



**Automotive Industries  
Pension Plan  
Actuarial Valuation and Review as  
of January 1, 2018**

This report has been prepared at the request of the Board of Trustees to assist in administering the Fund and meeting filing requirements of federal government agencies. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Trustees and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.



180 Howard Street, Suite 1100 San Francisco, CA 94105-6147  
T 415.263.8200 www.segalco.com

March 20, 2019

Board of Trustees  
Automotive Industries Pension Plan  
Dublin, California

Dear Trustees:

We are pleased to submit the Actuarial Valuation and Review as of January 1, 2018. It establishes the funding requirements for the current year and analyzes the preceding year's experience. It also summarizes the actuarial data and includes the actuarial information that is required to be filed with Form 5500 to federal government agencies.

The census information upon which our calculations were based was prepared by the Fund Office, under the direction of Charles W. Besocke. That assistance is gratefully acknowledged. The actuarial calculations were completed under the supervision of Paul C. Poon, ASA, MAAA, Enrolled Actuary.

We look forward to reviewing this report with you at your next meeting and to answering any questions you may have.

Sincerely,

Segal Consulting, a Member of The Segal Group

By:   
Frederick C. K. Herberich  
Senior Vice President

cc: Charles Besocke  
Anne Bevington, Esq.  
Sun Chang, Esq.

Kara Dantonio  
Kimberly A. Hancock, Esq.  
David Haumesser

Wei Ma  
Jessica Roster, CPA  
Nancy Vuong

MAM/hy

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## Introduction

There are several ways of evaluating funding adequacy for a pension plan. In monitoring the Plan's financial position, the Trustees should keep in mind all of these concepts.

	<b>Funding Standard Account</b>	The ERISA Funding Standard Account (FSA) measures the cumulative difference between actual contributions and the minimum required contributions. If actual contributions exceed the minimum required contributions, the excess is called the credit balance. If actual contributions fall short of the minimum required contributions, a funding deficiency occurs.
	<b>Zone Information</b>	The Pension Protection Act of 2006 (PPA'06) called on plan sponsors to actively monitor the projected FSA credit balance, the funded percentage (the ratio of the actuarial value of assets to the present value of benefits earned to date) and cash flow sufficiency. Based on these measures, plans are then categorized as critical ( <i>Red Zone</i> ), endangered ( <i>Yellow Zone</i> ), or neither ( <i>Green Zone</i> ). The Multiemployer Pension Reform Act of 2014 (MPRA), among other things, made the zone provisions permanent.
	<b>Solvency Projections</b>	Pension plan funding anticipates that, over the long term, both contributions and investment earnings will be needed to cover benefit payments and expenses. To the extent that contributions are less than benefit payments, investment earnings and fund assets will be needed to cover the shortfall. In some situations, a plan may be faced with insufficient assets to cover its current obligations and may need assistance from the Pension Benefit Guaranty Corporation (PBGC). MPRA provides options for some plans facing insolvency.
	<b>Scheduled Cost</b>	The Scheduled Cost is an annual amount based on benefit levels and assets that allows a comparison to current contribution levels, given the expectation of a continuing Plan. Due to the Plan's projected insolvency, this valuation does not include a Scheduled Cost.
	<b>Withdrawal Liability</b>	ERISA provides for assessment of withdrawal liability to employers who withdraw from a multiemployer plan based on unfunded vested benefit liabilities. A separate report is available.

## Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future uncertain obligations of a pension plan. As such, it will never forecast the precise future contribution requirements or the precise future stream of benefit payments. In any event, it is an estimated forecast — the actual cost of the plan will be determined by the benefits and expenses paid, not by the actuarial valuation.

In order to prepare a valuation, Segal Consulting (“Segal”) relies on a number of input items. These include:



### Plan Provisions

Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. For example, a plan may require the award of a Social Security disability pension as a condition for receiving a disability pension from the plan. If so, changes in the Social Security law or administration may change the plan’s costs without any change in the terms of the plan itself. It is important for the Trustees to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.



### Participant Information

An actuarial valuation for a plan is based on data provided to the actuary by the plan. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. For most plans, it is not possible nor desirable to take a snapshot of the actual workforce on the valuation date. It is not necessary to have perfect data for an actuarial valuation: the valuation is an estimated forecast, not a prediction. The uncertainties in other factors are such that even perfect data does not produce a “perfect” result. Notwithstanding the above, it is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.



### Financial Information

Part of the cost of a plan will be paid from existing assets – the balance will need to come from future contributions and investment income. The valuation is based on the asset values as of the valuation date, typically reported by the auditor. Some plans include assets, such as private equity holdings, real estate, or hedge funds, that are not subject to valuation by reference to transactions in the marketplace. A snapshot as of a single date may not be an appropriate value for determining a single year’s contribution requirement, especially in volatile markets. Plan sponsors often use an “actuarial value of assets” that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.



### Actuarial Assumptions

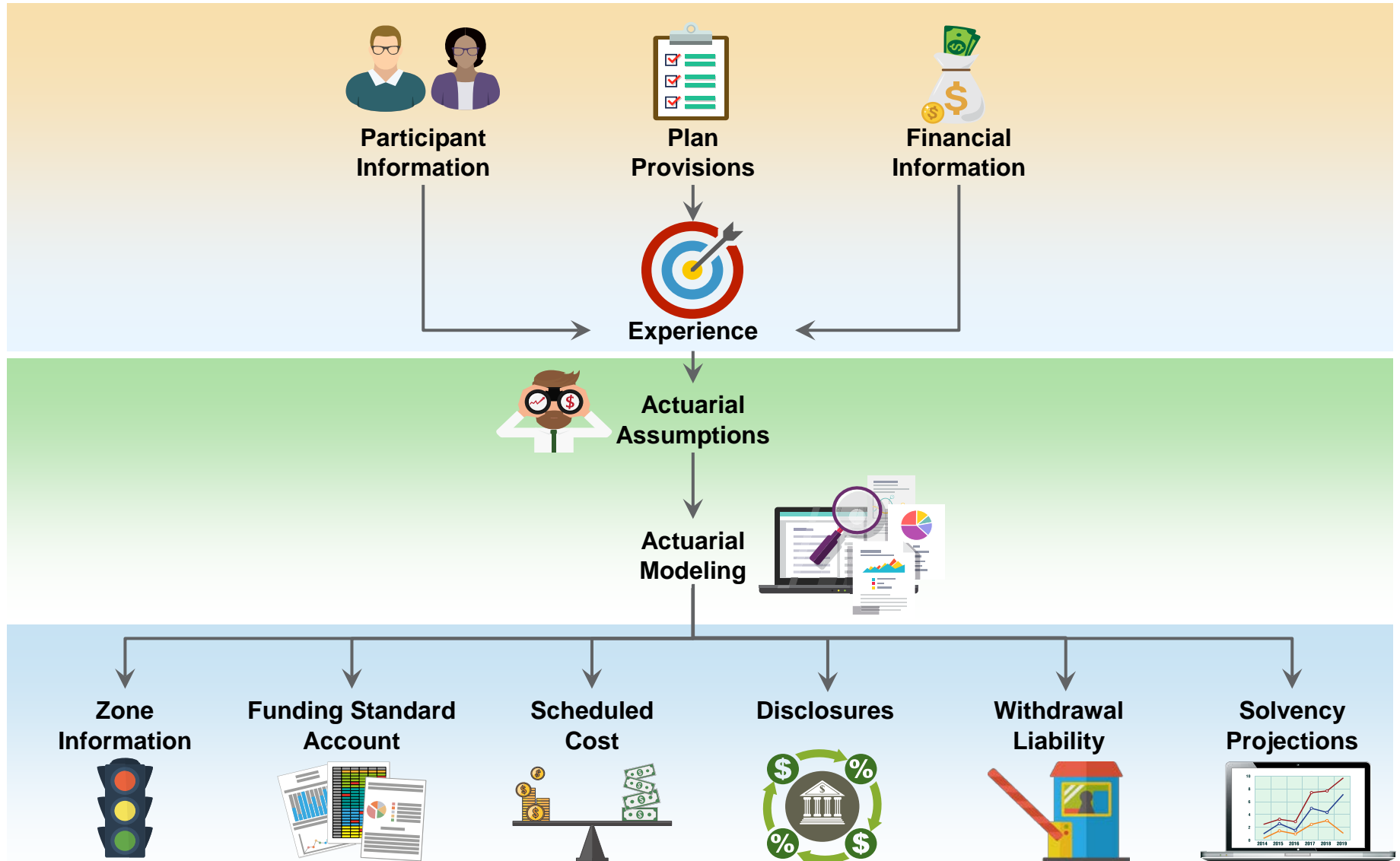
In preparing an actuarial valuation, Segal starts by developing a forecast of the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of participants in each year, as well as forecasts of the plan’s benefits for each of those events. The forecasted benefits are then discounted to a present value, typically based on an estimate of the rate of return that will be achieved on the plan’s assets. All of these factors are uncertain and unknowable. Thus, there will be a range of reasonable assumptions, and the results may vary materially based on which assumptions the actuary selects within that range. That is, there is no right answer (except with hindsight). It is important for any user of an actuarial valuation to understand and accept this constraint. The actuarial model may use approximations and estimates that will have an immaterial impact on our results and will have no impact on the actual cost of the plan (the total of benefits and expenses paid out over time). In addition, the actuarial assumptions may change over time, and while this can have a significant impact on the reported results, it does not mean that the previous assumptions or results were unreasonable or wrong.

Given the above, the user of Segal's actuarial valuation (or other actuarial calculations) needs to keep the following in mind:

- The actuarial valuation is prepared for use by the Trustees. It includes information for compliance with federal filing requirements and for the plan's auditor. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement at a specific date — it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of financial measurements, except where otherwise noted.
- Actuarial results in this report are not rounded, but that does not imply precision.
- Critical events for a plan include, but are not limited to, decisions about changes in benefits and contributions. The basis for such decisions needs to consider many factors such as the risk of changes in employment levels and investment losses, not just the current valuation results.
- ERISA requires a plan's enrolled actuary to provide a statement for inclusion in the plan's annual report disclosing any event or trend that the actuary has not taken into account, if, to the best of the actuary's knowledge, such an event or trend may require a material increase in plan costs or required contribution rates. If the Trustees are currently aware of any event that was not considered in this valuation and that may materially increase the cost of the Plan, they must advise Segal, so that we can evaluate it and take it into account.
- A certification of "zone" status under PPA'06 is a separate document from the actuarial valuation.
- Segal does not provide investment, legal, accounting, or tax advice. This valuation is based on Segal's understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Trustees should look to their other advisors for expertise in these areas.
- While Segal maintains extensive quality assurance procedures, an actuarial valuation involves complex computer models and numerous inputs. In the event that an inaccuracy is discovered after presentation of Segal's valuation, Segal may revise that valuation or make an appropriate adjustment in the next valuation.
- Segal's report shall be deemed to be final and accepted by the Trustees upon delivery and review. Trustees should notify Segal immediately of any questions or concerns about the final content.

As Segal Consulting has no discretionary authority with respect to the management or assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Plan.

## ACTUARIAL VALUATION OVERVIEW



# Section 1: Actuarial Valuation Summary

## Summary of Key Valuation Results

		2017	2018
Certified Zone Status		<i>Critical and Declining</i>	<i>Critical and Declining</i>
<b>Demographic Data:</b>	<ul style="list-style-type: none"> <li>Number of active participants</li> <li>Number of inactive participants with vested rights</li> <li>Number of retired participants and beneficiaries</li> </ul>	3,928 10,594 11,179	3,933 9,962 11,204
<b>Assets:</b>	<ul style="list-style-type: none"> <li>Market value of assets (MVA)</li> <li>Actuarial value of assets (AVA)</li> <li>AVA as a percent of MVA</li> </ul>	\$1,169,543,231 1,169,543,231 100.0%	\$1,225,575,952 1,225,575,952 100.0%
<b>Cash Flow:</b>	<ul style="list-style-type: none"> <li>Projected employer contributions (including withdrawal liability payments)</li> <li>Actual contributions</li> <li>Projected benefit payments and expenses</li> <li>Insolvency projected in Plan Year beginning<sup>2</sup></li> </ul>	\$24,177,188 34,424,845 <sup>1</sup> 139,858,355 2029	\$25,222,305 -- 141,678,485 2031
<b>Statutory Funding Information:</b>	<ul style="list-style-type: none"> <li>Minimum required contribution</li> <li>Maximum deductible contribution</li> <li>Annual Funding Notice percentage</li> <li>FSA deficiency projected in Plan Year</li> </ul>	\$717,410,781 3,432,712,610 54.3% Yes	\$847,877,101 3,643,186,518 57.1% Yes
<b>Cost Elements on an FSA Cost Basis:</b>	<ul style="list-style-type: none"> <li>Normal cost, including administrative expenses</li> <li>Actuarial accrued liability</li> <li>Unfunded actuarial accrued liability (based on AVA)</li> </ul>	\$9,310,922 2,153,319,932 \$983,776,701	\$9,896,068 2,146,308,829 \$920,732,877

<sup>1</sup> Includes \$7,375,421 in withdrawal liability payments and \$45,381 in liquidated damages.

<sup>2</sup> Includes 5% annual contribution rate increases through 2019 under the Rehabilitation Plan Default Schedule.



## Comparison of Funded Percentages

	Funded Percentages as of January 1		2018	
	2017	2018	Liabilities	Assets
1. Present Value of Future Benefits	53.0%	55.5%	\$2,208,242,230	\$1,225,575,952
2. Actuarial Accrued Liability	54.3%	57.1%	2,146,308,829	1,225,575,952
3. PPA'06 Liability and Annual Funding Notice	54.3%	57.1%	2,146,308,829	1,225,575,952
4. Accumulated Benefits Liability	54.3%	57.1%	2,146,308,829	1,225,575,952
5. Current Liability	35.8%	35.5%	3,451,635,146	1,225,575,952

### Notes:

1. The value of benefits earned through the valuation date (accrued benefits) plus the value of benefits projected to be earned in the future for current participants. Used to develop the actuarial accrued liability, based on the funding investment return assumption of 6.50% and the actuarial (market) value of assets.
2. The portion of the present value of future benefits allocated by the actuarial cost method to years prior to the valuation date. Used in determining the Funding Standard Account based on the funding investment return assumption of 6.50% and the actuarial (market) value of assets.
3. The present value of benefits earned through the valuation date (accrued benefits) defined by PPA'06, based on the funding investment return assumption of 6.50% and compared to the actuarial (market) value of assets.
4. The present value of accrued benefits for disclosure in the audited financial statements, based on the funding investment return assumption of 6.50%, and compared to the market value of assets.
5. The present value of accrued benefits based on a government-prescribed mortality table and investment return assumption of 3.05% for 2017 and 2.98% for 2018, and compared to the market value of assets. Used to develop the maximum tax-deductible contribution and shown on the Schedule MB if less than 70%.

Disclosure: These measurements are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations or the need for or the amount of future contributions.

This January 1, 2018 actuarial valuation report is based on financial and demographic information as of that date. Changes subsequent to that date are not reflected unless specifically identified, and will affect future results. Segal is prepared to work with the Trustees to analyze the effects of any subsequent developments. The current year's actuarial valuation results follow.

## A. Developments Since Last Valuation

1. The rate of return on the market value of plan assets was 14.33% for the 2017 plan year. Given the low fixed income interest rate environment, target asset allocation and expectations of future investment returns for various asset classes, we will continue to monitor the Plan's actual and anticipated investment returns relative to the assumed rate of return on investments of 6.50%.
2. Based on past experience and future expectations, many actuarial assumptions were updated. Details to all changes are included in *Section 4, Exhibit 8*. These changes did not impact the year of projected plan insolvency.
3. The 2018 certification, issued on March 30, 2018, based on the liabilities calculated in the 2017 actuarial valuation, projected to January 1, 2018, and estimated asset information as of January 1, 2018, classified the Plan as critical and declining (in the *Red Zone*) because there was a projected deficiency in the FSA within one year and a projected insolvency within 15 years. This projection was based on the Trustees' industry activity assumption that the total number of contributory months will decline by 3% per year for the next two years and remain level thereafter.
4. Under the Trustees' Rehabilitation Plan, new collective bargaining agreements negotiated after April 27, 2008 are subject to the Default Schedule that includes the maximum benefit reductions allowed by law. These reductions include the removal of all early retirement subsidies, joint and survivor subsidies, disability pensions, the 36-payment pre-retirement death benefit and all benefit options besides the single life annuity, QJSA and QOSA. The Default Schedule also includes supplemental off-benefit contributions beginning January 1, 2013. The valuation recognizes the Default Schedule.



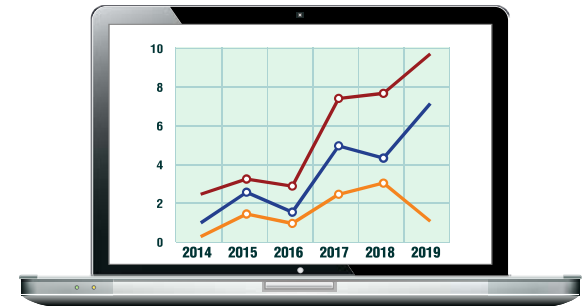
## B. Funded Percentage and Funding Standard Account

1. Based on this January 1, 2018 actuarial valuation, the funded percentage that will be reported on the 2018 Annual Funding Notice is 57.1%.
2. The funding deficiency in the FSA as of December 31, 2017 was \$681,867,129, an increase of \$132,040,609 from the prior year.



## C. Solvency Projections

1. Based on this valuation, the current value of assets plus future investment earnings and contribution income are not projected to cover benefit payments and administrative expenses beyond 13 years (through December 31, 2030), assuming experience is consistent with January 1, 2018 assumptions. The year of projected insolvency is two years later than projected in the January 1, 2017 actuarial valuation due to favorable investment and other actuarial experience during the 2017 plan year. The projected assets until insolvency and the projection basis are shown on page 33. If requested by the Trustees, we can perform additional projections of the financial status of the Plan.



## D. Funding Concerns

1. The projected inability to pay benefits must continue to be monitored.
2. The actions already taken to address this issue include the Trustees' Rehabilitation Plan that was updated to forestall insolvency.
3. We will continue to work with the Trustees to review alternatives that may help address the imbalance between the benefit levels in the Plan and the resources available to pay for them.



## E. Risk

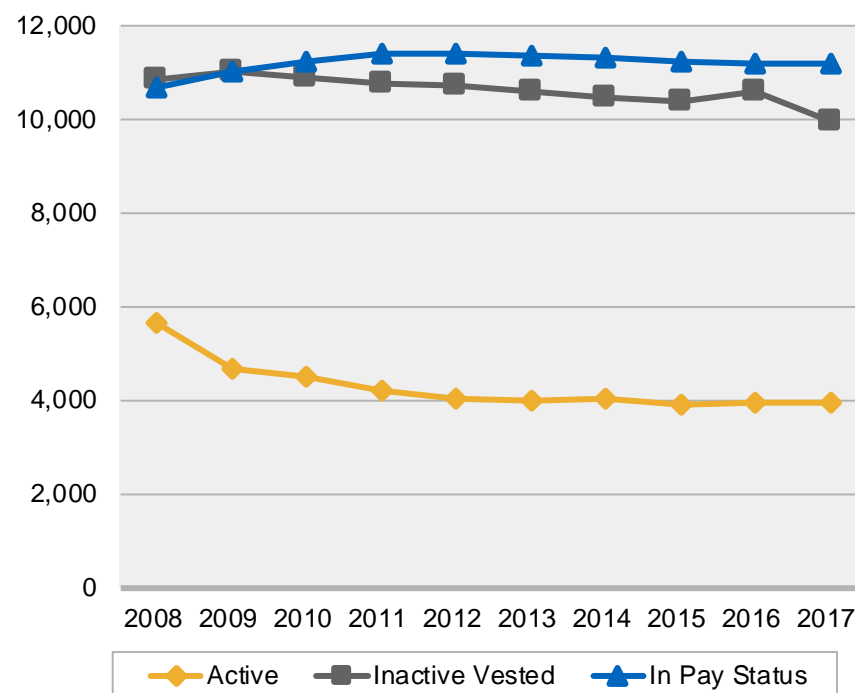
1. The actuarial valuation results are dependent on a single set of assumptions; however, there is a risk that emerging results may differ significantly as actual experience proves to be different from the current assumptions. We have included a discussion of various risks that may affect the Plan in *Section 2*, beginning on page 35.
2. We have not been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the Plan's future financial condition, but have included a brief discussion of some risks that may affect the Plan. A more detailed assessment of the risks would provide the Trustees with a better understanding of the risks inherent in the Plan. This could be important because the Plan assets are quickly diminishing.

## Section 2: Actuarial Valuation Results

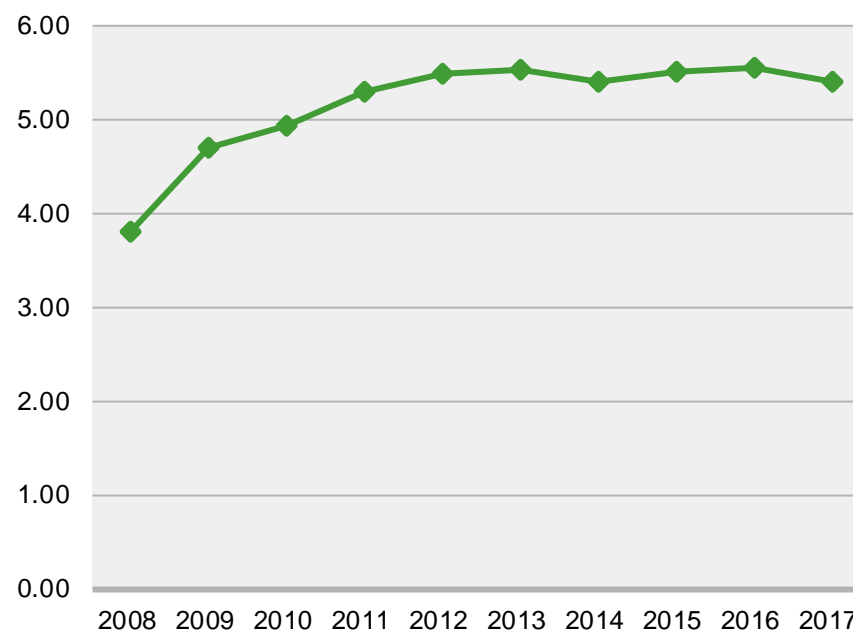
### Participant Information

- The Actuarial Valuation is based on demographic data as of December 31, 2017.
- There are 25,099 total participants in the current valuation, compared to 25,701 in the prior valuation.
- The ratio of non-actives to actives has decreased to 5.38 from 5.54 in the prior year.
- More details on the historical information are included in *Section 3, Exhibits A and B*.

**POPULATION AS OF  
DECEMBER 31**



**RATIO OF NON-ACTIVES TO ACTIVES  
AS OF DECEMBER 31**

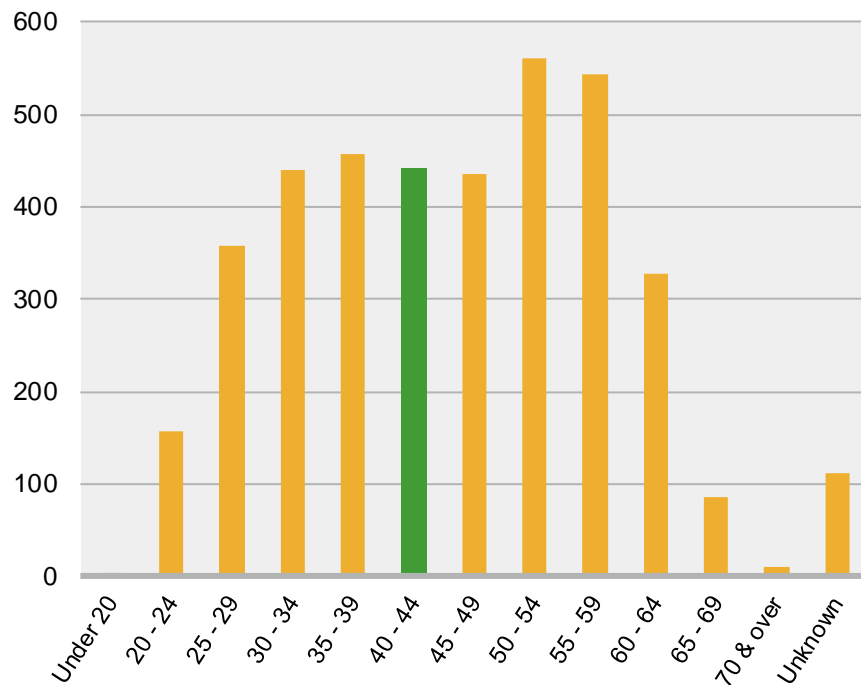


## Active Participants

- There were 3,933 active participants this year, about the same as the 3,928 active participants in the prior year.
- The age and service distribution is included in *Section 4, Exhibit 6*.

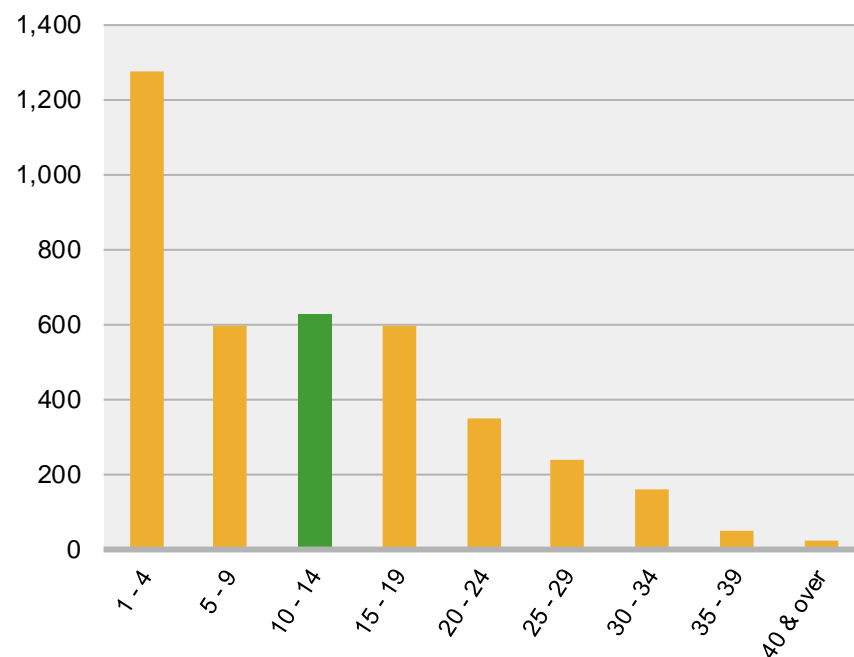
### Distribution of Active Participants as of December 31, 2017

#### BY AGE



Average age	44.7
Prior year average age	45.0
Difference	-0.3

#### BY YEARS OF CREDITED SERVICE

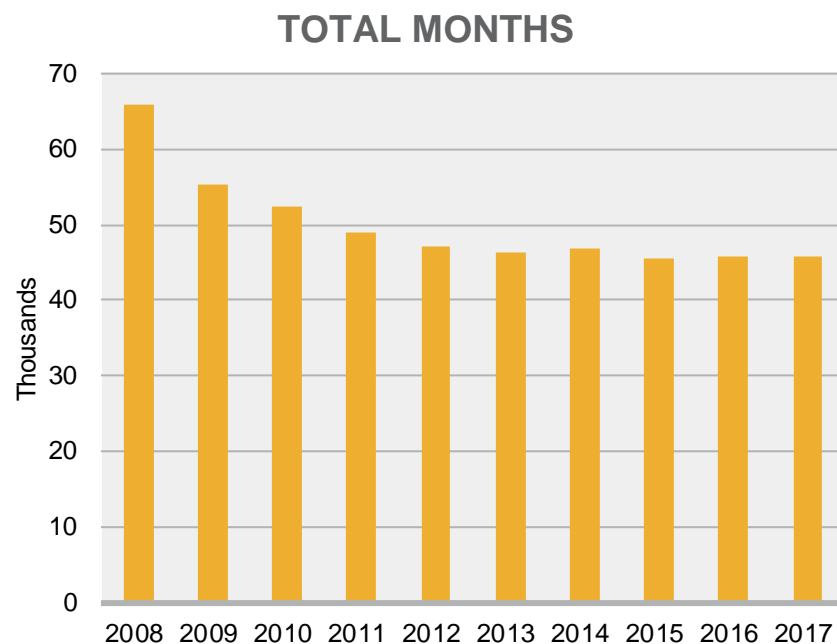


Average years of credited service	11.9
Prior year average years of credited service	12.1
Difference	-0.2

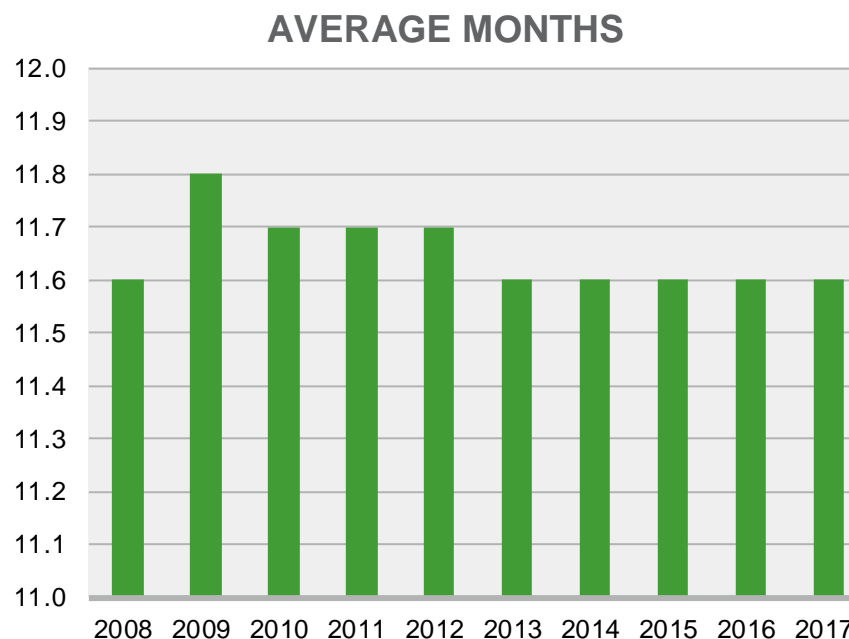


## Historical Employment

- The charts below show a history of months worked over the last ten years. Additional detail is in *Section 3, Exhibit C*.
- The 2018 zone certification was based on an industry activity assumption that the total number of contributory months would decline by 3% per year for the next two years, and remain level thereafter. We look to the Trustees for guidance as to whether this continues to be reasonable.



Historical Average Total Months	
Last year	45,771
Last five years	46,015
Last 10 years	49,966



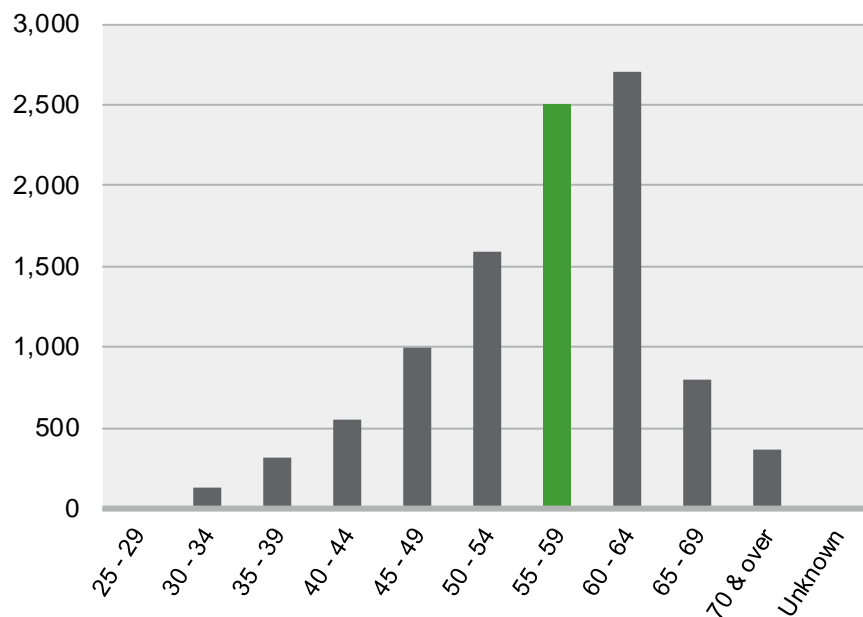
Historical Average Months	
Last year	11.6
Last five years	11.6
Last 10 years	11.7

## Inactive Vested Participants

- A participant who is not currently active and has satisfied the vesting requirements for, but has not yet commenced, a pension is considered an “inactive vested” participant.
- There were 9,962 inactive vested participants this year, a decrease of 6.0% compared to 10,594 last year.

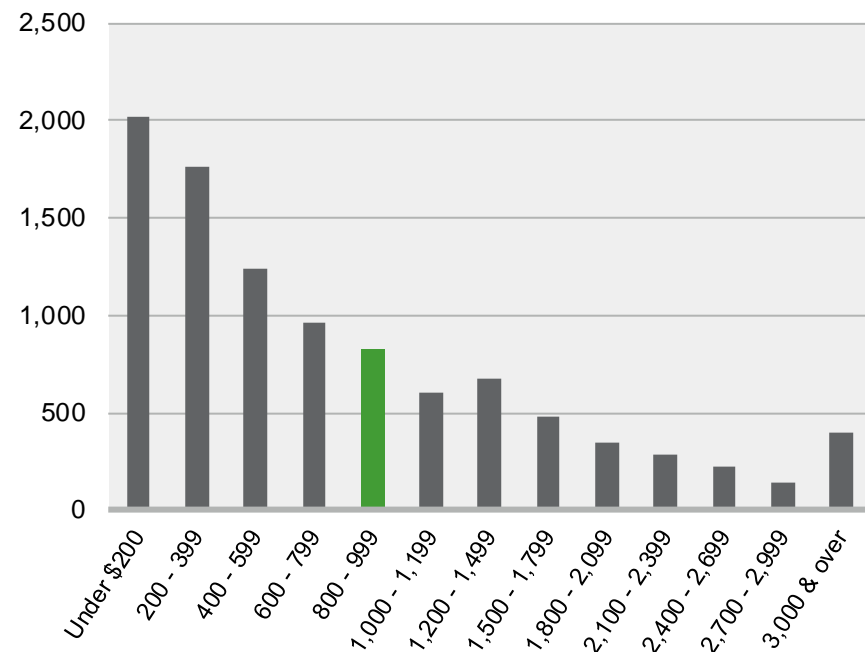
### Distribution of Inactive Vested Participants as of December 31, 2017

BY AGE



Average age	56.2
Prior year average age	<u>56.0</u>
Difference	0.2

BY MONTHLY AMOUNT



Average amount	\$900
Prior year average amount	<u>\$884</u>
Difference	\$16

## New Pensions Awarded

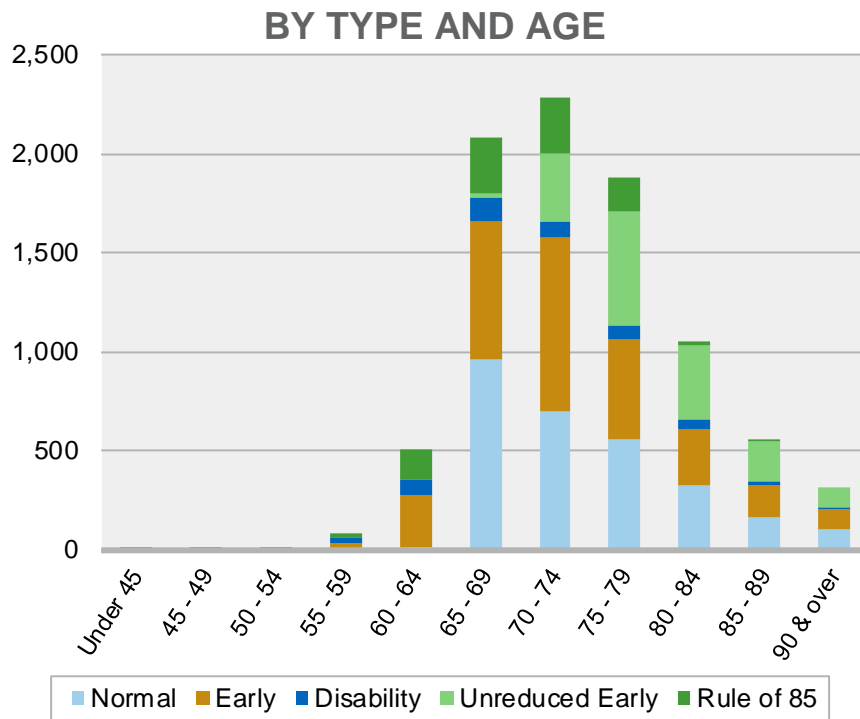
- There were 477 pensions awarded in 2017.
- The average pension awarded, after adjustment for optional forms of payment, was \$799.

Year Ended Dec 31	Total		Normal		Early		Disability		Unreduced Early		Rule of 85	
	Number	Average Amount	Number	Average Amount	Number	Average Amount	Number	Average Amount	Number	Average Amount	Number	Average Amount
2008	678	\$1,360	134	\$687	276	\$1,102	29	\$1,882	133	\$1,015	106	\$3,172
2009	577	1,287	197	594	221	967	26	2,044	57	1,130	76	3,871
2010	463	1,105	169	518	181	727	17	1,736	35	1,801	61	3,281
2011	462	1,105	146	547	224	625	16	2,397	19	2,056	57	3,611
2012	311	1,157	212	534	42	1,627	6	2,822	17	2,012	34	3,742
2013	288	875	230	510	21	1,410	9	1,422	6	1,936	22	3,663
2014	247	872	203	672	33	1,268	4	1,593	1	1,101	6	4,940
2015	310	909	267	759	39	1,497	1	2,004	–	–	3	6,252
2016	293	893	263	798	29	1,554	–	–	–	–	1	6,595
2017	477	799	432	690	45	1,844	–	–	–	–	–	–

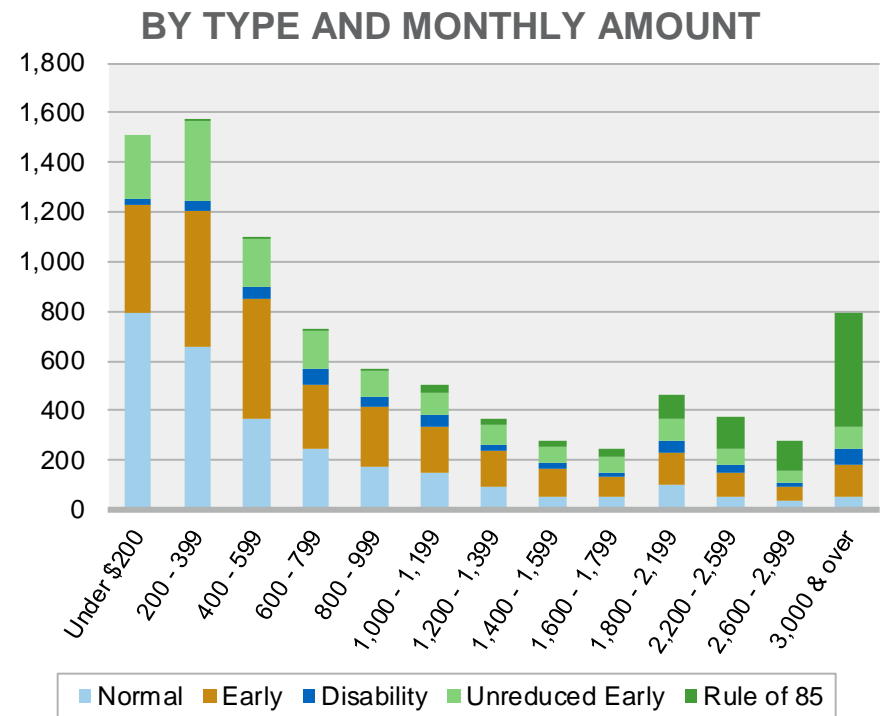
## Pay Status Information

- There were 8,761 pensioners and 2,406 beneficiaries this year, compared to 8,690 and 2,443, respectively, in the prior year.
- Monthly benefits for the Plan Year ending December 31, 2017 total \$11,173,642, as compared to \$11,073,069 in the prior year.
- There were 37 suspensions this year, compared to 46 in the prior year.

### Distribution of Pensioners as of December 31, 2017



Average age	74.0
Prior year average age	73.8
Difference	0.2

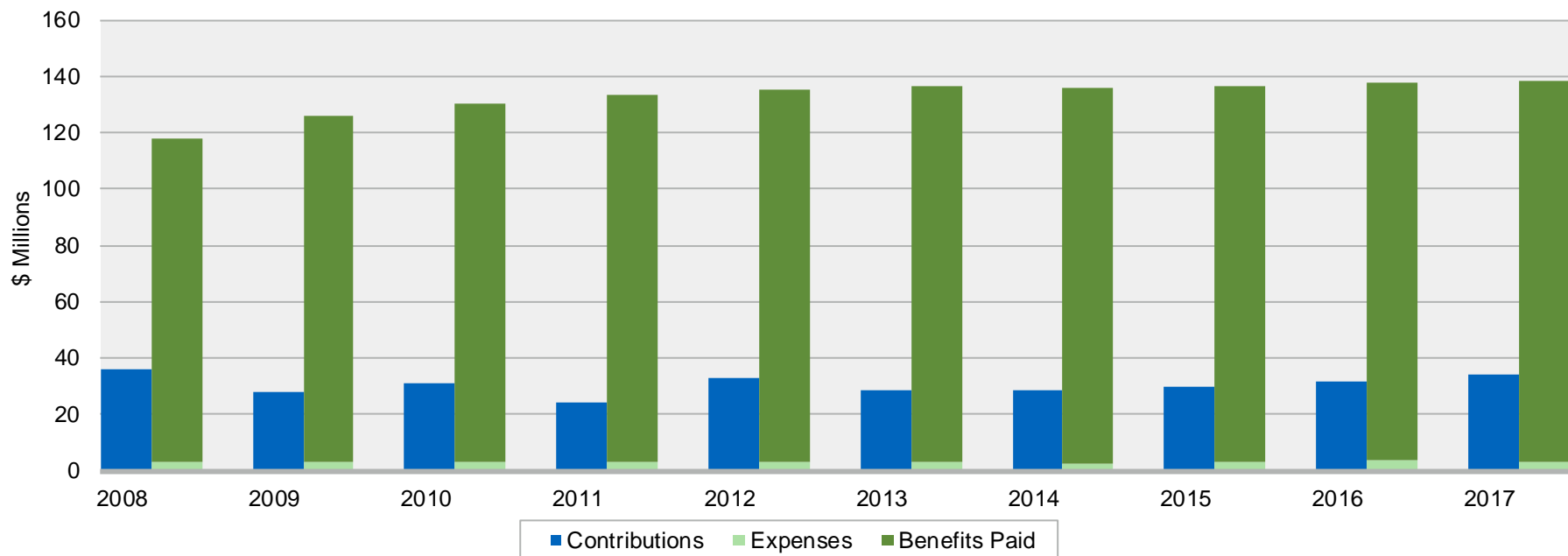


Average amount	\$1,145
Prior year average amount	\$1,146
Difference	-\$1

## Financial Information

- Benefits and expenses are funded solely from contributions and investment earnings.
- Additional detail is in *Section 3, Exhibit E*.
- For the most recent year, benefit payments and expenses were 4.0 times contributions, compared to 4.4 in the prior year.

**COMPARISON OF EMPLOYER CONTRIBUTIONS  
WITH BENEFITS AND EXPENSES PAID**



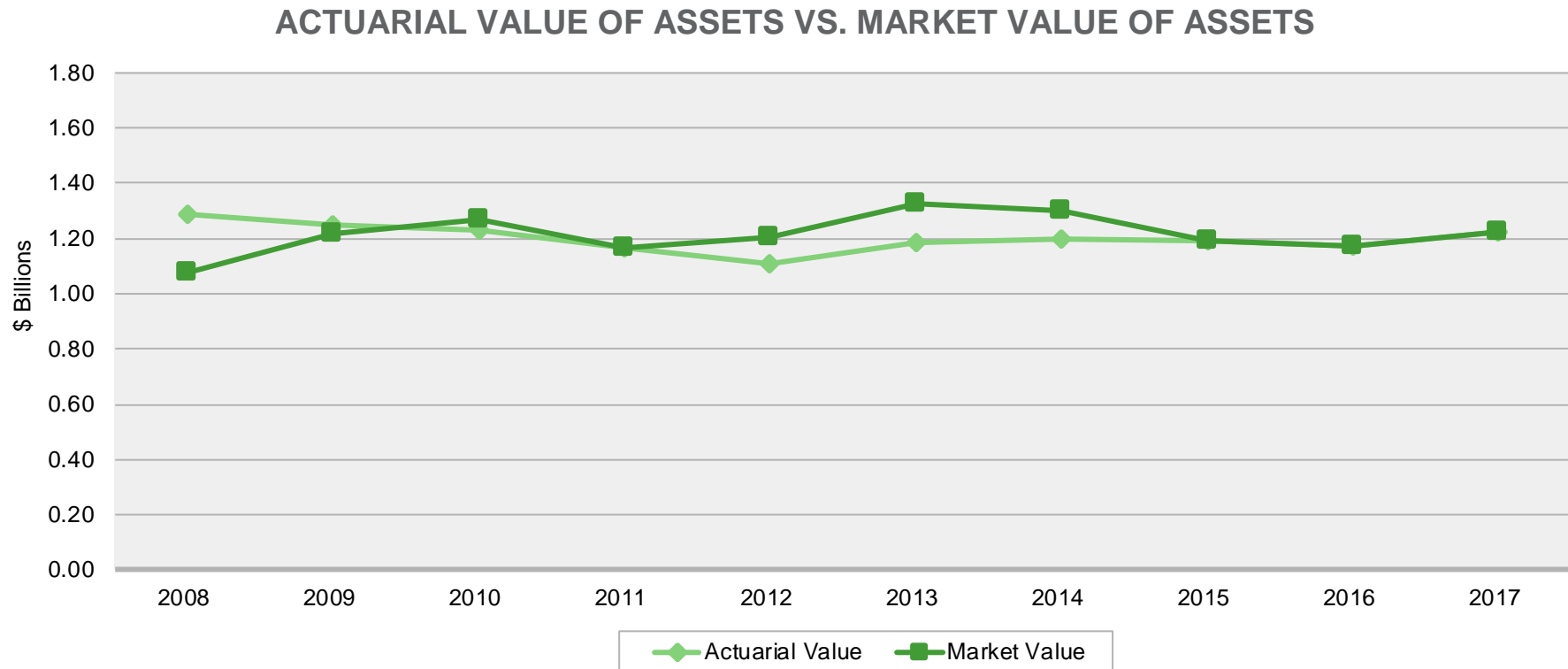
## Determination of Actuarial Value of Assets

- The actuarial value of assets is set equal to the market value of assets for the valuation. Under this valuation method, the full value of market fluctuation is recognized in a single year and, as a result, the asset value and the pension plan cost are relatively volatile. However, the volatility of plan costs is not an important factor for plans projected to become insolvent.

1	Actuarial value of assets = Market value of assets	\$1,225,575,952
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## Asset History for Years Ended December 31

- Both the actuarial value and the market value of assets are representations of the Plan's financial status.
- The actuarial value is subtracted from the Plan's total actuarial accrued liability to determine the portion that is not funded and is used to determine the PPA'06 funded percentage.



## Actuarial Experience

- Assumptions should reflect experience and should be based on reasonable expectations for the future.
- Each year actual experience is compared to that projected by the assumptions. Differences are reflected in the contribution requirement as an experience gain or loss.
- Assumptions are not changed if experience is believed to be a short-term development and that, over the long run, experience will return to assumed levels.
- The net experience variation for the year, other than investment experience, was 1.3% of the projected actuarial accrued liability from the prior valuation, and was significant when compared to that liability. This was primarily due to the deaths of approximately 450 inactive vested participants, including those incorrectly reported as inactive vested participants in the prior year.

### EXPERIENCE FOR THE YEAR ENDED DECEMBER 31, 2017

1	Gain from investments	\$87,523,037
2	Loss from administrative expenses	-216,925
3	Net gain from other experience	<u>27,234,723</u>
4	<b>Net experience gain: 1 + 2 + 3</b>	<b><u>\$114,540,835</u></b>



## Actuarial Value Investment Experience

- Net investment income consists of income at the actuarially assumed rate of return (net of investment expenses) and an adjustment for market value changes.

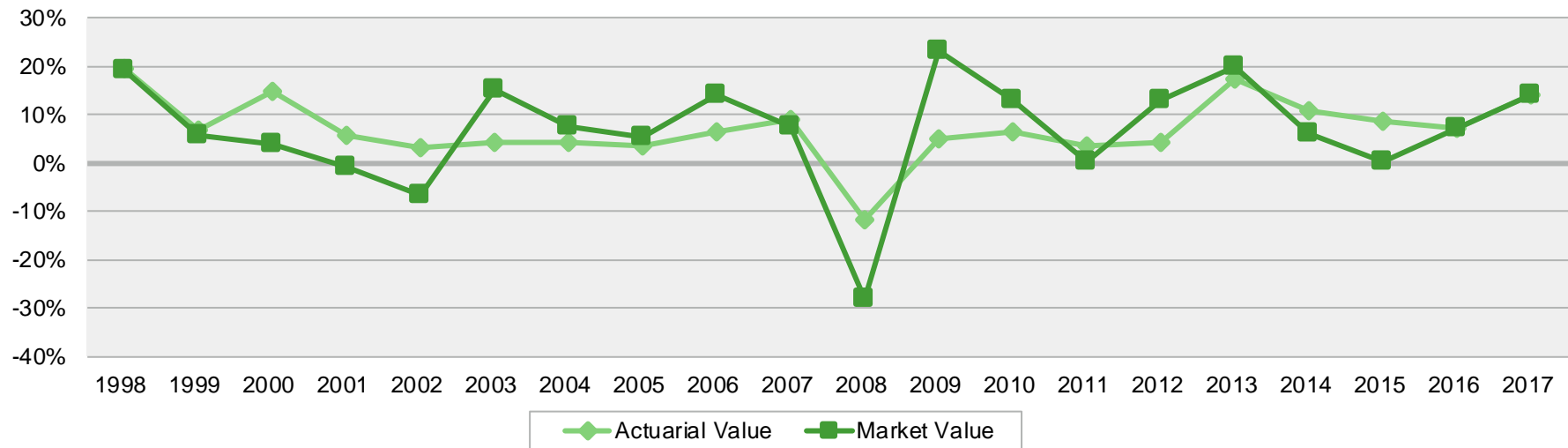
### INVESTMENT EXPERIENCE FOR THE YEAR ENDED DECEMBER 31, 2017

1	Net investment income	\$160,159,235
2	Average actuarial value of assets	1,117,479,974
3	Rate of return: $1 \div 2$	14.33%
4	Assumed rate of return	6.50%
5	Expected net investment income: $2 \times 4$	\$72,636,198
6	<b>Actuarial gain from investments: <math>1 - 5</math></b>	<b><u>\$87,523,037</u></b>

## Historical Investment Returns

- The assumed rate of return of 6.50% considers past experience, the Trustees' asset allocation policy and future expectations.

**MARKET VALUE AND ACTUARIAL VALUE RATES OF RETURN  
FOR YEARS ENDED DECEMBER 31**



Average Rates of Return	Actuarial Value	Market Value
Most recent year return:	14.33%	14.33%
Most recent five-year average return:	11.61%	9.32%
Most recent ten-year average return:	5.95%	5.49%
20-year average return:	6.69%	6.22%

## Non-Investment Experience

### Administrative Expenses

- Administrative expenses for the year ended December 31, 2017 totaled \$3,210,718, as compared to the assumption of \$3,000,000.

### Mortality Experience

- Mortality experience (more or fewer than expected deaths) yields actuarial gains or losses.
- The mortality assumptions in this year's valuation were updated to the RP-2014 Blue Collar and Disability Tables with generational projection using Scale MP-2018.
- Based on these tables, the ratio of actual to expected benefit-weighted pensioner deaths is 100% over the past 5 years.

### Other Experience

- Other differences between projected and actual experience include the extent of turnover among the participants and retirement experience (earlier or later than projected).

## Actuarial Assumptions

- There were changes in assumptions for FSA and solvency projection purposes since the prior valuation.
- The following assumptions were changed with this valuation:
  - The mortality assumption for healthy lives was changed to the RP-2014 Blue Collar Annuitant Mortality Tables, with generational projection using Scale MP-2018.
  - The mortality assumption for disabled lives was changed to the RP-2014 Disabled Annuitant Mortality Tables, with generational projection using Scale MP-2018.
  - The mortality assumption for pre-retirement lives was changed to the RP-2014 Blue Collar Employee Mortality Tables, with generational projection using Scale MP-2018.
  - The retirement rates for active participants were lowered.
  - The retirement rates for inactive vested participants were generally increased with separate tables for those with a current age of 71 or younger and for those with a current age of 72 or older.
  - The withdrawal rates for active participants were adjusted.
  - Other demographic assumption changes were also made to the benefit accrual months, percent married, and benefit and RASD election assumptions.
  - The annual administrative expense assumption was increased from \$3,000,000 to \$3,500,000.
- These changes did not impact the plan's projected year of insolvency.
- Details on actuarial assumptions and methods are in *Section 4, Exhibit 8*.

## Plan Provisions

- There were no changes in plan provisions since the prior valuation.
- A summary of plan provisions is in *Section 4, Exhibit 9*.

## Contribution Rate Changes

- The average monthly credited contribution rate used for benefit accruals decreased slightly from \$395.58 as of January 1, 2017 to \$391.20 as of January 1, 2018.
- After reflecting the off-benefit rate increases under the Default Schedule, the estimated average monthly total contribution rate increased from \$504.87 as of January 1, 2017 to \$524.25 as of January 1, 2018.

## Pension Protection Act of 2006

### 2018 Actuarial Status Certification

- PPA '06 requires trustees to actively monitor their plans' financial prospects to identify emerging funding challenges so they can be addressed effectively. Details are shown in *Section 3, Exhibit J*.
- The 2018 certification, completed on March 30, 2018, was based on the liabilities calculated in the January 1, 2017 actuarial valuation, adjusted for subsequent events and projected to December 31, 2017, and estimated asset information as of December 31, 2017. The Trustees provided an industry activity assumption that contributory months will decline by 3% per year for the next two years, then remain level thereafter.
- This Plan was classified as critical and declining (in the *Red Zone*) due to a projected deficiency in the FSA within one year and a projected insolvency within 15 years.
- In addition, the Plan was certified as meeting its Scheduled Progress requirements under the Rehabilitation Plan.

Year	Zone Status
2009	RED
2010	RED
2011	RED
2012	RED
2013	RED
2014	RED
2015	RED
2016	RED
2017	RED
2018	RED

### Rehabilitation Plan Update

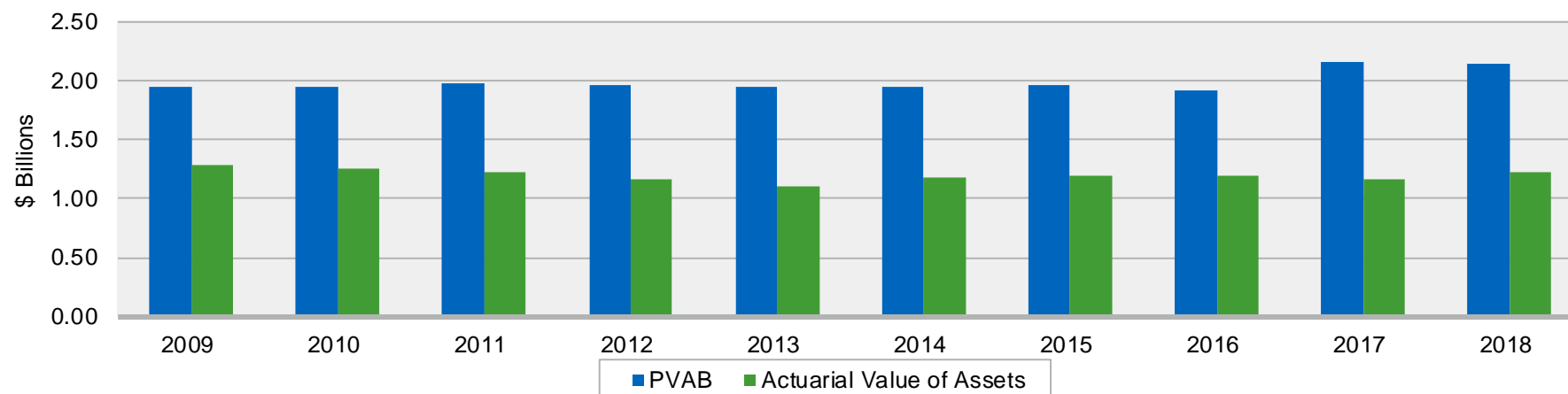
- The Trustees initially adopted a Rehabilitation Plan to enable the plan to cease being in critical status by the end of the Rehabilitation Period. Under the Rehabilitation Plan, new collective bargaining agreements negotiated on or after April 28, 2008 will include the maximum benefit reductions allowed by law. These reductions include the removal of all early retirement subsidies, joint and survivor subsidies, disability pensions, the 36-payment pre-retirement death benefit and all benefit options besides the single life annuity, QJSA or QOSA. The Rehabilitation Plan also includes supplemental off-benefit contributions to the plan beginning January 1, 2013.
- Due to the adverse experience, the Trustees have determined that they could not make any reasonable updates to the Rehabilitation Plan to emerge from critical status. As a result, the Rehabilitation Plan was restated in 2012 to forestall plan insolvency. Working toward that goal, the Trustees have eliminated early retirement benefits for inactive participants and have reduced the supplemental off-benefit contributions to encourage continued plan participation.
- Section 432(e)(3)(B) requires that the Trustees annually update the Rehabilitation Plan and Schedules. Segal will continue to assist the Trustees to evaluate and update the Rehabilitation Plan and prepare the required assessment of Scheduled Progress in meeting the requirements of the Rehabilitation Plan.

## Funding Standard Account (FSA)

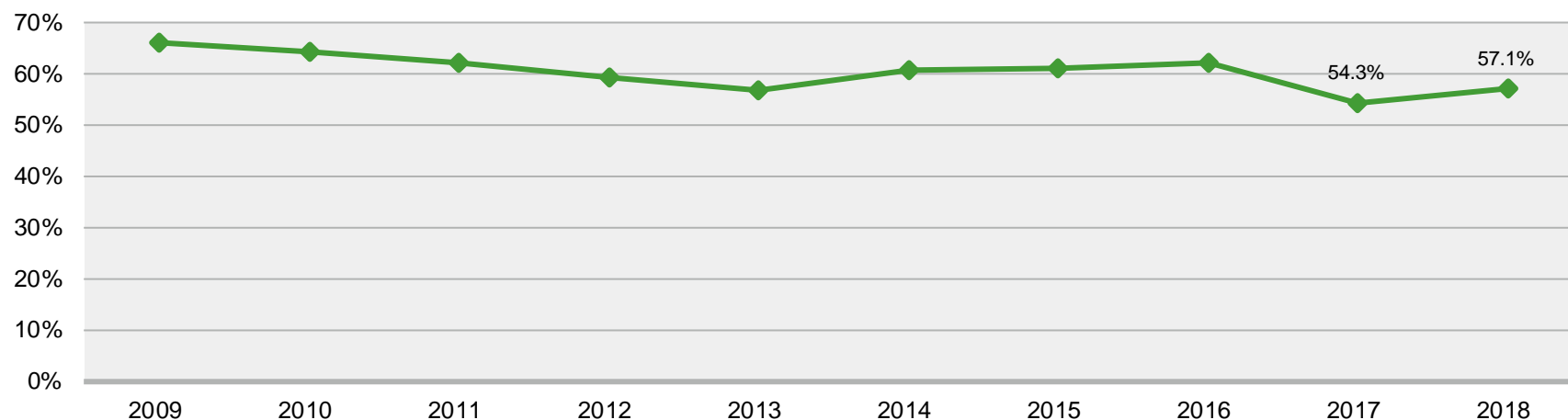
- On December 31, 2017, the FSA had a funding deficiency of \$681,867,129, as shown on the 2017 Schedule MB. Contributions meet the legal requirement on a cumulative basis if that account shows no deficiency.
- Employers contributing to plans in critical status will generally not be penalized if a funding deficiency develops, provided the parties fulfill their obligations under the Rehabilitation Plan, including negotiation of bargaining agreements consistent with Schedules provided by the Trustees.
- The minimum funding requirement for the year beginning January 1, 2018 is \$847,877,101.
- A summary of the ERISA minimum funding requirements and the FSA for the year ended December 31, 2017 is included in *Section 3, Exhibit H*.

## PPA'06 Funded Percentage Historical Information

### PRESENT VALUE OF ACCRUED BENEFITS (PVAB) VS. ACTUARIAL VALUE OF ASSETS AS OF JANUARY 1



### PPA '06 FUNDED PERCENTAGE AS OF JANUARY 1

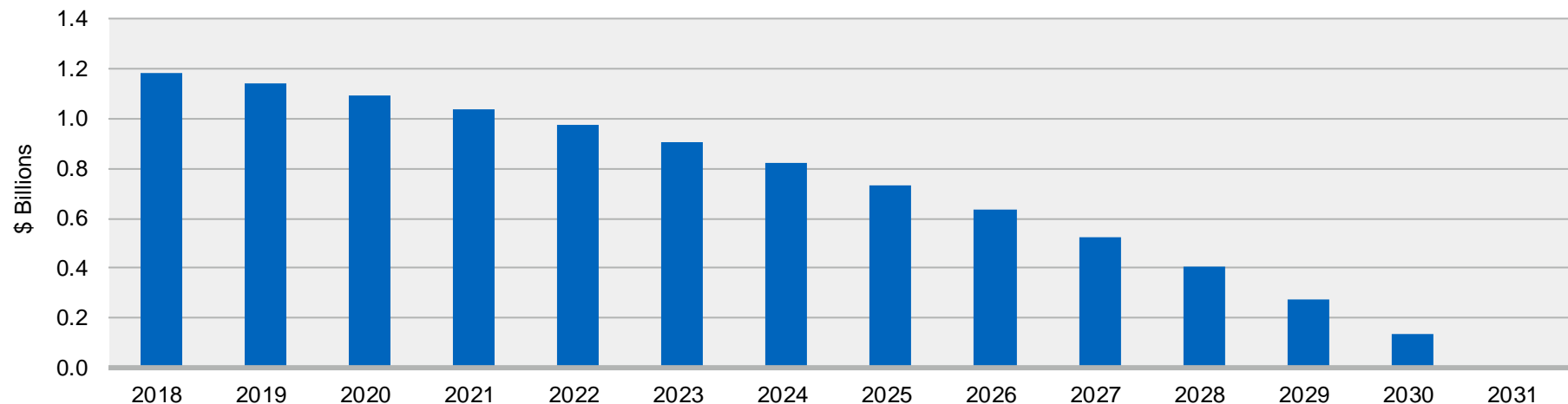




## Solvency Projection

- The Plan is operating under a Rehabilitation Plan that is intended to forestall insolvency. Accordingly, this report does not contain a long-term “Scheduled Cost” measure that the Trustees could use to evaluate whether benefit levels are sustainable given negotiated contribution rates.
- Based on this valuation, assets are now projected to be exhausted in 2031, as shown below. This is two years later than projected in the prior year valuation, due to favorable investment and other actuarial experience during the 2017 plan year.
- These projections are based on the plan of benefits and assumptions used in this valuation, adjusted for and including the following:
  - reflects all contribution rate increases under the Rehabilitation Plan Default Schedule, 5% per year over 7 years, beginning January 1, 2013 (the additional contributions do not count toward benefit accruals),
  - assumes expected future withdrawal liability payments,
  - assumes total contributory months will decline by 3% per year for the next two years, then remain level thereafter, and
  - assumes annual administrative expenses will increase by 2% per year.

### PROJECTED ASSETS AS OF DECEMBER 31



## Funding Concerns

- The projected inability to pay benefits must continue to be monitored.
- The actions already taken to address this issue include the Trustees' Rehabilitation Plan that was updated to forestall insolvency.
- We will continue to work with the Trustees to review alternatives that may help address the imbalance between the benefit levels in the Plan and the resources available to pay for them.

## Risk

- The actuarial valuation results are dependent on a single set of assumptions; however, there is a risk that emerging results may differ significantly as actual experience proves to be different from the current assumptions.
- We have not been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the Plan's future financial condition, but have included a brief discussion of some risks that may affect the Plan.
- A more detailed assessment of the risks would provide the Trustees with a better understanding of the risks inherent in the Plan. This assessment may include scenario testing, sensitivity testing, stress testing and stochastic modeling.
- A detailed risk assessment could be important for your Plan because the Plan assets are quickly diminishing.

- Investment Risk (the risk that returns will be different than expected)

As can be seen in *Section 3, Exhibit F*, the market value rate of return over the last 20 years has ranged from a low of -28.08% to a high of 23.35%.

- Contribution/Employment Risk (the risk that actual contributions will be different from projected contributions)
- Longevity Risk (the risk that mortality experience will be different than expected)
- Other Demographic Risk (the risk that participant experience will be different than assumed)

Examples of this risk include:

- Actual retirements occurring earlier or later than assumed.
  - More or less active participant turnover than assumed.
  - Return to covered employment of previously inactive participants.
- Actual Experience over the Last 10 years and Implications for the Future

Past experience can help demonstrate the sensitivity of key results to the Plan's actual experience. Over the past ten years:

- The investment gain(loss) on market value for a year has ranged from a loss of \$548,014,219 to a gain of \$165,119,916. If all investment returns were equal to the assumed return over the last ten years, the market value of assets as of the current valuation date would be approximately \$1.7 billion as opposed to the actual value of \$1,225,575,952.

➤ Maturity Measures

The risk associated with a pension plan increases as it becomes more mature, meaning that the actives represent a smaller portion of the liabilities of the plan. When this happens, there is a greater risk that fluctuations in the experience of the non-active participants or of the assets of the plan can result in large swings in the contribution requirements.

- Over the past ten years, the ratio of non-active participants to active participants has increased from a low of 3.81 to a high of 5.54.

## Disclosure Requirements

### Annual Funding Notice

- The actuarial information to be provided in the annual funding notice is shown in *Section 3, Exhibit G*.
- The value of plan benefits earned to date as of January 1, 2018 is \$2,146,308,829 using the funding interest rate of 6.50%. As the actuarial value of assets is \$1,225,575,952, the Plan's funded percentage is 57.1%, compared to 54.3% in the prior year.

### Current Liability

- The Plan's current liability as of January 1, 2018 is \$3,451,635,146 using an interest rate of 2.98%. As the market value of assets is \$1,225,575,952, the funded current liability percentage is 35.5%. This is required to be disclosed on the 2018 Schedule MB of IRS Form 5500 since it is less than 70%. Details are shown in *Section 4, Exhibit 3*.

### Accounting Information

- The Financial Accounting Standards Board (FASB) requires determination of the present value of accumulated plan benefits - the single-sum value of the benefits, vested or not, earned by participants as of the valuation date. Additional details on the present value of the accumulated plan benefits can be found in *Section 4, Exhibit 2*.

## Section 3: Supplementary Information

### EXHIBIT A - TABLE OF PLAN COVERAGE

Category	Year Ended December 31		Change from Prior Year
	2016	2017	
Active participants in valuation:			
• Number	3,928	3,933	0.1%
• Average age	45.0	44.7	-0.3
• Average years of Credited Service	12.1	11.9	-0.2
• Average credited contribution rate for benefit accruals for upcoming year	\$395.58	\$391.20	-1.1%
• Number with unknown age	24	112	366.7%
• Total active vested participants	2,752	2,655	-3.5%
Inactive participants with rights to a pension:			
• Number	10,594	9,962	-6.0%
• Average age	56.0	56.2	0.2
• Average monthly benefit	\$884	\$900	1.8%
Pensioners (including disableds):			
• Number in pay status	8,690	8,761	0.8%
• Average age	73.8	74.0	0.2
• Average monthly benefit	\$1,146	\$1,145	-0.1%
• Number in suspended status	46	37	-19.6%
Beneficiaries:			
• Number in pay status	2,443	2,406	-1.5%
• Average age	75.6	75.9	0.3
• Average monthly benefit	\$456	\$477	4.6%
Total Participants	25,701	25,099	-2.3%

## EXHIBIT B - PARTICIPANT POPULATION

Year Ended December 31	Active Participants	Inactive Vested Participants	Pensioners and Beneficiaries	Ratio of Non-Actives to Actives
2008	5,661	10,856	10,698	3.81
2009	4,687	11,011	11,044	4.71
2010	4,484	10,882	11,243	4.93
2011	4,180	10,749	11,402	5.30
2012	4,031	10,709	11,419	5.49
2013	3,979	10,602	11,377	5.52
2014	4,026	10,470	11,300	5.41
2015	3,923	10,394	11,239	5.51
2016	3,928	10,594	11,179	5.54
2017	3,933	9,962	11,204	5.38

## EXHIBIT C - EMPLOYMENT HISTORY

Year Ended December 31	Total Hours of Contributions		Active Participants		Average Months of Contributions	
	Number	Percent Change	Number	Percent Change	Number	Percent Change
2008	65,874	-8.4%	5,661	-8.9%	11.6	0.0%
2009	55,385	-15.9%	4,687	-17.2%	11.8	1.7%
2010	52,392	-5.4%	4,484	-4.3%	11.7	-0.8%
2011	48,940	-6.6%	4,180	-6.8%	11.7	0.0%
2012	46,993	-4.0%	4,031	-3.6%	11.7	0.0%
2013	46,296	-1.5%	3,979	-1.3%	11.6	-0.9%
2014	46,771	1.0%	4,026	1.2%	11.6	0.0%
2015	45,564	-2.6%	3,923	-2.6%	11.6	0.0%
2016	45,674	0.2%	3,928	0.1%	11.6	0.0%
2017	45,771	0.2%	3,933	0.1%	11.6	0.0%
Five-year average months:					11.6	
Ten-year average months:					11.7	



## EXHIBIT D – PROGRESS OF PENSION ROLLS OVER THE PAST TEN YEARS

### IN PAY STATUS AT YEAR END

Year	Number	Average Age	Average Amount	Terminations <sup>1</sup>	Additions <sup>2</sup>
2008	8,568	70.8	\$1,039	347	720
2009	8,796	71.0	1,070	361	589
2010	8,928	71.2	1,086	346	478
2011	9,031	71.4	1,101	370	473
2012	8,993	71.9	1,118	361	323
2013	8,922	72.4	1,123	378	307
2014	8,837	72.9	1,131	354	269
2015	8,777	73.3	1,140	384	324
2016	8,690	73.8	1,146	387	300
2017	8,761	74.0	1,145	419	490

<sup>1</sup> Terminations include pensioners who died or were suspended during the prior plan year.

<sup>2</sup> Additions to the pension rolls include new pensions awarded and suspended pensioners who have been reinstated.

## EXHIBIT E - SUMMARY STATEMENT OF INCOME AND EXPENSES ON AN ACTUARIAL BASIS

	Year Ended December 31, 2016	Year Ended December 31, 2017
<b>Contribution income:</b>		
• Employer contributions	\$24,394,052	\$27,004,043
• Withdrawal liability payments	6,631,788	7,375,421
• Liquidated damages	<u>352,857</u>	<u>45,381</u>
<i>Net contribution income</i>	\$31,378,697	\$34,424,845
<b>Investment income:</b>		
• Expected investment income	\$82,632,215	\$72,636,198
• Adjustment toward market value	<u>392,039<sup>1</sup></u>	<u>87,523,037</u>
<i>Net investment income</i>	83,024,254	160,159,235
<b>Total income available for benefits</b>	<b>\$114,402,951</b>	<b>\$194,584,080</b>
<b>Less benefit payments and expenses:</b>		
• Pension benefits	-\$134,179,612	-\$135,340,641
• Administrative expenses	<u>-3,670,508</u>	<u>-3,210,718</u>
<i>Total benefit payments and expenses</i>	-\$137,850,120	-\$138,551,359
<b>Change in reserve for future benefits</b>	<b>-\$23,447,169</b>	<b>\$56,032,721</b>

<sup>1</sup> Recognizes the \$6,801,496 difference in market value between the draft audit report used for the 2016 valuation and the final audit report.

## EXHIBIT F - INVESTMENT RETURN – ACTUARIAL VALUE VS. MARKET VALUE

Year Ended December 31	Actuarial Value Investment Return <sup>1</sup>		Market Value Investment Return		Year Ended December 31	Actuarial Value Investment Return <sup>1</sup>		Market Value Investment Return	
	Amount	Percent	Amount	Percent		Amount	Percent	Amount	Percent
1998	\$195,373,452	19.54%	\$213,521,275	19.19%	2008	-\$175,242,416	-11.64%	-\$435,550,927	-28.08%
1999	81,780,749	7.05%	74,274,648	5.75%	2009	60,972,513	4.91%	239,476,303	23.35%
2000	177,747,357	14.75%	54,220,234	4.08%	2010	77,802,636	6.47%	151,288,010	12.97%
2001	79,973,253	5.87%	-9,069,183	-0.67%	2011	42,140,746	3.58%	4,437,230	0.37%
2002	45,393,706	3.19%	-89,236,183	-6.68%	2012	48,750,735	4.38%	146,396,089	13.17%
2003	61,192,070	4.28%	184,138,629	15.25%	2013	183,962,564	17.42%	228,350,850	19.81%
2004	60,565,457	4.20%	100,886,814	7.52%	2014	121,471,447	10.73%	78,292,262	6.15%
2005	53,952,656	3.74%	74,528,689	5.39%	2015	100,729,672	8.79%	2,533,643	0.20%
2006	92,832,022	6.49%	195,157,758	14.03%	2016	83,024,254	7.28%	83,024,254	7.28%
2007	131,895,915	9.08%	114,762,992	7.58%	2017	160,159,235	14.33%	160,159,235	14.33%
Total						\$1,684,478,023		\$1,571,592,622	
					Most recent five-year average return:		11.61%	9.32%	
					Most recent ten-year average return:		5.95%	5.49%	
					20-year average return:		6.69%	6.22%	

Note: Each year's yield is weighted by the average asset value in that year.

<sup>1</sup> The investment returns for 2000 and 2015 include the effect of a change in the method for determining the actuarial value of assets.

## EXHIBIT G - ANNUAL FUNDING NOTICE FOR PLAN YEAR BEGINNING JANUARY 1, 2018 AND ENDING DECEMBER 31, 2018

	2018 Plan Year	2017 Plan Year	2016 Plan Year
Actuarial valuation date	January 1, 2018	January 1, 2017	January 1, 2016
Funded percentage	57.1%	54.3%	62.2%
Value of assets	\$1,225,575,952	\$1,169,543,231	\$1,192,990,400
Value of liabilities	2,146,308,829	2,153,319,932	1,916,926,229
Fair market value of assets as of plan year end	Not available	1,225,575,952	1,169,543,231

### Critical, Critical and Declining or Endangered Status

The Plan was in critical status in the plan year for the following five reasons:

1. The plan had a projected Funding Standard Account funding deficiency within 4 years; and
2. The plan had a projected funding deficiency within 5 years, and the plan's non-active vested liability exceeded the vested liability for actives, and the plan's projected contributions fall short of the plan's normal cost plus interest on unfunded liability; and
3. The plan had a projected funding deficiency within 5 years, and the plan had a funded percentage less than 65%; and
4. The plan was in critical status last year and had a projected funding deficiency within 10 years; and
5. The plan was in critical status last year and had a projected insolvency within 30 years.

The plan was also in critical and declining status because:

1. The plan had a projected insolvency within 15 years; and
2. The plan had a ratio of inactives to actives of at least 2 to 1 and had a projected insolvency within 20 years; and
3. The plan had a funded percentage less than 80% and had a projected insolvency within 20 years.

## EXHIBIT H - FUNDING STANDARD ACCOUNT

- ERISA imposes a minimum funding standard that requires the Plan to maintain an FSA. The accumulation of contributions in excess of the minimum required contributions is called the FSA credit balance. If actual contributions fall short on a cumulative basis, a funding deficiency has occurred. For a plan that is in critical status under PPA'06, employers will generally not be penalized if a funding deficiency develops, provided the parties fulfill their obligations in accordance with the Rehabilitation Plan developed by the Trustees and the negotiated bargaining agreements reflect that Rehabilitation Plan.
- The FSA is charged with the normal cost and the amortization of increases or decreases in the unfunded actuarial accrued liability due to plan amendments, experience gains or losses, and changes in actuarial assumptions and funding methods. The FSA is credited with employer contributions and withdrawal liability payments. All items, including the prior credit balance or deficiency, are adjusted with interest at the actuarially assumed rate.
- Increases or decreases in the unfunded actuarial accrued liability are amortized over 15 years except that short-term benefits, such as 13<sup>th</sup> checks, are amortized over the scheduled payout period.

### FSA FOR THE YEAR ENDED DECEMBER 31, 2017

Charges			Credits		
1	Prior year funding deficiency	\$549,826,520	6	Prior year credit balance	\$0
2	Normal cost, including administrative expenses	9,310,922	7	Employer contributions	34,424,845
3	Total amortization charges	145,227,525	8	Total amortization credits	30,739,821
4	Interest to end of the year	<u>45,783,723</u>	9	Interest to end of the year	3,116,895
5	<i>Total charges</i>	<i>\$750,148,690</i>	10	Full-funding limitation credit	<u>0</u>
			11	<i>Total credits</i>	<i>\$68,281,561</i>
				<b>Credit balance (Funding deficiency):</b>	<b><u>-\$681,867,129</u></b>
				11 - 5	

## EXHIBIT I - MAXIMUM DEDUCTIBLE CONTRIBUTION

- Employers that contribute to defined benefit pension plans are allowed a current deduction for payments to such plans. There are various measures of a plan's funded level that are considered in the development of the maximum deductible contribution amount.
- One of the limits is the excess of 140% of "current liability" over assets. "Current liability" is one measure of the actuarial present value of all benefits earned by the participants as of the valuation date. This limit is significantly higher than the current contribution level.
- Contributions in excess of the maximum deductible amount are not prohibited; only the deductibility of these contributions is subject to challenge and may have to be deferred to a later year. In addition, if contributions are not fully deductible, an excise tax in an amount equal to 10% of the non-deductible contributions may be imposed. However, the plan sponsor may elect to exempt the non-deductible amount up to the ERISA full-funding limitation from the excise tax.
- The Trustees should review the interpretation and applicability of all laws and regulations concerning any issues as to the deductibility of contribution amounts with Fund Counsel.

1	Normal cost, including administrative expenses	\$9,896,068
2	Amortization of unfunded actuarial accrued liability (fresh start as of January 1, 2018)	120,261,278
3	Preliminary maximum deductible contribution: 1 + 2, with interest to the end of the plan year	\$138,617,574
4	Full-funding limitation (FFL)	1,928,132,041
5	Preliminary maximum deductible contribution, adjusted for FFL: lesser of 3 and 4	138,617,574
6	Current liability, projected to the end of the plan year	3,430,108,954
7	Actuarial value of assets, projected to the end of the plan year	1,158,966,017
8	Excess of 140% of current liability over projected assets at end of plan year: [140% of (6)] - (7), not less than zero	3,643,186,518
9	End of year minimum required contribution	847,877,101
	<b>Maximum deductible contribution: greatest of 5, 8, and 9</b>	<b>\$3,643,186,518</b>

## EXHIBIT J - PENSION PROTECTION ACT OF 2006

### PPA'06 Zone Status

- Based on projections of the credit balance in the FSA, the funded percentage, and cash flow sufficiency tests, plans are categorized in one of three “zones”: critical status, endangered status, or neither.
- The funded percentage is determined using the actuarial value of assets and the present value of benefits earned to date, based on the actuary's best estimate assumptions.

#### Critical Status (Red Zone)

A plan is classified as being in critical status (the *Red Zone*) if:

- The funded percentage is less than 65%, and either there is a projected FSA deficiency within five years or the plan is projected to be unable to pay benefits within seven years, or
- There is a projected FSA deficiency within four years, or
- There is a projected inability to pay benefits within five years, or
- The present value of vested benefits for inactive participants exceeds that for actives, contributions are less than the value of the current year's benefit accruals plus interest on existing unfunded accrued benefit liabilities, and there is a projected FSA deficiency within five years, or
- As permitted by the Multiemployer Pension Reform Act of 2014, the plan is projected to be in the *Red Zone* within the next five years and the plan sponsor elects to be in critical status.

A critical status plan is further classified as being in critical and declining status if:

- The ratio of inactives to actives is at least 2 to 1, and there is an inability to pay benefits projected within 20 years, or
- The funded percentage is less than 80%, and there is an inability to pay benefits projected within 20 years, or
- There is an inability to pay benefits projected within 15 years.

Any amortization extensions are ignored for testing initial entry into the *Red Zone*.

The Trustees are required to adopt a formal Rehabilitation Plan, designed to allow the plan to emerge from critical status by the end of the rehabilitation period. If they determine that such emergence is not reasonable, the Rehabilitation Plan must be designed to emerge as of a later time or to forestall possible insolvency.

Trustees of *Red Zone* plans have tools, such as the ability to reduce or eliminate early retirement subsidies, to remedy the situation. Accelerated forms of benefit payment (such as lump sums) are prohibited. However, unless the plan is critical and declining, Trustees may not reduce benefits of participants who retired before being notified of the plan's critical status (other than rolling back recent benefit increases) or alter core retirement benefits payable at normal retirement age.

**Endangered  
Status  
(Yellow Zone)**

A plan not in critical status (*Red Zone*) is classified as being in endangered status (the *Yellow Zone*) if:

- The funded percentage is less than 80%, or
- There is a projected FSA deficiency within seven years.

A plan that has both of the endangered conditions present is classified as seriously endangered.

Trustees of a plan that was in the *Green Zone* in the prior year can elect not to enter the *Yellow Zone* in the current year (although otherwise required to do so) if the plan's current provisions would be sufficient (with no further action) to allow the plan to emerge from the *Yellow Zone* within 10 years.

The Trustees are required to adopt a formal Funding Improvement Plan, designed to improve the current funded percentage, and avoid a funding deficiency as of the emergence date.

**Green Zone**

A plan not in critical status (the *Red Zone*) nor in endangered status (the *Yellow Zone*) is classified as being in the *Green Zone*.

**Early Election  
of Critical  
Status**

Trustees of a *Green* or *Yellow Zone* plan that is projected to enter the *Red Zone* within the next five years must elect whether or not to enter the *Red Zone* for the current year.



## Section 4: Certificate of Actuarial Valuation

MARCH 20, 2019

### CERTIFICATE OF ACTUARIAL VALUATION

This is to certify that Segal Consulting, a Member of The Segal Group, Inc. (“Segal”) has prepared an actuarial valuation of the Automotive Industries Pension Plan as of January 1, 2018 in accordance with generally accepted actuarial principles and practices. It has been prepared at the request of the Board of Trustees to assist in administering the Fund and meeting filing requirements of federal government agencies. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Trustees and may only be provided to other parties in its entirety.

The measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

The valuation is based on the assumption that the Plan is qualified as a multiemployer plan for the year and on information supplied by the auditor with respect to contributions and assets and reliance on the Plan Administrator with respect to the participant data. Segal Consulting does not audit the data provided. The accuracy and comprehensiveness of the data is the responsibility of those supplying the data. To the extent we can, however, Segal does review the data for reasonableness and consistency. Based on our review of the data, we have no reason to doubt the substantial accuracy of the information on which we have based this report and we have no reason to believe there are facts or circumstances that would affect the validity of these results. Adjustments for incomplete or apparently inconsistent data were made as described in the attached *Exhibit 8*.

I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of my knowledge, the information supplied in this actuarial valuation is complete and accurate, except as noted in *Exhibit 1*. Each prescribed assumption for the determination of Current Liability was applied in accordance with applicable law and regulations. In my opinion, each other assumption is reasonable (taking into account the experience of the plan and reasonable expectations) and such other assumptions, in combination, offer my best estimate of anticipated experience under the plan.



Paul C. Poon, ASA, MAAA  
Vice President & Actuary  
Enrolled Actuary No. 17-06069

## EXHIBIT 1 - SUMMARY OF ACTUARIAL VALUATION RESULTS

The valuation was made with respect to the following data supplied to us by the Plan Administrator:

Pensioners as of the valuation date (including 2,406 beneficiaries in pay status and 37 pensioners in suspended status)	11,204
Participants inactive during year ended December 31, 2017 with vested rights (including 1 participant with unknown age)	9,962
Participants active during the year ended December 31, 2017 (including 112 participants with unknown age)	3,933
• Fully vested	2,655
• Not vested	1,278
<b>Total participants</b>	<b>25,099</b>

The actuarial factors as of the valuation date are as follows:

Normal cost, including administrative expenses	\$9,896,068
Actuarial present value of projected benefits	2,208,242,230
Present value of future normal costs	61,933,401
<b>Actuarial accrued liability</b>	<b>2,146,308,829</b>
• Pensioners and beneficiaries	\$1,299,354,241
• Inactive participants with vested rights	641,297,999
• Active participants	205,656,589
Actuarial value of assets (\$1,225,575,952 at market value as reported by Lindquist LLP)	\$1,225,575,952
Unfunded actuarial accrued liability	920,732,877

## EXHIBIT 2 - ACTUARIAL PRESENT VALUE OF ACCUMULATED PLAN BENEFITS

The actuarial present value of accumulated plan benefits calculated in accordance with FASB ASC 960 is shown below as of January 1, 2017 and as of January 1, 2018. In addition, the factors that affected the change between the two dates follow.

	Benefit Information Date	
	January 1, 2017	January 1, 2018
Actuarial present value of vested accumulated plan benefits:		
• Participants currently receiving payments	\$1,287,643,629	\$1,299,354,241
• Other vested benefits	<u>861,792,337</u>	<u>843,555,852</u>
• Total vested benefits	\$2,149,435,966	\$2,142,910,093
Actuarial present value of non-vested accumulated plan benefits	3,883,966	3,398,736
<b>Total actuarial present value of accumulated plan benefits</b>	<b>\$2,153,319,932</b>	<b>\$2,146,308,829</b>

Factors	Change in Actuarial Present Value of Accumulated Plan Benefits
Benefits accumulated, net experience gain or loss, changes in data	-\$20,416,733
Benefits paid	-135,340,641
Changes in actuarial assumptions	13,179,046
Interest	135,567,225
<b>Total</b>	<b>-\$7,011,103</b>

### EXHIBIT 3 - CURRENT LIABILITY

The table below presents the current liability for the Plan Year beginning January 1, 2018.

Item <sup>1</sup>	Amount
Retired participants and beneficiaries receiving payments	\$1,800,177,356
Inactive vested participants	1,238,221,942
Active participants	
• Non-vested benefits	\$12,802,692
• Vested benefits	<u>400,433,156</u>
• <i>Total active</i>	<i>\$413,235,848</i>
<b>Total</b>	<b>\$3,451,635,146</b>
Expected increase in current liability due to benefits accruing during the plan year	\$15,393,693
Expected release from current liability for the plan year	138,178,485
Expected plan disbursements for the plan year, including administrative expenses of \$3,500,000	141,678,485
Current value of assets	\$1,225,575,952
Percentage funded for Schedule MB	35.5%

<sup>1</sup> The actuarial assumptions used to calculate these values are shown in *Exhibit 8*.

**EXHIBIT 4 - INFORMATION ON PLAN STATUS AS OF JANUARY 1, 2018**

Plan status (as certified on March 30, 2018, for the 2018 zone certification)	<b><i>Critical and Declining</i></b>
Scheduled progress (as certified on March 30, 2018, for the 2018 zone certification)	Yes
Actuarial value of assets for FSA	\$1,225,575,952
Accrued liability under unit credit cost method	2,146,308,829
Funded percentage for monitoring plan's status	57.1%
Reduction in unit credit accrued liability benefits since the prior valuation date resulting from the reduction in adjustable benefits	\$0
Year in which insolvency is expected	2031

## EXHIBIT 5 - SCHEDULE OF PROJECTION OF EXPECTED BENEFIT PAYMENTS

(SCHEDULE MB, LINE 8b(1))

Plan Year	Expected Annual Benefit Payments <sup>1</sup>
2018	\$138,029,474
2019	139,364,852
2020	141,287,502
2021	143,844,202
2022	147,565,490
2023	150,961,685
2024	154,539,262
2025	158,203,953
2026	161,608,831
2027	164,818,100

<sup>1</sup> Assuming as of the valuation date:

- no additional accruals,
- experience is in line with valuation assumptions, and
- no new entrants are covered by the plan.

## EXHIBIT 6 - SCHEDULE OF ACTIVE PARTICIPANT DATA

(SCHEDULE MB, LINE 8b(2))

The participant data is for the year ended December 31, 2017.

Age	Total	Years of Credited Service								
		1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	163	157	6	–	–	–	–	–	–	–
25 - 29	357	258	87	12	–	–	–	–	–	–
30 - 34	439	235	119	81	4	–	–	–	–	–
35 - 39	457	189	105	96	64	3	–	–	–	–
40 - 44	442	113	86	107	97	38	1	–	–	–
45 - 49	436	92	59	97	113	53	19	3	–	–
50 - 54	560	56	77	101	125	95	66	37	3	–
55 - 59	544	44	36	79	108	93	85	76	19	4
60 - 64	328	16	21	43	70	49	56	38	24	11
65 - 69	85	6	4	11	14	18	11	9	6	6
70 & over	10	–	–	–	2	3	1	1	–	3
Unknown	112	112	–	–	–	–	–	–	–	–
<b>Total</b>	<b>3,933</b>	<b>1,278</b>	<b>600</b>	<b>627</b>	<b>597</b>	<b>352</b>	<b>239</b>	<b>164</b>	<b>52</b>	<b>24</b>

## EXHIBIT 7 - FUNDING STANDARD ACCOUNT

The table below presents the FSA for the Plan Year ending December 31, 2018.

Charges			Credits		
1	Prior year funding deficiency	\$681,867,129	6	Prior year credit balance	\$0
2	Normal cost, including administrative expenses	9,896,068	7	Amortization credits	42,178,071
3	Amortization charges	146,543,608	8	Interest on 6 and 7	2,741,575
4	Interest on 1, 2 and 3	54,489,942	9	Full-funding limitation credit	0
5	Total charges	\$892,796,747	10	Total credits	\$44,919,646
Minimum contribution with interest required to avoid a funding deficiency: 5 - 10, not less than zero					\$847,877,101

Full Funding Limitation (FFL) and Credits	
ERISA FFL (accrued liability FFL)	\$991,119,826
RPA'94 override (90% current liability FFL)	1,928,132,041
FFL credit	0



## EXHIBIT 7 - FUNDING STANDARD ACCOUNT (*CONTINUED*)

### Schedule of FSA Bases (Charges) (Schedule MB, Line 9c)

Type of Base	Date Established	Amortization Amount	Years Remaining	Outstanding Balance
Plan Amendment	01/01/2012	\$69,757	9	\$494,488
Experience Loss	01/01/2012	3,822,093	9	27,093,865
Combined Base	01/01/2012	112,979,700	2.82	301,203,606
Experience Loss	01/01/2013	4,334,301	10	33,183,862
Change in Assumptions	01/01/2014	438,150	11	3,587,937
Change in Assumptions	01/01/2017	23,583,524	14	226,395,747
Change in Assumptions	01/01/2018	1,316,083	15	13,179,046
<b>Total</b>		<b>\$146,543,608</b>		<b>\$605,138,551</b>

**EXHIBIT 7 - FUNDING STANDARD ACCOUNT (CONTINUED)****Schedule of FSA Bases (Credits) (Schedule MB, Line 9h)**

Type of Base	Date Established	Amortization Amount	Years Remaining	Outstanding Balance
Plan Amendment	07/01/2012	\$2,476,480	9.5	\$18,268,727
Plan Amendment	01/01/2013	4,257	10	32,590
Plan Amendment	07/01/2013	1,195,820	10.5	9,478,856
Plan Amendment	01/01/2014	784,162	11	6,421,367
Experience Gain	01/01/2014	10,645,576	11	87,174,814
Experience Gain	01/01/2015	4,188,941	12	36,397,889
Change in Asset Method	01/01/2016	939,706	8	6,093,544
Experience Gain	01/01/2016	1,528,328	13	13,997,535
Change in Funding Method	01/01/2016	3,204,388	8	20,778,920
Change in Assumptions	01/01/2016	5,268,616	13	48,253,805
Experience Gain	01/01/2017	503,547	14	4,833,921
Experience Gain	01/01/2018	11,438,250	15	114,540,835
<b>Total</b>		<b>\$42,178,071</b>		<b>\$366,272,803</b>

## EXHIBIT 8 - STATEMENT OF ACTUARIAL ASSUMPTIONS/METHODS

### (SCHEDULE MB, LINE 6)

<b>Mortality Rates</b>	<p><i>Healthy:</i> RP-2014 Blue Collar Healthy Annuitant Mortality Tables, with generational projection using Scale MP-2018.</p> <p><i>Disabled:</i> RP-2014 Disabled Annuitant Mortality Tables, with generational projection using Scale MP-2018.</p> <p><i>Pre-Retirement:</i> RP-2014 Blue Collar Employee Mortality Tables, with generational projection using Scale MP-2018.</p> <p>The underlying tables with the generational projection to the ages of participants as of the measurement date reasonably reflect the mortality experience of the Plan as of the measurement date.</p> <p>These mortality tables were then adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.</p> <p>The mortality rates were based on historical and current demographic data, adjusted to reflect estimated future experience and professional judgment. As part of the analysis, a comparison was made between the actual number of benefit-weighted deaths and the projected number based on the assumption over the most recent five years.</p>
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**Termination Rates**

Age	Rate (%)		
	Mortality <sup>1</sup>		Withdrawal <sup>2</sup>
	Male	Female	
20	0.05	0.02	10.00
30	0.06	0.02	8.00
40	0.08	0.04	5.00
50	0.22	0.12	4.00
60	0.61	0.27	0.00
70	1.97	1.40	0.00
80	5.19	3.82	0.00
90	14.64	11.19	0.00

<sup>1</sup> Mortality rates shown for base tables described on the previous page without generational projection. The employee rates are shown for ages 60 and below and the annuitant rates are shown for ages above 60.

<sup>2</sup> Withdrawal rates are set to 13.50% for the first 5 years of service. Withdrawal rates do not apply at retirement eligibility.

The termination rates were based on historical and current demographic data, adjusted to reflect estimated future experience and professional judgment. As part of the analysis, a comparison was made between the actual number of terminations by age and the projected number based on the assumption over the most recent five years.

<b>Retirement Rates for Active Participants</b>	<table border="1"> <thead> <tr> <th>Age</th><th>Annual Retirement Rates</th></tr> </thead> <tbody> <tr> <td>55 – 57</td><td>1.50%</td></tr> <tr> <td>58</td><td>2.50</td></tr> <tr> <td>59 – 60</td><td>3.00</td></tr> <tr> <td>61</td><td>4.00</td></tr> <tr> <td>62</td><td>10.00</td></tr> <tr> <td>63</td><td>6.00</td></tr> <tr> <td>64</td><td>10.00</td></tr> <tr> <td>65</td><td>25.00</td></tr> <tr> <td>66</td><td>35.00</td></tr> <tr> <td>67 – 69</td><td>22.50</td></tr> <tr> <td>70</td><td>100.00</td></tr> </tbody> </table> <p>The retirement rates were based on historical and current demographic data, adjusted to reflect estimated future experience and professional judgment. As part of the analysis, a comparison was made between the actual number of retirements by age and the projected number based on the assumption over the most recent five years.</p>	Age	Annual Retirement Rates	55 – 57	1.50%	58	2.50	59 – 60	3.00	61	4.00	62	10.00	63	6.00	64	10.00	65	25.00	66	35.00	67 – 69	22.50	70	100.00
Age	Annual Retirement Rates																								
55 – 57	1.50%																								
58	2.50																								
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61	4.00																								
62	10.00																								
63	6.00																								
64	10.00																								
65	25.00																								
66	35.00																								
67 – 69	22.50																								
70	100.00																								
<b>Description of Weighted Average Retirement Age</b>	<p>Age 65.2, determined as follows: The weighted average retirement age for each participant is calculated as the sum of the product of each potential current or future retirement age times the probability of surviving from current age to that age and then retiring at that age, assuming no other decrements. The overall weighted retirement age is the average of the individual retirement ages based on all the active participants included in this actuarial valuation.</p>																								

Retirement Rates for Inactive Vested Participants	For inactive vested participants with a current age of 71 or younger:												
	<table><tr><th>Age</th><th>Annual Retirement Rates</th></tr><tr><td>65</td><td>50.00%</td></tr><tr><td>66</td><td>25.00</td></tr><tr><td>67 – 68</td><td>20.00</td></tr><tr><td>69 – 70</td><td>15.00</td></tr><tr><td>71</td><td>100.00</td></tr></table>	Age	Annual Retirement Rates	65	50.00%	66	25.00	67 – 68	20.00	69 – 70	15.00	71	100.00
	Age	Annual Retirement Rates											
	65	50.00%											
	66	25.00											
	67 – 68	20.00											
	69 – 70	15.00											
	71	100.00											
	For inactive vested participants with a current age of 72 or older:												
	<table><tr><th>Age</th><th>Annual Retirement Rates</th></tr><tr><td>72 – 75</td><td>10.00%</td></tr><tr><td>76 – 80</td><td>5.00</td></tr><tr><td>81</td><td>0.00</td></tr></table>	Age	Annual Retirement Rates	72 – 75	10.00%	76 – 80	5.00	81	0.00				
Age	Annual Retirement Rates												
72 – 75	10.00%												
76 – 80	5.00												
81	0.00												
The retirement rates for inactive vested participants were based on historical and current demographic data, adjusted to reflect estimated future experience and professional judgment. As part of the analysis, a comparison was made between the actual number of retirements by age and the projected number based on the assumption over the most recent five years.													
Future Benefit Accruals	<p>Work-year of 11.6 months of contributions per active participant.</p> <p>The future benefit accruals were based on historical and current demographic data, adjusted to reflect estimated future experience and professional judgment. As part of the analysis, a comparison was made between the assumed and the actual benefit accruals over the most recent five years.</p>												
Unknown Data for Participants	Same as those exhibited by participants with similar known characteristics. If not specified, participants are assumed to be male.												
Definition of Active Participants	Active participants are defined as those with at least five months in the most recent Plan Year, excluding those who have retired as of the valuation date.												
Exclusion of Inactive Vested Participants	<p>Inactive participants over age 80 are excluded from the valuation. The number excluded from this valuation is 75.</p> <p>The exclusion of inactive vested participants over age 80 was based on historical and current demographic data, adjusted to reflect estimated future experience and professional judgment. As part of the analysis, the ages of new retirees from inactive vested status were reviewed.</p>												
Percent Married	50%												
Age of Spouse	Spouses of male participants are three years younger and spouses of female participants are three years older.												

<b>Benefit Election</b>	<p>For future retirements, 60% of participants are assumed to elect the Straight Life Annuity, 20% of participants are assumed to elect the 50% Joint and Survivor Option, and 20% of participants are assumed to elect the 75% Joint and Survivor Option.</p> <p>The benefit elections were based on historical and current demographic data, adjusted to reflect the plan design, estimated future experience and professional judgment. As part of the analysis, a comparison was made between the assumed and the actual option election patterns over the most recent five years.</p>
<b>Delayed Retirement Factors</b>	<p>Active participants work enough hours each month to not qualify for delayed retirement adjustment. Inactive vested participants who are assumed to commence receipt of benefits after attaining normal retirement age may qualify for delayed retirement increases under the plan's actuarial equivalence basis.</p> <p>For inactive vested participants who are expected to retire after their Required Minimum Distribution date, 60% are assumed to receive actuarial increases through their retirement date and 40% are assumed to be in covered employment with no actuarial increases. These participants are assumed to receive a retroactive annuity from their Required Minimum Distribution date.</p> <p>For inactive vested participants who are expected to retire before their Required Minimum Distribution date, 60% are assumed to receive a retroactive annuity from their Normal Retirement Date, 20% are assumed to receive actuarial increases through their retirement date, and 20% are assumed to be in covered employment with no actuarial increases.</p> <p>The delayed retirement assumptions were based on historical and current demographic data, adjusted to reflect estimated future experience and professional judgment. As part of the analysis, the actual benefits were reviewed for new retirees from inactive vested status over the most recent five years.</p>
<b>Net Investment Return</b>	<p>6.50%</p> <p>The net investment return assumption is an estimate derived from historical data, current and recent market expectations, and professional judgment. As part of the analysis, a building block approach was used that reflects inflation expectations and anticipated risk premiums for each of the portfolio's asset classes as provided by Segal Marco Advisors, as well as the Plan's target asset allocation.</p>
<b>Annual Administrative Expenses</b>	<p>\$3,500,000, payable monthly (equivalent to \$3,383,179 payable at the beginning of the year)</p> <p>The annual administrative expenses were based on historical and current data, adjusted to reflect estimated future experience and professional judgment.</p>
<b>Actuarial Value of Assets</b>	At market value.
<b>Actuarial Cost Method</b>	Unit Credit Actuarial Cost Method. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by service.
<b>Benefits Valued</b>	Unless otherwise indicated, includes all benefits summarized in <i>Exhibit 9</i> .

<b>Current Liability Assumptions</b>	<p><i>Interest:</i> 2.98%, within the permissible range prescribed under IRC Section 431(c)(6)(E)</p> <p><i>Mortality:</i> Mortality prescribed under IRS Regulations 1.431(c)(6)-1 and 1.430(h)(3)-1(a)(2): RP-2014 employee and annuitant mortality tables, adjusted backward to the base year (2006) using scale MP-2014, projected forward generationally using scale MP-2016</p>
<b>Estimated Rate of Investment Return</b>	<p><i>On actuarial value of assets (Schedule MB, line 6g):</i> 14.3%, for the Plan Year ending December 31, 2017</p> <p><i>On current (market) value of assets (Schedule MB, line 6h):</i> 14.3%, for the Plan Year ending December 31, 2017</p>
<b>FSA Contribution Timing (Schedule MB, line 3a)</b>	Unless otherwise noted, contributions are paid periodically throughout the year pursuant to collective bargaining agreements. The interest credited in the FSA is therefore assumed to be equivalent to a July 1 contribution date.



**Justification for  
Change in Actuarial  
Assumptions  
(Schedule MB, line 11)**

For purposes of determining current liability, the current liability interest rate was changed from 3.05% to 2.98% due to a change in the permissible range and recognizing that any rate within the permissible range satisfies the requirements of IRC Section 431(c)(6)(E) and the mortality tables were changed in accordance with IRS Regulations 1.431(c)(6)-1 and 1.430(h)(3)-1.

Based on past experience and future expectations, the following actuarial assumptions were changed:

Mortality for healthy lives, previously RP-2014 Blue Collar Healthy Annuitant Mortality Tables, with scale MP-2014 retrojected to 2006, with generational projection using Scale MP-2016 from 2006.

Mortality for disabled lives, previously RP-2014 Disabled Retiree Mortality Tables, with scale MP-2014 retrojected to 2006, with generational projection using Scale MP-2016 from 2006.

Mortality for pre-retirement lives, previously RP-2014 Blue Collar Employee Mortality Tables, with scale MP-2014 retrojected to 2006, with generational projection using Scale MP-2016 from 2006.

Withdrawal rates, previously:

Age	Rate (%) <sup>1</sup>
20	8.25
30	6.75
40	6.00
50	5.00
60	0.00
70	0.00
80	0.00
90	0.00

<sup>1</sup> Withdrawal rates are set to 13% for the first 5 years of service. Withdrawal rates do not apply at retirement eligibility.

**Justification for  
Change in Actuarial  
Assumptions  
(continued)  
(Schedule MB, line 11)**

Retirement rates, previously:

Age	Rate (%)
55 – 59	5.00
60 – 61	7.50
62 – 64	10.00
65	30.00
66	35.00
67 – 69	25.00
70	100.00

Inactive vested retirement rates, previously:

For inactive participants under 65, 100% are assumed to retire at age 65.

Inactive vested participants over age 65 are assumed to retire according to the following rates:

Age	Rate (%)
66	20.00
67 – 68	15.00
69 – 73	10.00
74 – 76	5.00
77 – 79	2.50
80+	0.00

Future benefit accruals, previously 11.4 months of contributions per active participant.

Percent married, previously 80%.

Benefit election, previously: For future retirements, 60% of participants are assumed to elect the 75% Joint and Survivor Option and 40% of participants are assumed to elect the Straight Life Annuity.

Annual administrative expenses, previously \$3,000,000, payable monthly (equivalent to \$2,899,867 payable at the beginning of the year).

Delayed retirement, previously all inactive vested participants were assumed to receive an actuarial increase.

## EXHIBIT 9 - SUMMARY OF PLAN PROVISIONS

### (SCHEDULE MB, LINE 6)

This exhibit summarizes the major provisions of the Plan included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

<b>Plan Year</b>	January 1 through December 31
<b>Pension Credit Year</b>	January 1 through December 31
<b>Plan Status</b>	Ongoing plan
<b>Normal Pension</b>	<ul style="list-style-type: none"> <li>• <i>Age Requirement:</i> 65</li> <li>• <i>Service Requirement:</i> 5 years of Credited Service (including 24 months of Future Service)</li> <li>• <i>Amount:</i> The monthly amount is the sum of (a), (b), (c), (d) and (e). <ul style="list-style-type: none"> <li>a. \$10.00 for each year of Past Service.</li> <li>b. \$5.00 for each \$100 of the contributions made on the participant's behalf from his Contribution Date through June 30, 2003.</li> <li>c. \$3.00 for each \$100 of the contributions made on the participant's behalf from July 1, 2003 through December 31, 2004.</li> <li>d. 0.5% for the first \$250 of monthly contributions, 1.0% for the next \$250 of monthly contributions, and 2.0% of monthly contributions in excess of \$500 made on the participant's behalf on or after January 1, 2005.</li> <li>e. 1.0% of monthly contributions made on the participant's behalf on or after July 1, 2008.</li> </ul> </li> </ul> <p>Contribution increases under the Rehabilitation Plan do not count for benefit accruals.</p>
<b>Early Retirement Pension</b>	<ul style="list-style-type: none"> <li>• <i>Age Requirement:</i> 55</li> <li>• <i>Service Requirement:</i> 60 months of Credited Future Service</li> <li>• <i>Amount:</i> Accrued Normal Pension amount to which the participant would be entitled, reduced by 3% for each year that the retiring employee is younger than 62 (no reduction is applied between ages 62 and 65 for the Unreduced Early Pension, or if participants age and service total at least 85 for the Unreduced Rule of 85 Pension). For participants subject to the Rehabilitation Plan benefit reductions, all Early Retirement Pensions are reduced from age 65, using the plan's actuarial equivalence basis. This benefit is not available to those who retire from inactive status.</li> </ul>

<b>Disability Pension</b>	<ul style="list-style-type: none"> <li>• Age Requirement: None</li> <li>• Service Requirement: 5 years of Credited Service (including 24 months of Future Service)</li> <li>• Other Requirements: Eligible for a Social Security disability benefit.</li> <li>• Amount: Accrued Normal Pension amount to which the participant would be entitled (on his date of disability) without any reduction. For participants subject to the Rehabilitation Plan benefit reductions, the Disability Pension is not available and those who become disabled are eligible only for the Vested Benefit described below.</li> </ul>
<b>Vested Benefit</b>	<ul style="list-style-type: none"> <li>• <i>Age Requirement:</i> None</li> <li>• <i>Service Requirement:</i> 5 years of Credited Service (including 24 months of Future Service)</li> <li>• <i>Amount:</i> Accrued Normal Pension, payable commencing at Normal Retirement Age, or, if available (on a reduced basis), as early as age 55.</li> <li>• <i>Normal Retirement Age:</i> The later of age 65 and the fifth anniversary of participation.</li> </ul>
<b>Spouse's Benefit</b>	<ul style="list-style-type: none"> <li>• <i>Age Requirement:</i> None</li> <li>• <i>Service Requirement:</i> 5 years of Credited Service (including 24 months of Future Service)</li> <li>• <i>Amount:</i> 50% of the benefit that the participant would have received had he or she retired the day before death on a Joint and Survivor Annuity. If the participant is not eligible to retire at the time of death, payments will be deferred until the participant's earliest retirement age.</li> </ul>
<b>Pre-Retirement Death Benefit</b>	<ul style="list-style-type: none"> <li>• <i>Age Requirement:</i> None</li> <li>• <i>Service Requirement:</i> 5 years of Credited Service (including 24 months of Future Service)</li> <li>• <i>Amount:</i> Return of the total contributions made on account of the participant's employment or, if greater, the participant's unreduced pension at time of death payable for 36 months. This benefit is not payable if benefits are due under the Spouse's Benefit or for participants subject to the Rehabilitation Plan benefit reductions.</li> </ul>
<b>Joint and Survivor Annuity</b>	<p>All retirements are paid in the form of a 50% joint and survivor annuity unless this form is rejected by the participant and spouse. The benefit amount otherwise payable is reduced to reflect the joint and survivor coverage. If the spouse predeceases the participant, the benefit "pops-up" to the amount is payable before the reduction. If this type of pension is rejected, benefits are payable for the life of the participant without reduction (with a minimum guarantee of 36 monthly payments) or in any other available optional form elected by the participant. For participants subject to the Rehabilitation Plan benefit reductions, the "pop-up" feature and the 36-month guarantee are not available, and the joint and survivor reduction factors are based on the plan's actuarial equivalence basis.</p>

<b>Optional Forms of Benefit Payment</b>	<ul style="list-style-type: none"> <li>• 50% Joint and Survivor Option (“QJSA”)</li> <li>• 75% Joint and Survivor Option (“QOSA”)</li> <li>• Life with 36-Month Guarantee Option</li> <li>• Life with 120-Month Guarantee Option</li> <li>• Full 100% Joint and Survivor Option</li> </ul> <p>Aside from a life only annuity, QJSA and QOSA, these options are not available for participants subject to the Rehabilitation Plan benefit reductions.</p>
<b>Credited Service Schedule</b>	<p>Commencing January 1, 1976 a year of Future Service is credited during any Plan Year in which the participant completes at least 5 months of covered service. (No fractional credit is granted.) Prior to January 1, 1976, Future Service was granted at the rate of one-twelfth of a year for each month of contribution payments.</p> <p>Past Service is credited for service prior to the Contribution Date up to a maximum of 20 years for members who became participants prior to January 1, 1975 and 10 years for members who entered the Plan after January 1, 1975. For participants who joined the Plan after 1978, the amount of Credited Past Service can not exceed the Credited Future Service earned under the Plan.</p>
<b>Break in Service Rules</b>	<ul style="list-style-type: none"> <li>• <i>One-Year Break:</i> A participant incurs a One-Year Break in Service if he or she fails to complete five months of service or 501 hours of service in a Plan Year.</li> <li>• <i>Permanent Break:</i> A non-vested participant incurs a Permanent Break in Service if the number of consecutive One-Year Breaks in Service is at least 5 and it equals or exceeds the number of years of Credited Service which the employee had previously accumulated. At this time, the non-vested portion of the participant's service and benefits accrued are canceled.</li> </ul>
<b>Participation Rule</b>	An employee becomes a “Participant” the first day of the first month for which an employer contribution was made.
<b>Contribution Rate</b>	The average benefit contribution rate on January 1, 2018 was \$391.20 per month.
<b>Plan Amendments</b>	There were no changes in plan provisions reflected in this actuarial valuation

## Section 5: General Background

A summary of major developments with the background and position of the Pension Plan is provided in this Section.

### CHANGES IN BENEFIT AMOUNTS AND AVERAGE CONTRIBUTION RATE

Effective Date		Average Monthly Credited Contribution Rate	Monthly Pension Amount		Improvement to Existing Retirees
Year	Month		Per Year of Past Service	Future Service (per \$100 of Contributions)	
1976	January				
1980	January	\$87.58	5.50	3.03	10%
1981	November	103.49			(1)
1984	September	126.33	6.05	3.33	10%
1986	January	139.13	6.96	3.83	15%
1989	January	153.00	7.27	4.00	4.5%
1990	January	163.60	7.71	4.24	6%
1991	December	180.00			(1)
1992	January	183.00		\$4.45/\$4.24 <sup>(2)</sup>	4.25%
1993	January	187.00		\$4.50/\$4.24 <sup>(3)</sup>	1%
1994	January	191.25		\$4.50/\$4.24 <sup>(4)</sup>	4% <sup>(1)</sup>
1995	January	200.67			
1996	January	220.37		\$4.50/\$4.24 <sup>(5)</sup>	
1997	January	195.75		\$4.73/4.24 <sup>(5)</sup>	2% <sup>(1)</sup>
1998	January	\$205.64		\$4.90/\$4.73 <sup>(4)</sup> /\$4.24 <sup>(5)</sup>	1% <sup>(1)</sup>
1999	January	208.60	10.00	\$5.00/\$4.24 <sup>(5)</sup>	2% <sup>(1)</sup>

## CHANGES IN BENEFIT AMOUNTS AND AVERAGE CONTRIBUTION RATE (CONTINUED)

Effective Date		Average Monthly Credited Contribution Rate	Monthly Pension Amount		Improvement to Existing Retirees
Year	Month		Per Year of Past Service	Future Service (per \$100 of Contributions)	
2000	January	222.52			
2001	January	235.22			
2002	January	324.40			
2003	January	352.56			
2003	July			\$5.00/\$3.00 <sup>(6)</sup>	
2004	January	365.78			
2005	January	390.04		\$0.50/\$1.00/\$2.00 <sup>(7)</sup>	
2006	January	393.84			
2007	January	404.09			
2008	January	395.33			
2008	July			\$1.00 <sup>(8)</sup>	
2009	January	381.89			
2010	January	394.93			
2011	January	393.62			
2012	January	399.53			
2013	January	405.25			
2014	January	398.95			
2015	January	398.43			
2016	January	399.29			
2017	January	395.58			
2018	January	391.20			

<sup>(1)</sup> Additional, one-time only, pension payment was granted.

<sup>(2)</sup> The lower factor applies to service after January 1, 1992.

<sup>(3)</sup> The lower factor applies to service after January 1, 1994.

<sup>(4)</sup> The lower factor applies to service after January 1, 2000.

<sup>(5)</sup> The lower factor applies to service after January 1, 2005.

<sup>(6)</sup> The lower factor applies to service after July 1, 2003.

<sup>(7)</sup> The first factor applies to the first \$250 of monthly contributions, the second factor applies to the second \$250 of monthly contributions, and the last factor applies to monthly contributions in excess of \$500. All three factors apply to service after January 1, 2005.

<sup>(8)</sup> This factor applies to service after July 1, 2008.

## OTHER DEVELOPMENTS

Date	Event
September 1, 1955:	Board of Trustees executed Trust Agreement. Pension Plan was adopted.
July 12, 1956:	Favorable determination letter from the Internal Revenue Service was received.
January 1, 1976:	Plan revised to satisfy ERISA. Funding Standard Account was established.
January 1, 1985:	Early Retirement reduction factor was lowered to 1/3 of 1% per month.
January 1, 1986:	Plan amended to satisfy REA. Partial vested-rights adopted for participants with at least 5 years of service. Early Retirement reduction was dropped for participants retiring at age 62 or later and lowered to 1/4 of 1% per month for ages between 55 and 62. Eligibility requirements for Early Retirement and Disability pensions were lowered to 5 years of service. Pre-retirement death benefits are payable on the basis of vested percentage.
January 1, 1997:	Full vesting adopted for participants with at least 5 years of service.
October 1, 1997:	Plan amended to provide Unreduced Rule of 85 Retirement.
October 1, 1999:	Joint and Survivor factors were increased and now reflect a simplified formula
January 1, 2002:	One-time IAP rollover allowed for all non-retired participants. Future rollovers at retirement will no longer be allowed.
January 1, 2003:	Eligibility requirements for Disability Pension amended to require receipt of a Social Security Disability award.
January 15, 2008:	Board adopts the Segal interest rate method and the market value of assets for determining withdrawal liability.
March 4, 2008:	For collective bargaining agreements effective on or after March 4, 2008, the \$700 per month cap on contribution rates was eliminated.



## OTHER DEVELOPMENTS (CONTINUED)

Date	Event
March 28, 2008:	<p>Plan certified as being in “Critical” status under PPA '06. A Rehabilitation Plan was adopted that includes supplemental off-benefit contributions beginning January 1, 2013 and the following benefit reductions:</p> <ol style="list-style-type: none"> <li>1. Early retirement and joint and survivor adjustment factors will be based on the plan’s actuarial equivalence basis.</li> <li>2. The “Rule of 85” unreduced early retirement benefit will no longer be available.</li> <li>3. The Plan’s disability benefit will no longer be available to new applicants.</li> <li>4. The 36-payment pre-retirement death benefit is eliminated.</li> <li>5. Payment forms, except for a life annuity or automatic joint and 50% survivor annuity, will no longer be available to new retirees.</li> </ol>
March 5, 2009:	Board elects under WRERA to freeze 2009 plan status under PPA '06 and to extend Rehabilitation Period by three years.
February 1, 2011:	The commencement of the Vested Benefit (for inactive vested participants) prior to Normal Retirement Age was eliminated.
March 8, 2011:	<p>Board adopts resolution to forestall plan insolvency under the Rehabilitation Plan.</p> <p>Board adopts simplified method under PBGC Technical Update 10-3 for determining withdrawal liability.</p>
March 8, 2012:	Board elects to reduce annual supplemental off-benefit contribution under Rehabilitation Plan Default Schedule from 12.5% to 5.0%.
March 31, 2015:	Plan certified as being in “Critical and Declining” status under PPA '06 and MPRA.
September 3, 2015:	Date of most recent favorable determination letter from the IRS.

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