COWDEN

Allegheny County Employees' Retirement System

Executive Summary

January 1, 2018

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INTEGRITY EXPERTISE RESULTS EMPLOYEES COMMUNITY

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Introduction

This Executive Summary and History contains information to enable the Retirement Board to assess the financial well-being of the Pension Fund. Five factors govern the Fund's financial status:

1) Characteristics of the group of participants receiving benefits from the Fund, or expected to receive benefits in the future
    - Age
    - Sex
    - Benefit Amount
    - Form of Payment

2) Amount of Fund assets

3) Plan provisions defining the amount and form of benefits, and the conditions under which they are paid

4) Assumptions about future events
    - Investment Return
    - Mortality
    - Disability
    - Termination
    - Retirement Ages
    - Salary

5) Future changes in the work force or in contribution levels

An analysis of the Fund's financial status can be performed on either a closed group or an open group. A closed group analysis does not take account of future new members. As such, it gives a good indication of whether the fund can sustain itself in the absence of new members. Unless otherwise indicated, all information is provided on a closed group basis.

An open group analysis does take account of future new members. Assumptions are made to reflect an increasing, stable. or declining population. Additional assumptions govern the age distribution of the new members. This analysis is considerably more complicated and outside the scope of a normal valuation, but it may be the most realistic indicator of the ongoing financial health of the Fund.

Changes in Assumptions and Methods

Plan Design Changes

None.

Assumption Changes

None.

Method Changes

None.

Review of Funded Status Ratios

Review of Funded Status

There are a number of ratios that are useful in evaluating the funded status of the plan. These include the following:

A) Accrued Benefit Funded Status: ratio of the present value of benefits earned to date (i.e., no future salary or service) compared to the market value of assets. (See page 10 of the report.)

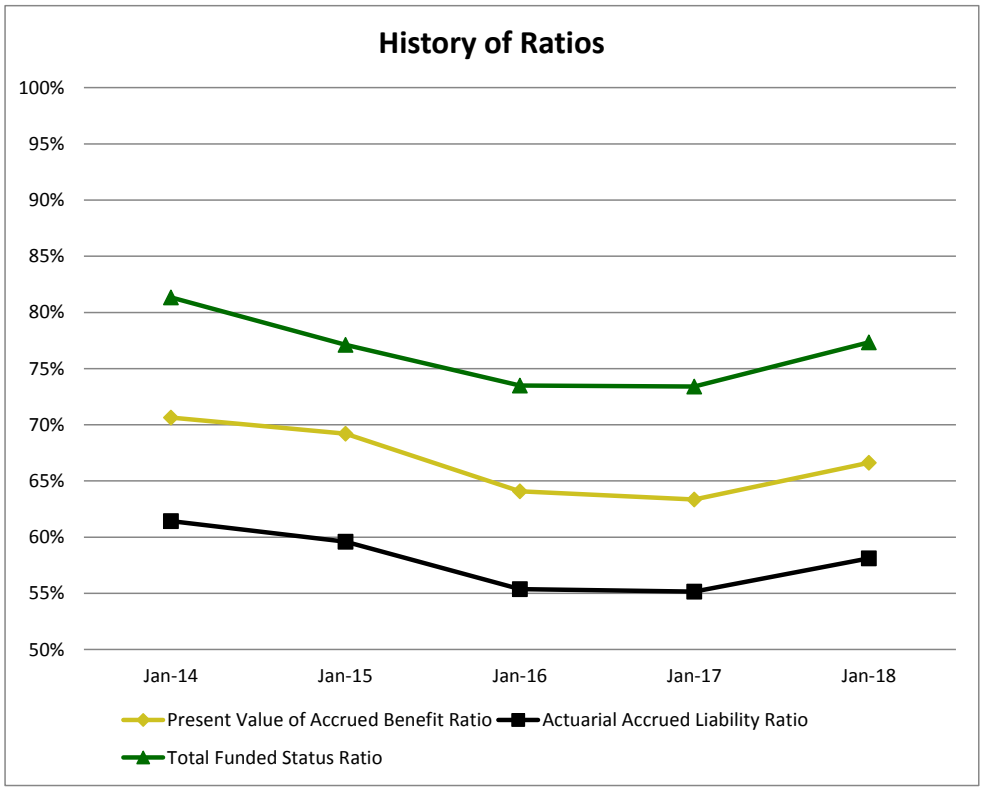
	2014	*2015*	*2016*	*2017*	*2018*
Funded Ratio	70.7%	69.2%	64.1%	63.4%	66.6%

B) Actuarial Accrued Liability Funded Status: ratio of the present value of benefits earned to date, **including** expected future salary increases, compared to the actuarial value of assets.

	2014	*2015*	*2016*	*2017*	*2018*
Funded Ratio	61.4%	59.6%	55.4%	55.2%	58.1%

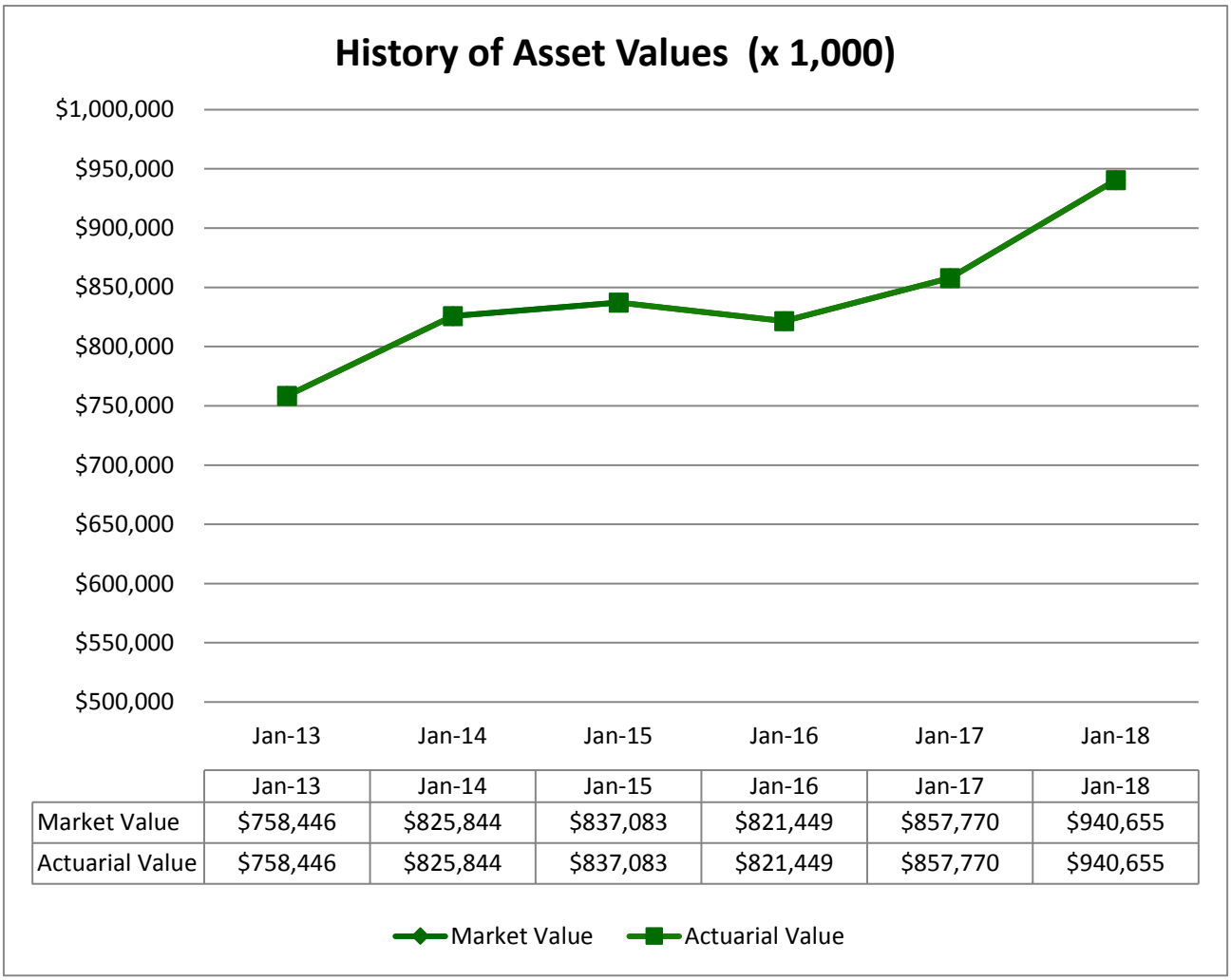
C) Total Funded Status Ratio (TFSR): ratio of the present value of benefits earned to date **and** benefits that are expected to be earned in the future (including future salary increases) compared to the market value of assets **and** present value of contributions to be made in the future.

	2014	*2015*	*2016*	*2017*	*2018*
Funded Ratio	81.3%	77.1%	73.5%	73.4%	77.3%



Assets and Plan Contributions

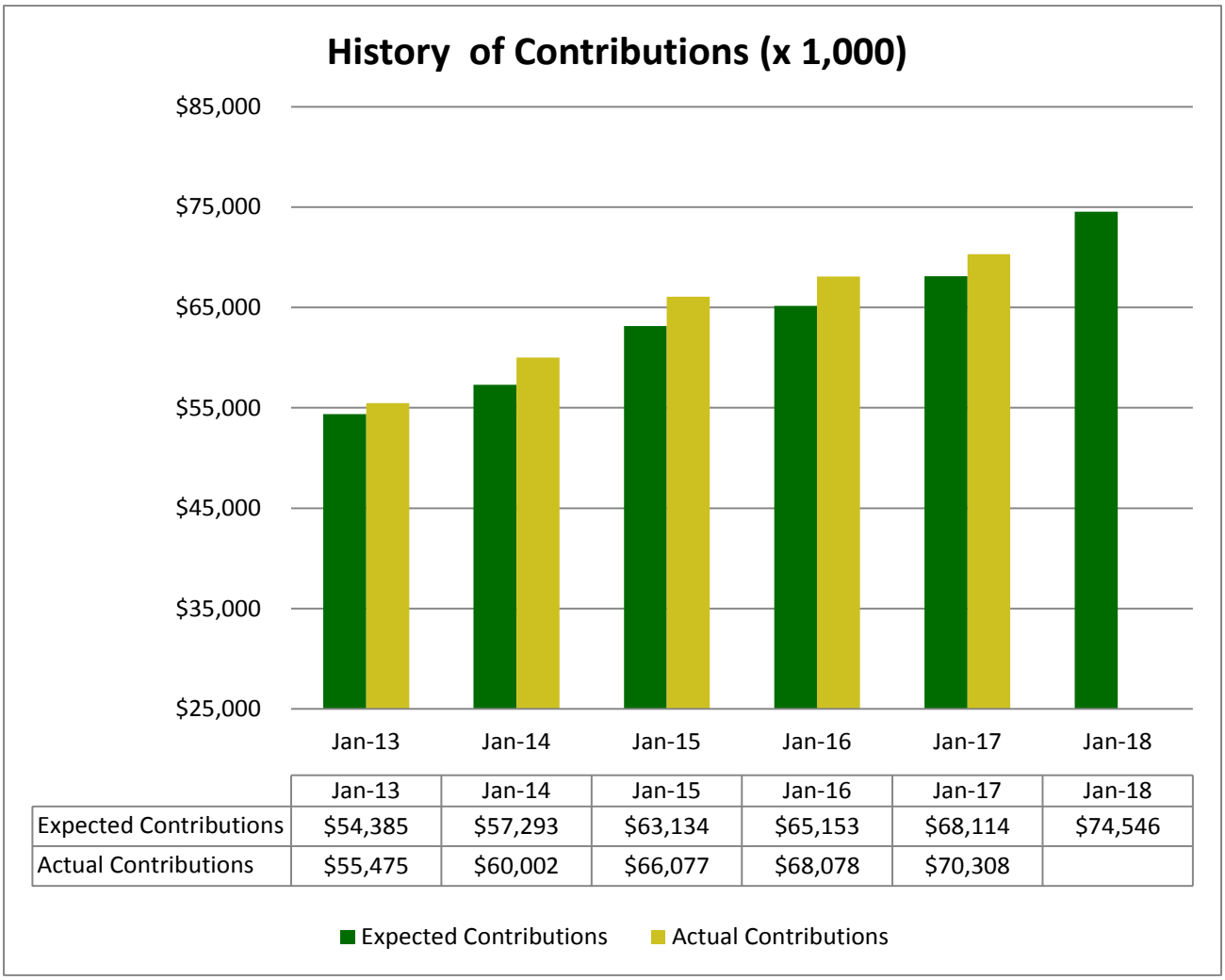
This section contains historical information about market and actuarial value of assets, rates of return and about plan contributions. All dollar amounts shown are in thousands of dollars. For the 2007 and later valuations, actuarial value equals market value.



	Jan-13	Jan-14	Jan-15	Jan-16	Jan-17	Jan-18
Market Value	$758,446	$825,844	$837,083	$821,449	$857,770	$940,655
Actuarial Value	$758,446	$825,844	$837,083	$821,449	$857,770	$940,655

Period Beginning	*Dec 31, 2012*	*Dec 31, 2013*	*Dec 31, 2014*	*Dec 31, 2015*	*Dec 31, 2016*	*Dec 31, 2017*
January 1, 2012	14.05%	13.22%	10.21%	7.92%	7.98%	8.92%
January 1, 2013		12.39%	8.33%	5.95%	6.51%	7.92%
January 1, 2014			4.42%	2.87%	4.62%	6.83%
January 1, 2015				1.35%	4.72%	7.64%
January 1, 2016					8.20%	10.94%
January 1, 2017						13.74%

This section contains historical information about the expected and actual contributions.



	Jan-13	Jan-14	Jan-15	Jan-16	Jan-17	Jan-18
Expected Contributions	$54,385	$57,293	$63,134	$65,153	$68,114	$74,546
Actual Contributions	$55,475	$60,002	$66,077	$68,078	$70,308	

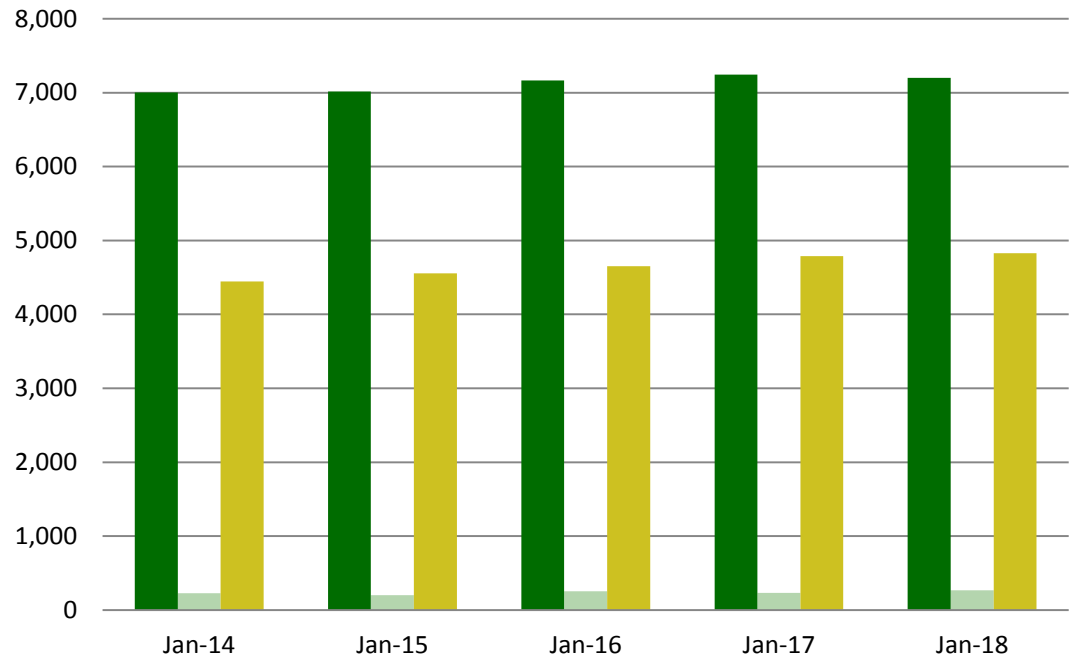
Participant Data

	Jan 1, 2013	Jan 1, 2014	Jan 1, 2015	Jan 1, 2016	Jan 1, 2017	Jan 1, 2018
INACTIVE PARTICIPANTS						
Average Age						
Terminated Vested	50.7	51.3	51.0	51.4	49.7	49.5
In Pay Status	74.3	74.1	74.0	74.0	73.8	73.6
Average Monthly Pension						
Terminated Vested	$ 1,162	$ 1,277	$ 1,421	$ 1,344	$ 1,013	$ 1,222
In Pay Status	1,363	1,426	1,497	1,561	1,626	1,693
Median Monthly Pension						
Terminated Vested	$ 1,037	$ 1,101	$ 1,138	$ 1,068	$ 798	$ 908
In Pay Status	1,109	1,167	1,234	1,282	1,339	1,402
ACTIVE PARTICIPANTS						
Average Age						
At Entry	34.4	39.9	34.7	34.6	34.6	34.6
Current	47.3	47.9	47.9	47.5	47.2	47.1
Average Service	12.9	13.4	13.2	12.9	12.7	12.5
Total Covered Payroll (000's)	$339,905	$337,016	$350,744	$361,964	$378,412	$392,350
Average Prior Year Payroll (reported)	$ 43,622	$ 46,593	$ 48,281	$ 48,761	$ 50,421	$ 52,609
% Change in Average Payroll	-1.8%	6.8%	3.6%	1.0%	3.4%	4.3%

Participant Data (continued)

This section contains current and historical information about covered participants.

The ratio of actives to inactives has remained relatively stable. For an underfunded plan that relies on member contributions (matched by County) the level of the member population is important.

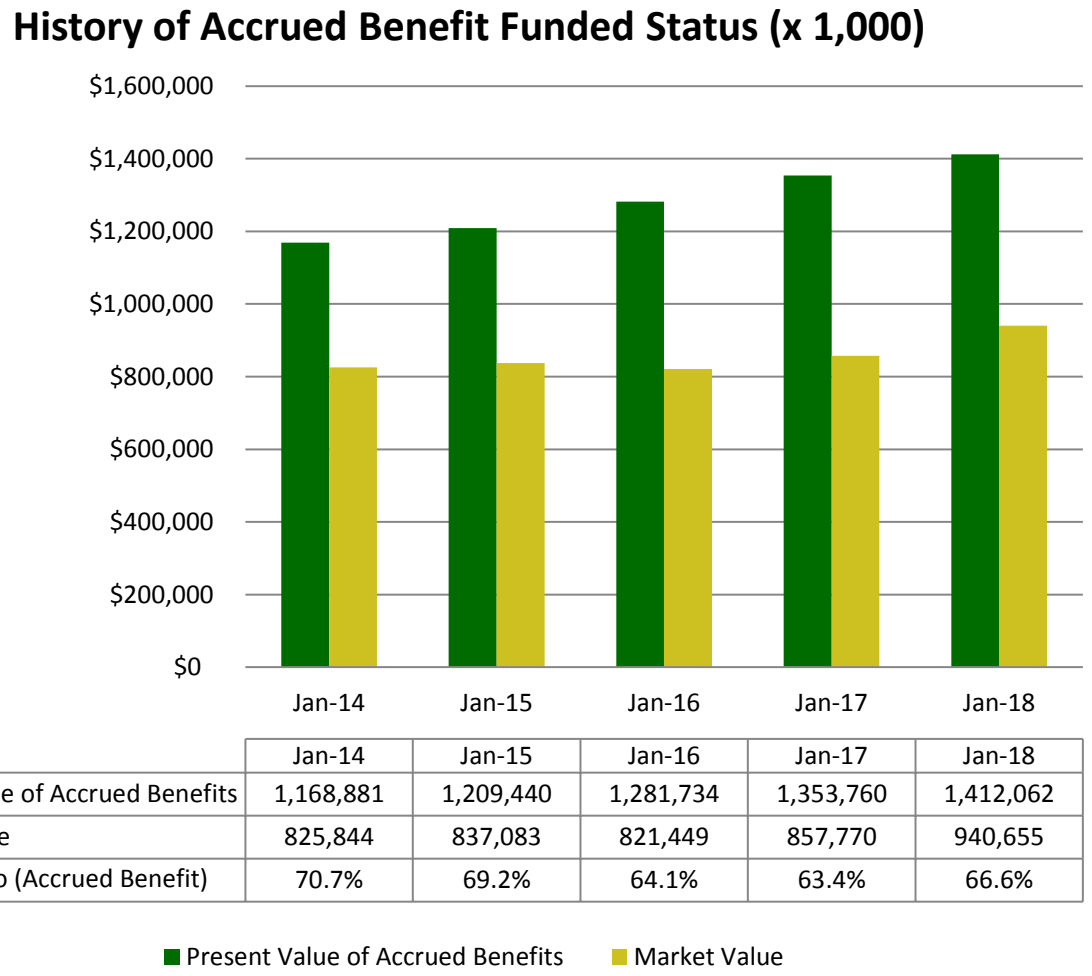


	Jan-14	Jan-15	Jan-16	Jan-17	Jan-18
Number Active	7,003	7,016	7,168	7,246	7,200
Number Term Vested	227	199	255	232	268
Number in Pay Status	4,444	4,555	4,654	4,790	4,830
Ratio of Actives to Inactives	1.50	1.48	1.46	1.44	1.41

Number Active Number Term Vested Number in Pay Status Ratio of Actives to Inactives

History of Funded Ratios

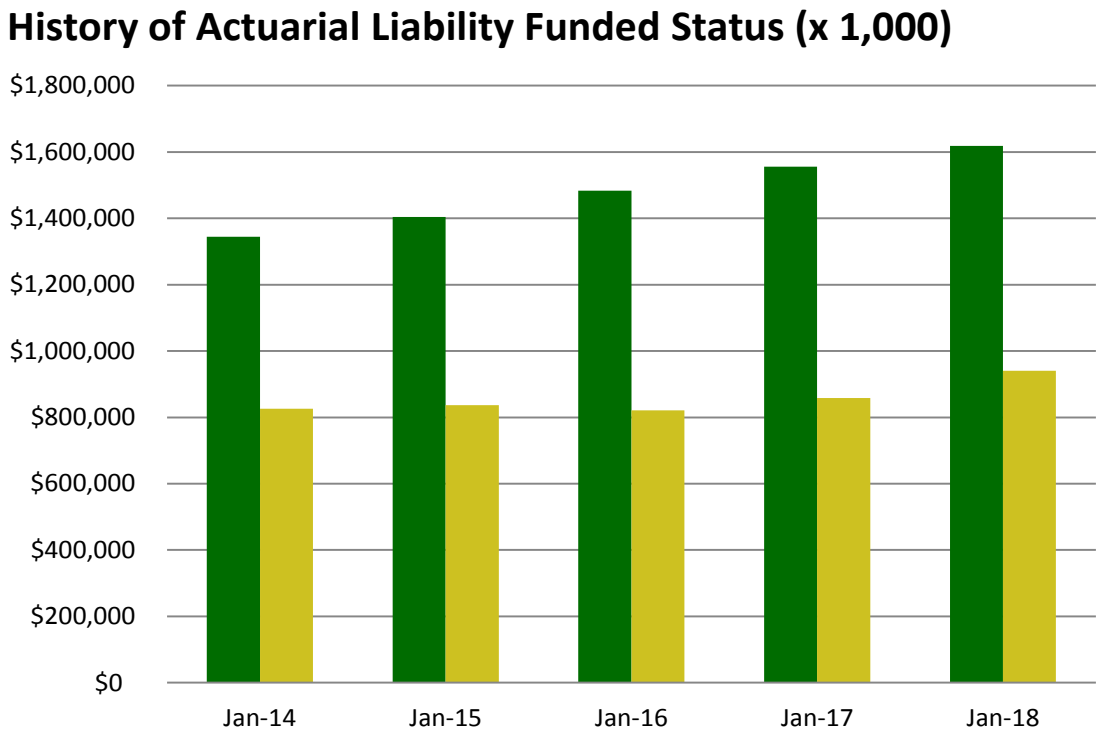
One important measure of a pension fund's financial health is the ratio of existing plan assets (market value) to the present value of accrued benefits (Accrued Benefit Funded Status). The present value of accrued benefits incorporates benefits that members have earned, whether or not they are in pay status. The present value of accrued benefits does not consider future service or future salary.



	Jan-14	Jan-15	Jan-16	Jan-17	Jan-18
Present Value of Accrued Benefits	1,168,881	1,209,440	1,281,734	1,353,760	1,412,062
Market Value	825,844	837,083	821,449	857,770	940,655
Funded Ratio (Accrued Benefit)	70.7%	69.2%	64.1%	63.4%	66.6%

History of Funded Ratios (continued)

A second measure of financial well-being is the ratio of ***actuarial*** *value of assets* to the *actuarial liability* [Actuarial Liability Funded Status]. There are two major differences between the Accrued Benefit Funded Status and the Actuarial Liability Funded Status. One is the asset value used (market vs. actuarial) and the other difference is that the actuarial accrued liability generally reflects anticipated future salary increase, while the present value of accrued benefits does not. The actuarial liability is a function of the actuarial funding method adopted by the fund and, as such, will vary by the funding method adopted. A precise comparison between plans is possible only if the methods as well as the assumptions are identical. The difference between the actuarial liability and the **actuarial** value of assets is referred to as the *unfunded liability*.

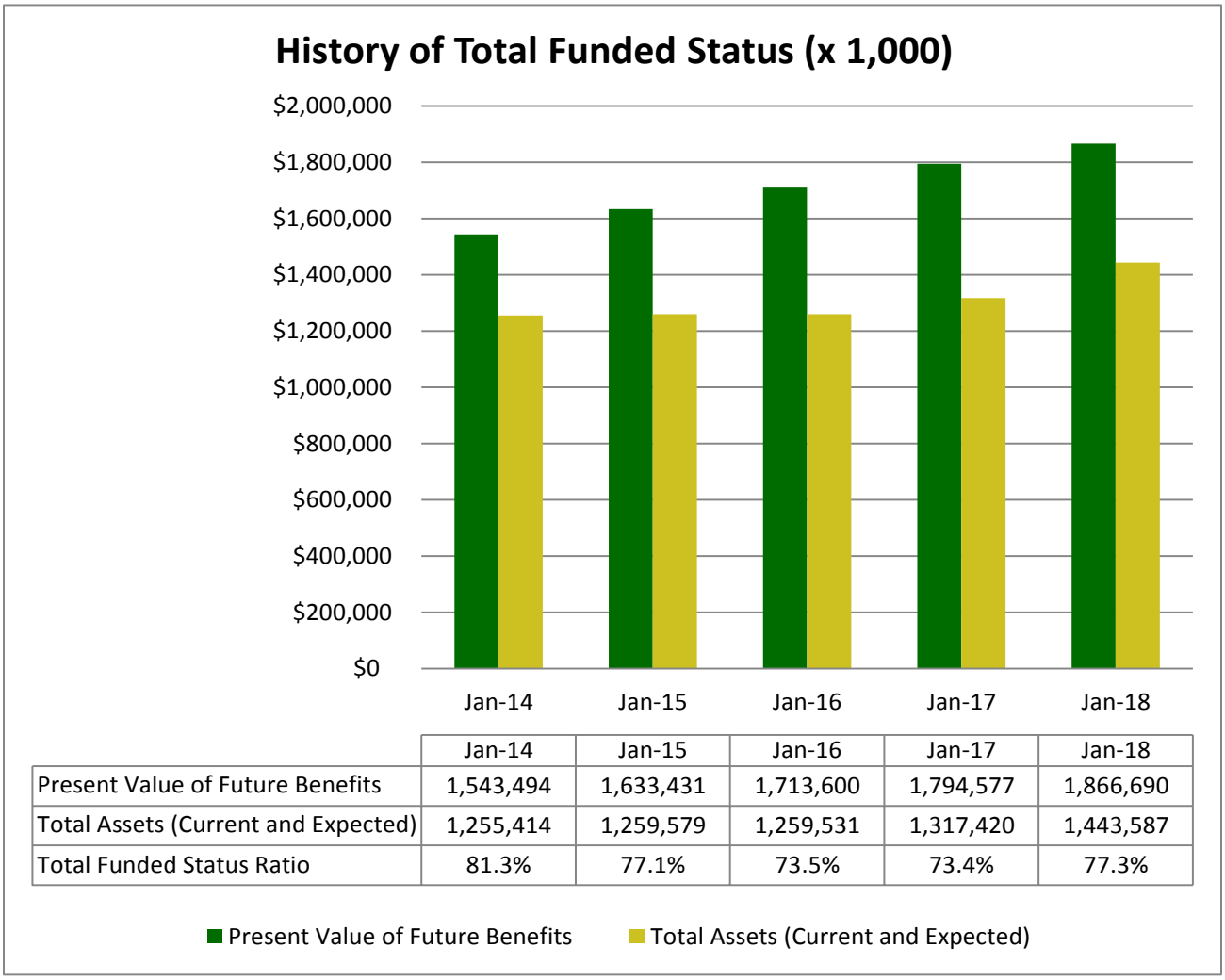


	Jan-14	Jan-15	Jan-16	Jan-17	Jan-18
Actuarial Accrued Liability	$1,344,361	$1,404,493	$1,483,630	$1,555,335	$1,618,336
Actuarial Value	$825,844	$837,083	$821,449	$857,770	$940,655
Funded Ratio (AAL)	61.4%	59.6%	55.4%	55.2%	58.1%

History of Funded Ratios (continued)

A third, perhaps the most important, measure of a fund's financial well-being is the *total assets* to *total liabilities* ratio [Total Funded Status Ratio of TFSR]. This measure incorporates the benefits members have already earned, as well as the benefits they are expected to earn in the future. Plan assets available to meet these current and future obligations include existing assets (at **market** value), together with the present value of contributions expected to be made in the future.

A ratio of 100% or more is a favorable indicator. A ratio of less than 100% may be tolerated over the short-term but a ratio of 100% is necessary for the long-term solvency of the Fund.



	Jan-14	Jan-15	Jan-16	Jan-17	Jan-18
Present Value of Future Benefits	1,543,494	1,633,431	1,713,600	1,794,577	1,866,690
Total Assets (Current and Expected)	1,255,414	1,259,579	1,259,531	1,317,420	1,443,587
Total Funded Status Ratio	81.3%	77.1%	73.5%	73.4%	77.3%

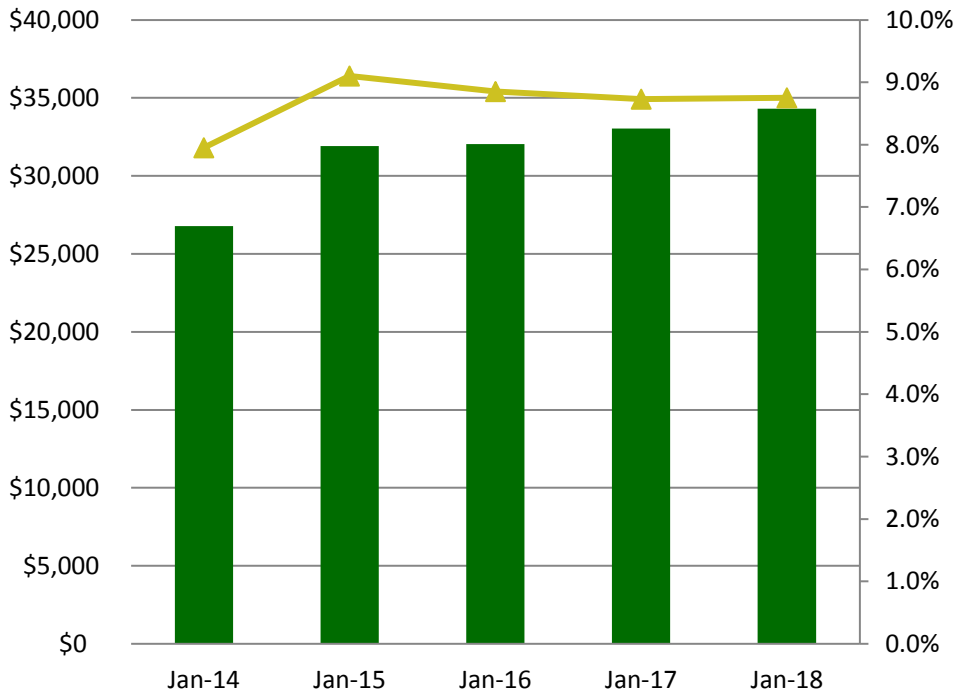
- Historical combined contribution rates were used according to the following schedule:

1997	15.0%	2012-2013	16%
1998-1999	12.0%	2014	17%
2000-2001	7.6%	2015	18%
2002	10.0%	2016	18%
2003-2010	12.0%	2017	18%
2011	14.0%	2018	19%

History of Normal Cost

The Normal Cost of a plan is determined by the adopted actuarial funding method – in this case, by the Entry Age Normal cost method. Under this method, the normal cost is defined as a level of contribution (% or $) such that the present value of all the future normal costs at entry age is precisely equal to the present value of all future benefits (and expenses) at entry age. This is a most important figure because barring future actuarial gains/losses or benefit modifications, the plan's total cost will eventually reach this level. This occurs when the Unfunded Liability is exactly equal to $0.

The normal cost also represents the pension cost associated with future employees (assuming the demographic profile of future employees is similar to that of the current group of participants). It is possible for a plan to adequately fund for its current participants at a fixed contribution level but realize, too late, that these contributions understate the cost that will be associated with future hires.



	Jan-14	Jan-15	Jan-16	Jan-17	Jan-18
Normal Cost (includes expense load)	$26,789	$31,907	$32,032	$33,040	$34,313
Normal Cost as a % of payroll	8.0%	9.1%	8.9%	8.7%	8.8%

Normal Cost (includes expense load) — Normal Cost as a % of payroll

Actuarial Certification

I certify that I have performed an actuarial valuation of the above plan as of January 1, 2018 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.

I certify that the information in this Executive Summary is consistent with the formal report of the valuation.

Certified by

Bradford L. Rigby, ASA, EA, MAAA — Date 10/4/2018

Frank Canonico, EA, MAAA. — Date 10/4/2018

Paul D. Halliwell, Project Coordinator — Date 10/4/2018