

Retirement Income Plan for
General Employees of City of
Pembroke Pines
4-27083

Actuarial valuation report
for the plan year beginning 10/01/2017
and ending 09/30/2018

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This report is for the defined benefit retirement plan named on the report cover and may only be provided to other parties in its entirety. Employee data and other information you provide, along with benefits described in your plan document are used for the basis of this report. This report includes your actuarial determined contribution. Amounts in this report are not meant for your financial statements or to terminate your plan. Upon request, we will prepare other reports for these purposes.

Summary of results

Current year plan costs

The following is a synopsis of your plan costs for the current year, including the actuarially determined contribution (ADC). For a complete schedule of the cash due and received by the plan, see the [Contribution schedule](#).

The actuarially
determined
contribution is
\$2,660,082

- See [Funding calculations](#) for details.
- We have received \$875,000 in employer contributions for the current plan year.
- Contributing less than the actuarially determined contribution amount will increase your next year's amount.

Factors impacting current year costs

Your actuarially determined contribution has not changed materially since last year.

Your actuarially determined contribution increased from \$2,378,931 in 2016 to \$2,660,082 for 2017.

You can compare your contributions to the actuarially determined contribution for each year in the Historical results section at the back of this report.

Contact your pension actuarial analyst, Gary R Peffer, at

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- 412-394-9379

Understanding your plan's funded status

While it is important to know the actuarially determined contribution level, it is also important to understand your plan's funded status. The funded status determines contribution levels and can help you make informed decisions about plan funding, investment policies and benefit changes.

Measures of plan funded status (in Thousands)

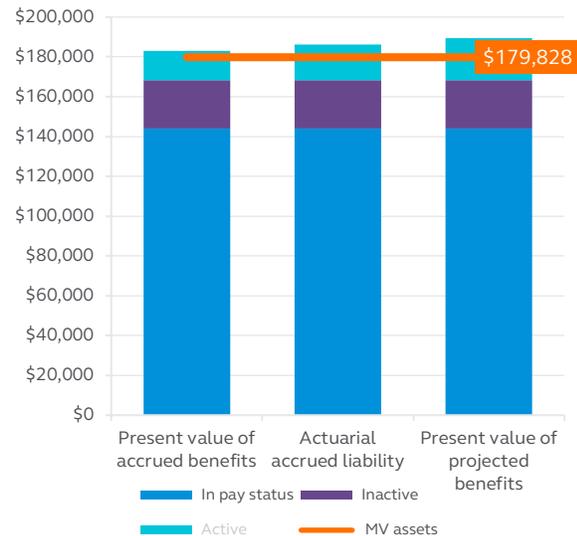
The table below compares the plan's 10/01/2017 market value of assets (the solid line) to 10/01/2017 plan liabilities measured using the assumptions we have made about future events. The liabilities assume:

- No one will enter the plan after the valuation date.
- Your asset allocation will remain the same with a return of 6.75% each year into the future.
- Plan participants will retire, die, terminate, and become disabled based on our assumptions.
- Annual pay per person will increase based on the [salary increase assumption](#).

Three liability measures are shown:

1. **Present value of accrued benefits** - benefits already earned through the valuation date.
2. **Actuarial accrued liability (AAL)** - represents the targeted asset level under your plan's cost method.
3. **Present value of projected benefits** - all benefits expected to be earned through assumed retirement date.

Compare your plan's assets to each of the three liability measures to determine the funded status.



Considerations

These funded status measurements should be evaluated when making decisions about your plan. The goal of the plan's cost method is to accumulate assets equal to the AAL. As long as your AAL is fully funded, you will only need to contribute the plan's Normal Cost each year. Otherwise, you'll also need to contribute amortization payments toward funding this liability.

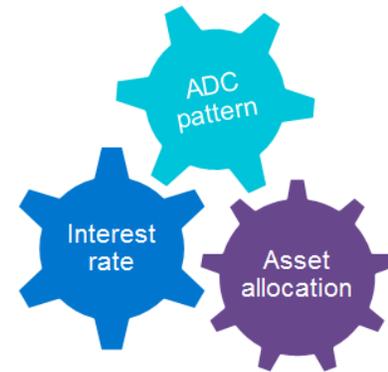
Understanding how your assets compare to your Present Value of Accrued Benefits is important. At a minimum you want to have enough assets in the plan to cover the present value of the benefits accrued to date.

Funding in excess of the Present Value of Projected Benefits may not be the best use of your organization's funds. However, having excess assets may provide funding and plan design flexibility.

Understanding your plan's funded status

Asset allocation, interest rates and actuarially determined contribution (ADC)

Three key factors are linked in the determination of the pattern and level of the ADC for your plan: your asset allocation, the assumed funding interest rate and the pattern of your ADC. This section discusses how these three factors are related, illustrates the impact of interest rates on measures of benefit liability, and provides information to consider as you review your funding and asset allocation decisions.



The liability measures shown on the previous page and used to calculate your actuarially determined contribution (ADC) reflect assumptions about future investment returns and on your asset allocation. However, future investment returns are not guaranteed, and will fluctuate. To make informed decisions about funding policy, benefit design, and asset allocations, you need to understand the effect of the [liability interest rate assumption](#).

The only sources of funding for your benefits are your cash contributions and asset earnings. The present value of benefits (liability measure) is less than the benefits payable because it is reduced for assumed future asset earnings. When asset earnings fall below expectations, additional cash will be needed to allow payment of all your benefits. Your cost method is used to budget the expected total cost of your plan, and determines the ADC for each plan year.

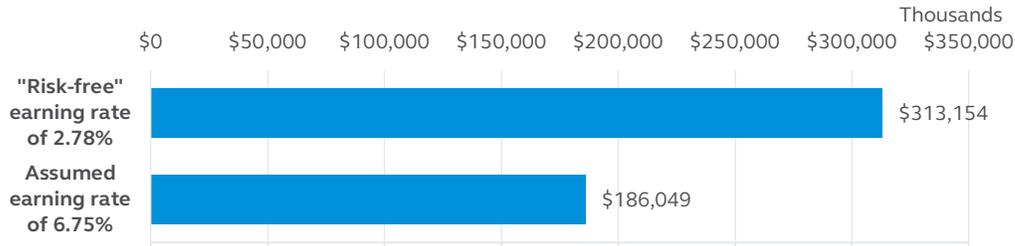
Asset allocations and interest rates

To help understand how the level of ADC can change over time, a best practice is to evaluate the benefit liability ignoring the plan's asset allocation. A recommended approach is to use a conservative "risk-free" interest rate such as U.S. Treasury instruments.

	Diversified asset allocation	"Risk free" return
Expected future returns (interest rates) based on	Your plan's asset allocation	Conservative interest rates such as U.S. Treasury instruments (<u>not</u> your plan's investment allocation)
Current effect	Lower ADC	Higher ADC
Later effect	Potentially higher ADC if returns fall below that assumed	Potentially lower ADC if greater returns are earned

The chart below shows your plan’s Actuarial Accrued Liability used in the ADC calculation compared to the liability determined using a “risk-free” interest rate. This chart indicates how much impact asset earnings can have on the cash required to fund benefits over the life of the plan.

Actuarial accrued liability



As you can see above, higher expected returns generate a lower benefit liability. The additional assumed returns between funding basis (6.75%) and risk-free basis (2.78%) are referred to as “risk premium”. The \$127,104,554 difference in the two liability amounts is the assumed risk premium to be earned over the life of the plan.

The [Risk-free results](#) section later in this report shows additional liability comparisons.

Asset allocation and ADC

The interest return assumption we use to measure benefit liabilities for funding is [based on your asset allocation](#). As a result, your asset allocation choices impact your ADC:

- More volatile asset classes may reduce the current ADC for your plan, but will cause both future ADC and funded status to fluctuate more. There is the potential for severe declines in funded status and increases in ADC when markets perform poorly.
- More conservative asset classes may result in a higher ADC, but provide a more stable basis for planning and budgeting.

The more volatile the value of your asset classes, the greater the range of the potential ADC. You can evaluate the potential impact of alternative asset allocations - and how you could balance your long-term cost and the volatility of your annual ADC - through forecasting studies.

Benefit changes and risk-free interest rates

A decision to change plan benefits can have long-term funding implications. Plan sponsors should be cautious about spending what appears to be excess assets in a given plan year on benefit increases. Working with your actuary to request a plan design study can help with your decision.

Recognizing the volatility of the ADC (discussed in the paragraph above), you will want to include the value of the proposed benefit change on a more conservative rate (ex. a risk-free rate) and/or a forecast of long-term funding levels. Discussing the study with your plan actuary can help you decide what, if any, benefit changes you can afford over the long term.

Forecasting: a best practice

Industry experts agree that it is a prudent best practice to review the long-term trends of your plan. We provide historical information at the back of this report. But that is like driving using just your rear view mirror: you only see part of the picture.

Short-term

Neither this year's ADC nor funded status is a good estimate of future amounts because they are volatile from year to year. These measures depend on your plan's assets and benefit liability:

- **Plan asset values** increase or decrease with market returns on investments, contributions made, benefit payments and expenses. Using an asset smoothing method also affects the upcoming year asset values.
- **Benefit liability** is impacted by benefit payments, salary experience, census or demographic changes, and assumption changes.

If you need to budget for next year or explore the potential volatility of results over the next few years, consider requesting a short-term forecast.

Long-term

A 10- or 20-year forecast of your plan's ADC and funded status under both expected and adverse economic scenarios is an excellent planning tool and can be a good investment.

- Comparing the results from your current asset allocation to alternative investment options can provide valuable insights to guide asset allocations. Comparing different funding policies can help evaluate whether your policy will meet your goals and fit in your budget.
- Stress-testing based on economic conditions can help you assess plan risk, and to set funding and investment policies.
- Projecting salary experience, census or demographic changes, and the benefits offered can help identify long-term trends.

If you want to explore the potential volatility of results over an extended time period, consider requesting a long-term forecast.

Keep us informed



Please make us aware of any upcoming plan design or significant participant group changes (such as layoffs, increases in staff, or large retirements). Knowing about possible changes gives us the chance to advise you whether further analysis of the cost impact should be considered.

Contribution schedule

The table below shows the contributions received and payments that are due to meet the Actuarially Determined Contribution (ADC) for this year. You can fund more than this schedule.

- The total cash contributions made for the 2015 plan year is \$6,500,000.
- The total cash contributions made for the 2016 plan year is \$2,500,068.
- So far, cash contributions of \$875,000 have been received for the current plan year.
- Employee contributions of \$244,566 have been received for the 2016 plan year and \$77,560 employee contributions have been received through 02/13/2018 for the 10/01/2017 plan year.

Paid or date due	Plan year beginning 2015	Plan year beginning 2016	Plan year beginning 2017	Plan year beginning 2018
12/10/2015	\$625,000			
03/07/2016	\$625,000			
06/07/2016	\$625,000			
09/07/2016	\$625,000			
11/23/2016	\$4,000,000			
12/13/2016		\$625,017		
03/13/2017		\$625,017		
06/20/2017		\$625,017		
09/28/2017		\$625,017		
12/14/2017			\$875,000	
2017-2018			\$1,503,931	
2018-2019				\$2,660,082

Blue shading shows employer contribution due for current plan year.

Funding calculations

Actuarially determined contribution

The actuarially determined contribution (ADC) for the 2018/2019 year consists of three parts:

- 1** Normal cost - the cost attributed to the current year (due to the continued accrual of plan benefits for active employees) and plan expenses.
- 2** Amortization of any unfunded accumulated past costs (unfunded actuarial accrued liability).
- 3** Interest on 1 and 2 above to the end of the plan year.



Employer normal cost	\$5,810,663
Plus valuation interest to the end of the plan year	392,220
Minus 15 year amortization of credit balance	3,318,783
Minus valuation interest to the end of the plan year on credit balance	224,018

Your actuarially determined contribution (ADC) is **\$2,660,082**

The Actuarially Determined Contribution is in addition to employee contributions.

2016 ADC - \$566,798

ADC with interest - \$605,057

Prior Credit Balance - \$28,870,984

2016 Contributions - \$2,500,068

Prior Credit Balance and Contributions with interest - \$33,388,343

Credit Balance as of 10/1/2017- \$32,783,286 (\$33,388,343 - \$605,057)

Development of total normal cost for fiscal year ending 09/30/2018

Normal cost is the portion of cost assigned to each year based on the [cost method](#) and [assumptions](#) shown in this report. The normal cost is shared by the employer and the employees based on plan provisions.

Normal cost	\$418,643
Plus estimated expenses	61,000
Total normal cost	\$479,643
Plus amortization charges	6,463,748
Minus amortization credits	1,516,183
Employer normal cost	\$5,427,208

Development of total normal cost for fiscal year ending 09/30/2019

Normal cost is the portion of cost assigned to each year based on the [cost method](#) and [assumptions](#) shown in this report. The normal cost is shared by the employer and the employees based on plan provisions.

Employer normal cost	\$5,427,208
Plus adjustment for salary increase (4.05%)	219,802
Plus adjustment for interest (6.75%)	381,173
Total normal cost for 09/30/2019 FYE	\$6,028,183
Minus employee normal cost (7.25% of compensation - \$3,000,274)	217,520
Employer normal cost for 09/30/2019 FYE	\$5,810,663

Actuarial accrued liability

The actuarial accrued liability (AAL) is the targeted asset level for the plan and is used in the calculation of the unfunded actuarial accrued liability on the following page. The AAL below is the amount after any assumption or plan changes.

Active participants	\$17,780,682
Inactive participants	24,279,015
Participants and beneficiaries in pay status	143,989,350
Actuarial accrued liability	\$186,049,047

Funding calculations

Unfunded actuarial accrued liability

Each year the unfunded actuarial accrued liability (UAAL) is calculated and equals the actuarial accrued liability less the actuarial value of assets. An experience gain or loss occurs when actual plan experience differs from what was assumed. The gain or loss is calculated separately and amortized as a charge (for a loss) or a credit (for a gain). The UAAL is then adjusted for amendments, assumption changes, or method changes and a liability base is created.

Expected unfunded actuarial accrued liability

10/01/2016 unfunded actuarial accrued liability (UAAL)	\$9,901,493	
10/01/2016 employer normal cost	566,798	
Interest on the above items	706,610	
Total expected UAAL without contributions		\$11,174,901
Employer contributions	\$2,500,068	
Interest on employer contributions	68,500	
Total contributions with interest		\$2,568,568
Expected 10/01/2017 unfunded actuarial accrued liability		\$8,606,333
Total expected UAAL less contributions with interest		

Actual unfunded actuarial accrued liability

Actuarial accrued liability	\$186,049,047	
Less actuarial value of assets	176,005,417	
10/01/2017 unfunded actuarial accrued liability		\$10,043,630

Experience (gain) or loss

Actual unfunded actuarial accrued liability	\$10,043,630	
Less expected unfunded actuarial accrued liability	8,606,333	
(Gain)loss		\$1,437,297
2016 amortization balances	\$4,333,727	
Interest on amortization balances	292,527	
Additional (gain)/loss from (excess) shortage of contributions		\$4,626,254
Total experience (gain) or loss		\$6,063,551

Your 10/01/2017 unfunded actuarial accrued liability is **\$10,043,630**

Schedule of amortization bases

Your cost method allocates a portion of plan funding to be amortized in equal annual installments, rather than to be paid through future normal costs. The following amortization periods will be applied consistently to any amortization bases created 10/01/2012 and later.

- Initial unfunded actuarial accrued liability: 15 years
- Experience gains/losses: 15 years.
- Amendments: 15 years
- Assumption changes: 15 years

Date created	Reason	Initial balance	Remaining years	Outstanding balance	Annual amortization
10/01/2017	Experience (gain)/loss	6,063,551	15	6,063,551	613,838
10/01/2016	Experience (Gain)/Loss	4,504,434	14	4,321,701	456,002
10/01/2016	Assumption	16,390,356	14	15,725,444	1,659,261
10/01/2015	Experience (Gain)/Loss	(2,799,322)	13	(2,570,630)	(284,060)
10/01/2015	Assumption	7,693,822	13	7,065,270	780,727
10/01/2014	Experience (Gain)/Loss	(3,974,549)	12	(3,476,816)	(404,613)
10/01/2013	Experience (Gain)/Loss	(8,101,837)	11	(6,707,355)	(827,510)
10/01/2012	CMET	28,822,233	10	22,405,751	2,953,920
Total				42,826,916	4,947,565

Data and assumptions

Plan assets

We measure your plan's assets at the beginning of each plan year. Plan assets reflect all contributions made for prior plan years. Contributions you may have already made for the 2017 plan year are not included.

Both market value and actuarial value for the 2017 plan year are shown below.

Market value of assets

Investments held by Principal	\$179,824,826
2016 contributions received on or after 10/01/2017	3,650
Total market value of assets	\$179,828,476

Actuarial value of assets

Your plan uses an asset smoothing method for the actuarial value instead of the market value. Using this method allows you to soften the volatility of assets from year to year. The actuarial value of assets is used to calculate your actuarially determined contribution (ADC).

The actuarial value of assets held by Principal is determined on a combined basis. See the following page for the development of this value.

Adjusted market value of investments held by Principal	\$176,001,767
2016 contributions received on or after 10/01/2017	3,650
Total actuarial value	\$176,005,417

The actuarial value of plan assets is **\$176,005,417**

Calculation of adjusted market value

To determine the actuarial value of Investments held by Principal, we adjusted the market value by:

- Subtracting any remaining deferred appreciation in excess of expected investment earnings.
- Adding any remaining deferred appreciation short of expected investment earnings (shortfall).

Of the total excess appreciation or shortfall for any one plan year, 25% is allocated to the current plan year and each of the next three plan years.

1 Determine excess appreciation/(shortfall)

Compare actual to expected assets

Market value of assets as of 2016	\$167,490,116
Contributions/transfers	2,744,634
Benefit payments	(10,560,812)
Expenses	(60,901)
Expected 6.75% interest on above items	11,001,358
Expected value of assets as of 10/01/2017	\$170,614,395
Market value as of 10/01/2017	\$179,828,476
Current year excess appreciation/(shortfall)	9,214,081
25% of current year excess appreciation/(shortfall)	2,303,521

2 Allocate deferred appreciation/(shortfall)

Allocation year	Plan year			
	2014	2015	2016	2017
2014	\$541,031			
2015	541,030	\$(3,503,907)		
2016	541,030	(3,503,907)	\$208,203	
2017	541,030	(3,503,907)	208,203	\$2,303,521
2018		(3,503,907)	208,203	2,303,520
2019			208,203	2,303,520
2020				2,303,520
Total		\$(14,015,628)	\$832,812	\$9,214,081
Deferred		(3,503,907)	416,406	6,910,560
Adjustment to market value (sum of deferred amounts)				\$3,823,059

3 Adjust market value for deferred amounts

Market value as of 10/01/2017	\$179,828,476
Adjustment to market value (sum of deferred amounts)	3,823,059
Adjusted value of investments	\$176,005,417

Data and assumptions

Census characteristics

	10/01/2016	10/01/2017	Change
Number of covered participants			
Actives	39	35	-4
Terminated vested	255	245	-10
Disabled	2	1	-1
Retirees	393	399	+6
Total	689	680	-9
Average age			
Actives	50.5	50.1	-0.4
Terminated vested	48.6	49.4	+0.8
Disabled	54.3	55.0	+0.7
Retirees	67.2	67.6	+0.4
All	59.3	60.1	+0.8
Reported annual payroll			
Actives	\$3,441,627	\$3,148,593	-8.5%
Average pay per active	88,247	89,960	+1.9%
Average years of service			
Actives	13.4	13.8	+3.0%
Monthly projected retirement benefits			
Actives	\$237,338	\$215,273	-9.3%
Terminated vested	236,753	224,850	-5.0%
Disabled	2,016	1,130	-43.9%
Retirees	841,284	882,317	+4.9%

The monthly projected retirement benefit for actives was calculated at normal retirement age (current age if later) with projected service and projected salaries.

Benefit cash flows

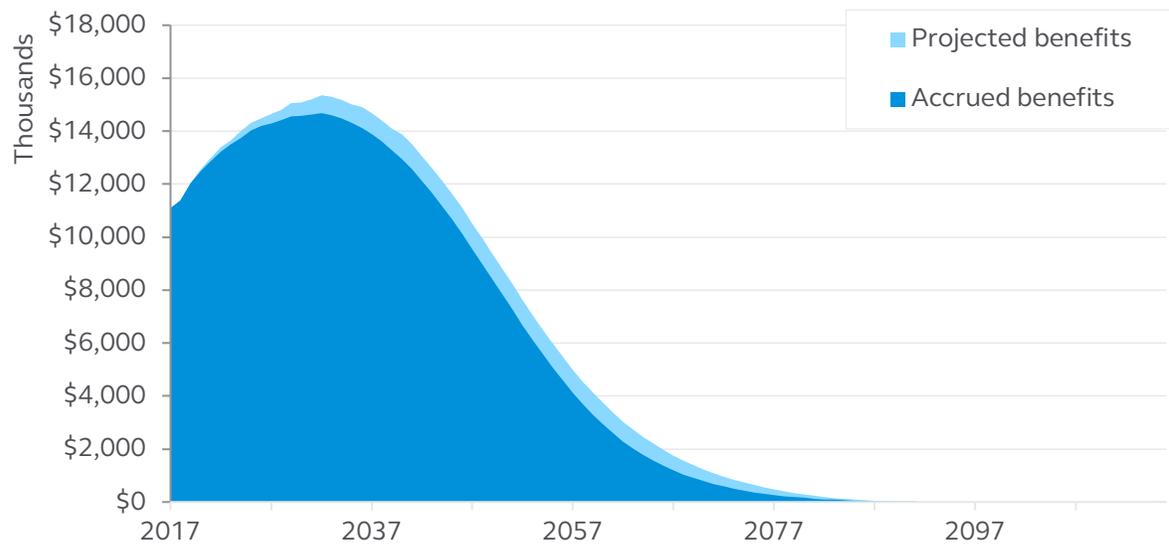
Benefit cash flows are the benefit payments expected to be paid from your plan assets. We provide cash flows to help you calculate and understand your plan obligations and the future liquidity needs of the plan.

You can compare your cash flows to the 10/01/2017 market value of assets, \$179,828,476, to evaluate your asset liquidity needs, and whether cash contributions in excess of the actuarially determined contribution may be needed in the short term.

Benefit cash flows can be based on either the current plan participants (“closed group”) or a group that assumes future new entrants (“open group”). The benefit payments could be based on the accrued benefits or the projected plan benefits (reflecting future service and salary increases).

In this report, we are showing you the benefit cash flows for a closed group. The graph below shows the total benefits expected to be paid for current participants (closed group). The split between benefits already accrued and those to be earned in the future is indicated on the graph. The top line represents the total projected benefits expected to be paid in each plan year.

Accrued and projected benefit payments - closed group



The table on the next page provides the details of this graph, showing the accrued and projected benefits expected to be paid, by plan year. All benefit cash flows shown on these two pages are based on the demographic assumptions (retirement and withdrawal rates, mortality, salary growth, and form of benefit) as outlined in the [Assumptions and methods](#), but do not reflect an interest discount.

Data and assumptions

Benefit cash flow detail

Year	Accrued benefit cash flow	Projected benefits cash flow	Year	Accrued benefit cash flow	Projected benefits cash flow	Year	Accrued benefit cash flow	Projected benefits cash flow
2017	11,093,769	11,093,769	2050	7,832,613	8,793,772	2083	84,709	149,760
2018	11,374,232	11,383,794	2051	7,254,397	8,210,470	2084	67,826	117,905
2019	12,026,234	12,041,368	2052	6,683,460	7,632,402	2085	53,698	91,256
2020	12,499,696	12,572,516	2053	6,125,658	7,065,259	2086	42,077	69,553
2021	12,875,910	12,983,816	2054	5,586,441	6,514,402	2087	32,443	51,882
2022	13,232,709	13,391,992	2055	5,070,438	5,984,344	2088	24,657	38,077
2023	13,490,237	13,654,146	2056	4,580,988	5,478,283	2089	18,337	27,322
2024	13,737,852	13,994,204	2057	4,120,567	4,998,585	2090	13,330	19,205
2025	14,020,669	14,315,994	2058	3,691,252	4,547,380	2091	9,379	13,108
2026	14,186,294	14,488,184	2059	3,293,880	4,125,571	2092	6,492	8,844
2027	14,297,695	14,658,324	2060	2,928,440	3,733,227	2093	4,414	5,889
2028	14,401,542	14,807,965	2061	2,594,010	3,369,456	2094	2,943	3,859
2029	14,549,093	15,058,095	2062	2,290,654	3,034,471	2095	1,925	2,491
2030	14,579,065	15,096,194	2063	2,018,246	2,728,624	2096	1,239	1,589
2031	14,621,358	15,215,852	2064	1,774,760	2,450,116	2097	780	993
2032	14,680,565	15,354,747	2065	1,558,022	2,196,939	2098	485	612
2033	14,612,391	15,296,395	2066	1,365,013	1,966,335	2099	301	379
2034	14,484,823	15,177,325	2067	1,193,213	1,756,110	2100	186	234
2035	14,319,645	15,020,707	2068	1,040,853	1,564,837	2101	111	138
2036	14,134,251	14,917,374	2069	905,855	1,390,716	2102	65	77
2037	13,892,624	14,685,051	2070	786,036	1,232,074	2103	40	47
2038	13,612,604	14,413,975	2071	679,916	1,087,838	2104	25	29
2039	13,289,782	14,098,864	2072	586,124	957,014	2105	10	12
2040	12,949,160	13,878,732	2073	503,312	838,133	2106	0	0
2041	12,556,316	13,494,477	2074	430,558	730,555	2107	0	0
2042	12,128,798	13,074,811	2075	367,395	634,345	2108	0	0
2043	11,668,024	12,619,144	2076	312,412	547,932	2109	0	0
2044	11,177,781	12,134,310	2077	264,730	470,344	2110	0	0
2045	10,661,091	11,621,930	2078	223,205	400,318	2111	0	0
2046	10,121,897	11,085,820	2079	187,231	337,770	2112	0	0
2047	9,564,166	10,529,791	2080	156,002	281,971	2113	0	0
2048	8,992,464	9,958,275	2081	128,751	232,109	2114	0	0
2049	8,413,418	9,377,784	2082	104,946	187,815	2115	0	0

Data and assumptions

Plan provisions

This report reflects the maximum benefit limits under Internal Revenue Code (IRC) Section 415 and maximum compensation limits under IRC Section 401 in effect on the first day of each plan year.

The following is a summary of plan provisions and does not alter the intent or meanings of the provisions contained in the contract or plan document.

Plan eligibility

Class	<p>Any general or utility employee whose customary employment with the employer is at least 30 hours per week or an elected official subject to the provisions of Chapter 112.048 of the Florida Statutes.</p> <p>Bargaining - no employee hired on and after 02/01/2010 will become an active participant and no inactive participant or former participant will again become an active participant.</p> <p>Non-collective bargaining - no employee hired on and after 10/01/2014 will become an active participant and no inactive participant or former participant will again become an active participant.</p>
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Normal retirement benefit

Age	The later of attained age 55 or ten years vesting service.
Form	Monthly annuity payable for life with payments guaranteed to be at least equal to the participant's accumulation on the normal retirement date (optional forms may be elected in advance of retirement).
Amount (accrued benefit)	<p>2.85% of average compensation multiplied by accrual service. Maximum benefit is 80% of average compensation (28.07 years). Reduce by the amount of deferred monthly retirement benefit in which the participant has received a single sum payment under the plan.</p> <p>Benefit is frozen effective 07/01/2010 for those covered under the bargaining agreement.</p>

Early retirement benefit

Age	Attained age 50.
Service	Completed 5 years of service.
Form	Same as normal retirement benefit.
Amount	Accrued Benefit on Early Retirement Date reduced by 6 2/3% for each year that the Early Retirement Date precedes Normal Retirement Date.

Data and assumptions

Late retirement benefit

Age	No maximum age.
Form	Same as normal retirement benefit.
Amount	Greater of Accrued Benefit on Late Retirement Date or Accrued Benefit on Normal Retirement Date increased to recognize that annuity commences subsequent to normal retirement.

Termination benefit

Vesting percentage	Subsequent to five years of service, 50%, plus 10% for each year of service thereafter, up to 100%. However, vesting shall be 100% on or subsequent to the earliest of normal retirement date, date when first eligible to early retire or the date of total and permanent disability.
Form	Same as normal retirement benefit with income deferred until normal retirement date.
Amount	Equal to the sum of <ul style="list-style-type: none">(a) The amount of retirement annuity which could be purchased on his normal retirement date by his participant's required contribution account.(b) Vesting percentage times the excess of the pension benefit as of the date of termination over (a) above. At any time on or after termination, the participant may elect to receive his participant's required contribution account in cash in lieu of any and all retirement benefits that could be provided by his participant's required contribution account.

Disability benefit

Eligibility	An active participant who becomes totally and permanently disabled prior to his retirement date. Ten years of vesting service is required for a non-service related disability benefit to be payable.
Form	Monthly income payable until normal retirement, death, or recovery and a deferred annuity payable at the Normal Retirement Date.
Amount	For a service related disability, the greater of his accrued benefit on date of disability or 40% of his current monthly compensation on such date. For a non-service related disability, the accrued benefit on date of disability.

Contributions

Salary reduction contribution	Tax deductible contributions made by the employer on behalf of the employee. This is 7.25% of monthly earnings that have been deducted from the employees pay. Effective 07/01/2010, 0% of monthly earnings will be deducted for those covered under the bargaining agreement.
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Death benefit

Greater of A or B

A. Single sum death benefit

Form	Single sum.
Amount	Participant's accumulation on date of death.

B. Pre-retirement death benefit

Age	Attained age 50.
Service	Five years of service.
Form	Monthly annuity payable to spouse.
Amount	If death occurs between Early Retirement Date and Normal Retirement Date, the benefit is an annuity to the spouse for an amount no less than would have been received had the participant elected a joint and 50% survivorship benefit option and early retired the day before death.

Deferred retirement option plan

Eligibility	An active participant first becomes eligible to elect the DROP on the first day of the month on or after reaching normal retirement date.
Election	An election to participate in the DROP shall constitute an irrevocable election to resign from service not later than sixty (60) months of reaching the start of the DROP eligibility period. An election to participate must be made within the first five years of eligibility. The period of participation in the DROP cannot exceed a period ending sixty months from first becoming eligible for the DROP or when the participant ceases to be an employee.
Form	Same as normal retirement benefit. While the employee is in the DROP the pension benefit payments will be credited to a separate account that will earn a return based on investments chosen by the employee.
Amount	<p>Accrued benefit on retirement date. No additional accrual service will accumulate after entry into the DROP. Any changes in pension benefits shall not apply to participants in the DROP.</p> <p>Once the DROP period expires or the participant ceases to be an employee, any subsequent pension benefit payments will be paid to the employee. The accumulation in the DROP account will be paid to the employee based on his payment option once the participant ceases to be an employee.</p>

Optional forms of benefit

- A monthly income to the employee for life. No benefits are payable at death.
- A monthly income to the employee for life, with a 5, 10, or 15 year period where payments continue to the beneficiary.
- A monthly income to the employee for life. If the employee dies before the amount paid equals the employee account on the retirement date, payments continue to the beneficiary until the totals equal that amount.
- A monthly income to the employee for life, with a 50%, 66 2/3%, 75%, or 100% of the monthly benefit paid to the surviving spouse.

Cost of living adjustment

Amount	<p>Annual 2% cost of living adjustment effective 10/01/2003 to active participants and DROP participants on and after 10/01/2003 and to participants who started receiving retirement or disability benefits on or after 10/01/2001.</p> <p>Effective 10/01/2004 the cost of living adjustment was increased to 3.0%.</p> <p>Effective 02/01/2010 the cost of living adjustment is decreased to 2% for any plan participant who attains normal retirement date or becomes a participant in the DROP after 02/01/2010.</p> <p>Effective 07/01/2010 the cost of living adjustment shall not apply for those who are covered under the bargaining agreement and have not reached normal retirement date by 07/01/2010.</p>
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Early retirement window

Available to any participant who is employed with the city of Pembroke in the position of Assistant City Manager, Director Community Services, Assistant Director Community Services, Administrative Services Director, has attained age 50, has 14 years of vesting service, and elected an early retirement date between September 3, and September 12, 2008.

The retirement benefit will not be reduced for the application of the early retirement reduction factors. In addition, for the Assistant City Manager position, the retirement benefit will be calculated as if the participant was employed until Normal Retirement Date.

Definitions

Average compensation	The monthly average of total pay received for the two years out of all compensation years prior to retirement date which gives the highest average.
Participant's required contribution account	Participant's contributions, accumulated to the date of determination with interest of 5% compounded annually, plus salary reduction contributions not previously paid out or applied.
Required contribution accrued benefit	Monthly retirement benefit under normal form accrued by an active participant payable at normal retirement date that is derived from their required contributions.
Accrual service	An employee's current and all prior periods of continuous service expressed in whole years and fractional parts of a year.

Data and assumptions

Assumptions and methods

The following assumptions and methods are used in this year's valuation report. The rationale for each non-prescribed economic and demographic assumption is also included.

Some economic assumptions rely on the Principal RAS Long-Term Capital Market Assumptions (CMA) 2016. These assumptions are developed focusing on forward-looking market indicators and valuation models, as well as utilizing the analysis of historical data and trends, the outlook and forecasts from credible economic studies, and investment expert opinions. See [Long Term Capital Market Assumptions 2016](#) for additional information.

Changes since last year

Assumption changes

There have been no assumption changes since the last plan year.

Method changes

No methods affecting the comparability of results were changed since the last valuation report was completed.

Assumptions selected by actuary

Liability interest	<p>During benefit payment period 6.75%</p> <p>Before benefit payment period 6.75%</p> <p>The interest rate is developed as a long-term expected geometric return on plan assets. Arithmetic expected return is calculated as the weighted average of broad asset classes' arithmetic returns of the plan's target asset allocation, and then converted to the geometric under lognormal distribution assumption. For details, see Long-Term Capital Market Assumptions link. Discount Rate picked by the City.</p>
Asset return	<p>6.75% for the current plan year.</p> <p>The asset return is developed as a weighted average rate based on the target asset allocation of the plan and the long-term capital market assumptions. The calculated return is on an arithmetic mean basis. For details, see the See Long-Term Capital Market Assumptions link.</p> <p>See liability interest rate for how this rate was determined.</p>
Interest rate for employee accumulations	5.00%

Data and assumptions

Retirement cost of living adjustment	3.00% & 2.00% per year depending on location.								
Expected expense	The expected expense included in normal cost is an estimate based on prior year expenses paid from plan assets. This is the best estimate available of upcoming year's expenses.								
Retirement	Active and inactive participants are assumed to retire at normal retirement age as defined in Plan provisions . This assumption is based on the results of recent experience analysis and anticipated future experience.								
Inflation	2.00% increase per year. See Long-Term Capital Market Assumptions link.								
Upcoming salary increases	The preceding year's salary is increased using the S-5 Table from The Actuary's Pension Handbook, increased by 2.50% at each age. This table provides a rate of increase that declines as participants age. Note: not used for Plan accounting calculations.								
	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Age</th> <th style="text-align: center;">Upcoming increase</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">25</td> <td style="text-align: center;">6.68%</td> </tr> <tr> <td style="text-align: center;">40</td> <td style="text-align: center;">5.22%</td> </tr> <tr> <td style="text-align: center;">55</td> <td style="text-align: center;">4.38%</td> </tr> </tbody> </table>	Age	Upcoming increase	25	6.68%	40	5.22%	55	4.38%
Age	Upcoming increase								
25	6.68%								
40	5.22%								
55	4.38%								
	Expected salary increase is composed of salary inflation, a real wage growth and a merit increase.								
Compensation limit increase	2.00% increase per year. Compensation limit increase should be consistent with the inflation assumption.								
Mortality	Based on RP-2006, 50% blue collar, 50% white collar for males and 100% white collar for females mortality table projected to future years with Scale BB mortality improvement rates.								
Disability mortality	Florida disability mortality 2016 – males set back 4 years & females set forward 2 years.								
Disability	1987 Commissioner's Group Disability Table, six month elimination period, male and female.								

Data and assumptions

We rely on a publicly published table due to the limited size of the plan. The 1987 CGDT was recommended by the Society of Actuaries for pension valuation purposes.

Withdrawal

2003 Society of Actuaries Small Plan Age Table, multiplied by 0.75.

We rely on a publicly published table due to the limited size of the plan. The SOA Small Plan Age Table is the most recent withdrawal experience table published by the Society of Actuaries. A multiplier of 0.75 is applied to this table to reflect the results of the most recent experience analysis and anticipated future experience.

Marriage

75% married; husbands are 3 years older than wives.

This assumption does not have material impact on the results of this report and has been selected based on our best estimate of active workforce.

Form of benefit

Participants are assumed to receive their benefits on the normal form at the assumed retirement age.

Methods selected by plan sponsor

Actuarial value of plan assets

The market value of the Principal accounts is adjusted by spreading the expected value minus the actual value over four years.

Contributions received in the current plan year but applied to the prior plan year are added to the actuarial value of the Principal accounts.

Actuarial cost method

The **entry age normal (EAN)** cost method is used for this valuation.

Methods selected by actuary

Retirees

Assets and liabilities for current and future retirees are included.

Vested benefits

A benefit is included in vested benefits when the participant will meet age and service eligibility requirements at the valuation date. The benefit is multiplied by the participant's vesting percentage applicable to each benefit on the valuation date.

The following ancillary benefits are always treated as nonvested: disability benefits payable to retirement age unless in pay status, and pre-retirement death benefits in excess of the survivor annuity death benefit except as noted in the Plan provisions.

Data and assumptions

Actuary statement

This report was prepared at the request of the sponsor of the plan named on the cover of this report. It provides information needed for plan funding. It is not to be used for plan termination estimates, accounting information, or other purposes. If these or other measures of liabilities are needed, please contact me.

In preparing this report, I have relied on:

- reports of participants, salary, and service provided by the plan sponsor as of the last day of the 2016 plan year.
- information for any retirees, beneficiaries, and alternate payees being paid by Principal Life Insurance Co as of the last day of the 2016 plan year, as reported by Principal Life Insurance Company.
- benefit, contribution, and expense transaction information for the preceding plan year, and the market value of assets reported as of the last day of the 2016 plan year by Principal and the plan sponsor.
- plan documents on file with Principal Life Insurance Company, including changes as noted on the Summary of plan provisions page of this report.

Appropriate tests of reasonableness and accuracy have been made and reviewed. The information provided is adequate to support the results in this report.

I confirm that as the actuary for this pension plan, I am completely independent of the plan sponsor and any of its officers or key personnel. Neither I nor anyone closely associated with me has any relationship known to me which would impair my independence.

In my opinion, each assumption and method chosen by the actuary is reasonable (taking into account the experience of the plan and reasonable expectations). Each material economic assumption is consistent with other economic assumptions selected by the actuary for this measurement period. Note that several different assumptions may be reasonable for a given measurement, and different actuaries will apply different professional judgment and may choose different reasonable assumptions. Demographic assumptions are not expected to produce significant cumulative actuarial gains or losses over the measurement period, and the combined effect of the assumptions is reasonable.

I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. To the best of my knowledge, this report is complete and accurate, and complies with all relevant pension actuarial standards and legal requirements.



02/20/2018

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Data and assumptions

Present value of accrued plan benefits

The current year present value of vested and nonvested accrued benefits are based on the assumptions and methods shown earlier in this report. (The salary scale, if any, is not included in the calculation of accrued benefits). All retiree liability is included below except for purchased annuities. These amounts below should not be used for other purposes such as estimating plan termination sufficiency.

The prior year present value of vested and nonvested accrued benefits are based on the assumptions shown in that year's valuation report.

	10/01/2017	10/01/2016
Present value of vested benefits		
Participants in pay status	\$143,989,350	\$139,041,295
Inactive participants	24,279,015	24,636,956
Active participants	13,971,848	15,398,318
Total	\$182,240,213	\$179,076,569
Present value of nonvested benefits		
Participants in pay status	\$0	\$0
Inactive participants (not in pay status)	0	0
Active participants	648,964	586,136
Total	\$648,964	\$586,136
Total present value of accumulated plan benefits	\$182,889,177	\$179,662,705
Value of future service and compensation	6,362,177	7,113,779
Total present value of projected plan benefits	189,251,354	186,776,484

Change in present value of accumulated plan benefits

Present value of accumulated plan benefits as of 10/01/2016	\$179,662,705
Increase (decrease) during the year due to:	
Increase for interest due to decrease in the discount period	11,776,625
Benefits paid	(10,560,812)
Benefits accumulated and plan experience	2,010,659
Present value of accumulated plan benefits as of 10/01/2017	\$182,889,177

Risk-free results

In the [Asset allocation, interest rates and actuarially determined contributions](#), we explained the difference between long term and risk-free returns. The table below shows your plan's liabilities and assets on both the funding and risk-free interest rate basis.

Risk premium	Assets	Results
The difference in the liability amounts on a funding basis versus a risk-free basis represents the additional assumed returns to be earned over the life of the plan; this is also referred to as the "risk premium".	The assets in the funding basis column reflect the asset method used to determine your plan's ADC; the assets in the risk-free basis column are on a mark-to-market basis consistent with the risk-free liabilities.	The unfunded actuarial accrued liability and normal cost on the funding basis are used to calculate your ADC. Those same measures on a risk-free basis show you more conservative results.

If plan's investment returns fall short of the funding basis interest rate, **additional contributions will likely be needed.**

	Funding basis (ADC)	Risk-free basis
Interest rate	6.75%	2.78%¹
Standard deviation	9.75%	---
Normal cost ²	\$637,916	\$1,818,392
Actuarial accrued liability	\$186,049,047	\$313,153,601
Market value of assets	N/A	\$179,828,476
Actuarial value of assets	\$176,005,417	N/A
Unfunded actuarial accrued liability	\$10,043,630	\$133,325,125
Present value of accrued benefits	\$182,889,177	\$307,459,505

Standard deviation is one way to measure the potential volatility risk in the current asset portfolio. For example, a standard deviation close to 0% would represent a portfolio with minimal volatility risk. For this plan, about two-thirds of your actual annual returns are likely to fall within a range of -3.00% to 16.50% (6.75% +/- 9.75%)

¹ The 30-year Treasury rate at 09/30/2017 was chosen as the risk-free interest rate. To isolate the impact of the interest rate, all other assumptions are the same. See the Assumptions and methods for other assumptions.

² The normal cost does not include any expense estimate or a reduction for estimated employee contributions.

Historical results

		2014	2015	2016	2017
Funded status of accrued benefits					
Present value of accrued benefits (PVAB)	\$	\$151,668,364	\$161,178,009	\$179,662,705	\$182,889,177
Market value of assets (MVA)		160,770,276	158,607,927	167,490,116	179,828,476
Under (over)funded PVAB	\$	\$(9,101,912)	\$2,570,082	\$12,172,589	\$3,060,701
Accrued benefit funded percentage	%	106%	98%	93%	98%
Funded status of actuarial accrued liability					
Actuarial accrued liability (AAL)	\$	\$154,618,516	\$164,345,046	\$183,233,784	\$186,049,047
Actuarial value of assets		153,746,756	166,921,684	173,332,291	176,005,417
Unfunded actuarial accrued liability	\$	\$871,760	\$(2,576,638)	\$9,901,493	\$10,043,630
Funded percentage	%	99%	102%	95%	95%
Normal cost					
Total normal cost (NC)	\$	\$2,191,395	\$2,792,276	\$5,151,232	\$5,810,663
Total NC as % of projected current year compensation	%	68.35%	81.58%	159.02%	193.67%
Actuarially determined contribution (ADC) (per valuation date)					
Employer normal cost	\$	\$2,191,395	\$2,792,276	\$5,151,232	\$5,810,663
Valuation interest		169,833	209,421	347,708	392,220
15-year amortization of credit balance		1,487,379	2,265,002	2,922,725	3,318,783
Valuation interest on credit balance		115,272	169,877	197,284	224,018
Expected Employer ADC	\$	\$758,577	\$566,798	\$2,378,931	\$2,660,082
Actual contributions					
Actual employer contributions	\$	\$9,174,902	\$6,500,000	\$2,500,068	--
Percentage of employer's ADC paid	%	1,209%	1,147%	105%	--
Liability Interest Rate	%	7.75%	7.50%	6.75%	6.75%
Projected current year compensation	\$	\$3,206,370	\$3,422,635	\$3,239,391	\$3,000,274

		2014	2015	2016	2017
Census at beginning of year					
Number of active participants		43	39	39	35
Number of terminated vested participants		285	272	255	245
Number of disabled participants		3	3	2	1
Number of retirees		375	381	393	399
Total participants		706	695	689	680
Prior year reported payroll	\$	\$3,163,848	\$3,280,160	\$3,441,627	\$3,148,593
Plan maturity measures					
Non-active employees as a percentage of total	%	94%	94%	94%	95%
In pay status PV accrued benefits as a percentage of total	%	77%	77%	77%	79%
Relative size of plan					
Market value of assets (beginning of year)	\$	\$160,770,276	\$158,607,927	\$167,490,116	\$179,828,476
as a percent of prior year reported payroll	%	5,081%	4,835%	4,867%	5,711%
Actuarial accrued liability (AAL)	\$	\$154,618,516	\$164,345,046	\$183,233,784	\$186,049,047
as a percent of prior year reported payroll	%	4,887%	5,010%	5,324%	5,909%
Prior year benefits paid	\$	\$10,021,946	\$9,814,147	\$10,243,459	\$10,560,812
as a percent of prior year reported payroll	%	317%	299%	298%	335%
Achievement of economic assumptions					
Expected rate of return	%	7.75%	7.50%	6.75%	6.75%
Actual market value rate of return	%	-1.11%	7.88%	12.32%	--
Average expected salary increase	%	4.71%	4.68%	4.70%	0.00%
Average actual salary increase	%	16.44%	4.92%	2.48%	--
Liability interest rate	%	7.75%	7.50%	6.75%	6.75%

Historical results

Florida disclosures

This section provides information as required by Part VII of Chapter 112, and by Chapter 60T-1 of the Florida Statutes. To the best of our knowledge, we have reflected in our calculations and assumptions, any event or trend which would materially increase plan costs.

This section also provides the information used to determine the Actuarially determined contribution (ADC). Please see [Summary of results](#) of this valuation report for additional information.

Comparative summary of principal valuation results

Participant data	Actuarial valuation prepared as of	
	10/01/2017	10/01/2016
Active members	35	39
Total annual payroll	\$3,148,593	\$3,441,627
Retired members and beneficiaries	399	393
Total annualized benefit	\$10,587,804	\$10,095,408
Disabled members receiving benefit	1	2
Total annualized benefit	\$13,560	\$24,192
Terminated vested members	245	255
Total annualized benefit	\$2,698,200	\$2,841,036

Reconciliation of lives	Active	Inactive	Retired
Total last valuation	39	257	393
New lives	0	0	0
Voluntary discontinuances	0	0	0
Vested terminations	0	0	0
Non-vested terminations	0	0	0
Retirements	-4	-9	13
Deaths	0	0	-8
Other:	0	-2	1
Total this valuation	35	246	399

Please refer to the [Schedule of active participant data](#) and [Census characteristics](#) for demographic information such as the number of participants by age group, years of service, current year compensation, and projected normal retirement benefits. Please refer to [Benefit cash flows](#) for a projection of emerging liabilities/cash flow needs.

Total annual payroll Includes participants assumed to retire immediately who are not included in payroll used to calculate normal cost. Neither column includes the salary increase that is used to calculate normal cost.

Florida disclosures

Assets

Since these funds are commingled with other funds in the general and separate accounts of the Principal Financial Group, it is not possible to identify specific investments as being made for a particular customer. Refer to the reconciliation of assets in this section.

Actuarial valuation prepared as of:	10/01/2017	10/01/2016
Market value of assets		
Participants Fund ¹	\$0	\$0
Long-term Equity Investments	99,004,403	91,681,253
Short-term Investments	0	0
Real Estate	10,853,227	10,042,477
Bonds/Fixed Income	69,967,196	61,762,977
Other:	3,650	4,003,409
Total	\$179,828,476	\$167,490,116

Actuarial value of assets²		
Participants Fund ¹		
Long-term Equity Investments		
Short-term Investments		
Real Estate		
Bonds/Fixed Income		
Other		
Total	\$176,005,417	\$173,332,291

¹ The participant's fund under the FPI contract is included in total assets. These assets amounts do not include deposits received after the plan year-end.

² The actuarial value of assets used in determining annual funding requirements are determined as stated in the [Assumption and Methods](#) section report.

Three-year comparison of investment return

The actual percentage was calculated using the Form 5500 Schedule MB investment return method.

Plan year beginning	Actual return on actuarial basis	Actual return on market basis	Assumed return
10/01/2016	8.76%	12.32%	6.75%
10/01/2015	7.62%	7.88%	7.50%
10/01/2014	8.83%	-1.11%	7.75%

Based on current assumptions, the market value of assets is projected to last until the plan year beginning 10/01/2029 assuming 0% return on assets. The market value of assets is projected to last until the plan year beginning 10/01/2047 assuming 6.75% return on assets.

Liabilities

Actuarial valuation prepared as of:	10/01/2017	10/01/2016
Present value of all future expected benefit payments:		
Active members		
Retirement benefits	\$17,560,304	\$19,455,132
Vesting benefits	2,869,735	3,050,144
Disability benefits	466,595	500,338
Death benefits	86,355	92,619
Return of contribution	0	0
Accumulated leave	0	0
Total	\$20,982,989	\$23,098,233
Terminated vested members		
Total	\$24,153,920	\$24,410,455
Retired members and beneficiaries		
Retired (other than disabled) and beneficiaries	\$143,989,350	\$139,041,295
Disabled members	125,095	226,501
Total	\$144,114,445	\$163,678,251
Total present value of all future benefit payments	\$189,251,354	\$186,776,484
Liabilities due and unpaid:		
Initial actuarial accrued liability	N/A	N/A
Unfunded actuarial accrued liability (UAAL)	N/A	N/A

A list of liability bases is shown in [Schedule of amortization bases](#).

Florida disclosures

Actuarial present value of accrued benefits

Statement of actuarial value of all accrued benefits

Actuarial valuation prepared as of:	10/01/2017	10/01/2016
Vested accrued benefits		
Inactive members and beneficiaries	\$168,268,365	\$163,678,251
Active members (includes non-forfeitable accumulated member contributions in the amount of \$764,358)	13,971,848	15,398,318
Total	\$182,240,213	\$179,076,569
Non-vested accrued benefits		
Total	\$648,964	\$586,136
Total actuarial present value of all accrued benefits	\$182,889,177	\$179,662,705

These values are based on the actuarial assumptions shown in the [Assumptions and methods](#) section this report, except that the calculation of accrued benefits does not include a salary scale, (if any).

A statement of changes in total actuarial present value of all accrued benefits is shown in the [Present value of accrued benefits](#) section of this report.

Statement of actuarial value of all accrued benefits

Actuarial valuation prepared as of:	10/01/2017 volatility assumption ¹
Vested accrued benefits	
Inactive members and beneficiaries	\$212,332,378
Active members	19,326,578
Total	\$231,658,956
Non-vested accrued benefits	
Total	\$918,874
Total actuarial present value of all accrued benefits	\$232,577,830

¹ The volatility interest rate used is 4.75% which is 2.00% lower than the valuation interest rate as directed in the Florida Statutes. All other assumptions are as shown in the [Assumptions and methods](#) section of this report.

Florida disclosures

Pension cost

ADC for plan year beginning as of:	10/01/2018	10/01/2017	10/01/2016
Base Normal Cost	\$5,749,663	\$5,101,232	\$2,743,276
Administrative expenses	61,000	50,000	49,000
Total Normal Cost	5,810,663	5,151,232	2,792,276
Payment to amortize unfunded liability(ies)	0	0	0
Expected plan sponsor contribution (including normal cost, amortization payment and interest, as applicable)	\$2,660,082	\$2,378,931	\$566,798
As % of payroll	88.66%	73.44%	16.56%
Amount to be contributed by members	\$217,520	\$234,855	\$248,141
As % of payroll	7.25%	7.25%	7.25%

For the current and 2018 plan year:

Interest is based on 6.75%. A Credit Balance in the Minimum Funding Standard Account has been recognized in the amortization.

For the prior plan year:

Interest is based on 7.50%. A Credit Balance in the Minimum Funding Standard Account has been recognized in the amortization.

	10/01/2017 volatility assumption ¹
Base normal cost	\$902,661
Administrative expenses	50,000
Amortizations	8,553,228
Total normal cost	9,505,889
Adjusted normal cost	10,363,681
Expected plan sponsor contribution (including normal cost, amortization payment and interest, as applicable)	7,875,252
As % of payroll (<u>full payroll</u>)	243.11%
Amount to be contributed by members	234,855
As % of payroll	7.25%

¹The volatility interest rate used is 4.75% which is 2.00% lower than the valuation interest rate as directed in the new Florida Statutes. All other assumptions are as shown in the [Assumptions and methods](#) section of this report.

Plan year beginning	10/01/2016	10/01/2015
Past contributions		
Required plan sponsor contribution	\$566,798	\$758,577
Required member contributions	248,141	232,462
Actual contributions made by		
Plan sponsor	2,500,068	6,500,000
Members	244,566	260,487
Other	0	0
Net actuarial gain(loss) (if applicable)	N/A	N/A

Florida disclosures

Other disclosures

Actuarial valuation prepared as of:	10/01/2017	10/01/2016
Present values of active members:		
Future salaries		
at attained age	\$15,357,385	\$16,685,971
at entry age	13,456,860	14,619,803
Future contributions		
at attained age	1,077,731	1,170,966
at entry age	944,358	1,025,970
Present value of future contributions from other sources	N/A	N/A
Present value of future expected benefit payments for active members at entry age	\$2,885,967	\$3,111,577

The numerical development of total normal cost for the current plan year is shown in the [Development of normal cost](#) section of this report.

Three year comparison of actual and assumed salary increases.

Plan year beginning	Actual increases	Assumed increases
10/01/2016	2.48%	4.70%
10/01/2015	4.92%	4.68%
10/01/2014	16.44%	4.71%

Other disclosures (continued)

Changes in costs during the year due to a change in assumptions, cost method, benefits, or other, as specified.

See the Present value of accrued plans benefits [section](#) of this report.

Cost of \$1.00/month benefit on normal form

Retirement Age	Valuation assumptions ¹		Contract purchase rates ²		Current purchase rates ³	
	Male	Female	Male	Female	Male	Female
55	\$186.58	\$196.10	\$238.22	\$256.75	\$229.60	\$265.19
60	169.66	180.68	218.66	238.32	198.92	235.62
62	162.20	173.77	210.52	230.60	186.47	223.55

¹ Assumes 2.0% COLA.

² Rates guaranteed rates by the contract.

³ Non-guaranteed rates in effect 10/01/2017. These rates may change daily.

Actuarial value of assets under Flexible Pension Investment contract

	Grouped FPI
Balance as of 10/01/2016	\$173,332,291
Additions	
Contributions	\$2,744,634
Interest, dividends & fund earnings	20,215,440
Total additions	\$22,960,074
Withdrawals	
Expenses charged	\$60,901
Benefit payments	10,560,812
Total withdrawals	\$10,621,713
Actuarial valuation market value spread adjustment	(9,665,235)
Balance as of 10/01/2017	\$176,005,417

Schedule of active participant data

Attained Age	Years of credited service																						
	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 & up		Total		
	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	
Under 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	1	84,847	0	0	1	90,716	0	0	0	0	0	0	0	0	0	0	0	0	0	2	87,781
35 to 39	0	0	0	0	0	0	1	108,079	1	135,068	0	0	0	0	0	0	0	0	0	0	0	2	121,573
40 to 44	0	0	1	75,520	1	156,733	1	119,634	2	114,874	0	0	0	0	0	0	0	0	0	0	0	5	116,327
45 to 49	0	0	1	114,408	1	44,487	0	0	2	64,886	0	0	2	74,401	0	0	0	0	0	0	0	6	72,912
50 to 54	0	0	0	0	2	159,952	1	60,516	3	90,878	3	124,674	3	97,524	0	0	0	0	0	0	0	12	109,971
55 to 59	0	0	3	67,615	0	0	2	51,445	1	110,187	0	0	0	0	0	0	0	0	0	0	0	6	69,320
60 to 64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65 to 69	0	0	0	0	0	0	1	43,523	0	0	0	0	0	0	0	0	0	0	0	0	0	1	43,523
70 & up	0	0	0	0	0	0	0	0	0	0	1	78,108	0	0	0	0	0	0	0	0	0	1	78,108
Total	0	0	6	79,603	4	130,281	7	75,051	9	97,490	4	113,033	5	88,275	0	0	0	0	0	0	0	35	94,143



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