Sustainable Pension Funding Basics – Part 1

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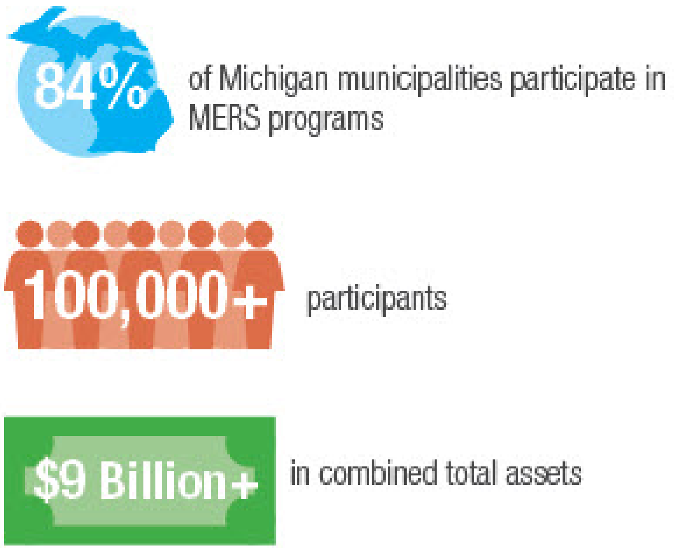
PLANNING RETIREMENT TOGETHER FOR 70 YEARS

MERS
Municipal Employees' Retirement System

About MERS

- The Municipal Employees' Retirement System (MERS) of Michigan is an independent, professional retirement services company that was created to administer the retirement plans for Michigan municipalities on a not-for-profit basis
- The team at MERS is made up of top industry experts who use fiscal best practices to give members peace of mind and security in their retirement



Agenda

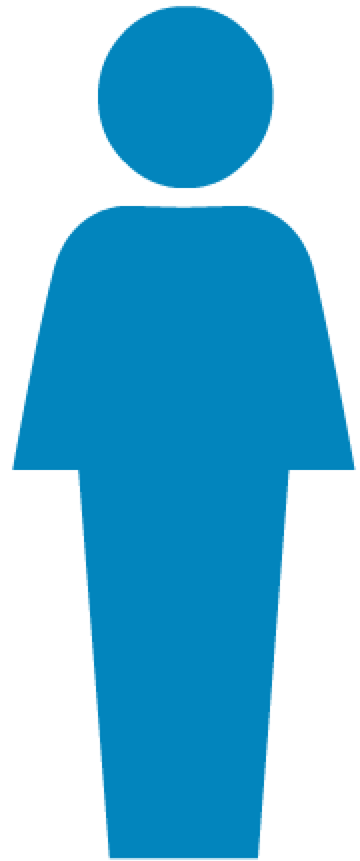
- How Defined Benefit Plans Work
- The Fundamentals of Pension Funding
- Determining Annual Contributions
- 2015 Experience Study & National Trends
- Unfunded Liability

How Defined Benefit Plans Work

Lifetime Benefit for Career Employees

Lifetime Retirement Benefit

"Pension"



Defined Benefit Formula

Final Average Compensation x **Service Credit** x **Benefit Multiplier** = **Annual Benefit**

The benefit formula is comprised of three components:

- ***Final Average Compensation*** is an average of the employee's highest consecutive wages over a period of time, usually three years
- ***Service Credit*** is earned for each month of work that meets the employer's requirements
- The ***Benefit Multiplier*** is a specific percentage adopted by the employer ranging from 1.0% to 2.5%

Calculating the Benefit

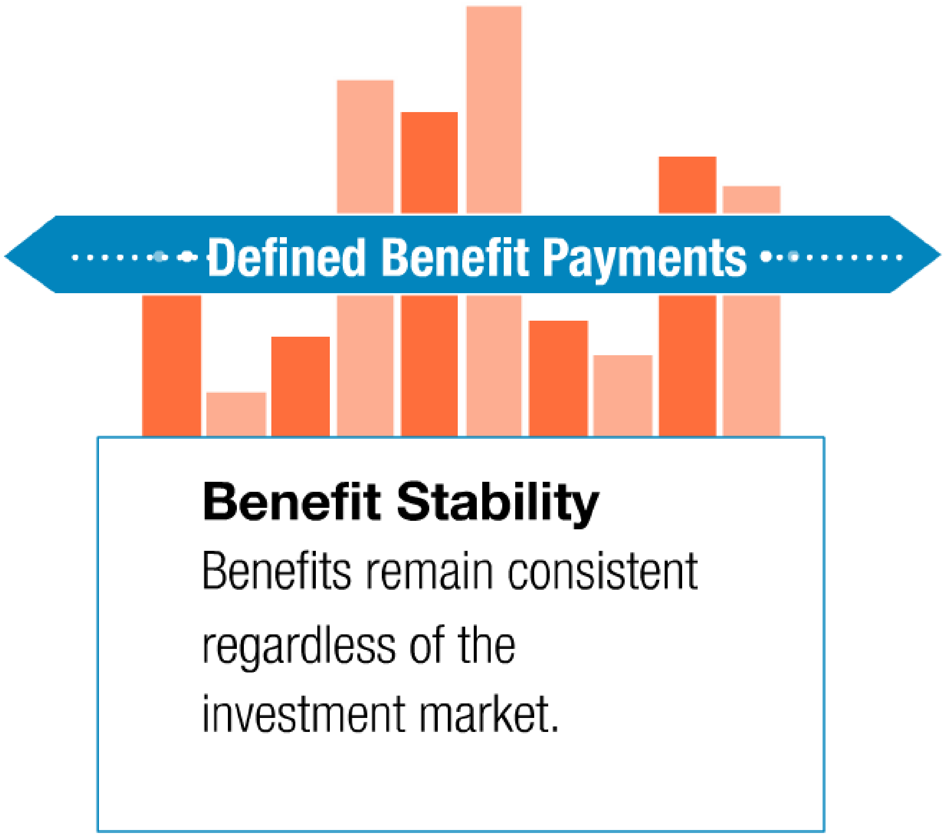
Final Average Compensation	x	Service Credit	x	Benefit Multiplier	=	Annual Benefit

For Example:

$45,000	x	25 years	x	1.5%	=	$16,875/year

Lifetime Benefit Stability

- The calculated benefit will not change with investment market fluctuations
- Retirement benefits of municipal employees are constitutionally protected



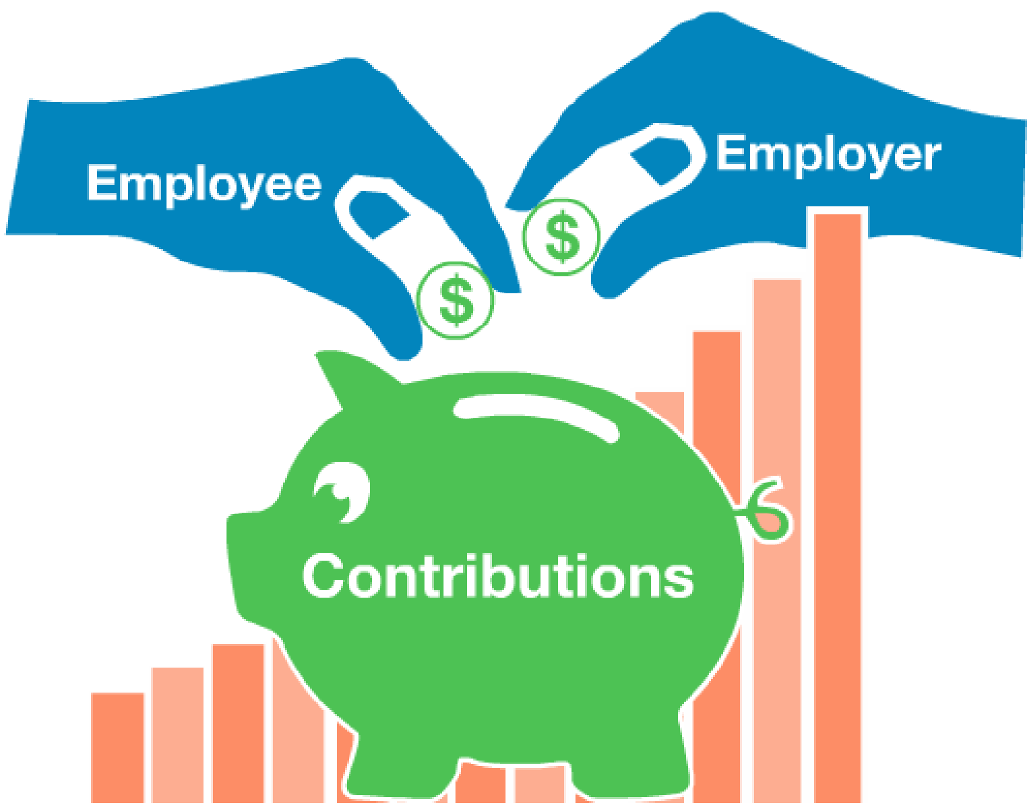
The Fundamentals of Pension Funding

Prefunding the Benefit

- Defined benefit plans are pre-funded during the employee’s career
- Contributions are typically made by both the employee and employer

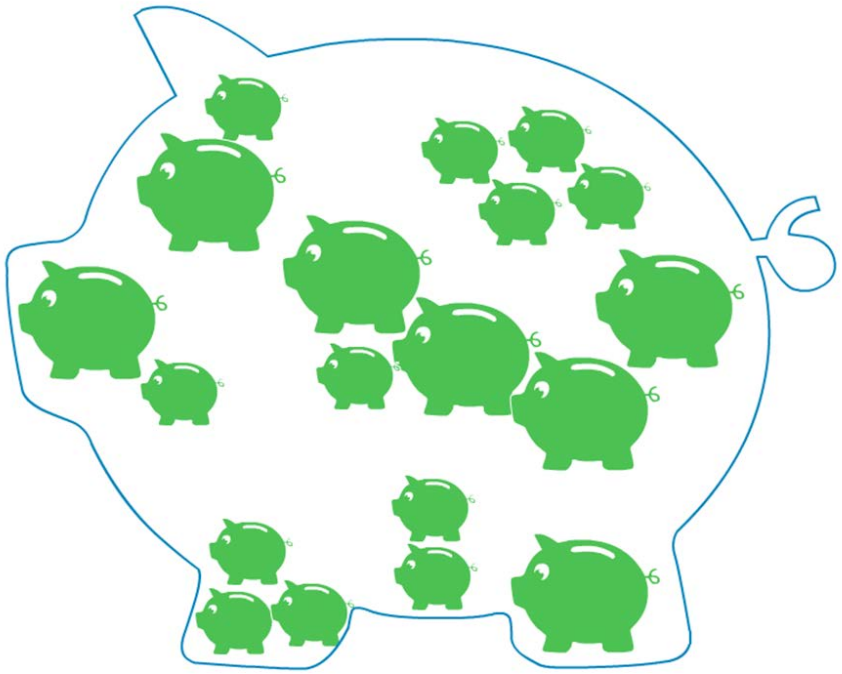
Contributions are Invested Long-Term

- MERS strategically invests the contributions with a prudent long-term approach to provide downside protection with upside participation



Pooling Assets

- MERS pools assets for invest purposes, providing our members the benefit of investing with a $9 billion pool of assets
- Each municipality’s assets are maintained in separate accounts



Investment Earnings

- MERS' investment earnings actually fund more than half of the benefits

Determining Annual Contributions

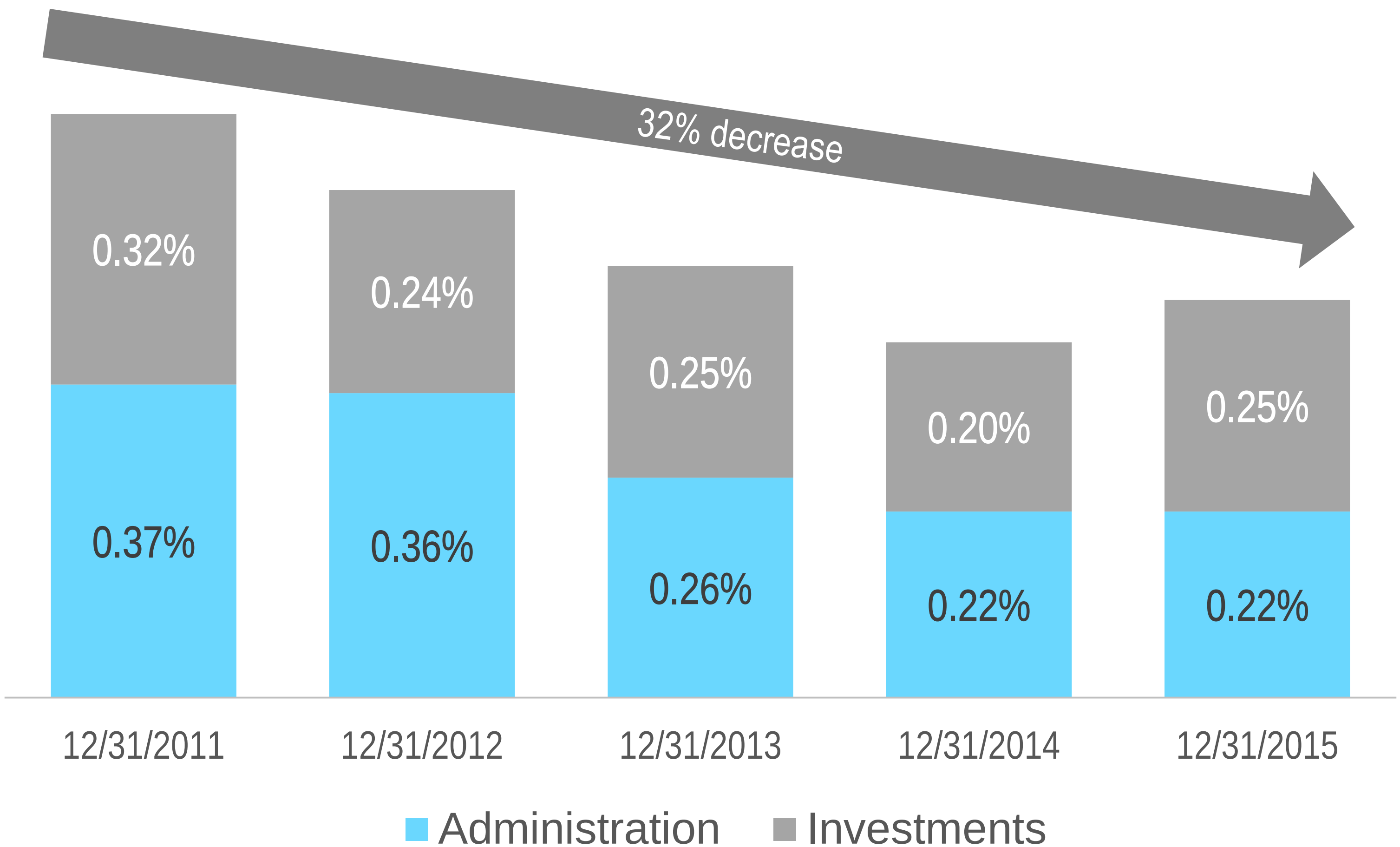
Determining Annual Contributions

- The cost of the plan is determined annually and provided in the Annual Actuarial Valuation
  - Defined benefit plan costs vary by each municipality and depend on the benefit plan design and other plan specific details
  - The ultimate cost will not be known until the last retiree/beneficiary stops drawing
- There are also MERS administrative and investment costs, which are charged to your plan as basis points and are found on your quarterly statements
- MERS administrative and investment costs have been reduced by 32% over the past 5 years

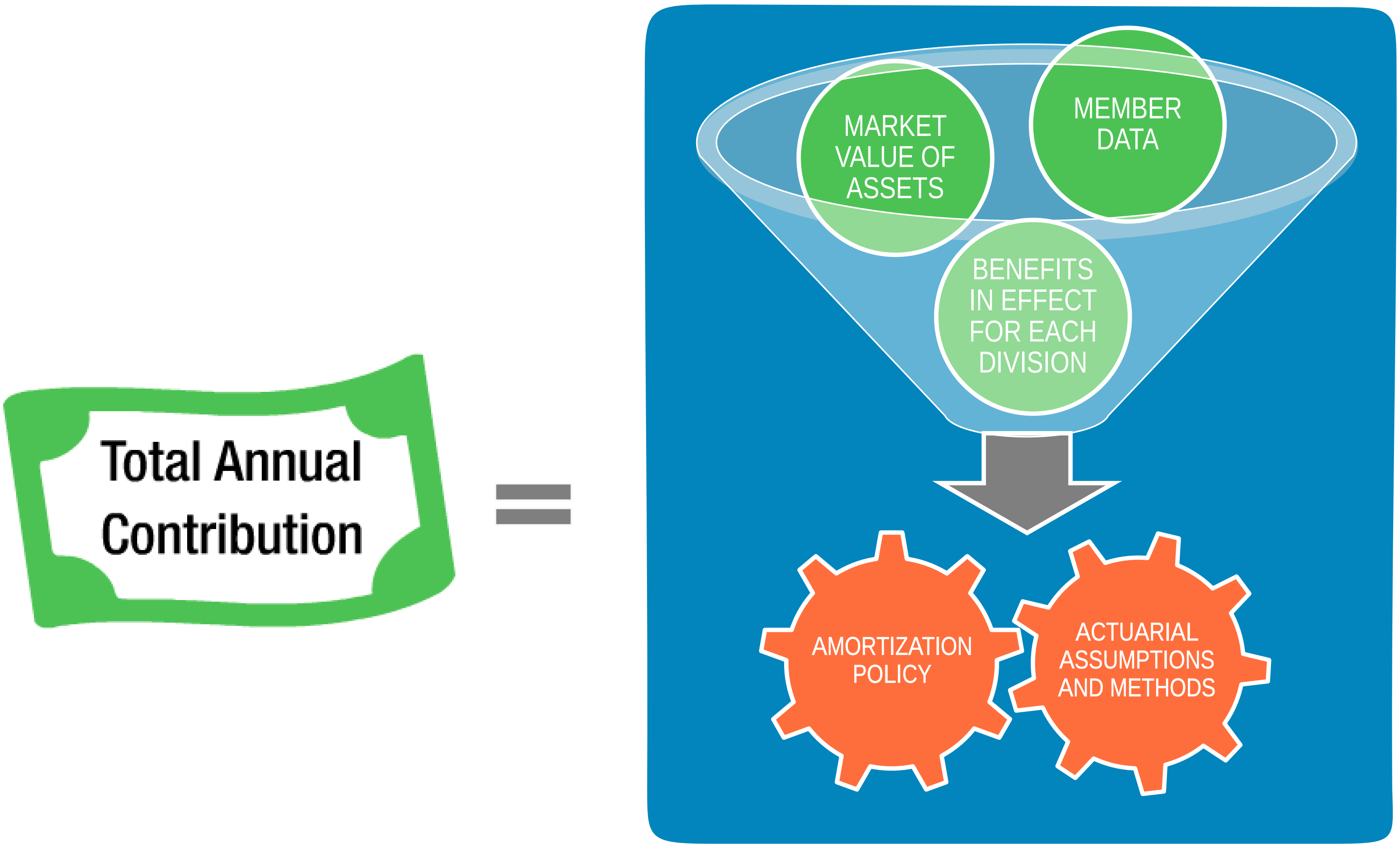
70 YEARS

MERS Defined Benefit Cost Reduction History

5-Year History



Calculating the Total Annual Contribution



Calculating the Total Annual Contribution

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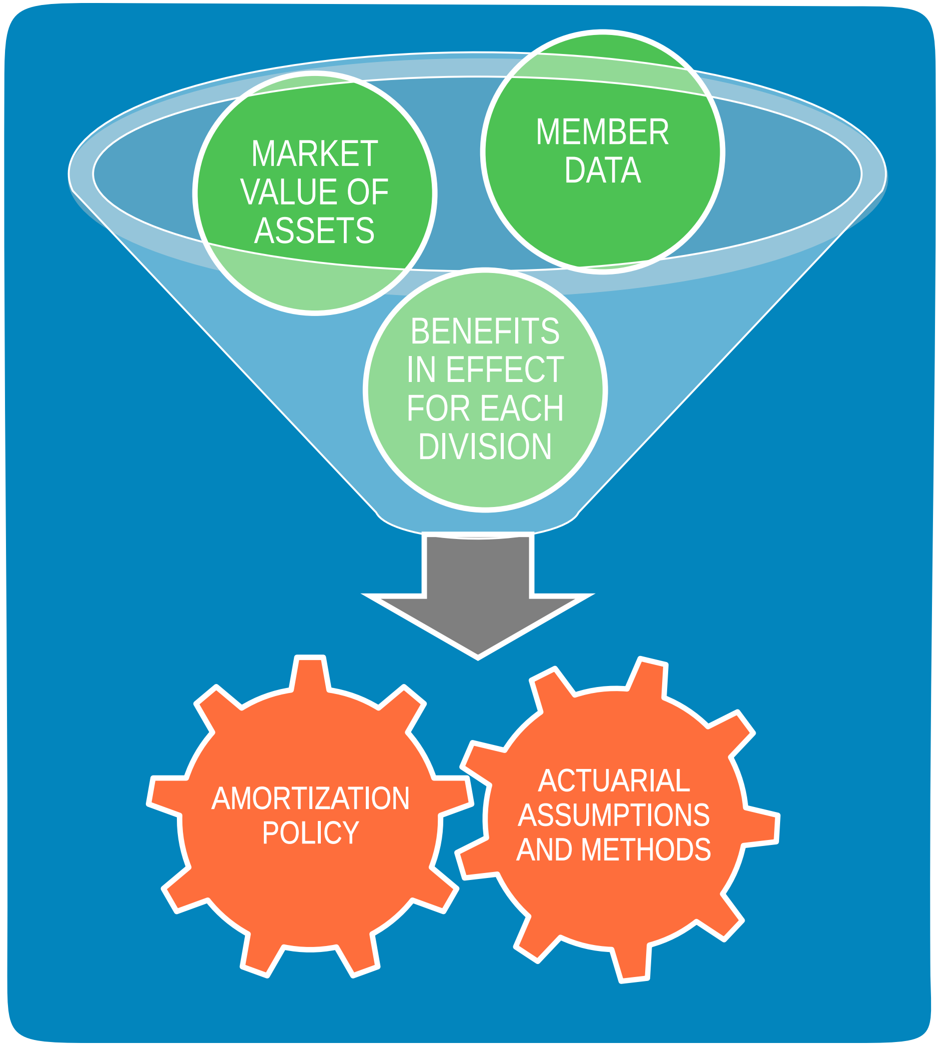

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Employer Contribution

The Employer contribution is made of up two parts:

1. **Employer Normal Cost**– Present value of benefits allocated to the current plan year less any employee contribution
2. **Amortization Payment of Unfunded Accrued Liability**– Payment to reduce any shortfall between liability for past service and assets

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

Employee Contribution

The Employee contribution rate is set by each municipality or division, not by MERS

Average Employee Contribution Rate*

- The average employee contribution rate for MERS municipalities is 5.6%
- For divisions with a standard 2.5% multiplier, the average employee contribution rate is 6.5%

**As of 12/31/2015*

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Experience Study & National Trends

Experience Study

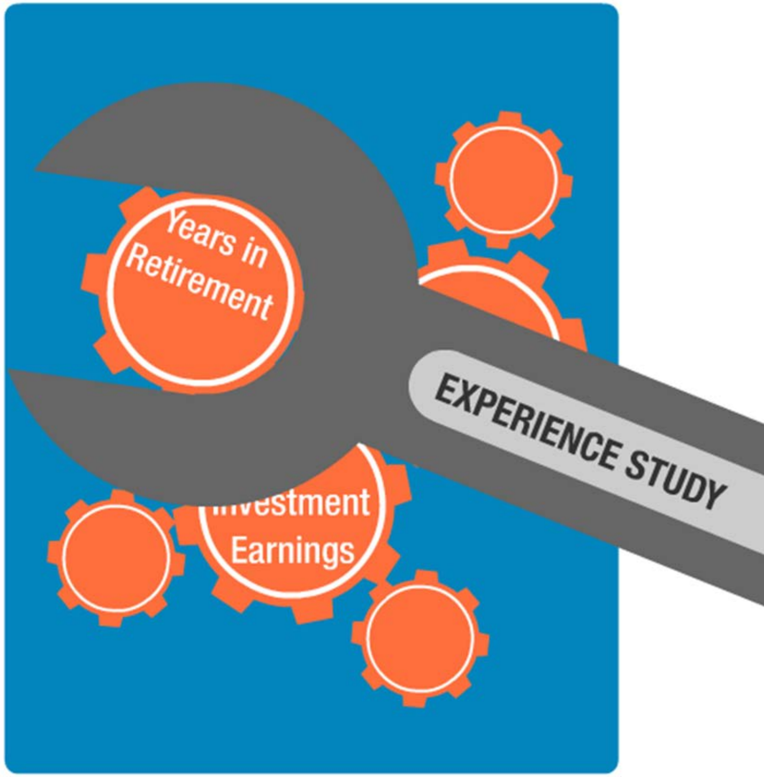
- Part of MERS' fiduciary responsibility
- Conducted with our actuarial firm every five years
- Compares actual experience of the plan with the current assumptions to determine if changes are necessary

Experience Study Goals & Priorities

- Adequacy
  - Ensuring each plan's assets are sufficient to provide for the benefits that are expected to be paid and that each plan is making reasonable progress to achieve full funding
- Intergenerational Equity and Transparency
  - Each generation should incur the cost of benefits for the employees who provide service in that generation, rather than deferring those costs to future employees
  - The funding policy should be easily understood
- Contribution Stability
  - Contribution volatility should be balanced with the commitment to ensure plans are properly funded

Key Changes from Last Experience Study

- The assumed annual rate of **investment return**, net of all expenses, was reduced from 8% to 7.75%
- The **mortality table** was adjusted to reflect longer lifetimes
- The **amortization period was moved to a fixed period** amortization for the 12/31/2014 annual valuations



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

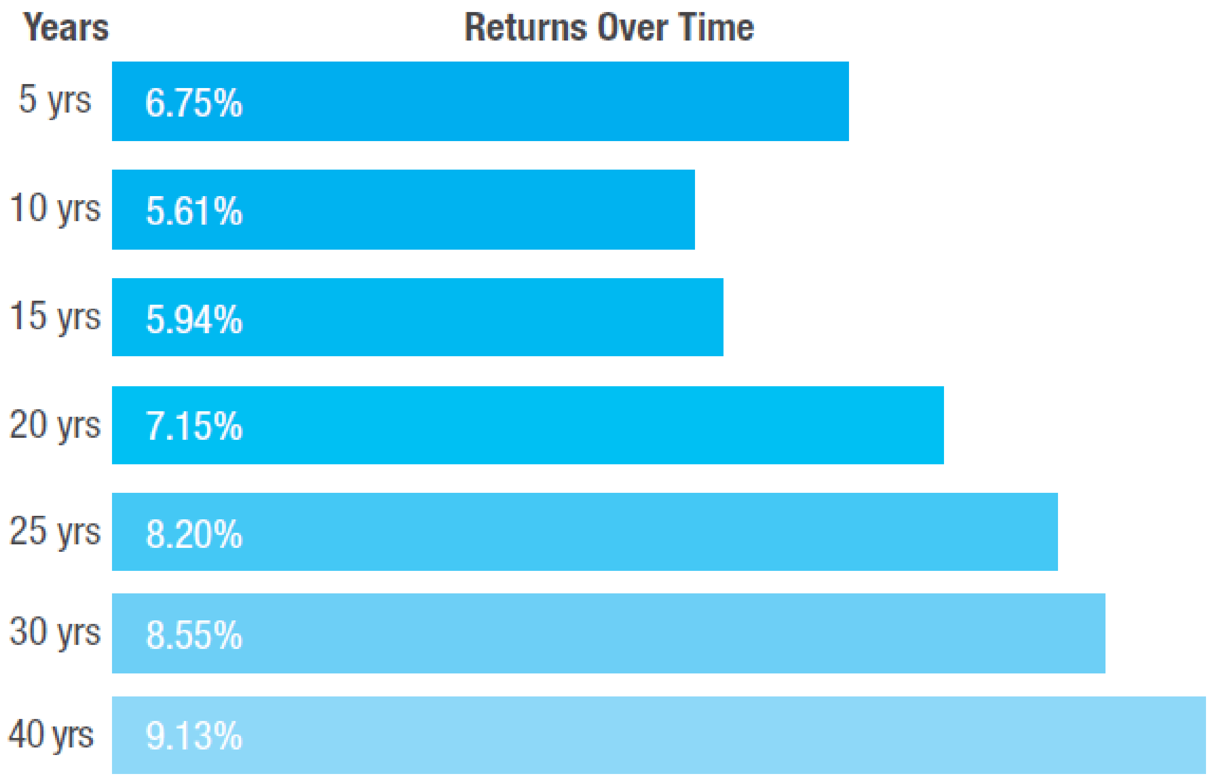
Recent Trends

- Downward trend assumptions about long-term expected rates of return
- Public Fund Survey by the National Association of State Retirement Administrators (NASRA)
  - 127 plans measured
  - More than half have reduced their investment return assumptions since fiscal year 2008
  - The average investment return assumption for 12/31/2015 was 7.62% (down from 8.0% in 2008)

Source: NASRA Issue Brief: Public Pension Plan Investment Return Assumptions, Updated February 2016

MERS Investment History

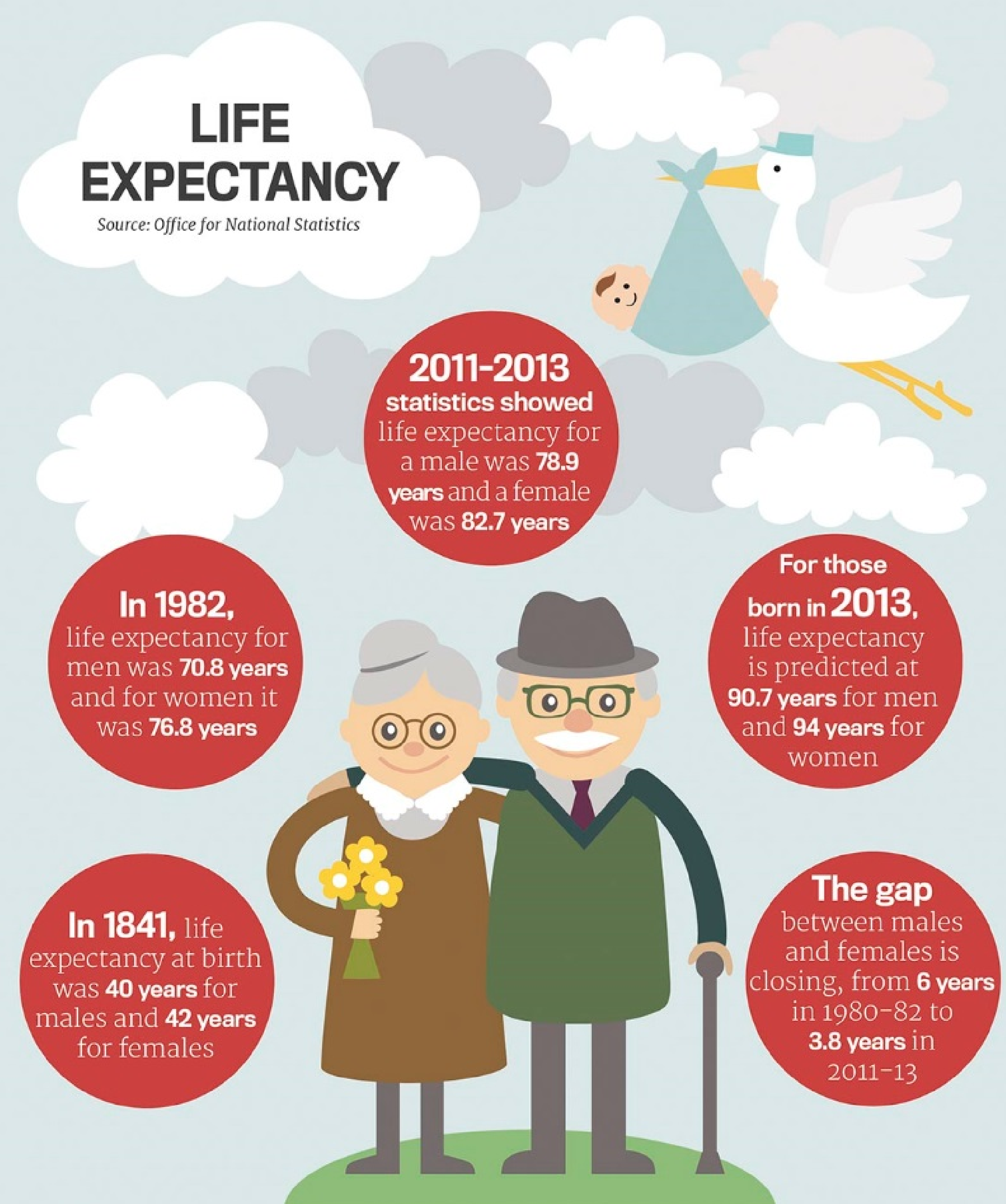
As retirement plans operate over long-term time horizons, it's important to focus on long-term rates rather than any single year



All rates are shown as gross of fees

Impact to MERS

- Historically, MERS has met the 8.0% investment return assumption over the long term
- Since the financial crisis of 2008, the consensus in the public plan investment community is that an 8.0% investment return assumption may be too high
- We think it is still too soon to conclude that recent economic conditions have permanently changed future long-term financial markets
- The MERS Retirement Board determined that it would be prudent to reduce the long-term investment return assumption to 7.75%
- This change increases the likelihood that MERS will meet or exceed our assumption


LIFE EXPECTANCY
Source: Office for National Statistics
2011-2013 statistics showed life expectancy for a male was 78.9 years and a female was 82.7 years
In 1982, life expectancy for men was 70.8 years and for women it was 76.8 years
For those born in 2013, life expectancy is predicted at 90.7 years for men and 94 years for women
In 1841, life expectancy at birth was 40 years for males and 42 years for females
The gap between males and females is closing, from 6 years in 1980-82 to 3.8 years in 2011-13

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Impact to MERS

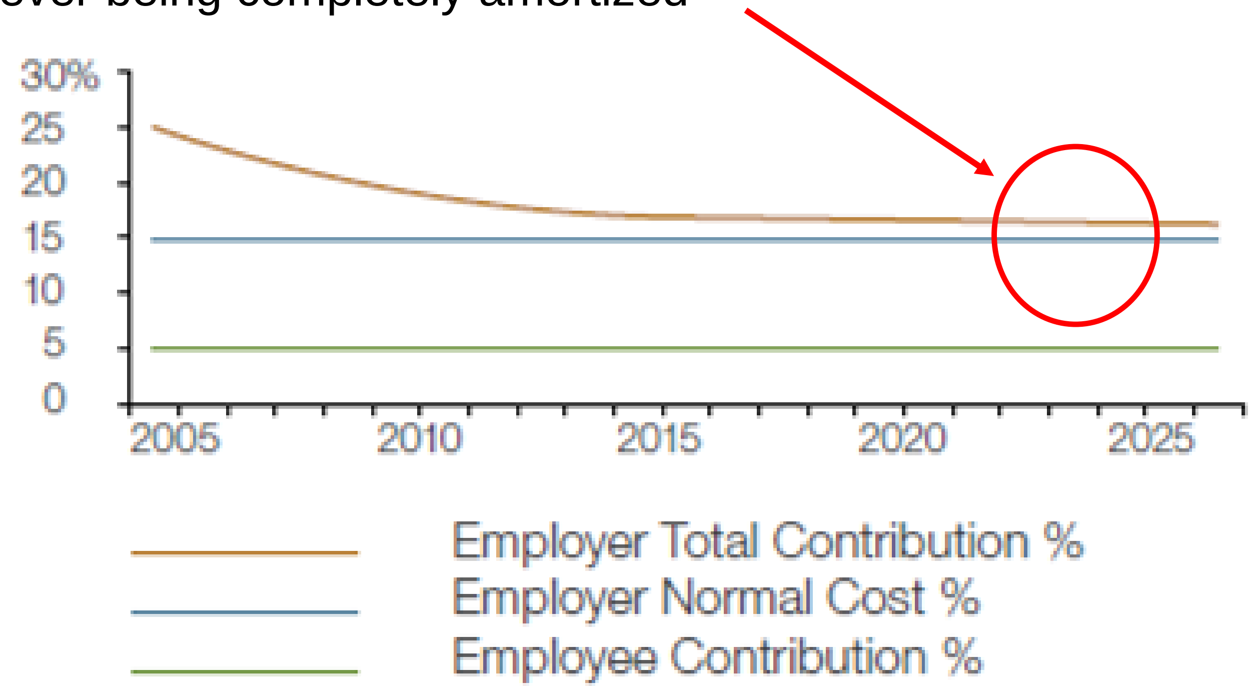
- As with all our assumptions, the mortality assumption is reviewed every five years
- Both of the two previous 5-year experience studies showed that MERS retirees were living ***shorter*** lifetimes than projected by the present mortality assumption
- The new study confirms that MERS retirees are now 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 (UAL)
- 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

Amortization Policy History

- Since 2005 MERS has been decreasing the open division amortization period from a 30 year rolling, to most recently a 20 year rolling amortization
  - Using a rolling period means that each year the UAL will be "refinanced"
  - Results in perpetual negative amortization that can result in the UAL never being completely amortized



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Fixed Amortization

- MERS will continue to reduce the amortization by one year, every year, until any unfunded accrued liability is completely paid off
- Beginning in 2023, future liability gains/losses will be spread over a 15-year fixed period for open divisions

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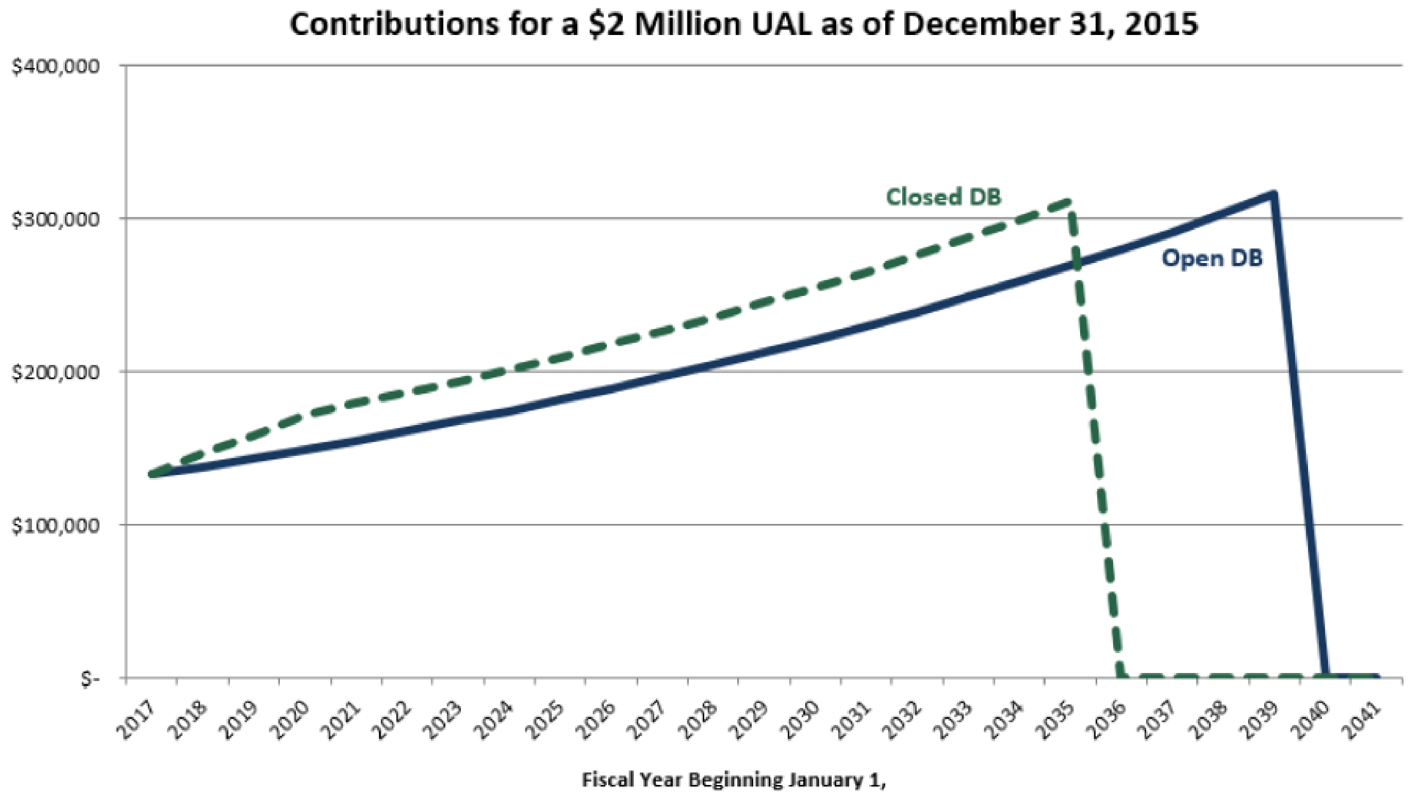
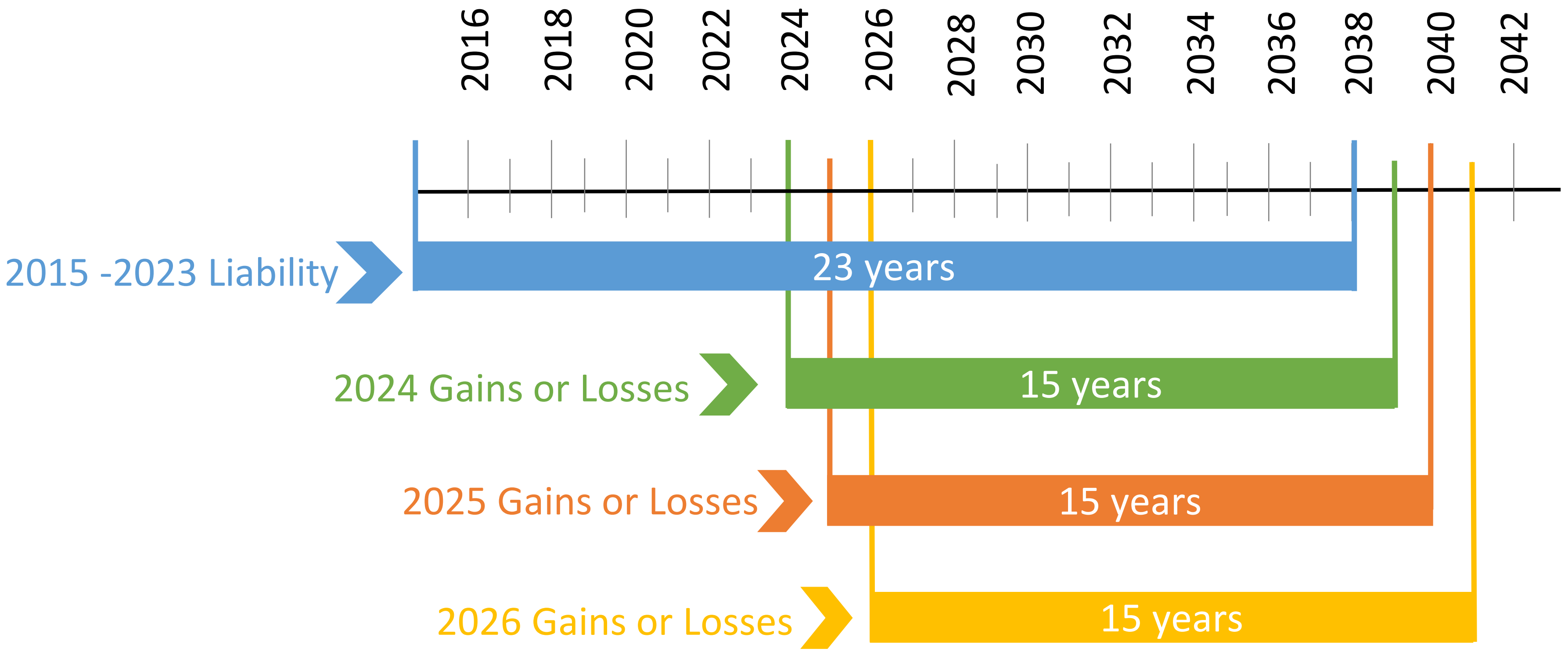
Fixed Amortization, Cont.

- This fundamental shift in policy gives plans a specific date by which all known obligations will be fully funded



Layered Amortization Example

Open Plan Example



GFOA – Best Practices

- Government Finance Officers Association (GFOA) best practices
  - Use fixed (closed) amortization periods
  - Balance equitable allocation of cost among generations with volatility management
  - Never exceed 25 years; 15-20 years
  - Use a layered approach for the various components to be amortized

Full Impact vs. Phase-In

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. Note: Your minimum required contribution is the amount listed under the new assumptions, with phase-in. For comparison purposes, we have included your computed employer contribution if it had been calculated under the previous assumptions.

	Percentage of Payroll				Monthly $ Based on Valuation Payroll			
	New Assumptions		Previous Assumptions		New Assumptions		Previous Assumptions	
	Phase-in	Full Impact			Phase-in	Full Impact		
Valuation Date:	12/31/2015	12/31/2015	12/31/2015	12/31/2014	12/31/2015	12/31/2015	12/31/2015	12/31/2014
Fiscal Year Beginning:	July 1, 2017	July 1, 2017	July 1, 2017	July 1, 2016	July 1, 2017	July 1, 2017	July 1, 2017	July 1, 2016
Division 04 - All Employees	5.43%	6.21%	5.22%	3.47%	$ 4,017	$ 4,593	$ 3,874	$ 3,219
Municipality Total					$ 4,017	$ 4,593	$ 3,874	$ 3,219

Under the new assumptions, both the full impact and the phased in employer contribution requirements are shown in the table above. The phase in allows the employer to spread the increase of the new actuarial assumptions over 5 fiscal years. By default, MERS will invoice you the phased in contribution amount. However, MERS strongly encourages employers to contribute more than the minimum required contribution, including paying the full amount of the impact of the changes, if possible.

Employee contribution rates reflected in the valuations are shown below:

	Employee Contribution Rate	
Valuation Date:	12/31/2015	12/31/2014
Division 04 - All Employees	10.00%	10.00%

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 $ 7,906, instead of $ 4,593.
- To accelerate to a 100% funding ratio in 20 years, estimated monthly employer contributions for the entire employer would be $ 4,963, instead of $ 4,593.

- Contributions based on new and previous assumptions
- Contributions based on Full Impact & Phase-in
- By default, MERS will invoice based on Phase-in figures
- Includes optional accelerated funding information

Alternate Scenarios to Estimate Potential Volatility

12/31/2015 Valuation Results	Assumed Future Annual Smoothed Rate of Investment Return			
	Lower Future Annual Returns		Valuation Assumption	Higher Returns
	5.75%	6.75%	7.75%	8.75%
Accrued Liability	$ 3,806,944	$ 3,344,733	$ 2,960,342	$ 2,641,266
Valuation Assets	$ 2,293,383	$ 2,293,383	$ 2,293,383	$ 2,293,383
Unfunded Accrued Liability	$ 1,513,561	$ 1,051,350	$ 666,959	$ 347,883
Funded Ratio	60%	69%	78%	87%
Monthly Normal Cost	$ 4,733	$ 2,396	$ 666	$ (658)
Monthly Amortization Payment	$ 7,677	$ 5,813	$ 3,927	$ 2,019
Total Employer Contribution[1]	$ 12,410	$ 8,209	$ 4,593	$ 1,361

Each municipality is provided with options as it relates to determining contributions into the plan above and beyond the minimum required amounts ("What If?" scenarios).

70 YEARS

Six Year Projection Scenarios

Valuation Year Ending 12/31	Fiscal Year Beginning 7/1	Actuarial Accrued Liability	Valuation Assets	Funded Percentage	Computed Annual Employer Contribution
7.75% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
WITH 5-YEAR PHASE-IN					
2015	2017	$ 2,960,342	$ 2,293,383	78%	$ 48,204
2016	2018	3,118,829	2,355,151	76%	57,432
2017	2019	3,328,948	2,468,355	74%	67,428
2018	2020	3,549,883	2,590,884	73%	78,360
2019	2021	3,777,227	2,712,950	72%	90,384
2020	2022	4,006,704	2,913,761	73%	94,848
NO 5-YEAR PHASE-IN					
2015	2017	$ 2,960,342	$ 2,293,383	78%	$ 55,116
2016	2018	3,118,829	2,355,151	76%	62,064
2017	2019	3,328,948	2,472,215	74%	70,032
2018	2020	3,549,883	2,601,176	73%	78,900
2019	2021	3,777,227	2,727,490	72%	89,052
2020	2022	4,006,704	2,931,000	73%	93,456
6.75% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
NO 5-YEAR PHASE-IN					
2015	2017	$ 3,344,733	$ 2,293,383	69%	$ 98,508
2016	2018	3,520,523	2,333,206	66%	106,800
2017	2019	3,747,912	2,450,305	65%	115,392
2018	2020	3,986,007	2,601,066	65%	125,076
2019	2021	4,230,284	2,747,340	65%	136,560
2020	2022	4,476,453	2,973,827	66%	142,428
5.75% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
NO 5-YEAR PHASE-IN					
2015	2017	$ 3,806,944	$ 2,293,383	60%	$ 148,920
2016	2018	4,003,536	2,311,257	58%	158,556
2017	2019	4,251,836	2,432,455	57%	168,324
2018	2020	4,510,880	2,612,563	58%	179,484
2019	2021	4,776,034	2,785,997	58%	192,288
2020	2022	5,043,005	3,029,709	60%	201,000

- Provides additional projections based on different market and funding scenarios to assist with this planning
- MERS strongly encourages employers to contribute more than the minimum required contributions

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Market Value Payment

Reported Assets (Market Value)

Table 4

Division	2015 Valuation		2014 Valuation	
	Employer and Retiree[1]	Employee[2]	Employer and Retiree[1]	Employee[2]
01 - [illegible]	$ 865,211	$ 254,584	$ 961,462	$ 235,876
02 - [illegible]	601,336	215,200	579,093	214,131
10 - [illegible]	884,515	257,876	951,151	258,930
11 - [illegible]	1,650	4,041		
Municipality Total	**$ 2,352,712**	**$ 731,701**	**$ 2,491,706**	**$ 708,937**
Combined Reserves	**$ 3,084,413**		**$ 3,200,643**	

1 Reserve for Employer Contributions and Benefit Payments

2 Reserve for Employee Contributions

The December 31, 2015 valuation assets are equal to 1.135382 times the reported market value of assets (compared to 1.059937 as of December 31, 2014). The derivation of valuation assets is described, and detailed calculations of valuation assets are shown, in the Appendix.

Summarizes contributions made over the year for your F65 Treasury reporting

<u>See Comments on Asset Smoothing in Executive Summary of AAV for Additional Detail</u>

If the December 31, 2015, valuation results were based on market value on that date instead of smoothed funding value: i) the funded percent of your entire municipality would be X% (instead of Y%); and ii) your total employer contribution requirement for the fiscal year starting July 1, 2017, would be $ XX,XXX (instead of $ XX,XXX).

70 YEARS

Ready to Learn More about Unfunded Liability?

- MERS works in partnership with our members to ensure that each municipality is making reasonable progress to achieve full funding
- We offer many options to help reduce UAL, with a variety of programs and provisions to fit each municipality's unique needs
- Attend Part 2 - Funding & Plan Design Strategies

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Contacting MERS

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