fractional service is used to determine the amount of benefit payable.
Decrement Operation	Disability and mortality decrements do not operate during the first five years of service. Disability and withdrawal do not operate during retirement eligibility.
Decrement Timing	Decrements of all types are assumed to occur mid-year.
Eligibility Testing	Eligibility for benefits is determined based upon the age nearest birthday and rounded service on the date the decrement is assumed to occur.
Forfeitures	None.
Incidence of Contributions	Contributions are assumed to be received at the end of the year.
Marriage Assumption	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Normal Form of Benefit	Straight life is the normal form of benefit. The Board adopted assumptions for Actuarial Equivalence to be an 80%/20% unisex blend of RP-2014 mortality (Male/Female) with Blue Collar Adjustment, set ahead one year for males and females, projected 11 years with MP-2014, an interest rate of 6.75%, and no COLA for optional forms of payment and early retirement reduction. Assumptions for annuitizing member contributions are the same except for using a 60%/40% unisex blend and a 5.25% assumed rate of interest. Prior to the use of these factors, actuarial equivalent factors were based on 7.5% interest and the 1984 Group Annuity Mortality table.
Service Credit Accruals	Service accruals stop as of June 30, 2014 for measurement of Component II liabilities. However, future service in Component I may be used to satisfy benefit eligibility requirement in Component II. Members who became duty disabled prior to June 30, 2014 are assumed to get projected service from date of disability to conversion date. Member who become disabled after June 30, 2014 are assumed to get their frozen accrued benefit as of June 30, 2014 at date of conversion.
Administrative Expenses	Administrative expenses are assumed to be 1.01% of benefit payments and are to be included in the employer contribution.
Sick Leave	Sick leave banks as of June 30, 2014 were included in the 2014 data file provided by the System.
Member Contributions	Member contributions to this Component II plan are assumed to have ceased with the bankruptcy.
Pop-Up Benefits	For current retirees with a pop-up benefit, the value of the pop-up was estimated by valuing a non-pop-up option and increasing the associated liabilities by 2%.

The rationale is based on the 2015-2020 Experience Study, modified as necessary for changes in data or administration.

SECTION E

PLAN PROVISIONS

Summary of Benefit Provisions Evaluated

Component II Frozen Benefits

All Component II benefits are frozen as of June 30, 2014 based on service and average final compensation accrued as of that date and the provisions of the Detroit General Retirement System as it existed on June 30, 2014. Frozen benefits are further reduced by 4.5% and all future cost-of-living adjustments ("COLAs") were eliminated. Benefits resulting from the Annuity Savings Fund and benefits paid from the Annuity Reserve Fund were subject to a separate reduction described as a "Claw-back." Details of the claw-back provision are complicated and can be found in the Eighth Amended Plan of Adjustment. The benefits evaluated in this report are the frozen reduced benefits after adjusting the assets for the claw-back. Component II benefits are payable after separation from service, upon meeting the eligibility conditions of the plan as it existed on June 30, 2014, regardless of whether the individual is eligible to receive a Component I benefit at that time.

Our understanding of the June 30, 2014 plan provisions is provided below for completeness. The material below does not have legal standing and is not intended to cover all potential situations that could occur. If there are discrepancies between the description below and appropriate legal documents, the latter necessarily govern.

Age and Service Pension

Eligibility - Any age (minimum age 55 for non-EMS members hired after 1995) with 30 years of service (25 for EMS members), or age 60 with 10 years of service, or age 65 with 8 years of service.

Annual Amount - **EMS Members:** Sum of a) a basic pension of $12 for each of the first 10 years of service, plus b) a pension equal to 2.0% of AFC multiplied by years of service. Maximum benefit is 90% of AFC.

Other Members: Sum of a) a basic pension of $12 for each of the first 10 years of service, plus b) a pension equal to the first 10 years of service multiplied by 1.6% of AFC, plus 1.8% of AFC for each year of service greater than 10 years up to 20 years, plus 2.0% of AFC for each year of service greater than 20 years up to 25 years, plus 2.2% of AFC for each year of service greater than 25 years. Future benefit accruals for certain active members (depending on bargaining unit) were reduced to 1.5% of final average compensation per year of service.

Type of Average Final Compensation (AFC) - Highest 3 consecutive years out of the last 10. Pension benefits will not be diminished if compensation is reduced because of a fiscal emergency. Effective July 1, 1999, in computing the AFC, a member shall have the option of adding the value of 25% of unused accrued sick leave to the earnings used in computing the AFC. Longevity is added to AFC in accordance with the following schedule: $150 after 5 years, $300 after 10 years, $450 after 15 years, $600 after 20 years, and $750 after 25 years.

Early Retirement

Eligibility - Any age with 25 or more years of service (min. age 55 for members hired after 1995).

Annual Amount - Same as regular retirement but actuarially reduced.

Summary of Benefit Provisions Evaluated (Continued)

Deferred Retirement (Vested Benefit)

Eligibility - Hired prior to 7-1-80: Age 40 with 8 years of service. Hired on or after 7-1-80: Any age with 10 years of service.

Benefit Commencement - APTE hired prior to July 1, 1988: Benefit begins at the age the member would have become eligible for regular retirement if service had continued. ***SAAA, Non-Union and lawyers hired prior to June 30, 1986:*** Benefit begins at the age the member would have become eligible for regular retirement. ***Others:*** Benefits based on service rendered by June 30, 1986 begin at the age the member would have become eligible for regular retirement. Benefits based on service rendered after July 1, 1986 begin at age 62.

Annual Amount - Same as regular retirement but based on average final compensation and service at the time of termination.

Duty Disability Retirement

Eligibility - Service related disability before eligibility for service retirement prior to and July 1, 2014. No service requirement.

Annual Amount - An annuity which is the actuarial equivalent of the accumulated contributions at date of disability plus a pension of two-thirds of average final compensation at time of disability. The maximum annual pension is $5,700 ($9,000 for EMS). At the earliest of when the member would have accrued 30 years of service credit (25 for EMS) or age 60, the annuity is recomputed assuming contributions would have continued at a salary level equal to final compensation. The pension is recomputed with additional service credit granted from the date of disability to age 60 (or 30 years of service credit) or June 30, 2014, whichever is earlier. **Benefits payable prior to conversion/re-computation, if any, were assumed to be paid outside the trust.**

Non-Duty Disability Retirement

Eligibility - Disability from any cause before age 60 with 10 or more years of service prior to July 1, 2014.

Annual Amount - Computed in the same manner as a regular retirement benefit. Maximum annual pension to age 60 is $6,000. Benefit is recomputed at age 60 with no maximum. **Benefits payable prior to age 60, if any, were assumed to be paid from outside the trust.**

Duty Death Before Retirement

Eligibility - Death from service related causes. No age or service requirements.

Annual Amount - One-third of final compensation as of June 30, 2014 to the surviving spouse for life or until remarriage, plus an equal share of 1/4 of final compensation to each unmarried child under age 18. If there is no eligible spouse, eligible children each receive 1/4 of final compensation; if there are more than 2 such children, each child shares an equal part of 1/2 of final compensation. Maximum total amount for spouse and children is $9,000 annually. If there is no eligible spouse or children, dependent parents each receive 1/6 of deceased's final compensation, to a total maximum of $600 annually.

Summary of Benefit Provisions Evaluated (Concluded)

Non-Duty Death Before Retirement

Eligibility - Death-in-service at any age with 15 years of service; or after age 60 with 10 years of service; or after age 65 with 8 years of service.

Annual Amount - To Surviving Spouse: Computed as a regular retirement benefit but reduced in accordance with a 100% joint and survivor election for members with 20 or more years of service. For members with 15 years of service but less than 20, benefit is reduced in accordance with a 50% joint and survivor election. To Dependent Children if no Surviving Spouse: $9,000 payable to age 19 of the youngest child or for life if child is physically or mentally impaired for members with 20 or more years of service ($6,000 if less than 20 years of service).

Post-Retirement Cost-of-Living Adjustments

Benefit is increased annually by 2.25% of the **original** pension amount at retirement. Post-retirement cost-of-living increases were eliminated on future accruals for certain active members (depending on bargaining unit).

Member Contributions

Members have the option of choosing one of four contribution amounts: (1) 0%; (2) 3.0% of compensation up to the Social Security wage base, plus 5.0% of compensation in excess of the Social Security wage base; (3) 5.0% of total compensation; or (4) 7.0% of total compensation. Member contributions can be paid as a lump sum or annuitized at retirement to provide an annuity in addition to the pension (which is not affected by the level of member contributions).

SECTION F

GLOSSARY

Glossary

Actuarial Accrued Liability. The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

Accrued Service. The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent. A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.

Actuarial Present Value. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

AFC. Average Final Compensation.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

APTE. Association of Professional and Technical Employees.

ASF. Annuity Savings Fund.

Contribution Budgeting Liability. An expected return-based measure of pension obligation.

DIA. Detroit Institute of Art.

D.O.T. Department of Transportation.

DWSD. Detroit Water and Sewerage Department.

EMS. Emergency Medical Service.

Glossary

Experience Gain (Loss). A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

GASB. The Governmental Accounting Standards Board.

GLWA. Great Lakes Water Authority.

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

PAF. Pension Accumulation Fund.

Plan of Adjustment or POA. The 8th Amended Plan for the Adjustment of the Debt of the City of Detroit.

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

SAAA. Senior Accountants, Analysts, and Appraisers Association.

Solvency Liability. A market-based measure of the present value of accrued benefits at a municipal bond discount rate unadjusted for the credit quality of the plan sponsor.

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

UTGO. Unlimited Tax General Obligation.

Valuation Assets. The value of current plan assets recognized for valuation purposes.