

TOWN OF BAY HARBOR ISLANDS  
EMPLOYEES RETIREMENT SYSTEM  
*(POLICE OFFICERS)*

ACTUARIAL VALUATION  
AS OF OCTOBER 1, 2019

DETERMINES THE CONTRIBUTION  
FOR THE 2020/21 FISCAL YEAR



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July 14, 2020

## Introduction

This report presents the results of the October 1, 2019 actuarial valuation of the portion of the Town of Bay Harbor Islands Employees Retirement System that covers police officers. The report is based on the participant data and asset information provided by the pension plan administrator and, except for a cursory review for reasonableness including a comparison to the data provided for the previous valuation, we have not attempted to verify the accuracy of this information.

The primary purpose of this report is to provide a summary of the funded status of the plan as of October 1, 2019 and to determine the minimum required contribution under Chapter 112, Florida Statutes, for the 2020/21 plan year. In addition, this report provides a projection of the long-term funding requirements of the plan, statistical information concerning the assets held in the trust, statistical information concerning the participant population, and a summary of any recent plan changes.

The liabilities and cost presented in this report are based on numerous assumptions concerning the cost of benefits to be provided in the future, long-term investment returns, and the future demographic experience of the current participants. Anyone referring to this report should remember that the cost developed herein is only an *estimate* of the true cost of providing post-employment pension benefits. No one can predict with certainty whether the true cost will be higher or lower than the cost presented in this report. The calculated cost is entirely dependent upon the assumptions that are described in Table IV-A. If any of the assumptions is changed, then the cost shown in this report will change accordingly. Likewise, if any of the assumptions is not completely realized, then the cost shown in this report will change in the future.

Certain assumptions play a bigger role than others in determining the cost of the post-employment pension benefits. In some cases, relatively small changes in a particular assumption can have a dramatic impact on the anticipated cost of benefits. Although a thorough analysis of the impact of such changes is beyond the scope of this report, Table I-B illustrates the impact that alternative long-term investment returns would have on the contribution rate.

## Minimum Required Contribution

Table I-A shows the development of the minimum required contribution for the 2020/21 plan year. The minimum required contribution is \$445,426, which equates to 24.20% of covered payroll. The minimum required contribution increased by \$20,045 from the prior valuation.

Table I-C provides a breakdown of the sources of change in the contribution rate. Significantly, the rate increased by 2.47% of payroll due to investment shortfalls and increased by another 0.30% of payroll due to demographic experience. The market value of assets only earned 3.19% during the 2018/19 plan year, whereas a 6.00% annual investment return was required to maintain a stable contribution rate.



Chapter 112, Florida Statutes, sets forth the rules concerning the minimum required contribution for public pension plans within the state. Essentially, the Town must contribute an amount equal to the annual normal cost of the plan plus an amortization payment towards the unfunded accrued liability and an adjustment as necessary to reflect interest on any delayed payment of the contribution beyond the valuation date.

Based on the current assets, participant data, and actuarial assumptions and methods that are used to value the plan, the present-day value of the total long-term funding requirement is \$14,295,642. As illustrated in Table I-A, current assets are sufficient to cover \$11,907,316 of this amount, the employer's 2019/20 contribution will cover \$425,381 of this amount, the employer's 2020/21 contribution will cover \$445,426 of this amount, and future employee contributions are expected to cover \$608,362 of this amount, leaving \$909,157 to be covered by future employer funding beyond the 2020/21 fiscal year. Again, demographic and investment experience that differs from that assumed will either increase or decrease the future employer funding requirement.

### Amortization of the Unfunded Liability

This plan uses the entry age normal cost method to develop an unfunded liability each year. The unfunded liability is then amortized or "paid off" over a period of time. The period over which the unfunded liability is amortized is often referred to as the "funding period" of the plan. Under Chapter 112 the maximum allowable funding period is 30 years. However, the plan's funding policy utilizes a 10-year funding period for new components of the unfunded accrued liability. As of October 1, 2019, the plan is overfunded by \$525,874.

### Identification and Assessment of Risk

The liabilities and cost presented in this report are based on numerous assumptions concerning the cost of benefits to be provided in the future, long-term investment returns, and the future demographic experience of the current participants. Anyone referring to this report should remember that the cost developed herein is only an *estimate* of the true cost of providing post-employment pension benefits. No one can predict with certainty whether the true cost will be higher or lower than the cost presented in this report. The calculated cost is entirely dependent upon the assumptions that are described in Table IV-A. If any of the assumptions is changed, then the cost shown in this report will change accordingly. Likewise, there is always a risk that, should these assumptions not be realized, the liabilities of the plan, the contributions required to fund the plan, and the funded status of the plan may be significantly different than the amounts shown in this report.

Although a thorough analysis of the risk of not meeting the assumptions is beyond the scope of this report, this discussion is intended to identify the significant risks faced by the plan. In some cases, a more detailed review of the risks, including numerical analysis, may be appropriate to help the plan sponsor and other interested parties assess the specific impact of not realizing certain assumptions. For example, Table I-B illustrates the impact that alternative long-term investment returns would have on the contribution rate. Note that this report is not intended to provide advice on the management or reduction of the identified risks nor is this report intended to provide investment advice.



The most significant risk faced by most defined benefit pension plans is investment risk, i.e. the risk that long-term investment returns will be less than assumed. Other related risks include a risk that, if the investments of the plan decline dramatically over a short period of time (such as occurred with many pension plans in 2008), the plan's assets may not have sufficient time to recover before benefits become due. Even if the assets of the plan grow in accordance with the assumed investment return over time, if benefit payments are expected to be large in the short-term (for example, if the plan provides an actuarial equivalent lump sum payment option and a large number of participants are expected to become entitled to such a lump sum in the near future), the plan's assets may not be sufficient to support such a high level of benefit payments. We have provided a 10-year projection of the expected benefit payments in Table III-G to help the Trustees in formulating an investment policy that is expected to provide an investment return that meets both the short- and long-term cash flow needs of the pension plan.

Another source of risk is demographic experience. This is the risk that participants will receive salary increases that are different than the amount assumed, that participants will retire, become disabled, or terminate their employment at a rate that is different than assumed, and that participants will live longer than assumed, just to cite a few examples of the demographic risk faced by the plan. Although for most pension plans, the demographic risk is not as significant as the investment risk, particularly in light of the fact that the mortality assumption includes a component for future life expectancy increases, the demographic risk can nevertheless be a significant contributing factor to liabilities and contribution rates that become higher than anticipated.

A third source of risk is the risk that the plan sponsor (or other contributing entities) will not make, or will not have the ability to make, the contributions that are required to keep the plan funded at a sufficient level. Material changes in the number of covered employees, covered payroll, and, in some cases, hours worked by active participants can also significantly impact the plan's liabilities and the level of contributions received by the plan.

Finally, an actuarial funding method has been used to allocate the gap between projected liabilities and assets to each year in the future. The contribution rate under some funding methods is higher during the early years of the plan and then is lower during the later years of the plan. Other funding methods provide for lower contribution rates initially, with increasing contribution rates over time.

The Trustees have adopted the individual entry age normal funding method for this plan with level-dollar payments towards the unfunded accrued liability, which is expected to result in a contribution rate that decreases over time as a percentage of payroll. A brief description of the actuarial funding method is provided in Table IV-A.

### Contents of the Report

Tables I-D through I-H provide a detailed breakdown of various liability amounts by type of benefit and by participant group. Tables II-A through II-F provide information concerning the assets of the trust fund. Specifically, Table II-A shows the development of the actuarial value of assets. Tables III-A through III-G provide statistical information concerning the plan's participant population. In particular, Table III-G gives a 10-year projection of the cash that is expected to be required from the trust fund in order to pay benefits to the current group of participants. Finally, Tables IV-A through V-B provide a summary of the actuarial assumptions and methods that are used to value the plan's



benefits and of the relevant plan provisions as of October 1, 2019, as well as a summary of the changes that have occurred since the previous valuation report was prepared.

### Certification

This actuarial valuation was prepared by me or under my direct supervision and I acknowledge responsibility for the results. To the best of my knowledge, the results are complete and accurate and, in my opinion, the techniques and assumptions used are reasonable and meet the requirements and intent of Chapter 112, Florida Statutes. There is no benefit or expense to be provided by the plan and/or paid from the plan's assets for which liabilities or current costs have not been established or otherwise taken into account in the valuation. All known events or trends which may require a material change in plan costs or required contribution rates have been taken into account in the valuation.

For the firm,

*Charles T. Carr*

Charles T. Carr  
Consulting Actuary  
Southern Actuarial Services Company, Inc.

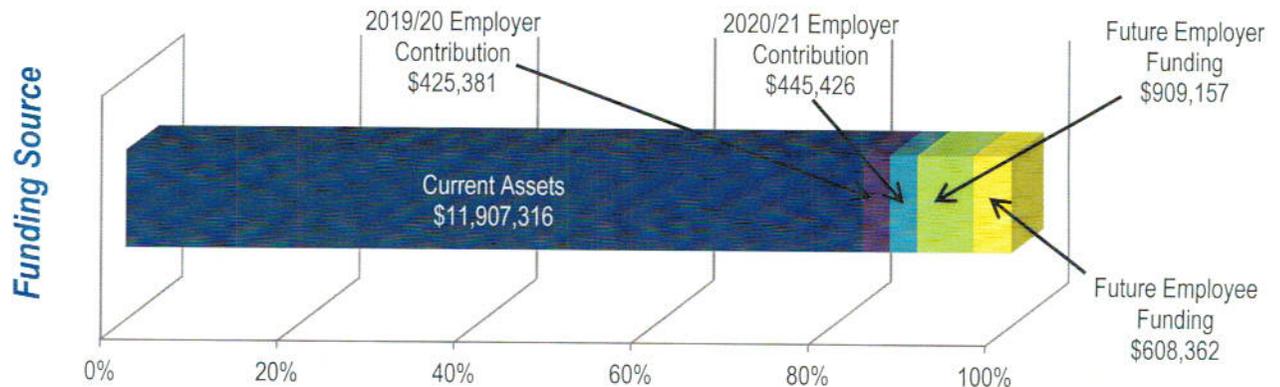
Enrolled Actuary No. 20-04927

*The individual above is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.*



## Minimum Required Contribution

Table I-A



### For the 2020/21 Plan Year

Entry Age Normal Cost	\$622,340
Unfunded Liability Amortization Payment	(\$67,405)
Expense Allowance	\$17,695
Expected Employee Contribution	(\$141,559)
	\$431,071
Adjustment to Reflect Semi-Monthly Employer Contributions	\$13,220
Expected Employer Contribution for the 2019/20 Plan Year	(\$425,381)
Remaining Contribution Due/(Credit) for the 2019/20 Plan Year	\$18,910
	x 0.06
One Year's Interest Charge/(Credit) on the Remaining Contribution	\$1,135

**Minimum Required Contribution for the 2020/21 Plan Year** **\$445,426**

Expected Payroll for the 2020/21 Plan Year	÷ \$1,840,268
Minimum Required Contribution Rate	24.20%

### Additional Disclosures

Present Value of Future Compensation	\$7,604,529
Present Value of Future Employer Contributions	\$1,779,964
Present Value of Future Employee Contributions	\$608,362

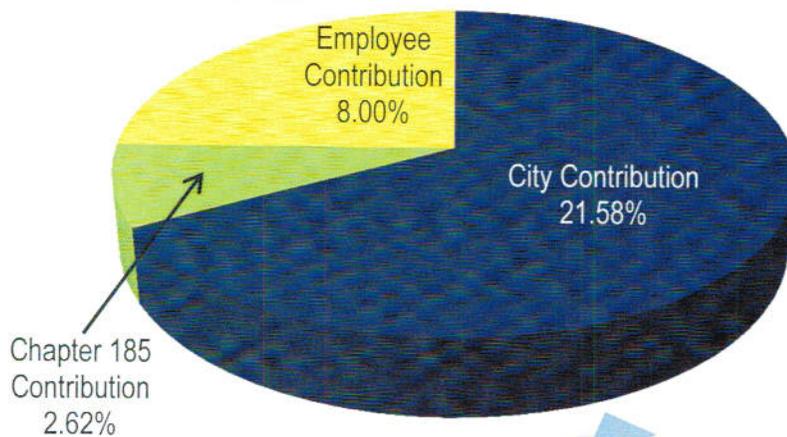


## Minimum Required Contribution

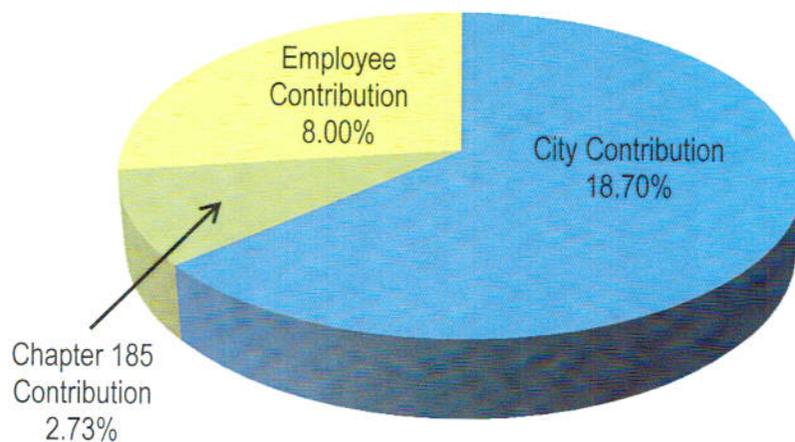
Table I-A  
(continued)

The minimum required contribution rate of 24.20% includes both the City contribution and the allowable Chapter 185 contribution. In addition, employees are required to contribute 8.00% of pensionable earnings. The actual City contribution rate is expected to be approximately 21.58% based on the allowable Chapter 185 contribution for the previous year. The chart below shows the expected contribution rate by source for the 2020/21 plan year based on the expected payroll. A comparative chart shows the contribution rate by source for the previous plan year.

### For the 2020/21 Plan Year

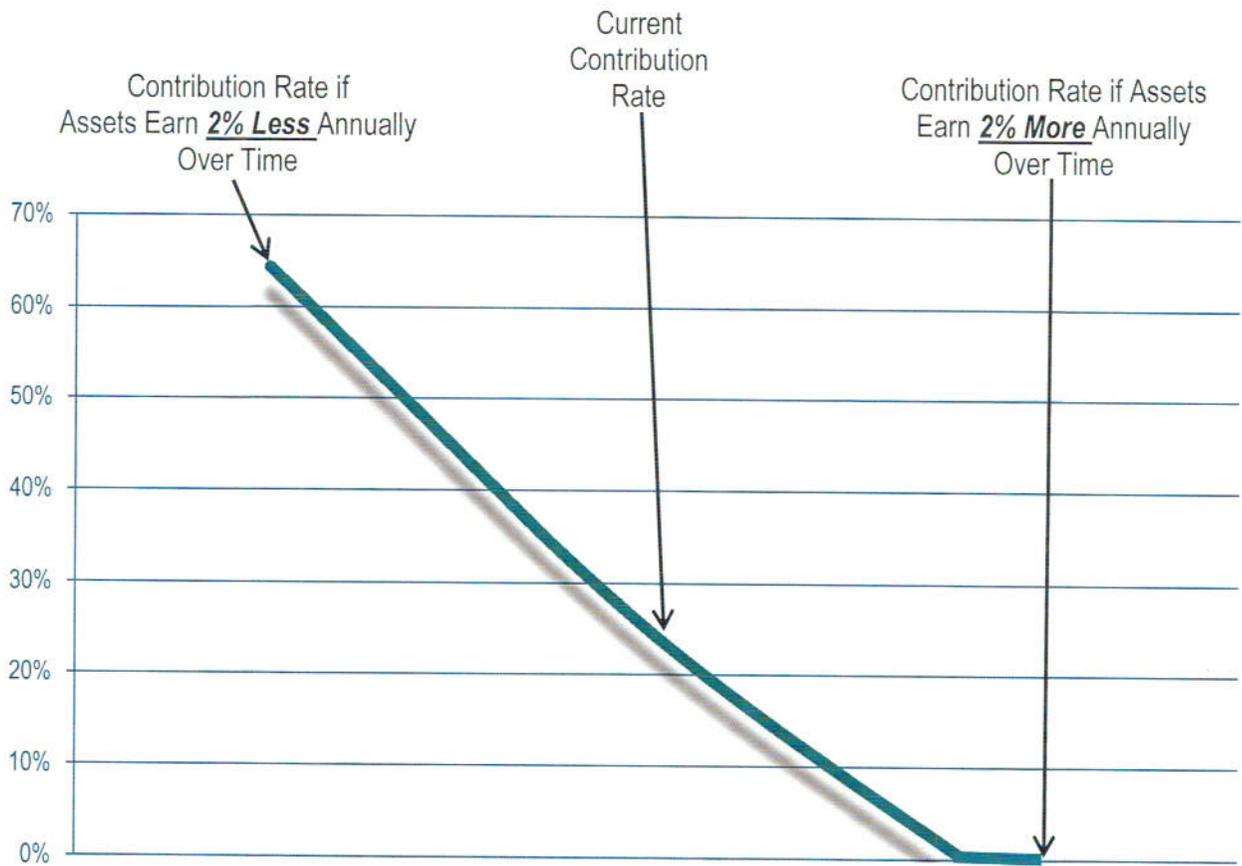


### For the 2019/20 Plan Year



## Sensitivity Analysis

Table I-B



*The line above illustrates the sensitivity of the contribution rate to changes in the long-term investment return.*



Gain and Loss Analysis

Table I-C

Source of Change in the Contribution Rate

Previous contribution rate	21.43%
Increase (decrease) due to investment gains and losses	2.47%
Increase (decrease) due to demographic experience	0.30%
Increase (decrease) due to plan amendments	0.00%
Increase (decrease) due to actuarial assumption changes	0.00%
Increase (decrease) due to actuarial method changes	0.00%
Current contribution rate	<u>24.20%</u>



## Present Value of Future Benefits

Table I-D

	Old Assumptions w/o Amendment	Old Assumptions w/ Amendment	New Assumptions w/ Amendment
<i>Actively Employed Participants</i>			
Retirement benefits	\$10,467,413	\$10,467,413	\$10,467,413
Termination benefits	\$393,501	\$393,501	\$393,501
Disability benefits	\$104,194	\$104,194	\$104,194
Death benefits	\$16,651	\$16,651	\$16,651
Refund of employee contributions	\$9,892	\$9,892	\$9,892
Sub-total	<b>\$10,991,651</b>	<b>\$10,991,651</b>	<b>\$10,991,651</b>
<i>Deferred Vested Participants</i>			
Retirement benefits	\$428,556	\$428,556	\$428,556
Termination benefits	\$0	\$0	\$0
Disability benefits	\$0	\$0	\$0
Death benefits	\$0	\$0	\$0
Refund of employee contributions	\$0	\$0	\$0
Sub-total	<b>\$428,556</b>	<b>\$428,556</b>	<b>\$428,556</b>
<i>Due a Refund of Contributions</i>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<i>Deferred Beneficiaries</i>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<i>Retired Participants</i>			
Service retirements	\$2,799,390	\$2,799,390	\$2,799,390
Disability retirements	\$0	\$0	\$0
Beneficiaries receiving	\$0	\$0	\$0
DROP participants	\$0	\$0	\$0
Sub-total	<b>\$2,799,390</b>	<b>\$2,799,390</b>	<b>\$2,799,390</b>
<i>Grand Total</i>	<b><u>\$14,219,597</u></b>	<b><u>\$14,219,597</u></b>	<b><u>\$14,219,597</u></b>
Present Value of Future Payroll	\$7,604,529	\$7,604,529	\$7,604,529
Present Value of Future Employee Contribs.	\$608,362	\$608,362	\$608,362
Present Value of Future Employer Contribs.	\$1,779,964	\$1,779,964	\$1,779,964



## Present Value of Accrued Benefits

Table I-E

	<u>Old Assumptions w/o Amendment</u>	<u>Old Assumptions w/ Amendment</u>	<u>New Assumptions w/ Amendment</u>
<i><u>Actively Employed Participants</u></i>			
Retirement benefits	\$7,148,562	\$7,148,562	\$7,148,562
Termination benefits	\$168,782	\$168,782	\$168,782
Disability benefits	\$95,573	\$95,573	\$95,573
Death benefits	\$6,862	\$6,862	\$6,862
Refund of employee contributions	\$8,119	\$8,119	\$8,119
Sub-total	<b>\$7,427,898</b>	<b>\$7,427,898</b>	<b>\$7,427,898</b>
<i><u>Deferred Vested Participants</u></i>			
Retirement benefits	\$428,556	\$428,556	\$428,556
Termination benefits	\$0	\$0	\$0
Disability benefits	\$0	\$0	\$0
Death benefits	\$0	\$0	\$0
Refund of employee contributions	\$0	\$0	\$0
Sub-total	<b>\$428,556</b>	<b>\$428,556</b>	<b>\$428,556</b>
<i><u>Due a Refund of Contributions</u></i>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<i><u>Deferred Beneficiaries</u></i>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<i><u>Retired Participants</u></i>			
Service retirements	\$2,799,390	\$2,799,390	\$2,799,390
Disability retirements	\$0	\$0	\$0
Beneficiaries receiving	\$0	\$0	\$0
DROP participants	\$0	\$0	\$0
Sub-total	<b>\$2,799,390</b>	<b>\$2,799,390</b>	<b>\$2,799,390</b>
<i><u>Grand Total</u></i>	<b><u>\$10,655,844</u></b>	<b><u>\$10,655,844</u></b>	<b><u>\$10,655,844</u></b>



## Present Value of Vested Benefits

Table I-F

	Old Assumptions w/o Amendment	Old Assumptions w/ Amendment	New Assumptions w/ Amendment
<i>Actively Employed Participants</i>			
Retirement benefits	\$6,923,148	\$6,923,148	\$6,923,148
Termination benefits	\$134,035	\$134,035	\$134,035
Disability benefits	\$95,573	\$95,573	\$95,573
Death benefits	\$6,862	\$6,862	\$6,862
Refund of employee contributions	\$21,668	\$21,668	\$21,668
Sub-total	<b>\$7,181,286</b>	<b>\$7,181,286</b>	<b>\$7,181,286</b>
<i>Deferred Vested Participants</i>			
Retirement benefits	\$428,556	\$428,556	\$428,556
Termination benefits	\$0	\$0	\$0
Disability benefits	\$0	\$0	\$0
Death benefits	\$0	\$0	\$0
Refund of employee contributions	\$0	\$0	\$0
Sub-total	<b>\$428,556</b>	<b>\$428,556</b>	<b>\$428,556</b>
<i>Due a Refund of Contributions</i>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<i>Deferred Beneficiaries</i>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<i>Retired Participants</i>			
Service retirements	\$2,799,390	\$2,799,390	\$2,799,390
Disability retirements	\$0	\$0	\$0
Beneficiaries receiving	\$0	\$0	\$0
DROP participants	\$0	\$0	\$0
Sub-total	<b>\$2,799,390</b>	<b>\$2,799,390</b>	<b>\$2,799,390</b>
<i>Grand Total</i>	<b><u>\$10,409,232</u></b>	<b><u>\$10,409,232</u></b>	<b><u>\$10,409,232</u></b>



## Entry Age Normal Accrued Liability

Table I-G

	Old Assumptions w/o Amendment	Old Assumptions w/ Amendment	New Assumptions w/ Amendment
<i>Actively Employed Participants</i>			
Retirement benefits	\$7,885,196	\$7,885,196	\$7,885,196
Termination benefits	\$206,131	\$206,131	\$206,131
Disability benefits	\$49,635	\$49,635	\$49,635
Death benefits	\$8,008	\$8,008	\$8,008
Refund of employee contributions	\$4,526	\$4,526	\$4,526
Sub-total	<b>\$8,153,496</b>	<b>\$8,153,496</b>	<b>\$8,153,496</b>
<i>Deferred Vested Participants</i>			
Retirement benefits	\$428,556	\$428,556	\$428,556
Termination benefits	\$0	\$0	\$0
Disability benefits	\$0	\$0	\$0
Death benefits	\$0	\$0	\$0
Refund of employee contributions	\$0	\$0	\$0
Sub-total	<b>\$428,556</b>	<b>\$428,556</b>	<b>\$428,556</b>
<i>Due a Refund of Contributions</i>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<i>Deferred Beneficiaries</i>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<i>Retired Participants</i>			
Service retirements	\$2,799,390	\$2,799,390	\$2,799,390
Disability retirements	\$0	\$0	\$0
Beneficiaries receiving	\$0	\$0	\$0
DROP participants	\$0	\$0	\$0
Sub-total	<b>\$2,799,390</b>	<b>\$2,799,390</b>	<b>\$2,799,390</b>
<i>Grand Total</i>	<b><u>\$11,381,442</u></b>	<b><u>\$11,381,442</u></b>	<b><u>\$11,381,442</u></b>
less Actuarial Value of Assets	(\$11,907,316)	(\$11,907,316)	(\$11,907,316)
<i>Unfunded Accrued Liability</i>	<b><u>(\$525,874)</u></b>	<b><u>(\$525,874)</u></b>	<b><u>(\$525,874)</u></b>



## Entry Age Normal Cost

Table I-H

	<u>Old Assumptions w/o Amendment</u>	<u>Old Assumptions w/ Amendment</u>	<u>New Assumptions w/ Amendment</u>
<i><u>Actively Employed Participants</u></i>			
Retirement benefits	\$575,992	\$575,992	\$575,992
Termination benefits	\$27,301	\$27,301	\$27,301
Disability benefits	\$14,766	\$14,766	\$14,766
Death benefits	\$1,964	\$1,964	\$1,964
Refund of employee contributions	\$2,317	\$2,317	\$2,317
Sub-total	<b>\$622,340</b>	<b>\$622,340</b>	<b>\$622,340</b>
<i><u>Deferred Vested Participants</u></i>			
Retirement benefits	\$0	\$0	\$0
Termination benefits	\$0	\$0	\$0
Disability benefits	\$0	\$0	\$0
Death benefits	\$0	\$0	\$0
Refund of employee contributions	\$0	\$0	\$0
Sub-total	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<i><u>Due a Refund of Contributions</u></i>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<i><u>Deferred Beneficiaries</u></i>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<i><u>Retired Participants</u></i>			
Service retirements	\$0	\$0	\$0
Disability retirements	\$0	\$0	\$0
Beneficiaries receiving	\$0	\$0	\$0
DROP participants	\$0	\$0	\$0
Sub-total	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<i><u>Grand Total</u></i>	<b><u>\$622,340</u></b>	<b><u>\$622,340</u></b>	<b><u>\$622,340</u></b>



## Unfunded Liability Bases

Table I-I

<u>Description</u>	<u>Original Amount</u>	<u>Outstanding Balance</u>	<u>Amortization Payment</u>	<u>Years Rem.</u>
	<b>Total</b>	<b>(\$525,874)</b>	<b>(\$67,405)</b>	
10/1/2019 Fresh Start UAAL	(\$525,874)	<div style="text-align: center;">↓</div> (\$525,874)	<div style="text-align: center;">↓</div> (\$67,405)	10

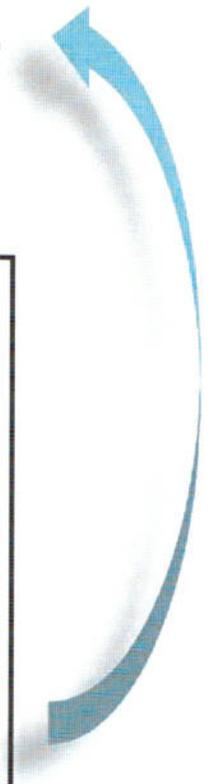


Actuarial Value of Assets

Table II-A

Market Value of Assets as of October 1, 2019	\$11,964,136
Minus advance employer contributions	(\$56,820)
Minus excess Chapter 175/185 contributions	\$0
<b>Actuarial Value of Assets as of October 1, 2019</b>	<b><u>\$11,907,316</u></b>

<b>Historical Actuarial Value of Assets</b>	
October 1, 2010	\$5,491,467
October 1, 2011	\$6,066,531
October 1, 2012	\$7,863,507
October 1, 2013	\$5,967,065
October 1, 2014	\$7,717,733
October 1, 2015	\$8,190,585
October 1, 2016	\$9,317,216
October 1, 2017	\$10,716,700
October 1, 2018	\$11,692,573
October 1, 2019	\$11,907,316

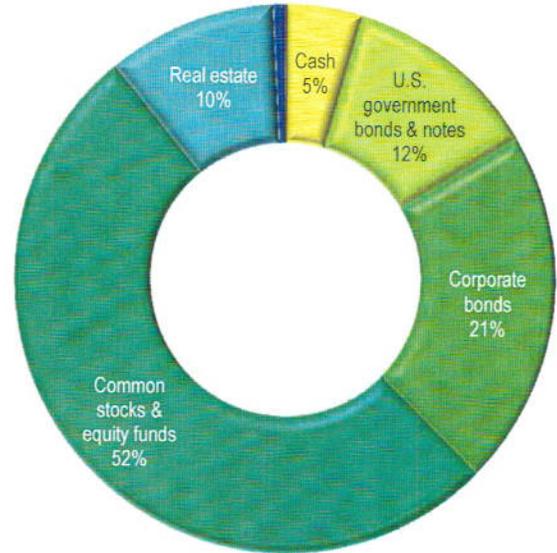


Market Value of Assets

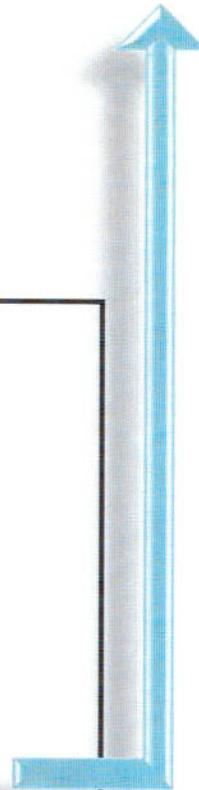
Table II-B

As of October 1, 2019

<b>Market Value of Assets</b>	<b><u>\$11,964,136</u></b>
Cash	\$541,074
U.S. government bonds & notes	\$1,410,840
Corporate bonds	\$2,526,765
Common stocks & equity funds	\$6,180,672
Real estate	\$1,206,351
Prepaid items	\$2,821
Income receivable	\$40,535
Contribution receivable	\$47,433
Other receivables	\$7,645

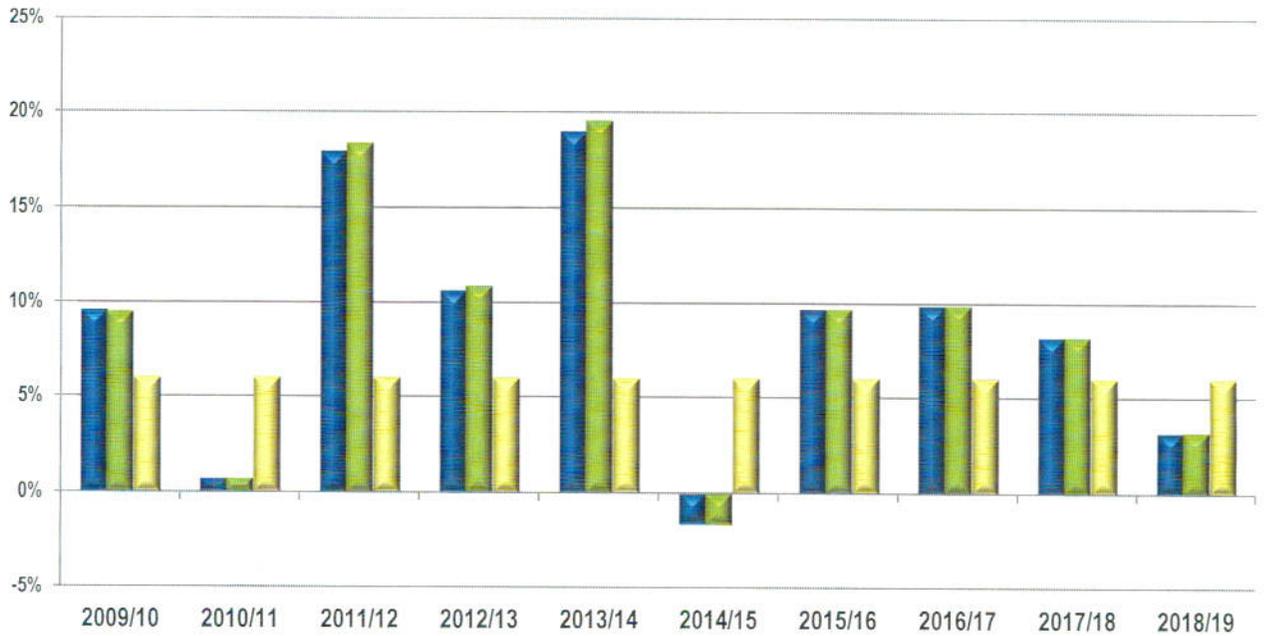


<b>Historical Market Value of Assets</b>	
October 1, 2010	\$5,609,179
October 1, 2011	\$6,200,861
October 1, 2012	\$8,018,279
October 1, 2013	\$6,139,895
October 1, 2014	\$7,916,389
October 1, 2015	\$8,190,585
October 1, 2016	\$9,317,216
October 1, 2017	\$10,748,220
October 1, 2018	\$11,748,079
October 1, 2019	\$11,964,136



Investment Return

Table II-C



*Annual Investment Returns*

■ Market Value Return  
 ■ Actuarial Value Return  
 ■ Assumed Return

Plan Year	Market Value Return	Actuarial Value Return	Assumed Return
2009/10	9.61%	9.51%	6.00%
2010/11	0.72%	0.74%	6.00%
2011/12	17.94%	18.34%	6.00%
2012/13	10.64%	10.91%	6.00%
2013/14	18.98%	19.54%	6.00%
2014/15	-1.60%	-1.62%	6.00%
2015/16	9.70%	9.70%	6.00%
2016/17	9.88%	9.90%	6.00%
2017/18	8.21%	8.24%	6.00%
2018/19	3.19%	3.20%	6.00%
10yr. Avg.	8.54%	8.65%	6.00%

Note: Prior to October 1, 2008, the market value was not separately determined with respect to the general and police portions of the plan.



Asset Reconciliation

Table II-D

	<u>Market Value</u>	<u>Actuarial Value</u>
As of October 1, 2018	\$11,748,079	\$11,692,573
<i>Increases Due To:</i>		
Employer Contributions	\$413,700	\$413,700
Chapter 175/185 Contributions	\$48,252	\$48,252
Employee Contributions	\$148,013	\$148,013
Service Purchase Contributions	\$47,229	\$47,229
Total Contributions	<u>\$657,194</u>	<u>\$657,194</u>
Interest and Dividends	\$163,484	
Realized Gains (Losses)	\$0	
Unrealized Gains (Losses)	\$237,627	
Total Investment Income	<u>\$401,111</u>	\$372,185
Other Income	\$0	
<b>Total Income</b>	<u><b>\$1,058,305</b></u>	<u><b>\$1,029,379</b></u>
<i>Decreases Due To:</i>		
Retirement Benefit Payments	(\$767,023)	(\$767,023)
Refund of Employee Contributions	(\$24,138)	(\$24,138)
Total Benefit Payments	<u>(\$791,161)</u>	<u>(\$791,161)</u>
Investment Expenses	(\$28,926)	
Administrative Expenses	(\$22,161)	(\$22,161)
Advance Employer Contribution		(\$1,314)
Excess Chapter 175/185 Contribution		\$0
<b>Total Expenses</b>	<u><b>(\$842,248)</b></u>	<u><b>(\$814,636)</b></u>
As of October 1, 2019	<u><u><b>\$11,964,136</b></u></u>	<u><u><b>\$11,907,316</b></u></u>



## Historical Trust Fund Detail

Table II-E

Income

Plan Year	Employer Contribs.	Chapter Contribs.	Employee Contribs.	Service		Realized	Unrealized	Other Income
				Purchase Contribs.	Interest / Dividends	Gains / Losses	Gains / Losses	
2009/10	\$482,847	\$33,157	\$207,646	\$0	\$150,550	\$0	\$326,237	\$5,955
2010/11	\$569,047	\$33,364	\$87,238	\$0	\$174,251	\$0	-\$111,481	\$140
2011/12	\$622,782	\$37,188	\$132,864	\$0	\$213,422	\$0	\$979,802	\$0
2012/13	\$663,532	\$34,804	\$126,662	\$0	\$209,644	\$0	\$525,681	\$0
2013/14	\$561,098	\$42,572	\$112,564	\$0	\$154,492	\$0	\$1,085,904	\$0
2014/15	\$422,926	\$41,859	\$111,891	\$0	\$171,069	\$0	-\$273,073	\$0
2015/16	\$303,645	\$41,440	\$128,404	\$0	\$129,950	\$0	\$709,880	\$0
2016/17	\$451,385	\$42,825	\$143,795	\$0	\$113,109	\$0	\$861,375	\$0
2017/18	\$488,752	\$44,963	\$149,037	\$4,641	\$122,371	\$0	\$790,646	\$0
2018/19	\$413,700	\$48,252	\$148,013	\$47,229	\$163,484	\$0	\$237,627	\$0

Expenses

Plan Year	Retirement				<u>Other Actuarial Adjustments</u>	
	Benefit Payments	Contrib. Refunds	Admin. Expenses	Invest. Expenses	Advance Employer Contribs.	Excess Chapter Contribs.
2009/10	\$93,053	\$27,234	\$14,584	\$16,944	\$0	\$16,411
2010/11	\$125,899	\$0	\$14,570	\$20,408	\$0	\$16,618
2011/12	\$130,165	\$0	\$15,517	\$22,958	\$0	\$20,442
2012/13	\$3,399,355	\$4,616	\$14,729	\$20,007	\$0	\$18,058
2013/14	\$143,188	\$0	\$14,767	\$22,181	\$0	\$25,826
2014/15	\$140,164	\$15,877	\$16,495	\$27,940	\$0	-\$198,656
2015/16	\$136,823	\$0	\$20,083	\$29,782	\$0	\$0
2016/17	\$133,448	\$0	\$18,498	\$29,539	\$31,520	\$0
2017/18	\$533,957	\$19,403	\$21,408	\$25,783	\$23,986	\$0
2018/19	\$767,023	\$24,138	\$22,161	\$28,926	\$1,314	\$0

Note: For the period prior to October 1, 2008, retirement benefit payments include contribution refunds.

For the period October 1, 2005 through September 30, 2008, interest and dividends includes administrative and investment expenses. For the period prior to October 1, 2005, unrealized gains and losses reflect net investment earnings and administrative and investment expenses, and, for all periods, unrealized gains and losses include realized gains and losses.



Other Reconciliations

Table II-F

**Advance Employer Contribution**

Advance Employer Contribution as of October 1, 2018	\$55,506
Additional Employer Contribution	\$461,952
Minimum Required Contribution	(\$460,638)
Net Increase in Advance Employer Contribution	\$1,314
Advance Employer Contribution as of October 1, 2019	\$56,820

**Excess Chapter 175/185 Contribution**

Excess Chapter 175/185 Contribution as of October 1, 2018	\$0
Additional Chapter 175/185 Contribution	\$48,252
Allowable Chapter 175/185 Contribution	(\$48,252)
Net Increase in Excess Chapter 175/185 Contribution	\$0
Excess Chapter 175/185 Contribution as of October 1, 2019	\$0



Historical Chapter 175/185 Contributions

Table II-G

*Total Accumulated Excess Chapter 175/185 Contribution* \$0

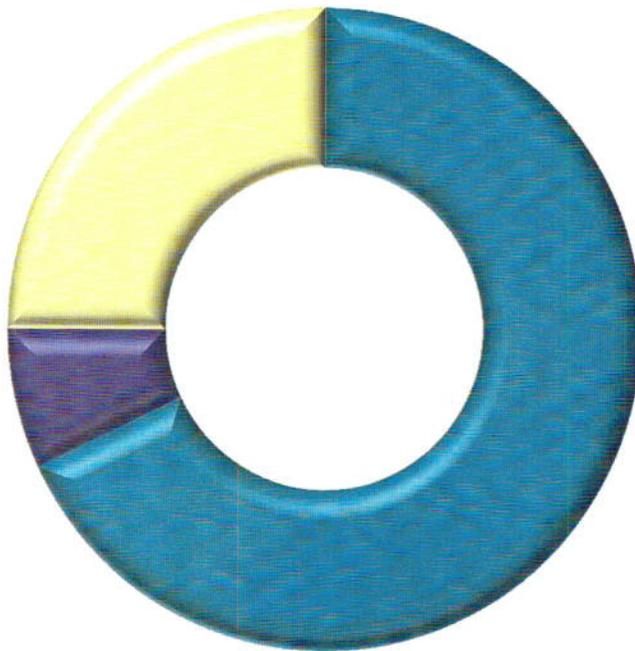
	<u>Chapter 175 Regular Distribution</u>	<u>Chapter 175 Supplemental Distribution</u>	<u>Chapter 185 Distribution</u>	<u>Allowable Amount</u>
1998 Distribution	\$0	\$0	\$14,696	(\$14,696)
1999 Distribution	\$0	\$0	\$16,217	(\$16,217)
2000 Distribution	\$0	\$0	\$18,840	(\$16,746)
2001 Distribution	\$0	\$0	\$20,933	(\$16,746)
2002 Distribution	\$0	\$0	\$21,589	(\$16,746)
2003 Distribution	\$0	\$0	\$28,214	(\$16,746)
2004 Distribution	\$0	\$0	\$32,589	(\$16,746)
2005 Distribution	\$0	\$0	\$32,589	(\$16,746)
2006 Distribution	\$0	\$0	\$32,589	(\$16,746)
2007 Distribution	\$0	\$0	\$32,589	(\$16,746)
2008 Distribution	\$0	\$0	\$32,083	(\$16,746)
2009 Distribution	\$0	\$0	\$33,157	(\$16,746)
2010 Distribution	\$0	\$0	\$33,364	(\$16,746)
2011 Distribution	\$0	\$0	\$37,188	(\$16,746)
2012 Distribution	\$0	\$0	\$34,804	(\$16,746)
2013 Distribution	\$0	\$0	\$42,572	(\$16,746)
2014 Distribution	\$0	\$0	\$41,859	(\$240,515)
2015 Distribution	\$0	\$0	\$41,440	(\$41,440)
2016 Distribution	\$0	\$0	\$42,825	(\$42,825)
2017 Distribution	\$0	\$0	\$44,963	(\$44,963)
2018 Distribution	\$0	\$0	\$48,252	(\$48,252)



Summary of Participant Data

Table III-A

As of October 1, 2019



Participant Distribution by Status

<u>Actively Employed Participants</u>		
◆	Active Participants	19
◆	DROP Participants	0
<u>Inactive Participants</u>		
◆	Deferred Vested Participants	2
◆	Due a Refund of Contributions	0
◆	Deferred Beneficiaries	0
<u>Participants Receiving a Benefit</u>		
◆	Service Retirements	7
◆	Disability Retirements	0
◆	Beneficiaries Receiving	0

Total Participants 28

Number of Participants Included in Prior Valuations

	Active	DROP	Inactive	Retired	Total
October 1, 2010	19	0	0	6	25
October 1, 2011	18	0	0	7	25
October 1, 2012	20	0	0	6	26
October 1, 2013	15	0	0	10	25
October 1, 2014	19	0	0	10	29
October 1, 2015	18	0	2	8	28
October 1, 2016	21	0	2	8	31
October 1, 2017	21	0	2	7	30
October 1, 2018	21	0	2	6	29
October 1, 2019	19	0	2	7	28



Data Reconciliation

Table III-B

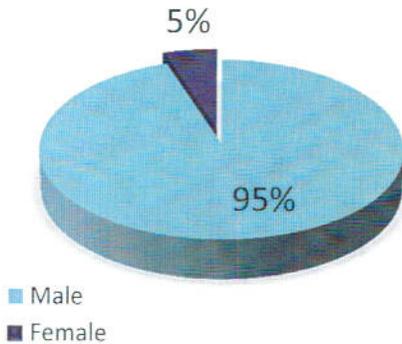
	<u>Active</u>	<u>DROP</u>	<u>Deferred Vested</u>	<u>Due a Refund</u>	<u>Def. Benef.</u>	<u>Service Retiree</u>	<u>Disabled Retiree</u>	<u>Benef. Rec'v.</u>	<u>Total</u>
<u>October 1, 2018</u>	21	0	2	0	0	6	0	0	29
<u>Change in Status</u>									
Re-employed									
Terminated	(1)			1					
Retired	(2)					2			
<u>Participation Ended</u>									
Transferred Out									
Cashed Out				(1)		(1)			(2)
Died									
<u>Participation Began</u>									
Newly Hired	1								1
Transferred In									
New Beneficiary									
<u>Other Adjustment</u>									
<u>October 1, 2019</u>	19	0	2	0	0	7	0	0	28



Active Participant Data

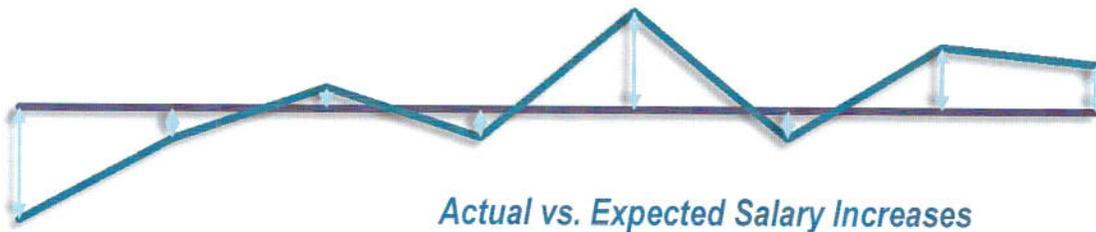
Table III-C

Gender Mix



As of October 1, 2019

Average Age	50.1 years
Average Service	10.5 years
Total Annualized Compensation for the Prior Year	\$1,769,488
Total Expected Compensation for the Current Year	\$1,769,488
Average Increase in Compensation for the Prior Year	6.39%
Expected Increase in Compensation for the Current Year	4.00%
Accumulated Contributions for Active Employees	\$1,192,805



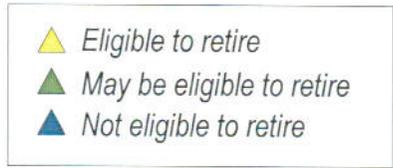
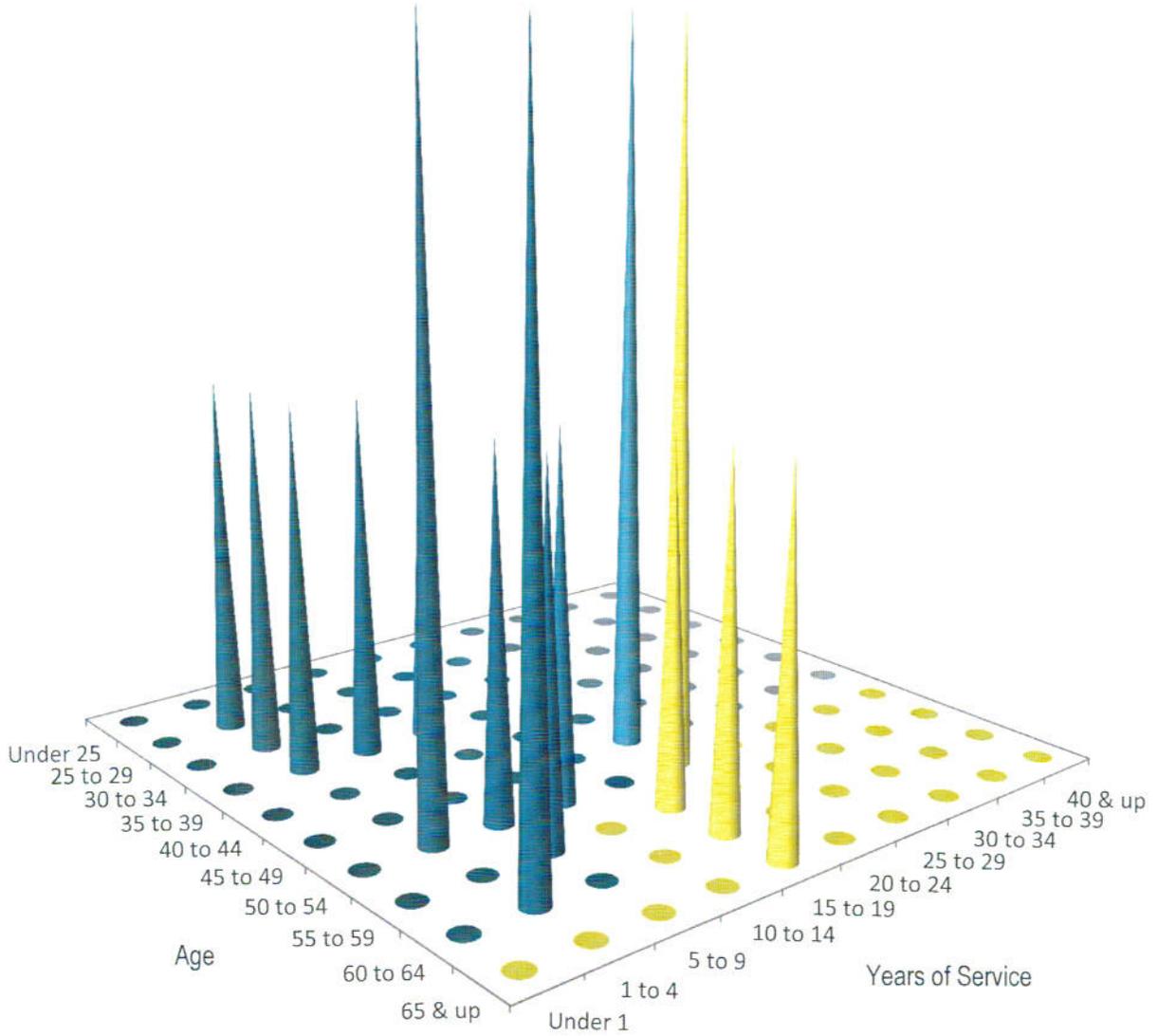
Active Participant Statistics From Prior Valuations

	Average Age	Average Service	Average Salary	Average Expected Salary Increase	Average Actual Salary Increase
October 1, 2010	49.9	13.6	\$81,527	4.00%	2.60%
October 1, 2011	50.5	14.3	\$82,725	4.00%	6.08%
October 1, 2012	50.0	13.9	\$81,887	4.00%	-1.72%
October 1, 2013	50.6	13.7	\$79,755	4.00%	2.43%
October 1, 2014	49.3	12.4	\$81,441	4.00%	5.07%
October 1, 2015	50.7	12.5	\$84,186	4.00%	2.56%
October 1, 2016	50.2	11.7	\$84,468	4.00%	8.92%
October 1, 2017	51.2	12.7	\$89,961	4.00%	2.56%
October 1, 2018	50.4	11.1	\$90,869	4.00%	7.20%
October 1, 2019	50.1	10.5	\$93,131	4.00%	6.39%



Active Age-Service Distribution

Table III-D



Active Age-Service-Salary Table

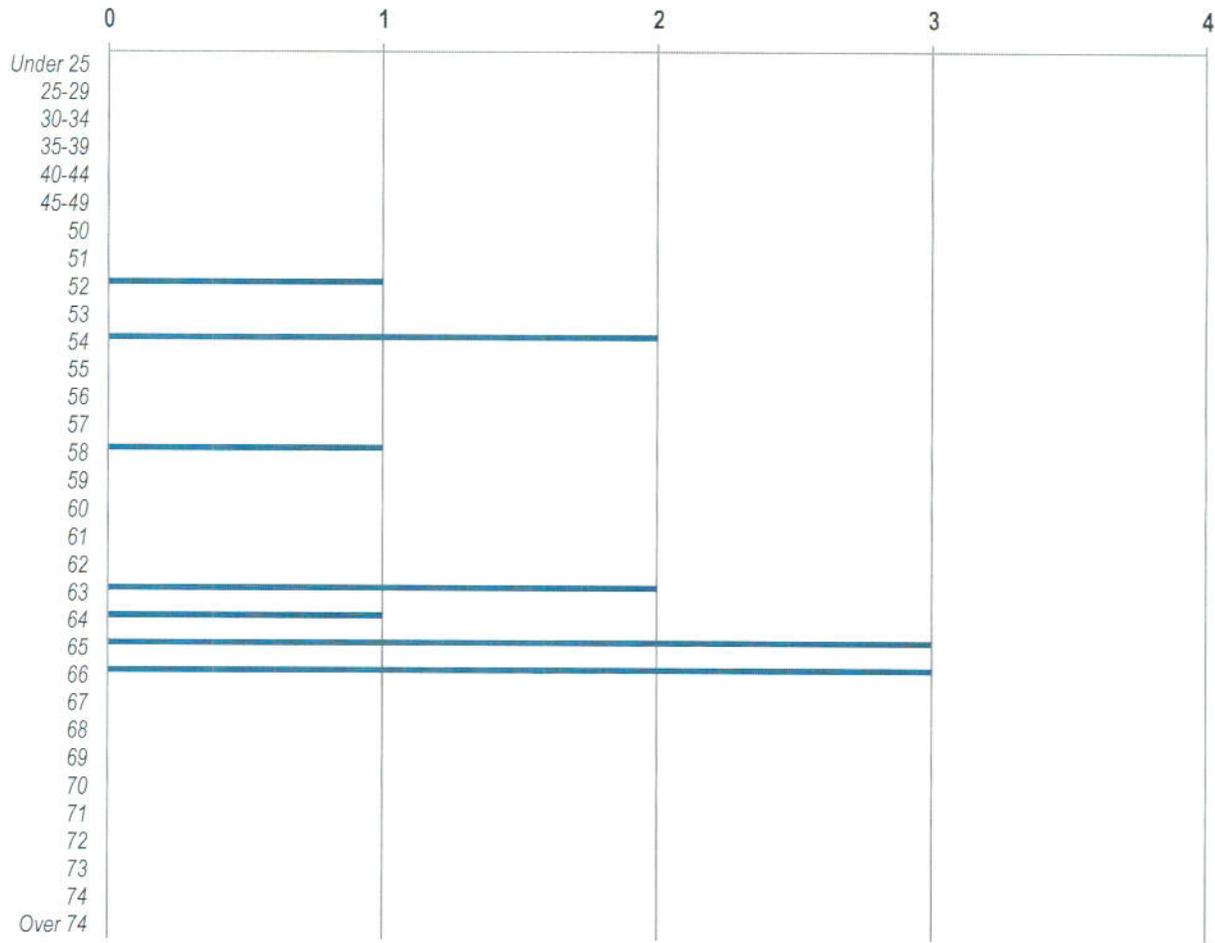
Table III-E

Attained Age	Completed Years of Service										Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up		
Under 25	0	0	0	0	0	0	0	0	0	0	0	0
Avg.Pay	0	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	1	0	0	0	0	0	0	0	0	0	1
Avg.Pay	0	65,345	0	0	0	0	0	0	0	0	0	65,345
30 to 34	0	1	0	0	0	0	0	0	0	0	0	1
Avg.Pay	0	73,377	0	0	0	0	0	0	0	0	0	73,377
35 to 39	0	1	1	1	0	0	0	0	0	0	0	3
Avg.Pay	0	73,862	82,045	129,422	0	0	0	0	0	0	0	95,110
40 to 44	0	0	0	0	0	0	0	0	0	0	0	0
Avg.Pay	0	0	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	2	0	0	0	0	0	2
Avg.Pay	0	0	0	0	0	101,243	0	0	0	0	0	101,243
50 to 54	0	2	1	1	0	2	0	0	0	0	0	6
Avg.Pay	0	71,584	157,080	89,118	0	107,709	0	0	0	0	0	100,797
55 to 59	0	0	1	0	1	0	0	0	0	0	0	2
Avg.Pay	0	0	84,816	0	112,155	0	0	0	0	0	0	98,486
60 to 64	0	2	0	0	1	0	0	0	0	0	0	3
Avg.Pay	0	72,631	0	0	96,763	0	0	0	0	0	0	80,675
65 & up	0	0	0	0	1	0	0	0	0	0	0	1
Avg.Pay	0	0	0	0	99,172	0	0	0	0	0	0	99,172
<b>Total</b>	<b>0</b>	<b>7</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>19</b>
Avg.Pay	0	71,573	107,980	109,270	102,697	104,476	0	0	0	0	0	93,131



Inactive Participant Data

Table III-F



**Age at Retirement**

- Service Retirements
- Disability Retirements
- DROP Participants

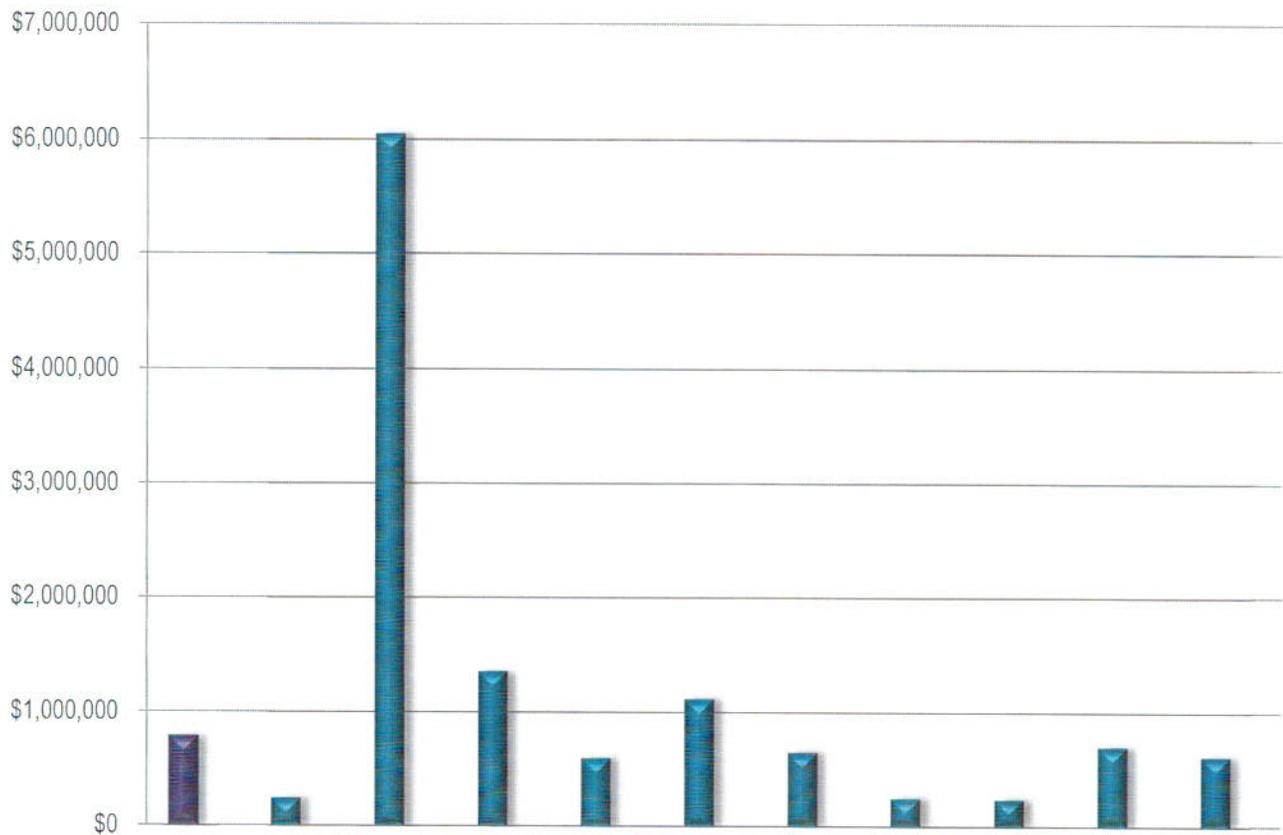
Average Monthly Benefit

Service Retirements	\$2,853.78
Disability Retirements	<i>Not applicable</i>
Beneficiaries Receiving	<i>Not applicable</i>
DROP Participants	<i>Not applicable</i>
Deferred Vested Participants	\$2,150.61
Deferred Beneficiaries	<i>Not applicable</i>



Projected Benefit Payments

Table III-G



Actual

For the period October 1, 2018 through September 30, 2019 \$791,161

Projected

For the period October 1, 2019 through September 30, 2020 \$249,595  
 For the period October 1, 2020 through September 30, 2021 \$6,053,051  
 For the period October 1, 2021 through September 30, 2022 \$1,363,350  
 For the period October 1, 2022 through September 30, 2023 \$600,789  
 For the period October 1, 2023 through September 30, 2024 \$1,125,177  
 For the period October 1, 2024 through September 30, 2025 \$655,479  
 For the period October 1, 2025 through September 30, 2026 \$255,393  
 For the period October 1, 2026 through September 30, 2027 \$246,403  
 For the period October 1, 2027 through September 30, 2028 \$706,164  
 For the period October 1, 2028 through September 30, 2029 \$621,231



## Summary of Actuarial Methods and Assumptions

Table IV-A

*NOTE: The following assumptions and methods have been selected and approved by the Board of Trustees based in part on the advice of the plan's enrolled actuary in accordance with the authority granted to the Board under the pension ordinances and State law.*

1. **Actuarial Cost Method**

Individual entry age normal cost method. Under this actuarial cost method, a level funding cost is developed with respect to each benefit for each participant. The level funding cost for each benefit applies to the period beginning when the participant's service commences and ends when the participant is assumed to cease active participation due to each respective decrement. The actuarial accrued liability is equal to the accumulated level funding cost to the valuation date for all participants. The normal cost is equal to the level funding cost for the year immediately following the valuation date for all active participants.

2. **Amortization Method**

The unfunded actuarial accrued liability is amortized as a level dollar amount over a period of up to 10 years.

3. **Asset Method**

The actuarial value of assets is equal to the market value of assets.

4. **Interest (or Discount) Rate**

6.00% per annum

5. **Salary Increases**

Plan compensation is assumed to increase at the rate of 4.00% per annum, unless actual plan compensation is known for a prior plan year.

6. **Decrements**

- Pre-retirement mortality: Sex-distinct rates set forth in the RP-2000 Combined Mortality Table, with full generational projections using Scale BB
- Post-retirement mortality: Sex-distinct rates set forth in the RP-2000 Combined Mortality Table, with full generational projections using Scale BB



## Summary of Actuarial Methods and Assumptions

Table IV-A

(continued)

- Disability: Age-based rates of disability were assumed, ranging from 0.051% at age 20, 0.058% at age 30, 0.121% at age 40, 0.217% at age 45, 0.429% at age 50, and 0.891% at age 55; 75% of disabilities are assumed to be service-related.
- Termination: Age-based rates of employment termination were assumed, ranging from 10.500% at age 20, 9.975% at age 25, 8.750% at age 30, 6.650% at age 35, 4.550% at age 40, 2.800% at age 45, 1.400% at age 50, and 0.525% at age 55.
- Retirement: Retirement is assumed to occur at normal retirement age.

No decrements have been assumed during the first year following the valuation date.

**7. Form of Payment**

Future retirees have been assumed to select the single lump sum form of payment.

**8. Expenses**

Administrative expenses are assumed to be 1.00% of covered payroll. In addition, the interest rate set forth in item 4. above is assumed to be net of investment expenses and commissions.



## Changes in Actuarial Methods and Assumptions

Table IV-B

No assumptions or methods were changed since the previous valuation was completed.

The following additional assumption and method changes were made during the past 10 years:

- (1) *Effective October 1, 2015, the mortality basis was changed from a 2007 projection of the RP-2000 Mortality Table for annuitants to a full generational projection using Scale BB of the RP-2000 Combined Mortality Table as required by State law.*
- (2) *Effective October 1, 2010, the actuarial cost method was changed from the aggregate cost method to the individual entry age normal cost method.*
- (3) *Effective October 1, 2010, the actuarial value of assets was changed from the market value of assets adjusted to reflect a five-year phase-in of the net investment appreciation to the unadjusted market value.*
- (4) *Effective October 1, 2010, no decrements have been assumed during the first year following the valuation date.*
- (5) *Effective October 1, 2010, the administrative expense assumption was changed from a 1.00% loading of the projected liability to 1.00% of covered payroll.*
- (6) *Effective October 1, 2009, the assumed pre-retirement interest rate was decreased from 7.50% per annum to 6.00% per annum.*
- (7) *Effective October 1, 2009, the assumed increase in future compensation was decreased from 5.50% per annum to 4.00% per annum.*
- (8) *Effective October 1, 2009, the administrative expense assumption was changed from the actual prior year's expenses to a 1.00% loading of the total projected benefit liability.*



Summary of Plan Provisions

Table V-A

1. **Monthly Accrued Benefit**

Benefit Accrual Rate multiplied by Average Final Compensation

2. **Benefit Accrual Rate**

For each year of Prior Service, the Benefit Accrual Rate is 1¾%. For each year of Membership Service through September 30, 2002, the Benefit Accrual Rate depends on the member's contribution rate in accordance with the following table:

Contribution Rate	Benefit Accrual Rate	Contribution Rate	Benefit Accrual Rate
2%	1¾%	7%	2¾%
3%	1⅞%	8%	2½%
4%	2%	9%	2⅝%
5%	2⅛%	10%	2¾%
6%	2¼%		

For each year of Membership Service earned during the period October 1, 2002 through September 30, 2014, the Benefit Accrual Rate is 3¼%. For each year of Membership Service earned after September 30, 2014, the Benefit Accrual Rate is 3½%.

3. **Normal Retirement Age and Benefit**

- **Age**

- Age 50 with at least 20 years of Credited Service;
  - Age 55 with at least 10 years of Credited Service; or
  - Age 65

- **Amount**

- Monthly Accrued Benefit

- **Form of Payment**

- Life annuity (normal form of payment);
  - Actuarially reduced five-year certain and life annuity (optional);
  - Actuarially reduced 10-year certain and life annuity (optional);
  - Actuarially reduced 50% joint and contingent annuity (optional);
  - Actuarially reduced 66⅔% joint and contingent annuity (optional);
  - Actuarially reduced 75% joint and contingent annuity (optional);
  - Actuarially reduced 100% joint and contingent annuity (optional);
  - Actuarially adjusted social security level income annuity (optional); or
  - Actuarially equivalent lump sum payment (optional).

(Note: All forms of payment guarantee at least the return of the member's Accumulated Contributions.)



Summary of Plan Provisions

Table V-A

(continued)

4. **Delayed Retirement Age and Benefit**

- **Age**  
After Normal Retirement Age
- **Amount**  
Monthly Accrued Benefit
- **Form of Payment**  
Same as for Normal Retirement

5. **Service Incurred Disability Retirement Eligibility and Benefit**

- **Eligibility**  
All members of the Plan are eligible.
- **Condition**  
The member must have suffered a condition or impairment of health which is the result of an act or acts occurring in the performance of service to the town as determined by the Board of Trustees in reliance on the findings and definitions of the town's group disability insurance carrier and must remain so disabled until his Normal Retirement Age. With respect to police employees who have successfully passed a physical examination upon entering the town's service, any condition or impairment of health caused by hypertension, heart disease or hardening of the arteries, or other conditions as required by state or federal law which results in total and permanent disability is presumed to be service-connected unless competent evidence shows otherwise.
- **Amount**  
Monthly Accrued Benefit, payable upon the attainment of Normal Retirement Age and offset by any amounts payable under workmen's compensation or other long-term disability benefits provided by the town. For this purpose, the Monthly Accrued Benefit will be calculated to reflect Credited Service and Compensation for the period of disability equal to what the member would have earned based on his compensation and contribution rate in effect at the time he became disabled.
- **Form of Payment**  
Same as for Normal Retirement



Summary of Plan Provisions

Table V-A

(continued)

6. **Termination Benefit**

- **Age**  
Any age with at least five years of Credited Service
- **Amount**  
Monthly Accrued Benefit, multiplied by the Member's Vested Interest and payable upon the attainment of Normal Retirement Age
- **Form of Payment**  
Same as for Normal Retirement

7. **Pre-Retirement Death Benefit**

In the case of the death of a member prior to retirement, his beneficiary will receive a 10-year certain annuity based on the member's Monthly Accrued Benefit as of his date of death and determined as if the member had a 100% Vested Interest in his Monthly Accrued Benefit, survived to his Normal Retirement Age, and elected a 10-year certain and life annuity.

8. **Vested Interest**

A member earns a 100% Vested Interest in his Monthly Accrued Benefit upon the attainment of five years of Credited Service.

9. **Average Final Compensation**

Average monthly compensation for the highest three consecutive years out of the 10 full years immediately preceding the determination, where compensation includes basic compensation but excludes overtime and other special compensation such as sick leave, annual leave, and compensatory leave paid upon separation from service; for this purpose, basic compensation will also include amounts paid by the town as deferred compensation to an Internal Revenue Code (IRC) §457 plan.



Summary of Plan Provisions

Table V-A

(continued)

**10. Credited Service**

Credited Service is equal to Prior Service plus Membership Service. Prior Service is the period of completed years and months of regular, full-time employment prior to October 1, 1969. Membership Service is the period of completed years and months of regular, full-time employment on and after October 1, 1969 during which the employee makes all required contributions to the plan. In addition, a member may purchase up to four years of military service to be included in his Membership Service by paying into the plan the full actuarial cost thereof, provided that such military service occurred after the member's initial employment with the town, the member did not receive a dishonorable discharge, and the member does not receive credit for such service under any other private or governmental retirement plan.

**11. Membership Requirement**

In order to become a member of the plan, a person must be employed by the Town of Bay Harbor Islands, Florida on a full-time basis as a police officer or general employee and must have earned one year of continuous employment. Member of the town council, elected officials, and independent contractors are not eligible for membership in the plan.

**12. Accumulated Contributions**

The member's contributions accumulated with interest at the rate set by the Board of Trustees from time to time.

**13. Member Contributions**

For police employees during the period prior to October 1, 2002, the member contribution rate is based on the member's election from time to time and is any whole percentage from 2% to 10%, inclusive; for police employees during the period after September 30, 2002, the member contribution rate is 8%; member Contributions are deemed to be "picked-up" by the Town pursuant to Internal Revenue Code (IRC) §414(h)(2).

**14. Plan Year**

October 1<sup>st</sup> through September 30<sup>th</sup>

**15. Plan Effective Date**

The initial plan effective date is October 1, 1969.



Summary of Plan Provisions

Table V-A

(continued)

16. Actuarial Equivalence

- **Mortality**

1983 Group Annuity Mortality Table, blended 50%/50% for males and females and set forward five years for disabled members

- **Interest**

6.00% per annum

17. Retirement Subsidy

For police officers who retire or terminate their employment after September 30, 2014, an additional retirement subsidy is paid until age 65 equal to \$375.00 per month multiplied by the member's Vested Interest, provided that the subsidy is not paid to those individuals who terminate their employment if such individuals withdraw their Member Contributions from the plan.

18. Deferred Retirement Option Plan (DROP)

A DROP is available to those employees who attain their normal retirement age. Employees may participate in the DROP for a period of up to 60 months, subject to an extension at the sole discretion of the Town Manager.



Summary of Plan Amendments

Table V-B

Since the completion of the previous valuation, effective October 7, 2019, a DROP was added for police officers who attain their normal retirement age (Ordinance Nos. 1038 and 1046).

*The following additional plan amendments were adopted during the past 10 years and were reflected in prior valuation reports:*

- (1) *During the 2016/17 plan year, the vesting requirement was reduced to five years of service.*
- (2) *During the 2014/15 plan year, the benefit formula multiplier was increased from 3.25% to 3.50% for service earned after September 30, 2014.*
- (3) *During the 2014/15 plan year, the monthly retirement subsidy was increased from \$350 to \$375.*
- (4) *During May, 2013, the plan was amended to provide enhanced early retirement benefits to eligible employees who voluntarily chose to retire at that time. Employees who had earned at least 25 years of service as of May 22, 2013 and who retired at the prescribed time were eligible for a 3.25% benefit formula multiplier applicable to service earned during the period October 1, 1999 through September 30, 2002 and received a refund of their member contributions in excess of 2% of compensation which were made during that period.*
- (5) *During the 2009/10 plan year, the plan was amended to reduce the averaging period for average final compensation from five year to three years, to increase the benefit formula multiplier for the period October 1, 2002 through September 30, 2006 to 3.25%, and to change the employee contribution rate to 8% for the same period. Although the increased benefit formula multiplier and corresponding increased employee contribution rate were optional for plan members, it is our understanding that all affected plan members elected the new multiplier and contribution rate. Those employees who are required to pay additional retroactive employee contributions to the plan may spread the increased contribution over the period beginning October 1, 2010 and ending September 30, 2013.*

