

**ACTUARIAL VALUATION OF  
CITY OF MIRAMAR  
MUNICIPAL POLICE OFFICERS'  
RETIREMENT PLAN  
AS OF OCTOBER 1, 2018**

**September, 2019**

Determination of Contribution for the  
Plan Year ending September 30, 2020  
Contribution to be  
Paid in Fiscal Year October 1, 2019  
through September 30, 2020

**DuLaney and Company, Inc.**  
Actuarial Services

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September 3, 2019

Board of Trustees  
City of Miramar Municipal Police  
Officers' Retirement Plan  
c/o Mr. Doug Falcon  
FHA-TPA, Benefit Administrators  
6941 SW 196<sup>th</sup> Avenue  
Suite 27  
Fort Lauderdale, FL 33332

Dear Board Members:

We are pleased to present our October 1, 2018 Actuarial Valuation for the City of Miramar Municipal Police Officers' Retirement Plan. The purpose of this report is to indicate appropriate contribution levels and to satisfy State requirements. The report is prepared for and at the request of the Board of Trustees.

This report consists of this commentary, detail Tables I through XV and State Required Exhibit - Table XVI. The Tables contain basic Retirement Plan cost figures plus significant detail on the benefits, liabilities and experience of your Plan.

### **Costs for Fiscal Year Beginning October 1, 2019**

This Actuarial Valuation develops the required minimum Retirement Plan payment for the fiscal year beginning October 1, 2019 and ending September 30, 2020 under the Florida Protection of Public Employee Retirement Benefits Act and Chapter 185. The minimum payment consists of payment of annual normal cost plus amortization of the unfunded actuarial accrued liability over various periods as prescribed by law. This amount is **\$12,488,681** (computed under the fixed-dollar method) or **87.4%** of covered payroll if the payment requirement is met by September 30, 2020. Please note that Chapter 185 states that employer contributions must be made at least quarterly.

This cost must be met by Member, City and State contributions. We anticipate that Member contributions will be **\$1,914,789 (13.4%)**. The assumed State (Chapter 185) contribution available (limited by rules under Chapter 99-1) is **\$1,120,391** (same as amount received in 2018). The resulting City contribution will be **\$9,453,501** which is **66.2%** of covered payroll including up to 300 hours of overtime pay.

**Changes in Plan Provisions, Actuarial Methods or Assumptions Recognized in this Valuation**

This valuation recognizes the same benefits as those considered for the October 1, 2017 valuation, except that the amount Ad Hoc Variable Benefit for fiscal year October 1, 2018 through September 30, 2019 was changed from thirty-five hundredths of one percent (0.35%) to thirty-eight hundredths of one percent (0.38%) to adjust for the actual excess Chapter 185 contributions available, as required. Plan provisions are outlined in Table XI.

Certain actuarial assumptions and methods employed for this valuation have been revised. The changes included:

- The assumed administrative expenses were changed from \$179,210 to \$205,140 for the plan/fiscal year.
- The assumed interest to be earned by the fund has been changed from 7.50% to 7.25%, compounded annually, net of investment expenses.
- The salary scale was changed from 5.50% to 5.25%.

Table XII contains an outline of the assumptions and methods used.

**Comparison of Costs With Previous Valuation Year of 2017/2018**

Table II provides a comparison of the results for the 2017/2018 and 2018/2019 plan years.

The left column of Table II contains the results as of October 1, 2017 while the center and right columns display the results as of October 1, 2018, prior to and after the assumptions change, respectively. A comparison of the left and center columns provide an indication of plan experience. Covered payroll increased by 4.3% while the number of active participants decreased by 3.5%. The number of members in the Deferred Retirement Option Plan increased from 42 to 48. Unfunded actuarial accrued liability decreased from \$72,568,033 to \$72,395,816. Total normal cost increased from \$4,408,562 (32.2% of pay) to \$4,457,783 (31.2% of pay). Net City cost increased from \$8,813,360 (64.3% of pay) to \$8,893,492 (62.2% of pay).

The effect of the change in assumptions can be seen by comparing the center and right columns of Table II. Total normal cost increased from \$4,457,783 (31.2% of pay) to \$4,600,353 (32.2% of pay). Unfunded actuarial accrued liability increased by \$7,285,199. Net City cost increased from \$8,893,492 (62.2% of pay) to \$9,453,501 (66.2% of pay).

**Plan Experience**

Table VIII indicates that the plan had an actuarial loss of \$1,901,744 for the fiscal year. This means that experience was less favorable than anticipated under the actuarial assumptions employed.

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Table XV shows that the rate of return on actuarial value of assets was 8.1% for the 2017/2018 fiscal year, as compared to the assumed 7.50%. Investment return was a source of actuarial gain. Actual employee turnover was approximately 60% lower than the expected turnover during the last fiscal year and was a source of actuarial loss. Average salary increase was 9.35%, as compared to the assumed 5.50%. Employee salary increase was a source of actuarial loss. A more detailed analysis would be needed to determine the gain or loss attributable to each of these elements.

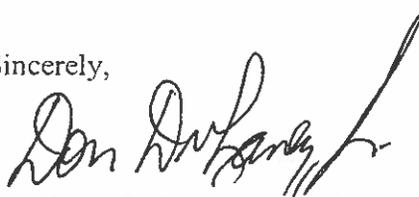
**Participant Census and Financial Data**

Participant census data for the fiscal year October 1, 2017 through September 30, 2018 was provided by the City. Supplemental information was also received on retirees and terminations from the plan custodian and the plan administrator. The data was reviewed for consistency and is believed to be reliable.

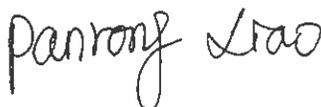
Information on Plan assets was received from the Plan's auditors. We did not audit this information, however, we believe it to be reliable.

We look forward to discussing the results of this report with you. If you should have any questions, please let us know.

Sincerely,



Donald A. DuLaney, Jr., A.S.A., E.A.  
Senior Consulting Actuary



Panrong Xiao, E.A., M.A.A.A.  
Enrolled Actuary

DAD/PX/  
Enclosures

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Table I

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICERS' RETIREMENT PLAN****Summary of Retirement Plan Costs as of October 1, 2018**

	<u>Cost Data</u>	<u>% of Payroll</u>
<b>A. <u>Participant Data Summary</u></b>		
1. Active employees (84 Tier 2)	166	N/A
2. Terminated vested	1	N/A
3. Receiving benefits	89	N/A
4. DROP participants	48	N/A
5. Annual payroll of active employees	\$ 14,289,472	100.0%
<b>B. <u>Total Normal Costs</u></b>		
1. Age retirement benefits	\$ 3,622,794	25.4%
2. Deferred vesting benefits	408,479	2.9%
3. Death benefits	80,303	0.6%
4. Disability benefits	283,637	2.0%
5. Estimated expenses	205,140	1.4%
6. Total annual normal costs	\$ 4,600,353	32.2%
<b>C. <u>Total Actuarial Accrued Liability</u></b>		
1. Age retirement benefits active employees	\$ 67,651,642	473.4%
2. Termination benefits active employees	1,945,966	13.6%
3. Death benefits active employees	520,845	3.6%
4. Disability benefits active employees	1,070,913	7.5%
5. Subtotal active employees	\$ 71,189,366	498.2%
6. Retired or terminated vested participants receiving benefits	\$ 62,092,335	434.5%
7. DROP participants	66,323,080	464.1%
8. Terminated vested participants entitled to future benefits	364,982	2.6%
9. Deceased participants whose beneficiaries are receiving benefits	2,079,407	14.6%
10. Miscellaneous	0	0.0%
11. Disabled participants receiving benefits	11,980,993	83.8%
12. Subtotal Inactives	\$ 142,840,797	999.6%
13. Total actuarial accrued liability	\$ 214,030,163	1497.8%
<b>D. <u>Value of Assets</u></b>		
1. Actuarial value	\$ 134,349,148	940.2%
2. Market value	\$ 139,640,411	977.2%
<b>E. <u>Unfunded Actuarial Accrued Liability (C13.-D1.)</u></b>		
	\$ 79,681,015	557.6%

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Table I  
(continued two)

	<u>Cost Data</u>	<u>% of Payroll</u>
F. <u>Minimum Funding Requirements</u>		
1. Total normal cost	\$ 4,600,353	32.2%
2. Expected employee contributions	<u>1,914,789</u>	<u>13.4%</u>
3. Net employer normal cost (1. - 2. increased for payment timing by 3%)	\$ 2,766,131	19.4%
4. Amortization of unfunded liability bases	7,356,706	51.5%
5. Interest	<u>451,055</u>	<u>3.2%</u>
6. Total payment	\$ 10,573,892	74.0%
G. <u>Contribution Sources</u>		
1. City	\$ 9,453,501	66.2%
2. State	\$ 1,120,391	7.8%
H. <u>Actuarial Gains / (Losses)</u>	\$ (1,901,744)	(13.3%)
I. <u>Actuarial Present Value of Vested Accrued Benefits</u>		
1. Retired, terminated vested, beneficiaries and disabled receiving benefits	\$ 76,152,735	532.9%
2. DROP participants	66,323,080	464.1%
3. Terminated vested participants entitled to future benefits	364,982	2.6%
4. Active participants entitled to future benefit	<u>39,279,818</u>	<u>274.9%</u>
5. Total actuarial present value of vested accrued benefits	\$ 182,120,615	1274.5%
J. <u>Unfunded Actuarial Present Value of Vested Accrued Benefits (I. - D.2.)</u>	\$ 42,480,204	297.3%
K. <u>Vested Benefit Security Ratio (D.2. ÷ I.)</u>	76.7%	N/A

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Table II

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICERS' RETIREMENT PLAN**

Comparison of Cost Data of October 1, 2017 and October 1, 2018 Actuarial Valuations

	October 1, 2017		Prior Assumptions October 1, 2018		Current Assumptions October 1, 2018	
	Cost Data	% of Annual Compensation	Cost Data	% of Annual Compensation	Cost Data	% of Annual Compensation
A. Participants						
1. Active employees						
- Tier One	90	N/A	82	N/A	82	N/A
- Tier Two	82	N/A	84	N/A	84	N/A
- Total	172	N/A	166	N/A	166	N/A
2. Terminated vested	1	N/A	1	N/A	1	N/A
3. Receiving benefits	88	N/A	89	N/A	89	N/A
4. DROP participants	42	N/A	48	N/A	48	N/A
5. Annual payroll of active employees	\$ 13,700,842	100.0%	\$ 14,289,472	100.0%	\$ 14,289,472	100.0%
B. Total Normal Costs	\$ 4,408,562	32.2%	\$ 4,457,783	31.2%	\$ 4,600,353	32.2%
C. Total Actuarial Accrued Liability	\$ 194,950,193	1422.9%	\$ 206,744,964	1446.8%	\$ 214,030,163	1497.8%
D. Actuarial Value of Assets	\$ 122,382,160	893.2%	\$ 134,349,148	940.2%	\$ 134,349,148	940.2%
E. Unfunded Actuarial Accrued Liability	\$ 72,568,033	529.7%	\$ 72,395,816	506.6%	\$ 79,681,015	557.6%
F. Net City Cost	\$ 8,813,360	64.3%	\$ 8,893,492	62.2%	\$ 9,453,501	66.2%
G. Unfunded Actuarial Present Value of Vested Accrued Benefits <sup>1</sup>	\$ 38,156,567	278.5%	\$ 36,056,371	252.3%	\$ 42,480,204	297.3%
H. Vested Benefit Security Ratio <sup>1</sup>	76.9%	N/A	79.5%	N/A	76.7%	N/A

<sup>1</sup> Computed based on market value of assets

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Table III

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICERS' RETIREMENT PLAN****Characteristics of Participants in  
Actuarial Valuation as of October 1, 2018****A. Characteristic of Active Participants**

1.	Active participants as of beginning of prior year	172
2.	Entrants during prior year	5
3.	Exits during prior year	(11)
4.	Active participants as of beginning of year	166
5.	Active participants fully vested	83
6.	Active participants partially vested	0
7.	Active participants non-vested	83
8.	Annual payroll of active participants	\$ 14,289,472
9.	Average pay	\$ 86,081
10.	Average hire age	27.6 years
11.	Average attained age	37.2 years
12.	Percent female	27.1%

**B. Characteristics of Inactive Participants**

1.	Inactives as of beginning of prior year	131
2.	Newly inactive during prior year	8
3.	Exits during prior year	(1)
4.	Inactives as of beginning of year	138
5.	Age retirees	68
6.	Annual benefit for age retirees	\$ 4,173,919
7.	DROP participants	48
8.	Annual benefit for DROP participants	\$ 3,917,648
9.	Beneficiaries receiving benefits	4
10.	Annual benefits for beneficiaries	\$ 147,587
11.	Disabled participants receiving benefits	17
12.	Annual benefits for disabled participants	\$ 931,920
13.	Terminated vested due deferred benefits	1
14.	Annual benefits for terminated vested participants	\$ 23,621

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Table IV

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICERS' RETIREMENT PLAN****Statement of Assets as of October 1, 2018<sup>1</sup>**

<u>Assets</u>	<u>Market Value</u>
<b>A. <u>General Investments</u></b>	
1. Cash and cash equivalents	\$ 3,711,337
2. Government securities	6,115,174
3. Common stocks	70,040,506
4. Corporate bonds	21,303,483
5. Absolute Return	15,820,499
6. International equity funds	28,555,562
7. Real estate funds	30,999,466
8. Prepaid expenses	<u>483,021</u>
	\$177,029,048
<b>B. <u>Receivables</u></b>	
1. Accrued interest and dividends receivable	\$ 186,013
2. City contributions	0
3. State contributions	1,120,391
4. Employee contributions	0
5. Proceeds from securities sold	<u>49,951</u>
	\$ 1,356,355
<b>C. <u>Payables</u></b>	
1. Accounts payable	\$ 141,906
2. DROP accounts payable	38,539,220
3. Payables from securities sold	63,866
4. State contribution reserve	<u>0</u>
	\$ 38,744,992
<b>D. <u>DROP forfeiture</u></b>	\$ 0
<b>E. <u>Total Fund</u> (A. + B. - C. + D.)</b>	<b><u>\$139,640,411</u></b>

**Reconciliation of DROP Accounts Balance**

A. DROP Accounts Balance as of October 1, 2017	\$ 33,033,143
B. Transfer-in of Unused Leave Pay during year	\$ 798,380
C. Benefit Payments into DROP accounts during year	\$ 3,557,054
D. Disbursements from DROP accounts during year	\$ (1,435,281)
E. Investment Gains/(Losses) during year	<u>\$ 2,585,924</u>
F. DROP Accounts Balance as of September 30, 2018	\$ 38,539,220

<sup>1</sup> As reported by Plan's Auditors.**D**

Table V

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICERS' RETIREMENT PLAN****Reconciliation of Plan Assets<sup>1</sup>**

A.	<u>Market Value of Assets as of October 1, 2017 as Shown on prior Impact Statement after transfer of Available Excess Reserve balance</u>		\$126,977,603
B.	<u>Receipts During Period</u>		
1.	Contributions		
a.	Employee	\$ 2,016,843	
b.	City	8,823,379	
c.	State	<u>1,120,391</u>	
d.	Total		\$ 11,960,613
2.	Investment income		
a.	Interest, dividends and miscellaneous income	\$ 6,208,630	
b.	Investment expenses	<u>(920,488)</u>	
c.	Net		5,288,142
3.	Net appreciation		
a.	Realized	\$ 0	
b.	Unrealized	<u>4,504,606</u>	
c.	Total net appreciation		<u>4,504,606</u>
4.	Total receipts during period		\$ 21,753,361
C.	<u>Disbursements During Period</u>		
1.	Pension payments		\$ 5,314,037
2.	DROP payments		3,557,054
3.	Contribution refunds		16,322
4.	Administrative and miscellaneous expenses		205,140
5.	Increase / (decrease) in State contribution reserve		<u>0</u>
6.	Total disbursements during period		\$ 9,092,553
D.	<u>Market Value of Assets as of October 1, 2018</u>		\$139,640,411

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<sup>1</sup> As reported by Plan's Auditors.

Table VI

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICERS' RETIREMENT PLAN****Development of Actuarial Value of Assets**

	<u>10/1/2017 – 9/30/2018</u>	<u>10/1/2016 – 9/30/2017</u>	<u>10/1/2015 – 9/30/2016</u>	<u>10/1/2014 – 9/30/2015</u>
A. Market value of assets as of beginning of year	\$ 126,977,603	\$ 108,705,850	\$ 96,914,127	\$ 98,070,833
B. Contributions	11,960,613	10,650,165	9,994,886	9,869,048
C. Benefit payments and expenses	10,013,041	8,892,860	8,788,305	7,732,945
D. Expected investment income (A. x .0725 + (B.-C.) x .03625)	9,276,476	8,218,838	7,313,806	7,435,416
E. Expected assets at end of year (A. + B. – C. + D.)	138,201,651	118,681,993	105,434,514	107,642,352
F. Actual market value at end of year	139,640,411	126,977,603	108,705,850	96,914,127
G. Excess/(shortfall) of actual over expected assets (F. – E.)				
1. From previous plan year	1,438,760	8,295,610	3,271,336	(10,728,225)
2. From two plan years ago	8,295,610	3,271,336	(10,728,225)	1,437,213
3. From three plan years ago	3,271,336	(10,728,225)	1,437,213	6,318,823
4. From four plan years ago	(10,728,225)	1,437,213	6,318,823	7,229,491
H. Deferred recognized amounts of excess/(shortfall)				
1. 80% from previous plan year	1,151,008	6,636,488	2,617,069	(8,582,580)
2. 60% from two plan years ago	4,977,366	1,962,802	(6,436,935)	862,328
3. 40% from three plan years ago	1,308,534	(4,291,290)	574,885	2,527,529
4. 20% from four plan years ago	(2,145,645)	287,443	1,263,765	1,445,898
5. Total	5,291,263	4,595,443	(1,981,216)	(3,746,825)
I. Preliminary actuarial value of assets at end of year (F. – H.5.)	\$ 134,349,148	\$ 122,382,160	\$ 110,687,066	\$ 100,660,952
J. State Ch. 185 contribution reserve	0	0	0	0
K. 80% of end of year market value of assets	111,712,329	101,582,082	86,964,680	77,531,302
L. 120% of end of year market value of assets	167,568,493	152,373,124	130,447,020	116,296,952
M. Actuarial value of assets (I. – J., but not less than K. and not more than L.)	\$ 134,349,148	\$ 122,382,160	\$ 110,687,066	\$ 100,660,952

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Table VII

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICERS' RETIREMENT PLAN**

**History of Chapter 185 Contribution Usage**

Under the provisions of Florida Statutes Chapter 185, as amended by Chapter 99-1, increments in Chapter 185 contributions over the amount for 1997 must first be used to fund the cost of meeting minimum benefit requirements. After the minimum requirements are met, any additional Chapter 185 contributions received must be used to provide extra benefits. The following is an accounting of the contributions received and the amounts used for compliance since the 1997 plan year.

A.	1997 Chapter 185 contributions received (Base Amount) \$	185,627
B.	Benefit improvements purchased:	
	Inclusion of up to 100 hours of overtime pay per year as pension earnings effective October 1, 2001 \$	114,932
	Inclusion of up to 300 hours of overtime pay per year as pension earnings effective October 1, 2002 \$	175,040
		+ one time use of \$198,800
C.	Benefit improvements needed to meet Ch. 185 minimum benefits:	None
D.	History of Chapter 185 contribution usage:	

During Plan Year	Base Amount			Actual Amount Received		
	Ch. 185 Contribution	Cost for New Benefits	Total Ch. 185 Contribution Used	Ch. 185 Contribution	Excess of Actual over Base Amount	Cumulative Excess of Actual over Base Amount w/ 8.0% Interest*
1997/1998	\$ 185,627	\$ 0	\$ 185,627	\$ 185,627	\$ 0	\$ 0
1998/1999	\$ 185,627	\$ 0	\$ 185,627	\$ 185,221	\$ 0	\$ 0
1999/2000	\$ 185,627	\$ 0	\$ 185,627	\$ 176,891	\$ 0	\$ 0
2000/2001	\$ 185,627	\$ 0	\$ 185,627	\$ 209,484	\$ 23,857	\$ 23,857
2001/2002	\$ 185,627	\$ 0	\$ 185,627	\$ 252,604	\$ 66,977	\$ 90,834
2002/2003	\$ 185,627	\$ 114,932	\$ 300,559	\$ 318,247	\$ 17,688	\$ 115,789
2003/2004	\$ 300,559	\$ 0	\$ 300,559	\$ 514,299	\$ 213,740	\$ 338,792
2004/2005	\$ 300,559	\$ 175,040	\$ 475,599	\$ 589,458	\$ 113,859	\$ 280,954
2005/2006	\$ 475,599	\$ 0	\$ 475,599	\$ 617,118	\$ 141,519	\$ 444,949
2006/2007	\$ 475,599	\$ 0	\$ 475,599	\$ 658,663	\$ 183,064	\$ 663,609
2007/2008	\$ 475,599	\$ 0	\$ 475,599	\$ 677,111	\$ 201,512	\$ 918,210
2008/2009	\$ 475,599	\$ 0	\$ 475,599	\$ 742,362	\$ 266,763	\$ 1,258,430
2009/2010	\$ 475,599	\$ 0	\$ 475,599	\$ 764,456	\$ 288,857	\$ 1,647,961
2010/2011	\$ 475,599	\$ 273,824	\$ 749,423	\$ 680,689	\$ 0	\$ 0**
2011/2012	\$ 749,423	\$ 0	\$ 749,423	\$ 739,504	\$ 0	\$ 0
2012/2013	\$ 749,423	\$ 0	\$ 749,423	\$ 798,782	\$ 0	\$ 0
2013/2014	\$ 749,423	\$ 0	\$ 749,423	\$ 864,308	\$ 0	\$ 0

\* Interest accumulation begins with the 2002/2003 plan year, and applies to the cumulative excess of actual over base amount from prior plan year.

\*\* A one-time use of \$1,647,961 from the Cumulative Excess was used to fund a portion of the Ad Hoc Variable Benefit. The remaining portion is funded by the annual available excess.

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Table VII  
(continued two)

Ordinance No. 17-02 changed the usage of Chapter 185 contributions such that the first \$500,000 is to be used to fund existing defined benefits. Any amount in excess of \$500,000 is to be divided equally, with 50% used to fund the Ad Hoc Variable Benefit and 50% used to fund the minimum defined pension costs.

(a) Received During Plan Year	(b) Ch. 185 Contribution	(c) 50% of Excess Above \$500,000	(d) Ad Hoc Variable Benefit Purchased by (c)	(e) Total Ad Hoc Variable Benefit for Following Plan Year
2014/2015	\$ 882,631	\$ 191,316	0.16%	0.30%***
2015/2016	\$ 962,925	\$ 231,463	0.18%	0.32%***
2016/2017	\$1,032,724	\$ 266,362	0.21%	0.35%***
2017/2018	\$1,120,391	\$ 310,196	0.24%	0.38%***

\*\*\* (d) + 0.14%. the amount of Ad Hoc Variable Benefit funded by one-time use of \$1,647,961 from the Cumulative Excess, as shown on prior page

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Table VIII

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICERS' RETIREMENT PLAN**Actuarial Gains / (Losses) for Plan Year Ended September 30, 2018A. Derivation of Actuarial Gain / (Loss)

1. City and State normal cost		\$ 2,572,649
2. Unfunded actuarial accrued liability previous impact statement		\$ 72,568,033
3. City and State contributions previous year		\$ 9,943,770
4. Interest on:		
(a) City normal costs	\$ 192,949	
(b) Unfunded actuarial accrued liability	5,442,602	
(c) City and State contributions	<u>338,391</u>	
(d) Net total: (a) + (b) - (c)		\$ 5,297,160
5. (Decrease) / increase from ad-hoc Benefit Rate annual adjustment and plan amendment		\$ 647,834
6. Increase / (decrease) due to assumption change		\$ 6,637,365
7. Expected unfunded actuarial accrued liability current year: 1. + 2. - 3. + 4. + 5. + 6.		\$ 77,779,271
8. Actual unfunded actuarial accrued liability current year		\$ 79,681,015
9. Actuarial gain / (loss): 7. - 8.		\$ (1,901,744)

B. Approximate Portion of Gain / (Loss) Due to Investments

1. Actuarial value of assets		\$122,382,160
2. Contributions during year		\$ 11,960,613
3. Disbursements during year (expenses & benefits)		\$ 10,013,041
4. Expected appreciation for period		\$ <u>9,219,195</u>
5. Expected actuarial value of assets current year 1. + 2. - 3. + 4.		\$133,548,927
6. Actual actuarial value of assets current year		\$134,349,148
7. Approximate gain / (loss): 6. - 5.		\$ 800,221

C. Approximation Portion of Gain / (Loss) Due to Liabilities: A. - B. \$ (2,701,965)**D**

Table IX

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICERS' RETIREMENT PLAN**Amortization of Unfunded Liability

<u>Date</u>	<u>Total Unfunded Liability</u>	<u>Amortization Payment</u>
10/01/2018	\$ 79,681,015	\$ 7,356,706
10/01/2019	\$ 77,567,821	\$ 7,306,063
10/01/2020	\$ 75,355,736	\$ 7,206,710
10/01/2021	\$ 73,089,830	\$ 7,238,124
10/01/2048	\$ 0	\$ 0

**D**

Table X

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICERS' RETIREMENT PLAN**Accounting Disclosure Exhibit

<u>I. Number of Plan Participants</u>	<u>10/01/2017</u>	<u>10/01/2018</u>
1. Retirees, disabled and beneficiaries receiving benefits	88	89
2. Terminated plan participants entitled to but not yet receiving benefits	1	1
3. DROP participants	42	48
4. Active plan participants	<u>172</u>	<u>166</u>
5. Total	303	304
<u>II. Accumulated Plan Benefits as of October 1, 2018</u>		
<u>A. Statement of Accumulated Plan Benefits</u>		
1. Actuarial present value of accumulated vested plan benefits		
a. Participants currently receiving benefits	\$ 72,146,804	\$ 76,152,735
b. DROP participants	55,565,537	66,323,080
c. Others	<u>37,421,829</u>	<u>39,644,800</u>
d. Total	\$165,134,170	\$182,120,615
2. Actuarial present value of accumulated non-vested plan benefits	<u>5,435,625</u>	<u>4,612,674</u>
3. Total actuarial present value of accumulated plan benefits	\$170,569,795	\$186,733,289
<u>B. Statement of Change in Accumulated Plan Benefits</u>		
1. Actuarial present value of accumulated plan benefits as of October 1, 2017		\$ 170,569,795
2. Increase (decrease) during year attributable to:		
a. Plan amendment		0
b. Actuarial assumptions and method changes	6,609,414	
c. Benefits paid and contribution refunds	(5,330,359)	
d. DROP benefits credited	(3,557,054)	
e. Other, including benefits accumulated and increase for interest due to decrease in the discount period	<u>18,441,493</u>	
f. Net increase	\$ 16,163,494	
3. Actuarial present value of accumulated plan benefits as of October 1, 2018		\$ 186,733,289

**D**

Table X  
(continued two)

C. Significant Matters Affecting Calculations

- |  |                         |
|--|-------------------------|
| 1. Assumed rate of return used in determining actuarial present values | 7.25%                   |
| 2. Plan amendments   | See Table XI, Item 18.  |
| 3. Change in actuarial assumptions                                     | See Table XII, Item 11. |

**D**

Table X  
(continued three)

III. Schedule of Funding Progress (As required by GASB #25)

(1) Valuation Date	(2) Actuarial Value of Assets (AVA)	(3) Actuarial Accrued Liability (AAL)	(4) Unfunded Actuarial Accrued Liability (UAAL)(3) -(2)	(5) Funded Ratio (2) / (3)	(6) Annual Covered Payroll	(7) UAAL as % of Payroll (4) / (6)
October 1, 1992	\$ 8,201	\$ 10,360	\$ 2,159	79.2%	\$ 2,804	77.0%
October 1, 1993	\$ 9,358	\$ 11,931	\$ 2,573	78.4%	\$ 3,071	83.8%
October 1, 1994	\$ 9,960	\$ 13,613	\$ 3,653	73.2%	\$ 3,431	106.5%
October 1, 1995	\$ 12,127	\$ 15,158	\$ 3,031	80.0%	\$ 3,828	79.2%
October 1, 1996	\$ 14,218	\$ 18,102	\$ 3,884	78.5%	\$ 4,313	90.6%
October 1, 1997	\$ 18,010	\$ 20,461	\$ 2,451	88.0%	\$ 4,731	51.8%
October 1, 1998	\$ 20,896	\$ 22,460	\$ 1,564	93.0%	\$ 5,177	30.2%
October 1, 1999	\$ 23,928	\$ 24,941	\$ 1,013	95.9%	\$ 5,010	20.2%
October 1, 2000	\$ 26,085	\$ 28,668	\$ 2,583	91.0%	\$ 5,969	43.3%
October 1, 2001	\$ 26,404	\$ 32,799	\$ 6,395	80.5%	\$ 6,838	93.5%
October 1, 2002	\$ 26,583	\$ 38,376	\$ 11,793	69.3%	\$ 7,761	152.0%
October 1, 2003	\$ 28,845	\$ 42,905	\$ 14,060	67.2%	\$ 8,409	167.2%
October 1, 2003 <sup>1</sup>	\$ 28,845	\$ 43,985	\$ 15,140	65.6%	\$ 8,865	170.8%
October 1, 2004	\$ 30,834	\$ 49,529	\$ 18,695	62.3%	\$ 9,397	198.9%
October 1, 2005	\$ 33,698	\$ 55,266	\$ 21,568	61.0%	\$ 9,883	218.2%
October 1, 2005 <sup>2</sup>	\$ 34,072	\$ 57,128	\$ 23,056	59.6%	\$ 10,384	222.0%
October 1, 2006	\$ 38,746	\$ 68,203	\$ 29,456	56.8%	\$ 12,234	240.8%
October 1, 2007	\$ 45,048	\$ 72,004	\$ 26,956	62.6%	\$ 11,595	232.5%
October 1, 2008	\$ 50,322	\$ 87,443	\$ 37,121	57.5%	\$ 12,710	292.1%
October 1, 2009	\$ 54,831	\$ 97,512	\$ 42,681	56.2%	\$ 13,631	313.1%
October 1, 2010	\$ 59,669	\$ 105,397	\$ 45,728	56.6%	\$ 13,481	339.2%
October 1, 2011	\$ 65,585	\$ 120,581	\$ 54,996	54.4%	\$ 13,153	418.1%
October 1, 2012	\$ 70,278	\$ 128,311	\$ 58,033	54.8%	\$ 12,877	450.7%
October 1, 2013	\$ 80,048	\$ 137,496	\$ 57,448	58.2%	\$ 12,704	452.2%
October 1, 2014	\$ 91,509	\$ 150,339	\$ 58,830	60.9%	\$ 13,026	451.6%
October 1, 2015	\$ 100,661	\$ 163,045	\$ 62,384	61.7%	\$ 11,902	524.1%
October 1, 2016	\$ 110,687	\$ 182,692	\$ 72,005	60.6%	\$ 13,104	549.5%
October 1, 2017	\$ 122,382	\$ 194,950	\$ 72,568	62.8%	\$ 13,701	529.7%
October 1, 2018	\$ 134,349	\$ 214,030	\$ 79,681	62.8%	\$ 14,289	557.6%

Note: Dollar amounts in thousands

<sup>1</sup> Reflects the inclusion of up to 100 hours of overtime pay per year as pension earnings effective October 1, 2001.

<sup>2</sup> Reflects the inclusion of up to 300 hours of overtime pay per year as pension earnings effective October 1, 2002.



Table X  
(continued four)

IV. Schedule of Employer Contributions (As required by GASB #25)

(1) Plan Year Ending 9/30	(2) Annual Required Contribution	(3) Percentage Contributed
1992	\$ 468,000	100%
1993	504,159	100%
1994	508,992	100%
1995	558,674	100%
1996	691,679	100%
1997	743,136	100%
1998	918,431	100%
1999	873,437	100%
2000	839,165	100%
2001	769,233	100%
2002	977,249	100%
2003	1,412,410	100%
2004	1,759,573	100%
2005	2,207,297	100%
2006	2,538,769	100%
2007	3,002,005	100%
2008	4,032,857	100%
2009	4,629,745	100%
2010	5,615,572	100%
2011	6,078,837	100%
2012	6,148,835	100%
2013	7,079,367	100%
2014	7,381,064	100%
2015	7,243,910	100%
2016	7,191,828	100%
2017	7,638,789	100%
2018	8,823,379	100%

V. Notes to Required Supplementary Information

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date	October 1, 2018
Actuarial cost method	Entry Age Normal
Amortization method	Layered amortization
Remaining amortization period	30 years. 25 years for plan change bases and assumptions change bases established on or after October 1, 2011.
Asset valuation method	See Table XII, Item 8
Actuarial assumptions:	
Investment rate of return*	7.25%
Projected salary increases*	5.25%
Cost-of-living adjustments	2.00% with 5-year delay
* Includes inflation at 3.00%	

**D**

Table X  
(continued five)

Accounting Disclosure Exhibit

VI. Revenues by Source and Expenses by Type

<u>Plan Year</u>	<u>Revenues by Source</u>				
	<u>Employee Contributions</u>	<u>Employer Contributions</u>	<u>State Contributions</u>	<u>Investment Income</u>	<u>Total</u>
2018	\$ 2,016,843	\$ 8,823,379	\$ 1,120,391	\$ 10,713,236	\$ 22,673,849
2017	\$ 1,918,542	\$ 7,638,789	\$ 1,032,724	\$ 17,305,895	\$ 27,895,950
2016	\$ 1,840,133	\$ 7,191,828	\$ 962,925	\$ 10,588,752	\$ 20,583,638
2015	\$ 1,742,507	\$ 7,243,910	\$ 882,631	\$ (3,292,810)	\$ 6,576,238
2014	\$ 1,824,224	\$ 7,381,064	\$ 864,308	\$ 8,277,671	\$ 18,347,267
2013	\$ 1,870,493	\$ 7,079,367	\$ 798,782	\$ 11,971,112	\$ 21,719,754
2012	\$ 1,846,623	\$ 6,148,835	\$ 739,504	\$ 11,716,042	\$ 20,451,004
2011	\$ 1,835,674	\$ 6,078,837	\$ 680,689	\$ (1,834,773)	\$ 6,760,427
2010	\$ 1,832,875	\$ 5,615,572	\$ 764,456	\$ 3,156,087	\$ 11,368,990
2009	\$ 1,841,736	\$ 4,629,745	\$ 742,362	\$ (368,679)	\$ 6,845,164

<u>Plan Year</u>	<u>Expenses by Type</u>				
	<u>Benefits</u>	<u>DROP Payments</u>	<u>Expenses</u>	<u>Refunds</u>	<u>Total</u>
2018	\$5,314,037	\$ 3,557,054	\$1,125,628	\$ 16,322	\$ 10,013,041
2017	\$4,442,751	\$ 3,455,355	\$1,173,964	\$ 0	\$ 9,072,070
2016	\$4,357,640	\$ 3,014,359	\$1,118,682	\$ 297,624	\$ 8,788,305
2015	\$3,837,416	\$ 2,651,889	\$1,051,908	\$ 191,731	\$ 7,732,944
2014	\$3,640,415	\$ 2,150,417	\$ 992,488	\$ 227,901	\$ 7,011,221
2013	\$3,252,636	\$ 1,962,865	\$ 839,570	\$ 31,754	\$ 6,086,825
2012	\$3,133,307	\$ 1,782,920	\$ 747,018	\$ 82,037	\$ 5,745,282
2011	\$2,639,322	\$ 1,729,797	\$ 675,817	\$ 58,992	\$ 5,103,928
2010	\$2,502,592	\$ 1,309,429	\$ 616,025	\$ 43,426	\$ 4,471,472
2009	\$2,513,354	\$ 930,849	\$ 507,743	\$ 20,555	\$ 3,972,501

Contributions were made in accordance with actuarially determined contribution requirements.

**D**

## Table XI

CITY OF MIRAMAR MUNICIPAL POLICE OFFICERS' RETIREMENT PLANOutline of Principal Provisions of the Plan1. Effective date:

The initial effective date of the plan is October 11, 1965. The provisions in this report reflect the adoption of Ordinance 12-01, adopted October 5, 2011; Ordinance No. 17-01, adopted November 14, 2016 and Ordinance No. 17-02, adopted November 14, 2016.

2. Eligibility Requirements:

Police Officer of the City of Miramar, Florida. Tier One members are members hired prior to June 10, 2008 and Tier Two members are members hired on or after such date.

3. Pension Earnings:

Basic rate of pay from the City, exclusive of all overtime pay, bonuses, commissions and any other extraordinary compensation. Effective October 1, 2002, up to 300 hours of overtime pay per year is included as pension earnings.

4. Member Contributions:

13.4% of pension earnings on a *pick-up* basis.

5. Credited Service:

Service computed in completed years and months from date of employment to actual retirement date (or date of termination, if earlier). Service earned under other City sponsored retirement plans will be included for vesting and eligibility purposes, but not for benefit accrual. Credited Service can be purchased for prior active military service (maximum 4 years) and prior sworn police officer service (maximum 4 years).

6. Average Monthly Earnings (AME):

For Tier One members, AME is the average monthly pension earnings during the highest three (3) years of the last 10 years preceding date of retirement (or termination). For Tier Two members, AME is the average monthly pension earnings during the highest five (5) years of the last 10 years preceding date of retirement (or termination).

**D**

Table XI  
(continued two)

7. Normal Retirement:

For Tier One Members:

- a. Eligibility: Earlier of (i) or (ii), where
- (i) is the attainment of age 55 and completion of 10 years of Credited Service, and
- (ii) is the completion of 20 years of Credited Service regardless of age.
- b. Benefit: 3.25% (.0325) of AME per year of Credited Service, subject to a maximum accrual of 80% of AME. However, after 40 years of Credited Service, benefits shall commence at a rate of two percent (2.0%) of AME per year. Accrued benefits as of September 30, 1994 are protected. For members with 20 or more years of Credited Service as of April 5, 1995 who remain employed as of October 1, 2004, there would be no maximum benefit accruals, as permitted by State law. Effective October 1, 2007, members retiring with 20 or more years of Credited Service receive the maximum 80% of AME.

For Tier Two Members:

- a. Eligibility: Earlier of (i) or (ii), where
- (i) is the attainment of age 55 and completion of 10 years of Credited Service, and
- (ii) is the completion of 25 years of Credited Service regardless of age.
- b. Benefit: 3.00% (.0300) of AME per year of Credited Service, subject to a maximum accrual of 75% of AME. However, after 37½ years of Credited Service, benefits shall commence at a rate of two percent (2.0%) of AME per year.

8. Early Retirement:

- a. Eligibility: Attainment of age 50 and completion of 10 years of Credited Service.
- b. Benefit: Benefit accrued to date of retirement, but reduced by 3.0% for each year by which benefit commencement precedes normal retirement date.

9. Delayed Retirement:

Computed in the same manner as for normal retirement benefit but based upon AME and Credited Service as of delayed retirement date.

**D**

Table XI  
(continued three)

10. Disability Retirement

Service Connected Disability:

- a. Eligibility: Total and permanent disability in line of duty prior to normal retirement date.
- b. Benefit: 66 2/3% of AME as of date of disability.

Non-Service Connected Disability:

- a. Eligibility: Total and permanent disability not in line of duty after completion of 10 years of Credited Service but prior to normal retirement date.
- b. Benefit: Greater of accrued benefit or 25% of AME as of date of disability.

11. Death Benefit:

If any member has 10 or more years of Credited Service as of date of death, the accrued benefit will be paid for 10 years certain. If the death is duty related, the spouse of a Tier One member will receive the greater of the accrued benefit or eighty percent (80%) [seventy-five percent (75%) if Tier Two] of Final Monthly Earnings at the date of death, adjusted as if the member had retired on the date of death and had elected a joint and 100% survivor benefit. If a member dies with less than 10 years of Credited Service, employee contributions with interest are refunded plus any benefit payable under a group life insurance contract funded by plan.

12. Vested Benefit Upon Termination:

- a. Eligibility: Completion of 10 years of Credited Service at date of termination.
- b. Benefit: Either a refund of contributions or accrued benefit as of date of termination based upon AME and Credited Service as of date of termination. For members terminated on or before November 25, 2004, the accrued benefit would be payable on the 20<sup>th</sup> anniversary of service. Members terminated after November 26, 2004 or hired on or after February 21, 2002 would commence receiving their accrued benefits upon completion of 20 years of actual Credited Service, or the attainment of age 55 with 10 years of actual Credited Service.

13. Termination Benefit

- a. Eligibility: Less than 10 years of Credited Service at date of termination.
- b. Benefit: Return of employee contributions with 3.0% interest.

**D**

Table XI  
(continued four)

14. Normal Form of Retirement Income

10 years certain and life thereafter.

15. Deferred Retirement Option Plan (DROP)

Participants who have met the eligibility for normal retirement are eligible to participate in the DROP for a maximum period of eight (8) years, after which the participant shall be deemed separated from the City.

The maximum period of DROP participation shall decrease by one month for each month following the attainment of 25 years of Credited Service. Total number of years of Credited Service and DROP participation may not exceed 30 years.

Members of the DROP who are eligible to receive accumulated sick leave, accumulated vacation leave or any other accumulated leave payable upon separation may have the leave transferred into the members' DROP accounts.

If the participant dies or becomes disabled during DROP participation, the participant will be assumed to have retired under normal retirement on the day prior to DROP participation.

No payment will be made from the DROP until the participant actually separates from service with the City.

Upon entry into the DROP, a participant shall elect to have his or her DROP account be credited with either the actuarial funding rate (currently 8.0% per year) or at the actual rate of return the fund earns.

16. Cost of Living Adjustment (COLA)

An annual 2.0% COLA is payable to all retirees and DROP participants who were active employees on or after October 1, 2001, including DROP participants who had entered the DROP prior to October 1, 2001. COLA payments shall commence five (5) years after retirement or entry into the DROP. Tier Two members are not eligible for the COLA.

Table XI  
(continued five)

17. Ad Hoc Variable Benefit

Effective October 1, 2010, an annual Ad Hoc Variable Benefit was created for all members and retirees, and is cumulative. Payments commence five (5) years after retirement. The Ad Hoc Variable Benefit is solely funded by available Chapter 185 contributions in excess of those committed to existing benefits that were in place on September 30, 2010. The amount of the Ad Hoc Variable Benefit for fiscal year October 1, 2010 through September 30, 2011 was forty-two one hundredths of one percent (0.42%). The amount of the Ad Hoc Variable Benefit for fiscal year October 1, 2011 through September 30, 2012 is thirty-five one hundredths of one percent (0.35%). The amount of the Ad Hoc Variable Benefit for fiscal year October 1, 2012 through September 30, 2013 is thirty-nine one hundredths of one percent (0.39%). The amount of the Ad Hoc Variable Benefit for fiscal year October 1, 2013 through September 30, 2014 is forty-four one hundredths of one percent (0.44%). The amount of the Ad Hoc Variable Benefit for fiscal year October 1, 2014 through September 30, 2015 is forty-eight one hundredths of one percent (0.48%). The amount of the Ad Hoc Variable Benefit for fiscal year October 1, 2015 through September 30, 2016 was computed to be forty-nine one hundredths of one percent (0.49%), but was changed upon the adoption of Ordinance No. 17-02.

This ordinance changed the usage of the Chapter 185 contributions beginning with the funds for 2015 (received in 2016) such that the first \$500,000 is used to fund existing defined benefits. Any amount in excess of \$500,000 is to be split in half, with 50% to be used to fund the Ad Hoc Variable Benefit and 50% to be used to fund minimum defined benefit pension costs. The re-computed amount for fiscal year October 1, 2015 through September 30, 2016 is 0.30%. The amount of the Ad Hoc Variable Benefit for fiscal year October 1, 2016 through September 30, 2017 is thirty-two one hundredths of one percent (0.32%). The amount of the Ad Hoc Variable Benefit for fiscal year October 1, 2017 through September 30, 2018 is thirty-five one hundredths of one percent (0.35%). The amount of the Ad Hoc Variable Benefit for fiscal year October 1, 2018 through September 30, 2019 is thirty-eight one hundredths of one percent (0.38%).

18. Changes from Most Recent Actuarial valuation

To adjust for the actual amount of excess Chapter contributions available, the amount of the Ad Hoc Variable Benefit for fiscal year October 1, 2018 through September 30, 2019 was changed from thirty-five one hundredths of one percent (0.35%) to thirty-eight one hundredths of one percent (0.38%).

Table XII

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICERS' RETIREMENT PLAN**

Actuarial Assumptions and Actuarial Cost Method

1. Mortality:

Pre-Retirement:

Female Non-Disabled: RP2000 Generational, 100% Combined Healthy with White Collar Adjustment, Scale BB

Male Non-Disabled: RP2000 Generational, 10% Combined Healthy with White Collar Adjustment / 90% Combined Healthy with Blue Collar Adjustment. Scale BB

Post-Retirement:

Female Non-Disabled: RP2000 Generational, 100% Annuitant White Collar, Scale BB

Male Non-Disabled: RP2000 Generational, 50% Annuitant White Collar / 50% Annuitant Blue Collar, Scale BB

Pre-Retirement & Post-Retirement:

Female Disabled: 60% RP2000 Disabled Female set forward two years / 40% Annuitant White Collar with no setback, no projection scale

Male Disabled: 60% RP2000 Disabled Male setback four years / 40% Annuitant White Collar with no setback, no projection scale

2. Interest to be Earned by Fund:

7.25%, net of investment expenses, compounded annually.

3. Allowances for Expenses or Contingencies:

Actual expenses paid during previous year less direct investment expense.

4. Employee Withdrawal Rates:

Withdrawal rates were used in accordance with published tables per the following illustrative example:

<u>Age</u>	<u>Withdrawal Rates Per 100 Employees</u>	
	<u>Male</u>	<u>Female</u>
20	11.9	19.9
25	7.9	11.9
30	5.5	7.9
35	3.9	5.5
40	2.2	3.9
45	1.4	2.2
50	0.3	1.4
55	0.0	0.3
60 & over	0.0	0.0



Table XII  
(continued two)

5. Disability Rates:

The 1985 Disability Study - Class 2 separate male and female rates were used. 75% of disabilities assumed to be service incurred, 25% assumed to be non-service incurred.

6. Salary Increase Factors:

Current salary is assumed to increase at a rate of 5.25% per year until retirement.

7. Rates of Retirement:

The following are the retirement rates assumed for the participants eligible for retirement:

Tier One Members:

Participants with 20 or more years of Credited Service		Participants with less than 20 years of Credited Service	
Years of Credited Service	Percentage Retiring	Age	Percentage Retiring
20 or more	100%	50-54	25%
		55-59	50%
		60	100%

Active participants with less than 20 years of Credited Service and who are eligible for retirement as of the valuation date are assumed to have a minimum of one (1) year future service.

Tier Two Members:

Participants with 25 or more years of Credited Service		Participants with less than 25 years of Credited Service	
Years of Credited Service	Percentage Retiring	Age	Percentage Retiring
25 or more	100%	50-54	25%
		55-59	50%
		60	100%

Active participants with less than 25 years of Credited Service and who are eligible for retirement as of the valuation date are assumed to have a minimum of one (1) year future service.

Table XII  
(continued three)

8. Asset Valuation Method:

The actuarial value of assets is determined by smoothing the differences between actual investment earnings and assumed investment return over five (5) years. This method was adopted effective October 1, 2001 with no phase-in. The resulting value would then be limited to between 80% and 120% of market value.

9. Cost Methods:

Retirement, Termination, Disability and Pre-Retirement Death Benefits: Entry-Age-Actuarial Cost Method.

Under this method the normal cost for each active participant is calculated to be a level percentage of pay amount that would be required annually from his or her date of hire to retirement age in order to fund his or her projected benefits, assuming the plan had always been in effect. The normal cost for the plan is then the sum of the individual normal costs for all active participants. The actuarial accrued liability at any valuation date for each active or inactive participant who is eligible to receive benefits under the plan is the excess of the actuarial present value of projected future benefits over the actuarial present value of current and future normal costs. The unfunded actuarial accrued liability at any valuation date is the excess of the actuarial accrued liability over the actuarial value of assets of the plan.

The amortization bases would be funded by the excess of actual contributions over prior year's normal cost, adjusted with interest. For each existing base, the funding is done proportionally, determined based on the individual base's required amortization payment as a percentage of the overall total required total amortization payment for the prior year. New bases are then added to the total outstanding unfunded actuarial accrued liability as new layers.

The projected payroll for the 2018/2019 plan year is assumed to be the same as shown for the 2017/2018 plan year (no change).

10. Marriage Assumptions:

100% of active participants were assumed married, with husbands three (3) years older than wives.

11. Changes from Most Recent Actuarial Valuation:

1. The salary scale was changed from 5.50% to 5.25%.
2. The assumed interest to be earned by the Fund was changed from 7.50% to 7.25%, net of investment expenses, compounded annually.
3. The assumed administrative expenses were changed from \$179,210 to \$205,140 for the plan/fiscal year.

Table XIII

CITY OF MIRAMAR MUNICIPAL POLICE OFFICERS' RETIREMENT PLAN

Distribution of Active Participants by Age and Service Groups  
as of October 1, 2018

Years of Credited Service

<u>Age</u>	<u>0 - 4</u>	<u>5 - 9</u>	<u>10 - 14</u>	<u>15 - 19</u>	<u>20 - 24</u>	<u>25 - 29</u>	<u>30 &amp; Over</u>	<u>Total</u>
Under 25	13	.	.	.	.	.	.	13
25 - 29	19	2	.	.	.	.	.	21
30 - 34	11	13	10	.	.	.	.	34
35 - 39	6	5	16	6	.	.	.	33
40 - 44	3	5	9	18	.	.	.	35
45 - 49	.	4	3	8	1	.	.	16
50 - 54	.	.	2	9	.	.	.	11
55 - 59	1	1	1	.	.	.	.	3
60 - 64	.	.	.	.	.	.	.	0
65 & Over	.	.	.	.	.	.	.	0
<b>TOTAL</b>	<b>53</b>	<b>30</b>	<b>41</b>	<b>41</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>166</b>

10/01/2017

10/01/2018

Average Attained Age  
 Average Hire Age  
 Average Pay  
 Percent Female

36.8 years  
 27.7 years  
 \$ 79,656  
 27.9%

37.2 years  
 27.6 years  
 \$ 86,081  
 27.1%



Table XIV

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICER'S RETIREMENT PLAN****Reconciliation of Participant Data****A. Active Participants**

1. Active participants previous year	172
2. Retired during year	(0)
3. Entered DROP during year	(8)
4. Died during year	0
5. Disabled during year	(0)
6. Terminated vested during year	(3)
7. Terminated non-vested during period	(0)
8. Rehired during period	0
9. New active participants	<u>5</u>
10. Active participants current year	166

**B. Participants Receiving Benefits**

1. Participants receiving benefits previous year	88
2. New retired participants	0
3. New terminated vested receiving benefits	0
4. New disabled receiving benefits	0
5. New beneficiaries receiving benefits	0
6. Exited DROP participants who retired	2
7. Died or ceased payment during year	<u>(1)</u>
8. Retired or terminated vested receiving benefits current year	89

**C. Terminated Participants Entitled to Future Benefits**

1. Terminated entitled to future benefits previous year	1
2. Died during year	0
3. Commenced receiving benefits during year	(0)
4. New terminated participants	0
5. Rehired	<u>0</u>
6. Terminated participants entitled to future benefits current year	1

**D. DROP Participants**

1. DROP participants previous year	42
2. New entrants during year	8
3. Died during year	0
4. Exited and retired during year	<u>(2)</u>
5. DROP participants current year	48

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Table XV

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICER'S RETIREMENT PLAN****Recent Investment, Salary Increase, and Turnover Experience**A. Investment Return

Comparison of actual to assumed investment return for the last ten years:

Year Ended	Rate of Return		
	Actuarial <sup>1</sup> Value	Market Value	Assumed
09/30/2018	8.1%	8.1%	7.50%
09/30/2017	8.0%	13.6%	7.50%
09/30/2016	7.8%	9.4%	7.50%
09/30/2015	6.6%	(1.8%)	7.50%
09/30/2014	9.2%	9.5%	7.75%
09/30/2013	7.5%	14.3%	7.75%
09/30/2012	1.7%	18.8%	7.75%
09/30/2011	0.4%	(1.2%)	8.00%
09/30/2010	2.6%	6.8%	8.00%
09/30/2009	3.1%	(0.8%)	8.00%
Last 3 Yrs.	8.0%	10.3%	7.50%
Last 5 Yrs.	7.9%	7.6%	7.55%
Last 10 Yrs.	5.5%	7.5%	7.72%

B. Recent Salary Increase and Turnover Experience

Year Ended	% of Salary Increase		Ratio of Actual Turnover to Expected
	Actual	Assumed	
09/30/2018	9.4%	5.50%	0.4
09/30/2017	5.8%	5.50%	0.1
09/30/2016	9.8%	5.50%	0.8
09/30/2015	1.3%	5.50%	2.0
09/30/2014	3.4%	6.25%	0.9
Last 3 Yrs.	8.3%	5.50%	0.4
Last 5 Yrs.	5.9%	5.65%	0.7

<sup>1</sup> Computed as  $2I / (A + B - I)$ , where A is beginning value, B is ending value, and I is investment return. See Item C. for computation details.

Table XV  
(continued two)

C. Computation of Actuarial Value Rate of Return

1. Beginning of year value		\$ 122,382,160
2. Contributions during year		
a. Employee	\$ 2,016,843	
b. City	8,823,379	
c. State (Chapter 185)	<u>1,120,391</u>	
d. Total		\$ 11,960,613
3. Distributions during year		
a. Benefit payments (regular and DROP)	\$ 8,871,091	
b. Refunds	16,322	
c. Administrative & Investment expenses	<u>1,125,628</u>	
d. Total	\$10,013,041	
4. End of year value		\$ 134,349,148
5. Asset return (4. - 1. - 2.d. + 3.d.)		\$ 10,019,416
6. Weighted fund value (1. + ½ (2. - 3.))		\$ 123,355,946
7. Actuarial value rate of return (5. ÷ 6.)		8.1%

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Table XVI

**CITY OF MIRAMAR MUNICIPAL POLICE OFFICER'S RETIREMENT PLAN****State Required Exhibit**

	<u>10/01/2017</u>	<u>10/01/2018</u>
<b>A. <u>Participant Data</u></b>		
1. Active participants	172	166
2. Retired participants and beneficiaries receiving benefits	71	72
3. DROP participants	42	48
4. Disabled participants receiving benefits	17	17
5. Terminated vested participants	1	1
6. Annual payroll of active participants	\$ 13,700,842	\$ 14,289,472
7. Annual benefits payable to those currently receiving benefits	\$ 5,085,048	\$ 5,253,426
8. Annual benefits payable to DROP participants	\$ 3,417,199	\$ 3,917,648
<b>B. <u>Value of Assets</u></b>		
1. Actuarial value	\$ 122,382,160	\$ 134,349,148
2. Market value	\$ 126,977,603	\$ 139,640,411
<b>C. <u>Liabilities</u></b>		
i. Actuarial present value of future expected benefit payments for active members		
a. Age retirement benefit	\$ 86,039,575	\$ 91,061,472
b. Death benefit	981,329	1,031,553
c. Disability retirement benefit	2,900,802	2,995,284
d. Vested	<u>3,778,341</u>	<u>3,899,261</u>
e. Total	\$ 93,700,047	\$ 98,987,570
2. Actuarial present value of future expected benefit payments for terminated vested members	\$ 327,753	\$ 364,982
3. Actuarial present value of future expected benefit payments for those receiving benefits		
a. Service retired	\$ 58,539,185	\$ 62,092,335
b. DROP participants	55,565,537	66,323,080
c. Disability retired	11,599,913	11,980,993
d. Beneficiaries	<u>2,007,706</u>	<u>2,079,407</u>
e. Total	\$127,712,341	\$ 142,475,815

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Table XVI  
(continued two)

	<u>10/01/2017</u>	<u>10/01/2018</u>
4. Total actuarial present value of future expected benefit payments	\$ 221,740,141	\$ 241,828,367
5. Actuarial accrued liabilities	\$ 194,950,193	\$ 214,030,163
6. Unfunded actuarial liabilities (see footnote 1/ for separation)	\$ 72,568,033	\$ 79,681,015
<b>D. <u>Statement of Accumulated Plan Benefits</u></b>		
1. Actuarial present value of accumulated vested plan benefits		
a. Participants currently receiving benefits	\$ 72,146,804	\$ 76,152,735
b. DROP participants	55,565,537	66,323,080
c. Other participants	<u>37,421,829</u>	<u>39,644,800</u>
d. Total	\$165,134,170	\$182,120,615
2. Actuarial present value of accumulated non-vested plan benefits	<u>5,435,625</u>	<u>4,612,674</u>
3. Total actuarial present value of accumulated plan benefits	\$170,569,795	\$186,733,289
<b>E. <u>Statement of Change in Accumulated Plan Benefits</u></b>		
1. Actuarial present value of accumulated plan benefits as of October 1, 2017	\$ 170,569,795	
2. Increase (decrease) during year attributable to:		
a. Plan amendment	\$ 0	
b. Actuarial assumptions and methods changes	6,609,414	
c. Benefits paid and contribution refunds	(5,330,359)	
d. DROP benefits credited	(3,557,054)	
e. Other, including benefits accumulated and increase for interest due to decrease in the discount period	<u>18,441,493</u>	
f. Net increase (decrease)	\$ 16,163,494	
3. Actuarial present value of accumulated plan benefits as of October 1, 2018	\$ 186,733,289	

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Table XVI  
(continued three)

	<u>10/01/2017</u>	<u>10/01/2018</u>
F. <u>Pension Cost</u>		
1. Total normal cost	\$ 4,408,562	\$ 4,600,353
2. Expected member contribution	1,835,913	1,914,789
3. Item 2. as percentage of payroll	<u>13.4%</u>	<u>13.4%</u>
4. Net employer normal cost x 1.03	\$ 2,572,649	\$ 2,766,131
5. Payment required to amortize unfunded liability	<u>6,761,195</u>	<u>7,356,706</u>
6. Total required contribution (including interest)	\$ 9,846,084	\$ 10,573,892
7. Item 6. as a percentage of payroll	71.9%	74.0%
8. Estimated State contributions	\$ 1,032,724	\$ 1,120,391
9. Item 8. as a percentage of payroll	7.5%	7.8%
10. Net amount payable by City	\$ 8,813,360	\$ 9,453,501
11. Item 10. as a percentage of payroll	64.3%	66.2%
G. <u>Past Contributions</u>		
1. Total contribution required as determined by prior year's valuation	\$ 11,542,243	\$ 11,681,997
2. Actual contributions made:		
a. Employees	2,016,843	N/A
b. City	8,823,379	N/A
c. State	<u>1,120,391</u>	<u>N/A</u>
d. Total	11,960,613	N/A
H. <u>Net Actuarial Gain (Loss)</u>	\$ 671,768	\$ (1,901,744)
I. <u>Disclosure of Following Items:</u>		
1. Actuarial present value of future salaries - attained age	\$ 95,949,566	\$ 101,622,179
2. Actuarial present value of future employee contributions - attained age	\$ 12,857,242	\$ 13,617,372
3. Actuarial present value of future contributions from other sources	N/A	N/A
4. Amount of active members' accumulated contributions	\$ 13,932,618	\$ 14,340,021
5. Actuarial present value of future salaries and future benefits at entry age	Not provided by software	
6. Actuarial present value of future employee contributions at entry age	Not provided by software	

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Table XVI  
(continued four)

1/ Unfunded Actuarial Accrued Liabilities

Description and Amount of Original Liability	Amortization Period	Unamortized Amount as of Valuation Date	Amortization Payment
Increase in UAL of \$138,465 due to gains, and changes in assumptions and methods	30 years from 1/1/1989	3,875	3,875
Increase in UAL of \$7,392 due to plan amendment	30 years from 1/1/1989	206	206
Actuarial gain of \$552,941 for the 1989 plan year	30 years from 1/1/1990	(80,450)	(64,918)
Increase in UAL of \$1,083,036 due to plan amendment	30 years from 1/1/1990	157,387	127,001
Actuarial loss of \$603,756 for the 1990 plan year	30 years from 10/1/1990	132,166	68,395
Decrease in UAL of \$895,007 due to changes in assumptions and methods	30 years from 10/1/1990	(195,921)	(101,387)
Increase in UAL of \$1,031,280 due to plan amendment	30 years from 10/1/1990	225,751	116,824
Actuarial gain of \$293,297 for the 1991 plan year	30 years from 10/1/1991	(88,016)	(31,414)
Actuarial gain of \$155,919 for the 1992 plan year	30 years from 10/1/1992	(58,541)	(16,206)
Actuarial loss of \$446,973 for the 1993 plan year	30 years from 10/1/1993	199,875	45,757
Increase in UAL of \$4,896 due to plan amendment	30 years from 10/1/1993	2,190	501
Actuarial loss of \$1,081,469 for the 1994 plan year	30 years from 10/1/1994	546,398	107,709
Actuarial gain of \$841,463 for the 1995 plan year	30 years from 10/1/1995	(459,763)	(80,238)

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Table XVI  
(continued five)

Description and Amount of Original Liability	Amortization Period	Unamortized Amount as of Valuation Date	Amortization Payment
Increase in UAL of \$145,364 due to changes in assumptions	30 years from 10/1/1995	\$ 79,427	\$ 13,862
Actuarial gain of \$89,982 for the 1996 plan year	30 years from 10/1/1996	(55,080)	(8,684)
Increase in UAL of \$1,058,236 due to plan amendment	30 years from 10/1/1996	647,774	102,130
Increase in UAL of \$17,778 due to change in assumptions	30 years from 10/1/1996	10,445	1,647
Actuarial gain of \$1,474,750 for the 1997 plan year	30 years from 10/1/1997	(951,142)	(137,570)
Actuarial gain of \$699,047 for the 1998 plan year	30 years from 10/1/1998	(501,858)	(67,395)
Actuarial gain of \$397,624 for the 1999 plan year	30 years from 10/1/1999	(315,611)	(39,734)
Actuarial loss of \$1,746,945 for the 2000 plan year	30 years from 10/1/2000	1,567,675	186,491
Decrease in UAL of \$2,455 due to plan amendment	30 years from 10/1/2000	(2,203)	(262)
Actuarial loss of \$4,973,947 for the 2001 plan year	30 years from 10/1/2001	4,272,691	483,449
Increase in UAL of \$1,310,298 due to plan amendment	29 years from 10/1/2001	1,086,092	129,202
Decrease in UAL of \$2,687,019 due to plan amendment	30 years from 10/1/2001	(2,308,187)	(261,168)
Increase in UAL of \$2,757,570 due to plan amendment	30 years from 10/1/2002	2,072,069	224,238
Actuarial loss of \$2,443,131 for the 2002 plan year	30 years from 10/1/2002	2,302,158	260,486
Actuarial loss of \$2,167,351 for the 2003 plan year	30 years from 10/1/2003	1,876,851	195,183
Increase in UAL of \$1,080,138 Due to plan amendment	30 years from 10/1/2003	935,362	97,273
Actuarial loss of \$3,310,974 for the 2004 plan year	30 years from 10/1/2004	2,873,318	288,317
Actuarial loss of \$2,909,164 for the 2005 plan year	30 years from 10/1/2005	2,565,235	249,242
Increase in UAL of \$1,487,987 Due to plan amendment	29 years from 10/1/2005	1,285,950	129,036

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Table XVI  
(continued six)

Description and Amount of Original Liability	Amortization Period	Unamortized Amount as of Valuation Date	Amortization Payment
Actuarial loss of \$2,730,128 for the 2006 plan year	30 years from 10/1/2006	\$ 2,433,567	\$ 229,660
Increase in UAL of \$3,625,163 Due to plan amendment	30 years from 10/1/2006	3,231,377	304,950
Actuarial gain of \$3,007,843 for the 2007 plan year	30 years from 10/1/2007	(2,666,207)	(245,054)
Actuarial loss of \$4,570,993 for the 2008 plan year	30 years from 10/1/2008	4,187,095	375,706
Increase in UAL of \$6,365,385 Due to plan amendment	30 years from 10/1/2008	5,830,782	523,193
Actuarial loss of \$5,594,854 for the 2009 plan year	30 years from 10/1/2009	5,154,160	452,467
Decrease in UAL of \$23,184 Due to assumptions change	30 years from 10/1/2009	(21,359)	(1,875)
Actuarial loss of \$3,335,462 for the 2010 plan year	30 years from 10/1/2010	3,102,033	266,929
Increase in UAL of \$1,869,846 Due to Ad Hoc Benefit amendment	30 years from 10/1/2010	1,738,990	149,639
Actuarial loss of \$4,926,592 for the 2011 plan year	30 years from 10/1/2011	4,636,468	391,738
Decrease in UAL of \$674,023 Due to Ad Hoc Benefit reduction	25 years from 10/1/2011	(605,093)	(57,104)
Increase in UAL of \$3,697,379 Due to assumptions change	25 years from 10/1/2011	3,319,272	313,245
Actuarial loss of \$2,708,073 for the 2012 plan year	30 years from 10/1/2012	2,551,875	212,028
Increase in UAL of \$430,584 Due to Ad Hoc Benefit increase	25 years from 10/1/2012	390,331	35,876
Actuarial gain of \$292,622 for the 2013 plan year	30 years from 10/1/2013	(278,824)	(22,813)
Increase in UAL of \$587,656 Due to Ad Hoc Benefit increase	25 years from 10/1/2013	543,084	48,731
Actuarial gain of \$1,242,179 for the 2014 plan year	30 years from 10/1/2014	(1,204,023)	(97,132)
Increase in UAL of \$510,750 Due to Ad Hoc Benefit increase	25 years from 10/1/2014	483,867	42,477

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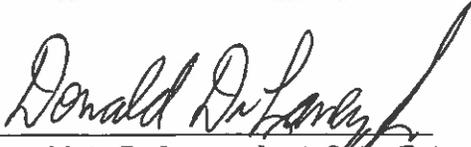
Table XVI  
(continued seven)

Description and Amount of Original Liability	Amortization Period	Unamortized Amount as of Valuation Date	Amortization Payment
Increase in UAL of \$3,516,209 Due to assumptions change	25 years from 10/1/2014	\$ 3,331,142	\$ 292,430
Actuarial gain of \$687,419 for the 2015 plan year	30 years from 10/1/2015	(675,844)	(53,819)
Increase in UAL of \$143,047 Due to Ad Hoc Benefit increase	25 years from 10/1/2015	138,412	11,910
Increase in UAL of \$5,514,643 Due to assumptions change	25 years from 10/1/2015	5,335,963	459,157
Actuarial LOSS of \$5,470,811 for the 2016 plan year	30 years from 10/1/2016	5,415,830	426,144
Decrease in UAL of \$2,860,938 Due to Ad Hoc Benefit decrease	25 years from 10/1/2016	(2,803,748)	(236,891)
Increase in UAL of \$8,068,021 Due to assumptions change	25 years from 10/1/2016	7,906,743	668,046
Increase in UAL of \$79,002 Due to plan amendment	25 years from 10/1/2016	77,422	6,541
Actuarial GAIN of \$671,768 for the 2017 plan year	30 years from 10/1/2017	(663,329)	(51,622)
Increase in UAL of \$595,610 Due to Ad Hoc Benefit decrease	25 years from 10/1/2017	585,023	48,608
Increase in UAL of \$1,214,527 Due to assumptions change	25 years from 10/1/2017	1,192,940	99,118
Actuarial LOSS of \$1,901,744 for the 2018 plan year	30 years from 10/1/2018	1,901,744	146,500
Increase in UAL of \$647,834 Due to Ad Hoc Benefit decrease	25 years from 10/1/2018	647,834	53,006
Increase in UAL of \$1,214,527 Due to assumptions change	25 years from 10/1/2018	6,637,365	543,069
TOTAL		<u>\$ 79,681,015</u>	<u>\$ 7,356,706</u>

**D**

Table XVI  
(continued eight)

This actuarial valuation and/or cost determination was 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, the techniques and assumptions used are reasonable and meet the requirements and intent of Part VII, 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 provided for in the valuation. All known events or trends which may require a material increase in plan costs or required contribution rates have been taken into account in the valuation.



Donald A. DuLaney, Jr. A.S.A., E.A.  
Senior Consulting Actuary

9/3/2019

Date

17-04191

Enrollment Number



Panrong Xiao, E.A., M.A.A.A.  
Enrolled Actuary

9/3/2019

Date

17-07551

Enrollment Number

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