

# Massachusetts' Skyrocketing Unfunded Pension Liability

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## Conclusions

- From 2003 to Governor Deval Patrick's first major pension reform act in 2009, Massachusetts' unfunded actuarial accrued liability (UAAL) increased by 65 percent.
- After Governor Patrick's second major reform in 2011, UAAL has increased by 113 percent.
- The Commonwealth's pension system was reportedly 79 percent funded in 2008, and only 57 percent funded by 2017.
- In a 2014 study by the Urban Institute, Massachusetts was the only state to receive an 'F' grade for its pension system, attributed to its poor funding ratio and failed commitments to making required contributions.
- The Commonwealth has embarked on various reform efforts, including the 2009 and 2011 acts, aimed at reducing future liability and making the state pension system more sustainable.
- Despite multiple efforts at reforming the state pension system, unfunded liabilities continue to rise and funding ratios continue to decline.
- Massachusetts' legislators have resorted to extending their required contribution schedule to fully fund the state pension system, from 2028 to 2040.
- While the most recent funding schedule (released in 2017) set the full-funding target date at 2037, the last three schedules (released in 2011, 2014, and 2017) have increasingly back-loaded the later years with nearly impossible contribution rates, adding a total of \$45.8 billion in increased future contributions since the 2011 funding schedule was released.
- The sum of payroll that the Commonwealth covers in pension obligations has risen by 45 percent from 2005 to 2017, while unfunded pension obligations increase with it.
- Economic indicators, such as rising GDP growth and positive annual returns according to the Dow Jones Industrial Average, show that the economy of Massachusetts is generally strong. Yet, unfunded pension obligations continue to grow at a rapid pace.

## Recommendations

- The Commonwealth should reconsider Bill H.2930 "An Act to make the public pension system simpler and fairer," introduced in 2011 by State Senator William Brownsberger. The act proposes reforms for the state's pension system that would provide a defined benefit comparable to Social Security for new employees, but also enroll public employees in a defined-contribution pension plan to build a supplemental retirement benefit. This reform would decrease incurred liabilities while maintaining a retirement plan for new hires.
- The Commonwealth should house records of all state and municipal pension system funding schedules in a single directory, as they are approved by the legislature, as well as records of other legislation regarding transfers of extraneous funding toward the unfunded liabilities.
- The Massachusetts Legislature has continually extended the deadline for a fully funded pension system since the funding schedule was created in 1989. Recently approved schedules do not change the end date, but the amount of payments in the final years of the schedule has increased dramatically. The state should stop delaying the elimination of unfunded pension liabilities and back-loading the repayment schedule, and instead find solutions to increase funding or decrease future costs.

## Executive Summary

A 2018 report by Moody's Analytics found that Massachusetts has one of the highest per capita debt levels in the nation, with its population growing at half the rate of the U.S. as a whole, an aging workforce, and massive unfunded future pension obligations towards which the state is making insufficient payments. The firm warned that "Massachusetts' economy is strong, but a slowdown may be on the horizon."<sup>1</sup>

In plain terms, the long-term fiscal health of the Commonwealth is being compromised by a public pension system that is in deep trouble. Pension obligation liabilities have skyrocketed, nearly tripling since 2003. Since initial reforms in 1988, the Commonwealth has attempted to reduce pension liabilities and eliminate provisions that increased normal costs and future obligations, and allowed rampant abuses. On the legislative front, the most comprehensive reform came from a series of laws passed under Governor Deval Patrick, which enacted provisions to decrease abuses and rolled back some benefits for active members of the pension system, current retirees, and new employees. Yet in 2016, Massachusetts still ranked 11<sup>th</sup> in the U.S. for highest unfunded pension liability per capita.

In addition to enacted reforms, the Executive Office of Administration and Finance is legally obligated to release a schedule for full-funding of the Commonwealth pension system. The legislature approved schedules that extended funding schedules' target date from 2023 to 2025 in 2006, and again to 2040 in 2011. Since 2011, the deadline for fully funding the pension system has been set at the year 2037, apparently indicating that the state is keeping up with transfer payments toward reducing pension liability. However, in the 2014 and 2017 funding schedules, the legislature approved increasing the amount of payments to be made each year, adding a total of \$45.8 billion in future contributions to 2011 payment levels and back-end-loading the bulk of the increases to later years. Even though the target end date has remained the same, payments scheduled to be made in the out-years have ballooned.

In order to tackle the crisis of rising unfunded pension liability, the Commonwealth should embark on comprehensive reform of the State Employee Retirement System and the Massachusetts Teachers Retirement System. State Senator William Brownsberger proposed reforms in 2011 that would continue to simplify the pension system and remove costly loopholes. His bill, although not enacted, proposed developing a hybrid model for the Massachusetts state pension system by combining elements of a defined-benefit and a defined-contribution system.

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## Background

Massachusetts established a government pension plan for teachers and state employees in 1911, before creation of the federal Social Security system.<sup>2</sup> When Congress enacted Social Security in 1935, it included workers who were employed in either commerce or industry, but excluded federal, state, and local government employees; domestic workers; the self-employed; non-profit employees; and professionals including doctors, lawyers, and clergy.<sup>3</sup> In 1951, Congress gave states the option to extend Social Security coverage to state and local government workers, but did not make it mandatory. As a result, many states, including Massachusetts, elected not to join Social Security and to instead continue with existing state-level pension programs.

Concerned that too many state employees were retiring without pensions sufficient to support them, Congress passed a law in 1991 extending Social Security on a mandatory basis to most state and local employees not covered by an agreement or a Social Security-equivalent public pension system.<sup>4</sup>

Currently, the Commonwealth and 14 other states that have public pension plans pre-dating Social Security are grandfathered so some or all public employers and employees do not contribute to Social Security.<sup>5</sup> In Massachusetts, approximately 96 percent of public employees are

exempt from Social Security, with the principal exceptions being those who work at the MBTA and participate in both the MBTA pension system and Social Security.<sup>6, 7, 8, 9</sup>

The September 2009 Report of the Special Commission to Study the Massachusetts Contributory Retirement System recommended the following:

Massachusetts should continue to oppose Social Security coverage of its public employees because the costs would exceed the benefits. While Massachusetts employers and employees each would be required to pay 6.2 percent of payroll to Social Security, only three quarters of that amount would pay for benefits; at least one quarter would go to cover Social Security's legacy costs, associated with having provided benefits in excess of Commonwealth of Massachusetts Retirement Systems, Actuarial Valuation Report, January 1, 2008 contributions to early generations.<sup>10</sup>

This means that for the overwhelming majority of its employees, Massachusetts does not pay the 6.2 percent payroll contribution that other state governments pay into Social Security Old-Age and Survivors Insurance and Disability Insurance, nor do its state employees pay a 6.2 percent employee share. Instead, all employee and employer contributions go exclusively to Massachusetts' stand-alone pension systems.

This structure makes it easier for both public employees and employers to afford their respective shares of pension contributions without having to contribute an additional 6.2 percent of each paycheck to Social Security. The major disadvantage is that the retirees do not receive Social Security benefits upon retirement, which means state pension benefits alone have to replace what otherwise would have been combined state pension and Social Security benefits. For states that participate in the Social Security system, state pension benefits are typically scaled down so the combination of state pension and Social Security provides the desired benefits. In Massachusetts, state pension benefits carry the full load.

Until 1988, Massachusetts public employers funded their pension systems on a “pay as you go” basis, which was sufficient to make required payments to existing retirees but insufficient to fund future benefits for current employees. In 1988, the legislature changed this by establishing a funding schedule to pay down the previously unfunded liabilities that had accrued from 1937 to 1988. The target deadline established at that time to achieve full-funding status was 2028.<sup>11, 12, 13</sup> In 2010, the legislature passed an extension of the pension liability funding schedule to 2040.<sup>14</sup>

### How do Massachusetts' pension funding problems compare to those of other states?

Pension liabilities and costs have skyrocketed in the U.S., and state and local governments have struggled to maintain sufficient reserve funds to pay for actuarially determined future obligations. Awareness of the true size of unfunded public pension obligations of state and local governments has been facilitated by the Government Accounting Standards Board (GASB), a private sector organization created in 1984 to establish and update generally accepted accounting principles (also known as GAAP) for state and local governments, or public-sector accounting.<sup>15, 16</sup> Over the years, GASB required increasing disclosure regarding public pensions plans. In 2012, GASB updated its guidance for the reporting and measurement of public pension plan data, and in fiscal year 2015, state and local governments began to adopt the new standards, known as GASB 67 and GASB 68, in their comprehensive annual financial reports (CAFRs).

These new standards required state and local governments to begin reporting unfunded pension liabilities on their annual balance sheets in accordance with revised, stricter, and more uniform rules.<sup>17</sup> Analysis of a sample of 126 pension plans by Alicia Munnell of the Center of Retirement Research at Boston College projected that the stricter GASB standards in GASB 67 would cause reported funding ratios to drop and reported net pension liabilities to increase.<sup>18</sup> In 2015,

implementation of GASB 68 caused increases in total liabilities of state pension plans.<sup>19</sup> Because of this, many government leaders and taxpayers have come to the sobering realization that the magnitude of unfunded liabilities is greater than previously known.

From 2003 to 2017, the unfunded pension liability of Massachusetts' three state retirement systems (State Employees' Retirement System, Teachers' Retirement System, and Boston Teachers' Retirement System) grew from \$13.4 billion to \$39.6 billion, an increase of 196 percent. In 2016, Massachusetts was 11<sup>th</sup>-worst among the states in unfunded pension liability per capita at \$5,642, compared to the 50-state average of \$4,195, according to data published by the Pew Charitable Trust, shown in Figure 1.<sup>20</sup> The five states with the worst per capita unfunded liability were New Jersey at \$18,739, Illinois at \$10,998, Alaska at \$10,719, Connecticut at \$10,439, and Kentucky at \$9,878. The states with the least unfunded liability were Wisconsin at \$148, South Dakota at \$392, Tennessee at \$408, Nebraska at \$795, and New York at \$958. Of the six New England states, Connecticut ranked worst by far at \$10,439 per capita, followed by Massachusetts at \$5,642, Rhode Island at \$4,863, New Hampshire at \$4,018, Vermont at \$3,369, and Maine at \$2,737.

### What Have the State Legislature and Governor Done to Rein in Spiraling Unfunded Pension Liability?

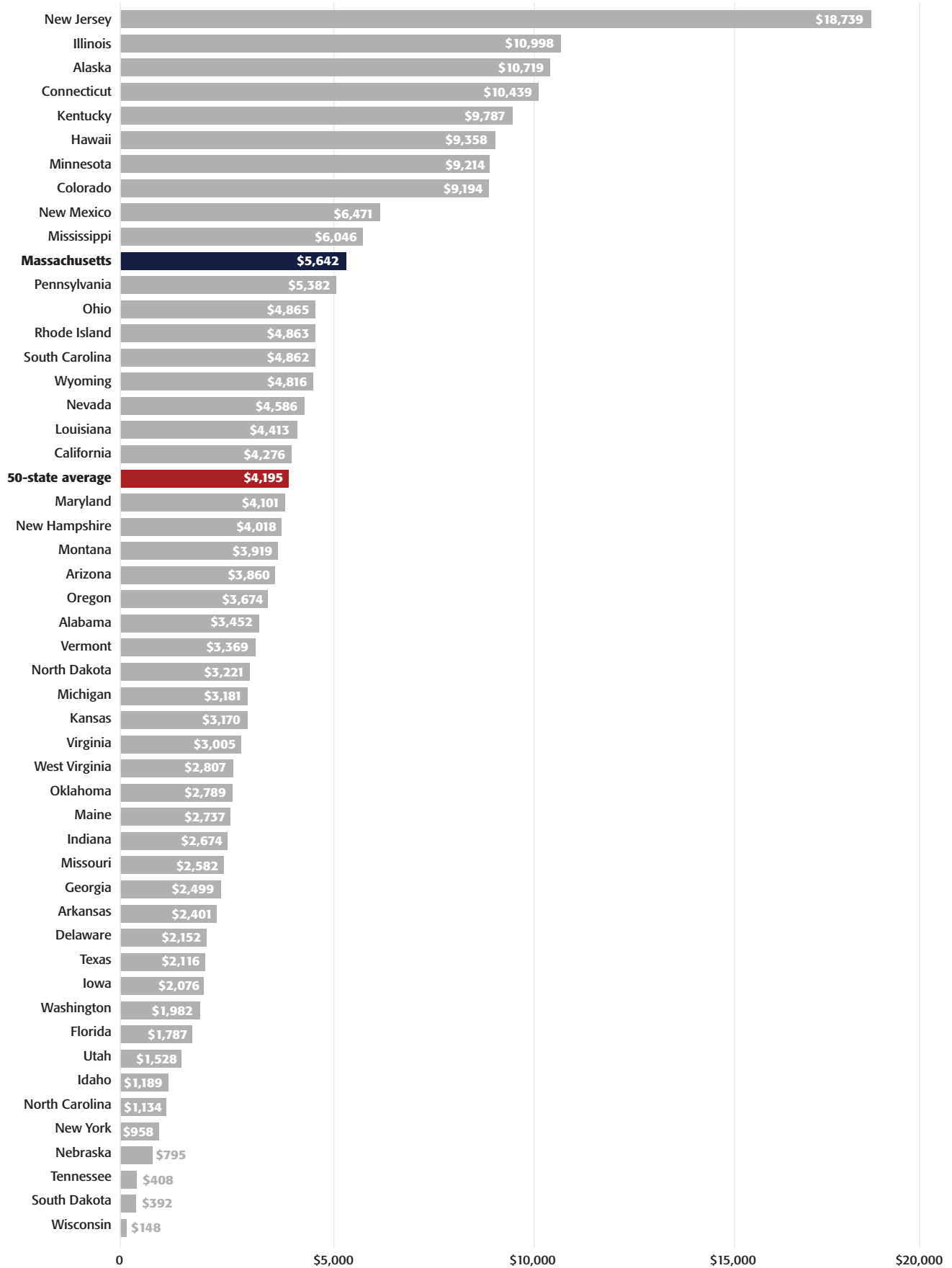
Between 2003 and 2009, unfunded pension liability of Massachusetts' retirement systems increased by 65 percent, from \$13.4 billion to \$22.1 billion. To address this, the state legislature enacted significant reforms in 2009 and 2011. As shown in Figure 3, the unfunded liability initially dropped from \$22.1 billion in 2009 to \$18.6 billion in 2011, although many factors were at play. Since then, the Commonwealth's unfunded actuarial accrued liability (UAAL) has climbed dramatically, rising from \$18.6 billion in 2011 to \$39.6 billion in 2017. Stricter reporting standards included in GASB 67 and GASB 68 contributed substantially to this increase, as well as the state's reduction of the assumed annual rate of return on investments included the actuarial valuation of state pension plans, which was dropped from 8.5 percent in the 2010 actuarial valuation to 8.0 percent in the 2013 valuation and to 7.5 percent in the 2016 valuation.

The state has embarked on two major pension reform efforts in the past decade, in 2009 and again in 2011, which Governor Deval Patrick dubbed Pension Reform 1 and Pension Reform 2.<sup>21, 22</sup>

The first initiative was enacted in June of 2009, when Governor Patrick and the Massachusetts Legislature enacted Chapter 21 of the Acts of 2009,<sup>23</sup> “An Act Providing

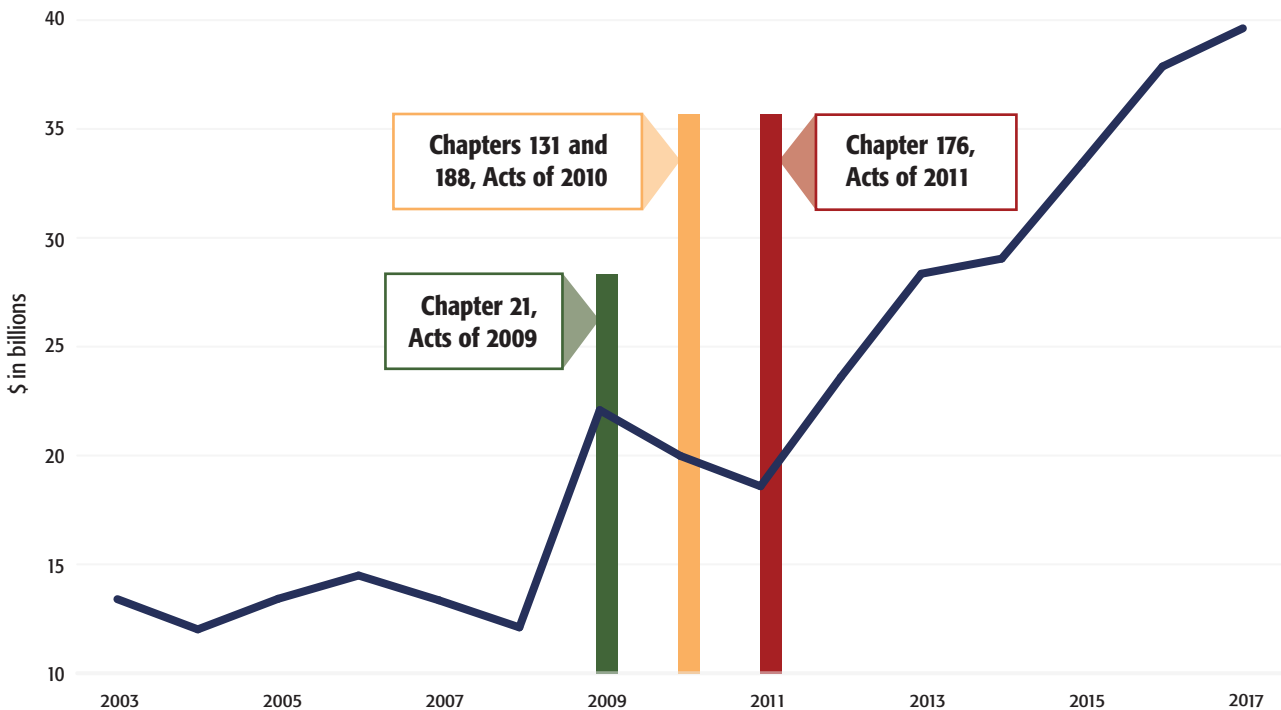
**From 2003 to 2017, the unfunded pension liability of Massachusetts' three state retirement systems grew from \$13.4 billion to \$39.6 billion, an increase of 196 percent.**

Figure 1. Unfunded pension liability per capita of U.S. states (2016)



Source: "The State Pension Funding Gap: 2016", Pew Charitable Trust, April 12, 2018.

Figure 2. Increase in unfunded actuarial accrued liability (UAAL), 2003–2017.



Responsible Reforms in the Pension System.” These reforms came largely in response to public outcry arising from instances cited in a series of 16 investigative news articles published by *The Boston Globe* between April 2008 and June 2009 that documented cases of abuse within the state pension system that had allowed elected or appointed officials to receive pensions that the public deemed excessive. Chapter 21 included the following changes<sup>24</sup>:

- Elimination of a provision that allowed state elected officials to claim eligibility for a year of service for working as little as one day in the year of their retirement;
- Elimination of a provision that allowed state elected officials to claim a “termination allowance” when failing to be re-nominated or re-elected to an elected position;
- Elimination of the “king for a day” practice of paying higher pension benefits on the basis of a short-term temporary assignment to a higher-salaried supervisory position;
- Elimination of provisions that allowed some state employees to gain credit for service in non-compensated positions or in positions paying less than \$5,000 per year;
- Clarification of the “dual service” pension allowance, to prohibit individuals from combining compensation from multiple eligible positions to increase pension payouts;
- Increase of the vesting requirement for elected officials from six to ten years;

- Elimination of a provision that allowed certain eligible retirees to earn a full salary while also receiving pension benefits.

Following enactment of Chapter 21 of the Acts of 2009, the Special Commission to Study the Massachusetts Contributory Retirement Systems submitted its final report on October 7, 2009 that “addressed the fundamental structure of the system to see if it meets the needs of today’s employees and the employing governments, and provides transparency, predictability, and consistency in the calculation, determination, and funding of retirement benefits.”<sup>25</sup> The 72-page report presented a comprehensive and detailed analysis of the challenges that faced the state retirement system in the aftermath of passage of the 2009 reform.

The next two initiatives, responsive in large part to the findings and recommendations of the special commission, were directed at “any pension system,” including the state employees, state teachers, and municipal systems. The full provisions were included in outside sections of the FY2011 state budget, and also presented in Chapter 131 of the Acts of 2010, and included, among others<sup>26, 27</sup>:

- **Cap on Pension Earnings** - Establishes a cap of 64 percent of the federal limitation of \$163,200 on the amount that will be considered “regular compensation” for contributions and for calculation of the retirement allowances for persons who become members of a System after January 1, 2011;



- **Interest Rate on Returned Retirement Deductions** - For those who became members after January 1, 1984, the annual rate of interest rate that will be paid when a member voluntarily withdraws his or her contributions with less than 120 months (10 years) of creditable service will be 3 percent;
- **Supplemental Pension Allowance to Surviving Spouses of Disabled Employees** - Establishes a local option to increase the benefit from \$6,000 to \$9,000 and increases the benefit to members of the teachers and state employees' retirement system from \$6,000 to \$9,000;<sup>28</sup>
- **Definition of Wages for Retirement** - Disallows counting clothing allowances as regular compensation after June 30, 2012.

Later in 2010, the enactment of Chapter 188 of the Acts of 2010 institutes reforms to provide "municipal relief" after a recent recession. These changes mostly affected Massachusetts' municipal pension systems:

- Introduced biennial actuarial valuations of the state's retirement systems;
- Introduced funding schedules for municipalities to set targets for fully funding their pension systems by 2040;
- Allowed for increases in cost-of-living adjustments by the board of any of the Massachusetts retirement systems, subject to a board vote and legislative approval;
- Established an Early Retirement Incentive Program (ERIP) for current active members with 20 or more years of service in municipal retirement systems. This incentive program allowed certain state employees to add five years of creditable service, age, or a combination of the two to reach eligibility for retirement and certain levels of pension benefits.<sup>29</sup>

The next and most comprehensive reform came on November 18, 2011, when Governor Patrick signed Chapter 176 of the Acts of 2011, "An Act Providing for Pension Reform and Benefit Modernization."<sup>30</sup> The law included rollbacks for active members of the pension system, current retirees, and employees hired after April 2, 2012.<sup>31, 32, 33</sup>

For active employees, the biggest reform was the introduction of anti-salary spiking provisions. Previously, the calculation of an individual's future pension earnings could increase substantially due to a "spike" in earnings. Chapter 176 instituted two provisions that modified how average compensation is calculated for employees hired before April 2, 2012 and for those hired after, as follows:

- If the rate of regular compensation increases by more than 100 percent between any two consecutive years in a member's last five years of service, then their retirement

benefit must be calculated based on the average compensation of this five-year period, rather than an average compensation during a three-year (36-month) period.

- To determine the three-year (36-month) average, a retirement board cannot include any year's compensation that is greater than 10 percent of the average of the two previous years.<sup>34</sup>

Another change pertained to individuals who re-enter public service after having taken a refund of previous employee pension contributions and who wish to buy back eligible service time. The new law established interest charges on the repayment of employee pension contributions: individuals who re-enter public service have one year to buy back any refunds for pension contributions they previously received upon exiting public service at the buy-back interest rate of 4 percent. Any buybacks after the one-year period are subject to an interest rate equal to the assumed actuarial rate, which was 8 percent at the time, but has since been reduced to 7.5 percent.

Another change was to prevent a member from receiving a retirement allowance based upon a salary that was intentionally concealed from or intentionally misreported to the Commonwealth, or any political subdivision, district or authority of the Commonwealth, as determined by PERAC.<sup>35</sup>

For current state retirees, the 2011 changes reflected a general increase in benefits for which the state accrued liability:

- Cost-of-living adjustments are now based on the first \$13,000 of pensionable earnings instead of the first \$12,000.
- Annual retirement earnings limits increased, allowing retirees to earn an additional \$15,000 beyond current limits after their first year of retirement.
- The minimum annual pension for retirees with 25 or more years of eligible service increased from \$10,000 to \$15,000.
- The minimum benefit to a surviving spouse of a member who dies while in service increased from \$250 to \$500 per month.
- Provided that same-sex married couples could now opt in to receive a "Joint and Last Survivor Allowance." This provision allows individuals to receive a lesser retirement allowance in their lifetime, and two-thirds of this allowance would continue to be paid to his or her spouse or children between him/her and spouse.<sup>36</sup>

**The most comprehensive reform came in 2011, when Governor Patrick signed 'An Act Providing for Pension Reform and Benefit Modernization.'**

Figure 3. Calculating annual pension benefits before and after 2011 pension reforms.

AGE AT RETIREMENT	YEARS OF SERVICE	AVERAGE 3 YR WAGES	AVERAGE 5 YR WAGES	Hired before-2011 Pension Reform		Hired after-2011 Pension Reform	
65	32	\$90,000	\$81,000	80.0%	\$72,000	68.0%	\$55,080
60	27	\$80,000	\$72,000	54.0%	\$43,200	39.2%	\$28,224
55	22	\$70,000	\$63,000	33.0%	\$23,100	N.A.	N.A.
50	20	\$60,000	\$54,000	20.0%	\$12,000	N.A.	N.A.

For new employees hired on or after April 2, 2012, reforms were aimed at reducing the state pension system's total liability.

- The minimum retirement age increased from 55 to 60 for employees in Groups 1 and 2, and from 45 to 50 for employees in Group 4.
- Age factors (used to calculate pension benefits) changed. Previously, a member achieved a full-retirement age factor of 2.5 percent upon retiring at age 65. Now, members must work until age 67 to get this age factor, which acts as a multiplier when calculating annual pension benefits [i.e. annual benefit = (age factor)\*(years of service)\*(five-year wage average)]. As a result, retiring at 65 would now result in a slightly lower age factor to be used in calculating pension benefits. Figure 3 below shows the reduction in pension benefits for four hypothetical retiring members as a result of this major reform. For example, under old pension law, a member who retired at age 65 with 30 years of creditable service, and a three-year salary average of \$90,000 would receive an annual benefit of \$72,000. After the 2011 reforms, this same member would have pension benefits calculated with a lower age factor, and the new five-year salary average totaling \$81,000, receiving only \$55,080 in annual pension.<sup>37</sup>
- For new teachers, the contribution rate decreased from 11 percent to 8 percent for those accruing at least 30 years of creditable service.<sup>38</sup>
- For new members, the 20-year deferred vested retirement was eliminated.<sup>39</sup>
- The salary period used to calculate future retirement benefits was extended from three years to five years.

Since the major reform in 2011, there have been several other notable changes to the Commonwealth employees' and teachers' retirement systems.

Section 58 of Chapter 118 of the Acts of 2012 added language to the 2011 same-sex option change, requiring that the retirement board responsible for an individual who may change his or her retirement allowance option from a lump-sum to an Option C "joint and last survivor allowance" may adjust the payments made to that individual or arrange for

repayments, such that the board does not pay over the equivalent of the individual opting for the spouse/last survivor allowance for his/her entire retirement. This situation would occur in the event that an individual had opted for higher retirement allowance options prior to this same-sex marriage option change, where now they would be receiving a lesser allowance, and may need to adjust retirement allowance earnings up to that point.<sup>40, 41, 42</sup>

Chapter 139 of the Acts of 2012 changed the amount of the benefit paid to the widow of a state or local pension system member. The original benefit was specified at \$6,000, with supplemental allowance totaling \$9,000 according to M.G.L. c. 32, §101. This new law raised the benefit to \$12,000 for local or municipal pension systems which approved the change. This law also concluded that the state employee and teachers' pension systems would adopt the new benefit level.<sup>43, 44, 45</sup>

Chapter 165 of the Acts of 2014 included two major changes to the state retirement systems, in the Dual Member and Anti-Salary Spiking provisions<sup>46, 47</sup>:

- **Dual Member Provision** (Section 67)<sup>48</sup>:
  - Service in two or more governmental units for which a member is receiving regular compensation must overlap for longer than 60 days for the member to be considered a "dual member" and receive a superannuation retirement allowance.
  - To be considered a "dual member," one must be compensated by \$5,000 or more annually.
  - The dual member law must apply to only the five years of creditable service prior to an individual's superannuation retirement.
- **Anti-Spiking provisions** (Section 68)<sup>49</sup>:
  - This amendment to the anti-salary spiking provision of Chapter 176 of the Acts of 2011 specifies that salaries that are specified by law, including those pertaining to elected and appointed officials, are not affected by the anti-spiking provisions now codified in M.G.L. c. 32, §5(2)(f)

Chapter 77 of the Acts of 2016 revised survivors' pension benefits by protecting ex-spouses' rights to retirement allowances when a member chooses the Option C "joint and last

survivor allowance,” as described in Chapter 118 in the Acts of 2012, in cases where the member remarried and subsequently died from an injury which led to him or her retiring for accidental disability (M.G.L. Ch. 32, §9). Chapter 77 allows the former spouse to be paid the entire Option C benefit as long as s/he was the named beneficiary at the time the member chose this pension allowance option. In this case, the current spouse would only be paid the difference between the Option C benefit and the accidental disability benefit. However, if the former spouse dies before the current spouse, the current spouse could collect the entire accidental disability benefit.<sup>50,51</sup>

## Origin and History of the Commonwealth’s Funding Schedule for Eliminating Unfunded Pension Liability

Another policy tool to combat rising unfunded pension liability that the state has adopted is the triennial release of an updated schedule of future payments to fully fund the state pension systems (Massachusetts Employees, Massachusetts Teachers, and Boston Teachers) by a specific target date. Such schedules allot amounts to be appropriated to the pension system that cover the sum of normal cost, UAAL amortization and ERIP amortization. The transfer payments are made for each fiscal year, and are supposed to be paid on January 1. The amounts expressed in the schedules do not reflect contributions made by employees. In 1987, the Legislature enacted a funding schedule to fully fund the state pension system by 2028. In 2011, it extended the schedule to 2040.

From 1911 to 1988, the state pension system was funded on a “pay as you go” basis with no funding provided for the payment of future benefits to current employees (normal costs).<sup>52</sup> As of January 1, 1987 the Commonwealth’s unfunded liability was \$10.5 billion.<sup>53</sup> To address this deficiency, the legislature enacted Ch. 697 of the Acts of 1987 (called the “Pension Reform Act of 1987”), signed by Governor Dukakis on January 12, 1988, that established a funding schedule to fully fund the pension system by 2028, 40 years after implementation of the law. According to the provisions of Ch. 697, the funding schedule, set forth in Chapter 32 §22C, could be adjusted triennially by the legislature upon the recommendation of the secretary of administration and finance based upon the pension fund’s actuarial valuation.<sup>54,55</sup>

In the 12 years following the establishment of the funding schedule, the Commonwealth’s unfunded pension obligations dropped from \$10.5 billion in 1988 to \$4.9 billion in 2000.<sup>56,57</sup> After that success, the legislature established a more ambitious goal of fully funding the pension system by moving the target

date for full funding to 2023, five years sooner than its original goal of 2028. In 2003, the legislature amended Chapter 32 §22C to add an automatic payment system providing as follows: “In each fiscal year, there shall be transferred from the General Fund by the comptroller, without further appropriation, to the Commonwealth’s Pension Liability Fund the amount necessary to fully fund the system as determined by the schedule set forth in this section.”<sup>58</sup>

After the legislature had shortened the funding schedule, however, the Commonwealth’s unfunded liability rose from \$4.9 billion in 2000 to \$14.5 billion in 2006. The legislature responded by extending the funding schedule for fully funding the Commonwealth’s pension systems by two years, from 2023 to 2025. The national financial crisis that began in 2007 precipitated a stock market drop felt by pension funds in Massachusetts and around the nation. Between October 19, 2007 and March 6, 2009, the Dow Jones Industrial Average lost 54 percent of its value, dropping from 13,522 to 6,627.<sup>59</sup> The Commonwealth maintained the 2025 full-funding target date until the legislature amended Chapter 32 §22C in an outside section of the FY2012 annual state budget, signed into law by Governor Patrick on July 11, 2011, extending the pension funding schedule by 15 years from 2025 to 2040. This 2040 target date has been maintained in Chapter 32 §22C since then.

Chapter 32 §22C requires the secretary of administration and finance to establish a funding schedule triennially based upon the pension fund’s actuarial valuation and directs the comptroller to make annual off-budget transfers from the Commonwealth’s General Fund to the Commonwealth’s Pension Liability Fund<sup>60</sup> in the amount necessary to fully fund the system as determined by the schedule, with no appropriation by the legislature being

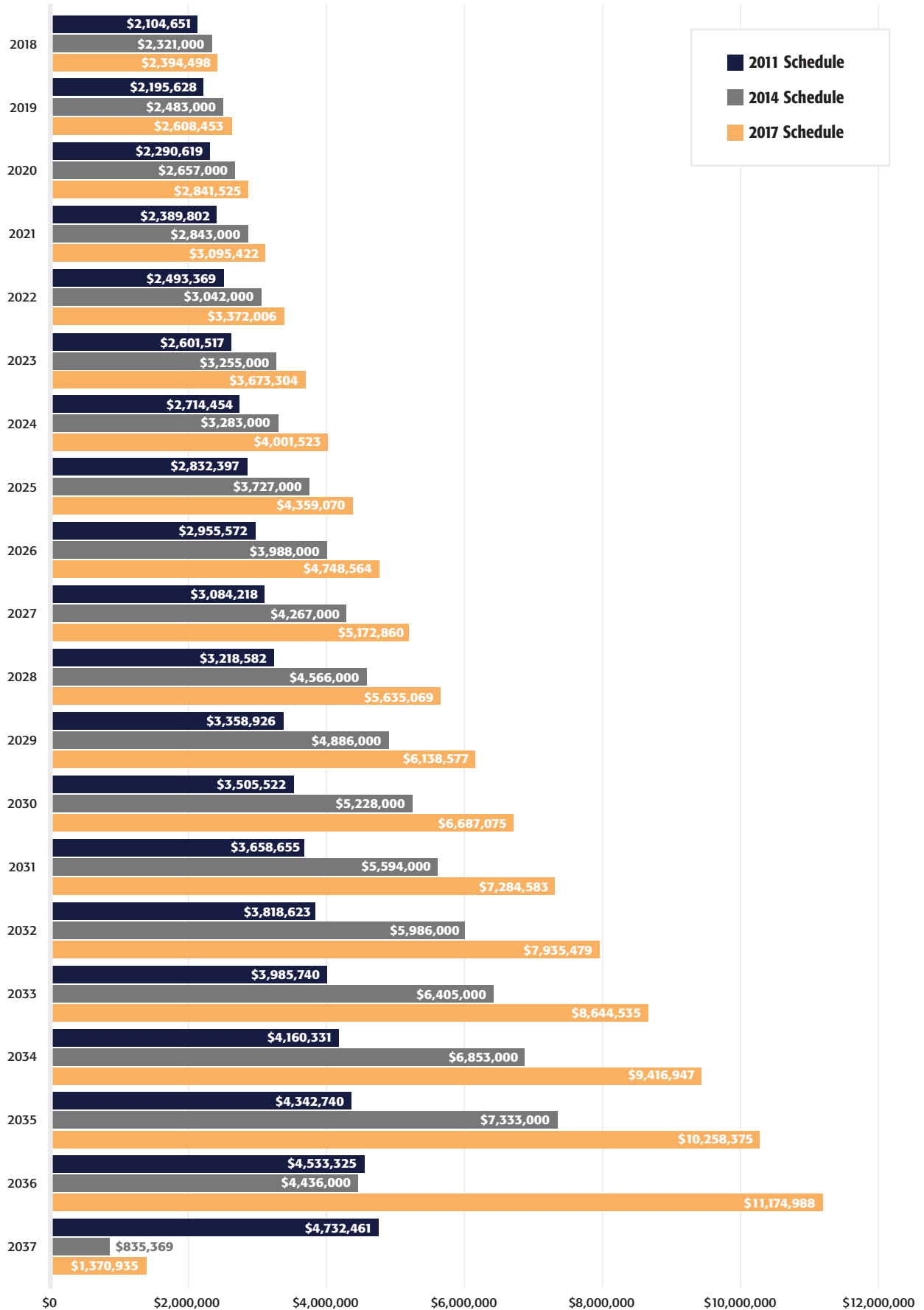
required.<sup>61</sup> While the statutory full-funding target date in Chapter 32 §22C is currently 2040, the payment schedule most recently established in 2017 by the secretary of administration and finance aims to achieve full funding three years earlier, by 2037.

### The secretary of administration and finance adds \$45.8 billion in future contributions to funding the pension system

Because unfunded liability of the Commonwealth’s pension plans has risen steeply in recent annual actuarial valuations, growing from \$18.6 billion in 2011 to \$29.0 billion in 2014, and to \$39.6 billion in FY2017, in the past five years the secretary of administration and finance has on two occasions significantly increased the annual amounts scheduled to be paid from the general fund to the Commonwealth’s Pension

**In 2017, the secretary of administration and finance kept the date to fully fund the pension system at 2037, but projected \$45.8 billion in increased contributions, primarily in later years of the funding schedule.**

Figure 4. Comparison of 2011, 2014, and 2017 funding schedules for pension obligations for years 2018–2037 (in thousands).



Liability Fund between 2018 and 2037. The first upsizing of the funding schedule was announced in January of 2014, the second in January 2017, and the next to be released in January 2020.

In total, General Fund contributions in the 2011 funding schedule to the Pension Liability Fund for FY2018 to FY2037 totaled \$64.977 billion; on the 2014 funding schedule, they totaled \$83.988 billion; on the 2017 funding schedule, they totaled \$110.813 billion, representing an increase of \$45.837 billion over the scheduled amount in 2011. The next triennial funding schedule is due to be filed by the secretary of administration and finance in January 2020.<sup>62</sup>

The \$110 billion total contribution from the General Fund to the Pension Liability Fund over the period from FY2018 to FY2037 represents \$17,873 per capita for all Massachusetts residents.

The effects of the increased funding schedule are being felt in the current fiscal year (FY2019). On January 12, 2018, the secretary of administration & finance, Senate Ways and Means chair, and House Ways and Means chair announced as a component of their consensus revenue forecast for fiscal 2019 that there would be an off-budget transfer of \$2.609 billion to the Pension Liability Fund for FY2019.<sup>63</sup> That \$2.609 billion represents the FY2019 payment set forth in the most recent triennially announced funding schedule, as determined by the secretary of administration and finance in 2017. Under the previous funding schedule, as determined by the secretary in 2014, the FY2019 payment would have been \$2.483 billion, or \$126 million less. Under the funding schedule before that, as determined in 2011, the FY2019 payment would have been \$2.196 billion, or \$413 million less.

The required General Fund contribution for FY2020 (next fiscal year) was set at \$2.291 billion in 2011. It was raised to \$2.657 billion in the 2014 schedule, a \$366.4 million increase. The most recent upsizing of the funding schedule, announced in January 2017, increased the required contribution for FY2020 to \$2.842 billion, \$550.9 million higher than the amount previously included in the 2011 schedule.

The two most recent funding schedules (2014 and 2017) shifted extremely large increases in required contributions far into the future, compared to the 2011 schedule. Figure 4 shows, for example, that the required General Fund contribution to the Pension Liability Fund for fiscal year 2035 increased from \$4.343 billion (in the 2011 funding schedule) to \$7.333 billion (in the 2014 schedule) to \$10.258 billion (in the 2017 schedule), a cumulative increase of \$5.915 billion for 2035 over the amount established by the 2011 funding schedule.

An example of the extreme shifting of scheduled payments to out-years can be seen by comparing the short-term period

(FY2019 and FY2020) to the long-term (FY2035 and FY2036). The scheduled contributions for FY2019 (the current fiscal year) and FY2020 (next fiscal year) are \$2.608 billion and \$2.841 respectively. By comparison, contributions for FY2035 and FY2036 are \$10.258 billion and \$11.175 billion. Figure 4 compares the 2011, 2014, and 2017 schedules, showing extreme shifting of payments into the latter years of the schedule.

### Back-loading Scheduled State Contributions to the Pension Liability Fund in the Current Funding Schedules for Pension Obligations.

Figure 5 compares the three most recent funding schedules (2011, 2014, and 2017), broken into six-year periods, and shows how the current funding schedule (2017) has shifted the largest payment increases to the end of the 18-year schedule.

The 2014 and 2017 pension funding schedules shifted a disproportionate share of payments into the future compared to the FY2011 schedule. The 2014 schedule added a total of \$22.7 billion in additional contributions for the period from FY2018 to FY2037. Of these additional \$22.7 billion in contributions, \$2.9 billion were scheduled to be paid during the first six years (FY2019–FY2024), \$7.7 billion during the second six years (FY2025–FY2030), and \$12.1 billion during the third six year period (FY2031–FY2036).

Figure 6 demonstrates that the 2017 funding schedule added a total of \$45.8 billion in state contributions to the 2011 contribution amounts. Based on the 2017 schedule, \$5.2 billion (11 percent) of the \$45.8 billion *increase* is scheduled to be contributed during FY2018–2024, \$13.8 billion (30 percent) is scheduled to be contributed during FY2025–2030, while \$26.9 billion (59 percent) remains for FY2031–FY2037.

By back-loading scheduled payments in the 2014 and 2017 funding schedules, the Commonwealth has delayed addressing its serious pension funding problem. While many public officials take comfort in the belief that the Commonwealth has established a funding schedule that will eliminate its unfunded liability by the year 2037, they ignore the back-loaded nature of that schedule. The key question is whether it is realistic to expect that the Commonwealth will contribute \$56.1 billion from the General Fund to the Pension Liability Fund from FY2031 to FY2037. In an August 2017 *Boston Globe* story, Evan Horowitz explains the issue this way:

Here's one problem: There's no free lunch when it comes to pensions. For the state to meet its long-term obligations, lawmakers have to set aside more money. Every year, in every budget, until we've made up the funding gap. Officially at least, they've committed to doing so. But their whole approach is back-loaded, so that the really big contributions are put off for another day.<sup>64</sup>

**By back-loading scheduled payments in the 2014 and 2017 funding schedules, the Commonwealth has delayed addressing its serious pension funding problem.**

Figure 5. Comparison of funding schedules released in 2011, 2014, and 2017, by the same breakdown of three time periods (in billions).

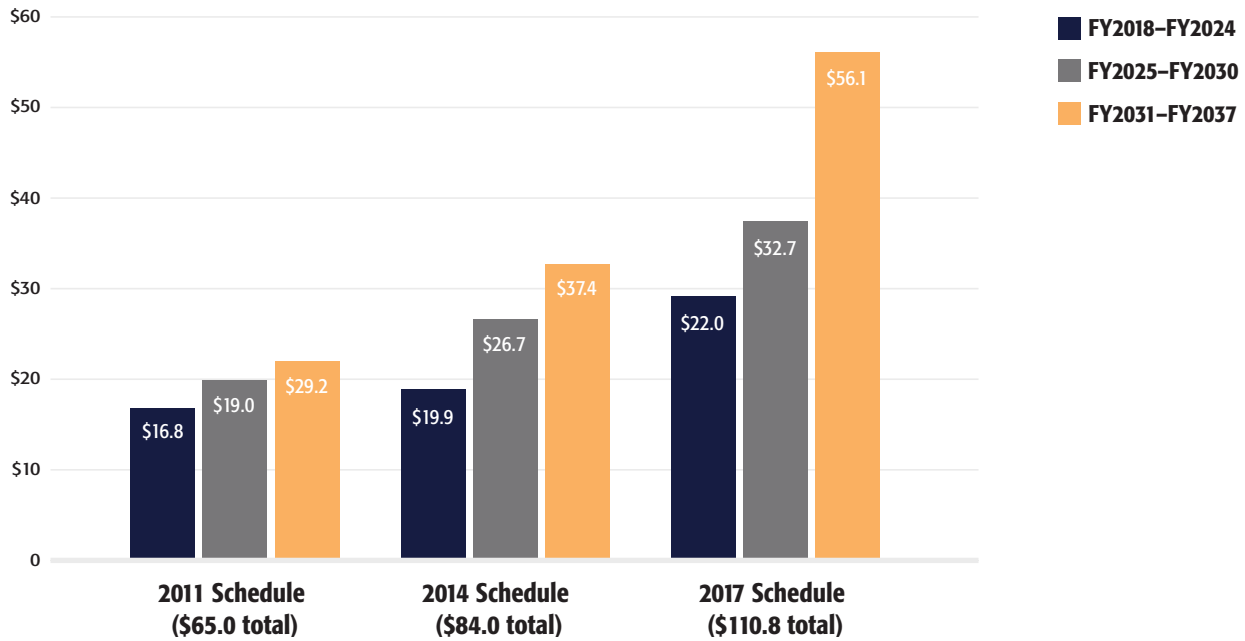


Figure 6. Breakdown of additional annual contributions to Pension Liability fund according to 2017 funding schedule, compared to the previous 2011 Schedule (in billions).

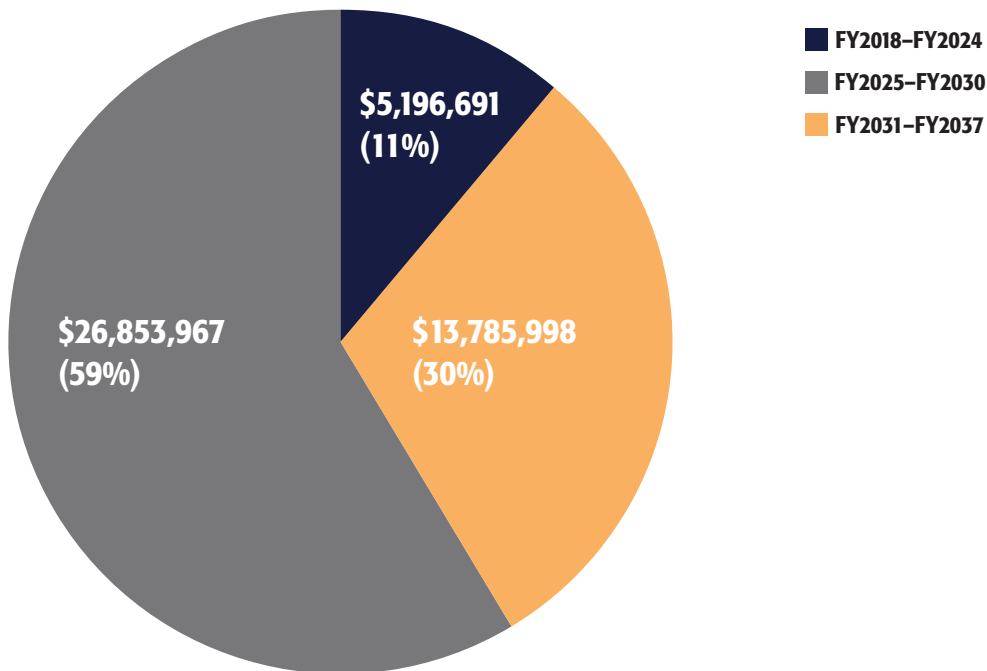


Figure 7. A Theoretical Model of the Upcoming 2020 Funding Schedule based on 2017 Percent Growth (in thousands).

Fiscal Year	2011 Schedule	2014 Schedule	2017 Schedule	Percent Growth 2014–2017	2020 (Based On Percent Growth)
2020	\$2,290,619	\$2,657,000	\$2,841,525	6.9%	\$3,038,865
2021	\$2,389,802	\$2,843,000	\$3,095,422	8.9%	\$3,370,256
2022	\$2,493,369	\$3,042,000	\$3,372,006	10.8%	\$3,737,812
2023	\$2,601,517	\$3,255,000	\$3,673,304	12.9%	\$4,145,365
2024	\$2,714,454	\$3,283,000	\$4,001,523	21.9%	\$4,877,303
2025	\$2,832,397	\$3,727,000	\$4,359,070	17.0%	\$5,098,334
2026	\$2,955,572	\$3,988,000	\$4,748,564	19.1%	\$5,654,178
2027	\$3,084,218	\$4,267,000	\$5,172,860	21.2%	\$6,271,029
2028	\$3,218,582	\$4,566,000	\$5,635,069	23.4%	\$6,954,446
2029	\$3,358,926	\$4,886,000	\$6,138,577	25.6%	\$7,712,265
2030	\$3,505,522	\$5,228,000	\$6,687,075	27.9%	\$8,553,361
2031	\$3,658,655	\$5,594,000	\$7,284,583	30.2%	\$9,486,083
2032	\$3,818,623	\$5,986,000	\$7,935,479	32.6%	\$10,519,851
2033	\$3,985,740	\$6,405,000	\$8,644,535	35.0%	\$11,667,133
2034	\$4,160,331	\$6,853,000	\$9,416,947	37.4%	\$12,940,156
2035	\$4,342,740	\$7,333,000	\$10,258,375	39.9%	\$14,350,778
2036	\$4,533,325	\$4,436,000	\$11,174,988	151.9%	\$19,663,278*
2037	\$4,732,461	\$835,369	\$1,370,935	64.1%	\$2,249,859
<b>Total Contributions (2020–2037)</b>	<b>\$60,676,853</b>	<b>\$79,184,369</b>	<b>\$105,810,837</b>		<b>\$140,290,353</b>

\* Calculation of theoretical 2020 contribution level for the year 2036 was based on the percent growth averaged over two years, in order to provide a better estimate of 2020 contribution levels.

The legislature's pattern of approving schedules developed by the secretary of administration and finance that push the largest transfer payments to the latest years in the funding schedule continues to leave the pension problem in the hands of future administrations and taxpayers.

In fact, as updated funding schedules have been released since 2011, the dollar amount to be paid in the last seven years of the schedule, FY2031–2037, rose by 28 percent between 2011 and 2014, and by an additional 50 percent between 2014 and 2017. Based on these growth rates, future funding schedules could follow suit. Figure 7 presents two scenarios regarding potential growth of Pension Fund contributions scheduled in 2020 (the upcoming schedule) based on growth rates between prior funding schedules. These scenarios show potential future contributions, but do not include inevitable changes in investment performance and other factors.

Figure 7 presents a theoretical model of potential contribution levels that would be set in the upcoming 2020 funding schedule. The chart shows hypothetical yearly contributions to reduce unfunded pension liability, if the schedule released in

2020 increases payments at the same rate as the annual contribution increases between the 2014 and 2017 schedules. This model assumes that all other factors, including market performance and actuarial assumptions, remain the same as when the 2017 schedule was released. Based on this model, if annual contributions increase again as they did in 2017, the 2020 funding schedule would require a total of \$140 billion in required contributions to fully fund the Commonwealth pension system in the years 2020 to 2037. If this were to occur, the Commonwealth would be facing nearly \$35 billion in total additional contributions compared to the levels set forth in the 2017 schedule. Compared to the 2011 funding schedule, the 2020 requirements could add more than \$80 billion in contributions. Like the existing funding schedules, this 2020 model, assuming no other changes, exhibits back-loading the highest payments far into the future. The model for the 2020 schedule sets \$81 billion of total contributions in the last years before the full-funding target date (2031 through 2037). This represents 58 percent of all contributions reduce unfunded pension liabilities to zero, which are set to be paid farthest in the future.

## How Has Massachusetts Pension Funding Fared over Multiple Reform Efforts?

From 2003 to 2017, unfunded liabilities grew from \$13.4 billion to \$39.6 billion, an increase of 196 percent. Before any major pension system reforms, from 2003 to 2009, unfunded liabilities increased by 65 percent. Since the most recent reform in 2011 alone, UAAL has increased by more than \$20 billion, or 113 percent, with funded ratios decreasing in kind. This spike since the most recent major pension reform is staggering, and despite these efforts, the crisis level of Massachusetts' unfunded liabilities has continued to escalate.

As unfunded liabilities have skyrocketed, the Commonwealth's funding ratio has shrunk proportionally. The funding ratio of unfunded pension liabilities in Massachusetts peaked in 2008 at almost 79 percent, decreased to 71 percent in 2011, and declined to almost 57 percent as of 2017.

What caused this growth in unfunded liability?

Over the last decade, the Commonwealth's covered payroll has steadily increased, rising from \$8.9 billion in 2005 to \$13.1 billion in 2017, a 45 percent jump.

Some of the increases over the years can be attributed to changes in the actuarial assumptions used to calculate future pension obligations in accordance with GASB 67 and GASB 69. In 2012, changes to the base salary for cost-of-living adjustments per Chapter 176 reforms and improving mortality assumptions were projected to account for approximately \$1

billion of the more than \$5 billion increase in UAAL from 2011 to 2012.

From 1997 through 2012, actuarial valuations assumed that the rate of return was 8.25 percent. In 2013, PERAC reduced the assumed rate of return to 8 percent, again in 2015 to 7.75 percent and in 2016 to 7.5 percent.

As one would expect, actual investment returns varied from the actuarial assumptions. Some of the increases in unfunded pension liability since 2013 must be attributed to dropping the assumed rate of return to more realistic levels. Year-to-year changes in mortality rates and other assumptions used to calculate future values also impact unfunded liabilities. The following chart juxtaposes unfunded liability values with annual changes in assumed rate of return.

As expected, unfunded liability increases as the assumed rate decreases. However, PERAC estimates show that while rate of investment return has some impact on rising unfunded pension liability, this impact starting in 2013 is small relative to the overall growth in unfunded liability.

Massachusetts Comprehensive Annual Financial Reports include no clear record of actual rate of return for each fiscal year before reporting standards mandated beginning in

**Since the most recent reform in 2011 alone, UAAL has increased by more than \$20 billion, or 113 percent.**

Figure 8. Increase in annual covered payroll (2003–2017).

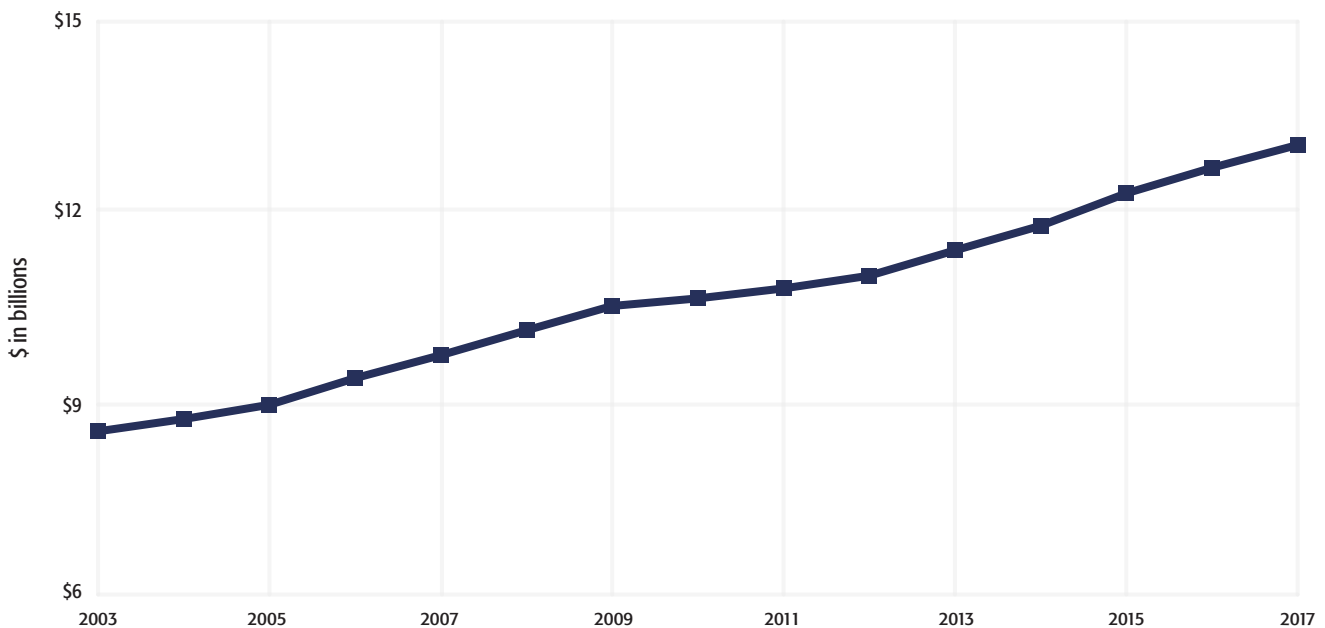




Figure 9. Changes in rate of return on investment assumptions and corresponding UAAL reflections, 2003–2017.

FY	Assumed Rate of Investment Return	COLA Assumption	UAL (Updated Assumptions)	UAL (According to 8.25% assumed rate of return)
2003	8.25%	3.00%	\$13,401,442	\$13,401,442
2004	8.25%	3.00%	\$12,014,032	\$12,014,032
2005	8.25%	3.00%	\$13,419,165	\$13,419,165
2006	8.25%	3.00%	\$14,488,201	\$14,488,201
2007	8.25%	3.00%	\$13,349,175	\$13,349,175
2008	8.25%	3.00%	\$12,105,058	\$12,105,058
2009	8.25%	3.00%	\$22,084,452	\$22,084,452
2010	8.25%	3.00%	\$19,985,970	\$19,985,970
2011	8.25%	3.00%	\$18,588,628	\$18,588,628
2012	8.25%	3.00%	\$23,604,905	\$23,604,905
2013	8.00%	3.00%	\$28,348,334	\$26,700,000
2014	8.00%	3.00%	\$29,042,960	\$29,400,000
2015	7.75%	3.00%	\$33,429,141	\$29,900,000
2016	7.50%	3.00%	\$37,866,399	\$35,700,000
2017	7.50%	3.00%	\$39,621,792	\$38,000,000

FY2014 that actual rates must be disclosed. In the 2017 Commonwealth Annual Financial Report, there is a schedule of actual investment return rates dating back to FY14, which is included in the supplementary portion of the document. It is also noted that the schedule “is intended to present 10 years of data” which “will be presented when available.”<sup>65</sup> This information cannot be found in any publicly available state documents prior to FY14. However, the large swings in actual rate of return on investment in just four years provide insight into the growth of unfunded pension liability during this period. The following table shows the actual rate of return schedules for the State Employee Retirement System (SERS), the Teachers Retirement System (MTRS), and the State Retirement Board Trust (SRBT).

The difference in actual rate of return on investment from FY16 to FY17 for SERS and MTRS was nearly 11 percentage points, according to the schedule of actual rate of return found in the Comprehensive Actual Financial Report’s figures for those years (see left). Fluctuations like this partially explain changes in the rate of increase of MA pensions’ unfunded liability. For example, the actual rate of return for the Massachusetts Pension Reserves Investment Trust (PRIT) fund in FY2012 was 5.74 percent<sup>66</sup>, coming in below the 8.25 percent assumed rate at that time. Lower than expected returns to fund pension costs may explain some of the rise in UAAL from 2011 to 2012.

### Large swings in actual rate of return on investment from FY14 to FY17 provide insight into the growth of unfunded pension liability.

Starting in 2013, the assumed rate of return on investments was decreased to 8 percent in actuarial valuations to more accurately reflect actual return rates. In FY14, the actual rate of return was over 17 percent, more than double the assumed 8 percent return. However, the following year saw actual rate of return of 3.4 percent, far below the 7.75 percent to which the assumed rate had been reduced that year. In FY16, the actual rate of return was even lower, and in FY17 the actual rate of return was over 5 percentage points higher than the actuarial assumption. While the UAAL continuously increased over this period, and in every year since 2011, large swings in the actual rate of return relative to assumptions correlate with the *rate of UAAL increase*.

A factor that affects actual return rates on pension fund investments is stock market performance. If performance was consistently poor, investments would have similarly low returns based on the level of investment in publicly traded stocks. However, for the 2003–2017 period analyzed here, the overall Dow Jones total return rate was positive, with the exception of negative performance in 2008. Market fluctuations affect rate of return on pension investment funds, depending on how the funds’ equity securities are diversified and the funds’ asset allocation strategies related to debt securities and alternative investments. Such fluctuations impact changes in the growth of pension liabilities.

Figure 10. Unfunded pension liability versus changing assumptions for rate of return on investment, FY2003–2017.

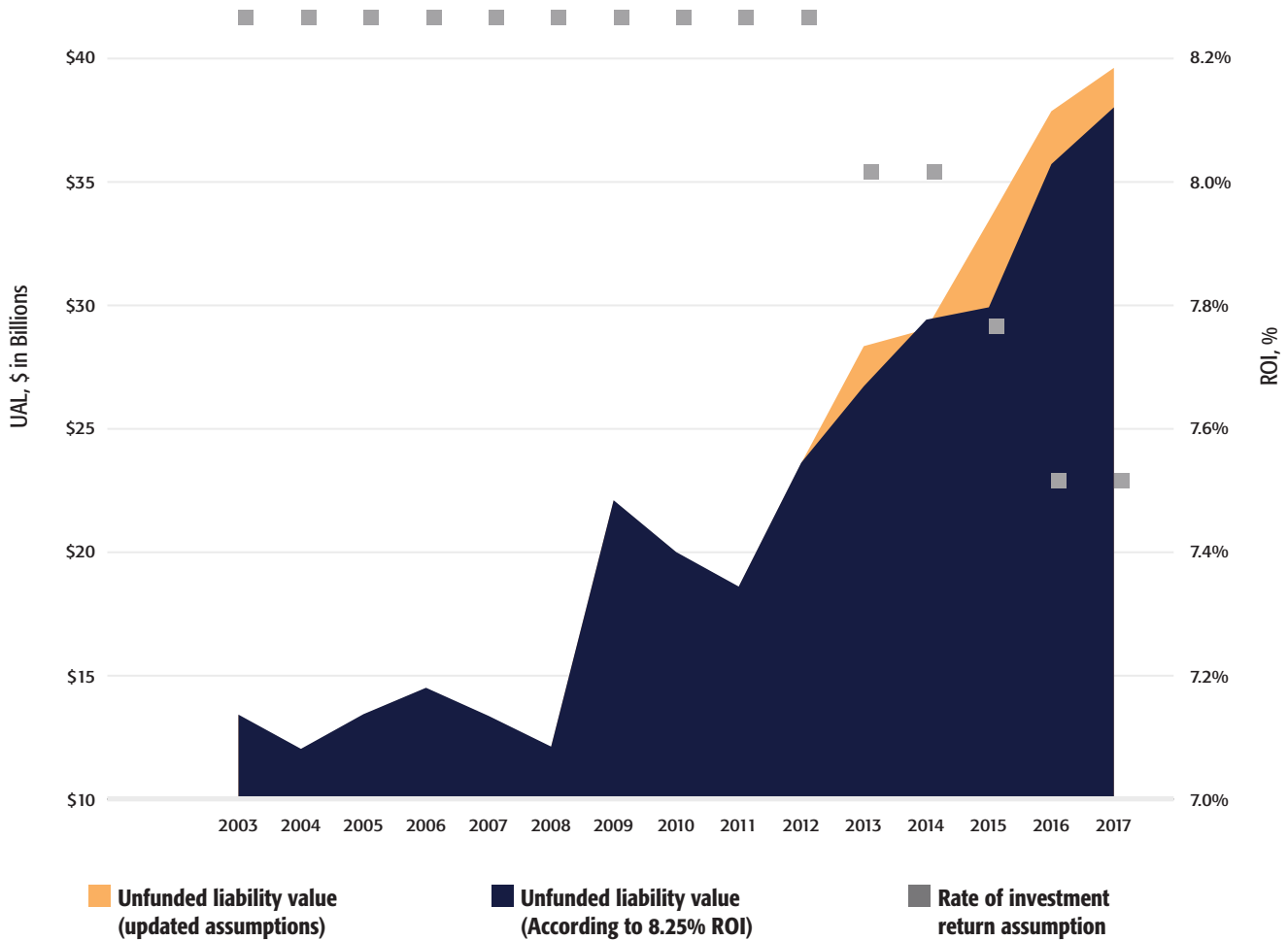


Figure 11. Schedule of Actual Rate of Return on Investment.

	FY2017	FY2016	FY2015	FY2014
Annual money-weighted rate of return, net investment expense (SERS)	12.74%	1.79%	3.40%	17.13%
Annual money-weighted rate of return, net investment expense (MTRS)	12.75%	1.78%	3.40%	17.12%
Annual money-weighted rate of return, net investment expense (SRBT)	12.90%	*	*	*

\* GASB 74 implemented in FY2017

While there have been a few years with relatively low annual return rates, the average annual total return rate for this period was 7.7 percent.<sup>67</sup> From 2008 to 2009, the Dow Jones Industrial Average rebounded by 53 percentage points into positive returns, yet unfunded liabilities still increased by more than

\$10 billion, despite a large portion of the investment portfolio being in equities. Since this low point, stock performance has been generally positive. The percentage of funds invested in global equities has decreased since 2001, from 59 percent in 2001 to 36 percent in 2012, according to available Pension Reserves Investment Management Board annual reports.<sup>68</sup> Depending on the asset allocation of funds, risk and lower returns would contribute to some of the rise in unfunded liability during this period. However, the percentage of funds invested in equities has rebounded in recent years, reaching 42 percent in 2016 and almost 46 percent in 2017. Yet unfunded pension liability continued to rise during this later period. In 2018, the DJIA lost six percent of its value. If the Commonwealth’s unfunded pension liability grew during a fifteen-year period of generally positive annual returns, how will the state pension system fare with weakened financial markets?

Furthermore, looking at GDP as an economic indicator shows that Massachusetts has outperformed the nation as a whole, as well as many other states. Data from the U.S. Bureau

Figure 12. Comparing the rate of UAAL increase with changes in actual rate of return on investment.

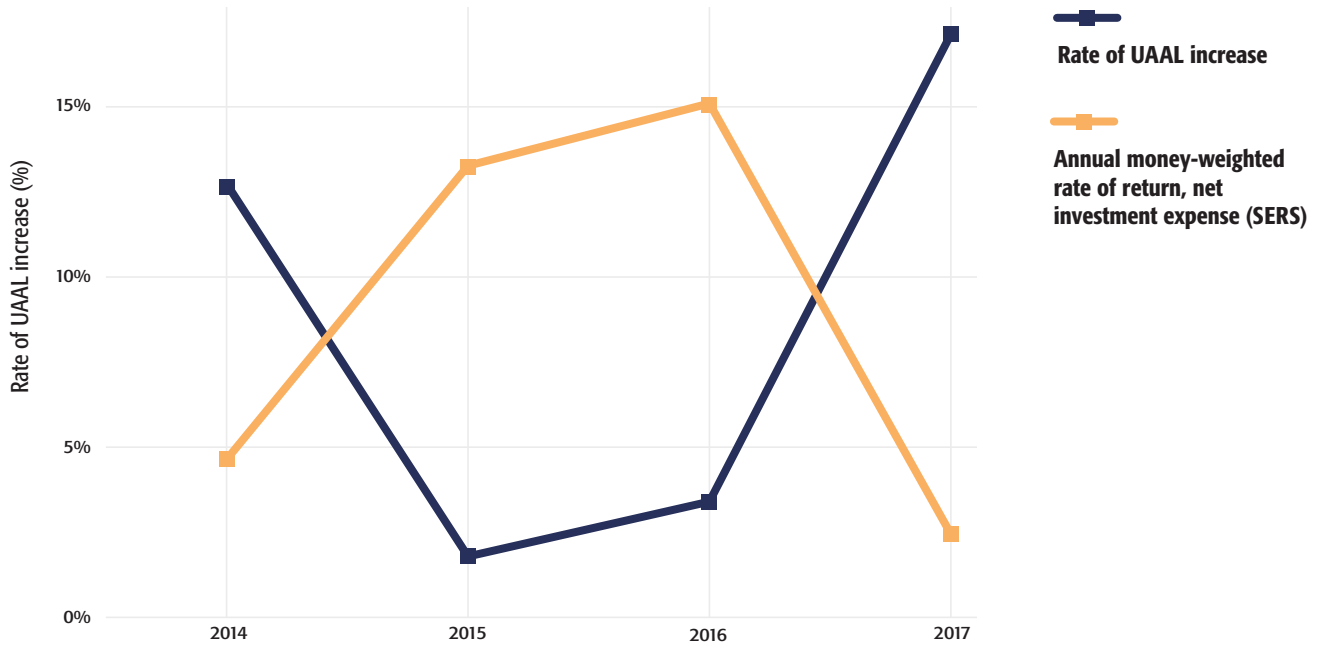
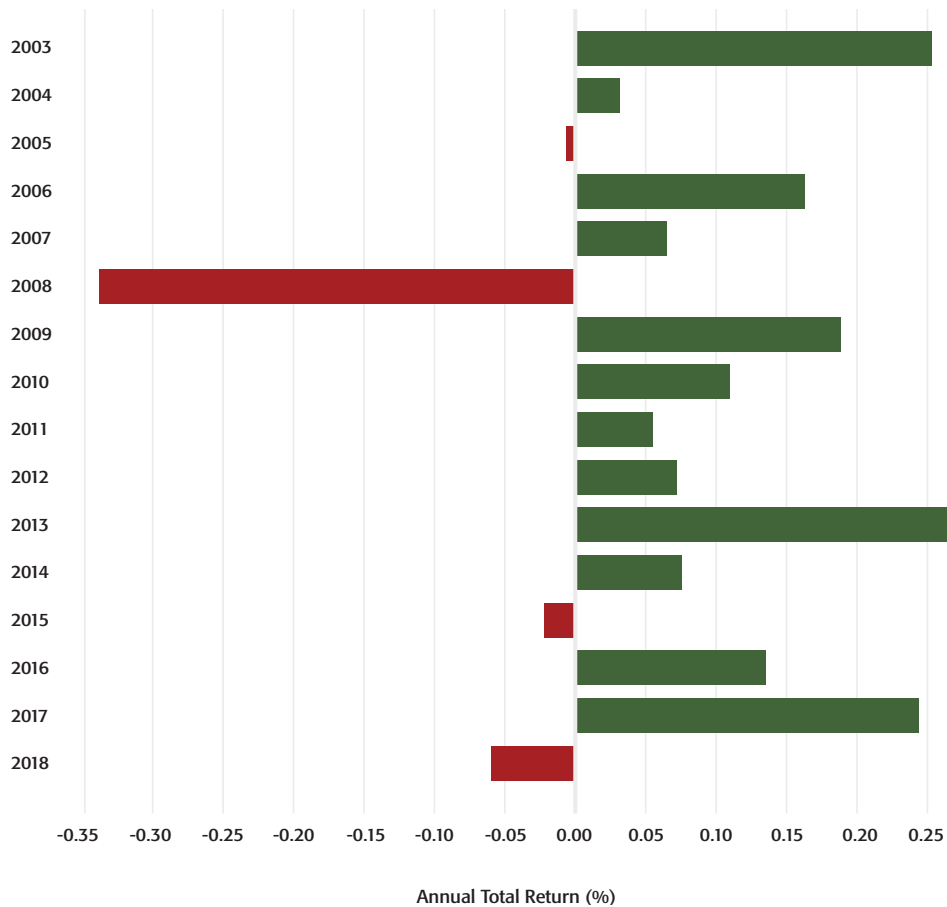
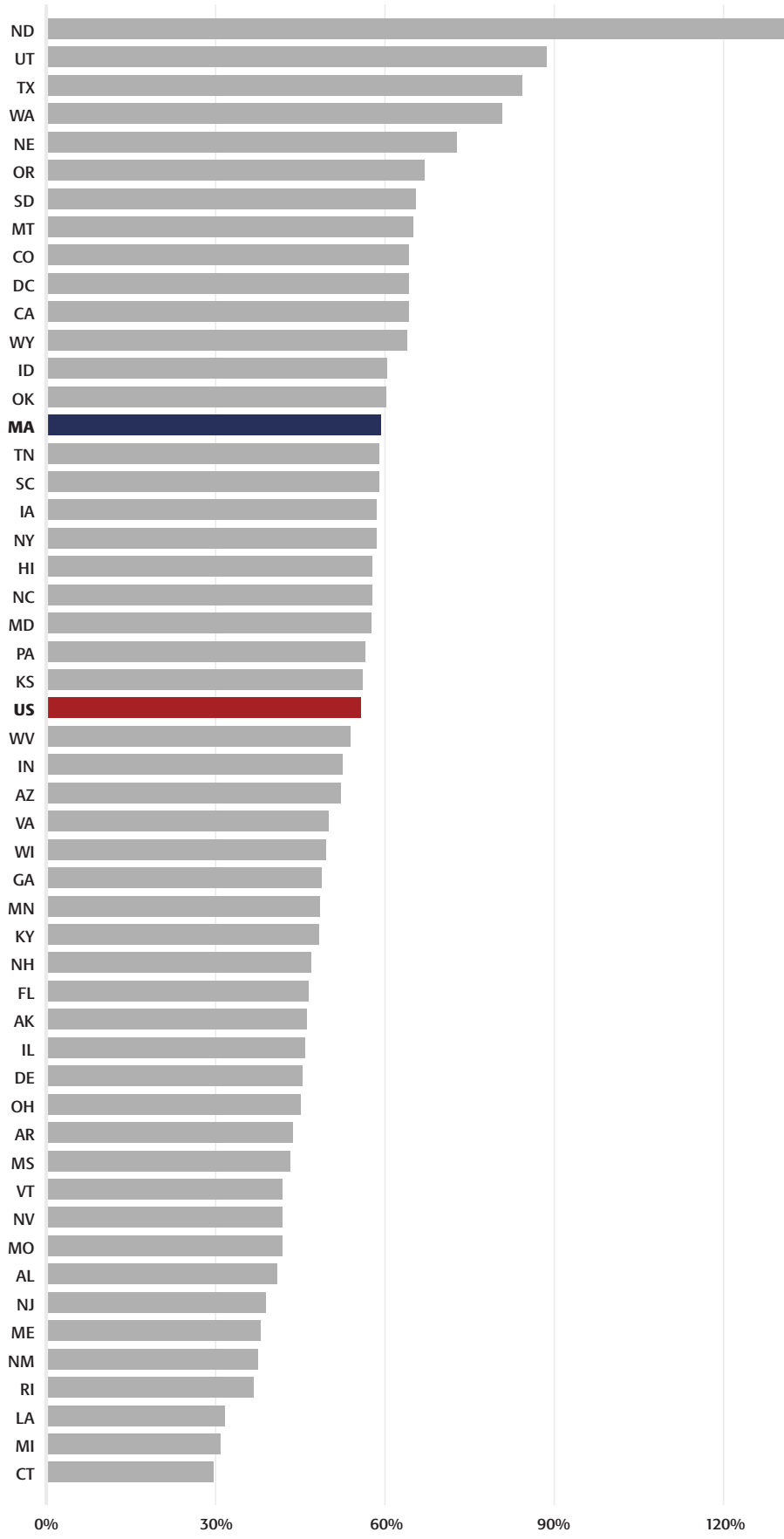


Figure 13. Dow Jones Industrial Average performance, 2003–2018.<sup>69</sup>



\*Note: Graph bars colored green indicate positive returns, while red indicates negative returns.

Figure 14. GDP growth rates from 2005–2018 (in current year dollars).



of Economic Analysis shows that Massachusetts has seen 59 percent GDP growth since 2005, while the United States average falls slightly behind at 56 percent growth. Shown in Figure 14, Massachusetts ranks 15<sup>th</sup> among the states for highest GDP growth. Simultaneously, Massachusetts has also been classified among the states with the worst public pension funding situations. A 2014 study by the Urban Institute<sup>70</sup> gave the Commonwealth an 'F' for its pension system, including its dismal funding ratio and failed commitments to making required contributions, as shown in Figure 15. Massachusetts was the only state to receive this failing grade. Subsequently, the *Wall Street Journal* ranked Massachusetts 36<sup>th</sup> among the U.S. states for its funding ratio.<sup>71</sup>

Massachusetts State Senator William Brownsberger developed legislation to reform and simplify the Commonwealth's pension system. One of the significant reforms in "An Act to make the public pension system simpler and fairer, to provide better income security to lower wage state employees and to protect future taxpayers from unanticipated pension costs," filed as House 2930 in the 2011, proposed a two-fold approach to reduce pension liabilities and pension investment risk. The first reform would reduce the benefit for state employees so they would receive a benefit similar to the amount other employees (private and those not covered by the any of the state systems) receive from Social Security.

The second reform would create a flexible employee contribution rate, which would be calculated by formula based on current actuarial assumptions. In addition, the bill proposes

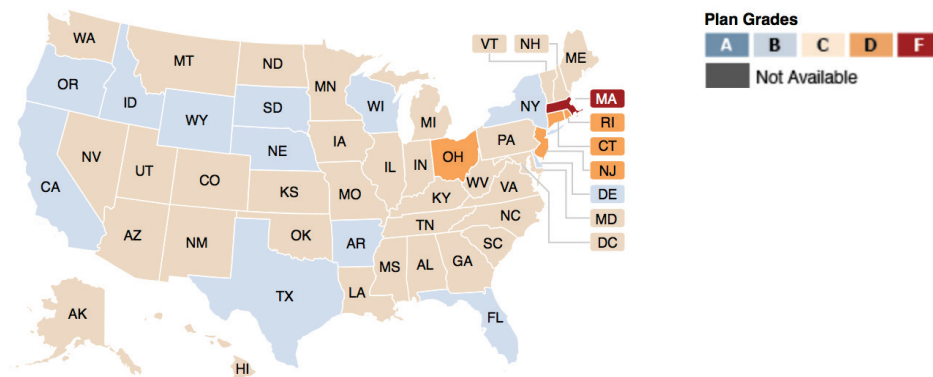
that all public employees should have access to a defined-contribution savings plan as a supplement to the defined benefit.<sup>72</sup> Brownsberger also originally included specific reforms for calculating individual retirement benefits and eliminating pension loopholes. These types of reforms should be reintroduced to the state Legislature, as they would reduce taxpayer investment risk and rein in on pension obligation liability.

A brief look at the history of Massachusetts public pensions helps explain the rapid increase in unfunded liabilities and validates growing concern over the state's ability to fulfill future pension promises. Even more troubling are the Commonwealth's past attempts to curb the exorbitant growth of unfunded pension liabilities and improve the health of the state pension system. After the reforms, unfunded liabilities have risen even faster, nearly doubling since the last major reform in 2011. Stock market performance, which is a key component in driving the rate of return on investments and therefore affects unfunded liabilities, has been overall positive and promising since 2003. The Massachusetts economy has grown faster than the United States on average, and bests 35 other states in terms of GDP growth.

However, if reforms had not been enacted over the years, Massachusetts would likely be in an even grimmer situation today. If the Bay State cannot curb UAAL growth during periods of general economic health, how is the state going to defuse the ticking time bomb of our public pension systems? What can the Commonwealth do differently to restore them to financial health?

**If Massachusetts cannot curb UAAL growth during periods of economic health, how is the state going to defuse the ticking time bomb of our public pension systems?**

**Figure 15. Rankings of U.S. states' pension systems, created by the Urban Institute in "The State of Retirement: Grading America's Public Pension Plans".**



## Recommendations

- The Commonwealth should reconsider Bill H.2930 “An Act to make the public pension system simpler and fairer,” introduced in 2011 by State Senator William Brownsberger. The act proposes reforms for the state’s pension system that would provide a defined benefit comparable to Social Security for new employees, but also enroll public employees in a defined-contribution pension plan to build a supplemental retirement benefit. This reform would decrease incurred liabilities while maintaining a retirement plan for new hires.
- The Commonwealth should house records of all state and municipal pension system funding schedules in a single directory, as they are approved by the legislature, as well as records of other legislation regarding transfers of extraneous funding toward the unfunded liabilities.
- The Massachusetts Legislature has continually extended the deadline for a fully funded pension system since the funding schedule was created in 1989. Recently approved schedules do not change the end date, but the amount of payments in the final years of the schedule has increased dramatically. The state should stop delaying the elimination of unfunded pension liabilities and back-loading the repayment schedule, and instead find solutions to increase funding or decrease future costs.

# Appendix

COMPARISON OF Group 1 Retirement Percentage Charts Before/After Enactment of Chapter 176 of the Acts of 2011 <sup>73, 74, 75</sup>

## MASSACHUSETTS GROUP 1 RETIREMENT PERCENTAGE CHART For Members-In-Service Hired **BEFORE** April 2, 2012

		AGE AT RETIREMENT															
		50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65+
YEARS IN SERVICE	10						15	16	17	18	19	20	21	22	23	24	25
	11						16.5	17.6	18.7	19.8	20.9	22	23.1	24.2	25.3	26.4	27.5
	12						18	19.2	20.4	21.6	22.8	24	25.2	26.4	27.6	28.8	30
	13						19.5	20.8	22.1	23.4	24.7	26	27.3	28.6	29.9	31.2	32.5
	14						21	22.4	23.8	25.2	26.6	28	29.4	30.8	32.2	33.6	35
	15						22.5	24	25.5	27	28.5	30	31.5	33	34.5	36	37.5
	16						24	25.6	27.2	28.8	30.4	32	33.6	35.2	36.8	38.4	40
	17						25.5	27.2	28.9	30.6	32.3	34	35.7	37.4	39.1	40.8	42.5
	18						27	28.8	30.6	32.4	34.2	36	37.8	39.6	41.4	43.2	45
	19						28.5	30.4	32.3	34.2	36.1	38	39.9	41.8	43.7	45.6	47.5
	20	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50
	21	21	23.1	25.2	27.3	29.4	31.5	33.6	35.7	37.8	39.9	42	44.1	46.2	48.3	50.4	52.5
	22	22	24.2	26.4	28.6	30.8	33.0	35.2	37.4	39.6	41.8	44	46.2	48.4	50.6	52.8	55
	23	23	25.3	27.6	29.9	32.2	34.5	36.8	39.1	41.4	43.7	46	48.3	50.6	52.9	55.2	57.5
	24	24	26.4	28.8	31.2	33.6	36	38.4	40.8	43.2	45.6	48	50.4	52.8	55.2	57.6	60
	25	25	27.5	30.0	32.5	35.0	37.5	40	42.5	45	47.5	50	52.5	55	57.5	60	62.5
	26	26	28.6	31.2	33.8	36.4	39.0	41.6	44.2	46.8	49.4	52	54.8	57.2	59.8	62.4	65
	27	27	29.7	32.4	35.1	37.8	40.5	43.2	45.9	48.6	51.3	54	56.7	59.4	62.1	64.8	67.5
	28	28	30.8	33.6	36.4	39.2	42	44.8	47.6	50.4	53.2	56	58.8	61.6	64.4	67.2	70
29	29	31.9	34.8	37.7	40.6	43.5	46.4	49.3	52.2	55.1	58	60.9	63.8	66.7	69.6	72.5	
30	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	75	
31	31	34.1	37.2	40.3	43.4	46.5	49.6	52.7	55.8	58.9	62	65.1	68.2	71.3	74.4	77.5	
32	32	35.2	38.4	41.6	44.8	48	51.2	54.4	57.6	60.8	64	67.2	70.4	73.6	76.8	80	
33	33	36.3	39.6	42.9	46.2	49.5	52.8	56.1	59.4	62.7	66	69.3	72.6	75.9	79.2	80	
34	34	37.4	40.8	44.2	47.6	51	54.4	57.8	61.2	64.6	68	71.4	74.8	78.2	80	80	
35	35	38.5	42	45.5	49.0	52.5	56	59.5	63	66.5	70	73.5	77	80	80	80	
36						54	57.6	61.2	64.8	68.4	72	75.6	79.2	80	80	80	
37						55.5	59.2	62.9	66.6	70.3	74	77.7	80	80	80	80	
38						57.0	60.8	64.6	68.4	72.2	76	79.8	80	80	80	80	
39						58.5	62.4	66.3	70.2	74.1	78	80	80	80	80	80	
40						60	64	68	72	76	80	80	80	80	80	80	

Multiply the indicated percentage by the average of your highest consecutive three-year annual rate of regular compensation

For members of Group 2: add 5 years to your age when finding your pension percentage

For members of Group 4: add 10 years to your age when finding your pension percentage

For estimating purposes only.

# MASSACHUSETTS GROUP 1 RETIREMENT PERCENTAGE CHART

For Members-In-Service Hired ON OR AFTER APRIL 2, 2012

		AGE AT RETIREMENT							
		60	61	62	63	64	65	66	67+
YEARS IN SERVICE	10	14.5	16.0	17.5	19.0	20.5	22.0	23.5	25.0
	11	16.0	17.6	19.3	20.9	22.6	24.2	25.9	27.5
	12	17.4	19.2	21.0	22.8	24.6	26.4	28.2	30.0
	13	18.9	20.8	22.8	24.7	26.7	28.6	30.6	32.5
	14	20.3	22.4	24.5	26.6	28.7	30.8	32.9	35.0
	15	21.8	24.0	26.3	28.5	30.8	33.0	35.3	37.5
	16	23.2	25.6	28.0	30.4	32.8	35.2	37.6	40.0
	17	24.7	27.2	29.8	32.3	34.9	37.4	40.0	42.5
	18	26.1	28.8	31.5	34.2	36.9	39.6	42.3	45.0
	19	27.6	30.4	33.3	36.1	39.0	41.8	44.7	47.5
	20	29.0	32.0	35.0	38.0	41.0	44.0	47.0	50.0
	21	30.5	33.6	36.8	39.9	43.1	46.2	49.4	52.5
	22	31.9	35.2	38.5	41.8	45.1	48.4	51.7	55.0
	23	33.4	36.8	40.3	43.7	47.2	50.6	54.1	57.5
	24	34.8	38.4	42.0	45.6	49.2	52.8	56.4	60.0
	25	36.3	40.0	43.8	47.5	51.3	55.0	58.8	62.5
	26	37.7	41.6	45.5	49.4	53.3	57.2	61.1	65.0
	27	39.2	43.2	47.3	51.3	55.4	59.4	63.5	67.5
	28	40.6	44.8	49.0	53.2	57.4	61.6	65.8	70.0
	29	42.1	46.4	50.8	55.1	59.5	63.8	68.2	72.5
	30	48.8	52.5	56.3	60.0	63.8	67.5	71.3	75.0
31	50.4	54.3	58.1	62.0	65.9	69.8	73.6	77.5	
32	52.0	56.0	60.0	64.0	68.0	72.0	76.0	80.0	
33	53.6	57.8	61.9	66.0	70.1	74.3	78.4	80.0	
34	55.3	59.5	63.8	68.0	72.3	76.5	80.0	80.0	
35	56.9	61.3	65.6	70.0	74.4	78.8	80.0	80.0	
36	58.5	63.0	67.5	72.0	76.5	80.0	80.0	80.0	
37	60.1	64.8	69.4	74.0	78.6	80.0	80.0	80.0	
38	61.8	66.5	71.3	76.0	80.0	80.0	80.0	80.0	
39	63.4	68.3	73.1	78.0	80.0	80.0	80.0	80.0	
40	65.0	70.0	75.0	80.0	80.0	80.0	80.0	80.0	

*Due to Pension Reform the Minimum Retirement Age For State Employees in Group 1 is **Age 60***

Multiply the indicated percentage by the average of your highest consecutive five-year annual rate of regular compensation

**For members of Group 2:** add 5 years to your age when finding your pension percentage

**For members of Group 4:** add 10 years to your age when finding your pension percentage

**FOR ESTIMATING PURPOSES ONLY.**



## MASSACHUSETTS GROUP 1 RETIREMENT PERCENTAGE CHART

For Members-In-Service Hired **BEFORE** April 2, 2012

### BENEFIT RATE CHART\*

Age upon date of Retirement	Percentage of Average Annual Rate of Regular Compensation		
	Group 1	Group 2	Group 4
65 or older	2.5	2.5	2.5
64	2.4	2.5	2.5
63	2.3	2.5	2.5
62	2.2	2.5	2.5
61	2.1	2.5	2.5
60	2.0	2.5	2.5
59	1.9	2.4	2.5
58	1.8	2.3	2.5
57	1.7	2.2	2.5
56	1.6	2.1	2.5
55	1.5	2.0	2.5
54	1.4	1.4	2.4
53	1.3	1.3	2.3
52	1.2	1.2	2.2
51	1.1	1.1	2.1
50	1.0	1.0	2.0
49	0.9	0.9	1.9
48	0.8	0.8	1.8
47	0.7	0.7	1.7
46	0.6	0.6	1.6
45	0.5	0.5	1.5
44	0.4	0.4	1.4
43	0.3	0.3	1.3
42	0.2	0.2	1.2
41	0.1	0.1	1.1

**Average Annual Rate of Regular Compensation**--Note, certain payments including *bonuses, overtime, severance pay, unused sick leave*, or any other payment made as a result of giving notice of retirement are *not considered* part of a member's regular compensation and are not included in retirement calculations.

\*Source: [mass.gov/perac/guide/mainguide10.htm](http://mass.gov/perac/guide/mainguide10.htm)

Which Amounts of Compensation Will be Used in the Calculation--Members must average annual rates of regular compensation earned in any 3 consecutive years or rates earned during the period or periods, whether or not consecutive, which constitute the last three years of service, preceding retirement.

## MASSACHUSETTS GROUP 1 RETIREMENT PERCENTAGE CHART

For Members-In-Service Hired ON OR AFTER APRIL 2, 2012

*(with less than 30 years of service)*

Age upon date of Retirement	Percentage of Average Annual Rate of Regular Compensation		
	Group 1	Group 2	Group 4
67 or older	2.5	2.5	2.5
66	2.35	2.5	2.5
65	2.20	2.5	2.5
64	2.05	2.5	2.5
63	1.90	2.5	2.5
62	1.75	2.5	2.5
61	1.60	2.35	2.5
60	1.45	2.20	2.5
59	N/A	2.05	2.5
58	N/A	1.90	2.5
57	N/A	1.75	2.5
56	N/A	1.60	2.35
55	N/A	1.45	2.20
54	N/A	N/A	2.05
53	N/A	N/A	1.90
52	N/A	N/A	1.75
51	N/A	N/A	1.60
50	N/A	N/A	1.45

**Average Annual Rate of Regular Compensation--**

*Note, certain payments including bonuses, overtime, severance pay, unused sick leave, or any other payment made as a result of giving notice of retirement are not considered part of a member's regular compensation and are not included in retirement calculations.*

Which amounts of compensation will be used in the calculation? For MSERS Members hired ON/AFTER APRIL 2, 2012, the average is based on your highest five year salary average. The maximum pension is 80% of the salary average.

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