

**MIAMI SHORES VILLAGE POLICE OFFICERS' RETIREMENT SYSTEM**  
Chapter 112.664, F.S. Compliance Report  
In Connection with the October 1, 2014 Funding Actuarial Valuation Report  
And the Plan's Financial Reporting for the Year Ending September 30, 2014



December 18, 2015

Board of Trustees  
Miami Shores Village Police Officers'  
Retirement System  
Miami Shores, Florida

Dear Board Members:

Gabriel, Roeder, Smith & Company (GRS) has been engaged by the Miami Shores Village Police Officers' Retirement System (Plan) to prepare a disclosure report to satisfy the requirements set forth in Ch. 112.664, F.S. and as further required pursuant to Ch. 60T-1.0035, F.A.C.

This report was prepared at the request of the Board and is intended for use by the Retirement Board and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board.

The purpose of the report is to provide the required information specified in Ch. 112.664, F.S. as well as supplement this information with additional exhibits. This report should not be relied on for any purpose other than the purpose described above.

The findings in this report are based on data or other information through September 30, 2014. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. The scope of this engagement does not include an analysis of the potential range of such measurements.

This report was based upon information furnished by the Village and the Board concerning Plan benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not otherwise audit the data. We are not responsible for the accuracy or completeness of the information provided by the Village.

Except as otherwise indicated as required for the disclosures contained herein, this report was prepared using certain assumptions selected by the Board as described in our October 1, 2014 actuarial valuation report. This report is also based on the Plan Provisions, census data, and financial information as summarized in our October 1, 2014 actuarial valuation report. Please refer to the October 1, 2014 actuarial valuation report, dated October 6, 2015, for summaries and descriptions of this information.

The use of an investment return assumption that is 2% higher than the investment return assumption used to determine the funding requirements does not represent an estimate of future Plan experience nor does it reflect an observation of future return estimates inherent in financial market data. The use of this investment return assumption is provided as a counterpart to the Chapter 112.664, Florida Statutes requirement to utilize an investment return assumption that is 2% lower than the assumption used to determine the funding requirements. The inclusion of the additional exhibits showing the effect of using a 2% higher investment return assumption shows a more complete assessment of the range of possible results as opposed to showing a one-sided range as required by Florida Statutes.


The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor.

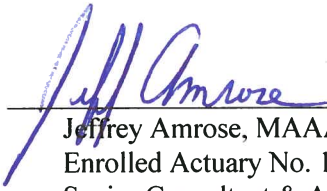
This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the Retirement Plan as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

With respect to the reporting standards for defined benefit retirement plans or systems contained in Section 112.664(1) F.S., the actuarial disclosures required under this section were prepared and completed 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, meet the requirements of Section 112.664(1), F.S. and Section 60T-1.0035, F.A.C.

Respectfully submitted,

GABRIEL, ROEDER, SMITH AND COMPANY

By   
Melissa R. Algayer, MAAA, FCA  
Enrolled Actuary No. 14-6467  
Consultant & Actuary

By   
Jeffrey Amrose, MAAA  
Enrolled Actuary No. 14-6599  
Senior Consultant & Actuary

## TABLE OF CONTENTS

<u>Title</u>	<u>Page</u>
Ch. 112.664, F.S. Results	
Schedule of Changes in Net Pension Liability	
1. Using financial reporting assumptions per GASB Statement No. 67	1
2. Using assumptions prescribed in Section 112.664(1)(a), F.S.	2
3. Using assumptions prescribed in Section 112.664(1)(b), F.S.	3
4. Using the mandated mortality and funding interest rate +2%	4
Asset Versus Benefit Payments Projections	
1. Using assumptions from the Plan's latest actuarial valuation	
2. Using assumptions prescribed in Section 112.664(1)(a), F.S.	6
3. Using assumptions prescribed in Section 112.664(1)(b), F.S.	7
4. Using the mandated mortality and funding interest rate +2%	8
Actuarially Determined Contribution	9

**CH. 112.664, Florida Statutes**

**RESULTS**

**Schedule of Changes in the Employers' Net Pension Liability  
Using Financial Reporting Assumptions per GASB Statement No. 67**

Fiscal year ending September 30,	<u>2014</u>
<b>1. Total pension liability</b>	
a. Service Cost	\$ 672,275
b. Interest	1,796,408
c. Benefit Changes	-
d. Difference between actual & expected experience & Other	118,490
e. Assumption Changes	-
f. Benefit Payments	(1,180,510)
g. Contribution Refunds	-
<b>h. Net Change in Total Pension Liability</b>	<u>1,406,663</u>
<b>i. Total Pension Liability - Beginning</b>	<u>23,668,697</u>
<b>j. Total Pension Liability - Ending</b>	<u><u>\$ 25,075,360</u></u>
<b>2. Plan Fiduciary Net Position</b>	
a. Contributions - Employer	\$ 1,207,161
b. Contributions - Non-Employer Contributing Entity	173,561
c. Contributions - Member	205,660
d. Net Investment Income	1,168,552
e. Benefit Payments	(1,180,510)
f. Contribution Refunds	-
g. Administrative Expense	(39,391)
h. Other	-
<b>i. Net Change in Plan Fiduciary Net Position</b>	<u>1,535,033</u>
<b>j. Plan Fiduciary Net Position - Beginning</b>	<u>17,243,487</u>
<b>k. Plan Fiduciary Net Position - Ending</b>	<u><u>\$ 18,778,520</u></u>
<b>3. Net Pension Liability / (Asset)</b>	6,296,840
<b>Certain Key Assumptions</b>	
Valuation Date	10/01/2013
Measurement Date	09/30/2014
Investment Return Assumption	7.70%
Mortality Table	RP-2000 fully generational using Scale BB

**Schedule of Changes in the Employers' Net Pension Liability  
Using Assumptions required under 112.664(1)(a), F.S.**

Fiscal year ending September 30,	<u>2014</u>
<b>1. Total pension liability</b>	
a. Service Cost	\$ 669,963
b. Interest	1,774,157
c. Benefit Changes	-
d. Difference between actual & expected experience & Other	118,490
e. Assumption Changes	-
f. Benefit Payments	(1,180,510)
g. Contribution Refunds	-
<b>h. Net Change in Total Pension Liability</b>	<u>1,382,100</u>
<b>i. Total Pension Liability - Beginning</b>	<u>23,382,041</u>
<b>j. Total Pension Liability - Ending</b>	<u><u>\$ 24,764,141</u></u>
<b>2. Plan Fiduciary Net Position</b>	
a. Contributions - Employer	\$ 1,207,161
b. Contributions - Non-Employer Contributing Entity	173,561
c. Contributions - Member	205,660
d. Net Investment Income	1,168,552
e. Benefit Payments	(1,180,510)
f. Contribution Refunds	-
g. Administrative Expense	(39,391)
h. Other	-
<b>i. Net Change in Plan Fiduciary Net Position</b>	<u>1,535,033</u>
<b>j. Plan Fiduciary Net Position - Beginning</b>	<u>17,243,487</u>
<b>k. Plan Fiduciary Net Position - Ending</b>	<u><u>\$ 18,778,520</u></u>
<b>3. Net Pension Liability / (Asset)</b>	5,985,621
<b>Certain Key Assumptions</b>	
Valuation Date	10/01/2013
Measurement Date	09/30/2014
Investment Return Assumption	7.70%
Mortality Table	RP-2000 fully generational using Scale AA

**Schedule of Changes in the Employers' Net Pension Liability  
Using Assumptions required under 112.664(1)(b), F.S.**

Fiscal year ending September 30,	<u>2014</u>
<b>1. Total pension liability</b>	
a. Service Cost	\$ 1,079,709
b. Interest	1,710,900
c. Benefit Changes	-
d. Difference between actual & expected experience & Other	122,489
e. Assumption Changes	-
f. Benefit Payments	(1,180,510)
g. Contribution Refunds	-
<b>h. Net Change in Total Pension Liability</b>	<u>1,732,588</u>
<b>i. Total Pension Liability - Beginning</b>	<u>29,947,079</u>
<b>j. Total Pension Liability - Ending</b>	<u><u>\$ 31,679,667</u></u>
<b>2. Plan Fiduciary Net Position</b>	
a. Contributions - Employer	\$ 1,207,161
b. Contributions - Non-Employer Contributing Entity	173,561
c. Contributions - Member	205,660
d. Net Investment Income	1,168,552
e. Benefit Payments	(1,180,510)
f. Contribution Refunds	-
g. Administrative Expense	(39,391)
h. Other	-
<b>i. Net Change in Plan Fiduciary Net Position</b>	<u>1,535,033</u>
<b>j. Plan Fiduciary Net Position - Beginning</b>	<u>17,243,487</u>
<b>k. Plan Fiduciary Net Position - Ending</b>	<u><u>\$ 18,778,520</u></u>
<b>3. Net Pension Liability / (Asset)</b>	12,901,147
<b>Certain Key Assumptions</b>	
Valuation Date	10/01/2013
Measurement Date	09/30/2014
Investment Return Assumption	5.70%
Mortality Table	RP-2000 fully generational using Scale AA



**Schedule of Changes in the Employers' Net Pension Liability**  
**Using Assumptions under 112.664(1)(b), F.S. except 2% higher investment return assumption**

Fiscal year ending September 30,	<u>2014</u>
<b>1. Total pension liability</b>	
a. Service Cost	\$ 430,078
b. Interest	1,774,524
c. Benefit Changes	-
d. Difference between actual & expected experience & Other	114,491
e. Assumption Changes	-
f. Benefit Payments	(1,180,510)
g. Contribution Refunds	-
<b>h. Net Change in Total Pension Liability</b>	<u>1,138,583</u>
<b>i. Total Pension Liability - Beginning</b>	<u>18,874,987</u>
<b>j. Total Pension Liability - Ending</b>	<u>\$ 20,013,570</u>
 <b>2. Plan Fiduciary Net Position</b>	
a. Contributions - Employer	\$ 1,207,161
b. Contributions - Non-Employer Contributing Entity	173,561
c. Contributions - Member	205,660
d. Net Investment Income	1,168,552
e. Benefit Payments	(1,180,510)
f. Contribution Refunds	-
g. Administrative Expense	(39,391)
h. Other	-
<b>i. Net Change in Plan Fiduciary Net Position</b>	<u>1,535,033</u>
<b>j. Plan Fiduciary Net Position - Beginning</b>	<u>17,243,487</u>
<b>k. Plan Fiduciary Net Position - Ending</b>	<u>\$ 18,778,520</u>
 <b>3. Net Pension Liability / (Asset)</b>	 1,235,050
 <b>Certain Key Assumptions</b>	
Valuation Date	10/01/2013
Measurement Date	09/30/2014
Investment Return Assumption	9.70%
Mortality Table	RP-2000 fully generational using Scale AA

**Asset and Benefit Payment Projection  
Not Reflecting Any Contributions from the Employer, State or Employee  
Using Assumptions From the Plan's Latest Actuarial Valuation**

<b>FYE</b>	<b>Market Value of Assets (BOY)</b>	<b>Investment Return</b>	<b>Projected Benefit Payments</b>	<b>Market Value of Assets (EOY)</b>
2015	18,440,182	1,358,346	1,134,413	18,664,115
2016	18,664,115	1,368,565	1,313,366	18,719,314
2017	18,719,314	1,371,959	1,334,453	18,756,820
2018	18,756,820	1,373,400	1,371,533	18,758,687
2019	18,758,687	1,370,559	1,450,035	18,679,211
2020	18,679,211	1,362,240	1,509,995	18,531,456
2021	18,531,456	1,349,080	1,560,804	18,319,732
2022	18,319,732	1,330,243	1,633,063	18,016,912
2023	18,016,912	1,306,629	1,648,848	17,674,693
2024	17,674,693	1,276,396	1,760,022	17,191,067
2025	17,191,067	1,238,225	1,797,274	16,632,018
2026	16,632,018	1,194,858	1,820,392	16,006,484
2027	16,006,484	1,146,122	1,851,855	15,300,751
2028	15,300,751	1,092,137	1,861,055	14,531,833
2029	14,531,833	1,033,509	1,866,060	13,699,282
2030	13,699,282	969,530	1,884,619	12,784,193
2031	12,784,193	898,614	1,920,658	11,762,149
2032	11,762,149	820,969	1,919,848	10,663,270
2033	10,663,270	736,461	1,945,997	9,453,734
2034	9,453,734	643,592	1,970,847	8,126,478
2035	8,126,478	542,970	1,964,278	6,705,170
2036	6,705,170	433,916	1,991,506	5,147,580
2037	5,147,580	315,711	1,986,984	3,476,307
2038	3,476,307	189,271	1,971,806	1,693,771
2039	1,693,771	54,486	1,953,711	-
2040	-	-	1,932,004	-

Number of years for which current market value of assets are adequate to sustain the payment of expected retirement benefits, **reflecting no contributions from the Employer, Employee or State, contrary to Florida Statutes and Plan provisions:**

24.83

**Certain Key Assumptions**

Valuation Investment return assumption

7.60%

Valuation Mortality Table

RP-2000 fully generational using Scale BB

**Note: As required in Section 112.664(c) of the Florida Statutes, the projection of the Fund assets do not include contributions from the Employer, Employee or State, which is contrary to Florida Statutes and Plan provisions. For this reason, these projections should not be viewed as a representation of the amount of time the Fund can sustain benefit payments. Under the GASB standards which DO include contributions from the employer, employee and State, the Fund is expected to be able to sustain the benefit payment demands in the near-term and long-term future.**

**Asset and Benefit Payment Projection**  
**Not Reflecting Any Contributions from the Employer, State or Employee**  
**Using Assumptions required under 112.664(1)(a), F.S.**

<b>FYE</b>	<b>Market Value of Assets (BOY)</b>	<b>Investment Return</b>	<b>Projected Benefit Payments</b>	<b>Market Value of Assets (EOY)</b>
2015	18,440,182	1,358,351	1,134,291	18,664,242
2016	18,664,242	1,368,582	1,313,172	18,719,652
2017	18,719,652	1,371,999	1,334,054	18,757,597
2018	18,757,597	1,373,482	1,370,920	18,760,160
2019	18,760,160	1,370,707	1,449,092	18,681,774
2020	18,681,774	1,362,489	1,508,586	18,535,677
2021	18,535,677	1,349,476	1,558,815	18,326,338
2022	18,326,338	1,330,848	1,630,359	18,026,827
2023	18,026,827	1,307,521	1,645,214	17,689,134
2024	17,689,134	1,277,674	1,755,263	17,211,545
2025	17,211,545	1,240,008	1,791,307	16,660,246
2026	16,660,246	1,197,230	1,814,452	16,043,023
2027	16,043,023	1,149,190	1,844,202	15,348,012
2028	15,348,012	1,096,097	1,851,358	14,592,751
2029	14,592,751	1,038,573	1,854,620	13,776,704
2030	13,776,704	975,946	1,870,626	12,882,024
2031	12,882,024	906,679	1,904,080	11,884,623
2032	11,884,623	831,021	1,900,266	10,815,378
2033	10,815,378	748,923	1,922,269	9,642,032
2034	9,642,032	658,933	1,943,732	8,357,232
2035	8,357,232	561,729	1,932,113	6,986,848
2036	6,986,848	456,746	1,954,060	5,489,535
2037	5,489,535	343,335	1,943,926	3,888,944
2038	3,888,944	222,481	1,923,136	2,188,289
2039	2,188,289	94,140	1,899,206	383,223
2040	383,223	-	1,871,340	-

Number of years for which current market value of assets are adequate to sustain the payment of expected retirement benefits, reflecting no contributions from the Employer, Employee or State, contrary to Florida Statutes and Plan provisions:

25.17

**Certain Key Assumptions**

Valuation Investment return assumption

7.60%

Valuation Mortality Table

RP-2000 fully generational using Scale AA

**Note: As required in Section 112.664(c) of the Florida Statutes, the projection of the Fund assets do not include contributions from the Employer, Employee or State, which is contrary to Florida Statutes and Plan provisions. For this reason, these projections should not be viewed as a representation of the amount of time the Fund can sustain benefit payments. Under the GASB standards which DO include contributions from the employer, employee and State, the Fund is expected to be able to sustain the benefit payment demands in the near-term and long-term future.**

**Asset and Benefit Payment Projection**  
**Not Reflecting Any Contributions from the Employer, State or Employee**  
**Using Assumptions required under 112.664(1)(b), F.S.**

<b>FYE</b>	<b>Market Value of Assets (BOY)</b>	<b>Investment Return</b>	<b>Projected Benefit Payments</b>	<b>Market Value of Assets (EOY)</b>
2015	18,440,182	1,000,890	1,134,291	18,306,781
2016	18,306,781	988,411	1,313,172	17,982,020
2017	17,982,020	969,640	1,334,054	17,617,606
2018	17,617,606	948,200	1,370,920	17,194,886
2019	17,194,886	922,339	1,449,092	16,668,133
2020	16,668,133	891,175	1,508,586	16,050,722
2021	16,050,722	855,194	1,558,815	15,347,100
2022	15,347,100	813,788	1,630,359	14,530,529
2023	14,530,529	767,644	1,645,214	13,652,959
2024	13,652,959	715,418	1,755,263	12,613,114
2025	12,613,114	656,178	1,791,307	11,477,985
2026	11,477,985	591,962	1,814,452	10,255,495
2027	10,255,495	522,670	1,844,202	8,933,963
2028	8,933,963	448,464	1,851,358	7,531,069
2029	7,531,069	369,811	1,854,620	6,046,260
2030	6,046,260	286,213	1,870,626	4,461,847
2031	4,461,847	196,549	1,904,080	2,754,316
2032	2,754,316	101,034	1,900,266	955,084
2033	955,084	-	1,922,269	-
2034	-	-	1,943,732	-
2035	-	-	1,932,113	-
2036	-	-	1,954,060	-
2037	-	-	1,943,926	-
2038	-	-	1,923,136	-
2039	-	-	1,899,206	-
2040	-	-	1,871,340	-

Number of years for which current market value of assets are adequate to sustain the payment of expected retirement benefits, **reflecting no contributions from the Employer, Employee or State, contrary to Florida Statutes and Plan provisions:**

18.50

**Certain Key Assumptions**

Valuation Investment return assumption

5.60%

Valuation Mortality Table

RP-2000 fully generational using Scale AA

**Note: As required in Section 112.664(c) of the Florida Statutes, the projection of the Fund assets do not include contributions from the Employer, Employee or State, which is contrary to Florida Statutes and Plan provisions. For this reason, these projections should not be viewed as a representation of the amount of time the Fund can sustain benefit payments. Under the GASB standards which DO include contributions from the employer, employee and State, the Fund is expected to be able to sustain the benefit payment demands in the near-term and long-term future.**

**Asset and Benefit Payment Projection**  
**Not Reflecting Any Contributions from the Employer, State or Employee**  
**Using Assumptions under 112.664(1)(b), F.S. except 2% higher investment return assumption**

FYE	Market Value of Assets (BOY)	Expected Investment Return	Projected Benefit Payments	Market Value of Assets (EOY)
2015	18,440,182	1,715,812	1,134,291	19,021,703
2016	19,021,703	1,763,051	1,313,172	19,471,582
2017	19,471,582	1,805,237	1,334,054	19,942,765
2018	19,942,765	1,848,701	1,370,920	20,420,546
2019	20,420,546	1,890,816	1,449,092	20,862,270
2020	20,862,270	1,930,366	1,508,586	21,284,050
2021	21,284,050	1,968,446	1,558,815	21,693,681
2022	21,693,681	2,004,336	1,630,359	22,067,658
2023	22,067,658	2,039,525	1,645,214	22,461,969
2024	22,461,969	2,072,096	1,755,263	22,778,802
2025	22,778,802	2,100,782	1,791,307	23,088,277
2026	23,088,277	2,129,381	1,814,452	23,403,206
2027	23,403,206	2,158,186	1,844,202	23,717,190
2028	23,717,190	2,187,985	1,851,358	24,053,818
2029	24,053,818	2,220,145	1,854,620	24,419,342
2030	24,419,342	2,254,467	1,870,626	24,803,183
2031	24,803,183	2,289,710	1,904,080	25,188,813
2032	25,188,813	2,326,913	1,900,266	25,615,460
2033	25,615,460	2,366,815	1,922,269	26,060,006
2034	26,060,006	2,408,461	1,943,732	26,524,736
2035	26,524,736	2,453,633	1,932,113	27,046,256
2036	27,046,256	2,502,646	1,954,060	27,594,842
2037	27,594,842	2,555,796	1,943,926	28,206,712
2038	28,206,712	2,615,534	1,923,136	28,899,110
2039	28,899,110	2,683,153	1,899,206	29,683,056
2040	29,683,056	2,759,749	1,871,340	30,571,466

Number of years for which current market value of assets are adequate to sustain the payment of expected retirement benefits, **reflecting no contributions from the Employer, Employee or State, contrary to Florida Statutes and Plan provisions:**

N/A

**Certain Key Assumptions**

Valuation Investment return assumption

9.60%

Valuation Mortality Table

RP-2000 fully generational using Scale AA

**Note: As required in Section 112.664(c) of the Florida Statutes, the projection of the Fund assets do not include contributions from the Employer, Employee or State, which is contrary to Florida Statutes and Plan provisions. For this reason, these projections should not be viewed as a representation of the amount of time the Fund can sustain benefit payments. Under the GASB standards which DO include contributions from the employer, employee and State, the Fund is expected to be able to sustain the benefit payment demands in the near-term and long-term future.**

<b>ACTUARIALLY DETERMINED CONTRIBUTION (ADC)</b>				
	Plans Latest Actuarial Valuation	112.664(1)(a) F.S. Assumptions	112.664(1)(b) F.S. Assumptions	112.664(1)(b) F.S. except 2% higher investment return assumption
A. Valuation Date	October 1, 2014	October 1, 2014	October 1, 2014	October 1, 2014
B. Actuarially Determined Contribution (ADC) to Be Paid During Fiscal Year Ending	9/30/2016	9/30/2016	9/30/2016	9/30/2016
C. Assumed Dates of Employer Contributions	12/31/2015	12/31/2015	12/31/2015	12/31/2015
D. Annual Payment to Amortize Unfunded Actuarial Liability	\$ 618,465	\$ 585,660	\$ 1,079,673	\$ 157,779
E. Employer Normal Cost	420,333	416,972	771,392	210,380
F. Employer ADC if Paid on Valuation Date: D + E	1,038,798	1,002,632	1,851,065	368,159
G. Employer ADC Adjusted for Frequency of Payments	1,138,404	1,098,770	1,981,534	412,856
H. Employer ADC Adjusted for Frequency of Payments as % of Covered Payroll	52.99 %	51.14 %	92.23 %	19.22 %
I. Assumed Rate of Increase in Covered Payroll to Contribution Year	0.00 %	0.00 %	0.00 %	0.00 %
J. Covered Payroll for Contribution Year	2,148,391	2,148,391	2,148,391	2,148,391
K. Employer ADC for Contribution Year: H x J	1,138,404	1,098,770	1,981,534	412,856
L. Estimated State Revenue in Contribution Year	30,193	30,193	30,193	30,193
M. Net Employer ADC in Contribution Year	1,108,211	1,068,577	1,951,341	382,663
N. Net Employer ADC as % of Covered Payroll in Contribution Year: M ÷ J	51.58 %	49.74 %	90.83 %	17.81 %
O. Expected Member Contributions	193,355	193,355	193,355	193,355
P. Total Contribution (including Members) in Contributing Year	1,331,759	1,292,125	2,174,889	606,211
Q. Total Contribution as a % of covered payroll in Contribution Year: P ÷ J	61.99 %	60.14 %	101.23 %	28.22 %
R. Certain Key Assumptions				
Investment Return Assumption	7.60%	7.60%	5.60%	9.60%
Mortality Table	RP-2000 fully generational using Scale BB	RP-2000 fully generational using Scale AA	RP-2000 fully generational using Scale AA	RP-2000 fully generational using Scale AA