



Shiawassee County
State of Michigan
Amended and Restated
Comprehensive Financial Plan

April 21, 2022

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Comprehensive Financial Plan for Pension and Other Post-Employment Benefits

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Comprehensive Financial Plan

This Comprehensive Financial Plan (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 County of Shiawassee (the “County”) is planning to issue bonds to finance a portion of the County’s unfunded pension liability for the County’s Municipal Employees Retirement System pension plan (the “Pension Plan”), as further described in this Plan.

Act 34 requires the County 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 County closed all of its Municipal Employees Retirement System (“MERS”) defined benefit and hybrid plans to new hires effective January 1, 2021 and implemented two non-MERS defined contribution qualified retirement plans, each effective as of January 1, 2021..
2. The preparation, approval, and public posting of this Plan analyzing the funding of the County’s Pension Plan and other post-employment benefits.
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 County has funded its defined benefit plans’ annual actuarially determined contribution for the most recently available 3 audited financial statement years.
6. Certifying the County 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.
9. Completed a review to verify eligible participants in the pension plans are receiving appropriate pension benefits consistent with their respective plan.

The Plan provided herein will provide a general overview of the County’s pension/retirement plans, 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 County’s unfunded pension liability as authorized by Act 34.

Pension Plan Overview

The County has 29 employee pension divisions. The various divisions can be seen in Appendix A. All the pension plans are administered by the MERS Retirement Board.

Defined Contribution Pension Plan – Medical Care Facility – Component Unit

Plan Description

Effective January 1, 2019, the Medical Care Facility (“MCF”) created a defined contribution pension plan administered by MERS. All MCF employees hired on or after January 1, 2019 are required to participate in the MCF defined contribution plan. The Medical Care Facility Board has the authority to make changes to the defined contribution plan. The Medical Care Facility will contribute on behalf of each participant 3% of earnings each payroll period. Participants are required to contribute 1%-10+% of their earnings each payroll period. Employees are fully vested after 3 years.

Employer contributions to the MCF defined contribution plan, for the year ended December 31, 2020, amounted to \$68,706 and employee contributions were \$57,421. The number of active participants in this MCF defined contribution plan is 88 members. A stand-alone report has not been issued for the MCF defined contribution plan.

Defined Benefit Pension Plan – Primary Government and Medical Care Facility Component Unit

Plan Description

The County participates in MERS, which is an agent multiple-employer public employee retirement system that is administered by the Retirement Board of MERS. 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. Public Act 427 of 1984, as amended, establishes and amends the benefit provisions of the participants in MERS. 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.

The total pension liability and pension assets of the Pension Plan are spread across two units, the primary government of the County, and the Medical Care Facility based on actual spread of contribution and liabilities by the divisions that each unit represents. This information is provided by MERS.

Divisions being included in the potential bonding

Benefits provided:

01 - AFSCME Unit: Closed to new hires, linked to Division 90

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2015	12/31/2015
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/20	55/20
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

10 - Empl/Trrng: Closed to new hires

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

11 - Elected officials prior 5/95: Closed to new hires, linked to Division 91

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.50% Multiplier (80% max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.50% Multiplier (80% max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2014	12/31/2014
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

12 - Non Represented prior 5/95: Closed to new hires, linked to Division 91

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.50% Multiplier (80% max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.50% Multiplier (80% max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2014	12/31/2014
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

13 - Probate Court prior 6/95: Closed to new hires, linked to Division 82

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.25% Multiplier (80% max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.25% Multiplier (80% max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2015	12/31/2015
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/20	55/20
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

15 - Circuit Court prior 4/96: Closed to new hires, linked to Division 80

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.50% Multiplier (80% max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.50% Multiplier (80% max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	1/31/2016	1/31/2016
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

16 - Hlth Clerical: Closed to new hires

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier paid to Social Security Age, 1.70% Multiplier paid after Social Security Age (no max)-Frozen FAC; 1.50% Multiplier (80% max)	Bridged Benefit: 2.00% Multiplier paid to Social Security Age, 1.70% Multiplier paid after Social Security Age (no max) Frozen FAC; 1.50% Multiplier (80% max)
Bridged Benefit Date:	6/30/2016	6/30/2016
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

17 - Hlth Nurses: Closed to new hires

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier paid to Social Security Age, 1.70% Multiplier paid after Social Security Age (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier paid to Social Security Age, 1.70% Multiplier paid after Social Security Age (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2015	12/31/2015
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

19 - Tmstr NonSup pr9/96-non911/Sh: Closed to new hires, linked to Division 23

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

20 - Tmstr NonSup af9/96-non911/Sh: Closed to new hires, linked to Division 23

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	2.50%	2.50%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

21 - Teamsters-Com Unit prior 9/96: Closed to new hires, linked to Division 24

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	2.96%	2.96%
RS50% Percentage:	50%	50%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

22 - Teamstr-Com Unit hired af 9/9: Closed to new hires, linked to Division 24

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	3.27%	3.27%
RS50% Percentage:	50%	50%
Act 88:	No	No

26 - POLC before 2009: Closed to new hires, linked to Division HA

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	2.50%	2.50%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

27 - POLC aft 2009: Closed to new hires, linked to Division HA

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	5.00%	5.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

80 - Circ Crt 4/96: Closed to new hires

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	1/31/2016	1/31/2016
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

81 - Probate af 6/95: Closed to new hires, linked to Division 82

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2015	12/31/2015
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/20	55/20
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

Divisions NOT being included in the potential bonding

The County has no plans to bond for the future for any of these divisions due to the divisions being adequately funded currently and/or the responsible entities for these liabilities have revenue plans in place to pay for these liabilities. All Road Commission divisions have no plans for bonding and are not included in this report.

Benefits provided:

04 - MCF: Closed to new hires

	2020 Valuation	2019 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):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	5.00%	3.00%
DC Plan for New Hires:	1/1/2019	1/1/2019
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

18 - NonRep Elec Officials af 5/95: Closed to new hires, linked to Division 91

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2014	12/31/2014
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

23 - New Hires div 20 aft 11/09: Open Division, linked to Division 19, 20

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.50% Multiplier (85% max)	2.50% Multiplier (85% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	5.00%	5.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

28 - 911 Disp prior 11/2009: Closed to new hires, linked to Division 30

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	2.50%	2.50%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

29 - 911 Command: Open Division

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	3.27%	3.27%
RS50% Percentage:	50%	50%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

30 - 911 Disp aft 11/2009: Open Division, linked to Division 28

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.50% Multiplier (85% max)	2.50% Multiplier (85% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	5.00%	5.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

40 - MCF Dpt Hds: Closed to new hires

	2020 Valuation	2019 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):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	5.00%	3.00%
DC Plan for New Hires:	1/1/2019	1/1/2019
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

41 - Part Time: Closed to new hires

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.00% Multiplier paid to Social Security Age, 1.70% Multiplier paid after Social Security Age (no max)	2.00% Multiplier paid to Social Security Age, 1.70% Multiplier paid after Social Security Age (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	5.00%	3.00%
DC Plan for New Hires:	1/1/2019	1/1/2019
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

42 - AFSCME 5/96: Closed to new hires

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	5.00%	3.00%
DC Plan for New Hires:	1/1/2019	1/1/2019
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

82 - Probate court Assoc aft 1/1/0: Open Division, linked to Division 13, 81

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2015	12/31/2015
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/20	55/20
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

90 - AFSCME aft 1/1/09: Open Division, linked to Division 01

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2015	12/31/2015
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/20	55/20
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

91 - Non-Rep Elec Offic aft 10/1/1: Open Division, linked to Division 11, 12, 18

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2014	12/31/2014
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

HA - 25 POLC aft 3/1/17: Open Division, linked to Division 26, 27

	2020 Valuation	2019 Valuation
Benefit Multiplier:	1.50% Multiplier (no max)	1.50% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

Actuarial Accrued Liabilities and Valuation of Assets as of December 31, 2020

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
01 - AFSCME Unit	\$ 613,215	\$ 70,080	\$ 2,657,607	\$ 0	\$ 3,340,902	\$ 596,048	17.8%	\$ 2,744,854
04 - MCF	5,094,136	1,751,630	26,930,842	305	33,776,913	27,181,846	80.5%	6,595,067
10 - Empl/Tning	0	170,517	0	0	170,517	143,622	84.2%	26,895
11 - Elected officials prior 5/95	1,230,565	24,208	2,760,684	0	4,015,457	1,625,549	40.5%	2,389,908
12 - Non Represented prior 5/95	913,139	1,269,808	12,244,134	0	14,427,081	5,267,597	36.5%	9,159,484
13 - Probate Court prior 6/95	252,072	325,432	2,105,768	0	2,683,272	703,392	26.2%	1,979,880
15 - Circuit Court prior 4/96	0	104,587	4,595,784	0	4,700,371	2,026,466	43.1%	2,673,905
16 - Hlth Clerical	244,910	163,456	833,669	1,785	1,243,820	648,714	52.2%	595,106
17 - Hlth Nurses	328,070	156,426	826,333	3,112	1,313,941	797,538	60.7%	516,403
18 - NonRep Elec Officials af 5/95	1,816,735	1,318,789	2,679,335	1,433	5,816,292	6,153,881	105.8%	(337,589)
19 - Tmstr NonSup pr9/96-non911/Sh	484,172	0	13,965,098	0	14,449,270	2,229,465	15.4%	12,219,805
20 - Tmstr NonSup af9/96-non911/Sh	1,650,111	569,248	992,742	10,902	3,223,003	3,128,269	97.1%	94,734
21 - Teamsters-Com Unit prior 9/96	739,877	597,589	8,281,780	0	9,619,246	3,587,109	37.3%	6,032,137
22 - Teamstr-Com Unit hired af 9/9	2,709,439	144,850	591,332	0	3,445,621	2,665,574	77.4%	780,047
23 - New Hires div 20 aft 11/09	283,701	0	0	414	284,115	380,207	133.8%	(96,092)
26 - POLC before 2009	2,402,300	245,573	356,289	0	3,004,162	2,841,508	94.6%	162,654
27 - POLC aft 2009	301,205	16,901	0	17,400	335,506	317,346	94.6%	18,160
28 - 911 Disp prior 11/2009	398,309	353,747	4,047,311	11,975	4,811,342	2,538,981	52.8%	2,272,361
29 - 911 Command	165,708	0	1,388,951	0	1,554,659	1,037,725	66.7%	516,934
30 - 911 Disp aft 11/2009	510,778	10,580	0	17,227	538,585	488,539	90.7%	50,046
40 - MCF Dpt Hds	2,141,704	780,549	4,570,716	2,241	7,495,210	7,038,361	93.9%	456,849
41 - Part Time	114,941	152,448	210,615	24,395	502,399	506,044	100.7%	(3,645)
42 - AFSCME 5/96	8,120,348	936,913	2,837,677	85,304	11,980,242	10,261,724	85.7%	1,718,518
80 - Circ Crt 4/96	444,598	470,499	305,027	3,072	1,223,196	1,101,443	90.0%	121,753
81 - Probate af 6/95	1,059,562	322,437	202,758	0	1,584,757	1,325,840	83.7%	258,917
82 - Probate court Assoc aft 1/1/0	35,042	0	0	2,463	37,505	73,680	196.5%	(36,175)
90 - AFSCME aft 1/1/09	97,907	0	0	3,605	101,512	357,784	352.5%	(256,272)
91 - Non-Rep Elec Offic aft 10/1/1	792,437	42,337	12,265	32,317	879,356	1,806,495	205.4%	(927,139)
HA - 25 POLC aft 3/1/17	50,516	0	0	0	50,516	52,838	104.6%	(2,322)
Total	\$ 32,995,497	\$ 9,998,604	\$ 93,396,717	\$ 217,950	\$ 136,608,768	\$ 86,883,585	63.6%	\$ 49,725,183

Employees Covered by Benefit Terms

At the December 31, 2020 valuation date, the following employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits:	404
Inactive employees entitled to but not yet receiving benefits (including refunds):	486
Active employees:	<u>361</u>
	1,251

For pension plans with over 100 members, Section 518(3) of the Act requires the County to conduct an internal or external review to verify eligible participants in the plan and that they are receiving the appropriate benefits consistent with their plan. As of December 31, 2020, the County, through an internal review conducted by its Human Resources Director, has confirmed that all plan participants receiving pension benefits are eligible to receive such pension benefits. Such pension benefits have also been deemed to be appropriate under the Pension Plan.

Contributions

The County 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. For the year ended December 31, 2020, employer contributions ranged from 1.43% to 83.73% of annual payroll depending on division/bargaining unit. In addition, the employer may establish contribution rates to be paid by its covered employees. For the year ended December 31, 2020, members were required to contribute 1% to 5% of their annual salary, depending on the division.

Actuarial Assumptions

The total pension liability of the Pension Plan as stated in the December 31, 2020, annual actuarial valuation was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation: 2.50%

Salary Increases: 3.00% in the long term

Investment Rate of Return: 7.35%, net of investment expense, including inflation

Although no specific price inflation assumptions are needed for the valuation, the long-term annual rate of price inflation implicit in the 3.75% base wage inflation is 2.5%.

The mortality table used to project the mortality experience of non-disabled plan members is a 50% male, 50% female blend of the following tables:

- The RP-2014 Healthy Annuitant Mortality Tables, with rates multiplied by 105%
- The RP-2014 Employee Mortality Tables
- The RP-2014 Juvenile Mortality Tables

The mortality table used to project the mortality experience of disabled plan members is 50% Male, 50% Female blend of RP-2014 Disabled Retiree Mortality Tables.

The actuarial assumptions used in valuation were based on the results of the most recent actuarial experience study of January 1, 2009 through December 31, 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	Long-Term Expected Real Rate of Return
Global Equity	60.0%	3.70%
Global Fixed Income	20.0%	0.30%
Private Investments	20.0%	1.30%

Discount Rate

The discount rate used to measure the total pension liability is 7.6%. The projection of cash flows used to determine the discount rate assumes that employer and employee contributions will be made at the rates agreed upon for employees and the actuarially determined rates for employers. Based on these 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. Changes in the 2020 actuarial valuation from the 2019 valuation that effect the total pension liability are the following: Discount rate decreased from 8% to 7.6%, the investment rate of return decreased from 7.75% to 7.35%, and the rate of wage inflation decreased from 3.75% to 3.0%.

Changes in Net Pension Liability and Sensitivity

Actuarial Valuation Date:	12/31/2020
Measurement Date of the Total Pension Liability (TPL):	12/31/2020
At 12/31/2020, the following employees were covered by the benefit terms:	
Inactive employees or beneficiaries currently receiving benefits:	404
Inactive employees entitled to but not yet receiving benefits (including refunds):	486
Active employees:	<u>361</u>
	1,251
Total Pension Liability as of 12/31/2019 measurement date:	\$ 124,606,494
Total Pension Liability as of 12/31/2020 measurement date:	\$ 133,011,940
Service Cost for the year ending on the 12/31/2020 measurement date:	\$ 1,352,560
Change in the Total Pension Liability due to:	
- Benefit changes ¹ :	\$ (240,473)
- Differences between expected and actual experience ² :	\$ (157,200)
- Changes in assumptions ² :	\$ 6,171,119
Average expected remaining service lives of all employees (active and inactive):	3
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):	\$ 16,484,765

Note: Covered employee payroll may differ from the GASB Statement No. 68 definition.

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:	\$ 15,506,033	\$ 0	\$ (12,962,212)

Note: The current discount rate shown for GASB Statement No. 68 purposes is higher than the MERS assumed rate of return. This is because for GASB Statement No. 68 purposes, the discount rate must be gross of administrative expenses, whereas for funding purposes it is net of administrative expenses.

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

For the year ended December 31, 2020 the County recognized pension expense of \$2,235,282. The County reported deferred outflows and inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences in experience	\$ 413,806	\$ 951,554
Differences in assumptions	2,643,984	-
Excess (deficit) investment returns	100,846	-
Contributions Subsequent to Measurement Date	4,643,841	-
Total	<u>\$ 7,802,477</u>	<u>\$ 951,554</u>

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 December 31, 2020.

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

<u>Year Ended December 31:</u>	
2021	\$ 839,321
2022	1,302,856
2023	966,148
2024	<u>(901,243)</u>
Total	<u>\$ 2,207,082</u>

Defined Benefit Pension Plan – Shiawassee County Road Commission Component Unit

Note: The County and Road Commission have no plans to bond for the following liabilities and none of the following divisions are included in this potential bonding. The following is for informational purposes only.

Plan Description

The Road Commission participates in the Municipal Employees Retirement System (MERS) of Michigan, an agent multiple employer statewide public employee pension plan established by the Michigan's Legislature under Public Act 135 of 1945 and administered by a nine (9) member Retirement Board. MERS issues a publicly available financial report that includes financial statements and required supplementary information. This report may be obtained accessing MERS website at www.mersofmich.com.

Summary of Significant Accounting Policies

For the purposes of measuring the net pension liability, deferred outflows of resources and deferred inflows of resources related to pensions, and pension expense, information about the fiduciary net position of the Municipal Employees Retirement System (MERS) of Michigan and additions to/deductions from MERS' fiduciary net position have been determined on the same basis as they are reported by MERS. 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.

10 - Gnrl Union 1071: Closed to new hires, linked to Division 15

	2020 Valuation	2019 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):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	7.00%	7.00%
Act 88:	Yes (Adopted 1/4/1973)	Yes (Adopted 1/4/1973)

11 - Gnrl Supervisors: Closed to new hires, linked to Division 15

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	7.00%	7.00%
Act 88:	Yes (Adopted 1/4/1973)	Yes (Adopted 1/4/1973)

13 - Union 1071 1/96: Closed to new hires, linked to Division 15

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	8 years	8 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	5.00%	5.00%
Act 88:	Yes (Adopted 1/4/1973)	Yes (Adopted 1/4/1973)

14 - Elected Officials hr af 1/1/0: Closed to new hires, linked to Division 15

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	5.00%	5.00%
Act 88:	Yes (Adopted 1/4/1973)	Yes (Adopted 1/4/1973)

15 - All F/T New Hires as of 1/1/2: Open Division, linked to Division 10, 11, 13, 14

	2020 Valuation	2019 Valuation
Benefit Multiplier:	1.50% Multiplier (no max)	1.50% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	5.00%	5.00%
Act 88:	Yes (Adopted 1/4/1973)	Yes (Adopted 1/4/1973)

Actuarial Accrued Liabilities and Valuation of Assets as of December 31, 2020

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
10 - Gnr Union 1071	\$ 1,600,568	\$ 673,784	\$ 6,793,036	\$ 0	\$ 9,067,388	\$ 6,946,599	76.6%	\$ 2,120,789
11 - Gnr Supervisors	2,036,550	996,567	6,946,743	0	9,979,860	7,001,247	70.2%	2,978,613
13 - Union 1071 1/96	2,485,578	270,242	919,506	16,817	3,692,143	3,507,727	95.0%	184,416
14 - Elected Officials hr af 1/1/0	18,840	0	0	0	18,840	24,082	127.8%	(5,242)
15 - All F/T New Hires as of 1/1/2	314,505	0	0	6,431	320,936	338,145	105.4%	(17,209)
S1 - Surplus Unassociated	0	0	0	0	0	2,596,820		(2,596,820)
Total	\$ 6,456,041	\$ 1,940,593	\$ 14,659,285	\$ 23,248	\$ 23,079,167	\$ 20,414,620	88.5%	\$ 2,664,547

Employees Covered by Benefit Terms

At December 31, 2020, the following employees were covered by the benefit terms:

At 12/31/2020, the following employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits:	48
Inactive employees entitled to but not yet receiving benefits (including refunds):	14
Active employees:	<u>37</u>
	99

Contribution Requirements

The Road Commission 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 employer may establish contribution rates to be paid by its covered employees.

During the year ended December 31, 2020, the Commission's monthly contributions were 2.83% based on annual payroll for open divisions.

Actuarial Assumptions

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

Inflation:	2.50%
Salary increases:	3.00% in the long-term plus a percentage based on age related scale to reflect merit, longevity, and promotional pay increases.
Investment rate of return:	7.35%, net of investment expenses, including inflation.

The mortality table used to project the mortality experience of non-disabled plan members is a 50% Male - 50% Female blend of the following tables: 1. the RP-2014 Healthy Annuitant Mortality Tables, with rates multiplied by 105%, 2. the RP-2014 Employee Mortality Tables, and 3. the RP-2014 Juvenile Mortality Tables. The mortality table used to project the mortality experience of disabled plan members is a 50% Male - 50% Female blend of the RP-2014 Disabled Retiree Mortality Tables.

The actuarial assumptions used in the valuation were based on the results of the 2009-2013 Five-Year Experience Study, performed in 2015. The long-term expected rate of return on pension plan investments was determined using a model in which best estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The 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	Long-Term Expected Real Rate of Return
Global Equity	60.00%	5.25%
Global Fixed Income	20.00%	1.25%
Private Investments	20.00%	7.25%

Discount Rate

The discount rate used to measure the total pension liability is 7.6%. The projection of cash flows used to determine the discount rate assumes that employer and employee contributions will be made at the rates agreed upon for employees and the actuarially determined rates for employers. Based on these 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.

Net Pension Liability

The Road Commission's net pension liability was measured as of December 31, 2020, and the total pension liability used to calculate the Net Pension Liability was determined by an annual actuarial valuation as of that date.

Total Pension Liability as of 12/31/2019 measurement date:	\$	21,789,282
Total Pension Liability as of 12/31/2020 measurement date:	\$	22,499,241
Service Cost for the year ending on the 12/31/2020 measurement date:	\$	189,390
Change in the Total Pension Liability due to:		
- Benefit changes ¹ :	\$	0
- Differences between expected and actual experience ² :	\$	(233,778)
- Changes in assumptions ² :	\$	555,615

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

The following presents the net pension liability of the Road Commission, calculated using the discount rate of 8.00 percent, as well as what the Road Commission's net pension liability would be using a discount rate that is 1% lower (6.60%) or 1% higher (8.60%) than the current rate.

	1% Decrease (6.60%)	Current Discount Rate (7.60%)	1% Increase (8.60%)
Change in Net Pension Liability as of 12/31/2020:	\$ 2,483,710	\$ 0	\$ (2,094,622)

Note: The current discount rate shown for GASB Statement No. 68 purposes is higher than the MERS assumed rate of return. This is because for GASB Statement No. 68 purposes, the discount rate must be gross of administrative expenses, whereas for funding purposes it is net of administrative expenses.

Other Post-Employment Benefits – Primary Government and Medical Care Facility Component Unit

Plan Description

In addition to providing pension benefits, the County provides certain other postemployment benefits (OPEB) such as health care benefits in accordance with union agreements and/or personnel policies to employees who have retired. The County has a self-insured health program which pays for claims (less deductible and co-pay) in accordance with the group that the employee retired from. For most retirees this is for the ages 60 to 65. Full cost retiree contribution is required (except for certain sheriff department retirees); however, the Plan includes an implicit employer subsidy. For some Sheriff Department retirees, the age is 55, and single subscriber health insurance is provided at full cost to the County with some stipulations. At the age of Medicare eligibility, all retirees must contribute to the program in order to continue coverage. The pay-as-you-go system of funding is used for the County portion of expense paid through the general fund and the central dispatch fund. In 2014, the County began participating in the MERS of Michigan Retiree Healthcare Funding Vehicle (RHFV) plan. The balance in the RHFV plan at December 31, 2020 was \$228,291.

Expenditures for postemployment health care benefits are recognized when claims are paid. The plan does not issue a separate stand-alone financial statement.

Funding Policy

The County has no obligation to make contributions in advance of when the insurance premiums are due for payment (i.e., may be financed on a “pay-as-you-go” basis). The County contributed \$72,061 in actual current premiums of the retirees in 2019. The Medical Care Facility does not make any contributions to the plan since the retirees are responsible for 100% of the cost. Administrative costs of the plan are paid for by the County and Medical Care Facility.

At December 31, 2020, the date of the latest actuarial valuation, participants in the plan consisted of:

Active members	183
Inactive members	0
Retirees and beneficiaries	65 ¹
Total members	248

¹ Of the 65 retirees, 30 have only self-paid dental, vision and/or post-65 medical coverage and, hence, no employee life insurance coverage only

Changes in Net OPEB Liability

	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability
Balances at December 31, 2019	\$ 1,416,642	\$ 201,868	\$ 1,214,774
Service cost	54,285	-	54,285
Interest on OPEB liability	47,595	-	47,595
Difference between expected and actual experience	(50,359)	-	(50,359)
Change in Plan Terms	197,276	-	197,276
Changes in assumptions	224,457	-	224,457
Contributions - Employer	-	74,441	(74,441)
Net investment income (loss)	-	26,785	(26,785)
Benefit payments, including refund of employee contributions	(74,441)	(74,441)	-
Administrative expense	-	(362)	362
Other	-	-	-
Net changes	398,813	26,423	372,390
Balances as December 31, 2020	\$ 1,815,455	\$ 228,291	\$ 1,587,164

The net OPEB liability is allocated as follows

Primary government	\$ 1,320,644
Medical Care Facility component unit	<u>266,520</u>
Total	<u>\$ 1,587,164</u>

Changes in Assumptions

In 2020, amounts reported as changes in assumptions where Mortality tables were updated to MP-2020, spouse mortality updated, Trend rates updated, Salary Scale updates from 3.5% to 4.1%, Discount Rate updated from 3.33% to 2.0% for the County, and Mortality improvement scale changes from MP-2018 to MP-2020, Trend Rates updated from rates prescribed by PA 2020 for 2018 to 2020, and Discount Rate changed from 3.26% to 1.93% for the MCF.

The County's net OPEB liability was measured as of December 31, 2020, and the total OPEB liability was determined by an actual valuation as of December 31, 2020. The following actuarial assumptions were applied to all periods included in the measurement, unless otherwise specified:

Actuarial cost method	Entry age Normal
Amortization method	Level percent of payroll
Remaining amortized period	Closed 10 year period
Asset valuation method	Market value (not applicable to the Medical Care Facility component unit As the plan is not pre-
Investment rate of return	20 year Aa Municipal bond rate 1.93%
Health care trend rates	County: Pre-65 – Initial trend of 8.25% graded down .25% per year to an ultimate rate of 4.5%; Medical Care Facility: Pre-65 – 8.25% graded to 4.5%.
Mortality tables	County: Police, Sheriffs – Public Safety 2010 Employee and Healthy Retiree headcount weighted with MP-2020 improvement; all others and Medical Care Facility: Public General 2010 Employee and Healthy Retiree, headcount weighted with mp-2020 improvement
Projected salary increases	3.50%

Rates of price inflation are not specifically used in the actuarial valuation. However, a price inflation rate of 2%-3% would be consistent with other assumptions in the actuarial report.

Investments

Investment Policy. The OPEB Plan's policy in regard to the allocation of invested assets is established and may be amended by the Board of Commissioners. The investment policy has been formulated based on consideration of a wide range of policies and describes the prudent investment processes that the Board deems appropriate. The OPEB Plan's asset allocation policy is shown below.

Rate of Return. For the year ended December 31, 2020, the annual money-weighted rate of return on investments, net of investment expense, was 13.27 percent. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

The long-term expected rate of return on OPEB Plan investments was determined using a forward-looking estimate of capital market returns model for each investment major asset class. These ranges are combined to produce the long-term expected rate of return by weighing the expected future real rates of return by the target asset allocation percentage and by adding expected inflation and investment expenses. The target allocation and best estimates of arithmetic real rates of return for each asset class are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Global Equity	60.0%	5.25%
Global Fixed Income	20.0%	1.25%
Private Asset	20.0%	7.25%

Inflation	2.50%
Investment rate of return	7.35%

Discount Rate. The blended discount rate used to measure the total OPEB liability was 2.00% for the County and 1.93% for the Medical Care Facility. The projection of cash flows used to determine the discount rate assumed that County contributions will be made at rates equal to the actuarially determined contribution rates. Based on those assumptions, the OPEB Plan's fiduciary net position was projected to be exhausted in the year 2020. Therefore, the discount rate represents a blend of the single equivalent rate resulting from discounting the long-term expected rate of return on OPEB Plan investments until 2020, and discounting with the 20-year AA municipal index bond rate of 3.33% thereafter.

Sensitivity of the Net OPEB Liability to Changes in the Discount Rate. The following presents the net OPEB liability of the County, calculated using the discount rate of 2.00%, as well as what the County's net OPEB liability would be if it were calculated using a discount rate that is 1% lower (1.00%) or 1% higher (3.00%) than the current rate:

	<u>1% Decrease (1.00%)</u>	<u>Current Discount Rate (2.00%)</u>	<u>1% Increase (3.00%)</u>
County's net OPEB liability	\$ 1,487,192	\$ 1,320,644	\$ 1,171,460

Sensitivity of the Total OPEB Liability to Changes in the Discount Rate. The following presents the total OPEB liability of the Medical Care Facility, calculated using the discount rate of 1.93%, as well as what the Facility's total OPEB liability would be if it were calculated using a discount rate that is 1% lower (0.93%) or 1% higher (2.93%) than the current rate:

	<u>1% Decrease (0.93%)</u>	<u>Current Discount Rate (1.93%)</u>	<u>1% Increase (2.93%)</u>
Medical Care Facility's total OPEB liability	\$ 283,053	\$ 266,520	\$ 251,069

Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates. The following presents the net OPEB liability of the County and Medical Care Facility, calculated using the healthcare cost trend rate of 8.50% (post-65 7.00%) reducing each year until an ultimate rate of 4.50% is achieved, as well as what the County and Facility's net OPEB liability would be if it were calculated using a healthcare cost trend rate that is 1% lower or 1% higher than the current rate:

	<u>1% Decrease (pre-65 7.50% and post -65 6.00%)</u>	<u>Current Trend Rate (pre-65 8.50% and post-65 7.00%)</u>	<u>1% Increase (pre-65 9.50% and post-65 8.00%)</u>
County' net OPEB liability	\$ 1,386,376	\$ 1,587,164	\$ 1,825,163

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

For the year ended December 31, 2020, the County and Medical Care Facility recognized OPEB expense of \$330,442 and \$21,010, respectively. The County 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
Differences in experience	\$ 44,289	\$ 76,903
Differences in assumptions	194,990	-
Excess (deficit) investment returns	-	18,802
Total	\$ 239,279	\$ 95,705

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

<u>Year Ended December 31:</u>	
2021	\$ 51,934
2022	51,934
2023	29,521
2023	1,795
2024	4,603
2025+	<u>3,787</u>
Total	\$ <u>143,574</u>

Rating Requirements

S&P Global Ratings (“S&P”) will assign, as of the date of delivery of the Bonds, its municipal bond rating of “A+” to the Bonds.

Bond Issuance Considerations

The County anticipates issuing bonds as authorized by Act 34 to partially fund the unfunded pension liability of the plan divisions of the Pension Plan specified above. 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 County anticipates receiving favorable interest rates for the limited tax general obligation bonds to fund a portion of the unfunded pension liability of the Pension Plan.



Determination of Bond Amount

Act 34 limits the amount the County 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 County 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 County is planning to issue an amount that will achieve an approximate 95% funding level for its Pension Plan, based on either the market value of assets or the actuarial value of assets, to be determined at or 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 County 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 County 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 12/31/20 Actuarial Value of Assets	Based on UAL Using 12/31/20 Market Value of Assets
a Actuarial Accrued Liabilities (AAL) ⁽¹⁾	68,780,122	68,780,122
b Maximum % Funding Level for Bonding	95.00%	95.00%
c Maximum Funding Level for Bonding in Dollars	65,341,116	65,341,116
d Less: Value of Assets ⁽²⁾	29,005,480	29,830,072
e Maximum Unfunded Liability to be Bonded	36,335,636	35,511,044
f Plus Estimated Issuance Costs	894,364	878,956
g Maximum Estimated Bond Amount	37,230,000	36,390,000
h Funding Level After Bonding	95.00%	95.00%
i Funding Level Before Bonding	42.17%	43.37%
⁽¹⁾ Value found on page 11 of Actuarial Report		
⁽²⁾ Actuarial Value found on page 11 of Actuarial Report Market Value on page 32		
Remaining	3,439,006	3,439,006
	5.00%	5.00%

Legal Debt Limit Compliance

As of April 7, 2022, the County's outstanding debt is showing as below:

Date	Issue	Security	Final Maturity	Principal Amount Outstanding
2004	City of Owosso LTGO Bonds	LTGO	2025	\$500,000
2005	Village of Byron LTGO Water Bonds	LTGO	2026	234,470
2016	Capital Improvement Bonds, Series 2016	LTGO	2022	6,887,528
2018	Health Department Installment Purchase Agreement	LTGO	2028	443,000
2019	Misteguay Creek Intercounty Drain Bonds	LTGO	2039	2,026,324
2021	Limited Tax General Obligation Refunding Bonds, Series 2021A	LTGO	2032	2,240,000
2021	Limited Tax General Obligation Refunding Bonds, Series 2021B	LTGO	2032	710,000

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

Legal Debt Margin	
2021 State Equalized Value	\$2,740,533,540
Legal Debt Limit - 10% of SEV	\$274,053,354
Total Debt Outstanding	\$13,041,322
Legal Debt Margin Available	\$261,012,032
Proposed Amount of New Bond (LTGO)	\$37,230,000
Share of Legal Debt Margin Available After New Bond	85.74%
Estimated Legal Debt Margin Available After New Bond	\$223,782,032

The County has set a maximum not to exceed bond amount of \$50,000,000 to fund a portion of its pension obligation, which is within the County's legal debt capacity as shown above.

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 County 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 County. This minimum savings threshold could impact the size, structure and timing of the bonds.

The savings analyses provided herein compare the estimated payments the County will need to make if it issues bonds to fund the pension obligation to the maximum 95% level. If the County 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 County 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

Shiawassee County (7602) - All Divisions
 Projected Amortization Payments and Projected Employer Normal Cost Contributions
 Based on December 31, 2020 Actuarial Valuation Data
 Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2020 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)
2022	3,140,000	546,387	590,000	1,136,387	1,308,333	271,492	2,716,212	423,788	417,215	416,943
2023	3,230,000	1,451,209	1,600,000	3,051,209		279,273	3,330,482	(100,482)	(94,855)	(94,628)
2024	3,330,000	1,404,329	1,650,000	3,054,329		287,919	3,342,248	(12,248)	(11,087)	(11,041)
2025	3,430,000	1,354,334	1,700,000	3,054,334		296,566	3,350,900	79,100	68,655	68,252
2026	3,530,000	1,299,084	1,755,000	3,054,084		305,212	3,359,296	170,704	142,068	140,988
2027	3,640,000	1,239,590	1,815,000	3,054,590		314,723	3,369,312	270,688	216,014	213,998
2028	3,740,000	1,176,246	1,875,000	3,051,246		323,369	3,374,615	365,385	279,592	276,499
2029	3,850,000	1,108,371	1,945,000	3,053,371		332,880	3,386,251	463,749	340,266	335,914
2030	3,970,000	1,036,017	2,015,000	3,051,017		343,255	3,394,272	575,728	405,054	399,176
2031	4,090,000	959,447	2,090,000	3,049,447		353,631	3,403,078	686,922	463,409	455,887
2032	4,210,000	877,937	2,175,000	3,052,937		364,006	3,416,943	793,057	513,005	503,798
2033	4,330,000	790,937	2,260,000	3,050,937		374,382	3,425,319	904,681	561,143	550,111
2034	4,290,000	697,147	2,355,000	3,052,147		370,923	3,423,070	866,930	515,611	504,593
2035	4,400,000	597,060	2,455,000	3,052,060		380,434	3,432,494	967,506	551,763	539,030
2036	4,530,000	490,267	2,560,000	3,050,267		391,674	3,441,941	1,088,059	594,993	580,249
2037	4,650,000	376,347	2,675,000	3,051,347		402,050	3,453,397	1,196,603	627,437	610,822
2038	4,790,000	254,635	2,795,000	3,049,635		414,154	3,463,789	1,326,211	666,797	648,006
2039	4,930,000	130,816	2,920,000	3,050,816		426,259	3,477,075	1,452,925	700,462	679,535
	\$ 72,080,000	\$ 15,790,159	\$ 37,230,000	\$ 53,020,159	\$ 1,308,333	\$ 6,232,201	\$ 60,560,693	\$ 11,519,307	\$ 6,957,543	\$ 6,818,133

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$36,335,636 payment towards UAL, leaving 8.65% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$36,335,636

Estimated Bond Amount: \$37,230,000

Arbitrage Yield: 4.289%

All-In TIC: 4.471%

NPV Savings as % of Principal based on Arb. Yield: 18.69%

NPV Savings as % of Principal based on All-In TIC: 18.31%

Analysis using Market Value of Assets

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions
Market Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	Total UAL Payments (a)	Interest Due	Principal Due	Total Debt Service Payment (b)	UAL Payments Already Made (c)	Remaining UAL Payments (d)	Total Bond U/S and Remaining UAL Payments	Difference	Arbitrage Yield Present Value (e)	All-In TIC Present Value (f)
2022	3,060,000	534,093	575,000	1,109,093	1,275,000	270,176	2,654,269	405,731	399,437	399,175
2023	3,150,000	1,418,606	1,565,000	2,983,606		278,122	3,261,728	(111,728)	(105,471)	(105,216)
2024	3,240,000	1,372,751	1,610,000	2,982,751		286,068	3,268,819	(28,819)	(26,087)	(25,978)
2025	3,340,000	1,323,968	1,660,000	2,983,968		294,898	3,278,866	61,134	53,061	52,747
2026	3,440,000	1,270,018	1,715,000	2,985,018		303,727	3,288,745	151,255	125,881	124,915
2027	3,540,000	1,211,880	1,770,000	2,981,880		312,556	3,294,436	245,564	195,964	194,117
2028	3,650,000	1,150,107	1,835,000	2,985,107		322,268	3,307,375	342,625	262,175	259,246
2029	3,760,000	1,083,680	1,900,000	2,983,680		331,981	3,315,660	444,340	326,022	321,812
2030	3,870,000	1,013,000	1,970,000	2,983,000		341,693	3,324,692	545,308	383,648	378,027
2031	3,980,000	938,140	2,045,000	2,983,140		351,405	3,334,545	645,455	435,430	428,294
2032	4,100,000	858,385	2,125,000	2,983,385		362,000	3,345,385	754,615	488,132	479,287
2033	4,230,000	773,385	2,210,000	2,983,385		373,478	3,356,863	873,137	541,570	530,819
2034	4,210,000	681,670	2,300,000	2,981,670		371,712	3,353,382	856,618	509,471	498,478
2035	4,320,000	583,920	2,400,000	2,983,920		381,425	3,365,344	954,656	544,426	531,741
2036	4,450,000	479,520	2,505,000	2,984,520		392,903	3,377,422	1,072,578	586,518	571,842
2037	4,580,000	368,047	2,615,000	2,983,047		404,381	3,387,428	1,192,572	625,313	608,593
2038	4,720,000	249,065	2,735,000	2,984,065		416,742	3,400,806	1,319,194	663,256	644,384
2039	4,860,000	127,904	2,855,000	2,982,904		429,103	3,412,007	1,447,993	698,071	677,014
	\$ 70,500,000	\$ 15,438,133	\$ 36,390,000	\$ 51,828,133	\$ 1,275,000	\$ 6,224,637	\$ 59,327,771	\$ 11,172,229	\$ 6,706,818	\$ 6,569,296

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$35,511,044 payment towards UAL, leaving 8.83% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$35,511,044

Estimated Bond Amount: \$36,390,000

Arbitrage Yield: 4.289%

All-In TIC: 4.473%

NPV Savings as % of Principal based on Arb. Yield: 18.43%

NPV Savings as % of Principal based on All-In TIC: 18.05%

Based on the preceding analysis, the County 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 County acknowledges that it is possible the unfunded accrued liability may increase after the issuance of the bonds, thereby requiring the County 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 County's unfunded actuarial accrued liability under different rate of return assumptions using the actuarial value of assets as of December 31, 2020.

Assume Future Annual Smoothed Rate of Investment Return - Actuarial Value			
12/31/20 Valuation Results	7.35%	6.35%	5.35%
Accrued Liability	68,780,122	76,305,480	85,205,480
Actuarial Value of Assets	29,005,480	29,005,480	29,005,480
Unfunded Accrued Liability	39,774,642	47,300,000	56,200,000
Funded Ratio	42%	38%	34%
Adjusted Unfunded Liability			
Net of Estimated Bond	3,439,006	10,964,364	19,864,364
Adjusted Funded Ratio Net of			
Estimated Bond Proceeds*	95%	86%	77%

*Assumes application of \$36,335,636 of bond proceeds to UAL

Assume Future Annual Smoothed Rate of Investment Return - Market Value			
12/31/20 Valuation Results	7.35%	6.75%	5.75%
Accrued Liability	68,780,122	76,230,072	86,030,072
Market Value of Assets	29,830,072	29,830,072	29,830,072
Unfunded Accrued Liability	38,950,050	46,400,000	56,200,000
Funded Ratio	43%	39%	35%
Adjusted Unfunded Liability			
Net of Estimated Bond	3,439,006	10,888,956	20,688,956
Adjusted Funded Ratio Net of			
Estimated Bond Proceeds*	95%	86%	76%

*Assumes application of \$35,511,044 of bond proceeds to UAL

The County 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 County will bond to achieve a 95% funded level based on the actuarial value of assets.

Actuarial Value of Assets				Actuarial Value of Assets			
Summary of Savings Nominal Savings				Summary of Savings Nominal Savings			
	Current IR	Current IR +50 BPS	Current IR -50 BPS		Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	\$ 11,519,307.04	\$ 9,396,679.32	\$ 13,589,710.39	Expected UAL ROR (7.35%)	30.94%	25.24%	36.50%
Expected UAL ROR -100 BPS (6.35%)	\$ 6,580,531.28	\$ 4,457,903.56	\$ 8,650,934.63	Expected UAL ROR -100 BPS (6.35%)	17.68%	11.97%	23.24%
Expected UAL ROR -200 BPS (5.35%)	\$ 1,928,089.79	\$ (194,537.93)	\$ 3,998,493.14	Expected UAL ROR -200 BPS (5.35%)	5.18%	-0.52%	10.74%
Summary of Present Value Savings Discounted to Arbitrage Yield				Summary of Present Value Savings Discounted to Arbitrage Yield			
	Current IR	Current IR +50 BPS	Current IR -50 BPS		Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	\$ 6,957,542.59	\$ 5,161,950.44	\$ 8,864,800.67	Expected UAL ROR (7.35%)	18.69%	13.87%	23.81%
Expected UAL ROR -100 BPS (6.35%)	\$ 3,708,820.53	\$ 2,055,686.41	\$ 5,463,935.21	Expected UAL ROR -100 BPS (6.35%)	9.96%	5.52%	14.68%
Expected UAL ROR -200 BPS (5.35%)	\$ 614,432.45	\$ (906,839.59)	\$ 2,228,832.84	Expected UAL ROR -200 BPS (5.35%)	1.65%	-2.44%	5.99%
Summary of Present Value Savings Discounted to All-In TIC				Summary of Present Value Savings Discounted to All-In TIC			
	Current IR	Current IR +50 BPS	Current IR -50 BPS		Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	\$ 6,818,132.73	\$ 5,049,420.92	\$ 8,697,130.73	Expected UAL ROR (7.35%)	18.31%	13.56%	23.36%
Expected UAL ROR -100 BPS (6.35%)	\$ 3,621,723.08	\$ 1,993,036.52	\$ 5,351,147.14	Expected UAL ROR -100 BPS (6.35%)	9.73%	5.35%	14.37%
Expected UAL ROR -200 BPS (5.35%)	\$ 575,744.16	\$ (923,294.30)	\$ 2,166,790.99	Expected UAL ROR -200 BPS (5.35%)	1.55%	-2.48%	5.82%

The table below assumes that the County will bond to achieve a 95% funded level based on the market value of assets.

Market Value of Assets				Market Value of Assets			
Summary of Savings Nominal Savings				Summary of Savings Nominal Savings			
	Current IR	Current IR +50 BPS	Current IR -50 BPS		Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	\$ 11,172,229.32	\$ 9,102,085.24	\$ 13,202,310.17	Expected UAL ROR (7.35%)	30.70%	25.01%	36.28%
Expected UAL ROR -100 BPS (6.35%)	\$ 6,486,715.11	\$ 4,416,571.03	\$ 8,516,795.96	Expected UAL ROR -100 BPS (6.35%)	17.83%	12.14%	23.40%
Expected UAL ROR -200 BPS (5.35%)	\$ 1,049,743.80	\$ (1,020,400.28)	\$ 3,079,824.65	Expected UAL ROR -200 BPS (5.35%)	2.88%	-2.80%	8.46%
Summary of Present Value Savings Discounted to Arbitrage Yield				Summary of Present Value Savings Discounted to Arbitrage Yield			
	Current IR	Current IR +50 BPS	Current IR -50 BPS		Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	\$ 6,706,817.55	\$ 4,952,442.68	\$ 8,571,641.96	Expected UAL ROR (7.35%)	18.43%	13.61%	23.55%
Expected UAL ROR -100 BPS (6.35%)	\$ 3,642,690.67	\$ 2,024,486.07	\$ 5,361,902.42	Expected UAL ROR -100 BPS (6.35%)	10.01%	5.56%	14.73%
Expected UAL ROR -200 BPS (5.35%)	\$ 6,729.28	\$ (1,458,563.85)	\$ 1,562,779.76	Expected UAL ROR -200 BPS (5.35%)	0.02%	-4.01%	4.29%
Summary of Present Value Savings Discounted to All-In TIC				Summary of Present Value Savings Discounted to All-In TIC			
	Current IR	Current IR +50 BPS	Current IR -50 BPS		Current IR	Current IR +50 BPS	Current IR -50 BPS
Expected UAL ROR (7.35%)	\$ 6,569,295.72	\$ 4,841,387.59	\$ 8,405,908.65	Expected UAL ROR (7.35%)	18.05%	13.30%	23.10%
Expected UAL ROR -100 BPS (6.35%)	\$ 3,555,689.89	\$ 1,961,581.01	\$ 5,249,225.56	Expected UAL ROR -100 BPS (6.35%)	9.77%	5.39%	14.42%
Expected UAL ROR -200 BPS (5.35%)	\$ (23,577.85)	\$ (1,467,317.93)	\$ 1,509,512.90	Expected UAL ROR -200 BPS (5.35%)	-0.06%	-4.03%	4.15%

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, 2020:

Year-by-Year Returns (35 years: 1986-2020)

Year	Rate of Return	Year	Rate of Return	Year	Rate of Return
2020	13.79%	2008	-24.79%	1996	12.68%
2019	14.06	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		

Annualized 35-year rate of return for MERS Defined Benefit: 8.69%

Performance numbers on this page are gross of fees.

Description of Action Required to Meet Obligations

The County 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 County Coordinator completes an annual budget by fund and presents it to the County Board of Commissioners 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 County Board of Commissioners. The bonds to fund the pension obligations will carry the County's limited tax general obligation full faith and credit pledge; therefore, the amounts needed to pay annual debt service will be legally required to be part of the County's total budget, and the ability of the County to raise such amounts shall be subject to constitutional and statutory limitations on the taxing power of the County.

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 County. The County'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 to the extent permitted by Act 34. 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 County, paid from various County funds. A description of actions the County takes to allocate costs to its various funds, create the annual budget and obtain budget approval from the County Board is included in the Plan.
- Certifications. The various certifications required by Act 34 are included on page 41.

Act 34 also requires the Plan be prepared and made available to the public. Accordingly, the County has prepared this Plan, which has been approved by the County Board of Commissioners on December 16, 2021 and has been made available in the County's clerk office for public review. It has also been posted and made publicly available on the County's website at <https://www.shiawassee.net>.

Certifications

The County 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, and the County's health care plan actuary, CBIZ Retirement Plan. The County 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 County's most recent audit report indicates that the sum of all the County's defined benefit plans' actual contributions for the most recent 3 fiscal years are 100% or greater than the sum of all the County's defined benefit plans' actuarially determined contributions for the most recent 3 fiscal years.
- The County is compliant on any reporting requirements in accordance with the Protecting Local Government Retirement and Benefits Act, Public Act 202 of 2017.

A handwritten signature in black ink, appearing to read "Dr. Boggs", written over a horizontal line.

By: Dr. Brian Boggs, County Coordinator

Dated: April 21, 2022

SHIAWASSEE COUNTY

Appendix A PROJECTED AMORTIZATION
SCHEDULE FROM MERS





February 18, 2022

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

Re: Shiawassee Co (7602) – 01, 10, 11, 12, 13, 15, 16, 17, 19, 20, 21, 22, 26, 27, 80, 81 – 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, 2020, 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 Calendar Year Beginning January 1, 2021, 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 reflects the impact of COVID-19 experience through December 31, 2020. It does not reflect the ongoing 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 future 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 the actuary. A description of these assumptions and methods can be found as follows:

- Plan Document, v02252021,
- Actuarial Policy, DOC 8062 (2020-06-25), and
- 2020 Appendix to the Annual Actuarial Valuation Report.

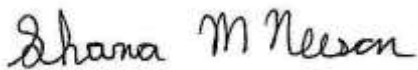
This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the municipality as of the valuation date. All calculations 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.

Shana M. Neeson and Mark Buis 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,



Shana M. Neeson, ASA, FCA, MAAA



Mark Buis, FSA, EA, FCA, MAAA



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Executive Summary

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, 2020 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:
 - 7.35%/3.00%,
 - 6.35%/3.00%, and
 - 5.35%/3.00%.
- The employer contributions through December 31, 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, 2020 actuarial valuation.
- As requested by MERS, overfunded divisions, 911 dispatchers divisions, and Medical Care Facility RU02 divisions were excluded from this study.
- An amortization policy as follows:

Division(s)	Amortization Policy for Existing Layers*	Amortization Length
01, 11, 12, 13, 15, 16, 17, 19, 21	Combined into a single layer	18
10	Combined into a single layer	6
20	Combined into a single layer	15
22, 80, 81	Combined into a single layer	12
26	Combined into a single layer	13
27	Combined into a single layer	10

* Existing layers will follow a closed amortization policy decreasing by one year each subsequent valuation year. New amortization layers determined in future valuations will follow the schedule as determined in the MERS Actuarial Policy.

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.



Executive Summary (Continued)

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, 2021, under the amortization policies as amended by the Board on June 25, 2020. **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.

Supplemental Valuation Results – Division 01

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$2,740,000	\$274,000	\$2,730,000	\$274,000	\$9,500
2022	2,660,000	213,000	2,640,000	211,000	9,600
2023	2,640,000	219,000	2,620,000	218,000	8,400
2024	2,600,000	226,000	2,590,000	224,000	7,100
2025	2,560,000	233,000	2,540,000	231,000	5,900
2026	2,510,000	240,000	2,490,000	238,000	4,900
2027	2,440,000	247,000	2,430,000	245,000	4,100
2028	2,370,000	254,000	2,350,000	252,000	3,400
2029	2,280,000	262,000	2,260,000	260,000	2,800
2030	2,180,000	270,000	2,160,000	268,000	2,300
2031	2,060,000	278,000	2,040,000	276,000	1,900
2032	1,920,000	286,000	1,910,000	284,000	1,500
2033	1,760,000	295,000	1,750,000	293,000	1,300
2034	1,590,000	303,000	1,580,000	301,000	1,000
2035	1,390,000	313,000	1,380,000	310,000	840
2036	1,170,000	322,000	1,160,000	320,000	680
2037	922,000	332,000	916,000	329,000	550
2038	646,000	342,000	642,000	339,000	440
2039	340,000	352,000	337,000	349,000	360

* 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.

Shiawassee Co (7602) – Division 01

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$3,040,000	\$274,000	\$3,020,000	\$274,000	\$9,500
2022	2,950,000	219,000	2,930,000	217,000	12,600
2023	2,910,000	225,000	2,890,000	224,000	10,900
2024	2,860,000	232,000	2,840,000	230,000	9,300
2025	2,800,000	239,000	2,790,000	237,000	7,700
2026	2,740,000	246,000	2,720,000	244,000	6,400
2027	2,660,000	253,000	2,640,000	252,000	5,300
2028	2,560,000	261,000	2,550,000	259,000	4,400
2029	2,460,000	269,000	2,440,000	267,000	3,600
2030	2,330,000	277,000	2,320,000	275,000	3,000
2031	2,200,000	285,000	2,180,000	283,000	2,500
2032	2,040,000	294,000	2,030,000	292,000	2,000
2033	1,870,000	303,000	1,860,000	301,000	1,700
2034	1,680,000	312,000	1,670,000	310,000	1,400
2035	1,460,000	321,000	1,450,000	319,000	1,100
2036	1,220,000	331,000	1,220,000	329,000	900
2037	960,000	340,000	954,000	338,000	730
2038	670,000	351,000	665,000	349,000	590
2039	350,000	361,000	348,000	359,000	470

* 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.



Shiawassee Co (7602) – Division 01

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$3,380,000	\$274,000	\$3,360,000	\$274,000	\$9,500
2022	3,280,000	225,000	3,260,000	223,000	16,400
2023	3,220,000	231,000	3,200,000	230,000	14,300
2024	3,150,000	238,000	3,140,000	237,000	12,200
2025	3,080,000	246,000	3,060,000	244,000	10,100
2026	2,990,000	253,000	2,980,000	251,000	8,400
2027	2,890,000	260,000	2,880,000	259,000	6,900
2028	2,780,000	268,000	2,760,000	267,000	5,700
2029	2,650,000	276,000	2,640,000	275,000	4,700
2030	2,510,000	285,000	2,500,000	283,000	3,900
2031	2,350,000	293,000	2,340,000	292,000	3,200
2032	2,180,000	302,000	2,170,000	300,000	2,600
2033	1,980,000	311,000	1,970,000	309,000	2,200
2034	1,770,000	320,000	1,760,000	319,000	1,800
2035	1,540,000	330,000	1,530,000	328,000	1,400
2036	1,280,000	340,000	1,270,000	338,000	1,200
2037	1,000,000	350,000	995,000	348,000	950
2038	695,000	361,000	691,000	359,000	770
2039	362,000	371,000	360,000	369,000	610

* 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.

Supplemental Valuation Results – Division 10

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$26,900	\$3,300	\$22,800	\$3,300	\$0
2022	25,500	4,900	21,100	4,000	0
2023	22,300	5,000	18,500	4,100	0
2024	18,800	5,200	15,500	4,300	0
2025	14,800	5,300	12,200	4,400	0
2026	10,400	5,500	8,600	4,500	0
2027	5,400	5,600	4,500	4,700	0

* 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.

Shiawassee Co (7602) – Division 10

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$51,700	\$3,300	\$47,700	\$3,300	\$0
2022	51,700	9,600	47,300	8,800	0
2023	45,000	9,900	41,200	9,100	0
2024	37,700	10,200	34,500	9,300	0
2025	29,600	10,500	27,100	9,600	0
2026	20,600	10,800	18,900	9,900	0
2027	10,800	11,100	9,900	10,200	0

* 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.

Shiawassee Co (7602) – Division 10

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$82,300	\$3,300	\$78,200	\$3,300	\$0
2022	83,300	15,100	79,000	14,300	0
2023	72,300	15,500	68,600	14,700	0
2024	60,300	16,000	57,200	15,200	0
2025	47,100	16,500	44,600	15,600	0
2026	32,700	17,000	31,000	16,100	0
2027	17,000	17,500	16,100	16,600	0

* 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.

Supplemental Valuation Results – Division 11

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$2,390,000	\$179,000	\$2,340,000	\$179,000	\$5,600
2022	2,380,000	190,000	2,330,000	186,000	7,200
2023	2,360,000	196,000	2,310,000	192,000	5,500
2024	2,330,000	202,000	2,280,000	198,000	4,200
2025	2,290,000	208,000	2,240,000	204,000	3,300
2026	2,240,000	214,000	2,200,000	210,000	2,600
2027	2,190,000	221,000	2,140,000	216,000	2,000
2028	2,120,000	227,000	2,070,000	222,000	1,600
2029	2,040,000	234,000	2,000,000	229,000	1,200
2030	1,940,000	241,000	1,900,000	236,000	980
2031	1,840,000	248,000	1,800,000	243,000	780
2032	1,720,000	256,000	1,680,000	250,000	620
2033	1,580,000	263,000	1,540,000	258,000	490
2034	1,420,000	271,000	1,390,000	266,000	370
2035	1,240,000	279,000	1,220,000	274,000	300
2036	1,050,000	288,000	1,020,000	282,000	240
2037	824,000	296,000	807,000	290,000	190
2038	577,000	305,000	565,000	299,000	160
2039	304,000	314,000	297,000	308,000	120

* 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.



Shiawassee Co (7602) – Division 11

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$2,770,000	\$179,000	\$2,720,000	\$179,000	\$5,600
2022	2,760,000	205,000	2,710,000	201,000	10,000
2023	2,720,000	211,000	2,670,000	207,000	7,600
2024	2,680,000	217,000	2,630,000	213,000	5,900
2025	2,620,000	223,000	2,580,000	220,000	4,600
2026	2,560,000	230,000	2,510,000	226,000	3,600
2027	2,480,000	237,000	2,440,000	233,000	2,800
2028	2,400,000	244,000	2,360,000	240,000	2,200
2029	2,300,000	252,000	2,260,000	247,000	1,800
2030	2,180,000	259,000	2,150,000	254,000	1,400
2031	2,060,000	267,000	2,020,000	262,000	1,100
2032	1,910,000	275,000	1,880,000	270,000	860
2033	1,750,000	283,000	1,720,000	278,000	680
2034	1,570,000	292,000	1,540,000	286,000	520
2035	1,370,000	300,000	1,340,000	295,000	420
2036	1,140,000	309,000	1,120,000	304,000	340
2037	898,000	319,000	882,000	313,000	260
2038	627,000	328,000	615,000	322,000	220
2039	328,000	338,000	322,000	332,000	170

* 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.

Shiawassee Co (7602) – Division 11

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$3,210,000	\$179,000	\$3,160,000	\$179,000	\$5,600
2022	3,190,000	219,000	3,150,000	216,000	14,000
2023	3,140,000	226,000	3,090,000	222,000	10,600
2024	3,080,000	232,000	3,030,000	229,000	8,200
2025	3,000,000	239,000	2,960,000	236,000	6,400
2026	2,920,000	247,000	2,870,000	243,000	5,000
2027	2,820,000	254,000	2,780,000	250,000	3,900
2028	2,710,000	262,000	2,670,000	258,000	3,100
2029	2,590,000	270,000	2,550,000	265,000	2,400
2030	2,450,000	278,000	2,410,000	273,000	1,900
2031	2,290,000	286,000	2,260,000	282,000	1,500
2032	2,120,000	294,000	2,090,000	290,000	1,200
2033	1,940,000	303,000	1,910,000	299,000	950
2034	1,730,000	312,000	1,700,000	308,000	720
2035	1,500,000	322,000	1,480,000	317,000	580
2036	1,250,000	331,000	1,230,000	326,000	460
2037	976,000	341,000	961,000	336,000	370
2038	678,000	352,000	667,000	346,000	290
2039	353,000	362,000	348,000	357,000	230

* 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.



Supplemental Valuation Results – Division 12

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$9,160,000	\$623,000	\$9,010,000	\$623,000	\$11,300
2022	9,190,000	734,000	9,030,000	722,000	7,200
2023	9,100,000	756,000	8,940,000	743,000	6,200
2024	8,990,000	779,000	8,830,000	766,000	5,400
2025	8,840,000	803,000	8,680,000	789,000	4,800
2026	8,660,000	827,000	8,510,000	812,000	4,100
2027	8,440,000	851,000	8,290,000	837,000	3,300
2028	8,170,000	877,000	8,030,000	862,000	2,600
2029	7,870,000	903,000	7,730,000	887,000	2,100
2030	7,510,000	930,000	7,380,000	914,000	1,700
2031	7,100,000	958,000	6,970,000	942,000	1,300
2032	6,630,000	987,000	6,510,000	970,000	1,000
2033	6,090,000	1,020,000	5,980,000	999,000	790
2034	5,480,000	1,050,000	5,390,000	1,030,000	610
2035	4,800,000	1,080,000	4,720,000	1,060,000	480
2036	4,040,000	1,110,000	3,970,000	1,090,000	370
2037	3,180,000	1,140,000	3,130,000	1,120,000	280
2038	2,230,000	1,180,000	2,190,000	1,160,000	220
2039	1,170,000	1,210,000	1,150,000	1,190,000	170

* 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.



Shiawassee Co (7602) – Division 12

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$10,500,000	\$623,000	\$10,400,000	\$623,000	\$11,300
2022	10,600,000	783,000	10,400,000	771,000	9,900
2023	10,400,000	806,000	10,300,000	794,000	8,500
2024	10,200,000	831,000	10,100,000	818,000	7,500
2025	10,000,000	855,000	9,890,000	843,000	6,600
2026	9,800,000	881,000	9,650,000	868,000	5,600
2027	9,510,000	908,000	9,370,000	894,000	4,500
2028	9,180,000	935,000	9,040,000	921,000	3,600
2029	8,800,000	963,000	8,660,000	948,000	2,900
2030	8,360,000	992,000	8,240,000	977,000	2,300
2031	7,870,000	1,020,000	7,750,000	1,010,000	1,800
2032	7,320,000	1,050,000	7,210,000	1,040,000	1,400
2033	6,700,000	1,080,000	6,600,000	1,070,000	1,100
2034	6,000,000	1,120,000	5,910,000	1,100,000	850
2035	5,230,000	1,150,000	5,160,000	1,130,000	660
2036	4,380,000	1,180,000	4,320,000	1,170,000	500
2037	3,440,000	1,220,000	3,390,000	1,200,000	380
2038	2,400,000	1,260,000	2,360,000	1,240,000	300
2039	1,250,000	1,290,000	1,240,000	1,270,000	230

* 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.



Shiawassee Co (7602) – Division 12

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$12,100,000	\$623,000	\$12,000,000	\$623,000	\$11,300
2022	12,100,000	833,000	12,000,000	822,000	13,600
2023	11,900,000	858,000	11,800,000	847,000	11,700
2024	11,700,000	884,000	11,500,000	873,000	10,300
2025	11,400,000	911,000	11,300,000	899,000	9,100
2026	11,100,000	938,000	11,000,000	926,000	7,800
2027	10,700,000	966,000	10,600,000	953,000	6,300
2028	10,300,000	995,000	10,200,000	982,000	5,000
2029	9,840,000	1,020,000	9,710,000	1,010,000	4,000
2030	9,310,000	1,060,000	9,190,000	1,040,000	3,200
2031	8,730,000	1,090,000	8,610,000	1,070,000	2,500
2032	8,080,000	1,120,000	7,970,000	1,110,000	2,000
2033	7,360,000	1,150,000	7,260,000	1,140,000	1,500
2034	6,570,000	1,190,000	6,480,000	1,170,000	1,200
2035	5,700,000	1,220,000	5,630,000	1,210,000	910
2036	4,750,000	1,260,000	4,690,000	1,240,000	700
2037	3,710,000	1,300,000	3,660,000	1,280,000	540
2038	2,580,000	1,340,000	2,540,000	1,320,000	410
2039	1,340,000	1,380,000	1,320,000	1,360,000	310

* 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.



Supplemental Valuation Results – Division 13

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$1,980,000	\$138,000	\$1,960,000	\$138,000	\$2,500
2022	1,980,000	158,000	1,960,000	157,000	2,500
2023	1,960,000	163,000	1,940,000	161,000	2,000
2024	1,940,000	168,000	1,920,000	166,000	1,700
2025	1,910,000	173,000	1,890,000	171,000	1,300
2026	1,870,000	178,000	1,850,000	176,000	1,100
2027	1,820,000	184,000	1,800,000	182,000	890
2028	1,760,000	189,000	1,740,000	187,000	720
2029	1,700,000	195,000	1,680,000	193,000	590
2030	1,620,000	201,000	1,600,000	199,000	480
2031	1,530,000	207,000	1,510,000	205,000	380
2032	1,430,000	213,000	1,410,000	211,000	310
2033	1,310,000	219,000	1,300,000	217,000	250
2034	1,180,000	226,000	1,170,000	224,000	200
2035	1,040,000	233,000	1,020,000	230,000	170
2036	871,000	240,000	861,000	237,000	130
2037	687,000	247,000	679,000	244,000	110
2038	481,000	254,000	476,000	252,000	84
2039	253,000	262,000	250,000	259,000	60

* 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.

Shiawassee Co (7602) – Division 13

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$2,210,000	\$138,000	\$2,190,000	\$138,000	\$2,500
2022	2,210,000	164,000	2,190,000	162,000	3,400
2023	2,180,000	169,000	2,160,000	167,000	2,800
2024	2,140,000	174,000	2,120,000	172,000	2,300
2025	2,100,000	179,000	2,080,000	177,000	1,900
2026	2,050,000	184,000	2,030,000	182,000	1,500
2027	1,990,000	190,000	1,970,000	188,000	1,200
2028	1,920,000	195,000	1,900,000	194,000	1,000
2029	1,840,000	201,000	1,820,000	199,000	820
2030	1,750,000	207,000	1,730,000	205,000	660
2031	1,650,000	214,000	1,630,000	211,000	540
2032	1,530,000	220,000	1,510,000	218,000	430
2033	1,400,000	227,000	1,390,000	224,000	360
2034	1,260,000	233,000	1,240,000	231,000	290
2035	1,090,000	240,000	1,080,000	238,000	230
2036	916,000	248,000	907,000	245,000	180
2037	719,000	255,000	712,000	252,000	140
2038	501,000	263,000	496,000	260,000	110
2039	262,000	270,000	260,000	268,000	84

* 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.



Shiawassee Co (7602) – Division 13

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$2,470,000	\$138,000	\$2,450,000	\$138,000	\$2,500
2022	2,470,000	169,000	2,440,000	168,000	4,800
2023	2,420,000	174,000	2,400,000	173,000	3,900
2024	2,370,000	179,000	2,350,000	178,000	3,200
2025	2,320,000	185,000	2,300,000	183,000	2,600
2026	2,250,000	190,000	2,230,000	189,000	2,100
2027	2,180,000	196,000	2,160,000	194,000	1,700
2028	2,090,000	202,000	2,070,000	200,000	1,400
2029	2,000,000	208,000	1,980,000	206,000	1,100
2030	1,890,000	214,000	1,870,000	212,000	910
2031	1,770,000	221,000	1,760,000	219,000	740
2032	1,640,000	227,000	1,630,000	225,000	600
2033	1,490,000	234,000	1,480,000	232,000	490
2034	1,330,000	241,000	1,320,000	239,000	400
2035	1,160,000	248,000	1,150,000	246,000	320
2036	964,000	256,000	956,000	254,000	250
2037	753,000	263,000	747,000	261,000	190
2038	523,000	271,000	518,000	269,000	160
2039	272,000	280,000	270,000	277,000	120

* 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.



Supplemental Valuation Results – Division 15

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$2,670,000	\$172,000	\$2,620,000	\$172,000	\$1,400
2022	2,690,000	215,000	2,630,000	210,000	0
2023	2,670,000	222,000	2,610,000	217,000	0
2024	2,630,000	228,000	2,570,000	223,000	0
2025	2,590,000	235,000	2,530,000	230,000	0
2026	2,540,000	242,000	2,480,000	237,000	0
2027	2,470,000	250,000	2,420,000	244,000	0
2028	2,400,000	257,000	2,340,000	251,000	0
2029	2,310,000	265,000	2,250,000	259,000	0
2030	2,200,000	273,000	2,150,000	266,000	0
2031	2,080,000	281,000	2,030,000	274,000	0
2032	1,940,000	289,000	1,900,000	283,000	0
2033	1,780,000	298,000	1,740,000	291,000	0
2034	1,610,000	307,000	1,570,000	300,000	0
2035	1,410,000	316,000	1,370,000	309,000	0
2036	1,180,000	326,000	1,160,000	318,000	0
2037	932,000	335,000	911,000	328,000	0
2038	653,000	345,000	638,000	337,000	0
2039	343,000	356,000	336,000	348,000	0

* 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.

Shiawassee Co (7602) – Division 15

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$3,070,000	\$172,000	\$3,010,000	\$172,000	\$1,400
2022	3,090,000	229,000	3,030,000	224,000	0
2023	3,050,000	236,000	2,990,000	231,000	0
2024	3,000,000	243,000	2,940,000	238,000	0
2025	2,940,000	250,000	2,880,000	245,000	0
2026	2,870,000	258,000	2,810,000	253,000	0
2027	2,780,000	266,000	2,730,000	260,000	0
2028	2,690,000	273,000	2,630,000	268,000	0
2029	2,570,000	282,000	2,520,000	276,000	0
2030	2,450,000	290,000	2,400,000	284,000	0
2031	2,300,000	299,000	2,260,000	293,000	0
2032	2,140,000	308,000	2,100,000	302,000	0
2033	1,960,000	317,000	1,920,000	311,000	0
2034	1,760,000	327,000	1,720,000	320,000	0
2035	1,530,000	336,000	1,500,000	330,000	0
2036	1,280,000	346,000	1,260,000	340,000	0
2037	1,010,000	357,000	986,000	350,000	0
2038	702,000	368,000	688,000	360,000	0
2039	367,000	379,000	360,000	371,000	0

* 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.

Shiawassee Co (7602) – Division 15

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$3,530,000	\$172,000	\$3,470,000	\$172,000	\$1,400
2022	3,540,000	243,000	3,480,000	239,000	0
2023	3,480,000	250,000	3,420,000	246,000	0
2024	3,410,000	258,000	3,350,000	253,000	0
2025	3,330,000	266,000	3,270,000	261,000	0
2026	3,240,000	273,000	3,180,000	269,000	0
2027	3,130,000	282,000	3,070,000	277,000	0
2028	3,010,000	290,000	2,950,000	285,000	0
2029	2,870,000	299,000	2,820,000	294,000	0
2030	2,720,000	308,000	2,670,000	303,000	0
2031	2,540,000	317,000	2,500,000	312,000	0
2032	2,360,000	327,000	2,310,000	321,000	0
2033	2,150,000	336,000	2,110,000	331,000	0
2034	1,920,000	346,000	1,880,000	340,000	0
2035	1,660,000	357,000	1,630,000	351,000	0
2036	1,390,000	368,000	1,360,000	361,000	0
2037	1,080,000	379,000	1,060,000	372,000	0
2038	751,000	390,000	738,000	383,000	0
2039	391,000	402,000	385,000	395,000	0

* 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.

Supplemental Valuation Results – Division 16

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$595,000	\$40,200	\$577,000	\$40,200	\$14,000
2022	597,000	47,700	577,000	46,200	17,100
2023	592,000	49,200	572,000	47,500	16,700
2024	584,000	50,700	565,000	49,000	16,400
2025	575,000	52,200	556,000	50,400	15,900
2026	563,000	53,700	544,000	52,000	15,200
2027	548,000	55,300	530,000	53,500	14,400
2028	531,000	57,000	514,000	55,100	13,600
2029	511,000	58,700	494,000	56,800	12,700
2030	488,000	60,500	472,000	58,500	11,800
2031	461,000	62,300	446,000	60,200	11,000
2032	431,000	64,200	416,000	62,000	10,400
2033	396,000	66,100	383,000	63,900	9,800
2034	356,000	68,100	345,000	65,800	9,300
2035	312,000	70,100	302,000	67,800	8,800
2036	262,000	72,200	254,000	69,800	8,300
2037	207,000	74,400	200,000	71,900	7,800
2038	145,000	76,600	140,000	74,100	7,400
2039	76,200	78,900	73,700	76,300	7,000

* 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.

Shiawassee Co (7602) – Division 16

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$733,000	\$40,200	\$715,000	\$40,200	\$14,000
2022	738,000	54,800	719,000	53,300	22,300
2023	729,000	56,400	709,000	54,900	21,700
2024	717,000	58,100	698,000	56,500	21,300
2025	702,000	59,800	684,000	58,200	20,600
2026	685,000	61,600	667,000	60,000	19,800
2027	665,000	63,500	648,000	61,800	18,800
2028	642,000	65,400	625,000	63,600	17,800
2029	615,000	67,300	599,000	65,600	16,700
2030	585,000	69,400	569,000	67,500	15,600
2031	551,000	71,400	536,000	69,500	14,600
2032	512,000	73,600	498,000	71,600	13,800
2033	468,000	75,800	456,000	73,800	13,100
2034	420,000	78,100	409,000	76,000	12,500
2035	366,000	80,400	356,000	78,300	11,800
2036	306,000	82,800	298,000	80,600	11,100
2037	240,000	85,300	234,000	83,000	10,500
2038	168,000	87,900	163,000	85,500	10,000
2039	87,800	90,500	85,400	88,100	9,500

* 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.



Shiawassee Co (7602) – Division 16

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$899,000	\$40,200	\$880,000	\$40,200	\$14,000
2022	906,000	62,100	886,000	60,800	29,000
2023	890,000	64,000	871,000	62,600	28,300
2024	872,000	65,900	854,000	64,500	27,700
2025	851,000	67,900	833,000	66,400	26,900
2026	827,000	69,900	809,000	68,400	25,800
2027	800,000	72,000	782,000	70,500	24,600
2028	768,000	74,200	752,000	72,600	23,200
2029	733,000	76,400	718,000	74,800	21,900
2030	694,000	78,700	679,000	77,000	20,500
2031	651,000	81,100	637,000	79,300	19,300
2032	602,000	83,500	589,000	81,700	18,200
2033	549,000	86,000	537,000	84,200	17,400
2034	490,000	88,600	479,000	86,700	16,700
2035	425,000	91,200	416,000	89,300	15,900
2036	354,000	94,000	347,000	92,000	14,900
2037	277,000	96,800	271,000	94,700	14,200
2038	192,000	99,700	188,000	97,600	13,500
2039	100,000	103,000	97,900	100,000	12,900

* 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.

Supplemental Valuation Results – Division 17

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$516,000	\$35,700	\$494,000	\$35,700	\$19,100
2022	517,000	41,400	493,000	39,400	20,600
2023	513,000	42,600	488,000	40,600	19,600
2024	506,000	43,900	482,000	41,800	18,800
2025	498,000	45,200	474,000	43,100	18,100
2026	488,000	46,600	465,000	44,400	17,500
2027	475,000	47,900	453,000	45,700	17,000
2028	460,000	49,400	439,000	47,100	16,600
2029	443,000	50,900	422,000	48,500	16,200
2030	423,000	52,400	403,000	49,900	15,900
2031	400,000	54,000	381,000	51,400	15,600
2032	373,000	55,600	356,000	53,000	15,200
2033	343,000	57,300	327,000	54,600	14,600
2034	309,000	59,000	294,000	56,200	14,100
2035	270,000	60,700	258,000	57,900	13,700
2036	227,000	62,600	217,000	59,600	13,200
2037	179,000	64,400	171,000	61,400	12,500
2038	126,000	66,400	120,000	63,200	11,900
2039	66,000	68,400	62,900	65,100	11,400

* 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.

Shiawassee Co (7602) – Division 17

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL	Amortization	Beginning of Year UAL	Amortization	
	Balance	Payment	Balance	Payment	
2021	\$679,000	\$35,700	\$656,000	\$35,700	\$19,100
2022	685,000	50,800	661,000	49,000	27,400
2023	676,000	52,300	652,000	50,500	26,100
2024	665,000	53,900	642,000	52,000	25,000
2025	652,000	55,500	629,000	53,600	24,100
2026	636,000	57,200	613,000	55,200	23,400
2027	617,000	58,900	595,000	56,800	22,700
2028	596,000	60,700	575,000	58,500	22,200
2029	571,000	62,500	551,000	60,300	21,700
2030	543,000	64,400	524,000	62,100	21,300
2031	511,000	66,300	493,000	63,900	20,900
2032	475,000	68,300	458,000	65,900	20,300
2033	435,000	70,300	419,000	67,800	19,500
2034	390,000	72,400	376,000	69,900	18,900
2035	340,000	74,600	328,000	72,000	18,300
2036	284,000	76,800	274,000	74,100	17,700
2037	223,000	79,100	215,000	76,400	16,800
2038	156,000	81,500	150,000	78,600	16,000
2039	81,400	84,000	78,600	81,000	15,300

* 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.

Shiawassee Co (7602) – Division 17

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$875,000	\$35,700	\$852,000	\$35,700	\$19,100
2022	885,000	60,700	861,000	59,100	36,400
2023	870,000	62,500	847,000	60,900	34,700
2024	853,000	64,400	830,000	62,700	33,300
2025	832,000	66,300	810,000	64,600	32,100
2026	808,000	68,300	787,000	66,500	31,200
2027	782,000	70,400	760,000	68,500	30,300
2028	751,000	72,500	731,000	70,500	29,600
2029	717,000	74,700	698,000	72,700	29,000
2030	679,000	76,900	660,000	74,800	28,500
2031	636,000	79,200	619,000	77,100	28,000
2032	589,000	81,600	573,000	79,400	27,200
2033	536,000	84,000	522,000	81,800	26,200
2034	479,000	86,600	466,000	84,200	25,300
2035	415,000	89,200	404,000	86,800	24,600
2036	346,000	91,800	337,000	89,400	23,700
2037	270,000	94,600	263,000	92,000	22,500
2038	188,000	97,400	183,000	94,800	21,500
2039	97,800	100,000	95,200	97,700	20,600

* 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.

Supplemental Valuation Results – Division 19

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$12,200,000	\$1,780,000	\$12,200,000	\$1,780,000	\$6,600
2022	11,300,000	902,000	11,200,000	896,000	5,900
2023	11,200,000	929,000	11,100,000	923,000	4,600
2024	11,000,000	956,000	11,000,000	951,000	3,500
2025	10,900,000	985,000	10,800,000	979,000	2,700
2026	10,600,000	1,010,000	10,600,000	1,010,000	2,100
2027	10,400,000	1,050,000	10,300,000	1,040,000	1,500
2028	10,000,000	1,080,000	9,970,000	1,070,000	1,100
2029	9,660,000	1,110,000	9,600,000	1,100,000	780
2030	9,220,000	1,140,000	9,160,000	1,140,000	560
2031	8,710,000	1,180,000	8,660,000	1,170,000	410
2032	8,130,000	1,210,000	8,080,000	1,200,000	290
2033	7,470,000	1,250,000	7,430,000	1,240,000	200
2034	6,730,000	1,290,000	6,690,000	1,280,000	140
2035	5,890,000	1,320,000	5,860,000	1,320,000	110
2036	4,950,000	1,360,000	4,920,000	1,360,000	72
2037	3,910,000	1,400,000	3,880,000	1,400,000	60
2038	2,740,000	1,450,000	2,720,000	1,440,000	36
2039	1,440,000	1,490,000	1,430,000	1,480,000	24

* 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.

Shiawassee Co (7602) – Division 19

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$13,500,000	\$1,780,000	\$13,400,000	\$1,780,000	\$6,600
2022	12,500,000	929,000	12,500,000	924,000	8,100
2023	12,400,000	957,000	12,300,000	952,000	6,200
2024	12,200,000	985,000	12,100,000	980,000	4,800
2025	11,900,000	1,010,000	11,900,000	1,010,000	3,700
2026	11,600,000	1,050,000	11,600,000	1,040,000	2,800
2027	11,300,000	1,080,000	11,200,000	1,070,000	2,000
2028	10,900,000	1,110,000	10,800,000	1,100,000	1,500
2029	10,400,000	1,140,000	10,400,000	1,140,000	1,100
2030	9,920,000	1,180,000	9,870,000	1,170,000	770
2031	9,340,000	1,210,000	9,290,000	1,210,000	550
2032	8,680,000	1,250,000	8,640,000	1,240,000	400
2033	7,950,000	1,290,000	7,900,000	1,280,000	290
2034	7,120,000	1,320,000	7,090,000	1,320,000	200
2035	6,210,000	1,360,000	6,180,000	1,360,000	140
2036	5,200,000	1,400,000	5,170,000	1,400,000	110
2037	4,080,000	1,450,000	4,060,000	1,440,000	72
2038	2,850,000	1,490,000	2,830,000	1,480,000	48
2039	1,490,000	1,540,000	1,480,000	1,530,000	36

* 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.

Shiawassee Co (7602) – Division 19

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$15,000,000	\$1,780,000	\$14,900,000	\$1,780,000	\$6,600
2022	14,000,000	959,000	13,900,000	954,000	11,100
2023	13,700,000	987,000	13,700,000	983,000	8,500
2024	13,500,000	1,020,000	13,400,000	1,010,000	6,600
2025	13,100,000	1,050,000	13,100,000	1,040,000	5,100
2026	12,800,000	1,080,000	12,700,000	1,070,000	3,800
2027	12,300,000	1,110,000	12,300,000	1,110,000	2,800
2028	11,900,000	1,140,000	11,800,000	1,140,000	2,000
2029	11,300,000	1,180,000	11,300,000	1,170,000	1,500
2030	10,700,000	1,210,000	10,700,000	1,210,000	1,000
2031	10,000,000	1,250,000	9,990,000	1,240,000	760
2032	9,290,000	1,290,000	9,250,000	1,280,000	540
2033	8,470,000	1,330,000	8,430,000	1,320,000	380
2034	7,560,000	1,370,000	7,520,000	1,360,000	280
2035	6,560,000	1,410,000	6,530,000	1,400,000	200
2036	5,470,000	1,450,000	5,440,000	1,440,000	140
2037	4,270,000	1,490,000	4,250,000	1,490,000	110
2038	2,960,000	1,540,000	2,950,000	1,530,000	72
2039	1,540,000	1,580,000	1,540,000	1,580,000	48

* 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.



Supplemental Valuation Results – Division 20

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$94,700	(\$3,900)	\$5,800	(\$3,900)	\$43,000
2022	106,000	9,600	10,300	940	38,200
2023	104,000	9,900	10,100	960	35,700
2024	101,000	10,200	9,800	990	32,700
2025	97,800	10,500	9,500	1,000	29,400
2026	94,100	10,800	9,200	1,100	26,800
2027	89,800	11,100	8,700	1,100	23,500
2028	84,900	11,500	8,300	1,100	19,800
2029	79,300	11,800	7,700	1,100	17,000
2030	72,900	12,200	7,100	1,200	13,500
2031	65,600	12,500	6,400	1,200	9,600
2032	57,400	12,900	5,600	1,300	6,700
2033	48,300	13,300	4,700	1,300	4,600
2034	38,100	13,700	3,700	1,300	3,200
2035	26,700	14,100	2,600	1,400	2,100
2036	14,000	14,500	1,400	1,400	1,300

* 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.

Shiawassee Co (7602) – Division 20

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$583,000	(\$3,900)	\$494,000	(\$3,900)	\$43,000
2022	624,000	53,200	529,000	45,100	50,800
2023	609,000	54,800	517,000	46,500	47,500
2024	591,000	56,400	501,000	47,800	43,600
2025	570,000	58,100	484,000	49,300	39,200
2026	547,000	59,800	464,000	50,800	35,800
2027	520,000	61,600	441,000	52,300	31,500
2028	489,000	63,500	415,000	53,900	26,500
2029	455,000	65,400	386,000	55,500	22,800
2030	416,000	67,300	353,000	57,100	18,200
2031	373,000	69,400	317,000	58,800	12,900
2032	325,000	71,400	276,000	60,600	9,100
2033	272,000	73,600	231,000	62,400	6,300
2034	214,000	75,800	181,000	64,300	4,300
2035	149,000	78,100	126,000	66,200	2,800
2036	78,000	80,400	66,200	68,200	1,800

* 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.

Shiawassee Co (7602) – Division 20

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$1,190,000	(\$3,900)	\$1,100,000	(\$3,900)	\$43,000
2022	1,250,000	100,000	1,160,000	92,600	67,600
2023	1,220,000	103,000	1,130,000	95,400	63,200
2024	1,180,000	106,000	1,090,000	98,200	58,100
2025	1,130,000	109,000	1,050,000	101,000	52,300
2026	1,080,000	113,000	1,000,000	104,000	48,000
2027	1,020,000	116,000	947,000	107,000	42,300
2028	959,000	119,000	887,000	111,000	35,600
2029	888,000	123,000	821,000	114,000	30,700
2030	809,000	127,000	748,000	117,000	24,500
2031	722,000	131,000	668,000	121,000	17,400
2032	626,000	134,000	580,000	124,000	12,200
2033	522,000	138,000	483,000	128,000	8,400
2034	408,000	143,000	377,000	132,000	5,800
2035	283,000	147,000	262,000	136,000	3,800
2036	147,000	151,000	136,000	140,000	2,400

* 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.



Supplemental Valuation Results – Division 21

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$6,030,000	\$433,000	\$5,930,000	\$433,000	\$16,600
2022	6,030,000	482,000	5,920,000	473,000	8,000
2023	5,970,000	496,000	5,860,000	487,000	5,700
2024	5,890,000	511,000	5,790,000	502,000	4,100
2025	5,800,000	526,000	5,690,000	517,000	2,900
2026	5,680,000	542,000	5,580,000	532,000	1,900
2027	5,530,000	559,000	5,430,000	548,000	1,300
2028	5,360,000	575,000	5,270,000	565,000	790
2029	5,160,000	593,000	5,070,000	582,000	490
2030	4,930,000	610,000	4,840,000	599,000	310
2031	4,660,000	629,000	4,570,000	617,000	190
2032	4,350,000	647,000	4,270,000	636,000	120
2033	3,990,000	667,000	3,920,000	655,000	72
2034	3,600,000	687,000	3,530,000	674,000	48
2035	3,150,000	708,000	3,090,000	695,000	24
2036	2,650,000	729,000	2,600,000	716,000	12
2037	2,090,000	751,000	2,050,000	737,000	12
2038	1,460,000	773,000	1,440,000	759,000	12
2039	769,000	796,000	755,000	782,000	0

* 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.



Shiawassee Co (7602) – Division 21

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$7,150,000	\$433,000	\$7,050,000	\$433,000	\$16,600
2022	7,160,000	531,000	7,050,000	523,000	11,000
2023	7,070,000	547,000	6,960,000	539,000	7,900
2024	6,950,000	563,000	6,850,000	555,000	5,600
2025	6,810,000	580,000	6,710,000	571,000	3,900
2026	6,650,000	598,000	6,540,000	589,000	2,700
2027	6,450,000	616,000	6,350,000	606,000	1,700
2028	6,230,000	634,000	6,130,000	624,000	1,100
2029	5,970,000	653,000	5,880,000	643,000	680
2030	5,670,000	673,000	5,590,000	662,000	420
2031	5,340,000	693,000	5,260,000	682,000	260
2032	4,960,000	714,000	4,890,000	703,000	160
2033	4,540,000	735,000	4,470,000	724,000	96
2034	4,070,000	757,000	4,010,000	746,000	60
2035	3,550,000	780,000	3,500,000	768,000	36
2036	2,970,000	803,000	2,930,000	791,000	24
2037	2,330,000	827,000	2,300,000	815,000	12
2038	1,630,000	852,000	1,600,000	839,000	12
2039	851,000	878,000	838,000	864,000	0

* 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.

Shiawassee Co (7602) – Division 21

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$8,510,000	\$433,000	\$8,410,000	\$433,000	\$16,600
2022	8,520,000	584,000	8,410,000	577,000	15,100
2023	8,370,000	602,000	8,270,000	594,000	10,800
2024	8,200,000	620,000	8,100,000	612,000	7,700
2025	8,010,000	638,000	7,910,000	630,000	5,400
2026	7,780,000	658,000	7,680,000	649,000	3,700
2027	7,520,000	677,000	7,430,000	669,000	2,400
2028	7,230,000	698,000	7,140,000	689,000	1,500
2029	6,900,000	719,000	6,810,000	710,000	940
2030	6,530,000	740,000	6,450,000	731,000	580
2031	6,120,000	762,000	6,040,000	753,000	360
2032	5,660,000	785,000	5,590,000	775,000	220
2033	5,160,000	809,000	5,100,000	799,000	130
2034	4,610,000	833,000	4,550,000	823,000	84
2035	4,000,000	858,000	3,950,000	847,000	48
2036	3,330,000	884,000	3,290,000	873,000	36
2037	2,600,000	910,000	2,570,000	899,000	24
2038	1,810,000	938,000	1,780,000	926,000	12
2039	941,000	966,000	929,000	954,000	12

* 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.



Supplemental Valuation Results – Division 22

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$780,000	\$95,300	\$704,000	\$95,300	\$50,200
2022	739,000	79,200	657,000	70,500	54,100
2023	711,000	81,600	632,000	72,600	49,200
2024	678,000	84,100	604,000	74,800	44,400
2025	641,000	86,600	571,000	77,000	39,600
2026	599,000	89,200	533,000	79,400	33,300
2027	550,000	91,900	490,000	81,700	25,700
2028	495,000	94,600	441,000	84,200	18,400
2029	434,000	97,500	386,000	86,700	13,100
2030	365,000	100,000	324,000	89,300	9,100
2031	287,000	103,000	256,000	92,000	6,200
2032	201,000	106,000	179,000	94,800	4,200
2033	106,000	110,000	94,200	97,600	2,800

* 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.

Shiawassee Co (7602) – Division 22

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of	Amortization Payment	Beginning of	Amortization Payment	
	Year UAL Balance		Year UAL Balance		
2021	\$1,340,000	\$95,300	\$1,260,000	\$95,300	\$50,200
2022	1,320,000	135,000	1,240,000	127,000	74,200
2023	1,270,000	139,000	1,190,000	130,000	67,300
2024	1,210,000	143,000	1,130,000	134,000	60,800
2025	1,130,000	147,000	1,070,000	138,000	54,100
2026	1,050,000	152,000	990,000	142,000	45,500
2027	965,000	156,000	906,000	147,000	35,100
2028	865,000	161,000	813,000	151,000	25,200
2029	754,000	166,000	709,000	156,000	17,900
2030	631,000	171,000	593,000	160,000	12,400
2031	496,000	176,000	465,000	165,000	8,500
2032	346,000	181,000	325,000	170,000	5,700
2033	181,000	187,000	170,000	175,000	3,800

* 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.

Shiawassee Co (7602) – Division 22

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$2,030,000	\$95,300	\$1,950,000	\$95,300	\$50,200
2022	2,040,000	197,000	1,960,000	189,000	101,000
2023	1,950,000	203,000	1,870,000	195,000	91,800
2024	1,840,000	209,000	1,770,000	201,000	82,900
2025	1,730,000	215,000	1,660,000	207,000	73,900
2026	1,600,000	222,000	1,540,000	213,000	62,000
2027	1,460,000	228,000	1,400,000	219,000	47,800
2028	1,300,000	235,000	1,250,000	226,000	34,300
2029	1,130,000	242,000	1,080,000	233,000	24,400
2030	940,000	249,000	903,000	240,000	16,900
2031	734,000	257,000	705,000	247,000	11,500
2032	510,000	265,000	490,000	254,000	7,700
2033	266,000	272,000	255,000	262,000	5,100

* 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.

Supplemental Valuation Results – Division 26

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$163,000	\$10,600	\$81,900	\$10,600	\$53,400
2022	164,000	16,500	76,900	7,800	69,600
2023	159,000	17,000	74,500	8,000	70,200
2024	153,000	17,500	71,700	8,200	69,600
2025	146,000	18,000	68,400	8,500	67,000
2026	138,000	18,600	64,700	8,700	60,700
2027	128,000	19,100	60,400	9,000	51,600
2028	118,000	19,700	55,500	9,300	43,800
2029	106,000	20,300	50,000	9,500	38,300
2030	93,100	20,900	43,700	9,800	33,300
2031	78,300	21,500	36,800	10,100	28,600
2032	61,700	22,200	29,000	10,400	25,100
2033	43,200	22,900	20,300	10,700	22,700
2034	22,700	23,500	10,700	11,100	18,600

* 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.

Shiawassee Co (7602) – Division 26

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$697,000	\$10,600	\$616,000	\$10,600	\$53,400
2022	730,000	69,700	644,000	61,500	94,100
2023	705,000	71,800	622,000	63,300	95,000
2024	675,000	73,900	596,000	65,200	94,200
2025	642,000	76,100	566,000	67,200	90,700
2026	604,000	78,400	533,000	69,200	82,200
2027	562,000	80,800	496,000	71,300	69,800
2028	514,000	83,200	454,000	73,400	59,400
2029	461,000	85,700	407,000	75,600	51,900
2030	402,000	88,200	355,000	77,900	45,300
2031	336,000	90,900	297,000	80,200	38,900
2032	264,000	93,600	233,000	82,600	34,200
2033	184,000	96,400	162,000	85,100	31,000
2034	96,300	99,300	85,000	87,600	25,500

* 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.



Shiawassee Co (7602) – Division 26

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of		Beginning of		
	Year UAL Balance	Amortization Payment	Year UAL Balance	Amortization Payment	
2021	\$1,360,000	\$10,600	\$1,280,000	\$10,600	\$53,400
2022	1,420,000	128,000	1,340,000	121,000	127,000
2023	1,370,000	132,000	1,290,000	124,000	128,000
2024	1,310,000	136,000	1,230,000	128,000	127,000
2025	1,240,000	140,000	1,160,000	132,000	123,000
2026	1,160,000	144,000	1,090,000	136,000	111,000
2027	1,070,000	149,000	1,010,000	140,000	94,400
2028	977,000	153,000	919,000	144,000	80,400
2029	872,000	158,000	820,000	148,000	70,400
2030	757,000	163,000	712,000	153,000	61,500
2031	631,000	167,000	593,000	157,000	52,900
2032	493,000	172,000	463,000	162,000	46,600
2033	342,000	178,000	322,000	167,000	42,300
2034	178,000	183,000	168,000	172,000	34,800

* 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.

Supplemental Valuation Results – Division 27

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$18,200	\$5,400	\$9,100	\$5,400	\$37,900
2022	14,000	1,700	4,300	530	39,500
2023	13,200	1,800	4,000	540	39,700
2024	12,300	1,800	3,800	560	39,100
2025	11,300	1,900	3,500	580	37,300
2026	10,200	1,900	3,100	600	35,600
2027	8,900	2,000	2,700	610	34,300
2028	7,500	2,100	2,300	630	33,400
2029	5,900	2,100	1,800	650	32,700
2030	4,100	2,200	1,300	670	32,300
2031	2,200	2,300	670	690	32,000

* 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.

Shiawassee Co (7602) – Division 27

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$101,000	\$5,400	\$91,600	\$5,400	\$37,900
2022	101,000	12,000	91,900	10,900	53,600
2023	95,500	12,400	86,500	11,200	53,800
2024	88,800	12,800	80,400	11,600	53,000
2025	81,300	13,100	73,600	11,900	50,800
2026	72,900	13,500	66,000	12,300	48,800
2027	63,500	14,000	57,500	12,600	47,300
2028	53,200	14,400	48,100	13,000	46,200
2029	41,700	14,800	37,800	13,400	45,500
2030	29,100	15,200	26,400	13,800	45,000
2031	15,200	15,700	13,800	14,200	44,700

* 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.

Shiawassee Co (7602) – Division 27

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$209,000	\$5,400	\$200,000	\$5,400	\$37,900
2022	215,000	24,300	205,000	23,300	72,400
2023	201,000	25,100	192,000	24,000	72,700
2024	186,000	25,800	178,000	24,700	71,600
2025	170,000	26,600	162,000	25,400	68,800
2026	151,000	27,400	145,000	26,200	66,400
2027	131,000	28,200	126,000	27,000	64,700
2028	110,000	29,100	105,000	27,800	63,500
2029	85,600	29,900	81,800	28,600	62,700
2030	59,400	30,800	56,800	29,500	62,200
2031	30,900	31,800	29,600	30,300	62,000

* 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.

Supplemental Valuation Results – Division 80

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$122,000	\$10,600	\$90,400	\$10,600	\$37,400
2022	120,000	12,800	86,100	9,200	37,500
2023	115,000	13,200	82,900	9,500	35,600
2024	110,000	13,600	79,100	9,800	34,200
2025	104,000	14,000	74,800	10,100	33,000
2026	97,000	14,500	69,800	10,400	32,100
2027	89,200	14,900	64,100	10,700	31,200
2028	80,300	15,300	57,800	11,000	29,900
2029	70,300	15,800	50,600	11,400	28,500
2030	59,100	16,300	42,500	11,700	27,100
2031	46,600	16,800	33,500	12,100	25,500
2032	32,700	17,300	23,500	12,400	23,900
2033	17,200	17,800	12,300	12,800	22,600

* 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.

Shiawassee Co (7602) – Division 80

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$315,000	\$10,600	\$283,000	\$10,600	\$37,400
2022	324,000	33,000	290,000	29,600	48,500
2023	310,000	34,000	278,000	30,500	46,100
2024	295,000	35,000	265,000	31,400	44,300
2025	278,000	36,000	249,000	32,300	42,900
2026	258,000	37,100	232,000	33,300	41,700
2027	236,000	38,200	212,000	34,300	40,500
2028	212,000	39,400	190,000	35,300	38,900
2029	185,000	40,600	166,000	36,400	37,100
2030	155,000	41,800	139,000	37,500	35,400
2031	121,000	43,000	109,000	38,600	33,400
2032	84,600	44,300	75,900	39,800	31,400
2033	44,300	45,600	39,700	40,900	29,800

* 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.

Shiawassee Co (7602) – Division 80

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$553,000	\$10,600	\$522,000	\$10,600	\$37,400
2022	572,000	55,200	539,000	52,000	62,900
2023	546,000	56,900	515,000	53,600	60,000
2024	517,000	58,600	487,000	55,200	57,700
2025	484,000	60,300	456,000	56,900	55,800
2026	448,000	62,200	423,000	58,600	54,400
2027	409,000	64,000	385,000	60,300	52,900
2028	365,000	65,900	344,000	62,100	50,900
2029	316,000	67,900	298,000	64,000	48,600
2030	264,000	70,000	248,000	65,900	46,400
2031	206,000	72,100	194,000	67,900	43,800
2032	143,000	74,200	135,000	69,900	41,300
2033	74,500	76,400	70,200	72,000	39,200

* 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.

Supplemental Valuation Results – Division 81

Shiawassee Co (7602)

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 7.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$259,000	\$18,700	\$221,000	\$18,700	\$25,200
2022	259,000	27,700	218,000	23,400	25,600
2023	249,000	28,600	210,000	24,100	23,700
2024	238,000	29,400	200,000	24,800	21,600
2025	224,000	30,300	189,000	25,600	19,300
2026	210,000	31,200	177,000	26,300	17,200
2027	193,000	32,200	162,000	27,100	15,500
2028	173,000	33,100	146,000	27,900	13,900
2029	152,000	34,100	128,000	28,800	12,400
2030	128,000	35,100	108,000	29,600	11,100
2031	101,000	36,200	84,900	30,500	10,000
2032	70,500	37,300	59,500	31,400	8,800
2033	37,100	38,400	31,300	32,400	7,700

* 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.

Shiawassee Co (7602) – Division 81

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 6.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of	Amortization Payment	Beginning of	Amortization Payment	
	Year UAL Balance		Year UAL Balance		
2021	\$512,000	\$18,700	\$474,000	\$18,700	\$25,200
2022	525,000	53,500	485,000	49,400	33,200
2023	503,000	55,100	465,000	50,900	30,900
2024	479,000	56,800	442,000	52,400	28,300
2025	450,000	58,500	416,000	54,000	25,300
2026	419,000	60,200	387,000	55,600	22,600
2027	383,000	62,000	354,000	57,300	20,400
2028	344,000	63,900	317,000	59,000	18,300
2029	300,000	65,800	277,000	60,800	16,400
2030	251,000	67,800	232,000	62,600	14,700
2031	197,000	69,800	182,000	64,500	13,300
2032	137,000	71,900	127,000	66,400	11,900
2033	71,800	74,100	66,300	68,400	10,300

* 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.

Shiawassee Co (7602) – Division 81

Projected Amortization Payments and Projected Employer Normal Cost Contributions Based on December 31, 2020 Actuarial Valuation Data Using 5.35% Interest Rate and 3.00% Wage Inflation*^

Calendar Year Beginning January 1,	Based on the Actuarial Value of Assets		Based on the Market Value of Assets		Employer Normal Cost Contribution
	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment	
2021	\$824,000	\$18,700	\$786,000	\$18,700	\$25,200
2022	848,000	81,900	809,000	78,100	43,300
2023	810,000	84,400	772,000	80,400	40,300
2024	766,000	86,900	731,000	82,800	37,000
2025	718,000	89,500	685,000	85,300	33,200
2026	665,000	92,200	634,000	87,900	29,800
2027	606,000	94,900	577,000	90,500	27,000
2028	541,000	97,800	515,000	93,200	24,300
2029	469,000	101,000	447,000	96,000	21,700
2030	391,000	104,000	373,000	98,900	19,600
2031	305,000	107,000	291,000	102,000	17,800
2032	212,000	110,000	202,000	105,000	15,900
2033	110,000	113,000	105,000	108,000	13,900

* 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 2020 was 8.17%.

As of December 31, 2020, the actuarial value of assets is 97% of market value due to asset smoothing. This means that the rate of return on the actuarial value of assets should exceed the actuarial assumption in the next few years provided that the annual market returns exceed the 7.35% investment return assumption. When all assumptions are met, contribution rates are expected to stay approximately level as a percent of payroll (dollar amounts are expected to increase with wage inflation of 3.0% each year).

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 in this report 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. Valuation results are developed through the use of multiple models.

Valuation liabilities were 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 and has no material limitations or known weaknesses.

Financial results were 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 valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.



SHIAWASSEE COUNTY

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



Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions
Actuarial Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,140,000	546,387	590,000	1,136,387	1,308,333	271,492	2,716,212	423,788	417,215	416,943
2023	3,230,000	1,451,209	1,600,000	3,051,209		279,273	3,330,482	(100,482)	(94,855)	(94,628)
2024	3,330,000	1,404,329	1,650,000	3,054,329		287,919	3,342,248	(12,248)	(11,087)	(11,041)
2025	3,430,000	1,354,334	1,700,000	3,054,334		296,566	3,350,900	79,100	68,655	68,252
2026	3,530,000	1,299,084	1,755,000	3,054,084		305,212	3,359,296	170,704	142,068	140,988
2027	3,640,000	1,239,590	1,815,000	3,054,590		314,723	3,369,312	270,688	216,014	213,998
2028	3,740,000	1,176,246	1,875,000	3,051,246		323,369	3,374,615	365,385	279,592	276,499
2029	3,850,000	1,108,371	1,945,000	3,053,371		332,880	3,386,251	463,749	340,266	335,914
2030	3,970,000	1,036,017	2,015,000	3,051,017		343,255	3,394,272	575,728	405,054	399,176
2031	4,090,000	959,447	2,090,000	3,049,447		353,631	3,403,078	686,922	463,409	455,887
2032	4,210,000	877,937	2,175,000	3,052,937		364,006	3,416,943	793,057	513,005	503,798
2033	4,330,000	790,937	2,260,000	3,050,937		374,382	3,425,319	904,681	561,143	550,111
2034	4,290,000	697,147	2,355,000	3,052,147		370,923	3,423,070	866,930	515,611	504,593
2035	4,400,000	597,060	2,455,000	3,052,060		380,434	3,432,494	967,506	551,763	539,030
2036	4,530,000	490,267	2,560,000	3,050,267		391,674	3,441,941	1,088,059	594,993	580,249
2037	4,650,000	376,347	2,675,000	3,051,347		402,050	3,453,397	1,196,603	627,437	610,822
2038	4,790,000	254,635	2,795,000	3,049,635		414,154	3,463,789	1,326,211	666,797	648,006
2039	4,930,000	130,816	2,920,000	3,050,816		426,259	3,477,075	1,452,925	700,462	679,535
	\$ 72,080,000	\$ 15,790,159	\$ 37,230,000	\$ 53,020,159	\$ 1,308,333	\$ 6,232,201	\$ 60,560,693	\$ 11,519,307	\$ 6,957,543	\$ 6,818,133

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$36,335,636 payment towards UAL, leaving 8.65% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$36,335,636

Estimated Bond Amount: \$37,230,000

Arbitrage Yield: 4.289%

All-In TIC: 4.471%

NPV Savings as % of Principal based on Arb. Yield: 18.69%

NPV Savings as % of Principal based on All-In TIC: 18.31%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions +50 Basis Points
Actuarial Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,140,000	617,361	565,000	1,182,361	1,308,333	271,492	2,762,186	377,814	371,283	371,038
2023	3,230,000	1,639,769	1,535,000	3,174,769		279,273	3,454,042	(224,042)	(210,093)	(209,583)
2024	3,330,000	1,587,118	1,585,000	3,172,118		287,919	3,460,037	(130,037)	(116,360)	(115,873)
2025	3,430,000	1,531,168	1,645,000	3,176,168		296,566	3,472,733	(42,733)	(36,489)	(36,271)
2026	3,530,000	1,469,480	1,705,000	3,174,480		305,212	3,479,692	50,308	40,991	40,675
2027	3,640,000	1,403,156	1,770,000	3,173,156		314,723	3,487,878	152,122	118,275	117,156
2028	3,740,000	1,332,533	1,840,000	3,172,533		323,369	3,495,901	244,099	181,102	179,070
2029	3,850,000	1,256,725	1,915,000	3,171,725		332,880	3,504,604	345,396	244,528	241,358
2030	3,970,000	1,175,912	2,000,000	3,175,912		343,255	3,519,167	450,833	304,567	300,087
2031	4,090,000	1,089,912	2,085,000	3,174,912		353,631	3,528,542	561,458	361,943	355,987
2032	4,210,000	998,172	2,175,000	3,173,172		364,006	3,537,178	672,822	413,883	406,353
2033	4,330,000	900,297	2,275,000	3,175,297		374,382	3,549,678	780,322	458,043	448,914
2034	4,290,000	794,509	2,380,000	3,174,509		370,923	3,545,432	744,568	417,054	408,018
2035	4,400,000	681,459	2,490,000	3,171,459		380,434	3,551,893	848,107	453,308	442,703
2036	4,530,000	560,694	2,615,000	3,175,694		391,674	3,567,368	962,632	490,973	478,639
2037	4,650,000	431,252	2,745,000	3,176,252		402,050	3,578,301	1,071,699	521,586	507,583
2038	4,790,000	292,629	2,880,000	3,172,629		414,154	3,586,783	1,203,217	558,794	542,830
2039	4,930,000	150,645	3,025,000	3,175,645		426,259	3,601,904	1,328,096	588,562	570,737
	\$ 72,080,000	\$ 17,912,786	\$ 37,230,000	\$ 55,142,786	\$ 1,308,333	\$ 6,232,201	\$ 62,683,321	\$ 9,396,679	\$ 5,161,950	\$ 5,049,421

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$36,335,636 payment towards UAL, leaving 8.65% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$36,335,636

Estimated Bond Amount: \$37,230,000

Arbitrage Yield: 4.796%

All-In TIC: 4.982%

NPV Savings as % of Principal based on Arb. Yield: 13.87%

NPV Savings as % of Principal based on All-In TIC: 13.56%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions -50 Basis Points
Actuarial Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,140,000	475,464	615,000	1,090,464	1,308,333	271,492	2,670,289	469,711	463,264	462,967
2023	3,230,000	1,263,038	1,670,000	2,933,038		279,273	3,212,311	17,689	16,811	16,771
2024	3,330,000	1,222,457	1,710,000	2,932,457		287,919	3,220,376	109,624	100,381	99,972
2025	3,430,000	1,179,194	1,755,000	2,934,194		296,566	3,230,759	199,241	175,793	174,775
2026	3,530,000	1,130,931	1,800,000	2,930,931		305,212	3,236,143	293,857	249,823	247,950
2027	3,640,000	1,078,911	1,855,000	2,933,911		314,723	3,248,634	391,366	320,594	317,643
2028	3,740,000	1,023,447	1,910,000	2,933,447		323,369	3,256,815	483,185	381,381	377,221
2029	3,850,000	963,855	1,970,000	2,933,855		332,880	3,266,734	583,266	443,596	438,002
2030	3,970,000	900,421	2,030,000	2,930,421		343,255	3,273,676	696,324	510,279	502,977
2031	4,090,000	833,431	2,100,000	2,933,431		353,631	3,287,061	802,939	566,961	557,887
2032	4,210,000	762,031	2,170,000	2,932,031		364,006	3,296,037	913,963	621,834	610,830
2033	4,330,000	686,081	2,245,000	2,931,081		374,382	3,305,462	1,024,538	671,658	658,638
2034	4,290,000	604,138	2,330,000	2,934,138		370,923	3,305,061	984,939	622,163	609,053
2035	4,400,000	516,763	2,415,000	2,931,763		380,434	3,312,197	1,087,803	662,095	647,028
2036	4,530,000	423,786	2,510,000	2,933,786		391,674	3,325,460	1,204,540	706,425	689,162
2037	4,650,000	324,641	2,610,000	2,934,641		402,050	3,336,690	1,313,310	742,141	722,761
2038	4,790,000	218,936	2,715,000	2,933,936		414,154	3,348,090	1,441,910	785,113	763,295
2039	4,930,000	112,236	2,820,000	2,932,236		426,259	3,358,495	1,571,505	824,489	800,198
	\$ 72,080,000	\$ 13,719,755	\$ 37,230,000	\$ 50,949,755	\$ 1,308,333	\$ 6,232,201	\$ 58,490,290	\$ 13,589,710	\$ 8,864,801	\$ 8,697,131

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$36,335,636 payment towards UAL, leaving 8.65% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$36,335,636

Estimated Bond Amount: \$37,230,000

Arbitrage Yield: 3.783%

All-In TIC: 3.962%

NPV Savings as % of Principal based on Arb. Yield: 23.81%

NPV Savings as % of Principal based on All-In TIC: 23.36%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 6.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions
Actuarial Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,530,000	546,387	590,000	1,136,387	1,470,833	818,271	3,425,491	104,509	102,888	102,821
2023	3,640,000	1,451,209	1,600,000	3,051,209		843,769	3,894,978	(254,978)	(240,699)	(240,123)
2024	3,740,000	1,404,329	1,650,000	3,054,329		866,950	3,921,279	(181,279)	(164,089)	(163,411)
2025	3,860,000	1,354,334	1,700,000	3,054,334		894,766	3,949,100	(89,100)	(77,334)	(76,880)
2026	3,970,000	1,299,084	1,755,000	3,054,084		920,265	3,974,349	(4,349)	(3,619)	(3,592)
2027	4,090,000	1,239,590	1,815,000	3,054,590		948,081	4,002,671	87,329	69,690	69,040
2028	4,200,000	1,176,246	1,875,000	3,051,246		973,580	4,024,826	175,174	134,043	132,560
2029	4,330,000	1,108,371	1,945,000	3,053,371		1,003,715	4,057,086	272,914	200,245	197,684
2030	4,460,000	1,036,017	2,015,000	3,051,017		1,033,849	4,084,866	375,134	263,926	260,096
2031	4,590,000	959,447	2,090,000	3,049,447		1,063,984	4,113,431	476,569	321,501	316,283
2032	4,710,000	877,937	2,175,000	3,052,937		1,091,800	4,144,737	565,263	365,652	359,089
2033	4,860,000	790,937	2,260,000	3,050,937		1,126,571	4,177,508	682,492	423,326	415,004
2034	4,690,000	697,147	2,355,000	3,052,147		1,087,164	4,139,311	550,689	327,525	320,526
2035	4,720,000	597,060	2,455,000	3,052,060		1,094,118	4,146,178	573,822	327,247	319,696
2036	4,870,000	490,267	2,560,000	3,050,267		1,128,889	4,179,156	690,844	377,780	368,419
2037	4,930,000	376,347	2,675,000	3,051,347		1,142,797	4,194,144	735,856	385,845	375,627
2038	5,080,000	254,635	2,795,000	3,049,635		1,177,568	4,227,203	852,797	428,772	416,689
2039	5,230,000	130,816	2,920,000	3,050,816		1,212,339	4,263,155	966,845	466,121	452,195
	\$ 79,500,000	\$ 15,790,159	\$ 37,230,000	\$ 53,020,159	\$ 1,470,833	\$ 18,428,477	\$ 72,919,469	\$ 6,580,531	\$ 3,708,821	\$ 3,621,723

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$36,335,636 payment towards UAL, leaving 23.18% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$36,335,636

Estimated Bond Amount: \$37,230,000

Arbitrage Yield: 4.289%

All-In TIC: 4.471%

NPV Savings as % of Principal based on Arb. Yield: 9.96%

NPV Savings as % of Principal based on All-In TIC: 9.73%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 6.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions +50 Basis Points
Actuarial Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,530,000	617,361	565,000	1,182,361	1,470,833	818,271	3,471,466	58,534	57,523	57,485
2023	3,640,000	1,639,769	1,535,000	3,174,769		843,769	4,018,538	(378,538)	(354,970)	(354,109)
2024	3,740,000	1,587,118	1,585,000	3,172,118		866,950	4,039,068	(299,068)	(267,613)	(266,491)
2025	3,860,000	1,531,168	1,645,000	3,176,168		894,766	4,070,934	(210,934)	(180,110)	(179,038)
2026	3,970,000	1,469,480	1,705,000	3,174,480		920,265	4,094,745	(124,745)	(101,641)	(100,858)
2027	4,090,000	1,403,156	1,770,000	3,173,156		948,081	4,121,237	(31,237)	(24,287)	(24,057)
2028	4,200,000	1,332,533	1,840,000	3,172,533		973,580	4,146,112	53,888	39,980	39,532
2029	4,330,000	1,256,725	1,915,000	3,171,725		1,003,715	4,175,439	154,561	109,424	108,005
2030	4,460,000	1,175,912	2,000,000	3,175,912		1,033,849	4,209,761	250,239	169,053	166,566
2031	4,590,000	1,089,912	2,085,000	3,174,912		1,063,984	4,238,895	351,105	226,339	222,615
2032	4,710,000	998,172	2,175,000	3,173,172		1,091,800	4,264,972	445,028	273,757	268,776
2033	4,860,000	900,297	2,275,000	3,175,297		1,126,571	4,301,868	558,132	327,620	321,090
2034	4,690,000	794,509	2,380,000	3,174,509		1,087,164	4,261,673	428,327	239,918	234,720
2035	4,720,000	681,459	2,490,000	3,171,459		1,094,118	4,265,577	454,423	242,886	237,204
2036	4,870,000	560,694	2,615,000	3,175,694		1,128,889	4,304,583	565,417	288,381	281,136
2037	4,930,000	431,252	2,745,000	3,176,252		1,142,797	4,319,049	610,951	297,344	289,361
2038	5,080,000	292,629	2,880,000	3,172,629		1,177,568	4,350,197	729,803	338,933	329,250
2039	5,230,000	150,645	3,025,000	3,175,645		1,212,339	4,387,984	842,016	373,150	361,849
	\$ 79,500,000	\$ 17,912,786	\$ 37,230,000	\$ 55,142,786	\$ 1,470,833	\$ 18,428,477	\$ 75,042,096	\$ 4,457,904	\$ 2,055,686	\$ 1,993,037

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$36,335,636 payment towards UAL, leaving 23.18% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$36,335,636

Estimated Bond Amount: \$37,230,000

Arbitrage Yield: 4.796%

All-In TIC: 4.982%

NPV Savings as % of Principal based on Arb. Yield: 5.52%

NPV Savings as % of Principal based on All-In TIC: 5.35%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 6.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions -50 Basis Points
Actuarial Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,530,000	475,464	615,000	1,090,464	1,470,833	818,271	3,379,568	150,432	148,367	148,272
2023	3,640,000	1,263,038	1,670,000	2,933,038		843,769	3,776,807	(136,807)	(130,011)	(129,704)
2024	3,740,000	1,222,457	1,710,000	2,932,457		866,950	3,799,406	(59,406)	(54,398)	(54,176)
2025	3,860,000	1,179,194	1,755,000	2,934,194		894,766	3,828,960	31,040	27,387	27,229
2026	3,970,000	1,130,931	1,800,000	2,930,931		920,265	3,851,196	118,804	101,002	100,244
2027	4,090,000	1,078,911	1,855,000	2,933,911		948,081	3,881,992	208,008	170,393	168,824
2028	4,200,000	1,023,447	1,910,000	2,933,447		973,580	3,907,026	292,974	231,246	228,724
2029	4,330,000	963,855	1,970,000	2,933,855		1,003,715	3,937,569	392,431	298,459	294,695
2030	4,460,000	900,421	2,030,000	2,930,421		1,033,849	3,964,270	495,730	363,280	358,082
2031	4,590,000	833,431	2,100,000	2,933,431		1,063,984	3,997,414	592,586	418,429	411,733
2032	4,710,000	762,031	2,170,000	2,932,031		1,091,800	4,023,831	686,169	466,849	458,588
2033	4,860,000	686,081	2,245,000	2,931,081		1,126,571	4,057,652	802,348	525,997	515,800
2034	4,690,000	604,138	2,330,000	2,934,138		1,087,164	4,021,302	668,698	422,401	413,500
2035	4,720,000	516,763	2,415,000	2,931,763		1,094,118	4,025,881	694,119	422,477	412,864
2036	4,870,000	423,786	2,510,000	2,933,786		1,128,889	4,062,675	807,325	473,471	461,901
2037	4,930,000	324,641	2,610,000	2,934,641		1,142,797	4,077,438	852,562	481,776	469,195
2038	5,080,000	218,936	2,715,000	2,933,936		1,177,568	4,111,504	968,496	527,342	512,687
2039	5,230,000	112,236	2,820,000	2,932,236		1,212,339	4,144,575	1,085,425	569,467	552,690
	\$ 79,500,000	\$ 13,719,755	\$ 37,230,000	\$ 50,949,755	\$ 1,470,833	\$ 18,428,477	\$ 70,849,065	\$ 8,650,935	\$ 5,463,935	\$ 5,351,147

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$36,335,636 payment towards UAL, leaving 23.18% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$36,335,636

Estimated Bond Amount: \$37,230,000

Arbitrage Yield: 3.783%

All-In TIC: 3.962%

NPV Savings as % of Principal based on Arb. Yield: 14.68%

NPV Savings as % of Principal based on All-In TIC: 14.37%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 5.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions
Actuarial Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,960,000	546,387	590,000	1,136,387	1,650,000	1,399,695	4,186,083	(226,083)	(222,576)	(222,431)
2023	4,080,000	1,451,209	1,600,000	3,051,209		1,442,110	4,493,319	(413,319)	(390,173)	(389,239)
2024	4,200,000	1,404,329	1,650,000	3,054,329		1,484,525	4,538,854	(338,854)	(306,722)	(305,455)
2025	4,320,000	1,354,334	1,700,000	3,054,334		1,526,940	4,581,274	(261,274)	(226,772)	(225,441)
2026	4,450,000	1,299,084	1,755,000	3,054,084		1,572,890	4,626,974	(176,974)	(147,286)	(146,166)
2027	4,590,000	1,239,590	1,815,000	3,054,590		1,622,374	4,676,964	(86,964)	(69,399)	(68,751)
2028	4,710,000	1,176,246	1,875,000	3,051,246		1,664,789	4,716,035	(6,035)	(4,618)	(4,567)
2029	4,850,000	1,108,371	1,945,000	3,053,371		1,714,273	4,767,644	82,356	60,427	59,654
2030	4,990,000	1,036,017	2,015,000	3,051,017		1,763,758	4,814,775	175,225	123,280	121,491
2031	5,140,000	959,447	2,090,000	3,049,447		1,816,776	4,866,223	273,777	184,694	181,696
2032	5,260,000	877,937	2,175,000	3,052,937		1,859,191	4,912,128	347,872	225,028	220,989
2033	5,420,000	790,937	2,260,000	3,050,937		1,915,745	4,966,682	453,318	281,178	275,650
2034	5,110,000	697,147	2,355,000	3,052,147		1,806,173	4,858,320	251,680	149,688	146,489
2035	5,070,000	597,060	2,455,000	3,052,060		1,792,034	4,844,094	225,906	128,833	125,860
2036	5,230,000	490,267	2,560,000	3,050,267		1,848,588	4,898,855	331,145	181,083	176,596
2037	5,230,000	376,347	2,675,000	3,051,347		1,848,588	4,899,935	330,065	173,069	168,486
2038	5,380,000	254,635	2,795,000	3,049,635		1,901,606	4,951,241	428,759	215,573	209,498
2039	5,550,000	130,816	2,920,000	3,050,816		1,961,694	5,012,510	537,490	259,126	251,385
	\$ 87,540,000	\$ 15,790,159	\$ 37,230,000	\$ 53,020,159	\$ 1,650,000	\$ 30,941,751	\$ 85,611,910	\$ 1,928,090	\$ 614,432	\$ 575,744

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$36,335,636 payment towards UAL, leaving 35.35% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$36,335,636

Estimated Bond Amount: \$37,230,000

Arbitrage Yield: 4.289%

All-In TIC: 4.471%

NPV Savings as % of Principal based on Arb. Yield: 1.65%

NPV Savings as % of Principal based on All-In TIC: 1.55%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 5.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions +50 Basis Points
Actuarial Value

Calendar Year Beginning January 1	Without Bonding		With Bonding					Savings		
	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)
2022	3,960,000	617,361	565,000	1,182,361	1,650,000	1,399,695	4,232,057	(272,057)	(267,354)	(267,178)
2023	4,080,000	1,639,769	1,535,000	3,174,769		1,442,110	4,616,879	(536,879)	(503,453)	(502,231)
2024	4,200,000	1,587,118	1,585,000	3,172,118		1,484,525	4,656,643	(456,643)	(408,615)	(406,903)
2025	4,320,000	1,531,168	1,645,000	3,176,168		1,526,940	4,703,108	(383,108)	(327,125)	(325,178)
2026	4,450,000	1,469,480	1,705,000	3,174,480		1,572,890	4,747,370	(297,370)	(242,295)	(240,427)
2027	4,590,000	1,403,156	1,770,000	3,173,156		1,622,374	4,795,530	(205,530)	(159,800)	(158,288)
2028	4,710,000	1,332,533	1,840,000	3,172,533		1,664,789	4,837,322	(127,322)	(94,463)	(93,403)
2029	4,850,000	1,256,725	1,915,000	3,171,725		1,714,273	4,885,998	(35,998)	(25,485)	(25,155)
2030	4,990,000	1,175,912	2,000,000	3,175,912		1,763,758	4,939,669	50,331	34,002	33,502
2031	5,140,000	1,089,912	2,085,000	3,174,912		1,816,776	4,991,688	148,312	95,609	94,036
2032	5,260,000	998,172	2,175,000	3,173,172		1,859,191	5,032,363	227,637	140,030	137,482
2033	5,420,000	900,297	2,275,000	3,175,297		1,915,745	5,091,041	328,959	193,096	189,248
2034	5,110,000	794,509	2,380,000	3,174,509		1,806,173	4,980,682	129,318	72,435	70,866
2035	5,070,000	681,459	2,490,000	3,171,459		1,792,034	4,963,493	106,507	56,927	55,595
2036	5,230,000	560,694	2,615,000	3,175,694		1,848,588	5,024,282	205,718	104,923	102,287
2037	5,230,000	431,252	2,745,000	3,176,252		1,848,588	5,024,839	205,161	99,850	97,169
2038	5,380,000	292,629	2,880,000	3,172,629		1,901,606	5,074,235	305,765	142,002	137,946
2039	5,550,000	150,645	3,025,000	3,175,645		1,961,694	5,137,339	412,661	182,876	177,337
	\$ 87,540,000	\$ 17,912,786	\$ 37,230,000	\$ 55,142,786	\$ 1,650,000	\$ 30,941,751	\$ 87,734,538	\$ (194,538)	\$ (906,840)	\$ (923,294)

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$36,335,636 payment towards UAL, leaving 35.35% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$36,335,636

Estimated Bond Amount: \$37,230,000

Arbitrage Yield: 4.796%

All-In TIC: 4.982%

NPV Savings as % of Principal based on Arb. Yield: -2.44%

NPV Savings as % of Principal based on All-In TIC: -2.48%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 5.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions -50 Basis Points
Actuarial Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,960,000	475,464	615,000	1,090,464	1,650,000	1,399,695	4,140,160	(180,160)	(177,687)	(177,573)
2023	4,080,000	1,263,038	1,670,000	2,933,038		1,442,110	4,375,148	(295,148)	(280,487)	(279,825)
2024	4,200,000	1,222,457	1,710,000	2,932,457		1,484,525	4,416,982	(216,982)	(198,688)	(197,878)
2025	4,320,000	1,179,194	1,755,000	2,934,194		1,526,940	4,461,134	(141,134)	(124,524)	(123,803)
2026	4,450,000	1,130,931	1,800,000	2,930,931		1,572,890	4,503,821	(53,821)	(45,756)	(45,413)
2027	4,590,000	1,078,911	1,855,000	2,933,911		1,622,374	4,556,285	33,715	27,618	27,364
2028	4,710,000	1,023,447	1,910,000	2,933,447		1,664,789	4,598,236	111,764	88,216	87,254
2029	4,850,000	963,855	1,970,000	2,933,855		1,714,273	4,648,128	201,872	153,531	151,595
2030	4,990,000	900,421	2,030,000	2,930,421		1,763,758	4,694,178	295,822	216,784	213,682
2031	5,140,000	833,431	2,100,000	2,933,431		1,816,776	4,750,207	389,793	275,236	270,831
2032	5,260,000	762,031	2,170,000	2,932,031		1,859,191	4,791,222	468,778	318,943	313,299
2033	5,420,000	686,081	2,245,000	2,931,081		1,915,745	4,846,825	573,175	375,757	368,473
2034	5,110,000	604,138	2,330,000	2,934,138		1,806,173	4,740,311	369,689	233,524	228,603
2035	5,070,000	516,763	2,415,000	2,931,763		1,792,034	4,723,797	346,203	210,717	205,922
2036	5,230,000	423,786	2,510,000	2,933,786		1,848,588	4,782,373	447,627	262,519	256,104
2037	5,230,000	324,641	2,610,000	2,934,641		1,848,588	4,783,228	446,772	252,467	245,874
2038	5,380,000	218,936	2,715,000	2,933,936		1,901,606	4,835,542	544,458	296,455	288,217
2039	5,550,000	112,236	2,820,000	2,932,236		1,961,694	4,893,930	656,070	344,206	334,065
	\$ 87,540,000	\$ 13,719,755	\$ 37,230,000	\$ 50,949,755	\$ 1,650,000	\$ 30,941,751	\$ 83,541,507	\$ 3,998,493	\$ 2,228,833	\$ 2,166,791

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$36,335,636 payment towards UAL, leaving 35.35% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$36,335,636

Estimated Bond Amount: \$37,230,000

Arbitrage Yield: 3.783%

All-In TIC: 3.962%

NPV Savings as % of Principal based on Arb. Yield: 5.99%

NPV Savings as % of Principal based on All-In TIC: 5.82%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions
Market Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,060,000	534,093	575,000	1,109,093	1,275,000	270,176	2,654,269	405,731	399,437	399,175
2023	3,150,000	1,418,606	1,565,000	2,983,606		278,122	3,261,728	(111,728)	(105,471)	(105,216)
2024	3,240,000	1,372,751	1,610,000	2,982,751		286,068	3,268,819	(28,819)	(26,087)	(25,978)
2025	3,340,000	1,323,968	1,660,000	2,983,968		294,898	3,278,866	61,134	53,061	52,747
2026	3,440,000	1,270,018	1,715,000	2,985,018		303,727	3,288,745	151,255	125,881	124,915
2027	3,540,000	1,211,880	1,770,000	2,981,880		312,556	3,294,436	245,564	195,964	194,117
2028	3,650,000	1,150,107	1,835,000	2,985,107		322,268	3,307,375	342,625	262,175	259,246
2029	3,760,000	1,083,680	1,900,000	2,983,680		331,981	3,315,660	444,340	326,022	321,812
2030	3,870,000	1,013,000	1,970,000	2,983,000		341,693	3,324,692	545,308	383,648	378,027
2031	3,980,000	938,140	2,045,000	2,983,140		351,405	3,334,545	645,455	435,430	428,294
2032	4,100,000	858,385	2,125,000	2,983,385		362,000	3,345,385	754,615	488,132	479,287
2033	4,230,000	773,385	2,210,000	2,983,385		373,478	3,356,863	873,137	541,570	530,819
2034	4,210,000	681,670	2,300,000	2,981,670		371,712	3,353,382	856,618	509,471	498,478
2035	4,320,000	583,920	2,400,000	2,983,920		381,425	3,365,344	954,656	544,426	531,741
2036	4,450,000	479,520	2,505,000	2,984,520		392,903	3,377,422	1,072,578	586,518	571,842
2037	4,580,000	368,047	2,615,000	2,983,047		404,381	3,387,428	1,192,572	625,313	608,593
2038	4,720,000	249,065	2,735,000	2,984,065		416,742	3,400,806	1,319,194	663,256	644,384
2039	4,860,000	127,904	2,855,000	2,982,904		429,103	3,412,007	1,447,993	698,071	677,014
	\$ 70,500,000	\$ 15,438,133	\$ 36,390,000	\$ 51,828,133	\$ 1,275,000	\$ 6,224,637	\$ 59,327,771	\$ 11,172,229	\$ 6,706,818	\$ 6,569,296

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$35,511,044 payment towards UAL, leaving 8.83% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$35,511,044

Estimated Bond Amount: \$36,390,000

Arbitrage Yield: 4.289%

All-In TIC: 4.473%

NPV Savings as % of Principal based on Arb. Yield: 18.43%

NPV Savings as % of Principal based on All-In TIC: 18.05%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions +50 Basis Points
Market Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,060,000	603,436	550,000	1,153,436	1,275,000	270,176	2,698,612	361,388	355,141	354,905
2023	3,150,000	1,602,857	1,500,000	3,102,857		278,122	3,380,979	(230,979)	(216,598)	(216,067)
2024	3,240,000	1,551,407	1,550,000	3,101,407		286,068	3,387,475	(147,475)	(131,964)	(131,406)
2025	3,340,000	1,496,692	1,605,000	3,101,692		294,898	3,396,589	(56,589)	(48,320)	(48,030)
2026	3,440,000	1,436,504	1,665,000	3,101,504		303,727	3,405,231	34,769	28,330	28,109
2027	3,540,000	1,371,736	1,730,000	3,101,736		312,556	3,414,292	125,708	97,739	96,805
2028	3,650,000	1,302,709	1,800,000	3,102,709		322,268	3,424,977	225,023	166,950	165,059
2029	3,760,000	1,228,549	1,875,000	3,103,549		331,981	3,435,529	324,471	229,716	226,708
2030	3,870,000	1,149,424	1,955,000	3,104,424		341,693	3,446,116	423,884	286,364	282,109
2031	3,980,000	1,065,359	2,040,000	3,105,359		351,405	3,456,764	523,236	337,306	331,701
2032	4,100,000	975,599	2,130,000	3,105,599		362,000	3,467,599	632,401	389,023	381,875
2033	4,230,000	879,749	2,225,000	3,104,749		373,478	3,478,227	751,773	441,290	432,408
2034	4,210,000	776,286	2,325,000	3,101,286		371,712	3,472,998	737,002	412,821	403,789
2035	4,320,000	665,849	2,435,000	3,100,849		381,425	3,482,273	837,727	447,766	437,187
2036	4,450,000	547,751	2,555,000	3,102,751		392,903	3,495,654	954,346	486,755	474,406
2037	4,580,000	421,279	2,680,000	3,101,279		404,381	3,505,659	1,074,341	522,880	508,704
2038	4,720,000	285,939	2,815,000	3,100,939		416,742	3,517,680	1,202,320	558,387	542,278
2039	4,860,000	147,159	2,955,000	3,102,159		429,103	3,531,262	1,328,738	588,857	570,848
	\$ 70,500,000	\$ 17,508,278	\$ 36,390,000	\$ 53,898,278	\$ 1,275,000	\$ 6,224,637	\$ 61,397,915	\$ 9,102,085	\$ 4,952,443	\$ 4,841,388

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$35,511,044 payment towards UAL, leaving 8.83% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$35,511,044

Estimated Bond Amount: \$36,390,000

Arbitrage Yield: 4.796%

All-In TIC: 4.983%

NPV Savings as % of Principal based on Arb. Yield: 13.61%

NPV Savings as % of Principal based on All-In TIC: 13.30%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 7.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions -50 Basis Points
Market Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,060,000	464,712	605,000	1,069,712	1,275,000	270,176	2,614,887	445,113	439,003	438,719
2023	3,150,000	1,234,383	1,635,000	2,869,383		278,122	3,147,505	2,495	2,371	2,366
2024	3,240,000	1,194,652	1,670,000	2,864,652		286,068	3,150,720	89,280	81,752	81,416
2025	3,340,000	1,152,401	1,715,000	2,867,401		294,898	3,162,299	177,701	156,788	155,871
2026	3,440,000	1,105,239	1,760,000	2,865,239		303,727	3,168,965	271,035	230,420	228,675
2027	3,540,000	1,054,375	1,815,000	2,869,375		312,556	3,181,931	358,069	293,318	290,590
2028	3,650,000	1,000,106	1,865,000	2,865,106		322,268	3,187,374	462,626	365,153	361,130
2029	3,760,000	941,918	1,925,000	2,866,918		331,981	3,198,899	561,101	426,738	421,303
2030	3,870,000	879,933	1,985,000	2,864,933		341,693	3,206,626	663,374	486,131	479,105
2031	3,980,000	814,428	2,050,000	2,864,428		351,405	3,215,833	764,167	539,583	530,860
2032	4,100,000	744,728	2,120,000	2,864,728		362,000	3,226,728	873,272	594,147	583,527
2033	4,230,000	670,528	2,195,000	2,865,528		373,478	3,239,006	990,994	649,666	636,945
2034	4,210,000	590,411	2,275,000	2,865,411		371,712	3,237,123	972,877	614,542	601,462
2035	4,320,000	505,098	2,360,000	2,865,098		381,425	3,246,523	1,073,477	653,373	638,355
2036	4,450,000	414,238	2,455,000	2,869,238		392,903	3,262,141	1,187,859	696,640	679,445
2037	4,580,000	317,266	2,550,000	2,867,266		404,381	3,271,646	1,308,354	739,338	719,836
2038	4,720,000	213,991	2,655,000	2,868,991		416,742	3,285,732	1,434,268	780,949	759,029
2039	4,860,000	109,649	2,755,000	2,864,649		429,103	3,293,752	1,566,248	821,727	797,275
	\$ 70,500,000	\$ 13,408,053	\$ 36,390,000	\$ 49,798,053	\$ 1,275,000	\$ 6,224,637	\$ 57,297,690	\$ 13,202,310	\$ 8,571,642	\$ 8,405,909

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$35,511,044 payment towards UAL, leaving 8.83% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$35,511,044

Estimated Bond Amount: \$36,390,000

Arbitrage Yield: 3.783%

All-In TIC: 3.963%

NPV Savings as % of Principal based on Arb. Yield: 23.55%

NPV Savings as % of Principal based on All-In TIC: 23.10%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 6.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions
Market Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,460,000	534,093	575,000	1,109,093	1,441,667	811,978	3,362,738	97,262	95,753	95,690
2023	3,560,000	1,418,606	1,565,000	2,983,606		835,446	3,819,051	(259,051)	(244,544)	(243,953)
2024	3,670,000	1,372,751	1,610,000	2,982,751		861,260	3,844,011	(174,011)	(157,510)	(156,853)
2025	3,780,000	1,323,968	1,660,000	2,983,968		887,074	3,871,042	(91,042)	(79,020)	(78,551)
2026	3,890,000	1,270,018	1,715,000	2,985,018		912,889	3,897,907	(7,907)	(6,580)	(6,530)
2027	4,010,000	1,211,880	1,770,000	2,981,880		941,050	3,922,929	87,071	69,484	68,829
2028	4,120,000	1,150,107	1,835,000	2,985,107		966,864	3,951,971	168,029	128,575	127,139
2029	4,240,000	1,083,680	1,900,000	2,983,680		995,025	3,978,705	261,295	191,718	189,242
2030	4,370,000	1,013,000	1,970,000	2,983,000		1,025,533	4,008,533	361,467	254,308	250,582
2031	4,500,000	938,140	2,045,000	2,983,140		1,056,041	4,039,181	460,819	310,873	305,778
2032	4,620,000	858,385	2,125,000	2,983,385		1,084,202	4,067,587	552,413	357,335	350,860
2033	4,760,000	773,385	2,210,000	2,983,385		1,117,057	4,100,441	659,559	409,096	400,975
2034	4,610,000	681,670	2,300,000	2,981,670		1,081,855	4,063,525	546,475	325,014	318,001
2035	4,660,000	583,920	2,400,000	2,983,920		1,093,589	4,077,509	582,491	332,186	324,446
2036	4,790,000	479,520	2,505,000	2,984,520		1,124,097	4,108,616	681,384	372,601	363,278
2037	4,870,000	368,047	2,615,000	2,983,047		1,142,871	4,125,918	744,082	390,151	379,719
2038	5,010,000	249,065	2,735,000	2,984,065		1,175,726	4,159,790	850,210	427,463	415,301
2039	5,160,000	127,904	2,855,000	2,982,904		1,210,927	4,193,831	966,169	465,785	451,735
	\$ 78,080,000	\$ 15,438,133	\$ 36,390,000	\$ 51,828,133	\$ 1,441,667	\$ 18,323,485	\$ 71,593,285	\$ 6,486,715	\$ 3,642,691	\$ 3,555,690

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$35,511,044 payment towards UAL, leaving 23.47% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$35,511,044

Estimated Bond Amount: \$36,390,000

Arbitrage Yield: 4.289%

All-In TIC: 4.473%

NPV Savings as % of Principal based on Arb. Yield: 10.01%

NPV Savings as % of Principal based on All-In TIC: 9.77%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 6.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions +50 Basis Points
Market Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,460,000	603,436	550,000	1,153,436	1,441,667	811,978	3,407,081	52,919	52,004	51,970
2023	3,560,000	1,602,857	1,500,000	3,102,857		835,446	3,938,302	(378,302)	(354,749)	(353,880)
2024	3,670,000	1,551,407	1,550,000	3,101,407		861,260	3,962,667	(292,667)	(261,886)	(260,777)
2025	3,780,000	1,496,692	1,605,000	3,101,692		887,074	3,988,766	(208,766)	(178,260)	(177,188)
2026	3,890,000	1,436,504	1,665,000	3,101,504		912,889	4,014,393	(124,393)	(101,355)	(100,566)
2027	4,010,000	1,371,736	1,730,000	3,101,736		941,050	4,042,785	(32,785)	(25,491)	(25,247)
2028	4,120,000	1,302,709	1,800,000	3,102,709		966,864	4,069,573	50,427	37,413	36,989
2029	4,240,000	1,228,549	1,875,000	3,103,549		995,025	4,098,574	141,426	100,126	98,815
2030	4,370,000	1,149,424	1,955,000	3,104,424		1,025,533	4,129,957	240,043	162,166	159,757
2031	4,500,000	1,065,359	2,040,000	3,105,359		1,056,041	4,161,400	338,600	218,280	214,653
2032	4,620,000	975,599	2,130,000	3,105,599		1,084,202	4,189,801	430,199	264,638	259,775
2033	4,760,000	879,749	2,225,000	3,104,749		1,117,057	4,221,805	538,195	315,920	309,561
2034	4,610,000	776,286	2,325,000	3,101,286		1,081,855	4,183,141	426,859	239,099	233,868
2035	4,660,000	665,849	2,435,000	3,100,849		1,093,589	4,194,438	465,562	248,844	242,965
2036	4,790,000	547,751	2,555,000	3,102,751		1,124,097	4,226,848	563,152	287,230	279,943
2037	4,870,000	421,279	2,680,000	3,101,279		1,142,871	4,244,150	625,850	304,600	296,342
2038	5,010,000	285,939	2,815,000	3,100,939		1,175,726	4,276,664	733,336	340,579	330,754
2039	5,160,000	147,159	2,955,000	3,102,159		1,210,927	4,313,086	846,914	375,327	363,848
	\$ 78,080,000	\$ 17,508,278	\$ 36,390,000	\$ 53,898,278	\$ 1,441,667	\$ 18,323,485	\$ 73,663,429	\$ 4,416,571	\$ 2,024,486	\$ 1,961,581

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$35,511,044 payment towards UAL, leaving 23.47% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$35,511,044

Estimated Bond Amount: \$36,390,000

Arbitrage Yield: 4.796%

All-In TIC: 4.983%

NPV Savings as % of Principal based on Arb. Yield: 5.56%

NPV Savings as % of Principal based on All-In TIC: 5.39%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 6.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions -50 Basis Points
Market Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,460,000	464,712	605,000	1,069,712	1,441,667	811,978	3,323,356	136,644	134,768	134,681
2023	3,560,000	1,234,383	1,635,000	2,869,383		835,446	3,704,828	(144,828)	(137,634)	(137,306)
2024	3,670,000	1,194,652	1,670,000	2,864,652		861,260	3,725,912	(55,912)	(51,198)	(50,987)
2025	3,780,000	1,152,401	1,715,000	2,867,401		887,074	3,754,475	25,525	22,521	22,389
2026	3,890,000	1,105,239	1,760,000	2,865,239		912,889	3,778,127	111,873	95,109	94,388
2027	4,010,000	1,054,375	1,815,000	2,869,375		941,050	3,810,424	199,576	163,485	161,965
2028	4,120,000	1,000,106	1,865,000	2,865,106		966,864	3,831,970	288,030	227,344	224,839
2029	4,240,000	941,918	1,925,000	2,866,918		995,025	3,861,943	378,057	287,526	283,864
2030	4,370,000	879,933	1,985,000	2,864,933		1,025,533	3,890,466	479,534	351,410	346,331
2031	4,500,000	814,428	2,050,000	2,864,428		1,056,041	3,920,469	579,531	409,210	402,595
2032	4,620,000	744,728	2,120,000	2,864,728		1,084,202	3,948,930	671,070	456,575	448,414
2033	4,760,000	670,528	2,195,000	2,865,528		1,117,057	3,982,585	777,415	509,650	499,671
2034	4,610,000	590,411	2,275,000	2,865,411		1,081,855	3,947,266	662,734	418,633	409,722
2035	4,660,000	505,098	2,360,000	2,865,098		1,093,589	3,958,687	701,313	426,855	417,044
2036	4,790,000	414,238	2,455,000	2,869,238		1,124,097	3,993,335	796,665	467,217	455,685
2037	4,870,000	317,266	2,550,000	2,867,266		1,142,871	4,010,137	859,863	485,900	473,084
2038	5,010,000	213,991	2,655,000	2,868,991		1,175,726	4,044,716	965,284	525,591	510,838
2039	5,160,000	109,649	2,755,000	2,864,649		1,210,927	4,075,576	1,084,424	568,940	552,010
	\$ 78,080,000	\$ 13,408,053	\$ 36,390,000	\$ 49,798,053	\$ 1,441,667	\$ 18,323,485	\$ 69,563,204	\$ 8,516,796	\$ 5,361,902	\$ 5,249,226

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$35,511,044 payment towards UAL, leaving 23.47% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$35,511,044

Estimated Bond Amount: \$36,390,000

Arbitrage Yield: 3.783%

All-In TIC: 3.963%

NPV Savings as % of Principal based on Arb. Yield: 14.73%

NPV Savings as % of Principal based on All-In TIC: 14.42%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 5.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions
Market Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,890,000	534,093	575,000	1,109,093	1,620,833	1,432,029	4,161,956	(271,956)	(267,738)	(267,562)
2023	4,010,000	1,418,606	1,565,000	2,983,606		1,476,205	4,459,810	(449,810)	(424,620)	(423,594)
2024	4,130,000	1,372,751	1,610,000	2,982,751		1,520,381	4,503,132	(373,132)	(337,748)	(336,338)
2025	4,250,000	1,323,968	1,660,000	2,983,968		1,564,556	4,548,524	(298,524)	(259,102)	(257,566)
2026	4,380,000	1,270,018	1,715,000	2,985,018		1,612,413	4,597,431	(217,431)	(180,956)	(179,567)
2027	4,510,000	1,211,880	1,770,000	2,981,880		1,660,270	4,642,150	(132,150)	(105,458)	(104,463)
2028	4,630,000	1,150,107	1,835,000	2,985,107		1,704,446	4,689,553	(59,553)	(45,569)	(45,060)
2029	4,770,000	1,083,680	1,900,000	2,983,680		1,755,984	4,739,664	30,336	22,258	21,971
2030	4,910,000	1,013,000	1,970,000	2,983,000		1,807,523	4,790,522	119,478	84,058	82,826
2031	5,060,000	938,140	2,045,000	2,983,140		1,862,742	4,845,882	214,118	144,446	142,079
2032	5,180,000	858,385	2,125,000	2,983,385		1,906,918	4,890,303	289,697	187,394	183,999
2033	5,330,000	773,385	2,210,000	2,983,385		1,962,138	4,945,522	384,478	238,475	233,741
2034	5,040,000	681,670	2,300,000	2,981,670		1,855,380	4,837,049	202,951	120,704	118,100
2035	5,010,000	583,920	2,400,000	2,983,920		1,844,336	4,828,255	181,745	103,646	101,231
2036	5,160,000	479,520	2,505,000	2,984,520		1,899,555	4,884,075	275,925	150,884	147,109
2037	5,170,000	368,047	2,615,000	2,983,047		1,903,237	4,886,284	283,716	148,764	144,786
2038	5,330,000	249,065	2,735,000	2,984,065		1,962,138	4,946,202	383,798	192,963	187,473
2039	5,490,000	127,904	2,855,000	2,982,904		2,021,039	5,003,943	486,057	234,326	227,258
	\$ 86,250,000	\$ 15,438,133	\$ 36,390,000	\$ 51,828,133	\$ 1,620,833	\$ 31,751,289	\$ 85,200,256	\$ 1,049,744	\$ 6,729	\$ (23,578)

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$35,511,044 payment towards UAL, leaving 36.81% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$35,511,044

Estimated Bond Amount: \$36,390,000

Arbitrage Yield: 4.289%

All-In TIC: 4.473%

NPV Savings as % of Principal based on Arb. Yield: 0.02%

NPV Savings as % of Principal based on All-In TIC: -0.06%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 5.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions +50 Basis Points
Market Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,890,000	603,436	550,000	1,153,436	1,620,833	1,432,029	4,206,299	(316,299)	(310,831)	(310,624)
2023	4,010,000	1,602,857	1,500,000	3,102,857		1,476,205	4,579,061	(569,061)	(533,632)	(532,324)
2024	4,130,000	1,551,407	1,550,000	3,101,407		1,520,381	4,621,787	(491,787)	(440,064)	(438,201)
2025	4,250,000	1,496,692	1,605,000	3,101,692		1,564,556	4,666,248	(416,248)	(355,423)	(353,287)
2026	4,380,000	1,436,504	1,665,000	3,101,504		1,612,413	4,713,917	(333,917)	(272,075)	(269,956)
2027	4,510,000	1,371,736	1,730,000	3,101,736		1,660,270	4,762,006	(252,006)	(195,936)	(194,063)
2028	4,630,000	1,302,709	1,800,000	3,102,709		1,704,446	4,807,155	(177,155)	(131,435)	(129,946)
2029	4,770,000	1,228,549	1,875,000	3,103,549		1,755,984	4,859,533	(89,533)	(63,387)	(62,557)
2030	4,910,000	1,149,424	1,955,000	3,104,424		1,807,523	4,911,946	(1,946)	(1,315)	(1,295)
2031	5,060,000	1,065,359	2,040,000	3,105,359		1,862,742	4,968,101	91,899	59,243	58,259
2032	5,180,000	975,599	2,130,000	3,105,599		1,906,918	5,012,517	167,483	103,028	101,135
2033	5,330,000	879,749	2,225,000	3,104,749		1,962,138	5,066,886	263,114	154,448	151,339
2034	5,040,000	776,286	2,325,000	3,101,286		1,855,380	4,956,666	83,334	46,679	45,657
2035	5,010,000	665,849	2,435,000	3,100,849		1,844,336	4,945,184	64,816	34,644	33,826
2036	5,160,000	547,751	2,555,000	3,102,751		1,899,555	5,002,306	157,694	80,430	78,390
2037	5,170,000	421,279	2,680,000	3,101,279		1,903,237	5,004,515	165,485	80,541	78,358
2038	5,330,000	285,939	2,815,000	3,100,939		1,962,138	5,063,076	266,924	123,966	120,390
2039	5,490,000	147,159	2,955,000	3,102,159		2,021,039	5,123,198	366,802	162,556	157,584
	\$ 86,250,000	\$ 17,508,278	\$ 36,390,000	\$ 53,898,278	\$ 1,620,833	\$ 31,751,289	\$ 87,270,400	\$ (1,020,400)	\$ (1,458,564)	\$ (1,467,318)

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$35,511,044 payment towards UAL, leaving 36.81% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$35,511,044

Estimated Bond Amount: \$36,390,000

Arbitrage Yield: 4.796%

All-In TIC: 4.983%

NPV Savings as % of Principal based on Arb. Yield: -4.01%

NPV Savings as % of Principal based on All-In TIC: -4.03%

Shiawassee County (7602) - All Divisions
Projected Amortization Payments and Projected Employer Normal Cost Contributions
Based on December 31, 2020 Actuarial Valuation Data
Closed Amortization Policy - Using 5.35% Interest Rate and 3.00% Wage Inflation, and 2020 Demographic Assumptions -50 Basis Points
Market Value

Calendar Year Beginning January 1	Without Bonding	With Bonding						Savings		
	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)
2022	3,890,000	464,712	605,000	1,069,712	1,620,833	1,432,029	4,122,574	(232,574)	(229,382)	(229,234)
2023	4,010,000	1,234,383	1,635,000	2,869,383		1,476,205	4,345,587	(335,587)	(318,917)	(318,157)
2024	4,130,000	1,194,652	1,670,000	2,864,652		1,520,381	4,385,033	(255,033)	(233,530)	(232,569)
2025	4,250,000	1,152,401	1,715,000	2,867,401		1,564,556	4,431,957	(181,957)	(160,543)	(159,604)
2026	4,380,000	1,105,239	1,760,000	2,865,239		1,612,413	4,477,652	(97,652)	(83,019)	(82,390)
2027	4,510,000	1,054,375	1,815,000	2,869,375		1,660,270	4,529,645	(19,645)	(16,092)	(15,943)
2028	4,630,000	1,000,106	1,865,000	2,865,106		1,704,446	4,569,552	60,448	47,712	47,186
2029	4,770,000	941,918	1,925,000	2,866,918		1,755,984	4,622,902	147,098	111,873	110,448
2030	4,910,000	879,933	1,985,000	2,864,933		1,807,523	4,672,456	237,544	174,076	171,560
2031	5,060,000	814,428	2,050,000	2,864,428		1,862,742	4,727,170	332,830	235,013	231,214
2032	5,180,000	744,728	2,120,000	2,864,728		1,906,918	4,771,646	408,354	277,831	272,865
2033	5,330,000	670,528	2,195,000	2,865,528		1,962,138	4,827,666	502,334	329,315	322,867
2034	5,040,000	590,411	2,275,000	2,865,411		1,855,380	4,720,790	319,210	201,637	197,345
2035	5,010,000	505,098	2,360,000	2,865,098		1,844,336	4,709,434	300,566	182,940	178,735
2036	5,160,000	414,238	2,455,000	2,869,238		1,899,555	4,768,793	391,207	229,430	223,767
2037	5,170,000	317,266	2,550,000	2,867,266		1,903,237	4,770,502	399,498	225,752	219,798
2038	5,330,000	213,991	2,655,000	2,868,991		1,962,138	4,831,128	498,872	271,632	264,008
2039	5,490,000	109,649	2,755,000	2,864,649		2,021,039	4,885,688	604,312	317,051	307,616
	\$ 86,250,000	\$ 13,408,053	\$ 36,390,000	\$ 49,798,053	\$ 1,620,833	\$ 31,751,289	\$ 83,170,175	\$ 3,079,825	\$ 1,562,780	\$ 1,509,513

(a) Based on GRS Letter dated February 18, 2022

(b) Estimated only based on estimated interest rates as of 4/11/2022

(c) Assumes 5 months of UAL payments will be made prior to the bonds being sold

(d) Assumes \$35,511,044 payment towards UAL, leaving 36.81% of UAL payments remaining unfunded

(e) Represents Arbitrage Yield

(f) Represents All-In TIC

UAL Funded with Bond Proceeds: \$35,511,044

Estimated Bond Amount: \$36,390,000

Arbitrage Yield: 3.783%

All-In TIC: 3.963%

NPV Savings as % of Principal based on Arb. Yield: 4.29%

NPV Savings as % of Principal based on All-In TIC: 4.15%

Actuarial Value of Assets

Summary of Savings Nominal Savings			
	Current IR	Current IR +50 BPS	Current IR -50 BPS
<i>Expected UAL ROR (7.35%)</i>	\$ 11,519,307.04	\$ 9,396,679.32	\$ 13,589,710.39
<i>Expected UAL ROR -100 BPS (6.35%)</i>	\$ 6,580,531.28	\$ 4,457,903.56	\$ 8,650,934.63
<i>Expected UAL ROR -200 BPS (5.35%)</i>	\$ 1,928,089.79	\$ (194,537.93)	\$ 3,998,493.14

Summary of Present Value Savings Discounted to Arbitrage Yield			
	Current IR	Current IR +50 BPS	Current IR -50 BPS
<i>Expected UAL ROR (7.35%)</i>	\$ 6,957,542.59	\$ 5,161,950.44	\$ 8,864,800.67
<i>Expected UAL ROR -100 BPS (6.35%)</i>	\$ 3,708,820.53	\$ 2,055,686.41	\$ 5,463,935.21
<i>Expected UAL ROR -200 BPS (5.35%)</i>	\$ 614,432.45	\$ (906,839.59)	\$ 2,228,832.84

Summary of Present Value Savings Discounted to All-In TIC			
	Current IR	Current IR +50 BPS	Current IR -50 BPS
<i>Expected UAL ROR (7.35%)</i>	\$ 6,818,132.73	\$ 5,049,420.92	\$ 8,697,130.73
<i>Expected UAL ROR -100 BPS (6.35%)</i>	\$ 3,621,723.08	\$ 1,993,036.52	\$ 5,351,147.14
<i>Expected UAL ROR -200 BPS (5.35%)</i>	\$ 575,744.16	\$ (923,294.30)	\$ 2,166,790.99

Actuarial Value of Assets

Summary of Savings Nominal Savings			
	Current IR	Current IR +50 BPS	Current IR -50 BPS
<i>Expected UAL ROR (7.35%)</i>	30.94%	25.24%	36.50%
<i>Expected UAL ROR -100 BPS (6.35%)</i>	17.68%	11.97%	23.24%
<i>Expected UAL ROR -200 BPS (5.35%)</i>	5.18%	-0.52%	10.74%

Summary of Present Value Savings Discounted to Arbitrage Yield			
	Current IR	Current IR +50 BPS	Current IR -50 BPS
<i>Expected UAL ROR (7.35%)</i>	18.69%	13.87%	23.81%
<i>Expected UAL ROR -100 BPS (6.35%)</i>	9.96%	5.52%	14.68%
<i>Expected UAL ROR -200 BPS (5.35%)</i>	1.65%	-2.44%	5.99%

Summary of Present Value Savings Discounted to All-In TIC			
	Current IR	Current IR +50 BPS	Current IR -50 BPS
<i>Expected UAL ROR (7.35%)</i>	18.31%	13.56%	23.36%
<i>Expected UAL ROR -100 BPS (6.35%)</i>	9.73%	5.35%	14.37%
<i>Expected UAL ROR -200 BPS (5.35%)</i>	1.55%	-2.48%	5.82%

Market Value of Assets

Summary of Savings Nominal Savings			
	Current IR	Current IR +50 BPS	Current IR -50 BPS
<i>Expected UAL ROR (7.35%)</i>	\$ 11,172,229.32	\$ 9,102,085.24	\$ 13,202,310.17
<i>Expected UAL ROR -100 BPS (6.35%)</i>	\$ 6,486,715.11	\$ 4,416,571.03	\$ 8,516,795.96
<i>Expected UAL ROR -200 BPS (5.35%)</i>	\$ 1,049,743.80	\$ (1,020,400.28)	\$ 3,079,824.65

Summary of Present Value Savings Discounted to Arbitrage Yield			
	Current IR	Current IR +50 BPS	Current IR -50 BPS
<i>Expected UAL ROR (7.35%)</i>	\$ 6,706,817.55	\$ 4,952,442.68	\$ 8,571,641.96
<i>Expected UAL ROR -100 BPS (6.35%)</i>	\$ 3,642,690.67	\$ 2,024,486.07	\$ 5,361,902.42
<i>Expected UAL ROR -200 BPS (5.35%)</i>	\$ 6,729.28	\$ (1,458,563.85)	\$ 1,562,779.76

Summary of Present Value Savings Discounted to All-In TIC			
	Current IR	Current IR +50 BPS	Current IR -50 BPS
<i>Expected UAL ROR (7.35%)</i>	\$ 6,569,295.72	\$ 4,841,387.59	\$ 8,405,908.65
<i>Expected UAL ROR -100 BPS (6.35%)</i>	\$ 3,555,689.89	\$ 1,961,581.01	\$ 5,249,225.56
<i>Expected UAL ROR -200 BPS (5.35%)</i>	\$ (23,577.85)	\$ (1,467,317.93)	\$ 1,509,512.90

Market Value of Assets

Summary of Savings Nominal Savings			
	Current IR	Current IR +50 BPS	Current IR -50 BPS
<i>Expected UAL ROR (7.35%)</i>	30.70%	25.01%	36.28%
<i>Expected UAL ROR -100 BPS (6.35%)</i>	17.83%	12.14%	23.40%
<i>Expected UAL ROR -200 BPS (5.35%)</i>	2.88%	-2.80%	8.46%

Summary of Present Value Savings Discounted to Arbitrage Yield			
	Current IR	Current IR +50 BPS	Current IR -50 BPS
<i>Expected UAL ROR (7.35%)</i>	18.43%	13.61%	23.55%
<i>Expected UAL ROR -100 BPS (6.35%)</i>	10.01%	5.56%	14.73%
<i>Expected UAL ROR -200 BPS (5.35%)</i>	0.02%	-4.01%	4.29%

Summary of Present Value Savings Discounted to All-In TIC			
	Current IR	Current IR +50 BPS	Current IR -50 BPS
<i>Expected UAL ROR (7.35%)</i>	18.05%	13.30%	23.10%
<i>Expected UAL ROR -100 BPS (6.35%)</i>	9.77%	5.39%	14.42%
<i>Expected UAL ROR -200 BPS (5.35%)</i>	-0.06%	-4.03%	4.15%

SHIAWASSEE COUNTY

Appendix C ACTUARIAL VALUATION OF
OTHER POST-EMPLOYMENT BENEFITS



April 28, 2021

PERSONAL & CONFIDENTIAL

Ms. Tracy Bublitz
Shiawassee County
201 N. Shiawassee Road
Coruna, MI 48817

RE: Shiawassee County Retiree Health Care Plan

Dear Tracy:

Transmitted via email, this is a copy of your OPEB accounting report for the fiscal year ending December 31, 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,



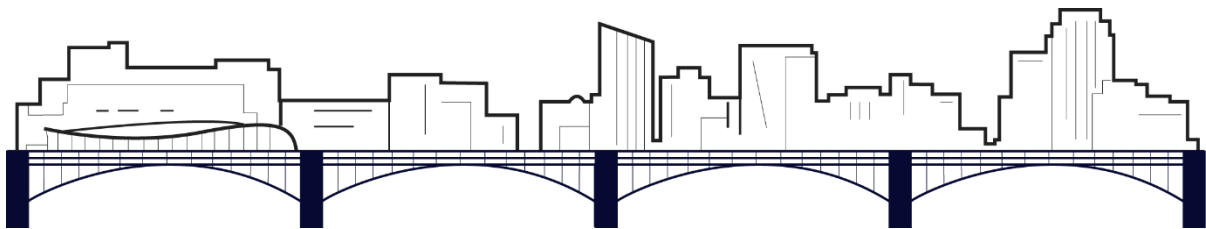
Christian R. Veenstra, FCA, ASA, MAAA
President / Enrolled Actuary

Enclosure

Shiawassee County Retiree Health Care Plan

Accounting Report

for the Period Ending December 31, 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:



April 2021

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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 herself as meeting the Qualification Standards of the American Academy of Actuaries to render actuarial opinions contained in the report.

Prepared by:



Lisa J. Hayes
Senior OPEB Analyst

Certified by:



Leah A. Dudley, 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

Recognition of the life insurance resulted in an actuarial loss (increase in liability) of \$197,276. There was an actuarial gain (decrease in liability) of \$76,941, due to changes in premiums other 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 of \$200,267.

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 Shiawassee County Retiree Health Care Plan and additions to/deductions from the County's fiduciary net position have been determined on the same basis as they are reported by the Shiawassee County. 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

Shiawassee County Retiree Health Care Plan is a single employer plan established and administered by **Shiawassee County** 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 December 31, 2020, Retirement Plan membership consisted of the following:

Active members	183
Inactive members	0
Retirees and beneficiaries	65 ¹
Total members	248

Contributions

The Shiawassee County Retiree Health Care Plan was established and is being funded under the authority of the County. The plan's funding policy is the employer will contribute any required amounts as determined by an annual actuarial valuation as a reference but not as a definitive requirement. Currently, benefit payments are made from general operating funds. There are no long-term contracts for contributions to the plan.

¹ Of the 65 retirees, 30 have only self-paid dental, vision and/or post-65 medical coverage and, hence, no employer liability; 17 have life insurance coverage only

ASSUMPTIONS AND METHODS

The Shiawassee County's OPEB liability was measured as of December 31, 2020.

Actuarial Assumptions

The total OPEB liability was determined by an actuarial valuation as of December 31, 2020. The following actuarial assumptions were used in the measurement:

Inflation	2.5%
Salary increases	4.10% (for purpose of allocating liability)
Investment rate of return	7.35% (including inflation)
20-year Aa Municipal bond rate	1.93% (S&P Municipal Bond 20-Year High Grade Rate Index)
Mortality	Public Safety and Public General 2010 Employee and Healthy Retiree, 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 Real Rate of Return
Global Equity	60.0%	5.25%
Global Fixed Income	20.0%	1.25%
Private Investments	20.0%	7.25%

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 **2.00%**. The projection of cash flows used to determine the discount rate assumed that the County will first use assets to pay benefits and then pay benefits on a pay-as-you-go basis. 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 2026 – 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 December 31, 2019 the discount rate used to value OPEB liabilities was 3.33%.

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 December 31, 2019	\$1,214,921	\$201,868	\$1,013,053
Changes during the Year			
Service Cost	44,727		44,727
Interest	40,746		40,746
Experience (Gains)/Losses	(76,941)		(76,941)
Change in plan terms	197,276		197,276
Change in actuarial assumptions	200,267		200,267
Contributions to OPEB trust		0	0
Contributions/benefit paid from general operating funds		72,061	(72,061)
Employee Contributions		0	0
Net Investment Income		26,785	(26,785)
Benefit Payments; Including Refunds of Employee Contributions	(72,061)	(72,061)	0
Administrative Expenses		(362)	362
Other Changes		0	0
Total Changes	334,014	26,423	307,591
Balance at December 31, 2020	\$1,548,935	\$228,291	\$1,320,644

Net OPEB Liability – Discount and Trend Rate Sensitivities

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

Discount	1% Decrease	Current Rate	1% Increase
Total OPEB Liability	\$1,715,483	\$1,548,935	\$1,399,751
Plan Fiduciary Net Position	228,291	228,291	228,291
Net OPEB Liability	\$1,487,192	\$1,320,644	\$1,171,460

Trend	1% Decrease	Current Rate	1% Increase
Total OPEB Liability	\$1,368,552	\$1,548,935	\$1,763,198
Plan Fiduciary Net Position	228,291	228,291	228,291
Net OPEB Liability	\$1,140,261	\$1,320,644	\$1,534,907

RECONCILIATION AND RECOGNITION OF NET OPEB LIABILITY

OPEB Expense

Below are the components of the Total OPEB Expense:

	Fiscal Year Ending 12/31/2020
Service Cost	\$44,727
Interest on Total OPEB Liability	40,746
Experience (Gains)/Losses	(15,398)
Changes in Plan Terms	197,276
Changes in Assumptions	65,747
Employee Contributions	0
Projected Earnings on OPEB Plan Investments	0
Investment Earnings (Gains)/Losses	(3,018)
Administrative Expenses	362
Other Changes in Fiduciary Net Position	0
Total OPEB Expense	\$330,442

OPEB Plan Fiduciary Net Position

The OPEB Plan Fiduciary Net Position as of December 31, 2020 is \$228,291.

Deferred Inflows and Outflows of Resources Related to OPEB Plan

	Deferred Outflows Of Resources	Deferred Inflows Of Resources
Experience (Gains)/Losses	21,072	54,895
Changes of Assumptions	169,397	0
Investment Earnings (Gains)/Losses	0	18,802
Total	\$190,469	\$73,697

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 December 31,	Amount Recognized
2021	\$47,331
2022	47,331
2023	24,918
2024	(2,808)
2025	0
Thereafter	0

RECONCILIATION AND RECOGNITION OF NET OPEB LIABILITY

Reconciliation of Net OPEB Liability

	Net OPEB Liability
Net OPEB Liability December 31, 2019	\$1,013,053
Total OPEB expense	330,442
Contributions	(72,061)
Change in deferred outflows of resources	122,907
Change in deferred inflows of resources	(73,697)
Net OPEB Liability December 31, 2020	\$1,320,644

Total OPEB Liability by Participant Status

	Total OPEB Liability
Active participants	\$1,340,846
Inactive participants	0
Retirees and beneficiaries	208,089
Total OPEB Liability	\$1,548,935

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 December 31,	
	2021	2020
Discount rate	2.00%	3.33%
Amortization period	11 years	10 years
Amortization method	Level % of pay	Level % of pay
Normal cost	80,067	44,727
Amortization of Net OPEB Liability	108,203	100,558
Interest to end of year	3,765	4,838
Total ADC	\$192,035	\$150,123

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, \$150,123, 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 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 2020 normal cost for these new hires is \$13,693 and the 2021 expected normal cost is \$11,932.

In addition, you may not draw on the trust until employees hired after June 30, 2018 begin to retire if the only amount deposited is the minimal amount noted above. Accordingly, you must continue to pay retiree OPEB benefits from general operating funds. That amount (\$72,061 for 2020) when added to what you deposit into the trust, generates a total minimum required amount of \$85,754.

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

State of Michigan Public Acts 530 and 202 Information

Financial information	2020
Assets (Fiduciary net position)	228,291
Liabilities (Total OPEB Liability)	1,548,935
Funded ratio for the Plan Year	14.74%
Actuarially Determined Contribution	\$150,123
Is ADC calculated in compliance with No. Letter 2018-3?	Yes

Membership	2020
Number of active members	184
Number of inactive members	0
Number of retirees and beneficiaries	65
Premiums paid on behalf of the retirants	\$72,061

Investment Performance
This information is available from the Investment Manager

Actuarial Assumptions	2020
Actuarially assumed rate of investment return	7.35%
Discount rate	2.00%
Amortization method used for funding unfunded liability	Level % of Pay
Amortization period used for funding unfunded liability	10 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	228,291
Actuarial accrued liability using uniform assumptions	1,322,775
Funded ratio using uniform assumptions	17.26%
Actuarially Determined Contribution (ADC) using uniform assumptions	\$133,655

Information for Summary Report (minimum required contribution) ¹	2020
Retiree insurance premiums for the year	72,061
Normal cost for employees hired after June 30, 2018	13,693
Minimum required contribution under PA 202	\$85,754

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	12/31/2020	12/31/2019	12/31/2018
Total OPEB Liability			
Service Cost	\$44,727	\$43,836	\$42,256
Interest	40,746	42,466	42,417
Changes of Benefit Terms	197,276	0	0
Difference between Expected and Actual Experience	(76,941)	34,368	0
Change of Assumptions	200,267	43,241	0
Benefit Payments (Including Refunds of Employee Contributions)	(72,061)	(81,242)	(88,638)
Net Change in Total OPEB Liability	334,014	82,669	(3,965)
Total OPEB Liability – Beginning	1,214,921	1,132,252	1,136,217
Total OPEB Liability – Ending (a)	\$1,548,935	\$1,214,921	\$1,132,252
Plan Fiduciary Net Position			
Contributions to OPEB trust	\$0	\$0	\$159,519
Contributions/benefit payments made from general operating funds	72,061	81,242	88,638
Net Investment Income	26,785	24,062	(10,431)
Benefit Payments (Including Refunds of Employee Contributions)	(72,061)	(81,242)	(88,638)
Administrative Expenses	(362)	(343)	(430)
Other	0	0	0
Net Change in Fiduciary Net Position	26,423	23,719	148,658
Plan Fiduciary Net Position – Beginning	201,868	178,149	29,491
Plan Fiduciary Net Position – Ending (b)	228,291	201,868	178,149
Net OPEB Liability – Ending (a)-(b)	\$1,320,644	\$1,013,053	\$954,103
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability	14.74%	16.62%	15.73%
Covered Employee Payroll	\$8,724,561	\$8,466,548	\$8,233,450
Net OPEB Liability as Percentage of Payroll	15.1%	12.0%	11.6%
Actuarially Determined Contribution	\$150,123	\$136,502	\$140,736
Employer Contribution/benefit payments	(72,061)	(81,242)	(248,157)
Contribution Deficiency/(Excess)	\$78,062	\$55,260	\$(107,421)
ADC as a Percentage of Covered Payroll	1.7%	1.6%	1.7%
Employer Contribution as a Percentage of Covered Payroll	0.8%	1.0%	3.0%

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

Assumptions and Methods for Calculation of Actuarially Determined Contribution

Valuation date December 31, 2020

Measurement date December 31, 2020

Reporting date December 31, 2020

Actuarial Methods

Cost method Entry Age Normal (level percentage of compensation)

Asset valuation method Market value

Actuarial Assumptions

Discount Rate – 2.0% for December 31, 2020 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 – 1.93%

Rationale – Current bond rate (based on information published by S&P as of December 31, 2020)

Salary Scale – 4.1%

Rationale – Per employer experience and expectations

Return on Plan Assets – 7.35%

Rationale – Based on information provided by investment manager

Mortality Rates

Police, Sheriffs: Public Safety 2010 Employee and Healthy Retiree, headcount weighted with MP-2020 improvement

Spouses and all others: Public General 2010 Employee and Healthy Retiree, headcount weighted with MP-2020 improvement

Rationale – Most current mortality rates available for municipalities

Utilization

Police and Teamsters – 70% of eligible employees will elect coverage at retirement

All others – 10% of eligible retirees will elect coverage at retirement

Retirees – actual coverage used for retirees

Rationale – Based on Employer Experience

Termination Rates – See sample rates below:

Years of Service	Rate	Sample Ages	Rate
0	18%	30	9%
1	18	35	7
2	16	40	5
3	12	45	4
4	10	55	3

Rationale – Based on past employer experience

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

Retirement rates – Rates as shown below:

Age	Rate	Age	Rate
50-56	20%	67	26%
57-60	21	68	28
61-63	22	69	30
64	23	70+	100
65-66	25		

Rationale – Based on Employer Experience

Marital Assumption – 15% of future retirees who elect coverage are assumed to elect self-paid spouse coverage at retirement with females three years younger than males; actual spouse data used for retirees

Rationale – Based on Employer Experience

Annual claims costs – see rates below

Age	Participant		Spouse	
	Male	Female	Male	Female
BC PPO Div 18				
50-54	7,448	8,833	10,155	12,042
55-59	9,683	10,211	13,202	13,921
60-64	12,426	12,151	16,941	16,566
BC PPO Div 19				
50-54	7,403	8,780	10,092	11,967
55-59	9,624	10,149	13,120	13,835
60-64	12,351	12,078	16,836	16,463

Rationale – Age-weighted factors based on 2021 Pre-65 monthly premiums

Implicit Subsidy – age-weighted costs valued

Annual retiree contribution basis – see annual rates below

	BC PPO Div 18	BC PPO Div 19
Single	7,998	7,950
Double	18,902	18,786

Rationale – actual premiums in effect as of January 1, 2021

Plan Utilization – future retirees who enroll in coverage will choose the Blue Cross PPO Div 18 plan; actual plan coverage used for retirees

Rationale – Based on Employer Experience

Medical Trend – Medical premiums: Pre-Medicare 8.25% graded down to 4.5% by 0.25% per year

Rationale – Based on State of Michigan trend survey

Life insurance – face value of life insurance valued

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

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 updated to MP-2020, spouse mortality updated
- Trend rates updated
- Salary scale updated from 3.5% to 4.1%
- Discount rate updated from 3.33% to 2.0%

Assumptions used for PA 202 Reporting

Discount rate – 3.56%

Mortality Improvement – MP-2018

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 December 31,							Deferred Outflow of Resources	Deferred Inflow of Resources
			2020	2021	2022	2023	2024	2025	2026+		
2018	-	6.17	-	-	-	-	-	-	-	-	-
2019	34,368	5.17	6,648	6,648	6,648	6,648	1,128	-	-	21,072	-
2020	(76,941)	3.49	(22,046)	(22,046)	(22,046)	(10,803)	-	-	-	-	(54,895)
Net recognized in OPEB expense			<u>\$ (15,398)</u>	<u>\$ (15,398)</u>	<u>\$ (15,398)</u>	<u>\$ (4,155)</u>	<u>\$ 1,128</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 21,072</u>	<u>\$ (54,895)</u>

Schedule of Changes in Assumptions

Year	Changes in Assumptions	Recognition period (years)	Amount Recognized in Year Ended December 31,							Deferred Outflow of Resources	Deferred Inflow of Resources
			2020	2021	2022	2023	2024	2025	2026+		
2018	-	6.17	-	-	-	-	-	-	-	-	-
2019	43,241	5.17	8,364	8,364	8,364	8,364	1,421	-	-	26,513	-
2020	200,267	3.49	57,383	57,383	57,383	28,118	-	-	-	142,884	-
Net recognized in OPEB expense			<u>\$ 65,747</u>	<u>\$ 65,747</u>	<u>\$ 65,747</u>	<u>\$ 36,482</u>	<u>\$ 1,421</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 169,397</u>	<u>\$ -</u>

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 December 31,							Deferred Outflow of Resources	Deferred Inflow of Resources
			2020	2021	2022	2023	2024	2025	2026+		
2018	21,965	5.00	4,393	4,393	4,393	-	-	-	-	8,786	-
2019	(10,268)	5.00	(2,054)	(2,054)	(2,054)	(2,052)	-	-	-	-	(6,160)
2020	(26,785)	5.00	(5,357)	(5,357)	(5,357)	(5,357)	(5,357)	-	-	-	(21,428)
Net recognized in OPEB expense			<u>\$ (3,018)</u>	<u>\$ (3,018)</u>	<u>\$ (3,018)</u>	<u>\$ (7,409)</u>	<u>\$ (5,357)</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 8,786</u>	<u>\$ (27,588)</u>

Total Deferred Outflow/(Inflow) of Resources

	Amount Recognized in Year Ended December 31,					
	2021	2022	2023	2024	2025	2026+
Total Deferred Outflow/(Inflow) of Resources	47,331	47,331	24,918	(2,808)	-	-

SUMMARY OF PLAN PROVISIONS

Plan name	Shiawassee County Retiree Health Care Plan
Benefit Eligibility	
AFSCME, Probate	Age 55 with 20 years of service or age 60 with 10 years of service
Teamster, Police, Sheriffs	Age 50 with 25 years of service or age 60 with 10 years of service
Non-represented hired prior to May, 1995	Age 55 with 25 years of service or age 60 with 10 years of service
Elected Officials elected prior to May, 1995	Age 55 with 25 years of service or age 60 with 6 years of service
All others	Age 60 with 10 years of service
Employer benefits	
Teamsters and Police	County provides single medical coverage until Medicare eligibility age; spouses are eligible for medical coverage at their own expense; dental and vision coverage are available to the retiree and spouse at their own expense
All others	Eligible for health, dental and vision coverage for the retiree and spouse at their own expense
Spouses	No employer paid spouse coverage
Life insurance	\$3,000 life insurance coverage for life for retirees from Sheriff's office, Central Dispatch and Jail
Changes since prior valuation:	Life insurance benefits clarified

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.



SHIAWASSEE COUNTY

Appendix D MERS ANNUAL ACTUARIAL
VALUATION REPORT





Municipal Employees' Retirement System of Michigan

Annual Actuarial Valuation Report
December 31, 2020 - Shiawassee Co (7602)





Spring, 2021

Shiawassee Co

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 Shiawassee Co (7602) as of December 31, 2020. 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, the Michigan Constitution, and governing statutes. Shiawassee Co 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, 2020,
- Establish contribution requirements for the fiscal year beginning January 1, 2022,
- 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, 2020. 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. Studies were completed in 2018 and 2020, and are the basis of the economic and demographic assumptions and methods currently in place. Updated economic assumptions were adopted by the MERS Retirement Board at the February 28, 2019 board meeting and were effective with the December 31, 2019 annual actuarial valuation. **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.**

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-2020AnnualActuarialValuation-Appendix.pdf>

The actuarial assumptions used for this valuation, including the assumed rate of investment return, are reasonable for purposes of the measurement.

This report reflects the impact of COVID-19 experience through December 31, 2020. It does not reflect the ongoing 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 future 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 Shiawassee Co 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.

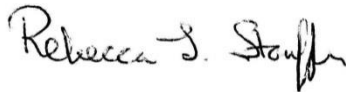
This report was prepared at the request of the MERS Retirement Board and may be provided only in its entirety by the municipality to other interested parties (MERS customarily provides the full report on request to associated third parties such as the auditor for the municipality). GRS is not responsible 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).

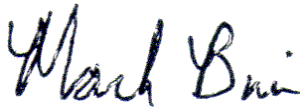
Sincerely,



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



Rebecca L. Stouffer, ASA, FCA, MAAA



Mark Buis, FSA, FCA, EA, MAAA



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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.

	12/31/2020	12/31/2019
Funded Ratio*	64%	65%

* 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.

Effective for the December 31, 2020 valuation, the MERS Retirement Board has adopted updated demographic assumptions. Changes to these assumptions are effective for contributions beginning in 2022. Effective with the 2019 valuation, the MERS Retirement Board adopted updated economic assumptions. The combined impact of these assumption changes may be phased in. This valuation reflects the second year of phase-in for the economic assumption update and the first year of phase-in for the demographic assumption update. The remaining combined phase-in period is four years for all assumption changes.

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.

	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
	12/31/2020	12/31/2020	12/31/2019	12/31/2019	12/31/2020	12/31/2020	12/31/2019	12/31/2019
Valuation Date:	January 1,	January 1,	January 1,	January 1,	January 1,	January 1,	January 1,	January 1,
Fiscal Year Beginning:	2022	2022	2021	2021	2022	2022	2021	2021
Division								
01 - AFSCME Unit	-	-	-	-	\$ 20,806	\$ 20,923	\$ 23,496	\$ 23,652
04 - MCF	-	-	-	-	32,022	46,803	30,779	36,710
10 - Empl/Trring	-	-	-	-	186	309	207	273
11 - Elected officials prior 5/95	-	-	-	-	15,259	16,453	14,523	15,426
12 - Non Represented prior 5/95	-	-	-	-	55,390	61,807	49,752	52,851
13 - Probate Court prior 6/95	-	-	-	-	12,298	13,414	11,127	11,703
15 - Circuit Court prior 4/96	-	-	-	-	15,742	17,938	13,536	14,433
16 - Hlth Clerical	17.89%	20.71%	18.14%	19.11%	4,778	5,531	4,283	4,511
17 - Hlth Nurses	14.28%	16.59%	12.80%	13.56%	4,582	5,323	4,308	4,563
18 - NonRep Elec Officials af 5/95	-	-	-	-	176	1,190	54	216
19 - Tmstr NonSup pr9/96-non911/Sh	-	-	-	-	78,615	78,987	148,101	148,596
20 - Tmstr NonSup af9/96-non911/Sh	-	-	-	-	3,025	3,985	3,515	3,254
21 - Teamsters-Com Unit prior 9/96	-	-	-	-	37,699	40,813	35,125	37,486
22 - Teamstr-Com Unit hired af 9/9	-	-	-	-	9,759	12,204	11,418	12,126
23 - New Hires div 20 aft 11/09	6.33%	10.24%	5.50%	5.54%	1,271	2,057	1,130	1,139
26 - POLC before 2009	-	-	-	-	4,576	7,087	4,866	5,337
27 - POLC aft 2009	-	-	-	-	2,752	3,643	3,557	3,602
28 - 911 Disp prior 11/2009	-	-	-	-	17,975	20,309	17,202	18,291
29 - 911 Command	67.86%	83.73%	64.85%	71.86%	4,053	5,001	3,607	3,997
30 - 911 Disp aft 11/2009	10.88%	12.47%	10.19%	10.29%	4,749	5,442	3,770	3,806
40 - MCF Dpt Hds	-	-	-	-	3,177	6,663	4,764	5,907
41 - Part Time	-	-	-	-	706	841	2,805	2,928
42 - AFSCME 5/96	-	-	-	-	28,219	36,067	34,139	35,228
80 - Circ Crt 4/96	8.03%	10.35%	7.99%	8.53%	3,558	4,584	3,744	3,999
81 - Probate af 6/95	-	-	-	-	3,448	4,369	3,247	3,655
82 - Probate court Assoc aft 1/1/0	3.05%	4.34%	3.40%	3.40%	248	353	289	289
90 - AFSCME aft 1/1/09	0.00%	0.00%	0.00%	0.00%	0	0	0	0
91 - Non-Rep Elec Offic aft 10/1/1	1.61%	2.25%	1.75%	1.73%	3,392	4,742	3,747	3,708
HA - 25 POLC aft 3/1/17	5.90%	6.19%	5.71%	5.64%	1,551	1,626	2,084	2,057
Total Municipality -								
Estimated Monthly Contribution					\$ 370,012	\$ 428,464	\$ 439,175	\$ 459,743
Total Municipality -								
Estimated Annual Contribution					\$ 4,440,144	\$ 5,141,568	\$ 5,270,100	\$ 5,516,916

Employee contribution rates:



Valuation Date:	Employee Contribution Rate	
	12/31/2020	12/31/2019
Division		
01 - AFSCME Unit	1.00%	1.00%
04 - MCF	5.00%	3.00%
10 - Empl/Trring	0.00%	0.00%
11 - Elected officials prior 5/95	1.00%	1.00%
12 - Non Represented prior 5/95	1.00%	1.00%
13 - Probate Court prior 6/95	1.00%	1.00%
15 - Circuit Court prior 4/96	1.00%	1.00%
16 - Hlth Clerical	1.00%	1.00%
17 - Hlth Nurses	1.00%	1.00%
18 - NonRep Elec Officials af 5/95	1.00%	1.00%
19 - Tmstr NonSup pr9/96-non911/Sh	0.00%	0.00%
20 - Tmstr NonSup af9/96-non911/Sh	2.50%	2.50%
21 - Teamsters-Com Unit prior 9/96	2.96%	2.96%
22 - Teamstr-Com Unit hired af 9/9	3.27%	3.27%
23 - New Hires div 20 aft 11/09	5.00%	5.00%
26 - POLC before 2009	2.50%	2.50%
27 - POLC aft 2009	5.00%	5.00%
28 - 911 Disp prior 11/2009	2.50%	2.50%
29 - 911 Command	3.27%	3.27%
30 - 911 Disp aft 11/2009	5.00%	5.00%
40 - MCF Dpt Hds	5.00%	3.00%
41 - Part Time	5.00%	3.00%
42 - AFSCME 5/96	5.00%	3.00%
80 - Circ Crt 4/96	1.00%	1.00%
81 - Probate af 6/95	1.00%	1.00%
82 - Probate court Assoc aft 1/1/0	1.00%	1.00%
90 - AFSCME aft 1/1/09	1.00%	1.00%
91 - Non-Rep Elec Offic aft 10/1/1	1.00%	1.00%
HA - 25 POLC aft 3/1/17	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 2022 for the entire employer would be \$595,996, instead of \$428,464.

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), and
- Experience of the plan (investment experience and demographic experience); this is the difference between actual experience of the plan and the actuarial assumptions.

These impacts are reflected in various tables in the report. For more information, please contact your Regional Manager.

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 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 took effect with the fiscal year 2021 contribution rates, the experience study recommended updated demographic assumptions, including adjustments to the following actuarial assumptions: mortality, retirement, disability, and termination rates. Changes to the demographic assumptions resulting from the experience study have been approved by the MERS Retirement Board and are effective beginning with the December 31, 2020 actuarial valuation, first impacting 2022 contributions. A complete description of the assumptions may be found in the Appendix to the valuation.

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 2020 was 8.17%, while the actual market rate of return was 12.70%.** 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, 2020, the actuarial value of assets is 97% of market value due to asset smoothing. This means that the rate of return on the actuarial value of assets should exceed the actuarial assumption in the next few years provided that the annual market returns exceed the 7.35% investment return assumption. When all assumptions are met, contribution rates are expected to stay approximately level as a percent of payroll (dollar amounts are expected to increase with wage inflation of 3.0% each year).



If the December 31, 2020 valuation results were based on market value instead of actuarial value:

- The funded percent of your entire municipality would be 65% (instead of 64%); and
- Your total employer contribution requirement for the fiscal year starting January 1, 2022 would be \$4,924,488 (instead of \$5,141,568).

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. Lower investment returns would result in higher required employer contributions, and vice-versa. The three economic scenarios below provide a quantitative risk assessment for the impact of investment returns on the plan's future financial condition for funding purposes.

The relative impact of the economic 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, 2020 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.

12/31/2020 Valuation Results	Lower Future Annual Returns	Lower Future Annual Returns	Valuation Assumptions
Investment Return Assumption	5.35%	6.35%	7.35%
Accrued Liability	\$ 172,456,839	\$ 152,834,515	\$ 136,608,768
Valuation Assets ¹	\$ 86,883,585	\$ 86,883,585	\$ 86,883,585
Unfunded Accrued Liability	\$ 85,573,254	\$ 65,950,930	\$ 49,725,183
Funded Ratio	50%	57%	64%
Monthly Normal Cost	\$ 173,129	\$ 125,906	\$ 90,780
Monthly Amortization Payment	\$ 510,240	\$ 422,047	\$ 336,912
Total Employer Contribution²	\$ 683,369	\$ 548,015	\$ 428,464

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.

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 assumption scenarios. All three projections take into account the past investment experience that will continue to affect the actuarial rate of return in the short term.

The 7.35% 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 6.35% and 5.35% projection scenarios provide an indication of the potential required employer contribution if these assumptions were met over the long-term.

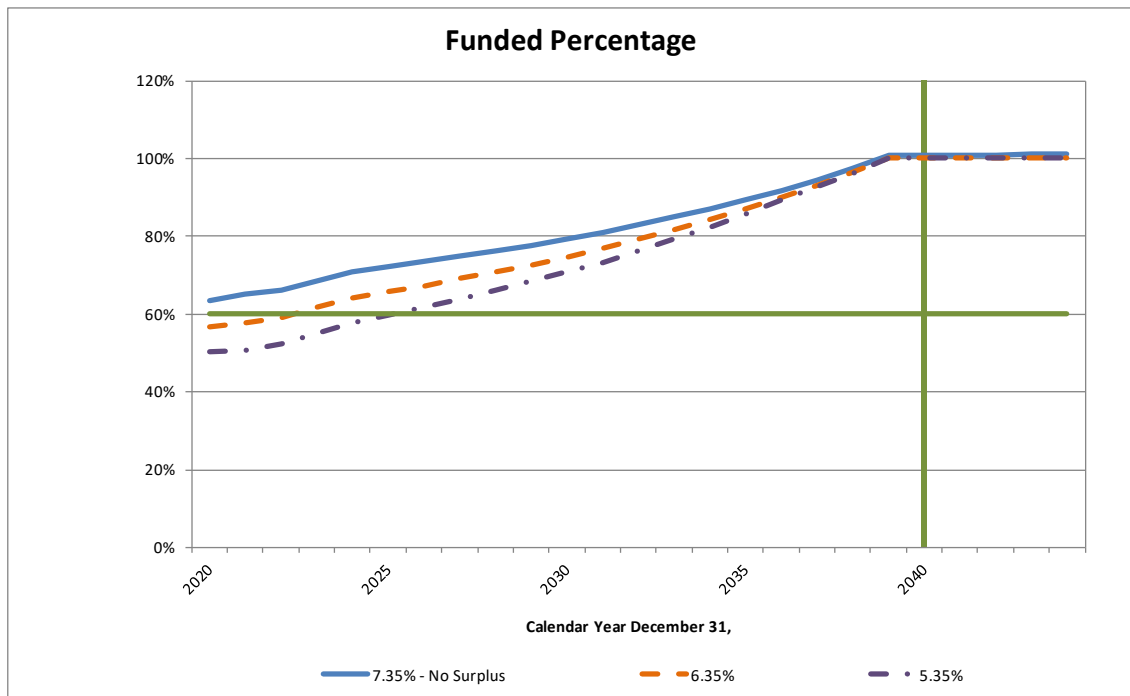
Please note that one or more of your divisions trigger the 3 times benefit payout minimum contribution requirement during the projection period (see table following the projections and the graphs). This contribution requirement was designed so that a plan does not run out of money. This means that if assets in the plan are not enough to pay 3 years of benefit payouts, a minimum contribution is required to raise the level of the assets to be equal to at least 3 years of benefit payments. See the Appendix on MERS website for a full description of this contribution requirement.



Valuation Year Ending 12/31	Fiscal Year Beginning 1/1	Actuarial Accrued Liability	Valuation Assets ²	Funded Percentage	Estimated Annual Employer Contribution
7.35%¹ - NO PHASE-IN					
2020	2022	\$ 136,608,768	\$ 86,883,585	64%	\$ 5,141,568
2021	2023	\$ 139,200,000	\$ 90,800,000	65%	\$ 5,410,000
2022	2024	\$ 141,700,000	\$ 93,900,000	66%	\$ 5,550,000
2023	2025	\$ 144,200,000	\$ 98,900,000	69%	\$ 5,490,000
2024	2026	\$ 146,400,000	\$ 103,600,000	71%	\$ 5,450,000
2025	2027	\$ 148,500,000	\$ 107,000,000	72%	\$ 5,510,000
6.35%¹ - NO PHASE-IN					
2020	2022	\$ 152,834,515	\$ 86,883,585	57%	\$ 6,576,180
2021	2023	\$ 155,600,000	\$ 90,000,000	58%	\$ 6,910,000
2022	2024	\$ 158,200,000	\$ 93,500,000	59%	\$ 7,090,000
2023	2025	\$ 160,800,000	\$ 99,100,000	62%	\$ 7,050,000
2024	2026	\$ 163,100,000	\$ 104,400,000	64%	\$ 7,040,000
2025	2027	\$ 165,300,000	\$ 108,500,000	66%	\$ 7,130,000
5.35%¹ - NO PHASE-IN					
2020	2022	\$ 172,456,839	\$ 86,883,585	50%	\$ 8,200,428
2021	2023	\$ 175,300,000	\$ 89,100,000	51%	\$ 8,620,000
2022	2024	\$ 178,100,000	\$ 93,300,000	52%	\$ 8,830,000
2023	2025	\$ 180,800,000	\$ 99,700,000	55%	\$ 8,840,000
2024	2026	\$ 183,200,000	\$ 105,900,000	58%	\$ 8,870,000
2025	2027	\$ 185,400,000	\$ 110,800,000	60%	\$ 8,990,000

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

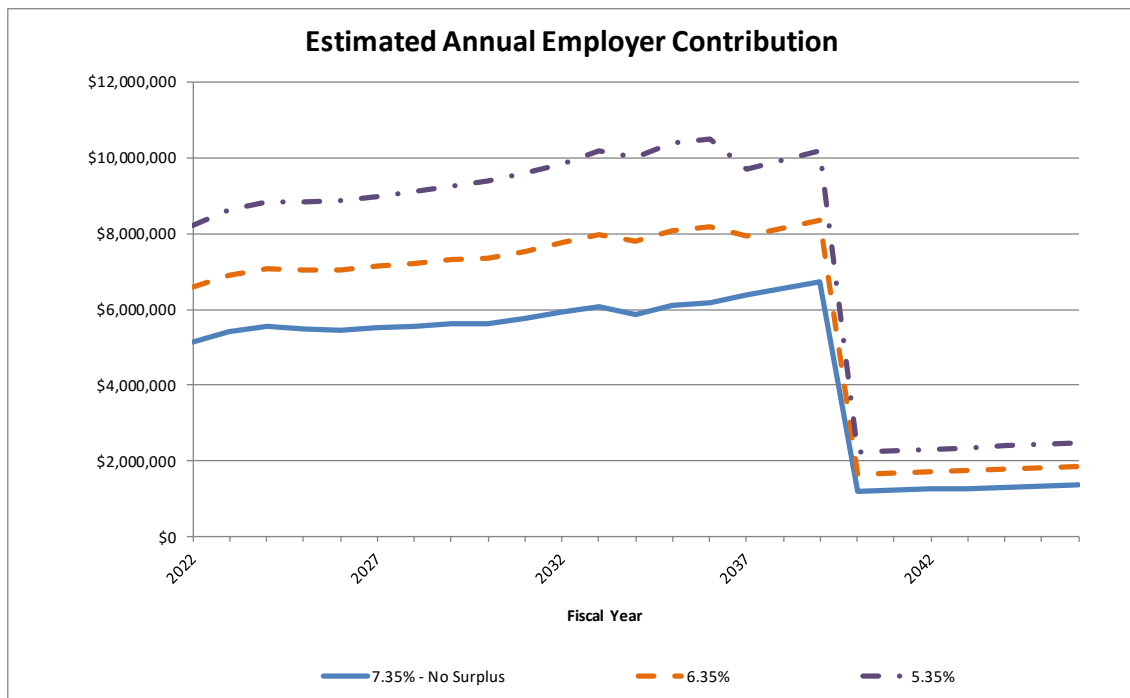
² Valuation Assets do not include assets from Surplus divisions, if any.



Notes:

All projected funded percentages are shown with no phase-in.

The green indicator lines have been added at 60% funded and 20 years following the valuation date for PA 202 purposes.



Notes:

All projected contributions are shown with no phase-in.

Valuation Year Ending 12/31	Fiscal Year Beginning 1/1	7.35% No Phase-In	6.35% No Phase-In	5.35% No Phase-In
2020	2022	01, 19	01, 19	01, 19
2021	2023	01, 13, 19	01, 13, 19	01, 13, 19
2022	2024	01, 13, 19	01, 13, 19	01, 13, 19
2023	2025	01, 13, 19	01, 13, 19	01, 13, 19
2024	2026	01, 13, 19	01, 13, 19	01, 13, 19
2025	2027	01, 13, 19	01, 13, 19	01, 13, 19

This table shows in any given year which division(s) are impacted by the 3 times benefit payout minimum required contribution. If “No” appears in the table, it means none of the divisions are impacted.

Table 1: Employer Contribution Details for the Fiscal Year Beginning January 1, 2022

Division	Total Normal Cost	Employee Contribut. Rate	Employer Contributions ¹			Computed Employer Contribut. With Phase-In	Blended ER Rate No Phase-In ⁵	Blended ER Rate With Phase-In ⁵	Employee Contribut. Conversion Factor ²
			Employer Normal Cost ⁶	Payment of the Unfunded Accrued Liability ⁴	Computed Employer Contribut. No Phase-In				
Percentage of Payroll									
01 - AFSCME Unit	7.38%	1.00%	-	-	-	-	51.72%	51.42%	
04 - MCF	11.00%	5.00%	-	-	-	-			
10 - Empl/Trning	0.00%	0.00%	-	-	-	-			
11 - Elected officials prior 5/95	7.59%	1.00%	-	-	-	-	27.21%	23.99%	
12 - Non Represented prior 5/95	7.46%	1.00%	-	-	-	-	27.21%	23.99%	
13 - Probate Court prior 6/95	6.33%	1.00%	-	-	-	-	40.39%	35.62%	
15 - Circuit Court prior 4/96	0.00%	1.00%	-	-	-	-	50.86%	43.59%	
16 - Hlth Clerical	6.81%	1.00%	5.81%	14.90%	20.71%	17.89%			0.90%
17 - Hlth Nurses	6.85%	1.00%	5.85%	10.74%	16.59%	14.28%			0.92%
18 - NonRep Elec Officials af 5/95	6.68%	1.00%	-	-	-	-	27.21%	23.99%	
19 - Tmstr NonSup pr9/96-non911/Sh	12.00%	0.00%	-	-	-	-	191.47%	186.70%	
20 - Tmstr NonSup af9/96-non911/Sh	18.25%	2.50%	-	-	-	-	191.47%	186.70%	
21 - Teamsters-Com Unit prior 9/96	18.37%	2.96%	-	-	-	-			
22 - Teamstr-Com Unit hired af 9/9	18.25%	3.27%	-	-	-	-			
Estimated Monthly Contribution ³									
01 - AFSCME Unit			\$ 803	\$ 20,120	\$ 20,923	\$ 20,806			
04 - MCF			2,356	44,447	46,803	32,022			
10 - Empl/Trning			0	309	309	186			
11 - Elected officials prior 5/95			600	15,853	16,453	15,259			
12 - Non Represented prior 5/95			602	61,205	61,807	55,390			
13 - Probate Court prior 6/95			207	13,207	13,414	12,298			
15 - Circuit Court prior 4/96			0	17,938	17,938	15,742			
16 - Hlth Clerical			1,552	3,979	5,531	4,778			
17 - Hlth Nurses			1,877	3,446	5,323	4,582			
18 - NonRep Elec Officials af 5/95			4,551	(3,361)	1,190	176			
19 - Tmstr NonSup pr9/96-non911/Sh			493	78,494	78,987	78,615			
20 - Tmstr NonSup af9/96-non911/Sh			3,185	800	3,985	3,025			
21 - Teamsters-Com Unit prior 9/96			664	40,149	40,813	37,699			
22 - Teamstr-Com Unit hired af 9/9			4,512	7,692	12,204	9,759			

Table 1 (continued)

Division	Total Normal Cost	Employee Contribut. Rate	Employer Contributions ¹			Computed Employer Contribut. With Phase-In	Blended ER Rate No Phase-In ⁵	Blended ER Rate With Phase-In ⁵	Employee Contribut. Conversion Factor ²
			Employer Normal Cost ⁶	Payment of the Unfunded Accrued Liability ⁴	Computed Employer Contribut. No Phase-In				
Percentage of Payroll									
23 - New Hires div 20 aft 11/09	18.95%	5.00%	13.95%	-3.71%	10.24%	6.33%	191.47%	186.70%	0.91%
26 - POLC before 2009	17.27%	2.50%	-	-	-	-	14.16%	10.17%	
27 - POLC aft 2009	20.13%	5.00%	-	-	-	-	14.16%	10.17%	
28 - 911 Disp prior 11/2009	16.77%	2.50%	-	-	-	-	52.78%	46.58%	
29 - 911 Command	19.17%	3.27%	15.90%	67.83%	83.73%	67.86%			0.96%
30 - 911 Disp aft 11/2009	16.53%	5.00%	11.53%	0.94%	12.47%	10.88%	52.78%	46.58%	0.87%
40 - MCF Dpt Hds	13.69%	5.00%	-	-	-	-			
41 - Part Time	8.70%	5.00%	-	-	-	-			
42 - AFSCME 5/96	9.41%	5.00%	-	-	-	-			
80 - Circ Crt 4/96	8.99%	1.00%	7.99%	2.36%	10.35%	8.03%	50.86%	43.59%	0.87%
81 - Probate af 6/95	7.48%	1.00%	-	-	-	-	40.39%	35.62%	
82 - Probate court Assoc aft 1/1/0	9.28%	1.00%	8.28%	-3.94%	4.34%	3.05%	40.39%	35.62%	0.75%
90 - AFSCME aft 1/1/09	6.62%	1.00%	5.62%	-8.55%	0.00%	0.00%	51.72%	51.42%	0.81%
91 - Non-Rep Elec Offic aft 10/1/1	6.96%	1.00%	5.96%	-3.71%	2.25%	1.61%	27.21%	23.99%	0.84%
HA - 25 POLC aft 3/1/17	6.19%	0.00%	6.19%	0.00%	6.19%	5.90%	14.16%	10.17%	
Estimated Monthly Contribution ³									
23 - New Hires div 20 aft 11/09			\$ 2,801	\$ (744)	\$ 2,057	\$ 1,271			
26 - POLC before 2009			5,796	1,291	7,087	4,576			
27 - POLC aft 2009			3,292	351	3,643	2,752			
28 - 911 Disp prior 11/2009			734	19,575	20,309	17,975			
29 - 911 Command			950	4,051	5,001	4,053			
30 - 911 Disp aft 11/2009			5,032	410	5,442	4,749			
40 - MCF Dpt Hds			3,516	3,147	6,663	3,177			
41 - Part Time			841	0	841	706			
42 - AFSCME 5/96			24,397	11,670	36,067	28,219			
80 - Circ Crt 4/96			3,538	1,046	4,584	3,558			
81 - Probate af 6/95			2,131	2,238	4,369	3,448			
82 - Probate court Assoc aft 1/1/0			673	(320)	353	248			
90 - AFSCME aft 1/1/09			1,483	(2,255)	0	0			
91 - Non-Rep Elec Offic aft 10/1/1			12,568	(7,826)	4,742	3,392			
HA - 25 POLC aft 3/1/17			1,626	0	1,626	1,551			
Total Municipality			\$ 90,780	\$ 336,912	\$ 428,464	\$ 370,012			
Estimated Annual Contribution ³			\$ 1,089,360	\$ 4,042,944	\$ 5,141,568	\$ 4,440,144			

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).
- ⁶ For divisions with a negative employer normal cost, employee contributions cover the normal cost and a portion of the payment of any unfunded accrued liability.

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

Table 2: Benefit Provisions

01 - AFSCME Unit: Closed to new hires, linked to Division 90

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2015	12/31/2015
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/20	55/20
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

04 - MCF: Closed to new hires

	2020 Valuation	2019 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):	55/25	55/25
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	5.00%	3.00%
DC Plan for New Hires:	1/1/2019	1/1/2019
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

10 - Empl/Trrng: Open Division

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

11 - Elected officials prior 5/95: Closed to new hires, linked to Division 91

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.50% Multiplier (80% max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.50% Multiplier (80% max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2014	12/31/2014
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

12 - Non Represented prior 5/95: Closed to new hires, linked to Division 91

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.50% Multiplier (80% max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.50% Multiplier (80% max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2014	12/31/2014
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

13 - Probate Court prior 6/95: Closed to new hires, linked to Division 82

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.25% Multiplier (80% max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.25% Multiplier (80% max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2015	12/31/2015
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/20	55/20
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)



15 - Circuit Court prior 4/96: Closed to new hires, linked to Division 80

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.50% Multiplier (80% max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.50% Multiplier (80% max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	1/31/2016	1/31/2016
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

16 - Hlth Clerical: Open Division

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier paid to Social Security Age, 1.70% Multiplier paid after Social Security Age (no max)-Frozen FAC; 1.50% Multiplier (80% max)	Bridged Benefit: 2.00% Multiplier paid to Social Security Age, 1.70% Multiplier paid after Social Security Age (no max) Frozen FAC; 1.50% Multiplier (80% max)
Bridged Benefit Date:	6/30/2016	6/30/2016
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

17 - Hlth Nurses: Open Division

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier paid to Social Security Age, 1.70% Multiplier paid after Social Security Age (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier paid to Social Security Age, 1.70% Multiplier paid after Social Security Age (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2015	12/31/2015
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

18 - NonRep Elec Officials af 5/95: Closed to new hires, linked to Division 91

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2014	12/31/2014
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

19 - Tmstr NonSup pr9/96-non911/Sh: Closed to new hires, linked to Division 23

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)



20 - Tmstr NonSup af9/96-non911/Sh: Closed to new hires, linked to Division 23

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	2.50%	2.50%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

21 - Teamsters-Com Unit prior 9/96: Closed to new hires, linked to Division 24

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	2.96%	2.96%
RS50% Percentage:	50%	50%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

22 - Teamstr-Com Unit hired af 9/9: Closed to new hires, linked to Division 24

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	3.27%	3.27%
RS50% Percentage:	50%	50%
Act 88:	No	No



23 - New Hires div 20 aft 11/09: Open Division, linked to Division 19, 20

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.50% Multiplier (85% max)	2.50% Multiplier (85% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	5.00%	5.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

26 - POLC before 2009: Closed to new hires, linked to Division HA

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	2.50%	2.50%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

27 - POLC aft 2009: Closed to new hires, linked to Division HA

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	5.00%	5.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

28 - 911 Disp prior 11/2009: Closed to new hires, linked to Division 30

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	2.50%	2.50%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

29 - 911 Command: Open Division

	2020 Valuation	2019 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):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	3.27%	3.27%
RS50% Percentage:	50%	50%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

30 - 911 Disp aft 11/2009: Open Division, linked to Division 28

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.50% Multiplier (85% max)	2.50% Multiplier (85% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	5.00%	5.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)



40 - MCF Dpt Hds: Closed to new hires

	2020 Valuation	2019 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):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	5.00%	3.00%
DC Plan for New Hires:	1/1/2019	1/1/2019
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

41 - Part Time: Closed to new hires

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.00% Multiplier paid to Social Security Age, 1.70% Multiplier paid after Social Security Age (no max)	2.00% Multiplier paid to Social Security Age, 1.70% Multiplier paid after Social Security Age (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	5.00%	3.00%
DC Plan for New Hires:	1/1/2019	1/1/2019
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

42 - AFSCME 5/96: Closed to new hires

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	5.00%	3.00%
DC Plan for New Hires:	1/1/2019	1/1/2019
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)



80 - Circ Crt 4/96: Open Division, linked to Division 15

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	1/31/2016	1/31/2016
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

81 - Probate af 6/95: Closed to new hires, linked to Division 82

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2015	12/31/2015
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/20	55/20
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

82 - Probate court Assoc aft 1/1/0: Open Division, linked to Division 13, 81

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2015	12/31/2015
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/20	55/20
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)



90 - AFSCME aft 1/1/09: Open Division, linked to Division 01

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2015	12/31/2015
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/20	55/20
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

91 - Non-Rep Elec Offic aft 10/1/1: Open Division, linked to Division 11, 12, 18

	2020 Valuation	2019 Valuation
Benefit Multiplier:	Bridged Benefit: 2.00% Multiplier (no max)-Frozen FAC; 1.50% Multiplier (no max)	Bridged Benefit: 2.00% Multiplier (no max) Frozen FAC; 1.50% Multiplier (no max)
Bridged Benefit Date:	12/31/2014	12/31/2014
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	1.00%	1.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)

HA - 25 POLC aft 3/1/17: Open Division, linked to Division 26, 27

	2020 Valuation	2019 Valuation
Benefit Multiplier:	1.50% Multiplier (no max)	1.50% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 6/12/1973)	Yes (Adopted 6/12/1973)



Table 3: Participant Summary

Division	2020 Valuation		2019 Valuation		2020 Valuation		
	Number	Annual Payroll ¹	Number	Annual Payroll ¹	Average Age	Average Benefit Service ²	Average Eligibility Service ²
01 - AFSCME Unit							
Active Employees	5	\$ 176,830	6	\$ 209,234	57.3	21.9	21.9
Vested Former Employees	2	12,765	2	12,765	53.4	10.2	22.6
Retirees and Beneficiaries	31	292,647	31	290,620	71.8		
Pending Refunds	0		0				
04 - MCF							
Active Employees	12	\$ 572,524	15	\$ 631,431	52.4	30.7	30.7
Vested Former Employees	18	168,469	20	181,056	53.9	14.5	17.4
Retirees and Beneficiaries	109	2,342,070	112	2,350,616	70.8		
Pending Refunds	1		1				
10 - Empl/Trrning							
Active Employees	0	\$ 0	0	\$ 0	0.0	0.0	0.0
Vested Former Employees	3	15,737	3	15,737	56.8	7.5	7.5
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	0		0				
11 - Elected officials prior 5/95							
Active Employees	3	\$ 168,028	3	\$ 168,028	61.5	33.1	33.1
Vested Former Employees	2	2,335	2	2,335	60.3	6.3	16.2
Retirees and Beneficiaries	18	272,608	18	267,511	76.9		
Pending Refunds	0		0				
12 - Non Represented prior 5/95							
Active Employees	3	\$ 141,613	4	\$ 243,013	58.4	30.5	30.5
Vested Former Employees	8	96,731	9	103,863	59.0	13.7	17.8
Retirees and Beneficiaries	48	1,098,863	46	1,018,756	72.2		
Pending Refunds	0		0				
13 - Probate Court prior 6/95							
Active Employees	1	\$ 50,972	1	\$ 51,089	53.8	26.0	26.0
Vested Former Employees	1	28,131	1	28,131	54.4	22.1	22.1
Retirees and Beneficiaries	14	240,684	14	240,684	76.1		
Pending Refunds	0		0				
15 - Circuit Court prior 4/96							
Active Employees	0	\$ 0	1	\$ 46,583	0.0	0.0	0.0
Vested Former Employees	1	11,142	1	11,142	54.4	10.3	10.3
Retirees and Beneficiaries	15	446,276	14	402,832	73.8		
Pending Refunds	0		0				

Table 3 (continued)

Division	2020 Valuation		2019 Valuation		2020 Valuation		
	Number	Annual Payroll ¹	Number	Annual Payroll ¹	Average Age	Average Benefit Service ²	Average Eligibility Service ²
16 - Hlth Clerical							
Active Employees	10	\$ 302,077	9	\$ 266,958	44.5	7.2	7.2
Vested Former Employees	4	18,923	4	18,923	49.2	12.1	13.3
Retirees and Beneficiaries	13	93,692	13	94,128	70.3		
Pending Refunds	5		5				
17 - Hlth Nurses							
Active Employees	7	\$ 362,919	7	\$ 380,643	41.7	7.5	8.5
Vested Former Employees	2	18,030	2	18,030	54.7	13.4	13.4
Retirees and Beneficiaries	7	74,483	7	74,483	67.8		
Pending Refunds	3		2				
18 - NonRep Elec Officials af 5/95							
Active Employees	25	\$ 1,021,684	31	\$ 1,226,890	53.7	14.9	16.2
Vested Former Employees	24	188,873	23	185,490	51.9	9.1	14.9
Retirees and Beneficiaries	34	267,371	29	216,124	69.4		
Pending Refunds	3		3				
19 - Tmstr NonSup pr9/96-non911/Sh							
Active Employees	1	\$ 54,342	1	\$ 51,793	48.6	24.9	24.9
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	34	1,305,178	37	1,311,643	71.6		
Pending Refunds	0		0				
20 - Tmstr NonSup af9/96-non911/Sh							
Active Employees	5	\$ 275,852	7	\$ 399,458	50.1	19.1	21.0
Vested Former Employees	6	91,945	6	91,945	47.2	11.4	16.6
Retirees and Beneficiaries	3	74,077	1	6,213	65.2		
Pending Refunds	12		13				
21 - Teamsters-Com Unit prior 9/96							
Active Employees	1	\$ 81,479	3	\$ 205,507	50.8	24.3	24.3
Vested Former Employees	2	61,691	2	61,691	54.2	19.0	19.0
Retirees and Beneficiaries	12	613,098	10	514,138	62.3		
Pending Refunds	0		0				
22 - Teamstr-Com Unit hired af 9/9							
Active Employees	6	\$ 385,587	7	\$ 455,278	50.2	20.5	21.2
Vested Former Employees	1	23,275	1	23,275	48.2	13.5	17.0
Retirees and Beneficiaries	1	36,429	0	0	51.1		
Pending Refunds	0		0				
23 - New Hires div 20 aft 11/09							
Active Employees	3	\$ 172,107	3	\$ 165,626	41.5	6.4	7.1
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	1		1				

Table 3 (continued)

Division	2020 Valuation		2019 Valuation		2020 Valuation		
	Number	Annual Payroll ¹	Number	Annual Payroll ¹	Average Age	Average Benefit Service ²	Average Eligibility Service ²
26 - POLC before 2009							
Active Employees	9	\$ 456,013	10	\$ 514,802	46.5	17.7	17.7
Vested Former Employees	6	51,972	6	51,972	43.3	6.9	11.4
Retirees and Beneficiaries	1	26,817	0	0	64.1		
Pending Refunds	0		0				
27 - POLC aft 2009							
Active Employees	5	\$ 254,386	6	\$ 311,633	36.5	5.1	8.9
Vested Former Employees	1	4,818	0	0	41.1	3.8	12.6
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	2		3				
28 - 911 Disp prior 11/2009							
Active Employees	1	\$ 59,395	1	\$ 54,724	48.5	20.3	20.3
Vested Former Employees	4	39,382	4	39,459	57.3	11.9	14.9
Retirees and Beneficiaries	10	354,428	10	347,705	65.7		
Pending Refunds	1		1				
29 - 911 Command							
Active Employees	1	\$ 67,549	1	\$ 62,920	38.4	9.8	9.8
Vested Former Employees	0	0	1	38,801	0.0	0.0	0.0
Retirees and Beneficiaries	3	90,954	1	52,432	55.1		
Pending Refunds	0		0				
30 - 911 Disp aft 11/2009							
Active Employees	9	\$ 492,428	8	\$ 415,957	38.2	4.3	5.8
Vested Former Employees	1	7,542	1	7,542	30.2	5.7	8.8
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	13		12				
40 - MCF Dpt Hds							
Active Employees	6	\$ 514,763	7	\$ 595,426	47.5	15.6	15.6
Vested Former Employees	5	84,903	5	84,903	51.7	15.7	15.7
Retirees and Beneficiaries	14	395,974	15	422,315	69.6		
Pending Refunds	2		2				
41 - Part Time							
Active Employees	17	\$ 304,418	34	\$ 659,297	41.6	2.9	2.9
Vested Former Employees	6	24,683	5	18,021	46.3	11.0	12.1
Retirees and Beneficiaries	5	20,669	4	18,685	70.0		
Pending Refunds	120		107				

Table 3 (continued)

	2020 Valuation		2019 Valuation		2020 Valuation		
	Number	Annual Payroll ¹	Number	Annual Payroll ¹	Average Age	Average Benefit Service ²	Average Eligibility Service ²
42 - AFSCME 5/96							
Active Employees	133	\$ 6,902,781	151	\$ 7,101,221	43.2	8.7	9.0
Vested Former Employees	18	142,987	16	98,901	49.2	10.6	14.0
Retirees and Beneficiaries	28	272,547	28	268,396	68.9		
Pending Refunds	135		126				
80 - Circ Crt 4/96							
Active Employees	14	\$ 500,867	13	\$ 511,368	44.4	5.7	5.9
Vested Former Employees	5	43,687	5	43,687	54.7	10.7	14.7
Retirees and Beneficiaries	2	21,532	2	21,032	60.6		
Pending Refunds	9		8				
81 - Probate af 6/95							
Active Employees	10	\$ 423,920	11	\$ 480,612	51.9	16.5	17.6
Vested Former Employees	8	66,463	8	66,463	46.5	10.6	12.5
Retirees and Beneficiaries	1	15,881	0	0	49.1		
Pending Refunds	0		0				
82 - Probate court Assoc aft 1/1/0							
Active Employees	1	\$ 33,022	1	\$ 35,620	58.4	7.9	7.9
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	1		1				
90 - AFSCME aft 1/1/09							
Active Employees	9	\$ 263,863	8	\$ 249,359	44.4	3.5	3.5
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	8		7				
91 - Non-Rep Elec Offic aft 10/1/1							
Active Employees	58	\$ 2,168,658	58	\$ 2,035,843	45.5	3.6	6.0
Vested Former Employees	7	11,549	6	9,455	41.5	2.9	7.9
Retirees and Beneficiaries	1	1,183	1	1,183	64.3		
Pending Refunds	35		28				
HA - 25 POLC aft 3/1/17							
Active Employees	6	\$ 276,688	7	\$ 345,043	34.2	2.3	2.3
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	0		0				
Total Municipality							
Active Employees	361	\$ 16,484,765	414	\$ 17,875,356	45.4	9.8	10.6
Vested Former Employees	135	1,216,033	133	1,213,584	50.8	10.8	14.5
Retirees and Beneficiaries	404	8,357,461	393	7,919,494	70.6		
Pending Refunds	351		320				
Total Participants	1,251		1,260				

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	2020 Valuation		2019 Valuation	
	Employer and Retiree ¹	Employee ²	Employer and Retiree ¹	Employee ²
01 - AFSCME Unit	\$ 604,117	\$ 8,876	\$ 667,435	\$ 8,425
04 - MCF	27,891,117	63,478	26,806,868	47,176
10 - Empl/Trning	147,705	0	126,336	0
11 - Elected officials prior 5/95	1,662,960	8,801	1,610,908	7,114
12 - Non Represented prior 5/95	5,400,979	16,370	5,431,153	19,471
13 - Probate Court prior 6/95	720,896	2,493	788,309	1,982
15 - Circuit Court prior 4/96	2,084,001	75	2,144,809	1,716
16 - Hlth Clerical	628,630	38,526	577,171	34,602
17 - Hlth Nurses	802,919	17,292	742,068	13,762
18 - NonRep Elec Officials af 5/95	6,260,438	68,391	5,731,512	64,221
19 - Tmstr NonSup pr9/96-non911/Sh	2,292,298	548	1,953,391	548
20 - Tmstr NonSup af9/96-non911/Sh	2,872,779	344,424	2,371,665	379,824
21 - Teamsters-Com Unit prior 9/96	3,617,872	71,214	3,356,603	82,604
22 - Teamstr-Com Unit hired af 9/9	2,502,741	238,613	1,861,340	259,304
23 - New Hires div 20 aft 11/09	358,926	32,090	289,256	23,461
26 - POLC before 2009	2,683,510	238,779	2,266,288	253,829
27 - POLC aft 2009	247,510	78,857	157,930	67,664
28 - 911 Disp prior 11/2009	2,546,476	64,686	2,317,179	63,139
29 - 911 Command	1,049,891	17,336	974,761	23,363
30 - 911 Disp aft 11/2009	393,135	109,293	283,570	84,833
40 - MCF Dpt Hds	7,187,111	51,342	6,595,582	31,305
41 - Part Time	471,810	48,621	432,677	42,373
42 - AFSCME 5/96	9,840,990	712,463	8,551,305	437,660
80 - Circ Crt 4/96	1,110,534	22,222	944,892	17,177
81 - Probate af 6/95	1,342,243	21,288	1,134,622	19,007
82 - Probate court Assoc aft 1/1/0	67,094	8,681	54,077	8,343
90 - AFSCME aft 1/1/09	350,849	17,107	298,212	14,748
91 - Non-Rep Elec Offic aft 10/1/1	1,732,133	125,718	1,439,374	107,252
HA - 25 POLC aft 3/1/17	54,340	0	31,509	0
Municipality Total³	\$ 86,926,003	\$ 2,427,585	\$ 79,940,800	\$ 2,114,902
Combined Assets³	\$89,353,587		\$82,055,702	

¹ Reserve for Employer Contributions and Benefit Payments.

² Reserve for Employee Contributions.

³ Totals may not add due to rounding.

The December 31, 2020 valuation assets (actuarial value of assets) are equal to 0.972357 times the reported market value of assets (compared to 1.013179 as of December 31, 2019). Refer to the Appendix for a description of the valuation asset derivation and a detailed calculation of valuation assets.

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						
2010	\$ 2,936,738		\$ 80,686	\$ 3,026,200	\$ (4,539,916)	\$ (15,073)	\$ 0	\$ 59,855,811
2011	2,887,526	\$ 0	79,332	2,911,753	(4,915,001)	(19,026)	32,471	60,832,866
2012	3,051,492	0	83,494	2,627,331	(5,334,315)	(6,430)	68,521	61,322,959
2013	3,106,172	9,800,000	119,125	4,126,055	(5,935,812)	(23,863)	0	72,514,636
2014	2,818,771	25,000	126,482	4,016,191	(6,268,312)	(9,715)	1	73,223,054
2015	2,778,162	12,000	114,008	3,400,697	(6,635,593)	(27,720)	0	72,864,608
2016	2,857,581	6,500,000	121,618	3,975,823	(6,997,191)	(18,804)	(2)	79,303,633
2017	3,687,245	398,797	214,753	4,629,068	(7,464,070)	0	77,747	80,847,173
2018	4,471,526	22,379	327,639	2,926,793	(7,631,561)	(17,421)	(1)	80,946,527
2019	3,686,293	2,000,002	449,814	3,740,177	(7,689,339)	(13,034)	16,674	83,137,114
2020	4,494,204	149,637	497,252	6,545,699	(7,916,714)	(23,607)	0	86,883,585

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, 2020**

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
01 - AFSCME Unit	\$ 613,215	\$ 70,080	\$ 2,657,607	\$ 0	\$ 3,340,902	\$ 596,048	17.8%	\$ 2,744,854
04 - MCF	5,094,136	1,751,630	26,930,842	305	33,776,913	27,181,846	80.5%	6,595,067
10 - Empl/Tning	0	170,517	0	0	170,517	143,622	84.2%	26,895
11 - Elected officials prior 5/95	1,230,565	24,208	2,760,684	0	4,015,457	1,625,549	40.5%	2,389,908
12 - Non Represented prior 5/95	913,139	1,269,808	12,244,134	0	14,427,081	5,267,597	36.5%	9,159,484
13 - Probate Court prior 6/95	252,072	325,432	2,105,768	0	2,683,272	703,392	26.2%	1,979,880
15 - Circuit Court prior 4/96	0	104,587	4,595,784	0	4,700,371	2,026,466	43.1%	2,673,905
16 - Hlth Clerical	244,910	163,456	833,669	1,785	1,243,820	648,714	52.2%	595,106
17 - Hlth Nurses	328,070	156,426	826,333	3,112	1,313,941	797,538	60.7%	516,403
18 - NonRep Elec Officials af 5/95	1,816,735	1,318,789	2,679,335	1,433	5,816,292	6,153,881	105.8%	(337,589)
19 - Tmstr NonSup pr9/96-non911/Sh	484,172	0	13,965,098	0	14,449,270	2,229,465	15.4%	12,219,805
20 - Tmstr NonSup af9/96-non911/Sh	1,650,111	569,248	992,742	10,902	3,223,003	3,128,269	97.1%	94,734
21 - Teamsters-Com Unit prior 9/96	739,877	597,589	8,281,780	0	9,619,246	3,587,109	37.3%	6,032,137
22 - Teamstr-Com Unit hired af 9/9	2,709,439	144,850	591,332	0	3,445,621	2,665,574	77.4%	780,047
23 - New Hires div 20 aft 11/09	283,701	0	0	414	284,115	380,207	133.8%	(96,092)
26 - POLC before 2009	2,402,300	245,573	356,289	0	3,004,162	2,841,508	94.6%	162,654
27 - POLC aft 2009	301,205	16,901	0	17,400	335,506	317,346	94.6%	18,160
28 - 911 Disp prior 11/2009	398,309	353,747	4,047,311	11,975	4,811,342	2,538,981	52.8%	2,272,361
29 - 911 Command	165,708	0	1,388,951	0	1,554,659	1,037,725	66.7%	516,934
30 - 911 Disp aft 11/2009	510,778	10,580	0	17,227	538,585	488,539	90.7%	50,046
40 - MCF Dpt Hds	2,141,704	780,549	4,570,716	2,241	7,495,210	7,038,361	93.9%	456,849
41 - Part Time	114,941	152,448	210,615	24,395	502,399	506,044	100.7%	(3,645)
42 - AFSCME 5/96	8,120,348	936,913	2,837,677	85,304	11,980,242	10,261,724	85.7%	1,718,518
80 - Circ Crt 4/96	444,598	470,499	305,027	3,072	1,223,196	1,101,443	90.0%	121,753
81 - Probate af 6/95	1,059,562	322,437	202,758	0	1,584,757	1,325,840	83.7%	258,917
82 - Probate court Assoc aft 1/1/0	35,042	0	0	2,463	37,505	73,680	196.5%	(36,175)
90 - AFSCME aft 1/1/09	97,907	0	0	3,605	101,512	357,784	352.5%	(256,272)
91 - Non-Rep Elec Offic aft 10/1/1	792,437	42,337	12,265	32,317	879,356	1,806,495	205.4%	(927,139)
HA - 25 POLC aft 3/1/17	50,516	0	0	0	50,516	52,838	104.6%	(2,322)
Total	\$ 32,995,497	\$ 9,998,604	\$ 93,396,717	\$ 217,950	\$ 136,608,768	\$ 86,883,585	63.6%	\$ 49,725,183

The following results show the combined accrued liabilities and assets for each set of linked divisions. These results are already shown in the table on the prior page(s).

Table 6 (continued)

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
Linked Divisions 23, 19, 20	\$ 2,417,984	\$ 569,248	\$ 14,957,840	\$ 11,316	\$ 17,956,388	\$ 5,737,941	32.0%	\$ 12,218,447
Linked Divisions 30, 28	909,087	364,327	4,047,311	29,202	5,349,927	3,027,520	56.6%	2,322,407
Linked Divisions 80, 15	444,598	575,086	4,900,811	3,072	5,923,567	3,127,909	52.8%	2,795,658
Linked Divisions 82, 13, 81	1,346,676	647,869	2,308,526	2,463	4,305,534	2,102,912	48.8%	2,202,622
Linked Divisions 90, 01	711,122	70,080	2,657,607	3,605	3,442,414	953,832	27.7%	2,488,582
Linked Divisions 91, 11, 12, 18	4,752,876	2,655,142	17,696,418	33,750	25,138,186	14,853,522	59.1%	10,284,664
Linked Divisions HA, 26, 27	2,754,021	262,474	356,289	17,400	3,390,184	3,211,692	94.7%	178,492

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

The December 31, 2020 valuation assets (actuarial value of assets) are equal to 0.972357 times the reported market value of assets. Refer to the Appendix for a description of the valuation asset derivation and a detailed calculation of valuation assets.

Table 7: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2006	\$ 78,165,187	\$ 52,366,775	67%	\$ 25,798,412
2007	81,876,498	55,790,773	68%	26,085,725
2008	86,459,988	57,148,848	66%	29,311,140
2009	87,997,618	58,367,176	66%	29,630,442
2010	90,595,091	59,855,811	66%	30,739,280
2011	94,965,530	60,832,866	64%	34,132,664
2012	98,142,321	61,322,959	63%	36,819,362
2013	102,161,823	72,514,636	71%	29,647,187
2014	104,538,956	73,223,054	70%	31,315,902
2015	113,222,831	72,864,608	64%	40,358,223
2016	115,366,643	79,303,633	69%	36,063,010
2017	117,882,066	80,847,173	69%	37,034,893
2018	121,627,478	80,946,527	67%	40,680,951
2019	127,871,440	83,137,114	65%	44,734,326
2020	136,608,768	86,883,585	64%	49,725,183

Notes: Actuarial assumptions were revised for the 2008, 2009, 2010, 2011, 2012, 2015, 2019 and 2020 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 - AFSCME Unit

Table 8-01: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 3,969,376	\$ 2,476,690	62%	\$ 1,492,686
2011	4,063,670	2,289,040	56%	1,774,630
2012	3,894,979	2,014,400	52%	1,880,579
2013	3,755,665	1,800,146	48%	1,955,519
2014	3,602,572	1,603,228	45%	1,999,344
2015	3,579,967	1,407,462	39%	2,172,505
2016	3,338,145	1,157,063	35%	2,181,082
2017	3,137,575	1,056,361	34%	2,081,214
2018	3,120,676	871,412	28%	2,249,264
2019	3,197,073	684,767	21%	2,512,306
2020	3,340,902	596,048	18%	2,744,854

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 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		
2010	16	\$ 440,439	26.54%	0.00%
2011	12	328,699	37.66%	0.00%
2012	9	253,753	\$ 11,002	0.00%
2013	8	252,103	\$ 11,608	0.00%
2014	8	267,378	\$ 12,230	0.00%
2015	8	276,991	\$ 13,391	1.00%
2016	6	195,691	\$ 13,341	1.00%
2017	6	195,551	\$ 13,035	1.00%
2018	6	200,290	\$ 14,536	1.00%
2019	6	209,234	\$ 23,652	1.00%
2020	5	176,830	\$ 20,923	1.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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 8-04: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 25,476,764	\$ 15,679,474	62%	\$ 9,797,290
2011	26,479,832	15,371,777	58%	11,108,055
2012	27,246,924	15,022,969	55%	12,223,955
2013	27,689,982	23,277,694	84%	4,412,288
2014	28,132,995	22,946,313	82%	5,186,682
2015	31,049,856	22,699,848	73%	8,350,008
2016	30,852,510	28,808,894	93%	2,043,616
2017	31,075,612	28,622,402	92%	2,453,210
2018	31,439,107	27,438,326	87%	4,000,781
2019	32,251,287	27,207,954	84%	5,043,333
2020	33,776,913	27,181,846	80%	6,595,067

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-04: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	47	\$ 1,570,257	44.89%	0.00%
2011	43	1,463,583	52.33%	0.00%
2012	38	1,332,532	65.63%	0.00%
2013	34	1,175,473	31.52%	0.00%
2014	30	1,046,757	41.20%	0.00%
2015	28	1,052,635	61.45%	0.00%
2016	21	757,516	24.30%	0.00%
2017	20	761,960	31.73%	1.00%
2018	17	723,576	48.72%	1.00%
2019	15	631,431	\$ 36,710	3.00%
2020	12	572,524	\$ 46,803	5.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 10 - Empl/Trning

Table 8-10: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 67,962	\$ 76,109	112%	\$ (8,147)
2011	73,518	79,467	108%	(5,949)
2012	79,546	83,461	105%	(3,915)
2013	86,735	88,760	102%	(2,025)
2014	93,883	94,037	100%	(154)
2015	108,825	98,966	91%	9,859
2016	117,598	104,488	89%	13,110
2017	127,097	112,353	88%	14,744
2018	136,431	118,786	87%	17,645
2019	155,407	128,001	82%	27,406
2020	170,517	143,622	84%	26,895

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-10: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	0	0	\$ 243	0.00%
2016	0	0	\$ 279	0.00%
2017	0	0	\$ 329	0.00%
2018	0	0	\$ 402	0.00%
2019	0	0	\$ 273	0.00%
2020	0	0	\$ 309	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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 11 - Elected officials prior 5/95

Table 8-11: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 2,976,772	\$ 2,146,578	72%	\$ 830,194
2011	3,062,858	2,199,982	72%	862,876
2012	3,195,704	2,320,033	73%	875,671
2013	3,351,868	2,294,272	68%	1,057,596
2014	3,330,109	2,248,198	68%	1,081,911
2015	3,532,358	2,105,577	60%	1,426,781
2016	3,767,118	2,083,992	55%	1,683,126
2017	3,808,610	1,965,950	52%	1,842,660
2018	3,829,030	1,796,101	47%	2,032,929
2019	3,951,193	1,639,346	41%	2,311,847
2020	4,015,457	1,625,549	40%	2,389,908

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-11: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	5	\$ 255,177	\$ 5,926	0.00%
2011	5	254,952	\$ 5,912	0.00%
2012	3	124,782	\$ 5,206	0.00%
2013	3	124,827	\$ 6,267	0.00%
2014	2	97,348	\$ 6,008	1.00%
2015	2	97,348	\$ 8,499	1.00%
2016	3	136,412	\$ 10,328	1.00%
2017	3	147,327	\$ 11,490	1.00%
2018	3	146,572	\$ 12,835	1.00%
2019	3	168,028	\$ 15,426	1.00%
2020	3	168,028	\$ 16,453	1.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 12 - Non Represented prior 5/95

Table 8-12: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 11,578,757	\$ 8,405,680	73%	\$ 3,173,077
2011	12,099,184	8,506,236	70%	3,592,948
2012	12,250,940	8,447,310	69%	3,803,630
2013	12,689,993	8,458,126	67%	4,231,867
2014	12,634,307	8,393,211	66%	4,241,096
2015	13,424,012	7,923,086	59%	5,500,926
2016	13,526,162	7,370,093	54%	6,156,069
2017	13,243,316	6,851,323	52%	6,391,993
2018	12,908,764	6,178,198	48%	6,730,566
2019	13,522,409	5,522,458	41%	7,999,951
2020	14,427,081	5,267,597	37%	9,159,484

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-12: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	18	\$ 751,304	\$ 21,613	0.00%
2011	16	692,240	\$ 23,259	0.00%
2012	13	570,614	\$ 23,686	0.00%
2013	12	566,002	\$ 26,371	0.00%
2014	9	406,549	\$ 23,538	1.00%
2015	9	418,348	\$ 32,855	1.00%
2016	7	322,813	\$ 36,710	1.00%
2017	6	288,204	\$ 38,876	1.00%
2018	6	292,518	\$ 42,172	1.00%
2019	4	243,013	\$ 52,851	1.00%
2020	3	141,613	\$ 61,807	1.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 13 - Probate Court prior 6/95

Table 8-13: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 2,426,383	\$ 1,566,821	65%	\$ 859,562
2011	2,547,230	1,491,509	59%	1,055,721
2012	2,535,618	1,354,419	53%	1,181,199
2013	2,531,656	1,244,031	49%	1,287,625
2014	2,524,335	1,131,271	45%	1,393,064
2015	2,556,928	940,887	37%	1,616,041
2016	2,544,605	739,847	29%	1,804,758
2017	2,529,507	1,193,014	47%	1,336,493
2018	2,510,672	995,668	40%	1,515,004
2019	2,574,707	800,706	31%	1,774,001
2020	2,683,272	703,392	26%	1,979,880

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-13: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	3	\$ 128,933	\$ 4,878	0.00%
2011	1	47,743	\$ 5,502	0.00%
2012	1	47,707	\$ 6,249	0.00%
2013	1	48,082	\$ 6,933	0.00%
2014	1	48,207	\$ 7,660	0.00%
2015	1	49,998	\$ 9,319	1.00%
2016	1	46,582	\$ 10,603	1.00%
2017	1	46,582	\$ 7,871	1.00%
2018	1	48,345	\$ 9,500	1.00%
2019	1	51,089	\$ 11,703	1.00%
2020	1	50,972	\$ 13,414	1.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 15 - Circuit Court prior 4/96

Table 8-15: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 3,685,580	\$ 3,065,261	83%	\$ 620,319
2011	3,735,759	3,094,289	83%	641,470
2012	3,872,427	3,081,154	80%	791,273
2013	3,989,520	3,072,782	77%	916,738
2014	4,094,368	3,049,197	75%	1,045,171
2015	4,410,600	2,915,434	66%	1,495,166
2016	4,398,853	2,617,344	60%	1,781,509
2017	4,368,509	2,765,348	63%	1,603,161
2018	4,340,047	2,466,323	57%	1,873,724
2019	4,383,189	2,174,814	50%	2,208,375
2020	4,700,371	2,026,466	43%	2,673,905

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-15: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	8	\$ 312,923	\$ 5,470	0.00%
2011	8	312,223	\$ 5,568	0.00%
2012	7	270,396	\$ 5,898	0.00%
2013	6	225,458	\$ 6,345	0.00%
2014	5	179,385	\$ 6,834	0.00%
2015	5	193,689	\$ 9,912	0.00%
2016	1	39,254	\$ 10,393	1.00%
2017	1	42,651	\$ 9,467	1.00%
2018	1	44,605	\$ 11,620	1.00%
2019	1	46,583	\$ 14,433	1.00%
2020	0	0	\$ 17,938	1.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 16 - Hlth Clerical

Table 8-16: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 967,269	\$ 801,319	83%	\$ 165,950
2011	1,065,920	794,820	75%	271,100
2012	981,153	764,894	78%	216,259
2013	954,261	759,951	80%	194,310
2014	1,034,590	746,611	72%	287,979
2015	1,092,148	719,589	66%	372,559
2016	1,134,697	701,000	62%	433,697
2017	1,074,358	656,275	61%	418,083
2018	1,087,982	643,965	59%	444,017
2019	1,136,553	619,835	55%	516,718
2020	1,243,820	648,714	52%	595,106

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-16: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	9	\$ 223,621	11.08%	0.00%
2011	9	199,743	14.50%	0.00%
2012	10	254,847	11.42%	0.59%
2013	10	255,291	7.46%	4.99%
2014	10	249,332	14.12%	0.00%
2015	11	290,194	10.61%	5.50%
2016	11	277,872	16.17%	1.00%
2017	11	289,056	14.38%	1.00%
2018	10	278,879	15.79%	1.00%
2019	9	266,958	19.11%	1.00%
2020	10	302,077	20.71%	1.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 17 - Hlth Nurses

Table 8-17: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 863,751	\$ 518,406	60%	\$ 345,345
2011	963,029	553,005	57%	410,024
2012	1,003,180	572,412	57%	430,768
2013	1,030,119	600,702	58%	429,417
2014	1,024,657	635,491	62%	389,166
2015	1,140,852	681,369	60%	459,483
2016	1,266,248	725,965	57%	540,283
2017	1,294,476	745,142	58%	549,334
2018	1,099,727	717,156	65%	382,571
2019	1,223,095	765,791	63%	457,304
2020	1,313,941	797,538	61%	516,403

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-17: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	7	\$ 314,410	13.08%	0.00%
2011	7	321,294	13.69%	0.00%
2012	6	294,658	15.40%	0.00%
2013	5	251,360	17.23%	0.00%
2014	7	295,863	14.66%	0.00%
2015	7	330,209	15.43%	0.00%
2016	7	349,003	15.71%	1.00%
2017	6	302,954	17.80%	1.00%
2018	7	359,571	11.71%	1.00%
2019	7	380,643	13.56%	1.00%
2020	7	362,919	16.59%	1.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 18 - NonRep Elec Officials af 5/95

Table 8-18: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 3,121,686	\$ 3,137,679	101%	\$ (15,993)
2011	3,368,724	3,301,122	98%	67,602
2012	3,552,396	3,522,327	99%	30,069
2013	3,940,393	3,685,214	94%	255,179
2014	3,579,850	4,002,651	112%	(422,801)
2015	4,106,942	4,332,596	106%	(225,654)
2016	4,469,406	4,884,376	109%	(414,970)
2017	4,736,684	5,305,809	112%	(569,125)
2018	4,979,452	5,596,049	112%	(616,597)
2019	5,362,466	5,872,115	110%	(509,649)
2020	5,816,292	6,153,881	106%	(337,589)

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-18: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	70	\$ 2,195,266	7.80%	0.00%
2011	68	2,180,893	7.77%	0.00%
2012	66	2,212,162	7.96%	0.00%
2013	53	1,927,990	\$ 13,123	0.00%
2014	48	1,811,763	\$ 2,222	1.00%
2015	38	1,475,219	\$ 4,234	1.00%
2016	36	1,332,619	\$ 1,721	1.00%
2017	34	1,248,215	\$ 154	1.00%
2018	32	1,208,627	\$ 0	1.00%
2019	31	1,226,890	\$ 216	1.00%
2020	25	1,021,684	\$ 1,190	1.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 19 - Tmstr NonSup pr9/96-non911/Sh

Table 8-19: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 17,061,127	\$ 7,396,253	43%	\$ 9,664,874
2011	17,378,522	7,007,941	40%	10,370,581
2012	17,285,922	6,571,624	38%	10,714,298
2013	17,452,812	6,120,962	35%	11,331,850
2014	16,965,779	5,394,089	32%	11,571,690
2015	17,875,833	4,100,675	23%	13,775,158
2016	18,207,550	2,682,981	15%	15,524,569
2017	18,207,008	3,250,330	18%	14,956,678
2018	14,758,837	3,115,869	21%	11,642,968
2019	14,579,198	1,979,690	14%	12,599,508
2020	14,449,270	2,229,465	15%	12,219,805

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-19: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	8	\$ 421,037	\$ 50,022	0.00%
2011	7	368,512	\$ 53,656	0.00%
2012	7	363,452	\$ 56,438	0.00%
2013	5	256,247	\$ 60,175	0.00%
2014	2	105,050	\$ 61,453	0.00%
2015	2	108,140	\$ 120,519	0.00%
2016	2	102,771	\$ 183,694	0.00%
2017	1	53,464	\$ 81,625	0.00%
2018	1	52,308	\$ 112,319	0.00%
2019	1	51,793	\$ 148,596	0.00%
2020	1	54,342	\$ 78,987	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 12/31/2020 valuations do not reflect the phase-in of the change in 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 8-20: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 3,020,752	\$ 2,903,045	96%	\$ 117,707
2011	3,428,567	3,318,441	97%	110,126
2012	3,721,068	3,712,187	100%	8,881
2013	4,044,931	4,105,807	102%	(60,876)
2014	4,424,515	4,815,409	109%	(390,894)
2015	5,144,235	5,874,122	114%	(729,887)
2016	4,521,371	6,308,963	140%	(1,787,592)
2017	2,780,615	3,820,075	137%	(1,039,460)
2018	2,738,666	2,273,619	83%	465,047
2019	2,797,456	2,787,750	100%	9,706
2020	3,223,003	3,128,269	97%	94,734

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-20: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	43	\$ 2,149,058	9.47%	2.50%
2011	44	2,156,470	9.05%	2.50%
2012	44	2,151,119	8.73%	2.50%
2013	46	2,239,043	8.40%	2.50%
2014	40	2,026,742	6.51%	2.50%
2015	38	1,940,158	4.46%	2.50%
2016	31	1,483,940	\$ 0	2.50%
2017	9	501,599	\$ 0	2.50%
2018	8	451,558	\$ 8,551	2.50%
2019	7	399,458	\$ 3,254	2.50%
2020	5	275,852	\$ 3,985	2.50%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 21 - Teamsters-Com Unit prior 9/96

Table 8-21: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 5,863,562	\$ 3,042,104	52%	\$ 2,821,458
2011	6,230,571	3,279,687	53%	2,950,884
2012	6,694,212	3,478,982	52%	3,215,230
2013	7,179,511	3,690,045	51%	3,489,466
2014	8,315,959	4,166,130	50%	4,149,829
2015	9,129,757	4,268,364	47%	4,861,393
2016	9,144,242	4,303,311	47%	4,840,931
2017	9,639,492	4,522,407	47%	5,117,085
2018	8,593,784	3,808,288	44%	4,785,496
2019	9,058,546	3,484,533	38%	5,574,013
2020	9,619,246	3,587,109	37%	6,032,137

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-21: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	11	\$ 696,028	\$ 19,270	2.96%
2011	10	613,199	\$ 19,274	2.96%
2012	10	615,002	\$ 20,622	2.96%
2013	9	561,670	\$ 22,081	2.96%
2014	10	622,861	\$ 26,897	2.96%
2015	8	517,757	\$ 31,618	2.96%
2016	5	301,463	\$ 30,187	2.96%
2017	5	333,190	\$ 32,968	2.96%
2018	4	258,940	\$ 31,322	2.96%
2019	3	205,507	\$ 37,486	2.96%
2020	1	81,479	\$ 40,813	2.96%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 22 - Teamstr-Com Unit hired af 9/9

Table 8-22: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 313,552	\$ 291,462	93%	\$ 22,090
2011	343,455	332,663	97%	10,792
2012	444,542	427,928	96%	16,614
2013	645,361	581,031	90%	64,330
2014	389,144	425,740	109%	(36,596)
2015	473,403	501,462	106%	(28,059)
2016	1,018,769	1,207,924	119%	(189,155)
2017	1,494,782	1,431,711	96%	63,071
2018	2,011,423	1,386,609	69%	624,814
2019	3,002,370	2,148,592	72%	853,778
2020	3,445,621	2,665,574	77%	780,047

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-22: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	3	\$ 179,207	9.60%	3.27%
2011	3	166,479	8.43%	3.27%
2012	4	220,934	9.25%	3.27%
2013	5	284,022	10.10%	3.27%
2014	2	114,271	5.56%	3.27%
2015	2	120,974	8.02%	3.27%
2016	4	226,007	\$ 306	3.27%
2017	5	318,871	\$ 3,129	3.27%
2018	5	318,009	\$ 9,257	3.27%
2019	7	455,278	\$ 12,126	3.27%
2020	6	385,587	\$ 12,204	3.27%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 23 - New Hires div 20 aft 11/09

Table 8-23: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	0	0	0%	0
2016	162,722	162,058	100%	664
2017	217,274	268,052	123%	(50,778)
2018	173,489	79,274	46%	94,215
2019	222,226	316,839	143%	(94,613)
2020	284,115	380,207	134%	(96,092)

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-23: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	0	0	\$ 0	0.00%
2016	8	362,823	7.35%	5.00%
2017	10	461,680	6.57%	5.00%
2018	4	148,249	13.27%	5.00%
2019	3	165,626	5.54%	5.00%
2020	3	172,107	10.24%	5.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 26 - POLC before 2009

Table 8-26: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	0	0	0%	0
2016	0	0	0%	0
2017	2,006,195	2,375,782	118%	(369,587)
2018	2,312,222	2,332,977	101%	(20,755)
2019	2,663,020	2,553,329	96%	109,691
2020	3,004,162	2,841,508	95%	162,654

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-26: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	0	0	\$ 0	0.00%
2016	0	0	\$ 0	0.00%
2017	13	651,750	\$ 1,217	2.50%
2018	10	498,536	\$ 4,488	2.50%
2019	10	514,802	\$ 5,337	2.50%
2020	9	456,013	\$ 7,087	2.50%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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 8-27: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	0	0	0%	0
2016	0	0	0%	0
2017	136,712	114,485	84%	22,227
2018	266,450	157,164	59%	109,286
2019	270,393	228,567	85%	41,826
2020	335,506	317,346	95%	18,160

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-27: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	0	0	\$ 0	0.00%
2016	0	0	\$ 0	0.00%
2017	8	381,284	\$ 2,201	5.00%
2018	8	402,849	\$ 4,270	5.00%
2019	6	311,633	\$ 3,602	5.00%
2020	5	254,386	\$ 3,643	5.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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 8-28: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	0	0	0%	0
2016	0	0	0%	0
2017	0	0	0%	0
2018	4,352,299	2,424,414	56%	1,927,885
2019	4,562,161	2,411,687	53%	2,150,474
2020	4,811,342	2,538,981	53%	2,272,361

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-28: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	0	0	\$ 0	0.00%
2016	0	0	\$ 0	0.00%
2017	0	0	\$ 0	0.00%
2018	2	114,079	\$ 15,768	2.50%
2019	1	54,724	\$ 18,291	2.50%
2020	1	59,395	\$ 20,309	2.50%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 29 - 911 Command

Table 8-29: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	0	0	0%	0
2016	0	0	0%	0
2017	0	0	0%	0
2018	1,002,403	1,008,214	101%	(5,811)
2019	1,431,064	1,011,278	71%	419,786
2020	1,554,659	1,037,725	67%	516,934

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-29: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	0	0	\$ 0	0.00%
2016	0	0	\$ 0	0.00%
2017	0	0	\$ 0	0.00%
2018	1	59,637	10.49%	3.27%
2019	1	62,920	71.86%	3.27%
2020	1	67,549	83.73%	3.27%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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 8-30: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	0	0	0%	0
2016	0	0	0%	0
2017	0	0	0%	0
2018	297,475	284,323	96%	13,152
2019	383,667	373,258	97%	10,409
2020	538,585	488,539	91%	50,046

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-30: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	0	0	\$ 0	0.00%
2016	0	0	\$ 0	0.00%
2017	0	0	\$ 0	0.00%
2018	7	386,245	10.47%	5.00%
2019	8	415,957	10.29%	5.00%
2020	9	492,428	12.47%	5.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 40 - MCF Dpt Hds

Table 8-40: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 4,908,731	\$ 3,400,574	69%	\$ 1,508,157
2011	5,196,673	3,582,072	69%	1,614,601
2012	5,543,758	3,674,786	66%	1,868,972
2013	5,960,993	5,526,852	93%	434,141
2014	6,393,546	5,486,858	86%	906,688
2015	6,479,656	5,101,368	79%	1,378,288
2016	6,884,341	5,159,643	75%	1,724,698
2017	7,160,540	5,171,058	72%	1,989,482
2018	7,277,694	5,027,556	69%	2,250,138
2019	7,082,953	6,714,223	95%	368,730
2020	7,495,210	7,038,361	94%	456,849

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-40: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	12	\$ 539,253	26.99%	0.00%
2011	13	598,779	26.16%	0.00%
2012	13	596,683	30.35%	0.00%
2013	10	530,142	15.70%	0.00%
2014	10	526,377	22.29%	0.00%
2015	7	452,644	31.34%	0.00%
2016	7	474,626	35.40%	0.00%
2017	8	581,216	33.81%	1.00%
2018	7	548,505	38.89%	1.00%
2019	7	595,426	\$ 5,907	3.00%
2020	6	514,763	\$ 6,663	5.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 41 - Part Time

Table 8-41: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 302,883	\$ 539,734	178%	\$ (236,851)
2011	240,401	558,472	232%	(318,071)
2012	249,897	590,861	236%	(340,964)
2013	316,410	641,624	203%	(325,214)
2014	376,920	665,358	177%	(288,438)
2015	373,368	705,168	189%	(331,800)
2016	414,767	720,719	174%	(305,952)
2017	391,243	760,647	194%	(369,404)
2018	458,101	835,306	182%	(377,205)
2019	511,468	481,310	94%	30,158
2020	502,399	506,044	101%	(3,645)

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-41: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	55	\$ 608,359	2.91%	0.00%
2011	41	478,469	0.00%	0.00%
2012	48	562,558	0.07%	0.00%
2013	56	723,212	2.46%	0.00%
2014	41	602,049	1.54%	0.00%
2015	37	576,167	0.45%	0.00%
2016	43	764,216	2.46%	0.00%
2017	36	612,720	0.00%	1.00%
2018	64	1,152,005	2.69%	1.00%
2019	34	659,297	\$ 2,928	3.00%
2020	17	304,418	\$ 841	5.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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 8-42: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 3,249,950	\$ 3,555,948	109%	\$ (305,998)
2011	3,741,719	3,979,392	106%	(237,673)
2012	4,369,773	4,443,110	102%	(73,337)
2013	5,027,481	5,002,339	100%	25,142
2014	5,822,017	5,567,674	96%	254,343
2015	6,865,366	6,096,506	89%	768,860
2016	7,762,874	6,766,849	87%	996,025
2017	8,291,098	7,514,063	91%	777,035
2018	9,373,506	8,299,072	89%	1,074,434
2019	10,270,501	9,107,431	89%	1,163,070
2020	11,980,242	10,261,724	86%	1,718,518

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-42: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	115	\$ 3,901,342	6.74%	0.00%
2011	116	4,077,562	6.65%	0.00%
2012	120	4,252,889	7.09%	0.00%
2013	131	5,004,141	7.27%	0.00%
2014	133	5,383,303	7.43%	0.00%
2015	140	6,017,976	8.05%	0.00%
2016	150	6,583,820	8.22%	0.00%
2017	168	6,920,486	7.21%	1.00%
2018	189	8,350,565	7.43%	1.00%
2019	151	7,101,221	\$ 35,228	3.00%
2020	133	6,902,781	\$ 36,067	5.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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 8-80: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 309,109	\$ 399,220	129%	\$ (90,111)
2011	381,249	460,386	121%	(79,137)
2012	594,553	507,951	85%	86,602
2013	743,486	697,681	94%	45,805
2014	865,157	814,434	94%	50,723
2015	933,081	967,104	104%	(34,023)
2016	661,828	888,404	134%	(226,576)
2017	765,140	637,044	83%	128,096
2018	849,896	794,578	93%	55,318
2019	1,076,910	974,748	91%	102,162
2020	1,223,196	1,101,443	90%	121,753

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-80: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	11	\$ 315,183	7.02%	0.00%
2011	13	382,842	7.63%	0.00%
2012	14	486,521	10.98%	0.00%
2013	15	572,866	10.11%	0.00%
2014	15	571,744	10.59%	0.00%
2015	13	489,344	9.37%	0.00%
2016	14	401,343	0.86%	1.00%
2017	15	507,172	8.96%	1.00%
2018	14	516,843	7.29%	1.00%
2019	13	511,368	8.53%	1.00%
2020	14	500,867	10.35%	1.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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 8-81: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 431,125	\$ 453,454	105%	\$ (22,329)
2011	564,649	632,565	112%	(67,916)
2012	614,203	726,108	118%	(111,905)
2013	721,952	803,731	111%	(81,779)
2014	832,139	883,732	106%	(51,593)
2015	785,981	1,081,430	138%	(295,449)
2016	960,996	1,331,967	139%	(370,971)
2017	1,069,814	857,996	80%	211,818
2018	1,179,432	985,642	84%	193,790
2019	1,354,490	1,168,832	86%	185,658
2020	1,584,757	1,325,840	84%	258,917

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-81: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	11	\$ 390,014	7.94%	0.00%
2011	11	429,614	6.46%	0.00%
2012	11	420,156	\$ 1,616	0.00%
2013	11	425,258	\$ 2,094	0.00%
2014	11	423,499	\$ 2,408	0.00%
2015	11	417,546	\$ 0	1.00%
2016	11	426,835	\$ 0	1.00%
2017	11	436,619	\$ 4,018	1.00%
2018	11	450,692	\$ 3,465	1.00%
2019	11	480,612	\$ 3,655	1.00%
2020	10	423,920	\$ 4,369	1.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 82 - Probate court Assoc aft 1/1/0

Table 8-82: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	5,269	4,593	87%	676
2013	3,000	8,180	273%	(5,180)
2014	6,420	12,776	199%	(6,356)
2015	9,611	22,942	239%	(13,331)
2016	13,478	32,806	243%	(19,328)
2017	18,333	42,011	229%	(23,678)
2018	23,720	50,771	214%	(27,051)
2019	31,096	63,242	203%	(32,146)
2020	37,505	73,680	196%	(36,175)

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-82: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	1	28,937	4.42%	5.00%
2013	1	26,929	4.09%	5.00%
2014	1	28,306	3.78%	5.00%
2015	1	30,846	4.20%	1.00%
2016	1	31,295	3.73%	1.00%
2017	1	32,916	3.60%	1.00%
2018	1	33,940	3.68%	1.00%
2019	1	35,620	3.40%	1.00%
2020	1	33,022	4.34%	1.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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 8-90: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	6,257	1,450	23%	4,807
2013	5,322	13,981	263%	(8,659)
2014	20,637	35,439	172%	(14,802)
2015	28,140	112,150	399%	(84,010)
2016	26,726	146,471	548%	(119,745)
2017	39,225	120,928	308%	(81,703)
2018	63,556	208,478	328%	(144,922)
2019	90,558	317,085	350%	(226,527)
2020	101,512	357,784	352%	(256,272)

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-90: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	3	55,099	4.64%	5.00%
2013	4	82,715	3.16%	5.00%
2014	6	124,856	3.33%	5.00%
2015	5	131,999	0.00%	1.00%
2016	8	173,889	0.00%	1.00%
2017	8	198,096	1.43%	1.00%
2018	8	242,105	0.00%	1.00%
2019	8	249,359	0.00%	1.00%
2020	9	263,863	0.00%	1.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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.

Division 91 - Non-Rep Elec Offic aft 10/1/1

Table 8-91: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	0	0	0%	0
2013	40,372	40,725	101%	(353)
2014	75,057	105,207	140%	(30,150)
2015	121,912	208,503	171%	(86,591)
2016	171,637	398,475	232%	(226,838)
2017	264,022	682,056	258%	(418,034)
2018	427,566	1,035,544	242%	(607,978)
2019	689,840	1,567,009	227%	(877,169)
2020	879,356	1,806,495	205%	(927,139)

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-91: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	10	295,159	4.69%	5.00%
2014	13	446,042	4.28%	1.00%
2015	30	723,144	4.02%	1.00%
2016	39	1,134,402	3.73%	1.00%
2017	45	1,294,630	3.08%	1.00%
2018	53	1,666,364	2.46%	1.00%
2019	58	2,035,843	1.73%	1.00%
2020	58	2,168,658	2.25%	1.00%

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 12/31/2020 valuations do not reflect the phase-in of the change in 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-HA: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	0	0	0%	0
2016	0	0	0%	0
2017	4,829	4,551	94%	278
2018	15,071	16,845	112%	(1,774)
2019	36,144	31,924	88%	4,220
2020	50,516	52,838	105%	(2,322)

Notes: Actuarial assumptions were revised for the 2010, 2011, 2012, 2015, 2019 and 2020 actuarial valuations.

Table 9-HA: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	0	0	\$ 0	0.00%
2016	0	0	\$ 0	0.00%
2017	3	128,878	4.63%	0.00%
2018	5	240,225	5.08%	0.00%
2019	7	345,043	5.64%	0.00%
2020	6	276,688	6.19%	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 12/31/2020 valuations do not reflect the phase-in of the change in 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 10: Division-Based Layered Amortization Schedule

Division 01 - AFSCME Unit

Table 10-01: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Experience	12/31/2020	\$ 2,480,115	23	\$ 2,662,403	18	\$ 241,440
Total				\$ 2,662,403		\$ 241,440

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-04: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 8,350,008	23	\$ 8,787,709	18	\$ 702,516
(Gain)/Loss	12/31/2016	(6,609,135)	22	(7,170,531)	18	(573,240)
(Gain)/Loss	12/31/2017	850,443	21	916,549	18	73,272
Amendment	12/31/2017	(3,327)	21	(3,585)	18	(288)
(Gain)/Loss	12/31/2018	1,471,216	20	1,578,426	18	126,180
(Gain)/Loss	12/31/2019	(172,501)	19	(183,992)	18	(14,712)
Assumption	12/31/2019	1,073,248	19	1,129,598	18	90,300
Amendment	12/31/2019	15,724	19	16,765	18	1,344
Experience	12/31/2020	1,491,460	18	1,601,082	18	127,992
Total				\$ 6,672,021		\$ 533,364

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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.

Division 10 - Empty/Trning

Table 10-10: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
(Gain)/Loss	12/31/2016	\$ 2,485	10	\$ 1,987	6	\$ 384
(Gain)/Loss	12/31/2017	3,647	10	3,212	7	540
(Gain)/Loss	12/31/2018	5,234	10	5,001	8	744
(Gain)/Loss	12/31/2019	4,688	10	4,756	9	648
Assumption	12/31/2019	7,818	10	7,866	9	1,068
Experience	12/31/2020	2,474	10	2,656	10	324
Total				\$ 25,478		\$ 3,708

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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.

Division 11 - Elected officials prior 5/95

Table 10-11: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 1,426,781	23	\$ 1,491,152	18	\$ 119,208
(Gain)/Loss	12/31/2016	214,870	22	233,119	18	18,636
(Gain)/Loss	12/31/2017	130,208	21	140,313	18	11,220
(Gain)/Loss	12/31/2018	168,744	20	181,038	18	14,472
(Gain)/Loss	12/31/2019	127,021	19	135,485	18	10,836
Assumption	12/31/2019	130,862	19	131,191	18	10,488
Experience	12/31/2020	62,697	18	67,305	18	5,376
Total				\$ 2,379,603		\$ 190,236

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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.

Division 12 - Non Represented prior 5/95

Table 10-12: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 5,500,926	23	\$ 5,746,530	18	\$ 459,396
(Gain)/Loss	12/31/2016	497,806	22	540,094	18	43,176
(Gain)/Loss	12/31/2017	148,497	21	160,045	18	12,792
(Gain)/Loss	12/31/2018	285,361	20	306,157	18	24,480
(Gain)/Loss	12/31/2019	773,189	19	824,692	18	65,928
Assumption	12/31/2019	447,785	19	448,543	18	35,856
Experience	12/31/2020	1,081,720	18	1,161,226	18	92,832
Total				\$ 9,187,287		\$ 734,460

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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.

Division 13 - Probate Court prior 6/95

Table 10-13: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 1,616,041	23	\$ 1,674,178	18	\$ 133,836
(Gain)/Loss	12/31/2016	156,289	22	169,561	18	13,560
(Gain)/Loss	12/31/2017	(494,602)	21	(533,052)	18	(42,612)
(Gain)/Loss	12/31/2018	204,603	20	219,504	18	17,544
(Gain)/Loss	12/31/2019	160,480	19	171,171	18	13,680
Assumption	12/31/2019	77,327	19	75,952	18	6,072
Experience	12/31/2020	191,109	18	205,155	18	16,404
Total				\$ 1,982,469		\$ 158,484

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-15: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 1,495,166	23	\$ 1,570,118	18	\$ 125,520
(Gain)/Loss	12/31/2016	234,526	22	254,442	18	20,340
Amendment	12/31/2016	984	22	1,063	18	84
(Gain)/Loss	12/31/2017	(209,951)	21	(226,258)	18	(18,084)
(Gain)/Loss	12/31/2018	274,724	20	294,743	18	23,568
(Gain)/Loss	12/31/2019	174,773	19	186,411	18	14,904
Assumption	12/31/2019	131,997	19	132,802	18	10,620
Experience	12/31/2020	446,330	18	479,135	18	38,304
Total				\$ 2,692,456		\$ 215,256

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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.

Division 16 - Hlth Clerical

Table 10-16: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 372,559	23	\$ 371,876	18	\$ 29,724
(Gain)/Loss	12/31/2016	44,988	22	48,789	18	3,900
Amendment	12/31/2016	22,543	22	24,457	18	1,956
(Gain)/Loss	12/31/2017	28,727	21	30,968	18	2,472
Amendment	12/31/2017	(52,736)	21	(56,831)	18	(4,548)
(Gain)/Loss	12/31/2018	24,850	20	26,666	18	2,136
(Gain)/Loss	12/31/2019	33,007	19	35,202	18	2,820
Assumption	12/31/2019	35,993	19	36,547	18	2,928
Experience	12/31/2020	74,111	18	79,558	18	6,360
Total				\$ 597,232		\$ 47,748

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-17: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 459,483	23	\$ 474,128	18	\$ 37,908
(Gain)/Loss	12/31/2016	77,671	22	84,269	18	6,732
Amendment	12/31/2016	(4,239)	22	(4,594)	18	(372)
(Gain)/Loss	12/31/2017	(661)	21	(714)	18	(60)
(Gain)/Loss	12/31/2018	(108,991)	20	(116,942)	18	(9,348)
Amendment	12/31/2018	(61,389)	20	(65,865)	18	(5,268)
(Gain)/Loss	12/31/2019	42,465	19	45,293	18	3,624
Assumption	12/31/2019	43,116	19	44,395	18	3,552
Experience	12/31/2020	53,470	18	57,400	18	4,584
Total				\$ 517,370		\$ 41,352

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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.

Division 18 - NonRep Elec Officials af 5/95

Table 10-18: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ (225,654)	10	\$ (145,296)	10	\$ (18,000)
(Gain)/Loss	12/31/2016	(226,612)	15	(221,127)	11	(25,392)
(Gain)/Loss	12/31/2017	(145,928)	15	(147,115)	12	(15,780)
(Gain)/Loss	12/31/2018	(48,668)	15	(50,343)	13	(5,076)
(Gain)/Loss	12/31/2019	(117,995)	15	(124,065)	14	(11,844)
Assumption	12/31/2019	206,657	15	219,984	14	21,000
Experience	12/31/2020	151,471	15	162,604	15	14,760
Total				\$ (305,358)		\$ (40,332)

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-19: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Experience	12/31/2020	\$ 10,505,184	23	\$ 11,277,315	18	\$ 941,928
Total				\$ 11,277,315		\$ 941,928

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-20: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Experience	12/31/2020	\$ 98,522	15	\$ 105,763	15	\$ 9,600
Total				\$ 105,763		\$ 9,600

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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.

Division 21 - Teamsters-Com Unit prior 9/96

Table 10-21: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 3,830,879	23	\$ 3,968,530	18	\$ 317,256
(Gain)/Loss	12/31/2016	(92,823)	22	(100,708)	18	(8,052)
(Gain)/Loss	12/31/2017	191,073	21	205,921	18	16,464
(Gain)/Loss	12/31/2018	712,673	20	764,612	18	61,128
(Gain)/Loss	12/31/2019	364,362	19	388,628	18	31,068
Assumption	12/31/2019	351,843	19	355,206	18	28,392
Experience	12/31/2020	413,982	18	444,410	18	35,532
Total				\$ 6,026,599		\$ 481,788

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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.

Division 22 - Teamstr-Com Unit hired af 9/9

Table 10-22: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
(Gain)/Loss	12/31/2017	\$ 81,028	15	\$ 81,686	12	\$ 8,760
(Gain)/Loss	12/31/2018	153,117	15	158,400	13	15,984
Amendment	12/31/2018	384,391	10	367,522	8	54,756
(Gain)/Loss	12/31/2019	80,352	15	84,477	14	8,064
Assumption	12/31/2019	108,563	15	111,366	14	10,632
Experience	12/31/2020	(60,412)	15	(64,852)	15	(5,892)
Total				\$ 738,599		\$ 92,304

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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.

Division 23 - New Hires div 20 aft 11/09

Table 10-23: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
(Gain)/Loss	12/31/2019	\$ (103,357)	15	\$ (108,663)	14	\$ (10,380)
Experience	12/31/2020	14,860	15	15,952	15	1,452
Total				\$ (92,711)		\$ (8,928)

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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.

Division 26 - POLC before 2009

Table 10-26: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
(Gain)/Loss	12/31/2018	\$ 17,371	15	\$ 17,963	13	\$ 1,812
(Gain)/Loss	12/31/2019	8,201	15	8,618	14	828
Assumption	12/31/2019	82,803	15	86,953	14	8,304
Experience	12/31/2020	46,632	15	50,059	15	4,548
Total				\$ 163,593		\$ 15,492

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-27: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ (13,059)	10	\$ (10,199)	10	\$ (1,260)
(Gain)/Loss	12/31/2016	(18,748)	15	(18,302)	11	(2,100)
(Gain)/Loss	12/31/2017	54,996	15	55,448	12	5,952
(Gain)/Loss	12/31/2018	30,519	15	31,564	13	3,180
Amendment	12/31/2018	51,357	10	49,103	8	7,320
(Gain)/Loss	12/31/2019	(78,139)	15	(82,151)	14	(7,848)
Assumption	12/31/2019	3,940	15	4,017	14	384
Experience	12/31/2020	(14,467)	15	(15,530)	15	(1,416)
Total				\$ 13,950		\$ 4,212

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-28: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
(Gain)/Loss	12/31/2017	\$ 2,239,731	15	\$ 2,257,958	12	\$ 242,232
(Gain)/Loss	12/31/2018	(485,376)	15	(502,089)	13	(50,676)
(Gain)/Loss	12/31/2019	144,956	15	152,410	14	14,556
Assumption	12/31/2019	151,667	15	151,964	14	14,508
Experience	12/31/2020	146,453	15	157,217	15	14,280
Total				\$ 2,217,460		\$ 234,900

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-29: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
(Gain)/Loss	12/31/2019	\$ 419,786	15	\$ 441,356	14	\$ 42,144
Experience	12/31/2020	66,303	15	71,176	15	6,468
Total				\$ 512,532		\$ 48,612

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-30: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
(Gain)/Loss	12/31/2018	\$ 16,470	15	\$ 17,033	13	\$ 1,716
(Gain)/Loss	12/31/2019	(13,420)	15	(14,109)	14	(1,344)
Assumption	12/31/2019	6,033	15	6,328	14	600
Experience	12/31/2020	40,512	15	43,490	15	3,948
Total				\$ 52,742		\$ 4,920

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-40: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 1,378,288	23	\$ 1,456,488	18	\$ 116,436
(Gain)/Loss	12/31/2016	290,575	22	315,267	18	25,200
(Gain)/Loss	12/31/2017	238,156	21	256,672	18	20,520
Amendment	12/31/2017	(8,288)	21	(8,937)	18	(720)
(Gain)/Loss	12/31/2018	231,094	20	247,932	18	19,824
(Gain)/Loss	12/31/2019	(2,125,560)	19	(2,267,142)	18	(181,248)
Assumption	12/31/2019	221,744	19	236,194	18	18,888
Amendment	12/31/2019	(12,522)	19	(13,361)	18	(1,068)
Experience	12/31/2020	232,288	18	249,361	18	19,932
Total				\$ 472,474		\$ 37,764

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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.

Division 41 - Part Time

Table 10-41: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Experience	12/31/2020	\$ (12,714)	10	\$ (13,648)	10	\$ (1,692)
Total				\$ (13,648)		\$ (1,692)

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-42: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 768,860	23	\$ 827,845	18	\$ 66,180
(Gain)/Loss	12/31/2016	181,173	22	196,574	18	15,720
(Gain)/Loss	12/31/2017	(152,923)	21	(164,812)	18	(13,176)
Amendment	12/31/2017	(87,417)	21	(94,216)	18	(7,536)
(Gain)/Loss	12/31/2018	309,218	20	331,752	18	26,520
(Gain)/Loss	12/31/2019	40,282	19	42,964	18	3,432
Assumption	12/31/2019	223,922	19	234,457	18	18,744
Amendment	12/31/2019	(202,839)	19	(216,355)	18	(17,292)
Experience	12/31/2020	552,849	18	593,483	18	47,448
Total				\$ 1,751,692		\$ 140,040

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-80: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
(Gain)/Loss	12/31/2017	\$ 153,118	15	\$ 154,366	12	\$ 16,560
(Gain)/Loss	12/31/2018	(109,664)	15	(113,446)	13	(11,448)
(Gain)/Loss	12/31/2019	13,534	15	14,229	14	1,356
Assumption	12/31/2019	44,307	15	46,369	14	4,428
Experience	12/31/2020	16,971	15	18,218	15	1,656
Total				\$ 119,736		\$ 12,552

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-81: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
(Gain)/Loss	12/31/2017	\$ 252,473	15	\$ 254,522	12	\$ 27,300
(Gain)/Loss	12/31/2018	(78,245)	15	(80,941)	13	(8,172)
(Gain)/Loss	12/31/2019	(67,374)	15	(70,840)	14	(6,768)
Assumption	12/31/2019	69,102	15	72,230	14	6,900
Experience	12/31/2020	77,870	15	83,593	15	7,596
Total				\$ 258,564		\$ 26,856

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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.

Division 82 - Probate court Assoc aft 1/1/0

Table 10-82: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ (13,331)	10	\$ (10,121)	10	\$ (1,260)
(Gain)/Loss	12/31/2016	(6,200)	15	(6,054)	11	(696)
(Gain)/Loss	12/31/2017	(4,523)	15	(4,549)	12	(492)
(Gain)/Loss	12/31/2018	(3,743)	15	(3,866)	13	(396)
(Gain)/Loss	12/31/2019	(6,513)	15	(6,847)	14	(660)
Assumption	12/31/2019	900	15	1,073	14	108
Experience	12/31/2020	(4,601)	15	(4,939)	15	(444)
Total				\$ (35,303)		\$ (3,840)

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 10-90: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ (84,010)	10	\$ (69,083)	10	\$ (8,556)
(Gain)/Loss	12/31/2016	(32,152)	15	(31,375)	11	(3,600)
(Gain)/Loss	12/31/2017	38,073	15	38,381	12	4,116
(Gain)/Loss	12/31/2018	(70,907)	15	(73,354)	13	(7,404)
(Gain)/Loss	12/31/2019	(83,202)	15	(87,475)	14	(8,352)
Assumption	12/31/2019	1,971	15	2,935	14	276
Experience	12/31/2020	(36,352)	15	(39,024)	15	(3,540)
Total				\$ (258,995)		\$ (27,060)

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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.

Division 91 - Non-Rep Elec Offic aft 10/1/1

Table 10-91: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ (86,591)	10	\$ (67,386)	10	\$ (8,352)
(Gain)/Loss	12/31/2016	(139,480)	15	(136,103)	11	(15,624)
(Gain)/Loss	12/31/2017	(184,710)	15	(186,209)	12	(19,980)
(Gain)/Loss	12/31/2018	(181,975)	15	(188,241)	13	(18,996)
(Gain)/Loss	12/31/2019	(278,789)	15	(293,122)	14	(27,984)
Assumption	12/31/2019	12,855	15	16,884	14	1,608
Experience	12/31/2020	(47,048)	15	(50,506)	15	(4,584)
Total				\$ (904,683)		\$ (93,912)

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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-HA: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Experience	12/31/2020	\$ (2,715)	15	\$ (2,915)	15	\$ (264)
Total				\$ (2,915)		\$ (264)

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, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 Statement No. 68 Information

The following information has been prepared to provide some of the information necessary to complete GASB Statement No. 68 disclosures. GASB Statement No. 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:	12/31/2020
Measurement Date of the Total Pension Liability (TPL):	12/31/2020

At 12/31/2020, the following employees were covered by the benefit terms:	
Inactive employees or beneficiaries currently receiving benefits:	404
Inactive employees entitled to but not yet receiving benefits (including refunds):	486
Active employees:	<u>361</u>
	1,251

Total Pension Liability as of 12/31/2019 measurement date:	\$ 124,606,494
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Total Pension Liability as of 12/31/2020 measurement date:	\$ 133,011,940
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Service Cost for the year ending on the 12/31/2020 measurement date:	\$ 1,352,560
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Change in the Total Pension Liability due to:	
- Benefit changes ¹ :	\$ (240,473)
- Differences between expected and actual experience ² :	\$ (157,200)
- Changes in assumptions ² :	\$ 6,171,119

Average expected remaining service lives of all employees (active and inactive):	3
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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):	\$ 16,484,765
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Note: Covered employee payroll may differ from the GASB Statement No. 68 definition.

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:	\$ 15,506,033	\$ 0	\$ (12,962,212)

Note: The current discount rate shown for GASB Statement No. 68 purposes is higher than the MERS assumed rate of return. This is because for GASB Statement No. 68 purposes, the discount rate must be gross of administrative expenses, whereas for funding purposes it is net of administrative expenses.



GASB Statement No. 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. GASB Statement No. 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:	12/31/2020
Measurement Date of the Total Pension Liability (TPL):	12/31/2021
At 12/31/2020, the following employees were covered by the benefit terms:	
Inactive employees or beneficiaries currently receiving benefits:	404
Inactive employees entitled to but not yet receiving benefits (including refunds):	486
Active employees:	<u>361</u>
	1,251
Total Pension Liability as of 12/31/2020 measurement date:	\$ 127,011,086
Total Pension Liability as of 12/31/2021 measurement date:	\$ 135,567,412
Service Cost for the year ending on the 12/31/2021 measurement date:	\$ 1,358,702
Change in the Total Pension Liability due to:	
- Benefit changes ¹ :	\$ (213,310)
- Differences between expected and actual experience ² :	\$ 75,541
- Changes in assumptions ² :	\$ 6,814,977
Average expected remaining service lives of all employees (active and inactive):	3

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):	\$ 16,484,765
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Note: Covered employee payroll may differ from the GASB Statement No. 68 definition.

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

	1% Decrease <u>(6.60%)</u>	Current Discount Rate <u>(7.60%)</u>	1% Increase <u>(8.60%)</u>
Change in Net Pension Liability as of 12/31/2021:	\$ 15,649,859	\$ 0	\$ (13,095,810)

Note: The current discount rate shown for GASB Statement No. 68 purposes is higher than the MERS assumed rate of return. This is because for GASB Statement No. 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 - AFSCME Unit

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2016	Benefit C-1 (New)
1/1/2016	Participant Contribution Rate 1%
12/31/2015	Frozen FAC
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2008	E 2% COLA Adopted (01/01/2008)
1/1/2007	E 2% COLA Adopted (01/01/2007)
1/1/2006	E 2% COLA Adopted (01/01/2006)
1/1/2005	E 2% COLA Adopted (01/01/2005)
1/1/2004	E 2% COLA Adopted (01/01/2004)
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2001	E 2% COLA Adopted (01/01/2001)
1/1/2000	E 2% COLA Adopted (01/01/2000)
7/1/1999	Temporary Benefit B-3 (80% max) (07/01/1999 - 01/03/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
6/26/1997	Blanket Resolution (All Service)
1/1/1997	E 2% COLA Adopted (01/01/1997)
1/1/1996	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/1996	Benefit B-2
1/1/1996	Benefit F55 (With 20 Years of Service)
1/1/1996	E 2% COLA Adopted (01/01/1996)
1/1/1995	E 2% COLA Adopted (01/01/1995)
1/1/1994	E 2% COLA Adopted (01/01/1994)
8/20/1992	Day of work defined as 4 Hours a Day for All employees.
1/1/1991	E 2% COLA Adopted (01/01/1991)
1/1/1986	E 2% COLA Adopted (01/01/1986)
10/1/1984	Benefit C-2/Base B-1
1/1/1984	Member Contribution Rate 0.00%
6/12/1973	Covered by Act 88
5/1/1968	Benefit C-1 (Old)
1/1/1963	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1963	10 Year Vesting
1/1/1963	Benefit C (Old)
1/1/1963	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

04 - MCF

1/1/2021	Participant Contribution Rate 5%
1/1/2020	Participant Contribution Rate 4%
1/1/2019	Non-Accelerated Amortization
1/1/2019	Participant Contribution Rate 3%
1/1/2019	DC Adoption Date 01-01-2019
9/1/2018	Participant Contribution Rate 2%
1/1/2018	Participant Contribution Rate 1.5%
2/1/2017	Participant Contribution Rate 1%
12/1/2016	Service Credit Purchase Estimates - Yes
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2009	E 2% COLA Adopted (01/01/2009)
1/1/2007	E 2% COLA Adopted (01/01/2007)
1/1/2006	E 2% COLA Adopted (01/01/2006)
1/1/2005	E 2% COLA Adopted (01/01/2005)
1/1/2004	E 2% COLA Adopted (01/01/2004)
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2001	E 2% COLA Adopted (01/01/2001)
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
1/1/1997	E 2% COLA Adopted (01/01/1997)
5/9/1996	Day of work defined as 8 Hours a Day for All employees.
1/1/1996	E 2% COLA Adopted (01/01/1996)
1/1/1995	E 2% COLA Adopted (01/01/1995)
1/1/1994	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/1994	Benefit B-4 (80% max)
1/1/1994	E 2% COLA Adopted (01/01/1994)
1/1/1994	E2 2.5% COLA for future retirees (01/01/1994)
1/1/1991	E 2% COLA Adopted (01/01/1991)
11/1/1988	Member Contribution Rate 0.00%
10/1/1988	Benefit C-2/Base B-1
10/1/1988	Benefit F55 (With 25 Years of Service)
1/1/1986	E 2% COLA Adopted (01/01/1986)
6/12/1973	Covered by Act 88
5/1/1968	Benefit C-1 (Old)
1/1/1963	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1963	10 Year Vesting
1/1/1963	Benefit C (Old)
1/1/1963	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
1/1/1963	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

10 - Empl/Trning

12/1/2020	Non-Accelerated Amortization
12/31/2018	Accelerated to 5-year Amortization
12/1/2016	Service Credit Purchase Estimates - Yes
6/1/2014	Exclude Temporary Employees requiring less than 12 months



10 - Empl/Trning

1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2001	E 2% COLA Adopted (01/01/2001)
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
6/26/1997	Blanket Resolution (All Service)
3/1/1997	Benefit FAC-3 (3 Year Final Average Compensation)
3/1/1997	6 Year Vesting
3/1/1997	Benefit B-4 (80% max)
3/1/1997	Member Contribution Rate 0.00%
1/1/1997	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1997	10 Year Vesting
1/1/1997	Benefit C-2/Base B-1
1/1/1995	E 2% COLA Adopted (01/01/1995)
1/1/1994	E 2% COLA Adopted (01/01/1994)
8/20/1992	Day of work defined as 4 Hours a Day for All employees.
1/1/1991	E2 2.5% COLA for future retirees (12/01/1990)
1/1/1991	E 2% COLA Adopted (01/01/1991)
1/1/1986	E 2% COLA Adopted (01/01/1986)
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

11 - Elected officials prior 5/95

12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2015	Non Standard Compensation Definition
1/1/2015	Benefit C-1 (New)
1/1/2015	Member Contribution Rate 1.00%
12/31/2014	Frozen FAC
6/1/2014	Exclude Temporary Employees requiring less than 12 months
6/1/2003	Benefit F55 (With 25 Years of Service)
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
6/26/1997	Blanket Resolution (All Service)
1/1/1997	E 2% COLA Adopted (01/01/1997)
1/1/1996	E 2% COLA Adopted (01/01/1996)
1/1/1995	E 2% COLA Adopted (01/01/1995)
1/1/1994	E 2% COLA Adopted (01/01/1994)
8/20/1992	Day of work defined as 4 Hours a Day for All employees.
1/1/1991	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/1991	Benefit B-4 (80% max)
1/1/1991	Member Contribution Rate 0.00%
1/1/1991	E 2% COLA Adopted (01/01/1991)
1/1/1991	E2 2.5% COLA for future retirees (01/01/1991)



11 - Elected officials prior 5/95

12/1/1989	6 Year Vesting
1/1/1986	E 2% COLA Adopted (01/01/1986)
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

12 - Non Represented prior 5/95

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2015	Non Standard Compensation Definition
1/1/2015	Benefit C-1 (New)
1/1/2015	Member Contribution Rate 1.00%
12/31/2014	Frozen FAC
6/1/2014	Exclude Temporary Employees requiring less than 12 months
6/1/2003	Benefit F55 (With 25 Years of Service)
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
6/26/1997	Blanket Resolution (All Service)
1/1/1997	E 2% COLA Adopted (01/01/1997)
1/1/1996	E 2% COLA Adopted (01/01/1996)
1/1/1995	E 2% COLA Adopted (01/01/1995)
1/1/1994	E 2% COLA Adopted (01/01/1994)
8/20/1992	Day of work defined as 4 Hours a Day for All employees.
1/1/1991	E 2% COLA Adopted (01/01/1991)
1/1/1991	E2 2.5% COLA for future retirees (12/01/1990)
12/1/1990	Benefit FAC-3 (3 Year Final Average Compensation)
12/1/1990	Benefit B-4 (80% max)
12/1/1990	Member Contribution Rate 0.00%
1/1/1986	E 2% COLA Adopted (01/01/1986)
10/1/1984	Benefit FAC-5 (5 Year Final Average Compensation)
10/1/1984	10 Year Vesting
10/1/1984	Benefit C-2/Base B-1
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

13 - Probate Court prior 6/95

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2016	Non Standard Compensation Definition
1/1/2016	Benefit C-1 (New)
1/1/2016	Participant Contribution Rate 1%
12/31/2015	Frozen FAC
6/1/2014	Exclude Temporary Employees requiring less than 12 months



13 - Probate Court prior 6/95

1/1/2008	E 2% COLA Adopted (01/01/2008)
1/1/2007	E 2% COLA Adopted (01/01/2007)
1/1/2006	E 2% COLA Adopted (01/01/2006)
1/1/2005	E 2% COLA Adopted (01/01/2005)
12/1/2004	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2004	E 2% COLA Adopted (01/01/2004)
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2001	E 2% COLA Adopted (01/01/2001)
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
6/26/1997	Blanket Resolution (All Service)
1/1/1997	E 2% COLA Adopted (01/01/1997)
1/1/1996	E 2% COLA Adopted (01/01/1996)
1/1/1995	E 2% COLA Adopted (01/01/1995)
1/1/1994	E 2% COLA Adopted (01/01/1994)
8/20/1992	Day of work defined as 4 Hours a Day for All employees.
6/1/1991	Benefit B-3 (80% max)
6/1/1991	Benefit F55 (With 20 Years of Service)
1/1/1991	E 2% COLA Adopted (01/01/1991)
1/1/1986	E 2% COLA Adopted (01/01/1986)
1/1/1985	Benefit C-2/Base B-1
1/1/1984	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1984	10 Year Vesting
1/1/1984	Member Contribution Rate 0.00%
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

15 - Circuit Court prior 4/96

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
2/1/2016	Non Standard Compensation Definition
2/1/2016	Benefit C-1 (New)
2/1/2016	Participant Contribution Rate 1%
1/31/2016	Frozen FAC
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
6/26/1997	Blanket Resolution (All Service)
1/1/1997	E 2% COLA Adopted (01/01/1997)
1/1/1996	E 2% COLA Adopted (01/01/1996)
1/1/1995	E 2% COLA Adopted (01/01/1995)
1/1/1994	E 2% COLA Adopted (01/01/1994)

15 - Circuit Court prior 4/96

8/20/1992	Day of work defined as 4 Hours a Day for All employees.
1/1/1992	E2 2.5% COLA for future retirees (12/01/1991)
12/1/1991	Benefit FAC-3 (3 Year Final Average Compensation)
12/1/1991	Benefit B-4 (80% max)
1/1/1991	E 2% COLA Adopted (01/01/1991)
1/1/1986	E 2% COLA Adopted (01/01/1986)
10/1/1984	Benefit FAC-5 (5 Year Final Average Compensation)
10/1/1984	10 Year Vesting
10/1/1984	Benefit C-2/Base B-1
1/1/1984	Member Contribution Rate 0.00%
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

16 - Hlth Clerical

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
7/1/2016	Participant Contribution Rate 1%
7/1/2016	Non Standard Compensation Definition
7/1/2016	1.5% multiplier (80% max)
6/30/2016	Frozen FAC
1/1/2016	Participant Contribution Rate 4.23%
4/1/2015	Participant Contribution Rate 0.95%
1/1/2015	Participant Contribution Rate 0%
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2014	Member Contribution Rate 1.60%
1/1/2013	Member Contribution Rate 4.99%
1/1/2012	Member Contribution Rate 0.59%
4/1/2008	Member Contribution Rate 0.00%
1/1/2008	Member Contribution Rate 2.11%
1/1/2008	E 2% COLA Adopted (01/01/2008)
1/1/2007	Member Contribution Rate 1.76%
1/1/2007	E 2% COLA Adopted (01/01/2007)
1/1/2006	Member Contribution Rate 1.06%
1/1/2006	E 2% COLA Adopted (01/01/2006)
1/1/2005	Member Contribution Rate 2.13%
1/1/2005	E 2% COLA Adopted (01/01/2005)
7/1/2004	Member Contribution Rate 1.17%
1/1/2004	E 2% COLA Adopted (01/01/2004)
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2001	E 2% COLA Adopted (01/01/2001)
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
6/26/1997	Blanket Resolution (All Service)
1/1/1997	E 2% COLA Adopted (01/01/1997)
1/1/1996	E 2% COLA Adopted (01/01/1996)

16 - Hlth Clerical

1/1/1995	E 2% COLA Adopted (01/01/1995)
9/1/1994	Temporary Benefit FAC-3 (3 Year Final Average Compensation) (09/01/1994 - 01/01/1995)
9/1/1994	Temporary Benefit B-4 (80% max) (09/01/1994 - 01/01/1995)
1/1/1994	E 2% COLA Adopted (01/01/1994)
8/20/1992	Day of work defined as 4 Hours a Day for All employees.
1/1/1991	E 2% COLA Adopted (01/01/1991)
10/1/1990	Member Contribution Rate 0.00%
1/1/1986	E 2% COLA Adopted (01/01/1986)
1/1/1985	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1985	10 Year Vesting
1/1/1985	Benefit C-2/Base B-1
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

17 - Hlth Nurses

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
4/1/2016	Non Standard Compensation Definition
4/1/2016	Participant Contribution Rate 1%
1/1/2016	Day of Work defined as 10 8 hour days
1/1/2016	Benefit C-1 (New)
12/31/2015	Frozen FAC
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2008	E 2% COLA Adopted (01/01/2008)
1/1/2007	E 2% COLA Adopted (01/01/2007)
1/1/2006	E 2% COLA Adopted (01/01/2006)
1/1/2005	E 2% COLA Adopted (01/01/2005)
1/1/2004	E 2% COLA Adopted (01/01/2004)
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2001	E 2% COLA Adopted (01/01/2001)
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
6/26/1997	Blanket Resolution (All Service)
1/1/1997	E 2% COLA Adopted (01/01/1997)
1/1/1996	E 2% COLA Adopted (01/01/1996)
1/1/1995	E 2% COLA Adopted (01/01/1995)
9/1/1994	Temporary Benefit FAC-3 (3 Year Final Average Compensation) (09/01/1994 - 01/01/1995)
9/1/1994	Temporary Benefit B-4 (80% max) (09/01/1994 - 01/01/1995)
1/1/1994	E 2% COLA Adopted (01/01/1994)
8/20/1992	Day of work defined as 4 Hours a Day for All employees.
1/1/1991	E 2% COLA Adopted (01/01/1991)
10/1/1990	Member Contribution Rate 0.00%
1/1/1986	E 2% COLA Adopted (01/01/1986)
1/1/1985	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1985	10 Year Vesting

17 - Hlth Nurses

1/1/1985	Benefit C-2/Base B-1
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

18 - NonRep Elec Officials af 5/95

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2015	Non Standard Compensation Definition
1/1/2015	Benefit C-1 (New)
1/1/2015	Member Contribution Rate 1.00%
12/31/2014	Frozen FAC
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2008	E 2% COLA Adopted (01/01/2008)
1/1/2007	E 2% COLA Adopted (01/01/2007)
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
6/26/1997	Blanket Resolution (All Service)
1/1/1997	E 2% COLA Adopted (01/01/1997)
1/1/1996	E 2% COLA Adopted (01/01/1996)
7/25/1995	Benefit FAC-5 (5 Year Final Average Compensation)
7/25/1995	10 Year Vesting
7/25/1995	Benefit B-2
7/25/1995	Member Contribution Rate 0.00%
8/20/1992	Day of work defined as 4 Hours a Day for All employees.
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

19 - Tmstr NonSup pr9/96-non911/Sh

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
3/1/1998	Temporary 20 Years & Out (03/01/1998 - 05/02/1998)
1/1/1998	E 2% COLA Adopted (01/01/1998)
6/26/1997	Blanket Resolution (All Service)
1/1/1997	E 2% COLA Adopted (01/01/1997)
1/1/1996	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/1996	10 Year Vesting
1/1/1996	Benefit B-4 (80% max)



19 - Tmstr NonSup pr9/96-non911/Sh

1/1/1996	Benefit F50 (With 25 Years of Service)
1/1/1996	Member Contribution Rate 0.00%
1/1/1996	E2 2.5% COLA for future retirees (04/01/1995)
8/20/1992	Day of work defined as 4 Hours a Day for All employees.
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

20 - Tmstr NonSup af9/96-non911/Sh

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
10/1/2001	Member Contribution Rate 2.50%
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
6/26/1997	Blanket Resolution (All Service)
1/1/1997	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/1997	10 Year Vesting
1/1/1997	Benefit B-4 (80% max)
1/1/1997	Benefit F50 (With 25 Years of Service)
1/1/1997	Member Contribution Rate 4.50%
1/1/1997	E2 2.5% COLA for future retirees (1/1/1997)
8/20/1992	Day of work defined as 4 Hours a Day for All employees.
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

21 - Teamsters-Com Unit prior 9/96

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2005	E2 2.5% COLA for future retirees (04/01/2004)
4/1/2004	Benefit FAC-3 (3 Year Final Average Compensation)
4/1/2004	Benefit RS 50 (50% Post-Ret. Spouse Benefits)
4/1/2004	10 Year Vesting
4/1/2004	Benefit B-4 (80% max)
4/1/2004	Benefit F50 (With 25 Years of Service)
4/1/2004	Member Contribution Rate 2.96%
1/1/2004	E 2% COLA Adopted (01/01/2004)
6/26/1997	Blanket Resolution (All Service)
8/20/1992	Day of work defined as 4 Hours a Day for All employees.
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60



21 - Teamsters-Com Unit prior 9/96

Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

22 - Teamstr-Com Unit hired af 9/9

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
6/1/2014	Exclude Temporary Employees requiring less than 12 months
12/1/2008	Day of work defined as 4 Hours a Day for All employees.
12/1/2008	Benefit FAC-3 (3 Year Final Average Compensation)
12/1/2008	Benefit RS 50 (50% Post-Ret. Spouse Benefits)
12/1/2008	10 Year Vesting
12/1/2008	Benefit B-4 (80% max)
12/1/2008	Benefit F50 (With 25 Years of Service)
12/1/2008	Member Contribution Rate 3.27%
12/1/2008	E2 2.5% COLA for future retirees (12/1/2008)
6/26/1997	Blanket Resolution (All Service)
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

23 - New Hires div 20 aft 11/09

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
11/1/2016	2.5% multiplier (85% max)
11/1/2016	Benefit F50 (With 25 Years of Service)
11/1/2016	Participant Contribution Rate 5%
11/1/2016	E2 2.5% COLA for future retirees (11/1/2016)
11/1/2016	Day of work defined as 4 Hours a Day for All employees.
11/1/2016	Benefit FAC-3 (3 Year Final Average Compensation)
11/1/2016	Exclude Temporary Employees requiring less than 12 months
11/1/2016	10 Year Vesting
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
	Defined Benefit Normal Retirement Age - 60

26 - POLC before 2009

3/1/2020	Temporary Benefit Modification - COVID
8/1/2017	10 4 Hour Days a Month
8/1/2017	Benefit FAC-3 (3 Year Final Average Compensation)
8/1/2017	Exclude Temporary Employees requiring less than 12 months
8/1/2017	10 Year Vesting
8/1/2017	Service Credit Purchase Estimates - Yes
8/1/2017	Benefit B-4 (80% max)
8/1/2017	Benefit F50 (With 25 Years of Service)
8/1/2017	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
8/1/2017	Participant Contribution Rate 2.5%
8/1/2017	E2 2.5% COLA for future retirees (8/1/2017)
8/1/2016	Defined Benefit Normal Retirement Age - 60
6/26/1997	Blanket Resolution (All Service)



26 - POLC before 2009

6/12/1973 Covered by Act 88
Fiscal Month - January

27 - POLC aft 2009

3/1/2020 Temporary Benefit Modification - COVID
11/1/2016 10 4 Hour Days a Month
11/1/2016 Benefit FAC-3 (3 Year Final Average Compensation)
11/1/2016 Exclude Temporary Employees requiring less than 12 months
11/1/2016 10 Year Vesting
11/1/2016 Defined Benefit Normal Retirement Age - 60
11/1/2016 Service Credit Purchase Estimates - Yes
11/1/2016 Benefit B-4 (80% max)
11/1/2016 Benefit F50 (With 25 Years of Service)
11/1/2016 Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
11/1/2016 Participant Contribution Rate 5%
11/1/2016 E2 2.5% COLA for future retirees (11/1/2016)
6/26/1997 Blanket Resolution (All Service)
6/12/1973 Covered by Act 88
Fiscal Month - January

28 - 911 Disp prior 11/2009

3/1/2020 Temporary Benefit Modification - COVID
1/1/2019 10 4 Hour Days a Month
1/1/2019 Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2019 Exclude Temporary Employees requiring less than 12 months
1/1/2019 10 Year Vesting
1/1/2019 Defined Benefit Normal Retirement Age - 60
1/1/2019 Service Credit Purchase Estimates - Yes
1/1/2019 Benefit B-4 (80% max)
1/1/2019 Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
1/1/2019 Benefit F50 (With 25 Years of Service)
1/1/2019 Participant Contribution Rate 2.5%
1/1/2019 E2 2.5% COLA for future retirees (1/1/2019)
6/12/1973 Covered by Act 88
Fiscal Month - January

29 - 911 Command

3/1/2020 Temporary Benefit Modification - COVID
1/1/2019 10 4 Hour Days a Month
1/1/2019 Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2019 Benefit RS 50 (50% Post-Ret. Spouse Benefits)
1/1/2019 Exclude Temporary Employees requiring less than 12 months
1/1/2019 10 Year Vesting
1/1/2019 Defined Benefit Normal Retirement Age - 60
1/1/2019 Service Credit Purchase Estimates - Yes
1/1/2019 Benefit B-4 (80% max)
1/1/2019 Benefit F50 (With 25 Years of Service)
1/1/2019 Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
1/1/2019 Participant Contribution Rate 3.27%



29 - 911 Command

1/1/2019	E2 2.5% COLA for future retirees (1/1/2019)
6/12/1973	Covered by Act 88
	Fiscal Month - January

30 - 911 Disp aft 11/2009

3/1/2020	Temporary Benefit Modification - COVID
1/1/2019	10 4 Hour Days a Month
1/1/2019	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2019	Exclude Temporary Employees requiring less than 12 months
1/1/2019	10 Year Vesting
1/1/2019	Defined Benefit Normal Retirement Age - 60
1/1/2019	Service Credit Purchase Estimates - Yes
1/1/2019	2.5% multiplier (85% max)
1/1/2019	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
1/1/2019	Benefit F50 (With 25 Years of Service)
1/1/2019	Participant Contribution Rate 5%
1/1/2019	E2 2.5% COLA for future retirees (1/1/2019)
6/12/1973	Covered by Act 88
	Fiscal Month - January

40 - MCF Dpt Hds

1/1/2021	Participant Contribution Rate 5%
1/1/2020	Participant Contribution Rate 4%
1/1/2019	DC Adoption Date 01-01-2019
1/1/2019	Non-Accelerated Amortization
1/1/2019	Participant Contribution Rate 3%
9/1/2018	Participant Contribution Rate 2%
1/1/2018	Participant Contribution Rate 1.5%
2/1/2017	Participant Contribution Rate 1%
12/1/2016	Service Credit Purchase Estimates - Yes
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2009	E 2% COLA Adopted (01/01/2009)
1/1/2007	E 2% COLA Adopted (01/01/2007)
1/1/2006	E 2% COLA Adopted (01/01/2006)
1/1/2005	E 2% COLA Adopted (01/01/2005)
1/1/2004	E 2% COLA Adopted (01/01/2004)
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2001	E 2% COLA Adopted (01/01/2001)
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
1/1/1997	E 2% COLA Adopted (01/01/1997)
5/9/1996	Day of work defined as 8 Hours a Day for All employees.
1/1/1996	E 2% COLA Adopted (01/01/1996)
1/1/1995	E 2% COLA Adopted (01/01/1995)
1/1/1992	E2 2.5% COLA for future retirees (04/01/1991)
4/1/1991	Benefit FAC-3 (3 Year Final Average Compensation)
4/1/1991	Benefit B-4 (80% max)



40 - MCF Dpt Hds

10/1/1988	10 Year Vesting
10/1/1988	Benefit F55 (With 25 Years of Service)
10/1/1988	Member Contribution Rate 0.00%
6/12/1973	Covered by Act 88
1/1/1963	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

41 - Part Time

1/1/2021	Participant Contribution Rate 5%
1/1/2020	Participant Contribution Rate 4%
1/1/2019	Non-Accelerated Amortization
1/1/2019	Participant Contribution Rate 3%
1/1/2019	DC Adoption Date 01-01-2019
9/1/2018	Participant Contribution Rate 2%
1/1/2018	Participant Contribution Rate 1.5%
2/1/2017	Participant Contribution Rate 1%
12/1/2016	Service Credit Purchase Estimates - Yes
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2004	E 2% COLA Adopted (01/01/2004)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
1/1/1997	E 2% COLA Adopted (01/01/1997)
5/9/1996	Day of work defined as 8 Hours a Day for All employees.
1/1/1996	E 2% COLA Adopted (01/01/1996)
1/1/1995	E 2% COLA Adopted (01/01/1995)
10/1/1988	Benefit FAC-5 (5 Year Final Average Compensation)
10/1/1988	10 Year Vesting
10/1/1988	Benefit C-2/Base B-1
10/1/1988	Benefit F55 (With 25 Years of Service)
10/1/1988	Member Contribution Rate 0.00%
6/12/1973	Covered by Act 88
1/1/1963	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

42 - AFSCME 5/96

1/1/2021	Participant Contribution Rate 5%
1/1/2020	Participant Contribution Rate 4%
1/1/2019	Non-Accelerated Amortization
1/1/2019	Participant Contribution Rate 3%
1/1/2019	DC Adoption Date 01-01-2019
9/1/2018	Participant Contribution Rate 2%
1/1/2018	Participant Contribution Rate 1.5%
2/1/2017	Participant Contribution Rate 1%
12/1/2016	Service Credit Purchase Estimates - Yes
6/1/2014	Exclude Temporary Employees requiring less than 12 months



42 - AFSCME 5/96

1/1/2009	E 2% COLA Adopted (01/01/2009)
1/1/2007	E 2% COLA Adopted (01/01/2007)
1/1/2006	E 2% COLA Adopted (01/01/2006)
1/1/2005	E 2% COLA Adopted (01/01/2005)
1/1/2004	E 2% COLA Adopted (01/01/2004)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2000	E 2% COLA Adopted (01/01/2000)
1/1/1999	Flexible E 2% COLA Adopted (01/01/1999)
1/1/1998	E 2% COLA Adopted (01/01/1998)
1/1/1997	E 2% COLA Adopted (01/01/1997)
5/1/1996	Benefit FAC-5 (5 Year Final Average Compensation)
5/1/1996	10 Year Vesting
5/1/1996	Benefit B-2
5/1/1996	Member Contribution Rate 0.00%
6/12/1973	Covered by Act 88
1/1/1963	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

80 - Circ Crt 4/96

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
2/1/2016	Non Standard Compensation Definition
2/1/2016	Benefit C-1 (New)
2/1/2016	Participant Contribution Rate 1%
1/31/2016	Frozen FAC
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
12/1/2000	Benefit FAC-3 (3 Year Final Average Compensation)
12/1/2000	10 Year Vesting
12/1/2000	Benefit B-2
12/1/2000	Member Contribution Rate 0.00%
12/1/2000	E2 2.5% COLA for future retirees (01/01/2001)
6/26/1997	Blanket Resolution (All Service)
8/20/1992	Day of work defined as 4 Hours a Day for All employees.
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

81 - Probate af 6/95

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2016	Non Standard Compensation Definition
1/1/2016	Benefit C-1 (New)
1/1/2016	Participant Contribution Rate 1%
12/31/2015	Frozen FAC
6/1/2014	Exclude Temporary Employees requiring less than 12 months



81 - Probate af 6/95

12/1/2004	Benefit FAC-3 (3 Year Final Average Compensation)
12/1/2004	10 Year Vesting
12/1/2004	Benefit B-2
12/1/2004	Benefit F55 (With 20 Years of Service)
12/1/2004	Member Contribution Rate 0.00%
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

82 - Probate court Assoc aft 1/1/0

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2016	Non Standard Compensation Definition
1/1/2016	Benefit C-1 (New)
1/1/2016	Participant Contribution Rate 1%
12/31/2015	Frozen FAC
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2009	Day of work defined as 4 Hours a Day for All employees.
1/1/2009	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2009	10 Year Vesting
1/1/2009	Benefit B-2
1/1/2009	Benefit F55 (With 20 Years of Service)
1/1/2009	Member Contribution Rate 5.00%
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

90 - AFSCME aft 1/1/09

3/1/2020	Temporary Benefit Modification - COVID
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2016	Benefit C-1 (New)
1/1/2016	Participant Contribution Rate 1%
12/31/2015	Frozen FAC
6/1/2014	Exclude Temporary Employees requiring less than 12 months
1/1/2009	Day of work defined as 4 Hours a Day for All employees.
1/1/2009	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2009	10 Year Vesting
1/1/2009	Benefit B-2
1/1/2009	Benefit F55 (With 20 Years of Service)
1/1/2009	Member Contribution Rate 5.00%
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

91 - Non-Rep Elec Offic aft 10/1/1

3/1/2020	Temporary Benefit Modification - COVID
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91 - Non-Rep Elec Offic aft 10/1/1

12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2015	Benefit C-1 (New)
1/1/2015	Member Contribution Rate 1.00%
12/31/2014	Frozen FAC
6/1/2014	Exclude Temporary Employees requiring less than 12 months
10/1/2011	Benefit FAC-5 (5 Year Final Average Compensation)
10/1/2011	Non Standard Compensation Definition
10/1/2011	10 Year Vesting
10/1/2011	Benefit B-2
10/1/2011	Member Contribution Rate 5.00%
6/12/1973	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

HA - 25 POLC aft 3/1/17

3/1/2020	Temporary Benefit Modification - COVID
3/1/2017	Day of work defined as 10 four hour days
3/1/2017	Benefit FAC-3 (3 Year Final Average Compensation)
3/1/2017	Non Standard Compensation Definition
3/1/2017	6 Year Vesting
3/1/2017	Defined Benefit Normal Retirement Age - 60
3/1/2017	Medicare Taxable Wages
3/1/2017	1.5% Multiplier
6/12/1973	Covered by ACT 88
	Fiscal Month - January

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
01 - AFSCME Unit	2.00%
04 - MCF	2.00%
10 - Empl/Tning	2.00%
11 - Elected officials prior 5/95	2.00%
12 - Non Represented prior 5/95	2.00%
13 - Probate Court prior 6/95	2.00%
15 - Circuit Court prior 4/96	2.00%
16 - Hlth Clerical	2.00%
17 - Hlth Nurses	2.00%
18 - NonRep Elec Officials af 5/95	2.00%
19 - Tmstr NonSup pr9/96-non911/Sh	2.00%
20 - Tmstr NonSup af9/96-non911/Sh	2.00%
21 - Teamsters-Com Unit prior 9/96	2.00%
22 - Teamstr-Com Unit hired af 9/9	2.00%
23 - New Hires div 20 aft 11/09	2.00%
26 - POLC before 2009	2.00%
27 - POLC aft 2009	2.00%
28 - 911 Disp prior 11/2009	2.00%
29 - 911 Command	2.00%
30 - 911 Disp aft 11/2009	2.00%
40 - MCF Dpt Hds	2.00%
41 - Part Time	2.00%
42 - AFSCME 5/96	2.00%
80 - Circ Crt 4/96	2.00%
81 - Probate af 6/95	2.00%
82 - Probate court Assoc aft 1/1/0	2.00%
90 - AFSCME aft 1/1/09	2.00%
91 - Non-Rep Elec Offic aft 10/1/1	2.00%
HA - 25 POLC aft 3/1/17	0.00%

Miscellaneous and Technical Assumptions

Loads – None.

Amortization Policy for Closed Not Linked Divisions: The default funding policy for closed not linked divisions, including open divisions with zero active members, is to follow a non-accelerated amortization, where each closed period decreases by one-year each year until the period is exhausted. In select instances, closed not linked division(s) may follow an accelerated amortization policy.

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:

	<u>12/31/2020</u>	<u>12/31/2019</u>	<u>12/31/2018</u>
1. Ratio of the market value of assets to total payroll	5.4	4.6	3.9
2. Ratio of actuarial accrued liability to payroll	8.3	7.2	6.3
3. Ratio of actives to retirees and beneficiaries	0.9	1.1	1.3
4. Ratio of market value of assets to benefit payments	11.3	10.7	9.7
5. Ratio of net cash flow to market value of assets (boy)	-3.4%	-2.1%	-3.5%

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 actives to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

RATIO OF 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 Public Act 202 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, 2020	
11	Indicate number of active members	361
12	Indicate number of inactive members (excluding pending refunds)	135
13	Indicate number of retirees and beneficiaries	404
14	Investment Performance for Calendar Year Ending December 31, 2020¹	
15	Enter actual rate of return - prior 1-year period	13.59%
16	Enter actual rate of return - prior 5-year period	9.35%
17	Enter actual rate of return - prior 10-year period	7.91%
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	18
22	Is each division within the system closed to new employees? ⁴	No
23	Uniform Assumptions	
24	Enter retirement pension system's actuarial value of assets using uniform assumptions	\$86,276,072
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions ⁵	\$141,949,568
27	Actuarially Determined Contribution (ADC) using uniform assumptions, Fiscal Year Ending December 31, 2021	\$5,780,460

- ¹. The Municipal Employees' Retirement System's investment performance has been provided to GRS from MERS Investment Staff and is included here for reporting purposes. The 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."
- ⁵. Line 25 actuarial accrued liability is determined under PA 202 uniform assumptions which differ from the valuation assumptions. In particular, the assumed rate of return for PA 202 purposes is 7.00%.

SHIAWASSEE COUNTY

Appendix E COUNTY ROAD COMMISSION
OPEB REPORT



January 27, 2021

PERSONAL & CONFIDENTIAL

Mr. Brent Friess
Shiawassee County Road Commission
701 W. Corunna Ave
Corunna, MI 48817

RE: Shiawassee County Road Commission Retiree Health Care Plan

Dear Brent:

Transmitted via email, this is a copy of your OPEB accounting report for the fiscal year ending December 31, 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.

The actuarial values shown in this report are based on December 31, 2019 results rolled forward to December 31, 2020.

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

Shiawassee County Road Commission Retiree Health Care Plan

Accounting Report

for the Period Ending December 31, 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

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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 herself as meeting the Qualification Standards of the American Academy of Actuaries to render actuarial opinions contained in the report.

Prepared and Certified by:



Leah A. Dudley, ASA, MAAA
Health Actuary

Reviewed by:



Lisa J. Hayes
Senior OPEB Analyst

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 actuarial gain (decrease in liability) of \$23,678, due to the actual benefit payments being lower than expected.

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 Shiawassee County Road Commission Retiree Health Care 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 Shiawassee County Road Commission. 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

Shiawassee County Road Commission Retiree Health Care Plan is a single employer plan established and administered by **Shiawassee County Road Commission** 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 December 31, Retirement Plan membership consisted of the following:

	2016	2017	2019
Active members	8	1	1
Inactive members	0	0	0
Retirees and beneficiaries	38	39	35
Total members	46	40	36

Contributions

The Shiawassee County Road Commission Retiree Health Care Plan was established and is being funded under the authority of the Road Commission. The plan's funding policy is that the employer will contribute any required amounts as determined by an annual actuarial valuation as a reference but not as a definitive requirement. Currently, benefit payments are made from the trust. There are no long-term contracts for contributions to the plan.

ASSUMPTIONS AND METHODS

The Shiawassee County Road Commission's OPEB liability was measured as of December 31, 2020.

Actuarial Assumptions

The total OPEB liability was determined by an actuarial valuation as of December 31, 2019 rolled forward to December 31, 2020. The following actuarial assumptions were used in the measurement:

Inflation	2.5%
Salary increases	1.0% (for purpose of allocating liability)
Investment rate of return	7.35% (including inflation)
20-year Aa Municipal bond rate	1.93% (S&P Municipal Bond 20-Year High Grade Rate Index)
Mortality	Public General 2010 Employee and Healthy Retiree, Headcount weighted
Improvement Scale	MP-2019

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 Real Rate of Return
Global Equity	60.0%	5.25%
Global Fixed Income	20.0%	1.25%
Private Investments	20.0%	7.25%

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 **7.35%**. The projection of cash flows used to determine the discount rate assumed that the Road Commission will make no further contributions to the trust. 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. 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", not applicable for this plan), 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 December 31, 2019 the discount rate used to value OPEB liabilities was 7.35%.

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 December 31, 2019	\$1,922,972	\$2,458,940	\$(535,968)
Changes during the Year			
Service Cost	695		695
Interest	132,868		132,868
Experience (Gains)/Losses	(23,678)		(23,678)
Change in plan terms	0		0
Change in actuarial assumptions	0		0
Contributions to OPEB trust		0	0
Contributions/benefit paid from general operating funds		0	0
Employee Contributions		0	0
Net Investment Income		292,938	(292,938)
Benefit Payments; Including Refunds of Employee Contributions	(231,877)	(231,877)	0
Administrative Expenses		(4,240)	4,240
Other Changes		0	0
Total Changes	(121,992)	56,821	(178,813)
Balance at December 31, 2020	\$1,800,980	\$2,515,761¹	\$(714,781)

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	\$1,913,959	\$1,800,980	\$1,700,891
Plan Fiduciary Net Position	2,515,761	2,515,761	2,515,761
Net OPEB Liability	\$(601,802)	\$(714,781)	\$(814,870)

Trend	1% Decrease	Current Rate	1% Increase
Total OPEB Liability	\$1,793,474	\$1,800,980	\$1,808,731
Plan Fiduciary Net Position	2,515,761	2,515,761	2,515,761
Net OPEB Liability	\$(722,287)	\$(714,781)	\$(707,030)

¹ Balance reflects the withdrawal of \$38,890 in retiree OPEB benefits paid for 2020 but withdrawn from the trust in January 2021

RECONCILIATION AND RECOGNITION OF NET OPEB LIABILITY

OPEB Expense

Below are the components of the Total OPEB Expense:

	Fiscal Year Ending 12/31/2020
Service Cost	\$695
Interest on Total OPEB Liability	132,868
Experience (Gains)/Losses	(23,678)
Changes in Plan Terms	0
Changes in Assumptions	0
Employee Contributions	0
Projected Earnings on OPEB Plan Investments	(172,055)
Investment Earnings (Gains)/Losses	(29,711)
Administrative Expenses	4,240
Other Changes in Fiduciary Net Position	0
Total OPEB Expense	\$(87,641)

OPEB Plan Fiduciary Net Position

The OPEB Plan Fiduciary Net Position as of December 31, 2020 is \$2,515,761.

Deferred Inflows and Outflows of Resources Related to OPEB Plan

	Deferred Outflows Of Resources	Deferred Inflows Of Resources
Experience (Gains)/Losses	0	0
Changes of Assumptions	0	0
Investment Earnings (Gains)/Losses	0	136,688
Total	\$0	\$136,688

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 December 31,	Amount Recognized
2021	\$(29,711)
2022	(29,710)
2023	(53,092)
2024	(24,175)
2025	0
Thereafter	0

RECONCILIATION AND RECOGNITION OF NET OPEB LIABILITY

Reconciliation of Net OPEB Liability

	Net OPEB Liability
Net OPEB Liability December 31, 2019	\$(535,968)
Total OPEB expense	(87,641)
Contributions	0
Change in deferred outflows of resources	0
Change in deferred inflows of resources	(91,172)
Net OPEB Liability December 31, 2020	\$(714,781)

Total OPEB Liability by Participant Status

	Total OPEB Liability
Active participants	\$145,163
Inactive participants	0
Retirees and beneficiaries	1,655,817
Total OPEB Liability	\$1,800,980

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

Description of Actuarially Determined Contributions

Previously, under Governmental Accounting Standards Board (GASB) Statement Nos. 43 and 45, an Annual Required Contribution (ARC) was provided in order that an OPEB plan sponsor could either contribute such amount to an OPEB trust or book the balance on the employer's financial pages as an OPEB Obligation.

GASB Nos. 74 and 75, however, eliminate the ARC as a component of the financial statement and, instead, separately identify an accounting expense that must be recorded on the financial pages - whether or not a contribution was actually made to an OPEB trust. Although a recommended contribution is no longer necessary as part of GASB reporting, we have included one along with the accounting entries in this report 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 that 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 December 31,	
	2021	2020
Discount rate	7.35%	7.35%
Amortization period	2 years	3 years
Amortization method	Level \$	Level \$
Normal cost	594	695
Amortization of Net OPEB Liability	(370,059)	(191,466)
Interest to end of year	(27,155)	(14,022)
Total ADC (A) + (B) + (C), not less than \$0	\$0	\$0

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, \$0, 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. Because your plan is closed to new hires, this trust contribution is not required.

This plan is fully funded and, therefore, all retiree OPEB benefits may be paid from the trust.

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

State of Michigan Public Acts 530 and 202 Information

Financial information	2020
Assets (Fiduciary net position)	\$2,515,761
Liabilities (Total OPEB Liability)	1,800,980
Funded ratio for the Plan Year	139.69%
Actuarially Determined Contribution	\$0
Is ADC calculated in compliance with No. Letter 2018-3?	Yes

Membership	2020
Number of active members	1
Number of inactive members	0
Number of retirees and beneficiaries	35
Premiums paid on behalf of the retirants	\$231,877

Investment Performance
This information is available from the Investment Manager

Actuarial Assumptions	2020
Actuarially assumed rate of investment return	7.35%
Discount rate	7.35%
Amortization method used for funding unfunded liability	Level \$
Amortization period used for funding unfunded liability	3 years
Is each division closed to new employees	Yes
Healthcare inflation assumption next year	8.25%
Healthcare inflation assumption - long term	4.50%

Uniform Assumptions	2020
Actuarial value of assets using uniform assumptions	\$2,515,761
Actuarial accrued liability using uniform assumptions	1,843,684
Funded ratio using uniform assumptions	136.45%
Actuarially Determined Contribution (ADC) using uniform assumptions	\$0

Information for Summary Report (minimum required contribution) ¹	2020
Retiree insurance premiums for the year (1)	231,877
Normal cost as a percent of covered payroll (2)	0.64%
Covered payroll for employees hired after June 30, 2018 (3)	0
Normal cost for employees hired after June 30, 2018 (4) = (2)X(3)	0
Minimum required contribution under PA 202 (1) + (4), not greater than the ADC	\$0

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	12/31/2020	12/31/2019	12/31/2018
Total OPEB Liability			
Service Cost	\$695	\$1,032	\$2,484
Interest	132,868	120,737	83,884
Changes of Benefit Terms	0	0	0
Difference between Expected and Actual Experience	(23,678)	(41,679)	2,525
Change of Assumptions	0	(65,580)	(397,706)
Benefit Payments (Including Refunds of Employee Contributions)	(231,877)	(219,011)	(268,719)
Net Change in Total OPEB Liability	(121,992)	(204,501)	(577,532)
Total OPEB Liability – Beginning	1,922,972	2,127,473	2,705,005
Total OPEB Liability – Ending (a)	\$1,800,980	\$1,922,972	\$2,127,473
Plan Fiduciary Net Position			
Contributions to OPEB trust	\$0	\$825,000	\$1,050,000
Contributions/benefit payments made from general operating funds	0	219,011	268,719
Net Investment Income	292,938	264,628	(55,995)
Benefit Payments (Including Refunds of Employee Contributions)	(231,877)	(219,011)	(268,719)
Administrative Expenses	(4,240)	(3,972)	(1,706)
Other	0	0	0
Net Change in Fiduciary Net Position	56,821	1,085,656	992,299
Plan Fiduciary Net Position – Beginning	2,458,940	1,373,284	380,985
Plan Fiduciary Net Position – Ending (b)	2,515,761	2,458,940	1,373,284
Net OPEB Liability – Ending (a)-(b)	\$ (714,781)	\$ (535,968)	\$ 754,189
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability	139.69%	127.87%	64.55%
Covered Employee Payroll	\$116,808	\$110,255	\$99,317
Net OPEB Liability as Percentage of Payroll	(611.9)%	(486.1)%	759.4%
Actuarially Determined Contribution	\$0	\$77,707	\$199,711
Employer Contribution/benefit payments	0	(1,044,011)	(1,318,719)
Contribution Deficiency/(Excess)	\$0	\$(966,304)	\$(1,119,008)
ADC as a Percentage of Covered Payroll	0.0%	70.5%	201.1%
Employer Contribution as a Percentage of Covered Payroll	0.0%	946.9%	1327.8%

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

Assumptions and Methods for Calculation of Actuarially Determined Contribution

Valuation date December 31, 2019

Measurement date December 31, 2020

Reporting date December 31, 2020

Actuarial Methods

Cost method Entry Age Normal (level percentage of compensation)

Asset valuation method Market value

Actuarial Assumptions

Discount Rate – 7.35% for December 31, 2020 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 – 1.93%

Rationale – Current bond rate (based on information published by S&P as of December 31, 2020)

Salary Scale – 1.0%

Rationale – Per employer experience and expectations

Return on Plan Assets – 7.35%

Rationale – Consistent with plan investment experience

Mortality Rates – Public General 2010 Employee and Healthy Retiree, Headcount weighted, with MP-2019 improvement

Rationale – Most current mortality rates available for municipalities

Utilization – 100% of active and terminated eligible employees will elect coverage at retirement; actual coverage used for non-active

Rationale – historical

Termination Rates – See sample rates below:

Age	Rate
30	4.8%
35	4.5
40	3.8
45	3.2
50	1.5

Rationale – Based on past employer experience

Disability Rates – None

Rationale – Small group

Marital status – 75% of future retirees will have a covered spouse at retirement with males three years older than females; actual status used for retirees

Rationale – Based on past employer experience

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

Retirement Rates – Rates as shown below

Rationale – These rates were chosen based on this plan's historical experience

Age	Rate	Age	Rate
55	18%	61-63	24%
56	15	64	27
57	10	65-69	30
58	15	70	100
59-60	20		

Claims Costs

Pre-65

Medical – see annual rates below:

Blue Cross / Blue Shield			
Age	Medical & Vision	Age	Medical & Vision
55	\$6,822	60	\$8,300
56	7,122	61	8,650
57	7,448	62	8,952
58	7,776	63	9,151
59	8,126	64	9,399

HRA Monthly Administrative Fee – \$20.45 per pre-65 retiree

Annual pre-65 HRA Support – \$4,750 per covered person

Rationale – Actual 2020 premiums for medical and administrative fees; estimated HRA benefit amount based on plan provisions and actuarial judgement

Post-65

Medical – \$3,234 per covered person

Vision – \$72.12 single, \$109.92 double

Rationale – Actual 2020 premiums

Implicit Subsidy – Not applicable; premiums are age-graded

Trend rates

Pre-65 Medical, Vision and HRA Administrative fee – 8.5% graded down to 4.5% by 0.25% per year

Pre-65 HRA Support – None

Post-65 Medical – 7.0% graded down to 6.5% after one year and then by 0.25% per year to an ultimate rate of 4.5%

Post-65 Vision – 5.0%

Rationale – Based on State of Michigan trend survey

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

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

- Post-65 trend rates updated (no effect on liability due to the cap on post-65 benefits)

Assumptions used for PA 202 Reporting

Discount rate – 7.00%

Mortality – Public General 2010 Employee and Healthy Retiree, Headcount weighted, with MP-2018 improvement scale

Salary Scale – 3.5%

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 December 31,							Deferred Outflow of Resources	Deferred Inflow of Resources
			2020	2021	2022	2023	2024	2025	2026+		
2018	2,525	1.00								-	-
2019	(41,679)	1.00								-	-
2020	(23,678)	1.00	(23,678)	-	-	-	-	-	-	-	-
Net recognized in OPEB expense			<u>\$ (23,678)</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>

Schedule of Changes in Assumptions

Year	Changes in Assumptions	Recognition period (years)	Amount Recognized in Year Ended December 31,							Deferred Outflow of Resources	Deferred Inflow of Resources
			2020	2021	2022	2023	2024	2025	2026+		
2018	(397,706)	1.00								-	-
2019	(65,580)	1.00								-	-
2020	-	1.00	-	-	-	-	-	-	-	-	-
Net recognized in OPEB expense			<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>

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 December 31,							Deferred Outflow of Resources	Deferred Inflow of Resources
			2020	2021	2022	2023	2024	2025	2026+		
2018	116,911	5	23,382	23,382	23,383					46,765	-
2019	(144,579)	5	(28,916)	(28,916)	(28,916)	(28,915)				-	(86,747)
2020	(120,883)	5	(24,177)	(24,177)	(24,177)	(24,177)	(24,175)			-	(96,706)
Net recognized in OPEB expense			<u>\$ (29,711)</u>	<u>\$ (29,711)</u>	<u>\$ (29,710)</u>	<u>\$ (53,092)</u>	<u>\$ (24,175)</u>			<u>\$ 46,765</u>	<u>\$ (183,453)</u>

Total Deferred Outflow/(Inflow) of Resources

	Amount Recognized in Year Ended December 31,					
	2021	2022	2023	2024	2025	2026+
Total Deferred Outflow/(Inflow) of Resources	\$ (29,711)	\$ (29,710)	\$ (53,092)	\$ (24,175)	\$ -	\$ -

SUMMARY OF PLAN PROVISIONS

Plan name	Shiawassee County Road Commission Retiree Health Care Plan
Eligibility:	Limited to one active employee as of December 31, 2017; minimum of Age 60 with 10 years of service for retiree benefits; minimum of Age 55 with 25 years of service required for retiree and spouse benefits
Employer benefits:	Payment of medical and vision premiums for the retiree's lifetime; post-65 medical benefits are supplemental to Medicare and limited to \$300 per month per person; Pre-65 coverage is subsidized through a Health Reimbursement Arrangement
Spouse coverage	
Retirement between January 1, 1975 and December 31, 1991	No benefit ¹
Retirement between January 1, 1992 and December 31, 1998	Payment of medical and vision premiums for the spouse's lifetime
Retirement after December 31, 1998	Payment of medical and vision premiums for the spouse's lifetime for retirees with 25 or more years of service at retirement
Retiree contribution	None
Changes since prior valuation	None

¹ Two spouses have paid coverage by special arrangement

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.