City of Roosevelt Park

County of Muskegon, State of Michigan

Comprehensive Financial Plan

June 21, 2021

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CITY OF ROOSEVELT PARK

Comprehensive Financial Plan for Pension and Other Post-Employment Benefits

Table of Contents

2021 Comprehensive Financial Plan 5
Defined Benefit Pension Plan 6
Defined Contribution Pension Plan 6
Deferred Compensation Plan 6
Defined Benefit Pension Plan 7
Benefits Provided 7
Employees Covered by Benefit Terms 7
Contributions 7
Net Pension Liability 7
Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions 8
Actuarial Assumptions 9
Discount Rate 10
Sensitivity of the Net Pension Liability to Changes in the Discount Rate 10
Pension Plan Fiduciary Net Position 11
Other Post-Employment Benefits 12
Retiree Healthcare Plan 12
Plan Description 12
Benefits Provided 12
Employees Covered by Benefit Terms 12
Contributions 12
Actuarial Assumptions 13
Mortality 13
Investment Rate of Return 13
Discount Rate 13

CITY OF ROOSEVELT PARK

Comprehensive Financial Plan for Pension and Other Post-Employment Benefits

Table of Contents

Changes in the Net OPEB Liability 14
Sensitivity of the Net OPEB Liability to Changes in the Discount Rate 14
Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates 15
OPEB Plan Fiduciary Net Position 15
OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB Plan 15
Payables to the OPEB Plan 16
Healthcare Savings Plan 16
Rating Requirements 16
Bond Issuance Considerations 16
Determination of Bond Amount 17
Legal Debt Limit Compliance 18
Proposed Bond Structure & Estimated Savings 19
Analysis using Actuarial Value of Assets 20
Analysis using Market Value of Assets 21
Acknowledgement of Future Annual Required Contributions 22
Impact on Changes of Rate of Return on Investments 22
Historical Rate of Returns on Investments 24
Description of Action Required to Meet Obligations 24
Plan Compliance 25
Certifications 26
Appendix A Projected Amortization Schedule from MERS .....
Appendix B Comparison of the Annual Unfunded Actuarial Accrued Liability Amortization to Estimated Bond Payments at Various Rates of Return .....
Appendix C Actuarial Valuation of Other Post-Employment Benefit .....
Appendix D MERS Annual Actuarial Valuation Report .....

2021 Comprehensive Financial Plan

This Comprehensive Financial Plan for Pension and Other Post-Employment Benefits (the "Plan") is being prepared pursuant to Public Act 34, Public Acts of Michigan, 2001, as amended ("Act 34"). In accordance with Section 518 of Act 34, the City of Roosevelt Park (the "City") is planning to issue bonds to finance a portion of the City's unfunded pension liability for the City's Municipal Employees Retirement System ("MERS") pension plan, as further described in this Plan.

Act 34 requires the City take certain steps in order to be eligible to issue bonds to fund a portion of its pension liability, including:

1. The closure of its defined benefit pension plan. The City adopted MERS Restated Defined Contribution plan under MERS plan Document for all employees of the City hired prior to February 1, 2013. Beginning February 1, 2013, the various employee divisions began to be closed. By November 1, 2015, all employee divisions were closed except for the police union division, which was closed to new entrants on December 1, 2018.

2. The preparation, approval, and public posting of this Plan analyzing the funding of the City's pension/retirement.

3. Publication of a Notice of Intent to issue bonds, and expiration of the right of referendum.

4. Obtaining a credit rating from a nationally recognized rating agency in the "A" rating category or higher.

5. Certifying the City has funded its defined benefit plans' annual actuarially determined contribution for the most recently available 3 audited financial statement years.

6. Certifying the City is compliant with the reporting requirements in accordance with the Protecting Local Government Retirement and Benefits Act, Public Act 202, of 2017.

7. Provide evidence that it has the legal debt capacity to issue the proposed bonds.

8. Have applied for and obtained approval from the Michigan Department of Treasury to issue the bonds.

The Plan provided herein will provide a general overview of the City's pension/retirement, the historical and proposed funding for these plans, as well as analysis of the estimated benefit of issuing limited tax general obligation bonds to fund a portion of the City's unfunded pension liability as authorized by Act 34.

Defined Benefit Pension Plan

The City's defined benefit pension plan provides certain retirement, disability, and death benefits to plan members and beneficiaries.

The City participates in the Municipal Employees Retirement System (MERS) of Michigan. MERS is an agent multiple-employer, statewide public employee pension plan established by the Michigan Legislature under Public Act 135 of 1945 and administered by a nine-member Retirement Board. MERS issues a publicly available financial report that includes financial statements and required supplementary information. This report may be obtained accessing the MERS website at www.mersofmich.com.

Defined Contribution Pension Plan

The City also maintains a defined contribution plan offered by MERS for its full-time employees hired after the defined benefit plan was closed to new participants.

Benefit terms, including contribution requirements, for the MERS defined contribution plan are established and may be amended by the City Council as determined by negotiated labor contracts. The City is required to contribute 6 percent of a qualified employees' annual compensation each year. Qualified employees are required to contribute 3 percent to 10 percent of annual compensation depending on employee group. For the year ended November 30, 2020, City and employee contributions were $18,931 and $13,604, respectively.

Employees are immediately vested in their own contributions and earnings on those contributions and become vested in City contributions and earnings on City contributions by 20 percent for each full year of service, leaving employees fully vested after five years of service. Non-vested City contributions are forfeited upon termination of employment. Such forfeitures are used to cover a portion of the pension plan's administrative expenses. For the year ended November 30, 2020, there were no forfeitures.

Deferred Compensation Plan

The City offers its employees a deferred compensation plan created in accordance with Internal Revenue Code Section 457. The Plan, available to all full-time City employees at their option, permits participants to defer a portion of their salary until future years. The deferred compensation is not available to participants until termination, retirement, death, or unforeseeable emergency.

The Plan has created a trust for the exclusive benefit of the Plan's participants and beneficiaries under rules provided in Internal Revenue Code Section 401(f).

Defined Benefit Pension Plan

Benefits Provided

The City's defined benefit pension plan provides certain retirement, disability and death benefits to plan members and beneficiaries. Public Act 427 of 1984, as amended, established and amends the benefit provisions of the participants in MERS. The Plan covers all full-time employees hired prior to February 2013. Beginning in February 2013, the various employee divisions began to be closed. By November 2015, all employee divisions were closed except for the police union division, which was closed to new entrants in December 2018.

Benefits provided by the Plan have a multiplier of 2.5 percent. Vesting period is 10 years. Normal retirement age is 60 with early retirement at 55 with 15 years of service or reduced early retirement at 50 with 25 years of service. Final average compensation is calculated based on 5 years.

Employees Covered by Benefit Terms

At the December 31, 2019 valuation date, the following employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits	20
Inactive employees entitled to but not yet receiving benefits	9
Active employees	5
Total employees covered by MERS	**34**

Contributions

The City is required to contribute amounts at least equal to the actuarially determined rate, as established by the MERS Retirement Board. The actuarially determined rate is the estimated amount necessary to finance the cost of benefits earned by employees during the year, with an additional amount to finance any unfunded accrued liability. The City may establish contribution rates to be paid by its covered employees.

For the year ended November 30, 2020, the City had a flat-dollar employer contribution to the Plan of $269,892 annually in lieu of a percentage of covered employee payroll, as the Plan is closed to new employees. No contribution is required from employees.

Net Pension Liability

The City's net pension liability was measured as of December 31, 2019, and the total pension liability used to calculate the net pension liability was determined by an annual actuarial valuation as of that date.

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Position (b)	Net Pension Liability (a)-(b)
Balance at January 1, 2019	$ 6,228,569	$ 3,247,953	$ 2,980,616
Changes for the year			
Service cost	52,455	-	52,455
Interest	485,987	-	485,987
Difference between expected and actual experience	132,603	-	132,603
Changes in assumptions	247,386	-	247,386
Contributions - employer	-	276,391	(276,391)
Net investment income	-	439,254	(439,254)
Administrative expenses	-	(7,569)	7,569
Benefit payments including refund of employee contributions	(359,918)	(359,918)	-
Net changes	558,513	348,158	210,355
Balance at December 31, 2019	**$ 6,787,082**	**$ 3,596,111**	**$ 3,190,971**

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended November 30, 2020, the City recognized pension expense of $815,359. At November 30, 2020, the City reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Net difference between projected and actual net investment income	$ 11,477	$ -
Contributions subsequent to the measurement date*	247,401	-
Total	**$ 258,878**	$ -

* The amount reported as deferred outflows of resources resulting from contributions subsequent to the measurement date will be recognized as a reduction in the net pension liability for the year ending November 30, 2021.

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

Year Ending November 30,	Amount
2021	$ (8,705)
2022	11,447
2023	45,349
2024	(36,614)

Actuarial Assumptions

The total pension liability in the December 31, 2019 actuarial valuation was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.5 percent
Salary increases	3.75 percent changed to 3.0 percent in the long-term effective with the December 31, 2019 valuation
Investment rate of return	7.75 percent changed to 7.35 percent, net of administrative and investment expenses effective with the December 31, 2019 vaulation

Although no specific price inflation assumptions are needed for the valuation, the 2.5 percent long-term wage inflation assumption would be consistent with a price inflation of 3-4 percent. Mortality rates used were based on the RP-2014 Group Annuity Mortality Table of a 50 percent Male and 50 percent Female blend.

The actuarial assumptions used in valuation were based on the results of the most recent actuarial experience study of 2009 through 2013.

The long-term expected rate of return on pension plan investments was determined using a model method in which the best-estimate ranges of expected future real rates of return (expected returns, net of investment and administrative expenses and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Target Allocation Gross Rate of Return	Long-Term Expected Gross Rate of Return	Inflation Assumption	Long-Term Expected Real Rate of Return
Global equity Global	60.0%	7.75%	4.65%	2.50%	3.15%
fixed income Private	20.0%	3.75%	0.75%	2.50%	25.00%
assets	20.0%	9.75%	1.95%	2.50%	1.45%
Total	**100.0%**		**7.35%**		**4.85%**

Discount Rate

The discount rate used to measure the total pension liability was 7.60 percent for 2019. The projection of cash flows used to determine the discount rate assumed that employee contributions will be made at the current contribution rate and that City contributions will be made at rates equal to the difference between actuarially determined contribution rates and the employee rate. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to pay all projected future benefit payments of current active and inactive employees. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability. The discount rate used to calculate the liability at the beginning of the year was 8.00 percent.

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

The following presents the net pension liability of the City, calculated using the discount rate of 7.60 percent, as well as what the City's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.60 percent) or 1-percentage-point higher (8.60 percent) than the current rate:

	1% Decrease (6.60%)	Current Discount Rate (7.60%)	1% Increase (8.60%)
City's net pension liability	$ 4,030,471	$ 3,190,971	$ 2,487,899

Note: The current discount rate shown for GASB 68 purposes is higher than the MERS assumed rate of return. This is because for GASB 68 purposes, the discount rate must be gross of administrative expenses, whereas for funding purposes, it is net of administrative expense.

Pension Plan Fiduciary Net Position

City of Roosevelt Park
Required Supplementary Information
SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS
Last Ten Fiscal Years (Amounts were determined as of December 31 of each fiscal year)

	2019	2018	2017	2016	2015	2014
TOTAL PENSION LIABILITY						
Service cost	$ 52,455	$ 54,223	$ 49,381	$ 48,638	$ 57,340	$ 60,897
Interest	485,987	458,340	434,958	424,094	416,204	404,879
Differences between expected and actual experience	132,603	191,017	157,090	9,314	(108,872)	-
Changes in assumptions	247,386	-	-	-	234,908	-
Benefit payments, including refunds of employee contributions	(359,918)	(354,285)	(348,872)	(344,362)	(333,547)	(319,896)
Net change in total pension liability	558,513	349,295	292,557	137,684	266,033	145,880
Total pension liability at beginning of year	6,228,569	5,879,274	5,586,717	5,449,033	5,183,000	5,037,120
Total pension liability at end of year (a)	**$ 6,787,082**	**$ 6,228,569**	**$ 5,879,274**	**$ 5,586,717**	**$ 5,449,033**	**$ 5,183,000**
PLAN FIDUCIARY NET POSITION						
Contributions-employer	$ 276,391	$ 238,511	$ 307,065	$ 187,717	$ 175,793	$ 174,147
Net investment income	439,254	(134,326)	418,373	331,550	(46,155)	195,733
Benefit payments, including refunds of employee contributions	(359,918)	(354,285)	(348,872)	(344,362)	(333,547)	(319,896)
Administrative expenses	(7,569)	(6,732)	(6,629)	(6,549)	(6,835)	(7,162)
Net change in plan fiduciary net position	348,158	(256,832)	369,937	168,356	(210,744)	42,822
Plan fiduciary net position at beginning of year	3,247,953	3,504,785	3,134,848	2,966,492	3,177,236	3,134,414
Plan fiduciary net position at end of year (b)	**$ 3,596,111**	**$ 3,247,953**	**$ 3,504,785**	**$ 3,134,848**	**$ 2,966,492**	**$ 3,177,236**
City's net pension liability at end of year (a)-(b)	**$ 3,190,971**	**$ 2,980,616**	**$ 2,374,489**	**$ 2,451,869**	**$ 2,482,541**	**$ 2,005,764**
Plan fiduciary net position as a percentage of the total pension liability	**52.98%**	**52.15%**	**59.61%**	**56.11%**	**54.44%**	**61.30%**
Covered employee payroll	**$ 452,164**	**$ 462,347**	**$ 421,031**	**$ 407,977**	**$ 458,203**	**$ 498,792**
City's net pension liability as a percentage of covered employee payroll	**705.71%**	**644.67%**	**563.97%**	**600.98%**	**541.80%**	**402.12%**

Notes to Schedule
Additional actuarial data is not available and will be provided in subsequent years.

Other Post-Employment Benefits

Retiree Healthcare Plan

Plan Description

The City's defined benefit OPEB Plan, the City of Roosevelt Park Retiree Health Plan (OPEB Plan), provides healthcare benefits to certain employees and their spouses upon retirement. The Plan is a single-employer defined benefit plan administered by the City Council. The benefits are provided under collective bargaining agreements and at the discretion of the City Council. The OPEB Plan does not issue a publicly available report.

Benefits Provided

The OPEB Plan provides medical insurance for retirees and their spouses who retire on or after age 55 with 20 years of service for public works employees or 10 years of service for police and non-union employees. The portion of medical insurance covered by the City varies depending on the retiree's length of service. Benefits are provided through a third party insurer. Effective December 1, 2018, the OPEB Plan is closed to new entrants.

Employees Covered by Benefit Terms

At the November 30, 2020 valuation, the following employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits	7
Inactive employees entitled to but not yet receiving benefits	-
Active employees	8
Total employees covered by OPEB Plan	**15**

Contributions

The OPEB Plan's funding policy is that the City will make discretionary contributions. There are no long-term contracts for contributions to the OPEB Plan. The OPEB Plan has no legally required reserves. The City participates in the MERS Retiree Health Funding Vehicle, a legally established trust under section 401(a) of the Internal Revenue Code. For the year ended November 30, 2020, the City made payments for postemployment healthcare benefits for current retirees of $26,682. The City did not make contributions to the OPEB Plan trust.

Actuarial Assumptions

The total OPEB liability in the November 30, 2020 actuarial valuation was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.5 percent
Salary increases	3.5 percent
Investment rate of return	7.35 percent (including inflation), net of administrative and investment expenses
Healthcare cost trend rates	Pre-Medicare - 8.25 percent graded down to 4.5 percent by .25 percent per year Post-Medicare - 6.5 percent graded down to 4.5 percent by .25 percent per year

Mortality

Mortality rates for police were as set forth in 2010 Employee and Healthy Retiree and for all others were as set forth in 2010 Public General Employee and Healthy Retiree, headcount weighted, MP-2018 improvement scale.

Investment Rate of Return

The long-term rate of return on retirement plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of OPEB Plan expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the OPEB Plan's target asset allocation as of November 30, 2020 are summarized in the following table:

Asset Class	Target Allocation	Target Allocation Gross Rate of Return	Long-Term Expected Gross Rate of Return	Inflation Assumption	Long-Term Expected Real Rate of Return
Global equity	60.0%	7.75%	4.65%	2.50%	3.15%
Global fixed income	20.0%	3.75%	0.75%	2.50%	25.00%
Private assets	20.0%	9.75%	1.95%	2.50%	1.45%
Total	**100.0%**		**7.35%**		**4.85%**

Discount Rate

The discount rate used to measure the total OPEB liability was 2.79 percent. The projection of cash flows used to determine the discount rate assumed that the City's assets recognize a portion of the benefit payments as contributions but only to the extent that they can reasonably

be attributed to active employees. Based on this assumption, the OPEB Plan trust's fiduciary net position was projected to be sufficient to make projected future benefit payments of current plan members into 2038, the crossover point. For projected benefits that are covered by projected assets, the long-term expected rate was used to discount the projected benefits. From the year that benefit payments were not projected to be covered by the projected assets (the "depletion date"), projected benefits were discounted at a discount rate reflecting a 20-year AA/Aa tax-exempt municipal bond yield. A single equivalent discount rate that yields the same present value of benefits is calculated. This discount rate is used to determine the total OPEB liability. The discount rate used to calculate the liability at the beginning of the year was 3.83 percent.

Changes in the Net OPEB Liability

	Total OPEB Liability (a)	Plan Fiduciary Position (b)	Net OPEB Liability (a)-(b)
Balance at December 1, 2019	$ 2,145,295	$ 391,340	$ 1,753,955
Changes for the year			
Service cost	144,659	-	144,659
Interest	87,194	-	87,194
Difference between expected and actual experience	(549,707)	-	(549,707)
Changes of assumptions	253,058	-	253,058
Contributions - employer	-	26,682	(26,682)
Net investment income	-	28,478	(28,478)
Administrative expenses	-	(720)	720
Benefit payments including refund of employee contributions	(26,682)	(26,682)	-
Net changes	(91,478)	27,758	(119,236)
Balance at November 30, 2020	**$ 2,053,817**	**$ 419,098**	**$ 1,634,719**

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

The following presents the net OPEB liability of the City, calculated using the discount rate of 2.79 percent, as well as what the City's net OPEB liability would be if it were calculated using a discount rate that is 1-percentage-point lower (1.79 percent) or 1-percentage-point higher (3.79 percent) than the current rate:

	1% Decrease (1.79%)	Current Discount Rate (2.79%)	1% Increase (3.79%)
City's net OPEB liability	$ 1,967,558	$ 1,634,719	$ 1,365,862

Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates

The following presents the net OPEB liability of the City, calculated using the healthcare cost trend rate of 8.25 percent for pre-Medicare or 6.5 percent for post-Medicare, decreasing to 4.5 percent, as well as what the City's net OPEB liability would be if it were calculated using healthcare cost trend rates that are 1-percentage-point lower or 1-percentage-point higher than the current rate:

	1% Decrease	Current Healthcare Cost Trend Rates	1% Increase
City's net OPEB liability	$ 1,302,164	$ 1,634,719	$ 2,062,627

OPEB Plan Fiduciary Net Position

Detailed information about the OPEB Plan's fiduciary net position is not available in a separately issued financial report. For purposes of measuring the net OPEB liability, deferred outflows of resources and deferred inflows of resources related to OPEB, and OPEB expenses, information about the fiduciary net position of the OPEB Plan and additions to/deductions from the City's fiduciary net position have been determined on the same basis as they are reported by the City. For these purposes, benefit payments (include refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB Plan

For the year ended November 30, 2020, the City recognized OPEB expense of $176,170. At November 30, 2020, the City reported deferred outflows of resources and deferred inflows of resources related to OPEB from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences in experience	$ -	$ 725,732
Differences in assumptions	849,296	316,271
Net difference between projected and actual net investment income	12,987	-
Total	**$ 862,283**	**$ 1,042,003**

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

Year Ending November 30,	Amount
2021	$ (26,102)
2022	(26,102)
2023	(25,988)
2024	(29,909)
2025	(30,272)
Thereafter	(41,347)

Payables to the OPEB Plan

At November 30, 2020, the City did not have a payable to the OPEB Plan.

Healthcare Savings Plan

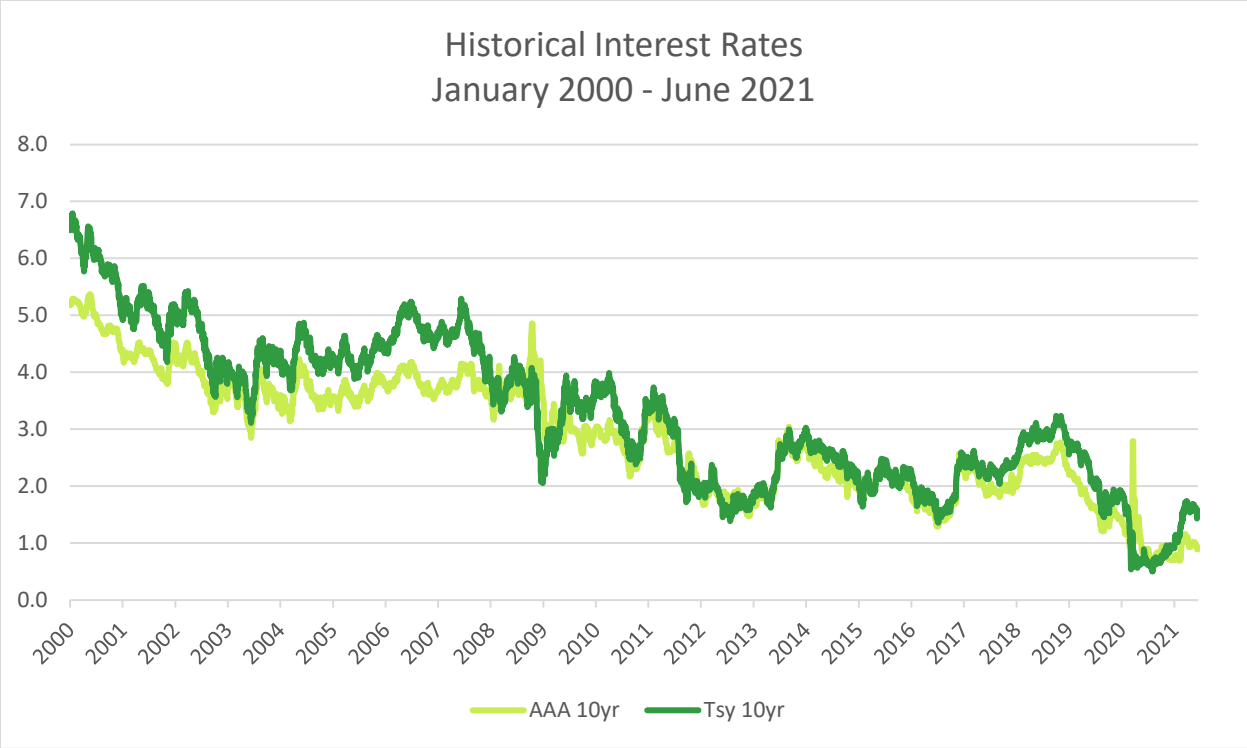
The City also maintains a defined contribution Health Care Savings Plan (HCSP) offered by MERS. In this plan, post-employment healthcare benefits depend solely on amounts contributed to the plan plus investment earnings. The Plan covers all employee divisions except for the police union division. The authority for establishing or amending the Plan's provisions and for establishing or amending contribution requirements rests with the City Council as determined by negotiated labor contracts. The City is not required to contribute to the HCSP. Qualified employees are also required to contribute 1 percent of annual compensation.

Rating Requirements

The City is in the process of obtaining a rating from one of the major credit rating agencies, and the rating will be received prior to sale of the bonds. The City understands that it must achieve a credit rating within the A category or higher from at least one rating agency in order to receive approval from the Department of Treasury and issue the Bonds. From the initial analysis using the rating agency published methodology, the City anticipates it will obtain the minimum rating required.

Bond Issuance Considerations

The City anticipates issuing bonds as authorized by Act 34 to partially fund the unfunded pension liability for its MERS Plan. The chart below shows a history of 10- year US Treasury rates along with the 10-year tax-exempt national AAA rated MMD interest rates. Since interest rates are still at historically low levels, the City anticipates receiving favorable interest rates for the limited tax general obligation bonds to fund its pension obligation.



Determination of Bond Amount

Act 34 limits the amount the City can bond to achieve up to a maximum 95% funded level based on either the market value or actuarial value of assets. This is shown in greater detail on the Estimated Bond Amount table on the next page.

The annual required contribution the City makes for its defined benefit pension plans is comprised of two parts, the unfunded accrued liability and the normal cost component. The unfunded accrued liability is the portion of the pension liability that is not funded, while the normal cost is the cost of future benefits earned by employees in the current year. Under Act 34, only a portion of the unfunded accrued liability may be financed with bonds, to the 95% funding level as noted above.

The City is planning to issue an amount that will achieve an approximate 95% funding level for its MERS plan, based on either the market value of assets or the actuarial value of assets, to be determined prior to the bond sale. The sources and uses for these two different options are shown below. Also shown is the projected funding levels before and after the proposed bonds are issued.

The City understands that a more recent value of assets, determined within 150 days of closing, will need to be used if the bond amount is based on the market value of assets. The City is planning to issue the bonds using whichever methodology results in the highest funding amount in order to achieve the maximum funding level, while also achieving the required minimum net present value savings as provided by Act 34.

		Based on UAL Using 12/31/19 Actuarial Value of Assets	Based on UAL Using 12/31/19 Market Value of Assets
a	Actuarial Accrued Liabilities (AAL)[1]	6,982,966	6,982,966
b	Maximum % Funding Level for Bonding	95.00%	95.00%
c	Maximum Funding Level for Bonding in Dolla	6,633,818	6,633,818
d	Less: Value of Assets[2]	3,643,505	3,596,113
e	Maximum Unfunded Liability to be Bonded	2,990,313	3,037,705
f	Plus Estimated Issuance Costs	119,687	122,295
g	**Maximum Estimated Bond Amount**	**3,110,000**	**3,160,000**
h	Funding Level After Bonding	95.00%	95.00%
i	Funding Level Before Bonding	52.18%	51.50%

[1] *Value found on page 5 of Actuarial Report*

[2] *Actuarial Value found on page 5 of Actuarial Report | Market Value on page 12*

Legal Debt Limit Compliance

As of June 21, 2021, the Township's outstanding debt is showing as below:

Date	Issue	Security	Final Maturity	Principal Amount Outstanding
2016	Capital Improvement Bonds	LTGO	2036	$3,205,000

Based on the above outstanding debt information, as well as the Township's 2021 State Equalized Value, the Township has the legal debt capacity to issue the Bonds, as computed below:

Legal Debt Margin	
2021 State Equalized Value (SEV)	$133,436,600
Legal Debt Limit - 10% of SEV	$13,343,660
Total Debt Outstanding	$3,205,000
Legal Debt Margin Available	**$10,138,660**
Proposed Amount of New Bond (LTGO)	$3,160,000
Share of Legal Debt Margin Available After New Bond	31.17%
Estimated Legal Debt Margin Available After New Bond	$6,978,660

Proposed Bond Structure & Estimated Savings

Act 34 requires the debt service schedule for the bonds to not materially deviate from level or descending annual debt service. However, the City may take into account other municipal securities when determining the level annual debt service for the first 5 years of the issuance.

Act 34 also requires the projected net present value savings between the actuarially determined amortization payments at the plans investment rate of return, and the debt service requirements to be at least 15% of the par amount of the bonds, unless the Michigan Department of Treasury determines that it is in the financial best interest of the City. This minimum savings threshold could impact the size, structure and timing of the bonds.

The savings analyses provided herein compare the estimated payments the City will need to make if it issues bonds to fund the pension obligation to the maximum 95% level. If the City issues bonds, it will be responsible for the bond payments, the remaining UAL amortization payments which will be required due to the remaining unfunded liability, and the normal cost. If the City does not issue pension bonds, it will be responsible for the full UAL amortization payments and the normal cost.

The analyses assume that the actuarial assumptions are accurate, including that the future rate of return is 7.35%. Appendix B includes comparative analysis at the lowered assumed rates of return of 6.35% and 5.35% for the options that assume the actuarial value of assets.

Analysis using Actuarial Value of Assets

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions
Actuarial Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	281,000				234,167	46,833	281,000	-	-	-
2022	337,000	53,563	180,000	233,563		35,234	268,797	68,203	66,734	66,484
2023	348,000	56,970	185,000	241,970		36,384	278,354	69,646	66,560	66,043
2024	358,000	55,916	190,000	245,916		37,430	283,345	74,655	69,687	68,865
2025	369,000	54,529	200,000	254,529		38,580	293,108	75,892	69,194	68,101
2026	380,000	52,229	210,000	262,229		39,730	301,958	78,042	69,498	68,124
2027	391,000	49,499	220,000	269,499		40,880	310,378	80,622	70,126	68,460
2028	403,000	45,957	230,000	275,957		42,135	318,091	84,909	72,137	70,138
2029	415,000	41,909	245,000	286,909		43,389	330,298	84,702	70,287	68,063
2030	428,000	36,813	260,000	296,813		44,748	341,561	86,439	70,059	67,568
2031	440,000	31,145	270,000	301,145		46,003	347,148	92,852	73,506	70,606
2032	425,000	24,989	265,000	289,989		44,435	334,423	90,577	70,037	67,001
2033	124,000	18,682	65,000	83,682		12,964	96,646	27,354	20,659	19,683
2034	128,000	17,070	70,000	87,070		13,383	100,452	27,548	20,321	19,283
2035	132,000	15,264	75,000	90,264		13,801	104,064	27,936	20,128	19,022
2036	136,000	13,254	80,000	93,254		14,219	107,473	28,527	20,076	18,897
2037	140,000	11,030	85,000	96,030		14,637	110,667	29,333	20,163	18,901
2038	144,000	8,582	90,000	98,582		15,056	113,637	30,363	20,385	19,032
2039	149,000	5,900	95,000	100,900		15,578	116,478	32,522	21,327	19,831
2040	140,000	2,974	95,000	97,974		14,637	112,611	27,389	17,543	16,247
	$ 5,668,000	$ 596,267	$ 3,110,000	$ 3,706,267	$ 234,167	$ 610,057	$ 4,550,490	$ 1,117,510	$ 928,425	$ 900,351

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $2,990,313 payment towards UAL, leaving 10.46% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$2,990,313
Estimated Bond Amount:	$3,110,000
Arbitrage Yield:	2.382%
All-In TIC:	2.798%
NPV Savings as % of Principal based on Arb. Yield:	29.85%
NPV Savings as % of Principal based on All-In TIC:	28.95%

Analysis using Market Value of Assets

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions
Market Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	281,000				234,167	46,833	281,000	-	-	-
2022	343,000	54,565	180,000	234,565		35,360	269,924	73,076	71,500	71,236
2023	353,000	58,053	185,000	243,053		36,391	279,444	73,556	70,295	69,756
2024	364,000	56,999	195,000	251,999		37,525	289,523	74,477	69,517	68,709
2025	375,000	55,575	200,000	255,575		38,658	294,233	80,767	73,632	72,486
2026	386,000	53,275	210,000	263,275		39,792	303,067	82,933	73,847	72,407
2027	398,000	50,545	225,000	275,545		41,030	316,575	81,425	70,816	69,159
2028	409,000	46,923	235,000	281,923		42,164	324,086	84,914	72,131	70,161
2029	422,000	42,787	250,000	292,787		43,504	336,290	85,710	71,111	68,894
2030	434,000	37,587	260,000	297,587		44,741	342,327	91,673	74,288	71,684
2031	447,000	31,919	275,000	306,919		46,081	352,999	94,001	74,400	71,506
2032	432,000	25,649	270,000	295,649		44,535	340,183	91,817	70,980	67,946
2033	127,000	19,223	70,000	89,223		13,092	102,315	24,685	18,639	17,771
2034	131,000	17,487	75,000	92,487		13,505	105,991	25,009	18,443	17,515
2035	135,000	15,552	80,000	95,552		13,917	109,469	25,531	18,390	17,395
2036	139,000	13,408	80,000	93,408		14,329	107,737	31,263	21,995	20,720
2037	143,000	11,184	85,000	96,184		14,742	110,925	32,075	22,040	20,681
2038	147,000	8,736	90,000	98,736		15,154	113,890	33,110	22,222	20,768
2039	151,000	6,054	100,000	106,054		15,566	121,620	29,380	19,259	17,927
2040	143,000	2,974	95,000	97,974		14,742	112,715	30,285	19,390	17,977
	$ 5,760,000	$ 608,488	$ 3,160,000	$ 3,768,488	$ 234,167	$ 611,660	$ 4,614,314	$ 1,145,686	$ 952,896	$ 924,696

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $3,037,705 payment towards UAL, leaving 10.31% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$3,037,705
Estimated Bond Amount:	$3,160,000
Arbitrage Yield:	2.384%
All-In TIC:	2.794%
NPV Savings as % of Principal based on Arb. Yield:	30.15%
NPV Savings as % of Principal based on All-In TIC:	29.26%

Based on the preceding analysis, the City has determined that it is financially beneficial to pursue the issuance of bonds to fund a portion of the pension obligation.

Acknowledgement of Future Annual Required Contributions

Since the actuarial value of the defined benefit plan's assets and liabilities are subject to change, the City acknowledges that it is possible the unfunded accrued liability may increase after the issuance of the bonds, thereby requiring the City to make additional actuarially determined amortization payments to the defined benefit plan beyond the principal and interest payments due on the bonds.

Impact on Changes of Rate of Return on Investments

The calculation determining the unfunded actuarial accrued liability is based upon, among other assumptions, a 7.35% future annual investment rate of return on the actuarial value of assets. If actual investments return achieved are lower than 7.35% annually the result would be a higher liability. Likewise, if the actual rate of return achieved is higher than 7.35 %, the result would be a lower liability. The table below summarizes the City's unfunded actuarial accrued liability under different rate of return assumptions using the actuarial value of assets as of December 31, 2018.

Assume Future Annual Smoothed Rate of Investment Return - Actuarial Value			
12/31/18 Valuation Results	7.35%	6.35%	5.35%
Accrued Liability	6,982,966	7,952,286	8,921,606
Actuarial Value of Assets	3,643,505	3,643,505	3,643,505
Unfunded Accrued Liability	3,339,461	4,308,781	5,278,101
Funded Ratio	52%	46%	41%
Adjusted Unfunded Liability Net of Estimated Bond Proceeds*	349,148	1,318,468	2,287,788
Adjusted Funded Ratio Net of Estimated Bond Proceeds*	95%	83%	74%

*Assumes application of $2,990,313 of bond proceeds to UAL

Assume Future Annual Smoothed Rate of Investment Return - Market Value			
12/31/18 Valuation Results	7.35%	6.35%	5.35%
Accrued Liability	6,982,966	7,952,286	8,921,606
Market Value of Assets	3,596,113	3,596,113	3,596,113
Unfunded Accrued Liability	3,386,853	4,356,173	5,325,493
Funded Ratio	51%	45%	40%
Adjusted Unfunded Liability Net of Estimated Bond Proceeds*	349,148	1,318,468	2,287,788
Adjusted Funded Ratio Net of Estimated Bond Proceeds*	95%	83%	74%

*Assumes application of $3,037,705 of bond proceeds to UAL

The City understands that the actual savings achieved depends on many factors, including the actual investment rate of return earned and the interest rate received on the bonds. Below is a table showing the estimated savings on a net present value basis for different combinations of bond interest rates and future projected investment rates of return. If future rates of return are lower than the 7.35% projected rate, the savings will be lower than projected in the analysis provided earlier. The table below assumes that the City will bond to achieve a 95% funded level based on the actuarial value of assets.

Actuarial Value of Assets

Summary of Savings
Nominal Savings

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	$ 1,117,510.26	$ 970,262.53	$ 1,252,123.76
Expected UAL ROR -100 BPS (6.35%)	$ 828,357.79	$ 681,110.06	$ 962,971.29
Expected UAL ROR -200 BPS (5.35%)	$ 679,403.71	$ 532,155.98	$ 814,017.21

Summary of Present Value Savings
Discounted to Arbitrage Yield

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	$ 928,425.32	$ 777,382.96	$ 1,081,693.61
Expected UAL ROR -100 BPS (6.35%)	$ 679,297.43	$ 535,767.83	$ 824,777.97
Expected UAL ROR -200 BPS (5.35%)	$ 550,826.99	$ 411,145.02	$ 692,319.98

Summary of Present Value Savings
Discounted to All-In TIC

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	$ 900,350.65	$ 754,093.97	$ 1,049,276.87
Expected UAL ROR -100 BPS (6.35%)	$ 657,373.27	$ 518,450.40	$ 798,664.60
Expected UAL ROR -200 BPS (5.35%)	$ 532,052.72	$ 396,886.52	$ 669,434.03

Actuarial Value of Assets

Summary of Savings
Nominal Savings

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	35.93%	31.20%	40.26%
Expected UAL ROR -100 BPS (6.35%)	26.64%	21.90%	30.96%
Expected UAL ROR -200 BPS (5.35%)	21.85%	17.11%	26.17%

Summary of Present Value Savings
Discounted to Arbitrage Yield

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	29.85%	25.00%	34.78%
Expected UAL ROR -100 BPS (6.35%)	21.84%	17.23%	26.52%
Expected UAL ROR -200 BPS (5.35%)	17.71%	13.22%	22.26%

Summary of Present Value Savings
Discounted to All-In TIC

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	28.95%	24.25%	33.74%
Expected UAL ROR -100 BPS (6.35%)	21.14%	16.67%	25.68%
Expected UAL ROR -200 BPS (5.35%)	17.11%	12.76%	21.53%

Historical Rate of Returns on Investments

Below is a comparison of the current investment rate of return with the returns of the MERS system for the past 35 years as of December 31, 2019:

Year-by-Year Returns (35 years: 1985-2019)

Year	Rate of Return	Year	Rate of Return	Year	Rate of Return
2019	14.14%	2007	8.58%	1995	23.95%
2018	-3.51	2006	13.61	1994	0.52
2017	13.40	2005	6.78	1993	9.67
2016	11.10	2004	14.90	1992	8.05
2015	-0.85	2003	24.72	1991	22.14
2014	6.68	2002	-8.34	1990	2.94
2013	15.00	2001	-1.91	1989	19.10
2012	11.39	2000	-2.76	1988	11.20
2011	2.30	1999	17.01	1987	5.51
2010	14.43	1998	14.20	1986	13.55
2009	17.31	1997	14.43	1985	24.33
2008	-24.79	1996	12.68		

Annualized 35-year rate of return for MERS Defined Benefit: **8.97%**

Performance numbers on this page are gross of fees.

Description of Action Required to Meet Obligations

The City allocates pension and post-employment health care costs to the various departments that receive benefits based on historical staff membership in the Plans. Similarly, the annual debt service for the bonds to fund the pension obligations will be allocated proportionately to the departments that receive pension benefits. Revenue sources for the funds that will be allocated portions of the annual bond payments include annual operating levies, state shared revenues, rates and charges, and other sources of annual revenue.

The City Manager completes an annual budget by fund and presents it to the City Council for approval. The annual debt service amounts for each fund within the budget will be included in the annual budget process to be presented and approved annually by the City Council. The bonds to fund the pension obligations will carry the City's limited tax general obligation full faith and credit pledge; therefore, the annual debt service will be legally required to be part of the City's total budget.

Plan Compliance

As outlined in Act 34, the Plan contains the following elements:

- An analysis of the current and future obligations with respect to each retirement program of the City. The City's defined benefit plan is closed to new hires. Information regarding the defined benefit plan was obtained from MERS and GRS Retirement Consulting.
- An analysis of current amount of future obligation with respect to the post-employment health care plan.
- Evidence that the issuance coupled with any other legally available funds, is sufficient to eliminate the unfunded pension liability. The unfunded pension liability for the MERS Plan is expected to be partially funded from bond proceeds. The remaining UAL will be funded as it has been historically, through the various funds that receive the pension benefits.
- A description of actions required to satisfy the debt service amortization schedule. The pension obligation bonds are a limited tax general obligation of the City, paid from various City funds. A description of actions the City takes to allocate costs to its various funds, create the annual budget and obtain budget approval from the City Council.
- Certifications. The various certifications required by Act 34 are included on page 26.

Act 34 also requires the Plan be prepared and made available to the public. Accordingly, the City has prepared this Plan, which has been approved by the City Council on June 21, 2021 and has been made available in the City's clerk office for public review. It has also been posted and made publicly available on the City's website at https://rooseveltpark.org/.

Certifications

The City has prepared this Comprehensive Financial Plan for Pension and Other Post-Employment Benefits as required under Act 34 for the issuance of General Obligation Bonds to fund pension liability. In preparing this plan, information has been obtained from Municipal Employees Retirement System and its actuary, GRS. The City believes the information provided by these firms to be reliable.

I certify the following:

- This Comprehensive Financial Plan is complete and accurate to the best of my knowledge and belief.
- The City ’s most recent audit report indicates that sum of all the City ’s defined benefit plans’ actual contributions for the most recent 3 fiscal years are 100% or greater than the sum of all the City ’s defined benefit plans’ actuarially determined contributions for the most recent 3 fiscal years.
- The City is compliant on any reporting requirements in accordance with the Protecting Local Government Retirement and Benefits Act, Public Act 202 of 2017.

_____

By: Jared Olson, City Manager

Dated: _____

CITY OF ROOSEVELT PARK

Appendix A PROJECTED AMORTIZATION SCHEDULE FROM MERS

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

December 23, 2020

In care of:
Municipal Employees' Retirement System of Michigan
1134 Municipal Way
Lansing, Michigan 48917

Re: Roosevelt Park, City of (6107) – All Divisions – Projections of Amortization Payment of Unfunded Accrued Liability

The purpose of this letter is to illustrate the pattern of the annual amortization payments to fund the Unfunded Accrued Liability (UAL) as of December 31, 2019, under the amortization policy which would be followed. The results are calculated using a 7.35%, 6.35% and 5.35% return assumption, all with a 3.00% wage inflation assumption for analysis of application requests to issue Long-Term Securities under PA 575 of 2018. This legislation limits the amount of Unfunded Accrued Liability available for bonding. We recommend consultation with your bond consultant and legal counsel to ensure compliance with this legislation. The report shows these amortization payments of the UAL calculated using both the actuarial value and market value of assets. The report consists of separate sections containing the following additional detail.

- An executive summary that provides a brief explanation of the results.
- Results sections illustrating the pattern in annual amortization payments under the three alternate interest rate scenarios and both the market and actuarial valuation of assets.
- Employer Normal Cost contributions calculated for the Fiscal Year Beginning January 1, 2020, under each alternate interest rate scenario.

This report was prepared at the request of MERS on behalf of the municipality and is intended for use by the municipality and those designated or approved by the municipality. **The report may be provided to parties other than the municipality only in its entirety.** GRS is not responsible for unauthorized use of this report.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

The valuation was based upon information furnished by MERS staff, concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the municipality and MERS staff.

The estimates from this study should not be used for short term budgeting purposes because the assumptions are designed to be a long-term expectation of future events. These estimates illustrate the long-term pattern of amortization payments under different funding policies. A projection of contribution rates for budgeting purposes would require additional analysis, which is beyond the scope of this study.

This report does not reflect the recent and still developing impact of COVID-19, which is likely to influence demographic and economic experience, at least in the short-term. We will continue to monitor these developments and their impact on the MERS Defined Benefit and Hybrid plans. Actual experience will be reflected in each subsequent annual valuation, as experience emerges.

The Plan Document Article VI sec. 71 (1)(d), provides the MERS Board with the authority to set actuarial assumptions and methods after consultation with the actuary. This report was prepared using certain assumptions approved by the Board. The MERS Board adopted the actuarial assumptions based on the recommendations of both the current and prior actuary. A description of these assumptions and methods can be found as follows:

- Plan Document, v04302020,
- Actuarial Policy, DOC 8062 (2020-06-25), and
- 2019 Appendix to the Annual Actuarial Valuation Report.

On February 27, 2020, the Board adopted new demographic assumptions for use beginning with the December 31, 2020 annual valuation report. These assumptions include a version of the Pub-2010 mortality tables and fully generational mortality improvements with scale MP-2019. Changes resulting from these studies will have an impact on the level of calculated employer contributions, which are not reflected in this report.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the municipality as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices and in conformity with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

David T. Kausch and Kurt Dosson are Members of the American Academy of Actuaries (MAAA) and meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

The signing actuaries are independent of the plan sponsor.

If you have any questions or need additional information, please contact your MERS representative at 800-767-MERS.

Sincerely,

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

Kurt Dosson, ASA, MAAA

Table of Contents

Executive Summary 4

Supplemental Valuation Results – All Divisions 5

Important Comments 8

A discussion of pension obligation bonds is beyond the scope of this letter. However, it is important for the employer to understand and acknowledge the following implications of funding the UAL using pension obligation bonds:

1. **The employer will continue to be responsible for funding the employer normal cost as long as there are active members in the plan,**
2. **If future financial or demographic experience is less favorable than assumed, additional UAL may emerge which would require additional employer contributions, and**
3. **Fully funding the current UAL does not guarantee that there will be no employer contribution requirements in the future.**

This actuarial report was not developed for purposes of bond disclosures and may not be appropriate for that purpose. It is possible that we may have included material that is not appropriate to the situation, or that we may have omitted material that is appropriate or even required. We do not accept responsibility for errors in the bond disclosure even if such errors are directly related to the services we have performed. We are not registered municipal advisors with the SEC.

Our calculations were based on the following:

- Demographic information, financial information, benefit provisions and funding methods provided by MERS for the December 31, 2019 annual actuarial valuation, except where otherwise noted.
- Assumption sets, without any phase-in of the impact of assumption changes:
  - Investment Rate of Return/Wage Inflation/Demographic Assumptions:
    - 7.35%/3.00%/2019 Demographic Assumptions,
    - 6.35%/3.00%/2019 Demographic Assumptions, and
    - 5.35%/3.00%/2019 Demographic Assumptions
- The employer contributions through November 30, 2021 are not affected, and are based on previous annual actuarial valuations.
- No bonding proceeds are incorporated as part of the calculations. Beginning asset values are those used in the December 31, 2019 actuarial valuation.
- As requested by MERS, all assets from the surplus Division S1 were transferred to Division 01 in all exhibits in this report.

As always, the MERS actuaries will closely watch the funding progress of all divisions. The actuaries may recommend changes to the amortization policy in the future if they deem it necessary for the financial security of benefits provided by the municipality, which could result in more accelerated employer contributions than those shown in this report.

Issuance of a POB may affect the risk profile of the Plan. Contribution of POB bond proceeds to the plan improves the funded status of the Plan, and also increases the potential for contribution volatility in future annual actuarial valuation reports. At this time, we do not believe additional risk assessment is necessary. Plan maturity risk metrics will be updated in future annual actuarial valuation reports.

We projected the annual amortization payments, starting with the amortization periods in effect for the calendar year beginning January 1, 2020, under the amortization policies available for each division as in effect for the December 31, 2019 annual actuarial valuation. **Any normal cost payments are in addition to the amortization payment, and are not affected by the amortization policy used.**

These results are for illustration purposes only. Actual amortization payments will depend on the results of future annual actuarial valuations.

Roosevelt Park, City of (6107)
Supplemental Valuation Results – All Divisions

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2019 Actuarial Valuation Data Using 7.35% Interest Rate, 3.00% Wage Inflation, and 2019 Demographic Assumptions*^

	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		
Calendar Year Beginning January 1,	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	Employer Normal Cost Contribution
2020	$3,340,000	$227,000	$3,390,000	$227,000	$58,000
2021	3,350,000	281,000	3,400,000	281,000	60,500
2022	3,300,000	337,000	3,360,000	343,000	55,800
2023	3,200,000	348,000	3,250,000	353,000	52,500
2024	3,070,000	358,000	3,120,000	364,000	49,600
2025	2,930,000	369,000	2,980,000	375,000	47,200
2026	2,760,000	380,000	2,810,000	386,000	44,500
2027	2,570,000	391,000	2,610,000	398,000	39,100
2028	2,350,000	403,000	2,390,000	409,000	32,300
2029	2,110,000	415,000	2,140,000	422,000	26,900
2030	1,830,000	428,000	1,860,000	434,000	22,800
2031	1,530,000	440,000	1,550,000	447,000	19,700
2032	1,180,000	425,000	1,200,000	432,000	17,500
2033	827,000	124,000	843,000	127,000	15,800
2034	759,000	128,000	773,000	131,000	14,700
2035	682,000	132,000	695,000	135,000	13,800
2036	595,000	136,000	607,000	139,000	13,000
2037	498,000	140,000	508,000	143,000	12,200
2038	390,000	144,000	397,000	147,000	10,500
2039	269,000	149,000	274,000	151,000	8,200
2040	135,000	140,000	137,000	143,000	6,200

* *The amortization schedules shown above assume all actuarial assumptions are met in future years, including actuarial and market rates of return at the stated interest rate.*

^ *The employer normal cost contribution is displayed through the expiration of the remaining UAL balance. Actual employer normal cost contributions may extend past this date.*

Roosevelt Park, City of (6107)
Supplemental Valuation Results – All Divisions

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2019 Actuarial Valuation Data Using 6.35% Interest Rate, 3.00% Wage Inflation, and 2019 Demographic Assumptions*^

	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		
Calendar Year Beginning January 1,	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	Employer Normal Cost Contribution
2020	$4,220,000	$227,000	$4,270,000	$227,000	$58,000
2021	4,250,000	286,000	4,300,000	287,000	62,100
2022	4,230,000	404,000	4,280,000	409,000	74,900
2023	4,080,000	416,000	4,130,000	421,000	70,400
2024	3,910,000	428,000	3,960,000	434,000	66,400
2025	3,720,000	441,000	3,760,000	447,000	63,200
2026	3,500,000	454,000	3,540,000	460,000	59,500
2027	3,250,000	468,000	3,290,000	474,000	52,300
2028	2,970,000	482,000	3,010,000	488,000	43,200
2029	2,660,000	496,000	2,700,000	503,000	35,900
2030	2,320,000	511,000	2,350,000	518,000	30,400
2031	1,940,000	527,000	1,970,000	533,000	26,300
2032	1,520,000	509,000	1,540,000	516,000	23,300
2033	1,090,000	159,000	1,110,000	161,000	21,100
2034	1,000,000	164,000	1,010,000	166,000	19,500
2035	894,000	169,000	906,000	171,000	18,300
2036	777,000	174,000	788,000	176,000	17,300
2037	648,000	179,000	656,000	181,000	16,200
2038	504,000	184,000	511,000	187,000	13,900
2039	346,000	190,000	351,000	192,000	10,900
2040	173,000	179,000	175,000	181,000	8,300

* *The amortization schedules shown above assume all actuarial assumptions are met in future years, including actuarial and market rates of return at the stated interest rate.*

^ *The employer normal cost contribution is displayed through the expiration of the remaining UAL balance. Actual employer normal cost contributions may extend past this date.*

Roosevelt Park, City of (6107)
Supplemental Valuation Results – All Divisions

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2019 Actuarial Valuation Data Using 5.35% Interest Rate, 3.00% Wage Inflation, and 2019 Demographic Assumptions*^

	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		
Calendar Year Beginning January 1,	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	Employer Normal Cost Contribution
2020	$5,280,000	$227,000	$5,330,000	$227,000	$58,000
2021	5,330,000	292,000	5,380,000	293,000	64,300
2022	5,310,000	474,000	5,360,000	479,000	101,000
2023	5,110,000	489,000	5,160,000	493,000	94,800
2024	4,880,000	503,000	4,930,000	508,000	89,400
2025	4,630,000	518,000	4,670,000	523,000	85,000
2026	4,340,000	534,000	4,380,000	539,000	80,000
2027	4,030,000	550,000	4,070,000	555,000	70,300
2028	3,680,000	566,000	3,710,000	572,000	57,900
2029	3,290,000	583,000	3,320,000	589,000	48,100
2030	2,870,000	601,000	2,900,000	607,000	40,700
2031	2,410,000	619,000	2,430,000	625,000	35,200
2032	1,900,000	599,000	1,920,000	605,000	31,200
2033	1,390,000	194,000	1,400,000	196,000	28,200
2034	1,260,000	200,000	1,270,000	202,000	26,000
2035	1,120,000	206,000	1,130,000	208,000	24,400
2036	972,000	212,000	982,000	214,000	23,100
2037	806,000	218,000	814,000	221,000	21,600
2038	625,000	225,000	631,000	227,000	18,600
2039	427,000	232,000	432,000	234,000	14,500
2040	212,000	218,000	214,000	221,000	11,000

* *The amortization schedules shown above assume all actuarial assumptions are met in future years, including actuarial and market rates of return at the stated interest rate.*

^ *The employer normal cost contribution is displayed through the expiration of the remaining UAL balance. Actual employer normal cost contributions may extend past this date.*

Important Comments

1. The actuarial value of assets used to determine both the funded ratio and the required employer contribution is based on a smoothed value of assets. Only a portion of each year's investment market gain or loss is recognized in the current actuarial value of assets; the remaining portions of gains and losses will be reflected in future years' actuarial value of assets. This reduces the asset volatility impact on the determined required employer contribution and funded ratio. The smoothed actuarial rate of return for 2019 was 4.77%.

   As of December 31, 2019, the actuarial value of assets is 101% of market value. This means that there is a net outstanding asset loss that is not yet recognized in the actuarial value of assets. Absent future asset gains offsetting the net outstanding asset loss, the net outstanding asset loss will be recognized in future actuarial valuations and is expected to decrease funded ratios and increase employer contribution requirements.

2. Unless otherwise indicated, a funded status measurement is based upon the actuarial accrued liability and the actuarial value of assets. The measurement is:

   a. Inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.
   b. Inappropriate for assessing benefit security for the membership.
   c. Dependent upon the actuarial cost method which, in combination with the amortization policy and asset valuation method, affects the timing and amounts of future contributions. The amounts of future contributions will differ from those assumed due to future actual experience differing from assumed.

   A funded status measurement of 100% is not synonymous with no required future contributions. If the funded status were 100%, the Plan would still require future normal cost contributions (i.e., the cost of the active membership accruing an additional year of service credit).

3. The results do not show the potential impact on other post-employment benefits (such as retiree health care insurance) or ancillary benefits (such as life insurance).

4. The results of separate actuarial valuations generally cannot be added together to produce a correct estimate of the employer contributions. The total can be considerably greater than the sum of the parts due to the interaction of various plan provisions and assumptions used.

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

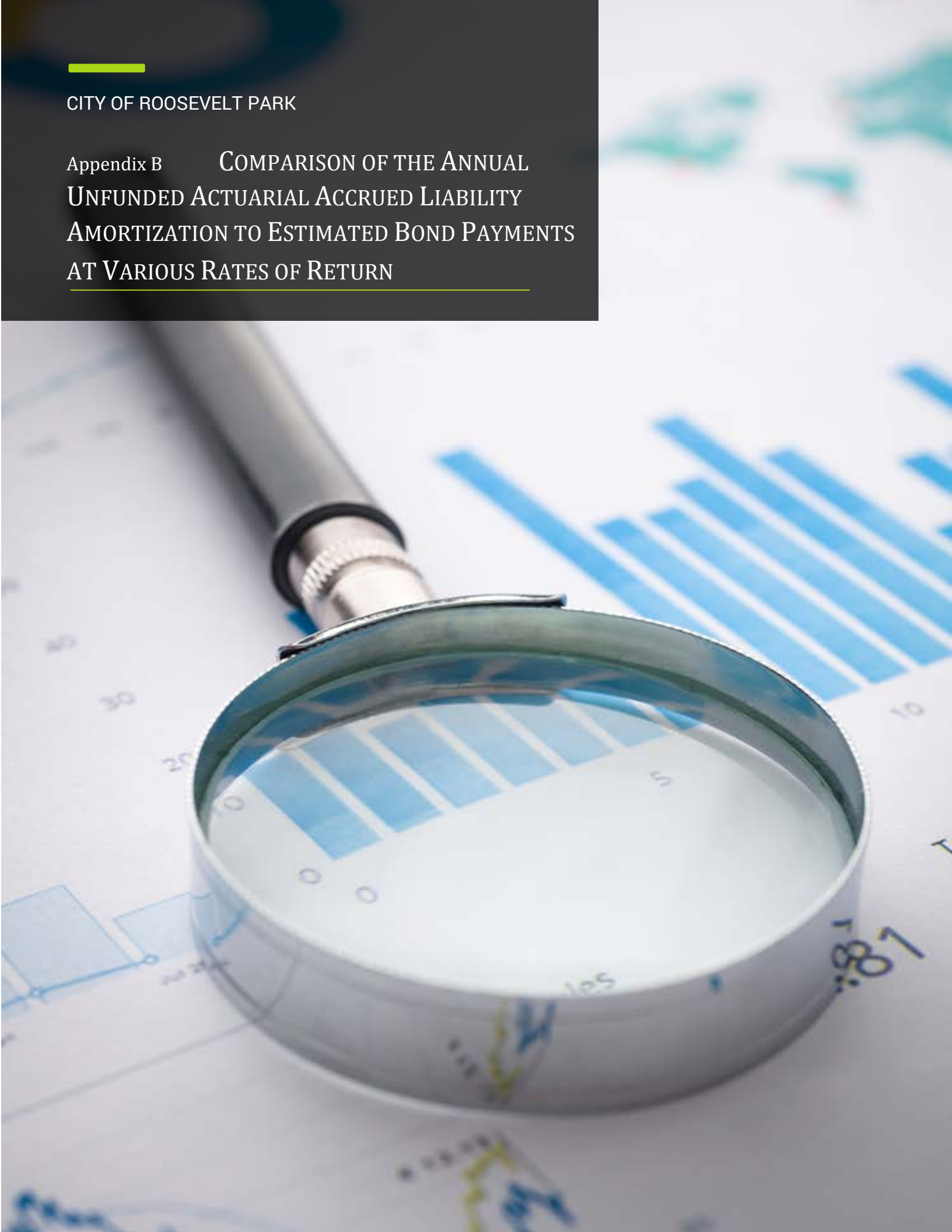
Important Comments (Concluded)

6. This report was prepared using ProVal's valuation model, a software product of Winklevoss Technologies. We are relying on the ProVal model. We performed tests of the ProVal model with this assignment and made a reasonable attempt to understand the developer's intended purpose of, general operation of, major sensitivities and dependencies within, and key strengths and limitations of the ProVal model. In our professional judgment, the ProVal valuation model has the capability to provide results that are consistent with the purposes of the valuation.

7. This report was prepared using our financing and projection model which in our professional judgment has the capability to provide results that are consistent with the purposes of the request. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

CITY OF ROOSEVELT PARK

Appendix B COMPARISON OF THE ANNUAL UNFUNDED ACTUARIAL ACCRUED LIABILITY AMORTIZATION TO ESTIMATED BOND PAYMENTS AT VARIOUS RATES OF RETURN



Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions
Actuarial Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	281,000				234,167	46,833	281,000	-	-	-
2022	337,000	53,563	180,000	233,563		35,234	268,797	68,203	66,734	66,484
2023	348,000	56,970	185,000	241,970		36,384	278,354	69,646	66,560	66,043
2024	358,000	55,916	190,000	245,916		37,430	283,345	74,655	69,687	68,865
2025	369,000	54,529	200,000	254,529		38,580	293,108	75,892	69,194	68,101
2026	380,000	52,229	210,000	262,229		39,730	301,958	78,042	69,498	68,124
2027	391,000	49,499	220,000	269,499		40,880	310,378	80,622	70,126	68,460
2028	403,000	45,957	230,000	275,957		42,135	318,091	84,909	72,137	70,138
2029	415,000	41,909	245,000	286,909		43,389	330,298	84,702	70,287	68,063
2030	428,000	36,813	260,000	296,813		44,748	341,561	86,439	70,059	67,568
2031	440,000	31,145	270,000	301,145		46,003	347,148	92,852	73,506	70,606
2032	425,000	24,989	265,000	289,989		44,435	334,423	90,577	70,037	67,001
2033	124,000	18,682	65,000	83,682		12,964	96,646	27,354	20,659	19,683
2034	128,000	17,070	70,000	87,070		13,383	100,452	27,548	20,321	19,283
2035	132,000	15,264	75,000	90,264		13,801	104,064	27,936	20,128	19,022
2036	136,000	13,254	80,000	93,254		14,219	107,473	28,527	20,076	18,897
2037	140,000	11,030	85,000	96,030		14,637	110,667	29,333	20,163	18,901
2038	144,000	8,582	90,000	98,582		15,056	113,637	30,363	20,385	19,032
2039	149,000	5,900	95,000	100,900		15,578	116,478	32,522	21,327	19,831
2040	140,000	2,974	95,000	97,974		14,637	112,611	27,389	17,543	16,247
	$ 5,668,000	$ 596,267	$ 3,110,000	$ 3,706,267	$ 234,167	$ 610,057	$ 4,550,490	$ 1,117,510	$ 928,425	$ 900,351

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $2,990,313 payment towards UAL, leaving 10.46% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$2,990,313
Estimated Bond Amount:	$3,110,000
Arbitrage Yield:	2.382%
All-In TIC:	2.798%
NPV Savings as % of Principal based on Arb. Yield:	29.85%
NPV Savings as % of Principal based on All-In TIC:	28.95%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions +50 Basis Points
Actuarial Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	281,000				234,167	46,833	281,000	-	-	-
2022	337,000	68,545	175,000	243,545		35,234	278,779	58,221	56,705	56,490
2023	348,000	72,318	175,000	247,318		36,384	283,702	64,298	60,864	60,385
2024	358,000	70,446	185,000	255,446		37,430	292,875	65,125	59,914	59,199
2025	369,000	68,170	195,000	263,170		38,580	301,750	67,250	60,130	59,170
2026	380,000	64,953	210,000	274,953		39,730	314,682	65,318	56,760	55,625
2027	391,000	61,173	220,000	281,173		40,880	322,052	68,948	58,230	56,833
2028	403,000	56,531	230,000	286,531		42,135	328,665	74,335	61,015	59,307
2029	415,000	51,333	245,000	296,333		43,389	339,722	75,278	60,053	58,133
2030	428,000	45,012	260,000	305,012		44,748	349,760	78,240	60,661	58,481
2031	440,000	38,044	275,000	313,044		46,003	359,047	80,953	61,000	58,568
2032	425,000	30,399	275,000	305,399		44,435	349,833	75,167	55,048	52,636
2033	124,000	22,479	65,000	87,479		12,964	100,443	23,557	16,767	15,967
2034	128,000	20,542	70,000	90,542		13,383	103,924	24,076	16,654	15,795
2035	132,000	18,386	75,000	93,386		13,801	107,186	24,814	16,682	15,756
2036	136,000	16,001	80,000	96,001		14,219	110,220	25,780	16,845	15,845
2037	140,000	13,377	90,000	103,377		14,637	118,014	21,986	13,962	13,079
2038	144,000	10,335	95,000	105,335		15,056	120,390	23,610	14,572	13,595
2039	149,000	7,029	100,000	107,029		15,578	122,607	26,393	15,832	14,710
2040	140,000	3,449	95,000	98,449		14,637	113,086	26,914	15,690	14,519
	$ 5,668,000	$ 738,514	$ 3,115,000	$ 3,853,514	$ 234,167	$ 610,057	$ 4,697,737	$ 970,263	$ 777,383	$ 754,094

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $2,990,313 payment towards UAL, leaving 10.46% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$2,990,313
Estimated Bond Amount:	$3,110,000
Arbitrage Yield:	2.892%
All-In TIC:	3.315%
NPV Savings as % of Principal based on Arb. Yield:	25.00%
NPV Savings as % of Principal based on All-In TIC:	24.25%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions -50 Basis Points
Actuarial Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	281,000				234,167	46,833	281,000	-	-	-
2022	337,000	38,856	185,000	223,856		35,234	259,090	77,910	76,582	76,300
2023	348,000	41,969	190,000	231,969		36,384	268,353	79,647	76,847	76,259
2024	358,000	41,836	195,000	236,836		37,430	274,266	83,734	79,303	78,382
2025	369,000	41,388	205,000	246,388		38,580	284,967	84,033	78,120	76,905
2026	380,000	40,055	210,000	250,055		39,730	289,785	90,215	82,323	80,720
2027	391,000	38,375	220,000	258,375		40,880	299,255	91,745	82,177	80,256
2028	403,000	35,933	230,000	265,933		42,135	308,068	94,932	83,466	81,190
2029	415,000	33,035	245,000	278,035		43,389	321,424	93,576	80,758	78,243
2030	428,000	29,164	255,000	284,164		44,748	328,912	99,088	83,940	81,001
2031	440,000	24,880	265,000	289,880		46,003	335,883	104,117	86,576	83,212
2032	425,000	20,163	260,000	280,163		44,435	324,598	100,402	81,949	78,452
2033	124,000	15,275	65,000	80,275		12,964	93,239	30,761	24,645	23,499
2034	128,000	13,988	70,000	83,988		13,383	97,371	30,629	24,087	22,876
2035	132,000	12,532	75,000	87,532		13,801	101,333	30,667	23,673	22,393
2036	136,000	10,897	80,000	90,897		14,219	105,116	30,884	23,401	22,048
2037	140,000	9,073	85,000	94,073		14,637	108,710	31,290	23,272	21,839
2038	144,000	7,050	90,000	97,050		15,056	112,106	31,894	23,285	21,764
2039	149,000	4,818	95,000	99,818		15,578	115,396	33,604	24,081	22,418
2040	140,000	2,367	90,000	92,367		14,637	107,004	32,996	23,210	21,521
	$ 5,668,000	$ 461,653	$ 3,110,000	$ 3,571,653	$ 234,167	$ 610,057	$ 4,415,876	$ 1,252,124	$ 1,081,694	$ 1,049,277

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $2,990,313 payment towards UAL, leaving 10.46% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$2,990,313
Estimated Bond Amount:	$3,110,000
Arbitrage Yield:	1.876%
All-In TIC:	2.284%
NPV Savings as % of Principal based on Arb. Yield:	34.78%
NPV Savings as % of Principal based on All-In TIC:	33.74%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 6.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions
Actuarial Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	286,000				238,333	47,667	286,000	-	-	-
2022	404,000	53,563	180,000	233,563		123,622	357,185	46,815	45,806	45,635
2023	416,000	56,970	185,000	241,970		127,294	369,264	46,736	44,665	44,318
2024	428,000	55,916	190,000	245,916		130,966	376,882	51,118	47,717	47,154
2025	441,000	54,529	200,000	254,529		134,944	389,473	51,527	46,980	46,238
2026	454,000	52,229	210,000	262,229		138,922	401,151	52,849	47,064	46,133
2027	468,000	49,499	220,000	269,499		143,206	412,704	55,296	48,097	46,955
2028	482,000	45,957	230,000	275,957		147,490	423,446	58,554	49,746	48,368
2029	496,000	41,909	245,000	286,909		151,774	438,682	57,318	47,563	46,058
2030	511,000	36,813	260,000	296,813		156,364	453,176	57,824	46,866	45,200
2031	527,000	31,145	270,000	301,145		161,260	462,404	64,596	51,137	49,119
2032	509,000	24,989	265,000	289,989		155,752	445,740	63,260	48,914	46,794
2033	159,000	18,682	65,000	83,682		48,653	132,335	26,665	20,139	19,188
2034	164,000	17,070	70,000	87,070		50,183	137,253	26,747	19,731	18,723
2035	169,000	15,264	75,000	90,264		51,713	141,977	27,023	19,470	18,401
2036	174,000	13,254	80,000	93,254		53,243	146,497	27,503	19,355	18,218
2037	179,000	11,030	85,000	96,030		54,773	150,803	28,197	19,382	18,170
2038	184,000	8,582	90,000	98,582		56,303	154,885	29,115	19,547	18,250
2039	190,000	5,900	95,000	100,900		58,139	159,039	30,961	20,303	18,879
2040	179,000	2,974	95,000	97,974		54,773	152,747	26,253	16,815	15,573
	$ 6,820,000	$ 596,267	$ 3,110,000	$ 3,706,267	$ 238,333	$ 2,047,042	$ 5,991,642	$ 828,358	$ 679,297	$ 657,373

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $2,990,313 payment towards UAL, leaving 30.60% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$2,990,313
Estimated Bond Amount:	$ 3,110,000
Arbitrage Yield:	2.382%
All-In TIC:	2.798%
NPV Savings as % of Principal based on Arb. Yield:	21.84%
NPV Savings as % of Principal based on All-In TIC:	21.14%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 6.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions +50 Basis Points
Actuarial Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	286,000				238,333	47,667	286,000	-	-	-
2022	404,000	68,545	175,000	243,545		123,622	367,168	36,832	35,874	35,738
2023	416,000	72,318	175,000	247,318		127,294	374,612	41,388	39,177	38,869
2024	428,000	70,446	185,000	255,446		130,966	386,412	41,588	38,261	37,804
2025	441,000	68,170	195,000	263,170		134,944	398,114	42,886	38,345	37,733
2026	454,000	64,953	210,000	274,953		138,922	413,875	40,125	34,868	34,171
2027	468,000	61,173	220,000	281,173		143,206	424,378	43,622	36,841	35,957
2028	482,000	56,531	230,000	286,531		147,490	434,020	47,980	39,382	38,280
2029	496,000	51,333	245,000	296,333		151,774	448,106	47,894	38,207	36,985
2030	511,000	45,012	260,000	305,012		156,364	461,375	49,625	38,475	37,092
2031	527,000	38,044	275,000	313,044		161,260	474,303	52,697	39,708	38,125
2032	509,000	30,399	275,000	305,399		155,752	461,150	47,850	35,042	33,507
2033	159,000	22,479	65,000	87,479		48,653	136,132	22,868	16,277	15,500
2034	164,000	20,542	70,000	90,542		50,183	140,725	23,275	16,101	15,270
2035	169,000	18,386	75,000	93,386		51,713	145,099	23,901	16,069	15,177
2036	174,000	16,001	80,000	96,001		53,243	149,244	24,756	16,176	15,216
2037	179,000	13,377	90,000	103,377		54,773	158,150	20,850	13,241	12,404
2038	184,000	10,335	95,000	105,335		56,303	161,638	22,362	13,802	12,876
2039	190,000	7,029	100,000	107,029		58,139	165,168	24,832	14,895	13,840
2040	179,000	3,449	95,000	98,449		54,773	153,222	25,778	15,028	13,906
	$ 6,820,000	$ 738,514	$ 3,115,000	$ 3,853,514	$ 238,333	$ 2,047,042	$ 6,138,890	$ 681,110	$ 535,768	$ 518,450

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $2,990,313 payment towards UAL, leaving 30.60% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$2,990,313
Estimated Bond Amount:	$ 3,115,000
Arbitrage Yield:	2.892%
All-In TIC:	3.315%
NPV Savings as % of Principal based on Arb. Yield:	17.20%
NPV Savings as % of Principal based on All-In TIC:	16.64%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 6.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions -50 Basis Points
Actuarial Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	286,000				238,333	47,667	286,000	-	-	-
2022	404,000	38,856	185,000	223,856		123,622	347,478	56,522	55,559	55,354
2023	416,000	41,969	190,000	231,969		127,294	359,263	56,737	54,742	54,323
2024	428,000	41,836	195,000	236,836		130,966	367,802	60,198	57,012	56,350
2025	441,000	41,388	205,000	246,388		134,944	381,332	59,668	55,470	54,607
2026	454,000	40,055	210,000	250,055		138,922	388,977	65,023	59,334	58,179
2027	468,000	38,375	220,000	258,375		143,206	401,581	66,419	59,492	58,101
2028	482,000	35,933	230,000	265,933		147,490	413,423	68,577	60,294	58,650
2029	496,000	33,035	245,000	278,035		151,774	429,809	66,191	57,124	55,345
2030	511,000	29,164	255,000	284,164		156,364	440,528	70,472	59,699	57,609
2031	527,000	24,880	265,000	289,880		161,260	451,140	75,860	63,080	60,629
2032	509,000	20,163	260,000	280,163		155,752	435,915	73,085	59,653	57,107
2033	159,000	15,275	65,000	80,275		48,653	128,928	30,072	24,093	22,973
2034	164,000	13,988	70,000	83,988		50,183	134,171	29,829	23,458	22,278
2035	169,000	12,532	75,000	87,532		51,713	139,245	29,755	22,969	21,727
2036	174,000	10,897	80,000	90,897		53,243	144,140	29,860	22,625	21,317
2037	179,000	9,073	85,000	94,073		54,773	148,846	30,154	22,427	21,046
2038	184,000	7,050	90,000	97,050		56,303	153,353	30,647	22,374	20,912
2039	190,000	4,818	95,000	99,818		58,139	157,957	32,043	22,963	21,377
2040	179,000	2,367	90,000	92,367		54,773	147,140	31,860	22,411	20,780
	$ 6,820,000	$ 461,653	$ 3,110,000	$ 3,571,653	$ 238,333	$ 2,047,042	$ 5,857,029	$ 962,971	$ 824,778	$ 798,665

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $2,990,313 payment towards UAL, leaving 30.60% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$2,990,313
Estimated Bond Amount:	$3,110,000
Arbitrage Yield:	1.876%
All-In TIC:	2.284%
NPV Savings as % of Principal based on Arb. Yield:	26.52%
NPV Savings as % of Principal based on All-In TIC:	25.68%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 5.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions
Actuarial Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	292,000				243,333	48,667	292,000	-	-	-
2022	474,000	53,563	180,000	233,563		205,455	439,018	34,982	34,229	34,100
2023	489,000	56,970	185,000	241,970		211,957	453,927	35,073	33,519	33,259
2024	503,000	55,916	190,000	245,916		218,025	463,940	39,060	36,461	36,031
2025	518,000	54,529	200,000	254,529		224,527	479,055	38,945	35,508	34,947
2026	534,000	52,229	210,000	262,229		231,462	493,690	40,310	35,897	35,187
2027	550,000	49,499	220,000	269,499		238,397	507,896	42,104	36,623	35,753
2028	566,000	45,957	230,000	275,957		245,332	521,289	44,711	37,986	36,933
2029	583,000	41,909	245,000	286,909		252,701	539,609	43,391	36,006	34,867
2030	601,000	36,813	260,000	296,813		260,503	557,315	43,685	35,406	34,148
2031	619,000	31,145	270,000	301,145		268,305	569,450	49,550	39,226	37,679
2032	599,000	24,989	265,000	289,989		259,636	549,625	49,375	38,179	36,524
2033	194,000	18,682	65,000	83,682		84,089	167,771	26,229	19,809	18,874
2034	200,000	17,070	70,000	87,070		86,690	173,759	26,241	19,357	18,368
2035	206,000	15,264	75,000	90,264		89,291	179,554	26,446	19,054	18,008
2036	212,000	13,254	80,000	93,254		91,891	185,145	26,855	18,899	17,789
2037	218,000	11,030	85,000	96,030		94,492	190,521	27,479	18,888	17,706
2038	225,000	8,582	90,000	98,582		97,526	196,108	28,892	19,398	18,111
2039	232,000	5,900	95,000	100,900		100,560	201,460	30,540	20,027	18,623
2040	218,000	2,974	95,000	97,974		94,492	192,465	25,535	16,355	15,146
	$ 8,033,000	$ 596,267	$ 3,110,000	$ 3,706,267	$ 243,333	$ 3,403,996	$ 7,353,596	$ 679,404	$ 550,827	$ 532,053

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $2,990,313 payment towards UAL, leaving 43.34% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$2,990,313
Estimated Bond Amount:	$3,110,000
Arbitrage Yield:	2.382%
All-In TIC:	2.798%
NPV Savings as % of Principal based on Arb. Yield:	17.71%
NPV Savings as % of Principal based on All-In TIC:	17.11%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 5.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions +50 Basis Points
Actuarial Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	292,000				243,333	48,667	292,000	-	-	-
2022	474,000	68,545	175,000	243,545		205,455	449,000	25,000	24,349	24,257
2023	489,000	72,318	175,000	247,318		211,957	459,275	29,725	28,138	27,917
2024	503,000	70,446	185,000	255,446		218,025	473,470	29,530	27,167	26,843
2025	518,000	68,170	195,000	263,170		224,527	487,697	30,303	27,095	26,662
2026	534,000	64,953	210,000	274,953		231,462	506,414	27,586	23,972	23,492
2027	550,000	61,173	220,000	281,173		238,397	519,570	30,430	25,700	25,083
2028	566,000	56,531	230,000	286,531		245,332	531,863	34,137	28,020	27,236
2029	583,000	51,333	245,000	296,333		252,701	549,033	33,967	27,097	26,230
2030	601,000	45,012	260,000	305,012		260,503	565,514	35,486	27,513	26,524
2031	619,000	38,044	275,000	313,044		268,305	581,349	37,651	28,371	27,240
2032	599,000	30,399	275,000	305,399		259,636	565,035	33,965	24,874	23,785
2033	194,000	22,479	65,000	87,479		84,089	171,568	22,432	15,966	15,204
2034	200,000	20,542	70,000	90,542		86,690	177,231	22,769	15,750	14,937
2035	206,000	18,386	75,000	93,386		89,291	182,676	23,324	15,681	14,811
2036	212,000	16,001	80,000	96,001		91,891	187,892	24,108	15,752	14,817
2037	218,000	13,377	90,000	103,377		94,492	197,868	20,132	12,784	11,976
2038	225,000	10,335	95,000	105,335		97,526	202,861	22,139	13,664	12,748
2039	232,000	7,029	100,000	107,029		100,560	207,589	24,411	14,643	13,605
2040	218,000	3,449	95,000	98,449		94,492	192,940	25,060	14,609	13,518
	$ 8,033,000	$ 738,514	$ 3,115,000	$ 3,853,514	$ 243,333	$ 3,403,996	$ 7,500,844	$ 532,156	$ 411,145	$ 396,887

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $2,990,313 payment towards UAL, leaving 43.34% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$2,990,313
Estimated Bond Amount:	$3,110,000
Arbitrage Yield:	2.892%
All-In TIC:	3.315%
NPV Savings as % of Principal based on Arb. Yield:	13.22%
NPV Savings as % of Principal based on All-In TIC:	12.76%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 5.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions -50 Basis Points
Actuarial Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	292,000				243,333	48,667	292,000	-	-	-
2022	474,000	38,856	185,000	223,856		205,455	429,310	44,690	43,928	43,766
2023	489,000	41,969	190,000	231,969		211,957	443,926	45,074	43,490	43,157
2024	503,000	41,836	195,000	236,836		218,025	454,861	48,139	45,591	45,062
2025	518,000	41,388	205,000	246,388		224,527	470,914	47,086	43,773	43,092
2026	534,000	40,055	210,000	250,055		231,462	481,517	52,483	47,892	46,959
2027	550,000	38,375	220,000	258,375		238,397	496,772	53,228	47,677	46,562
2028	566,000	35,933	230,000	265,933		245,332	511,265	54,735	48,123	46,811
2029	583,000	33,035	245,000	278,035		252,701	530,736	52,264	45,105	43,700
2030	601,000	29,164	255,000	284,164		260,503	544,667	56,333	47,721	46,051
2031	619,000	24,880	265,000	289,880		268,305	558,185	60,815	50,569	48,605
2032	599,000	20,163	260,000	280,163		259,636	539,799	59,201	48,320	46,258
2033	194,000	15,275	65,000	80,275		84,089	164,364	29,636	23,744	22,640
2034	200,000	13,988	70,000	83,988		86,690	170,678	29,322	23,060	21,900
2035	206,000	12,532	75,000	87,532		89,291	176,823	29,177	22,523	21,305
2036	212,000	10,897	80,000	90,897		91,891	182,788	29,212	22,134	20,854
2037	218,000	9,073	85,000	94,073		94,492	188,565	29,435	21,893	20,544
2038	225,000	7,050	90,000	97,050		97,526	194,576	30,424	22,211	20,760
2039	232,000	4,818	95,000	99,818		100,560	200,378	31,622	22,661	21,096
2040	218,000	2,367	90,000	92,367		94,492	186,859	31,141	21,905	20,311
	$ 8,033,000	$ 461,653	$ 3,110,000	$ 3,571,653	$ 243,333	$ 3,403,996	$ 7,218,983	$ 814,017	$ 692,320	$ 669,434

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $2,990,313 payment towards UAL, leaving 43.34% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$2,990,313
Estimated Bond Amount:	$3,110,000
Arbitrage Yield:	1.876%
All-In TIC:	2.284%
NPV Savings as % of Principal based on Arb. Yield:	22.26%
NPV Savings as % of Principal based on All-In TIC:	21.53%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions
Market Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	281,000				234,167	46,833	281,000	-	-	-
2022	343,000	54,565	180,000	234,565		35,360	269,924	73,076	71,500	71,236
2023	353,000	58,053	185,000	243,053		36,391	279,444	73,556	70,295	69,756
2024	364,000	56,999	195,000	251,999		37,525	289,523	74,477	69,517	68,709
2025	375,000	55,575	200,000	255,575		38,658	294,233	80,767	73,632	72,486
2026	386,000	53,275	210,000	263,275		39,792	303,067	82,933	73,847	72,407
2027	398,000	50,545	225,000	275,545		41,030	316,575	81,425	70,816	69,159
2028	409,000	46,923	235,000	281,923		42,164	324,086	84,914	72,131	70,161
2029	422,000	42,787	250,000	292,787		43,504	336,290	85,710	71,111	68,894
2030	434,000	37,587	260,000	297,587		44,741	342,327	91,673	74,288	71,684
2031	447,000	31,919	275,000	306,919		46,081	352,999	94,001	74,400	71,506
2032	432,000	25,649	270,000	295,649		44,535	340,183	91,817	70,980	67,946
2033	127,000	19,223	70,000	89,223		13,092	102,315	24,685	18,639	17,771
2034	131,000	17,487	75,000	92,487		13,505	105,991	25,009	18,443	17,515
2035	135,000	15,552	80,000	95,552		13,917	109,469	25,531	18,390	17,395
2036	139,000	13,408	80,000	93,408		14,329	107,737	31,263	21,995	20,720
2037	143,000	11,184	85,000	96,184		14,742	110,925	32,075	22,040	20,681
2038	147,000	8,736	90,000	98,736		15,154	113,890	33,110	22,222	20,768
2039	151,000	6,054	100,000	106,054		15,566	121,620	29,380	19,259	17,927
2040	143,000	2,974	95,000	97,974		14,742	112,715	30,285	19,390	17,977
	$ 5,760,000	$ 608,488	$ 3,160,000	$ 3,768,488	$ 234,167	$ 611,660	$ 4,614,314	$ 1,145,686	$ 952,896	$ 924,696

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $3,037,705 payment towards UAL, leaving 10.31% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$3,037,705
Estimated Bond Amount:	$3,160,000
Arbitrage Yield:	2.384%
All-In TIC:	2.794%
NPV Savings as % of Principal based on Arb. Yield:	30.15%
NPV Savings as % of Principal based on All-In TIC:	29.26%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions +50 Basis Points
Market Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	281,000				234,167	46,833	281,000	-	-	-
2022	343,000	69,524	175,000	244,524		35,360	279,884	63,116	61,473	61,243
2023	353,000	73,376	180,000	253,376		36,391	289,767	63,233	59,856	59,390
2024	364,000	71,450	190,000	261,450		37,525	298,975	65,025	59,822	59,116
2025	375,000	69,113	200,000	269,113		38,658	307,771	67,229	60,109	59,160
2026	386,000	65,813	210,000	275,813		39,792	315,605	70,395	61,171	59,960
2027	398,000	62,033	220,000	282,033		41,030	323,063	74,937	63,288	61,784
2028	409,000	57,391	235,000	292,391		42,164	334,555	74,445	61,104	59,411
2029	422,000	52,080	250,000	302,080		43,504	345,584	76,416	60,959	59,029
2030	434,000	45,630	265,000	310,630		44,741	355,371	78,629	60,961	58,792
2031	447,000	38,528	280,000	318,528		46,081	364,609	82,391	62,081	59,630
2032	432,000	30,744	275,000	305,744		44,535	350,279	81,721	59,845	57,250
2033	127,000	22,824	65,000	87,824		13,092	100,916	26,084	18,564	17,687
2034	131,000	20,887	70,000	90,887		13,505	104,392	26,608	18,405	17,465
2035	135,000	18,731	75,000	93,731		13,917	107,648	27,352	18,388	17,377
2036	139,000	16,346	85,000	101,346		14,329	115,675	23,325	15,239	14,344
2037	143,000	13,558	90,000	103,558		14,742	118,300	24,700	15,685	14,703
2038	147,000	10,516	95,000	105,516		15,154	120,670	26,330	16,249	15,171
2039	151,000	7,210	100,000	107,210		15,566	122,776	28,224	16,928	15,740
2040	143,000	3,630	100,000	103,630		14,742	118,372	24,628	14,356	13,295
	$ 5,760,000	$ 749,384	$ 3,160,000	$ 3,909,384	$ 234,167	$ 611,660	$ 4,755,210	$ 1,004,790	$ 804,484	$ 780,546

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $3,037,705 payment towards UAL, leaving 10.31% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$3,037,705
Estimated Bond Amount:	$3,160,000
Arbitrage Yield:	2.893%
All-In TIC:	3.311%
NPV Savings as % of Principal based on Arb. Yield:	25.46%
NPV Savings as % of Principal based on All-In TIC:	24.70%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions -50 Basis Points
Market Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	281,000				234,167	46,833	281,000	-	-	-
2022	343,000	39,448	190,000	229,448		35,360	264,808	78,192	76,860	76,580
2023	353,000	42,609	190,000	232,609		36,391	269,000	84,000	81,051	80,437
2024	364,000	42,476	200,000	242,476		37,525	280,001	83,999	79,559	78,645
2025	375,000	42,016	205,000	247,016		38,658	285,674	89,326	83,047	81,770
2026	386,000	40,684	215,000	255,684		39,792	295,476	90,524	82,614	81,022
2027	398,000	38,964	225,000	263,964		41,030	304,993	93,007	83,318	81,390
2028	409,000	36,466	235,000	271,466		42,164	313,630	95,370	83,864	81,600
2029	422,000	33,505	245,000	278,505		43,504	322,009	99,991	86,310	83,649
2030	434,000	29,634	260,000	289,634		44,741	334,375	99,625	84,412	81,487
2031	447,000	25,266	270,000	295,266		46,081	341,347	105,653	87,872	84,493
2032	432,000	20,460	265,000	285,460		44,535	329,995	102,005	83,278	79,760
2033	127,000	15,478	70,000	85,478		13,092	98,570	28,430	22,783	21,735
2034	131,000	14,092	75,000	89,092		13,505	102,597	28,403	22,343	21,231
2035	135,000	12,532	75,000	87,532		13,917	101,449	33,551	25,907	24,520
2036	139,000	10,897	80,000	90,897		14,329	105,226	33,774	25,599	24,134
2037	143,000	9,073	85,000	94,073		14,742	108,815	34,185	25,435	23,884
2038	147,000	7,050	90,000	97,050		15,154	112,204	34,796	25,413	23,769
2039	151,000	4,818	95,000	99,818		15,566	115,384	35,616	25,533	23,787
2040	143,000	2,367	90,000	92,367		14,742	107,109	35,891	25,257	23,438
	$ 5,760,000	$ 467,834	$ 3,160,000	$ 3,627,834	$ 234,167	$ 611,660	$ 4,473,661	$ 1,286,339	$ 1,110,457	$ 1,077,331

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $3,037,705 payment towards UAL, leaving 10.31% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$3,037,705
Estimated Bond Amount:	$3,160,000
Arbitrage Yield:	1.874%
All-In TIC:	2.277%
NPV Savings as % of Principal based on Arb. Yield:	35.14%
NPV Savings as % of Principal based on All-In TIC:	34.09%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 6.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions
Market Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	287,000				239,167	47,833	287,000	-	-	-
2022	409,000	54,565	180,000	234,565		123,791	358,355	50,645	49,553	49,370
2023	421,000	58,053	185,000	243,053		127,423	370,476	50,524	48,284	47,914
2024	434,000	56,999	195,000	251,999		131,357	383,356	50,644	47,272	46,722
2025	447,000	55,575	200,000	255,575		135,292	390,867	56,133	51,175	50,378
2026	460,000	53,275	210,000	263,275		139,227	402,502	57,498	51,199	50,201
2027	474,000	50,545	225,000	275,545		143,464	419,009	54,991	47,826	46,707
2028	488,000	46,923	235,000	281,923		147,701	429,624	58,376	49,588	48,234
2029	503,000	42,787	250,000	292,787		152,241	445,028	57,972	48,098	46,598
2030	518,000	37,587	260,000	297,587		156,781	454,368	63,632	51,565	49,757
2031	533,000	31,919	275,000	306,919		161,321	468,240	64,760	51,257	49,263
2032	516,000	25,649	270,000	295,649		156,176	451,824	64,176	49,611	47,491
2033	161,000	19,223	70,000	89,223		48,729	137,952	23,048	17,403	16,592
2034	166,000	17,487	75,000	92,487		50,243	142,729	23,271	17,162	16,297
2035	171,000	15,552	80,000	95,552		51,756	147,307	23,693	17,066	16,142
2036	176,000	13,408	80,000	93,408		53,269	146,677	29,323	20,630	19,435
2037	181,000	11,184	85,000	96,184		54,783	150,966	30,034	20,638	19,365
2038	187,000	8,736	90,000	98,736		56,599	155,334	31,666	21,252	19,862
2039	192,000	6,054	100,000	106,054		58,112	164,165	27,835	18,246	16,984
2040	181,000	2,974	95,000	97,974		54,783	152,756	28,244	18,083	16,766
	$ 6,905,000	$ 608,488	$ 3,160,000	$ 3,768,488	$ 239,167	$ 2,050,881	$ 6,058,536	$ 846,464	$ 695,907	$ 674,077

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $3,037,705 payment towards UAL, leaving 30.27% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$3,037,705
Estimated Bond Amount:	$3,160,000
Arbitrage Yield:	2.384%
All-In TIC:	2.794%
NPV Savings as % of Principal based on Arb. Yield:	22.02%
NPV Savings as % of Principal based on All-In TIC:	21.33%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 6.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions +50 Basis Points
Market Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	287,000				239,167	47,833	287,000	-	-	-
2022	409,000	69,524	175,000	244,524		123,791	368,315	40,685	39,626	39,478
2023	421,000	73,376	180,000	253,376		127,423	380,799	40,201	38,054	37,758
2024	434,000	71,450	190,000	261,450		131,357	392,807	41,193	37,896	37,449
2025	447,000	69,113	200,000	269,113		135,292	404,405	42,595	38,084	37,483
2026	460,000	65,813	210,000	275,813		139,227	415,040	44,960	39,069	38,296
2027	474,000	62,033	220,000	282,033		143,464	425,497	48,503	40,963	39,989
2028	488,000	57,391	235,000	292,391		147,701	440,092	47,908	39,322	38,233
2029	503,000	52,080	250,000	302,080		152,241	454,321	48,679	38,832	37,603
2030	518,000	45,630	265,000	310,630		156,781	467,411	50,589	39,221	37,826
2031	533,000	38,528	280,000	318,528		161,321	479,849	53,151	40,049	38,468
2032	516,000	30,744	275,000	305,744		156,176	461,920	54,080	39,603	37,886
2033	161,000	22,824	65,000	87,824		48,729	136,553	24,447	17,399	16,577
2034	166,000	20,887	70,000	90,887		50,243	141,130	24,870	17,203	16,324
2035	171,000	18,731	75,000	93,731		51,756	145,487	25,513	17,151	16,209
2036	176,000	16,346	85,000	101,346		53,269	154,615	21,385	13,972	13,151
2037	181,000	13,558	90,000	103,558		54,783	158,341	22,659	14,389	13,488
2038	187,000	10,516	95,000	105,516		56,599	162,115	24,885	15,358	14,338
2039	192,000	7,210	100,000	107,210		58,112	165,322	26,678	16,001	14,879
2040	181,000	3,630	100,000	103,630		54,783	158,413	22,587	13,167	12,193
	$ 6,905,000	$ 749,384	$ 3,160,000	$ 3,909,384	$ 239,167	$ 2,050,881	$ 6,199,432	$ 705,568	$ 555,360	$ 537,626

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $3,037,705 payment towards UAL, leaving 30.27% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$3,037,705
Estimated Bond Amount:	$3,160,000
Arbitrage Yield:	2.893%
All-In TIC:	3.311%
NPV Savings as % of Principal based on Arb. Yield:	17.57%
NPV Savings as % of Principal based on All-In TIC:	17.01%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 6.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions -50 Basis Points
Market Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	287,000				239,167	47,833	287,000	-	-	-
2022	409,000	39,448	190,000	229,448		123,791	353,239	55,761	54,811	54,611
2023	421,000	42,609	190,000	232,609		127,423	360,032	60,968	58,828	58,382
2024	434,000	42,476	200,000	242,476		131,357	373,833	60,167	56,986	56,332
2025	447,000	42,016	205,000	247,016		135,292	382,308	64,692	60,145	59,220
2026	460,000	40,684	215,000	255,684		139,227	394,910	65,090	59,402	58,257
2027	474,000	38,964	225,000	263,964		143,464	407,427	66,573	59,637	58,258
2028	488,000	36,466	235,000	271,466		147,701	419,167	68,833	60,528	58,894
2029	503,000	33,505	245,000	278,505		152,241	430,746	72,254	62,367	60,445
2030	518,000	29,634	260,000	289,634		156,781	446,415	71,585	60,653	58,552
2031	533,000	25,266	270,000	295,266		161,321	456,587	76,413	63,553	61,109
2032	516,000	20,460	265,000	285,460		156,176	441,636	74,364	60,711	58,146
2033	161,000	15,478	70,000	85,478		48,729	134,207	26,793	21,471	20,483
2034	166,000	14,092	75,000	89,092		50,243	139,335	26,665	20,976	19,932
2035	171,000	12,532	75,000	87,532		51,756	139,288	31,712	24,487	23,176
2036	176,000	10,897	80,000	90,897		53,269	144,166	31,834	24,129	22,747
2037	181,000	9,073	85,000	94,073		54,783	148,856	32,144	23,916	22,458
2038	187,000	7,050	90,000	97,050		56,599	153,649	33,351	24,358	22,782
2039	192,000	4,818	95,000	99,818		58,112	157,930	34,070	24,425	22,755
2040	181,000	2,367	90,000	92,367		54,783	147,150	33,850	23,821	22,105
	$ 6,905,000	$ 467,834	$ 3,160,000	$ 3,627,834	$ 239,167	$ 2,050,881	$ 5,917,882	$ 987,118	$ 845,207	$ 818,645

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $3,037,705 payment towards UAL, leaving 30.27% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$3,037,705
Estimated Bond Amount:	$3,160,000
Arbitrage Yield:	1.874%
All-In TIC:	2.277%
NPV Savings as % of Principal based on Arb. Yield:	26.75%
NPV Savings as % of Principal based on All-In TIC:	25.91%

Roosevelt Park, City of (6107) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2019 Actuarial Valuation Data
Closed Amortization Policy - Using 5.35% Interest Rate and 3.00% Wage Inflation, and 2019 Demographic Assumptions
Market Value

	Without Bonding	With Bonding						Savings		
Calendar Year Beginning January 1	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond D/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2021	293,000				244,167	48,833	293,000	-	-	-
2022	479,000	54,565	180,000	234,565		205,774	440,339	38,661	37,827	37,688
2023	493,000	58,053	185,000	243,053		211,789	454,842	38,158	36,466	36,187
2024	508,000	56,999	195,000	251,999		218,233	470,231	37,769	35,254	34,844
2025	523,000	55,575	200,000	255,575		224,677	480,252	42,748	38,973	38,366
2026	539,000	53,275	210,000	263,275		231,550	494,825	44,175	39,335	38,568
2027	555,000	50,545	225,000	275,545		238,423	513,968	41,032	35,685	34,850
2028	572,000	46,923	235,000	281,923		245,727	527,649	44,351	37,674	36,645
2029	589,000	42,787	250,000	292,787		253,030	545,816	43,184	35,829	34,711
2030	607,000	37,587	260,000	297,587		260,762	558,349	48,651	39,425	38,043
2031	625,000	31,919	275,000	306,919		268,495	575,413	49,587	39,247	37,720
2032	605,000	25,649	270,000	295,649		259,903	555,552	49,448	38,226	36,593
2033	196,000	19,223	70,000	89,223		84,200	173,422	22,578	17,047	16,254
2034	202,000	17,487	75,000	92,487		86,778	179,264	22,736	16,767	15,923
2035	208,000	15,552	80,000	95,552		89,355	184,907	23,093	16,634	15,733
2036	214,000	13,408	80,000	93,408		91,933	185,340	28,660	20,163	18,995
2037	221,000	11,184	85,000	96,184		94,940	191,123	29,877	20,530	19,263
2038	227,000	8,736	90,000	98,736		97,517	196,253	30,747	20,636	19,286
2039	234,000	6,054	100,000	106,054		100,524	206,578	27,422	17,976	16,733
2040	221,000	2,974	95,000	97,974		94,940	192,913	28,087	17,983	16,672
	$ 8,111,000	$ 608,488	$ 3,160,000	$ 3,768,488	$ 244,167	$ 3,407,382	$ 7,420,037	$ 690,963	$ 561,677	$ 543,074

(a) Based on GRS Letter dated December 23, 2020
(b) Estimated only based on estimated interest rates as of 2/24/2021
(c) Assumes 10 months of UAL payments will be made prior to the bonds being sold
(d) Assumes $3,037,705 payment towards UAL, leaving 42.96% of UAL payments remaining unfunded
(e) Represents Arbitrage Yield
(f) Represents All-In TIC

UAL Funded with Bond Proceeds:	$3,037,705
Estimated Bond Amount:	$3,160,000
Arbitrage Yield:	2.384%
All-In TIC:	2.794%
NPV Savings as % of Principal based on Arb. Yield:	17.77%
NPV Savings as % of Principal based on All-In TIC:	17.19%

Actuarial Value of Assets

Summary of Savings
Nominal Savings

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	$ 1,117,510.26	$ 970,262.53	$ 1,252,123.76
Expected UAL ROR -100 BPS (6.35%)	$ 828,357.79	$ 681,110.06	$ 962,971.29
Expected UAL ROR -200 BPS (5.35%)	$ 679,403.71	$ 532,155.98	$ 814,017.21

Summary of Present Value Savings
Discounted to Arbitrage Yield

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	$ 928,425.32	$ 777,382.96	$ 1,081,693.61
Expected UAL ROR -100 BPS (6.35%)	$ 679,297.43	$ 535,767.83	$ 824,777.97
Expected UAL ROR -200 BPS (5.35%)	$ 550,826.99	$ 411,145.02	$ 692,319.98

Summary of Present Value Savings
Discounted to All-In TIC

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	$ 900,350.65	$ 754,093.97	$ 1,049,276.87
Expected UAL ROR -100 BPS (6.35%)	$ 657,373.27	$ 518,450.40	$ 798,664.60
Expected UAL ROR -200 BPS (5.35%)	$ 532,052.72	$ 396,886.52	$ 669,434.03

Actuarial Value of Assets

Summary of Savings
Nominal Savings

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	35.93%	31.20%	40.26%
Expected UAL ROR -100 BPS (6.35%)	26.64%	21.90%	30.96%
Expected UAL ROR -200 BPS (5.35%)	21.85%	17.11%	26.17%

Summary of Present Value Savings
Discounted to Arbitrage Yield

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	29.85%	25.00%	34.78%
Expected UAL ROR -100 BPS (6.35%)	21.84%	17.23%	26.52%
Expected UAL ROR -200 BPS (5.35%)	17.71%	13.22%	22.26%

Summary of Present Value Savings
Discounted to All-In TIC

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	28.95%	24.25%	33.74%
Expected UAL ROR -100 BPS (6.35%)	21.14%	16.67%	25.68%
Expected UAL ROR -200 BPS (5.35%)	17.11%	12.76%	21.53%

Market Value of Assets

Summary of Savings
Nominal Savings

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	$ 1,145,685.90	$ 1,004,789.80	$ 1,286,339.25
Expected UAL ROR -100 BPS (6.35%)	$ 846,464.26	$ 705,568.16	$ 987,117.61
Expected UAL ROR -200 BPS (5.35%)	$ 690,963.22	$ 550,067.12	$ 831,616.57

Summary of Present Value Savings
Discounted to Arbitrage Yield

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	$ 952,895.60	$ 804,483.54	$ 1,110,457.49
Expected UAL ROR -100 BPS (6.35%)	$ 695,906.54	$ 555,359.62	$ 845,207.20
Expected UAL ROR -200 BPS (5.35%)	$ 561,677.45	$ 425,115.18	$ 706,800.71

Summary of Present Value Savings
Discounted to All-In TIC

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	$ 924,696.40	$ 780,546.13	$ 1,077,330.87
Expected UAL ROR -100 BPS (6.35%)	$ 674,076.63	$ 537,625.67	$ 818,644.80
Expected UAL ROR -200 BPS (5.35%)	$ 543,073.79	$ 410,529.26	$ 683,556.94

Market Value of Assets

Summary of Savings
Nominal Savings

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	36.26%	31.80%	40.71%
Expected UAL ROR -100 BPS (6.35%)	26.79%	22.33%	31.24%
Expected UAL ROR -200 BPS (5.35%)	21.87%	17.41%	26.32%

Summary of Present Value Savings
Discounted to Arbitrage Yield

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	30.15%	25.46%	35.14%
Expected UAL ROR -100 BPS (6.35%)	22.02%	17.57%	26.75%
Expected UAL ROR -200 BPS (5.35%)	17.77%	13.45%	22.37%

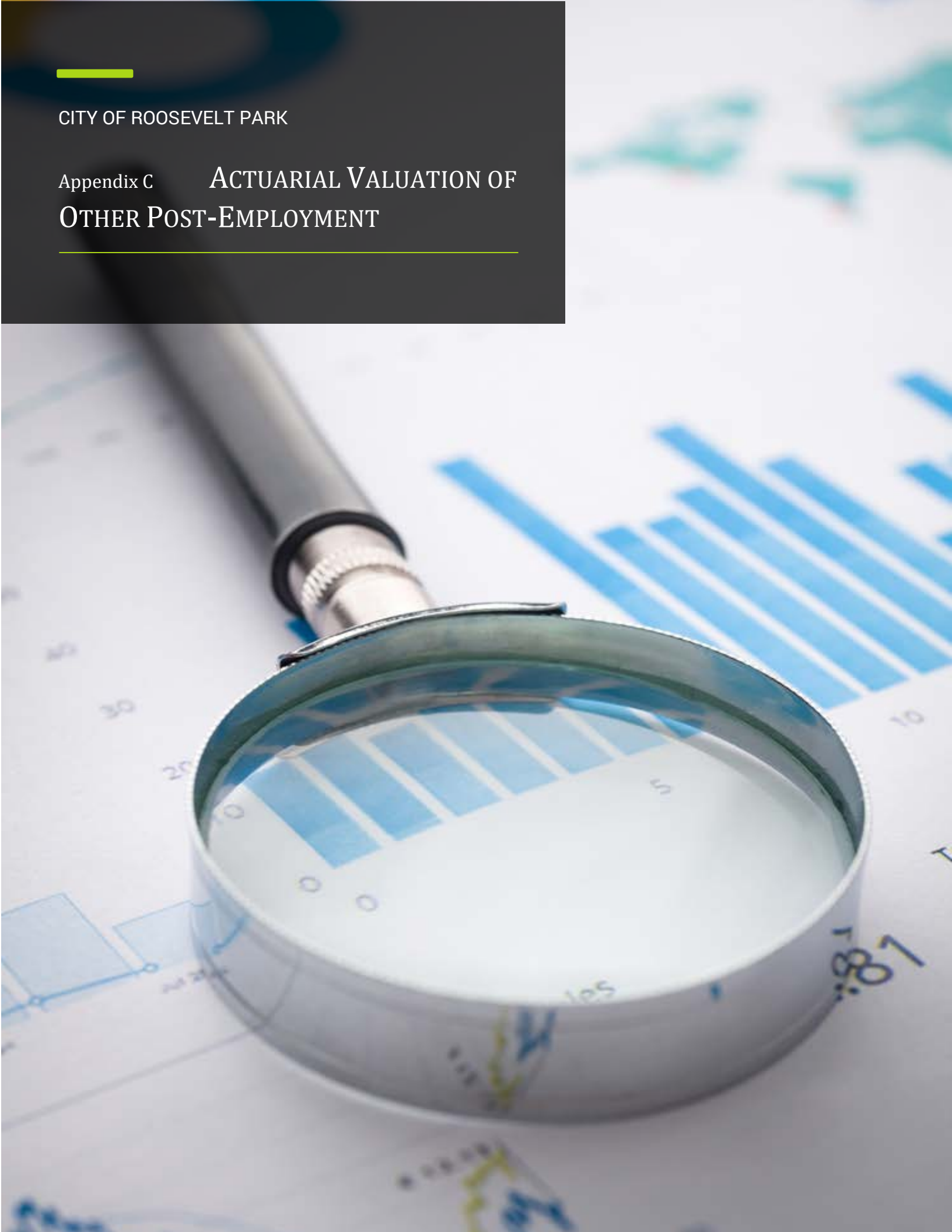
Summary of Present Value Savings
Discounted to All-In TIC

	Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	29.26%	24.70%	34.09%
Expected UAL ROR -100 BPS (6.35%)	21.33%	17.01%	25.91%
Expected UAL ROR -200 BPS (5.35%)	17.19%	12.99%	21.63%

CITY OF ROOSEVELT PARK

Appendix C

ACTUARIAL VALUATION OF OTHER POST-EMPLOYMENT



WATKINS ROSS

200 Ottawa Ave NW Suite 600
Grand Rapids MI 49503
WatkinsRoss.com
616.456.9696

January 13, 2021

PERSONAL & CONFIDENTIAL

Jared Olson
City of Roosevelt Park
900 Oak Ridge Road
Roosevelt Park, MI 49441

RE: City of Roosevelt Park Retiree Health Plan

Dear Jared:

Transmitted via email, this is a copy of your OPEB accounting report for the fiscal year ending November 30, 2020. This information is intended to assist you in complying with Governmental Accounting Standards Board Statement No. 74 (GASB 74) Financial Reporting for Postemployment Benefit Plans Other than Pension Plans, and Statement No. 75 (GASB 75) Accounting and Financial Reporting for Postemployment Benefits Other than Pensions.

If you have any questions about this report, please call me at (616) 742-9244.

Sincerely,

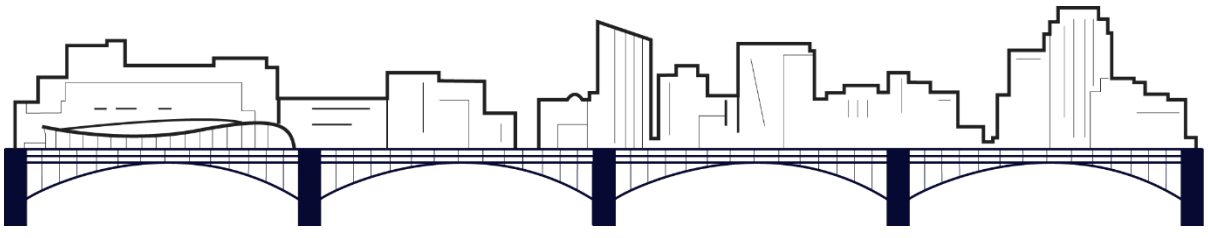
Christian R. Veenstra, FCA, ASA, MAAA
President / Enrolled Actuary

Enclosure

City of Roosevelt Park Retiree Health Plan

Accounting Report

for the Period Ending November 30, 2020
under GASB Statement 74 & 75



WATKINS ROSS | 200 OTTAWA AVE N.W. | SUITE 600 | GRAND RAPIDS, MI 49503 | 616.456.9696

Report presented by:

January 2021

CONTENTS

INTRODUCTION AND CERTIFICATION 1

COMMENTS 2

PLAN DESCRIPTION 3

ASSUMPTIONS AND METHODS 4

RECONCILIATION AND RECOGNITION OF NET OPEB LIABILITY 5

Changes in the Net OPEB Liability 5

Net OPEB Liability – Discount and Trend Rate Sensitivities 5

OPEB Expense 6

OPEB Plan Fiduciary Net Position 6

Deferred Inflows and Outflows of Resources Related to OPEB Plan 6

Reconciliation of Net OPEB Liability 7

Total OPEB Liability by Participant Status 7

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION 8

Description of Actuarially Determined Contributions 8

State of Michigan Public Acts 530 and 202 Information 9

Changes in Net OPEB Liability and Related Ratios 10

Assumptions and Methods for Calculation of Actuarially Determined Contribution 11

Assumptions used for PA 202 Reporting 12

Schedule of Difference between Actual and Expected Experience 13

Schedule of Changes in Assumptions 13

Schedule of Differences between Projected and Actual Earnings on OPEB Plan Investments 13

Total Deferred Outflow/(Inflow) of Resources 13

SUMMARY OF PLAN PROVISIONS 14

GLOSSARY 15

INTRODUCTION AND CERTIFICATION

The schedules included in this report have been prepared in order to provide the information necessary to comply with Governmental Accounting Standards Board (GASB) Statement Nos. 74 and 75. This information may, at the discretion of management of the plan sponsor and its auditor, be used for the preparation of its financial statements. The calculations herein have been made based on our understanding of GASB 74 and 75, and may be inappropriate for other purposes.

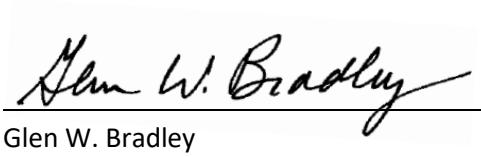
The calculations summarized in this report involve actuarial calculations that require assumptions about future events. We believe that the assumptions used in the report are within the range of possible assumptions that are reasonable and appropriate for the purposes for which they have been used. However, other assumptions are also reasonable and appropriate and their use would produce different results.

This report contains additional information and details related to plan provisions and recommended contribution calculations.

This report was prepared on the basis of participant data and asset values as reported to us by the plan sponsor. Watkins Ross relied upon the data as submitted, and has no reason to believe that any information, which would have a material effect on the results of this valuation, was not considered in the preparation of the report.

The actuary certifying this report represents himself as meeting the Qualification Standards of the American Academy of Actuaries to render actuarial opinions contained in the report.

Reviewed by:



Glen W. Bradley
Senior Pension Analyst

Prepared & Certified by:

Joseph Shackelford, ASA, MAAA
Health Actuary

COMMENTS

Purpose of Governmental Accounting Standards Board (GASB) Reporting

The objective of GASB is to provide guidelines and requirements for accounting and financial reporting by state and local governments for postemployment benefits other than pensions (OPEB). This statement establishes standards for recognizing and measuring liabilities, deferred inflows and outflows of resources and methods and assumptions that are required to be used to project benefit payments and discount those payments to their actuarial present value.

The methods and assumptions may or may not be an appropriate measure of the plan's liability for funding purposes or for reporting liabilities under Public Act 202 of the State of Michigan. Thus, liabilities and other values calculated for those purposes may differ from the ones used for GASB reporting.

State of Michigan Public Act 202

Public Act 202 (PA 202) was drafted to address the underfunded status of pension and retiree healthcare plans of local governments in Michigan. Accordingly, PA 202 included transparency and funding requirements. In addition, in order that the plans' funded status be reported on a consistent basis, Uniform Assumptions were published. While all of the Uniform Assumptions have a sound and reasonable basis, some might not be appropriate for each plan and therefore may be different than what is used for funding. Additionally, some of the assumptions may differ from what is required for reporting under GASB.

Actuarially Determined Contribution for GASB reporting

GASB reporting includes a 10-year history of actual annual amounts contributed by an employer on behalf of the OPEB plan and an Actuarially Determined Contribution (ADC). In addition, the report includes a summary of assumptions used to determine the ADC. This reporting requirement presumes a separate funding report is completed. However, for many employers, separate funding studies have not been solicited. We have included a contribution section in this report (Schedules of Required Supplementary Information: Description of Actuarially Determined Contribution) that provides this information. The assumptions and methods used for these calculations are derived from those used for GASB reporting and are not necessarily consistent with PA 202. This report includes an ADC determined using an amortization of the unfunded liability over average future service for actives for GASB reporting purposes.

Actuarially Determined Contribution under Public Act 202

Public Act 202 requires a calculation of an ADC using the Uniform Assumptions prescribed under PA 202. This ADC differs from the one used for the 10-year reporting history noted in the paragraph above. (Schedules of Required Supplementary Information: State of Michigan Public Acts 530 and 202 Information)

Changes in Actuarial Assumptions, Plan Changes and Expected Actuarial Experience

There was an overall actuarial gain (decrease in liability) of $549,707, of which $725 was due to the actual benefit payments being slightly lower than expected, $314,275 due to demographic changes in the group covered (two people terminated), and $234,707 due to pre-Medicare premiums 5.83% lower than expected, and post-Medicare premiums 14.73% lower than expected. The combination of actuarial assumption changes, described in the "Assumptions and Methods for Calculation of Actuarially Determined Contribution" section of this report, generated an actuarial loss (increase) of $253,058 – the most significant being decreasing the discount rate to reflect no further contributions to the OPEB trust except for a portion of the benefit payments to the extent they can be reasonably attributed to active employees.

PLAN DESCRIPTION

Summary of Significant Accounting Policies

For purposes of measuring the net Other Post-Employment Benefits (OPEB) liability, deferred outflows of resources and deferred inflows of resources related to OPEB, and OPEB expenses, information about the fiduciary net position of the City of Roosevelt Park Retiree Health Plan and additions to/deductions from the Road Commission's fiduciary net position have been determined on the same basis as they are reported by the City of Roosevelt Park. For this purpose, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

Plan Description

City of Roosevelt Park Retiree Health Plan is a single employer plan established and administered by ***City of Roosevelt Park*** and can be amended at its discretion.

Benefits Provided

A summary of the benefits provided is available in the Plan Provisions section of the report.

Summary of Plan Participants

As of November 30, 2020, Retirement Plan membership consisted of the following:

Active members	8
Inactive members	0
Retirees and beneficiaries	7
Total members	15

Contributions

The City of Roosevelt Park Retiree Health Plan was established and is being funded under the authority of the Road Commission and under agreements with unions representing various classes of employees. The plan's funding policy is to continue to pay benefit payments from general operating funds – pay-as-you-go with no additional contributions to their OPEB Trust. There are no long-term contracts for contributions to the plan.

ASSUMPTIONS AND METHODS

The City of Roosevelt Park's OPEB liability was measured as of November 30, 2020.

Actuarial Assumptions

The total OPEB liability was determined by an actuarial valuation as of November 30, 2020. The following actuarial assumptions were used in the measurement:

Inflation	2.50%
Salary increases	3.50% (for purpose of allocating liability)
Investment rate of return	7.35% (including inflation)
20-year Aa Municipal bond rate	2.03% (S&P Municipal Bond 20-Year High Grade Rate Index)
Mortality	2010 Public General and Public Safety Employees and Healthy Retirees, Headcount weighted
Improvement Scale	MP-2020

The long-term expected rate of return on retirement plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of retirement plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the retirement plan's target asset allocation are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Rate of Return
Global Equity	60.0%	7.75%
Global Fixed Income	20.0%	3.75%
Private Assets	20.0%	9.75%

The sum of each target allocation times its long-term expected real rate, plus inflation, is 7.35%.

Discount Rate

The discount rate used to measure the total OPEB liability was **2.79%**. The projection of cash flows used to determine the discount rate assumed that the Road Commission's assets recognize a portion of the benefit payments as contributions but only to the extent they can reasonably be attributed to active employees. Based on this assumption, the retirement plan's fiduciary net position was projected to be sufficient to make projected future benefit payments of current plan members through 2038 – the cross-over point. For projected benefits that are covered by projected assets, the long-term expected rate was used to discount the projected benefits. From the year that benefit payments were not projected to be covered by the projected assets (the "depletion date"), projected benefits were discounted at a discount rate reflecting a 20-year AA/Aa tax-exempt municipal bond yield. A single equivalent discount rate that yields the same present value of benefits is calculated. This discount rate is used to determine the Total OPEB Liability. As of November 30, 2019 the discount rate used to value OPEB liabilities was 3.83%.

RECONCILIATION AND RECOGNITION OF NET OPEB LIABILITY

Changes in the Net OPEB Liability

	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability (a) - (b)
Balance at November 30, 2019	$2,145,295	$391,340	$1,753,955
Changes during the Year			
Service Cost	144,659		144,659
Interest	87,194		87,194
Experience (Gains)/Losses	(549,707)		(549,707)
Change in plan terms	0		0
Change in actuarial assumptions	253,058		253,058
Contributions to OPEB trust		0	0
Contributions/benefit paid from general operating funds		26,682	(26,682)
Employee Contributions		0	0
Net Investment Income		28,478	(28,478)
Benefit Payments; Including Refunds of Employee Contributions	(26,682)	(26,682)	0
Administrative Expenses		(720)	720
Other Changes		0	0
Total Changes	(91,478)	27,758	(119,236)
Balance at November 30, 2020	$2,053,817	$419,098	$1,634,719

Net OPEB Liability – Discount and Trend Rate Sensitivities

The following presents the net OPEB liability (NOL) of the Road Commission, calculated using trend and discount rates 1% higher and lower than base assumptions:

Discount	1% Decrease	Current Rate	1% Increase
Total OPEB Liability	$2,386,656	$2,053,817	$1,784,960
Plan Fiduciary Net Position	419,098	419,098	419,098
Net OPEB Liability	$1,967,558	$1,634,719	$1,365,862

Trend	1% Decrease	Current Rate	1% Increase
Total OPEB Liability	$1,721,262	$2,053,817	$2,481,725
Plan Fiduciary Net Position	419,098	419,098	419,098
Net OPEB Liability	$1,302,164	$1,634,719	$2,062,627

RECONCILIATION AND RECOGNITION OF NET OPEB LIABILITY

OPEB Expense

Below are the components of the Total OPEB Expense:

	Fiscal Year Ending 11/30/2020
Service Cost	$144,659
Interest on Total OPEB Liability	87,194
Experience (Gains)/Losses	(124,209)
Changes in Plan Terms	0
Changes in Assumptions	93,937
Employee Contributions	0
Projected Earnings on OPEB Plan Investments	(30,301)
Investment Earnings (Gains)/Losses	4,170
Administrative Expenses	720
Other Changes in Fiduciary Net Position	0
Total OPEB Expense	$176,170

OPEB Plan Fiduciary Net Position

The OPEB Plan Fiduciary Net Position as of November 30, 2020 is $419,098.

Deferred Inflows and Outflows of Resources Related to OPEB Plan

	Deferred Outflows Of Resources	Deferred Inflows Of Resources
Experience (Gains)/Losses	0	725,732
Changes of Assumptions	849,296	316,271
Investment Earnings (Gains)/Losses	12,987	0
Total	$862,283	$1,042,003

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

Year Ended November 30,	Amount Recognized
2021	$(26,102)
2022	(26,102)
2023	(25,988)
2024	(29,909)
2025	(30,272)
Thereafter	(41,347)

RECONCILIATION AND RECOGNITION OF NET OPEB LIABILITY

Reconciliation of Net OPEB Liability

	Net OPEB Liability
Net OPEB Liability November 30, 2019	$1,753,955
Total OPEB expense	176,170
Contributions	(26,682)
Change in deferred outflows of resources	109,071
Change in deferred inflows of resources	(377,795)
Net OPEB Liability November 30, 2020	$1,634,719

Total OPEB Liability by Participant Status

	Total OPEB Liability
Active participants	$1,625,401
Inactive participants	0
Retirees and beneficiaries	428,416
Total OPEB Liability	$2,053,817

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

Description of Actuarially Determined Contributions

Although not required as part of GASB reporting, we have included an Actuarially Determined Contribution in order to provide information for funding. This recommended contribution is designed to eventually fund your plan enough that you can pay retiree benefits directly from the trust instead of general operating funds. The amortization period is based on average future working years for active employees.

Actuarially Determined Contribution (ADC)	Fiscal Year Ending November 30,	
	2021	**2020**
Discount rate	2.79%	3.83%
Amortization period	13 years	14 years
Amortization method	Level $	Level $
Normal cost	130,453	144,659
Amortization of Net OPEB Liability	147,539	158,131
Interest to end of year	7,756	11,596
Total ADC	$285,748	$314,386

PA 202 was issued by the State of Michigan and requires the calculation of other "contribution" amounts. These are

1. The Actuarially Determined Contribution (ADC) using Assumptions for financial reporting and
2. The minimum required amount to be deposited into an OPEB trust

The first of these contributions as shown above, $314,386, is an amount required to be reported to the State of Michigan and may be used to determine whether a Corrective Action Plan (CAP) must be adopted if one hasn't yet been implemented. *It is not a required contribution.*

The second of these numbers, shown in the last table on the following page of this report is the actual minimum amount the State of Michigan requires you to deposit into a trust and it is based on the normal cost (actuarially calculated) for those covered by your plan and hired after June 30, 2018. The intent of this contribution requirement is to pre-fund the liability for those hired after June 30, 2018. Because the plan is closed to employees hired after December 1, 2018 and there are no current employees hired between June 30, 2018 and December 1, 2018, this requirement is not applicable.

You must continue to pay retiree OPEB benefits from general operating funds until plan assets are sufficient to pay benefits from the trust.

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

State of Michigan Public Acts 530 and 202 Information

Financial information	2020
Assets (Fiduciary net position)	419,098
Liabilities (Total OPEB Liability)	2,053,817
Funded ratio for the Plan Year	20.41%
Actuarially Determined Contribution	$314,386
Is ADC calculated in compliance with No. Letter 2018-3?	Yes

Membership	2020
Number of active members	8
Number of inactive members	0
Number of retirees and beneficiaries	7
Premiums paid on behalf of the retirants	$26,682

Investment Performance
This information is available from the Investment Manager

Actuarial Assumptions	2020
Actuarially assumed rate of investment return	7.35%
Discount rate	2.79%
Amortization method used for funding unfunded liability	Level $
Amortization period used for funding unfunded liability	14 years
Is each division closed to new employees	No
Healthcare inflation assumption next year	8.25%
Healthcare inflation assumption - long term	4.50%

Uniform Assumptions	2020
Actuarial value of assets using uniform assumptions	419,098
Actuarial accrued liability using uniform assumptions	1,724,095
Funded ratio using uniform assumptions	24.31%
Actuarially Determined Contribution (ADC) using uniform assumptions	$367,310

Information for Summary Report (minimum required contribution)[1]	2020
Retiree insurance premiums for the year (1)	26,682
Normal cost as a percent of covered payroll (2)	23.83%
Covered payroll for employees hired after June 30, 2018 (3)	0
Normal cost for employees hired after June 30, 2018 (4)	0
Minimum required contribution under PA 202 (1) + (4)	$26,682

[1] Senate Bill 686 requires that a local unit must contribute at least both of the following – Normal cost for employees first hired after June 30, 2018 and retiree premiums due to retirants in the retirement system; In order to obtain 40% funding, higher contributions may be needed.

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

Changes in Net OPEB Liability and Related Ratios

Fiscal Year Ending	11/30/2020	11/30/2019	11/30/2018
Total OPEB Liability			
Service Cost	$144,659	$172,672	$76,801
Interest	87,194	78,403	87,243
Changes of Benefit Terms	0	0	0
Difference between Expected and Actual Experience	(549,707)	(196)	(384,585)
Change of Assumptions	253,058	(411,677)	945,730
Benefit Payments (Including Refunds of Employee Contributions)	(26,682)	(36,340)	(46,018)
Net Change in Total OPEB Liability	(91,478)	(197,138)	679,171
Total OPEB Liability – Beginning	2,145,295	2,342,433	1,663,262
Total OPEB Liability – Ending (a)	$2,053,817	$2,145,295	$2,342,433
Plan Fiduciary Net Position			
Contributions to OPEB trust	$0	$12,000	$0
Contributions/benefit payments made from general operating funds	26,682	36,340	46,018
Net Investment Income	28,478	9,557	18,710
Benefit Payments (Including Refunds of Employee Contributions)	(26,682)	(36,340)	(46,018)
Administrative Expenses	(720)	(725)	(878)
Other	0	0	0
Net Change in Fiduciary Net Position	27,758	20,832	17,832
Plan Fiduciary Net Position – Beginning	391,340	370,508	352,677
Plan Fiduciary Net Position – Ending (b)	419,098	391,340	370,509
Net OPEB Liability – Ending (a)-(b)	$1,634,719	$1,753,955	$1,971,924
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability	20.41%	18.24%	15.82%
Covered Employee Payroll	$630,309	$573,247	$580,548
Net OPEB Liability as Percentage of Payroll	259.4%	306.0%	339.7%
Actuarially Determined Contribution	$314,386	$344,953	$202,978
Employer Contribution/benefit payments	(26,682)	(36,340)	(46,018)
Contribution Deficiency/(Excess)	$287,704	$308,613	$156,960
ADC as a Percentage of Covered Payroll	49.9%	60.2%	35.0%
Employer Contribution as a Percentage of Covered Payroll	4.2%	6.3%	7.9%

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

Assumptions and Methods for Calculation of Actuarially Determined Contribution

Valuation date	November 30, 2020
Measurement date	November 30, 2020
Reporting date	November 30, 2020

Actuarial Methods

Cost method	Entry Age Normal (level percentage of compensation)
Asset valuation method	Market value

Actuarial Assumptions

Discount Rate – 3.83% for 2020 contribution; 2.79% for OPEB liability and 2021 contribution
Rationale – Blended rate based on long term expected return and the 20-year Aa Municipal Bond rate

20-year Aa Municipal Bond Rate – 2.03%
Rationale – Bond rate (based on information published by Bartel Associates, LLC as of November 30, 2020)

Salary Scale – 3.50%
Rationale – Based on State of Michigan salary studies for municipalities

Return on Plan Assets – 7.35%
Rationale – Consistent with plan investment experience

Mortality Rates – 2010 Public General & Public Safety Employees and Healthy Retirees, Headcount weighted with 2020 Mortality Improvement Scale
Rationale – Most current mortality rates available for municipalities

Utilization – 100% of covered employees at the valuation date will elect the same coverage at retirement; actual coverage used for non-active
Rationale – historical

Termination Rates – None
Rationale – Small plan

Retirement rates – see rates below
Rationale – Based on employer experience

Age	General Non-Union Dept. Heads, DPW	Police Union
55	15%	25%
56	10	25
57	10	25
58	10	35
59	10	40
60	100	100

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

Marital Assumption – 90% of the active with a covered spouse will have a covered spouse at retirement with females 3 years younger than males; actual spouse data used for retirees
Rationale – Consistent with experience

Claims Costs – see rates (monthly) below:

Monthly premiums	Per Person
BCBS Pre-65	
55	984.08
56	1,029.53
57	1,075.42
58	1,124.41
59	1,148.68
60	1,197.66
61	1,240.02
62	1,267.83
63	1,302.69
64	1,323.87
BCN Advantage 65 and over	259.84

Rationale – Provided by BCBS

Implicit Subsidy – Not applicable; premiums are age-graded

Medical Trend – Medical premiums: Pre-Medicare 8.25% graded down to 4.5% by 0.25% per year; Post-Medicare, 6.5% graded down to 4.5% by 0.25% per year
Rationale – Based on State of Michigan trend survey

Data Collection
Date and form of data - All personnel and asset data was prepared by the plan sponsor or a representative and was generally relied upon as being correct and complete without audit by Watkins Ross

Assumption changes since prior valuation

- Mortality Improvement changed from 2018 to 2020
- Medical Trend changed from Pre-Medicare, 8.5% graded down to 4.5% by 0.25% per year; Post-Medicare, 7.0% graded down to 4.5% by .25% per year
- Discount changed from 3.83% to 2.79%

Assumptions used for PA 202 Reporting

Discount rate - 4.13%

Mortality – 2010 Public General and Public Safety Employees and Healthy Retirees, Headcount weighted with 2018 Mortality Improvement Scale

All other assumptions are the same as used for GASB

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Difference between Actual and Expected Experience

Year	Difference between expected and actual Experience	Recognition period (years)	Amount Recognized in Year Ended November 30, 2020	2021	2022	2023	2024	2025	2026+	Deferred Outflow of Resources	Deferred Inflow of Resources
2018	(384,585)	9.10	(42,262)	(42,262)	(42,262)	(42,262)	(42,262)	(42,262)	(46,489)	-	(257,799)
2019	(196)	8.63	(23)	(23)	(23)	(23)	(23)	(23)	(35)	-	(150)
2020	(549,707)	6.71	(81,924)	(81,924)	(81,924)	(81,924)	(81,924)	(81,924)	(58,163)	-	(467,783)
Net recognized in OPEB expense			$ (124,209)	$ (124,209)	$ (124,209)	$ (124,209)	$ (124,209)	$ (124,209)	$ (104,687)	$ -	$ (725,732)

Schedule of Changes in Assumptions

Year	Changes in Assumptions	Recognition period (years)	Amount Recognized in Year Ended November 30, 2020	2021	2022	2023	2024	2025	2026+	Deferred Outflow of Resources	Deferred Inflow of Resources
2018	945,730	9.10	103,926	103,926	103,926	103,926	103,926	103,926	114,322	633,952	-
2019	(411,677)	8.63	(47,703)	(47,703)	(47,703)	(47,703)	(47,703)	(47,703)	(77,756)	-	(316,271)
2020	253,058	6.71	37,714	37,714	37,714	37,714	37,714	37,714	26,774	215,344	-
Net recognized in OPEB expense			$ 93,937	$ 93,937	$ 93,937	$ 93,937	$ 93,937	$ 93,937	$ 63,340	$ 849,296	$ (316,271)

Schedule of Differences between Projected and Actual Earnings on OPEB Plan Investments

Year	Difference between expected and actual earnings on OPEB assets	Recognition period (years)	Amount Recognized in Year Ended November 30, 2020	2021	2022	2023	2024	2025	2026+	Deferred Outflow of Resources	Deferred Inflow of Resources
2018	(570)	5.00	(114)	(114)	(114)					-	(228)
2019	19,594	5.00	3,919	3,919	3,919	3,919				11,757	-
2020	1,823	5.00	365	365	365	365	363			1,458	-
Net recognized in OPEB expense			$ 4,170	$ 4,170	$ 4,170	$ 4,284	$ 363			$ 13,215	$ (228)

Total Deferred Outflow/(Inflow) of Resources

	Amount Recognized in Year Ended November 30, 2021	2022	2023	2024	2025	2026+
Total Deferred Outflow/(Inflow) of Resources	(26,102)	(26,102)	(25,988)	(29,909)	(30,272)	(41,347)

SUMMARY OF PLAN PROVISIONS

Plan name – City of Roosevelt Retiree Healthcare Plan

Benefits — Percentage of medical premiums paid according to the following:

Years of Service	General[1] Non-Union	DPW%	Police%
10-14	25%		50%
15-19	50		75
20-24	75	90%[2]	90[2]
25+	90[2]		

Eligibility:

General Non-union — Hired before December 1, 2018; Age 55 with 10 years of service

DPW — Hired before December 1, 2018; Age 55 with 20 years of service

Police Union — Hired before December 1, 2018; Age 55 with 10 years of service

Retiree contribution — Balance of premiums not paid by the City

Changes since prior valuation None

[1] For general, non-union retirees, the City's contribution to retiree health insurance will be capped at the premium cost that exists as of the 10th year of the employee's retirement.

[2] Subject to annual vote; as of 12/31/2016, all current retirees contribute 10% of the premium. For this valuation, all future retirees are assumed to be required to contribute at least 10% of the premium at retirement

GLOSSARY

A number of special terms and concepts are used in connection with OPEB plans and the OPEB accounting report. The following list reviews a number of these terms and provides a brief discussion of their meaning.

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

Actuarial Cost Method – This is a mathematical formula which is used to allocate the present value of projected benefits to past and future plan years.

Amortization – The difference between actual and expected investment returns, the difference between actual and expected experience, and the impact of any plan or assumption changes will be amortized and paid over future years.

Depletion Date (Cross-over Point) – The projected date (if any) where plan assets, including future contributions, are no longer sufficient to pay Projected Benefit Payments to current members.

Long-term expected rate of return – The rate of return based on the nature and mix of current and expected plan investments and over the time period from when an employee is hired to when all benefits to the employee have been paid.

Market Value of Assets – The market value of all assets in the fund including any accrued contribution for the previous plan year, which was not paid by the end of the year.

Measurement Date – The date the Total OPEB Liability, Fiduciary Net Position, and Net OPEB Liability are determined.

Net OPEB Liability (NOL) – The Total OPEB Liability less the Plan Fiduciary Net Position.

Normal Cost – For GASB 74/75 purposes, normal cost is the equivalent of service cost (see definition of service cost).

Other Post-Employment Benefits (OPEB) – Benefits (such as death benefits, life insurance, disability, and long-term care) that are paid in the period after employment and that are provided separately from a pension plan, as well as healthcare benefits paid in the period after employment, regardless of the manner in which they are provided. OPEB does not include termination benefits or termination payments for sick leave.

OPEB Expense (OE) – The change in the Net OPEB Liability (NOL) recognized in the current measurement period. Changes to the NOL not fully recognized in a given year's OPEB expense will be maintained as deferred inflows and deferred outflows. These will be recognized incrementally in the OPEB expense over time.

GLOSSARY

Plan assets – Stocks, bonds and other investments that have been segregated and restricted (usually in a trust) to provide for post-retirement benefits. Assets not segregated in a trust, or otherwise effectively restricted so that they cannot be used by the employer for other purposes, are not plan assets, even though it may be intended that those assets be used to provide post-retirement benefits.

Plan Fiduciary Net Position – The market value of plan assets as of the measurement date.

Present Value – The present value of a future payment or a series of payments is the amount of each payment, discounted to recognize the time value of money, and further reduced for the probability that the payment might not be made because of death, disability or termination of employment.

Projected Benefit Payments – All benefits projected to be payable to current active and inactive participants as a result of their past service and their expected future service.

Real Rate of Return – The rate of return on an investment after the adjustment to eliminate inflation.

Reporting Date – The date that represents the fiscal year end for the plan or employer.

Service Cost – The value of portion of Total OPEB Liability earned during the current year computed in accordance with GAAP accounting rules.

Single Equivalent Discount Rate – The single rate that gives the same total present value as discounting the Projected Benefit Payments with the long-term expected rate of return until the Depletion Date and discounting any remaining Projected Benefit Payments with the yield on a 20-year AA/Aa tax-exempt municipal bond index.

Total OPEB Liability (TOL) – The actuarial present value of the accrued benefit determined under the Entry Age actuarial cost method calculated using the blended Single Equivalent Discount Rate.

Valuation Date – The date as of which an actuarial valuation is performed.

CITY OF ROOSEVELT

Appendix D MERS Annual Actuarial Valuation Report

Municipal Employees' Retirement System of Michigan

Annual Actuarial Valuation Report
December 31, 2019 - Roosevelt Park, City of (6107)

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

Spring, 2020

Roosevelt Park, City of

In care of:
Municipal Employees' Retirement System of Michigan
1134 Municipal Way
Lansing, Michigan 48917

This report presents the results of the Annual Actuarial Valuation, prepared for Roosevelt Park, City of (6107) as of December 31, 2019. The report includes the determination of liabilities and contribution rates resulting from the participation in the Municipal Employees' Retirement System of Michigan ("MERS"). This report contains the minimum actuarially determined contribution requirement, in alignment with the MERS Plan Document, Actuarial Policy, and the Michigan Constitution and governing statutes. Roosevelt Park, City of is responsible for the employer contributions needed to provide MERS benefits for its employees and former employees.

The purposes of this valuation are to:

- Measure funding progress as of December 31, 2019,
- Establish contribution requirements for the fiscal year beginning December 1, 2021,
- Provide information regarding the identification and assessment of risk,
- Provide actuarial information in connection with applicable Governmental Accounting Standards Board (GASB) statements, and
- Provide information to assist the local unit of government with state reporting requirements.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

The findings in this report are based on data and other information through December 31, 2019. The valuation was based upon information furnished by MERS concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability 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 MERS.

The Municipal Employees' Retirement Act, PA 427 of 1984 and the MERS' Plan Document Article VI sec. 71 (1)(d), provides the MERS Board with the authority to set actuarial assumptions and methods after consultation with the actuary. As the fiduciary of the plan, MERS Retirement Board sets certain assumptions for funding and GASB purposes. These assumptions are checked regularly through a comprehensive study, called an Experience Study. A study was completed in 2015, as prepared by the prior actuary, and is the basis of the demographic assumptions and methods currently in place. At the February 28, 2019 board meeting, the MERS Retirement Board adopted new economic assumptions effective with the December 31, 2019 annual actuarial valuation, which will impact contributions beginning in 2021. **At the February 27, 2020 board meeting, the MERS Retirement Board adopted demographic assumptions effective with the December 31, 2020 annual actuarial valuation, which will impact contributions beginning in 2022.** An illustration of the potential impact is found in this report.

The Michigan Department of Treasury provides required assumptions to be used for purposes of Public Act 202 reporting. These assumptions are for reporting purposes only and do not impact required contributions. Please refer to the State Reporting page found at the end of this report for information for this filing.

For a full list of all the assumptions used, please refer to the division-specific assumptions described in table(s) in this report, and to the Appendix on the MERS website at:
http://www.mersofmich.com/Portals/0/Assets/Resources/AAV-Appendix/MERS-2019AnnualActuarialValuation-Appendix.pdf

The actuarial assumptions used for this valuation are reasonable for purposes of the measurement.

This report does not reflect the recent and still developing impact of COVID-19, which is likely to influence demographic and economic experience, at least in the short-term. We will continue to monitor these developments and their impact on the MERS Defined Benefit and Hybrid plans. Actual experience will be reflected in each subsequent annual valuation, as experience emerges.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of Roosevelt Park, City of as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and with applicable statutes.

David T. Kausch, Rebecca L. Stouffer, and Mark Buis are members of the American Academy of Actuaries. These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor. GRS maintains independent consulting agreements with certain local units of government for services unrelated to the actuarial consulting services provided in this report.

The Retirement Board of the Municipal Employees' Retirement System of Michigan confirms that the System provides for payment of the required employer contribution as described in Section 20m of Act No. 314 of 1965 (MCL 38.1140m).

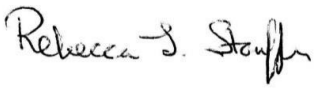
This information is purely actuarial in nature. It is not intended to serve as a substitute for legal, accounting or investment advice.

This report was prepared at the request of the MERS Retirement Board and may be provided only in its entirety by the municipality to other interested parties (MERS customarily provides the full report on request to associated third parties such as the auditor for the municipality). GRS is not responsible for the consequences of any unauthorized use. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

If you have reason to believe that the plan provisions are incorrectly described, that important plan provisions relevant to this valuation are not described, that conditions have changed since the calculations were made, that the information provided in this report is inaccurate or is in anyway incomplete, or if you need further information in order to make an informed decision on the subject matter in this report, please contact your Regional Manager at 1.800.767.MERS (6377).

Sincerely,

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



Rebecca L. Stouffer, ASA, FCA, MAAA

Mark Buis, FSA, FCA, EA, MAAA

Table of Contents

Executive Summary 1

Table 1: Employer Contribution Details For the Fiscal Year Beginning December 1, 2021 8

Table 2: Benefit Provisions 9

Table 3: Participant Summary 10

Table 4: Reported Assets (Market Value) 11

Table 5: Flow of Valuation Assets 12

Table 6: Actuarial Accrued Liabilities and Valuation Assets as of December 31, 2019 13

Table 7: Actuarial Accrued Liabilities - Comparative Schedule 14

Tables 8 and 9: Division-Based Comparative Schedules 15

Table 10: Division-Based Layered Amortization Schedule 18

GASB 68 Information 20

Benefit Provision History 22

Plan Provisions, Actuarial Assumptions, and Actuarial Funding Method 24

Risk Commentary 25

State Reporting 27

Executive Summary

Funded Ratio

The funded ratio of a plan is the percentage of the dollar value of the actuarial accrued liability that is covered by the actuarial value of assets. While funding ratio may be a useful plan measurement, understanding a plan's funding trend may be more important than a particular point in time. Refer to Table 7 to find a history of this information.

	12/31/2019	12/31/2018
Funded Ratio*	52%	56%

* Reflects assets from Surplus divisions, if any.

Throughout this report are references to valuation results generated prior to the 2018 valuation date. Results prior to 2018 were received directly from the prior actuary or extracted from the previous valuation system by MERS's technology service provider.

Required Employer Contributions:

Your required employer contributions are shown in the following table. Employee contributions, if any, are in addition to the employer contributions. Changes to the actuarial assumptions and methods based on the 2015 Experience Study are fully phased-in with this valuation.

Effective this valuation, the MERS Retirement Board has adopted a reduction in the investment rate of return assumption from 7.75% to 7.35% and a reduction in the rate of wage inflation from 3.75% to 3.00%. Changes to these assumptions are effective for contributions beginning in 2021 and may be phased-in. This valuation reflects the first year of phase-in.

By default, MERS will invoice you based on the amount in the "No Phase-in" columns. This amount will be considered the minimum required contribution unless you request to be billed the "Phase-in" rates. If you wish to be billed using the phased-in rates, please contact MERS, at which point the alternate minimum required contribution will be the amount in the "Phase-in" columns. Please note that this approach is different than in years past.

	Percentage of Payroll				Monthly $ Based on Projected Payroll			
	Phase-in	No Phase-in	Phase-in	No Phase-in	Phase-in	No Phase-in	Phase-in	No Phase-in
Valuation Date:	12/31/2019	12/31/2019	12/31/2018	12/31/2018	12/31/2019	12/31/2019	12/31/2018	12/31/2018
Fiscal Year Beginning:	December 1, 2021	December 1, 2021	December 1, 2020	December 1, 2020	December 1, 2021	December 1, 2021	December 1, 2020	December 1, 2020
Division								
01 - General	-	-	-	-	$ 21,609	$ 23,037	$ 19,316	$ 19,689
02 - Police	-	-	-	-	10,863	11,442	8,313	8,377
Municipality Total					**$ 32,472**	**$ 34,479**	**$ 27,629**	**$ 28,066**

Employee contribution rates:

	Employee Contribution Rate	
Valuation Date:	12/31/2019	12/31/2018
Division		
01 - General	0.00%	0.00%
02 - Police	0.00%	0.00%

The employer may contribute more than the minimum required contributions, as these additional contributions will earn investment income and may result in lower future contribution requirements. Employers making contributions in excess of the minimum requirements may elect to apply the excess contribution immediately to a particular division, or segregate the excess into one or more of what MERS calls "Surplus" divisions. An election in the first case would immediately reduce any unfunded accrued liability and lower the amortization payments throughout the remaining amortization period. An election to set up Surplus divisions would not immediately lower future contributions, however the assets from the Surplus division could be transferred to an unfunded division in the future to reduce the unfunded liability in future years, or to be used to pay all or a portion of the minimum required contribution in a future year. For purposes of this report, the assets in any Surplus division have been included in the municipality's total assets, unfunded accrued liability and funded status, however, these assets are not used in calculating the minimum required contribution.

MERS strongly encourages employers to contribute more than the minimum contribution shown above.

Assuming that experience of the plan meets actuarial assumptions:

- To accelerate to a 100% funding ratio in 10 years, estimated monthly employer contributions for the fiscal year beginning in 2021 for the entire employer would be $40,777, instead of $34,479.

How and Why Do These Numbers Change?

In a defined benefit plan contributions vary from one annual actuarial valuation to the next as a result of the following:

- Changes in benefit provisions (see Table 2)
- Changes in actuarial assumptions and methods (see the Appendix)
- Experience of the plan (investment experience and demographic experience); this is the difference between actual experience of the plan and the actuarial assumptions.

Comments on Investment Rate of Return Assumption

A defined benefit plan is funded by employer contributions, participant contributions, and investment earnings. Investment earnings have historically provided a significant portion of the funding. The larger the share of benefits being provided from investment returns, the smaller the required contributions, and vice versa. Determining the contributions required to prefund the promised retirement benefits requires an assumption of what investment earnings are expected to add to the fund over a long period of time. This is called the **Investment Return Assumption**.

The MERS Investment Return Assumption is **7.35%** per year. This, along with all of our other actuarial assumptions, is reviewed at least every five years in an Experience Study that compares the assumptions used against actual experience and recommends adjustments if necessary. If your municipality would like to explore contributions at lower assumed investment return assumptions, please review the "what if" projection scenarios later in this report.

Assumption Change in 2019

At the February 28, 2019 board meeting, the MERS Retirement Board adjusted key economic assumptions. These assumptions, in particular the investment return assumption, have a significant effect on a plan's required contribution and funding level. Historically low interest rates, along with high equity market valuations, have led to reductions in projected returns for most asset classes. This has resulted in a Board adopted reduction in the investment rate of return assumption from 7.75% to 7.35%, effective with the December 31, 2019 valuation, first impacting 2021 contributions. The Board also changed the assumed rate of wage inflation from 3.75% to 3.00%, with the same effective date.

Assumption Change in 2020

A 5-year experience study analyzing historical experience from 2013 through 2018 was completed in February 2020. In addition to changes to the economic assumptions which will take effect with the Fiscal year 2021 contribution rates, the experience study recommends updated demographic assumptions, including adjustments to the following actuarial assumptions: mortality, retirement, disability, and termination rates. A complete description of the proposed assumptions may be found in the Appendix to the valuation. Changes to the demographic assumptions resulting from the experience study have been approved by the MERS Retirement Board and are to be effective beginning with the December 31, 2020 actuarial valuation first impacting 2022 contributions. This report includes a "What If" scenario of the approved 2020 assumption changes in an effort to show employers the anticipated impact on contribution rates.

Comments on Asset Smoothing

To avoid dramatic spikes and dips in annual contribution requirements due to short term fluctuations in asset markets, MERS applies a technique called **asset smoothing**. This spreads out each year's investment gains or losses over the prior year and the following four years. This smoothing method is used to determine your actuarial value of assets (valuation assets), which is then used to determine both your funded ratio and your required contributions. The (smoothed) **actuarial rate of return for 2019 was 4.77%, while the actual market rate of return was 13.41%.** To see historical details of the market rate of return, compared to the smoothed actuarial rate of return, refer to this report's Appendix, or view the "How Smoothing Works" video on the Defined Benefit resource page of the MERS website.

As of December 31, 2019, the actuarial value of assets is 101% of market value due to asset smoothing. This means that meeting the actuarial assumption in the next few years will require average annual market returns that exceed the 7.35% investment return assumption, or contribution requirements will continue to increase.

If the December 31, 2019 valuation results were based on market value instead of actuarial value:

- The funded percent of your entire municipality would be 52% (instead of 52%); and
- Your total employer contribution requirement for the fiscal year starting December 1, 2021 would be $418,872 (instead of $413,748).

Alternate Scenarios to Estimate the Potential Volatility of Results ("What If Scenarios")

The calculations in this report are based on assumptions about long-term economic and demographic behavior. These assumptions will never materialize in a given year, except by coincidence. Therefore the results will vary from one year to the next. The volatility of the results depends upon the characteristics of the plan. For example:

- Open divisions that have substantial assets compared to their active employee payroll will have more volatile employer contribution rates due to investment return fluctuations.
- Open divisions that have substantial accrued liability compared to their active employee payroll will have more volatile employer contribution rates due to demographic experience fluctuations.
- Small divisions will have more volatile contribution patterns than larger divisions because statistical fluctuations are relatively larger among small populations.
- Shorter amortization periods result in more volatile contribution patterns.

Many assumptions are important in determining the required employer contributions. In the following table, we show the impact of varying the Investment Return assumption and the demographic assumptions. Lower investment returns would result in higher required employer contributions, and vice-versa. Alternate demographic assumptions may result in higher or lower employer contributions depending on the demographic characteristics of the plan participants.

The relative impact of the economic and demographic scenarios below will vary from year to year, as the participant demographics change. The impact of each scenario should be analyzed for a given year, not from year to year. The results in the table are based on the December 31, 2019 valuation, and are for the municipality in total, not by division. These results do not reflect a phase in of the impact of the new actuarial assumptions.

It is important to note that calculations in this report are mathematical estimates based upon assumptions regarding future events, which may or may not materialize. Actuarial calculations can and do vary from one

valuation to the next, sometimes significantly depending on the group's size. Projections are not predictions. Future valuations will be based on actual future experience.

In addition to economic assumption changes effective with Fiscal Year 2021 contributions, the Retirement Board has also adopted a change to certain demographic and other assumptions effective for the December 31, 2020 valuation which will impact the Fiscal Year 2022 contributions. Please see the section labeled "Assumption Change in 2020" for more information. The scenario shown using these assumptions as of December 31, 2019 is illustrative only. The actual impact of this change when reflected in the 2020 Annual Actuarial Valuation report will be different.

	Assumed Future Annual Smoothed Rate of Investment Return		
12/31/2019 Valuation Results	Lower Future Annual Returns[3]	2020 Adopted Demographic Assumptions	Valuation Assumptions
Investment Return Assumption	**5.35%**	**7.35%**	**7.35%**
Wage Increase Assumption	**3.00%**	**3.00%**	**3.00%**
Accrued Liability	$ 8,921,606	$ 7,200,406	$ 6,982,966
Valuation Assets[1]	$ 3,643,505	$ 3,643,505	$ 3,643,505
Unfunded Accrued Liability	$ 5,278,101	$ 3,556,901	$ 3,339,461
Funded Ratio	41%	51%	52%
Monthly Normal Cost	$ 8,461	$ 4,836	$ 4,676
Monthly Amortization Payment	$ 40,959	$ 31,825	$ 29,803
Total Employer Contribution[2]	$ 49,420	$ 36,661	$ 34,479

[1] The Valuation Assets include assets from Surplus divisions, if any.

[2] If assets exceed accrued liabilities for a division, the division may have an overfunding credit to reduce the division's employer contribution requirement. If the overfunding credit is larger than the normal cost, the division's full credit is included in the municipality's amortization payment above but the division's total contribution requirement is zero. This can cause the displayed normal cost and amortization payment to not add up to the displayed total employer contribution.

[3] Based on current demographic assumptions.

Projection Scenarios

The next two pages show projections of the plan's funded ratio and computed employer contributions under the actuarial assumptions used in the valuation and alternate economic and demographic assumption scenarios. All three projections take into account the past investment losses that will continue to affect the actuarial rate of return in the short term.

The 7.35%/3.00% scenario provides an estimate of computed employer contributions based on current actuarial assumptions, and a projected 7.35% market return. The other two scenarios may be useful if the municipality chooses to budget more conservatively, and make contributions in addition to the minimum requirements. The 2020 adopted demographic assumption and 5.35%/3.00% projection scenarios provide an indication of the potential required employer contribution if these assumptions were met over the long-term.

Your municipality includes one or more Surplus divisions. The assets in a Surplus division may be used to reduce future employer contributions or to accelerate the date by which the municipality becomes 100% funded. The timing and use of these Surplus assets is discretionary.

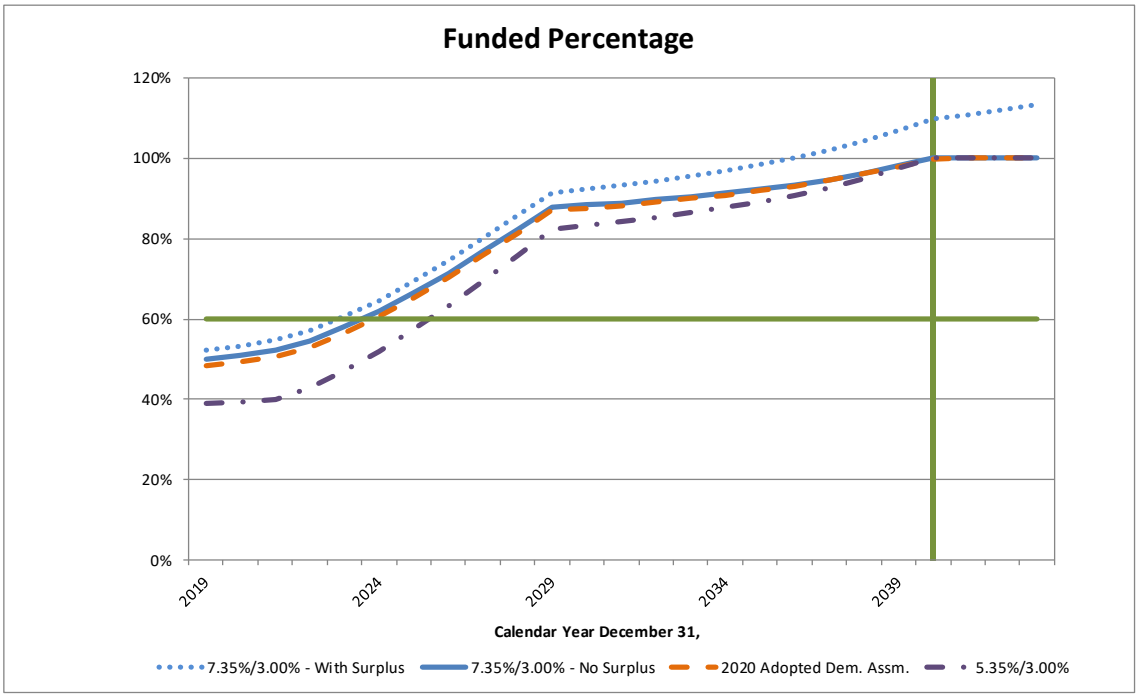
The Funded Percentage graph shows projections of funded status under the 7.35% investment return

assumption, both including the Surplus assets (contributed as of the valuation date), and without the Surplus assets. The graph including the Surplus assets assumes these Surplus assets grow with interest and are not used to lower future employer contributions. We modeled the projections including the Surplus assets in this fashion because the use of these assets is discretionary by the employer and we do not know when and how the employer will use them. Once the employer uses these Surplus assets, any future employer contributions are expected to be lower than those shown in the projections.

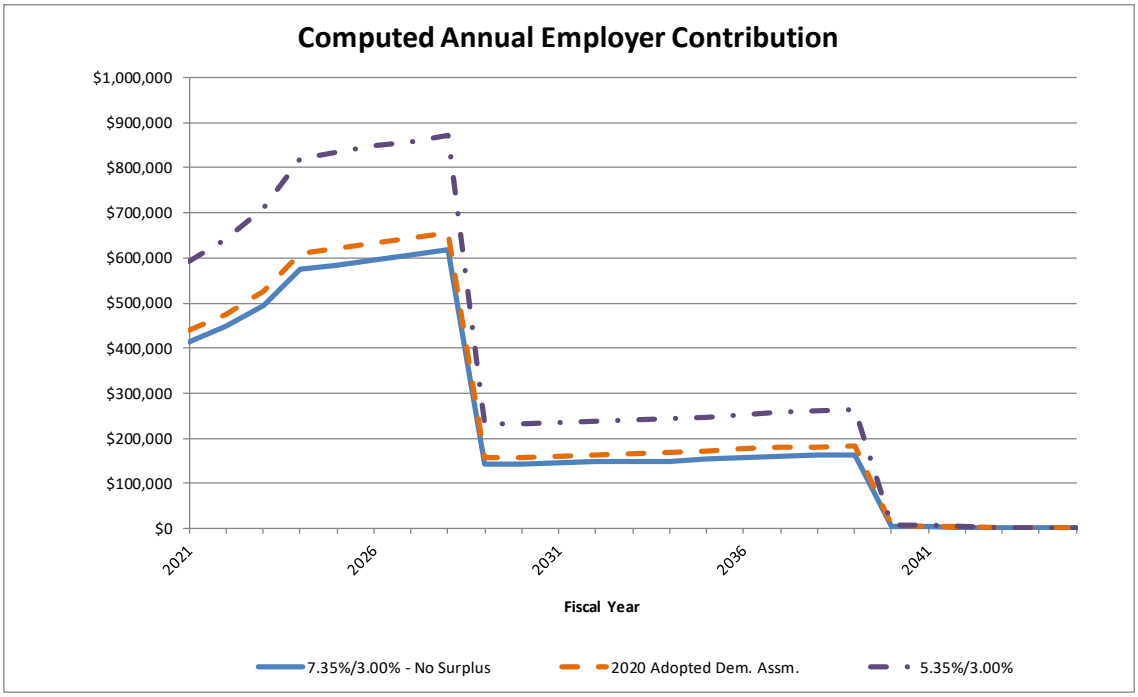
Valuation Year Ending 12/31	Fiscal Year Beginning 12/1	Actuarial Accrued Liability	Valuation Assets[2]	Funded Percentage	Computed Annual Employer Contribution
7.35%[1]/3.00% - Current Demographic Assumptions					
NO 5-YEAR PHASE-IN					
2019	2021	$ 6,982,966	$ 3,484,004	50%	$ 413,748
2020	2022	$ 7,180,000	$ 3,650,000	51%	$ 447,000
2021	2023	$ 7,380,000	$ 3,870,000	52%	$ 495,000
2022	2024	$ 7,590,000	$ 4,140,000	55%	$ 575,000
2023	2025	$ 7,780,000	$ 4,510,000	58%	$ 585,000
2024	2026	$ 7,960,000	$ 4,920,000	62%	$ 596,000
7.35%[1]/3.00% - Adopted 2020 Demographic Assumptions					
NO 5-YEAR PHASE-IN					
2019	2021	$ 7,200,406	$ 3,484,004	48%	$ 439,932
2020	2022	$ 7,410,000	$ 3,650,000	49%	$ 474,000
2021	2023	$ 7,640,000	$ 3,870,000	51%	$ 525,000
2022	2024	$ 7,860,000	$ 4,170,000	53%	$ 610,000
2023	2025	$ 8,070,000	$ 4,570,000	57%	$ 621,000
2024	2026	$ 8,260,000	$ 5,000,000	61%	$ 634,000
5.35%[1]/3.00% - Current Demographic Assumptions					
NO 5-YEAR PHASE-IN					
2019	2021	$ 8,921,606	$ 3,484,004	39%	$ 593,040
2020	2022	$ 9,130,000	$ 3,580,000	39%	$ 642,000
2021	2023	$ 9,350,000	$ 3,740,000	40%	$ 712,000
2022	2024	$ 9,560,000	$ 4,110,000	43%	$ 821,000
2023	2025	$ 9,750,000	$ 4,600,000	47%	$ 835,000
2024	2026	$ 9,930,000	$ 5,150,000	52%	$ 848,000

[1] Represents both the interest rate for discounting liabilities and the future investment return assumption on the Market Value of assets.

[2] Valuation Assets do not include assets from Surplus divisions, if any.



Notes:
All projected funded percentages are shown with no phase-in.
Assumes assets from Surplus divisions will not be used to lower employer contributions during the projection period.
The green indicator lines have been added at 60% funded and 21 years following the valuation date for PA 202 purposes.



Notes:
All projected contributions are shown with no phase-in.
Projected employer contributions do not reflect the use of any assets from the Surplus divisions.

Table 1: Employer Contribution Details For the Fiscal Year Beginning December 1, 2021

Division	Total Normal Cost	Employee Contribut. Rate	Employer Contributions[1]				Blended ER Rate No Phase-In[5]	Blended ER Rate With Phase-In[5]	Employee Contribut. Conversion Factor[2]
			Employer Normal Cost	Payment of the Unfunded Accrued Liability[4]	Computed Employer Contribut. No Phase-In	Computed Employer Contribut. With Phase-In			
Percentage of Payroll									
01 - General	15.87%	0.00%	-	-	-	-			
02 - Police	12.26%	0.00%	-	-	-	-			
Estimated Monthly Contribution[3]									
01 - General			$ 705	$ 22,332	$ 23,037	$ 21,609			
02 - Police			3,971	7,471	11,442	10,863			
Total Municipality			**$ 4,676**	**$ 29,803**	**$ 34,479**	**$ 32,472**			
Estimated Annual Contribution[3]			**$ 56,112**	**$ 357,636**	**$ 413,748**	**$ 389,664**			

[1] The above employer contribution requirements are in addition to the employee contributions, if any.

[2] If employee contributions are increased/decreased by 1.00% of pay, the employer contribution requirement will decrease/increase by the Employee Contribution Conversion Factor. The conversion factor is usually under 1%, because employee contributions may be refunded at termination of employment, and not used to fund retirement pensions. Employer contributions will all be used to fund pensions.

[3] For divisions that are open to new hires, estimated contributions are based on projected fiscal year payroll. Actual contributions will be based on actual reported monthly pays, and will be different from the above amounts. For divisions that will have no new hires (i.e., closed divisions), invoices will be based on the above dollar amounts which are based on projected fiscal year payroll. See description of Open Divisions and Closed Divisions in the Appendix.

[4] Note that if the overfunding credit is larger than the normal cost, the full credit is shown above but the total contribution requirement is zero. This will cause the displayed normal cost and unfunded accrued liability contributions to not add across.

[5] For linked divisions, the employer will be invoiced the Computed Employer Contribution No Phase-in rate shown above for each linked division (a contribution rate for the open division; a contribution dollar for the closed-but-linked division), unless the employer elects to contribute the Blended Employer Contribution rate shown above, by contacting MERS at 800-767-MERS (6377).

Please see the Comments on Asset Smoothing in the Executive Summary of this report.

Table 2: Benefit Provisions

01 - General: Closed to new hires

	2019 Valuation	2018 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/15	55/15
Early Retirement (Reduced):	50/25	50/25
Final Average Compensation:	5 years	5 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
COLA for Current Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	0.00%	0.00%
DC Plan for New Hires:	2/1/2013	2/1/2013
Act 88:	Yes (Adopted 10/7/1968)	Yes (Adopted 10/7/1968)

02 - Police: Closed to new hires

	2019 Valuation	2018 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/15	55/15
Early Retirement (Reduced):	50/25	50/25
Final Average Compensation:	5 years	5 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
COLA for Current Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	0.00%	0.00%
DC Plan for New Hires:	12/1/2018	12/1/2018
Act 88:	Yes (Adopted 10/7/1968)	Yes (Adopted 10/7/1968)

Table 3: Participant Summary

Division	2019 Valuation Number	2019 Valuation Annual Payroll[1]	2018 Valuation Number	2018 Valuation Annual Payroll[1]	2019 Valuation Average Age	2019 Valuation Average Benefit Service[2]	2019 Valuation Average Eligibility Service[2]
01 - General							
Active Employees	1	$ 55,114	2	$ 110,399	49.2	8.5	8.5
Vested Former Employees	7	90,610	6	62,231	47.7	9.6	16.0
Retirees and Beneficiaries	19	335,349	19	330,196	68.6		
Pending Refunds	0		0				
02 - Police							
Active Employees	4	$ 397,050	4	$ 351,948	46.0	23.0	23.0
Vested Former Employees	2	14,516	2	14,516	45.6	6.3	16.0
Retirees and Beneficiaries	1	30,201	1	29,722	89.5		
Pending Refunds	0		0				
Total Municipality							
Active Employees	**5**	**$ 452,164**	**6**	**$ 462,347**	**46.6**	**20.1**	**20.1**
Vested Former Employees	**9**	**105,126**	**8**	**76,747**	**47.2**	**8.9**	**16.0**
Retirees and Beneficiaries	**20**	**365,550**	**20**	**359,918**	**69.6**		
Pending Refunds	**0**		**0**				
Total Participants	**34**		**34**				

1 Annual payroll for active employees; annual deferred benefits payable for vested former employees; annual benefits being paid for retirees and beneficiaries.

2 Descriptions can be found under Miscellaneous and Technical Assumptions in the Appendix.

Table 4: Reported Assets (Market Value)

Division	2019 Valuation		2018 Valuation	
	Employer and Retiree[1]	Employee[2]	Employer and Retiree[1]	Employee[2]
01 - General	$ 1,964,257	$ 0	$ 1,881,992	$ 0
02 - Police	1,324,205	150,224	1,111,807	147,872
S1 - Surplus Unassociated	157,427	0	106,281	0
Municipality Total[3]	**$ 3,445,889**	**$ 150,224**	**$ 3,100,081**	**$ 147,872**
Combined Assets[3]	**$3,596,113**		**$3,247,953**	

[1] Reserve for Employer Contributions and Benefit Payments.

[2] Reserve for Employee Contributions.

[3] Totals may not add due to rounding.

The December 31, 2019 valuation assets (actuarial value of assets) are equal to 1.013179 times the reported market value of assets (compared to 1.095342 as of December 31, 2018). Refer to the Appendix for a description of the valuation asset derivation and a detailed calculation of valuation assets.

Assets in the Surplus division(s) are employer assets that have been reserved to be used by the employer at some point in the future to stabilize increases in contributions. These assets are not used in calculating the employer contribution for the fiscal year beginning December 1, 2021.

Table 5: Flow of Valuation Assets

Year Ended 12/31	Employer Contributions		Employee Contributions	Investment Income (Valuation Assets)	Benefit Payments	Employee Contribution Refunds	Net Transfers	Valuation Asset Balance
	Required	Additional						
2009	$ 106,202		$ 0	$ 115,736	$ (232,184)	$ 0	$ 0	$ 3,097,640
2010	121,571		0	151,054	(242,387)	0	0	3,127,878
2011	135,632	$ 0	0	146,834	(265,098)	0	0	3,145,246
2012	155,639	0	0	143,849	(295,680)	0	73,368	3,222,422
2013	151,548	0	0	191,346	(302,805)	0	65,736	3,328,247
2014	174,147	0	0	185,173	(319,897)	0	0	3,367,670
2015	175,793	0	0	158,185	(333,547)	0	0	3,368,101
2016	187,717	0	0	165,071	(344,362)	0	0	3,376,527
2017	207,066	100,000	0	209,742	(348,871)	0	0	3,544,464
2018	238,511	0	0	128,930	(354,286)	0	0	3,557,619
2019	241,391	35,000	0	169,413	(359,918)	0	0	3,643,505

Notes:

Transfers in and out are usually related to the transfer of participants between municipalities, and to employer and employee payments for service credit purchases (if any) that the governing body has approved.

Additional employer contributions, if any, are shown separately starting in 2011. Prior to 2011, additional contributions are combined with the required employer contributions.

The investment income column reflects the recognized investment income based on Valuation Assets. It does not reflect the market value investment return in any given year.

The Valuation Asset balance includes assets from Surplus divisions, if any.

Years where historical information is not available, will be displayed with zero values.

Table 6: Actuarial Accrued Liabilities and Valuation Assets as of December 31, 2019

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
01 - General	$ 122,861	$ 601,539	$ 3,665,300	$ 0	$ 4,389,700	$ 1,990,144	45.3%	$ 2,399,556
02 - Police	2,368,472	79,189	145,605	0	2,593,266	1,493,860	57.6%	1,099,406
S1 - Surplus Unassociated	0	0	0	0	0	159,501		(159,501)
Total	**$ 2,491,333**	**$ 680,728**	**$ 3,810,905**	**$ 0**	**$ 6,982,966**	**$ 3,643,505**	**52.2%**	**$ 3,339,461**

Please see the Comments on Asset Smoothing in the Executive Summary of this report.

Table 7: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2005	$ 3,281,518	$ 2,711,550	83%	$ 569,968
2006	3,490,952	2,879,360	82%	611,592
2007	3,863,975	3,067,229	79%	796,746
2008	4,307,378	3,107,886	72%	1,199,492
2009	4,237,692	3,097,640	73%	1,140,052
2010	4,331,996	3,127,878	72%	1,204,118
2011	4,650,977	3,145,246	68%	1,505,731
2012	4,883,151	3,222,422	66%	1,660,729
2013	5,136,986	3,328,247	65%	1,808,739
2014	5,332,099	3,367,670	63%	1,964,429
2015	5,609,051	3,368,101	60%	2,240,950
2016	5,748,581	3,376,527	59%	2,372,054
2017	6,047,730	3,544,464	59%	2,503,266
2018	6,406,080	3,557,619	56%	2,848,461
2019	6,982,966	3,643,505	52%	3,339,461

Notes: Actuarial assumptions were revised for the 2008, 2009, 2010, 2011, 2012, 2015 and 2019 actuarial valuations.

The Valuation Assets include assets from Surplus divisions, if any.

Years where historical information is not available will be displayed with zero values.

Throughout this report are references to valuation results generated prior to the 2018 valuation date. Results prior to 2018 were received directly from the prior actuary or extracted from the previous valuation system by MERS's technology service provider.

Tables 8 and 9: Division-Based Comparative Schedules

Division 01 - General

Table 8-01: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2009	$ 678,944	$ 609,448	90%	$ 69,496
2010	644,680	648,433	101%	(3,753)
2011	726,204	676,605	93%	49,599
2012	676,498	690,352	102%	(13,854)
2013	707,856	693,676	98%	14,180
2014	734,497	703,715	96%	30,782
2015	4,165,385	2,278,867	55%	1,886,518
2016	4,124,587	2,193,825	53%	1,930,762
2017	4,228,114	2,140,913	51%	2,087,201
2018	4,300,737	2,061,425	48%	2,239,312
2019	4,389,700	1,990,144	45%	2,399,556

Notes: Actuarial assumptions were revised for the 2009, 2010, 2011, 2012, 2015 and 2019 actuarial valuations.

Table 9-01: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution[1]	Employee Contribution Rate[2]
	Number	Annual Payroll		
2009	4	$ 183,861	18.34%	0.00%
2010	4	203,053	15.50%	0.00%
2011	3	140,967	16.42%	0.00%
2012	1	70,279	12.57%	0.00%
2013	1	69,350	$ 864	0.00%
2014	1	72,170	$ 1,125	0.00%
2015	3	166,940	$ 15,843	0.00%
2016	2	97,440	$ 15,064	0.00%
2017	2	96,540	$ 16,461	0.00%
2018	2	110,399	$ 19,689	0.00%
2019	1	55,114	$ 23,037	0.00%

1 For open divisions, a percent of pay contribution is shown. For closed divisions, a monthly dollar contribution is shown.

2 For each valuation year, the computed employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the computed employer contribution will be adjusted.

Note: The contributions shown in Table 9 for the 12/31/2015 through 12/31/2019 valuations do **not** reflect the phase-in of the increased contribution requirements associated with the new actuarial assumptions. The full contribution without phase-in is shown in Table 9 above.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

Table 8-02: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2009	$ 672,698	$ 521,242	77%	$ 151,456
2010	712,802	568,674	80%	144,128
2011	808,106	618,364	77%	189,742
2012	1,040,941	756,608	73%	284,333
2013	1,207,111	910,595	75%	296,516
2014	1,334,383	997,676	75%	336,707
2015	1,443,666	1,089,234	75%	354,432
2016	1,623,994	1,182,702	73%	441,292
2017	1,819,616	1,291,366	71%	528,250
2018	2,105,343	1,379,780	66%	725,563
2019	2,593,266	1,493,860	58%	1,099,406

Notes: Actuarial assumptions were revised for the 2009, 2010, 2011, 2012, 2015 and 2019 actuarial valuations.

Table 9-02: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution[1]	Employee Contribution Rate[2]
	Number	Annual Payroll		
2009	4	$ 222,351	14.77%	0.00%
2010	4	234,977	14.41%	0.00%
2011	4	243,887	15.70%	0.00%
2012	4	279,951	17.73%	0.00%
2013	4	280,950	18.65%	0.00%
2014	4	292,298	19.03%	0.00%
2015	4	291,263	19.72%	0.00%
2016	4	310,557	21.33%	0.00%
2017	4	324,491	22.93%	0.00%
2018	4	351,948	$ 8,377	0.00%
2019	4	397,050	$ 11,442	0.00%

1 For open divisions, a percent of pay contribution is shown. For closed divisions, a monthly dollar contribution is shown.

2 For each valuation year, the computed employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the computed employer contribution will be adjusted.

Note: The contributions shown in Table 9 for the 12/31/2015 through 12/31/2019 valuations do **not** reflect the phase-in of the increased contribution requirements associated with the new actuarial assumptions. The full contribution without phase-in is shown in Table 9 above.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

Table 8-S1: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2009	$ 0	$ 0		$ 0
2010	0	0		0
2011	0	0		0
2012	0	0		0
2013	0	0		0
2014	0	0		0
2015	0	0		0
2016	0	0		0
2017	0	112,185		(112,185)
2018	0	116,414		(116,414)
2019	0	159,501		(159,501)

Notes: Actuarial assumptions were revised for the 2009, 2010, 2011, 2012, 2015 and 2019 actuarial valuations.

Years where historical information is not available, will be displayed with zero values.

Table 10: Division-Based Layered Amortization Schedule

Division 01 - General

Table 10-01: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance[1]	Original Amortization Period[2]	Amounts for Fiscal Year Beginning 12/1/2021		
				Outstanding UAL Balance[3]	Remaining Amortization Period[2]	Annual Amortization Payment
Initial	12/31/2015	$ 1,886,518	19	$ 2,099,822	11	$ 241,116
(Gain)/Loss	12/31/2016	(126,357)	17	(138,999)	11	(15,960)
(Gain)/Loss	12/31/2017	20,373	15	22,575	11	2,592
(Gain)/Loss	12/31/2018	162,076	13	182,235	11	20,928
(Gain)/Loss	12/31/2019	251	11	287	11	36
Assumption	12/31/2019	161,275	11	167,856	11	19,272
Total				**$ 2,333,776**		**$ 267,984**

[1] For each type of UAL (layer), this is the original balance as of the date the layer was established.

[2] According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see Appendix on MERS website).

[3] This is the remaining balance as of the valuation date, projected to the beginning of the fiscal year shown above.

The unfunded accrued liability (UAL) as of December 31, 2019 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2019 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

Note: The original balance and original amortization periods prior to 12/31/2018 were received from the prior actuary.

Table 10-02: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance[1]	Original Amortization Period[2]	Amounts for Fiscal Year Beginning 12/1/2021		
				Outstanding UAL Balance[3]	Remaining Amortization Period[2]	Annual Amortization Payment
Initial	12/31/2015	$ 354,432	23	$ 375,200	19	$ 28,932
(Gain)/Loss	12/31/2016	79,180	22	92,579	19	7,140
(Gain)/Loss	12/31/2017	75,730	21	87,957	19	6,780
(Gain)/Loss	12/31/2018	182,133	20	210,597	19	16,236
(Gain)/Loss	12/31/2019	254,488	19	291,544	19	22,488
Assumption	12/31/2019	98,229	19	104,648	19	8,076
Total				**$ 1,162,525**		**$ 89,652**

[1] For each type of UAL (layer), this is the original balance as of the date the layer was established.

[2] According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see Appendix on MERS website).

[3] This is the remaining balance as of the valuation date, projected to the beginning of the fiscal year shown above.

The unfunded accrued liability (UAL) as of December 31, 2019 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2019 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

Note: The original balance and original amortization periods prior to 12/31/2018 were received from the prior actuary.

GASB 68 Information

The following information has been prepared to provide some of the information necessary to complete GASB Statement No. 68 disclosures. Statement 68 is effective for fiscal years beginning after June 15, 2014. Additional resources, including an Implementation Guide, are available at http://www.mersofmich.com/.

Actuarial Valuation Date:	12/31/2019
Measurement Date of the Total Pension Liability (TPL):	12/31/2019
At 12/31/2019, the following employees were covered by the benefit terms:	
Inactive employees or beneficiaries currently receiving benefits:	20
Inactive employees entitled to but not yet receiving benefits (including refunds):	9
Active employees:	5
	34

Total Pension Liability as of 12/31/2018 measurement date:	$	6,228,569
Total Pension Liability as of 12/31/2019 measurement date:	$	6,787,082
Service Cost for the year ending on the 12/31/2019 measurement date:	$	52,455
Change in the Total Pension Liability due to:		
- Benefit changes[1]:	$	0
- Differences between expected and actual experience[2]:	$	132,603
- Changes in assumptions[2]:	$	247,386
Average expected remaining service lives of all employees (active and inactive):		1

[1] A change in liability due to benefit changes is immediately recognized when calculating pension expense for the year.

[2] Changes in liability due to differences between actual and expected experience, and changes in assumptions, are recognized in pension expense over the average remaining service lives of all employees.

Covered employee payroll: (Needed for Required Supplementary Information)	$	452,164

Sensitivity of the Net Pension Liability to changes in the discount rate:

	1% Decrease (6.60%)	Current Discount Rate (7.60%)	1% Increase (8.60%)
Change in Net Pension Liability as of 12/31/2019:	$ 839,500	$ -	$ (703,072)

Note: The current discount rate shown for GASB 68 purposes is higher than the MERS assumed rate of return. This is because for GASB 68 purposes, the discount rate must be gross of administrative expenses, whereas for funding purposes it is net of administrative expenses.

GASB 68 Information

This page is for those municipalities who need to "roll-forward" their total pension liability due to the timing of completion of the actuarial valuation in relation to their fiscal year-end.

The following information has been prepared to provide some of the information necessary to complete GASB Statement No. 68 disclosures. Statement 68 is effective for fiscal years beginning after June 15, 2014. Additional resources, including an Implementation Guide, are available at www.mersofmich.com.

Actuarial Valuation Date:	12/31/2019
Measurement Date of the Total Pension Liability (TPL):	12/31/2020

At 12/31/2019, the following employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits:	20
Inactive employees entitled to but not yet receiving benefits (including refunds):	9
Active employees:	5
	34

Total Pension Liability as of 12/31/2019 measurement date:	$	6,411,933
Total Pension Liability as of 12/31/2020 measurement date:	$	6,980,804
Service Cost for the year ending on the 12/31/2020 measurement date:	$	54,486
Change in the Total Pension Liability due to:		
- Benefit changes[1]:	$	0
- Differences between expected and actual experience[2]:	$	137,985
- Changes in assumptions[2]:	$	240,491
Average expected remaining service lives of all employees (active and inactive):		1

[1] A change in liability due to benefit changes is immediately recognized when calculating pension expense for the year.

[2] Changes in liability due to differences between actual and expected experience, and changes in assumptions, are recognized in pension expense over the average remaining service lives of all employees.

Covered employee payroll: (Needed for Required Supplementary Information)	$	452,164

Sensitivity of the Net Pension Liability to changes in the discount rate:

	1% Decrease (6.60%)	Current Discount Rate (7.60%)	1% Increase (8.60%)
Change in Net Pension Liability as of 12/31/2020:	$ 847,628	$ -	$ (711,398)

Note: The current discount rate shown for GASB 68 purposes is higher than the MERS assumed rate of return. This is because for GASB 68 purposes, the discount rate must be gross of administrative expenses, whereas for funding purposes it is net of administrative expenses.

Benefit Provision History

The following benefit provision history is provided by MERS. Any corrections to this history or discrepancies between this information and information displayed elsewhere in the valuation report should be reported to MERS. All provisions are listed by date of adoption.

01 - General

12/31/2018	Accelerated to 5-year Amortization
12/1/2016	Service Credit Purchase Estimates - Yes
2/1/2013	DC Adoption Date 02-01-2013
9/1/2011	Exclude Temporary Employees requiring less than 6 months
6/1/2011	Day of work defined as 160 Hours a Month for All employees.
1/1/2009	E2 2.5% COLA for future retirees (06/01/2008)
1/1/2005	Benefit B-4 (80% max)
1/1/2005	E1 2.5% COLA for past retirees (01/01/2005)
1/1/1998	E 2% COLA Adopted (01/01/1998)
1/1/1998	E1 2.5% COLA for past retirees (01/20/1997)
1/1/1996	E1 2.5% COLA for past retirees (01/01/1996)
1/1/1995	E1 2.5% COLA for past retirees (01/01/1995)
1/1/1994	E1 2.5% COLA for past retirees (01/01/1994)
6/1/1992	Benefit B-3 (80% max)
12/1/1988	Benefit F55 (With 15 Years of Service)
12/1/1987	Benefit C-2/Base C-1 (Old)
1/1/1987	E 2% COLA Adopted (01/01/1987)
12/1/1984	Member Contribution Rate 0.00%
12/1/1983	Member Contribution Rate 2.00%
7/1/1981	Member Contribution Rate 4.00%
2/1/1979	Benefit C-1 (Old)
10/7/1968	Covered by Act 88
2/1/1968	Benefit FAC-5 (5 Year Final Average Compensation)
2/1/1968	10 Year Vesting
2/1/1968	Benefit C (Old)
2/1/1968	Member Contribution Rate 3.00% Under $4,200.00 - Then 5.00%
2/1/1968	Fiscal Month - December
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

02 - Police

12/1/2018	Non-Accelerated Amortization
12/1/2018	DC Adoption Date 12-01-2018
12/1/2016	Service Credit Purchase Estimates - Yes
12/1/2012	Benefit B-4 (80% max)
9/1/2011	Exclude Temporary Employees requiring less than 6 months
6/1/2011	Day of work defined as 160 Hours a Month for All employees.
7/1/2002	Temporary 20 Years & Out (07/01/2002 - 01/03/2003)
1/1/2002	E2 2.5% COLA for future retirees (12/01/2000)
12/1/2000	Benefit F55 (With 15 Years of Service)
1/1/1998	E1 2.5% COLA for past retirees (01/20/1997)
1/1/1998	E 2% COLA Adopted (01/01/1998)

02 - Police

1/1/1996	E1 2.5% COLA for past retirees (01/01/1996)
1/1/1995	E1 2.5% COLA for past retirees (01/01/1995)
1/1/1994	E1 2.5% COLA for past retirees (01/01/1994)
12/1/1992	Benefit B-3 (80% max)
12/1/1989	Benefit C-2/Base C-1 (Old)
1/1/1987	E 2% COLA Adopted (01/01/1987)
12/1/1984	Member Contribution Rate 0.00%
12/1/1983	Member Contribution Rate 2.00%
7/1/1981	Member Contribution Rate 4.00%
9/1/1980	Benefit C-1 (Old)
10/7/1968	Covered by Act 88
2/1/1968	Benefit FAC-5 (5 Year Final Average Compensation)
2/1/1968	10 Year Vesting
2/1/1968	Benefit C (Old)
2/1/1968	Member Contribution Rate 3.00% Under $4,200.00 - Then 5.00%
2/1/1968	Fiscal Month - December
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

S1 - Surplus Unassociated

2/1/1968	Fiscal Month - December

Plan Provisions, Actuarial Assumptions, and Actuarial Funding Method

Details on MERS plan provisions, actuarial assumptions, and actuarial methodology can be found in the Appendix. Some actuarial assumptions are specific to this municipality and its divisions. These are listed below.

Increase in Final Average Compensation

Division	FAC Increase Assumption
All Divisions	1.00%

Withdrawal Rate Scaling Factor

Division	Withdrawal Rate Scaling Factor
All Divisions	100%

Miscellaneous and Technical Assumptions

Loads – None.

Amortization Policy for Closed Divisions

Closed Division	Amortization Option
01 - General	Accelerated to 5-Year Amortization
02 - Police	Non-Accelerated Amortization

Please see the Appendix on MERS website for a detailed description of the amortization options available for closed divisions within an open municipality.

Risk Commentary

Determination of the accrued liability, the employer contribution, and the funded ratio requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability, the actuarially determined contribution and the funded ratio that result from the differences between actual experience and the actuarial assumptions.

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

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

- **Investment Risk** – actual investment returns may differ from the expected returns;
- **Asset/Liability Mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
- **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
- **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
- **Other Demographic Risks –** members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

  The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

PLAN MATURITY MEASURES

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	12/31/2019	12/31/2018
1. Ratio of the market value of assets to total payroll	8.0	7.0
2. Ratio of actuarial accrued liability to payroll	15.4	13.9
3. Ratio of actives to retirees and beneficiaries	0.3	0.3
4. Ratio of market value of assets to benefit payments	10.0	9.2
5. Ratio of net cash flow to market value of assets (boy)	-2.6%	-3.3%

RATIO OF MARKET VALUE OF ASSETS TO TOTAL PAYROLL

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

RATIO OF ACTUARIAL ACCRUED LIABILITY TO PAYROLL

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

RATIO OF ACTIVES TO RETIREES AND BENEFICIARIES

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

RATIO OF MARKET VALUE OF ASSETS TO BENEFIT PAYMENTS

The MERS' Actuarial Policy requires a total minimum contribution equal to the excess (if any) of three times the expected annual benefit payments over the projected market value of assets as of the participating municipality or court's Fiscal Year for which the contribution applies. The ratio of market value of assets to benefit payments as of the valuation date provides an indication of whether the division is at risk for triggering the minimum contribution rule in the near term. If the division triggers this minimum contribution rule, the required employer contributions could increase dramatically relative to previous valuations.

RATIO OF NET CASH FLOW TO MARKET VALUE OF ASSETS

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

State Reporting

The following information has been prepared to provide some of the information necessary to complete the pension reporting requirements for the State of Michigan's Local Government Retirement System Annual Report (Form No. 5572). Additional resources are available at www.mersofmich.com and on the State website.

Form 5572 Line Reference	Description	Result
10	**Membership as of December 31, 2019**	
11	Indicate number of active members	5
12	Indicate number of inactive members (excluding pending refunds)	9
13	Indicate number of retirees and beneficiaries	20
14	**Investment Performance for Calendar Year Ending December 31, 2019[1]**	
15	Enter actual rate of return - prior 1-year period	14.02%
16	Enter actual rate of return - prior 5-year period	6.39%
17	Enter actual rate of return - prior 10-year period	7.97%
18	**Actuarial Assumptions**	
19	Actuarial assumed rate of investment return[2]	7.35%
20	Amortization method utilized for funding the system's unfunded actuarial accrued liability, if any	Level Percent
21	Amortization period utilized for funding the system's unfunded actuarial accrued liability, if any[3]	19
22	Is each division within the system closed to new employees?[4]	Yes
23	**Uniform Assumptions**	
24	Enter retirement pension system's actuarial value of assets using uniform assumptions	$3,622,404
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions	$7,507,828
27	Actuarially Determined Contribution (ADC) using uniform assumptions, Fiscal Year Ending November 30, 2020	$442,536

1. The Municipal Employees' Retirement System's investment performance has been provided to GRS from MERS Investment Staff and included here for reporting purposes. This investment performance figures reported are net of investment expenses on a rolling calendar-year basis for the previous 1-, 5-, and 10-year periods as required under PA 530.
2. Net of administrative and investment expenses.
3. Populated with the longest amortization period remaining in the amortization schedule, across all divisions in the plan. This is when each division and the plan in total is expected to reach 100% funded if all assumptions are met.
4. If all divisions within the employer are closed, "yes." If at least one division is open (including shadow divisions) indicate "no."