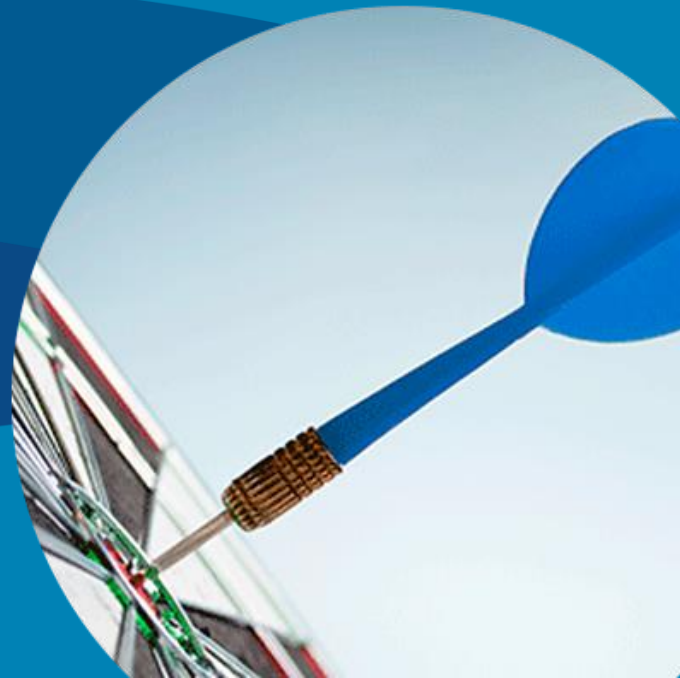




Bay County Employees' Retirement System (BCERS) December 31, 2023 Actuarial Valuations

Board of Trustees Meeting
October 8, 2024



Agenda

- Highlights of the 2023 Bay County Actuarial Valuations
- Pension Risk/Maturity Measures
- Appendix: Actuarial Valuation Process

HIGHLIGHTS OF THE 2023 BAY COUNTY ACTUARIAL VALUATIONS



Highlights of the 2023 BCERS Actuarial Valuations

	General	DWS	Library	Medical Care Facility	Sheriff's Department	Road Commission	Total	BABH
Participants								
Active	405	59	17	249	78	61	869	234
Retired	407	48	52	249	92	91	939	173
Terminated Vested	25	3	2	14	7	0	51	38
Total	837	110	71	512	177	152	1,859	445
Payroll	\$ 19,679,752	\$ 3,740,811	\$ 1,009,519	\$ 11,029,688	\$ 5,150,430	\$ 3,598,548	\$ 44,208,748	\$ 13,941,626
Actuarial Accrued Liability	119,865,068	21,206,704	12,315,875	61,108,676	38,969,427	36,336,200	289,801,950	68,227,393
Actuarial Value of Assets	157,679,756	19,463,422	15,122,194	75,548,685	52,193,809	35,755,513	355,763,379	73,118,552
Unfunded Actuarial Accrued Liability	(37,814,688)	1,743,282	(2,806,319)	(14,440,009)	(13,224,382)	580,687	(65,961,429)	(4,891,159)
Funded Ratio	132%	92%	123%	124%	134%	98%	123%	107%
Contribution Requirement								
Employer Normal Cost	5.73 %	9.78 %	\$ 89,123	5.33 %	8.90 %	9.10 %		5.94 %
Amortization Payment	(13.95)	3.26	(270,586)	(9.40)	(18.54)	1.09		(2.62)
Total	0.00 %	13.04 %	\$ 0	0.00 %	0.00 %	10.19 %	\$ 906,533	3.32 %

Highlights of the 2023 BCERS Actuarial Valuations

Division	Valuation Year Fiscal Year	Contribution Rate	
		12/31/2022 1/1/2024	12/31/2023 1/1/2025
General County		0.00 %	0.00 %
DWS		14.31	13.04
Library		\$ 0	\$ 0
Medical Care Facility		0.00 %	0.00 %
Sheriff's Department		0.00	0.00
Road Commission		11.15	10.19
<hr/>			
BABH		5.81 %	3.32 %

Highlights of the 2023 BCERS

Actuarial Valuations

Three general reasons why contribution rates change from one valuation to the next

- Assumptions and methods: no changes
- Benefit Provisions: no reported changes
- Plan Experience:
 - **People**: gain on demographics
 - **Assets**: gain on market basis and smoothed basis

Highlights of the 2023 BCERS Actuarial Valuations

- Demographic Experience:
 - Gain due to more terminations than expected for all groups
 - Gains partially offset by larger than expected pay increases for all groups, except for Library
- Asset Experience:
 - Investment return on the market value of assets for calendar year 2023 exceeded the assumed rate of return for the valuation

Looking Ahead

Asset Smoothing — \$ in Thousands

	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Actual Investment Return	\$ 44,991				
Assumed Investment Return	29,203				
Gain/(Loss) to be phased-in	15,788				
Phased-in recognition					
• Current year	\$ 3,158				
• First prior year	(20,277)	\$ 3,158			
• Second prior year	7,380	(20,277)	\$ 3,158		
• Third prior year	6,650	7,380	(20,277)	\$ 3,158	
• Fourth prior year	<u>9,528</u>	<u>6,650</u>	<u>7,380</u>	<u>(20,277)</u>	<u>\$ 3,158</u>
Total recognized gain (loss)	\$ 6,439	\$ (3,089)	\$ (9,739)	\$ (17,119)	\$ 3,158

<p>Recognized rate of return = 8.9%</p> <p>Market value return = 12.3%</p>
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Looking Ahead — Contributions

- Asset smoothing helps reduce the volatility of the employer contributions
 - Funding value of assets = 107% 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

PENSION RISK/MATURITY MEASURES

Risk/Maturity Measures

- Risk/maturity measures provide additional tool
 - Used to monitor risks that the plan may face, or to
 - Signal a source of potential contribution rate volatility
- The following pages provide a sample of plan risk measures shown in the annual valuation reports

Risk/Maturity Measures – Asset Return

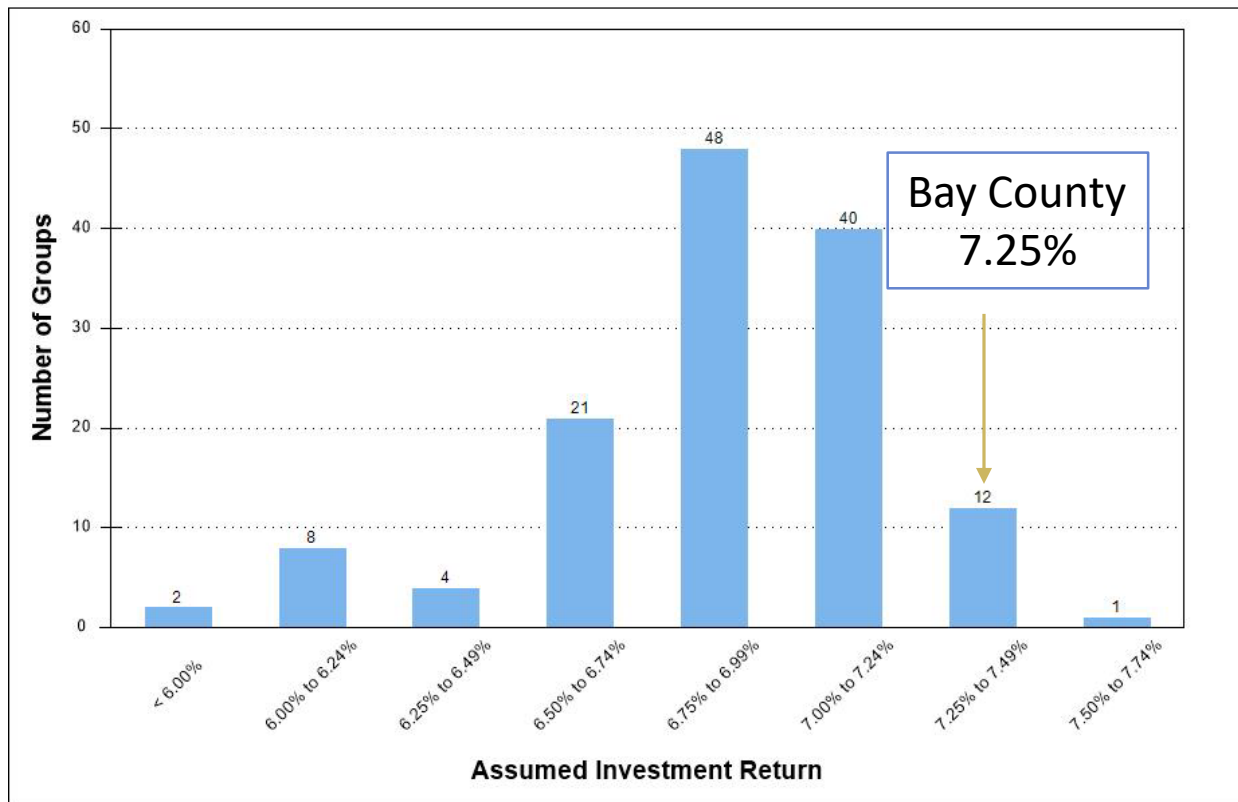
Investment return → the largest single risk that most Systems face

- Year-by-year return indicates performance of the portfolio versus the System's assumed return of 7.25%

Valuation Date	Market Asset Return	Valuation Asset Return
2019	22.8%	8.5%
2020	15.7%	11.5%
2021	15.4%	13.2%
2022	(15.8)%	5.8%
2023	12.3%	8.8%

Benchmarking: Michigan Investment Return Assumption

Distribution of Assumed Investment Returns



This exhibit was generated using the following criteria: Valuation Date: 09/30/2022, 12/31/2022, 06/30/2023, 09/30/2023, 12/31/2023, 06/30/2024; Type of Employees: General, Public Safety, Teachers, Legislative/Judicial, Other (Mixed); Amount of Assets: < \$100 Million, \$100 to \$999.9 Million, \$1.0 to \$9.9 Billion, \$10.0+ Billion; Number of Members (Active and Retired): < 1,000, 1,000 to 49,999, 50,000 to 99,999, 100,000+; Group Status: Open, Closed; State: Michigan; Level of Government: City, County, Other, State.

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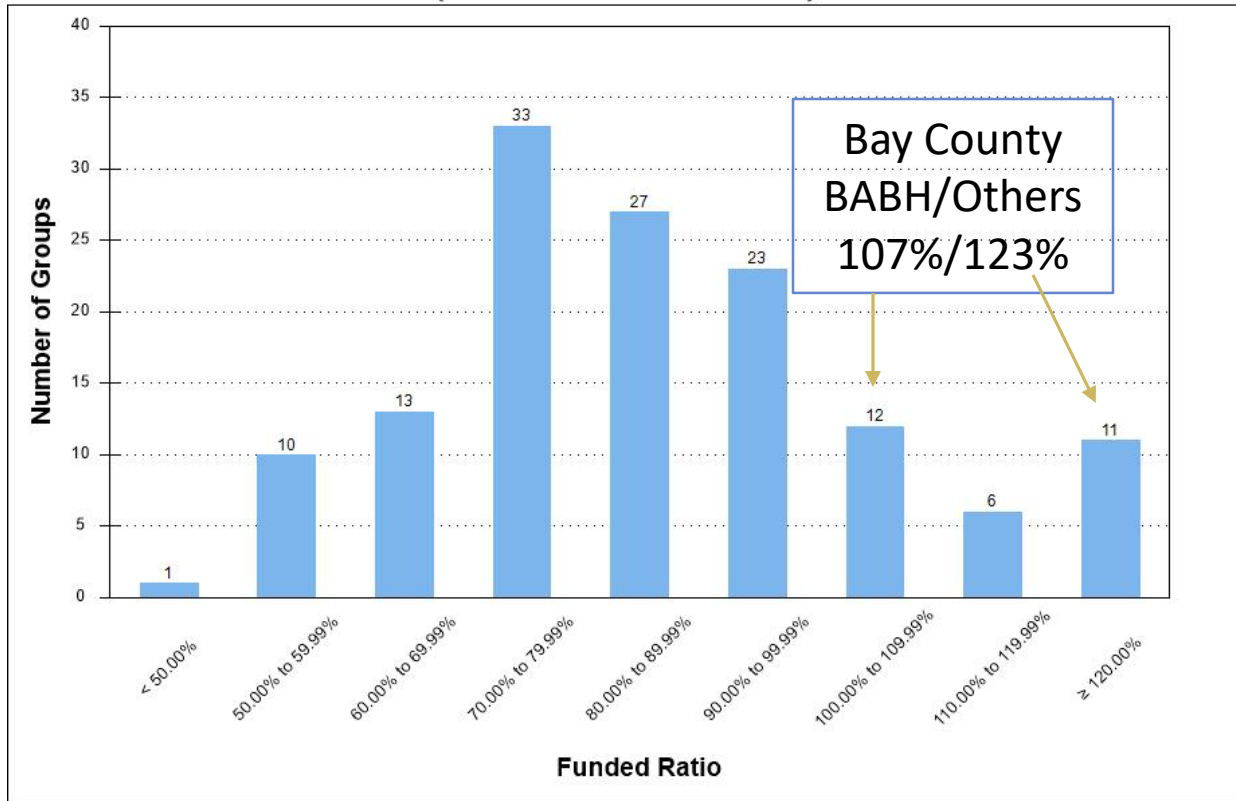
Risk/Maturity Measures – Asset/Liability Ratio

- Funded ratio: most familiar measure of a plan's financial strength
- **Trend in funded ratio much more important than the absolute ratio**
 - Given all assumptions are met, ratio should trend to 100% over the amortization period
 - Mortality strengthened in 2022
- Important to evaluate level of investment risk in the portfolio

Valuation Date	AVA/AAL All Others /BABH
2019	114%/103%
2020	119%/106%
2021	125%/110%
2022	120%/105%
2023	123%/107%

Benchmarking: Michigan Funded Ratio

Distribution of Funded Ratio (Actuarial Value of Assets)



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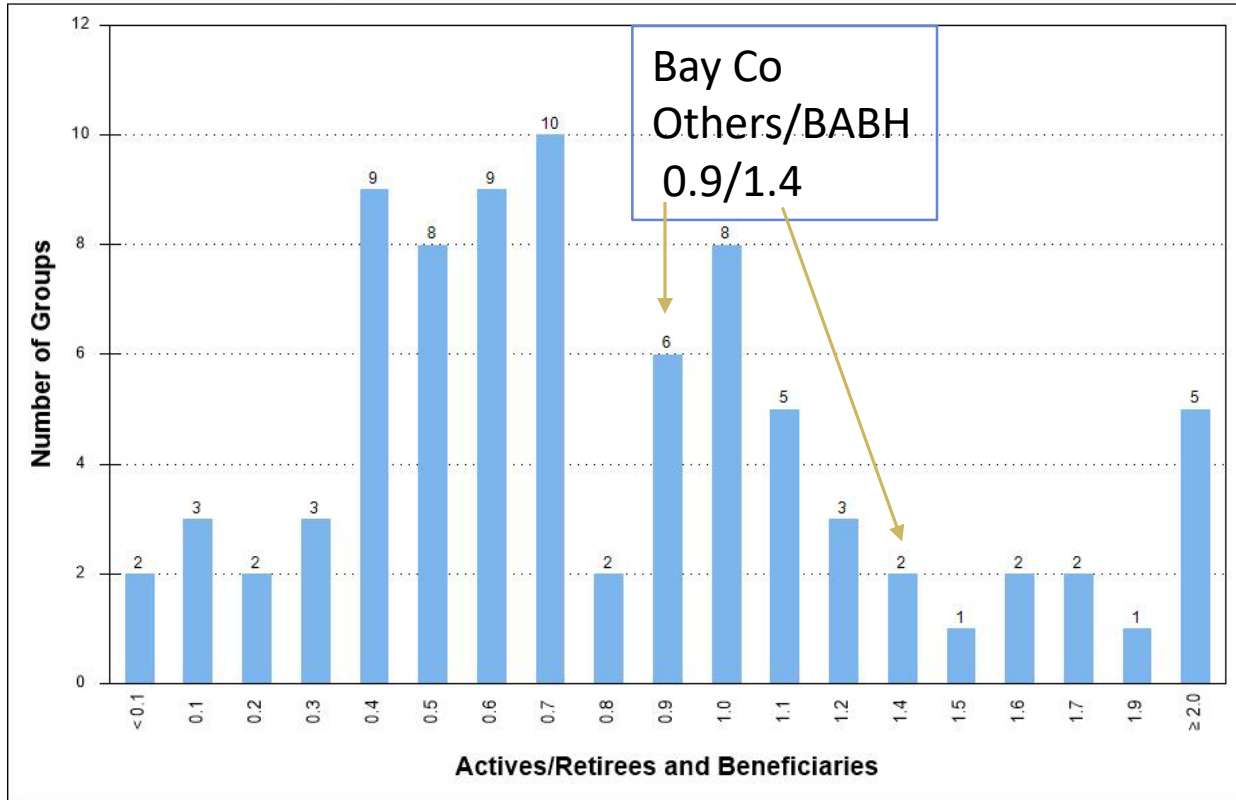
Risk/Maturity Measures – Active/Retiree Ratio

- In the 1970s-1980s, common for 3:1, 4:1 ratio of actives to retirees
- As plans mature, this ratio can drop significantly
 - Today, see Ratios below 2:1 and nearing/below 1:1
 - A ratio *significantly* below 1 usually indicates a closed plan

Valuation Date	Act/Ret All Others /BABH
2019	1.1/1.6
2020	1.1/1.5
2021	1.1/1.5
2022	0.9/1.4
2023	0.9/1.4

Benchmarking: Michigan Active/Retiree Ratio

Distribution of Actives/Retirees and Beneficiaries



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Risk/Maturity Measures – Net External Cash Flow

- The ratio of Net External Cash Flow (NECF) to assets, an important sustainability measure
- **Negative ratios are common and expected for a maturing system**
- Longer term, this ratio should be on the order of ~ -4%
 - A ratio significantly more negative than that for an extended period could be a leading indicator of potential exhaustion of assets

All Others

Valuation Date	NECF \$000	NECF/Assets
2019	\$(13,175)	-4.2%
2020	(13,571)	-3.9%
2021	(14,626)	-3.8%
2022	(15,726)	-5.0%
2023	(16,227)	-4.9%

Risk/Maturity Measures – Net External Cash Flow

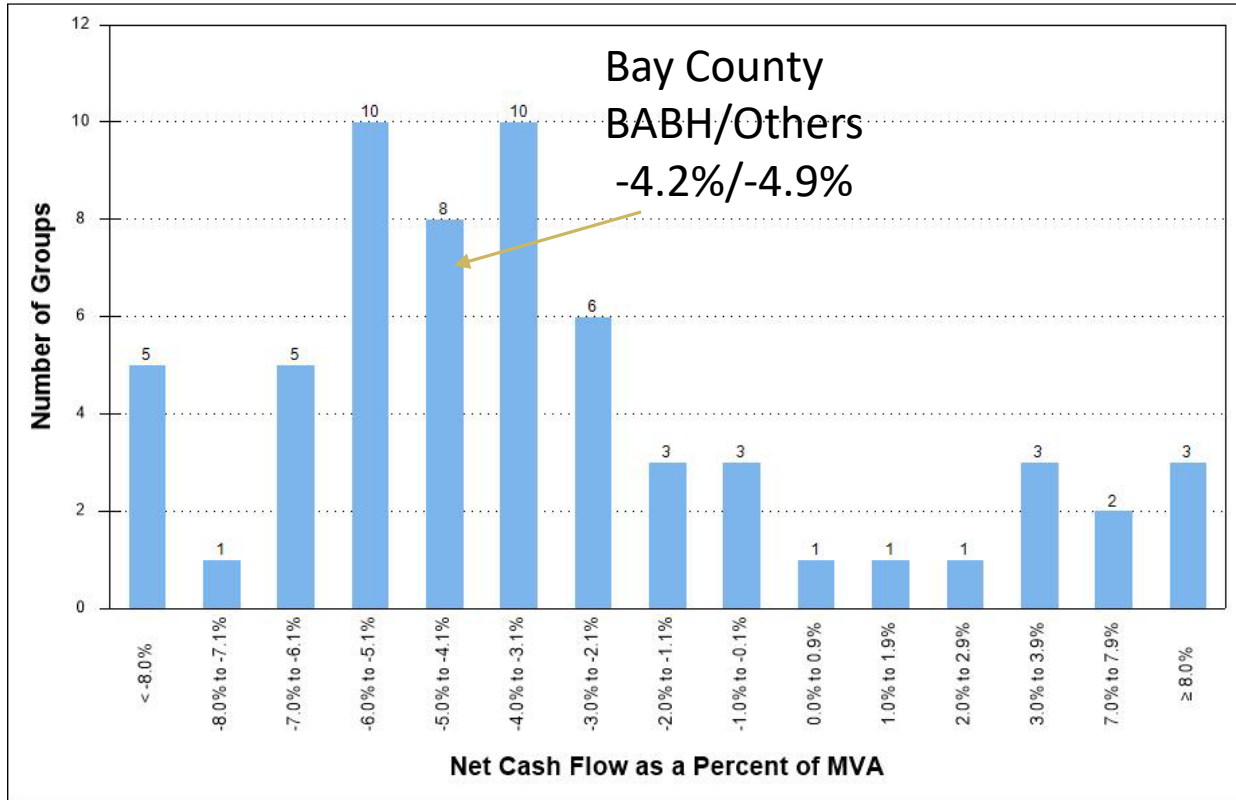
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BABH

Valuation Date	NECF \$000	NECF/Assets
2019	\$(1,926)	-3.1%
2020	(1,965)	-2.8%
2021	(2,361)	-3.0%
2022	(2,549)	-4.0%
2023	(2,882)	-4.2%

Benchmarking: Michigan Net Cash Flow

Distribution of Net Cash Flow as a Percent of MVA



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In Summary

- Each valuation GRS highlights changes relative to expectations
 - Main drivers of funded status and contribution changes
- Solid governance with respect to the following areas leads to success
 - Investment Policy
 - Funding Policy
 - Benefit Policy

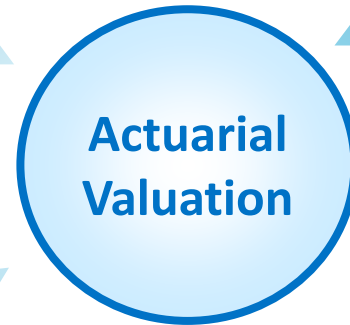
APPENDIX: ACTUARIAL VALUATION PROCESS

Actuarial Valuation Process

Member Data



Financial Data



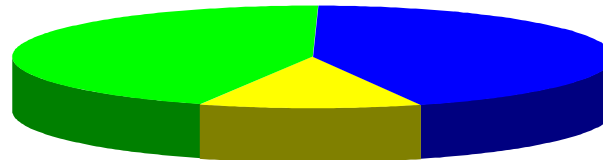
Actuarial Assumptions



Plan Provisions

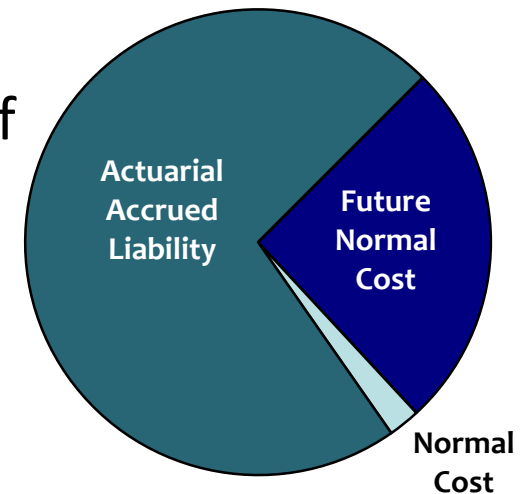


Actuarial Cost Method



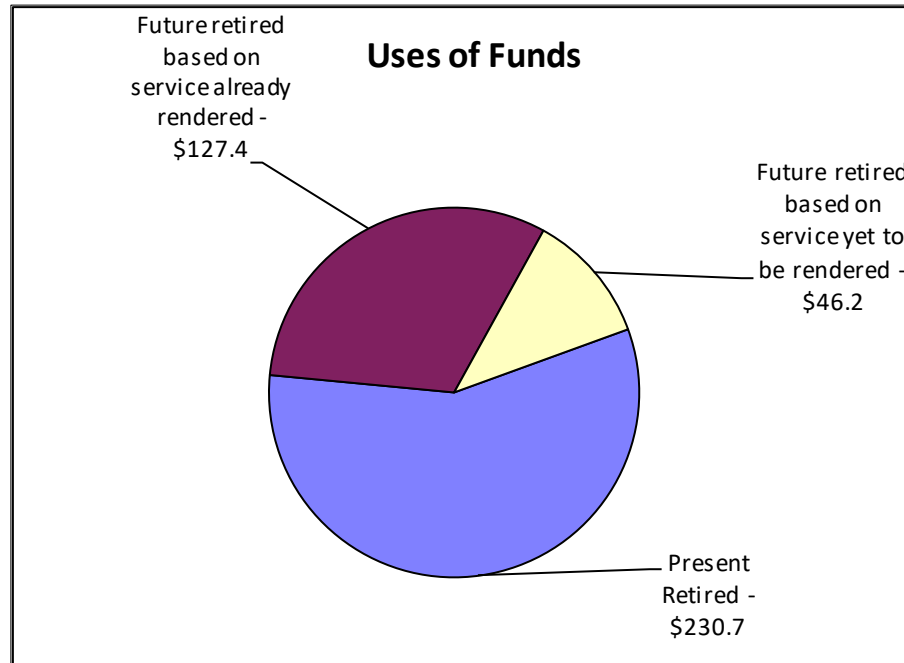
Actuarial Valuation Process

- Present Value of Future Benefits - Present Value (PV) of all Future Benefits payable to current participants (active, retired, terminated vested)
- Actuarial Accrued 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

\$404.3 Million* of Benefit Promises to Current and Future Retired Members – All Groups



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

Actuarial Valuation Process

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

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

Requirement

Disclaimers

- This presentation is one of many documents comprising the December 31, 2023 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.

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