The General Retirement System of the City of Detroit

Annual Actuarial Valuation of Component II (Legacy)

June 30, 2024

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

February 6, 2025 (Revised)

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

Re: The General Retirement System of the City of Detroit Actuarial Valuation of Component II as of June 30, 2024

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 (Legacy) benefits. The date of the valuation was **June 30, 2024.**

This report includes revisions to a previous version dated January 31, 2025 and replaces that report.

In very general terms, Component II provides benefits for service rendered prior to July 1, 2014. The results provided herein relate solely to the Component II benefits. Benefits provided under Component I are the subject of a separate report.

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 System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The purpose of the valuation is to measure the funding progress and to calculate the fiscal year 2026 Actuarially Determined Employer Contribution (ADEC) of Component II. The Component II ADEC shown on page 3 assumes payments will be received on a quarterly basis during the 2026 fiscal year. If the City is unable to make the quarterly contribution in any given quarter, we recommend a catch-up contribution equal to 25% of what the ADEC would have been if the entire employer contribution was expected to be received at the end of the 2026 fiscal year. See Comments and Recommendations for more information.

This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different. 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.

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

The ADEC shown in this report are determined using the actuarial assumptions and methods disclosed in Section D of this report. Users of this report should be aware that contributing these amounts shown does not guarantee benefit security. This report includes risk metrics but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed. Given the funded level of this plan, plan sponsor contributions are critical if further benefit reductions are to be avoided.

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.

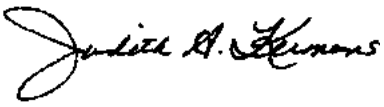
The assumptions used in the valuations concerning future experience are summarized in Section D of this report. All actuarial assumptions used in this report are reasonable for the purposes of this valuation. The combined effect of the assumptions is expected to have no significant bias (i.e., not significantly optimistic or pessimistic). All actuarial assumptions and methods used in the valuation follow the guidance in the applicable Actuarial Standards of Practice.

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 employee retirement systems. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the Component II Plan of the General Retirement System of the City of Detroit as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Judith A. Kermans and James R. Sparks are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The actuaries signing the report are independent of the plan sponsor.

Respectfully submitted,
Gabriel, Roeder, Smith & Company



Judith A. Kermans, EA, FCA, MAAA

James R. Sparks, ASA, FCA, MAAA

JAK/JRS:dj

Table of Contents

SECTION A

VALUATION RESULTS

Executive Summary

Valuation Date	June 30, 2024	June 30, 2023
Contributions for Fiscal Year Ending	June 30, 2026	June 30, 2025
Remaining Amortization Years *(Closed 30-Year Level Principal Amortization)*	28	29
Actuarially Determined Employer Contribution* *(To Be Paid in Quarterly Installments)*	$ 87,969,497	$ 80,700,000
Membership		
Number of:		
Active Members	1,744	1,737
Retirees and Beneficiaries	10,713	10,792
Inactive, Nonretired Members	2,268	2,391
Total	14,725	14,920
Assets		
Funding Value of Assets (FVA)	$ 1,390,176,114	$ 1,501,039,291
Market Value of Assets (MVA)	$ 1,402,602,998	$ 1,418,609,280
Return on Funding Value	1.85 %	1.80 %
Return on Market Value	9.28 %	6.20 %
Actuarial Information (FVA)		
Actuarial Accrued Liability (AAL)	**$ 2,257,911,862**	**$ 2,327,504,951**
Unfunded Actuarial Accrued Liability: (AAL) - (FVA)	**$ 867,735,748**	**$ 826,465,660**
Funded Ratio: (FVA) / (AAL)	**61.57 %**	**64.49 %**
Actuarial Information (MVA)		
Actuarial Accrued Liability (AAL)	$ 2,257,911,862	$ 2,327,504,951
Unfunded Actuarial Accrued Liability: (AAL) - (MVA)	$ 855,308,864	$ 908,895,671
Funded Ratio: (MVA) / (AAL)	62.12 %	60.95 %

** Contributions are assumed to be paid into the Retirement System quarterly (i.e., ¼ on September 30, 2025; ¼ on December 31, 2025; ¼ on March 31, 2026; and ¼ on June 30, 2026).*

Valuation Results

Liability by Division

	General	D.O.T.	DWSD	Library	Totals
Accrued Pension Liabilities					
Retirees and beneficiaries	$ 956,584,951	$ 268,754,321	$ 497,950,277	$ 47,244,754	$ 1,770,534,303
Inactive members future deferred pensions	96,251,247	20,737,742	59,744,421	4,587,522	181,320,932
Active members	84,160,832	27,944,633	19,625,013	11,119,079	142,849,557
Total accrued pension liabilities	$ 1,136,997,030	$ 317,436,696	$ 577,319,711	$ 62,951,355	$ 2,094,704,792
Pension fund balance (MVA)#	670,193,387	61,408,452	580,565,174	74,119,347	1,386,286,360
Unfunded accrued pension liabilities	$ 466,803,643	$ 256,028,244	$ (3,245,463)	$ (11,167,992)	$ 708,418,432
Accrued Annuity Liabilities					
Retirees and beneficiaries#	$ 49,918,928	$ 9,151,747	$ 28,480,282	$ 3,165,809	$ 90,716,766
Members annuities & future refunds	39,316,290	15,381,306	11,306,667	6,486,041	72,490,304
Total accrued annuity liabilities	$ 89,235,218	$ 24,533,053	$ 39,786,949	$ 9,651,850	$ 163,207,070
Annuity fund balances (MVA)	6,647,711	11,878,762	(5,946,617)	3,736,782	16,316,638
Unfunded accrued annuity liabilities#	$ 82,587,507	$ 12,654,291	$ 45,733,566	$ 5,915,068	$ 146,890,432
Totals - Funding Value of Assets (FVA)					
Actuarial Accrued Liabilities	**$ 1,226,232,248**	**$ 341,969,749**	**$ 617,106,660**	**$ 72,603,205**	**$ 2,257,911,862**
Funding Value of Assets	**670,844,372**	**72,637,899**	**569,527,510**	**77,166,334**	**1,390,176,114**
Unfunded Actuarial Accrued Liabilities	**$ 555,387,876**	**$ 269,331,850**	**$ 47,579,150**	**$ (4,563,129)**	**$ 867,735,748**
Funded Ratio	**54.7%**	**21.2%**	**92.3%**	**106.3%**	**61.6%**
Totals - Market Value of Assets (MVA)					
Actuarial Accrued Liabilities#	$ 1,226,232,248	$ 341,969,749	$ 617,106,660	$ 72,603,205	$ 2,257,911,862
Market Value of Assets#	676,841,098	73,287,214	574,618,557	77,856,129	1,402,602,998
Unfunded Actuarial Accrued Liabilities	$ 549,391,150	$ 268,682,535	$ 42,488,103	$ (5,252,924)	$ 855,308,864
Funded Ratio	55.2%	21.4%	93.1%	107.2%	62.1%

 # The pension fund balance includes a receivable for future claw-back payments. Liabilities are shown gross, before the annuity savings claw-back.

Totals may not add due to rounding.

Valuation Results

Determination of FY 2026 Actuarially Determined Employer Contribution

Beginning with the 2024 fiscal year, a closed 30-year level principal amortization has been used for determining the contribution dollar amount. Beginning with the 2025 fiscal year, the dollar amount is to be contributed in quarterly installments paid on the last day of each quarter to the Retirement System.

	Development of FY 2026 Contributions				
	General City	D.O.T.	DWSD	Library	System Total
As of June 30, 2024:					
Actuarial Accrued Liability	$ 1,226,232,248	$ 341,969,749	$ 617,106,660	$ 72,603,205	**$ 2,257,911,862**
Funding Value of Assets (FVA)	670,844,372	72,637,899	569,527,510	77,166,334	**1,390,176,114**
Unfunded Actuarial Accrued Liability (UAAL)	$ 555,387,876	$ 269,331,850	$ 47,579,150	$ (4,563,129)	**$ 867,735,748**
During Fiscal Year 2025:					
Assumed Contribution[1]	(53,500,000)	(27,100,000)	-	(100,000)	**(80,700,000)**
Assumed Transfer for Excess Admin Expenses[2]	12,961,567	-	(12,961,567)	-	**-**
Assumed Administrative Expenses	1,279,864	332,401	616,753	75,891	**2,304,909**
Interest at 6.75%	37,070,286	17,514,301	2,357,162	(307,988)	**56,633,761**
Projected UAAL as of June 30, 2025	$ 553,199,593	$ 260,078,552	$ 37,591,498	$ (4,895,226)	**$ 845,974,417**
Remaining Amortization Years *(Closed 30-Year Level Principal Amortization)*	28	28	28	28	**28**
UAAL Contribution	$ 55,707,199	$ 26,189,911	$ 3,785,464	$ (492,949)	**$ 85,189,625**
$0 Minimum UAAL Contribution	55,707,199	26,189,911	3,785,464	-	**85,682,574**
Administrative Expense Contribution[3]	1,264,666	332,787	613,584	75,886	**2,286,923**
Actuarially Determined Employer Contribution[4]	**$ 56,971,865**	**$ 26,522,698**	**$ 4,399,048**	**$ 75,886**	**$ 87,969,497**

[1] *Contributions are assumed to be made in equal quarterly installments on the last day of each quarter of the fiscal year. The General City contribution includes the computed DWSD contribution for the 2025 fiscal year of $2.2M (see page 13 for more information).*

[2] *Transfer from General to DWSD for aggregate excess administrative expenses paid by the DWSD pension pool (see page 13 for more information).*

[3] *Administrative expenses were allocated (see Section D of the report) and assumed to be paid by the individual units.*

[4] *Total employer contributions, including amounts paid by the employer but funded from other sources as required by POA, if any.*

If the City is unable to make the quarterly contribution in any given quarter, we recommend a catch-up contribution equal to 25% of the full end of year amount (see Comments and Recommendations for more information).

Totals may not add due to rounding.

Valuation Results

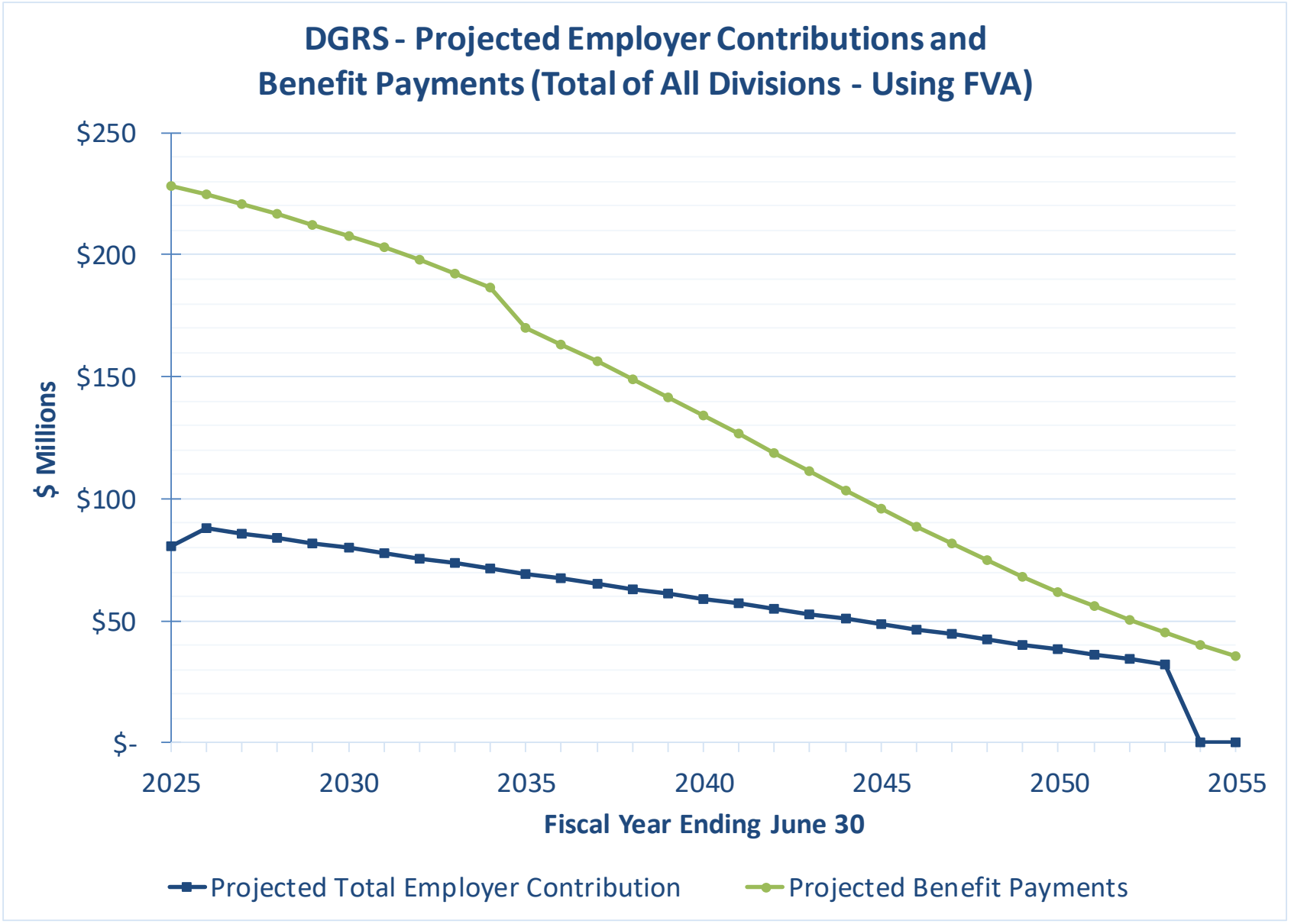
Projections of Employer Contributions, Benefits and Funded Status

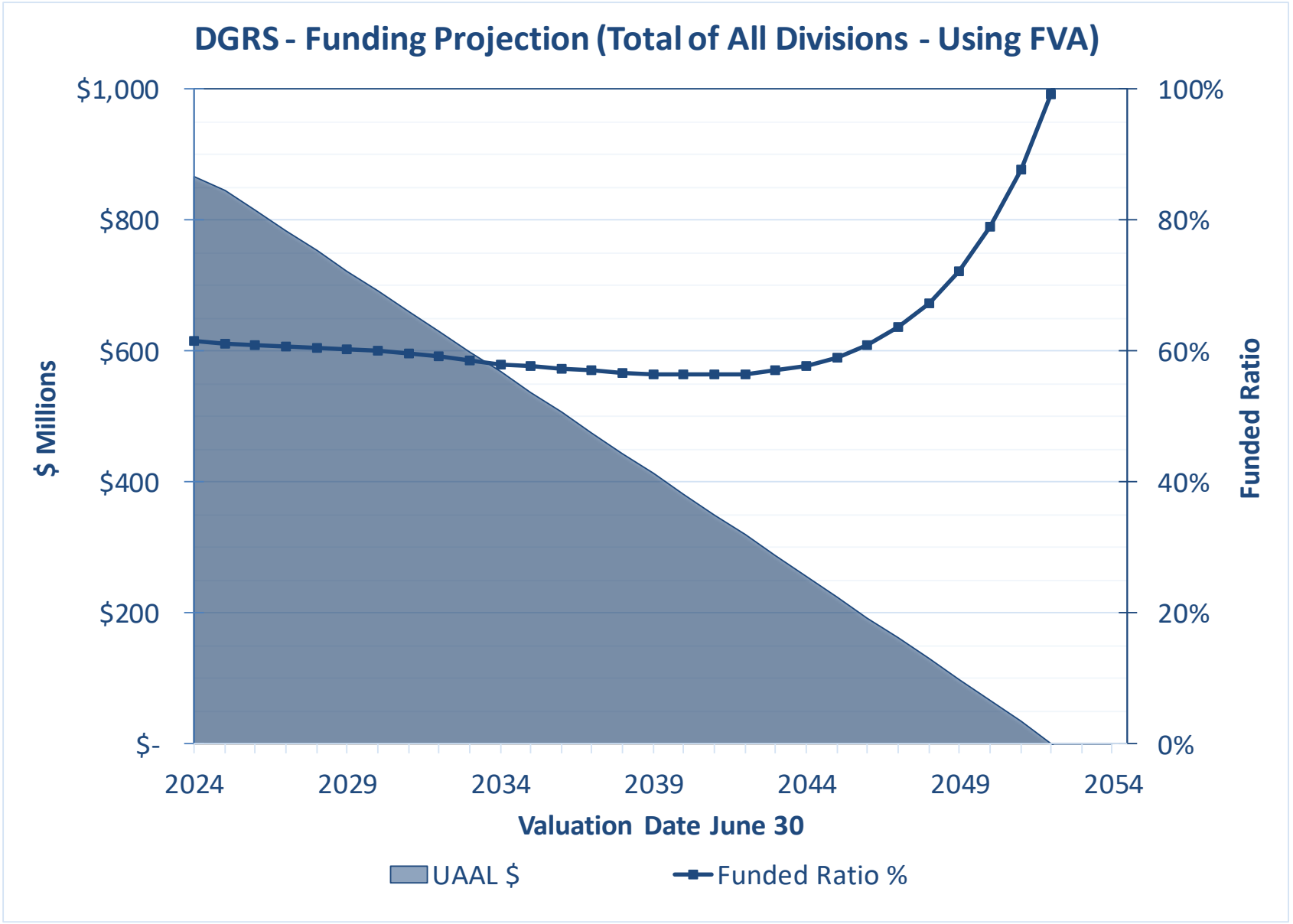
The charts that follow show a projection of the employer contributions, benefit payments and funded status using the Funding Value of Assets (FVA) and a closed 30-year (28 years as of the June 30, 2024 valuation) level principal amortization period. All actuarial assumptions are assumed to be met exactly each year in the projection (i.e., no future gains or losses). Employer contributions are equal to only the administrative expenses after the end of the amortization period. For purposes of these projections, we have assumed that the Funding Value of Assets would have a recognized rate of return of 6.75%.

As shown on the next page, employer contributions are expected to be significantly less than benefit payments for many years. The assets in the plan are not sufficient to cover current retiree liabilities and the ratio of assets (Market Value) to projected benefit payments for the upcoming fiscal year is about 6.3. This means that without additional contributions or investment income, plan assets can only pay retiree pensions for another several years. In a closed/frozen mature plan such as this one, it may become difficult to manage the significant amount of cash needed to pay retirement benefits and still earn the assumed rate of return if assets must be liquidated to pay retiree pensions.

The charts on the following pages are based upon the System in aggregate. Individual division results may appear materially different. Specifically:

- The Library group is already more than 100% funded and is projected to have a funded ratio that continues growing, resulting in the total plan being above 100% funded at the end of the amortization period.
- The only contributions for divisions that are more than 100% funded is for administrative expenses (in accordance with the Funding Policy included in Section G).


DGRS - Projected Employer Contributions and Benefit Payments (Total of All Divisions - Using FVA)
$250
$200
$150
$100
$50
$-
$ Millions
2025
2030
2035
2040
2045
2050
2055
Fiscal Year Ending June 30
Projected Total Employer Contribution
Projected Benefit Payments


DGRS - Funding Projection (Total of All Divisions - Using FVA)
$1,000
$800
$600
$400
$200
$-
100%
80%
60%
40%
20%
0%
$ Millions
Funded Ratio
2024
2029
2034
2039
2044
2049
2054
Valuation Date June 30
UAAL $
Funded Ratio %

Valuation Results – Comparative Statement

Present Value	June 30, 2024	June 30, 2023
Accrued Pension Liabilities (Employer Financed)		
Retirees and beneficiaries	$ 1,770,534,303	$ 1,802,247,467
Inactive members future deferred pensions	181,320,932	195,354,839
Active members	142,849,557	154,470,893
Total accrued pensions	$ 2,094,704,792	$ 2,152,073,199
Pension fund balances (MVA)	1,386,286,360	1,382,072,875
Unfunded accrued pension liabilities	$ 708,418,432	$ 770,000,324
Accrued Annuity Liabilities (Member Financed)		
Retirees and beneficiaries future annuities	$ 90,716,766	$ 92,546,717
Member annuities & future refunds	72,490,304	82,885,035
Total accrued annuity liabilities	$ 163,207,070	$ 175,431,752
Annuity fund balances (MVA)	16,316,638	36,536,405
Unfunded accrued annuity liabilities*	$ 146,890,432	$ 138,895,347
Totals - Funding Value of Assets (FVA)		
Actuarial Accrued Liabilities (AAL)	**$ 2,257,911,862**	**$ 2,327,504,951**
Funding Value of Assets (FVA)	**1,390,176,114**	**1,501,039,291**
Unfunded Actuarial Accrued Liabilities (UAAL)	**$ 867,735,748**	**$ 826,465,660**
Funded Ratio	**61.6%**	**64.5%**
Totals - Market Value of Assets (MVA)		
Actuarial Accrued Liabilities (AAL)	$ 2,257,911,862	$ 2,327,504,951
Market Value of Assets (MVA)	1,402,602,998	1,418,609,280
Unfunded Actuarial Accrued Liabilities (UAAL)	$ 855,308,864	$ 908,895,671
Funded Ratio	62.1%	60.9%

* *Liabilities are gross before accounting for ASF claw-back. We understand that assets currently include a receivable related to the ASF claw-back. We believe the receivable is included in the pension fund balances.*

Historical Results ($ Millions)

	2022	2021	2020	2019	2018	2017	2016
Total AAL	$ 2,438.6	$ 2,542.6	$ 2,716.5	$ 2,866.1	$ 2,929.1	$ 2,995.8	$ 3,032.3
FVA^	1,671.6	1,818.6	1,596.1	1,798.9	1,940.6	1,966.7	1,933.5
UAAL	$ 767.0	$ 724.0	$ 1,120.4	$ 1,067.2	$ 988.4	$ 1,029.1	$ 1,098.8
Funded Ratio	68.5%	71.5%	58.8%	62.8%	66.3%	65.6%	63.8%

^MVA (Market Value of Assets) shown for June 30, 2021 valuation results and prior.

Liabilities Related to Restoration and the Restoration Reserve Account

Section G-4 (Restoration of Pension Benefits) of the Combined Plan, provides that benefits eliminated as part of the POA may be restored if certain conditions are met. Restored benefits are paid out of the Restoration Reserve Account (RRA), the balance of which depends on the Plan's funded ratio. As of the June 30, 2023 actuarial valuation and in accordance with Section G-4(2)(g), the Funded Level was below the target of 70% and the resulting RRA balance was $0.

Beginning July 1, 2023, rules for restoration are based upon Section G-4(3) (Restoration of Benefits from July 1, 2023 to June 30, 2033). According to Section G-4(3)(a), the 2023 Funded Level was 61% (which is below 69%) and therefore the resulting 2033 Funding Target and Restoration Target are expected to be 61% and 73%, respectively (note, legal review may be required to determine whether the Funding Target should be rounded to the nearest percent). Determination of whether restoration payments can be paid on or after July 1, 2023 follows similar rules that applied during the period ending June 30, 2023 (see Section G-4(3)(a)).

Based upon the projection included in the June 30, 2023 actuarial valuation using a 30-year level principal amortization, the funded level of the System is not projected to go above 61% by 2033. Additionally, incorporating the System experience through the 2024 fiscal year, we do not anticipate the 2033 Restoration Target will be satisfied and therefore no transfers to the RRA are anticipated to occur as of June 30, 2024**. Additional instruction from the System will be required to interpret the exact methodology that the Plan Actuary shall use to determine whether the 2033 Restoration Target has been satisfied. This valuation assumes no future restoration of Component II benefits.**

Comments and Recommendations

Component II History

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 were effective July 1, 2014 and are described in detail in the Emergency Manager Order No. 44, dated December 8, 2014.

Experience

Experience was less favorable than assumed during the year ending June 30, 2024. The main source of the loss was the phasing in of investment losses from prior years impacting the Funding Value of Assets. The chart below shows the estimated loss by division.

Development of Actuarial Gain or Loss

	($ Millions)				
	General City	D.O.T.	DWSD	Library	System Total
(1) UAAL as of June 30, 2023 (BOY)	$ 532.3	$ 286.8	$ 15.1	$ (7.7)	$ 826.5
(2) Actual Contributions	67.5	37.4	0.7	0.1	105.7
(3) Actual Administrative Expenses	1.4	0.1	1.2	0.2	2.8
(4) Interest at 6.75%	36.0	19.4	1.1	(0.5)	55.9
(5) Benefit Changes	-	-	-	-	-
(6) Assumption Changes	-	-	-	-	-
(7) Projected UAAL as of June 30, 2024	$ 502.2	$ 268.8	$ 16.6	$ (8.2)	$ 779.5
(8) Actual UAAL as of June 30, 2024	555.4	269.3	47.6	(4.6)	867.7
Gain or (Loss) (FVA): (7) - (8)	$ (53.1)	$ (0.5)	$ (31.0)	$ (3.6)	$ (88.2)
Gain or (Loss) from ASF Recoupment	$ (8.3)	$ (3.0)	$ (4.3)	$ (0.4)	$ (16.0)
Gain or (Loss) from Liabilities	(12.4)	5.3	1.4	1.1	(4.7)
Gain or (Loss) from Investments (FVA)	(32.4)	(2.8)	(28.1)	(4.3)	(67.6)
Total Gain or (Loss) (FVA)	$ (53.1)	$ (0.5)	$ (31.0)	$ (3.6)	$ (88.2)

Comments and Recommendations

Experience (Continued)

Source of Actuarial Gain or Loss

Type of Risk Area	Gain (Loss) in Period Totals ($ in Millions)	Percent of AAL^
Risks Related to Experience		
Economic Risk Areas:		
Investment Return (FVA)	$ (67.6)	(2.9)%
Demographic Risk Areas:		
Active Experience	7.5	0.3 %
Post-Retirement Mortality	(7.3)	(0.3)%
Total Gain or (Loss) Related to Experience	$ (67.4)	(2.9)%
Data Improvements	(4.8)	(0.2)%
ASF Recoupment	(16.0)	(0.7)%
Total Gain or (Loss) During Period (FVA)	$ (88.2)	(3.8)%

^ Beginning of year Actuarial Accrued Liabilities were $2,328 million (i.e., $2.3 billion).

Demographic Experience

A summary of Actual (A) to Expected (E) activity is shown in the table below.

Year Ended 30-Jun	Retiree Deaths A	Retiree Deaths E	A/E%
2024	406	461	88%
2023	450	458	98%

Note: Significant differences between actual vs. expected deaths may be as a result of data changes and not reflect actual mortality.

Comments and Recommendations

Actuarial Assumptions

We anticipate the next comprehensive review of experience to cover the period from July 1, 2020 to June 30, 2025.

We understand that the Board may continue to explore changes in the assumed rate of return. As the actuary, we are required to assess the reasonability of this assumption each year.

Quarterly Contributions

The Component II Actuarially Determined Employer Contribution of $87,969,497 on page 3 assumes that contributions of $21,992,374 would be made on a quarterly basis, rather than once per year (at year end) during the 2026 fiscal year. The Actuarially Determined Employer Contribution for the year if payment was made at the end of the fiscal year would have been $90,165,925. **If the City is unable to make the quarterly contribution in any given quarter, we recommend a catch-up contribution equal to 25% of the end of year amount ($90,165,925 x 25% = $22,541,481).**

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 with any interest. Aa result, we recommend that all the reserve amounts be reviewed.

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, 2024 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 complies with the Actuarial Standards of Practice.

Comments and Recommendations

Option Factors

The Board adopted option factors for the Plan in 2018. It is our understanding that the new factors have been fully implemented as of this valuation. **It is anticipated that an experience study will be performed after the June 30, 2025 valuation is completed. We recommenced the System consider whether the assumptions for optional forms of payment should be updated in conjunction with the next experience study.**

New Data System

This is the first year we have received data from the Retirement System's new data provider, Procentia. We assembled the valuation data from source files provided by Procentia. Some of the data required estimations to complete the valuation. A summary of data approximations and assumptions are provided later in this report. We will continue to work with the Retirement System and Procentia to help Procentia improve the data provided to the actuary for completion of the annual actuarial valuations.

Divisional Results

Divisional results are shown on page 2. One result that stands out is the funded status (market value basis) of the DOT division at 21.4%. This is much lower than the other divisions. We expect that all of the assets in the Retirement System back all of the liabilities in the Retirement System. Therefore, if this division runs out of money before all of its benefits are paid, the Retirement System will pay DOT benefits from other divisional assets. In that case, the total Retirement System funded status is a better measure than individual division funded ratios. However, the Funding Policy states that divisions "shall not be permitted to have a funded status below 0% and contributions shall be accelerated as appropriate." 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). Consistent with the Funding Policy, the Board may want to consider more aggressive funding for the DOT division. Please let us know if the Board would like us to do any calculations related to this situation, such as divisional cash flow projections or divisional funding policy suggestions.

Comments and Recommendations

DWSD (Water/Sewer) Contributions

We understand that the City, System and GLWA have a Memorandum of Understanding dated December 1, 2015 for assessing contributions, if any, to GLWA.

The DWSD contributions and liabilities determined in this report do not consider the separation of DWSD-R and GLWA from the DWSD. For the 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 future separate contribution agreement with GLWA beyond those described herein.

Per the General Retirement System's June 30, 2024 Notes to Financial Statements (Note 14):

> During the fiscal year beginning on July 1, 2023, the parties to the pension reporting agreement were to mutually determine and resolve whether any aggregate excess or shortfall of administrative expenses as of June 30, 2023 shall have any effect on the obligation of DWSD-R or GLWA to make payments to the General Retirement System of the City of Detroit under the pension reporting agreement. Pending a formalized agreement, the parties verbally agreed to have the City make the DWSD-R/GLWA annual required contribution until such time that the aggregate excess of approximately $13 million is exhausted.

It is further our understanding that the approximately $13 million is to be transferred from the General City to division to the DWSD division during the 2025 fiscal year and it is both parties' intention for the DWSD to begin making annual required contribution payments beginning with the 2026 fiscal year.

Per Section 2.2 from the Memorandum of Understanding dated December 1, 2015:

> (b) For each Fiscal Year commencing from and after July 1, 2023, on its normal schedule for determining the current Fiscal Year's contributions to the GRS, the GRS shall provide the Authority with a determine of the UAAL for the Authority Pension Pool using the market value of assets for the Authority Pension Pool and whether the Authority Pension Pool is funded at 100%. If the Authority Pension Pool is fully funded at 100% or more, no contributions for the current Fiscal Year will be required of the Authority. If the Authority Pension Pool is less than 100% funded, then the Authority shall make such level annual contributions to the GRS as necessary to amortize such shortfall over five (5) years (or such greater period not to exceed ten (10) years as agreed upon by GRS and the Authority) at an interest rate equal to the then current GRS investment return assumption. Except for the additional payments required by this subsection (b), if any, the Authority shall have no further liability whatsoever to the City or the GRS in connection with any other shortfalls that that may occur with respect to the GRS Plan.
>
> (c) The UAAL calculations required to be furnished pursuant to this Agreement shall be calculated by the GRS Actuary using actuarial standards of the actuary industry.

This report does not reflect any potential additional contribution requirements per Section 2.2 from the MOU. We will assist the Retirement System in determining whether contributions are required of the Authority Pension Pool for the 2025 and 2026 Fiscal Years in a separate report.

Recommendation

In order to minimize the risk of insolvency, it is important that timely employer contributions in an amount equal to or greater than the actuarially calculated amount are received, in accordance with the funding policy.

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.

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

Plan Risk 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.

In our discussions with the Board and Investment Committee, we illustrated various investment return scenarios as part of the funding policy analysis. This type of analysis may also be considered a quantitative risk assessment. We recommend that the Board consider similar periodic analysis as appropriate under the Risk Controls of the newly approved funding policy.

The Board approved funding policy calls for illustrating the table of risk measures shown below. Please see the funding policy for additional information. In the table below, the acronyms are as follows: FVA = Funding Value of Assets; MVA = Market Value of Assets; AAL = Actuarial Accrued liability; UAAL = Unfunded Actuarial Accrued Liability.

Funded Ratio

The funded ratio is the most widely known measure of a plan's financial strength, but the trend in the funded ratio is much more important than the absolute ratio. The funded ratio should trend to 100%. As it approaches 100%, it is important to re-evaluate the level of investment risk in the portfolio and potentially to re-evaluate the assumed rate of return.

Rate of Return, Geometric Average, and Standard Deviation

Investment return is probably the largest single risk that most systems face. The year-by-year return and the geometric average give an indicator of the realism of the System's assumed return.

Duration of the 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%.

Ratio of Unfunded Actuarial Accrued Liability to Payroll

The ratio of unfunded liability to payroll gives an indication of the plan's sensitivity to differences between assumed and actual experience related to the employer contributions. A value above approximately 300% or 400% may indicate high volatility relative to small gains and losses.

Ratio 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.

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

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.

Ratio of Non-Investment 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 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.

Additional 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 can provide additional risk assessments at the Board's request.

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

	2024	2023	2022
(i) Classic measures			
− Funded ratio			
MVA	62.1%	60.9%	62.7%
FVA	61.6%	64.5%	68.5%
− UAAL amortization period	28	29	30
− Portfolio rate of return			
MVA	9.28%	6.20%	-5.77%
FVA	1.85%	1.80%	2.58%
− Geometric average portfolio rate of return[1]			
5-year			
MVA	3.03%	0.04%	-5.77%
FVA	2.08%	2.19%	2.58%
10-year			
MVA	N/A	N/A	N/A
FVA	N/A	N/A	N/A
− Standard deviation of return[1]			
5-year (to be built prospectively)			
MVA	7.95%	8.46%	0.00%
FVA	0.44%	0.55%	0.00%
10-year (to be built prospectively)			
MVA	N/A	N/A	N/A
FVA	N/A	N/A	N/A
(ii) Duration of the Actuarial Accrued Liability	7.8	7.9	8.1
(iii) Total UAAL / Covered Payroll[2]			
MVA	2.6	2.8	3.2
FVA	2.6	2.6	2.7
(iv) Total Assets / Covered Payroll[2]			
MVA	4.2	4.4	5.4
FVA	4.2	4.6	5.9
(v) Total AAL / Covered Payroll[2]	6.8	7.2	8.6
(vi) Non-Investment Cash flow / Beginning of year MVA	-9.6%	-13.0%	-10.5%
(vii) MVA / Benefit Payments	6.3	6.2	6.5
(viii) Solvency Liability ($ millions)[3]	$ 2,729	$ 2,964	$ 3,185

[1] These are developed prospectively from 2022 and consequently do not yet reflect full 5 or 10 years of experience.

[2] Payroll for this purpose is Component I payroll.

[3] See discussion on next page.

Low-Default-Risk Obligation Measure (Solvency Liability)

Introduction

In December 2021, the Actuarial Standards Board (ASB) adopted a revision to Actuarial Standard of Practice (ASOP) No. 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions. The revised ASOP No. 4 requires the calculation and disclosure of a liability referred to by the ASOP as the "Low-Default-Risk Obligation Measure" (LDROM). The rationale that the ASB cited for the calculation and disclosure of the LDROM was included in the Transmittal Memorandum of ASOP No. 4 and is presented below (emphasis added):

> "The ASB believes that the calculation and disclosure of this measure provides **appropriate, useful information for the intended user regarding the funded status of a pension plan**. The calculation and disclosure of this additional measure **is not intended to suggest that this is the "right" liability** measure for a pension plan. However, the ASB does believe that **this additional disclosure provides a more complete assessment of a plan's funded status and provides additional information regarding the security of benefits that members have earned as of the measurement date.**"

Comparing the Accrued Liabilities and the LDROM

One of the fundamental financial objectives of the System is to finance each member's retirement benefits. To fulfill this objective, the discount rate that is used to value the accrued liabilities is set equal to the **expected return** on the System's diversified portfolio of assets (referred to sometimes as the investment return assumption). For the System, the investment return assumption is 6.75%.

The LDROM is meant to approximately represent the lump sum cost to a plan to purchase low-default-risk fixed income securities whose resulting cash flows essentially replicate in timing and amount the benefits earned (or the costs accrued) as of the measurement date. The LDROM is very dependent upon market interest rates at the time of the LDROM measurement. The lower the market interest rates, the higher the LDROM, and vice versa. The LDROM results presented in this report are based on the projected unit credit actuarial cost method and discount rates based upon the June 2024 Treasury Yield Curve Spot Rates (monthly average). The 1-, 5-, 10- and 30-year rates follow: 5.12%, 4.34%, 4.22% and 4.45%. 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.

Presented below are the Valuation Accrued Liability and the LDROM (Solvency Liability) as of June 30, 2024.

Valuation Accrued Liabilities	LDROM
$ 2,257,911,862	$ 2,728,640,989

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

Low-Default-Risk Obligation Measure (Solvency Liability)

Commentary Regarding the LDROM

Some ways in which the LDROM can assist the Board of Trustees in a decision-making process include:

(1) It provides information to potentially allow for better risk management for the System;
(2) It places the appropriateness of potential employer contribution rate reductions or benefit enhancements in a better context; and
(3) It provides more complete information regarding the benefit security of the membership's benefits earned as of the measurement date.

Potentially Allows for Better Risk Management: A very useful risk metric to exhibit potential contribution rate volatility (or amortization period volatility for fixed rate plans) is the ratio of assets to payroll or AAL to payroll. How could we reduce that potential contribution rate volatility (or amortization period volatility for fixed rate plans)? The LDROM and liability driven investing (LDI) are closely related concepts.

Other than reducing benefits, all other things being equal, the only way to reduce that volatility is to immunize (i.e., LDI) a portion of the System's liability. This does not mean that the System needs to immunize all of the liability. For example, if they could immunize half of it, they could reduce the contribution rate volatility in half. This would require the actuary to use a cash flow matching method to value that portion of the liabilities. This means that the actuary would not use the System's investment return assumption for this portion of the liability, but the yield curve resulting from the fixed income portfolio that is being used to immunize the liability. The value of the assets (i.e., fixed income portfolio) and the value of the immunized liability would move in tandem with any changes (up or down) in future interest rates. The result being that the immunized portion of the System's liability would reduce the potential of producing new unfunded actuarial accrued liabilities. However, the fixed income portfolio would still have the minor potential for credit default risk.

Places the Appropriateness of Potential Employer Contribution Rate Reductions or Benefit Enhancements in a Better Context: Many PERS have adopted a funding policy. Many funding policies already take into account the System's funded ratio (based upon the AAL) when considering whether to allow for benefit enhancements or contribution rate reductions. For example, a System may not allow for a benefit enhancement if the funded ratio does not exceed a certain threshold. Similarly, a System may not allow for an employer contribution rate reduction in some circumstances. For example, a reduction to the employer normal cost contribution may not be allowed until the System reaches a funded ratio of 120%. Given the fact that most criteria are based upon the expectation of earning the investment return assumption, a System may want to consider extending these criteria to a funded ratio based upon the LDROM in addition to the AAL.

Provides more Complete Information Regarding the Benefit Security of the Membership's Benefits Earned as of the Measurement Date: Too often a high funded ratio (i.e., 100% funded) on an AAL basis is interpreted as benefit security for the participants. The fact that this funded ratio is based upon an expected measure is many times overlooked. If the AAL and LDROM measures are relatively close, then the System at least has the opportunity to make benefits payable in the future more secure.

Other Observations

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 6.75% on the funding value of assets), it is expected that:

1) The unfunded actuarial accrued liabilities will be fully amortized 30 years after June 30, 2023.
2) The funded status and unfunded accrued liability will follow the pattern shown on page 6.

We have assessed that the Actuarially Determined Employer Contribution (ADEC) in this report is reasonable.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the funding value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations; in other words, of transferring the obligations to an unrelated third party in an arm's length market value type transaction.
2) The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the plan would still require future administrative expense contributions.
3) The measurement would produce a different result if the market value of assets were used instead of the funding value of assets, unless the market value of assets is used in the measurement.

Limitations of Project Scope

Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.

Risks to Future Employer Contribution Requirements

There are ongoing risks to future employer contribution requirements to which the Retirement System is exposed, such as:

- Actual and Assumed Investment Rate of Return;
- Actual and Assumed Mortality Rates; and
- Amortization Policy.

Scenario Testing/Sensitivity Testing

If the Board would like to see additional projections, we would be happy to perform such projections.

SECTION B

FUND ASSETS

Statement of Plan Assets
(Reported Assets at Market Value)

Market Value - June 30, 2024	
Cash and Cash Equivalents	$ 51,617,194
Investments at Fair Value	1,315,594,294
Receivables	82,356,876
Cash and Investments held as collateral for securities lending	33,021,506
Capital Assets - Net	3,968,571
Accounts Payable	(83,955,443)
Total Current Assets	**$ 1,402,602,998**

Market Value of Assets

Reserve Accounts

Funds	Fund Balances June 30, 2024	June 30, 2023
Annuity Savings	$ 72,490,304	$ 82,885,035
Annuity Reserve	(56,173,666)	(46,348,630)
Pension Accumulation	(211,008,876)	(266,432,063)
Pension Reserve	1,597,295,236	1,648,504,938
Total Fund Balances	**$ 1,402,602,998**	**$ 1,418,609,280**

Revenues and Expenditures

	Pension Funds	Annuity Funds	Total Funds
Balance, July 1, 2023	$ 1,382,072,875	$ 36,536,405	$ 1,418,609,280
Prior valuation audit adjustment	-	-	-
Market Value July 1, 2023	$ 1,382,072,875	$ 36,536,405	$ 1,418,609,280
Revenues			
Employer Contributions [#]	$ 105,310,142	$ -	$ 105,310,142
Employee Contributions	-	-	-
Foundation Contributions	375,000	-	375,000
Annuity Interest	-	75,623	75,623
Investment Income (Net of Investment Expenses)	114,261,080	-	114,261,080
Other Income	6,105,914	-	6,105,914
Transfers From Annuity Funds to Pension Funds	1,952,205	(1,952,205)	-
Total	$ 228,004,341	$ (1,876,582)	$ 226,127,759
Expenditures			
Benefit Payments	$ 204,951,765	$ 9,825,036	$ 214,776,801
Refund of Member Contributions		8,518,149	8,518,149
ASF Recoupment /Write Off	16,000,245	-	16,000,245
Transfer to Component I (Transition Cost)	-	-	-
Administrative Expenses	2,838,846	-	2,838,846
Total	$ 223,790,856	$ 18,343,185	$ 242,134,041
Market Value June 30, 2024	$ 1,386,286,360	$ 16,316,638	$ 1,402,602,998
Market Value Rate of Return (Net of all expenses)	9.47%	0.29%	9.28%
Net Cash Flow as Percent of Assets	(8.40)%	(55.55)%	(9.62)%

[#] *Includes $23.1 million Grant.*

Rates of return are dollar-weighted estimates assuming contributions occur at the end of the year and remaining items are mid-year cash flows. “Annuity 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, 2023	Adjustments	Contributions[#]	Benefit Payments	Admin. Expenses	Investment and Other[^]	June 30, 2024
Annuity Savings Fund							
General	$ 45,551,295	$ -	$ -	$ (5,684,188)	$ -	$ (550,817)	$ 39,316,290
D.O.T.	16,838,504	-	-	(1,242,290)	-	(214,908)	15,381,306
DWSD	13,512,045	-	-	(1,097,535)	-	(1,107,843)	11,306,667
Library	6,983,191	-	-	(494,135)	-	(3,015)	6,486,041
Totals	$ 82,885,035	$ -	$ -	$ (8,518,148)	$ -	$ (1,876,583)	$ 72,490,304
Annuity Reserve Fund							
General	$ (27,156,856)	$ -	$ -	$ (5,511,723)	$ -	$ -	$ (32,668,579)
D.O.T.	(2,615,980)	-	-	(886,564)	-	-	(3,502,544)
DWSD	(14,209,343)	-	-	(3,043,941)	-	-	(17,253,284)
Library	(2,366,451)	-	-	(382,808)	-	-	(2,749,259)
Totals	$ (46,348,630)	$ -	$ -	$ (9,825,036)	$ -	$ -	$ (56,173,666)
Pension Accumulation Fund							
General	$ (213,606,614)	$ (88,495,208)	$ 67,455,909	$ -	$ (1,373,975)	$ 50,214,663	$ (185,805,225)
D.O.T.	(199,445,723)	(22,109,550)	37,429,233	-	(130,411)	2,356,721	(181,899,730)
DWSD	115,438,913	(38,286,474)	700,000	-	(1,176,329)	47,791,754	124,467,864
Library	31,181,361	(4,850,831)	100,000	-	(158,131)	5,955,816	32,228,215
Totals	$ (266,432,063)	$ (153,742,063)	$ 105,685,142	$ -	$ (2,838,846)	$ 106,318,954	$ (211,008,876)
Pension Reserve Fund							
General	$ 881,805,792	$ 88,495,208	$ -	$ (114,302,388)	$ -	$ -	$ 855,998,612
D.O.T.	250,391,451	22,109,550	-	(29,192,819)	-	-	243,308,182
DWSD	473,085,526	38,286,474	-	(55,274,690)	-	-	456,097,310
Library	43,222,169	4,850,831	-	(6,181,868)	-	-	41,891,132
Totals	$ 1,648,504,938	$ 153,742,063	$ -	$ (204,951,765)	$ -	$ -	$ 1,597,295,236
Retirement System Totals	$ 1,418,609,280	$ -	$ 105,685,142	$ (223,294,949)	$ (2,838,846)	$ 104,442,371	$ 1,402,602,998

[#] *Includes $23.1 million Grant.*

[^] *Includes ASF Write-off /allowance and transfers from ASF to PAF.*

Funding Value of Assets

	2022	2023	2024	2025	2026
A. Funding Value Beginning of Year	$ 1,818,649,298	$ 1,671,628,547	$ 1,501,039,291		
B. Market Value End of Year	1,529,846,295	1,418,609,280	1,402,602,998		
C. Market Value Beginning of Year	1,818,649,298	1,529,846,295	1,418,609,280		
D. Additions During Year:					
D1. City Contributions (End of Year)	48,275,000	48,275,000	105,685,142		
D2. Member Contributions	0	0	0		
D3. Total	48,275,000	48,275,000	105,685,142		
E. Deductions During Year:					
E1. Benefits Paid During Year	222,756,595	217,569,517	214,776,801		
E2. Refunds	13,796,354	10,869,398	8,518,149		
E3. Transfers/ASF Recoupment/Write Off	0	15,592,259	16,000,245		
E4. Administrative Expenses	2,541,080	2,680,907	2,838,846		
E5. Total	239,094,029	246,712,081	242,134,041		
F. Investment Income:					
F1. Average Funding Value	1,699,102,284	1,548,272,507	1,379,972,271		
F2. Assumed Rate	6.75%	6.75%	6.75%		
F3. Amount for Immediate Recognition: F1 X F2	114,689,404	104,508,394	93,148,128		
F4. Market Total: B - C - D3 + E5	(97,983,974)	87,200,066	120,442,617		
F5. Amount for Phased-In Recognition: F4-F3	(212,673,378)	(17,308,328)	27,294,489		
G. Phased-In Recognition of Investment Income:					
G1. Current Year: F5/3	(70,891,126)	(5,769,443)	9,098,163		
G2. 1st Prior Year	0	(70,891,126)	(5,769,443)	$ 9,098,163	
G3. 2nd Prior Year	0	0	(70,891,126)	(5,769,442)	$ 9,098,163
G4. Total Recognized Investment Gain	(70,891,126)	(76,660,569)	(67,562,406)	3,328,721	9,098,163
H. Total Interest Distributed - Current Year: F3 + G4	43,798,278	27,847,825	25,585,722		
I. Funding Value End of Year:					
I1. Preliminary Funding Value End of Year: A + D - E + H	1,671,628,547	1,501,039,291	1,390,176,114		
I2. Upper Corridor Limit 115% x B	1,759,323,239	1,631,400,672	1,612,993,448		
I3. Lower Corridor Limit 85% x B	1,300,369,351	1,205,817,888	1,192,212,548		
I4. **Funding Value End of Year**	**$1,671,628,547**	**$1,501,039,291**	**$1,390,176,114**		
J. Difference Between Market & Funding Value: B - I4	(141,782,252)	(82,430,011)	12,426,884		
K. Recognized Rate of Return: H / F1	2.58%	1.80%	1.85%		
L. Market Rate of Return: F4 / (F1 + C - A)	(5.77)%	6.20%	9.28%		
M. Ratio of Funding Value to Market Value: I4 / B	109.27%	105.81%	99.11%		

The Funding Value of Assets recognizes assumed investment income (line F3) fully each year. Differences between actual and assumed investment income (line F5) are phased-in over a closed 3-year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than market value. The Funding Value of Assets is unbiased with respect to Market Value. At any time, it may be either greater or less than Market Value.

SECTION C

PARTICIPANT DATA

Reconciliation of Data

Active Members

A) Count reported in Active file	9,039
B) Duplicate Records	(42)
C) PFRS Revenue Group	(3,038)
D) Hired after June 30, 2014	(4,206)
E) Non-eligible class code & bargaining unit	(9)
F) No hire date	-
G) Number of records to value	1,744

Inactive Vested Members

A) Number of records reported on data file	4,875
B) PFRS Revenue Group	(1,207)
C) Less than 8 years of Legacy plus Hybrid vesting service	(997)
D) Records already receiving Legacy benefits and included in Legacy retiree data	(400)
E) Terminated after 6/30/2024	(1)
F) No Legacy Benefit Service	(2)
G) Number of records to value	2,268

Retired Members and Beneficiaries

A) Number of records reported on data file	20,181
B) Number of records in PFRS	(8,704)
C) GRS Comp I (Hybrid) Records	(764)
D) Number of records valued	10,713

Notes:
This years' active data includes 140 records not reported last year. Additionally, this year's active data file provided a 2014 Water/Sewage identifier. This information was previously carried over from prior valuations. Members are assumed to be DWSD if they are currently reported in Revenue Group "3" or the 2014 Water/Sewage identifier is populated. This new identifier caused the DWSD member count to increase despite the closed nature of the GRS Comp II (Legacy) plan.

Active Row B: It is our understanding that through the course of the year these members were terminated from either GRS or PFRS and are active in the other plan. This resulted in there being two records for these members. These people will be included in their current reported revenue group. The record in the Retirement System the member is no longer active was removed.

Active Row C: Are records that were reported with a revenue group of "7" (police) or "8" (fire).

Active Row D: Consistent with prior practice, we have not valued records with a date of hire after June 30, 2014 in Component II. Several dozen records with a hire date after June 30, 2014 were listed with Legacy benefit service.

Active Row E: We have received a separate list of Class Codes and Bargaining Units that are not eligible to receive Legacy benefits. Individuals reported with these codes/units were excluded.

Inactive Row B: Are records that were reported with a revenue group of "7" (police) or "8" (fire).

Inactive Row F: Service provided in the data file is benefit service. Vesting service was determined by combining Legacy and Hybrid service in the vested data file.

Reconciliation of Year-to-Year Data
as of June 30, 2024

	Active	Term. Vested	Retirees		Totals
	Count	Count	Count	Annual Benefits	Count
2023	**1,737**	**2,391**	**10,792**	**$ 203,731,919**	**14,920**
Change in Pay/Pensions	N/A	N/A	N/A	(517,340)	
Rehired (Not Vested)	140	-			140
Rehired (Vested)	23	(23)	-	-	-
New Beneficiary			82	862,635	82
Retired	(77)	(115)	227	3,732,807	35
Non-Duty Disabled			-	-	-
Duty Disabled			-	-	-
Assumed Death/Removals		(143)	(406)	(6,147,618)	(549)
Vested Term	(53)	32			(21)
Non-Vested Terminated	(26)				(26)
Data Adjustment	-	126	18	56,631	144
2024	**1,744**	**2,268**	**10,713**	**$ 201,719,034**	**14,725**

Notable Data Changes:

35 new retirees came from nowhere. We believe some of these are a result of new EDRO's.

The data adjustments relate to records where we could not specifically identify the activity during the year. These adjustments increased significantly with this year's new data set. 143 Terminated Vested members were valued last year but will not be valued this year because there is no record in this year's data. This, in effect, is assuming that these members refunded and forfeited their defined benefit. Similarly, 126 new Terminated Vested members were valued this year but not in last year's data file.

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 January 8, 2025 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.

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, 2024 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 2024 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.

This year's valuation data file indicated the DWSD status of members as of June 30,2014. Any members that were indicated as being DWSD division members as of June 30, 2014 were valued under the DWSD for this valuation, regardless of the division reported as of 2024.

Data Approximations and Assumptions

Deferred Vested

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. 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) 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, 2024

Active Members

	General	D.O.T.	DWSD	Library	Totals^
Number	1,061	277	266	140	1,744
% Change in active members	(0.8)%	(0.7)%	9.9 %	(4.1)%	0.4 %
Average reported 2014 AFC^	$45,636	$53,271	$45,710	$42,479	$46,607
Average age	56.4	56.7	56.3	57.5	56.5
Average benefit service*	13.5	14.3	13.8	15.8	13.9
Average eligibility service*	22.0	23.1	22.8	24.7	22.5

^ In cases where the 2014 AFC reported on the current file was less than 75% of the 2014 AFC as reported in 2014, the 2014 AFC as reported in 2014 was used

** In cases where the benefit service was blank, vesting service and benefit service were computed by taking time elapsed from date of hire to either date of plan termination or valuation date.*

Retired Members and Survivor Beneficiaries

	General^	D.O.T.	DWSD	Library	Totals
Number	6,173	1,567	2,652	321	10,713
Annual benefits ($ millions) #	$ 117.6	$ 29.8	$ 57.7	$ 6.4	$ 211.5
Average benefits #	$19,049	$18,987	$21,772	$19,932	$19,740
% Change in reported average benefit	0.8 %	(1.4)%	(2.0)%	0.3 %	(0.2)%

^ 8 records were reported with no date of birth and were assumed to be age 65.

 # Includes annuities. Does not include reductions resulting from the annuity claw-backs.

Inactive Vested Members

	General^	D.O.T.	DWSD	Library	Totals
Number	1,233	278	661	96	2,268
Average AFC*	$39,687	$44,152	$48,532	$32,418	$42,504
Average years of service#	14.5	12.9	14.8	12.3	14.3
Annual benefits ($ millions)	$ 11.7	$ 2.6	$ 7.8	$ 0.6	$ 22.7
Average benefits	$ 9,503	$ 9,323	$11,756	$ 6,561	$10,013
% Change in average years of service	(4.1)%	(12.4)%	(2.5)%	(10.7)%	(4.9)%
% Change in average AFC	0.3 %	(0.7)%	(1.1)%	(0.8)%	(0.5)%

^ 1 record was reported with no date of birth and was assumed to be age 65.

** If the AFC was not provided, $30,000 was used for the AFC. This assumption was based upon a prior analysis of the valuation data.*

 # In cases where the Legacy benefit service was reported as zero but the record had a date of hire before June 30, 2014, benefit service was estimated by taking time elapsed from date of hire to date of plan termination.

Active Members as of June 30, 2024
by Attained Age and Years of Service
Retirement System Totals

Attained Age	Years of Service to Valuation Date							Total No.
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Under 20	0							0
20-24	0	0						0
25-29	0	0	0					0
30-34	1	7	1	2				11
35-39	4	20	17	5	1			47
40-44	6	12	25	23	18	0		84
45-49	4	21	31	44	56	22	1	179
50-54	10	28	38	45	97	93	10	321
55-59	6	14	38	53	102	154	72	439
60-64	3	23	33	38	72	110	136	415
65-69	3	5	19	23	30	32	64	176
70-74	1	7	7	10	2	11	13	51
75-79	0	0	5	2	6	3	5	21
Totals	**38**	**137**	**214**	**245**	**384**	**425**	**301**	**1,744**

Group Averages:

Age:	56.5 years
Benefit Service:	13.9 years
Eligibility Service:	22.5 years

Service shown in this schedule is Legacy Benefit service plus Hybrid Benefit service.

Retirees and Beneficiaries as of June 30, 2024
Tabulated by Attained Ages
Retirement System Totals

Attained Ages	Age & Years of Service#		Disability		Death-in-Service		Totals	
	No.	Annual Allowances^	No.	Annual Allowances^	No.	Annual Allowances^	No.	Annual Allowances^
Under 20*	4	$ 26,340	0	$ 0	0	$ 0	4	$ 26,340
20-24	11	138,204					11	138,204
25-29	6	42,924					6	42,924
30-34	9	89,364	0	0			9	89,364
35-39	22	122,112	0	0			22	122,112
40-44	20	118,536	1	9,132	2	33,732	23	161,400
45-49	24	202,176	8	49,884	1	9,276	33	261,336
50-54	101	1,271,796	20	191,124	8	58,452	129	1,521,372
55-59	290	5,719,008	57	621,936	14	187,716	361	6,528,660
60-64	1,061	19,909,380	112	1,735,476	32	412,512	1,205	22,057,368
65-69	2,027	39,084,120	213	3,051,120	34	526,608	2,274	42,661,848
70-74	1,994	41,693,316	158	2,227,380	43	759,264	2,195	44,679,960
75-79	1,787	38,630,100	117	1,666,500	32	708,120	1,936	41,004,720
80-84	1,093	21,423,612	43	462,228	28	381,588	1,164	22,267,428
85-89	647	10,572,852	26	260,988	17	219,408	690	11,053,248
90-94	359	5,519,400	7	71,868	18	179,868	384	5,771,136
95 and Over	241	3,049,668	7	61,812	19	220,140	267	3,331,620
Totals	**9,696**	**$187,612,908**	**769**	**$10,409,448**	**248**	**$3,696,684**	**10,713**	**$201,719,040**

** May include records with defective birth dates.*
 # Includes survivor beneficiaries of deceased retirees.
^ Excludes annuities.

Retirees and Beneficiaries as of June 30, 2024
Tabulated by Year of Retirement

Year of Retirement	No.	Annual Allowances^ Total	Annual Allowances^ Average
1950 & before	0	$ 0	$ 0
1951-1955	0	0	0
1956-1960	0	0	0
1961-1965	3	13,644	4,548
1966-1970	5	33,468	6,694
1971-1975	19	139,596	7,347
1976-1980	48	494,688	10,306
1981-1985	134	1,822,776	13,603
1986-1990	299	3,967,836	13,270
1991-1995	721	11,038,440	15,310
1996-2000	1,074	20,391,000	18,986
2001-2005	1,708	38,350,560	22,453
2006-2010	2,074	47,508,936	22,907
2011-2015	2,330	44,313,936	19,019
2016	307	4,756,248	15,493
2018	293	4,089,324	13,957
2019	288	4,068,120	14,125
2020	311	4,668,840	15,012
2021	348	5,123,076	14,721
2022	308	4,613,328	14,978
2023	320	4,583,244	14,323
2024	123	1,741,980	14,162
Totals	**10,713**	**$201,719,040**	**$18,829**

^ Excludes annuities.

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 set by the Board.

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, the 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 the following pages. 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 the following pages. 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. For contributions starting with the fiscal year ending June 30, 2024, a closed 30-year level principal period is used to amortize Unfunded Actuarial Accrued Liabilities (if any).

Employer contribution dollars were assumed to be paid in quarterly installments at the end of each quarter of the employer fiscal year.

Present assets are set equal to Funding Value of Assets for purposes of calculating the Actuarially Determined Employer Contribution.

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 2024	Future Life Expectancy (Years)	
	Men	Women
45	37.76	40.22
50	32.83	35.16
55	28.45	30.57
60	24.20	26.03
65	20.07	21.56
70	16.07	17.21
75	12.40	13.19
80	9.19	9.63

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	Withdrawal: 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	1406
		1608	1609

Sample Ages	% of Active Members Becoming Disabled within Next Year — D.O.T. Ordinary	D.O.T. Duty	Others Ordinary	Others 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

Administrative Expenses	Administrative expenses are assumed to be 1.01% of benefit payments and are to be included in the employer contribution.
Average Final Compensation (AFC)	Frozen AFC is reported in the data provided for the annual valuation. Longevity payments and Sick Leave are included directly in the reported frozen AFC. We annually test the reported AFC against a sample set of retirees to determine if any additional adjustments should be made to the liability. No additional adjustment was made for this report.
Benefit Service	Exact Fractional service is used to determine the amount of benefit payable.
Data Adjustments	Assumptions regarding incomplete or missing data are reviewed annually with the System and adjusted as directed by the System.
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 Relativity	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Timing	Decrements of all types are assumed to occur mid-year.
Deferred Vested Benefit Commencement Age	Members are assumed to commence benefits at the age in which they are first eligible for unreduced benefits.
Disability Change Age	For active members that become duty disabled, the Component II (Legacy) plan is assumed to only be responsible for the frozen benefit which becomes payable starting at the earliest of when the member would have accrued 30 years of service credit (25 for EMS) or age 60.

Miscellaneous and Technical Assumptions

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.
Forfeiture Assumption	It is assumed that 0% of members will elect to forfeit their benefit.
Incidence of Contributions	Employer contributions are assumed to be received in equal quarterly installments on the last day of each quarter of the fiscal 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.
Member Contributions	Member contributions to this Component II plan are assumed to have ceased with the bankruptcy.
New Entrant Assumption	No assumption is made for experience related to members rehiring/reentering active service.
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.
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%.
Service Credit Accruals	Service accruals for calculating benefits end as of June 30, 2014 for Component II (Legacy) and begin as of June 30, 2014 for Component I (Hybrid). However, service in Component I (Hybrid) and Component II (Legacy) may be used to satisfy benefit eligibility requirements in both plans.

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

Accrued Service	The service credited under the plan which was rendered before the date of the actuarial valuation.
Actuarial Accrued Liability (AAL)	The difference between the Actuarial Present Value of Future Benefits, and the Actuarial Present Value of Future Normal Costs.
Actuarial Assumptions	Assumptions about future plan experience that affect costs or liabilities, such as: mortality, withdrawal, disablement, and retirement; future increases in salary; future rates of investment earnings; future investment and administrative expenses; characteristics of members not specified in the data, such as marital status; characteristics of future members; future elections made by members; and other items.
Actuarial Cost Method	A procedure for allocating the Actuarial Present Value of Future Benefits between the Actuarial Present Value of future Normal Costs and the Actuarial Accrued Liability.
Actuarially Determined Employer Contribution	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Plan's actuarial funding policy.
Actuarial Equivalent	Of equal Actuarial Present Value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value (APV)	The amount of funds required to provide a payment or series of payments in the future. It is determined by discounting the future payments with an assumed interest rate and with the assumed probability each payment will be made.
Actuarial Present Value of Future Benefits (APVFB)	The Actuarial Present Value of amounts which are expected to be paid at various future times to active members, retired members, beneficiaries receiving benefits, and inactive, non-retired members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial Valuation	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Funding Value of Assets, and related Actuarial Present Values for a plan.

Glossary

AFC	Average Final Compensation.
Amortization Method	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the rate at which total covered payroll of all active members is assumed to increase. Under the Level Principal method, the Amortization Payment is one of a stream of decreasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Principal method, the principal payment remains constant, while the interest portion is reduced over time.
Amortization Payment	That portion of the plan contribution or ARC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.
Amortization Period	The period used in calculating the Amortization Payment.
ARF	Annuity Reserve Fund.
ASF	Annuity Savings Fund of the Component II (Legacy) Plan.
Closed Amortization Period	A specific number of years that is reduced by one each year, and declines to zero with the passage of time. For example, if the amortization period is initially set at 20 years, it is 19 years at the end of one year, 18 years at the end of two years, etc.
COLA	Cost-of-Living Adjustment.
Contribution Budgeting Liability	An expected return-based measure of pension obligation.
DIA	Detroit Institute of Arts.
D.O.T	Department of Transportation.
Duration	An approximate measure of sensitivity to changes in interest rates.
DWSD	Detroit Water and Sewerage Department.
Employer Normal Cost	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.

Glossary

E.M.S.	Emergency Medical Service.
Equivalent Single Amortization Period	For plans that do not establish separate amortization bases (separate components of the UAAL), this is the same as the Amortization Period. For plans that do establish separate amortization bases, this is the period over which the UAAL would be amortized if all amortization bases were combined upon the current UAAL payment.
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 valuations. To the extent that actual experience differs from that assumed, Unfunded Actuarial Accrued Liabilities emerge which may be larger or smaller than projected. Gains are due to favorable experience, i.e., the assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, losses are the result of unfavorable experience, i.e., actual results that produce Unfunded Actuarial Accrued Liabilities which are larger than projected.
Funded Ratio	The ratio of the Funding Value of Assets to the Actuarial Accrued Liability.
Funding Value of Assets (FVA)	The value of the assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets or a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the actuarially determined employer contribution (ADEC).
FY	Fiscal Year.
GASB	Governmental Accounting Standards Board.
GASB Statement No. 67 and GASB Statement No. 28	These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. GASB Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while GASB Statement No. 67 sets the rules for the systems themselves.
GLWA	Great Lakes Water Authority.
MVA	Market Value Assets.
Normal Cost	The annual cost assigned, under the Actuarial Cost Method, to the current plan year.

Glossary

Open Amortization Period	An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. In other words, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never completely disappear, but will become smaller each year, either as a dollar amount or in relation to covered payroll.
PAF	Pension Accumulation Fund.
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.
RSF	Rate Stabilization Fund.
Solvency Liability	A market-based measurement of the pension obligations.
Transition Cost	Initial unfunded liability as described in Section E-16 of the Plan document.
Unfunded Actuarial Accrued Liability	The difference between the Actuarial Accrued Liability and Funding Value of Assets.
Valuation Date	The date as of which the Actuarial Present Value of Future Benefits are determined. The benefits expected to be paid in the future are discounted to this date.
VPIF	Variable Pension Improvement Factor. Discussed in Section 6.2 of the Plan Document.

SECTION G

FUNDING POLICY

Actuarial Funding Policy

I. Introduction

The purpose of this Actuarial Funding Policy is to record the funding objectives and policy set by the Board of Trustees (Board) and the Investment Committee (Investment Committee) for the General Retirement System of the City of Detroit (the GRSD). The Board and the Investment Committee establish this Actuarial Funding Policy to help ensure the systematic funding of future benefit payments for members of the Plan.

In 2014, the Combined Plan document for the GRSD was written and approved by the bankruptcy court as part of the City's Plan of Adjustment (POA). At that time, the original retirement plan was split into two retirement plans: Component I (Hybrid) and Component II (Legacy) (collectively the "Plans"). In accordance with the POA, employer contributions and certain assumptions cannot be changed until fiscal year 2024. This Policy is intended to establish a funding policy for the period beginning in fiscal year 2024, when employer contributions must be determined on an actuarial basis. Nothing in this Policy is intended to prevent the Board and the Investment Committee from altering the Policy prior to fiscal year 2024 as conditions change or additional information becomes available to the Board.

This Policy shall be regularly reviewed by the Board and the Investment Committee.

II. Definitions

"Actuarial Accrued Liability (AAL)" means 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."

"Actuarial Assumptions" means the 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" means 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 Gain (Loss)" means 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. For example, if during a given year the assets earn more than the investment return assumption, the amount of earnings above the assumption will cause an unexpected reduction in UAAL, or "actuarial gain" as of the next valuation. These include contribution gains and losses that result from actual contributions made being greater or less than the level determined under the policy.

"Actuary" means a person who is trained in the applications of probability and compound interest to problems in business and finance that involve payment of money in the future, contingent upon the occurrence of future events. Most actuaries in the United States are Members of the American Academy of Actuaries (MAAA). The Society of Actuaries is an international research, education and membership organization for actuaries in the life and health insurance, employee benefits, and pension fields. It administers a series of examinations leading initially to Associateship and the designation ASA and ultimately to Fellowship with the designation FSA.

"Amortization" means 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.

"*Board*" or "*Board of Trustees*" shall mean the Board of Trustees of the General Employees Retirement System of the City of Detroit.

"*Committee*" or "*Investment Committee*" shall mean the Investment Committee of the General Employees Retirement System of the City of Detroit.

"Division" shall mean the General City, DDOT, Library and/or DWSD divisions in the City of Detroit.

"Experience Study" means an actuarial investigation of demographic and economic experiences of the system during the period studied. The investigation was made for the purpose of updating the actuarial assumptions used in valuing the actuarial liabilities.

"Funding Value of Assets" means the value of current plan assets recognized for valuation purposes. Generally based on a phased-in recognition of all or a portion of market related investment return. Sometimes referred to as Actuarial Value of Assets or Smoothed value of Assets.

"*GRSD*" shall mean the General Employees Retirement System of the City of Detroit.

"Market Value of Assets" means the fair value of plan assets as reported in the plan's audited financial statements.

"Normal Cost (NC)" means 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.

"Unfunded Actuarial Accrued Liability (UAAL)" means the positive difference, if any, between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

"Unit Credit Normal Actuarial Cost Method" means a funding method that calculates the Normal Cost as the present value of the change in accrued benefits for active members.

II. Funding Objectives

1. Provide benefit security to members of the GRSD:
   A. For purposes of this policy, benefit security means having adequate liquidity to pay benefits when due.
2. Establish an appropriate employer contribution based on the following objectives:
   A. Upon the recommendation of the GRSD Actuary and after review and consideration of the decision of Judge Thomas J. Tucker with respect to the City of Detroit's Motion to Enforce Plan of Adjustment and Require 30-Year Amortization of the Accrued Liability in the Police and Fire Retirement System filed in the US Bankruptcy Court In re: City of Detroit, Michigan (Case No. 13-53846) (herein after the "Legacy Amortization Motion"); to fully fund the Legacy Plan liability in 30 years from June 30, 2023; and
   B. Fully funding the Hybrid plan liability in 15 years from June 30, 2023; and
   C. Managing employer contribution volatility.

3. Provide a reasonable margin for adverse experience to help offset risks.
4. Measure and monitor funding status, post-2024 contribution estimates and risks.
   A. Perform annual valuations; and
   B. Include post-2024 actuarial determined employer contributions (based on this Policy) in annual actuarial valuations performed for fiscal years before 2024.

III. Elements of the Actuarial Funding Policy

The Plans will have annual actuarial valuations each June 30. Employer contributions will be determined for the fiscal year ending two years after the valuation date. For example, the actuarially determined employer contribution for the fiscal year ending June 30, 2024 will be determined by the June 30, 2022 annual actuarial valuation.

Annual actuarial valuations may or may not also serve other purposes such as for Legacy plan restoration, Hybrid plan Section 9.5 fiscal responsibility calculations, and/or Annuity Savings Fund excess interest transfers between components. Unless otherwise stated, those purposes are not subject to this Policy.

For funding purposes, annual actuarial valuations will include the following elements of the Actuarial Funding Policy:

1. Actuarial Cost Method

A. Hybrid Plan: The Entry Age actuarial cost method shall be used in determining the Actuarial Accrued Liability (AAL) and Normal Cost with the entry age based on the date of hire. Since this component was created in July 2014 and granted eligibility and vesting service prior to July 2014 (for members hired before that date), this plan had an unfunded actuarial accrued liability on the plan effective date, known as the transition liability.

B. Legacy Plan: The Unit Credit Normal actuarial cost method shall be used in determining Actuarial Accrued Liability (AAL) and Normal Cost. Since this component is closed and accrued benefits are frozen as of June 30, 2014, this method results in no normal costs and an AAL that equals the Present Value of Accrued Benefits (PVAB) of each member.

2. Asset Smoothing Method

A. For determining (or estimating) employer contributions on or after fiscal year 2024, the Funding Value of Assets will be based on a method that employs smoothing of market gains and losses over a closed period. The smoothing period for recognize market gains and losses (above or below the assumed rate of return) will be a 3-year period.

B. The Funding Value of Assets shall not diverge from the Market Value of Assets by more than 15%.

C. The annual valuation will calculate results on both the smoothed value of assets and the (non-smoothed) Market Value of Assets beginning with the June 30, 2022 valuation (the Funding Value of Assets will initially be set to the Market Value of Assets as of June 30, 2021 with smoothing beginning prospectively). The post-2024 contribution estimate will always be based on the smoothed value of assets. Other results (UAAL, Funded Status, etc.) will be based on the Market Value of Assets prior to 2024 and the smoothed value of assets starting in 2024.

3. Amortization Method

A. Hybrid Plan

a) A Level Percent of Payroll amortization method shall be used to systematically eliminate (pay off) the Unfunded Actuarial Accrued Liability (UAAL) over a closed 15-year period from the later of July 1, 2023 or the applicable fiscal year after the funded status falls below 100%.

b) If the funded status for a division is above 100%, the contribution requirements for the division's UAAL will be $0 (thereby creating a minimum employer contribution of employer normal cost).

c) Layered amortizations will be considered by the Board for contributions after fiscal year 2024. Considerations for layering could include

(i) Length of initial period remaining;

(ii) Source of liability being amortized (i.e., new liabilities related to benefit changes and assumptions changes may be amortized over specific shorter periods (i.e., less than 15 years)). It is the intention of the Board and IC to align the amortization period in the appropriate circumstances with the corresponding benefit payment time-period;

(iii) Magnitude of base that could be added in the current year;

(iv) The change in contribution levels from the prior year (i.e., if a previous base is falling off and the current base is going in the opposite direction, it might be better to roll it into an existing base in order to levelized contributions).

d) Each division shall be responsible for funding its liability. Funding for any division that is at risk of depleting its divisional assets may be accelerated. Divisions shall not be permitted to have a funded status below 0% and contributions shall be accelerated as appropriate.

B. Legacy Plan

a) The Level Principal amortization method shall be used to systematically eliminate (pay off) the Unfunded Actuarial Accrued Liability (UAAL) over a closed period of 30 years from July 1, 2023, as reflected in the Plan of Adjustment (POA) and consistent with the decision of Judge Thomas J. Tucker with respect to the City's Legacy Amortization Motion.

b) If the funded status for a division is above 100%, the contribution requirements for the division's UAAL will be $0 (thereby creating a minimum employer contribution of administrative expenses).

c) Layered amortizations will be considered by the Board for contributions after fiscal year 2024. Considerations for layering could include:

(i) Length of initial period remaining;

(ii) Source of liability being amortized (i.e., new liabilities related to benefit changes and assumptions changes may be amortized over specific shorter periods (i.e., less than the UAAL amortization period adopted by the Board and IC)). It is the intention of the Board and IC to align the amortization period in the appropriate circumstances with the corresponding benefit payment time period;

(iii) Magnitude of base that could be added in the current year;

(iv) The change in contribution levels from the prior year (i.e., if a previous base is falling off and the current base is going in the opposite direction, it might be better to roll it into an existing base in order to levelized contributions); and

(v) The City has applied for the Protecting MI Grant Program. If approved, any new liabilities related to benefit changes for active employees or retirees in the Legacy Plan must be fully funded when granted.

d) Each division shall be responsible for funding its liability. Funding for any division that is at risk of depleting its divisional assets may be accelerated. Divisions shall not be permitted to have a funded status below 0% and contributions shall be accelerated as appropriate.

4. Funding Target and Cash Flow Projections

A. The targeted funded ratio shall be 100%.

B. The Legacy annual actuarial valuation shall include projections of estimated employer contributions, expected benefit payments and estimated funded status to the later of fiscal year 2054 or 30 years after the applicable employer contribution fiscal year.

C. Section 9.5 of the plan details the actions to be taken if the 5-year projected funded status falls below 100% (Hybrid, only).

5. Risk Management

A. Assumption Changes

a) The actuarial assumptions to be used shall be those last adopted by the Board based on the most recent experience study and upon the advice and recommendation of the actuary. In accordance with the City Ordinance, the actuary shall conduct an experience study at least every five years. The results of the study shall be the basis for the actuarial assumption changes recommended to the Board;

b) The actuarial assumptions may be updated at any time, as advised by the actuary, if significant plan design changes or other significant events occur that would dictate such a change; and

c) Even though the investment rate of return may not be changed for determining employer contributions until after June 30, 2023, the Board may elect to show valuation results under an alternative reasonable assumed rate of investment return prior to 2023.

B. Risk Measures

a) Risk measures will be included in the annual actuarial valuations. Below is a list of potential measures to be included. The measures may be changed over time as deemed appropriate.

(i) Classic measures

- Funded ratio (assets / liability) on both a market value and funding value (if funding value is not equal to market).
- UAAL amortization period (years required to pay down the UAAL based on current funding rates).
- Portfolio rate of return for the year on both the market value and funding value of assets.
- 5-year and 10-year geometric average portfolio rate of return on both the market value and funding value of assets (developed prospectively).

- 5-year and 10-year standard deviation of return on both the market value and funding value of assets (developed prospectively).

(ii) Duration of the Actuarial Accrued Liability

- Measures the sensitivity of the liability to a 1% change in assumed rate of return. A decrease in this measure indicates a decrease in assumed rate sensitivity and vice versa.

(iii) Total UAAL / Covered Payroll

- Measures the risk associated with contribution rates relative to the impact on the ability to fund the UAAL. A decrease in this measure indicates a decrease in UAAL contribution risk and vice versa.
- Consideration will be given to using total payroll or revenue source, if available.

(iv) Total Assets / Covered Payroll

- Measures the risk associated with the potential impact of asset experience on contributions. A decrease in this measure indicates a decrease in asset risk and vice versa.
- Consideration will be given to using total payroll or revenue source, if available.

(v) Total AAL / Covered Payroll

- Measures the risk associated with the potential impact of liability experience on contributions. A decrease in this measure indicates a decrease in experience risk and vice versa. This also provides a long-term measure of the asset risk where the GRSD has a target funded ratio of 100%.
- Consideration will be given to using total payroll or revenue source, if available.

(vi) Non-Investment Cash Flow / Beginning of year assets

- Measures depletion risk, sensitivity to annual investment gains and losses risk and the maturity of the plan. For a mature open plan, this may converge to the negative of the real rate of return assumption (investment return less wage inflation). A less negative number (or a positive number) indicates a less mature plan and/or a plan that is at lower risk of fund depletion and less sensitive to annual gains and losses. A more negative number indicates a more mature plan and/or a plan that is more at risk of fund depletion and more sensitive to annual gains and losses. For a super-mature closed plan such as the Legacy plan, this may become more negative over time as liquidity needs increase.

(vii) Market Value of Assets / Benefit Payments

- Measure depletion risk. A low value estimates the number of years to depletion disregarding future contributions and investment return.

(viii) Solvency Liability

- Measures the estimated cost of accrued benefits as a result of minimizing investment risk in the portfolio.

b) Risk Control: The Board shall carefully monitor the risk measures above and shall consider steps to mitigate risk, particularly as the Legacy Plan funded ratio increases. Examples of risk mitigating techniques include, but are not limited to:

(i) Reviewing investment risk in accordance with the Board's Investment Policy;

(ii) Adding provisions for adverse deviation in the actuarial assumptions; and

(iii) Increasing employer contributions (through a change in methods, assumptions, or amortization period).

IV. Hybrid Plan Section 9.5 Projection Assumptions

Section 9.5 of the Combined Plan titled *"Fiscal Responsibility: Increased Funding Obligations and Benefit Reductions"*, provides generally in the event the funding level of Component I of the Retirement System, projected over a five-year period, falls below specified targets, the Board is required to take established remedial actions. The stated intention of this Section is to "safeguard the long-term actuarial and financial integrity of the Retirement System." Section 9.5(3) further provides that "the actuarial accrued liability of Component I shall be calculated by the Plan's Actuary utilizing an interest rate assumption of six and three-quarters percent (6.75%) and other reasonable assumptions as directed by the Board upon the recommendation of the Investment Committee."

In December, 2016, both the Board and the Investment Committee adopted the following guidelines to be utilized by the actuary in completing the five-year projections as required in Section 9.5 of the Hybrid Plan:

1. The five-year projections should be based on the general valuation assumptions as previously adopted by the Board (e.g., inflation, mortality, retirement, withdrawal, etc.).
2. Section 9.5(1) provides that Variable Pension Improvement Factor ("VPIF") benefits will only be granted in the event the plan is projected to be over 100% funded. It is the considered opinion of the Board and the Investment Committee that the mandatory employee contributions as set forth in the plan based upon the five-year projections required by Section 9.5 are intended to fund base benefits in the normal course and not VPIF benefits. Accordingly, it is the funding policy of the Board to not include any projected future VPIF benefits in the five-year projection calculations. However, in the future and to the extent that VPIF benefits have been granted to retirees at the time of the five-year projection, that Actuary shall assume continuation of those previously granted VPIF benefits except as otherwise provided in Section 9.5(2) of the Combined Plan.
3. For purposes of completing the five-year projection in any given year, an initial projection is to be completed demonstrating the effect of an award of the VPIF benefit to qualified retirees in the following Plan Year. If the Plan continues to be funded at a level greater than 100%. the VPIF may be awarded by the Board and IC in accordance with the Plan provisions. In the event the funding level in the initial projection is less than 100%, a second projection shall be performed to verify if any of the remedial measures required under Section 9.5 are necessary.
4. Transition Costs should not include an assumption of future VPIF benefits. Since there is a separate funding source established in the Combined Plan for payment of Transition costs through 2023 [Section E-16(c)], Transition Costs should be excluded from the Section 9.5 tests until fiscal year 2024. The Transition Costs shall be determined as of July 1, 2014 (without an assumption for payment of future VPIF benefits and financing of the Transition costs shall be calculated based upon a level dollar amortization of the Initial Transition Cost over a 9-year fixed amortization period and the Retirement System's Investment Return Assumption of 6.75%.
5. Component II (Legacy Plan) ASF balances are assumed to be withdrawn as a level dollar amount over the next 10 years, however voluntary employee contributions into the Component Annuity Savings Fund shall be assumed to continue at the historical levels as previously contributed to the Component II ASF. For Transition Funding purposes, an appropriate arbitrage of the difference between the assumed rate of investment return of 6.75% and the maximum interest rate that can be credited to the ASF Accounts of 5.25% should be used for both the Hybrid Plan

(Component I) and Legacy Plan (Component II) ASF Accounts. However, for asset transfers based on a lookback period, actual market returns will be used, if known.

6. The Hybrid Plan assets shall include the Rate Stabilization Fund to the extent the plan is less than 100% funded.

7. The Annual Actuarial Valuation for the fiscal year ending June 30, 2015, shall generate the first five-year projection. Upon receipt of the June 30, 2015 valuation, a determination shall be made whether any remedial action is required. In the event remedial action is required, such remedial action shall be effective July 1, 2017 [Section 9.5(1)].

8. The funding value of plan assets for purposes of Section 9.5 testing of the Hybrid Plan (Component I) funding level would otherwise be based upon a three (3) year smoothing method wherein the assumed investment income of 6.75% will be recognized fully each year and the differences between actual and assumed investment income shall be phased in over a closed three (3) year period. The Actuary has opined that since the projection period is for a five (5) year period, the use of a three (3) year smoothing period is of no consequence and would result in an asset value that is not materially different than projecting the current market value of assets out five (5) years at the assumed rate of return of 6.75%. Accordingly, the projection shall utilize the market value of the portfolio using the 6.75% rate of return [Section 9.5(3)].

9. The forgoing assumptions shall be utilized for both the 100% projection test in Section 9.5(1) and the 80% projection test in Section 9.5(2).

10. The required actions set for in Section 9.5(2), if any, shall be reflected in the projections by the addition of each item in the order listed until the appropriate threshold is reached. Illustrated as follows:

    Perform the first projection ignoring all the 9.5(2) actions. If the projected funded status was less than 80%, then the Actuary is to re-perform the projection reflecting the action in 9.5(2)(a). If the projection results in a funding level that is still below 80%, the projection is to be re-performed reflecting the action in 9.5(2)(b): and so on. Once the 80% threshold is met, such projection would reflect the required actions under Section 9.5(2) that are to be taken.