

**Grand Traverse County  
State of Michigan  
Comprehensive Financial Plan  
for  
Pension Bonds  
(Grand Traverse Pavilions)**

**August 18, 2021**



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# Comprehensive Financial Plan

## Introduction

Public Act 34 of 2001, the Revised Municipal Finance Act, as amended (the “Act”), requires, among other things, the preparation of a comprehensive financial plan (the “CFP”) in connection with the issuance of bonds to finance all or part of an unfunded pension and/or health care liability. Grand Traverse County (the “County”) is proposing to issue bonds in a not-to-exceed amount of \$5,725,000 (the “Bonds”) to fund a portion of the unfunded actuarially accrued pension liability (“UAAL”) of two divisions (“Division 41” and “Division 43,” collectively, the “Divisions”) within the defined benefit pension plan of the Grand Traverse Pavilions (the “Pavilions”). The Pavilions is a medical care facility owned by the County and operated by the Grand Traverse County Department of Health and Human Services Board. The defined benefit pension plan of the Pavilions (the “Pension Plan”) is administered by the Municipal Employees’ Retirement System of Michigan (“MERS”).

This CFP has been prepared and approved by the County in accordance with Section 518(5) of the Act. As required by Section 518(5) of the Act, this CFP will be available for review at the office of the County Clerk and on the County’s website. The office of the County Clerk is located on the first floor of the Governmental Center, 400 Boardman Avenue, Traverse City, Michigan 49684. The County’s website address is [www.grandtraverse.org](http://www.grandtraverse.org).

This CFP must satisfy the requirements of subsections (a) through (k) under Section 518(5) of the Act. The requirements of each subsection have been addressed on the following pages of this CFP.

<u>518(5) Subsection</u>	<u>Page</u>
(a)	8
(b)	10
(c)	3
(d)	3
(e)	9
(f)	7
(g)	10
(h)	5
(i)	5
(j)	10
(k)	n/a

## **Application Requirements**

Section 518(9) of the Act requires municipalities intending to issue bonds to finance all or part of an unfunded pension and/or health care liability to request prior written approval from the Michigan Department of Treasury (the “Department”) before the issuance of the bonds. The Application for State Treasurer’s Approval to Issue Pension or Other Post-Employment Benefits (“OPEB”) Long-Term Securities, Form 5366 (the “Long Form”), will be filed with the Department pursuant to the Act. A \$1,817.50 check payable to the State of Michigan will accompany the Long Form application.

Section 518(4) of the Act requires the County to publish a notice of intent (the “Notice of Intent”) to issue the Bonds as proposed herein. The Notice of Intent and the rights of referendum meet the requirements of Section 517(2) of the Act. Pursuant to Section 518(5) of the Act, this CFP has been approved and will be available for review on or before the date of publication of the Notice of Intent.

The County has filed a Qualifying Statement for its fiscal year ended December 31, 2020, with the Department. The Department’s letter of approval dated July 13, 2021, has been attached hereto as Appendix A.

The Long Form requires a certified copy of the Notice of Intent Resolution, an Affidavit of Publication of the Notice of Intent, a certified copy of a No Referendum Certificate and a certified copy of the Bond Authorizing Resolution. A certified copy of the Notice of Intent Resolution has been attached hereto as Appendix B. The Affidavit of Publication of the Notice of Intent, a certified copy of a No Referendum Certificate and certified copy of the Bond Authorizing Resolution will be filed with the Department pursuant to the Act.

The Long Form also requires detailed information about the County’s direct, overlapping and proposed debt as well as a copy of the County’s most recent Official Statement. The County’s most recent Official Statement will be filed with the Department pursuant to the Act. The County’s Legal Debt Margin, Debt Statement and direct debt detail, all as of August 2, 2021, have been attached hereto as Appendix C, Appendix D and Appendix E, respectively. The County’s Legal Debt Margin, Debt Statement and direct debt detail do not include the Bonds as proposed herein. Estimated sizing and debt service calculations for the Bonds as proposed herein have been attached hereto as Appendix F. In addition to the Bonds, the County anticipates the issuance of approximately \$40.0 million of pension obligation bonds for its pension plan in the next twelve months.

Section 518(11) of the Act requires confirmation that the County has an A3 rating or higher from Moody’s or an A- rating or higher from Standard & Poor’s (“S&P”), Fitch or Kroll. The County is currently rated AA with a stable outlook by S&P. S&P’s rating report dated October 24, 2019, has been attached hereto as Appendix G. This is the most recent rating report available.

The County will apply for an S&P rating on the Bonds as proposed herein. Documentation of the requisite rating will be provided to the Department prior to approval.

## Municipal Securities

Section 518(1) of the Act limits the Pension Plan contribution from bond proceeds to the difference between 95% of the actuarial accrued liability (“AAL”) of each closed division and 100% of the market or actuarial value of Pension Plan assets for each closed division. The maximum contribution to Division 41 and to Division 43 has been calculated as follows:

### Grand Traverse Pavilions Pension Plan Maximum Contribution Calculations Division 41 and Division 43

<u>December 31, 2020, Valuations</u>				
<u>Division</u>	<u>AAL</u>	<u>95% of AAL</u>	<u>Actuarial Value of Assets</u>	<u>Contribution (1)</u>
41	\$25,530,817	\$24,254,276	\$19,212,803	\$5,041,473
43	1,822,288	1,731,174	1,477,477	253,697
Total	<u>\$27,353,105</u>	<u>\$25,985,450</u>	<u>\$20,690,280</u>	<u>\$5,295,170</u>

(1) Estimated sizing and debt service calculations have been attached hereto as Appendix G

The proposed Bonds will be issued in an amount not-to-exceed \$5,725,000. Bond proceeds after the payment of issuance expenses will be \$5,295,170. The County’s legal debt margin as of August 2, 2021, is \$751,037,111. As required by Section 518(5)(c) of the Act, the County’s legal debt margin calculations have been attached as Appendix C.

As required by Section 518(5)(d) of the Act, the proposed Bonds will be structured to provide for approximately level debt service with no interest being capitalized. The first principal payment on the Bonds will be made in the calendar year following the issuance of the Bonds. As required by Section 518(14) of the Act, the final maturity of the proposed Bonds will be on or before the last scheduled contribution to the Pension Plan. For illustration purposes, we have assumed the Bonds are issued and dated as of December 1, 2021. Interest on the Bonds will accrue from the dated date and will be payable semi-annually beginning on March 1, 2022. The first of 18 principal payments will be made on September 1, 2022. Estimated sizing and debt service calculations have been attached hereto as Appendix F.

## **Application Documentation, Review and Consideration**

### Retiree Health Care Plan

Bonds will not be issued by the County for the Grand Traverse Pavilions Retiree Health Care Plan (the “Retiree Health Care Plan”).

The Retiree Health Care Plan is a single employer defined benefit retiree health care plan sponsored and administered by the Pavilions. The Retiree Health Care Plan provides certain retirees with access to medical, dental, vision and life insurance coverage subject to varying specified contributions. Benefit provisions may be amended at the discretion of the Pavilions. As of December 31, 2020, 141 active and 27 retirees participate in the Retiree Health Care Plan. The Retiree Health Care Plan covers Non-Union and RN Bargaining Unit employees hired prior to January 1, 2011 and LPN and General Bargaining Units hired prior to January 1, 2016 who have worked at least twenty (20) continuous years for the Pavilions and who have reached at least age sixty-two (62) at the time of retirement will be provided a payment of up to \$500.00 per month (or the single subscriber premium cost to the organization, whichever is lower) up to age 65 to be used for the purchase of health insurance benefits; After reaching age 65 the retiree will be provided a payment of up to \$250.00 per month (or the single subscriber premium cost to the organization, whichever is lower) to be used for the purchased of Medicare supplemental coverage. This payment shall cease upon the retiree’s death. All other employees may retire at age 60 with 6 years of service and participation in the plan by paying 100% of premium

Contributions to the Retiree Health Care Plan by the Pavilions are actuarially determined. As of December 31, 2020, the Retiree Health Care Plan was 72.36% funded with actuarial assets of \$1,217,642 and an AAL of \$1,682,694. The actuarial report for the Retiree Health Care Plan, dated December 31, 2020, has been attached hereto as Appendix H.

### Pension Plan

The Pension Plan is an agent multiple-employer defined benefit pension plan administered by the Municipal Employees’ Retirement System of Michigan (“MERS”). The Pension Plan provides certain retirement, disability and death benefits to plan members and beneficiaries. Pension benefits vary by division and are calculated as final average compensation (based on a 5-year period) and multipliers ranging from 1.0% to 2.5%. Participants are considered to be fully vested in the plan after 6 years. Normal retirement age is 60 with early retirement at age 50 with 25 years of service and at age 55 with 15 years of service.

Pension Plan benefits are based on the retiree’s or active employee’s date of employment with the Pavilions as well as the bargaining group by whom they were/are represented. As of December 31, 2020, the Pension Plan had 667 members, with 231 retirees and beneficiaries, 145 former employees that have vested and 291 active plan participants. For pension plans with over 100 members, Section 518(3) of the Act requires the Pavilions 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 June 30, 2021, the Pavilions, through an internal review conducted by its Human Resource 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.

The Pavilions is required to make the actuarial determined contribution to the Pension Plan as established by MERS (the “ADC”). The ADC is the actuarially determined amount necessary to fund the benefits earned by employees during the year (normal costs) as well amortize the UAAL. The Pavilions’ Pension Plan was 75.11% funded as of December 31, 2020, with actuarial assets of \$37,811,443 and an actuarial accrued liability of \$50,339,984. The most recent actuarial report for the Pension Plan, dated December 31, 2020, has been attached hereto as Appendix I pursuant to Section 518(5)(a) of the Act.

The Pension Plan for the Pavilions has five divisions with a UAAL of \$12,528,541 as of December 31, 2020. A summary of the Pavilions’ Pension Plan by division is set forth in the following table.

**Grand Traverse Pavilions Pension Plan  
Summary of Pension Plan by Division  
December 31, 2020**

Division	Status	Pension Plan Participants				Actuarial	Actuarial	Unfunded	% Funded
		Active	Vested	Retired	Total	Valuation of Assets	Accrued Liability	Actuarial Accrued Liability	
04	Open	167	97	128	392	\$10,911,071	\$13,956,065	\$3,044,994	78.18%
40	Open	15	7	21	43	2,462,302	3,881,221	1,418,919	63.44
41	Closed	44	24	63	131	19,212,803	25,530,817	6,318,014	75.25
42	Open	32	13	18	63	3,747,790	5,149,593	1,401,803	72.78
43	Open*	33	4	1	38	1,477,477	1,822,288	344,811	81.07
		<u>291</u>	<u>145</u>	<u>231</u>	<u>667</u>	<u>\$37,811,443</u>	<u>\$50,339,984</u>	<u>\$12,528,541</u>	75.11%

\*This division will be closed to new hires prior to Department approval pursuant to Section 518(1) of the Act.

Pursuant to Section 518(5)(h) of the Act, the undersigned also certifies that the County’s audit reports for each of the fiscal years ended December 31, 2018, 2019 and 2020, show that the sum of all of the County’s defined benefit plan’s actual contributions, including the Pavilions, are 100% or greater than the County’s defined benefit plan’s actuarially determined contributions, including the Pavilions, for those years.

Pursuant to Section 518(5)(i) of the Act, the undersigned certifies that the County is in compliance with the reporting requirements of Public Act 202 of 2017, the Protecting Local Government Retirement and Benefits Act, as amended.

### Actions Taken to Contain Pension Plan Costs

The Pavilions' Pension Plan has five divisions. To date, Division 41 has been closed to new hires. Division 43 will be closed to new hires prior to Department approval. Pursuant to Section 518(10) of the Act, employee benefits within the closed divisions of the Pension Plan will not increase. Pursuant to Section 518(12) of the Act, the closed divisions will not be reopened to new hires.

On May 27, 2021, the Pavilions board adopted a resolution eliminating the option for employees to purchase additional service credit in the Pension Plan on or after June 1, 2021.

Active employees within certain divisions are required to contribute to the Pension Plan. Plan status for each division including the effective closure dates and the current employee required contributions are summarized in the following table.

**Grand Traverse Pavilions Pension Plan  
Plan Status and Current Required Employee Contributions  
December 31, 2020**

<u>Division</u>	<u>Status</u>	<u>Closure Effective</u>	<u>Required Contribution</u>
04	Open	Not Applicable	0.40%
40	Open	Not Applicable	3.41
41	Closed	August 31, 2015	10.35
42	Open	Not Applicable	7.81
43	Open*	*	3.00

\* This division will be closed to new hires prior to Department approval pursuant to Section 518(1) of the Act.

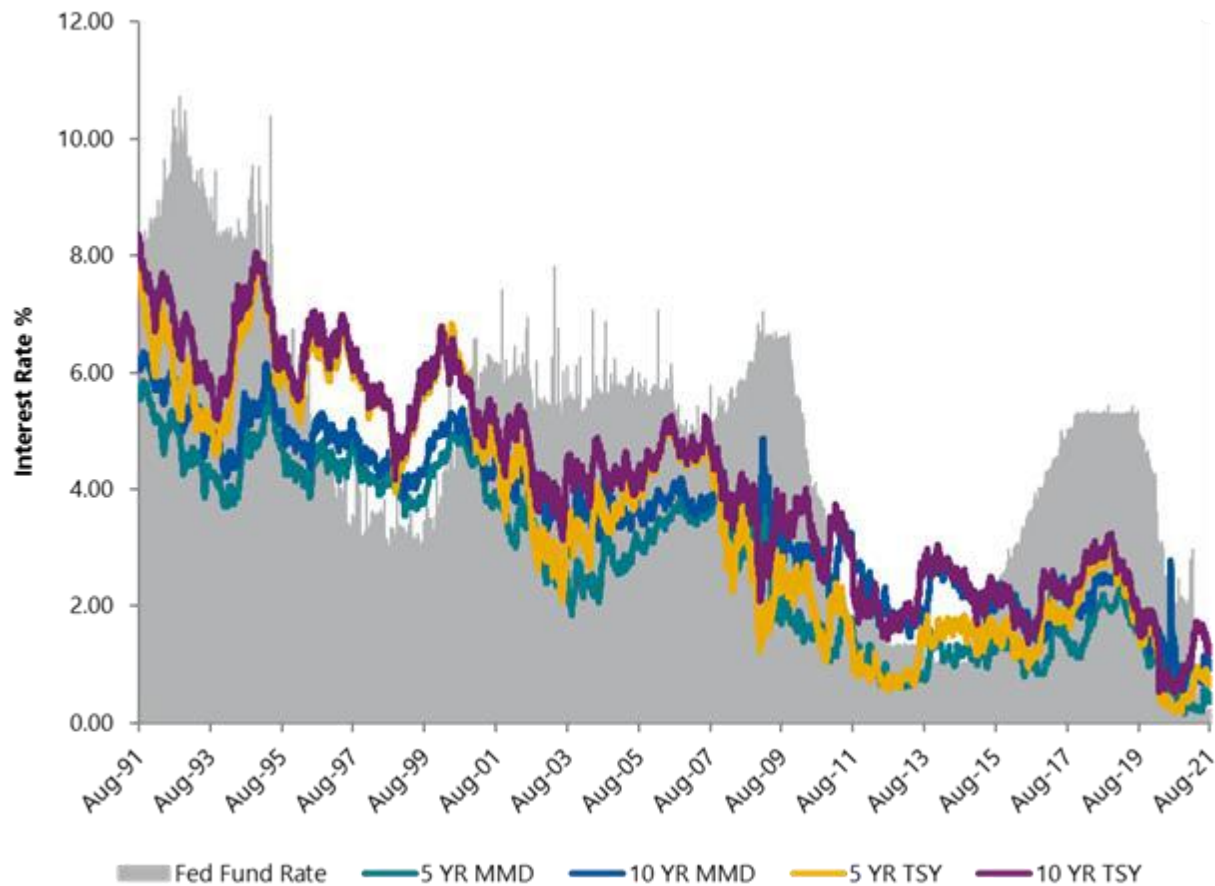
### Strategy to Address Pension Plan UAAL

The Pavilions will establish a defined contribution plan administered by MERS. The defined contribution plan will cover new full-time and part-time employees of the closed divisions. The defined contribution plan will be established prior to Department approval. Current employees in Divisions 41 and 43 will be provided an opportunity to continue accruing service in the Pension Plan, make a one-time election to convert the value of their current defined benefit from the Pension Plan into the new defined contributions plan as a lump sum, or make a one-time elections to cease service accrual in the Pension Plan and transfer to the defined contribution plan for future service accrual.

With interest rates hovering near historic lows, the County, on behalf of the Pavilions, is proposing to issue the Bonds in a not-to-exceed amount of \$5,725,000 with a final amortization of 2039. A summary of taxable and tax-exempt rates from August of 1991 to August of 2021 is included in the following graph:



**Taxable and Tax-Exempt Rates**  
**August of 1991 to August of 2021**



Pursuant to Section 518(5)(f) of the Act, the current actuarial rate of return on actuarial assets is assumed to be 7.35%. The following is a comparison of the Pension Plan's actuarial and market rates of return for the last ten years.

**Grand Traverse Pavilions Pension Plan**  
**Pension Plan Actuarial Rates of Return vs. Market Rates of Return**  
**2011 to 2020**

<u>Year</u>	<u>Actuarial</u>	<u>Market</u>
2020	8.17%	12.70%
2019	4.77%	13.41%
2018	3.80%	(4.12%)
2017	6.08%	13.07%
2016	5.14%	11.17%
2015	5.21%	(1.74%)
2014	5.90%	6.13%
2013	6.04%	14.47%
2012	5.42%	10.41%
2011	5.19%	1.83%

Based on current market rates and an eighteen-year amortization of the proposed Bonds, the true interest cost is currently estimated to be 2.48%. Including issuance expenses anticipated to be paid out of Bond proceeds, the all-inclusive cost is currently estimated to be 2.64%. The actuarial and market rates of return realized by MERS have averaged 5.57% and 7.73%, respectively, over the last 10 years. The Pavilions expect the actuarial and market rates of return on valuation assets to exceed the all-inclusive cost of the Bonds.

Bond proceeds after the payment of issuance expenses will total \$5,295,170. Since net Bond proceeds are not assumed to be contributed by the County until December 31, 2021, the valuations as of January 1, 2022, reflect budgeted contributions for calendar 2021, the contribution of net Bonds proceeds on December 31, 2021, earnings on existing valuation assets as well as interest on the UAAL since January 1, 2021. Pursuant to Section 518(5)(a) of the Act, the current and projected UAAL under each rate of return scenario required under the Act are as shown in the tables below.

**Grand Traverse Pavilions Pension Plan**  
**Current and Projected UAAL for Division 41**

<u>Division 41</u>	<u>Actuarial Return</u>		
	<u>5.35%</u>	<u>6.35%</u>	<u>7.35%</u>
January 1, 2021, UAAL	\$13,300,000	\$9,470,000	\$6,320,000
Net Bonds Proceeds	\$5,041,473	\$5,041,473	\$5,041,473
January 1, 2022, UAAL	\$8,280,000	\$4,230,000	\$890,000

**Grand Traverse Pavilions Pension Plan  
Current and Projected UAAL for Division 43**

Division 43	Actuarial Return		
	5.35%	6.35%	7.35%
January 1, 2021 UAAL	\$1,160,000	\$702,000	\$345,000
Net Bonds Proceeds	\$253,697	\$253,697	\$253,697
January 1, 2022, UAAL	\$927,000	\$454,000	\$74,600

The January 1, 2021, UAAL and corresponding UAAL amortization requirements are included in a supplemental actuarial report dated August 5, 2021, (the “Supplemental Report”). The Supplemental Report has been attached hereto as Appendix J.

With the expectation that the average actuarial and market rates of return on valuation assets will exceed the all-inclusive cost of the Bonds, the level debt service requirements of the proposed Bonds, together with the remaining ADC payments, are expected to be less than the ADC payments without bonding. The present value of the anticipated savings under each rate of return scenario required under the Act is included in the following table.

**Grand Traverse Pavilions Pension Plan  
Present Value of Anticipated Cash Flow Savings from Bond Financing**

	<u>Division 41</u>			<u>Division 43</u>		
	<u>Present Value Savings</u>			<u>Present Value Savings</u>		
	Market			Market		
	Current	Rates Plus	Market Rates	Current	Rates Plus	Market Rate
	Market	50	Minus 50	Market	50	Minus 50
<u>Return</u>	<u>Rates</u>	<u>Basis Points</u>	<u>Basis Points</u>	<u>Rates</u>	<u>Basis Points</u>	<u>Basis Points</u>
5.35%	\$1,588,075	\$1,288,846	\$1,907,590	\$81,700	\$66,422	\$97,631
6.35%	\$2,187,316	\$1,861,091	\$2,535,668	\$111,722	\$95,101	\$129,086
7.35%	\$2,824,605	\$2,469,869	\$3,203,395	\$143,806	\$125,743	\$162,710

The present value savings calculations in connection with the above table are attached as Appendix K, which evidences that the issuance of the Bonds, together with other funds lawfully available, will be sufficient to eliminate the underfunded pension liability.. As required by Section 518(5)(e), projected net present value savings in each rate of return scenario for Division 41 are more than \$778,500 or 15% of its \$5,190,000 share of the proposed principal amount of the Bonds. As required by Section 518(5)(e), projected net present value savings in each rate of return scenario for Division 43 are more than \$39,000 or 15% of its \$260,000 share of the proposed principal amount of the Bonds.

Pursuant to Section 518(5)(g) of the Act, the Pavilions and the County acknowledge that since the actuarial value of the assets and liabilities for Division 41 and Division 43 are subject to change it is possible the Pavilions unfunded accrued pension liability, the UAAL, may increase after the issuance of the Bonds thereby requiring the Pavilions to make additional actuarially determined amortization payments, the ADC, to the Pension Plan, above and beyond the principal and interest payments due on the Bonds. Pursuant to Section 518(5)(b) of the Act, the Pavilions will continue to make (i) all ADC payments as they are mandated by the State Constitution and (ii) all debt service payments on the proposed Bonds as they are a first budget obligation of the County.

#### Ancillary Benefits from Bond Financing

Divisions 41 and 43 cover certain employees of the Pavilions. The Pavilions is a County-owned, or Class III, nursing facility. The Pavilions receive Michigan Medicaid payments based on variable costs incurred to provide care to residents/patients. Effective October 1, 2020, the Class III variable cost limit (the "VCL") is \$330.00 per resident/patient day.

The Pavilions variable cost per resident/patient day is currently \$259.46. The variable rate base is calculated as of December 31<sup>st</sup> each year and then filed with Medicaid. These filings impact future Medicaid payments to the Facility. For example, costs submitted in the Facility's report dated December 31, 2020, will impact the Medicaid dollars paid to the Pavilions for October 1, 2021 through September 30, 2022.

Certified Public Expenditure ("CPE"), a Federal program, allows government healthcare providers, such as the Facility, access to Federal funds for eligible costs in excess of the payments received from Medicaid. It enables the State to draw down more Federal funding to pay eligible healthcare providers a portion of Medicaid allowable costs in excess of Medicaid revenue until it can become part of the regular Medicaid payments.

Historically, the Facility has been below the VCL. The anticipated pension contributions from net Bond proceeds will increase the Facility's Medicaid allowable costs. The portion of the Medicaid allowable costs in excess of the VCL would come from the CPE, if applicable. Under the current CPE and Medicaid reimbursement programs the Pavilions could be reimbursed for a portion of Bond principal between September 30, 2023, and September 30, 2025.

#### **Certification of the Plan**

Pursuant to Section 518(5)(j) of the Act, I hereby certify that on this 18<sup>th</sup> day of August, 2021, the Plan is complete and accurate and the County will remain in compliance with the Act.



\_\_\_\_\_  
Dean Bott, CPA  
Finance Director  
Grand Traverse County

## **Appendix A**

Grand Traverse County  
Qualifying Statement Letter of Approval



GRETCHEN WHITMER  
GOVERNOR

STATE OF MICHIGAN  
DEPARTMENT OF TREASURY  
LANSING

RACHAEL EUBANKS  
STATE TREASURER

July 13, 2021

**Approval**

Municipality Code: 280000  
Fiscal Year Ended: 12/2020  
Report ID Number: 114169

Dear Chief Administrative Officer:

Thank you for submitting a Qualifying Statement for Grand Traverse County to the Michigan Department of Treasury on July 13, 2021. Based upon the information provided in the Qualifying Statement, we have determined that the municipality is in material compliance with the criteria identified in Section 303(3) of Public Act 34 of 2001.

The municipality is now authorized to issue municipal securities under this Act without further approval from the Department. This authorization will remain in effect for six months plus 30 business days after the end of your next fiscal year, or when the Department has made a new determination, whichever occurs first.

Within 15 business days after the issuance of a municipal security, you will need to upload with the Department a [Treasury Website \(Security Report\)](#) and the documents required in [Michigan Legislature Website \(Section 319\)](#) of Public Act 34 of 2001.

If you would like to speak with a member of our team, please email our office at [Treas\\_MunicipalFinance@Michigan.gov](mailto:Treas_MunicipalFinance@Michigan.gov).

Sincerely,

Rod Taylor, Administrator  
Community Engagement and Finance Division

## **Appendix B**

### **Grand Traverse County Notice of Intent Resolution**

BOARD OF COUNTY COMMISSIONERS  
COUNTY OF GRAND TRAVERSE BY:

I HEREBY CERTIFY THIS COPY TO BE A  
TRUE AND CORRECT COPY OF THE RECORD ON  
FILE WITH THE OFFICE OF COUNTY CLERK  
BONNIE SCHEELE  
GRAND TRAVERSE COUNTY CLERK  
CLERK/DEPUTY COUNTY CLERK  
DATE: August 18, 2021

Resolution No. 86-2021

**RESOLUTION APPROVING COMPREHENSIVE FINANCIAL PLAN  
AND TO PUBLISH NOTICE OF INTENT TO ISSUE BONDS FOR  
PAVILIONS PLAN**

Minutes of a regular meeting of the Board of County Commissioners of the County of Grand Traverse, Michigan, held on August 18, 2021, at 8:00 a.m. local time.

PRESENT: Ron Clous, Betsy Coffia, Brad Jewett, Penny Morris, Darryl Nelson and Rob Hentschel

ABSENT: Bryce Hundley

The following resolution was offered by Member Clous and supported by Member Morris:

WHEREAS, the County of Grand Traverse (the "County") proposes to issue its limited tax general obligation bonds (the "Bonds") to finance a part of the cost of the County's unfunded pension liability for the defined benefit plan retirement program of the Grand Traverse Pavilions (the "Pavilions DB Plan") as authorized by Act 34, Public Acts of Michigan, 2001, as amended ("Act 34"); and

WHEREAS, a comprehensive financial plan relating to the Pavilions DB Plan has been prepared pursuant to Section 518(5) of Act 34 (the "Pavilions Comprehensive Financial Plan") and presented to the Board of County Commissioners for approval; and

WHEREAS, it is necessary to publish a Notice of Intent to Issue Bonds pursuant to Sections 517(2) and 518(4) of Act 34.

NOW, THEREFORE, BE IT RESOLVED that:

1. The Board of County Commissioners hereby approves the Pavilions Comprehensive Financial Plan in the form presented and on file with the County Clerk.
2. The Pavilions Comprehensive Financial Plan shall be posted in a prominent and conspicuous location on the County's website and be made available to the public in the office of the County Clerk no later than the date the notice described in Section 4 is published.
3. The Board of County Commissioners hereby determines to issue one or more series of bonds, which bonds pledge the County's limited tax full faith and credit, pursuant to



Section 518 of Act 34, in an amount of not to exceed \$5,725,000 (the "Bonds") to finance a part of the cost of the County's unfunded pension liability for the Pavilions DB Plan.

4. A Notice of Intent to Issue Bonds shall be published in accordance with Sections 517(2) and 518(4) of Act 34, and the County Clerk is authorized and directed to publish the Notice of Intent to Issue Bonds in a newspaper of general circulation in the County, which Notice shall be substantially in the form as set forth on Exhibit A attached hereto with such changes as are approved by the County Administrator, and shall be at least one-quarter (1/4) page in size in the newspaper.

5. The firm of Dickinson Wright PLLC is hereby employed as bond counsel to the County to prepare the documents for the issuance of the Bonds. The Authorized Officer is authorized to enter into an engagement letter with bond counsel in accordance with the fees shown in the financial reports of the County's municipal advisor.

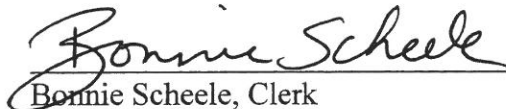
6. All resolutions and parts of resolutions insofar as they conflict with the provisions of this resolution be and the same are hereby rescinded.

YEAS: Ron Clous, Betsy Coffia, Brad Jewett, Penny Morris, Darryl Nelson and Rob Hentschel

NAYS: \_\_\_\_\_

ABSTAIN: \_\_\_\_\_

RESOLUTION DECLARED ADOPTED.

  
Bonnie Scheele, Clerk  
County of Grand Traverse

#### CERTIFICATION

I hereby certify that the foregoing is a true and complete copy of a Resolution adopted by the Board of County Commissioners of the County of Grand Traverse, Michigan, at a regular meeting held on August 18, 2021, and that public notice of the meeting was given pursuant to Act 267, Public Acts of Michigan, 1976.

  
Bonnie Scheele, Clerk  
County of Grand Traverse

Dated: August 18, 2021

## **EXHIBIT A**

**[NOTE TO PUBLISHER - PUBLICATION MUST BE 1/4 PAGE SIZE]**

### **NOTICE OF INTENT TO ISSUE BONDS TO THE ELECTORS OF THE COUNTY OF GRAND TRAVERSE**

NOTICE IS HEREBY GIVEN that the County of Grand Traverse, Michigan (the "County"), intends to issue limited tax general obligation bonds in one or more series in the aggregate principal amount of not to exceed \$5,725,000 for the purpose of financing a part of the County's unfunded pension liability for its defined benefit plan retirement program for the Grand Traverse Pavilions. The bonds will bear interest from their date at a rate or rates not exceeding 5.00% per annum.

The bonds will be issued under and pursuant to the provisions of Act 34, Public Acts of Michigan, 2001, as amended ("Act 34"), and the full faith and credit of the County will be pledged to pay the principal of and interest on the bonds as the same shall become due. The County will be obligated, as a first budget obligation, to advance moneys from its general funds or to levy ad valorem taxes on all taxable property within its corporate boundaries to pay the principal of and interest on the bonds as the same shall become due; provided, however, that the amount of taxes levied to pay the principal of and interest on the bonds, together with the taxes levied for the same year, shall not exceed the limit authorized by law.

### **RIGHT TO PETITION FOR REFERENDUM**

This notice is given, by order of the Board of County Commissioners of the County, to and for the benefit of the electors of the County in order to inform them of their right to petition for a referendum upon the question of the issuance of the aforesaid bonds. The bonds will be issued, without submitting such a question to a vote of the electors, unless within 45 days after the date of publication of this notice a petition requesting a referendum upon such question, signed by not less than 10% or 15,000 of the registered electors residing within the County, whichever is less, shall have been filed with the undersigned County Clerk. In the event that such a petition is filed, the bonds will not be issued unless and until the issuance thereof shall have been approved by the vote of a majority of the electors of the County qualified to vote and voting thereon at a general or special election.

### **FURTHER INFORMATION**

The County has prepared, and the Board of County Commissioners has approved, a comprehensive financial plan that contains the information required by Section 518(5) of Act 34, including, without limitation, an analysis of the County's current and future obligations with respect to each of its retirement and postemployment health care benefit programs.

The Comprehensive Financial Plan is available to the public on the County's website, [www.gtcountymi.gov](http://www.gtcountymi.gov) and at the office of the County Clerk, 400 Boardman Ave., Traverse City, MI 49684.

This Notice is published pursuant to the provisions of Act 34.

Bonnie Scheele, Clerk  
County of Grand Traverse

## Appendix C

Grand Traverse County  
Legal Debt Margin  
August 2, 2021

## Statement of Legal Debt Margin

*as of August 2, 2021*

2021 State Equalized Valuation	\$ 7,792,680,943
Plus Assessed Value Equivalent of 2020 Taxable Value (Act 198 Exception)	<u>8,443,511</u>
Total State Equalized Valuation	<u>7,801,124,454</u>
 Statutory Debt Limit (10% of Total State Equalized Valuation)	 780,112,445
Total Amount of Outstanding Debt	<u>29,075,334</u>
<b>Legal Debt Margin</b>	<b><u>\$ 751,037,111</u></b>

## **Appendix D**

Grand Traverse County  
Debt Statement  
August 2, 2021

**DEBT STATEMENT**

as of August 2, 2021, not including the Bonds described herein.

**DIRECT DEBT****Sewer & Water Bonds**

7/01/2004	Septage Treatment Facility	\$ 300,000	
10/01/2012	East Bay & Peninsula Water & Sewer Proj.	815,000	
10/01/2015	Blair Twp Sewer RF	1,380,000	
4/01/2016	East Bay Charter Twp. Water Proj.	3,970,000	
3/01/2017	Blair Water System RF	2,875,000	
9/01/2018	Blair Twp. Water Proj.	835,000	
3/27/2019	Traverse City WWTP RF	2,197,000	
	Total		12,372,000

**Brownfield Redevelopment Bonds**

6/1/2012	Brownfield Redev CVS	185,885	
9/30/2014	Brownfield Redev Uptown Dev	96,101	
	Total		281,986

**Airport Revenue Bonds**

1/1/2005	NW Regional Airport Bonds	1,080,000	
	Total		1,080,000

**Building Authority**

3/1/2017	Building Authority RF	2,300,000	
12/1/2017	Building Authority	3,110,000	
11/21/2019	Building Authority RF	3,605,000	
4/14/2021	Building Authority RF	2,175,000	
	Total		11,190,000

**MTF Bonds**

7/1/2015	MTF Bonds	700,000	
6/1/2018	MTF Bonds	1,505,000	
	Total		2,205,000

**Drain Bonds**

11/19/2020	Cass Road Drain	1,742,949	
	Total		1,742,949

**Installment Purchase**

2018 IT Installment Purchase	129,853	
2018 IT Installment Purchase	73,546	
Total		203,399

**TOTAL DIRECT DEBT****\$ 29,075,334****OVERLAPPING DEBT**

City	\$ 13,096,207
Township	24,434,812
Village	600,000
School District	95,725,003
ISD	-
Community College	24,905,000
Library	-
Authority	2,563,746

**TOTAL OVERLAPPING DEBT****\$ 161,324,768****TOTAL DIRECT AND OVERLAPPING DEBT****\$ 190,400,102**

## Appendix E

### Grand Traverse County Direct Debt Detail

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# Municipal Advisory Council of Michigan

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313-963-0420 800-337-0696 Fax 313-963-0943 <https://macmi.com>

## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE CUSIP(386496) #163175 - Sewer Bond Debt

Dated: 07/01/2004 Issue Amt: 1,300 M Rates: 4.80 - 5.00% 1st Int: 11/01/2004 Last Mat: 11/01/2024

SubIssue 1- Sewer - Utility Sewage Treatment

Issue Amt: 1,300 M

Rev. Cover: -

Debt Type: General Obligation	Other Security: No Security	Jr Lien: No
Tax Designation: No Designation	Tax Base: Limited Tax Security	Debt Shared: Yes* 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: No

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
3C5	11/01/2021	4.800	4.850	75 M			Callable		
3D3	11/01/2022	4.850	4.900	75 M			Callable		
	11/01/2023	5.000		75 M			Callable		
3E1	11/01/2024	5.000	5.000	75 M	(23-24)		Callable		
Total Outstanding				300 M					

Mat. Beg.	Mat. End	Beginning	Ending	Call Price
11/01/2014	11/01/2024	11/01/2013	AND Thereafter	100.00
In whole or in part on any Interest Payment Date.*				
*Verify <u>any date</u> and <u>interest date</u> with Notice of Sale or Official Statement.				



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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of

GRAND TRAVERSE CUSIP(66824A) #163214 - NW Regional Comm. Bond Debt


**Dated:** 01/01/2005 **Issue Amt:** 3,900 M **Rates:** 4.35 - 4.50% **1st Int:** 08/01/2005 **Last Mat:** 02/01/2025

### SubIssue 1- - Public Works Airport

**Issue Amt:** 3,900 M

Insur: XLCA

**Rev. Cover:** -

<b>Debt Type:</b> Revenue	<b>Other Security:</b> GO Pledge	<b>Jr Lien:</b> No
<b>Tax Designation:</b> Alternative Minimum Tax	<b>Tax Base:</b> Limited Tax Security	<b>Debt Shared:</b> No 
<b>Feature:</b> No Feature	<b>Enhancement:</b> Insured	<b>(*See Share of Partners)</b>
<b>USA Involvement:</b> No USA Involvement	<b>Payment Source:</b>	<b>Refunding:</b> No

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
AS1	02/01/2022	4.350	100.000	250 M			Callable		
AT9	02/01/2023	4.400	100.000	265 M			Callable		
AU6	02/01/2024	4.450	100.000	275 M			Callable		
AV4	02/01/2025	4.500	100.000	290 M			Callable		
<b>Total Outstanding</b>				<b>1,080 M</b>					

<u>Mat. Beg.</u>	<u>Mat. End</u>	<u>Beginning</u>	<u>Ending</u>	<u>Call Price</u>
02/01/2013	02/01/2025	02/01/2012	AND Thereafter	100.00

In whole or in part on any Interest Payment Date.\*

\*Verify any date and interest date with Notice of Sale or Official Statement.

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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE #906059 - Brownfield redev Inn at the Commons Bond Debt

Dated: 01/14/2009 Issue Amt: 988 M Rates: 2.00 - 36.00% 1st Int: Last Mat: 11/01/2024

SubIssue 1- - Financial Tax Increment

Issue Amt: 988 M

Rev. Cover: -

Debt Type: General Obligation/Authority	Other Security: No Security	Jr Lien: No
Tax Designation: No Designation	Tax Base: N.A.	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: No

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
	11/01/2021	2.000		90 M					
	11/01/2022	2.000		92 M					
	11/01/2023	2.000		94 M					
	11/01/2024	36.000		96 M					
Total Outstanding				372 M	Total outstanding now \$0.00 as of August 2, 2021, per Grand Traverse County				

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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE #906056 - Brownfield Redev CVS Bond Debt

Dated: 06/01/2012 Issue Amt: 985 M Rates: 1.50 - 1.50% 1st Int: Last Mat: 11/01/2027

SubIssue 1- - Financial Tax Increment

Issue Amt: 985 M

Rev. Cover: -

Debt Type: General Obligation/Authority	Other Security: No Security	Jr Lien: No
Tax Designation: No Designation	Tax Base: N.A.	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: No

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
	11/01/2021	1.500		42 M					
	11/01/2022	1.500		42 M					
	11/01/2023	1.500		43 M					
	11/01/2024	1.500		44 M					
	11/01/2025	1.500		44 M					
	11/01/2026	1.500		45 M					
	11/01/2027	1.500		46 M					

Total Outstanding 306 M Total outstanding now \$185,885 as of August 2, 2021, per Grand Traverse County

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## Maturity Report

### Direct Debt as of 8/2/2021

#### Municipal County of


GRAND TRAVERSE CUSIP(386496) #903308 - Sewer & Water Proj. Ref 8/1/03(13/23) Bond Debt

Dated: 10/01/2012 Issue Amt: 2,875 M Rates: 2.00 - 2.20% 1st Int: 05/01/2013 Last Mat: 11/01/2023

SubIssue 1- East Bay & Peninsula Water & Sewer Proj. - Utilities Water & Sewer

Issue Amt: 2,875 M

Rev. Cover: -

Debt Type: General Obligation	Other Security: No Security	Jr Lien: No
Tax Designation: No Designation	Tax Base: Limited Tax Security	Debt Shared: Yes* 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: Yes

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
7T4	11/01/2021	2.000	2.000	270 M			Callable		
7U1	11/01/2022	2.100	2.100	270 M			Callable		
7V9	11/01/2023	2.200	2.200	275 M			Callable		
Total Outstanding				815 M					

Mat. Beg.	Mat. End	Beginning	Ending	Call Price
11/01/2020	11/01/2023	11/01/2019	AND Thereafter	100.00
In whole or in part on any date.*				
*Verify <u>any date</u> and <u>interest date</u> with Notice of Sale or Official Statement.				

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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE #906057 - Brnflid Redev Grandview Pkwy Prop Bond Debt

Dated: 08/16/2013 Issue Amt: 600 M Rates: 1.50 - 1.50% 1st Int: Last Mat: 11/01/2028

SubIssue 1- - Financial Tax Increment

Issue Amt: 600 M

Rev. Cover: -

Debt Type: General Obligation/Authority	Other Security: No Security	Jr Lien: No
Tax Designation: No Designation	Tax Base: N.A.	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: No

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
	11/01/2021	1.500		18 M					
	11/01/2022	1.500		19 M					
	11/01/2023	1.500		19 M					
	11/01/2024	1.500		19 M					
	11/01/2025	1.500		20 M					
	11/01/2026	1.500		20 M					
	11/01/2027	1.500		20 M					
	11/01/2028	1.500		20 M					
Total Outstanding				155 M	Total outstanding now \$0.00 as of August 2, 2021, per Grand Traverse County				

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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE #906061 - Brownfield Redev #456981-72 Uptown Dev Orig \$295M award amt Bond Debt

Dated: 09/30/2014 Issue Amt: 118 M Rates: 1.50 - 1.50% 1st Int: Last Mat: 09/30/2029

SubIssue 1- - Financial Tax Increment

Issue Amt: 118 M

Rev. Cover: -

Debt Type: General Obligation/Authority	Other Security: No Security	Jr Lien: No
Tax Designation: No Designation	Tax Base: N.A.	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: No

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
	09/30/2021	1.500		10 M					
	09/30/2022	1.500		10 M					
	09/30/2023	1.500		10 M					
	09/30/2024	1.500		11 M					
	09/30/2025	1.500		11 M					
	09/30/2026	1.500		11 M					
	09/30/2027	1.500		11 M					
	09/30/2028	1.500		11 M					
	09/30/2029	1.500		11 M					
Total Outstanding				96 M					

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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE CUSIP(386496) #905243 - MTF Bond Debt

Dated: 07/01/2015 Issue Amt: 945 M Rates: 2.05 - 3.50% 1st Int: 03/01/2016 Last Mat: 09/01/2030

SubIssue 1- MTF - HWY MTF Comprehensive Transportation

Issue Amt: 945 M

Rev. Cover: -

Debt Type: Revenue	Other Security: State Transportation Fund	Jr Lien: No
Tax Designation: Qualified Tax Exempt	Tax Base: Limited Tax Security	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: No

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
8B2	09/01/2021	2.050	2.050	65 M					
8C0	09/01/2022	2.300	2.300	65 M					
8D8	09/01/2023	2.450	2.450	65 M			Callable		
8E6	09/01/2024	2.650	2.650	70 M			Callable		
8F3	09/01/2025	2.750	2.750	70 M			Callable		
8G1	09/01/2026	2.950	2.950	70 M			Callable		
8H9	09/01/2027	3.200	3.200	70 M			Callable		
8J5	09/01/2028	3.300	3.300	75 M			Callable		
8K2	09/01/2029	3.400	3.400	75 M			Callable		
8L0	09/01/2030	3.500	3.500	75 M			Callable		
Total Outstanding				700 M					

Mat. Beg.	Mat. End	Beginning	Ending	Call Price
09/01/2023	09/01/2030	09/01/2022	Thereafter	100.00

In whole or in part on any date.\*

\*Verify any date and interest date with Notice of Sale or Official Statement.

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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE CUSIP(386496) #905398 - Blair Twp Sewer Ref 10-1-05(16/25) Bond Debt

Dated: 10/01/2015 Issue Amt: 2,725 M Rates: 2.00 - 2.10% 1st Int: 05/01/2016 Last Mat: 11/01/2025

SubIssue 1- Blair Twp Sewer Ref 10-1-05(16/25) - Utilities Sewer

Issue Amt: 2,725 M

Rev. Cover: -

Debt Type: General Obligation	Other Security: No Security	Jr Lien: No
Tax Designation: Qualified Tax Exempt	Tax Base: Limited Tax Security	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: Yes

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
8S5	11/01/2021	2.000	1.500	280 M					
8T3	11/01/2022	2.000	1.700	270 M					
8U0	11/01/2023	2.000	1.850	290 M					
8V8	11/01/2024	2.000	1.950	275 M			Callable		
8W6	11/01/2025	2.100	2.100	265 M			Callable		
Total Outstanding				1,380 M					

Mat. Beg.	Mat. End	Beginning	Ending	Call Price
11/01/2024	11/01/2025	11/01/2023	AND Thereafter	100.00
In whole or in part on any date.*				
*Verify <u>any date</u> and <u>interest date</u> with Notice of Sale or Official Statement.				



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# Municipal Advisory Council of Michigan

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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE CUSIP(386497) #905801 - East Bay Twp. Bond Debt

Dated: 04/01/2016 Issue Amt: 5,000 M Rates: 2.00 - 3.00% 1st Int: 11/01/2016 Last Mat: 11/01/2035

SubIssue 1- East Bay Charter Twp. - Utilities Water

Issue Amt: 5,000 M

Rev. Cover: -

Debt Type: General Obligation	Other Security: No Security	Jr Lien: No
Tax Designation: Qualified Tax Exempt	Tax Base: Limited Tax Security	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: No

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
AF8	11/01/2021	2.000	1.400	215 M					
AG6	11/01/2022	2.000	1.550	220 M					
AH4	11/01/2023	2.000	1.650	220 M			Callable		
AJ0	11/01/2024	2.000	1.800	230 M			Callable		
AK7	11/01/2025	2.000	1.900	235 M			Callable		
	11/01/2026	2.000		245 M			Callable		
AL5	11/01/2027	2.000	2.100	255 M	(26-27)		Callable		
	11/01/2028	2.750		265 M			Callable		
AM3	11/01/2029	2.750	2.300	270 M	(28-29)		Callable		
	11/01/2030	3.000		275 M			Callable		
AN1	11/01/2031	3.000	2.550	290 M	(30-31)		Callable		
	11/01/2032	3.000		300 M			Callable		
AP6	11/01/2033	3.000	2.800	305 M	(32-33)		Callable		
	11/01/2034	3.000		315 M			Callable		
AQ4	11/01/2035	3.000	3.000	330 M	(34-35)		Callable		
Total Outstanding				3,970 M					

Mat. Beg.	Mat. End	Beginning	Ending	Call Price
11/01/2023	11/01/2035	11/01/2022	Thereafter	100.00

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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE #908261 - Brownfield 431808-72 orig approved amt was \$700,000 Bond Debt

Dated: 09/01/2016 Issue Amt: 38 M Rates: 1.50 - 1.50% 1st Int: 09/01/2021 Last Mat: 09/01/2031

### SubIssue 1- - Building

Issue Amt: 38 M

Rev. Cover: -

Debt Type: General Obligation/Authority	Other Security: No Security	Jr Lien: No
Tax Designation: No Designation	Tax Base: N.A.	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: No

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
	09/01/2021	1.500	1.500	4 M					
	09/01/2022	1.500	1.500	3 M					
	09/01/2023	1.500	1.500	3 M					
	09/01/2024	1.500	1.500	3 M					
	09/01/2025	1.500	1.500	3 M					
	09/01/2026	1.500	1.500	3 M					
	09/01/2027	1.500	1.500	3 M					
	09/01/2028	1.500	1.500	4 M					
	09/01/2029	1.500	1.500	4 M					
	09/01/2030	1.500	1.500	4 M					
	09/01/2031	1.500	1.500	4 M					

Total Outstanding

38 M

Total outstanding now \$0.00 as of August 2, 2021, per Grand Traverse County

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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE CUSIP(386514) #906413 - Refunds 5/1/07(17/31) Bond Debt

Dated: 03/01/2017 Issue Amt: 3,210 M Rates: 2.00 - 3.13% 1st Int: 11/01/2017 Last Mat: 05/01/2031

SubIssue 1- Building Authority - Financial Refunding

Issue Amt: 3,210 M

Rev. Cover: -

Debt Type: General Obligation	Other Security: No Security	Jr Lien: No
Tax Designation: Qualified Tax Exempt	Tax Base: Limited Tax Security	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: Yes

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
QA4	05/01/2022	2.000	1.900	230 M					
QB2	05/01/2023	2.000	2.000	230 M					
QC0	05/01/2024	2.200	2.200	230 M					
QD8	05/01/2025	2.375	2.350	230 M			Callable		
QE6	05/01/2026	2.400	2.400	230 M			Callable		
QF3	05/01/2027	2.550	2.550	230 M			Callable		
QG1	05/01/2028	2.750	2.750	230 M			Callable		
QH9	05/01/2029	2.850	2.850	230 M			Callable		
QJ5	05/01/2030	3.000	2.950	230 M			Callable		
QK2	05/01/2031	3.125	3.050	230 M			Callable		
Total Outstanding				2,300 M					

Mat. Beg.	Mat. End	Beginning	Ending	Call Price
05/01/2025	05/01/2031	05/01/2024	AND Thereafter	100.00

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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE CUSIP(386497) #906712 - Ref Blair Twp 7/1/07&5/26/11 Bond Debt

Dated: 09/01/2017 Issue Amt: 4,010 M Rates: 2.50 - 3.00% 1st Int: 05/01/2018 Last Mat: 11/01/2032

SubIssue 1- Township of Blair Water System - Financial Refunding

Issue Amt: 4,010 M

Rev. Cover: -

Debt Type: General Obligation	Other Security: No Security	Jr Lien: No
Tax Designation: Qualified Tax Exempt	Tax Base: Limited Tax Security	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: Yes

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
AU5	11/01/2021	2.500	1.200	350 M					
AV3	11/01/2022	2.500	1.350	340 M					
AW1	11/01/2023	2.500	1.450	295 M					
AX9	11/01/2024	2.500	1.600	210 M					
AY7	11/01/2025	2.500	1.800	210 M			Callable		
AZ4	11/01/2026	2.500	1.950	210 M			Callable		
BA8	11/01/2027	2.500	2.050	210 M			Callable		
BB6	11/01/2028	2.500	2.200	210 M			Callable		
BC4	11/01/2029	2.500	2.300	210 M			Callable		
BD2	11/01/2030	2.500	2.450	210 M			Callable		
BE0	11/01/2031	2.750	2.550	210 M			Callable		
BF7	11/01/2032	3.000	2.650	210 M			Callable		
Total Outstanding				2,875 M					

Mat. Beg.	Mat. End	Beginning	Ending	Call Price
11/01/2025	11/01/2032	11/01/2024	Thereafter	100.00

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## Maturity Report

### Direct Debt as of 8/2/2021

#### Municipal County of

GRAND TRAVERSE CUSIP(386514) #906876 - Building Authority Bonds Bond Debt

Dated: 12/01/2017 Issue Amt: 3,500 M Rates: 3.00 - 3.65% 1st Int: 05/01/2018 Last Mat: 11/01/2037

#### SubIssue 1- - Building

Issue Amt: 3,500 M

Rev. Cover: -

<b>Debt Type:</b> General Obligation/Authority	<b>Other Security:</b> No Security	<b>Jr Lien:</b> No
<b>Tax Designation:</b> Alternative Minimum Tax	<b>Tax Base:</b> Limited Tax Security	<b>Debt Shared:</b> No
<b>Feature:</b> No Feature	<b>Enhancement:</b> No Enhancement	<b>(*See Share of Partners)</b>
<b>USA Involvement:</b> No USA Involvement	<b>Payment Source:</b>	<b>Refunding:</b> No

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
QP1	11/01/2021	3.000	2.150	145 M					
QQ9	11/01/2022	3.000	2.250	145 M					
QR7	11/01/2023	3.000	2.350	150 M					
QS5	11/01/2024	3.000	2.450	155 M					
QT3	11/01/2025	3.000	2.550	160 M			Callable		
QU0	11/01/2026	3.000	2.650	165 M			Callable		
QV8	11/01/2027	3.000	2.750	170 M			Callable		
	11/01/2028	3.000		175 M			Callable		
QW6	11/01/2029	3.000	3.000	180 M (28-29)			Callable		
	11/01/2030	3.150		185 M			Callable		
QX4	11/01/2031	3.150	3.150	190 M (30-31)			Callable		
	11/01/2032	3.300		200 M			Callable		
QY2	11/01/2033	3.300	3.300	205 M (32-33)			Callable		
	11/01/2034	3.500		210 M			Callable		
QZ9	11/01/2035	3.500	3.500	215 M (34-35)			Callable		
	11/01/2036	3.650		225 M			Callable		
RA3	11/01/2037	3.650	3.650	235 M (36-37)			Callable		
<b>Total Outstanding</b>				<b>3,110 M</b>					

Mat. Beg.	Mat. End	Beginning	Ending	Call Price
11/01/2025	11/01/2037	11/01/2024	AND Thereafter	100.00

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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE CUSIP(386497) #907137 - MTF Bonds Bond Debt

Dated: 06/01/2018 Issue Amt: 3,600 M Rates: 3.00 - 3.00% 1st Int: 12/01/2018 Last Mat: 06/01/2023

SubIssue 1- - HWY MTF Comprehensive Transportation

Issue Amt: 3,600 M

Rev. Cover: -

Debt Type: Revenue	Other Security: State Transportation Fund	Jr Lien: No
Tax Designation: Qualified Tax Exempt	Tax Base: Limited Tax Security	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: No

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
BK6	06/01/2022	3.000	2.200	740 M					
BL4	06/01/2023	3.000	2.280	765 M					
Total Outstanding				1,505 M					



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## Maturity Report

### Direct Debt as of 8/2/2021

#### Municipal County of


GRAND TRAVERSE CUSIP(386497) #907251 - Blair Twp. 2018 Water Bonds Bond Debt

Dated: 09/01/2018 Issue Amt: 900 M Rates: 3.50 - 3.75% 1st Int: 04/01/2019 Last Mat: 10/01/2038

#### SubIssue 1- - Utilities Water

Issue Amt: 900 M

Rev. Cover: -

Debt Type: General Obligation	Other Security: No Security	Jr Lien: No
Tax Designation: Qualified Tax Exempt	Tax Base: Limited Tax Security	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: No

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
BP5	10/01/2021	3.500	2.200	35 M					
BQ3	10/01/2022	3.500	2.300	35 M					
BR1	10/01/2023	3.500	2.400	35 M					
BS9	10/01/2024	3.500	2.500	40 M					
BT7	10/01/2025	3.500	2.600	40 M					
BU4	10/01/2026	3.500	2.700	40 M			Callable		
BV2	10/01/2027	3.500	2.800	40 M			Callable		
BW0	10/01/2028	3.500	3.000	45 M			Callable		
BX8	10/01/2029	3.500	3.150	45 M			Callable		
BY6	10/01/2030	3.500	3.250	45 M			Callable		
BZ3	10/01/2031	3.500	3.300	50 M			Callable		
CA7	10/01/2032	3.500	3.400	50 M			Callable		
CB5	10/01/2033	3.500	3.500	50 M			Callable		
CC3	10/01/2034	3.550	3.550	55 M			Callable		
CD1	10/01/2035	3.600	3.600	55 M			Callable		
CE9	10/01/2036	3.650	3.650	55 M			Callable		
CF6	10/01/2037	3.700	3.700	60 M			Callable		
CG4	10/01/2038	3.750	3.750	60 M			Callable		
Total Outstanding				835 M					

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## Maturity Report

### Direct Debt as of 8/2/2021

<u>Mat. Beg.</u>	<u>Mat. End</u>	<u>Beginning</u>		<u>Ending</u>	<u>Call Price</u>
10/01/2026	10/01/2038	10/01/2025	AND	Thereafter	100.00
In whole at any Interest Payment Date or in part on any date.*					
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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE #907613 - Traverse City WW Treatment Plant Ref 4-1-2011 Bond Debt

Dated: 03/27/2019 Issue Amt: 6,474 M Rates: 2.36 - 2.36% 1st Int: 11/01/2019 Last Mat: 05/01/2022

SubIssue 1- - Utilities Water Waste

Issue Amt: 6,474 M

Rev. Cover: -

Debt Type: General Obligation	Other Security: No Security	Jr Lien: No
Tax Designation: No Designation	Tax Base: Limited Tax Security	Debt Shared: Yes* 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: Yes

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
	05/01/2022	2.360	2.360	2,197 M					
Total Outstanding				2,197 M					

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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE CUSIP(386514) #907767 - Refunds BA 2/1/2012 (20/36) Bond Debt

Dated: 11/21/2019 Issue Amt: 3,780 M Rates: 2.00 - 3.00% 1st Int: 06/01/2020 Last Mat: 12/01/2036

### SubIssue 1- Financial Refunding

Issue Amt: 3,780 M

Rev. Cover: -

Debt Type: General Obligation/Authority	Other Security: No Security	Jr Lien: No
Tax Designation: No Designation	Tax Base: Limited Tax Security	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: Yes

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
RC9	12/01/2021	2.000	1.350	180 M					
RD7	12/01/2022	2.000	1.450	185 M					
RE5	12/01/2023	2.000	1.550	190 M					
RF2	12/01/2024	2.000	1.650	190 M					
RG0	12/01/2025	2.000	1.750	200 M					
RH8	12/01/2026	2.000	1.850	205 M					
RJ4	12/01/2027	2.000	1.900	210 M					
RK1	12/01/2028	2.000	2.000	215 M					
RL9	12/01/2029	2.000	2.050	220 M					
RM7	12/01/2030	3.000	2.100	230 M			Callable		
RN5	12/01/2031	3.000	2.100	240 M			Callable		
RP0	12/01/2032	3.000	2.150	250 M			Callable		
RQ8	12/01/2033	3.000	2.200	260 M			Callable		
RR6	12/01/2034	3.000	2.250	265 M			Callable		
RS4	12/01/2035	3.000	2.300	275 M			Callable		
RT2	12/01/2036	3.000	2.400	290 M			Callable		
Total Outstanding				3,605 M					

Mat. Beg.	Mat. End	Beginning	Ending	Call Price
12/01/2030	12/01/2036	12/01/2029	AND Thereafter	100.00
In whole or in part on any date.*				
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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


**GRAND TRAVERSE #908348 - Cass Road Drain Bonds 2020 Bond Debt**

**Dated:** 11/19/2020 **Issue Amt:** 1,838 M **Rates:** 1.86 - 1.86% **1st Int:** 06/01/2021 **Last Mat:** 06/01/2040

### **SubIssue 1- - Utilities Drainage**

**Issue Amt:** 1,838 M

**Rev. Cover:** -

<b>Debt Type:</b> General Obligation/Special Assessment	<b>Other Security:</b> No Security	<b>Jr Lien:</b> No
<b>Tax Designation:</b> No Designation	<b>Tax Base:</b> N.A.	<b>Debt Shared:</b> No 
<b>Feature:</b> No Feature	<b>Enhancement:</b> No Enhancement	<b>(*See Share of Partners</b>
<b>USA Involvement:</b> No USA Involvement	<b>Payment Source:</b>	<b>Refunding:</b> No

<u>Cusip</u>	<u>Maturity</u>	<u>Rate</u>	<u>Yield/Offer</u>	<u>Amount</u>	<u>Term</u>	<u>Insurer</u>	<u>CallType</u>	<u>Call Date</u>	<u>Prem</u>
	06/01/2022	1.860	1.860	92 M					
	06/01/2023	1.860	1.860	92 M					
	06/01/2024	1.860	1.860	92 M					
	06/01/2025	1.860	1.860	92 M					
	06/01/2026	1.860	1.860	92 M					
	06/01/2027	1.860	1.860	92 M					
	06/01/2028	1.860	1.860	92 M					
	06/01/2029	1.860	1.860	92 M					
	06/01/2030	1.860	1.860	92 M					
	06/01/2031	1.860	1.860	92 M					
	06/01/2032	1.860	1.860	92 M					
	06/01/2033	1.860	1.860	92 M					
	06/01/2034	1.860	1.860	92 M					
	06/01/2035	1.860	1.860	92 M					
	06/01/2036	1.860	1.860	92 M					
	06/01/2037	1.860	1.860	92 M					
	06/01/2038	1.860	1.860	92 M					
	06/01/2039	1.860	1.860	92 M					
	06/01/2040	1.860	1.860	88 M					
<b>Total Outstanding</b>				<b>1,744 M</b>					

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# Municipal Advisory Council of Michigan

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## Maturity Report Direct Debt as of 8/2/2021

### Municipal County of


GRAND TRAVERSE #908694 - Building Authority Refunding Bonds (5/1/14 Bldg Auth) Bond Debt

Dated: 04/14/2021 Issue Amt: 2,175 M Rates: 0.88 - 0.88% 1st Int: 11/01/2021 Last Mat: 05/01/2025

SubIssue 1- - Financial Refunding

Issue Amt: 2,175 M

Rev. Cover: -

Debt Type: General Obligation	Other Security: No Security	Jr Lien: No
Tax Designation: No Designation	Tax Base: N.A.	Debt Shared: No 
Feature: No Feature	Enhancement: No Enhancement	(*See Share of Partners
USA Involvement: No USA Involvement	Payment Source:	Refunding: No

Cusip	Maturity	Rate	Yield/Offer	Amount	Term	Insurer	CallType	Call Date	Prem
	05/01/2022	0.880	0.880	530 M					
	05/01/2023	0.880	0.880	535 M					
	05/01/2024	0.880	0.880	560 M					
	05/01/2025	0.880	0.880	550 M					
Total Outstanding				2,175 M					

Total Outstanding: \$29,558 M

## **Appendix F**

### **Estimated Bond Sizing and Debt Service Calculations**



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Preliminary, Hypothetical Interest Rates as of August 6, 2021

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IMPORTANT DISCLOSURES

County of Grand Traverse, Michigan  
General Obligation Limited Tax Pension Bonds, Series 2021 (Taxable)  
Grand Traverse Pavilions

Scenario 1 :: Final Maturity 2039 | Maximum Permitted Contribution (Division 41 and Division 43)  
Assumes Negotiated Public Offering | Assumes Bond Rating of 'AA'  
Preliminary, Hypothetical Interest Rates as of August 6, 2021

Robert W. Baird & Co. Incorporated ("Baird") is not recommending any action to you. Baird is not acting as an advisor to you and does not owe you a fiduciary duty pursuant to Section 15B of the Securities Exchange Act of 1934. Baird is acting for its own interests. You should discuss the information contained herein with any and all internal or external advisors and experts you deem appropriate before acting on the information. Baird seeks to serve as an underwriter (or placement agent) on a future transaction and not as a financial advisor or municipal advisor. The primary role of an underwriter (or placement agent) is to purchase, or arrange for the placement of, securities in an arm's length commercial transaction with the issuer, and it has financial and other interests that differ from those of the issuer. The information provided is for discussion purposes only, in seeking to serve as underwriter (or placement agent). See "Important Disclosures" contained herein.

## SOURCES AND USES OF FUNDS

County of Grand Traverse, Michigan  
 General Obligation Limited Tax Pension Bonds, Series 2021 (Taxable)  
 Grand Traverse Pavilions

Scenario 1 :: Final Maturity 2039 | Maximum Permitted Contribution (Division 41 and Division 43)  
 Assumes Negotiated Public Offering | Assumes Bond Rating of 'AA'  
 Preliminary, Hypothetical Interest Rates as of August 6, 2021

Dated Date 12/01/2021  
 Delivery Date 12/01/2021

Sources:	Division 41	Division 43	Total
Bond Proceeds:			
Par Amount	5,190,000.00	260,000.00	5,450,000.00
	5,190,000.00	260,000.00	5,450,000.00
Uses:	Division 41	Division 43	Total
Project Fund Deposits:			
Maximum Contribution	5,041,473.00	253,697.00	5,295,170.00
Cost of Issuance:			
Bond Counsel	33,330.28	1,669.72	35,000.00
Municipal Advisor	14,284.40	715.60	15,000.00
Rating Agency (S&P)	12,379.82	620.18	13,000.00
Official Statement	3,809.17	190.83	4,000.00
MI Department of Treasury	1,557.00	78.00	1,635.00
Paying Agent	476.15	23.85	500.00
MAC Fee	380.92	19.08	400.00
Miscellaneous	2,856.88	143.12	3,000.00
	69,074.62	3,460.38	72,535.00
Underwriter's Discount:			
Total Underwriter's Discount	77,850.00	3,900.00	81,750.00
Other Uses of Funds:			
Rounding Amount	1,602.38	-1,057.38	545.00
	5,190,000.00	260,000.00	5,450,000.00



## BOND PRICING

County of Grand Traverse, Michigan  
 General Obligation Limited Tax Pension Bonds, Series 2021 (Taxable)  
 Grand Traverse Pavilions

Scenario 1 :: Final Maturity 2039 | Maximum Permitted Contribution (Division 41 and Division 43)  
 Assumes Negotiated Public Offering | Assumes Bond Rating of 'AA'  
 Preliminary, Hypothetical Interest Rates as of August 6, 2021

Bond Component	Maturity Date	Amount	Rate	Yield	Price
Taxable Bonds Due 2039:					
	09/01/2022	205,000	0.360%	0.360%	100.000
	09/01/2023	270,000	0.510%	0.510%	100.000
	09/01/2024	275,000	0.760%	0.760%	100.000
	09/01/2025	280,000	1.070%	1.070%	100.000
	09/01/2026	280,000	1.220%	1.220%	100.000
	09/01/2027	285,000	1.420%	1.420%	100.000
	09/01/2028	290,000	1.570%	1.570%	100.000
	09/01/2029	290,000	1.690%	1.690%	100.000
	09/01/2030	295,000	1.840%	1.840%	100.000
	09/01/2031	300,000	1.940%	1.940%	100.000
	09/01/2032	310,000	2.500%	2.500%	100.000
	09/01/2033	315,000	2.500%	2.500%	100.000
	09/01/2034	320,000	2.500%	2.500%	100.000
	09/01/2035	330,000	2.500%	2.500%	100.000
	09/01/2036	340,000	2.500%	2.500%	100.000
	09/01/2037	345,000	2.800%	2.800%	100.000
	09/01/2038	355,000	2.800%	2.800%	100.000
	09/01/2039	365,000	2.800%	2.800%	100.000
		5,450,000			

Dated Date	12/01/2021	
Delivery Date	12/01/2021	
First Coupon	03/01/2022	
Par Amount	5,450,000.00	
Original Issue Discount		
Production	5,450,000.00	100.000000%
Underwriter's Discount	-81,750.00	-1.500000%
Purchase Price	5,368,250.00	98.500000%
Accrued Interest		
Net Proceeds	5,368,250.00	

## BOND SUMMARY STATISTICS

County of Grand Traverse, Michigan  
 General Obligation Limited Tax Pension Bonds, Series 2021 (Taxable)  
 Grand Traverse Pavilions  
 Scenario 1 :: Final Maturity 2039 | Maximum Permitted Contribution (Division 41 and Division 43)  
 Assumes Negotiated Public Offering | Assumes Bond Rating of 'AA'  
 Preliminary, Hypothetical Interest Rates as of August 6, 2021

Dated Date	12/01/2021
Delivery Date	12/01/2021
Last Maturity	09/01/2039
Arbitrage Yield	2.304135%
True Interest Cost (TIC)	2.480274%
Net Interest Cost (NIC)	2.481191%
NIC w/Interest only	2.328779%
NIC w/Interest & OID	2.328779%
NIC w/Interest, OID & Und. Discount	2.481191%
All-In TIC	2.639747%
Average Coupon	2.328779%
Average Life (years)	9.842
Weighted Average Maturity (years)	9.842
Duration of Issue (years)	8.660
Par Amount	5,450,000.00
Bond Proceeds	5,450,000.00
Total Interest	1,249,098.76
Net Interest	1,330,848.76
Total Debt Service	6,699,098.76
Maximum Annual Debt Service	381,356.00
Average Annual Debt Service	377,414.01

Bond Component	Par Value	Price	Average Coupon	Average Life	PV of 1 bp change
Taxable Bonds Due 2039	5,450,000.00	100.000	2.329%	9.842	4,601.10
	5,450,000.00			9.842	4,601.10

	TIC	All-In TIC	Arbitrage Yield
Par Value	5,450,000.00	5,450,000.00	5,450,000.00
+ Accrued Interest			
+ Premium (Discount)			
- Underwriter's Discount	-81,750.00	-81,750.00	
- Cost of Issuance Expense		-72,535.00	
- Other Amounts			
Target Value	5,368,250.00	5,295,715.00	5,450,000.00
Target Date	12/01/2021	12/01/2021	12/01/2021
Yield	2.480274%	2.639747%	2.304135%

## BOND DEBT SERVICE

County of Grand Traverse, Michigan  
 General Obligation Limited Tax Pension Bonds, Series 2021 (Taxable)  
 Grand Traverse Pavilions

Scenario 1 :: Final Maturity 2039 | Maximum Permitted Contribution (Division 41 and Division 43)  
 Assumes Negotiated Public Offering | Assumes Bond Rating of 'AA'  
 Preliminary, Hypothetical Interest Rates as of August 6, 2021

Dated Date 12/01/2021  
 Delivery Date 12/01/2021

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
03/01/2022			26,390.26	26,390.26	
09/01/2022	205,000	0.360%	52,780.50	257,780.50	284,170.76
03/01/2023			52,411.50	52,411.50	
09/01/2023	270,000	0.510%	52,411.50	322,411.50	374,823.00
03/01/2024			51,723.00	51,723.00	
09/01/2024	275,000	0.760%	51,723.00	326,723.00	378,446.00
03/01/2025			50,678.00	50,678.00	
09/01/2025	280,000	1.070%	50,678.00	330,678.00	381,356.00
03/01/2026			49,180.00	49,180.00	
09/01/2026	280,000	1.220%	49,180.00	329,180.00	378,360.00
03/01/2027			47,472.00	47,472.00	
09/01/2027	285,000	1.420%	47,472.00	332,472.00	379,944.00
03/01/2028			45,448.50	45,448.50	
09/01/2028	290,000	1.570%	45,448.50	335,448.50	380,897.00
03/01/2029			43,172.00	43,172.00	
09/01/2029	290,000	1.690%	43,172.00	333,172.00	376,344.00
03/01/2030			40,721.50	40,721.50	
09/01/2030	295,000	1.840%	40,721.50	335,721.50	376,443.00
03/01/2031			38,007.50	38,007.50	
09/01/2031	300,000	1.940%	38,007.50	338,007.50	376,015.00
03/01/2032			35,097.50	35,097.50	
09/01/2032	310,000	2.500%	35,097.50	345,097.50	380,195.00
03/01/2033			31,222.50	31,222.50	
09/01/2033	315,000	2.500%	31,222.50	346,222.50	377,445.00
03/01/2034			27,285.00	27,285.00	
09/01/2034	320,000	2.500%	27,285.00	347,285.00	374,570.00
03/01/2035			23,285.00	23,285.00	
09/01/2035	330,000	2.500%	23,285.00	353,285.00	376,570.00
03/01/2036			19,160.00	19,160.00	
09/01/2036	340,000	2.500%	19,160.00	359,160.00	378,320.00
03/01/2037			14,910.00	14,910.00	
09/01/2037	345,000	2.800%	14,910.00	359,910.00	374,820.00
03/01/2038			10,080.00	10,080.00	
09/01/2038	355,000	2.800%	10,080.00	365,080.00	375,160.00
03/01/2039			5,110.00	5,110.00	
09/01/2039	365,000	2.800%	5,110.00	370,110.00	375,220.00
	5,450,000		1,249,098.76	6,699,098.76	6,699,098.76

# BOND DEBT SERVICE

County of Grand Traverse, Michigan  
General Obligation Limited Tax Pension Bonds, Series 2021 (Taxable)  
Grand Traverse Pavilions

Scenario 1 :: Final Maturity 2039 | Maximum Permitted Contribution (Division 41 and Division 43)  
Assumes Negotiated Public Offering | Assumes Bond Rating of 'AA'  
Preliminary, Hypothetical Interest Rates as of August 6, 2021

Dated Date 12/01/2021  
Delivery Date 12/01/2021

Period Ending	Principal	Coupon	Interest	Debt Service
09/01/2022	205,000	0.360%	79,170.76	284,170.76
09/01/2023	270,000	0.510%	104,823.00	374,823.00
09/01/2024	275,000	0.760%	103,446.00	378,446.00
09/01/2025	280,000	1.070%	101,356.00	381,356.00
09/01/2026	280,000	1.220%	98,360.00	378,360.00
09/01/2027	285,000	1.420%	94,944.00	379,944.00
09/01/2028	290,000	1.570%	90,897.00	380,897.00
09/01/2029	290,000	1.690%	86,344.00	376,344.00
09/01/2030	295,000	1.840%	81,443.00	376,443.00
09/01/2031	300,000	1.940%	76,015.00	376,015.00
09/01/2032	310,000	2.500%	70,195.00	380,195.00
09/01/2033	315,000	2.500%	62,445.00	377,445.00
09/01/2034	320,000	2.500%	54,570.00	374,570.00
09/01/2035	330,000	2.500%	46,570.00	376,570.00
09/01/2036	340,000	2.500%	38,320.00	378,320.00
09/01/2037	345,000	2.800%	29,820.00	374,820.00
09/01/2038	355,000	2.800%	20,160.00	375,160.00
09/01/2039	365,000	2.800%	10,220.00	375,220.00
	5,450,000		1,249,098.76	6,699,098.76

# BOND DEBT SERVICE

County of Grand Traverse, Michigan  
Division 41

Dated Date 12/01/2021  
Delivery Date 12/01/2021

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
03/01/2022			25,153.13	25,153.13	
09/01/2022	195,000	0.360%	50,306.25	245,306.25	270,459.38
03/01/2023			49,955.25	49,955.25	
09/01/2023	260,000	0.510%	49,955.25	309,955.25	359,910.50
03/01/2024			49,292.25	49,292.25	
09/01/2024	260,000	0.760%	49,292.25	309,292.25	358,584.50
03/01/2025			48,304.25	48,304.25	
09/01/2025	265,000	1.070%	48,304.25	313,304.25	361,608.50
03/01/2026			46,886.50	46,886.50	
09/01/2026	265,000	1.220%	46,886.50	311,886.50	358,773.00
03/01/2027			45,270.00	45,270.00	
09/01/2027	270,000	1.420%	45,270.00	315,270.00	360,540.00
03/01/2028			43,353.00	43,353.00	
09/01/2028	275,000	1.570%	43,353.00	318,353.00	361,706.00
03/01/2029			41,194.25	41,194.25	
09/01/2029	275,000	1.690%	41,194.25	316,194.25	357,388.50
03/01/2030			38,870.50	38,870.50	
09/01/2030	280,000	1.840%	38,870.50	318,870.50	357,741.00
03/01/2031			36,294.50	36,294.50	
09/01/2031	285,000	1.940%	36,294.50	321,294.50	357,589.00
03/01/2032			33,530.00	33,530.00	
09/01/2032	295,000	2.500%	33,530.00	328,530.00	362,060.00
03/01/2033			29,842.50	29,842.50	
09/01/2033	300,000	2.500%	29,842.50	329,842.50	359,685.00
03/01/2034			26,092.50	26,092.50	
09/01/2034	305,000	2.500%	26,092.50	331,092.50	357,185.00
03/01/2035			22,280.00	22,280.00	
09/01/2035	315,000	2.500%	22,280.00	337,280.00	359,560.00
03/01/2036			18,342.50	18,342.50	
09/01/2036	325,000	2.500%	18,342.50	343,342.50	361,685.00
03/01/2037			14,280.00	14,280.00	
09/01/2037	330,000	2.800%	14,280.00	344,280.00	358,560.00
03/01/2038			9,660.00	9,660.00	
09/01/2038	340,000	2.800%	9,660.00	349,660.00	359,320.00
03/01/2039			4,900.00	4,900.00	
09/01/2039	350,000	2.800%	4,900.00	354,900.00	359,800.00
	5,190,000		1,192,155.38	6,382,155.38	6,382,155.38

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BOND DEBT SERVICE

County of Grand Traverse, Michigan  
Division 41

Dated Date               12/01/2021  
Delivery Date         12/01/2021

Period Ending	Principal	Coupon	Interest	Debt Service
09/01/2022	195,000	0.360%	75,459.38	270,459.38
09/01/2023	260,000	0.510%	99,910.50	359,910.50
09/01/2024	260,000	0.760%	98,584.50	358,584.50
09/01/2025	265,000	1.070%	96,608.50	361,608.50
09/01/2026	265,000	1.220%	93,773.00	358,773.00
09/01/2027	270,000	1.420%	90,540.00	360,540.00
09/01/2028	275,000	1.570%	86,706.00	361,706.00
09/01/2029	275,000	1.690%	82,388.50	357,388.50
09/01/2030	280,000	1.840%	77,741.00	357,741.00
09/01/2031	285,000	1.940%	72,589.00	357,589.00
09/01/2032	295,000	2.500%	67,060.00	362,060.00
09/01/2033	300,000	2.500%	59,685.00	359,685.00
09/01/2034	305,000	2.500%	52,185.00	357,185.00
09/01/2035	315,000	2.500%	44,560.00	359,560.00
09/01/2036	325,000	2.500%	36,685.00	361,685.00
09/01/2037	330,000	2.800%	28,560.00	358,560.00
09/01/2038	340,000	2.800%	19,320.00	359,320.00
09/01/2039	350,000	2.800%	9,800.00	359,800.00
	5,190,000		1,192,155.38	6,382,155.38

## BOND DEBT SERVICE

County of Grand Traverse, Michigan  
Division 43

Dated Date 12/01/2021  
Delivery Date 12/01/2021

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
03/01/2022			1,237.13	1,237.13	
09/01/2022	10,000	0.360%	2,474.25	12,474.25	13,711.38
03/01/2023			2,456.25	2,456.25	
09/01/2023	10,000	0.510%	2,456.25	12,456.25	14,912.50
03/01/2024			2,430.75	2,430.75	
09/01/2024	15,000	0.760%	2,430.75	17,430.75	19,861.50
03/01/2025			2,373.75	2,373.75	
09/01/2025	15,000	1.070%	2,373.75	17,373.75	19,747.50
03/01/2026			2,293.50	2,293.50	
09/01/2026	15,000	1.220%	2,293.50	17,293.50	19,587.00
03/01/2027			2,202.00	2,202.00	
09/01/2027	15,000	1.420%	2,202.00	17,202.00	19,404.00
03/01/2028			2,095.50	2,095.50	
09/01/2028	15,000	1.570%	2,095.50	17,095.50	19,191.00
03/01/2029			1,977.75	1,977.75	
09/01/2029	15,000	1.690%	1,977.75	16,977.75	18,955.50
03/01/2030			1,851.00	1,851.00	
09/01/2030	15,000	1.840%	1,851.00	16,851.00	18,702.00
03/01/2031			1,713.00	1,713.00	
09/01/2031	15,000	1.940%	1,713.00	16,713.00	18,426.00
03/01/2032			1,567.50	1,567.50	
09/01/2032	15,000	2.500%	1,567.50	16,567.50	18,135.00
03/01/2033			1,380.00	1,380.00	
09/01/2033	15,000	2.500%	1,380.00	16,380.00	17,760.00
03/01/2034			1,192.50	1,192.50	
09/01/2034	15,000	2.500%	1,192.50	16,192.50	17,385.00
03/01/2035			1,005.00	1,005.00	
09/01/2035	15,000	2.500%	1,005.00	16,005.00	17,010.00
03/01/2036			817.50	817.50	
09/01/2036	15,000	2.500%	817.50	15,817.50	16,635.00
03/01/2037			630.00	630.00	
09/01/2037	15,000	2.800%	630.00	15,630.00	16,260.00
03/01/2038			420.00	420.00	
09/01/2038	15,000	2.800%	420.00	15,420.00	15,840.00
03/01/2039			210.00	210.00	
09/01/2039	15,000	2.800%	210.00	15,210.00	15,420.00
	260,000		56,943.38	316,943.38	316,943.38

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BOND DEBT SERVICE

County of Grand Traverse, Michigan  
Division 43

Dated Date               12/01/2021  
Delivery Date         12/01/2021

Period Ending	Principal	Coupon	Interest	Debt Service
09/01/2022	10,000	0.360%	3,711.38	13,711.38
09/01/2023	10,000	0.510%	4,912.50	14,912.50
09/01/2024	15,000	0.760%	4,861.50	19,861.50
09/01/2025	15,000	1.070%	4,747.50	19,747.50
09/01/2026	15,000	1.220%	4,587.00	19,587.00
09/01/2027	15,000	1.420%	4,404.00	19,404.00
09/01/2028	15,000	1.570%	4,191.00	19,191.00
09/01/2029	15,000	1.690%	3,955.50	18,955.50
09/01/2030	15,000	1.840%	3,702.00	18,702.00
09/01/2031	15,000	1.940%	3,426.00	18,426.00
09/01/2032	15,000	2.500%	3,135.00	18,135.00
09/01/2033	15,000	2.500%	2,760.00	17,760.00
09/01/2034	15,000	2.500%	2,385.00	17,385.00
09/01/2035	15,000	2.500%	2,010.00	17,010.00
09/01/2036	15,000	2.500%	1,635.00	16,635.00
09/01/2037	15,000	2.800%	1,260.00	16,260.00
09/01/2038	15,000	2.800%	840.00	15,840.00
09/01/2039	15,000	2.800%	420.00	15,420.00
	260,000		56,943.38	316,943.38

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## IMPORTANT DISCLOSURES

County of Grand Traverse, Michigan  
General Obligation Limited Tax Pension Bonds, Series 2021 (Taxable)  
Grand Traverse Pavilions  
Scenario 1 :: Final Maturity 2039 | Maximum Permitted Contribution (Division 41 and Division 43)  
Assumes Negotiated Public Offering | Assumes Bond Rating of 'AA'  
Preliminary, Hypothetical Interest Rates as of August 6, 2021

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## **Appendix G**

Grand Traverse County  
Standard & Poor's Rating Report Dated October 24, 2019

# RatingsDirect®

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## Summary:

# Grand Traverse County, Michigan Grand Traverse County Building Authority; General Obligation

### Primary Credit Analyst:

Tiffany Tribbitt, New York (1) 212-438-8218; Tiffany.Tribbitt@spglobal.com

### Secondary Contact:

Moreen T Skyers-Gibbs, New York (1) 212-438-1734; moreen.skyers-gibbs@spglobal.com

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Rationale

Outlook

Related Research

**Summary:**

**Grand Traverse County, Michigan  
Grand Traverse County Building Authority;  
General Obligation**

Credit Profile		
US\$3.79 mil bldg auth rfdg bnnds (Grand Traverse Cnty) ser 2019 due 12/01/2036		
Long Term Rating	AA/Stable	New
Grand Traverse Cnty GO		
Long Term Rating	AA/Stable	Affirmed

**Rationale**

S&P Global Ratings assigned its 'AA' long-term rating to Grand Traverse County Building Authority, Mich.'s series 2019 building authority refunding bonds. At the same time, S&P Global Ratings affirmed its 'AA' long-term rating on Grand Traverse County's existing general obligation (GO) bonds, either issued by or for the county by various issuers. The outlook is stable.

**Security and use of proceeds**

The county's full-faith-and-credit GO pledge, along with its ability to levy ad valorem taxes on all taxable property, subject to statutory limitations, secures the series 2019 bonds and the county's GO debt outstanding. Given that we factor the county's revenue-raising ability into our analysis, and the county has fungibility of resources and does not levy taxes on a narrower base, we rate the limited-tax GO debt on par with our view of the county's general creditworthiness. The approximately \$3.8 million in proceeds will refund the authority's series 2012 bonds for savings.

The county has multiple bond issues outstanding, with structures that pledge its limited-tax GO support, while additional underlying taxing units also pledge limited-tax GO support to either portions or all of the debt service. In each case, each party pledges to annually levy ad valorem taxes within authorized millages to fund its obligations and, to the extent that taxes are insufficient, all other available revenue sources are pledged for payment by the county. In each case, our rating is ultimately based on the county's limited-tax GO pledge, which we view as the stronger pledge.

**Credit overview**

Grand Traverse County maintains a strong financial profile, supported by policies and practices that allow the county to maintain operationally balanced operations through various economic cycles. However, insufficient funding of its pension and other postemployment benefits (OPEB) obligations led to weak funded ratios. The county addresses this issue by overfunding its actuarially determined contribution (ADC) and seeking to modify funding assumptions where possible. Furthermore, the county maintains strong surpluses while making these payments, demonstrating its capacity to fund these liabilities. However, should the county waver from its commitment to funding these liabilities, and ratios materially weaken, the rating could be pressured.

The rating reflect our assessment of the following factors:

- Adequate economy, with market value per capita of \$146,874 and projected per capita effective buying income at 103.5% of the national level;
- Strong management, with good financial policies and practices under our Financial Management Assessment (FMA) methodology;
- Strong budgetary performance, with an operating surplus in the general fund and a slight operating surplus at the total governmental fund level in fiscal 2018;
- Very strong budgetary flexibility, with an available fund balance in fiscal 2018 of 56% of operating expenditures;
- Very strong liquidity, with total government available cash at 68.8% of total governmental fund expenditures and 36.5x governmental debt service, and access to external liquidity we consider strong;
- Adequate debt and contingent liability profile, with debt service carrying charges at 1.9% of expenditures and net direct debt that is 72.8% of total governmental fund revenue, as well as low overall net debt at less than 3% of market value and rapid amortization, with about 80% of debt scheduled to be retired in 10 years, but a large pension and OPEB obligation and the lack of a plan to sufficiently address the obligation; and
- Strong institutional framework score.

### **Adequate economy**

We consider Grand Traverse County's economy adequate. The county has an estimated population of 93,118. The county has a projected per capita effective buying income of 103.5% of the national level and per capita market value of \$146,874. Overall, the county's market value grew by 8.1% over the past year to \$13.7 billion in 2019. The county unemployment rate was 3.7% in 2018.

Grand Traverse County is widely recognized as an agricultural and tourist area with year-round recreational activities and, according to officials, these sectors have generally remained stable. As a result of the tourist business, the county is a major retail area of northwestern Michigan. Officials report tourism in the region continues to grow, bolstered by additional nonstop flights into the county. In particular, Traverse City continues to expand, with several multimillion dollar projects under construction, including additional housing stock. The principal agricultural business is the growing and processing of cherries, grapes, and other fruit crops. Overall, we expect these trends to continue in the near term, and do not anticipate changes in our view of Grand Traverse's economy.

### **Strong management**

We view the county's management as strong, with good financial policies and practices under our FMA methodology, indicating financial practices exist in most areas, but that governance officials might not formalize or monitor all of them on a regular basis.

Highlights include:

- Strong revenue and expenditure assumptions, with the use of 10 years' history and outside sources of information when forecasting trends;
- Quarterly detailed budget-to-actual reporting to the board, with budgetary amendments as needed;
- Maintenance of a detailed five-year financial plan used for planning purposes, shared with the board, and updated

annually;

- A five-year capital plan, which identifies project priorities and is updated annually, but does not identify all funding sources. In addition, the county maintains a long-range capital plan (20-25 years out) for longer-term project planning, updated every seven-eight years;
- A formal investment management policy that mirrors state guidelines, with quarterly reporting to the board on investment holdings and earnings; and
- A formal policy of maintaining unassigned reserves in excess of 25% of budgeted expenditures as a sufficient cushion for budgetary pressures. The board recently updated this policy to ensure sufficient cash flow in the event of an economic downturn.

The county does not maintain a debt management policy, but adheres to state guidelines. Grand Traverse is compliant with its policies. Furthermore, management is taking steps to ensure the county mitigates risks associated with cyber-attacks.

### **Strong budgetary performance**

Grand Traverse County's budgetary performance is strong, in our opinion. The county had surplus operating results in the general fund of 5.9% of expenditures, and slight surplus results across all governmental funds of 1.3% in fiscal 2018. We included annual transfers in and out of the general fund and total governmental funds in our assessment of the county's budgetary performance. Our assessment also accounts for the fact that we do not expect budgetary results will be sustained in excess of 5% of operations.

Historically, the county maintains balanced operations, and recently is making efforts to reduce its net pension liabilities by making additional payments. To that end, in fiscal 2017 it used reserves to add an additional \$4.8 million contribution to its pension plan. Otherwise, the county continues to outperform its budget, keeping expenditures in line while revenues outpace projections. With fiscal 2019 nearing its end, officials report performance is in line with expectations. Despite changes to some state revenues as a result of the nearly adopted state budget, management expects to absorb any losses without pressuring operations, making necessary expenditure adjustments. In addition to these changes, the county is implementing a new bailiffs program in November, in an effort to reduce overtime costs at the county jail. Other than these items, which we expect to have an impact on 2020 as well as the end of 2019, management does not expect any major changes to the budget. Given its track record and management's ability to make the necessary budgetary adjustments, we expect the county to maintain at least balanced performance across operating and total governmental funds for the next few years.

### **Very strong budgetary flexibility**

Grand Traverse County's budgetary flexibility is very strong, in our view, with an available fund balance in fiscal 2018 of 56% of operating expenditures, or \$20.7 million. We expect the available fund balance to remain above 30% of expenditures for the current and next fiscal years, which we view as a positive credit factor. The available fund balance includes \$11.1 million (30.2% of expenditures) in the general fund and \$9.6 million (26% of expenditures) of delinquent tax funds that are outside the general fund but legally available for operations, following council approval. With our expectation of continued structural balance in operations, and given the updated reserve policy, our view of the county's flexibility is unlikely to change in the near term.

### **Very strong liquidity**

In our opinion, Grand Traverse County's liquidity is very strong, with total government available cash at 68.8% of total governmental fund expenditures and 36.5x governmental debt service in 2018. In our view, the county has strong access to external liquidity, if necessary, based on its issuance of debt over the past 20 years. The county's investment portfolio is not aggressive, as it is largely in bank deposits, money markets, treasuries, and certificates of deposit. With stable operations and reserves, we expect the county to maintain its liquidity position.

The county privately placed its series 2019 wastewater treatment plant upgrade refunding bonds with PNC Bank. Terms are standard and do not contain any non-credit events of default or acceleration provisions that could pressure liquidity.

### **Adequate debt and contingent liability profile**

In our view, Grand Traverse County's debt and contingent liability profile is adequate. Total governmental fund debt service is 1.9% of total governmental fund expenditures, and net direct debt is 72.8% of total governmental fund revenue. Overall net debt is low, at 1.5% of market value, and approximately about 80% of the direct debt is scheduled to be repaid within 10 years, which are, in our view, positive credit factors. The county does not have any additional near-term debt plans that would alter our view of its debt profile. Following this issue, the county will have about \$42 million of direct debt outstanding, a portion of which is self-supporting.

### **Pension and other postemployment benefits**

- Pensions and OPEB costs remain a credit concern for the county, given what we view as a large pension and OPEB obligation without a plan in place to sufficiently address the liability; however, the county is committed to improving the funding of these obligations by overfunding the ADC and adjusting amortization schedules to improve funding progress. Furthermore, the county closed its defined benefit plan to new entrants.
- Should the steps the county is taking result in improved funding ratios and consistent evidence of funding discipline, we would likely view this as an indication of the county's efforts are sufficient to address the obligation, improving our view of its debt and long-term liabilities.
- The county adds an additional \$300,000 each year to its OPEB trust and intends to continue funding the full annual benefits costs, while gradually building up to fully prefunding this liability. We view the commitment to prefunding as a positive step, but expect it will take some time to fully mitigate this risk.

The county participates in the following plans, funded as follows as of Dec. 31, 2018:

- Municipal Employees Retirement System (MERS) of Michigan: 48.85% funded with a proportionate share of the net pension liability of \$48.6 million.
- Grand Traverse County Retiree Health Care Plan: 33.45% funded with a proportionate share of the net OPEB liability of \$994,784.
- The county also offers defined contribution plans for certain employees.

In our opinion, a credit weakness is Grand Traverse County's large pension and OPEB obligation, without a plan in place that we think will sufficiently address the obligation. Grand Traverse County's combined required pension and actual OPEB contributions totaled 14.1% of total governmental fund expenditures in 2018. Of that amount, 12.4%

represented required contributions to pension obligations, and 1.7% represented OPEB payments. The county made 103% of its ADC in 2018, as part of its plan to shore up funding of its long-term liabilities.

MERS is an agent multiple-employer plan, meaning its assets are jointly managed. The plan has used a 7.75% discount rate since 2015. Starting in 2019, this rate will be reduced to 7.35%, reflecting long-term trends. The plan's elevated discount rate could lead to contribution volatility. Furthermore, some of the county's amortization methods, including its open period and level percent of pay assuming 3.75% growth, are likely to lead to increasing ADCs, as well as ADCs that do not meet our view of minimum funding progress. However, given that the county is currently overfunding its ADC, we expect it would be able to absorb any resulting cost increases without pressuring operations. Furthermore, these additional contributions are aiding the county in reaching its minimum funding progress.

### Strong institutional framework

The institutional framework score for Michigan counties with a population greater than 4,000 is strong.

## Outlook

The stable outlook reflects our expectation that the county will maintain stable budgetary performance, allowing it to preserve sufficient budgetary flexibility and liquidity. Furthermore, it reflects our expectation that the county will work toward addressing potential budgetary pressures stemming from its long-term liabilities. Therefore, we do not expect to change the ratings during the two-year outlook horizon.

### Downside scenario

We could lower the GO rating if the county's budgetary performance significantly weakens due to pressures from increasing pension costs or any other source, causing reserves to materially deteriorate.

### Upside scenario

If the county's economic indicators were to improve to levels commensurate with those of its higher-rated peers, combined with significant pension funding progress, holding all other factors equal, we could raise the rating.

## Related Research

- 2019 Update Of Institutional Framework For U.S. Local Governments
- Criteria Guidance: Assessing U.S. Public Finance Pension And Other Postemployment Obligations For GO Debt, Local Government GO Ratings, And State Ratings, Oct. 7, 2019
- Alternative Financing: Disclosure Is Critical To Credit Analysis In Public Finance, Feb. 18, 2014
- S&P Public Finance Local GO Criteria: How We Adjust Data For Analytic Consistency, Sept. 12, 2013

Ratings Detail (As Of October 24, 2019)		
Grand Traverse Cnty blair twp swr sys imp proj rfdg bnds		
Long Term Rating	AA/Stable	Affirmed
Grand Traverse Cnty east bay charter twp wtr sys imp proj bnds ser 2016 dtd 04/01/2016 due 11/01/2035		
Long Term Rating	AA/Stable	Affirmed



Ratings Detail (As Of October 24, 2019) (cont.)		
Grand Traverse Cnty swr & wtr proj rfdg bnds ser 2012 dtd 10/01/2012 due 11/01/2013-2023		
Long Term Rating	AA/Stable	Affirmed
<b>Grand Traverse Cnty GO</b>		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
<b>Grand Traverse Cnty Bldg Auth, Michigan</b>		
Grand Traverse Cnty, Michigan		
Grand Traverse Cnty Bldg Auth (Grand Traverse Cnty) GO		
Long Term Rating	AA/Stable	Affirmed
<b>Northwestern Regl Arpt Comm, Michigan</b>		
Grand Traverse Cnty, Michigan		
<b>Northwestern Regl Arpt Comm (Grand Traverse Cnty) GO arpt rev bnds ser 2004 dtd 01/01/2005 due 02/01/2006-2025</b>		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
Many issues are enhanced by bond insurance.		

Certain terms used in this report, particularly certain adjectives used to express our view on rating relevant factors, have specific meanings ascribed to them in our criteria, and should therefore be read in conjunction with such criteria. Please see Ratings Criteria at [www.standardandpoors.com](http://www.standardandpoors.com) for further information. Complete ratings information is available to subscribers of RatingsDirect at [www.capitaliq.com](http://www.capitaliq.com). All ratings affected by this rating action can be found on S&P Global Ratings' public website at [www.standardandpoors.com](http://www.standardandpoors.com). Use the Ratings search box located in the left column.

## **Appendix H**

Grand Traverse Pavilions  
Post-Retirement Medical Plan  
Accounting Report  
Period Ending December 31, 2020

February 17, 2021

PERSONAL & CONFIDENTIAL

Lindsey Dood  
Grand Traverse Pavilions  
1000 Pavilions Circle  
Traverse City, MI 49684

RE: Grand Traverse Pavilions Other Post-Employment Benefit (OPEB) Plan

Dear Lindsey:

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.

Information needed for reporting to the State of Michigan under Public Act 202 is included as well.

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

Sincerely,



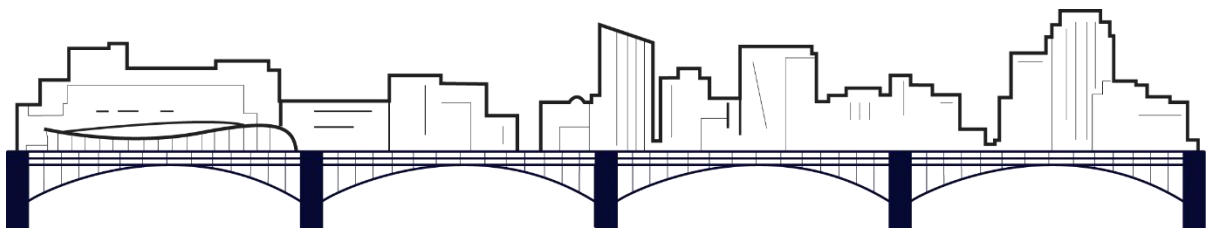
Christian R. Veenstra, FCA, ASA, MAAA  
President / Enrolled Actuary

Enclosure

# Grand Traverse Pavilions Post-Retirement Medical Plan

## Accounting Report

for the Period Ending December 31, 2020  
under GASB Statements 74 & 75



Report presented by:



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

**Prepared and Certified by:**



---

Christian R. Veenstra, FCA, ASA, MAAA  
Enrolled Actuary #20-05668

## COMMENTS

### Description of Actuarially Determined Contributions

#### **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 benefits 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 of plan sponsors 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 so 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 a comparison 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. So, in order to provide this information, 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 not necessarily consistent with PA 202 unless otherwise indicated. This report includes an ADC determined using an amortization of the unfunded liability over the average future working life of your employees for GASB reporting purposes.

#### **Actuarially Determined Contribution under Public Act 202**

Public Act 202 also requires a calculation of an ADC using the prescribed Uniform Assumptions. 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 \$63,000. Of this, \$69,000 is due to participant counts lower than expected offset by a loss of \$6,000 from actual benefit payments greater than expected. Updating the mortality improvement scale lowered the liability by another \$8,000.



## PLAN DESCRIPTION

### Plan Description

**Grand Traverse Pavilions Post-Retirement Medical Plan** (Plan) is a single employer plan established and administered by **Grand Traverse Pavilions** (Employer) and can be amended at its discretion.

### Benefits Provided

A summary of plan provisions is available on page 15.

### Summary of Plan Participants

As of December 31, 2020, Plan membership consisted of the following:

	Total	Ave age	Ave svc
Inactive participants receiving benefits	27	70.8	
Active participants	<u>141</u>	44.3	14.6
Total participants	168		

### Contributions

The Plan was established and is being funded under the authority of the Employer's governing body and under agreements with the unions representing various classes of employees. The Plan's funding policy is that the employer will continue to pay benefits from general operating funds until the OPEB trust is sufficient to pay benefits. Active participants do not make contributions to the Plan. There are no long term contracts for contributions to the plan. The plan has no legally required reserves.

### 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 Plan and additions to/deductions from the Employer's fiduciary net position have been determined on the same basis as they are reported by the Employer. For this purpose, benefits payments are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

## ASSUMPTIONS AND METHODS

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

### Actuarial Assumptions

The Total OPEB Liability was determined by an actuarial valuation as of December 31, 2020 using the following actuarial assumptions:

Inflation	2.5%
Salary increases	2.0% (for purposes of allocating liability)
Investment rate of return	7.35% (net of investment expense, including inflation)
Mortality	2010 Headcount weighted Public General Employees and Healthy Retirees with MP-2020 mortality improvement scale

The long-term expected rate of return on 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 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 Plan's target asset allocation as of December 31, 2020 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Rate of
		Return
Global equity	60.0%	5.25%
Global fixed income	20.0	1.26
Private investments	20.0	7.25

The sum of each target allocation times its long-term expected real rate is **4.85%**. Together with 2.50% inflation, the long-term expected rate of return 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 benefit payments will continue to be paid from general operating funds until the OPEB trust is sufficient to pay benefits. Based on those assumptions, the Plan's fiduciary net position was projected to be sufficient to make all projected future benefit payments of current Plan participants. For projected benefits that are covered by projected assets, the long-term expected rate was used to discount the projected benefits. From the year that benefit payments were not projected to be covered by the projected assets (the "depletion date"), projected benefits were discounted at a discount rate reflecting a 20-year AA/Aa tax-exempt municipal bond yield. A single equivalent discount rate that yields the same present value of benefits is calculated. This discount rate is used to determine the Total OPEB Liability. The discount rate used for December 31, 2019 was 7.35%.

## NET OPEB LIABILITY

### Net OPEB Liability at December 31, 2020

	Total
Active participants	867,771
Inactive participants receiving benefits	<u>814,923</u>
<b>Total</b>	<b>\$1,682,694</b>

### OPEB Plan Fiduciary Net Position

The OPEB Plan Fiduciary Net Position as of December 31, 2020 is \$1,217,642.

### Changes in the Net OPEB Liability

	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability (Asset) (a) - (b)
<b>Balance at December 31, 2019</b>	<b>1,693,060</b>	<b>1,076,711</b>	<b>616,349</b>
<b>Changes during the Year</b>			
Service Cost	19,102	-	19,102
Interest	122,861	-	122,861
Experience (Gains)/Losses	(63,103)	-	(63,103)
Changes in benefit terms	-	-	-
Change in actuarial assumptions	(8,070)	-	(8,070)
Contributions to OPEB trust	-	-	-
Contributions/benefit paid from general operating funds	-	81,156	(81,156)
Net Investment Income	-	142,863	(142,863)
Benefit Payments	(81,156)	(81,156)	-
Administrative Expenses	-	(1,932)	1,932
Other Changes	-	-	-
Total Changes	(10,366)	140,931	(151,297)
<b>Balance at December 31, 2020</b>	<b>1,682,694</b>	<b>1,217,642</b>	<b>465,052</b>
Plan Fiduciary Net Position as a percentage of total OPEB Liability			72.4%

### Reconciliation of Net OPEB Liability

Net OPEB Liability (Asset) December 31, 2019	616,349
Total OPEB expense	(71,790)
Contributions	(81,156)
Change in deferred outflows of resources	(12,695)
Change in deferred inflows of resources	<u>14,344</u>
<b>Net OPEB Liability (Asset) December 31, 2020</b>	<b>\$465,052</b>

## NET OPEB LIABILITY

### Net OPEB Liability – Discount and Trend Rate Sensitivities

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

	1% Decrease	Current rate	1% Increase
<b><u>Discount</u></b>			
Total OPEB Liability	\$1,870,711	\$1,682,694	\$1,523,990
Plan Fiduciary Net Position	<u>1,217,642</u>	<u>1,217,642</u>	<u>1,217,642</u>
Net OPEB Liability	653,069	465,052	306,348

	1% Decrease	Current trend	1% Increase
<b><u>Trend</u></b>			
Plan benefits are fixed and not subject to healthcare trend rates			

### Subsequent events

None.

## OPEB EXPENSE

### Components of OPEB Expense for the Fiscal Year Ending December 31, 2020

Below are the components of the OPEB Expense:

	Fiscal Year Ending December 31, 2020
Service Cost	\$19,102
Interest on Total OPEB Liability	122,861
Experience (Gains)/Losses	(5,769)
Changes of benefits terms	-
Changes of Assumptions	(110,273)
Employee Contributions	-
Projected Earnings on OPEB Plan Investments	(79,067)
Investment Earnings (Gains)/Losses	(20,576)
Administrative Expenses	1,932
Other Changes in Fiduciary Net Position	-
<b>OPEB Expense</b>	<b>\$(71,790)</b>

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

	Deferred Outflows Of Resources	Deferred Inflows Of Resources
Experience (Gains)/Losses	-	61,764
Changes of Assumptions	113,997	1,092,080
Investment Earnings (Gains)/Losses	-	74,488
<b>Total</b>	<b>\$ 113,997</b>	<b>\$1,228,332</b>

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

Year Ended December 31,	Amount Recognized
2021	\$(136,618)
2022	(136,618)
2023	(136,618)
2024	(128,802)
2025	(116,042)
Thereafter	\$(459,637)

## SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

### Description of Actuarially Determined Contributions

#### Recommended Funding Contribution

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 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 30,	
	2021	2020
Discount rate	7.35%	7.35%
Amortization period	14 years	15 years
Amortization method	Level dollar	Level dollar
Normal cost	15,002	19,102
Amortization of Net OPEB Liability	50,581	64,439
Interest to end of year	<u>4,820</u>	<u>6,140</u>
Total recommended employer contribution	70,403	89,681

#### State of Michigan Public Act 202 (PA 202) Contributions

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 in the first table on the following page of this report, \$89,681 – and matching the 2020 ADC above, is an amount required to be reported to the State of Michigan to be measured against your annual revenue in order to determine whether or not a Corrective Action Plan (CAP) must be adopted. 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. Because your plan is closed to new hires, there is no contribution requirement other than any Corrective Action Plan that might have been determined to improve the funded status of your plan.

## SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

### State of Michigan Public Acts 530 and 202 Information

#### Net OPEB Liability and Actuarially Determined Contribution

Financial information	2020
Assets (Fiduciary net position)	1,217,642
Liabilities (Total OPEB Liability)	1,682,694
Funded ratio for the Plan Year	72.4%
Actuarially Determined Contribution	\$89,681
Is ADC calculated in compliance with No. Letter 2018-3?	Yes

Membership	2020
Number of active members	141
Number of inactive members	-
Number of retirees and beneficiaries	27
Premiums paid on behalf of the retirants	\$81,156

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 dollar
Amortization period used for funding unfunded liability	15 years
Is each division closed to new employees	Yes
Healthcare inflation assumption next year	N/A
Healthcare inflation assumption - long term	N/A

Uniform Assumptions	2020
Actuarial value of assets using uniform assumptions	1,217,642
Actuarial accrued liability using uniform assumptions	1,729,206
Funded ratio using uniform assumptions	70.4%
Actuarially Determined Contribution (ADC) using uniform assumptions	\$79,098

## SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

### Changes in Net OPEB Liability and Related Ratios

Fiscal Year Ending December 31			
	2020	2019	2018
<b>Total OPEB Liability</b>			
Service Cost	19,102	17,028	231,153
Interest	122,861	114,539	213,488
Changes of Benefit Terms	-	-	(4,383,381)
Difference between Expected and Actual Experience	(63,103)	(4,874)	-
Change of Assumptions	(8,070)	139,387	(1,451,552)
Benefit Payments	(81,156)	(67,804)	(82,575)
Net Change in Total OPEB Liability	(10,366)	198,276	(5,472,867)
Total OPEB Liability – Beginning	1,693,060	1,494,784	6,967,651
Total OPEB Liability – Ending (a)	1,682,694	1,693,060	1,494,784
<b>Plan Fiduciary Net Position</b>			
Contributions to OPEB trust	-	500,000	500,000
Contributions/benefit payments made from general operating funds	81,156	67,804	82,575
Net Investment Income	142,863	77,793	-
Benefit Payments (Including Refunds of Employee Contributions)	(81,156)	(67,804)	(82,575)
Administrative Expenses	(1,932)	(1,082)	-
Other	-	-	-
Net Change in Fiduciary Net Position	140,931	576,711	500,000
Plan Fiduciary Net Position – Beginning	1,076,711	500,000	-
Plan Fiduciary Net Position – Ending (b)	1,217,642	1,076,711	500,000
<b>Net OPEB Liability – Ending (a)-(b)</b>	<b>465,052</b>	<b>616,349</b>	<b>994,784</b>
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability	72.4%	63.6%	33.45%
Covered Employee Payroll	7,201,258	7,762,001	—
Net OPEB Liability as Percentage of Payroll	6.5%%	7.9%%	___%

### Schedule of Employer Contributions

Actuarially Determined Employer Contribution (ADC)			
	Fiscal Year Ending December 31,		
	2020	2019	2018
Normal cost	19,102	17,028	231,153
Amortization of Net OPEB Liability <sup>1</sup>	64,439	102,643	442,628
Interest to end of year	<u>6,140</u>	<u>9,274</u>	<u>20,213</u>
Total ADC	89,681	128,945	693,994
Contribution/benefit payment	(81,156)	(567,804)	(582,575)
Contribution Deficiency/(Excess)	8,525	(438,859)	111,419
Covered Employee Payroll	7,201,258	7,762,001	—
ADC as Percentage of Payroll	1.2%%	1.7%%	___%

<sup>1</sup> Based on EAN, 16 and 17 year amortization of unfunded liability; alternative scenarios can be considered



## SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

Assumptions used to determine the actuarially determined contribution:

**Valuation Date** December 31, 2020

### Actuarial Methods

Cost method	Entry Age Normal (level percent)
Asset valuation method	Market value

### Actuarial Assumptions

Discount rate – 7.35% for 2020 contribution; 7.35% for 2020 disclosure and 2021 contribution  
 Rationale –20-year Aa Municipal bond rate for beginning of year and average effective rate produced by the prescribed method under GASB accounting rules

Payroll inflation – 2.0%  
 Rationale –Per employer input

Return on plan assets – 7.35% for 2020; 7.35% for disclosure and 2021 contribution  
 Rationale – Developed using method required under GASB accounting

Mortality rates – 2010 Headcount weighted Public General Employees and Healthy Retirees with MP-2020 mortality improvement scale  
 Rationale – Contemporary tables

Utilization – 100% of employees eligible for stipend will elect coverage at retirement; Actual coverage used for non-active  
 Rationale – Stipend towards coverage comes at no cost to retirees

Turnover rates

Service	Rate	Service	Rate	Service	Rate
0	0.2200	12	0.0493	24	0.0304
1	0.1870	13	0.0464	25	0.0297
2	0.1540	14	0.0436	26	0.0295
3	0.1210	15	0.0407	27	0.0293
4	0.0990	16	0.0392	28	0.0290
5	0.0715	17	0.0376	29	0.0288
6	0.0682	18	0.0361	30	0.0286
7	0.0649	19	0.0345	31	0.0281
8	0.0616	20	0.0330	32	0.0275
9	0.0583	21	0.0323	33	0.0270
10	0.0550	22	0.0317	34+	0.0264
11	0.0521	23	0.0310		

Rationale – Experience based

## SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

### Retirement rates

Age	Rate	Age	Rate
50-56	0.2000	67	0.2600
57-60	0.2100	68	0.2800
61-63	0.2200	69	0.3000
64	0.2300	70	1.0000
65-66	0.2500		

### Rationale –Experience based

### Disability rates

Age	Rate	Age	Rate
30	0.0002	46	0.0014
31	0.0003	47	0.0016
32-33	0.0004	48	0.0019
34	0.0005	49	0.0021
35-40	0.0006	50	0.0024
41	0.0007	51	0.0027
42	0.0008	52	0.0031
43	0.0009	53	0.0034
44	0.0010	54	0.0038
45	0.0011	55	0.0041

### Rationale –Experience based

Marital assumption – spouses are not eligible for employer stipend

Rationale – Plan provision based

### Stipend

Pre-65 - \$500 per retiree per month

Medicare eligible - \$250 per retiree per month

Healthcare trend - None

Rationale – Stipend provided by employer is not subject to increases

### 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

### Changes since prior valuation

- Mortality improvement scale updated from MP-2018 to MP-2020

### PA 202 if different from GASB assumptions

- Discount rate – 7.0%
- Mortality improvement scale – MP-2018
- Salary Scale – 3.5%

## SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

### Schedule of Difference between Actual and Expected Experience

Year Ended December 31,	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+		
2018	-	11.87	-	-	-	-	-	-	-	-
2019	(4,874)	10.98	(444)	(444)	(444)	(444)	(444)	(2,210)	-	(3,986)
2020	(63,103)	10.98	<u>(5,325)</u>	<u>(5,325)</u>	<u>(5,325)</u>	<u>(5,325)</u>	<u>(5,325)</u>	<u>(36,478)</u>	=	<u>(57,778)</u>
Net Recognized in OPEB Expense			(5,769)	(5,769)	(5,769)	(5,769)	(5,769)	(38,688)	-	(61,764)

### Schedule of Changes in Assumptions

Year Ended December 31,	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+		
2018	(1,451,552)	11.87	(122,287)	(122,287)	(122,287)	(122,287)	(122,287)	(595,543)	-	(1,084,691)
2019	139,387	10.98	12,695	12,695	12,695	12,695	12,695	63,217	113,997	-
2020	(8,070)	11.85	<u>(681)</u>	<u>(681)</u>	<u>(681)</u>	<u>(681)</u>	<u>(681)</u>	<u>(4,665)</u>	=	<u>(7,389)</u>
Net Recognized in OPEB Expense			(110,273)	(110,273)	(110,273)	(110,273)	(110,273)	(536,991)	113,997	(1,092,080)

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

Year Ended December 31	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+		
2018	-	5.0	-	-	-	-	-	-	-	-
2019	(39,085)	5.0	(7,817)	(7,817)	(7,817)	(7,817)	-	-	-	(23,451)
2020	(63,796)	5.0	<u>(12,759)</u>	<u>(12,759)</u>	<u>(12,759)</u>	<u>(12,759)</u>	<u>(12,760)</u>	-	=	<u>(51,037)</u>
Net Recognized in OPEB Expense			(20,576)	(20,576)	(20,576)	(20,576)	(12,760)	-	-	(74,488)

## SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

### Total Deferred Outflow (Inflow) of Resources

	Amount Recognized in Year Ended December 31,				
	2021	2022	2023	2024	2025+
Total Deferred Outflow/(Inflow) of Resources	(136,618)	(136,618)	(136,618)	(128,802)	(575,679)

## SUMMARY OF PLAN PROVISIONS

**Plan name** - Grand Traverse Pavilions Other Post-Employment Benefit (OPEB) Plan

### **Eligibility and Benefits**

Non-Union and RN Bargaining Unit employees hired prior to January 1, 2011 and LPN and General Bargaining Units hired prior to January 1, 2016 who have worked at least twenty (20) continuous years for the Organization and who have reached at least age sixty-two (62) at the time of retirement will be provided a payment of up to \$500.00 per month (or the single subscriber premium cost to the organization, whichever is lower) up to age 65 to be used for the purchase of health insurance benefits; After reaching age 65 the retiree will be provided a payment of up to \$250.00 per month (or the single subscriber premium cost to the organization, whichever is lower) to be used for the purchased of Medicare supplemental coverage; This payment shall cease upon the retiree's death

All other employees may retire at age 60 with 6 years of service and participation in the plan by paying 100% of premium

**Retiree contribution** – Portion of premium not paid by employer

**Changes since prior valuation** – None

## 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.

**Annual Recommended Contribution (ARC)** – the sum of the normal cost payment and the annual amortization payment for past service costs to fund the net OPEB liability.

**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.

## GLOSSARY

**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.

**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.

## **Appendix I**

Grand Traverse Pavilions

Pension Plan Actuarial Report Dated December 31, 2020





# Municipal Employees' Retirement System of Michigan

Annual Actuarial Valuation Report

December 31, 2020 - Grand Traverse Pavilions (2809)





Spring, 2021

## Grand Traverse Pavilions

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 Grand Traverse Pavilions (2809) 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. Grand Traverse Pavilions 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 Grand Traverse Pavilions 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.

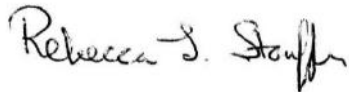
This report was prepared at the request of the MERS Retirement Board and may be provided only in its entirety by the municipality to other interested parties (MERS customarily provides the full report on request to associated third parties such as the auditor for the municipality). GRS is not responsible 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*	75%	76%

\* 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
Valuation Date:	12/31/2020	12/31/2020	12/31/2019	12/31/2019	12/31/2020	12/31/2020	12/31/2019	12/31/2019
Fiscal Year Beginning:	January 1, 2022	January 1, 2022	January 1, 2021	January 1, 2021	January 1, 2022	January 1, 2022	January 1, 2021	January 1, 2021
Division								
04 - General Unit	8.05%	9.18%	7.79%	8.10%	\$ 45,110	\$ 51,428	\$ 45,408	\$ 47,193
40 - LPN Unit	16.13%	18.80%	13.18%	13.94%	11,467	13,369	10,296	10,887
41 - NonUnion Unit	-	-	-	-	44,691	53,127	46,295	51,317
42 - Union RN	7.33%	8.86%	6.88%	7.26%	14,388	17,388	14,261	15,056
43 - Non-Union after 09/01/15	7.51%	8.45%	7.21%	7.33%	17,027	19,160	16,558	16,834
Total Municipality - Estimated Monthly Contribution					\$ 132,683	\$ 154,472	\$ 132,818	\$ 141,287
Total Municipality - Estimated Annual Contribution					\$ 1,592,196	\$ 1,853,664	\$ 1,593,816	\$ 1,695,444

Employee contribution rates:

Valuation Date:	Employee Contribution Rate	
	12/31/2020	12/31/2019
Division		
04 - General Unit	0.40%	0.40%
40 - LPN Unit	3.41%	3.41%
41 - NonUnion Unit	10.35%	10.35%
42 - Union RN	7.81%	7.81%
43 - Non-Union after 09/01/15	3.00%	3.00%

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 \$200,481, instead of \$154,472.

### **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 77% (instead of 75%); and
- Your total employer contribution requirement for the fiscal year starting January 1, 2022 would be \$1,761,420 (instead of \$1,853,664).

## **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
<b>Investment Return Assumption</b>	<b>5.35%</b>	<b>6.35%</b>	<b>7.35%</b>
Accrued Liability	\$ 65,756,174	\$ 57,211,267	\$ 50,339,984
Valuation Assets <sup>1</sup>	\$ 37,811,443	\$ 37,811,443	\$ 37,811,443
Unfunded Accrued Liability	\$ 27,944,731	\$ 19,399,824	\$ 12,528,541
<b>Funded Ratio</b>	<b>58%</b>	<b>66%</b>	<b>75%</b>
Monthly Normal Cost	\$ 140,546	\$ 100,491	\$ 70,798
Monthly Amortization Payment	\$ 163,252	\$ 122,042	\$ 83,674
<b>Total Employer Contribution<sup>2</sup></b>	<b>\$ 303,798</b>	<b>\$ 222,533</b>	<b>\$ 154,472</b>

<sup>1</sup> The Valuation Assets include assets from Surplus divisions, if any.

<sup>2</sup> 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

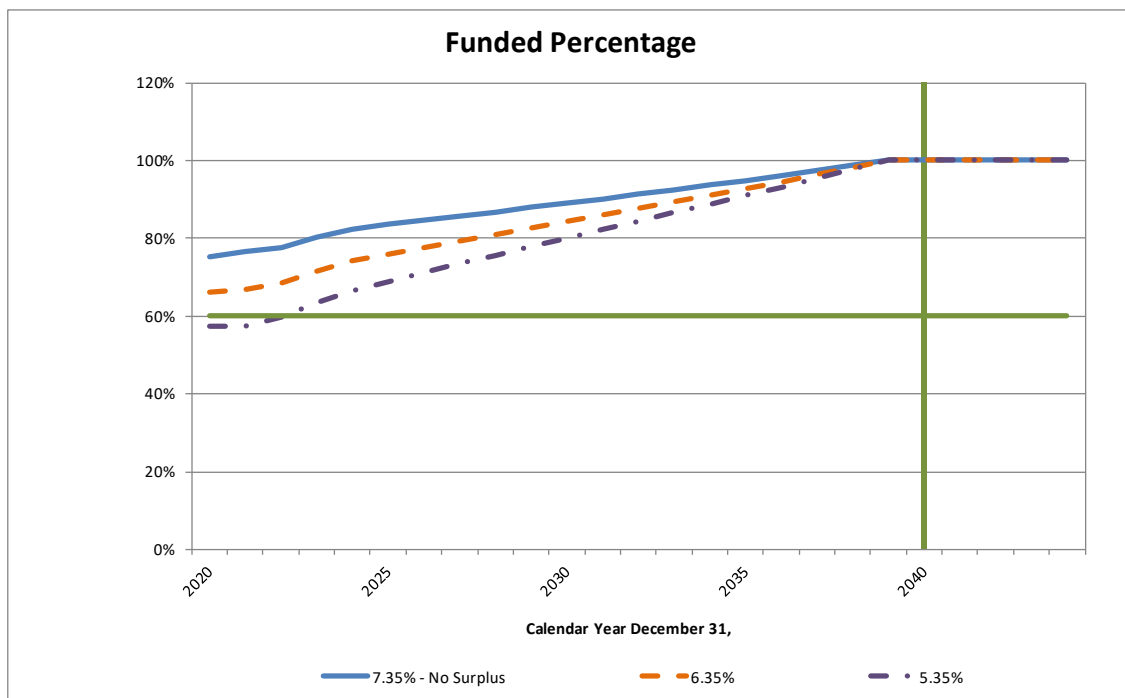
The next two pages show projections of the plan's funded ratio and computed employer contributions under the actuarial assumptions used in the valuation and alternate economic assumption scenarios. All three projections take into account the past investment experience that will continue to affect the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

Valuation Year Ending 12/31	Fiscal Year Beginning 1/1	Actuarial Accrued Liability	Valuation Assets <sup>2</sup>	Funded Percentage	Estimated Annual Employer Contribution
<b>7.35%<sup>1</sup> - NO PHASE-IN</b>					
2020	2022	\$ 50,339,984	\$ 37,811,443	75%	\$ 1,853,664
2021	2023	\$ 52,500,000	\$ 40,200,000	76%	\$ 1,900,000
2022	2024	\$ 55,200,000	\$ 42,800,000	78%	\$ 1,970,000
2023	2025	\$ 57,800,000	\$ 46,300,000	80%	\$ 1,960,000
2024	2026	\$ 60,500,000	\$ 49,800,000	82%	\$ 1,970,000
2025	2027	\$ 63,200,000	\$ 52,800,000	84%	\$ 2,030,000
<b>6.35%<sup>1</sup> - NO PHASE-IN</b>					
2020	2022	\$ 57,211,267	\$ 37,811,443	66%	\$ 2,670,396
2021	2023	\$ 59,700,000	\$ 39,800,000	67%	\$ 2,770,000
2022	2024	\$ 62,700,000	\$ 42,900,000	68%	\$ 2,860,000
2023	2025	\$ 65,700,000	\$ 46,900,000	71%	\$ 2,890,000
2024	2026	\$ 68,700,000	\$ 50,900,000	74%	\$ 2,930,000
2025	2027	\$ 71,700,000	\$ 54,500,000	76%	\$ 3,020,000
<b>5.35%<sup>1</sup> - NO PHASE-IN</b>					
2020	2022	\$ 65,756,174	\$ 37,811,443	58%	\$ 3,645,576
2021	2023	\$ 68,700,000	\$ 39,500,000	57%	\$ 3,800,000
2022	2024	\$ 72,100,000	\$ 43,100,000	60%	\$ 3,930,000
2023	2025	\$ 75,500,000	\$ 47,800,000	63%	\$ 3,990,000
2024	2026	\$ 78,900,000	\$ 52,500,000	67%	\$ 4,060,000
2025	2027	\$ 82,400,000	\$ 56,800,000	69%	\$ 4,180,000

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

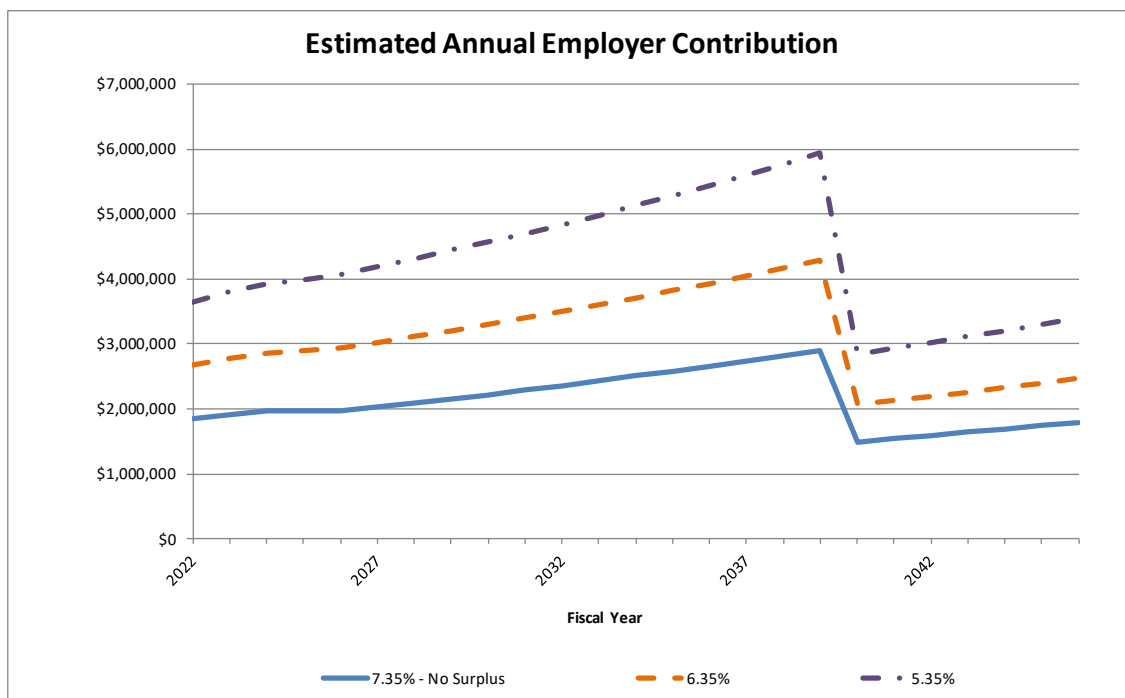
<sup>2</sup> Valuation Assets do not include assets from Surplus divisions, if any.



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.

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

Division	Total Normal Cost	Employee Contribut. Rate	Employer Contributions <sup>1</sup>			Computed Employer Contribut. With Phase-In	Blended ER Rate No Phase-In <sup>5</sup>	Blended ER Rate With Phase-In <sup>5</sup>	Employee Contribut. Conversion Factor <sup>2</sup>
			Employer Normal Cost <sup>6</sup>	Payment of the Unfunded Accrued Liability <sup>4</sup>	Computed Employer Contribut. No Phase-In				
Percentage of Payroll									
04 - General Unit	5.93%	0.40%	5.53%	3.65%	9.18%	8.05%			0.93%
40 - LPN Unit	8.74%	3.41%	5.33%	13.47%	18.80%	16.13%			0.92%
41 - NonUnion Unit	15.33%	10.35%	-	-	-	-	16.04%	13.70%	
42 - Union RN	11.90%	7.81%	4.09%	4.77%	8.86%	7.33%			0.88%
43 - Non-Union after 09/01/15	10.43%	3.00%	7.43%	1.02%	8.45%	7.51%	16.04%	13.70%	0.90%
Estimated Monthly Contribution <sup>3</sup>									
04 - General Unit			\$ 30,992	\$ 20,436	\$ 51,428	\$ 45,110			
40 - LPN Unit			3,791	9,578	13,369	11,467			
41 - NonUnion Unit			11,144	41,983	53,127	44,691			
42 - Union RN			8,023	9,365	17,388	14,388			
43 - Non-Union after 09/01/15			16,848	2,312	19,160	17,027			
Total Municipality			\$ 70,798	\$ 83,674	\$ 154,472	\$ 132,683			
Estimated Annual Contribution <sup>3</sup>			\$ 849,576	\$ 1,004,088	\$ 1,853,664	\$ 1,592,196			

<sup>1</sup> The above employer contribution requirements are in addition to the employee contributions, if any.

<sup>2</sup> 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.

<sup>3</sup> 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.

<sup>4</sup> 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.

<sup>5</sup> 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).

<sup>6</sup> 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

### 04 - General Unit: Open Division

	2020 Valuation	2019 Valuation
<b>Benefit Multiplier:</b>	Svc x [1.00% x FAC<\$4,200, plus 1.50% x FAC>\$4,200] (no max)	Svc x [1.00% x FAC<\$4,200, plus 1.50% x FAC>\$4,200] (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	-	-
<b>Early Retirement (Reduced):</b>	50/25 55/15	50/25 55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	0.40%	0.40%
<b>Act 88:</b>	Yes (Adopted 1/21/2005)	Yes (Adopted 1/21/2005)

### 40 - LPN Unit: Open Division

	2020 Valuation	2019 Valuation
<b>Benefit Multiplier:</b>	2.00% Multiplier (no max)	2.00% Multiplier (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	-	-
<b>Early Retirement (Reduced):</b>	50/25 55/15	50/25 55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	3.41%	3.41%
<b>Act 88:</b>	Yes (Adopted 1/21/2005)	Yes (Adopted 1/21/2005)

### 41 - NonUnion Unit: Closed to new hires, linked to Division 43

	2020 Valuation	2019 Valuation
<b>Benefit Multiplier:</b>	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	20 & Out	20 & Out
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	10.35%	10.35%
<b>Act 88:</b>	Yes (Adopted 1/21/2005)	Yes (Adopted 1/21/2005)



**42 - Union RN: 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:	5 years	5 years
Employee Contributions:	7.81%	7.81%
Act 88:	Yes (Adopted 1/21/2005)	Yes (Adopted 1/21/2005)

**43 - Non-Union after 09/01/15: Open Division, linked to Division 41**

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no 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:	5 years	5 years
Employee Contributions:	3.00%	3.00%
Act 88:	Yes (Adopted 1/21/2005)	Yes (Adopted 1/21/2005)



### Table 3: Participant Summary

Division	2020 Valuation		2019 Valuation		2020 Valuation		
	Number	Annual Payroll <sup>1</sup>	Number	Annual Payroll <sup>1</sup>	Average Age	Average Benefit Service <sup>2</sup>	Average Eligibility Service <sup>2</sup>
<b>04 - General Unit</b>							
Active Employees	167	\$ 6,339,066	188	\$ 6,591,718	39.2	7.7	7.9
Vested Former Employees	97	426,710	94	386,993	47.8	10.6	11.4
Retirees and Beneficiaries	128	588,799	118	523,503	69.7		
Pending Refunds	615		563				
<b>40 - LPN Unit</b>							
Active Employees	15	\$ 804,560	18	\$ 883,296	42.4	11.3	11.3
Vested Former Employees	7	41,435	6	39,275	44.3	7.7	9.2
Retirees and Beneficiaries	21	216,259	21	190,814	69.7		
Pending Refunds	29		27				
<b>41 - NonUnion Unit</b>							
Active Employees	44	\$ 3,002,126	52	\$ 3,538,920	47.7	15.2	16.1
Vested Former Employees	24	214,798	23	195,384	46.9	8.7	10.2
Retirees and Beneficiaries	63	1,166,179	57	1,017,739	68.9		
Pending Refunds	35		34				
<b>42 - Union RN</b>							
Active Employees	32	\$ 2,218,879	35	\$ 2,346,585	39.4	6.6	6.7
Vested Former Employees	13	148,301	11	123,080	43.2	7.7	8.3
Retirees and Beneficiaries	18	225,038	15	197,746	69.7		
Pending Refunds	29		26				
<b>43 - Non-Union after 09/01/15</b>							
Active Employees	33	\$ 2,094,018	33	\$ 2,038,062	42.8	5.2	6.2
Vested Former Employees	4	50,197	2	31,514	36.0	10.9	10.9
Retirees and Beneficiaries	1	18,492	1	18,492	58.4		
Pending Refunds	8		8				
<b>Total Municipality</b>							
Active Employees	291	\$ 14,458,649	326	\$ 15,398,581	41.1	8.6	9.0
Vested Former Employees	145	881,441	136	776,246	46.7	9.9	10.8
Retirees and Beneficiaries	231	2,214,767	212	1,948,295	69.4		
Pending Refunds	<u>716</u>		<u>658</u>				
<b>Total Participants</b>	<b>1,383</b>		<b>1,332</b>				

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

<sup>2</sup> 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 <sup>1</sup>	Employee <sup>2</sup>	Employer and Retiree <sup>1</sup>	Employee <sup>2</sup>
04 - General Unit	\$ 10,927,688	\$ 293,572	\$ 9,672,417	\$ 278,954
40 - LPN Unit	2,279,284	253,019	2,076,039	268,533
41 - NonUnion Unit	15,874,542	3,884,459	13,832,226	3,878,082
42 - Union RN	2,778,572	1,075,763	2,363,368	956,912
43 - Non-Union after 09/01/15	1,148,002	371,477	831,949	310,856
<b>Municipality Total<sup>3</sup></b>	<b>\$ 33,008,089</b>	<b>\$ 5,878,290</b>	<b>\$ 28,775,999</b>	<b>\$ 5,693,338</b>
<b>Combined Assets<sup>3</sup></b>	<b>\$38,886,379</b>		<b>\$34,469,337</b>	

<sup>1</sup> Reserve for Employer Contributions and Benefit Payments.

<sup>2</sup> Reserve for Employee Contributions.

<sup>3</sup> 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	\$ 973,600		\$ 343,567	\$ 1,081,168	\$ (605,247)	\$ (75,566)	\$ (1,343)	\$ 17,086,794
2011	893,927	\$ 0	351,217	1,078,072	(655,795)	(16,406)	0	18,737,809
2012	895,231	933,158	391,849	1,195,927	(783,616)	(54,910)	2,990	21,318,438
2013	822,808	0	636,068	1,418,666	(892,598)	(45,564)	79,076	23,336,894
2014	877,819	0	662,117	1,415,822	(1,085,932)	(47,508)	12,548	25,171,760
2015	1,030,461	0	727,310	1,370,521	(1,220,359)	(114,051)	0	26,965,642
2016	1,075,905	48,597	696,640	1,565,316	(1,349,739)	(31,343)	142,142	29,113,160
2017	1,272,525	170,334	691,765	1,840,646	(1,528,693)	(99,699)	0	31,460,038
2018	1,221,874	171,643	685,012	1,216,223	(1,630,320)	(110,077)	57,136	33,071,529
2019	1,267,453	146,412	694,458	1,638,416	(1,797,595)	(97,064)	(1)	34,923,608
2020	1,367,869	130,919	619,120	2,903,670	(2,104,288)	(29,455)	0	37,811,443

**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			
04 - General Unit	\$ 5,475,239	\$ 2,545,818	\$ 5,861,319	\$ 73,689	\$ 13,956,065	\$ 10,911,071	78.2%	\$ 3,044,994
40 - LPN Unit	1,537,267	233,649	2,085,568	24,737	3,881,221	2,462,302	63.4%	1,418,919
41 - NonUnion Unit	11,270,611	1,086,984	12,988,907	184,315	25,530,817	19,212,803	75.3%	6,318,014
42 - Union RN	2,126,694	674,927	2,245,608	102,364	5,149,593	3,747,790	72.8%	1,401,803
43 - Non-Union after 09/01/15	1,413,187	153,293	237,269	18,539	1,822,288	1,477,477	81.1%	344,811
<b>Total</b>	<b>\$ 21,822,998</b>	<b>\$ 4,694,671</b>	<b>\$ 23,418,671</b>	<b>\$ 403,644</b>	<b>\$ 50,339,984</b>	<b>\$ 37,811,443</b>	<b>75.1%</b>	<b>\$ 12,528,541</b>

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 43, 41	\$ 12,683,798	\$ 1,240,277	\$ 13,226,176	\$ 202,854	\$ 27,353,105	\$ 20,690,280	75.6%	\$ 6,662,825

**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	\$ 15,105,658	\$ 10,843,781	72%	\$ 4,261,877
2007	16,566,596	12,416,856	75%	4,149,740
2008	18,474,514	13,778,226	75%	4,696,288
2009	19,069,186	15,370,615	81%	3,698,571
2010	20,387,510	17,086,794	84%	3,300,716
2011	22,438,319	18,737,809	84%	3,700,510
2012	24,406,151	21,318,438	87%	3,087,713
2013	28,342,237	23,336,894	82%	5,005,343
2014	31,059,842	25,171,760	81%	5,888,082
2015	35,715,802	26,965,642	76%	8,750,160
2016	37,509,932	29,113,160	78%	8,396,772
2017	39,320,896	31,460,038	80%	7,860,858
2018	42,032,299	33,071,529	79%	8,960,770
2019	45,932,105	34,923,608	76%	11,008,497
2020	50,339,984	37,811,443	75%	12,528,541

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 04 - General Unit

**Table 8-04: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 6,900,534	\$ 7,057,565	102%	\$ (157,031)
2011	7,601,633	7,630,610	100%	(28,977)
2012	8,186,619	6,700,522	82%	1,486,097
2013	8,865,530	7,185,552	81%	1,679,978
2014	9,485,659	7,663,624	81%	1,822,035
2015	10,467,528	7,988,860	76%	2,478,668
2016	10,839,487	8,549,439	79%	2,290,048
2017	11,051,321	9,252,458	84%	1,798,863
2018	11,644,912	9,687,031	83%	1,957,881
2019	12,568,252	10,082,521	80%	2,485,731
2020	13,956,065	10,911,071	78%	3,044,994

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	246	\$ 6,341,917	5.37%	0.40%
2011	248	6,504,064	5.36%	0.40%
2012	230	6,217,532	6.89%	0.40%
2013	240	6,595,148	6.86%	0.40%
2014	244	6,736,431	6.89%	0.40%
2015	242	7,163,165	7.51%	0.40%
2016	238	6,985,716	7.37%	0.40%
2017	223	6,755,693	7.00%	0.40%
2018	212	6,846,903	7.25%	0.40%
2019	188	6,591,718	8.10%	0.40%
2020	167	6,339,066	9.18%	0.40%

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 - LPN Unit

**Table 8-40: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 1,803,570	\$ 1,548,330	86%	\$ 255,240
2011	1,926,637	1,625,660	84%	300,977
2012	2,071,989	1,736,626	84%	335,363
2013	2,275,702	1,838,509	81%	437,193
2014	2,429,767	1,891,249	78%	538,518
2015	2,799,270	2,001,896	72%	797,374
2016	2,900,353	2,135,387	74%	764,966
2017	3,037,716	2,269,100	75%	768,616
2018	3,265,985	2,357,137	72%	908,848
2019	3,439,684	2,375,471	69%	1,064,213
2020	3,881,221	2,462,302	63%	1,418,919

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	22	\$ 844,254	7.91%	3.41%
2011	25	1,006,415	7.19%	3.41%
2012	21	873,771	7.84%	3.41%
2013	18	806,806	8.63%	3.41%
2014	20	870,449	9.26%	3.41%
2015	25	1,127,364	9.75%	3.41%
2016	27	1,128,281	9.26%	3.41%
2017	27	1,175,647	9.06%	3.41%
2018	25	1,170,338	10.09%	3.41%
2019	18	883,296	13.94%	3.41%
2020	15	804,560	18.80%	3.41%

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 - NonUnion Unit

**Table 8-41: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 9,992,530	\$ 7,021,632	70%	\$ 2,970,898
2011	10,969,383	7,814,683	71%	3,154,700
2012	11,988,606	11,044,202	92%	944,404
2013	14,766,656	12,205,110	83%	2,561,546
2014	16,485,667	13,340,505	81%	3,145,162
2015	18,887,534	14,315,455	76%	4,572,079
2016	19,830,616	15,417,577	78%	4,413,039
2017	20,863,720	16,525,335	79%	4,338,385
2018	21,987,337	17,167,577	78%	4,819,760
2019	23,886,373	17,943,712	75%	5,942,661
2020	25,530,817	19,212,803	75%	6,318,014

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	70	\$ 3,744,926	9.42%	5.56%
2011	77	3,949,634	9.32%	5.56%
2012	74	4,154,156	6.29%	5.56%
2013	74	4,238,273	7.88%	10.35%
2014	78	4,511,939	8.39%	10.35%
2015	75	4,625,222	\$ 41,931	10.35%
2016	69	4,197,718	\$ 39,482	10.35%
2017	64	4,040,976	\$ 39,025	10.35%
2018	59	3,932,465	\$ 42,849	10.35%
2019	52	3,538,920	\$ 51,317	10.35%
2020	44	3,002,126	\$ 53,127	10.35%

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 42 - Union RN

**Table 8-42: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 1,690,876	\$ 1,459,267	86%	\$ 231,609
2011	1,940,666	1,666,856	86%	273,810
2012	2,158,937	1,837,088	85%	321,849
2013	2,434,349	2,107,723	87%	326,626
2014	2,658,749	2,276,382	86%	382,367
2015	3,231,512	2,497,104	77%	734,408
2016	3,540,487	2,788,241	79%	752,246
2017	3,717,568	2,992,669	81%	724,899
2018	3,995,367	3,065,434	77%	929,933
2019	4,584,451	3,364,038	73%	1,220,413
2020	5,149,593	3,747,790	73%	1,401,803

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	24	\$ 1,194,199	5.46%	6.37%
2011	23	1,132,383	5.36%	6.37%
2012	28	1,412,092	4.03%	7.81%
2013	33	1,833,501	4.18%	7.81%
2014	30	1,745,785	4.68%	7.81%
2015	31	1,933,032	6.09%	7.81%
2016	33	2,028,334	5.57%	7.81%
2017	26	1,630,041	5.73%	7.81%
2018	33	2,184,366	6.25%	7.81%
2019	35	2,346,585	7.26%	7.81%
2020	32	2,218,879	8.86%	7.81%

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 43 - Non-Union after 09/01/15

**Table 8-43: 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	329,958	162,327	49%	167,631
2016	398,989	222,516	56%	176,473
2017	650,571	420,476	65%	230,095
2018	1,138,698	794,350	70%	344,348
2019	1,453,345	1,157,866	80%	295,479
2020	1,822,288	1,477,477	81%	344,811

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

**Table 9-43: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	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	6	268,506	7.52%	3.00%
2016	12	596,067	7.77%	3.00%
2017	20	1,173,222	7.74%	3.00%
2018	29	1,595,913	7.66%	3.00%
2019	33	2,038,062	7.33%	3.00%
2020	33	2,094,018	8.45%	3.00%

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 04 - General Unit

**Table 10-04: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 2,478,668	23	\$ 2,589,589	18	\$ 207,024
(Gain)/Loss	12/31/2016	(259,592)	22	(281,633)	18	(22,512)
(Gain)/Loss	12/31/2017	(493,256)	21	(531,590)	18	(42,492)
(Gain)/Loss	12/31/2018	181,927	20	195,185	18	15,600
(Gain)/Loss	12/31/2019	156,171	19	166,579	18	13,320
Assumption	12/31/2019	350,125	19	365,239	18	29,196
Experience	12/31/2020	525,514	18	564,139	18	45,096
<b>Total</b>				<b>\$ 3,067,508</b>		<b>\$ 245,232</b>

<sup>1</sup> For each type of UAL (layer), this is the original balance as of the date the layer was established.

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

<sup>3</sup> 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 40 - LPN Unit

**Table 10-40: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 797,374	23	\$ 824,005	18	\$ 65,880
(Gain)/Loss	12/31/2016	(46,359)	22	(50,287)	18	(4,020)
(Gain)/Loss	12/31/2017	208	21	226	18	24
(Gain)/Loss	12/31/2018	135,087	20	144,928	18	11,592
(Gain)/Loss	12/31/2019	45,301	19	48,313	18	3,864
Assumption	12/31/2019	96,251	19	98,944	18	7,908
Experience	12/31/2020	345,905	18	371,329	18	29,688
<b>Total</b>				<b>\$ 1,437,458</b>		<b>\$ 114,936</b>

<sup>1</sup> For each type of UAL (layer), this is the original balance as of the date the layer was established.

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

<sup>3</sup> 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 - NonUnion Unit

**Table 10-41: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 4,572,079	23	\$ 4,816,532	18	\$ 385,056
(Gain)/Loss	12/31/2016	(329,508)	22	(357,499)	18	(28,584)
(Gain)/Loss	12/31/2017	(90,058)	21	(97,055)	18	(7,764)
(Gain)/Loss	12/31/2018	458,768	20	492,195	18	39,348
(Gain)/Loss	12/31/2019	244,941	19	261,254	18	20,892
Assumption	12/31/2019	823,589	19	858,776	18	68,652
Experience	12/31/2020	305,302	18	327,742	18	26,196
<b>Total</b>				<b>\$ 6,301,945</b>		<b>\$ 503,796</b>

<sup>1</sup> For each type of UAL (layer), this is the original balance as of the date the layer was established.

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

<sup>3</sup> 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 <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 734,408	23	\$ 781,746	18	\$ 62,496
(Gain)/Loss	12/31/2016	(17,436)	22	(18,914)	18	(1,512)
(Gain)/Loss	12/31/2017	(32,695)	21	(35,242)	18	(2,820)
(Gain)/Loss	12/31/2018	202,504	20	217,261	18	17,364
(Gain)/Loss	12/31/2019	153,365	19	163,581	18	13,080
Assumption	12/31/2019	118,707	19	122,361	18	9,780
Experience	12/31/2020	163,076	18	175,062	18	13,992
<b>Total</b>				<b>\$ 1,405,855</b>		<b>\$ 112,380</b>

<sup>1</sup> For each type of UAL (layer), this is the original balance as of the date the layer was established.

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

<sup>3</sup> 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 43 - Non-Union after 09/01/15

**Table 10-43: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 167,631	23	\$ 162,100	18	\$ 12,960
(Gain)/Loss	12/31/2016	16,890	22	18,334	18	1,464
(Gain)/Loss	12/31/2017	50,902	21	54,863	18	4,392
(Gain)/Loss	12/31/2018	109,108	20	117,063	18	9,360
(Gain)/Loss	12/31/2019	(94,736)	19	(101,041)	18	(8,076)
Assumption	12/31/2019	35,986	19	37,400	18	2,988
Experience	12/31/2020	54,224	18	58,210	18	4,656
<b>Total</b>				<b>\$ 346,929</b>		<b>\$ 27,744</b>

<sup>1</sup> For each type of UAL (layer), this is the original balance as of the date the layer was established.

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

<sup>3</sup> 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:	231
Inactive employees entitled to but not yet receiving benefits (including refunds):	861
Active employees:	<u>291</u>
	1,383
Total Pension Liability as of 12/31/2019 measurement date:	\$ 44,614,214
Total Pension Liability as of 12/31/2020 measurement date:	\$ 48,842,436
Service Cost for the year ending on the 12/31/2020 measurement date:	\$ 1,268,966
Change in the Total Pension Liability due to:	
- Benefit changes <sup>1</sup> :	\$ 0
- Differences between expected and actual experience <sup>2</sup> :	\$ (302,259)
- Changes in assumptions <sup>2</sup> :	\$ 2,037,440
Average expected remaining service lives of all employees (active and inactive):	2

<sup>1</sup> A change in liability due to benefit changes is immediately recognized when calculating pension expense for the year.

<sup>2</sup> 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):	\$ 14,458,649
---	---------------

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:	\$ 6,506,658	\$ 0	\$ (5,300,432)

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](http://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:	231
Inactive employees entitled to but not yet receiving benefits (including refunds):	861
Active employees:	<u>291</u>
	1,383
Total Pension Liability as of 12/31/2020 measurement date:	\$ 46,753,456
Total Pension Liability as of 12/31/2021 measurement date:	\$ 50,984,291
Service Cost for the year ending on the 12/31/2021 measurement date:	\$ 1,300,118
Change in the Total Pension Liability due to:	
- Benefit changes <sup>1</sup> :	\$ 0
- Differences between expected and actual experience <sup>2</sup> :	\$ 55,457
- Changes in assumptions <sup>2</sup> :	\$ 2,244,167
Average expected remaining service lives of all employees (active and inactive):	2

<sup>1</sup> A change in liability due to benefit changes is immediately recognized when calculating pension expense for the year.

<sup>2</sup> 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):	\$ 14,458,649
---	---------------

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:	\$ 6,789,399	\$ 0	\$ (5,528,308)

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.

### 04 - General Unit

6/1/2017	Day of work defined as 80 Hours a Month for All employees.
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2006	6 Year Vesting
1/1/2006	Member Contribution Rate 0.40%
1/21/2005	Covered by Act 88
1/1/2005	Day of work defined as 8 Hours a Day for All employees.
1/1/2005	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/2005	10 Year Vesting
1/1/2005	Benefit C (Old)
1/1/2005	Member Contribution Rate 0.00%
1/1/2005	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

### 40 - LPN Unit

6/1/2017	Day of work defined as 80 Hours a Month for All employees.
12/1/2016	Service Credit Purchase Estimates - Yes
1/21/2005	Covered by Act 88
1/1/2005	Day of work defined as 8 Hours a Day for All employees.
1/1/2005	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/2005	6 Year Vesting
1/1/2005	Benefit B-2
1/1/2005	Member Contribution Rate 3.41%
1/1/2005	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 - NonUnion Unit

6/1/2017	Day of work defined as 80 Hours a Month for All employees.
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2013	Benefit B-4 (80% max)
1/1/2013	Member Contribution Rate 10.35%
2/1/2006	20 Years & Out
2/1/2006	Member Contribution Rate 5.56%
1/21/2005	Covered by Act 88
1/1/2005	Day of work defined as 8 Hours a Day for All employees.
1/1/2005	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/2005	6 Year Vesting
1/1/2005	Benefit B-2
1/1/2005	Member Contribution Rate 2.68%
1/1/2005	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60

#### 41 - NonUnion Unit

Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

#### 42 - Union RN

6/1/2017	Day of work defined as 80 Hours a Month for All employees.
12/1/2016	Service Credit Purchase Estimates - Yes
7/1/2012	Benefit B-4 (80% max)
7/1/2012	Member Contribution Rate 7.81%
7/1/2008	Benefit B-3 (80% max)
7/1/2008	Member Contribution Rate 6.37%
1/21/2005	Covered by Act 88
1/1/2005	Day of work defined as 8 Hours a Day for All employees.
1/1/2005	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/2005	6 Year Vesting
1/1/2005	Benefit B-2
1/1/2005	Member Contribution Rate 4.11%
1/1/2005	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

#### 43 - Non-Union after 09/01/15

6/1/2017	Day of work defined as 80 Hours a Month for All employees.
12/1/2016	Service Credit Purchase Estimates - Yes
9/1/2015	Day of work defined as 8 Hours a Day for All employees.
9/1/2015	Benefit FAC-5 (5 Year Final Average Compensation)
9/1/2015	Exclude Temporary Employees requiring less than 12 months
9/1/2015	6 Year Vesting
9/1/2015	Benefit B-2
9/1/2015	Participant Contribution Rate 3%
1/21/2005	Covered by Act 88
1/1/2005	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## Plan Provisions, Actuarial Assumptions, and Actuarial Funding Method

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

### Increase in Final Average Compensation

Division	FAC Increase Assumption
All Divisions	1.00%

### 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	2.7	2.2	1.9
2. Ratio of actuarial accrued liability to payroll	3.5	3.0	2.7
3. Ratio of actives to retirees and beneficiaries	1.3	1.5	1.8
4. Ratio of market value of assets to benefit payments	18.2	18.2	17.3
5. Ratio of net cash flow to market value of assets (boy)	0.0%	0.7%	1.3%

### RATIO OF MARKET VALUE OF ASSETS TO TOTAL PAYROLL

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

### RATIO OF ACTUARIAL ACCRUED LIABILITY TO PAYROLL

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

### RATIO OF ACTIVES TO RETIREES AND BENEFICIARIES

A young plan with many active members and few retirees will have a high ratio of 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](http://www.mersofmich.com) and on the State [website](#).

Form 5572		
Line Reference	Description	Result
<b>10</b>	<b>Membership as of December 31, 2020</b>	
11	Indicate number of active members	291
12	Indicate number of inactive members (excluding pending refunds)	145
13	Indicate number of retirees and beneficiaries	231
<b>14</b>	<b>Investment Performance for Calendar Year Ending December 31, 2020<sup>1</sup></b>	
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%
<b>18</b>	<b>Actuarial Assumptions</b>	
19	Actuarial assumed rate of investment return <sup>2</sup>	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 <sup>3</sup>	18
22	Is each division within the system closed to new employees? <sup>4</sup>	No
<b>23</b>	<b>Uniform Assumptions</b>	
24	Enter retirement pension system's actuarial value of assets using uniform assumptions	\$37,547,055
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions <sup>5</sup>	\$52,574,844
27	Actuarially Determined Contribution (ADC) using uniform assumptions, Fiscal Year Ending December 31, 2021	\$2,098,068

- <sup>1</sup>. 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.
- <sup>2</sup>. Net of administrative and investment expenses.
- <sup>3</sup>. 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.
- <sup>4</sup>. If all divisions within the employer are closed, "yes." If at least one division is open (including shadow divisions) indicate "no."
- <sup>5</sup>. 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%.



## Appendix J

Grand Traverse Pavilions

Pension Plan Supplemental Actuarial Report Dated August 5, 2021



August 5, 2021

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

**Re: Grand Traverse Pavilions (2809) – 41, 43 – 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 Fiscal 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.

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

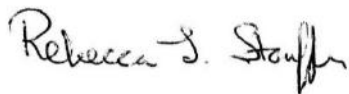
The signing actuaries are independent of the plan sponsor.

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

Sincerely,



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



Rebecca L. Stouffer, ASA, 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.
- Results are shown with and without additional bonding proceeds, as requested by MERS. Additional assets were added in order to bring each division to 95% funded on an Actuarial Value of Assets (AVA) basis using the Actuarial Accrued Liability (AAL) under a 7.35% investment rate of return assumption. The amounts as of December 31, 2020 used in the calculations are shown in the table below.

Division	Additional MVA as of December 31, 2020
41	\$5,184,796
43	\$260,909

- An amortization policy as follows:

Division	Amortization Policy for Existing Layers as of January 1, 2022*	Amortization Length (Years)
41	Combined into a single layer	18
43	Combined into a single layer	18

\*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.

- For purposes of the illustrations in this report, Division 43 is assumed to be closed, not-linked in each scenario.



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

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

We projected the annual amortization payments, starting with the amortization periods in effect for the calendar year beginning January 1, 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 41

### Grand Traverse Pavilions (2809)

#### 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\*^ No Additional Assets

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	\$6,320,000	\$464,000	\$5,770,000	\$464,000	\$152,000
2022	6,300,000	504,000	5,720,000	457,000	134,000
2023	6,240,000	519,000	5,660,000	471,000	122,000
2024	6,160,000	534,000	5,590,000	485,000	110,000
2025	6,060,000	551,000	5,500,000	499,000	98,200
2026	5,940,000	567,000	5,390,000	514,000	86,500
2027	5,790,000	584,000	5,250,000	530,000	75,400
2028	5,610,000	602,000	5,090,000	546,000	65,400
2029	5,400,000	620,000	4,890,000	562,000	56,500
2030	5,150,000	638,000	4,670,000	579,000	48,700
2031	4,870,000	657,000	4,410,000	596,000	41,100
2032	4,540,000	677,000	4,120,000	614,000	33,900
2033	4,180,000	697,000	3,790,000	632,000	27,700
2034	3,760,000	718,000	3,410,000	651,000	22,200
2035	3,290,000	740,000	2,990,000	671,000	17,400
2036	2,770,000	762,000	2,510,000	691,000	13,400
2037	2,180,000	785,000	1,980,000	712,000	10,300
2038	1,530,000	808,000	1,390,000	733,000	7,800
2039	804,000	833,000	729,000	755,000	5,800

\* 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.

**Grand Traverse Pavilions (2809) – Division 41**  
**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\*^**  
**No Additional Assets**

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	\$9,470,000	\$464,000	\$8,920,000	\$464,000	\$152,000
2022	9,590,000	711,000	9,010,000	668,000	218,000
2023	9,470,000	733,000	8,890,000	688,000	199,000
2024	9,310,000	755,000	8,750,000	709,000	180,000
2025	9,120,000	777,000	8,570,000	730,000	161,000
2026	8,900,000	801,000	8,360,000	752,000	142,000
2027	8,640,000	825,000	8,120,000	775,000	125,000
2028	8,340,000	849,000	7,830,000	798,000	108,000
2029	7,990,000	875,000	7,510,000	822,000	93,800
2030	7,600,000	901,000	7,140,000	846,000	81,100
2031	7,150,000	928,000	6,720,000	872,000	68,700
2032	6,650,000	956,000	6,250,000	898,000	56,900
2033	6,080,000	985,000	5,720,000	925,000	46,600
2034	5,460,000	1,010,000	5,130,000	953,000	37,500
2035	4,760,000	1,040,000	4,470,000	981,000	29,500
2036	3,980,000	1,080,000	3,740,000	1,010,000	22,700
2037	3,120,000	1,110,000	2,930,000	1,040,000	17,400
2038	2,180,000	1,140,000	2,050,000	1,070,000	13,200
2039	1,140,000	1,180,000	1,070,000	1,100,000	9,900

\* 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.



**Grand Traverse Pavilions (2809) – Division 41**  
**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\*^**  
**No Additional Assets**

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	\$13,300,000	\$464,000	\$12,800,000	\$464,000	\$152,000
2022	13,600,000	932,000	13,000,000	893,000	331,000
2023	13,400,000	960,000	12,800,000	919,000	303,000
2024	13,100,000	989,000	12,500,000	947,000	274,000
2025	12,800,000	1,020,000	12,200,000	975,000	246,000
2026	12,400,000	1,050,000	11,900,000	1,000,000	218,000
2027	12,000,000	1,080,000	11,500,000	1,030,000	192,000
2028	11,500,000	1,110,000	11,000,000	1,070,000	167,000
2029	11,000,000	1,150,000	10,500,000	1,100,000	145,000
2030	10,400,000	1,180,000	9,970,000	1,130,000	126,000
2031	9,760,000	1,220,000	9,350,000	1,160,000	107,000
2032	9,030,000	1,250,000	8,650,000	1,200,000	88,500
2033	8,230,000	1,290,000	7,880,000	1,240,000	72,600
2034	7,350,000	1,330,000	7,040,000	1,270,000	58,600
2035	6,380,000	1,370,000	6,110,000	1,310,000	46,100
2036	5,310,000	1,410,000	5,090,000	1,350,000	35,600
2037	4,150,000	1,450,000	3,970,000	1,390,000	27,200
2038	2,880,000	1,500,000	2,760,000	1,430,000	20,600
2039	1,500,000	1,540,000	1,440,000	1,480,000	15,500

\* 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.

**Grand Traverse Pavilions (2809) – Division 41**  
**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\*^**  
**With Additional Assets**

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	\$1,280,000	\$464,000	\$587,000	\$464,000	\$152,000
2022	890,000	71,100	150,000	12,000	134,000
2023	882,000	73,300	148,000	12,300	122,000
2024	870,000	75,500	146,000	12,700	110,000
2025	856,000	77,700	144,000	13,100	98,200
2026	839,000	80,100	141,000	13,500	86,500
2027	817,000	82,500	137,000	13,900	75,400
2028	792,000	84,900	133,000	14,300	65,400
2029	762,000	87,500	128,000	14,700	56,500
2030	727,000	90,100	122,000	15,200	48,700
2031	687,000	92,800	116,000	15,600	41,100
2032	642,000	95,600	108,000	16,100	33,900
2033	590,000	98,500	99,200	16,600	27,700
2034	531,000	101,000	89,400	17,100	22,200
2035	465,000	104,000	78,200	17,600	17,400
2036	391,000	108,000	65,800	18,100	13,400
2037	308,000	111,000	51,800	18,600	10,300
2038	216,000	114,000	36,300	19,200	7,800
2039	114,000	118,000	19,100	19,800	5,800

\* 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.

**Grand Traverse Pavilions (2809) – Division 41**  
**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\*^**  
**With Additional Assets**

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	\$4,430,000	\$464,000	\$3,740,000	\$464,000	\$152,000
2022	4,230,000	314,000	3,500,000	259,000	218,000
2023	4,170,000	323,000	3,450,000	267,000	199,000
2024	4,110,000	333,000	3,390,000	275,000	180,000
2025	4,020,000	343,000	3,330,000	283,000	161,000
2026	3,930,000	353,000	3,240,000	292,000	142,000
2027	3,810,000	364,000	3,150,000	301,000	125,000
2028	3,680,000	375,000	3,040,000	310,000	108,000
2029	3,520,000	386,000	2,910,000	319,000	93,800
2030	3,350,000	397,000	2,770,000	328,000	81,100
2031	3,150,000	409,000	2,610,000	338,000	68,700
2032	2,930,000	422,000	2,420,000	348,000	56,900
2033	2,680,000	434,000	2,220,000	359,000	46,600
2034	2,410,000	447,000	1,990,000	370,000	37,500
2035	2,100,000	461,000	1,730,000	381,000	29,500
2036	1,760,000	474,000	1,450,000	392,000	22,700
2037	1,380,000	489,000	1,140,000	404,000	17,400
2038	961,000	503,000	794,000	416,000	13,200
2039	503,000	518,000	416,000	429,000	9,900

\* 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.

**Grand Traverse Pavilions (2809) – Division 41**  
**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\*^**  
**With Additional Assets**

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	\$8,310,000	\$464,000	\$7,620,000	\$464,000	\$152,000
2022	8,280,000	568,000	7,550,000	518,000	331,000
2023	8,140,000	585,000	7,420,000	533,000	303,000
2024	7,970,000	602,000	7,270,000	549,000	274,000
2025	7,780,000	620,000	7,100,000	566,000	246,000
2026	7,560,000	639,000	6,890,000	583,000	218,000
2027	7,310,000	658,000	6,660,000	600,000	192,000
2028	7,020,000	678,000	6,410,000	618,000	167,000
2029	6,700,000	698,000	6,110,000	637,000	145,000
2030	6,340,000	719,000	5,790,000	656,000	126,000
2031	5,940,000	741,000	5,420,000	676,000	107,000
2032	5,500,000	763,000	5,020,000	696,000	88,500
2033	5,010,000	786,000	4,570,000	717,000	72,600
2034	4,480,000	809,000	4,080,000	738,000	58,600
2035	3,880,000	834,000	3,540,000	760,000	46,100
2036	3,240,000	859,000	2,950,000	783,000	35,600
2037	2,530,000	884,000	2,310,000	807,000	27,200
2038	1,760,000	911,000	1,600,000	831,000	20,600
2039	914,000	938,000	834,000	856,000	15,500

\* 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.

## Supplemental Valuation Results – Division 43

### Grand Traverse Pavilions (2809)

#### 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\*^ No Additional Assets

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	\$345,000	\$22,400	\$303,000	\$22,400	\$180,000
2022	347,000	27,700	302,000	24,100	145,000
2023	344,000	28,600	299,000	24,900	137,000
2024	339,000	29,400	295,000	25,600	131,000
2025	334,000	30,300	290,000	26,400	125,000
2026	327,000	31,200	284,000	27,200	118,000
2027	319,000	32,200	277,000	28,000	111,000
2028	309,000	33,100	269,000	28,800	104,000
2029	297,000	34,100	258,000	29,700	96,700
2030	284,000	35,100	247,000	30,600	90,900
2031	268,000	36,200	233,000	31,500	85,900
2032	250,000	37,300	218,000	32,400	81,700
2033	230,000	38,400	200,000	33,400	77,700
2034	207,000	39,500	180,000	34,400	73,700
2035	181,000	40,700	158,000	35,400	69,300
2036	152,000	42,000	133,000	36,500	64,800
2037	120,000	43,200	105,000	37,600	60,600
2038	84,200	44,500	73,200	38,700	56,900
2039	44,300	45,800	38,500	39,900	53,400

\* 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.

**Grand Traverse Pavilions (2809) – Division 43**  
**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\*^**  
**No Additional Assets**

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	\$702,000	\$22,400	\$660,000	\$22,400	\$180,000
2022	724,000	53,700	679,000	50,400	192,000
2023	714,000	55,300	670,000	51,900	182,000
2024	703,000	57,000	659,000	53,400	174,000
2025	689,000	58,700	646,000	55,000	166,000
2026	672,000	60,400	630,000	56,700	157,000
2027	652,000	62,200	612,000	58,400	148,000
2028	629,000	64,100	591,000	60,100	139,000
2029	603,000	66,000	566,000	62,000	130,000
2030	574,000	68,000	538,000	63,800	123,000
2031	540,000	70,000	506,000	65,700	117,000
2032	502,000	72,100	471,000	67,700	112,000
2033	459,000	74,300	431,000	69,700	107,000
2034	412,000	76,500	386,000	71,800	102,000
2035	359,000	78,800	337,000	74,000	96,200
2036	300,000	81,200	282,000	76,200	90,600
2037	236,000	83,600	221,000	78,500	85,200
2038	164,000	86,200	154,000	80,800	80,400
2039	86,100	88,700	80,700	83,300	75,800

\* 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.

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**Grand Traverse Pavilions (2809) – Division 43**  
**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\*^**  
**No Additional Assets**

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	\$1,160,000	\$22,400	\$1,110,000	\$22,400	\$180,000
2022	1,190,000	82,000	1,150,000	78,900	253,000
2023	1,170,000	84,400	1,130,000	81,300	240,000
2024	1,150,000	86,900	1,110,000	83,700	230,000
2025	1,120,000	89,600	1,080,000	86,200	220,000
2026	1,090,000	92,200	1,050,000	88,800	208,000
2027	1,050,000	95,000	1,020,000	91,500	196,000
2028	1,010,000	97,900	976,000	94,200	185,000
2029	968,000	101,000	932,000	97,100	175,000
2030	916,000	104,000	882,000	100,000	166,000
2031	858,000	107,000	826,000	103,000	158,000
2032	794,000	110,000	765,000	106,000	152,000
2033	724,000	113,000	697,000	109,000	146,000
2034	646,000	117,000	622,000	113,000	139,000
2035	561,000	120,000	540,000	116,000	132,000
2036	467,000	124,000	450,000	119,000	125,000
2037	365,000	128,000	351,000	123,000	118,000
2038	253,000	132,000	244,000	127,000	112,000
2039	132,000	135,000	127,000	130,000	106,000

\* 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.

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**Grand Traverse Pavilions (2809) – Division 43**  
**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\*^**  
**With Additional Assets**

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	\$91,100	\$22,400	\$41,900	\$22,400	\$180,000
2022	74,600	6,000	21,800	1,700	145,000
2023	73,900	6,100	21,500	1,800	137,000
2024	73,000	6,300	21,300	1,800	131,000
2025	71,800	6,500	20,900	1,900	125,000
2026	70,300	6,700	20,500	2,000	118,000
2027	68,500	6,900	20,000	2,000	111,000
2028	66,400	7,100	19,400	2,100	104,000
2029	63,900	7,300	18,600	2,100	96,700
2030	61,000	7,600	17,800	2,200	90,900
2031	57,600	7,800	16,800	2,300	85,900
2032	53,800	8,000	15,700	2,300	81,700
2033	49,400	8,300	14,400	2,400	77,700
2034	44,500	8,500	13,000	2,500	73,700
2035	39,000	8,800	11,400	2,600	69,300
2036	32,800	9,000	9,600	2,600	64,800
2037	25,800	9,300	7,500	2,700	60,600
2038	18,100	9,600	5,300	2,800	56,900
2039	9,500	9,900	2,800	2,900	53,400

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**Grand Traverse Pavilions (2809) – Division 43**  
**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\*^**  
**With Additional Assets**

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	\$449,000	\$22,400	\$399,000	\$22,400	\$180,000
2022	454,000	33,700	402,000	29,800	192,000
2023	448,000	34,700	396,000	30,700	182,000
2024	441,000	35,700	390,000	31,600	174,000
2025	432,000	36,800	382,000	32,600	166,000
2026	421,000	37,900	373,000	33,500	157,000
2027	409,000	39,000	362,000	34,500	148,000
2028	395,000	40,200	349,000	35,600	139,000
2029	378,000	41,400	335,000	36,600	130,000
2030	360,000	42,700	318,000	37,700	123,000
2031	339,000	43,900	300,000	38,900	117,000
2032	315,000	45,300	278,000	40,000	112,000
2033	288,000	46,600	255,000	41,200	107,000
2034	258,000	48,000	229,000	42,500	102,000
2035	225,000	49,500	199,000	43,800	96,200
2036	188,000	50,900	167,000	45,100	90,600
2037	148,000	52,500	131,000	46,400	85,200
2038	103,000	54,000	91,300	47,800	80,400
2039	54,000	55,700	47,800	49,200	75,800

\* 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.

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**Grand Traverse Pavilions (2809) – Division 43**  
**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\*^**  
**With Additional Assets**

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	\$902,000	\$22,400	\$853,000	\$22,400	\$180,000
2022	927,000	63,600	876,000	60,100	253,000
2023	912,000	65,500	861,000	61,900	240,000
2024	893,000	67,500	843,000	63,700	230,000
2025	872,000	69,500	823,000	65,600	220,000
2026	847,000	71,600	800,000	67,600	208,000
2027	819,000	73,800	773,000	69,600	196,000
2028	787,000	76,000	743,000	71,700	185,000
2029	751,000	78,200	709,000	73,900	175,000
2030	711,000	80,600	671,000	76,100	166,000
2031	666,000	83,000	629,000	78,400	158,000
2032	617,000	85,500	582,000	80,700	152,000
2033	562,000	88,100	530,000	83,100	146,000
2034	502,000	90,700	474,000	85,600	139,000
2035	435,000	93,400	411,000	88,200	132,000
2036	363,000	96,200	342,000	90,800	125,000
2037	283,000	99,100	267,000	93,600	118,000
2038	197,000	102,000	186,000	96,400	112,000
2039	102,000	105,000	96,700	99,300	106,000

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

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

## Important Comments

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

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

3. The results do not show the potential impact on other post-employment benefits (such as retiree health care insurance) or ancillary benefits (such as life insurance).
4. The results of separate actuarial valuations generally cannot be added together to produce a correct estimate of the employer contributions. The total can be considerably greater than the sum of the parts due to the interaction of various plan provisions and assumptions used.
5. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. The scope of this supplemental actuarial valuation does not include an analysis of the potential range of such future measurements.

## Important Comments (Concluded)

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

## **Appendix K**

Debt Service, UAAL Amortization and Present Value Schedules

**County of Grand Traverse, Michigan**  
**Scenario 1A :: 7.35% Rate of Return | Current Market Interest Rates**  
**Division 41 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	134,000	504,000	638,000	134,000	71,100	270,459	475,559	162,441	159,297
2023	122,000	519,000	641,000	122,000	73,300	359,911	555,211	85,790	81,965
2024	110,000	534,000	644,000	110,000	75,500	358,585	544,085	99,916	93,006
2025	98,200	551,000	649,200	98,200	77,700	361,609	537,509	111,692	101,294
2026	86,500	567,000	653,500	86,500	80,100	358,773	525,373	128,127	113,210
2027	75,400	584,000	659,400	75,400	82,500	360,540	518,440	140,960	121,346
2028	65,400	602,000	667,400	65,400	84,900	361,706	512,006	155,394	130,331
2029	56,500	620,000	676,500	56,500	87,500	357,389	501,389	175,112	143,090
2030	48,700	638,000	686,700	48,700	90,100	357,741	496,541	190,159	151,390
2031	41,100	657,000	698,100	41,100	92,800	357,589	491,489	206,611	160,257
2032	33,900	677,000	710,900	33,900	95,600	362,060	491,560	219,340	165,754
2033	27,700	697,000	724,700	27,700	98,500	359,685	485,885	238,815	175,829
2034	22,200	718,000	740,200	22,200	101,000	357,185	480,385	259,815	186,370
2035	17,400	740,000	757,400	17,400	104,000	359,560	480,960	276,440	193,196
2036	13,400	762,000	775,400	13,400	108,000	361,685	483,085	292,315	199,036
2037	10,300	785,000	795,300	10,300	111,000	358,560	479,860	315,440	209,257
2038	7,800	808,000	815,800	7,800	114,000	359,320	481,120	334,680	216,310
2039	5,800	833,000	838,800	5,800	118,000	359,800	483,600	355,200	223,667
								<u>3,748,245</u>	<u>2,824,605</u>

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 2.64%

**County of Grand Traverse, Michigan**  
**Scenario 1B :: 7.35% Rate of Return | Current Market Interest Rates PLUS 50 Basis Points**  
**Division 41 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	134,000	504,000	638,000	134,000	71,100	280,672	485,772	152,229	148,728
2023	122,000	519,000	641,000	122,000	73,300	375,971	571,271	69,729	66,045
2024	110,000	534,000	644,000	110,000	75,500	373,446	558,946	85,054	78,101
2025	98,200	551,000	649,200	98,200	77,700	375,296	551,196	98,004	87,244
2026	86,500	567,000	653,500	86,500	80,100	376,293	542,893	110,608	95,457
2027	75,400	584,000	659,400	75,400	82,500	376,821	534,721	124,680	104,315
2028	65,400	602,000	667,400	65,400	84,900	376,733	527,033	140,368	113,854
2029	56,500	620,000	676,500	56,500	87,500	376,144	520,144	156,357	122,950
2030	48,700	638,000	686,700	48,700	90,100	375,121	513,921	172,779	131,715
2031	41,100	657,000	698,100	41,100	92,800	373,569	507,469	190,631	140,886
2032	33,900	677,000	710,900	33,900	95,600	376,615	506,115	204,785	146,725
2033	27,700	697,000	724,700	27,700	98,500	377,765	503,965	220,735	153,323
2034	22,200	718,000	740,200	22,200	101,000	373,615	496,815	243,385	163,893
2035	17,400	740,000	757,400	17,400	104,000	374,315	495,715	261,685	170,835
2036	13,400	762,000	775,400	13,400	108,000	374,715	496,115	279,285	176,757
2037	10,300	785,000	795,300	10,300	111,000	374,815	496,115	299,185	183,569
2038	7,800	808,000	815,800	7,800	114,000	373,595	495,395	320,405	190,585
2039	5,800	833,000	838,800	5,800	118,000	377,045	500,845	337,955	194,886
								<u>3,467,857</u>	<u>2,469,869</u>

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 3.15%

**County of Grand Traverse, Michigan**  
**Scenario 1C :: 7.35% Rate of Return | Current Market Interest Rates LESS 50 Basis Points**  
**Division 41 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	134,000	504,000	638,000	134,000	71,100	260,448	465,548	172,452	169,748
2023	122,000	519,000	641,000	122,000	73,300	343,931	539,231	101,770	98,084
2024	110,000	534,000	644,000	110,000	75,500	343,904	529,404	114,597	108,143
2025	98,200	551,000	649,200	98,200	77,700	343,202	519,102	130,099	120,212
2026	86,500	567,000	653,500	86,500	80,100	346,663	513,263	140,238	126,878
2027	75,400	584,000	659,400	75,400	82,500	344,683	502,583	156,818	138,919
2028	65,400	602,000	667,400	65,400	84,900	342,153	492,453	174,948	151,748
2029	56,500	620,000	676,500	56,500	87,500	344,210	488,210	188,290	159,915
2030	48,700	638,000	686,700	48,700	90,100	345,878	484,678	202,022	167,999
2031	41,100	657,000	698,100	41,100	92,800	342,059	475,959	222,141	180,877
2032	33,900	677,000	710,900	33,900	95,600	342,955	472,455	238,445	190,103
2033	27,700	697,000	724,700	27,700	98,500	342,155	468,355	256,345	200,112
2034	22,200	718,000	740,200	22,200	101,000	346,255	469,455	270,745	206,945
2035	17,400	740,000	757,400	17,400	104,000	345,155	466,555	290,845	217,672
2036	13,400	762,000	775,400	13,400	108,000	343,955	465,355	310,045	227,202
2037	10,300	785,000	795,300	10,300	111,000	342,655	463,955	331,345	237,747
2038	7,800	808,000	815,800	7,800	114,000	345,295	467,095	348,705	244,985
2039	5,800	833,000	838,800	5,800	118,000	342,705	466,505	372,295	256,104
								<u>4,022,142</u>	<u>3,203,395</u>

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 2.13%



**County of Grand Traverse, Michigan**  
**Scenario 2A :: 6.35% Rate of Return | Current Market Interest Rates**  
**Division 41 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	218,000	711,000	929,000	218,000	314,000	270,459	802,459	126,541	124,092
2023	199,000	733,000	932,000	199,000	323,000	359,911	881,911	50,090	47,857
2024	180,000	755,000	935,000	180,000	333,000	358,585	871,585	63,416	59,030
2025	161,000	777,000	938,000	161,000	343,000	361,609	865,609	72,392	65,652
2026	142,000	801,000	943,000	142,000	353,000	358,773	853,773	89,227	78,839
2027	125,000	825,000	950,000	125,000	364,000	360,540	849,540	100,460	86,481
2028	108,000	849,000	957,000	108,000	375,000	361,706	844,706	112,294	94,182
2029	93,800	875,000	968,800	93,800	386,000	357,389	837,189	131,612	107,545
2030	81,100	901,000	982,100	81,100	397,000	357,741	835,841	146,259	116,440
2031	68,700	928,000	996,700	68,700	409,000	357,589	835,289	161,411	125,198
2032	56,900	956,000	1,012,900	56,900	422,000	362,060	840,960	171,940	129,934
2033	46,600	985,000	1,031,600	46,600	434,000	359,685	840,285	191,315	140,857
2034	37,500	1,010,000	1,047,500	37,500	447,000	357,185	841,685	205,815	147,635
2035	29,500	1,040,000	1,069,500	29,500	461,000	359,560	850,060	219,440	153,360
2036	22,700	1,080,000	1,102,700	22,700	474,000	361,685	858,385	244,315	166,353
2037	17,400	1,110,000	1,127,400	17,400	489,000	358,560	864,960	262,440	174,098
2038	13,200	1,140,000	1,153,200	13,200	503,000	359,320	875,520	277,680	179,470
2039	9,900	1,180,000	1,189,900	9,900	518,000	359,800	887,700	302,200	190,294
								<u>2,928,845</u>	<u>2,187,316</u>

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 2.64%

**County of Grand Traverse, Michigan**  
**Scenario 2B :: 6.35% Rate of Return | Current Market Interest Rates PLUS 50 Basis Points**  
**Division 41 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	218,000	711,000	929,000	218,000	314,000	280,672	812,672	116,329	113,654
2023	199,000	733,000	932,000	199,000	323,000	375,971	897,971	34,029	32,231
2024	180,000	755,000	935,000	180,000	333,000	373,446	886,446	48,554	44,585
2025	161,000	777,000	938,000	161,000	343,000	375,296	879,296	58,704	52,259
2026	142,000	801,000	943,000	142,000	353,000	376,293	871,293	71,708	61,885
2027	125,000	825,000	950,000	125,000	364,000	376,821	865,821	84,180	70,430
2028	108,000	849,000	957,000	108,000	375,000	376,733	859,733	97,268	78,895
2029	93,800	875,000	968,800	93,800	386,000	376,144	855,944	112,857	88,744
2030	81,100	901,000	982,100	81,100	397,000	375,121	853,221	128,879	98,249
2031	68,700	928,000	996,700	68,700	409,000	373,569	851,269	145,431	107,481
2032	56,900	956,000	1,012,900	56,900	422,000	376,615	855,515	157,385	112,764
2033	46,600	985,000	1,031,600	46,600	434,000	377,765	858,365	173,235	120,330
2034	37,500	1,010,000	1,047,500	37,500	447,000	373,615	858,115	189,385	127,530
2035	29,500	1,040,000	1,069,500	29,500	461,000	374,315	864,815	204,685	133,624
2036	22,700	1,080,000	1,102,700	22,700	474,000	374,715	871,415	231,285	146,378
2037	17,400	1,110,000	1,127,400	17,400	489,000	374,815	881,215	246,185	151,050
2038	13,200	1,140,000	1,153,200	13,200	503,000	373,595	889,795	263,405	156,680
2039	9,900	1,180,000	1,189,900	9,900	518,000	377,045	904,945	284,955	164,323
								<u>2,648,457</u>	<u>1,861,091</u>

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 3.15%

**County of Grand Traverse, Michigan**  
**Scenario 2C :: 6.35% Rate of Return | Current Market Interest Rates LESS 50 Basis Points**  
**Division 41 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	218,000	711,000	929,000	218,000	314,000	260,448	792,448	136,552	134,411
2023	199,000	733,000	932,000	199,000	323,000	343,931	865,931	66,070	63,677
2024	180,000	755,000	935,000	180,000	333,000	343,904	856,904	78,097	73,699
2025	161,000	777,000	938,000	161,000	343,000	343,202	847,202	90,799	83,898
2026	142,000	801,000	943,000	142,000	353,000	346,663	841,663	101,338	91,684
2027	125,000	825,000	950,000	125,000	364,000	344,683	833,683	116,318	103,042
2028	108,000	849,000	957,000	108,000	375,000	342,153	825,153	131,848	114,363
2029	93,800	875,000	968,800	93,800	386,000	344,210	824,010	144,790	122,970
2030	81,100	901,000	982,100	81,100	397,000	345,878	823,978	158,122	131,492
2031	68,700	928,000	996,700	68,700	409,000	342,059	819,759	176,941	144,073
2032	56,900	956,000	1,012,900	56,900	422,000	342,955	821,855	191,045	152,313
2033	46,600	985,000	1,031,600	46,600	434,000	342,155	822,755	208,845	163,032
2034	37,500	1,010,000	1,047,500	37,500	447,000	346,255	830,755	216,745	165,670
2035	29,500	1,040,000	1,069,500	29,500	461,000	345,155	835,655	233,845	175,013
2036	22,700	1,080,000	1,102,700	22,700	474,000	343,955	840,655	262,045	192,028
2037	17,400	1,110,000	1,127,400	17,400	489,000	342,655	849,055	278,345	199,719
2038	13,200	1,140,000	1,153,200	13,200	503,000	345,295	861,495	291,705	204,939
2039	9,900	1,180,000	1,189,900	9,900	518,000	342,705	870,605	319,295	219,645
								<u>3,202,742</u>	<u>2,535,668</u>

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 2.13%

**County of Grand Traverse, Michigan**  
**Scenario 3A :: 5.35% Rate of Return | Current Market Interest Rates**  
**Division 41 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	331,000	932,000	1,263,000	331,000	568,000	270,459	1,169,459	93,541	91,730
2023	303,000	960,000	1,263,000	303,000	585,000	359,911	1,247,911	15,090	14,417
2024	274,000	989,000	1,263,000	274,000	602,000	358,585	1,234,585	28,416	26,451
2025	246,000	1,020,000	1,266,000	246,000	620,000	361,609	1,227,609	38,392	34,818
2026	218,000	1,050,000	1,268,000	218,000	639,000	358,773	1,215,773	52,227	46,147
2027	192,000	1,080,000	1,272,000	192,000	658,000	360,540	1,210,540	61,460	52,908
2028	167,000	1,110,000	1,277,000	167,000	678,000	361,706	1,206,706	70,294	58,956
2029	145,000	1,150,000	1,295,000	145,000	698,000	357,389	1,200,389	94,612	77,311
2030	126,000	1,180,000	1,306,000	126,000	719,000	357,741	1,202,741	103,259	82,207
2031	107,000	1,220,000	1,327,000	107,000	741,000	357,589	1,205,589	121,411	94,172
2032	88,500	1,250,000	1,338,500	88,500	763,000	362,060	1,213,560	124,940	94,416
2033	72,600	1,290,000	1,362,600	72,600	786,000	359,685	1,218,285	144,315	106,253
2034	58,600	1,330,000	1,388,600	58,600	809,000	357,185	1,224,785	163,815	117,508
2035	46,100	1,370,000	1,416,100	46,100	834,000	359,560	1,239,660	176,440	123,309
2036	35,600	1,410,000	1,445,600	35,600	859,000	361,685	1,256,285	189,315	128,903
2037	27,200	1,450,000	1,477,200	27,200	884,000	358,560	1,269,760	207,440	137,612
2038	20,600	1,500,000	1,520,600	20,600	911,000	359,320	1,290,920	229,680	148,446
2039	15,500	1,540,000	1,555,500	15,500	938,000	359,800	1,313,300	242,200	152,512
								<u>2,156,845</u>	<u>1,588,075</u>

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 2.64%

**County of Grand Traverse, Michigan**  
**Scenario 3B :: 5.35% Rate of Return | Current Market Interest Rates PLUS 50 Basis Points**  
**Division 41 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	331,000	932,000	1,263,000	331,000	568,000	280,672	1,179,672	83,329	81,413
2023	303,000	960,000	1,263,000	303,000	585,000	375,971	1,263,971	(971)	(920)
2024	274,000	989,000	1,263,000	274,000	602,000	373,446	1,249,446	13,554	12,446
2025	246,000	1,020,000	1,266,000	246,000	620,000	375,296	1,241,296	24,704	21,992
2026	218,000	1,050,000	1,268,000	218,000	639,000	376,293	1,233,293	34,708	29,953
2027	192,000	1,080,000	1,272,000	192,000	658,000	376,821	1,226,821	45,180	37,800
2028	167,000	1,110,000	1,277,000	167,000	678,000	376,733	1,221,733	55,268	44,828
2029	145,000	1,150,000	1,295,000	145,000	698,000	376,144	1,219,144	75,857	59,649
2030	126,000	1,180,000	1,306,000	126,000	719,000	375,121	1,220,121	85,879	65,468
2031	107,000	1,220,000	1,327,000	107,000	741,000	373,569	1,221,569	105,431	77,919
2032	88,500	1,250,000	1,338,500	88,500	763,000	376,615	1,228,115	110,385	79,089
2033	72,600	1,290,000	1,362,600	72,600	786,000	377,765	1,236,365	126,235	87,683
2034	58,600	1,330,000	1,388,600	58,600	809,000	373,615	1,241,215	147,385	99,248
2035	46,100	1,370,000	1,416,100	46,100	834,000	374,315	1,254,415	161,685	105,552
2036	35,600	1,410,000	1,445,600	35,600	859,000	374,715	1,269,315	176,285	111,569
2037	27,200	1,450,000	1,477,200	27,200	884,000	374,815	1,286,015	191,185	117,304
2038	20,600	1,500,000	1,520,600	20,600	911,000	373,595	1,305,195	215,405	128,129
2039	15,500	1,540,000	1,555,500	15,500	938,000	377,045	1,330,545	224,955	129,723
								<u>1,876,457</u>	<u>1,288,846</u>

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 3.15%

**County of Grand Traverse, Michigan**  
**Scenario 3C :: 5.35% Rate of Return | Current Market Interest Rates LESS 50 Basis Points**  
**Division 41 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	331,000	932,000	1,263,000	331,000	568,000	260,448	1,159,448	103,552	101,928
2023	303,000	960,000	1,263,000	303,000	585,000	343,931	1,231,931	31,070	29,944
2024	274,000	989,000	1,263,000	274,000	602,000	343,904	1,219,904	43,097	40,670
2025	246,000	1,020,000	1,266,000	246,000	620,000	343,202	1,209,202	56,799	52,482
2026	218,000	1,050,000	1,268,000	218,000	639,000	346,663	1,203,663	64,338	58,208
2027	192,000	1,080,000	1,272,000	192,000	658,000	344,683	1,194,683	77,318	68,493
2028	167,000	1,110,000	1,277,000	167,000	678,000	342,153	1,187,153	89,848	77,933
2029	145,000	1,150,000	1,295,000	145,000	698,000	344,210	1,187,210	107,790	91,546
2030	126,000	1,180,000	1,306,000	126,000	719,000	345,878	1,190,878	115,122	95,734
2031	107,000	1,220,000	1,327,000	107,000	741,000	342,059	1,190,059	136,941	111,504
2032	88,500	1,250,000	1,338,500	88,500	763,000	342,955	1,194,455	144,045	114,842
2033	72,600	1,290,000	1,362,600	72,600	786,000	342,155	1,200,755	161,845	126,342
2034	58,600	1,330,000	1,388,600	58,600	809,000	346,255	1,213,855	174,745	133,567
2035	46,100	1,370,000	1,416,100	46,100	834,000	345,155	1,225,255	190,845	142,831
2036	35,600	1,410,000	1,445,600	35,600	859,000	343,955	1,238,555	207,045	151,724
2037	27,200	1,450,000	1,477,200	27,200	884,000	342,655	1,253,855	223,345	160,255
2038	20,600	1,500,000	1,520,600	20,600	911,000	345,295	1,276,895	243,705	171,217
2039	15,500	1,540,000	1,555,500	15,500	938,000	342,705	1,296,205	259,295	178,370
								<u>2,430,742</u>	<u>1,907,590</u>

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 2.13%

**County of Grand Traverse, Michigan**  
**Scenario 1A :: 7.35% Rate of Return | Current Market Interest Rates**  
**Division 43 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	145,000	27,700	172,700	145,000	6,000	13,711	164,711	7,989	7,834
2023	137,000	28,600	165,600	137,000	6,100	14,913	158,013	7,588	7,249
2024	131,000	29,400	160,400	131,000	6,300	19,862	157,162	3,239	3,015
2025	125,000	30,300	155,300	125,000	6,500	19,748	151,248	4,053	3,675
2026	118,000	31,200	149,200	118,000	6,700	19,587	144,287	4,913	4,341
2027	111,000	32,200	143,200	111,000	6,900	19,404	137,304	5,896	5,076
2028	104,000	33,100	137,100	104,000	7,100	19,191	130,291	6,809	5,711
2029	96,700	34,100	130,800	96,700	7,300	18,956	122,956	7,845	6,410
2030	90,900	35,100	126,000	90,900	7,600	18,702	117,202	8,798	7,004
2031	85,900	36,200	122,100	85,900	7,800	18,426	112,126	9,974	7,736
2032	81,700	37,300	119,000	81,700	8,000	18,135	107,835	11,165	8,437
2033	77,700	38,400	116,100	77,700	8,300	17,760	103,760	12,340	9,085
2034	73,700	39,500	113,200	73,700	8,500	17,385	99,585	13,615	9,766
2035	69,300	40,700	110,000	69,300	8,800	17,010	95,110	14,890	10,406
2036	64,800	42,000	106,800	64,800	9,000	16,635	90,435	16,365	11,143
2037	60,600	43,200	103,800	60,600	9,300	16,260	86,160	17,640	11,702
2038	56,900	44,500	101,400	56,900	9,600	15,840	82,340	19,060	12,319
2039	53,400	45,800	99,200	53,400	9,900	15,420	78,720	20,480	12,896
								192,657	143,806

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 2.64%

**County of Grand Traverse, Michigan**  
**Scenario 1B :: 7.35% Rate of Return | Current Market Interest Rates PLUS 50 Basis Points**  
**Division 43 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	145,000	27,700	172,700	145,000	6,000	14,763	165,763	6,937	6,778
2023	137,000	28,600	165,600	137,000	6,100	16,265	159,365	6,236	5,906
2024	131,000	29,400	160,400	131,000	6,300	16,164	153,464	6,937	6,369
2025	125,000	30,300	155,300	125,000	6,500	21,038	152,538	2,763	2,459
2026	118,000	31,200	149,200	118,000	6,700	20,802	145,502	3,698	3,191
2027	111,000	32,200	143,200	111,000	6,900	20,544	138,444	4,756	3,979
2028	104,000	33,100	137,100	104,000	7,100	20,256	131,356	5,744	4,659
2029	96,700	34,100	130,800	96,700	7,300	19,946	123,946	6,855	5,390
2030	90,900	35,100	126,000	90,900	7,600	19,617	118,117	7,883	6,009
2031	85,900	36,200	122,100	85,900	7,800	19,266	112,966	9,134	6,751
2032	81,700	37,300	119,000	81,700	8,000	18,900	108,600	10,400	7,451
2033	77,700	38,400	116,100	77,700	8,300	18,450	104,450	11,650	8,092
2034	73,700	39,500	113,200	73,700	8,500	18,000	100,200	13,000	8,754
2035	69,300	40,700	110,000	69,300	8,800	17,550	95,650	14,350	9,368
2036	64,800	42,000	106,800	64,800	9,000	17,100	90,900	15,900	10,063
2037	60,600	43,200	103,800	60,600	9,300	16,650	86,550	17,250	10,584
2038	56,900	44,500	101,400	56,900	9,600	16,155	82,655	18,745	11,150
2039	53,400	45,800	99,200	53,400	9,900	20,660	83,960	15,240	8,788
								177,476	125,743

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 3.15%



**County of Grand Traverse, Michigan**  
**Scenario 1C :: 7.35% Rate of Return | Current Market Interest Rates LESS 50 Basis Points**  
**Division 43 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	145,000	27,700	172,700	145,000	6,000	12,747	163,747	8,953	8,813
2023	137,000	28,600	165,600	137,000	6,100	13,663	156,763	8,838	8,517
2024	131,000	29,400	160,400	131,000	6,300	18,662	155,962	4,439	4,189
2025	125,000	30,300	155,300	125,000	6,500	18,623	150,123	5,178	4,784
2026	118,000	31,200	149,200	118,000	6,700	18,537	143,237	5,963	5,395
2027	111,000	32,200	143,200	111,000	6,900	18,429	136,329	6,871	6,087
2028	104,000	33,100	137,100	104,000	7,100	18,291	129,391	7,709	6,687
2029	96,700	34,100	130,800	96,700	7,300	18,131	122,131	8,670	7,363
2030	90,900	35,100	126,000	90,900	7,600	17,952	116,452	9,548	7,940
2031	85,900	36,200	122,100	85,900	7,800	17,751	111,451	10,649	8,671
2032	81,700	37,300	119,000	81,700	8,000	17,535	107,235	11,765	9,380
2033	77,700	38,400	116,100	77,700	8,300	17,235	103,235	12,865	10,043
2034	73,700	39,500	113,200	73,700	8,500	16,935	99,135	14,065	10,751
2035	69,300	40,700	110,000	69,300	8,800	16,635	94,735	15,265	11,425
2036	64,800	42,000	106,800	64,800	9,000	16,335	90,135	16,665	12,212
2037	60,600	43,200	103,800	60,600	9,300	16,035	85,935	17,865	12,819
2038	56,900	44,500	101,400	56,900	9,600	15,690	82,190	19,210	13,496
2039	53,400	45,800	99,200	53,400	9,900	15,345	78,645	20,555	14,140
								205,071	162,710

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 2.13%

**County of Grand Traverse, Michigan**  
**Scenario 2A :: 6.35% Rate of Return | Current Market Interest Rates**  
**Division 43 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	192,000	53,700	245,700	192,000	33,700	13,711	239,411	6,289	6,167
2023	182,000	55,300	237,300	182,000	34,700	14,913	231,613	5,688	5,434
2024	174,000	57,000	231,000	174,000	35,700	19,862	229,562	1,439	1,339
2025	166,000	58,700	224,700	166,000	36,800	19,748	222,548	2,153	1,952
2026	157,000	60,400	217,400	157,000	37,900	19,587	214,487	2,913	2,574
2027	148,000	62,200	210,200	148,000	39,000	19,404	206,404	3,796	3,268
2028	139,000	64,100	203,100	139,000	40,200	19,191	198,391	4,709	3,949
2029	130,000	66,000	196,000	130,000	41,400	18,956	190,356	5,645	4,612
2030	123,000	68,000	191,000	123,000	42,700	18,702	184,402	6,598	5,253
2031	117,000	70,000	187,000	117,000	43,900	18,426	179,326	7,674	5,952
2032	112,000	72,100	184,100	112,000	45,300	18,135	175,435	8,665	6,548
2033	107,000	74,300	181,300	107,000	46,600	17,760	171,360	9,940	7,318
2034	102,000	76,500	178,500	102,000	48,000	17,385	167,385	11,115	7,973
2035	96,200	78,800	175,000	96,200	49,500	17,010	162,710	12,290	8,589
2036	90,600	81,200	171,800	90,600	50,900	16,635	158,135	13,665	9,304
2037	85,200	83,600	168,800	85,200	52,500	16,260	153,960	14,840	9,845
2038	80,400	86,200	166,600	80,400	54,000	15,840	150,240	16,360	10,574
2039	75,800	88,700	164,500	75,800	55,700	15,420	146,920	17,580	11,070
								<u>151,357</u>	<u>111,722</u>

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 2.64%

**County of Grand Traverse, Michigan**  
**Scenario 2B :: 6.35% Rate of Return | Current Market Interest Rates PLUS 50 Basis Points**  
**Division 43 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	192,000	53,700	245,700	192,000	33,700	14,763	240,463	5,237	5,117
2023	182,000	55,300	237,300	182,000	34,700	16,265	232,965	4,336	4,106
2024	174,000	57,000	231,000	174,000	35,700	16,164	225,864	5,137	4,717
2025	166,000	58,700	224,700	166,000	36,800	21,038	223,838	863	768
2026	157,000	60,400	217,400	157,000	37,900	20,802	215,702	1,698	1,465
2027	148,000	62,200	210,200	148,000	39,000	20,544	207,544	2,656	2,222
2028	139,000	64,100	203,100	139,000	40,200	20,256	199,456	3,644	2,956
2029	130,000	66,000	196,000	130,000	41,400	19,946	191,346	4,655	3,660
2030	123,000	68,000	191,000	123,000	42,700	19,617	185,317	5,683	4,332
2031	117,000	70,000	187,000	117,000	43,900	19,266	180,166	6,834	5,051
2032	112,000	72,100	184,100	112,000	45,300	18,900	176,200	7,900	5,660
2033	107,000	74,300	181,300	107,000	46,600	18,450	172,050	9,250	6,425
2034	102,000	76,500	178,500	102,000	48,000	18,000	168,000	10,500	7,071
2035	96,200	78,800	175,000	96,200	49,500	17,550	163,250	11,750	7,671
2036	90,600	81,200	171,800	90,600	50,900	17,100	158,600	13,200	8,354
2037	85,200	83,600	168,800	85,200	52,500	16,650	154,350	14,450	8,866
2038	80,400	86,200	166,600	80,400	54,000	16,155	150,555	16,045	9,544
2039	75,800	88,700	164,500	75,800	55,700	20,660	152,160	12,340	7,116
								136,176	95,101

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 3.15%

**County of Grand Traverse, Michigan**  
**Scenario 2C :: 6.35% Rate of Return | Current Market Interest Rates LESS 50 Basis Points**  
**Division 43 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	192,000	53,700	245,700	192,000	33,700	12,747	238,447	7,253	7,139
2023	182,000	55,300	237,300	182,000	34,700	13,663	230,363	6,938	6,686
2024	174,000	57,000	231,000	174,000	35,700	18,662	228,362	2,639	2,490
2025	166,000	58,700	224,700	166,000	36,800	18,623	221,423	3,278	3,028
2026	157,000	60,400	217,400	157,000	37,900	18,537	213,437	3,963	3,585
2027	148,000	62,200	210,200	148,000	39,000	18,429	205,429	4,771	4,226
2028	139,000	64,100	203,100	139,000	40,200	18,291	197,491	5,609	4,865
2029	130,000	66,000	196,000	130,000	41,400	18,131	189,531	6,470	5,495
2030	123,000	68,000	191,000	123,000	42,700	17,952	183,652	7,348	6,111
2031	117,000	70,000	187,000	117,000	43,900	17,751	178,651	8,349	6,798
2032	112,000	72,100	184,100	112,000	45,300	17,535	174,835	9,265	7,387
2033	107,000	74,300	181,300	107,000	46,600	17,235	170,835	10,465	8,169
2034	102,000	76,500	178,500	102,000	48,000	16,935	166,935	11,565	8,840
2035	96,200	78,800	175,000	96,200	49,500	16,635	162,335	12,665	9,479
2036	90,600	81,200	171,800	90,600	50,900	16,335	157,835	13,965	10,234
2037	85,200	83,600	168,800	85,200	52,500	16,035	153,735	15,065	10,809
2038	80,400	86,200	166,600	80,400	54,000	15,690	150,090	16,510	11,599
2039	75,800	88,700	164,500	75,800	55,700	15,345	146,845	17,655	12,145
								<u>163,771</u>	<u>129,086</u>

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 2.13%

**County of Grand Traverse, Michigan**  
**Scenario 3A :: 5.35% Rate of Return | Current Market Interest Rates**  
**Division 43 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	253,000	82,000	335,000	253,000	63,600	13,711	330,311	4,689	4,598
2023	240,000	84,400	324,400	240,000	65,500	14,913	320,413	3,988	3,810
2024	230,000	86,900	316,900	230,000	67,500	19,862	317,362	(462)	(430)
2025	220,000	89,600	309,600	220,000	69,500	19,748	309,248	353	320
2026	208,000	92,200	300,200	208,000	71,600	19,587	299,187	1,013	895
2027	196,000	95,000	291,000	196,000	73,800	19,404	289,204	1,796	1,546
2028	185,000	97,900	282,900	185,000	76,000	19,191	280,191	2,709	2,272
2029	175,000	101,000	276,000	175,000	78,200	18,956	272,156	3,845	3,141
2030	166,000	104,000	270,000	166,000	80,600	18,702	265,302	4,698	3,740
2031	158,000	107,000	265,000	158,000	83,000	18,426	259,426	5,574	4,323
2032	152,000	110,000	262,000	152,000	85,500	18,135	255,635	6,365	4,810
2033	146,000	113,000	259,000	146,000	88,100	17,760	251,860	7,140	5,257
2034	139,000	117,000	256,000	139,000	90,700	17,385	247,085	8,915	6,395
2035	132,000	120,000	252,000	132,000	93,400	17,010	242,410	9,590	6,702
2036	125,000	124,000	249,000	125,000	96,200	16,635	237,835	11,165	7,602
2037	118,000	128,000	246,000	118,000	99,100	16,260	233,360	12,640	8,385
2038	112,000	132,000	244,000	112,000	102,000	15,840	229,840	14,160	9,152
2039	106,000	135,000	241,000	106,000	105,000	15,420	226,420	14,580	9,181
								<u>112,757</u>	<u>81,700</u>

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 2.64%

**County of Grand Traverse, Michigan**  
**Scenario 3B :: 5.35% Rate of Return | Current Market Interest Rates PLUS 50 Basis Points**  
**Division 43 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	253,000	82,000	335,000	253,000	63,600	14,763	331,363	3,637	3,553
2023	240,000	84,400	324,400	240,000	65,500	16,265	321,765	2,636	2,496
2024	230,000	86,900	316,900	230,000	67,500	16,164	313,664	3,237	2,972
2025	220,000	89,600	309,600	220,000	69,500	21,038	310,538	(938)	(835)
2026	208,000	92,200	300,200	208,000	71,600	20,802	300,402	(202)	(174)
2027	196,000	95,000	291,000	196,000	73,800	20,544	290,344	656	549
2028	185,000	97,900	282,900	185,000	76,000	20,256	281,256	1,644	1,333
2029	175,000	101,000	276,000	175,000	78,200	19,946	273,146	2,855	2,245
2030	166,000	104,000	270,000	166,000	80,600	19,617	266,217	3,783	2,884
2031	158,000	107,000	265,000	158,000	83,000	19,266	260,266	4,734	3,499
2032	152,000	110,000	262,000	152,000	85,500	18,900	256,400	5,600	4,012
2033	146,000	113,000	259,000	146,000	88,100	18,450	252,550	6,450	4,480
2034	139,000	117,000	256,000	139,000	90,700	18,000	247,700	8,300	5,589
2035	132,000	120,000	252,000	132,000	93,400	17,550	242,950	9,050	5,908
2036	125,000	124,000	249,000	125,000	96,200	17,100	238,300	10,700	6,772
2037	118,000	128,000	246,000	118,000	99,100	16,650	233,750	12,250	7,516
2038	112,000	132,000	244,000	112,000	102,000	16,155	230,155	13,845	8,235
2039	106,000	135,000	241,000	106,000	105,000	20,660	231,660	9,340	5,386
								97,576	66,422

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 3.15%

**County of Grand Traverse, Michigan**  
**Scenario 3C :: 5.35% Rate of Return | Current Market Interest Rates LESS 50 Basis Points**  
**Division 43 :: Actuarial Value of Assets**

Valuation Year Ending December 31	Current Baseline			After Issuance of 2021 Pension Bonds				Nominal Annual Savings	Present Value Savings (2)
	Employer Normal Cost Contribution	Employer UAL Contribution	Total Annual Employer Contribution	Employer Normal Cost Contribution	Employer UAL Contribution (1)	2021 Bonds Debt Service	Total Annual Employer Contribution		
2022	253,000	82,000	335,000	253,000	63,600	12,747	329,347	5,653	5,564
2023	240,000	84,400	324,400	240,000	65,500	13,663	319,163	5,238	5,048
2024	230,000	86,900	316,900	230,000	67,500	18,662	316,162	739	697
2025	220,000	89,600	309,600	220,000	69,500	18,623	308,123	1,478	1,365
2026	208,000	92,200	300,200	208,000	71,600	18,537	298,137	2,063	1,866
2027	196,000	95,000	291,000	196,000	73,800	18,429	288,229	2,771	2,455
2028	185,000	97,900	282,900	185,000	76,000	18,291	279,291	3,609	3,130
2029	175,000	101,000	276,000	175,000	78,200	18,131	271,331	4,670	3,966
2030	166,000	104,000	270,000	166,000	80,600	17,952	264,552	5,448	4,530
2031	158,000	107,000	265,000	158,000	83,000	17,751	258,751	6,249	5,088
2032	152,000	110,000	262,000	152,000	85,500	17,535	255,035	6,965	5,553
2033	146,000	113,000	259,000	146,000	88,100	17,235	251,335	7,665	5,984
2034	139,000	117,000	256,000	139,000	90,700	16,935	246,635	9,365	7,158
2035	132,000	120,000	252,000	132,000	93,400	16,635	242,035	9,965	7,458
2036	125,000	124,000	249,000	125,000	96,200	16,335	237,535	11,465	8,402
2037	118,000	128,000	246,000	118,000	99,100	16,035	233,135	12,865	9,231
2038	112,000	132,000	244,000	112,000	102,000	15,690	229,690	14,310	10,054
2039	106,000	135,000	241,000	106,000	105,000	15,345	226,345	14,655	10,081
								125,171	97,631

(1). Based on GRS Letter dated August 5, 2021

(2). Discounted using estimated All-in TIC of 2.13%