

City of Detroit Police and Fire Retiree Health Care Trust

Actuarial Valuation Report
as of December 31, 2020





June 1, 2021

VEBA Board of Trustees
City of Detroit Police and Fire
Retiree Health Care Trust

Re: VEBA Valuation/Benefit Modeling as of December 31, 2020

Dear Trustees:

Gabriel, Roeder, Smith & Company ("GRS") has performed an actuarial valuation of the City of Detroit Police and Fire Retiree Health Care Trust as of December 31, 2020. The purpose of this actuarial valuation is to evaluate the financial status of the program as of December 31, 2020 and model the estimated solvency under benefit levels set by the Board for calendar year 2021.

This report is structured as follows:

- Background and Plan Structure
- Participant Data and Plan Description
- Valuation Results and Baseline Benefit Model
- Asset Information
- Methods and Assumptions
- Sensitivity Testing
- Alternate Scenario

A summary of the actuarial methods and assumptions utilized in the actuarial calculations are included in Section E.

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

The valuation results set forth in this report are based upon data and information, furnished by the Trust (or their designees), concerning Plan benefits, financial transactions, and beneficiaries of the VEBA. We reviewed this information for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the VEBA.

The valuation results summarized in this report involve actuarial calculations that require assumptions about future events. The mortality rate assumptions were chosen to be consistent with the rates of mortality used by the City of Detroit Police and Fire Retirement System. The assumed rate of investment return was selected to be 4% per annum for consistency with the yield that is provided from the Bond received through the City of Detroit's Bankruptcy. As of the valuation date, the Board had retained possession over most of the original Bonds. However, after the valuation date, but before the production date of this report, the Board sold most of the Bonds. We have had some initial conversations with the Board's investment consultant and believe that the 4% investment return is still reasonable. However, we understand that the Board is in the process of reviewing its asset allocation. Once that review is complete, we will need to re-evaluate the assumed rate of return for purposes of our liability estimates.

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; and changes in Plan provisions or applicable law. We have performed an analysis of the sensitivity of certain changes in the assumptions in this report.

We believe that the actuarial methods used in this report are reasonable and appropriate for the purpose for which they have been used. In addition, because it is not possible or practical to consider every possible contingency, we may use summary information, estimates or simplifications of calculations to facilitate the modeling of future events. We may also exclude factors or data that are deemed to be immaterial.

This draft report is not a recommendation to anyone to participate in the VEBA. GRS makes no representations or warranties to any person participating in or considering participation in the program.

This program is similar to a defined contribution plan. Benefits can be paid from this plan to the extent that the plan continues to be solvent. While the modeling in this report is intended to estimate how long the benefits can be paid (given a specific level of benefits), there are no guarantees that future events will unfold as modeled. We understand that the Board's intent is to annually model solvency and adjust benefits as they deem necessary.

To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the City of Detroit Police and Fire Retiree Health Care Trust as of December 31, 2020. No adjustments were made for activity occurring after December 31, 2020 in the measurement of the liabilities except for the sale of almost \$194 million of the Bond, which is accounted for in the projections but not in the main valuation results.



This report is not intended to establish rates of future contributions to the Trust. It is our understanding that the amount of all future Trust contributions has been established and that the Board will set benefit levels annually until such time as the Trust is depleted or until all participants have died, whichever comes first.

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.

Member data reported for this valuation (December 31, 2020) was fairly consistent with the data reported for the December 31, 2019 valuation. Although deaths are not specifically reported as a cause for participation termination, the participant counts imply that the Trust suffered a heavy loss due to the pandemic during 2020. GRS offers our condolences for those lost.

Abra D. Hill is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

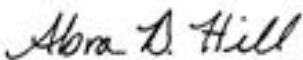
We understand that after the draft report is presented to the Board, that we will be performing some model testing on different benefit levels. We expect any decisions the Board takes on benefit levels to be incorporated in the final valuation report.

The signing individuals are independent of the plan sponsor.

Respectfully submitted,



Kenneth G. Alberts



Abra D. Hill, ASA, FCA, MAAA

KGA/ADH:dj

C3419



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SECTION A

BACKGROUND AND PLAN STRUCTURE

Background and Plan Structure

The VEBA Trust was created during the Bankruptcy of the City of Detroit. It was funded with B-notes from the City of Detroit as well as (pre-established) contributions from the Foundations through 2034. The VEBA Board of Trustees is charged with determining the benefits that can be paid from the Trust. Benefits are payable to the participants only to the extent the Trust still has assets to fund the benefits. At the inception of the plan, the benefits were initially set at 1) \$120 per month toward the premiums for a Medicare Advantage plan from Blue Cross Blue Shield or HAP or 2) an HRA monthly benefit ranging from \$120 per month to \$395 per month depending on age, retirement type (normal or disabled) and Medicare eligibility. Through a competitive bid process, the Trust has been able to manage the cost of the Medicare Advantage premiums and have adjusted benefits accordingly. The benefit levels payable for 2021 and 2022 are shown on page B-1.

The plan operates much like a group defined contribution plan in pay status. The participants of the plan are a closed group and all retired. As of December 31, 2020, there were 9,047 reported eligible participants. Of those, 8,309 were reported to have opted to actively participate. Of the 8,309 participants actively participating, 4,380 participants are receiving coverage under a Medicare Advantage plan and 1,630 are covered by the HRA benefit. During 2020, approximately 56% of the potential HRA payments that could have been made were utilized. The eligible (potential) and current (actually participating) participants are shown in greater detail on page B-1.

Liability of the Plan

Since benefits are limited to the available assets, the true liabilities of the plan are equal to the value of the assets and the plan is always 100% funded. For purposes of this report, however, we have computed a theoretical liability based on the benefit targets established by the Board. In that context, an unfunded liability (funded status less than 100%) indicates that benefits will likely need to be lowered below the Board's established benefit targets unless experience is more favorable than assumed (generating experience gains). It is important to note that in determining the unfunded liability, we have used the estimated market value of the Bonds assuming immediate and complete monetization at different monetization rates (percentages of face value). Funded status greater than 100% indicates that benefits could be increased, unless experience is less favorable than assumed (generating experience losses).

Sensitivity Testing and Preliminary Results

This report is currently preliminary and will be presented to the Board at the June 2021 Board meeting, based on the 2021 benefit levels. The final report is expected to reflect any decisions the Board makes on the 2022 benefit levels.

SECTION B

PARTICIPANT DATA AND PLAN DESCRIPTION

Retired Member Summary as of December 31, 2020

Benefit Type	Monthly Benefit Paid by the Trust		Age Range			Total Lives	Total Lives
			Under 26	Pre 65	Post 65		
	2021	2022				2020	2019
Medicare Advantage PPO							
Single	\$ 125.00	\$ 125.00	-	36	4,171	4,207	4,427
Medicare Advantage HMO							
Single	\$ 125.00	\$ 125.00	-	5	168	173	137
Total MA Participants[#]			-	41	4,339	4,380	4,564
Opt-Out of MA	\$ 125.00	\$ 125.00	-	15	2,288	2,303	2,342
Retiree HRA							
Income Level and Purchased on State Exchange	\$ 175.00	\$ 175.00	-	23	-	23	33
Non Medicare Eligible Duty Disabled Police and Fire	\$ 400.00	\$ 400.00	-	317	3	320	330
Non Medicare Eligible Stipend	\$ 125.00	\$ 125.00	-	717	5	722	821
Over Age 65 Non Medicare Eligible	\$ 300.00	\$ 300.00	-	-	72	72	62
Spouse HRA							
Non Medicare Eligible Spouse	\$ 125.00	\$ 125.00	-	489	-	489	498
Total HRA Members (No Opt-Out)			-	1,546	80	1,626	1,744
Total Current Participants			-	1,602	6,707	8,309	8,650
Total Potential Participants			-	-	-		
Spouse Not Receiving	\$ -	\$ -	-	129	315	444	425
Employees Waiving, no MA, no HRA	\$ -	\$ -	1	70	223	294	418
Participants - No Enrollment Election	\$ -	\$ -	-	-	-	-	-
May Be Added	\$ -	\$ -	-	-	-	-	-
Special Open Enrollment	\$ -	\$ -	-	-	-	-	-
Total Potential Participants			1	199	538	738	843
Grand Total			1	1,801	7,245	9,047	9,493

If premiums are less than \$125 in 2021, the difference between \$125 and the actual premium will be available through a health reimbursement account (HRA).

Amounts shown are net amounts paid by the Trust (after reflecting amounts charged to participants).

Participants under age 65 will be eligible for the MA premium (up to \$125 in 2021 and 2022) or the Opt-Out HRA (\$125 in 2021 and 2022) upon reaching age 65.

Retired Member Age Summary as of December 31, 2020

Age	MA PPO	MA HMO	Opt-Out HRA	Retiree HRA				Spouse HRA Non-Med Elig
				Income Level	Non-Med Duty Dis	Non-Med Elig	Over 65 Non-Med Elig	
Under 30	-	-	-	-	-	-	-	1
30 - 34	-	-	-	-	-	-	-	-
35 - 39	-	-	-	-	5	1	-	4
40 - 44	-	-	-	-	51	7	-	18
45 - 49	1	-	-	-	65	18	-	38
50 - 54	4	-	1	4	84	90	-	104
55 - 59	9	1	2	7	64	246	-	112
60 - 64	22	4	12	12	48	355	-	212
65 - 69	504	47	878	-	3	3	17	-
70 - 74	1,321	53	884	-	-	1	32	-
75 - 79	1,076	37	270	-	-	-	14	-
80 - 84	580	10	128	-	-	-	3	-
85 - 89	351	10	60	-	-	-	4	-
90 - 94	270	7	44	-	-	1	1	-
95 and Over	69	4	24	-	-	-	1	-
TOTAL	4,207	173	2,303	23	320	722	72	489

SECTION C

VALUATION RESULTS AND BASELINE BENEFIT MODEL

Summary of Results

Principal Valuation Results

Valuation Date:	December 31, 2020		
A) Assets			
1) Face Value of Bonds at Valuation Date	\$ 198,900,999	\$ 198,900,999	\$ 198,900,999
2) Monetization Percentage	55%	80%	95%
3) Estimated Bond Market Value	\$ 109,395,549	\$ 159,120,799	\$ 188,955,949
4) Net Additional Assets	54,677,859	54,677,859	54,677,859
5) Estimated Market Value of Assets	\$ 164,073,408	\$ 213,798,658	\$ 243,633,808
B) Present Value of Future Contributions	\$ 471,289	\$ 471,289	\$ 471,289
C) Present Value of Future			
1) Benefits	\$ 112,397,991	\$ 112,397,991	\$ 112,397,991
2) Expenses	22,049,528	22,049,528	22,049,528
3) Total Liability	\$ 134,447,519	\$ 134,447,519	\$ 134,447,519
D) Asset Surplus/(Deficit) [A.5+B-C.3]	\$ 30,097,178	\$ 79,822,428	\$ 109,657,578
E) Funded Ratio [(A.5+B)/C.3]	122.4%	159.4%	181.6%

Recognized Rate of Return

Additions	Based on Monetization		
	55%	80%	100%
Investment Income:			
Interest and Dividends	\$ 8,929,768	\$ 8,929,768	\$ 8,929,768
Net Increase in Fair Value of Investments	1,754,738	1,754,738	1,754,738
Investment Related Expenses	(57,362)	(57,362)	(57,362)
Net Investment Income	\$ 10,627,144	\$ 10,627,144	\$ 10,627,144
Contributions - Foundation for Detroit's Future	43,750	43,750	43,750
Total Additions	\$ 10,670,894	\$ 10,670,894	\$ 10,670,894
Deductions			
Premium Payments - Net of Retiree Contributions	\$ 4,883,336	\$ 4,883,336	\$ 4,883,336
Health Reimbursement Account Reimbursements	3,929,286	3,929,286	\$ 3,929,286
Administrative Expenses	844,468	844,468	\$ 844,468
Total Deductions	\$ 9,657,090	\$ 9,657,090	\$ 9,657,090
Net Increase in Fiduciary Net Position	\$ 1,013,804	\$ 1,013,804	\$ 1,013,804
Net Position - Beginning of Year	163,059,604	212,784,854	252,565,054
Net Position - End of Year	\$ 164,073,408	\$ 213,798,658	\$ 253,578,858
Rate of Return	\$ - 6.75%	\$ - 5.14%	\$ - 4.31%

Discussion

Actuarial Valuation

Gabriel, Roeder, Smith & Company (“GRS”) has performed an actuarial valuation of the City of Detroit Police and Fire Retiree Health Care Trust as of December 31, 2020.

The primary purposes of the actuarial valuation are to:

- Compare the actuarial present value of the obligations for retiree health care as of December 31, 2020, with the value of the assets associated with the Program as of that same date; and
- Compare the actuarial present value of the obligations for retiree health care as of December 31, 2020, with the value of the assets associated with the Program as of that same date under certain alternate assumptions to show sensitivity to those assumptions.

In addition, the report provides summaries of the member data, financial data, plan provisions valued, and actuarial assumptions and methods.

Financial Status of Plan

As of December 31, 2020, the present value of all future obligations (PVFO) at that date is \$134.4 million. Plan assets as of December 31, 2020, based on a 55% monetization of Trust assets, are \$164.5 million (including the present value of future contributions).

The difference between the market value of assets of \$164.5 million and PVFO of \$134.4 million represents a Plan surplus of \$30.1 million. The Plan is 122.4% funded after consideration of \$471,289 (present value) in future scheduled contributions.

In the first two calendar quarters following the valuation date, the Board monetized all but \$5 million of the Detroit Bonds at a monetization rate of between 92% and 95% of face value suggesting that the monetization assumption of 95% is a better measurement of the ongoing funded status as of the valuation date. We have therefore added that column to the charts on page C-1. A funded percent of over 100% implies that the Trust will still have money after the last participant dies, if Experience is similar or more favorable than assumed.

The funded status may not be appropriate for determining the settlement cost of the Plan. The funded status is appropriate for determining the need for future contributions. However, since there are no future contributions other than those already accounted for in the valuation assets, the funded status is appropriate for determining the long-term solvency of the Plan and/or the need to adjust benefits.

Discussion (Continued)

Plan Status

The Plan benefits are not vested and may be reduced in the future. The Board is expected to decide annually on the level of benefits that will be paid each year. Future valuations will take into consideration these decisions as they occur. While the plan is closed to new members, not all members of the plan have chosen to participate. However, we understand that members not currently participating can choose to participate in the future. See additional participation comments below.

Participation

Currently, there are approximately 1,100 members who have not elected to actively participate (the Potential Participants). The liabilities shown in the valuation results section of this report do not include the potential benefits to these members. However, we show the possible impact of these members choosing to participate in the sensitivity section of the report and/or in the live modeling performed for the Board.

Members who are under age 65 and receiving an HRA payment were assumed to elect a Medicare Advantage plan upon attaining age 65.

Please see Section F to see how changes in assumptions (sensitivity) affect the funded status and solvency.

Projection with Alternate HRA Utilization Assumption

This is the estimated employer benefit payments from 2021-2031 using a 40% HRA utilization assumption with no potential future spouses. Expenses are not included.

2021	\$ 9,468,259
2022	9,236,233
2023	8,965,899
2024	8,678,342
2025	8,380,596
2026	8,064,684
2027	7,736,267
2028	7,415,854
2029	7,089,913
2030	6,762,871
2031	6,429,904

Discussion (Continued)

Utilization

Experience during 2020 shows that members electing HRA benefits are utilizing approximately 50% of their annual benefits, on average. The current Board adopted utilization assumptions are shown below:

Utilization Assumption		
Current Benefit	Future Medicare Eligible	Benefit Group
100%	100%	Medicare Advantage PPO
100%	100%	Medicare Advantage HMO
50%	100%	Opt-Out of MA
50%	100%	Below FPL in a Non Medicaid Exp. State
50%	100%	Income Level and Purchased on State Exchange
50%	100%	Non Medicare Eligible Duty Disabled Police and Fire
50%	100%	Non Medicare Eligible Stipend
50%	100%	Over Age 65 Non Medicare Eligible
50%	100%	Non Medicare Eligible Spouse
0%	0%	Spouse Not Receiving
0%	0%	Actively Waiving
0%	0%	No Enrollment Elected

HRA Utilization History					
Valuation Date	100% of Expected HRA [^]	Estimated HRA Benefits*	Census	HRA Count*	Utilization
12/31/2020	\$ 7,000,800	\$ 3,929,286	12/31/2020	3,780	56%
12/31/2019	\$ 6,910,200	\$ 3,349,532	12/31/2019	3,859	49%
12/31/2018	\$ 6,279,270	\$ 2,558,583	12/31/2018	3,773	41%
12/31/2017	\$ 6,456,213	\$ 2,586,264	12/31/2017	3,670	40%

[^] Expected HRA represents the sums of the mid-point between the BOY and EOY valuation number counts for each HRA benefit type multiplied by the maximum HRA amount for that benefit type.

* Estimated by averaging BOY and EOY census counts.

Data for end of 2015/beginning of 2016 (the first year of the plan) was not detailed enough or precise enough to include either 2015 or 2016 in the chart above.

Discussion (Continued)

Asset Data

Prior to 2019 we received unaudited asset information to perform the valuations. Since 2019; we also received the audited financial report. Where information was contained in both sources, we relied on the audited financial report, to the extent that the sources were in conflict.

Member Data

Overall, there were 9,037 total current and potential participants reported for the 2020 valuation, this is down approximately 5% from the 9,493 current and potential participants in the 2019 valuation. Over the last 5 years we have seen an approximately 4% decrease per year. Since this is a closed group, we would expect an annual decline of membership in the 2% to 4% range, based on our current mortality assumption. Given the COVID-19 pandemic, we believe the reduction is reasonable.

Assumptions

There were no assumption changes in this valuation.

We believe the assumptions currently in use for the valuation, as adopted by the Board, are reasonable based on general market conditions. Note, we have not evaluated the specific default risk associated with any specific investment (including the City of Detroit Bonds).

The City of Detroit Police and Fire Retirement System (DPFRS) is scheduled to have an experience study performed following the June 30, 2020 valuation (likely in the spring/summer of 2021). We recommend reviewing the mortality assumption with the draft VEBA valuation report that follows that study (likely the December 31, 2021 valuation).

Based on national trends, it is likely that the base mortality table for the DPFRS will be strengthened. In addition, there a theory that the deaths resulting from the pandemic were generally the more vulnerable and that the survivors of the pandemic may, in fact have more longevity in the near-term. As such, we recommend the Board consider these possibilities when deciding on the 2022 benefit levels to determine if it is appropriate to leave some margin for future mortality assumption improvements or near-term mortality losses.

It is our understanding that the Board has sold \$50,000,000, \$119,000,000, and \$24,900,999 in bonds already in 2021 at a 95%, 92.5%, and 94.5% monetization rate, respectively. This means that instead of making up the super-majority of the assets, the Bonds now make up a small portion. As such, we have reviewed the proposed allocation of the assets and found that 4% continued to be a reasonable assumed rate of return. We suggest the assumed rate of return is further reviewed after the final allocation is approved.

Benefit changes

There were no benefit changes in this valuation.

The last valuation recognized a \$5 monthly benefit increase granted to all members, effective for 2021.

Discussion (Concluded)

Experience

Experience during the year was more favorable than assumed, in aggregate. Sources of favorable experience were greater than expected recognized investment return and greater than expected retiree mortality.

Recommendation

We recommend that the administrator separately track the HRA benefit payments for Non-Medicare Advantage members and Medicare Advantage members. This will enable us to develop a more precise utilization assumption in future valuations once sufficient Medicare Advantage HRA experience emerges.

Future Outlook

While this report measures some of the impact of COVID-19, it does not consider the effect of the pandemic after the valuation date of December 31, 2020. While all of the direct and indirect effects of the pandemic are not fully known (and may not be fully known for years) we have the following observations.

- The Detroit area was hit hard by the pandemic and will likely continue to see direct and indirect effects from the pandemic greater (and longer) than that of its peer communities;
- Mortality was greater than assumed in 2020. It is likely that the mortality rates will also be greater than assumed in 2021 and possible that mortality rates will be less than assumed in near-term subsequent years as a result of COVID-19. This may make short-term projections of rates of mortality more difficult to model; and
- In response to the pandemic, the U.S. Congress has expanded the items that are HRA reimbursable. It is, therefore, possible that this will result in higher HRA utilization than assumed during 2021 and beyond.

We recommend the Board consider all these possible affects while deciding on next year's benefit levels. Please let us know if the Board would like us to run any specific projections (in addition to the sensitivity projections included in Section F to assist in this decision).

Solvency Projection Assumptions

Baseline

Solvency Projection Assumptions

\$253,900,999	Original Face Value of Bond
\$198,900,999	Face Value of Bond as of Valuation Date
\$54,677,859	Investable Assets
4.00%	Bond Coupon per Annum to 2035 (as % of Face Value)
6.00%	Bond Coupon per Annum at 2035 (as % of Face Value)
\$870,000	Expected First Year Administrative Expenses
3.00%	Expected Growth Rate for All Expenses
	Administrative expenses are pro-rated based on remaining population.
	Expenses are assumed to be \$0 when the remaining population reaches 0.5%.

The solvency scenarios are based on the following:

- 1) The 2021 and beyond benefit payments are based on the 2021 benefit levels set by the Board.
- 2) No future increases in benefit levels were assumed.
- 3) Members not currently participating were assumed NOT to participate in the future.
- 4) Members over age 65 and currently receiving benefits were assumed to continue to receive the benefit indicated on the data file for life (or until insolvency).
- 5) Members under age 65 were assumed to select the PPO Medicare Advantage plan upon reaching age 65.
- 6) Bonds sold in the first two quarters of 2021 were reflected with their average monetization. Monetization of the remaining \$5 million was assumed to be 55%.
- 7) Investment return was assumed to be 4.0%.
- 8) Members receiving HRA benefits were assumed to utilize 50% of available benefits prior to age 65 and 100% of benefits at and after age 65.

City of Detroit Police and Fire Retiree Health Care Trust

Baseline

Current Participants										Potential Future Participants			Group Description
MA PPO	MA HMO	Opt-Out HRA	Retiree HRA						Spouse HRA (Non-Med Elig)	Spouse Not Receiving	Actively Waived	No Enrollment Election	
			Below FPL	Income Level	Non-Med Duty Dis	Non-Med Elig	Over 65 Non-Med Elig	Over 65 Unsub					
\$ 125.00	\$ 125.00	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00	n/a	n/a	n/a	Current Monthly Amount
4,427	137	2,342	-	33	330	821	62	-	498	425	-	418	Number in Group 12/31/2019
4,207	173	2,303	-	23	320	722	72	-	489	444	-	294	Number in Group 12/31/2020
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Include Group
\$ -	\$ -	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Pre-65
\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Post-65
100%	100%	50%	50%	50%	50%	50%	50%	50%	50%				Utilization Percentage Pre-65 (Applies to Flat Dollar Only)
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				Utilization Percentage Post-65 (Applies to Flat Dollar Only)
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Annual increase in Flat Dollar Benefit

\$253,900,999	Original Face Value of Bonds at 12/10/2014
\$193,245,662	Face Value of Bond (A) at Val Date
\$5,655,337	Face Value of Bond (B) at Val Date
55%	MV of Bond (used to calculate UAAL)
\$54,677,859	Investable Assets*
Never	Year of Insolvency
Never	Year Monetization/Cash is Needed
4.00%	Average Yield

112,397,991	Present Value of Benefits
22,049,528	Present Value of Expenses
134,447,519	Total
164,073,408	Valuation Assets (Immediate Monetization)^
(29,625,889)	Unfunded Actuarial Accrued Liability (UAAL)
471,289	Present Value of Future Contributions
(30,097,178)	Asset Deficit/(Surplus)
122.4%	Funded %

Notes:

* Excludes accrued interest receivable as it is already accounted for in the cash flow projection.

Bond coupon payment does not accrue additional interest during the year in which it is paid.

^ Valuation assets include monetized valuation of bond and indicated monetization rate plus cash and receivables.

Ad-Hoc							Trust					Interest					Dec. 31 Assets	% Contracts Remaining
Year	Ad-Hoc Prem. Increase	Investment Return	Optional Bond Sale	Optional % Of Face	Face Value of Bonds BoY	Principal Repayment	Jan 1. Assets*	Benefit Payments	Expenses	Grant / (Due City)	Bond Coupon	Invested Assets	Ben./ Expen-/ Grant/ Bond#	Total				
2021	N/A	4.00%	\$193,900,999	93.40%	\$ 5,000,000	\$ -	\$ 235,781,392	\$ (10,131,399)	\$ (902,724)	\$ 43,750	\$ 4,078,020	\$ 9,431,256	\$ (219,807)	\$ 13,289,468	\$ 238,080,487	98%		
2022	0.00%	4.00%	-	-	5,000,000	-	238,080,487	(9,863,177)	(911,034)	43,750	200,000	9,523,219	(214,609)	9,508,610	236,858,636	95%		
2023	0.00%	4.00%	-	-	5,000,000	-	236,858,636	(9,560,887)	(918,904)	43,750	200,000	9,474,345	(208,721)	9,465,625	235,888,220	91%		
2024	0.00%	4.00%	-	-	5,000,000	-	235,888,220	(9,239,722)	(926,252)	43,750	200,000	9,435,529	(202,444)	9,433,084	235,199,079	88%		
2025	0.00%	4.00%	-	-	5,000,000	-	235,199,079	(8,910,493)	(932,921)	43,750	200,000	9,407,963	(195,993)	9,411,970	234,811,385	84%		
2026	0.00%	4.00%	-	-	5,000,000	-	234,811,385	(8,563,725)	(939,124)	43,750	200,000	9,392,455	(189,182)	9,403,273	234,755,559	81%		
2027	0.00%	4.00%	-	-	5,000,000	-	234,755,559	(8,206,893)	(944,804)	43,750	200,000	9,390,222	(182,159)	9,408,063	235,055,675	77%		
2028	0.00%	4.00%	-	-	5,000,000	-	235,055,675	(7,857,890)	(949,802)	43,750	200,000	9,402,227	(175,279)	9,426,948	235,718,681	74%		
2029	0.00%	4.00%	-	-	5,000,000	-	235,718,681	(7,501,358)	(954,156)	43,750	200,000	9,428,747	(168,235)	9,460,512	236,767,429	70%		
2030	0.00%	4.00%	-	-	5,000,000	-	236,767,429	(7,143,856)	(957,882)	43,750	200,000	9,470,697	(161,160)	9,509,537	238,218,979	66%		
2031	0.00%	4.00%	-	-	5,000,000	-	238,218,979	(6,782,607)	(960,998)	43,750	200,000	9,528,759	(153,997)	9,574,762	240,093,886	63%		
2032	0.00%	4.00%	-	-	4,630,863	369,137	240,463,023	(6,423,851)	(963,515)	43,750	185,235	9,618,521	(146,872)	9,656,883	242,776,291	59%		
2033	0.00%	4.00%	-	-	4,244,958	385,905	243,162,196	(6,046,695)	(965,450)	43,750	169,798	9,726,488	(139,368)	9,756,918	245,950,720	55%		
2034	0.00%	4.00%	-	-	3,859,052	385,905	246,336,625	(5,668,362)	(966,864)	43,750	154,362	9,853,465	(131,830)	9,875,998	249,621,147	52%		
2035	0.00%	4.00%	-	-	3,473,147	385,905	250,007,052	(5,288,049)	(967,799)	-	208,389	10,000,282	(125,117)	10,083,554	253,834,758	48%		
2040	0.00%	4.00%	-	-	1,543,620	385,905	276,466,669	(3,524,214)	(970,847)	-	92,617	11,058,667	(89,901)	11,061,383	283,032,990	32%		
2045	0.00%	4.00%	-	-	0	-	316,573,003	(2,146,470)	(987,677)	-	-	12,662,920	(62,683)	12,600,237	326,039,093	19%		
2050	0.00%	4.00%	-	-	0	-	369,908,223	(1,223,196)	(1,039,084)	-	-	14,796,329	(45,246)	14,751,083	382,397,026	10%		
2055	0.00%	4.00%	-	-	0	-	438,693,340	(658,748)	(1,132,836)	-	-	17,547,734	(35,832)	17,511,902	454,413,658	5%		
2060	0.00%	4.00%	-	-	0	-	524,351,594	(328,434)	(1,267,310)	-	-	20,974,064	(31,915)	20,942,149	543,698,000	3%		
2065	0.00%	4.00%	-	-	0	-	629,222,676	(146,860)	(1,440,826)	-	-	25,168,907	(31,754)	25,137,153	652,772,142	1%		
2070	0.00%	4.00%	-	-	0	-	756,560,017	(56,653)	-	-	-	30,262,401	(1,133)	30,261,268	786,764,631	0%		



SECTION D

ASSET INFORMATION

Bond Information

The municipal bond backing the retiree medical benefits had an initial par value of \$253,900,999 at December 10, 2014. The Trust holds a bond with a face value of \$198,900,999 as of the valuation date. This bond pays a coupon of 4% per annum, two times per year and 6% per annum for years 2035-2044. Principal is repaid in 20 equal annual installments beginning April 2025.

The mandatory repayment schedule was adjusted in 2018. Please see page D-7 for information on the revised redemption requirements.

Contributions of \$43,750 will also continue to be made annually until 2034 under an agreement with the Foundation for Detroit's Future.

Reported Bond Sales

Date	Bonds Sold	Percent of Face Value	Type of Bond Sold
01/24/2018	\$ 20,000,000	81.05875%	Series A
05/31/2019	\$ 20,000,000	86.50000%	Series A
10/22/2019	\$ 15,000,000	87.37500%	Series A
02/04/2021	\$ 50,000,000	95.00000%	Series A
05/06/2021	\$119,000,000	92.50000%	Series A
05/25/2021	\$ 24,900,999	94.50000%	Series A and Series B

Reported Revenues and Expenditures (From Audited Assets)

Additions	Market Value
Investment Income:	
Interest and Dividends	\$ 8,929,768
Net Increase in Fair Value of Investments	(12,157,258)
Investment Related Expenses	(57,362)
Net Investment Income	\$ (3,284,852)
Contributions - Foundation for Detroit's Future	43,750
Total Additions	\$ (3,241,102)
 Deductions	
Premium Payments - Net of Retiree Contributions	\$ 4,883,336
Health Reimbursement Account Reimbursements	3,929,286
Administrative Expenses	844,468
Total Deductions	\$ 9,657,090
 Net Increase/(Decrease) in Fiduciary Net Position	 \$ (12,898,192)
Net Position - Beginning of Year	230,864,955
Net Position - End of Year	<u>\$ 217,966,763</u>

Reported Plan Assets (at Market Value)

December 31, 2020

(From Audited Assets)

Balance Sheet

12/31/2020

ASSETS

Current Assets:

Cash and cash equivalents	\$ 16,793,292
Total Current Assets	\$ 16,793,292

Investments:

Equities	\$ 21,211,020
Fixed income	\$ 18,625,675
City of Detroit Bonds Financial Recovery Bonds	\$ 161,159,534
Investment at Cost	\$ 200,996,229
Investment Market Value	\$ 200,996,229

Other Assets:

Accrued investment income receivable	\$ 2,129,370
Other receivables	\$ 37,130
Prepaid Expenses	\$ 18,750
Total Other Assets	\$ 2,185,250

Total Assets	\$ 219,974,771
--------------	----------------

LIABILITIES

Current Liabilities:

Accounts Payable	\$ 2,008,008
Due to City of Detroit General Retiree Health Care Trust	\$ -
Total Current Liabilities	\$ 2,008,008

Total Liabilities	\$ 2,008,008
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Net Fund Balance	\$ 217,966,763
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Total Liab & Fund Balance	\$ 219,974,771
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Reported Revenues and Expenditures

December 31, 2020

(From Unaudited Assets)

	2020
Revenue:	
Health Insurance Prem-AETNA	\$ -
Health Insurance Premium-Priority	267
Dental Premiums	2,216,263
Vision Premiums	590,902
Foundation Grant	43,750
Self-Pay	(458)
Dividends	372,680
Interest Income	7,182,418
Realized Gain(Loss) on Inv	213,263
Unrealized Gain(Loss) on Inv	(12,370,521)
Total Fund Revenue	(1,751,436)
Claim Expenses:	
Health Insurance Exp - AETNA	\$ 34
Health Insurance Exp - Priority	5,156,110
Health Insurance Exp - BCBS	-
Dental Expense	3,723,158
Vision Expense	(1,543)
HRA Claims Expense	2,171,839
Claims Refunds	574,728
Total Claims Expense	\$ 11,624,326
Administrative Expenses:	
Actuarial Fees	\$ -
Administration Fees	527,332
Audit, Accounting Fees	16,500
Bank Fees	18,381
Business Agent Wages	22,031
Custodial Fees	24,277
Interest Expense	-
Investment Manager Fees	33,085
Legal Fees	38,335
Liability insurance Prem Exp	41,039
Misc Expense*	9,304
Office Supplies	-
Other Professional Fees	91,395
Printing Expense	45,759
Retirement Systems of the City	5,765
Trustee Expense	5,460
Trustee Stipends	23,170
Total Administrative Expense	901,833
Total Expense	\$ 12,526,159
Net Surplus or Deficit	(14,277,595)

* Includes Telephone, Mailing, Meeting, Postage, Document Storage expenses.

Reported Plan Assets (at Market Value)

December 31, 2020

(From Unaudited Assets)

Balance Sheet

12/31/2020

ASSETS

Current Assets:

Fifth Third Administrative	\$ 976,441
Fifth Third Benefit	\$ (118,540)
Expense Account HNB #1745	\$ -
Benefit Account HNB #1723	\$ -

Total Current Assets	\$ 857,901
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Investments:

Fifth-Third Trust (Detroit Bonds)	\$ 175,407,051
Fifth-Third Cash & Equivalents	\$ -
Equities	\$ -
Fixed Income	\$ -
Morgan Stanley #0113	\$ 22,834,529
Morgan Stanley #1113	\$ 18,838,930

Investment at Cost	\$ 217,080,510
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Investment Market Value	\$ 217,080,510
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Other Assets:

Accrued Interest Receivable	\$ 1,326,007
Accounts Receivable	\$ 37,130
Prepaid Expenses	\$ 18,750
Deposits	\$ -
Misc. Clearing	\$ 695

Total Other Assets	\$ 1,382,582
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Total Assets	\$ 219,320,993
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LIABILITIES

Current Liabilities:

Accounts Payable	\$ 1,071,609
Advance Contributions	\$ 118,506
Misc. Clearing	\$ -

Total Current Liabilities	\$ 1,190,115
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Total Liabilities	\$ 1,190,115
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Fund Balance	\$ 232,408,473
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Net Fund Increase (Decrease)	\$ (14,277,595)
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Net Fund Balance	\$ 218,130,878
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Development of Investable Assets (at Market Value) December 31, 2020

The beginning of year amount of investable assets was not clear. For projection purposes, the January 1, 2020 assets are estimated to be as follows:

\$	16,849,172	Cash and cash equivalents
	21,211,020	Investments
	18,625,675	Fixed Income
	<u>(2,008,008)</u>	Liabilities
\$	54,677,859	January 1, 2020 Investable Assets

Accrued interest receivable is excluded because it is accounted for in the future cash flow projection.

Expense History

Date	Total Expenses
2016	\$ 1,281,137
2017	\$ 1,095,132
2018	\$ 802,075
2019*	\$ 868,534
2020*	\$ 844,468

* From Financial Report (audited Asset data).

Revised Mandatory Bond Redemption Schedule

Series 2014(A)				12/31/2018	
Mandatory	Redemption Requirements				
Redemption	Outstanding Prior to		Remaining/	Remaining	PF Mandatory
Date (Apr 1)	Tender/Purchase	Reduced	Outstanding	Face BOY	Monetization
2025	\$30,828,003	\$28,416,937	\$ 2,411,066	\$424,332,593	\$ 1,296,896
2026	30,828,003	28,571,017	2,256,986	421,921,527	1,214,018
2027	30,828,003	28,699,820	2,128,183	419,664,541	1,144,735
2028	30,828,003	28,850,233	1,977,770	417,536,358	1,063,829
2029	30,828,003	29,020,015	1,807,988	415,558,588	972,505
2030	30,828,003	29,211,542	1,616,461	413,750,600	869,484
2031	30,828,003	6,953,898	23,874,105	412,134,139	12,841,721
2032	30,828,003	6,732,253	24,095,750	388,260,034	12,960,943
2033	30,828,003	5,771,739	25,056,264	364,164,284	13,477,597
2034	30,828,003		30,828,003	339,108,020	16,582,177
2035	30,828,003		30,828,003	308,280,017	16,582,177
2036	30,828,003		30,828,003	277,452,014	16,582,177
2037	30,828,003		30,828,003	246,624,011	16,582,177
2038	30,828,003		30,828,003	215,796,008	16,582,177
2039	30,828,003		30,828,003	184,968,005	16,582,177
2040	30,828,003		30,828,003	154,140,002	16,582,177
2041	30,828,003		30,828,003	123,311,999	16,582,177
2042	30,828,003		30,828,003	92,483,996	16,582,177
2043	30,828,003		30,828,003	61,655,993	16,582,177
2044 *	30,827,990		30,827,990	30,827,990	16,582,164

Series 2014(B)				12/31/2018	
Mandatory Redemption Date (Apr 1)	Redemption Requirements				
	Outstanding Prior to Tender/Purchase	Reduced	Remaining/ Outstanding	Remaining Face BOY	PF Mandatory Monetization
2025	\$770,205	\$770,205	\$ 0	\$9,979,196	\$ 0
2026	770,205	770,205	0	9,979,196	0
2027	770,205	770,205	0	9,979,196	0
2028	770,205	770,205	0	9,979,196	0
2029	770,205	770,205	0	9,979,196	0
2030	770,205	770,205	0	9,979,196	0
2031	770,205	770,205	0	9,979,196	0
2032	770,205	33,467	736,738	9,979,196	417,519
2033	770,205		770,205	9,242,458	436,485
2034	770,205		770,205	8,472,253	436,485
2035	770,205		770,205	7,702,048	436,485
2036	770,205		770,205	6,931,843	436,485
2037	770,205		770,205	6,161,638	436,485
2038	770,205		770,205	5,391,433	436,485
2039	770,205		770,205	4,621,228	436,485
2040	770,205		770,205	3,851,023	436,485
2041	770,205		770,205	3,080,818	436,485
2042	770,205		770,205	2,310,613	436,485
2043	770,205		770,205	1,540,408	436,485
2044 *	770,203		770,203	770,203	436,483

* Maturity.

Revised redemption schedule was provided by legal counsel. GRS pro-rated the “Remaining Redemption Requirements Outstanding” based on the amount of bonds held by the VEBA as of the valuation date.



SECTION E

METHODS AND ASSUMPTIONS

Valuation Methods and Assumptions

Data Related Assumptions

1. Those opting out of Medicare Advantage plans were assumed to continue opting out.
2. Retirees over the age of 65 who are receiving an HRA payment were assumed not to be Medicare eligible.
3. Retirees under the age of 65 who are indicated as receiving a Medicare health care plan were assumed to be disabled.
4. Retirees under age 65 receiving an HRA payment were assumed to be eligible for Medicare at age 65 and choose a single coverage Aetna MA plan when Medicare eligible.
5. In cases where the HRA information differed from the “MedicalPlan” information, it was assumed that the “MedicalPlan” information superseded the HRA information.

Data Processing

Raw data included a field “MedicalPlan” which was used to assign members into MA PPO, MA HMO, MA Opt-Out, or HRA. Spouses were assigned benefits first using the “ClassCodeDescription” information to see if they were included under the retiree’s MA benefit then using the HRA benefit if they were not. Since the raw data included a separate HRA benefit this year for the retiree and spouse, the members indicated as having an HRA were assigned into benefit groups using the retiree HRA benefits, and spouses without a MA benefit were assigned to benefit groups using their HRA benefit. For spouses who received a \$120 benefit, if they were over 65 they were assumed to be receiving a Medicare Advantage Opt-Out benefit otherwise they were assumed to be receiving a Non-Medicare Eligible Stipend. Spouses who received a benefit over \$120, for which they are not eligible were instead assigned a \$120 benefit.

Members were compared to last year’s data and - after receiving approval from the Trust - compared to the pension systems’ data for consistency and to provide any missing spouse data. Any inconsistencies or further missing data were clarified by the Trust. After the initial data processing is completed, the summary of the data (shown on page B-1 of this report) is drafted and shared with the Board. Any unexpected results are highlighted and the Board is requested to let us know if any additional research or processing is needed before proceeding with the valuation. This year, the Board did not request any additional research/processing.

Valuation Method: Present Value of Future Benefits compared to current valuation assets.

Rates of Investment Return. **4.0% per year**, compounded annually, net of investment expenses. This rate is based on the currently held bond yield. This assumption is used to equate the value of payments due at different points in time. In the cash flow analysis, this rate of return is applied to assets in the Trust. The interest payable on the bond prior to monetization is modeled under the terms of the bond.

Valuation Assets: Market value of investable assets plus Board adopted monetization of remaining City bonds plus present value of future Grant Money (contributions).

Valuation Methods and Assumptions

Mortality Assumptions

Sample Attained Ages	Police and Fire	
	RP-2014 Blue Collar Male	RP-2014 Blue Collar Female
20	0.0528%	0.0190%
25	0.0741	0.0264
30	0.0970	0.0428
35	0.1315	0.0724
40	0.1878	0.1194
45	0.2761	0.1880
50	0.4064	0.2822
55	0.5999	0.4025
60	0.8456	0.5735
65	1.2615	0.8725
70	1.9687	1.3966
75	3.1507	2.2971
80	5.1859	3.8164

Valuation Methods and Assumptions (Concluded)

Health Care Trend Assumptions applied to Trust payment toward Medicare Advantage (cost of premium in excess of Trust payment is paid by participant): None assumed.

HRA benefit levels were assumed to be fixed at current levels.

Administrative Expenses: Administrative expenses (\$527,332 in 2020 according to unaudited assets) are assumed to increase by 3.0% per year pro-rated by the number of remaining participants. All other expenses (\$374,501 in Fiscal Year 2020 according to unaudited assets) are assumed to increase by 3.0% per year. All expenses are assumed to be \$0 when less than 0.50% of valuation population remains. Expenses are assumed to be \$900,000 in 2020. Detailed breakdown was not available in the audited financial information provided, thus unaudited financials were used to make this assumption.

The rationale for these assumptions is as follows:

Investment Return Assumption: The rate specified by the Bond.

Mortality: The underlying table used in the Police and Fire Retirement System.

Health Care Trend: Based on current Plan design and Plan limited experience of not providing benefit increases.

HRA Utilization Assumptions: Observed rates of HRA utilization, professional judgement, and a margin for conservatism.

Other: Professional judgement.

SECTION F

SENSITIVITY TESTING

Sensitivity Testing Results

Sensitivity testing is an important component of the services GRS provides to the Board of Trustees. We have developed a modeling tool that allows for the plan solvency to be tested under different parameters, such as different benefit levels, different levels of utilization, different values for the monetization of the B-notes, etc. The model has been demonstrated to the Board, interactively.

Therefore, we have projected the Plan's results under alternative assumptions for future investment income as follows:

1. Current valuation assumed rate of return (4.00% investment return net of investment expenses and 55% bond monetization).
2. Current valuation assumed rate of return (4.00% investment return net of investment expenses and 80% bond monetization).
3. Assumed rate of return (5.00% investment return net of investment expenses and 55% bond monetization).
4. Assumed rate of return (5.00% investment return net of investment expenses and 80% bond monetization).
5. Assumed rate of return (3.00% investment return net of investment expenses and 55% bond monetization).
6. Assumed rate of return (3.00% investment return net of investment expenses and 80% bond monetization).
7. Alternate scenario with 100% utilization for current participants (4.00% investment return net of investment expenses and 55% bond monetization).
8. Current + 2% annual increases (4% interest, 55% bond monetization, various utilization).

The summary of each of these scenarios on the principal valuation results is presented on the following page.

Note that alternate investment return assumptions apply in all future years but only to invested assets. Prior to monetization, interest on the bond is based on the terms of the bond in the projections. Because the monetization is assumed to occur in 2030, changes in the investment return assumption have a bigger effect on current funded status than solvency date. If the date of the monetization is moved sooner, changes in the investment return assumption will have a greater effect on the solvency date.

Sensitivity Testing Results

\$ in Millions^

	(Baseline) Current Valuation Assumptions 1	4% Return, 80% of Bond Value 2	5% Return, 55% of Bond Value 3	5% Return, 80% of Bond Value 4	3% Return, 55% of Bond Value 5	3% Return, 80% of Bond Value 6	Alternate - Current with 100% Utilization 7	Alternate - Current with 2% Benefit Increases 8
Assumed Investment Return	4.00%	4.00%	5.00%	5.00%	3.00%	3.00%	4.00%	4.00%
Monetization	55.00%	80.00%	55.00%	80.00%	55.00%	80.00%	55.00%	55.00%
A) Assets								
1) Bond Value	\$198.9	\$198.9	\$198.9	\$198.9	\$198.9	\$198.9	\$198.9	\$198.9
2) Monetization	55%	80%	55%	80%	55%	80%	55%	55%
3) Market value of Bond	\$109.4	\$159.1	\$109.4	\$159.1	\$109.4	\$159.1	\$109.4	\$109.4
4) Investable Assets	\$54.7	\$54.7	\$54.7	\$54.7	\$54.7	\$54.7	\$54.7	\$54.7
5) Assets	\$164.1	\$213.8	\$164.1	\$213.8	\$164.1	\$213.8	\$164.1	\$164.1
B) Present Value of Future Contributions	\$0.5	\$0.5	\$0.4	\$0.4	\$0.5	\$0.5	\$0.5	\$0.5
C) Actuarial Results								
1) Liabilities - Present Value of Benefits	112.4	112.4	103.5	103.5	122.8	122.8	142.3	134.3
2) Liabilities - PV of Future Expenses	22.0	22.0	18.6	18.6	26.6	26.6	22.0	22.0
3) Present Value of Benefits/Expenses	\$134.4	\$134.4	\$122.1	\$122.1	\$149.5	\$149.5	\$164.3	\$156.4
D) Asset Surplus/(Deficit) [A.5+B-C.3]	\$30.10	\$79.8	\$42.4	\$92.1	\$15.12	\$64.8	\$0.23	\$8.18
E) Funded Ratio [(A.5+B)/C.3]	122.4%	159.4%	134.7%	175.5%	110.1%	143.4%	100.1%	105.2%
F) Projected Insolvency Date [#]	Never	Never	Never	Never	Never	Never	Never	Never
Increase/(Decrease) in								
G) Surplus/(Deficit)	\$0.0	\$49.7	\$12.3	\$62.05	\$(14.98)	\$34.75	\$(29.87)	\$(21.92)
H) Funded Ratio	0.0%	37.0%	12.3%	53.1%	(12.3)%	21.0%	(22.3)%	(17.2)%

[#] Assuming bonds held to maturity.

[^] Totals may not add due to rounding.



Sensitivity Testing Results History

Historical Funded Ratios Under Different Scenarios								
Valuation Date	(Baseline)						Alternate -	Alternate -
	Current	4% Return,	5% Return,	5% Return,	3% Return,	3% Return,	Current with	Current with
	Valuation	80% of Bond	55% of Bond	80% of Bond	55% of Bond	80% of Bond	100%	2% Benefit
	Assumptions	Value	Value	Value	Value	Value	Utilization	Increases
	1	2	3	4	5	6	7	8
12/31/2016	92.0%	132.1%	108.9%	156.3%	74.2%	106.5%	82.4%	81.8%
12/31/2017	103.1%	148.4%	114.9%	165.3%	91.5%	131.6%	94.6%	89.8%
12/31/2018 ^(b)	103.6%	144.4%	114.5%	159.6%	92.9%	129.4%	92.8%	88.3%
12/31/2019 ^(a,b)	115.6%	151.2%	127.4%	166.7%	103.9%	135.9%	96.2%	98.9%
12/31/2020	122.4%	159.4%	134.7%	175.5%	110.1%	143.4%	100.1%	105.2%

(a) After changes in actuarial assumptions or methods.

(b) After changes in benefit provisions.

City of Detroit Police and Fire Retiree Health Care Trust

Scenario 1 Baseline (4.0% Return with 55% Monetization)

Current Participants										Potential Future Participants			Group Description
MA PPO	MA HMO	Opt-Out HRA	Retiree HRA						Spouse HRA (Non-Med Elig)	Spouse Not Receiving	Actively Waived	No Enrollment Election	
			Below FPL	Income Level	Non-Med Duty Dis	Non-Med Elig	Over 65 Non-Med Elig	Over 65 Unsub					
\$ 125.00	\$ 125.00	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00	n/a	n/a	n/a	Current Monthly Amount
4,427	137	2,342	-	33	330	821	62	-	498	425	-	418	Number in Group 12/31/2019
4,207	173	2,303	-	23	320	722	72	-	489	444	-	294	Number in Group 12/31/2020
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Include Group
\$ -	\$ -	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Pre-65
\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Post-65
100%	100%	50%	50%	50%	50%	50%	50%	50%	50%				Utilization Percentage Pre-65 (Applies to Flat Dollar Only)
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				Utilization Percentage Post-65 (Applies to Flat Dollar Only)
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Annual increase in Flat Dollar Benefit

\$253,900,999	Original Face Value of Bonds at 12/10/2014
\$193,245,662	Face Value of Bond (A) at Val Date
\$5,655,337	Face Value of Bond (B) at Val Date
55%	MV of Bond (used to calculate UAAL)
\$54,677,859	Investable Assets*
Never	Year of Insolvency
Never	Year Monetization/Cash is Needed
4.00%	Average Yield

112,397,991	Present Value of Benefits
22,049,528	Present Value of Expenses
134,447,519	Total
164,073,408	Valuation Assets (Immediate Monetization)^
(29,625,889)	Unfunded Actuarial Accrued Liability (UAAL)
471,289	Present Value of Future Contributions
(30,097,178)	Asset Deficit/(Surplus)
122.4%	Funded %

Notes:

* Excludes accrued interest receivable as it is already accounted for in the cash flow projection.

Bond coupon payment does not accrue additional interest during the year in which it is paid.

^ Valuation assets include monetized valuation of bond and indicated monetization rate plus cash and receivables.

Year	Ad-Hoc		Investment		Optional Bond Sale	Optional % Of Face	Face Value of Bonds BoY	Principal Repayment	Trust			Grant / (Due City)	Interest		Dec. 31 Assets	% Contracts Remaining
	Ad-Hoc Prem. Increase	Return	Investment	Optional					Jan 1. Assets*	Benefit Payments	Expenses		Bond Coupon	Invested Assets	Ben./ Expen./ Grant/ Bond#	Total
2021	N/A	4.00%	\$193,900,999	93.40%	\$ 5,000,000	\$ -	\$ 235,781,392	\$ (10,131,399)	\$ (902,724)	\$ 43,750	\$ 4,078,020	\$ 9,431,256	\$ (219,807)	\$ 13,289,468	\$ 238,080,487	98%
2022	0.00%	4.00%	-	-	5,000,000	-	238,080,487	(9,863,177)	(911,034)	43,750	200,000	9,523,219	(214,609)	9,508,610	236,858,636	95%
2023	0.00%	4.00%	-	-	5,000,000	-	236,858,636	(9,560,887)	(918,904)	43,750	200,000	9,474,345	(208,721)	9,465,625	235,888,220	91%
2024	0.00%	4.00%	-	-	5,000,000	-	235,888,220	(9,239,722)	(926,252)	43,750	200,000	9,435,529	(202,444)	9,433,084	235,199,079	88%
2025	0.00%	4.00%	-	-	5,000,000	-	235,199,079	(8,910,493)	(932,921)	43,750	200,000	9,407,963	(195,993)	9,411,970	234,811,385	84%
2026	0.00%	4.00%	-	-	5,000,000	-	234,811,385	(8,563,725)	(939,124)	43,750	200,000	9,392,455	(189,182)	9,403,273	234,755,559	81%
2027	0.00%	4.00%	-	-	5,000,000	-	234,755,559	(8,206,893)	(944,804)	43,750	200,000	9,390,222	(182,159)	9,408,063	235,055,675	77%
2028	0.00%	4.00%	-	-	5,000,000	-	235,055,675	(7,857,890)	(949,802)	43,750	200,000	9,402,227	(175,279)	9,426,948	235,718,681	74%
2029	0.00%	4.00%	-	-	5,000,000	-	235,718,681	(7,501,358)	(954,156)	43,750	200,000	9,428,747	(168,235)	9,460,512	236,767,429	70%
2030	0.00%	4.00%	-	-	5,000,000	-	236,767,429	(7,143,856)	(957,882)	43,750	200,000	9,470,697	(161,160)	9,509,537	238,218,979	66%
2031	0.00%	4.00%	-	-	5,000,000	-	238,218,979	(6,782,607)	(960,998)	43,750	200,000	9,528,759	(153,997)	9,574,762	240,093,886	63%
2032	0.00%	4.00%	-	-	4,630,863	369,137	240,463,023	(6,423,851)	(963,515)	43,750	185,235	9,618,521	(146,872)	9,656,883	242,776,291	59%
2033	0.00%	4.00%	-	-	4,244,958	385,905	243,162,196	(6,046,695)	(965,450)	43,750	169,798	9,726,488	(139,368)	9,756,918	245,950,720	55%
2034	0.00%	4.00%	-	-	3,859,052	385,905	246,336,625	(5,668,362)	(966,864)	43,750	154,362	9,853,465	(131,830)	9,875,998	249,621,147	52%
2035	0.00%	4.00%	-	-	3,473,147	385,905	250,007,052	(5,288,049)	(967,799)	-	208,389	10,000,282	(125,117)	10,083,554	253,834,758	48%
2040	0.00%	4.00%	-	-	1,543,620	385,905	276,466,669	(3,524,214)	(970,847)	-	92,617	11,058,667	(89,901)	11,061,383	283,032,990	32%
2045	0.00%	4.00%	-	-	0	-	316,573,003	(2,146,470)	(987,677)	-	-	12,662,920	(62,683)	12,600,237	326,039,093	19%
2050	0.00%	4.00%	-	-	0	-	369,908,223	(1,223,196)	(1,039,084)	-	-	14,796,329	(45,246)	14,751,083	382,397,026	10%
2055	0.00%	4.00%	-	-	0	-	438,693,340	(658,748)	(1,132,836)	-	-	17,547,734	(35,832)	17,511,902	454,413,658	5%
2060	0.00%	4.00%	-	-	0	-	524,351,594	(328,434)	(1,267,310)	-	-	20,974,064	(31,915)	20,942,149	543,698,000	3%
2065	0.00%	4.00%	-	-	0	-	629,222,676	(146,860)	(1,440,826)	-	-	25,168,907	(31,754)	25,137,153	652,772,142	1%
2070	0.00%	4.00%	-	-	0	-	756,560,017	(56,653)	-	-	-	30,262,401	(1,133)	30,261,268	786,764,631	0%



City of Detroit Police and Fire Retiree Health Care Trust

Scenario 2 (4.0% Return with 80% Monetization)

Current Participants										Potential Future Participants			Group Description
MA PPO	MA HMO	Opt-Out HRA	Retiree HRA						Spouse HRA (Non-Med Elig)	Spouse Not Receiving	Actively Waived	No Enrollment Election	
			Below FPL	Income Level	Non-Med Duty Dis	Non-Med Elig	Over 65 Non-Med Elig	Over 65 Unsub					
\$ 125.00	\$ 125.00	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00	n/a	n/a	n/a	Current Monthly Amount
4,427	137	2,342	-	33	330	821	62	-	498	425	-	418	Number in Group 12/31/2019
4,207	173	2,303	-	23	320	722	72	-	489	444	-	294	Number in Group 12/31/2020
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Include Group
\$ -	\$ -	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Pre-65
\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Post-65
100%	100%	50%	50%	50%	50%	50%	50%	50%	50%				Utilization Percentage Pre-65 (Applies to Flat Dollar Only)
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				Utilization Percentage Post-65 (Applies to Flat Dollar Only)
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Annual increase in Flat Dollar Benefit

\$253,900,999	Original Face Value of Bonds at 12/10/2014
\$193,245,662	Face Value of Bond (A) at Val Date
\$5,655,337	Face Value of Bond (B) at Val Date
80%	MV of Bond (used to calculate UAAL)
\$54,677,859	Investable Assets*
Never	Year of Insolvency
Never	Year Monetization/Cash is Needed
4.00%	Average Yield

112,397,991	Present Value of Benefits
22,049,528	Present Value of Expenses
134,447,519	Total
213,798,658	Valuation Assets (Immediate Monetization)^
(79,351,139)	Unfunded Actuarial Accrued Liability (UAAL)
471,289	Present Value of Future Contributions
(79,822,428)	Asset Deficit/(Surplus)
159.4%	Funded %

Notes:

- * Excludes accrued interest receivable as it is already accounted for in the cash flow projection.
- # Bond coupon payment does not accrue additional interest during the year in which it is paid.
- ^ Valuation assets include monetized valuation of bond and indicated monetization rate plus cash and receivables.

Year	Ad-Hoc		Investment Return	Optional Bond Sale	Optional % Of Face	Face Value of Bonds BoY	Principal Repayment	Trust			Grant / (Due City)	Interest				Dec. 31 Assets	% Contracts Remaining
	Ad-Hoc Prem. Increase	Investment						Jan 1. Assets*	Benefit Payments	Expenses		Bond Coupon	Invested Assets	Ben./ Expen./ Grant/ Bond#	Total		
2021	N/A	4.00%	\$193,900,999		93.40%	\$ 5,000,000	\$ -	\$ 235,781,392	\$ (10,131,399)	\$ (902,724)	\$ 43,750	\$ 4,078,020	\$ 9,431,256	\$ (219,807)	\$ 13,289,468	\$ 238,080,487	98%
2022	0.00%	4.00%	-	-	-	5,000,000	-	238,080,487	(9,863,177)	(911,034)	43,750	200,000	9,523,219	(214,609)	9,508,610	236,858,636	95%
2023	0.00%	4.00%	-	-	-	5,000,000	-	236,858,636	(9,560,887)	(918,904)	43,750	200,000	9,474,345	(208,721)	9,465,625	235,888,220	91%
2024	0.00%	4.00%	-	-	-	5,000,000	-	235,888,220	(9,239,722)	(926,252)	43,750	200,000	9,435,529	(202,444)	9,433,084	235,199,079	88%
2025	0.00%	4.00%	-	-	-	5,000,000	-	235,199,079	(8,910,493)	(932,921)	43,750	200,000	9,407,963	(195,993)	9,411,970	234,811,385	84%
2026	0.00%	4.00%	-	-	-	5,000,000	-	234,811,385	(8,563,725)	(939,124)	43,750	200,000	9,392,455	(189,182)	9,403,273	234,755,559	81%
2027	0.00%	4.00%	-	-	-	5,000,000	-	234,755,559	(8,206,893)	(944,804)	43,750	200,000	9,390,222	(182,159)	9,408,063	235,055,675	77%
2028	0.00%	4.00%	-	-	-	5,000,000	-	235,055,675	(7,857,890)	(949,802)	43,750	200,000	9,402,227	(175,279)	9,426,948	235,718,681	74%
2029	0.00%	4.00%	-	-	-	5,000,000	-	235,718,681	(7,501,358)	(954,156)	43,750	200,000	9,428,747	(168,235)	9,460,512	236,767,429	70%
2030	0.00%	4.00%	-	-	-	5,000,000	-	236,767,429	(7,143,856)	(957,882)	43,750	200,000	9,470,697	(161,160)	9,509,537	238,218,979	66%
2031	0.00%	4.00%	-	-	-	5,000,000	-	238,218,979	(6,782,607)	(960,998)	43,750	200,000	9,528,759	(153,997)	9,574,762	240,093,886	63%
2032	0.00%	4.00%	-	-	-	4,630,863	369,137	240,463,023	(6,423,851)	(963,515)	43,750	185,235	9,618,521	(146,872)	9,656,883	242,776,291	59%
2033	0.00%	4.00%	-	-	-	4,244,958	385,905	243,162,196	(6,046,695)	(965,450)	43,750	169,798	9,726,488	(139,368)	9,756,918	245,950,720	55%
2034	0.00%	4.00%	-	-	-	3,859,052	385,905	246,336,625	(5,668,362)	(966,864)	43,750	154,362	9,853,465	(131,830)	9,875,998	249,621,147	52%
2035	0.00%	4.00%	-	-	-	3,473,147	385,905	250,007,052	(5,288,049)	(967,799)	-	208,389	10,000,282	(125,117)	10,083,554	253,834,758	48%
2040	0.00%	4.00%	-	-	-	1,543,620	385,905	276,466,669	(3,524,214)	(970,847)	-	92,617	11,058,667	(89,901)	11,061,383	283,032,990	32%
2045	0.00%	4.00%	-	-	-	0	-	316,573,003	(2,146,470)	(987,677)	-	-	12,662,920	(62,683)	12,600,237	326,039,093	19%
2050	0.00%	4.00%	-	-	-	0	-	369,908,223	(1,223,196)	(1,039,084)	-	-	14,796,329	(45,246)	14,751,083	382,397,026	10%
2055	0.00%	4.00%	-	-	-	0	-	438,693,340	(658,748)	(1,132,836)	-	-	17,547,734	(35,832)	17,511,902	454,413,658	5%
2060	0.00%	4.00%	-	-	-	0	-	524,351,594	(328,434)	(1,267,310)	-	-	20,974,064	(31,915)	20,942,149	543,698,000	3%
2065	0.00%	4.00%	-	-	-	0	-	629,222,676	(146,860)	(1,440,826)	-	-	25,168,907	(31,754)	25,137,153	652,772,142	1%
2070	0.00%	4.00%	-	-	-	0	-	756,560,017	(56,653)	-	-	-	30,262,401	(1,133)	30,261,268	786,764,631	0%



City of Detroit Police and Fire Retiree Health Care Trust

Scenario 3 (5.0% Return with 55% Monetization)

Current Participants										Potential Future Participants			Group Description
MA PPO	MA HMO	Opt-Out HRA	Retiree HRA						Spouse HRA (Non-Med Elig)	Spouse Not Receiving	Actively Waived	No Enrollment Election	
			Below FPL	Income Level	Non-Med Duty Dis	Non-Med Elig	Over 65 Non-Med Elig	Over 65 Unsub					
\$ 125.00	\$ 125.00	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00	n/a	n/a	n/a	Current Monthly Amount
4,427	137	2,342	-	33	330	821	62	-	498	425	-	418	Number in Group 12/31/2019
4,207	173	2,303	-	23	320	722	72	-	489	444	-	294	Number in Group 12/31/2020
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Include Group
\$ -	\$ -	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Pre-65
\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Post-65
100%	100%	50%	50%	50%	50%	50%	50%	50%	50%				Utilization Percentage Pre-65 (Applies to Flat Dollar Only)
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				Utilization Percentage Post-65 (Applies to Flat Dollar Only)
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Annual increase in Flat Dollar Benefit

\$253,900,999	Original Face Value of Bonds at 12/10/2014
\$193,245,662	Face Value of Bond (A) at Val Date
\$5,655,337	Face Value of Bond (B) at Val Date
55%	MV of Bond (used to calculate UAAL)
\$54,677,859	Investable Assets*
Never	Year of Insolvency
Never	Year Monetization/Cash is Needed
5.00%	Average Yield

103,495,710	Present Value of Benefits
18,603,068	Present Value of Expenses
122,098,778	Total
164,073,408	Valuation Assets (Immediate Monetization)^
(41,974,630)	Unfunded Actuarial Accrued Liability (UAAL)
443,760	Present Value of Future Contributions
(42,418,390)	Asset Deficit/(Surplus)
134.7%	Funded %

Notes:

- * Excludes accrued interest receivable as it is already accounted for in the cash flow projection.
- # Bond coupon payment does not accrue additional interest during the year in which it is paid.
- ^ Valuation assets include monetized valuation of bond and indicated monetization rate plus cash and receivables.

Ad-Hoc							Trust				Interest				Dec. 31 Assets	% Contracts Remaining
Year	Ad-Hoc Prem. Increase	Investment Return	Optional Bond Sale	Optional % Of Face	Face Value of Bonds BoY	Principal Repayment	Jan 1. Assets*	Benefit Payments	Expenses	Grant / (Due City)	Bond Coupon	Invested Assets	Ben./ Expen./ Grant/ Bond#	Total		
2021	N/A	5.00%	\$193,900,999	93.40%	\$ 5,000,000	\$ -	\$ 235,781,392	\$ (10,131,399)	\$ (902,724)	\$ 43,750	\$ 4,078,020	\$ 11,789,070	\$ (274,759)	\$ 15,592,330	\$ 240,383,349	98%
2022	0.00%	5.00%	-	-	5,000,000	-	240,383,349	(9,863,177)	(911,034)	43,750	200,000	12,019,167	(268,262)	11,950,906	241,603,794	95%
2023	0.00%	5.00%	-	-	5,000,000	-	241,603,794	(9,560,887)	(918,904)	43,750	200,000	12,080,190	(260,901)	12,019,289	243,187,041	91%
2024	0.00%	5.00%	-	-	5,000,000	-	243,187,041	(9,239,722)	(926,252)	43,750	200,000	12,159,352	(253,056)	12,106,296	245,171,113	88%
2025	0.00%	5.00%	-	-	5,000,000	-	245,171,113	(8,910,493)	(932,921)	43,750	200,000	12,258,556	(244,992)	12,213,564	247,585,013	84%
2026	0.00%	5.00%	-	-	5,000,000	-	247,585,013	(8,563,725)	(939,124)	43,750	200,000	12,379,251	(236,477)	12,342,773	250,468,687	81%
2027	0.00%	5.00%	-	-	5,000,000	-	250,468,687	(8,206,893)	(944,804)	43,750	200,000	12,523,434	(227,699)	12,495,736	253,856,475	77%
2028	0.00%	5.00%	-	-	5,000,000	-	253,856,475	(7,857,890)	(949,802)	43,750	200,000	12,692,824	(219,099)	12,673,725	257,766,258	74%
2029	0.00%	5.00%	-	-	5,000,000	-	257,766,258	(7,501,358)	(954,156)	43,750	200,000	12,888,313	(210,294)	12,878,019	262,232,513	70%
2030	0.00%	5.00%	-	-	5,000,000	-	262,232,513	(7,143,856)	(957,882)	43,750	200,000	13,111,626	(201,450)	13,110,176	267,284,701	66%
2031	0.00%	5.00%	-	-	5,000,000	-	267,284,701	(6,782,607)	(960,998)	43,750	200,000	13,364,235	(192,496)	13,371,739	272,956,585	63%
2032	0.00%	5.00%	-	-	4,630,863	369,137	273,325,722	(6,423,851)	(963,515)	43,750	185,235	13,666,286	(183,590)	13,667,930	279,650,037	59%
2033	0.00%	5.00%	-	-	4,244,958	385,905	280,035,942	(6,046,695)	(965,450)	43,750	169,798	14,001,797	(174,210)	13,997,386	287,064,933	55%
2034	0.00%	5.00%	-	-	3,859,052	385,905	287,450,838	(5,668,362)	(966,864)	43,750	154,362	14,372,542	(164,787)	14,362,117	295,221,480	52%
2035	0.00%	5.00%	-	-	3,473,147	385,905	295,607,385	(5,288,049)	(967,799)	-	208,389	14,780,369	(156,396)	14,832,362	304,183,899	48%
2040	0.00%	5.00%	-	-	1,543,620	385,905	348,824,161	(3,524,214)	(970,847)	-	92,617	17,441,208	(112,377)	17,421,449	361,750,548	32%
2045	0.00%	5.00%	-	-	0	-	424,878,502	(2,146,470)	(987,677)	-	-	21,243,925	(78,354)	21,165,571	442,909,926	19%
2050	0.00%	5.00%	-	-	0	-	526,609,410	(1,223,196)	(1,039,084)	-	-	26,330,471	(56,557)	26,273,914	550,621,043	10%
2055	0.00%	5.00%	-	-	0	-	660,448,423	(658,748)	(1,132,836)	-	-	33,022,421	(44,790)	32,977,632	691,634,471	5%
2060	0.00%	5.00%	-	-	0	-	833,291,133	(328,434)	(1,267,310)	-	-	41,664,557	(39,894)	41,624,663	873,320,053	3%
2065	0.00%	5.00%	-	-	0	-	1,054,562,508	(146,860)	(1,440,826)	-	-	52,728,125	(39,692)	52,688,433	1,105,663,255	1%
2070	0.00%	5.00%	-	-	0	-	1,336,709,254	(56,653)	-	-	-	66,835,463	(1,416)	66,834,046	1,403,486,647	0%



City of Detroit Police and Fire Retiree Health Care Trust

Scenario 4 (5.0% Return with 80% Monetization)

Current Participants										Potential Future Participants			Group Description
MA PPO	MA HMO	Opt-Out HRA	Retiree HRA						Spouse HRA (Non-Med Elig)	Spouse Not Receiving	Actively Waived	No Enrollment Election	
			Below FPL	Income Level	Non-Med Duty Dis	Non-Med Elig	Over 65 Non-Med Elig	Over 65 Unsub					
\$ 125.00	\$ 125.00	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00	n/a	n/a	n/a	Current Monthly Amount
4,427	137	2,342	-	33	330	821	62	-	498	425	-	418	Number in Group 12/31/2019
4,207	173	2,303	-	23	320	722	72	-	489	444	-	294	Number in Group 12/31/2020
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Include Group
\$ -	\$ -	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Pre-65
\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Post-65
100%	100%	50%	50%	50%	50%	50%	50%	50%	50%				Utilization Percentage Pre-65 (Applies to Flat Dollar Only)
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				Utilization Percentage Post-65 (Applies to Flat Dollar Only)
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Annual increase in Flat Dollar Benefit

\$253,900,999	Original Face Value of Bonds at 12/10/2014
\$193,245,662	Face Value of Bond (A) at Val Date
\$5,655,337	Face Value of Bond (B) at Val Date
80%	MV of Bond (used to calculate UAAL)
\$54,677,859	Investable Assets*
Never	Year of Insolvency
Never	Year Monetization/Cash is Needed
5.00%	Average Yield

103,495,710	Present Value of Benefits
18,603,068	Present Value of Expenses
122,098,778	Total
213,798,658	Valuation Assets (Immediate Monetization)^
(91,699,880)	Unfunded Actuarial Accrued Liability (UAAL)
443,760	Present Value of Future Contributions
(92,143,640)	Asset Deficit/(Surplus)
175.5%	Funded %

Notes:

- * Excludes accrued interest receivable as it is already accounted for in the cash flow projection.
- # Bond coupon payment does not accrue additional interest during the year in which it is paid.
- ^ Valuation assets include monetized valuation of bond and indicated monetization rate plus cash and receivables.

Year	Ad-Hoc		Optional Bond Sale	Optional % Of Face	Face Value of Bonds BoY	Principal Repayment	Jan 1. Assets*	Trust		Grant / (Due City)	Interest			Dec. 31 Assets	% Contracts Remaining
	Ad-Hoc Prem. Increase	Investment Return						Benefit Payments	Expenses		Bond Coupon	Invested Assets	Ben./ Expen./ Grant/ Bond#		
2021	N/A	5.00%	\$193,900,999	93.40%	\$ 5,000,000	\$ -	\$ 235,781,392	\$ (10,131,399)	\$ (902,724)	\$ 43,750	\$ 4,078,020	\$ 11,789,070	\$ (274,759)	\$ 15,592,330	98%
2022	0.00%	5.00%	-	-	5,000,000	-	240,383,349	(9,863,177)	(911,034)	43,750	200,000	12,019,167	(268,262)	11,950,906	95%
2023	0.00%	5.00%	-	-	5,000,000	-	241,603,794	(9,560,887)	(918,904)	43,750	200,000	12,080,190	(260,901)	12,019,289	91%
2024	0.00%	5.00%	-	-	5,000,000	-	243,187,041	(9,239,722)	(926,252)	43,750	200,000	12,159,352	(253,056)	12,106,296	88%
2025	0.00%	5.00%	-	-	5,000,000	-	245,171,113	(8,910,493)	(932,921)	43,750	200,000	12,258,556	(244,992)	12,213,564	84%
2026	0.00%	5.00%	-	-	5,000,000	-	247,585,013	(8,563,725)	(939,124)	43,750	200,000	12,379,251	(236,477)	12,342,773	81%
2027	0.00%	5.00%	-	-	5,000,000	-	250,468,687	(8,206,893)	(944,804)	43,750	200,000	12,523,434	(227,699)	12,495,736	77%
2028	0.00%	5.00%	-	-	5,000,000	-	253,856,475	(7,857,890)	(949,802)	43,750	200,000	12,692,824	(219,099)	12,673,725	74%
2029	0.00%	5.00%	-	-	5,000,000	-	257,766,258	(7,501,358)	(954,156)	43,750	200,000	12,888,313	(210,294)	12,878,019	70%
2030	0.00%	5.00%	-	-	5,000,000	-	262,232,513	(7,143,856)	(957,882)	43,750	200,000	13,111,626	(201,450)	13,110,176	66%
2031	0.00%	5.00%	-	-	5,000,000	-	267,284,701	(6,782,607)	(960,998)	43,750	200,000	13,364,235	(192,496)	13,371,739	63%
2032	0.00%	5.00%	-	-	4,630,863	369,137	273,325,722	(6,423,851)	(963,515)	43,750	185,235	13,666,286	(183,590)	13,667,930	59%
2033	0.00%	5.00%	-	-	4,244,958	385,905	280,035,942	(6,046,695)	(965,450)	43,750	169,798	14,001,797	(174,210)	13,997,386	55%
2034	0.00%	5.00%	-	-	3,859,052	385,905	287,450,838	(5,668,362)	(966,864)	43,750	154,362	14,372,542	(164,787)	14,362,117	52%
2035	0.00%	5.00%	-	-	3,473,147	385,905	295,607,385	(5,288,049)	(967,799)	-	208,389	14,780,369	(156,396)	14,832,362	48%
2040	0.00%	5.00%	-	-	1,543,620	385,905	348,824,161	(3,524,214)	(970,847)	-	92,617	17,441,208	(112,377)	17,421,449	32%
2045	0.00%	5.00%	-	-	0	-	424,878,502	(2,146,470)	(987,677)	-	-	21,243,925	(78,354)	21,165,571	19%
2050	0.00%	5.00%	-	-	0	-	526,609,410	(1,223,196)	(1,039,084)	-	-	26,330,471	(56,557)	26,273,914	10%
2055	0.00%	5.00%	-	-	0	-	660,448,423	(658,748)	(1,132,836)	-	-	33,022,421	(44,790)	32,977,632	5%
2060	0.00%	5.00%	-	-	0	-	833,291,133	(328,434)	(1,267,310)	-	-	41,664,557	(39,894)	41,624,663	3%
2065	0.00%	5.00%	-	-	0	-	1,054,562,508	(146,860)	(1,440,826)	-	-	52,728,125	(39,692)	52,688,433	1%
2070	0.00%	5.00%	-	-	0	-	1,336,709,254	(56,653)	-	-	-	66,835,463	(1,416)	66,834,046	0%



City of Detroit Police and Fire Retiree Health Care Trust

Scenario 5 (3.0% Return with 55% Monetization)

Current Participants										Potential Future Participants			Group Description
MA PPO	MA HMO	Opt-Out HRA	Retiree HRA						Spouse HRA (Non-Med Elig)	Spouse Not Receiving	Actively Waived	No Enrollment Election	
			Below FPL	Income Level	Non-Med Duty Dis	Non-Med Elig	Over 65 Non-Med Elig	Over 65 Unsub					
\$ 125.00	\$ 125.00	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00	n/a	n/a	n/a	Current Monthly Amount
4,427	137	2,342	-	33	330	821	62	-	498	425	-	418	Number in Group 12/31/2019
4,207	173	2,303	-	23	320	722	72	-	489	444	-	294	Number in Group 12/31/2020
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Include Group
\$ -	\$ -	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Pre-65
\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Post-65
100%	100%	50%	50%	50%	50%	50%	50%	50%	50%				Utilization Percentage Pre-65 (Applies to Flat Dollar Only)
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				Utilization Percentage Post-65 (Applies to Flat Dollar Only)
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Annual increase in Flat Dollar Benefit

\$253,900,999	Original Face Value of Bonds at 12/10/2014
\$193,245,662	Face Value of Bond (A) at Val Date
\$5,655,337	Face Value of Bond (B) at Val Date
55%	MV of Bond (used to calculate UAAL)
\$54,677,859	Investable Assets*
Never	Year of Insolvency
Never	Year Monetization/Cash is Needed
3.00%	Average Yield

122,816,318	Present Value of Benefits
26,640,433	Present Value of Expenses
149,456,751	Total
164,073,408	Valuation Assets (Immediate Monetization)^
(14,616,657)	Unfunded Actuarial Accrued Liability (UAAL)
501,561	Present Value of Future Contributions
(15,118,218)	Asset Deficit/(Surplus)
110.1%	Funded %

Notes:

* Excludes accrued interest receivable as it is already accounted for in the cash flow projection.

Bond coupon payment does not accrue additional interest during the year in which it is paid.

^ Valuation assets include monetized valuation of bond and indicated monetization rate plus cash and receivables.

Year	Ad-Hoc		Optional Bond Sale	Optional % Of Face	Face Value of Bonds BoY	Principal Repayment	Jan 1. Assets*	Trust Benefit		Grant / (Due City)	Interest				Dec. 31 Assets	% Contracts Remaining
	Ad-Hoc Prem. Increase	Investment Return						Benefit Payments	Expenses		Bond Coupon	Invested Assets	Ben./ Expen-/ Grant/ Bond#	Total		
2021	N/A	3.00%	\$193,900,999	93.40%	\$ 5,000,000	\$ -	\$ 235,781,392	\$ (10,131,399)	\$ (902,724)	\$ 43,750	\$ 4,078,020	\$ 7,073,442	\$ (164,856)	\$ 10,986,606	\$ 235,777,625	98%
2022	0.00%	3.00%	-	-	5,000,000	-	235,777,625	(9,863,177)	(911,034)	43,750	200,000	7,073,329	(160,957)	7,112,372	232,159,536	95%
2023	0.00%	3.00%	-	-	5,000,000	-	232,159,536	(9,560,887)	(918,904)	43,750	200,000	6,964,786	(156,541)	7,008,245	228,731,740	91%
2024	0.00%	3.00%	-	-	5,000,000	-	228,731,740	(9,239,722)	(926,252)	43,750	200,000	6,861,952	(151,833)	6,910,119	225,519,634	88%
2025	0.00%	3.00%	-	-	5,000,000	-	225,519,634	(8,910,493)	(932,921)	43,750	200,000	6,765,589	(146,995)	6,818,594	222,538,564	84%
2026	0.00%	3.00%	-	-	5,000,000	-	222,538,564	(8,563,725)	(939,124)	43,750	200,000	6,676,157	(141,886)	6,734,270	219,813,735	81%
2027	0.00%	3.00%	-	-	5,000,000	-	219,813,735	(8,206,893)	(944,804)	43,750	200,000	6,594,412	(136,619)	6,657,793	217,363,581	77%
2028	0.00%	3.00%	-	-	5,000,000	-	217,363,581	(7,857,890)	(949,802)	43,750	200,000	6,520,907	(131,459)	6,589,448	215,189,087	74%
2029	0.00%	3.00%	-	-	5,000,000	-	215,189,087	(7,501,358)	(954,156)	43,750	200,000	6,455,673	(126,176)	6,529,496	213,306,819	70%
2030	0.00%	3.00%	-	-	5,000,000	-	213,306,819	(7,143,856)	(957,882)	43,750	200,000	6,399,205	(120,870)	6,478,335	211,727,166	66%
2031	0.00%	3.00%	-	-	5,000,000	-	211,727,166	(6,782,607)	(960,998)	43,750	200,000	6,351,815	(115,498)	6,436,317	210,463,628	63%
2032	0.00%	3.00%	-	-	4,630,863	369,137	210,832,765	(6,423,851)	(963,515)	43,750	185,235	6,324,983	(110,154)	6,400,063	209,889,213	59%
2033	0.00%	3.00%	-	-	4,244,958	385,905	210,275,118	(6,046,695)	(965,450)	43,750	169,798	6,308,254	(104,526)	6,373,526	209,680,250	55%
2034	0.00%	3.00%	-	-	3,859,052	385,905	210,066,155	(5,668,362)	(966,864)	43,750	154,362	6,301,985	(98,872)	6,357,475	209,832,154	52%
2035	0.00%	3.00%	-	-	3,473,147	385,905	210,218,059	(5,288,049)	(967,799)	-	208,389	6,306,542	(93,838)	6,421,093	210,383,304	48%
2040	0.00%	3.00%	-	-	1,543,620	385,905	216,725,872	(3,524,214)	(970,847)	-	92,617	6,501,776	(67,426)	6,526,967	218,757,777	32%
2045	0.00%	3.00%	-	-	0	-	231,969,107	(2,146,470)	(987,677)	-	-	6,959,073	(47,012)	6,912,061	235,747,021	19%
2050	0.00%	3.00%	-	-	0	-	254,058,739	(1,223,196)	(1,039,084)	-	-	7,621,762	(33,934)	7,587,828	259,384,287	10%
2055	0.00%	3.00%	-	-	0	-	283,456,918	(658,748)	(1,132,836)	-	-	8,503,708	(26,874)	8,476,834	290,142,168	5%
2060	0.00%	3.00%	-	-	0	-	319,453,703	(328,434)	(1,267,310)	-	-	9,583,611	(23,936)	9,559,675	327,417,635	3%
2065	0.00%	3.00%	-	-	0	-	361,818,415	(146,860)	(1,440,826)	-	-	10,854,552	(23,815)	10,830,737	371,061,465	1%
2070	0.00%	3.00%	-	-	0	-	410,679,793	(56,653)	-	-	-	12,320,394	(850)	12,319,544	422,942,684	0%

City of Detroit Police and Fire Retiree Health Care Trust

Scenario 6 (3.0% Return with 80% Monetization)

Current Participants										Potential Future Participants			Group Description
MA PPO	MA HMO	Opt-Out HRA	Retiree HRA						Spouse HRA (Non-Med Elig)	Spouse Not Receiving	Actively Waived	No Enrollment Election	
			Below FPL	Income Level	Non-Med Duty Dis	Non-Med Elig	Over 65 Non-Med Elig	Over 65 Unsub					
\$ 125.00	\$ 125.00	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00	n/a	n/a	n/a	Current Monthly Amount
4,427	137	2,342	-	33	330	821	62	-	498	425	-	418	Number in Group 12/31/2019
4,207	173	2,303	-	23	320	722	72	-	489	444	-	294	Number in Group 12/31/2020
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Include Group
\$ -	\$ -	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Pre-65
\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Post-65
100%	100%	50%	50%	50%	50%	50%	50%	50%	50%				Utilization Percentage Pre-65 (Applies to Flat Dollar Only)
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				Utilization Percentage Post-65 (Applies to Flat Dollar Only)
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Annual increase in Flat Dollar Benefit

\$253,900,999	Original Face Value of Bonds at 12/10/2014
\$193,245,662	Face Value of Bond (A) at Val Date
\$5,655,337	Face Value of Bond (B) at Val Date
80%	MV of Bond (used to calculate UAAL)
\$54,677,859	Investable Assets*
Never	Year of Insolvency
Never	Year Monetization/Cash is Needed
3.00%	Average Yield

122,816,318	Present Value of Benefits
26,640,433	Present Value of Expenses
149,456,751	Total
213,798,658	Valuation Assets (Immediate Monetization)^
(64,341,907)	Unfunded Actuarial Accrued Liability (UAAL)
501,561	Present Value of Future Contributions
(64,843,468)	Asset Deficit/(Surplus)
143.4%	Funded %

Notes:

- * Excludes accrued interest receivable as it is already accounted for in the cash flow projection.
- # Bond coupon payment does not accrue additional interest during the year in which it is paid.
- ^ Valuation assets include monetized valuation of bond and indicated monetization rate plus cash and receivables.

Ad-Hoc							Trust				Interest				Dec. 31 Assets	% Contracts Remaining
Year	Ad-Hoc Prem. Increase	Investment Return	Optional Bond Sale	Optional % Of Face	Face Value of Bonds BoY	Principal Repayment	Jan 1. Assets*	Benefit Payments	Expenses	Grant / (Due City)	Bond Coupon	Invested Assets	Ben./ Expen./ Grant/ Bond#	Total		
2021	N/A	3.00%	\$193,900,999	93.40%	\$ 5,000,000	\$ -	\$ 235,781,392	\$ (10,131,399)	\$ (902,724)	\$ 43,750	\$ 4,078,020	\$ 7,073,442	\$ (164,856)	\$ 10,986,606	\$ 235,777,625	98%
2022	0.00%	3.00%	-	-	5,000,000	-	235,777,625	(9,863,177)	(911,034)	43,750	200,000	7,073,329	(160,957)	7,112,372	232,159,536	95%
2023	0.00%	3.00%	-	-	5,000,000	-	232,159,536	(9,560,887)	(918,904)	43,750	200,000	6,964,786	(156,541)	7,008,245	228,731,740	91%
2024	0.00%	3.00%	-	-	5,000,000	-	228,731,740	(9,239,722)	(926,252)	43,750	200,000	6,861,952	(151,833)	6,910,119	225,519,634	88%
2025	0.00%	3.00%	-	-	5,000,000	-	225,519,634	(8,910,493)	(932,921)	43,750	200,000	6,765,589	(146,995)	6,818,594	222,538,564	84%
2026	0.00%	3.00%	-	-	5,000,000	-	222,538,564	(8,563,725)	(939,124)	43,750	200,000	6,676,157	(141,886)	6,734,270	219,813,735	81%
2027	0.00%	3.00%	-	-	5,000,000	-	219,813,735	(8,206,893)	(944,804)	43,750	200,000	6,594,412	(136,619)	6,657,793	217,363,581	77%
2028	0.00%	3.00%	-	-	5,000,000	-	217,363,581	(7,857,890)	(949,802)	43,750	200,000	6,520,907	(131,459)	6,589,448	215,189,087	74%
2029	0.00%	3.00%	-	-	5,000,000	-	215,189,087	(7,501,358)	(954,156)	43,750	200,000	6,455,673	(126,176)	6,529,496	213,306,819	70%
2030	0.00%	3.00%	-	-	5,000,000	-	213,306,819	(7,143,856)	(957,882)	43,750	200,000	6,399,205	(120,870)	6,478,335	211,727,166	66%
2031	0.00%	3.00%	-	-	5,000,000	-	211,727,166	(6,782,607)	(960,998)	43,750	200,000	6,351,815	(115,498)	6,436,317	210,463,628	63%
2032	0.00%	3.00%	-	-	4,630,863	369,137	210,832,765	(6,423,851)	(963,515)	43,750	185,235	6,324,983	(110,154)	6,400,063	209,889,213	59%
2033	0.00%	3.00%	-	-	4,244,958	385,905	210,275,118	(6,046,695)	(965,450)	43,750	169,798	6,308,254	(104,526)	6,373,526	209,680,250	55%
2034	0.00%	3.00%	-	-	3,859,052	385,905	210,066,155	(5,668,362)	(966,864)	43,750	154,362	6,301,985	(98,872)	6,357,475	209,832,154	52%
2035	0.00%	3.00%	-	-	3,473,147	385,905	210,218,059	(5,288,049)	(967,799)	-	208,389	6,306,542	(93,838)	6,421,093	210,383,304	48%
2040	0.00%	3.00%	-	-	1,543,620	385,905	216,725,872	(3,524,214)	(970,847)	-	92,617	6,501,776	(67,426)	6,526,967	218,757,777	32%
2045	0.00%	3.00%	-	-	0	-	231,969,107	(2,146,470)	(987,677)	-	-	6,959,073	(47,012)	6,912,061	235,747,021	19%
2050	0.00%	3.00%	-	-	0	-	254,058,739	(1,223,196)	(1,039,084)	-	-	7,621,762	(33,934)	7,587,828	259,384,287	10%
2055	0.00%	3.00%	-	-	0	-	283,456,918	(658,748)	(1,132,836)	-	-	8,503,708	(26,874)	8,476,834	290,142,168	5%
2060	0.00%	3.00%	-	-	0	-	319,453,703	(328,434)	(1,267,310)	-	-	9,583,611	(23,936)	9,559,675	327,417,635	3%
2065	0.00%	3.00%	-	-	0	-	361,818,415	(146,860)	(1,440,826)	-	-	10,854,552	(23,815)	10,830,737	371,061,465	1%
2070	0.00%	3.00%	-	-	0	-	410,679,793	(56,653)	-	-	-	12,320,394	(850)	12,319,544	422,942,684	0%



City of Detroit Police and Fire Retiree Health Care Trust

Scenario 7 Alternate with 100% Utilization for Current Participants

(4.0% Return with 55% Monetization)

Current Participants										Potential Future Participants			Group Description
MA PPO	MA HMO	Opt-Out HRA	Retiree HRA						Spouse HRA (Non-Med Elig)	Spouse Not Receiving	Actively Waived	No Enrollment Election	
			Below FPL	Income Level	Non-Med Duty Dis	Non-Med Elig	Over 65 Non-Med Elig	Over 65 Unsub					
\$ 125.00	\$ 125.00	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00	n/a	n/a	n/a	Current Monthly Amount
4,427	137	2,342	-	33	330	821	62	-	498	425	-	418	Number in Group 12/31/2019
4,207	173	2,303	-	23	320	722	72	-	489	444	-	294	Number in Group 12/31/2020
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Include Group
\$ -	\$ -	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Pre-65
\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Post-65
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				Utilization Percentage Pre-65 (Applies to Flat Dollar Only)
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				Utilization Percentage Post-65 (Applies to Flat Dollar Only)
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Annual increase in Flat Dollar Benefit

\$253,900,999	Original Face Value of Bonds at 12/10/2014
\$193,245,662	Face Value of Bond (A) at Val Date
\$5,655,337	Face Value of Bond (B) at Val Date
55%	MV of Bond (used to calculate UAAL)
\$54,677,859	Investable Assets*
Never	Year of Insolvency
Never	Year Monetization/Cash is Needed
4.00%	Average Yield

142,300,196	Present Value of Benefits
22,049,528	Present Value of Expenses
164,349,724	Total
164,073,408	Valuation Assets (Immediate Monetization)^
276,316	Unfunded Actuarial Accrued Liability (UAAL)
471,289	Present Value of Future Contributions
(194,973)	Asset Deficit/(Surplus)
100.1%	Funded %

Notes:

* Excludes accrued interest receivable as it is already accounted for in the cash flow projection.

Bond coupon payment does not accrue additional interest during the year in which it is paid.

^ Valuation assets include monetized valuation of bond and indicated monetization rate plus cash and receivables.

Year	Ad-Hoc				Face Value of Bonds BoY	Principal Repayment	Jan 1. Assets*	Benefit Payments	Expenses	Grant / (Due City)	Interest				Dec. 31 Assets	% Contracts Remaining
	Ad-Hoc Prem. Increase	Investment Return	Optional Bond Sale	Optional % Of Face							Bond Coupon	Invested Assets	Ben./ Expen./ Grant/ Bond#	Total		
2021	N/A	4.00%	\$193,900,999	93.40%	\$ 5,000,000	\$ -	\$ 235,781,392	\$ (13,447,101)	\$ (902,724)	\$ 43,750	\$ 4,078,020	\$ 9,431,256	\$ (286,122)	\$ 13,223,154	\$ 234,698,471	98%
2022	0.00%	4.00%	-	-	5,000,000	-	234,698,471	(12,997,895)	(911,034)	43,750	200,000	9,387,939	(277,304)	9,310,635	230,143,928	95%
2023	0.00%	4.00%	-	-	5,000,000	-	230,143,928	(12,535,826)	(918,904)	43,750	200,000	9,205,757	(268,220)	9,137,538	225,870,485	91%
2024	0.00%	4.00%	-	-	5,000,000	-	225,870,485	(12,046,622)	(926,252)	43,750	200,000	9,034,819	(258,582)	8,976,237	221,917,598	88%
2025	0.00%	4.00%	-	-	5,000,000	-	221,917,598	(11,559,976)	(932,921)	43,750	200,000	8,876,704	(248,983)	8,827,721	218,296,172	84%
2026	0.00%	4.00%	-	-	5,000,000	-	218,296,172	(11,058,930)	(939,124)	43,750	200,000	8,731,847	(239,086)	8,692,761	215,034,628	81%
2027	0.00%	4.00%	-	-	5,000,000	-	215,034,628	(10,560,024)	(944,804)	43,750	200,000	8,601,385	(229,222)	8,572,164	212,145,713	77%
2028	0.00%	4.00%	-	-	5,000,000	-	212,145,713	(10,068,071)	(949,802)	43,750	200,000	8,485,829	(219,482)	8,466,346	209,637,937	74%
2029	0.00%	4.00%	-	-	5,000,000	-	209,637,937	(9,558,578)	(954,156)	43,750	200,000	8,385,517	(209,380)	8,376,138	207,545,090	70%
2030	0.00%	4.00%	-	-	5,000,000	-	207,545,090	(9,048,785)	(957,882)	43,750	200,000	8,301,804	(199,258)	8,302,545	205,884,719	66%
2031	0.00%	4.00%	-	-	5,000,000	-	205,884,719	(8,546,120)	(960,998)	43,750	200,000	8,235,389	(189,267)	8,246,121	204,667,473	63%
2032	0.00%	4.00%	-	-	4,630,863	369,137	205,036,610	(8,052,976)	(963,515)	43,750	185,235	8,201,464	(179,455)	8,207,244	204,271,113	59%
2033	0.00%	4.00%	-	-	4,244,958	385,905	204,657,018	(7,541,106)	(965,450)	43,750	169,798	8,186,281	(169,256)	8,186,823	204,381,036	55%
2034	0.00%	4.00%	-	-	3,859,052	385,905	204,766,941	(7,034,135)	(966,864)	43,750	154,362	8,190,678	(159,145)	8,185,895	204,995,587	52%
2035	0.00%	4.00%	-	-	3,473,147	385,905	205,381,492	(6,516,310)	(967,799)	-	208,389	8,215,260	(149,682)	8,273,966	206,171,349	48%
2040	0.00%	4.00%	-	-	1,543,620	385,905	216,642,806	(4,202,629)	(970,847)	-	92,617	8,665,712	(103,470)	8,654,860	220,124,189	32%
2045	0.00%	4.00%	-	-	0	-	240,942,266	(2,421,536)	(987,677)	-	-	9,637,691	(68,184)	9,569,506	247,102,560	19%
2050	0.00%	4.00%	-	-	0	-	276,896,414	(1,303,131)	(1,039,084)	-	-	11,075,857	(46,844)	11,029,012	285,583,211	10%
2055	0.00%	4.00%	-	-	0	-	325,256,440	(675,495)	(1,132,836)	-	-	13,010,258	(36,167)	12,974,091	336,422,200	5%
2060	0.00%	4.00%	-	-	0	-	386,289,513	(330,237)	(1,267,310)	-	-	15,451,581	(31,951)	15,419,630	400,111,596	3%
2065	0.00%	4.00%	-	-	0	-	461,244,399	(146,964)	(1,440,826)	-	-	18,449,776	(31,756)	18,418,020	478,074,629	1%
2070	0.00%	4.00%	-	-	0	-	552,188,520	(56,657)	-	-	-	22,087,541	(1,133)	22,086,408	574,218,272	0%



City of Detroit Police and Fire Retiree Health Care Trust

Scenario 8 Alternate with 2% Annual Benefit Increases (4.0% Return with 55% Monetization)

Current Participants										Potential Future Participants			Group Description
MA PPO	MA HMO	Opt-Out HRA	Retiree HRA						Spouse HRA (Non-Med Elig)	Spouse Not Receiving	Actively Waived	No Enrollment Election	
			Below FPL	Income Level	Non-Med Duty Dis	Non-Med Elig	Over 65 Non- Med Elig	Over 65 Unsub					
\$ 125.00	\$ 125.00	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00	n/a	n/a	n/a	Current Monthly Amount
4,427	137	2,342	-	33	330	821	62	-	498	425	-	418	Number in Group 12/31/2019
4,207	173	2,303	-	23	320	722	72	-	489	444	-	294	Number in Group 12/31/2020
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Include Group
\$ -	\$ -	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Pre-65
\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Post-65
100%	100%	50%	50%	50%	50%	50%	50%	50%	50%				Utilization Percentage Pre-65 (Applies to Flat Dollar Only)
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				Utilization Percentage Post-65 (Applies to Flat Dollar Only)
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Annual increase in Flat Dollar Benefit

\$253,900,999	Original Face Value of Bonds at 12/10/2014
\$193,245,662	Face Value of Bond (A) at Val Date
\$5,655,337	Face Value of Bond (B) at Val Date
55%	MV of Bond (used to calculate UAAL)
\$54,677,859	Investable Assets*
Never	Year of Insolvency
Never	Year Monetization/Cash is Needed
4.00%	Average Yield

134,315,087	Present Value of Benefits
22,049,528	Present Value of Expenses
156,364,615	Total
164,073,408	Valuation Assets (Immediate Monetization)^
(7,708,793)	Unfunded Actuarial Accrued Liability (UAAL)
471,289	Present Value of Future Contributions
(8,180,082)	Asset Deficit/(Surplus)
105.2%	Funded %

Notes:

- * Excludes accrued interest receivable as it is already accounted for in the cash flow projection.
- # Bond coupon payment does not accrue additional interest during the year in which it is paid.
- ^ Valuation assets include monetized valuation of bond and indicated monetization rate plus cash and receivables.

Ad-Hoc				Trust								Interest				Dec. 31 Assets	% Contracts Remaining
Year	Ad-Hoc Prem. Increase	Investment Return	Optional Bond Sale	Optional % Of Face	Face Value of Bonds BoY	Principal Repayment	Jan 1. Assets*	Benefit Payments	Expenses	Grant / (Due City)	Bond Coupon	Invested Assets	Ben./ Expen./ Grant/ Bond#	Total			
2021	N/A	4.00%	\$193,900,999	93.40%	\$ 5,000,000	\$ -	\$ 235,781,392	\$ (10,131,399)	\$ (902,724)	\$ 43,750	\$ 4,078,020	\$ 9,431,256	\$ (219,807)	\$ 13,289,468	\$ 238,080,487	98%	
2022	2.00%	4.00%	-	-	5,000,000	-	238,080,487	(10,060,440)	(911,034)	43,750	200,000	9,523,219	(218,554)	9,504,665	236,657,427	95%	
2023	2.00%	4.00%	-	-	5,000,000	-	236,657,427	(9,947,147)	(918,904)	43,750	200,000	9,466,297	(216,446)	9,449,851	235,284,977	91%	
2024	2.00%	4.00%	-	-	5,000,000	-	235,284,977	(9,805,267)	(926,252)	43,750	200,000	9,411,399	(213,755)	9,397,644	233,994,851	88%	
2025	2.00%	4.00%	-	-	5,000,000	-	233,994,851	(9,645,004)	(932,921)	43,750	200,000	9,359,794	(210,684)	9,349,111	232,809,787	84%	
2026	2.00%	4.00%	-	-	5,000,000	-	232,809,787	(9,455,044)	(939,124)	43,750	200,000	9,312,391	(207,008)	9,305,383	231,764,751	81%	
2027	2.00%	4.00%	-	-	5,000,000	-	231,764,751	(9,242,295)	(944,804)	43,750	200,000	9,270,590	(202,867)	9,267,723	230,889,125	77%	
2028	2.00%	4.00%	-	-	5,000,000	-	230,889,125	(9,026,246)	(949,802)	43,750	200,000	9,235,565	(198,646)	9,236,919	230,193,746	74%	
2029	2.00%	4.00%	-	-	5,000,000	-	230,193,746	(8,789,036)	(954,156)	43,750	200,000	9,207,750	(193,989)	9,213,761	229,708,066	70%	
2030	2.00%	4.00%	-	-	5,000,000	-	229,708,066	(8,537,570)	(957,882)	43,750	200,000	9,188,323	(189,034)	9,199,289	229,455,653	66%	
2031	2.00%	4.00%	-	-	5,000,000	-	229,455,653	(8,267,960)	(960,998)	43,750	200,000	9,178,226	(183,704)	9,194,522	229,464,967	63%	
2032	2.00%	4.00%	-	-	4,630,863	369,137	229,834,104	(7,987,251)	(963,515)	43,750	185,235	9,193,364	(178,140)	9,200,458	230,127,546	59%	
2033	2.00%	4.00%	-	-	4,244,958	385,905	230,513,452	(7,668,671)	(965,450)	43,750	169,798	9,220,538	(171,807)	9,218,529	231,141,610	55%	
2034	2.00%	4.00%	-	-	3,859,052	385,905	231,527,515	(7,332,630)	(966,864)	43,750	154,362	9,261,101	(165,115)	9,250,348	232,522,119	52%	
2035	2.00%	4.00%	-	-	3,473,147	385,905	232,908,024	(6,977,468)	(967,799)	-	208,389	9,316,321	(158,905)	9,365,804	234,328,561	48%	
2040	2.00%	4.00%	-	-	1,543,620	385,905	246,368,280	(5,134,115)	(970,847)	-	92,617	9,854,731	(122,099)	9,825,249	250,088,566	32%	
2045	2.00%	4.00%	-	-	0	-	271,636,038	(3,452,463)	(987,677)	-	-	10,865,442	(88,803)	10,776,639	277,972,537	19%	
2050	2.00%	4.00%	-	-	0	-	308,790,524	(2,172,206)	(1,039,084)	-	-	12,351,621	(64,226)	12,287,395	317,866,629	10%	
2055	2.00%	4.00%	-	-	0	-	359,786,942	(1,291,592)	(1,132,836)	-	-	14,391,478	(48,489)	14,342,989	371,705,503	5%	
2060	2.00%	4.00%	-	-	0	-	425,414,702	(710,975)	(1,267,310)	-	-	17,016,588	(39,566)	16,977,022	440,413,439	3%	
2065	2.00%	4.00%	-	-	0	-	507,147,522	(351,004)	(1,440,826)	-	-	20,285,901	(35,837)	20,250,064	525,605,756	1%	
2070	2.00%	4.00%	-	-	0	-	607,171,660	(149,497)	-	-	-	24,286,866	(2,990)	24,283,876	631,306,040	0%	



APPENDIX

ALTERNATE SCENARIO

City of Detroit Police and Fire Retiree Health Care Trust

Alternate with 40% HRA Utilization

(4.0% Return with 55% Monetization)

Current Participants										Potential Future Participants			Group Description
MA PPO	MA HMO	Opt-Out HRA	Retiree HRA						Spouse HRA (Non-Med Elig)	Spouse Not Receiving	Actively Waived	No Enrollment Election	
			Below FPL	Income Level	Non-Med Duty Dis	Non-Med Elig	Over 65 Non-Med Elig	Over 65 Unsub					
\$ 125.00	\$ 125.00	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00	n/a	n/a	n/a	Current Monthly Amount
4,427	137	2,342	-	33	330	821	62	-	498	425	-	418	Number in Group 12/31/2019
4,207	173	2,303	-	23	320	722	72	-	489	444	-	294	Number in Group 12/31/2020
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Include Group
\$ -	\$ -	\$ 125.00	\$ 150.58	\$ 175.00	\$ 400.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Pre-65
\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 300.00	\$ 125.00	\$ 125.00				Flat Dollar Monthly Lifetime Benefit (per person) Post-65
100%	100%	40%	40%	40%	40%	40%	40%	40%	40%				Utilization Percentage Pre-65 (Applies to Flat Dollar Only)
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				Utilization Percentage Post-65 (Applies to Flat Dollar Only)
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Annual increase in Flat Dollar Benefit

\$253,900,999	Original Face Value of Bonds at 12/10/2014
\$193,245,662	Face Value of Bond (A) at Val Date
\$5,655,337	Face Value of Bond (B) at Val Date
55%	MV of Bond (used to calculate UAAL)
\$54,677,859	Investable Assets*
Never	Year of Insolvency
Never	Year Monetization/Cash is Needed
4.00%	Average Yield

106,417,550	Present Value of Benefits
22,049,528	Present Value of Expenses
128,467,078	Total
164,073,408	Valuation Assets (Immediate Monetization)^
(35,606,330)	Unfunded Actuarial Accrued Liability (UAAL)
471,289	Present Value of Future Contributions
(36,077,619)	Asset Deficit/(Surplus)
128.1%	Funded %

Notes:

* Excludes accrued interest receivable as it is already accounted for in the cash flow projection.

Bond coupon payment does not accrue additional interest during the year in which it is paid.

^ Valuation assets include monetized valuation of bond and indicated monetization rate plus cash and receivables.

Year	Ad-Hoc		Investment Return	Optional Bond Sale	Optional % Of Face	Face Value of Bonds BoY	Principal Repayment	Jan 1. Assets*	Trust		Grant / (Due City)	Interest			Dec. 31 Assets	% Contracts Remaining
	Ad-Hoc Prem. Increase	Investment Return							Benefit Payments	Expenses		Bond Coupon	Invested Assets	Ben./ Expen./ Grant/ Bond#		
2021	N/A	4.00%	\$193,900,999	93.40%	\$ 5,000,000	\$ -	\$ 235,781,392	\$ (9,468,259)	\$ (902,724)	\$ 43,750	\$ 4,078,020	\$ 9,431,256	\$ (206,545)	\$ 13,302,731	\$ 238,756,890	98%
2022	0.00%	4.00%	-	-	5,000,000	-	238,756,890	(9,236,233)	(911,034)	43,750	200,000	9,550,276	(202,070)	9,548,205	238,201,578	95%
2023	0.00%	4.00%	-	-	5,000,000	-	238,201,578	(8,965,899)	(918,904)	43,750	200,000	9,528,063	(196,821)	9,531,242	237,891,766	91%
2024	0.00%	4.00%	-	-	5,000,000	-	237,891,766	(8,678,342)	(926,252)	43,750	200,000	9,515,671	(191,217)	9,524,454	237,855,376	88%
2025	0.00%	4.00%	-	-	5,000,000	-	237,855,376	(8,380,596)	(932,921)	43,750	200,000	9,514,215	(185,395)	9,528,820	238,114,428	84%
2026	0.00%	4.00%	-	-	5,000,000	-	238,114,428	(8,064,684)	(939,124)	43,750	200,000	9,524,577	(179,201)	9,545,376	238,699,746	81%
2027	0.00%	4.00%	-	-	5,000,000	-	238,699,746	(7,736,267)	(944,804)	43,750	200,000	9,547,990	(172,746)	9,575,243	239,637,667	77%
2028	0.00%	4.00%	-	-	5,000,000	-	239,637,667	(7,415,854)	(949,802)	43,750	200,000	9,585,507	(166,438)	9,619,069	240,934,830	74%
2029	0.00%	4.00%	-	-	5,000,000	-	240,934,830	(7,089,913)	(954,156)	43,750	200,000	9,637,393	(160,006)	9,677,387	242,611,897	70%
2030	0.00%	4.00%	-	-	5,000,000	-	242,611,897	(6,762,871)	(957,882)	43,750	200,000	9,704,476	(153,540)	9,750,936	244,685,831	66%
2031	0.00%	4.00%	-	-	5,000,000	-	244,685,831	(6,429,904)	(960,998)	43,750	200,000	9,787,433	(146,943)	9,840,490	247,179,169	63%
2032	0.00%	4.00%	-	-	4,630,863	369,137	247,548,306	(6,098,026)	(963,515)	43,750	185,235	9,901,932	(140,356)	9,946,811	250,477,326	59%
2033	0.00%	4.00%	-	-	4,244,958	385,905	250,863,231	(5,747,813)	(965,450)	43,750	169,798	10,034,529	(133,390)	10,070,937	254,264,656	55%
2034	0.00%	4.00%	-	-	3,859,052	385,905	254,650,562	(5,395,207)	(966,864)	43,750	154,362	10,186,022	(126,366)	10,214,018	258,546,259	52%
2035	0.00%	4.00%	-	-	3,473,147	385,905	258,932,164	(5,042,397)	(967,799)	-	208,389	10,357,287	(120,204)	10,445,471	263,367,439	48%
2040	0.00%	4.00%	-	-	1,543,620	385,905	288,431,442	(3,388,532)	(970,847)	-	92,617	11,537,258	(87,188)	11,542,687	295,614,751	32%
2045	0.00%	4.00%	-	-	0	-	331,699,150	(2,091,457)	(987,677)	-	-	13,267,966	(61,583)	13,206,383	341,826,399	19%
2050	0.00%	4.00%	-	-	0	-	388,510,585	(1,207,209)	(1,039,084)	-	-	15,540,423	(44,926)	15,495,498	401,759,789	10%
2055	0.00%	4.00%	-	-	0	-	461,380,720	(655,399)	(1,132,836)	-	-	18,455,229	(35,765)	18,419,464	478,011,949	5%
2060	0.00%	4.00%	-	-	0	-	551,964,011	(328,073)	(1,267,310)	-	-	22,078,560	(31,908)	22,046,653	572,415,281	3%
2065	0.00%	4.00%	-	-	0	-	662,818,331	(146,840)	(1,440,826)	-	-	26,512,733	(31,753)	26,480,980	687,711,645	1%
2070	0.00%	4.00%	-	-	0	-	797,434,316	(56,652)	-	-	-	31,897,373	(1,133)	31,896,240	829,273,903	0%

