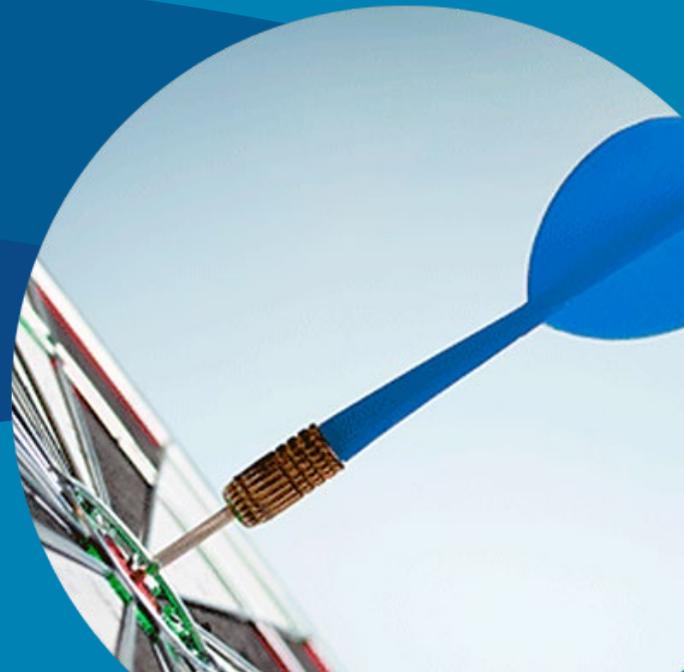




# **Bay County Employees' Retirement System December 31, 2020 Actuarial Valuations**

**Board of Trustees Meeting  
October 12, 2021**



# Agenda

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- Current Events
- Actuarial Valuation Process
- Highlights of 2020 Bay County Actuarial Valuations
- Questions

# CURRENT EVENTS



# 2016-2021 BCERS Experience Study

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- Performed for Bay County to refine assumptions every 5 years
- Requires Board selection and approval of Economic and Demographic assumptions
- Preparation and delivery next year
  - Likely after completion of 2021 pension (and VEBA)

# 2016-2021 BCERS Experience Study

## The Concept of Present Value

1

Actuarial calculations almost always begin with the calculation of a present value (“PV”)

2

PV (\$ payable in the future) = the amount of money that, if we had it today, would accumulate to the amount that will be payable considering:

- Investment Return
- Probability that money will be paid

3

The calculation of the present value depends upon assumptions

# 2016-2021 BCERS Experience Study

## Present Value Assumptions

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### Investment Return

- Relates to Economic Assumptions



### Probability that Money will be Paid

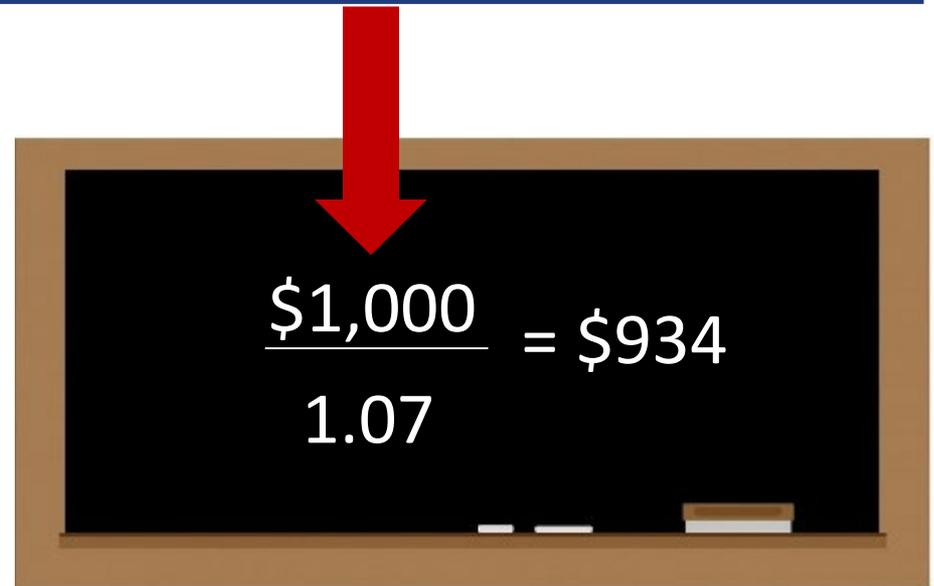
- Relates to Demographic Assumptions, Mortality, Turnover, etc.

# 2016-2021 BCERS Experience Study

## Present Value Examples

The present value of \$1,000 payable 1 year from now to a bank at 7% interest is \$934.

The present value of \$1,000 payable 1 year from now to a person who is 99 years old today, provided that the person is alive 1 year from now, is probably less than \$500.


$$\frac{\$1,000}{1.07} = \$934$$

But if the 99 year old lives the entire year, you will owe the whole \$1,000.

# Selection of Assumptions

## What Are They?

### Economic

- Investment Return
- Payroll Growth Rate
- Promotional/Step Pay Increases
- Population Growth Rate (Usually, a constant population size is assumed)

### Demographic

- Retirement Rates
- Disability
- Turnover
- Mortality

## Who Selects Them?

### Economic

- Board
- Actuary
- Other Advisors

### Demographic

- Mostly Actuary
- Board Approves

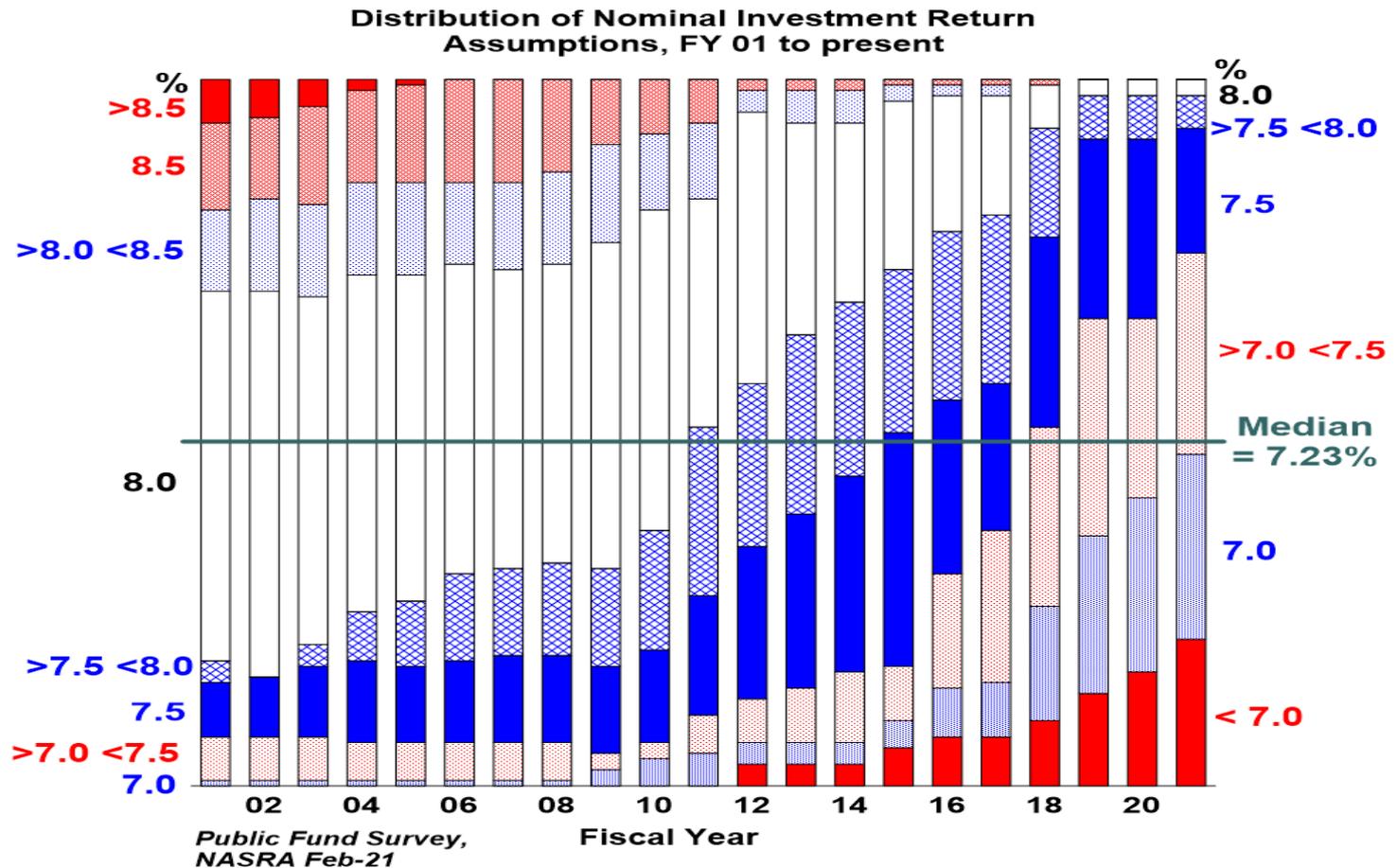


# Changes in Major Assumptions

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Effect on Liabilities and Contributions		
Assumption	Action	Usual Effect
Interest Rate	Decrease	Increase
Wage Inflation	Increase	Increase
Spread	Increase	Decrease
Population Growth	Increase	Decrease
Retirement	Retire Younger	Increase
Turnover	More Quits	Decrease
Mortality	Live Longer	Increase

# Public Pension Investment Return Assumptions: N= 130 Large Public Pension Plans, 2001-2020



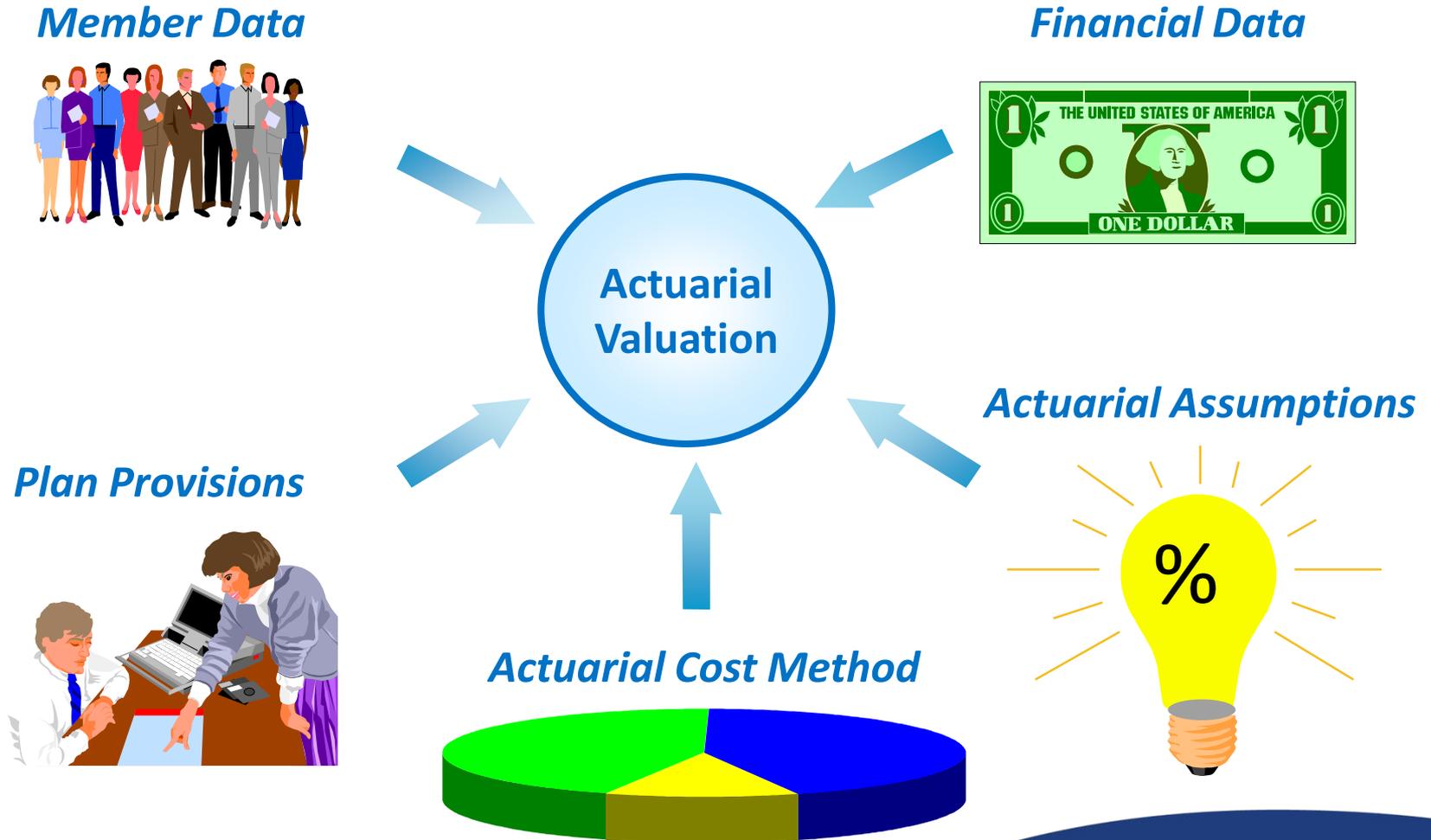
# 2016-2021 BCERS Experience Study

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- Forthcoming study
  - Discuss mortality, including investigation of new PUB-2010 and MP-2021 tables
  - Investigation and approval of new demographic assumptions
  - Investigation and approval of new economic assumptions

# ACTUARIAL VALUATION PROCESS

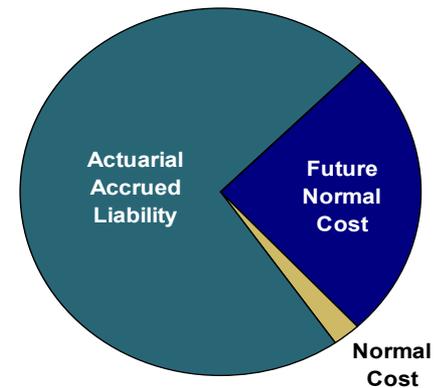
# Actuarial Valuation Process



# Actuarial Valuation Process

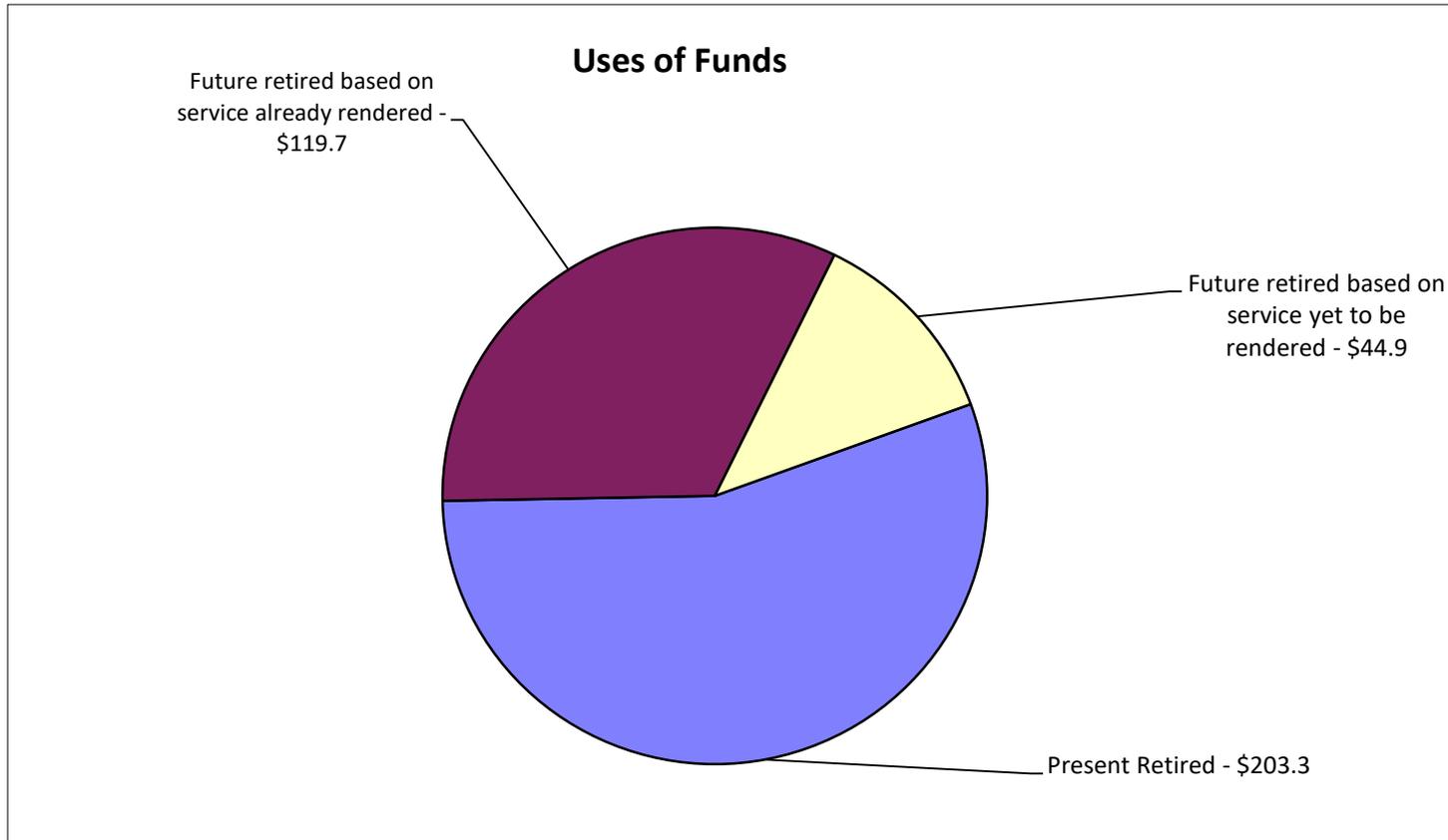
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- Present Value of Future Benefits - Present Value (PV) of all Future Benefits payable to current participants (active, retired, terminated vested).
- Actuarial Liability - Portion of PV of Future Benefits allocated to prior years.
- Normal Cost - Portion of PV of Future Benefits allocated to current year.
- Future Normal Costs - Portion of PV of Future Benefits allocated to future years.



Present Value of Future Benefits

# \$367.9 Million\* of Benefit Promises to Present Active and Retired Members



\* Present value of future benefits; all divisions combined.

# Actuarial Valuation Process

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$$\begin{array}{r} \text{Actuarial Accrued Liability} \\ - \text{Actuarial Value of Assets} \\ \hline \text{Unfunded Actuarial Liability} \end{array}$$

$$\text{Annual Contribution} = \text{Normal Cost} + \text{Amortization of the Unfunded Liability}$$

Requirement

# HIGHLIGHTS OF 2020 BAY COUNTY ACTUARIAL VALUATIONS



# Highlights of 2020 BCERS Actuarial Valuations

	General	DWS	Library	Medical Care Facility	Sheriff's Department	Road Commission	Total	BABH
Participants								
Active	397	59	20	335	82	55	948	229
Retired	372	44	48	247	81	93	885	153
Terminated Vested	29	2	4	12	5	1	53	34
Total	798	105	72	594	168	149	1,886	416
Payroll	\$ 16,938,363	\$ 3,494,567	\$ 1,001,353	\$ 12,555,710	\$ 4,770,642	\$ 3,183,102	\$ 41,943,737	\$ 11,666,794
Actuarial Accrued Liability	107,533,593	19,107,950	11,362,426	57,021,447	34,399,571	34,224,980	263,649,967	59,315,138
Actuarial Value of Assets	138,335,180	16,545,790	13,584,515	66,670,631	45,278,509	32,761,930	313,176,555	62,853,907
Unfunded Actuarial Accrued Liability	(30,801,587)	2,562,160	(2,222,089)	(9,649,184)	(10,878,938)	1,463,050	(49,526,588)	(3,538,769)
Funded Ratio	129%	87%	120%	117%	132%	96%	119%	106%
Contribution Requirement								
Employer Normal Cost	5.76 %	9.77 %	\$ 87,570	5.23 %	9.37 %	10.22 %		6.65 %
Amortization Payment for ERIP <sup>^</sup>								1.28
Amortization Payment	(12.85)	4.67	(212,489)	(5.31)	(15.96)	2.82		(2.52)
Total	0.00 %	14.44 %	\$ 0	0.00 %	0.00 %	13.04 %	\$ 980,443	5.41 %

<sup>^</sup> Amortization payment associated with the Early Retirement Incentive Program (ERIP).

# Highlights of 2020 BCERS Actuarial Valuations

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Division	Valuation Year Fiscal Year	Contribution Rate	
		12/31/2019 1/1/2021	12/31/2020 1/1/2022
General County		0.00%	0.00%
DWS		15.00	14.44
Library		\$ 0	\$ 0
Medical Care Facility		1.20%	0.00%
Sheriff's Department		0.00	0.00
Road Commission		15.08	13.04
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BABH		6.69%	5.41%

# Highlights of 2020 BCERS

## Actuarial Valuations

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- No changes to valuation assumptions or methods for the 2020 valuation.
- There were no changes in benefit provisions reported.

# Highlights of 2020 BCERS

## Actuarial Valuations

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- The aggregate experience during 2020 was favorable, with overall gains.
- Investment return on the market value of assets for calendar year 2020 exceeded the assumed rate of return for the valuation.

# Looking Ahead

## Asset Smoothing — \$ in Thousands

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	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
Actual Investment Return	\$ 58,208				
Assumed Investment Return	24,960				
Gain/(Loss) to be phased-in	33,248				
Phased-in recognition					
Current year	\$ 6,650				
First prior year	9,528	\$ 6,650			
Second prior year	(8,996)	9,528	\$ 6,650		
Third prior year	7,208	(8,996)	9,528	\$ 6,650	
Fourth prior year	178	7,208	(8,996)	9,528	\$ 6,650
Total recognized gain (loss)	\$ 14,568	\$ 14,390	\$ 7,182	\$ 16,178	\$ 6,650

# Looking Ahead — Contributions

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- Asset smoothing helps reduce the volatility of the employer contributions.
  - The funding value of assets is 89% of market value.
  - Remaining phase-in of past market gains/losses from previous valuations.
- The Retirement System will continue to mature.
  - More retirees than active employees.
  - Normal for a prefunded retirement system.

# QUESTIONS

# Disclaimers

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- This presentation is one of many documents comprising the December 31, 2020 actuarial valuations of the Bay County Employees' Retirement System. This presentation should not be relied on for any purpose other than the purpose described in the valuation reports.
- 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; 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.

# Disclaimers

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- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- James D. Anderson, Shana M. Neeson, and Stephanie Sullivan are independent of the plan sponsor, are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.