COWDEN

City of Miami
Elected Officers' Retirement Trust

Actuarial Valuation Report

January 1, 2020

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INTEGRITY EXPERTISE RESULTS EMPLOYEES COMMUNITY

Contents

Highlights

Cowden Associates, Inc. has prepared this report for the City of Miami to:

- Present the results of an actuarial valuation of the City of Miami Elected Officers' Retirement Trust (EORT) as of January 1, 2020;
- Provide a recommended employer contribution amount for the 2020 plan year; and
- Provide reporting information as required under Florida Statute Chapter 112 for financial statements, governmental agencies, and other interested parties.

Contribution Results

The recommended contribution amounts for the current and prior year are shown below. The contribution amount payable as of January 1 should be increased with interest at the valuation interest rate to the actual contribution date.

	2020	2019
Contribution if paid on		
January 1	$ 773,424	$ 553,880
December 31 (interest added)	$ 792,760	$ 567,727

The 2020 contribution of $792,760 at December 31, 2020 is approximately $225,000 higher than the comparable 2019 amount. Changes are attributable to the following items:

Asset return of 1.80% for 2019, as compared to 2.50% assumed return	$ 11,100
Actuarial mortality net loss (One participant died in 2019)	8,000
Completed amortization of liability-change bases established in 2015	(84,800)
Mortality assumption change	20,900
Clarification of plan provisions as provided by City Law Department related to EORT members who were in office and retired prior to October 2009, and were subsequently re-elected	269,800
Net increase or (decrease) to contribution	$ 225,000

Assumption Change

The mortality assumption has been updated in conformance with Florida Statutes Section 112.63(1)(f), which requires covered plans to use the mortality tables and methodology employed by the Florida Retirement System (FRS) in one of its two most recently published actuarial valuation reports. The mortality assumption was changed for the July 1, 2019 actuarial valuation of the FRS Pension Plan.

Highlights (continued)

The new mortality assumption reflects tables published in 2019 by the Society of Actuaries (SOA) which are based exclusively on public-sector pension plan experience. Factors for future mortality improvement have been updated as well. The current and prior mortality assumptions are described in detail in Section 3.

Clarification of Plan Provisions

The City Law Department provided a clarifying interpretation related to plan members who were in payment status prior to October 2009 and then re-elected to office after October 2009. Those members were previously understood to have frozen benefits, with payments suspended upon return to office and payments to resume *at the prior frozen amount* at the end of the new term in office. The Law Department has directed that those members are entitled to additional benefit accrual during their post-October 2009 terms in office.

Supporting documentation for this matter is noted in Section 4.

Plan Changes

No plan amendments have been adopted since the prior valuation.

Investments

The EORT does not have a plan-specific Investment Policy Statement nor an independent investment manager. The Plan Ordinance limits the allowable investments of the trust to specific fixed income investments, including U.S. bonds, certificates of deposit, FHA or VA mortgage notes, high-rated corporate bonds, and venture capital or real estate via commingled ownership. The EORT follows the City's investment policy for its general assets.

For the past several years, EORT assets have been invested in Treasury bonds and government agency bonds with short-term maturities, and money market accounts. In the absence of a formal long-term investment policy, we have relied on recent history to set an expected long-term rate of return for funding and accounting purposes. The assumed *long-term* rate of return (i.e. interest assumption) was reduced for the 2019 valuation, with investments presumed to be approximately 15% cash, 85% fixed income evenly split between short-term Treasuries and short-term government agency bonds, and an underlying inflation assumption of 2.25%.

The EORT is a long-term obligation, with benefits payable for life to its participants, the youngest of whom is age 52 as of the valuation date. We recommend the engagement of an investment advisor and development of a formal long-term investment strategy, reflecting the plan's expected benefit payouts over time. We will revise the interest assumption to be consistent with such policy if developed and implemented.

Highlights (continued)

Plan Interpretation and Administration

Interpretation of existing plan provisions and decisions related to administration of the EORT are the responsibility of the City, as plan sponsor. Cowden Associates is not a law firm and cannot provide legal advice in this regard. Cowden has relied on guidance provided by the City as to the interpretation of certain plan provisions in order to calculate projected benefits for funding purposes.

Pension Accounting Standards

The Governmental Accounting Standards Board (GASB) sets forth accounting standards for governmental pension plans. GASB 68 covers employer financial reporting for pension obligations. The City implemented the GASB 68 standards beginning with its 2015 CAFR.

The results presented in this valuation report do not include balance sheet and expense calculations that are required under GASB 68. That information will be provided in a separate report.

Additional Disclosure Information Under F.S. Section 112.664

Florida Statutes were amended in 2013 to require additional actuarial disclosure information for local government pension plans to be submitted to the State. The requirements are described in Section 112.664 of the Florida Statutes. Legislation passed in 2015 required the use of a prescribed mortality assumption, described in F.S. Section 112.63(1)(f).

The additional disclosure information required under Section 112.664 will be provided in separate correspondence.

Principal Valuation Results

Principal results from the current valuation and the prior valuation are shown below.

	Actuarial Valuation as of January 1	
	2020	2019
Plan Participants		
Active, earning future benefits	1	0
Active, with frozen or suspended benefits	0	2
Terminated, with deferred benefit	2	2
Retired, benefit in payment status	6	6
Total	9	10
Funding Valuation		
Valuation interest rate	2.50%	2.50%
Present Value of Projected Benefits	$ 11,090,497	$ 10,024,697
Value of Plan Assets	7,925,356	7,546,162
Present Value of Future City Contributions	$ 3,165,141	$ 2,478,535
Recommended Contribution for Plan Year		
If paid on valuation date	$ 773,424	$ 553,880
If paid 12 months after valuation date (interest added)	$ 792,760	$ 567,727
Participant Statistics		
Average Age		
Active participants earning future benefits	64.8	n/a
Active participants with frozen or suspended benefits	n/a	71.0
Terminated participants with deferred benefit	53.6	52.6
Retired participants in payment status	72.5	72.4
Average Monthly Benefit		
Active participants earning future benefits (projected)	$ 8,392	$ n/a
Active participants with frozen or suspended benefits	n/a	4,201
Terminated participants with deferred benefit	8,442	8,442
Retired participants in payment status	5,783	4,423

Actuarial Certification

I certify that I have performed an actuarial valuation of the City of Miami Elected Officers' Retirement Trust for the plan's sponsor, the City of Miami, as of January 1, 2020 in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. I meet the Qualification Standards of the American Academy of Actuaries to render this actuarial opinion, and to the best of my knowledge do not have a conflict of interest, and am able to act independently in rendering this opinion.

Participant data and asset information used for this valuation were provided by the City of Miami Finance Department. We have reviewed the participant data and found it to be reasonable and of sufficient quality for valuation purposes. The plan sponsor is solely responsible for the accuracy and comprehensiveness of data provided as of the valuation date.

The plan document, in the form of the most-recently updated EORT Ordinance, was provided by the City by way of an online resource. The plan sponsor has provided guidance on the interpretation of certain plan provisions for the purpose of benefit projections for funding calculations.

The actuarial assumptions, including discount rates, mortality tables and other assumptions identified in this report, meet the requirements and intent of Part VII, Chapter 112 of the Florida Statutes. The City of Miami is responsible for selecting, in consultation with the actuary, the Plan's funding policy, actuarial valuation methods, asset valuation methods and assumptions. Methods and assumptions used for the valuation are described in Section 4.

This report does not include an analysis of the range of future costs. Future measurements may differ significantly from the current measurement.

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 taken into account in the valuation. All known events or trends which may require a material increase in plan costs or required contributions rates have been taken into account in the valuation.

Actuarial Certification (continued)

I am available to provide further information or answer any questions with respect to this report.

Certified by

Robert W. Hazy

12/14/2020

Robert W. Hazy, EA, FCA, MAAA
Enrollment No. 20-4204

Date

Assisted by

Frank Canonico

12/14/2020

Frank M. Canonico, EA, MAAA
Enrollment No. 20-7504

Date

Section 1 – Participant Data and Cost Calculations

Participant data and the calculation of plan liability as of January 1, 2020 and the recommended contribution for 2020 are shown in this section.

The recommended annual contribution has been determined under the Projected Unit Credit Cost Method, which was adopted effective with the January 1, 2012 actuarial valuation.

The Projected Unit Credit method develops two components for the annual contribution, as follows:

- A Normal Cost, which is the liability for benefits to be earned in the current year by those participants who are still earning additional benefits, and
- An amortization payment toward the Unfunded Accrued Liability for past service benefits.
  - The Unfunded Accrued Liability is the liability for benefits earned to date minus plan assets.
  - The Unfunded Accrued Liability is amortized over a specified period of years.

The Unfunded Accrued Liability as of January 1, 2012 is being amortized over a 10-year period from that date. Actuarial experience gains and losses occurring after January 1, 2012 are amortized over a 5-year period. Demographic-related actuarial assumption changes are amortized over a 5-year period. Economic actuarial assumption changes are amortized over a 10-year period.

Section 1 – Participant Data and Cost Calculations

A. Basic Data

Status	Name	Gender	Date of Birth	Plan Entry Date		End of Term in Office	Benefit Commence-ment Date		Monthly Benefit	
ASA	Carollo, Joe	M	3/12/1955	12/1/2017	a	12/1/2021	12/1/2021	b	See Exhibit B	
TD	Sanchez, Joe M	M	4/13/1965	6/5/1998		11/9/2009	5/1/2020		6,283.28	
TD	Spence-Jones, Michelle	F	8/2/1967	12/2/2005		12/1/2013	9/1/2022		10,600.90	c
RP	Diaz, Manuel A	M	11/5/1954				11/11/2009		6,875.00	
RP	Gort, Wilfredo	M	11/9/1940	1/1/2010	a	12/1/2019	12/1/2019		8,488.07	
RP	Gonzalez, Angel	M	10/28/1944				11/16/2009		4,794.17	
RP	Plummer, J L	M	12/3/1936				11/2/1999		2,455.92	
RP	Regalado, Tomas	M	5/24/1947	9/4/1996		12/1/2017	12/1/2017		7,045.99	
RP	Sarnoff, Marc D	M	12/28/1959	12/2/2006		12/1/2015	12/1/2015		5,039.38	

Count		Status Description
1	ASA	Active participant, payment suspended following return to office, accruing benefits
2	TD	Terminated vested participant with deferred benefit payable at age 55
6 d	RP	Retired participant, in payment status
9		Total number of participants

Other notes

a. Date of return to office

b. Assumed benefit commencement date for active participants is the later of the end of the current term in office or age 55.

c. Benefit payable from EORT is potentially limited by Internal Revenue Code Section 415 limit for 2022 plan year.

d. Retired participant Maurice Ferre died on 9/19/2019.

Section 1 – Participant Data and Cost Calculations

B. Benefit Projection for Active Participants

	Joe Carollo
1. Service at 1/1/2020	15.0833
2. Projected service at assumed termination date	17.0000
3. Benefit formula percentage at termination date	100%
4. Highest W-2 Pay in Last 3 Years	$ 100,700.28
5. Projected monthly benefit = (3) x (4) ÷ 12	$ 8,391.69

C. Present Value of Projected Benefits

		Age (nearest birthday) on:				
Status	Name	1/1/2020 Valuation Date	Assumed Termination Date	Benefit Commence-ment Date	Projected Monthly Benefit	Present Value of Projected Monthly Benefit
ASA	Carollo, Joe	65	67	67	$ 8,391.69	$ 1,490,236
TD	Sanchez, Joe M	55		55	6,283.28	1,598,685
TD	Spence-Jones, Michelle	52		55	10,600.90	2,650,231
RP	Diaz, Manuel A	65			6,875.00	1,359,785
RP	Gort, Wilfredo	79			8,488.07	939,840
RP	Gonzalez, Angel	75			4,794.17	649,171
RP	Plummer, J L	83			2,455.92	215,677
RP	Regalado, Tomas	73			7,045.99	1,043,006
RP	Sarnoff, Marc D	60			5,039.38	1,143,866
	Total					$ 11,090,497

Section 1 – Participant Data and Cost Calculations

D. Projected Unit Credit Accrued Liability and Normal Cost

Status	Name	Present Value of Projected Monthly Benefit	Accrued Liability = present value of benefit prorated for service	Normal Cost for 2020
		(a)	*(b)*	*(c)*
ASA	Carollo, Joe	$ 1,490,236	$ 1,322,219	$ 87,661
TD	Sanchez, Joe M	1,598,685	1,598,685	0
TD	Spence-Jones, Michelle	2,650,231	2,650,231	0
RP	Diaz, Manuel A	1,359,785	1,359,785	0
RP	Gort, Wilfredo	939,840	939,840	0
RP	Gonzalez, Angel	649,171	649,171	0
RP	Plummer, J L	215,677	215,677	0
RP	Regalado, Tomas	1,043,006	1,043,006	0
RP	Sarnoff, Marc D	1,143,866	1,143,866	0
	Total	$ 11,090,497	$ 10,922,480	$ 87,661

E. Contribution Calculation

Unfunded Accrued Liability as of January 1, 2020:	
Accrued Liability	$ 10,922,480
Plan Assets	7,925,356
Unfunded Accrued Liability	$ 2,997,124
Contribution for 2020 Plan Year:	
Normal Cost:	
Benefit cost	$ 87,661
Estimated expenses for 2020	2,400
Total Normal Cost	$ 90,061
Amortization of Unfunded Accrued Liability - see Exhibit F	683,363
City contribution if paid on January 1, 2020	$ 773,424
Interest at 2.50% to December 31, 2020	19,336
City contribution if paid on December 31, 2020	$ 792,760

The interest adjustment should reflect elapsed time between January 1, 2020 and the date of the contribution.

Section 1 – Participant Data and Cost Calculations

F. Amortization of Unfunded Accrued Liability

The unfunded accrued liability is amortized by level annual payments in accordance with the schedule below:

Unfunded accrued liability as of January 1, 2012	10 years
Changes in unfunded accrued liability after January 1, 2012:	
Actuarial experience gains or losses	5 years
Actuarial assumption changes - demographic	5 years
Actuarial assumption changes - economic	10 years

Amortization payments for 2020 are shown in the table below.

	Amortization Period			Balances		Amortization
Type of Base	Date Created	Initial Years	Years Left	Initial	Outstanding at Jan. 1, 2020	Payment at Jan. 1, 2020
Initial Unfunded	1/1/2012	10	2	$ 1,558,360	$ 357,052	$ 180,730
Actuarial Loss	1/1/2016	5	1	201,201	42,999	42,999
Actuarial Loss	1/1/2017	5	2	253,199	106,274	53,793
Actuarial Gain	1/1/2018	5	3	(76,880)	(47,536)	(16,238)
Actuarial Loss	1/1/2019	5	4	197,293	159,759	41,431
Assumption Change	1/1/2019	10	9	1,489,649	1,356,685	166,054
Actuarial Loss	1/1/2020	5	5	928,251	928,251	194,930
Assumption Change	1/1/2020	5	5	93,640	93,640	19,664
Total					$ 2,997,124	$ 683,363

Section 2 – Information Required by Florida Statute, Chapter 112

The Florida Protection of Public Employee Retirement Benefits Act is set forth in Part VII of Chapter 112 of the Florida Statutes (sections 112.60 through 112.67). Section 112.63 requires each retirement system to have a regularly scheduled actuarial report and sets forth the information required for each actuarial report.

Chapter 60T-1 of the Florida Administrative Code sets forth rules under which municipal and special district units of government are to provide information on their retirement systems to the Division of Retirement (Bureau of Program Services) pursuant to Part VII of Chapter 112 of the Florida Statutes. Specific exhibits are described in subsection 1.003. Required information is shown in this section.

Additional disclosure information that is required under Section 112.664 will be provided in separate correspondence.

	Actuarial valuation prepared as of:	
	1/1/2020	1/1/2019
1. Participant Data		
a. Active members (earning future benefits):		
i. Number	1	0
ii. Total annual payroll on which benefits are based	$ 100,585	$ 0
iii. Average annual pay on which benefits are based	$ 100,585	$ 0
b. Retired members and beneficiaries (other than disableds):		
i. Number	6	6
ii. Total annualized benefit (without regard to IRC Section 415 limit)	$ 416,382	$ 318,442
c. Disabled members receiving benefits:		
i. Number	0	0
ii. Total annualized benefit	$ 0	$ 0
d. Terminated vested members and active members with frozen benefits		
i. Number	2	4
ii. Total annualized benefit	$ 202,610	$ 303,424
2. Assets		
a. Actuarial value of assets	$ 7,925,356	$ 7,546,162
b. Market value of assets	$ 7,925,356	$ 7,546,162

Section 2 – Information Required by Florida Statute, Chapter 112

	Actuarial valuation prepared as of: 1/1/2020	1/1/2019
3. Liabilities		
a. Present value of all future expected benefit payments:		
i. Active members		
- Retirement benefits	$ 1,490,236	$ 0
- Vesting benefits	0	0
- Disability benefits	0	0
- Death benefits	0	0
- Return of contributions	0	0
- Total	$ 1,490,236	$ 0
ii. Terminated vested members and active members with frozen benefits	$ 4,248,916	$ 5,489,913
iii. Retired members and beneficiaries:		
- Retired (other than disabled) and beneficiaries	$ 5,351,345	$ 4,534,784
- Disabled members	0	0
- Total	$ 5,351,345	$ 4,534,784
iv. Total present value of all future expected benefit payments	$11,090,497	$10,024,697
b. Actuarial accrued liability	$10,922,480	$10,024,697
c. Unfunded actuarial accrued liability = (3b) - (2a)	$ 2,997,124	$ 2,478,535
4. Pension Cost		
a. Normal cost at valuation date		
i. Benefit cost	$ 87,661	$ 0
ii. Estimated expenses	2,400	2,400
iii. Total normal cost	$ 90,061	$ 2,400
b. Amortization of unfunded accrued liability See amortization schedule in Section 1, Exhibit D	683,363	551,480
c. Total required contribution	$ 773,424	$ 553,880
- as a percentage of payroll	768.93%	n/a
d. Amount to be contributed by members	n/a	n/a
- as a percentage of payroll	n/a	n/a
e. Amount to be contributed by City	$ 773,424	$ 553,880
- as a percentage of payroll	768.93%	n/a

Section 2 – Information Required by Florida Statute, Chapter 112

5. Past Contributions

	Plan Year 2020	Plan Year 2019	Plan Year 2018
a. Required contribution (if paid on January 1)	$ 773,424	$ 553,880	$ 353,116
b. Actual contribution made by City	to be determined	$ 568,910	$ 366,358

6. Other Disclosures

	Actuarial valuation prepared as of: 1/1/2020	1/1/2019
a. Present value of active members':		
i. Future salaries:		
- at attained age	$ 198,717	$ 0
- at entry age	n/a	n/a
ii. Future contributions	$ 0	$ 0
b. Present value of future City contributions	$ 3,165,141	$ 2,478,535
c. Present value of future expected benefit payments for active members at entry age	n/a	n/a
d. Amount of active and inactive members' accumulated contributions	$ 0	$ 0

Section 2 – Information Required by Florida Statute, Chapter 112

7. Statement of Assets as of Valuation Date

	Asset measurement date: 12/31/2019	Asset measurement date: 12/31/2018
a. Market value:		
i. Cash (money market)	$ 7,353,442	$ 1,010,579
ii. Bonds	0	6,495,145
iii. Contributions receivable	568,910	0
iv. Other receivables (accrued income)	3,004	40,438
v. Benefits payable	0	0
vi. Total	$ 7,925,356	$ 7,546,162
b. Statement value:		
i. Cash	$ 7,353,442	$ 1,010,579
ii. Bonds	0	6,470,615
iii. Total	$ 7,353,442	$ 7,481,194

The actuarial value is set equal to the market value of assets.
Asset figures were provided by the City.
12/31/2019 receivable contribution was made on 1/31/2020.
Assets were reinvested in Treasury and agency bonds on 1/8/2020.

8. Plan Asset Reconciliation

a. Market value of assets as of December 31, 2018	$ 7,546,162
b. Income:	
i. Employer contributions for 2019 plan year (including receivables)	$ 568,910
ii. Interest and dividends	156,345
iii. Realized gain or (loss)	640
iv. Unrealized gain or (loss)	(24,530)
v. Other income	0
vi. Total income	$ 701,365
c. Disbursements:	
i. Regular benefit payments (including benefits receivable)	$ (319,771)
ii. Other benefit payments	0
iii. Investment expenses	0
iv. Administrative expenses	(2,400)
v. Total disbursements	$ (322,171)
d. Market value of assets as of December 31, 2019	$ 7,925,356

Section 2 – Information Required by Florida Statute, Chapter 112

9. Plan Experience Review

a. Salary scale:

i. Assumed annual salary increases	0.00%
ii. Actual salary increases:	
- 2019	-0.11%
- 2018	n/a
- 2017	n/a

b. Investment return:

i. Assumed rate of return on assets	2.50%
ii. Actual rate of return on assets	
- 2019	1.80%
- 2018	1.74%
- 2017	0.68%

10. Statement of Actuarial Present Value of Accrued Benefits

	Actuarial valuation date:	
	1/1/2020	1/1/2019
a. Vested accrued benefits		
i. Active participants	$ 1,322,219	$ 0
ii. Inactive participants receiving benefits	5,351,345	4,534,784
iii. Terminated vested and actives with frozen benefits	4,248,916	5,489,913
iv. Total value of all vested accrued benefits	$10,922,480	$ 10,024,697
b. Non-vested accrued benefits	0	0
c. Total actuarial present value of all accrued benefits	$10,922,480	$ 10,024,697

11. Statement of Changes in Total Actuarial Present Value of Accrued Benefits

a. Actuarial present value of accrued benefits at beginning of year	$ 10,024,697
b. Increase or (decrease) during the year attributable to:	
i. Increase for interest and probability of payment due to decrease in discount period and benefits accrued	$ 246,287
ii. Benefits paid	(319,771)
iii. Assumption changes	93,640
iv. Plan changes	0
v. (Gains) or losses	877,627
vi. Net increase or (decrease)	$ 897,783
c. Actuarial present value of accrued benefits at end of year	$ 10,922,480

Section 3 – Actuarial Assumptions and Methods

Actuarial assumptions are used to determine the present value of expected benefit payments from the Plan. The actuarial cost method is used to determine an annual contribution to fund the value of expected benefits that is in excess of current assets. Actuarial assumptions and the cost method are selected by the City, in consultation with the actuary. The assumptions, cost method and other calculation methods are described below.

A. Actuarial Assumptions

Interest Rate

2.50% compounded annually, net of any investment expenses.

The interest assumption reflects the expected long-term rate of return on the trust assets. Trust investments are restricted to primarily fixed income investments, in accordance with Section 40-294(c) of the Plan. The assumed return reflects an anticipated allocation of 15% cash, 85% fixed income evenly split between short-term Treasuries and short-term government agency bonds, and an underlying inflation assumption of 2.25%.

Salary Increases

No future salary increases are assumed for current office holders.

Mortality Rate After Commencement of Monthly Benefits

Current valuation: PubG-2010(A) Retiree Table (general employees, benefits weighted, above-median income, sex-distinct), with fully-generational mortality improvement projected under Scale MP-2018.

Prior valuation: RP-2000 Mortality Table, sex-distinct, rates for annuitants, adjusted for white-collar employees, and with fully-generational mortality improvement projected under Scale BB2D.

The assumption change was made in conformance with Florida Statutes Section 112.63(1)(f), which requires covered plans to use the mortality tables and methodology employed by the Florida Retirement System (FRS) in one of its two most recently published actuarial valuation reports.

Mortality Rate Prior to Commencement of Monthly Benefits

No mortality is assumed for years prior to the expected commencement date for monthly benefits. This assumption is consistent the Plan's pre-retirement death benefit, which provides a lump sum payment equal to the present value of the participant's accrued benefit for death prior to retirement.

Section 3 – Actuarial Assumptions and Methods

Termination of Employment

Termination of covered employment for each participant currently in office is assumed to occur at the end of the current term of office, provided that the participant will have enough service for full vesting under the Plan.

Commencement of Benefits

Payment of monthly lifetime benefits for current office holders is assumed to occur at the later of the end of the current term in office or attainment of age 55. Age 55 is the minimum age for benefit commencement under the Plan.

Increase to Legal Benefit Limits

The limit applicable to benefits that can be paid from a qualified retirement trust as described in Section 415(b) of the Internal Revenue Code is assumed to be indexed, with annual increases of 2.5% after 2020.

Estimated Expenses

Estimated administrative expenses paid from the trust have been added to the normal cost. Estimated expenses for 2020 are equal to actual expenses paid in the previous year.

Prescribed Assumptions

Effective January 1, 2016, Florida Statutes Section 112.63(1)(f) requires covered plans to use the mortality tables and methodology employed by the Florida Retirement System (FRS) in one of its two most recently published actuarial valuation reports.

The mortality assumption used for the January 1, 2020 EORT actuarial valuation reflects the mortality assumption as described in the July 1, 2019 Actuarial Valuation Report for FRS.

Models Used

Actuarial Standard of Practice (ASOP) No. 56, Modeling, requires commentary by the actuary on the use of any model for our work, including the intended purpose of the model, material limitations or known weaknesses of the model, and the extent of reliance on models developed by others. This standard is effective for work performed on or after October 1, 2020.

Cowden Associates uses a third-party actuarial software package for pension valuation work.

Section 4.4 – Actuarial Assumptions - continued

This software package is used worldwide by many actuarial and investment firms. The software models future benefit cash flows, present values, and attribution to various periods, based on deterministic or stochastic assumption sets and benefit parameters provided by the user. The model is highly flexible and also supports comparisons between periods, maintenance of plan specific participant databases, and preparation of reports under various accounting and regulatory structures.

In the absence of adequate review, the model's complexity and flexibility could lead to unintentional results. However, the model contains robust tools to test and verify the reasonableness of results. Our internal technical review utilizes these tools.

We have reviewed the model's documentation, and have relied on the expertise of the software vendor for the underlying structure, methodology, and extensive supporting calculations. We have not performed a substantial audit of the model or its structure beyond typical use in preparing results, as this is typically not done by plan actuaries. However, we expect that the very deep market of qualified users for this same model ensures that no materially significant issues can or will persist.

Section 3 – Actuarial Assumptions and Methods

B. Actuarial Cost Method

Effective with the January 1, 2012 valuation, the City's annual contribution is determined using the Projected Unit Credit Cost Method.

The Projected Unit Credit method develops two components for the annual contribution:

- A Normal Cost, which is the present value for benefits to be earned in the current year (reflecting one additional year of service and compensation projected to the assumed retirement date) for those participants who are still earning additional benefits, and
- An amortization payment toward the Unfunded Accrued Liability for past service benefits.
  - The Accrued Liability is the present value for benefits based on service earned to date and compensation projected to the assumed retirement date.
  - The Unfunded Accrued Liability is the Accrued Liability *minus* Plan Assets.
  - The Unfunded Accrued Liability is amortized over a specified period of years.

The Unfunded Accrued Liability is amortized in accordance with the following schedule:

- Unfunded Accrued Liability as of January 1, 2012: 10 years
- Changes in Unfunded Accrued Liability occurring after January 1, 2012
  - Actuarial experience gains or losses: 5 years
  - Changes in actuarial assumptions:
    - 5 years for demographic assumptions
    - 10 years for economic assumptions

The annual contribution is calculated as payable on the first day of the plan year. Interest at the assumed annual rate of 2.50% should be added for payment at a later date.

Section 3 – Actuarial Assumptions and Methods

C. Asset Valuation Method

The value of assets used for contribution determination is the market value of assets on the valuation date, with contributions receivable for the prior plan year added, benefits payable for the prior plan year subtracted, and accrued income or other payable amounts added or subtracted.

Plan asset values at December 31, 2019, asset transaction information for 2019, and receivable amounts as of December 31, 2019 were provided to us by the City.

Section 4 – Summary of Plan Provisions

Key plan provisions used for actuarial funding calculations are summarized below. This summary should not be relied on for the determination of individual participants' benefits. The legal ordinance or plan document will govern in all cases.

Plan Name

City of Miami Elected Officers' Retirement Trust (EORT)

Plan Eligibility

Elected Officers of the City are covered under this Plan. Elected Officer is defined to be the Mayor or a Commissioner.

Officers first elected after October 22, 2009 are not eligible to participate in the Plan.

Contributions

All contributions are paid by the City. No participant contributions are required.

Service

Years served in the capacity of an Elected Officer are counted as Service under this Plan.

Benefit Amount

For a participant with 7 or more years of Service, an annual benefit of
50% of Compensation
\+ 5% of Compensation for each year of Service in excess of 7 years

The maximum benefit is 100% of Compensation.

Compensation for benefit calculation purposes is the highest W-2 wage amount during the last three years of the participant's term of office.

The Plan benefit is payable beginning on the date the participant ceases to be an Elected Officer, but no earlier than the participant's 55^{th} birthday. The benefit is payable monthly, for the participant's lifetime.

Vesting

Seven years of Service is required for vesting for participants in office or elected between October 1, 2001 and October 22, 2009.

The vesting requirement for a participant whose term of office ended prior to October 1, 2001 was ten years of Service.

Section 4 – Summary of Plan Provisions

Pre-Retirement Death Benefit

A death will be payable on behalf of a participant who dies either

- While in office, without regard to vesting status, or
- After termination of employment with vesting, if prior to the date of commencement for monthly benefit payments

The benefit amount is the lump sum value of the participant's accrued benefit. The lump sum value will determined using the interest and mortality assumptions used for the most recent actuarial valuation for the Plan.

For a participant with less than 7 years of Service, the accrued benefit will be

50% of Compensation x Service at date of death ÷ 7

Form of Payment

Single life annuity is the only permitted form of payment.

There is no post-retirement death benefit.

Legal Maximum for Benefit Payments

Section 415 of the Internal Revenue Code imposes a limit on the amount of the monthly benefit that can be paid to an individual participant from a qualified retirement plan. The EORT includes provisions for the payment of benefits that exceed Internal Revenue Code limits. Such payments are to be made from the City's General Fund.

Reliance on City Legal Opinion

Cowden has relied on guidance from the City's Law Department regarding interpretation of existing plan provisions, including benefit entitlement for officers who: (i) were first elected to office prior to October 22, 2009, (ii) began receiving payments from the plan, and (iii) returned to office after October 22, 2009. Relevant provisions are described in Cowden correspondence dated January 31, 2020 and February 18, 2020, which follow up on guidance provided by the City Law Department via email correspondence dated January 31, 2020 and February 14, 2020.

Section 5 – Risk Disclosure

This section provides commentary on significant risks applicable to the City as plan sponsor, in accordance with Actuarial Standard of Practice (ASOP) No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Contributions. Related maturity measures specific to the EORT are included.

Overview

Sponsors of defined benefit plans are exposed to various risks related to their plans. Most sponsors view risk as the potential for future outcomes to differ significantly from expected. Differences are inevitable and generate experience gains or losses at the next valuation date, causing the required contribution to increase (for a loss) or decrease (for a gain) over a fixed number of years to make up for the difference.

Risk management is typically focused on outcomes that are unfavorable. Because of this, our assessment focuses on the negative consequences that certain risks may present to you as plan sponsor. It is important to note that there is also the possibility that outcomes will be more positive than expected and may present opportunities for a sponsor to be in a better position to mitigate risk in the future.

We address the following in this section of the report:

- Identification and definition of significant risks applicable to you as plan sponsor
- An assessment of the risks most likely to trigger negative outcomes
- Identification of other less significant risks considered
- A discussion of plan maturity and how it may affect your view of risk

Please note that the risks discussed in this report are in the context of cash contribution requirements applicable to you as plan sponsor. Less than favorable outcomes may also have negative consequences for financial statements (GASB 68 disclosures), affecting your credit rating and ability to borrow money. We are available to discuss how these risks may affect your financial statements or any other disclosure requirements, or to provide additional analysis regarding any of the information discussed in this section of the report.

Identification and Definition of Significant Risks

Contribution Risk: Contribution risk is the possibility that actual future contributions will differ widely from expected contributions. The risk items described below affect contribution risk. Also of concern is the potential that a plan sponsor may not be able to make contributions when necessary due to adverse business conditions. We are available to provide projections of future contributions levels under varying scenarios, if there is a specific outcome that you must avoid.

Investment Risk: Investment risk is the chance that investment income will differ from expected. From the perspective of a plan sponsor, the significant risk is that actual return will be lower than expected, resulting in increased contributions to make up for shortfalls in investment returns. Generally, the higher the expected return that a sponsor seeks, the greater the volatility in returns will be, and thus the higher the risk to the sponsor that unfavorable experience may occur.

Section 5 – Risk Disclosure

Asset/Liability Mismatch Risk: Asset/liability mismatch occurs when plan liabilities and plan assets do not move in tandem with market changes. For example, a private-employer pension plan will have liabilities that are based loosely on the corporate bond market, but may have assets that are heavily weighted in equities. If equities experience little or no return, but corporate bond rates decline, the deficit in plan funding will increase. Public pension plan liabilities, on the other hand, are based on a long-term expected return on plan assets assumption, dependent only on asset allocation without adjustment for risk or changes in interest rates, and so will not likely move in tandem with plan assets in the short term.

Interest Rate Risk: Potentially negative outcomes may occur if market interest rates differ from expected. Specifically, falling rates will reduce the plan's ability to achieve returns in the long run from fixed income assets. The significance of this risk is magnified in the short term if a public plan sponsor who is permitted to do so settles a significant portion of plan liabilities via lump sum payments or de-risks a portion of the liabilities through the purchase of non-participating annuities.

Risks Most Likely to Trigger Negative Outcomes

Investment Risk: The consequence of less than favorable returns over a long period is simply that those lost returns must instead be made up by future contributions. For plans that do not dedicate assets to liability and that have a more aggressive equity allocation (generally over 60%), the extra volatility in year-to-year contribution levels may negatively impact cash flow planning. Higher contribution requirements after unfavorable returns may coincide with other cash flow pressures on the sponsor.

EORT investments are limited to fixed income instruments, as specified by the Plan Ordinance. The investment return assumption (a/k/a interest assumption) for funding was reduced for the 2019 valuation to reflect lower anticipated returns for the plan's current investments.

Asset/Liability Mismatch Risk: When a plan's asset allocation is *not* dedicated to specific liabilities, there is a potential for asset/liability mismatch risk. Some asset/liability mismatch risk may be cyclical. For example, decreasing corporate bond yields with or without concurrent poor equity experience can reverse in the long run. The risk to you as a plan sponsor in the short term is the unfavorable circumstance of selling assets to pay current benefits to participants when those assets are at a low point. Because of the cyclical nature of this type of risk, the impact may not be as significant if you intend to maintain the plan for the long term.

Interest Rate Risk: Interest rate risk may decrease the long-term asset return profile for the plan, and may increase cash contributions required in the near term. In a case where you may wish to settle plan liabilities, lower interest rates will generally increase the cost of settlement. Interest rate risk can be mitigated to some extent by dedicating assets to liabilities so that assets and liabilities move in tandem. However, dedication generally reduces expected future returns, and funded deficits will still increase by a smaller amount in a declining interest rate environment. That is, you will expect to make additional contributions on average in return for less risk. If you have no immediate intention to settle plan liabilities, the impact of interest rate risk may be no more than accelerating contribution requirements.

Section 5 – Risk Disclosure

Mortality Risk: Mortality risk is the risk that plan participants live longer or less long than expected. For smaller plans, this risk can be substantial over the long term. The long-term mortality risk can be mitigated by settling plan liabilities through payment of lump sums or the purchase of non-participating annuities, if economic conditions are favorable.

The EORT provides a pre-retirement death benefit to participants not yet in pay status, equal to the lump sum value of the participant's accrued benefit. At January 1, 2020, three of the nine EORT participants were not yet in pay status. The probability of death prior to benefit commencement for these participants, which is small, is reflected in the funding liability calculations. However, death prior to benefit commencement for any of those participants will trigger a large unexpected benefit payout.

Other Less Significant Risks or Risks that Are Difficult to Quantify

Demographic/Participant Risks other than Mortality: Demographic risks other than mortality are risks that participant behavior will differ widely from expected. This can include participants electing to commence benefits earlier than expected, or in a different form than expected. This is not a risk for the EORT, since benefit commencement dates are known and the benefits are payable only in the form of a single life annuity.

Inflation Risk: Inflation risk occurs in final average pay (FAP) plans and in plans that provide automatic cost-of-living adjustments (COLA) to retirees when actual inflation is higher than expected. Since wages are generally tied to inflation, FAP plans will be paying out higher pensions when inflation is higher than expected. Similarly COLAs may be higher than expected. This is not a risk for the EORT, since nearly all benefit amounts are fixed and no COLA is provided.

Legislative Risk: Legislative risk is the chance that changes in law or regulatory guidance will force an unfavorable outcome for you as plan sponsor. The EORT is subject to the Florida Protection of Public Employees Act, as set forth in Part VII of Chapter 112 of the Florida Statutes, most recently revised in 2016. The Act sets minimum funding and reporting requirements, with oversight by the Florida Department of Management Services, Bureau of Local Retirement Systems. The EORT is also subject to certain federal requirements, such as the limitation on qualified plan benefits in Section 415 of the Internal Revenue Code.

Plan Maturity Measures

Plan maturity refers to the composition of your plan by age. A recently-established plan with no retirees is considered to be an immature plan. A very mature plan is one whose liability is primarily on behalf of participants who are in pay status.

The risk to a plan sponsor increases as a plan becomes more mature. Simply put, a sponsor's revenue may or may not grow, but as a plan becomes more mature, its potential impact will grow without regard to the supporting revenue-generating activities. We generally consider a plan that has liabilities greater than 50% attributable to participants in pay status to be a mature plan.

The EORT has approximately 49% of its liability attributable to participants in pay status. However, the participants with deferred benefits are all expected to be in payment status by 2022.

Section 5 – Risk Disclosure

A significant risk is that benefit payouts can outpace contributions and investment earnings as a plan matures, with the worst outcome to be insolvency, where available assets cannot cover current benefit payments. Key asset transactions for the EORT over the last five years are shown below.

	2015	2016	2017	2018	2019
City contributions[a., b.]	$ 469,450	$ 406,911	$ 553,471	$ 366,358	$ 568,910
Benefit payments	$ 263,320	$ 318,754	$ 325,800	$ 318,442	$ 319,771
Asset value at beginning of year[c.]	$ 6,715,564	$ 6,962,265	$ 7,102,802	$ 7,375,239	$ 7,546,162
Benefit payments as a percentage of assets	4%	5%	5%	4%	4%
Rate of investment return	0.65%	0.81%	0.68%	1.74%	1.80%

a. Contribution for plan year, including receivable at year-end

b. 2017 contribution includes $90,085 reimbursement for excess benefit payments in 2011-2017, in accordance with Ordinance Section 40-299

c. Including receivable contribution for prior plan year