

# **INTRO TO PENSIONS**

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# Agenda

- Basic Overview of Pensions
- How Pensions Work
- The Challenge and the Numbers
- Why Did the Numbers Change?
- Summary and Next Steps
- Data Appendix

# Overview of Pensions

- A “**Defined Benefit**” system provides an employee with a retirement benefit that is “defined” by an established formula. The retirement benefit amount is not linked to the investment performance of the pension fund. Assets come from investment returns and contributions from employees and employers.
- In a “**Defined Contribution**” plan, the employee receives a “defined” contribution from the employer into an investment account, similar to a 401(k). Amount of employer contribution often requires a match from employee. The employee’s retirement benefit depends on how much money they save and the performance of their investments. Risk falls on the employee rather than the employer.
- Other alternative plan designs exist, such as hybrids and cash balance plans, that incorporate features of both DB and DC plans.
- DB pension plans are designed to **pre-fund future retirement benefits**. Employers *and* Employees make regular contributions into the pension funds and those funds are invested over a long time horizon. Investment growth on those contributions helps to fund the benefits.

# Governance of Vermont Pension Systems

- The State of Vermont manages 3 pension systems:
  - VSERS – Vermont State Employees’ Retirement System (single employer) (3 V.S.A. Ch.16)
  - VSTRS – Vermont State Teachers’ Retirement System (multi-employer) (16 V.S.A. Ch. 55)
  - VMERS – Vermont Municipal Employees’ Retirement System (multi-employer) (24 V.S.A. Ch.125)
- Each system is governed by a board of trustees according to statute.
  - VSERS - 8 members (4 government officials, 4 plan member representatives)
  - VSTRS – 6 members (3 government officials, 3 plan member representatives)
  - VMERS – 5 members (2 employee representatives, 2 employer representatives, State Treasurer)
- Each board of trustees is responsible for the general administration and proper operation of the systems.
- State Treasurer serves as a trustee on all three boards and is responsible for day-to-day operations of the systems and serves as custodian of plan assets.
- Vermont Pension Investment Commission(VPIC) is comprised of 9 members (including Treasurer) and is responsible for investing the assets of all three plans. (3 V.S.A. § 522)
  - *(Note: Act 75 expanded VPIC from 7 to 9 members and changed the name to the Vermont Pension Investment Commission).*

# Characteristics of the Pension Systems

Both VSERS and VSTRS are relatively mature plans with high ratios of non-actives to actives and relatively weak funded ratios.

VMERS has a different set of fundamental characteristics than VSERS and VSTRS and will not be a focus of this presentation or the work of the Task Force.

	VSERS	VSTRS	VMERS
Active Members	8,539	9,996	7,987
Retired Members and Beneficiaries	7,424	9,843	3,693
Terminated Vested Members	767	887	927
Ratio of Non-Active to Active	0.96	1.07	0.58
Average Payroll	\$64,642	\$64,616	\$41,003
Average Monthly Benefit (Retirees Only)	\$1,755	\$1,830	\$891
Average Annual Benefit (Retirees Only)	\$21,060	\$21,960	\$10,692
Actuarial Value of Assets	\$2,054,825,853	\$2,035,713,611	\$761,505,976
Actuarial Accrued Liability	\$3,095,290,972	\$3,969,002,977	\$1,004,560,034
Unfunded Actuarial Accrued Liability	\$1,040,465,119	\$1,933,289,366	\$243,054,058
Funded Ratio	66.4%	51.3%	75.8%

As of June 30, 2020

# How DB Pensions Are Calculated

- How much money a retiree will receive in pension benefits is defined by a formula based on how long the employee has worked and how much they earned:

**Years of service** x **Average Final Compensation (AFC)** x **Multiplier** = Estimated Annual Pension Benefit

- *Example:* I am a 65 year old state employee with 20 years of service and an AFC of \$66,000. I am a member of VSERS Old Group F.

20 years of service x \$66,000 x 1.67% = \$22,044 (estimate)

- Plans typically define a multiplier and how **AFC** is calculated. Usually, AFC is based on an average of 3-7 of one's highest consecutive years of salary.
- Plans also often cap how large an annual pension benefit can be relative to the AFC (e.g. up to 50 or 60% of AFC in VT).
- "Normal" vs. "early" retirement. To qualify for a normal retirement, an employee must reach a minimum age (or Rule calculation) to receive full pension benefits. Can either be a fixed age (65?) or a **Rule Of** (age + years of service), whichever is reached first.
  - Example: If there is a normal retirement age of 65 and a Rule of 90, an employee who is 63 years old can still retire normally if they have at least 27 years of service (63 + 27 = 90).

# How DB Pensions Are Calculated

- Some plans allow people to retire early (e.g. younger than the normal retirement age or short of the Rule of 87 or 90) but receive a reduced benefit for doing so.
- Some plans also provide **COLAs (Cost of Living Adjustments)** to retirees to help their benefits keep pace with inflation.
- In order to be eligible for a retirement benefit, the employee must be **vested** in the pension system. Vesting = attaining a minimum number of years of service credit (often 5-10 years depending on plan).
  - Employees who leave employment before vesting have their pension contributions refunded.
- Fun facts!
  - VSERS paid out \$153 million in benefits and contribution refunds in 2020
  - VSTRS paid out \$201 million in benefits and contribution refunds in 2020

# HOW PENSIONS WORK



# How Pensions Work

- Pre-funding retirement expenses has the benefit of spreading these costs over time and **taking advantage of compound interest and investment returns to fund benefits.**
- Assets are invested according to an investment strategy. The strategy is designed to achieve the expected rate of return (currently 7.0%) over a long period of time within acceptable standards of risk. Key considerations:
  - Diversification and balance
  - Risk management – try to capture the gains while protecting from losses and inflation
  - Minimize extreme volatility
  - Long view – avoid trying to “time” the market!
  - Liquidity needs
- Common types of pension investments are foreign and domestic equities (stocks), fixed income (bonds), private equity, real estate, etc.
- Investment strategy and performance is periodically reviewed and assets are periodically rebalanced as market conditions evolve (VPIC’s role).
- The goal is not to speculate - instead, the goal is to prudently and responsibly achieve the overall expected rate of return (or more) over time with minimal risk!

# Impact of Compound Investment Returns

Underfunding pensions can lead to enormous actuarial losses over time due to the lost opportunity to invest those funds. These actuarial losses translate to higher budgetary pressures in future years.

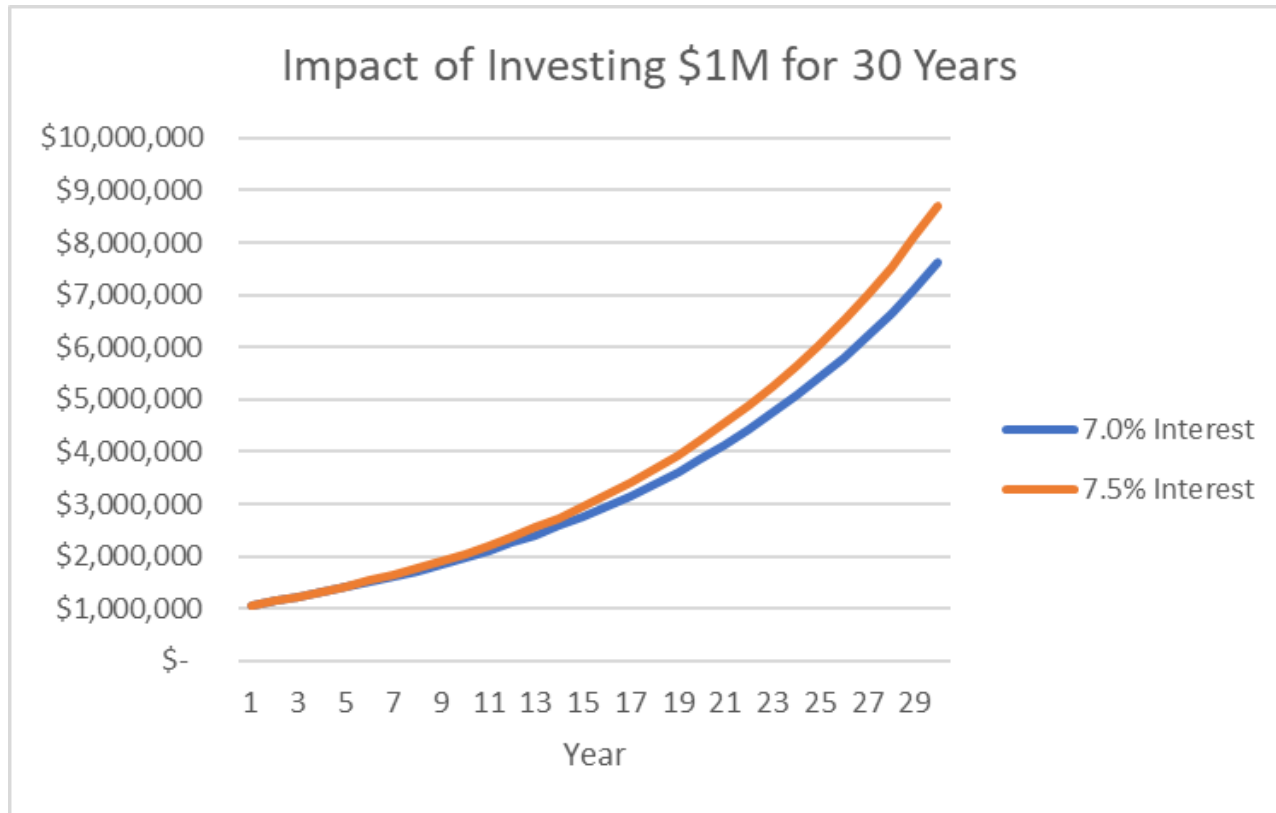
The benefits of compound investment gains grow significantly over time. For example, \$1,000,000 for 30 years will grow to roughly:

- \$7.6 million at 7.0%
- \$8.7 million at 7.5%

In other words, the true cost to the pension system of the employer shorting a payment by \$1 million is much greater than \$1 million. The impact is \$1 million *plus* the compounded investment returns (interest) that the \$1 million would have earned over the amortization period if that money was instead made available to invest at the appropriate time.

Funding shortfalls in one year must be made up through higher ADEC payments into the pension fund in future years (or through other actuarial gains).

Underfunding was a challenge for VSTRS pre-2008 but did **not** drive the significant decline in the plan's funded ratio in the years since.



# How Pensions Work

- Unfunded Liability: The shortfall between the Actuarial Value of Assets and the Actuarial Accrued Liability. The UAAL represents the present value of retirement benefits earned to date that are not covered by the current plan assets.
- Amortization: The method by which the unfunded liability is “paid off” in order to fully fund the pension system by an established time.
  - Vermont: 30 year closed amortization period (2008-2038) established in statute.
  - Unfunded liability amortization payments are calculated to increase by 3% annually to keep pace with payroll growth (level percent of payroll amortization method). The “base” on which these future 3% payment increases are built upon is recalculated annually depending on the size of the unfunded liability and the number of years remaining on the amortization schedule.
- The unfunded liability and ADEC (actuarial determined employer contribution) are recalculated annually based on the performance of the pension fund (annual valuation studies) with the goal of ensuring that the pension system is 100% funded by 2038.
- In addition to the unfunded liability amortization payment, the ADEC also fully funds the normal cost that employee contributions are insufficient to pay for.
  - Normal cost = the amount that must be put into the pension fund every year to fund that year’s worth of future retirement benefits that the active workforce earned that year.
  - Normal cost does not reflect unfunded liabilities (shortfalls attributed to prior years). Instead, it reflects the cost of the year’s future retirement benefits as a percentage of payroll based on actuarial assumptions. In a fully funded pension system with no unfunded liability, the normal cost represents the amount that must be paid into the pension fund on an ongoing basis for the system to remain fully funded.
  - Employee contributions (fixed in statute) now pay for approximately half of the normal cost.
  - Normal cost will change if actuarial assumptions change.

# How Pensions Work

- All three systems have a board of trustees (24 V.S.A. § 5062)
  - General administration of the system
  - 5-8 members, including plan participants.
- VT Pension Investment Commission (VPIC) – 9 members (3 V.S.A. § 522)
  - Responsible for governing the investment of the assets of the three retirement systems and includes plan participants.
  - Approves policies and procedures, investment policy, asset allocations, and appointment of third party managers and consultants.
  - VPIC approves changes to actuarial rate of return.
- Treasurer's Office
  - Custodian of the assets, manages day-to-day operations of VPIC and retirement operations.
  - Manages reporting, studies, and recommends long term policy.
  - Member of all 3 boards of trustees.
- Investment Consultant
  - Prepares investment performance reports
  - Conducts asset liability study
  - Reviews investment manager performance
  - Recommends investment managers for selection by VPIC

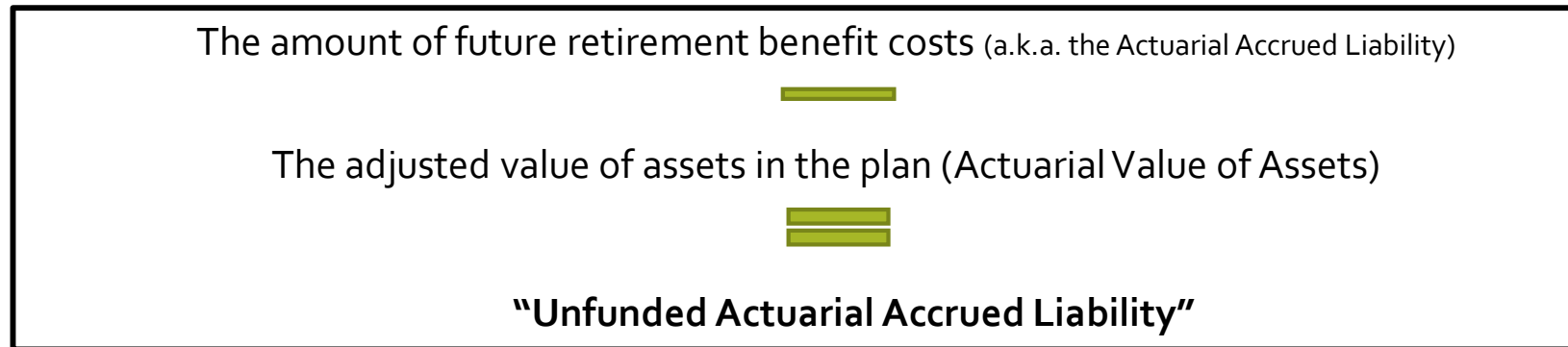
# How Pensions Work

- Legislature:
  - Appropriates the funding to pay the employer ADEC, though the level of appropriation has sometimes historically been higher or lower than the ADEC amount.
    - **ADEC**: Actuarial Determined Employer Contribution. The amount that must be paid into the pension fund each year from employer(s) to fully fund the normal cost plus make a payment toward amortizing the unfunded liability.
    - Under-funding = higher unfunded liability and higher ADEC in future years; missed opportunity to achieve investment gains (compounded every year).
    - Legislature has fully funded ADEC every year since 2007.
  - Establishes various reporting and procedural requirements in statute.
  - Codifies elements of plan benefit design into statute.
  - Establishes the amortization schedule
- Legislature DOES NOT:
  - Determine the assumed rate of return
  - Pick and choose investments

# **THE CHALLENGE AND NUMBERS**

# The Challenge

- **Bottom Line Up Front:** The two pension systems do not have enough assets today to pay for the expected costs of the retirement benefits they will have to pay out in the future. This shortfall has grown since 2008 and is creating escalating pressure on the state's budget.



- The Unfunded Liability essentially represents the funding shortfall to fully pay for promised retirement benefits.
- Unfunded Liability is growing more rapidly than the assets in the plan are growing. This means that the **funded ratio** for the plans is decreasing.

Actuarial Value of Assets

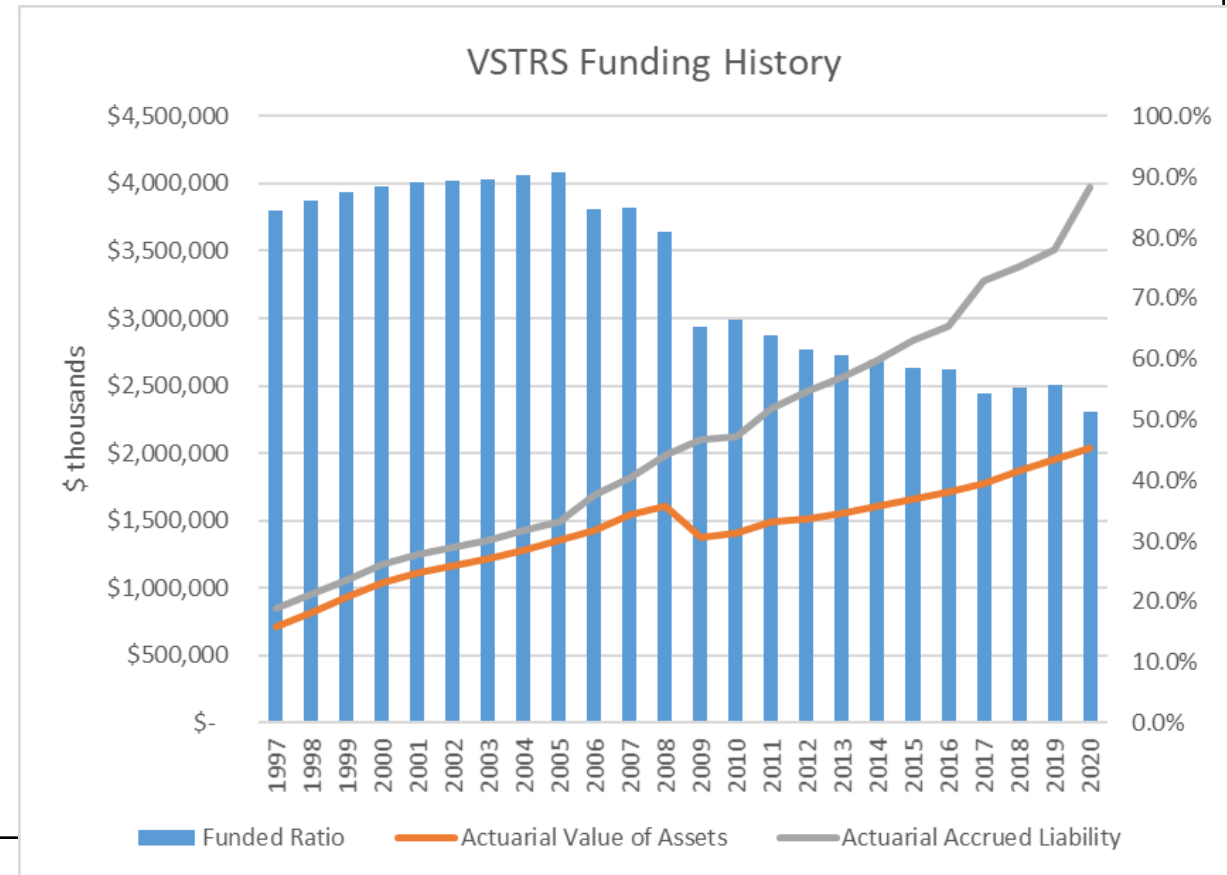
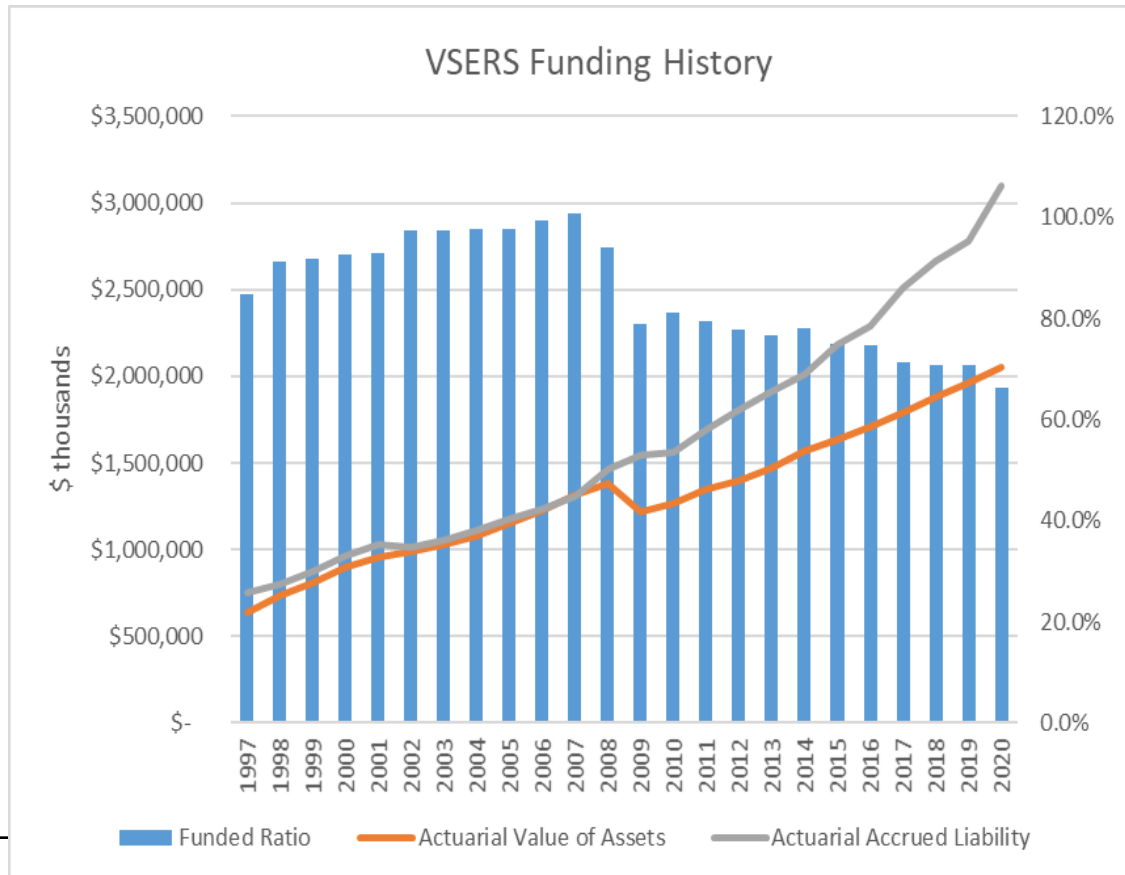
Actuarial Accrued Liability



Funded Ratio

# Funding History

- 15 years ago, Vermont's VSERS and VSTRS pension systems were close to fully funded. By FY2021, the funding ratio for VSERS had dropped to 66.4% and the ratio for VSTRS stood at just 51.3%.
- In that time, future pension costs have grown faster than pension assets – and faster than the active payroll. This has caused the unfunded liability (the gap between future benefit costs and assets) to grow significantly and strains budgets to make up for the shortfall. **Most of the gap grew after 2007 despite the employer fully funding ADEC payments during that time.**





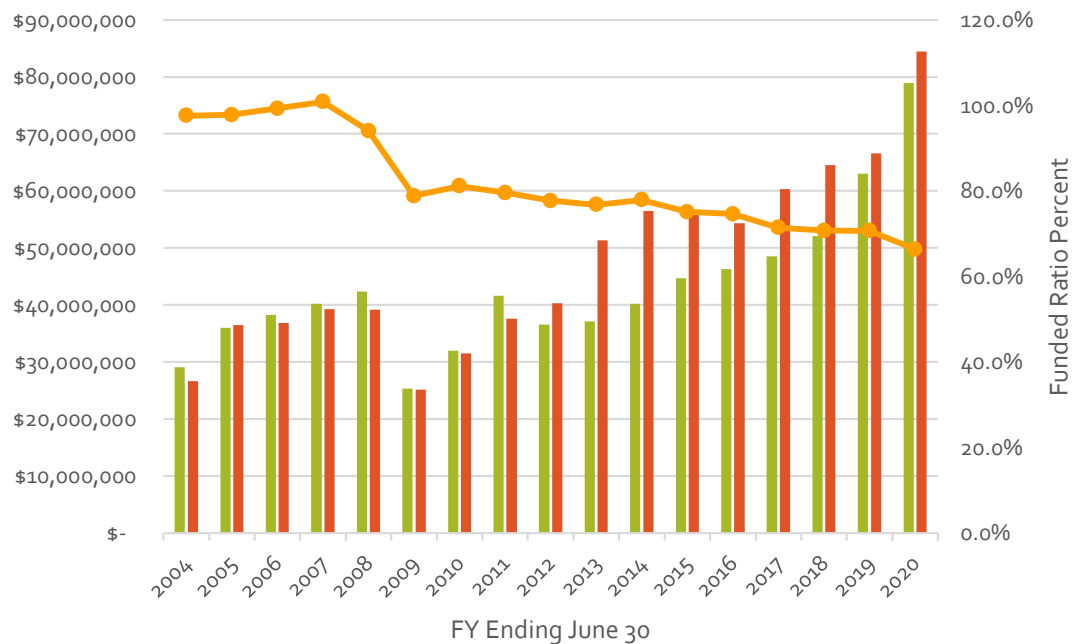
In recent years, costs related to the VSERS and VSTRS pensions have increased substantially due primarily to changes in demographic and economic assumptions, employee experience deviating from assumptions, and investment returns falling short of assumed rates of return.

VSERS Employer Contribution FY07: \$39.3 million  
 VSERS Employer Contribution FY22: \$120.0 million

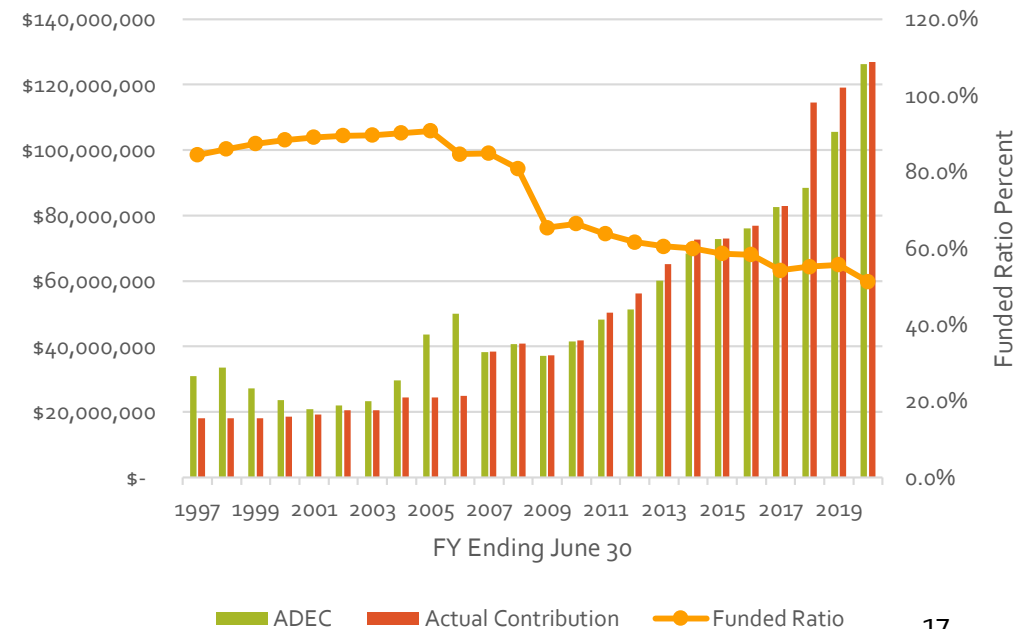
VSTRS Employer Contribution FY07: \$38.5 million  
 VSTRS Employer Contribution FY22: \$196.2 million

Although the employer has fully funded its required payments into the pension systems in recent years (and has often made additional payments above the actuarially required amount), and despite these contributions increasing by **\$238.4 million (306.4%)** from FY07 to FY22, the funded ratios for both pension systems has continued to decline. **VSERS now has an unfunded liability of \$1.040 billion and VSTRS has an unfunded liability of \$1.933 billion.**

VSERS ADEC vs. Actual Funding, FY04-20



VSTRS ADEC vs. Actual Funding, FY97-20



# Budgetary Impact

**VSERS:** Employer pension costs (ADEC) are charged as a percentage of the active payroll to the various funds that employ the active workforce in proportion to their share of the active workforce. General Fund absorbs approximately 40% of the cost.

**VSTRS:** Employer normal cost is charged to the Education Fund. Unfunded liability amortization payment is charged to the General Fund. Schools employing federally funded teachers charge pension costs to federal grants.

For FY22:

VSERS Total ADEC: **\$119.97 million**  
 VSERS General Fund ADEC: \$47.44 million

VSTRS Total ADEC: **\$196.21 million**  
 VSTRS General Fund ADEC: \$152.05 million  
 VSTRS Ed Fund ADEC: \$37.60 million  
 VSTRS Local ADEC: \$6.60 million

Employers will pay a total of approximately **\$316.17 million** for pension obligations in FY22 for both systems.

## Estimated General Fund contribution to retiree pensions and OPEB

(in Millions)

	FY2019	% of	FY2020	% of	FY2021	% of	FY2022	% of
	GF	GF	GF	GF	GF	GF	GF	GF
State Employees' pension	\$ 25.9	1.62%	\$ 31.2	1.94%	\$ 33.1	1.98%	\$ 47.4	2.49%
State Employees' OPEB	\$ 14.8	0.93%	\$ 14.9	0.93%	\$ 14.8	0.89%	\$ 14.9	0.78%
Teachers' pension	\$ 95.5	5.98%	\$ 113.5	7.06%	\$ 119.0	7.13%	\$ 152.0	7.99%
Teachers' OPEB	\$ 31.6	1.98%	\$ 31.1	1.93%	\$ 31.8	1.91%	\$ 35.1	1.84%
<b>Total</b>	<b>\$ 167.8</b>	<b>10.51%</b>	<b>\$ 190.7</b>	<b>11.86%</b>	<b>\$ 198.7</b>	<b>11.91%</b>	<b>\$ 249.5</b>	<b>13.11%</b>

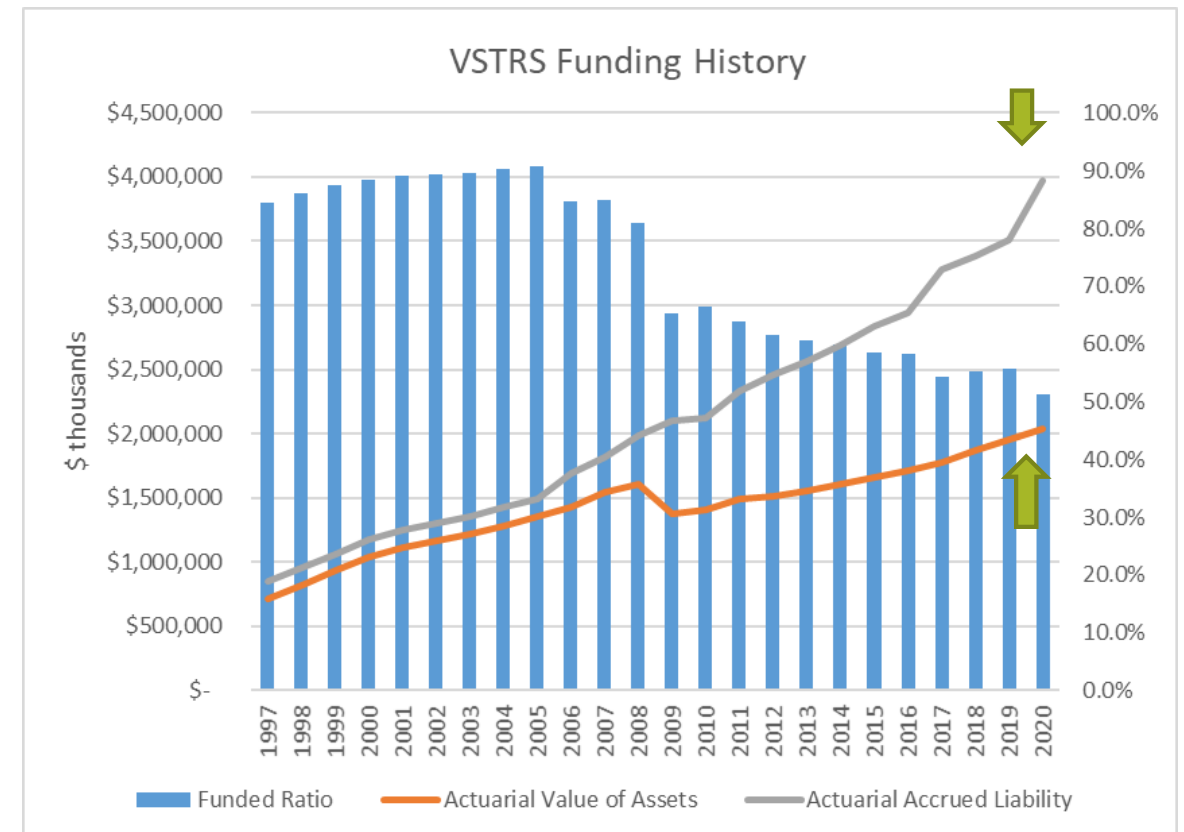
# Strategies to Reduce ADEC Pressures and Improve Funding Ratio

Unfunded liabilities represent the “gap” between the accrued liabilities and the actuarial value of assets. This gap should be closed by the end of the amortization schedule.

Unfunded liabilities must be paid off through higher ADEC payments when all else is held equal. In the conventional pension model, the employer bears the cost of these higher ADEC payments.

Reducing ADEC pressures requires you to take steps to make the asset and liability lines come closer together. For example:

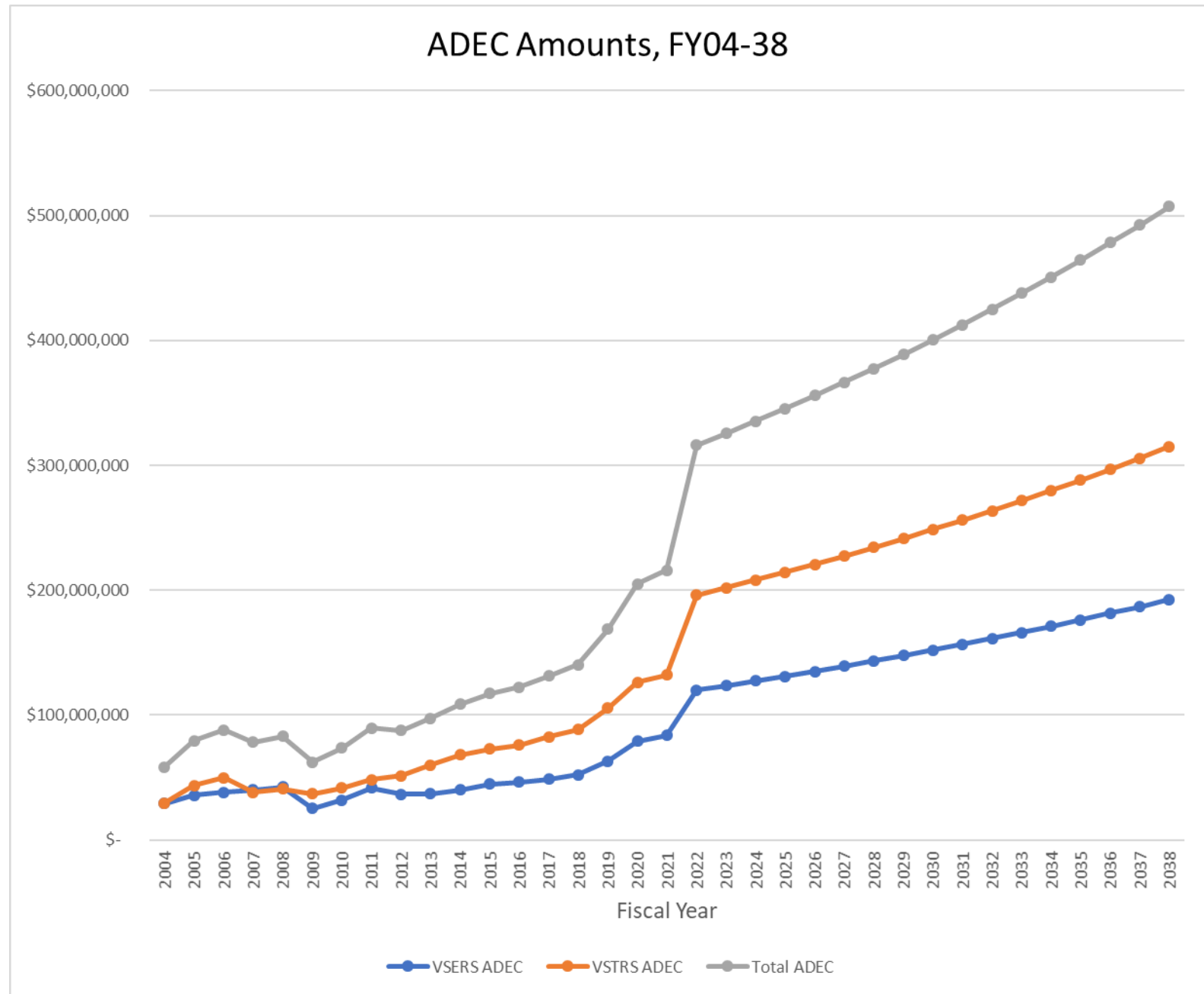
- Additional funding and improved investment performance relative to assumptions will increase the slope of the orange line (assets).
- Changes to benefit provisions may decrease the slope of the gray line (liabilities).



If nothing changes, costs to the employer will continue to increase significantly between now and the end of the amortization period.

Approximately **\$500 million** will need to be paid to the pension systems by 2038 – assuming all assumptions are consistently met between now and then.

Failure to take action to reduce the state's long term liabilities may have negative impacts to the state's bond ratings and lead to additional fiscal pressures.



# **WHY DID THE NUMBERS CHANGE?**

# Main Drivers

- VSERS and VSTRS are relatively mature retirement systems with growing unfunded liability and worsening funding ratios.
- Over the years, investment performance has not consistently achieved the assumed rate of return.
  - Great Recession occurred during current amortization period. Although investment performance has improved relative to similar pension funds, the “hole” caused by the Great Recession was not filled (it actually got deeper over time).
  - Trustees recently lowered assumed rate of return from 7.5% to 7.0% to more realistically match anticipated returns in the future.
- Legacy underfunding issues pre-2008 contributed to VSTRS having a worse funding ratio than VSERS, but did not cause the significant growth in unfunded liabilities/ADEC costs in recent years.
- Demographic and experience factors also have increased pension costs
  - Significant increase in the number of retirees drawing benefits since 2008.
  - People are living longer!
  - Salary growth, COLAs
  - Employee turnover rates

# The Numbers

- Both the VSERS and VSTRS pension systems are facing significant and growing unfunded liabilities. As of the end of FY2020:
  - VSERS had an unfunded liability (UAAL) of **\$1,040,465,119** (188.5% of covered payroll) and a funded ratio of **66.4%**.
  - VSTRS had an unfunded liability (UAAL) of **\$1,933,289,366** (299.3% of covered payroll) and a funded ratio of **51.3%**.
- Due to a combination of factors – primarily **revised economic assumptions** (including reducing the assumed rate of return from 7.5% to 7.0%), **revised demographic assumptions, and prior demographic and economic experience deviating from assumptions**, the unfunded liability amount and actuarially determined (ADEC) payments for both VSERS and VSTRS increased significantly in FY22 from FY21 levels.
  - For VSERS, the unfunded liability increased by \$225 million (to \$1,040.5 million) and the ADEC increased by \$36.1 million (to \$120.0 million).
  - For VSTRS, the unfunded liability increased by \$378.8 million (to \$1,933.3 million) and the ADEC increased by \$64.1 million (to \$196.2 million).

Scope of Changes for Each Fund		
	VSERS	VSTRS
UAAL 2019 Valuation for FY21 Budget	\$815,464,698	\$1,554,459,287
UAAL 2020 Valuation for FY22 Budget	\$1,040,465,119	\$1,933,289,366
<b>Change in UAAL</b>	<b>+\$225,000,421 (27.6%)</b>	<b>+\$378,830,079 (24.4%)</b>
ADEC FY21	\$83,876,570	\$132,141,701
ADEC FY22	\$119,967,769	\$196,206,504
<b>Change to ADEC</b>	<b>+\$36,091,199 (43.0%)</b>	<b>+\$64,064,803 (48.5%)</b>

Fiscal Targets per Act 75		
	25% of YOY FY21-FY22 Increase	100% of YOY FY21-FY22 Increase
<b>VSERS - UAAL</b>	\$56.3 million	\$225.0 million
<b>VSERS - ADEC</b>	\$9.0 million	\$36.1 million
<b>VSTRS - UAAL</b>	\$94.7 million	\$378.8 million
<b>VSTRS - ADEC</b>	\$16.1 million	\$64.1 million

# Why the Numbers Changed

- Every 3-5 years, the pension systems will engage their actuaries to study their workforce and investment data, and compare what happened in recent years (experience) against what the plans *thought* would happen (assumptions). This is called an **experience study**, and the results of the experience study often lead to revised actuarial assumptions.
- Annually, the pension systems will engage their actuaries to report on what happened during the most recent fiscal year with respect to investment and demographic experience. These **valuation studies** calculate the actuarial accrued liabilities, actuarial value of assets, and the shortfall between the two (unfunded liability). Through this process, the size of the unfunded liability and the number of years remaining on the amortization schedule (plus other factors like the normal cost) determine the ADEC payments for two fiscal years into the future.
- Deviations between experience and assumptions, as well as changes to assumptions, lead to actuarial gains/losses – e.g. whether or not the “hole” got deeper. When the hole gets deeper (and all else is equal), ADEC costs increase and funded ratios decrease as the unfunded liability grows.
- As a result of these recent studies, demographic and investment assumptions have been revised. This has translated into significant growth in the unfunded liability (UAAL) for both VSERS and VSTRS, and significantly higher (approximately \$100M) budgetary pressures from FY21 to FY22 and beyond.



<b><u>Changes to Unfunded Liability Over 13 Years</u></b> (\$ million)	<b>VSERS</b>	<b>VSTRS</b>
<b>Unfunded Liability As of Beginning of FY08</b>	<b>-\$11.0</b>	<b>\$274.8</b>
Changes to Actuarial Assumptions, including changes to the assumed rate of return and demographic assumptions	\$496.6	\$828.5
Investment Experience Falling Short of Assumed Rate of Return (including impacts of Great Recession)	\$340.9	\$417.1
Demographic Experience Deviating from Demographic Assumptions	\$290.4	\$268.3
Funding Other Post-Employee Benefits (retiree health care) from Pension System	-	\$155.3
Other Adjustments	-\$76.4	-\$10.7
<b>Unfunded Liability As of End of FY20</b>	<b>\$1,040.5</b>	<b>\$1,933.3</b>

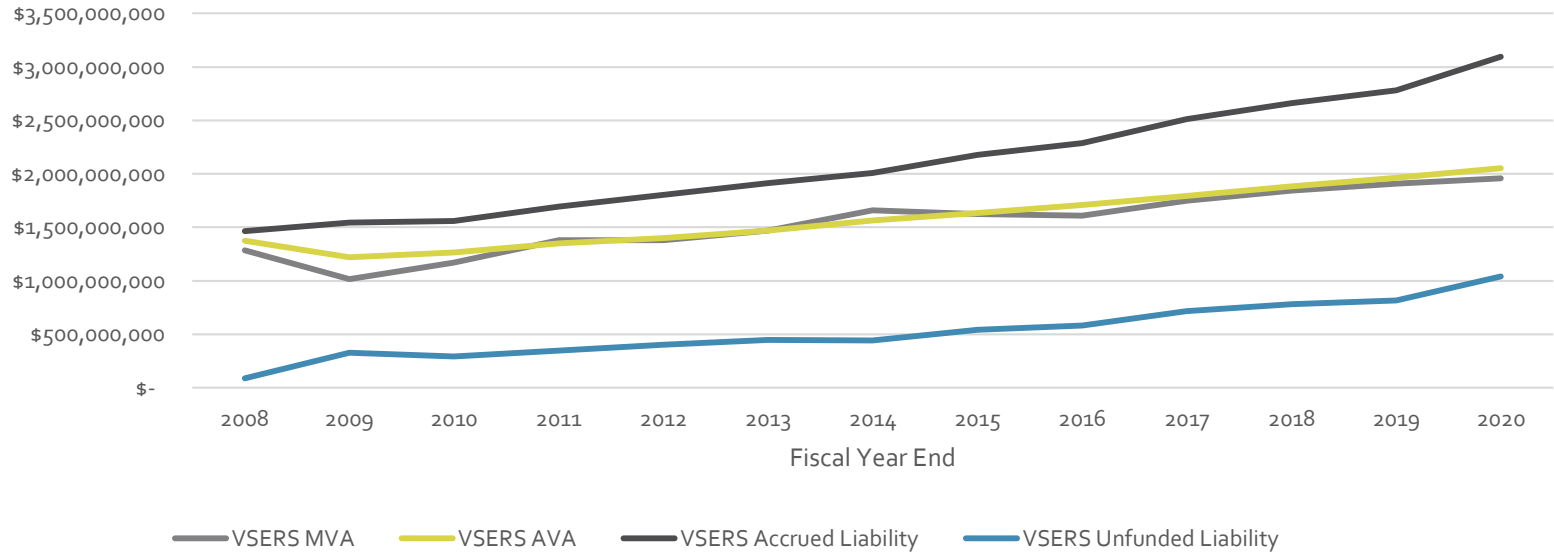
*Chart below excludes Great Recession*

<b><u>Changes to Unfunded Liability Over 10 Years</u></b> (\$ million)	<b>VSERS</b>	<b>VSTRS</b>
<b>Unfunded Liability As of Beginning of FY11</b>	<b>\$293.9</b>	<b>\$711.8</b>
Changes to Actuarial Assumptions, including changes to the assumed rate of return and demographic assumptions	\$489.4	\$783.2
Investment Experience Falling Short of Assumed Rate of Return (excludes Great Recession)	\$56.2	\$52.0
Demographic Experience Deviating from Demographic Assumptions	\$273.9	\$290.5
Funding Other Post-Employee Benefits (retiree health care) from Pension System	-	\$101.5
Other Adjustments	-\$72.9	-\$5.7
<b>Unfunded Liability As of End of FY20</b>	<b>\$1,040.5</b>	<b>\$1,933.3</b>

# Value of Pension Assets

- Pension asset values are tracked two ways:
  - The **Market Value of Assets** reflects what the investments are “worth” at a given point in time.
  - The **Actuarial Value of Assets** adjusts the market value by deferring investment gains/losses over a 5 year period to adjust for short-term volatility.
- The **actuarial value of assets** is used to calculate the normal cost, plan funding ratio, unfunded liability, and ADEC payments.
- The pension systems apply an **assumed (or actuarial) rate of return** to estimate how much of the money needed to pay for the actuarial accrued liability will come from future investment returns.
  - Higher assumed rates of return lead to lower ADEC payments due to smaller projected unfunded liabilities (since assets are assumed to earn more in the investment market, less money needs to come from the ADEC in the future).
  - Lower assumed rates of return lead to higher ADEC payments necessary to bridge the gap between liabilities and expected investment returns (more money needs to come from the ADEC in the future to offset lower investment growth).
- **Unrealistically high assumed rates of return lead to unrealistic projections - and higher unfunded liabilities and ADEC costs later in the amortization period to make up the difference.**

VSERS Market Value of Assets vs. Actuarial Value of Assets

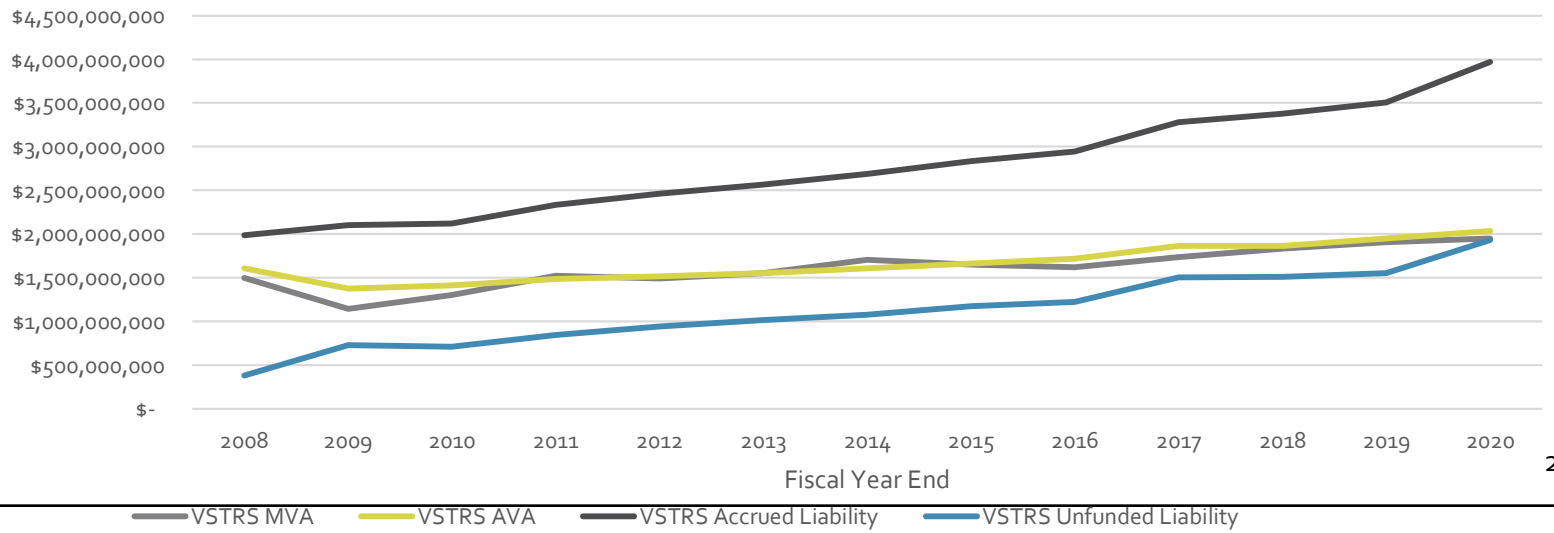


After suffering from significant investment losses during the Great Recession, the asset value for both systems has steadily increased over the last decade.

These assets have not, however, consistently grown at the assumed rates since 2008.

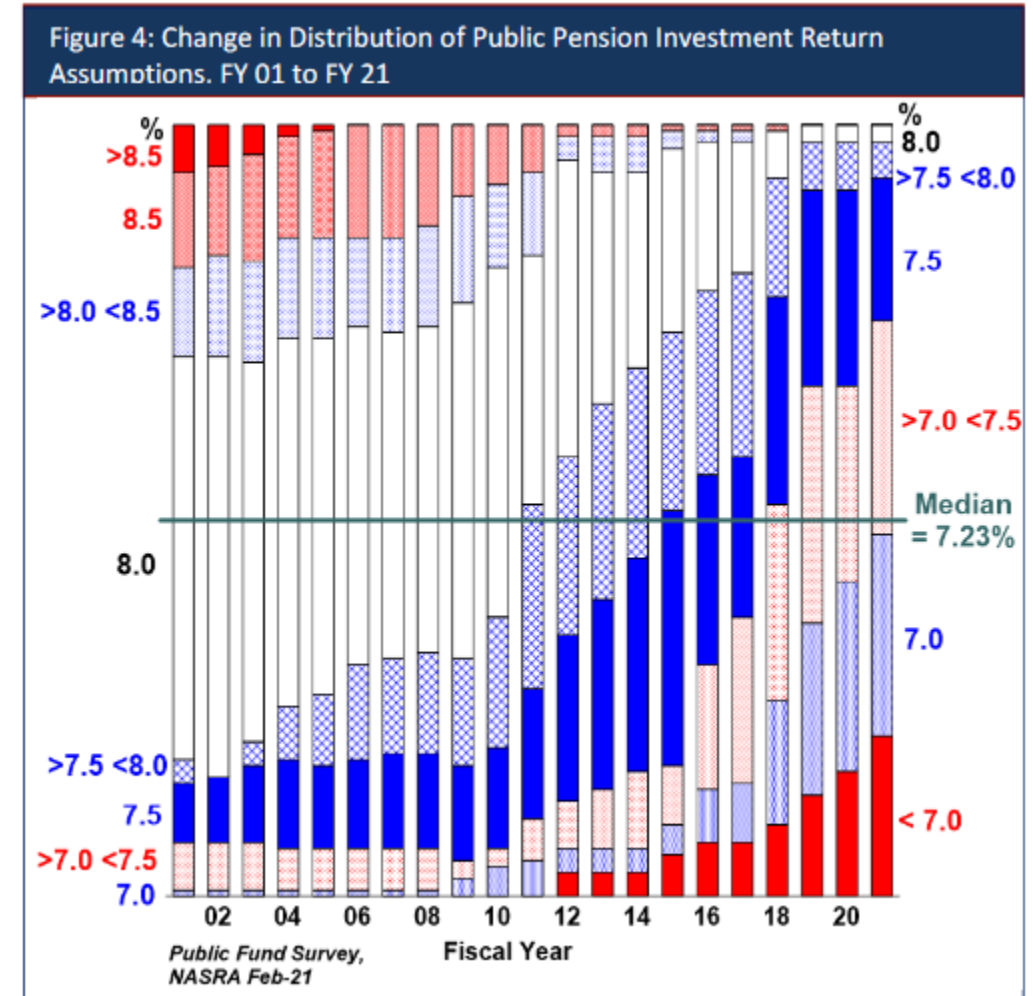
As a result, the gap between future pension costs and assets (the unfunded liability) grew.

VSTRS Market Value of Assets vs. Actuarial Value of Assets



# Assumed Rate of Return

- Pension plans nationwide have lowered their assumed (or actuarial) rates of return in recent years.
- According to data from NASRA, the vast majority of surveyed pension plans now adopt an assumed rate of return lower than 7.5% and a growing number of plans are adopting rates of return lower than 7.0%.
- This trend is driven by:
  - Years of pension plans failing to achieve their prior assumed rates of return in the investment environment.
  - Lower inflation and interest rate experience and projections.
  - Lower expectations for investment gains in future years.
- A more conservative assumed rate of return leads to more realistic assumptions – but also higher ADEC costs in the near term.
- September 2020 – Assumed Rate of Return lowered from 7.5% to 7.0% and inflation assumption lowered from 2.5% to 2.3%. The impact of these changes to economic assumptions between FY21 and FY22 is:
  - VSERS: Increased ADEC by \$17.8 million and UAAL by \$150.7 million
  - VSTRS: Increased ADEC by \$18.3 million and UAAL by \$189.9 million



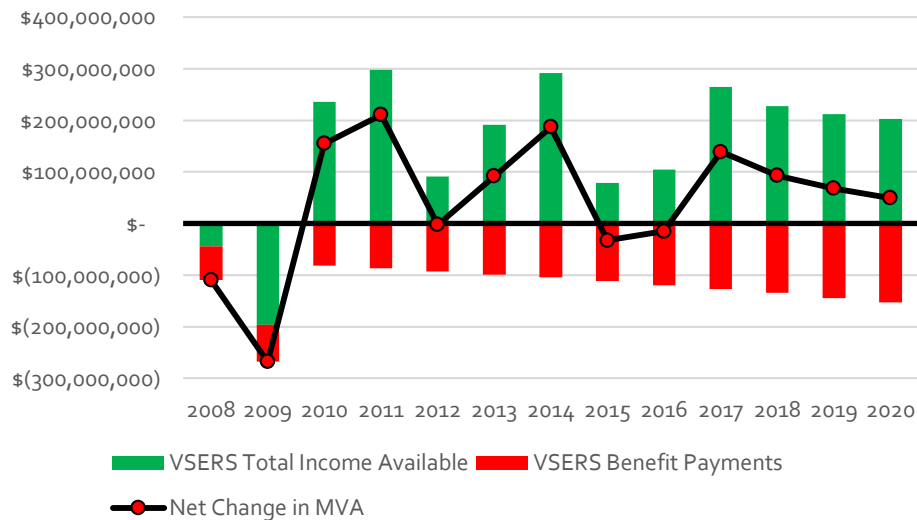
# Change in MVA

Total available income (net of fees and expenses) from employee and employer contributions and investment returns has been positive every fiscal year since 2009.

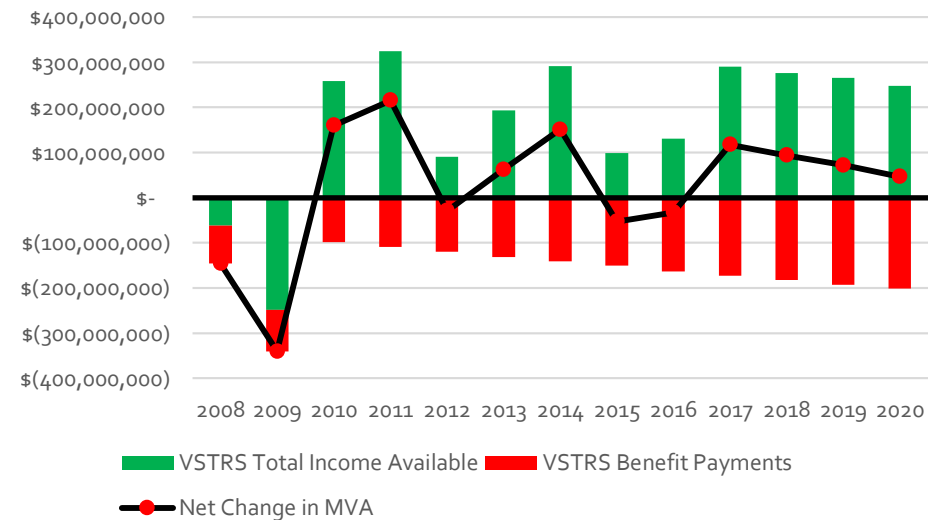
The amount paid out in benefits, however, has steadily increased over that time. Higher benefit payments, plus lower than assumed investment gains, combine to create headwinds that slow the net growth in market value of assets.

**Over time, the MVA must grow at a rate higher than that of pension liabilities for the funding ratio of the plans to improve.**

VSERS Change in Market Value of Assets



VSTRS Change in Market Value of Assets

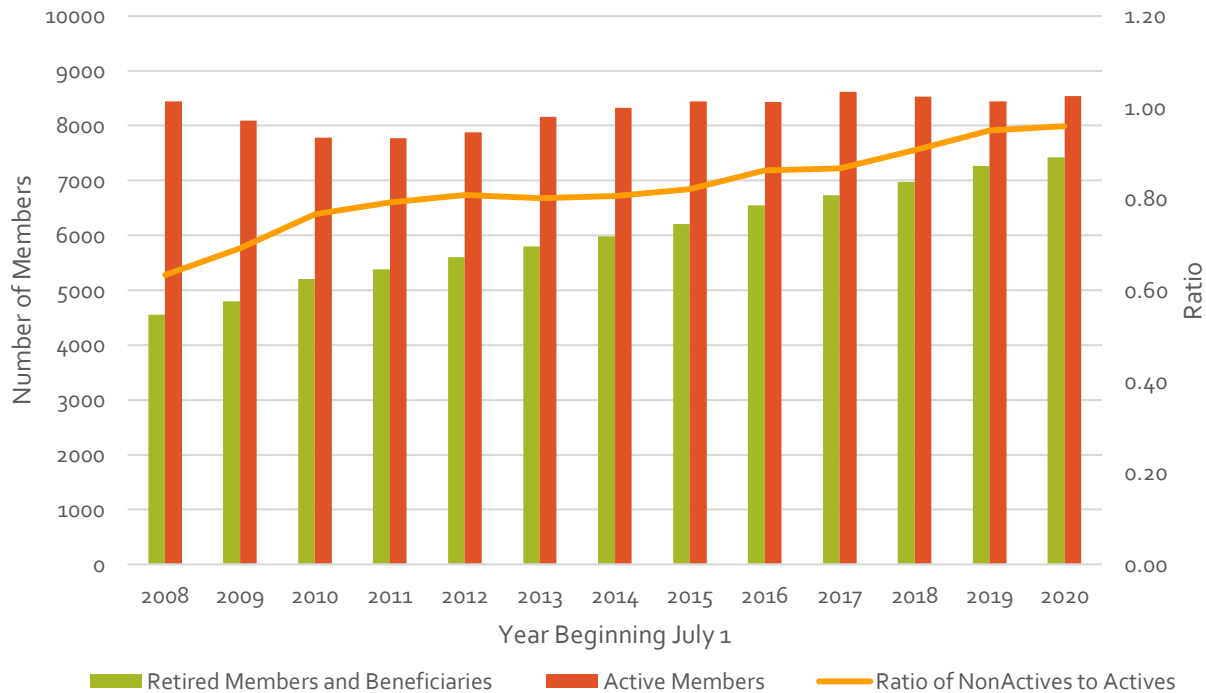


# Plan Maturity

The total number of active VSERS members currently working and paying contributions into the pension system has remained relatively flat while the number of retired members and beneficiaries who are drawing a pension benefit (plus those who are vested and entitled to a benefit but not currently working or receiving one) has increased.

The number of VSERS retirees grew by 63% between 2008 and 2020.

VSERS Membership Characteristics, 2008-2020



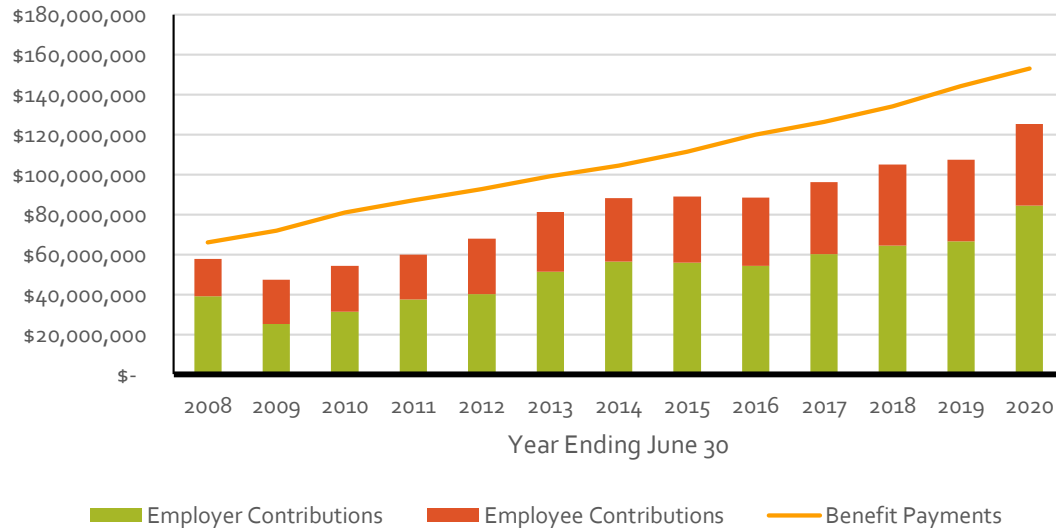
VSERS			
Year Beginning July 1	Active Members	Retirees and Beneficiaries Currently Receiving Benefits	Ratio of Total Non-Active (including deferred) to Active Members
2008	8442	4555	0.63
2009	8095	4797	0.69
2010	7782	5201	0.77
2011	7768	5375	0.79
2012	7878	5600	0.81
2013	8158	5795	0.80
2014	8325	5980	0.81
2015	8446	6204	0.82
2016	8436	6542	0.86
2017	8620	6727	0.87
2018	8530	6974	0.91
2019	8443	7268	0.95
2020	8539	7424	0.96

# Plan Trends

Both the average and aggregate benefit payments to VSERS members have increased since 2008 and at a faster rate than contributions into the system from active members and employers.

Like many mature plans, VSERS pays out more in benefits than it takes in from employer and member contributions each year. Prefunded systems like VSERS rely on investment gains from plan assets to fund most of the aggregate costs of benefit payments.

VSERS Contributions vs. Benefit Payments, FY08-20



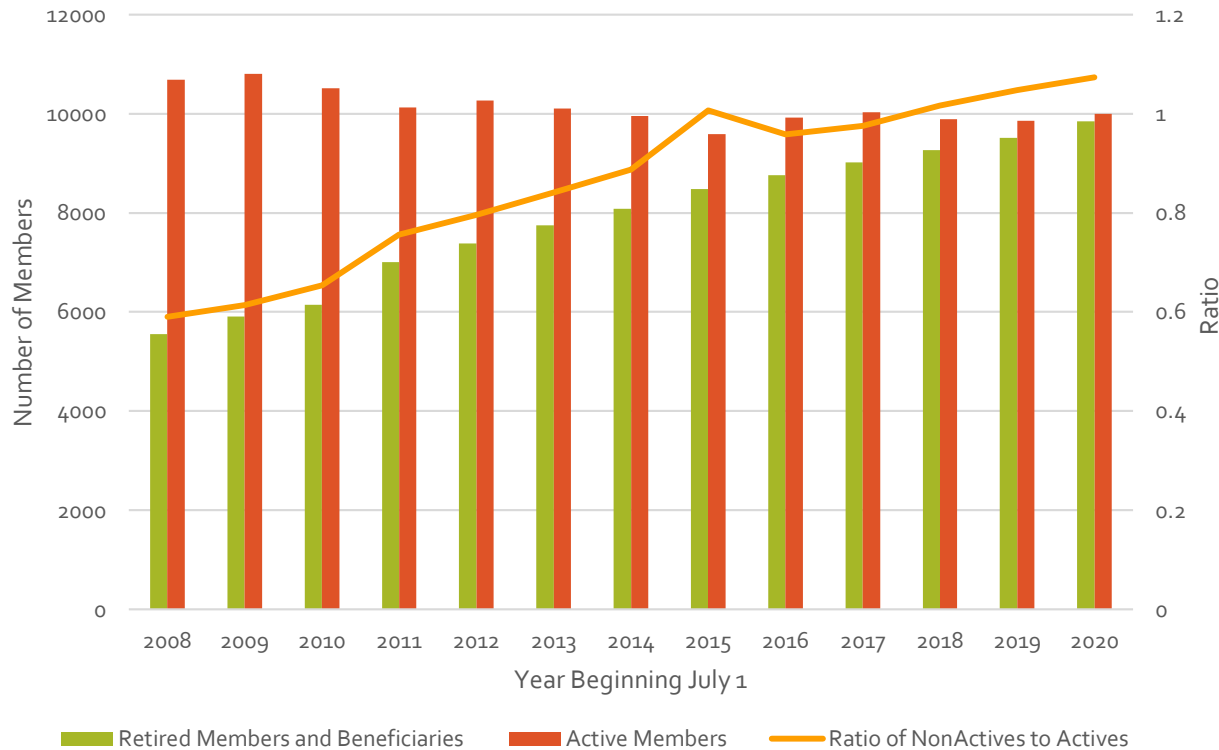
VSERS				
Year Beginning July 1	Employer Contributions	Member Contributions	Benefit Payments	Average Monthly Benefit (Retirees Only)
2008	\$ 39,179,823	\$ 18,614,102	\$ 66,105,953	\$ 1,260
2009	\$ 25,134,235	\$ 22,148,754	\$ 71,925,080	\$ 1,332
2010	\$ 31,468,884	\$ 22,840,354	\$ 81,091,626	\$ 1,348
2011	\$ 37,572,599	\$ 22,269,041	\$ 87,061,787	\$ 1,398
2012	\$ 40,302,433	\$ 27,708,009	\$ 92,781,097	\$ 1,450
2013	\$ 51,370,307	\$ 29,847,352	\$ 99,194,618	\$ 1,478
2014	\$ 56,482,985	\$ 31,745,692	\$ 104,492,553	\$ 1,510
2015	\$ 55,881,364	\$ 33,296,248	\$ 111,396,184	\$ 1,561
2016	\$ 54,347,060	\$ 34,055,217	\$ 120,093,586	\$ 1,587
2017	\$ 60,280,480	\$ 35,966,987	\$ 126,479,801	\$ 1,616
2018	\$ 64,564,323	\$ 40,423,239	\$ 134,090,344	\$ 1,663
2019	\$ 66,617,894	\$ 40,818,039	\$ 144,296,719	\$ 1,718
2020	\$ 84,429,972	\$ 40,902,188	\$ 153,025,531	\$ 1,755

# Plan Maturity

The total number of active VSTRS members currently working and paying contributions into the pension system has declined while the number of retired members and beneficiaries who are drawing a pension benefit (plus those who are vested and entitled to a benefit but not currently working or receiving one) has steadily increased.

The number of VSTRS retirees has grown by 77.2% between 2008 and 2020.

VSTRS Membership Characteristics, 2008-2020



VSTRS	Active Members	Retirees and Beneficiaries Currently Receiving Benefits	Ratio of Total Non-Active (including deferred) to Active Members
Year Beginning July 1			
2008	10685	5555	0.59
2009	10799	5910	0.61
2010	10509	6146	0.65
2011	10123	7005	0.76
2012	10262	7376	0.80
2013	10101	7743	0.84
2014	9952	8086	0.89
2015	9585	8484	1.01
2016	9919	8763	0.96
2017	10028	9021	0.98
2018	9892	9269	1.02
2019	9862	9514	1.05
2020	9996	9843	1.07

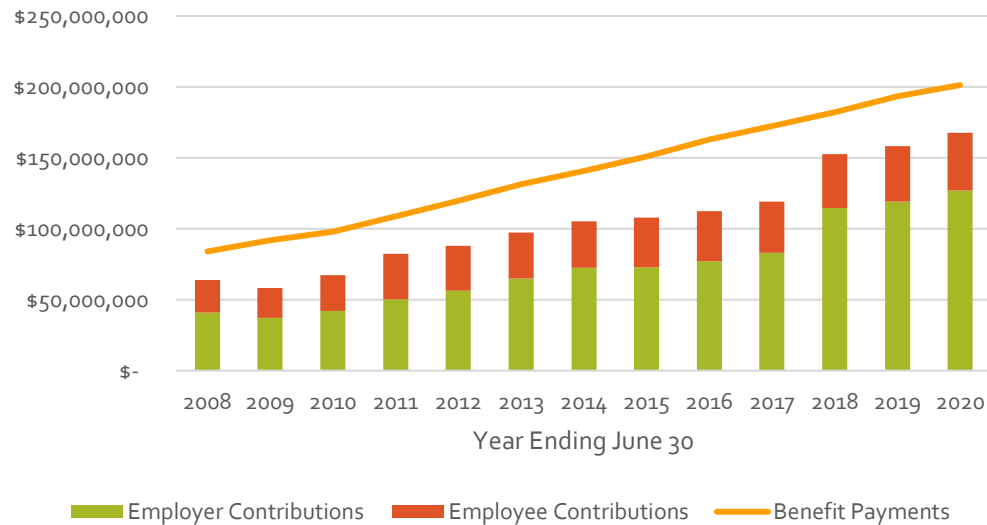


# Plan Trends

Both the average and aggregate benefit payments to VSTRS members have increased since 2008 and at a faster rate than contributions into the system from active members and employers.

Like many mature plans, VSTRS pays out more in benefits than it takes in from employer and member contributions each year. Prefunded systems like VSTRS rely on investment gains from plan assets to fund most of the aggregate costs of benefit payments.

VSTRS Contributions vs. Benefit Payments, FY08-20



VSTRS				
Year Beginning July 1	Employer Contributions	Member Contributions	Benefit Payments	Average Monthly Benefit (Retirees Only)
2008	\$ 40,955,566	\$ 22,918,798	\$ 83,981,022	\$ 1,263
2009	\$ 37,349,818	\$ 20,937,686	\$ 91,853,196	\$ 1,314
2010	\$ 41,920,603	\$ 25,315,397	\$ 97,935,502	\$ 1,319
2011	\$ 50,268,131	\$ 32,062,253	\$ 108,758,513	\$ 1,417
2012	\$ 56,152,011	\$ 31,827,995	\$ 119,713,933	\$ 1,482
2013	\$ 65,086,320	\$ 32,343,368	\$ 131,254,070	\$ 1,514
2014	\$ 72,668,413	\$ 32,558,584	\$ 140,846,837	\$ 1,547
2015	\$ 72,908,805	\$ 34,863,531	\$ 150,732,845	\$ 1,614
2016	\$ 76,947,869	\$ 35,408,763	\$ 162,751,409	\$ 1,641
2017	\$ 82,887,174	\$ 36,142,411	\$ 172,156,063	\$ 1,683
2018	\$ 114,598,921	\$ 37,888,566	\$ 182,258,923	\$ 1,726
2019	\$ 119,174,913	\$ 39,075,342	\$ 193,196,825	\$ 1,771
2020	\$ 126,941,582	\$ 40,598,283	\$ 201,237,170	\$ 1,830

# In Summary...

- Since the Great Recession, Vermont retirement liabilities have grown much faster than pension plan assets:
  - Demographic Pressures:
    - The number of retirees has grown substantially in the last decade while the size of the active workforce has not.
    - The size of the average retirement benefit has also grown, though remains relatively modest.
    - The demographic experience of the workforce, such as retirement and turnover rates, salary growth, and mortality rates, have led to higher costs than originally assumed.
    - **Assumptions have been revised based on this experience, and those assumptions have also led to higher pension costs.**
  - The amount paid out in benefits every year has grown and exceeds the amount paid in from employee and employer contributions, requiring investment assets to make up the difference. This makes it more difficult to dig out of the “hole” from the Great Recession and make progress toward paying down the unfunded liability.
  - Overly optimistic investment assumptions and not always achieving those assumptions also increased unfunded liabilities since the start of the amortization period (which includes Great Recession).
  - Underfunding the VSTRS pension before 2007 had an impact on the growth of the VSTRS pension costs over time and contributed to why VSTRS has a lower funded ratio and higher unfunded liability than VSERS. This impact was magnified by paying for retiree healthcare costs from the VSTRS system before FY2015. **But prior underfunding did not lead to the growth in unfunded liabilities from FY21 to FY22, or to the vast majority of the growth in unfunded liabilities since the start of the current amortization period in 2008.**
  - Most pension systems nationwide have lowered their assumed rates of return in recent years to more realistically match anticipated investment performance. This *may* make it more likely for investment performance to consistently meet the targets in the future. But it also increases the unfunded liability and required employer payments, and lowers the funding ratio for both plans.

# Next Steps....

- Act 75 established this Task Force to (among other duties) provide recommendations to the Legislature that reduce both the unfunded liabilities and ADECs of both systems by 25-100% of the size of the increase from FY21 to FY22 while maintaining the 2038 amortization date. Those targets are translated into dollars in the chart to the right.
- Recommendations may include (and are not limited to) changes to funding policies and benefit structures.
- Recommendations may not include changes to the assumed rate of return.
- Extremely difficult to change benefits on current retirees absent extraordinary circumstances.
- Be mindful of how any changes may impact behavior of current workforce and other unintended consequences.

Full text of Act 75 is available [here](#). Powers and Duties of the Task Force are enumerated in Section 10 (p. 19).

Fiscal Targets per Act 75		
	25% of YOY FY21-FY22 Increase	100% of YOY FY21-FY22 Increase
<b>VSERS - UAAL</b>	\$56.3 million	\$225.0 million
<b>VSERS - ADEC</b>	\$9.0 million	\$36.1 million
<b>VSTRS - UAAL</b>	\$94.7 million	\$378.8 million
<b>VSTRS - ADEC</b>	\$16.1 million	\$64.1 million

# QUESTIONS?

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# THANK YOU!



VERMONT TECHNIQUE  
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# Glossary of Key Terms

- **Actuarial Accrued Liability (AAL):** The present value of the cost of future pension benefits based on the service credits that have been accrued by the workforce as of the valuation date.
- **Actuarial Value of Assets (AVA):** The value of the pension plan's assets when smoothed over time to reduce the effects of short-term volatility in the market value
- **ADEC: Actuarially Determined Employer Contribution.** Formerly called the ARC, the ADEC represents the total amount the employer must pay into the pension system in a given year to pay for the employer share of the normal cost plus a payment toward amortizing the unfunded liability according to schedule.
- **Amortization Period:** The amount of time by which unfunded liabilities are expected to be paid off and the pension system is expected to be fully funded.
- **Assumed Rate of Return:** The rate by which invested plan assets are assumed to grow from investment returns over time.
- **Funding Ratio:** The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL).
- **Market Value of Assets (MVA):** The value of the pension plan's investments at a given point in time.
- **Normal Cost:** The cost of projected pension benefits allocated to the current plan year.
- **Unfunded Actuarial Accrued Liability (UAAL):** The shortfall between the Actuarial Value of Assets and the Actuarial Accrued Liability. The UAAL represents the present value of retirement benefits earned to date that are not covered by the current plan assets.

## VSERS GROUP COMPARISONS

VSERS GROUP COMPARISONS	GROUP A	GROUP C	GROUP D	GROUP F <i>Hired before 7/1/08</i>	GROUP F <i>Hired on or after 7/1/08</i>												
<b>Employee Contributions</b>	6.65% of gross salary	8.53% of gross salary	6.65% of gross salary	6.65% of gross salary	Same												
<b>Employer Contributions</b>	21.4% of gross salary (includes pension & post employment benefits)	21.4% of gross salary (includes pension & post employment benefits)	21.4% of gross salary (includes pension & post employment benefits)	21.4% of gross salary (includes pension & post employment benefits)	Same												
<b>Average Final Compensation (AFC)</b>	Highest 3 consecutive years, including unused annual leave payoff	Highest 2 consecutive years, including unused annual leave payoff	Final salary at retirement	Highest 3 consecutive years, excluding unused annual leave payoff	Same												
<b>Benefit Formula</b>	1.67% x creditable service	2.5% x creditable service	3.33% x creditable service (after 12 years in Group D)	1.25% x service prior to 12/31/90 + 1.67% x service after 1/1/91	Same												
<b>Maximum Benefit Payable</b>	100% of AFC	50% of AFC	100% of Final Salary	50% of AFC	60% of AFC												
<b>Normal Retirement (no reduction)</b>	Age 65 or 62 with 20 years of service	Age 55 (mandatory)	Age 62	Age 62 or with 30 years of service	Age 65 or a combination of age & service credit that equals 87												
<b>Post-Retirement COLA</b>	Full CPI, from a minimum of 1% up to a maximum of 5%, after 12 months of retirement	Full CPI, from a minimum of 1% up to a maximum of 5%, after 12 months of retirement	Full CPI, from a minimum of 1% up to a maximum of 5%, after 12 months of retirement	50% CPI until 1/1/2014; 100% of CPI thereafter, from a minimum of 1% up to a maximum of 5%, after reaching age 62, or (if retired after June 30, 1997) 30 years service	50% CPI until 1/1/2014; 100% of CPI thereafter, from a minimum of 1% up to a maximum of 5%, after reaching age 65 or age and service to equal 87												
<b>Early Retirement Eligibility</b>	Age 55 with 5 years of service or 30 years of service (any age)	Age 50 with 20 years of service	Age 55 with 5 years of service	Age 55 with 5 years of service	Same												
<b>Early Retirement Reduction</b>	Actuarially reduced benefit if under 30 years of service	No reduction	3% per year from age 62	6% per year from age 62	<table border="1" style="font-size: small;"> <thead> <tr> <th>Ser. Years</th> <th>Monthly Red.</th> </tr> </thead> <tbody> <tr> <td>35+</td> <td>1/8<sup>th</sup> of 1%</td> </tr> <tr> <td>30-34</td> <td>1/4<sup>th</sup> of 1%</td> </tr> <tr> <td>25-29</td> <td>1/3<sup>rd</sup> of 1%</td> </tr> <tr> <td>20-24</td> <td>5/12<sup>th</sup> of 1%</td> </tr> <tr> <td>&lt; 20</td> <td>5/9<sup>th</sup> of 1%</td> </tr> </tbody> </table>	Ser. Years	Monthly Red.	35+	1/8 <sup>th</sup> of 1%	30-34	1/4 <sup>th</sup> of 1%	25-29	1/3 <sup>rd</sup> of 1%	20-24	5/12 <sup>th</sup> of 1%	< 20	5/9 <sup>th</sup> of 1%
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< 20	5/9 <sup>th</sup> of 1%																
<b>Post-Retirement Survivorship Options</b>	100% and 50% (with or without pop-ups), all actuarially reduced based on age of beneficiary	70% spousal survivorship with no reduction in retiree's benefit	100% and 50% (with or without pop-ups), all actuarially reduced based on age of beneficiary	100% and 50% (with or without pop-ups), all actuarially reduced based on age of beneficiary	Same												

## VSTRS GROUP COMPARISONS

<b>VSTRS GROUP COMPARISONS</b>	<b>GROUP A</b>	<b>GROUP C – Group #1*</b>	<b>GROUP C – Group #2**</b>
<b>Employee Contributions</b>	5.5% of gross salary	5.0% of gross salary	5.0% of gross salary***
<b>Employer Contributions</b>	varies based on actuarial recommendation	varies based on actuarial recommendation	varies based on actuarial recommendation
<b>Benefit Formula</b>	1.67% x creditable service	1.25% x service prior to 6/30/90 + 1.67% x service after 7/1/90	1.25% x service prior to 6/30/90 1.67% x service after 7/1/90 2.0% after attaining 20.0 years
<b>Maximum Benefit Payable</b>	100% of AFC	53.34% of AFC	60% of AFC
<b>Average Final Compensation (AFC)</b>	Highest 3 consecutive years, including unused annual leave, sick leave, and bonus/incentives	Highest 3 consecutive years, excluding all payments for anything other than service actually performed	Highest 3 consecutive years, excluding all payments for anything other than service actually performed
<b>Normal Retirement (no reduction)</b>	Age 60 or with 30 years of service	Age 62 or with 30 years of service	Age 65 or when the sum of age and service credit equals 90
<b>Post-Retirement COLA</b>	Full CPI, up to a maximum of 5% after 12 months of retirement; minimum of 1%	50% CPI, up to a maximum of 5% after 12 months of retirement or with 30 years; minimum of 1%	50% CPI, up to a maximum of 5%
<b>Early Retirement Eligibility</b>	Age 55 with 5 years of service	Age 55 with 5 years of service	Age 55 with 5 years of service
<b>Early Retirement Reduction</b>	Actuarial reduction	6% per year from age 62	Actuarial reduction
<b>Post-Retirement Survivorship Options</b>	100%, 75%, and 50% (with or without pop-ups), all actuarially reduced based on age of beneficiary	100%, 75%, and 50% (with or without pop-ups), all actuarially reduced based on age of beneficiary	100%, 75%, and 50% (with or without pop-ups), all actuarially reduced based on age of beneficiary
<b>Benefit Eligibility – Other (Vested Rights, Disability, Death-in-Service)</b>	5 years of service (vested and disability) 10 years of service, or age 55 with 5 years (death-in-service)	5 years of service (vested and disability) 10 years of service, or age 55 with 5 years (death-in-service)	5 years of service (vested and disability) 10 years of service, or age 55 with 5 years (death-in-service)
<b>Disability Benefit</b>	Unreduced, accrued benefit with minimum of 25% of AFC	Unreduced, accrued benefit with minimum of 25% of AFC	Unreduced, accrued benefit with minimum of 25% AFC
<b>Death-in-Service Benefit</b>	Disability benefit or early retirement benefit, whichever is greater, with 100% survivorship factor applied, plus children's benefit up to maximum of 3 concurrently	Disability benefit or early retirement benefit, whichever is greater, with 100% survivorship factor applied, plus children's benefit up to maximum of 3 concurrently	Disability benefit or early retirement benefit, whichever is greater, with 100% survivorship factor applied, plus children's benefit up to maximum of 3 concurrently
<b>Medical Benefits</b>	Health subsidy based on member's service credit	Health subsidy based on member's service credit	Health subsidy based on member's service credit
<b>Dental</b>	Member pays the full premium	Member pays the full premium	Member pays the full premium

Group A members cease contributions upon attainment of 25 years of service.

Group #1 are members who were at least 57 years of age or had at least 25 years of service on June 30, 2010.

\*\*Group #2 are members who were less than age 57 and had less than 25 years of service credit on June 30, 2010.

\*\*\* Group #2 members who had less than 5 years of service credit as of June 30, 2014 will contribute 6% of gross salary.



# Drivers of Unfunded Liability Growth

	Cumulative Impact on VSERS UAAL FY08-20	Cumulative Impact on VSERS UAAL FY11-20
<b>UAAL At Start of FY2008/FY2011</b>	<b>-\$11,043,959</b>	<b>\$293,920,094</b>
Changes in actuarial assumptions/assumed rate of return	\$496,585,631	\$489,354,525
Changes in system provisions	\$47,465,002	\$22,252
Incorporation of temporary salary decreases	-\$69,913,212	\$0
Changes in employee contribution rate	-\$2,610,261	-\$2,610,261
All other expected increases/reductions not listed above	-\$60,121,223	-\$79,843,570
Other experience (gain)/loss	\$8,798,318	\$9,482,240
Salary experience (gain)/loss	\$95,412,297	\$95,627,506
COLA experience (gain)/loss	-\$123,330,922	-\$110,469,758
Net turnover	\$75,871,622	\$61,630,140
Investments	\$340,892,939	\$56,205,931
Mortality	\$30,831,006	\$40,657,045
Retirements	\$115,430,054	\$97,520,027
Disability Experience	\$3,488,441	\$2,357,312
Other (gain)/loss	\$92,709,386	\$86,611,636
<b>UAAL At End of FY2020</b>	<b>\$1,040,465,119</b>	<b>\$1,040,465,119</b>

	Cumulative Impact on VSTRS UAAL FY08-20	Cumulative Impact on VSTRS UAAL FY11-20
<b>UAAL At Start of FY2008/FY2011</b>	<b>\$274,790,333</b>	<b>\$711,823,061</b>
Changes in actuarial assumptions/assumed rate of return	\$828,540,973	\$783,238,313
Expected adjustments excluding assumption/benefit changes	\$35,649,293	-\$5,786,660
Changes to plan provisions	-\$46,409,122	\$0
Investments	\$417,080,142	\$52,038,767
Salary experience (gain)/loss	-\$125,809,942	-\$125,779,835
COLA experience (gain)/loss	-\$102,512,822	-\$88,185,397
Mortality	\$7,100,702	\$20,000,804
Retirements	\$133,685,412	\$162,532,393
Disability Experience	\$3,761,046	\$2,670,773
Net Turnover	\$352,581,502	\$319,901,420
Contribution shortfall including healthcare costs	\$155,334,621	\$101,499,179
Other (gain)/loss	-\$502,768	-\$663,448
<b>UAAL At End of FY2020</b>	<b>\$1,933,289,370</b>	<b>\$1,933,289,370</b>



# Funding History, 1997 - 2020

VSERS (\$000)						
Year Ending June 30	Actuarial Value of Assets	Actuarial Accrued Liability	UAAL	Funded Ratio	Covered Payroll	UAAL as Pct of Covered Payroll
1997	\$ 639,128	\$ 753,883	\$ 114,755	84.8%	\$ 227,000	50.6%
1998	\$ 733,716	\$ 804,501	\$ 70,785	91.2%	\$ 235,956	30.0%
1999	\$ 804,970	\$ 876,412	\$ 71,442	91.8%	\$ 238,281	30.0%
2000	\$ 895,151	\$ 967,064	\$ 71,913	92.6%	\$ 266,519	27.0%
2001	\$ 954,821	\$ 1,026,993	\$ 72,172	93.0%	\$ 278,507	25.9%
2002	\$ 990,450	\$ 1,017,129	\$ 26,679	97.4%	\$ 300,994	8.9%
2003	\$ 1,025,469	\$ 1,052,004	\$ 26,535	97.5%	\$ 319,855	8.3%
2004	\$ 1,081,359	\$ 1,107,634	\$ 26,275	97.6%	\$ 336,615	7.8%
2005	\$ 1,148,908	\$ 1,174,796	\$ 25,888	97.8%	\$ 349,258	7.4%
2006	\$ 1,223,323	\$ 1,232,367	\$ 9,044	99.3%	\$ 369,310	2.4%
2007	\$ 1,318,687	\$ 1,307,643	\$ (11,044)	100.8%	\$ 386,917	-2.9%
2008	\$ 1,377,101	\$ 1,464,202	\$ 87,101	94.1%	\$ 404,593	21.5%
2009	\$ 1,217,638	\$ 1,544,144	\$ 326,506	78.9%	\$ 404,516	80.7%
2010	\$ 1,265,404	\$ 1,559,324	\$ 293,920	81.2%	\$ 393,829	74.6%
2011	\$ 1,348,763	\$ 1,695,301	\$ 346,538	79.6%	\$ 398,264	87.0%
2012	\$ 1,400,779	\$ 1,802,604	\$ 401,825	77.7%	\$ 385,526	104.2%
2013	\$ 1,469,170	\$ 1,914,300	\$ 445,130	76.7%	\$ 416,766	106.8%
2014	\$ 1,566,076	\$ 2,010,090	\$ 444,014	77.9%	\$ 437,676	101.4%
2015	\$ 1,636,268	\$ 2,178,827	\$ 542,559	75.1%	\$ 462,057	117.4%
2016	\$ 1,707,268	\$ 2,289,452	\$ 582,184	74.6%	\$ 471,268	123.5%
2017	\$ 1,793,795	\$ 2,511,373	\$ 717,578	71.4%	\$ 504,553	142.2%
2018	\$ 1,881,805	\$ 2,661,609	\$ 779,804	70.7%	\$ 521,671	149.5%
2019	\$ 1,964,501	\$ 2,779,966	\$ 815,465	70.7%	\$ 527,571	154.6%
2020	\$ 2,054,826	\$ 3,095,291	\$ 1,040,465	66.4%	\$ 551,981	188.5%

VSTRS (\$000)						
Year Ending June 30	Actuarial Value of Assets	Actuarial Accrued Liability	UAAL	Funded Ratio	Covered Payroll	UAAL as Pct of Covered Payroll
1997	\$ 717,396	\$ 849,179	\$ 131,783	84.5%	\$ 364,695	36.1%
1998	\$ 821,977	\$ 955,694	\$ 133,717	86.0%	\$ 357,899	37.4%
1999	\$ 931,056	\$ 1,065,754	\$ 134,698	87.4%	\$ 372,299	36.2%
2000	\$1,037,466	\$ 1,174,087	\$ 136,621	88.4%	\$ 387,999	35.2%
2001	\$1,116,846	\$ 1,254,341	\$ 137,495	89.0%	\$ 403,258	34.1%
2002	\$1,169,294	\$ 1,307,202	\$ 137,908	89.5%	\$ 418,904	32.9%
2003	\$1,218,001	\$ 1,358,822	\$ 140,821	89.6%	\$ 437,239	32.2%
2004	\$1,284,833	\$ 1,424,661	\$ 139,828	90.2%	\$ 453,517	30.8%
2005	\$1,354,006	\$ 1,492,150	\$ 138,144	90.7%	\$ 468,858	29.5%
2006	\$1,427,393	\$ 1,686,502	\$ 259,109	84.6%	\$ 499,044	51.9%
2007	\$1,541,860	\$ 1,816,650	\$ 274,790	84.9%	\$ 515,573	53.3%
2008	\$1,605,462	\$ 1,984,967	\$ 379,505	80.9%	\$ 535,807	70.8%
2009	\$1,374,079	\$ 2,101,838	\$ 727,759	65.4%	\$ 561,588	129.6%
2010	\$1,410,368	\$ 2,122,191	\$ 711,823	66.5%	\$ 562,150	126.6%
2011	\$1,486,698	\$ 2,331,806	\$ 845,108	63.8%	\$ 547,748	154.3%
2012	\$1,517,410	\$ 2,462,913	\$ 945,503	61.6%	\$ 561,179	168.5%
2013	\$1,552,924	\$ 2,566,834	\$ 1,013,910	60.5%	\$ 563,623	179.9%
2014	\$1,610,286	\$ 2,687,049	\$ 1,076,763	59.9%	\$ 567,074	189.9%
2015	\$1,662,346	\$ 2,837,375	\$ 1,175,029	58.6%	\$ 557,708	210.7%
2016	\$1,716,296	\$ 2,942,024	\$ 1,225,728	58.3%	\$ 586,397	209.0%
2017	\$1,779,592	\$ 3,282,045	\$ 1,502,453	54.2%	\$ 607,355	247.4%
2018	\$1,866,121	\$ 3,379,554	\$ 1,513,433	55.2%	\$ 612,899	246.9%
2019	\$1,950,860	\$ 3,505,319	\$ 1,554,459	55.7%	\$ 624,908	248.8%
2020	\$2,035,714	\$ 3,969,003	\$ 1,933,289	51.3%	\$ 645,903	299.3%