MERS®
Municipal Employees' Retirement System

2017 RETIREMENT CONFERENCE

Pension Funding & Plan Design

Part 2 – Actuarial Deep Dive

Presented by Mike Overley and Terra Langham

This session has been approved for continuing education credits.

CERTIFIED PUBLIC ACCOUNTANT

CPE credit available

You must sign in <u>during the session</u> to receive credit for attending!

Agenda

- Recap of Pension Funding & Plan Design Part 1 – The Fundamentals Session
- Assumptions and Methods
- Key Areas of Your Actuarial Report
- Strategies for Addressing Unfunded Accrued Liability (UAL)

Recap of
Pension Funding & Plan Design Part 1 – The Fundamentals Session

Defined Benefit Fundamentals

- The benefit formula is comprised of three components

Final Average Compensation × Service Credit × Benefit Multiplier = Annual Benefit

- Plans are pre-funded during the employee’s career with contributions typically made by both the employee and employer

Defined Benefit Fundamentals, Cont.

- The cost of the plan is determined annually and provided in the Annual Actuarial Valuation
- The employer contribution is made of up two parts:

Employer Normal Cost + Amortization Payment of the UAL = Employer Contribution

- Unfunded liability is the difference between a plan's estimated pension benefits and the assets that have been set aside to pay for them
- UAL develops as a result of:
  - Actual experience being different than assumed (liabilities and assets)
  - Benefit enhancements adopted and not entirely funded
  - Higher than projected Final Average Compensation

Key Actuarial Assumptions and Methods

Experience Study

- Part of MERS' fiduciary responsibility
- Conducted with our actuarial firm every five years, with the last study covering 2009-2013
- Compares actual experience of the plan with the current assumptions to determine if changes are necessary
- The next study will be conducted in the fall of 2019

Key Changes from Last Experience Study

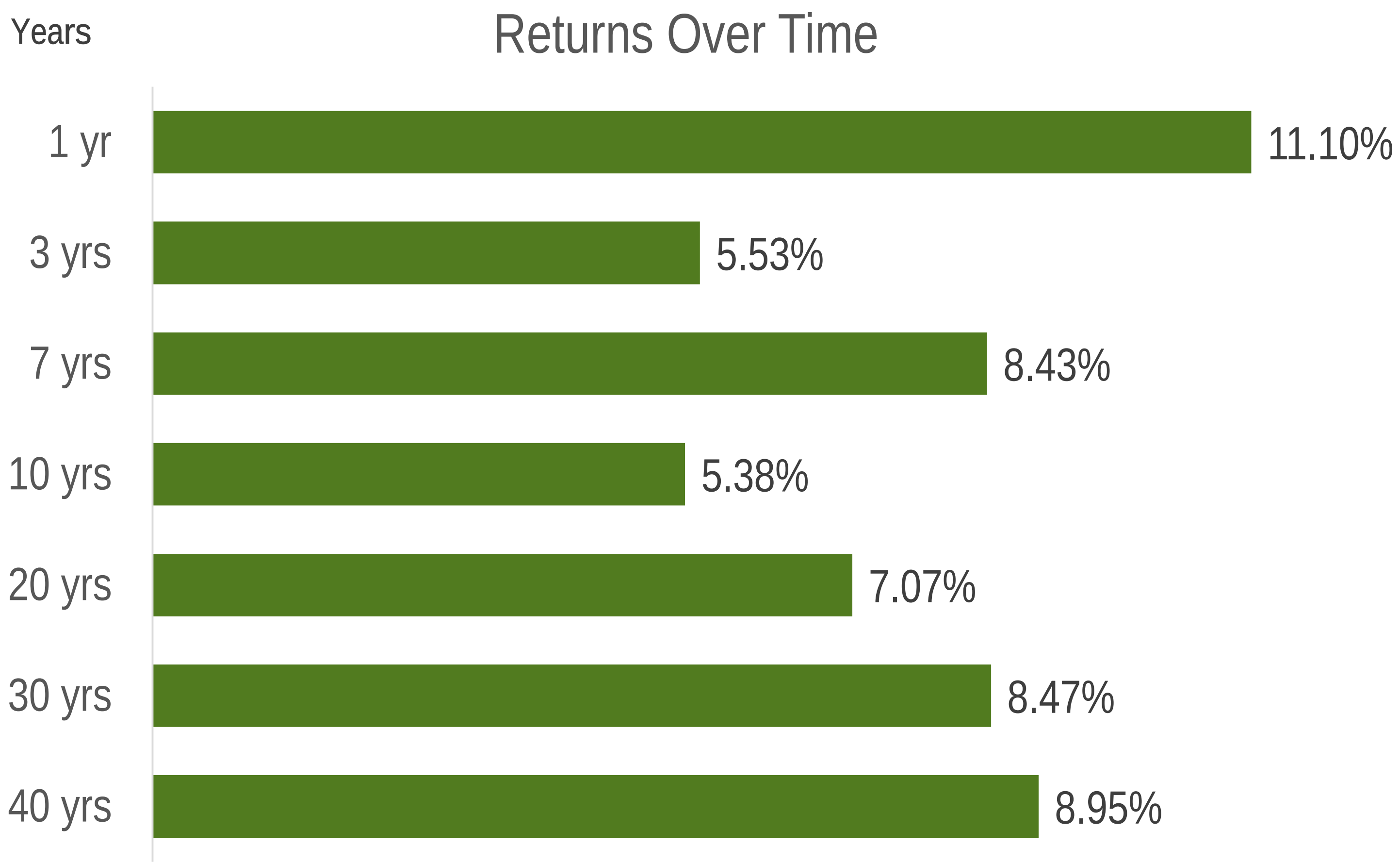
1. Assumed investment return was reduced from 8% to 7.75%
2. Mortality table was adjusted to reflect longer lifetimes
3. Amortization was moved to a fixed period

Investment Assumption

- The investment return assumption determines the portion of benefits that is assumed to be provided by investment income
- When developing economic assumptions such as this we consider:
  - A long-term historical perspective
  - Whether recent history fundamentally changed the future economic outlook
  - Analysis and forecasts from experts and governmental sources
  - Evaluation of economic assumptions against comparably sized public retirement systems

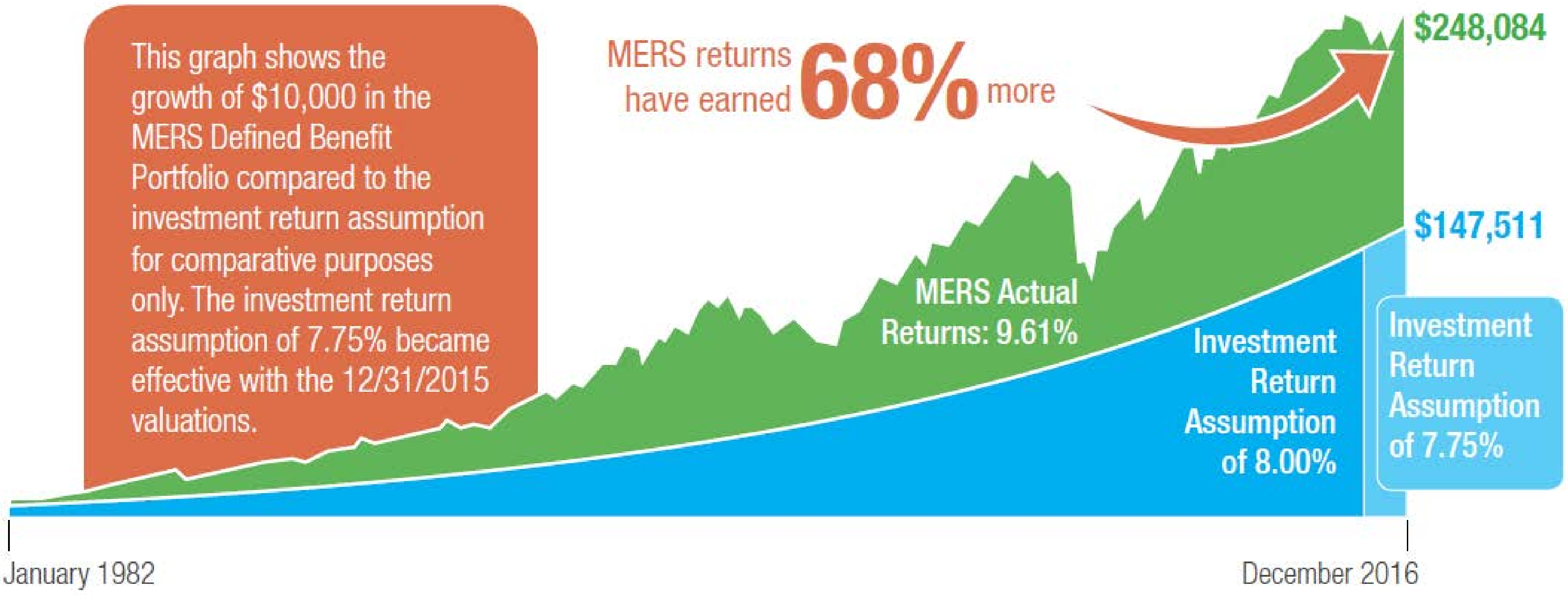
MERS Long-Term Investment Returns

As of December 31, 2016



All rates are shown as gross of fees

MERS Long-Term Investments



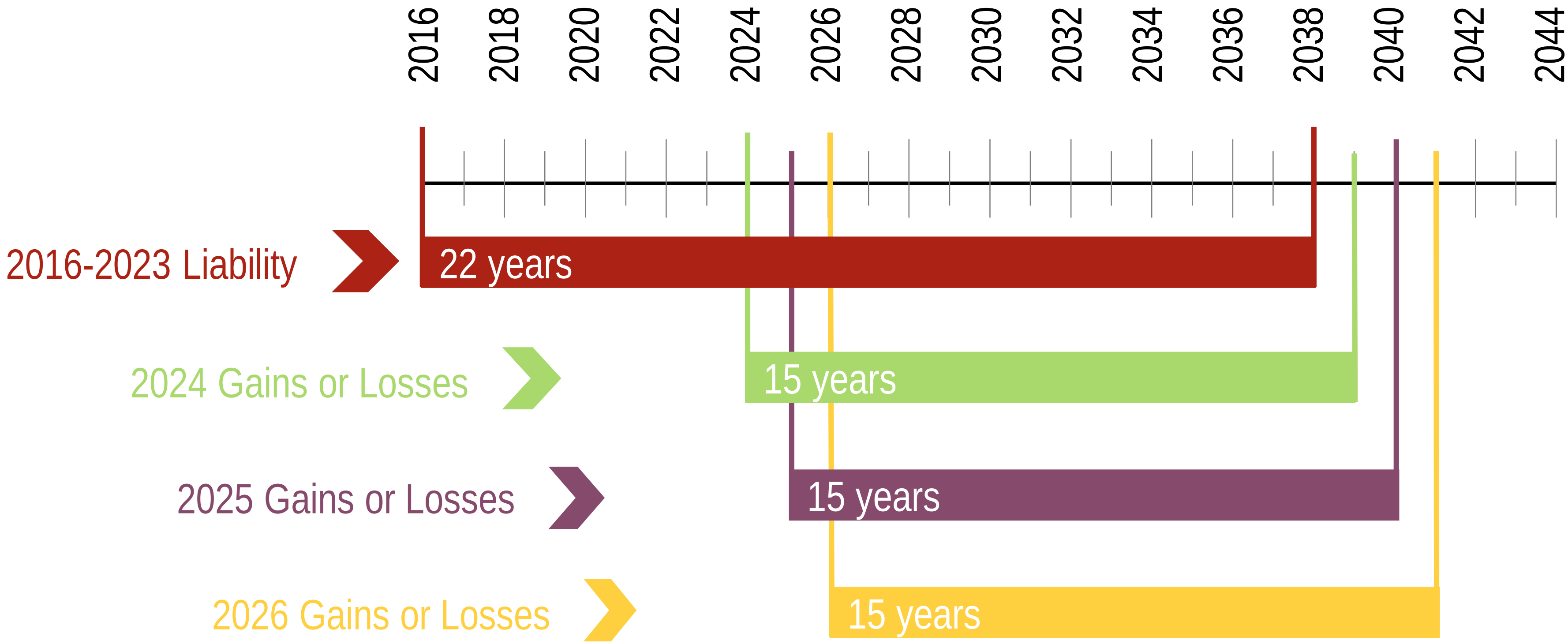
Life Expectancy is Increasing

- As with all our assumptions, the mortality assumption is reviewed every five years
- Both of the two previous five-year experience studies showed that MERS retirees were living ***shorter*** lifetimes than projected by the present mortality assumption
- The new study confirms that MERS retirees are now experiencing ***longer*** lifetimes
  - There has been sufficient increase in the longevity of retirees to warrant a new mortality table that projects longer lifetimes

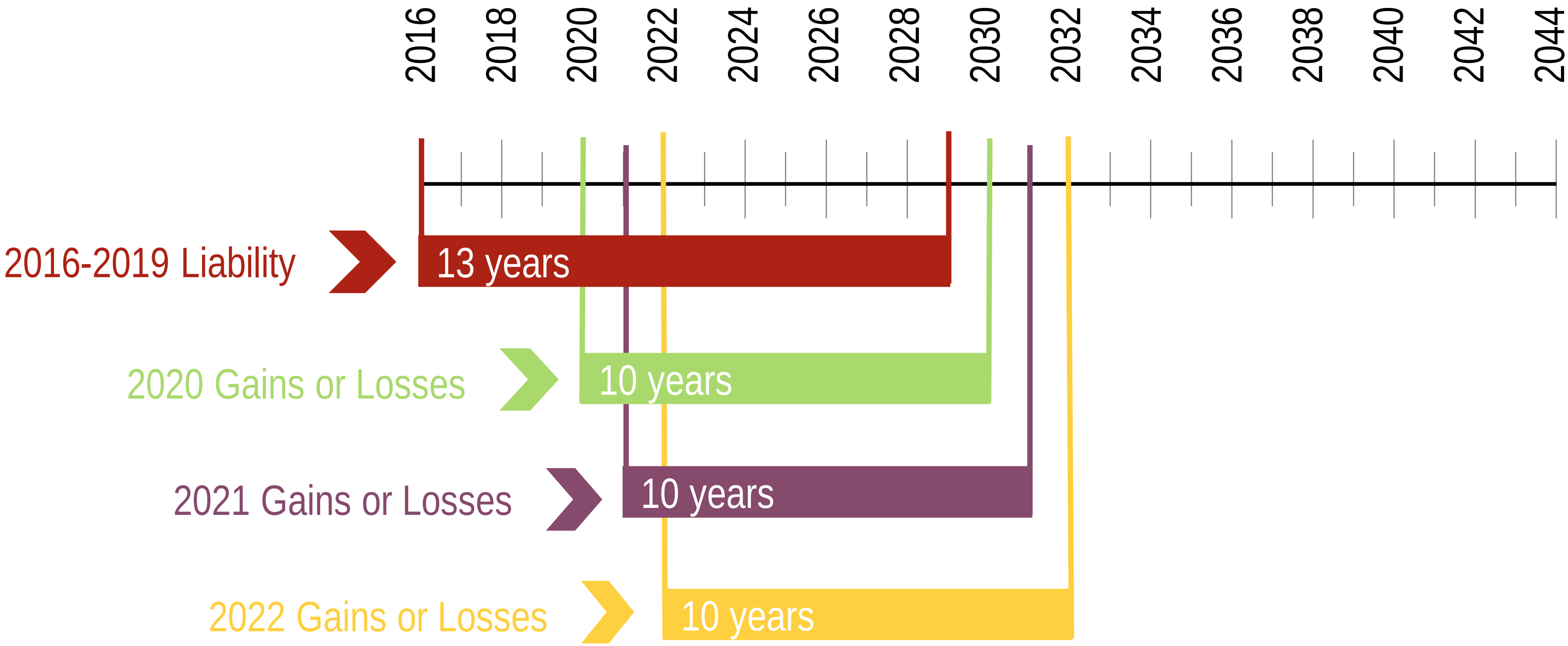
Amortization Policy

- The amortization policy sets the process for making payments on a plan's unfunded accrued liability
- The amortization policy doesn't make the benefits cheaper or more expensive; it simply impacts the pattern of contributions
- Historically, public pension plans like MERS, used a rolling amortization period of 30 years

Layered Amortization Example - Open



Layered Amortization Example - Closed



Highlights of Your Annual Actuarial Valuation (AAV)

About the Report

- The AAV is an important tool to help you budget for your municipality's retirement benefits
- This report is prepared by MERS actuary, in conformity with:
  - Generally recognized actuarial principles and practices
  - The Actuarial Standards of Practice issued by the Actuarial Standards Board
  - Compliance with Act No. 220 of the Public Acts of 1996
  - MERS Plan Document
- The report is delivered each year by June 30th

Other Plan Information

- Quarterly Statement of Fiduciary Net Position
- Investment Policy Statement
- Investment Performance and Cost
- Plan Handbooks
- Comprehensive Annual Financial Report (CAFR)

Purpose of the Report

- Measures funding progress
- Establishes contribution requirements for the following fiscal year
- Provides actuarial information in connection with applicable Governmental Accounting Standards Board (GASB) statements

Plan Costs

- Plan costs vary by municipality and depend on the benefit plan design selected by the municipality
- The AAV does not affect the ultimate cost of the plan
- The ultimate cost of the plan will not be known until the last retiree/beneficiary stops drawing a benefit
- MERS administrative and investment costs are found on your quarterly statements

MERS® Municipal Employees' Retirement System
1134 Municipal Way
Lansing, MI 48917
(800) 767-6377

City of Ana
1234 Maple Street
Ana, MI 48555

Statement of Fiduciary Net Position
For the Year Ended 12/31/2016

Reserve for Employee Contributions

	Balance as of 1/1/2016	Invoiced and oth contributions	Transfers	EE Refunds	Interest on EE Balance		Balance as of 12/31/2016
85010101 General	1,203,259	42,108	(3,874)	0	1,506		1,242,999
85010102 Police	946,274	15,002		0	1,148		962,424
85010110 Administrative	546,727	4,785	3,874	0	619		556,005
Total	2,696,260	61,895	0	0	3,273	0	2,761,428

Reserve for Employer Contributions

	Balance as of 1/1/2016	Invoiced and othe contributions	Transfers	Benefits Paid	Net Investme Income	Admin expenses	Balance as of 12/31/16
85010101 General	7,525,855	103,396	(114,020)	(48,902)	506,3	(21,695)	7,950,966
85010102 Police	3,581,853	68,318		(31,967)	318,0	(12,704)	3,923,592
85010110 Administrative	2,018,232	73,051	114,020	(28,994)	177,6	(6,599)	2,347,330
Total	13,125,940	244,765	0	(109,863)	1,002,0	(40,998)	14,221,888

Combined Reserves

Total	15,822,200	306,660	0	(109,863)	1,005,3	(40,998)	16,983,316

Administrative Costs

- Plan governance
- Audit
- Legal counsel
- State and Federal legislative advocacy
- Financial reporting
- Administration of benefits
- Actuarial services
- Participant education and resources

Executive Summary *Funded Ratio*

Funded Ratio and Required Employer Contributions

The MERS Defined Benefit Plan is an agent multiple-employer plan, meaning that assets are pooled for investment purposes but separate accounts are maintained for each individual employer. Each municipality is responsible for their own plan liabilities; MERS does not borrow from one municipality's account to pay for another.

The funded ratio of a plan is the percentage of the dollar value of the accrued benefits that is covered by the actuarial value of assets.

Your Funded Ratio:

	12/31/2016	12/31/2015
Funded Ratio	67%	68%

Michigan Law requires that pension plans be pre-funded, meaning money is set aside now to pay for future benefits. Pension plans are usually funded by employer and employee contributions, and investment income.

How quickly a plan attains the 100% funding goal depends on many factors such as:

- The current funded ratio
- The future experience of the plan
- The amortization period

It is more important to look at the trend in the funded ratio over a period of time than at a particular point in time.

Executive Summary *Required Employer Contributions*

Your Required Employer Contributions:

Your computed employer contributions are shown in the following table. Employee contributions, if any, are in addition to the computed employer contributions. Changes to the assumptions and methods based on the 2015 Experience Study were first reflected in the December 31, 2015 valuations. The impact of these changes is being phased-in over a 5 year period. The phase-in allows the employer to spread the impact of the new assumptions over 5 fiscal years. This valuation reflects the second year of the phase-in.

Your minimum required contribution is the amount in the "Phase-in" columns. By default, MERS will invoice you the phased-in contribution amount, but strongly encourages you to contribute more than the minimum required contribution. If for 2017 your municipality is making employer contributions based on rates without the phase-in applied, contact MERS to ensure this rate is used again for 2018 and not the defaulted phase-in rates.

	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:	12/31/2016	12/31/2016	12/31/2015	12/31/2015	12/31/2016	12/31/2016	12/31/2015	12/31/2015
Fiscal Year Beginning:	July 1, 2018	July 1, 2018	July 1, 2017	July 1, 2017	July 1, 2018	July 1, 2018	July 1, 2017	July 1, 2017
Division								
01 - General	15.57%	16.68%	15.06%	16.63%	$ 5,316	$ 5,694	$ 4,831	$ 5,335
Municipality Total					**$ 5,316**	**$ 5,694**	**$ 4,831**	**$ 5,335**

Employee contribution rates reflected in the valuations are shown below:

	Employee Contribution Rate	
Valuation Date:	**12/31/2016**	**12/31/2015**
Division		
01 - General	5.00%	5.00%

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. **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 entire employer would be $ 8,575, instead of $ 5,694.
- To accelerate to a 100% funding ratio in 20 years, estimated monthly employer contributions for the entire employer would be $ 5,928, instead of $ 5,694.

- Contributions based on new and previous assumptions
- Contributions based on Phase-in and No Phase-In
- By default, MERS will invoice based on Phase-in figures
- Includes optional accelerated funding information

Executive Summary *Alternative Scenarios*

- Each report provides analysis of potential volatility of the results and projected contributions based on that volatility
- This provides each municipality with options for determining contributions into the plan above and beyond the minimum required amounts

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

	Assumed Future Annual Smoothed Rate of Investment Return			
	Lower Future Annual Returns		Valuation Assumption	Higher Returns
12/31/2016 Valuation Results	**5.75%**	**6.75%**	**7.75%**	**8.75%**
Accrued Liability	$ 686,861	$ 609,993	$ 545,887	$ 491,993
Valuation Assets	$ 541,087	$ 541,087	$ 541,087	$ 541,087
Unfunded Accrued Liability	$ 145,774	$ 68,906	$ 4,800	$ (49,094)
Funded Ratio	79%	89%	99%	110%
Monthly Normal Cost	$ 1,257	$ 818	$ 479	$ 208
Monthly Amortization Payment	$ 1,094	$ 573	$ 48	$ (208)
Total Employer Contribution[1]	$ 2,351	$ 1,391	$ 527	$ 0

Flow of Valuation Assets

Table 5

Year Ended 12/31	Employer Contributions		Employee Contributions	Investment Income	Benefit Payments	Employee Contribution Refunds	Net Transfers	Valuation Asset Balance
	Required	Additional						
2006	$ 159,062		$ 56,992	$ 209,867	$ (164,883)	$ 0	$ 0	$ 2,820,513
2007	172,364		58,593	229,848	(162,750)	0	(15,072)	3,103,496
2008	167,702		66,513	155,191	(176,518)	0	0	3,316,384
2009	145,172		68,622	162,431	(244,985)	0	0	3,447,624
2010	166,145		71,084	193,564	(274,724)	0	0	3,603,693
2011	170,070	$ 0	65,753	182,718	(320,957)	0	0	3,701,277
2012	179,681	0	65,135	175,211	(324,857)	0	28,443	3,824,890
2013	187,499	108,101	75,522	234,492	(381,799)	0	0	4,048,705
2014	202,032	111,236	88,463	239,176	(398,915)	0	0	4,290,697
2015	219,077	100,000	87,621	228,029	(400,461)	0	0	4,524,963
2016	217,286	100,856	84,871	238,568	(461,493)	0	0	4,705,051

Funding Level Detail

The table shows each division's funded status:

Actuarial Accrued Liabilities and Valuation Assets
As of December 31, 2016

Table 6

Division	Actuarial Accrued Liability	Valuation Assets[1]	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
01 - General				
Active Employees	$ 645,128	$ 757,277	117.4%	$ (112,149)
Vested Former Employees	7,607	7,607	100.0%	0
Retirees And Beneficiaries	84,727	84,727	100.0%	0
Pending Refunds	17,936	17,936	100.0%	0
Total	**$ 755,398**	**$ 867,547**	**114.8%**	**$ (112,149)**
Total Municipality				
Active Employees	**$ 645,128**	**$ 757,277**	**117.4%**	**$ (112,149)**
Vested Former Employees	**7,607**	**7,607**	**100.0%**	**0**
Retirees and Beneficiaries	**84,727**	**84,727**	**100.0%**	**0**
Pending Refunds	**17,936**	**17,936**	**100.0%**	**0**
Total Participants	**$ 755,398**	**$ 867,547**	**114.8%**	**$ (112,149)**

[1] Includes both employer and employee assets.

Other Resources

MERS Municipal Employees' Retirement System

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Annual Actuarial Valuations

The annual actuarial valuation (AAV) is an important tool to help you budget for your municipality's retirement benefits, with information specific to your municipality's retirement plan. While MERS pools assets for investment purposes, individual accounts for each municipality. Each entity is responsible for the employer contributions needed to provide benefits for its employees and former employees. To see a consolidated report of all MERS plans, please click here.

The annual actuarial valuation is a report provided to you as a snapshot of your MERS Defined Benefit Plan as of December 31 each year. The report provides insight to your plan's liabilities, funding levels, contributions for both the employer and employee, and important GASB Information. The information in the report will provide you contribution rates for your following fiscal year.

When To Expect Your Report

You can expect your report to arrive by June 30 for the previous calendar year. For instance, you can expect the 2016 report to arrive by June 30, 2017. This report will contain contribution rate information for the 2018 fiscal year.

Understanding Your Annual Actuarial Valuation

This guide outlines each section of your report, as well as answers some frequently asked questions. For more information, please contact your MERS Regional Manager. Click the section title for more information about that part of the report.

Expand All

- Executive Summary
- Employer Contribution Details
- Benefit Provisions
- Participant Summary

Strategies for Reducing UAL

Reducing UAL

There are two ways a municipality can close its unfunded liability gap

Increase assets to close the funding gap

- Funding strategies

Reduce or eliminate liability moving forward

- Plan design strategies

Considerations

Purpose	Why do you offer your employees a retirement plan?
Benefit	Do you understand the benefits you have in place today?
Cost	When comparing the costs of your current and proposed retirement plans, ensure you're comparing apples to apples
Cash Flow Urgency	*Consider your budget goal* for both your current and proposed retirement plans

Plan Design Strategies to Manage UAL

Strategy	Description	Trend						Impact
		2012	2013	2014	2015	2016	2017	
Lower Benefit to New Hires	New hires receive a lower tier of Defined Benefit provisions	49	53	43	52	34	20	Existing employees are not affected Reduces the liability for new hires
Bridged Benefits for Existing Employees	Benefits are offered in parts to existing employees Multiplier is lower going forward	17	19	29	16	45	14	Leaves earned benefits unchanged Reduces the liability for new hires and existing employees
Hybrid for New Hires	New hires receive a Hybrid Plan	67	31	43	21	15	6	Existing employees are not affected Reduces liability for new hires
Defined Contribution for New Hires	New hires receive a Defined Contribution Plan	20	45	30	37	39	26	Existing employees are not affected Eliminates liability for new hires
Defined Benefit Plan Freeze	Plan is frozen and all employees move to a new plan	n/a	n/a	n/a	n/a	8	1	Existing employees do not accrue additional service credit and FAC is frozen

Divisions that have adopted these strategies as of 6/30/2017.

Lower Benefit for New Hires

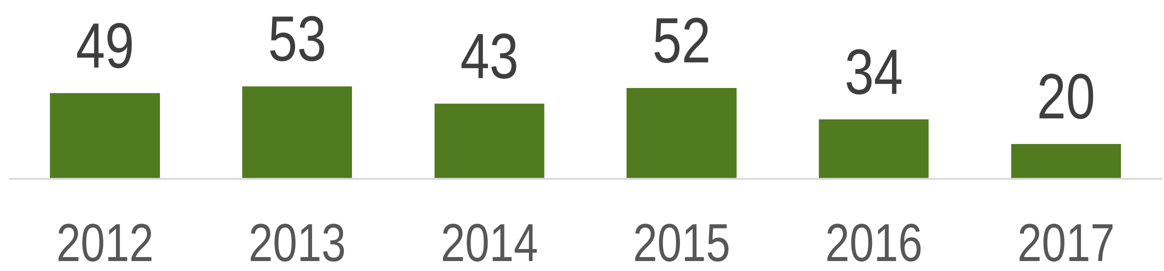
Action

- Lower Tiered Benefits for New Hires
  - Lower multiplier
  - Removed cost of living adjustments
  - Removed early retirement options
  - Increased vesting period
  - Increased retirement age

Impact

- Reduces the future liability accrual
- Future benefits will be lower, and therefore less expensive, than the previous benefits offered

Trend



* As of 06/30/2017.

Lower Benefit for New Hires, Cont.

- New hires are covered by a lower tier of either defined benefit or hybrid benefits
- Existing employees are not affected
- Reduces the liability for new hires

Anyone hired **before** 8/1/2013	Anyone hired **after** 8/1/2013
Tier I	**Tier II**
• 2.5% Benefit Multiplier	• 1.70% Benefit Multiplier
• FAC 3	• FAC 5
• Vesting of 8 years	• Vesting of 10 years
• Early Retirement Age 55 with 15 years of service	• Early Retirement Age 55 with 25 years of service
• COLA	• No COLA

Hybrid Plan for New Hires

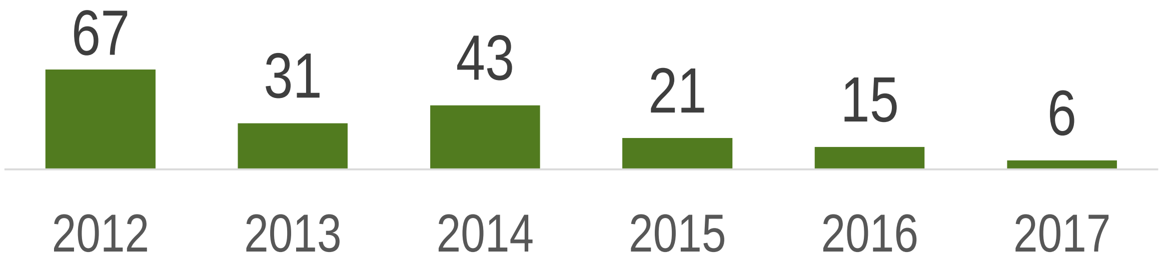
Action

- Hybrid Plan for new hires

Impact

- Reduces future accrual of liabilities
- Future benefits will be lower and potentially less expensive, than the previous benefits

Trend



* As of 06/30/2017.

Hybrid Plan for New Hires, Cont.

- New hires, rehires and transfers are covered by the Hybrid Plan
  - Active employees may be given a one-time option to convert if municipality meets funding requirements
- Actuarial report is needed to calculate the contributions for the Defined Benefit portion of the Hybrid Plan

Part 1 – Defined Benefit

Final Average Compensation × Service Credit × Benefit Multiplier = $ Annual Benefit

+

Part 2 – Defined Contribution

Employer Contributions + Employee Contributions + Earnings or Losses in the Market − Fees = $ Account Balance

$ Total Retirement Benefit

Example

- A municipality is adopting a Hybrid Plan for new hires
- The employer's Normal Cost is **currently 9.81%**

Defined Benefit Plan

2.25% Multiplier
FAC 3
10 year vesting
9.81% Normal Cost

Hybrid Plan

Part I 1.50% Multiplier
FAC 3
6 year vesting
6.27% Normal Cost

Part II Employer contribution 1%
Employee contribution 5%
6 year vesting

- The new cost for the municipality is 6.27% Normal Cost for the Defined Benefit portion, plus the 1% employer contribution to the Defined Contribution portion, **totaling 7.27%**
- This reflects a **savings of 2.54%** of payroll

Defined Contribution Plan for New Hires

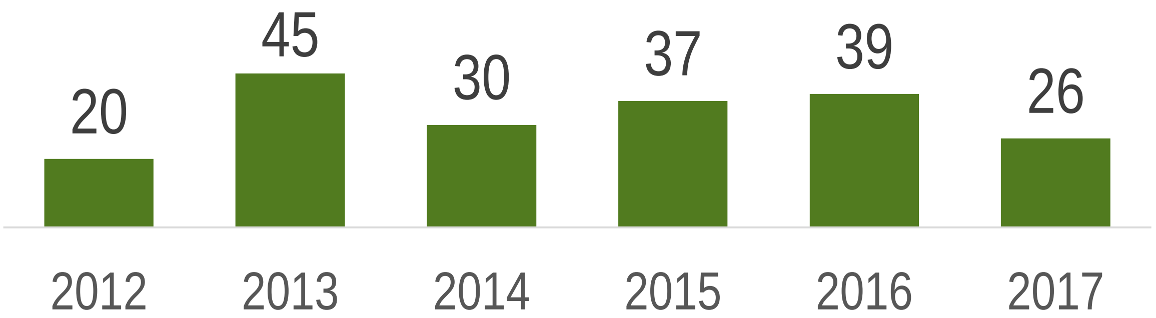
Action

- Defined Contribution Plan for new hires

Impact

- Eliminates future accrual of liabilities for new hires

Trend



* As of 06/30/2017.

Defined Contribution Plan for New Hires, Cont.

- New hires, rehires and transfers are covered by the Defined Contribution Plan
  - Active employees may be given a one-time option to convert
- A projection study is required
  - Shows the long-term cost of the current benefit plan compared to the long-term cost of the proposed benefit plan
  - Shows how employer contributions would be affected 20 years into the future
- With a fixed amortization period in place, a sustainability analysis for closing the Defined Benefit Plan will determine proper amortization period and ensure adequate funding

Comparing Plan Costs

- When closing a Defined Benefit Plan, the accrued benefits of the active participants in that plan remain and will continue to accrue
  - You will continue to contribute a Normal Cost payment, plus any payment toward UAL, until the last retiree/beneficiary stops drawing a benefit
  - The payment toward UAL will not go away by changing plans
- Implementing Defined Contribution Plan for new hires is not an immediate cost savings
- To compare long-term cost savings, you compare the *Normal Cost* of the Defined Benefit Plan (found on Table 1 of your AAV) to your *proposed employer contribution* of the Defined Contribution Plan
- Once accrued benefits of the past have been fully funded, you will only contribute the Normal Cost

Bridged Benefit for Existing Employees

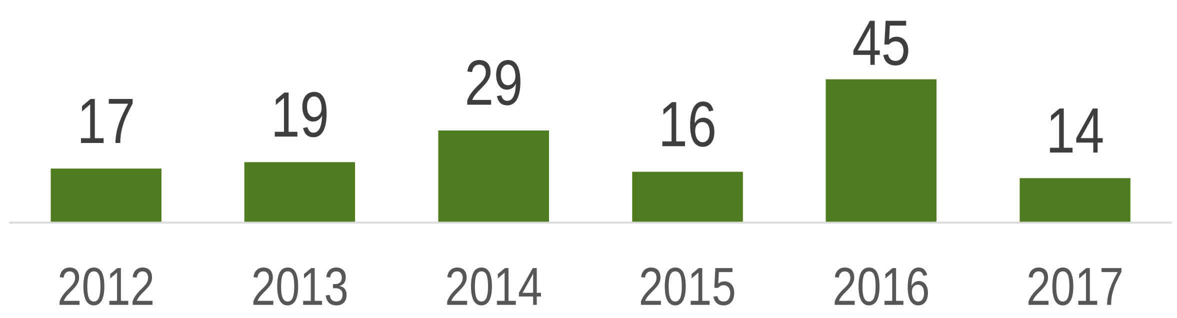
Action

- Bridged benefit for active employees

Impact

- Active employees accrue liability at a lower rate and may reduce existing liability
- New hires receive the reduced multiplier

Trend



* As of 06/30/2017.

Bridged Benefits

- Benefits are offered in parts to existing employees
- Multiplier is lowered on a going-forward basis
- Leaves earned benefits unchanged
- Reduces the liability for new hires and existing employees

Part 1

FAC (may choose frozen FAC) × Service Credit × Original Benefit Multiplier = $ Original Benefit

+

Part 2

Final Average Compensation × Service Credit × New Benefit Multiplier = $ New Benefit

$ Total Retirement Benefit

Defined Benefit Plan Freeze

Action

- Defined Benefit Plan freeze

Impact

- ALL employees transition to a new plan type
  - Do not accrue additional service credit
  - FAC is frozen
  - Employees may opt to convert the value of existing service into Defined Contribution Plan
- Eliminates the Normal Cost of the plan
- Does not eliminate UAL – could still increase

Trend

* As of 06/30/2017.

Funding Strategies to Manage UAL

Strategy	Description	Trend 2012	2013	2014	2015	2016	2017	Impact
Cost Sharing for Existing Employees[1]	Employees contribute to help fund the overall cost of the plan	149	280	143	97	136	87	Reduces the employer cost, but does not affect total cost or the plan's unfunded liability
Voluntary Contributions[2]	Additional payments made into plan toward unfunded liability	180	211	210	277	…	269	Reduces existing liability Extra dollars are invested and recognize market returns
Bonding[3]	Municipalities may bond for all or a portion of their unfunded accrued liabilities—pension or OPEB	n/a	n/a	4	1	2	2	Proceeds of the bond are deposited and potentially will fully fund the UAL No guarantee that future unfunded liabilities may not occur

[1]Divisions that have adopted this strategy as of 6/30/2017.

[2]Municipalities that have adopted this strategy as of 5/31/2017.

[3]Municipalities that have adopted this strategy as of 6/30/2017.

Cost Sharing with Existing Employees

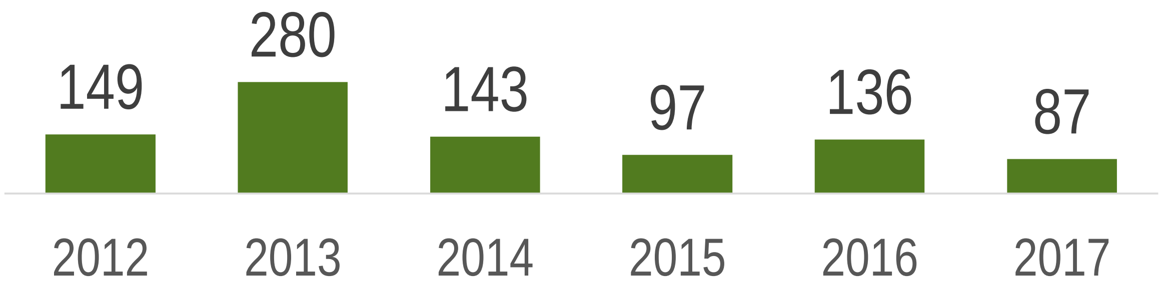
Action

- Employees contribute to help fund the overall cost of the plan

Impact

- Reduces the employer cost, but does *not* affect total cost or the plan's unfunded liability

Trend



* As of 06/30/2017.

Voluntary Contributions

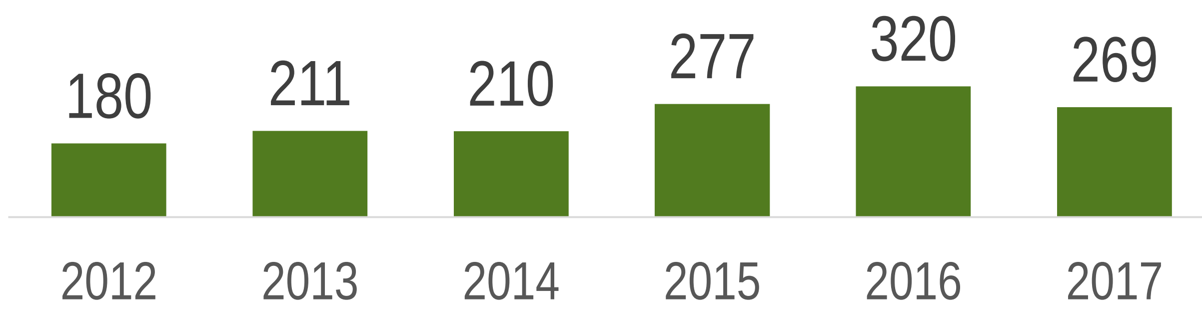
Action

- Contribute above ARC
  - Extra percentage above minimum
  - Lump sum payment

Impact

- Reduces unfunded liability
- Extra dollars are invested and have ability to recognize market returns

Trend



* As of 5/31/2017.

Voluntary Contributions, Cont.

- More than half of customers are making additional, voluntary contributions
- We've recently introduced additional flexibility in how additional contributions are applied, including:
  - Allocating additional assets to specific divisions or equally distributed
  - Applying the additional assets to pay down UAL, or to reduce future contributions

Bonding

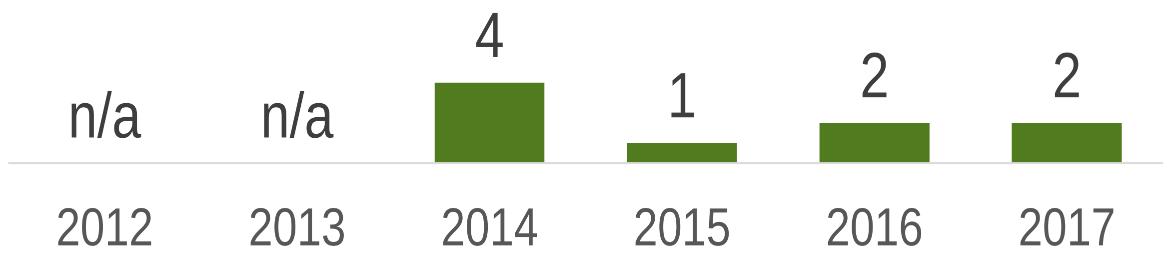
Action

- Municipalities may bond for all or a portion of their unfunded accrued liabilities

Impact

- Bond proceeds are deposited and may fully fund the accrued liability
- No guarantee that future unfunded liabilities won't occur

Trend



* As of 06/30/2017.

Amortization Period Extension

- One time opportunity by request
- Open groups could reset their **existing** UAL amortization period ***up to*** 30 years fixed
  - New UAL would continue to be amortized at the current amortization period before any reset (12/31/16 the period is at 22 years)
- Closed groups could reset their **existing** UAL amortization period ***up to*** 25 years fixed
  - New UAL would continue to be amortized at the current amortization period before any reset (12/31/16 the period is at 22 years)
- Based on a sustainability analysis with established criteria by the consulting actuaries

Ready to Learn More about Plan Design?

- Learn how other MERS municipalities have used various funding and plan design strategies to manage costs
- Hear suggestions for evaluating how plan design can help attract and retain talent
- Attend Pension Funding & Plan Design Part 3 – A Panel Discussion

Contacting MERS of Michigan

MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM

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Lansing, MI 48917

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