Sheet Metal Workers' National Pension Fund

Actuarial Valuation and Review as of January 1, 2020

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.

Segal

101 North Wacker Drive, Suite 500
Chicago, IL 60606-1724
segalco.com
T 312.984.8500

September 29, 2020

Board of Trustees
Sheet Metal Workers' National Pension Fund
Fairfax, Virginia

Dear Trustees:

We are pleased to submit the Actuarial Valuation and Review as of January 1, 2020. 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 Ms. Debbie Elkins. That assistance is gratefully acknowledged. The actuarial calculations were completed under the supervision of Daniel V. Ciner, 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

By:

David A. Dean, MAAA, EA
Senior Vice President

Daniel V. Ciner, MAAA, EA
Senior Vice President and Actuary

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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.

Funding Standard Account	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.
Zone Information	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 (*Red Zone*), endangered (*Yellow Zone*), or neither (*Green Zone*). The Multiemployer Pension Reform Act of 2014 (MPRA), among other things, made the zone provisions permanent.
Solvency Projections	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.
Withdrawal Liability	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, 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 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. 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 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. 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. 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.
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 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 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 an appropriate statement can be included.
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 has no discretionary authority with respect to the management of assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Plan.

Section 1: Trustee Summary

Summary of key valuation results

Plan Year Beginning		January 1, 2019	January 1, 2020
Certified Zone Status		***Endangered***	***Endangered***
Demographic Data:	• Number of active participants	60,304	62,816
	• Number of inactive participants with vested rights	32,850	32,750
	• Number of alternate payees in deferred status	514	472
	• Number of retired participants and beneficiaries	48,067	48,834
	• Number of alternate payees in payment status	1,217	1,359
	• Total number of participants (excluding alternate payees)	141,221	144,400
	• Participant ratio: non-active to actives	1.34	1.30
Assets:	• Market value of assets (MVA)[1]	$4,859,569,652	$5,782,976,579
	• Actuarial value of assets (AVA)	5,208,417,087	5,634,419,729
	• Market value net investment return, prior year	-4.12%	17.18%
	• Actuarial value net investment return, prior year	5.05%	6.56%
	• Unrecognized gain/(loss)	-348,847,435	148,556,850
	• AVA as a percent of MVA	107.2%	97.4%
Actuarial Liabilities[2]:	• Valuation interest rate	7.50%	7.50%
	• Normal cost, including administrative expenses[3]	$140,675,083	$100,410,617
	• Actuarial accrued liability	7,827,699,996	8,044,416,537
	• Unfunded actuarial accrued liability	2,619,282,909	2,409,996,808
Funded Percentages:	• Actuarial accrued liabilities under unit credit method	$7,827,699,996	$8,044,416,537
	• MVA funded percentage	62.1%	71.9%
	• AVA funded percentage (PPA basis)	66.5%	70.0%
Statutory Funding Information:	• Credit balance at the end of prior plan year	$435,552,310	$597,481,991
	• Minimum required contribution[4]	30,204,819	0
	• Maximum deductible contribution	16,201,432,548	16,372,504,727

[1] Excludes receivable liability payments of $15,309,486 for 2019 and $11,498,023 for 2020
[2] Based on Unit Credit actuarial cost method used for Funding Standard Account.
[3] Reflects 0.75% Applicable Percentage under VBAR formula for 2019 and a 0.50% Applicable Percentage under VBAR formula for 2020
[4] Amount required to maintain a $0 credit balance

This January 1, 2020 actuarial valuation report is based on financial and demographic information as of that date. It is important to note that this actuarial valuation is based on plan assets as of December 31, 2019. Due to the COVID-19 pandemic, market conditions have changed significantly since the valuation date. The Plan's actuarial status does not reflect short-term fluctuations of the market, but rather is based on the market values on the last day of the Plan Year. While it is impossible to determine how the market will perform over the next several months, and how that will affect the results of next year's valuation, Segal is available to prepare projections of potential outcomes upon request. The current year's actuarial valuation results follow.

A. Developments since last valuation

The following are developments since the last valuation, from January 1, 2019 to January 1, 2020.

1. *Plan assets.* The net investment return on the market value of assets was 17.18%. For comparison, the assumed rate of return on plan assets over the long term is 7.50%, for the plan year ending December 31, 2019. The net investment return on an actuarial value of assets, which reflects smoothing of prior year gains and losses, was 6.56%. The change in the market value of assets over the last two plan years can be found in Section 3, as can the calculation of the actuarial value of assets for the current plan year.
2. *Cash flows.* Cash inflow includes contributions and withdrawal liability payments, and cash outflow includes benefit paid to participants and administrative expenses. In the prior plan year, the plan had a net cash inflow of $80.7 million, or about 1.40% of assets on a market value basis.
3. *Assumption changes.* The annual administrative expense assumption was changed from $14.5 million to $15.0 million, payable monthly.
4. *Plan provisions.* Based on the 3-year average market value investment return of 6.02% for the Plan Years ended December 31, 2016-2018, the Applicable Percentage under the VBAR formula is 0.50% for the 2020 Plan Year. Based on the 3-year average market value investment return of 9.06% for the Plan Years ended December 31, 2017-2019, the Applicable Percentage under the VBAR formula will be 1.0% for the 2021 Plan Year. A summary of key plan provisions can be found in Section 3. Details of the VBAR formula are provided in Section 3, Exhibit N.

   The active service requirement for the Full Disability Benefit was changed to require 435 hours of work in the 24-month period immediately preceding the date of SSA application for disability. This change increased the actuarial liability and normal cost by less than 0.1%.
5. *Contribution rates.* The average contribution rate for the Plan decreased from $5.37 per hour to $5.28 per hour.
6. *Participant demographics.* The number of active participants increased 4.2% from 60,304 to 62,816. The ratio of non-active to active participants, which is one measure of plan maturity, decreased from 1.34 to 1.30. The total hours of contributions increased 4.0%, from 110.3 million to 114.7 million.

Based on the census data used for this valuation (as of December 31, 2019), 67.8% of active participants were covered under the First Alternative Option (34.2% covered under 55/30 contracts), 27.8% were covered under the Default Option, 0.2% were covered under the benefit structure applicable to groups that did not continue bargaining increases under the Alternative Options and 4.2% were covered under the Second Alternative Option (0.2% covered under 60/30 contracts).

7. *2020 Certification.* The 2020 certification, issued on March 30, 2020, was based on the liabilities calculated in the 2019 actuarial valuation, projected to December 31, 2019 and estimated asset information as of December 31, 2019. The Plan was classified as endangered (in the Yellow Zone) because the funded percentage was less than 80% and the credit balance in the FSA was projected to be positive for at least seven years. In addition, the Plan was certified to be making the scheduled progress in meeting the requirements of its Funding Improvement Plan. It was not projected to be in critical status for any of the succeeding five Plan Years. This projection was based on the Trustees' industry activity assumption of approximately 90 million hours.

B. Actuarial valuation results

The following commentary applies to various funding measures for the current plan year.

1. *Zone status.* The Plan was certified to be in endangered status under the Pension Protection Act of 2006 (PPA) for the current plan year, in other words, the Plan is in the "Yellow Zone." This certification result is due to the fact that the Plan's funded percentage for the current plan year is less than 80%. Please refer to the actuarial certification dated March 30, 2020 for more information.
2. *Funded percentages:* During the last plan year, the funded percentage that will be reported on the Plan's annual funding notice increased from 66.5% to 70.0%. Please note that there are different measurements of funded percentage for different purposes. More information can be found in Section 2.
3. *Funding Standard Account:* During the last plan year, the credit balance increased from $435,552,310 to $597,481,991. The increase in the credit balance was due to the fact that contributions exceeded the net charges in the FSA for the plan year. For the current plan year, the minimum required contribution is $0, compared with $475,632,000 (based on 90.0 million hours) in expected contributions.

C. Projections and risk

1. *Importance of projections:* Most of the results included in this valuation report are snapshot measurements, showing the Plan's status as of the valuation date. In addition to understanding the Plan's current status, it is also important to understand where the plan is headed through actuarial projections. Projections may evaluate various metrics, such as funded percentage, Funding Standard Account, zone status, cash flows and solvency.
2. *Baseline projections:* Based on the actuarial assumptions included in this report, including
   - an investment return assumption of 7.50% per year
   - the Trustees' industry activity assumption of 90 million hours,
   - the Plan will experience a market rate of return of 7.50% each year into the future,
   - administrative expenses increase by 3.0% per year,
   - all other experience emerges as projected,
   - no plan amendments or changes to laws/regulations or other actuarial assumptions,

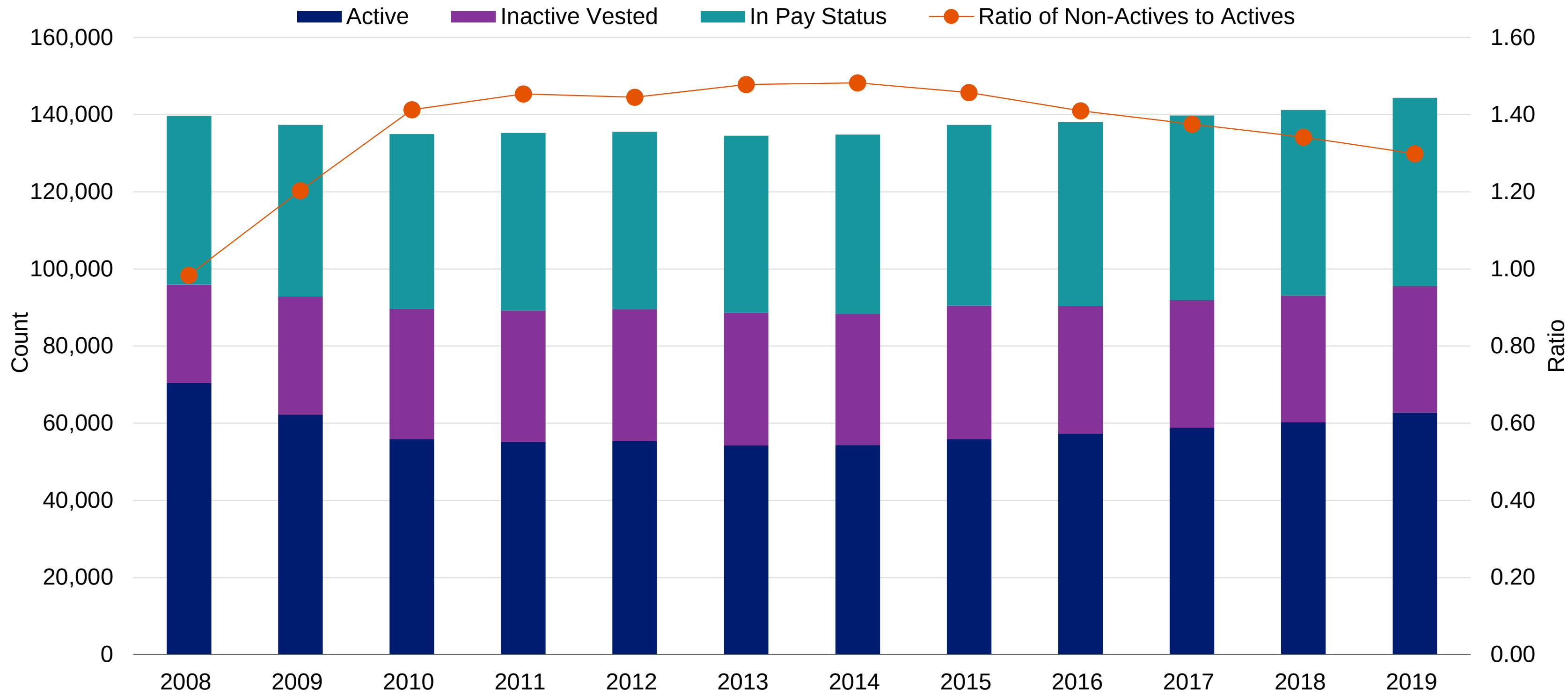
   indicates that Funding Standard Account credit balance (recognizing the five-year amortization extension) will remain positive throughout the projection period. The projections also reflect the Applicable Percentage under the VBAR formula of 0.50% for 2020, 1.00% for 2021 and the average expected long-term Applicable Percentage of 0.81% for 2022 and later. The average expected long-term Applicable Percentage was developed based on stochastic projections as described in Section 3, Exhibit M.
3. *Understanding risk:* Projections can also help the Trustees understand the sensitivity of future results to various risk factors, such as investment volatility or changes in future contributions. For example, if future investment returns are less than the actuarial assumption, or future contributions are less than projected, the Plan may not meeting its funding objectives or may face eventual insolvency. See Section 2 for a general discussion on the risks facing the Plan, and how they might be better evaluated, understood and addressed. A detailed analysis of the potential range of future measurements, based on a range of possible investment returns, is provided in a separate report, *Updated Funding Projections Sensitivity to Investment Risk*. This report provides the Trustees with a better understanding of the risks inherent in the Plan. This assessment includes scenario testing, sensitivity testing, stress testing and stochastic modeling. A detailed risk assessment is important for your Plan because:
   - The outlook for financial markets and future industry activity is uncertain due to Covid-19.
   - The Plan may emerge from endangered status in the near future.
   - The Plan's asset allocation has potential for a significant amount of investment return volatility
   - Potential changes in the covered population may result in participant choices that vary from those assumed.

Section 2: Actuarial Valuation Results

Participant information

- A higher maturity ratio (ratio of non-actives to actives) means that there is a greater risk that fluctuations in the experience of the non-active participants or of the assets plan can result in large swings in the contribution requirements and funded percentage. In 2019, the ratio of non-actives to actives decreased from 1.34 to 1.30.

Population as of December 31



	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
In Pay Status	43,794	44,444	45,281	46,049	45,974	45,909	46,501	46,876	47,652	47,843	48,067	48,834
Inactive Vested	25,517	30,569	33,749	34,122	34,161	34,338	34,033	34,596	33,149	33,089	32,850	32,750
Active	70,448	62,321	55,940	55,131	55,440	54,282	54,319	55,897	57,295	58,840	60,304	62,816
Ratio	0.98	1.20	1.41	1.45	1.45	1.48	1.48	1.46	1.41	1.38	1.34	1.30

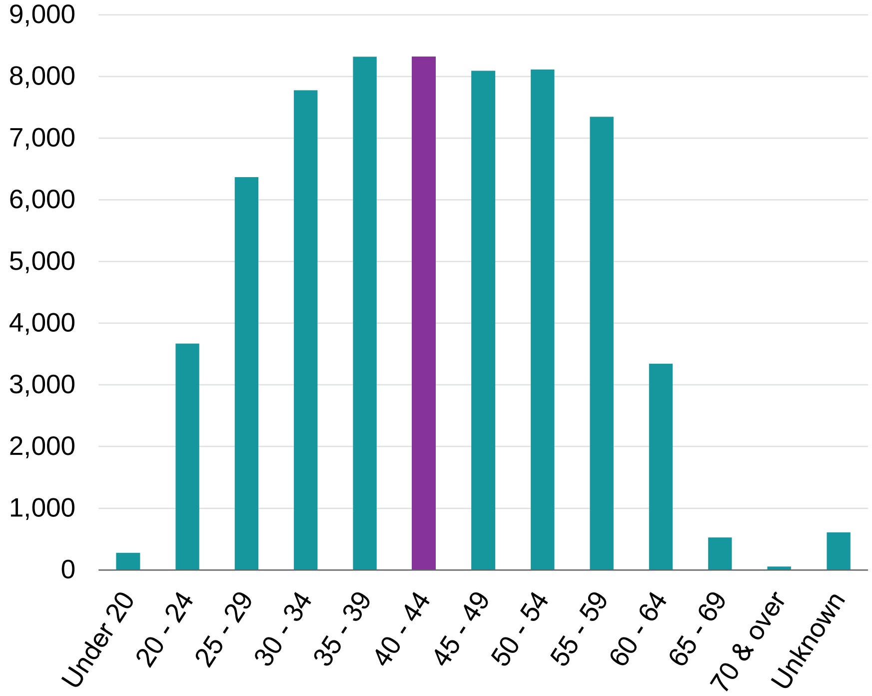
Active participants

As of December 31,	2018	2019	Change
Active participants	60,304	62,816	4.2%
Average age	43.0	42.7	-0.3
Average pension credits	13.3	12.9	-0.4

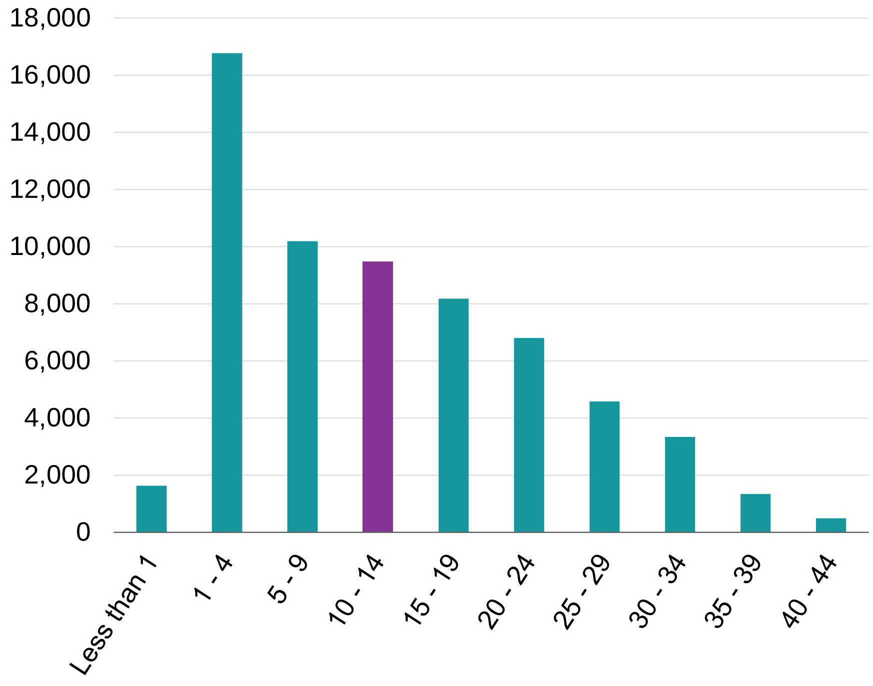
- The decrease in average age and pension credits have resulted primarily due to high number of new active participants in 2019.

Distribution of Active Participants as of December 31, 2019

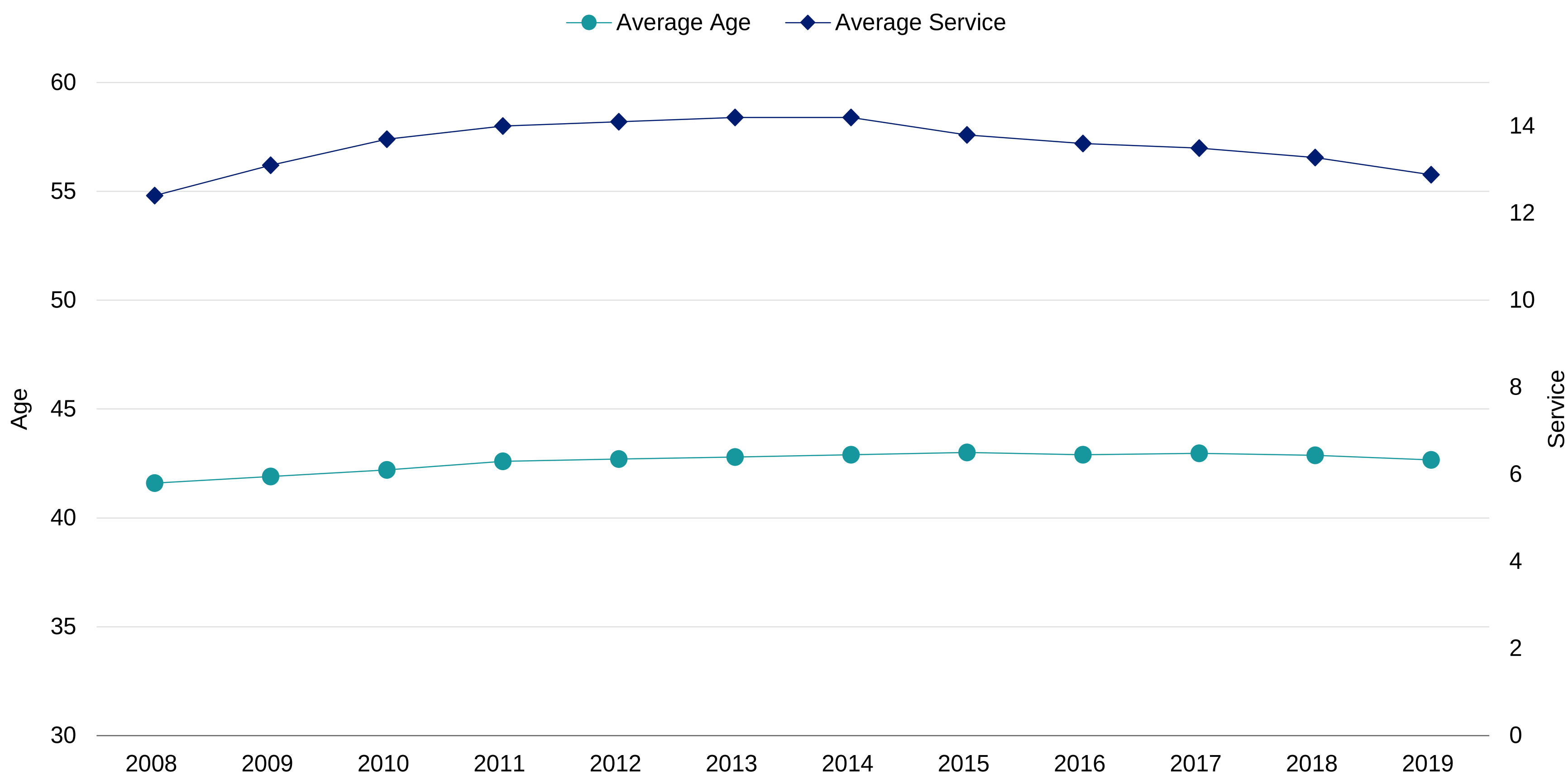
by Age



by Pension Credits



Progress of active participants



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Avg. Age	41.6	41.9	42.2	42.6	42.7	42.8	42.9	43.0	42.9	43.0	43.0	42.7
Avg. Svc	12.4	13.1	13.7	14.0	14.1	14.2	14.2	13.8	13.6	13.5	13.3	12.9

Actives by Funding Improvement Plan (FIP) Option

Shown below is a distribution of active participants by FIP Option.

Category	Year Ended December 31 2018	Year Ended December 31 2019	Change from Prior Year
Active participants in valuation:			
• First Alternative Schedule with 55/30			
Number	21,087	21,470	1.8%
Percentage of total active population	34.97%	34.18%	N/A
Average contribution rate as of the valuation date	$9.93	$9.87	-0.6%
• First Alternative Schedule without 55/30			
– Number	19,990	21,132	5.7%
– Percentage of total active population	33.15%	33.64%	N/A
– Average contribution rate as of the valuation date	$3.84	$3.81	-0.8%
• Default Schedule			
– Number	16,529	17,466	5.7%
– Percentage of total active population	27.41%	27.81%	N/A
– Average contribution rate as of the valuation date	$1.72	$1.74	1.2%
• No contribution increases but previously covered under an Alternative Schedule			
– Number	197	101	-48.7%
– Percentage of total active population	0.33%	0.16%	N/A
– Average contribution rate as of the valuation date	$1.24	$1.50	21.0%
• Second Alternative Schedule without 60/30			
– Number	2,361	2,490	5.5%
– Percentage of total active population	3.91%	3.96%	N/A
– Average contribution rate as of the valuation date	$3.29	$3.02	-8.2%
• Second Alternative Schedule with 60/30			
– Number	140	157	12.1%
– Percentage of total active population	0.23%	0.25%	N/A
– Average contribution rate as of the valuation date	$10.05	$9.27	-7.8%
• Total Actives			
– Number	60,304	62,816	4.2%
– Average contribution rate for upcoming year	$5.37	$5.28	-1.7%

Comparison of active participants by local

Local	As of December 31, 2018					As of December 31, 2019				
	Number of Members	Average Age	Average Service	Average Hours	Average Rate as of 12/31[1]	Number of Members	Average Age	Average Service	Average Hours	Average Rate as of 12/31[1]
001	377	44.99	15.05	1,707.65	$8.15	384	44.78	14.66	1,722.55	$8.06
002	1,138	42.85	14.68	1,709.67	12.43	1,182	42.90	14.37	1,727.79	12.63
003	480	42.00	11.59	1,858.31	6.25	554	41.54	10.60	1,830.39	6.21
004	209	44.65	16.04	1,870.00	0.73	205	44.99	16.48	1,863.81	0.68
005	478	43.64	10.64	1,737.14	5.06	546	42.53	9.56	1,784.05	4.89
007	1,096	40.76	12.82	1,857.25	1.91	1,105	40.72	12.76	1,811.92	1.87
009	875	42.68	12.00	1,755.76	0.68	872	42.87	12.15	1,736.24	0.74
010	2,906	42.34	13.37	1,702.50	4.95	2,940	42.27	13.25	1,720.45	4.94
012	1058	41.67	13.50	1,733.09	8.90	1,104	41.37	13.10	1,756.85	8.85
015	555	46.77	9.65	1,916.05	2.79	567	46.85	9.39	1,903.82	2.77
016	1,490	41.61	11.50	1,784.35	2.18	1,659	41.40	10.97	1,743.06	2.18
017	1,519	42.63	13.73	1,822.17	11.85	1,608	42.45	13.14	1,808.62	11.69
018	2,608	42.66	15.04	1,833.76	10.34	2,659	42.51	14.90	1,798.49	10.28
019	290	46.08	13.17	1,853.84	4.13	287	45.44	13.00	1,789.43	4.21
020	2,417	43.17	14.23	1,801.90	5.92	2,544	42.94	13.90	1,798.84	5.85
022	2	46.67	0.57	738.00	15.70	2	47.66	1.08	907.50	15.70
023	194	44.53	13.91	1,639.37	1.87	194	44.56	13.85	1,683.85	1.84
024	1,258	43.06	13.95	1,794.10	4.70	1,337	42.89	13.44	1,812.91	4.66
025	542	46.12	16.65	1,773.11	13.00	544	45.55	16.04	1,740.41	12.74
026	265	40.46	8.82	1,835.66	3.29	256	40.59	9.76	1,698.73	3.28
027	440	45.95	16.38	1,728.48	12.46	441	45.86	16.50	1,698.22	12.54

[1] Does not reflect contribution rate increases scheduled to occur during subsequent Plan years

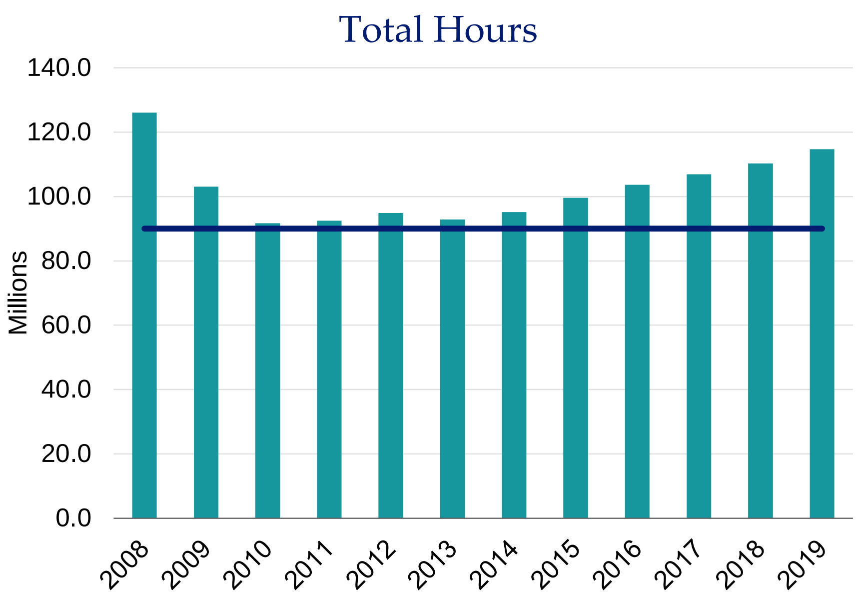
Local	As of December 31, 2018					As of December 31, 2019				
	Number of Members	Average Age	Average Service	Average Hours	Average Rate as of 12/31[1]	Number of Members	Average Age	Average Service	Average Hours	Average Rate as of 12/31[1]
028	2,691	42.97	12.90	1,796.66	$14.24	2,734	42.54	12.45	1,730.45	$13.93
029	176	39.03	13.34	1,852.75	5.88	189	39.48	13.61	1,879.79	5.93
032	414	45.03	10.05	1,688.02	3.05	426	45.55	9.93	1,701.93	2.94
033	2,272	43.08	14.06	1,779.30	6.60	2,295	42.93	13.92	1,775.62	6.42
036	1,806	44.53	15.59	1,703.56	2.71	1,865	44.11	15.01	1,736.53	2.77
038	502	44.38	15.42	1,689.93	12.33	522	43.86	14.66	1,710.52	12.10
040	346	45.91	15.97	1,630.13	1.87	348	45.84	15.82	1,684.40	1.86
044	194	44.70	14.95	1,719.19	1.31	191	44.26	14.89	1,600.48	1.03
045	428	40.59	13.56	1,732.03	7.38	418	40.53	13.56	1,742.83	7.43
046	349	41.64	14.13	1,722.96	3.38	355	41.53	13.95	1,775.55	3.39
048	194	43.66	15.94	1,945.43	8.28	229	41.99	13.55	1,828.28	8.03
049	546	42.33	10.31	1,837.40	6.25	571	42.38	10.03	1,732.68	6.25
054	600	43.70	13.58	1,797.15	6.68	576	44.05	13.57	1,810.16	6.70
055	988	41.88	12.03	1,822.09	1.50	1,097	41.18	10.94	1,771.88	1.49
058	144	44.28	12.44	1,572.99	8.77	143	44.94	13.32	1,572.06	8.88
063	340	44.50	14.35	1,617.94	8.98	346	43.46	13.52	1,648.93	8.63
066	2,365	43.16	12.48	1,781.02	3.55	2,641	42.56	11.64	1,720.68	3.46
067	747	42.47	13.05	1,793.73	8.09	781	42.35	12.59	1,858.93	8.31
068	466	43.67	10.82	1,825.94	5.41	462	42.98	10.90	1,751.72	5.43
071	318	41.54	13.39	1,728.46	7.48	318	42.11	13.57	1,797.80	7.56
073	1,960	46.42	16.78	1,847.48	5.31	2,015	45.97	16.31	1,841.95	5.27
080	70	36.83	4.91	1,406.79	8.62	76	37.55	4.65	1,482.78	8.31
083	296	44.38	14.85	1,668.72	11.68	274	45.03	15.50	1,686.54	11.73
085	927	40.52	11.84	1,875.69	1.38	1,095	39.90	10.60	1,886.95	1.62

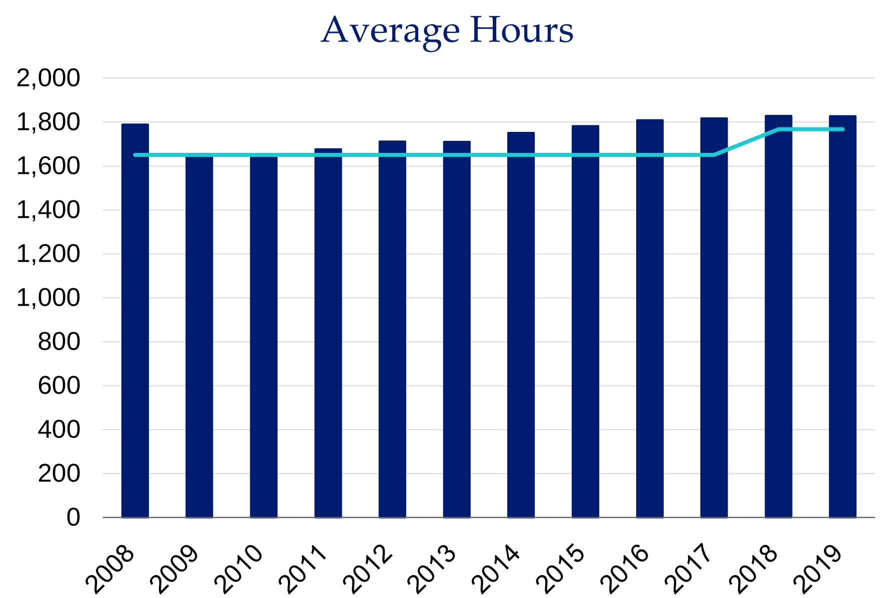
Local	As of December 31, 2018					As of December 31, 2019				
	Number of Members	Average Age	Average Service	Average Hours	Average Rate as of 12/31[1]	Number of Members	Average Age	Average Service	Average Hours	Average Rate as of 12/31[1]
088	576	43.72	13.14	1,774.23	$3.09	692	43.71	12.13	1,850.68	$2.98
091	737	39.82	12.03	1,762.32	5.28	745	39.80	11.90	1,719.70	5.35
100	490	43.90	11.51	1,672.35	7.77	458	43.72	11.49	1,671.94	7.59
102	0	0.00	0.00	0.00	0.00	1	55.33	1.00	2,040.00	4.27
103	326	42.50	13.03	1,772.42	1.45	336	42.20	12.22	1,769.26	1.50
104	4,927	42.24	12.26	1,681.42	1.81	5,367	42.28	12.05	1,679.90	1.89
105	3537	41.42	11.57	1,741.34	3.38	3,929	41.02	10.95	1,769.51	3.32
110	528	43.40	13.76	1,757.61	9.79	528	43.35	13.42	1,827.83	9.78
112	255	41.42	12.32	1,744.26	2.69	279	40.54	11.43	1,790.11	2.61
115	0	0.00	0.00	0.00	0.00	1	56.08	27.07	1,893.00	10.04
124	336	42.87	13.79	1,773.13	2.08	331	42.53	13.45	1,769.53	2.04
137	306	45.72	14.81	1,690.58	11.22	297	45.99	14.57	1,765.81	10.86
162	2	55.62	1.56	1,444.00	2.81	3	51.80	1.40	1,256.33	2.09
170	686	46.81	12.58	2,181.09	1.62	695	46.84	12.18	2,089.69	1.66
177	467	42.77	11.18	1,785.71	1.20	461	42.08	11.38	1,880.01	1.09
206	539	41.52	10.68	1,703.45	5.07	524	42.03	11.13	1,689.91	5.13
207	0	0.00	0.00	0.00	0.00	1	56.33	1.00	1,243.00	11.78
214	527	43.63	14.55	1,801.09	3.07	493	43.82	14.67	1,785.44	3.29
218	318	43.84	15.57	1,652.80	3.92	321	43.25	15.08	1,702.73	3.87
219	325	42.03	14.03	1,748.52	6.84	330	42.08	13.87	1,720.59	6.84
256	39	43.83	7.62	1,989.74	1.25	36	44.98	8.20	1,955.36	1.25
263	329	39.60	12.24	1,786.06	6.80	327	39.28	12.37	1,841.01	6.68
265	1287	45.06	16.62	1,725.09	1.35	1,290	45.22	16.66	1,720.91	1.35
268	351	45.35	17.51	1,705.90	5.45	354	44.96	17.09	1,715.02	5.40

Local	As of December 31, 2018					As of December 31, 2019				
	Number of Members	Average Age	Average Service	Average Hours	Average Rate as of 12/31[1]	Number of Members	Average Age	Average Service	Average Hours	Average Rate as of 12/31[1]
270	222	40.68	9.35	1,794.33	$5.78	236	40.41	9.14	1,790.17	$5.77
273	185	44.30	14.33	1,627.46	3.79	5	39.48	5.27	1,105.80	3.60
292	376	45.40	15.64	1,601.36	1.35	447	44.31	13.65	1,975.67	1.17
293	8	43.88	7.14	1,445.00	2.66	10	44.58	4.23	1,428.60	2.56
312	987	40.85	12.66	1,857.22	0.29	983	40.74	12.68	1,799.64	0.31
359	470	44.13	12.94	1,818.30	2.88	507	44.22	12.62	1,966.35	2.91
399	367	42.72	7.46	1,755.80	7.03	338	43.88	8.48	1,848.80	6.49
435	222	41.76	12.24	1,781.20	6.67	215	42.32	12.50	1,817.01	6.80
441	201	42.82	12.92	1,851.88	6.04	221	42.11	12.11	1,858.11	6.10
450	123	47.26	13.64	2,332.28	2.15	124	47.26	13.80	2,340.15	2.18
464	101	55.91	26.09	1,900.78	0.94	104	54.96	24.43	1,908.72	0.95
480	621	43.01	11.02	2,136.56	2.54	711	42.24	9.89	2,073.75	2.54
555	171	45.55	9.58	2,052.27	0.80	134	47.52	11.07	2,009.54	0.81
997	26	50.27	11.19	1,849.00	7.09	25	49.31	10.00	1,783.48	7.09
Total	60,304	42.99	13.28	1,775.28	$5.37	62,816	42.66	12.88	1,773.08	$5.28

Historical employment

- The 2020 zone certification was based on an industry activity assumption of approximately 90 million hours.
- The valuation is based on 62,816 actives and a long-term employment projection of 1,767 hours (1,750 for construction employees and 2,000 for production employees).
- The total hours of contributions during the past year were the highest since 2008, and have increased each of the last six years.





	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	5-year average	10-year average
Total Hours[1]	126.09	103.12	91.69	92.44	94.92	92.83	95.14	99.64	103.61	106.94	110.28	114.75	107.04	100.22
Average Hours	1,790	1,655	1,639	1,677	1,712	1,710	1,751	1,783	1,808	1,817	1,829	1,827	1,813	1,755

Note: The total hours of contributions are based on total hours reported in the census data. Lines in charts represent PPA assumption for industry activity following respective year.

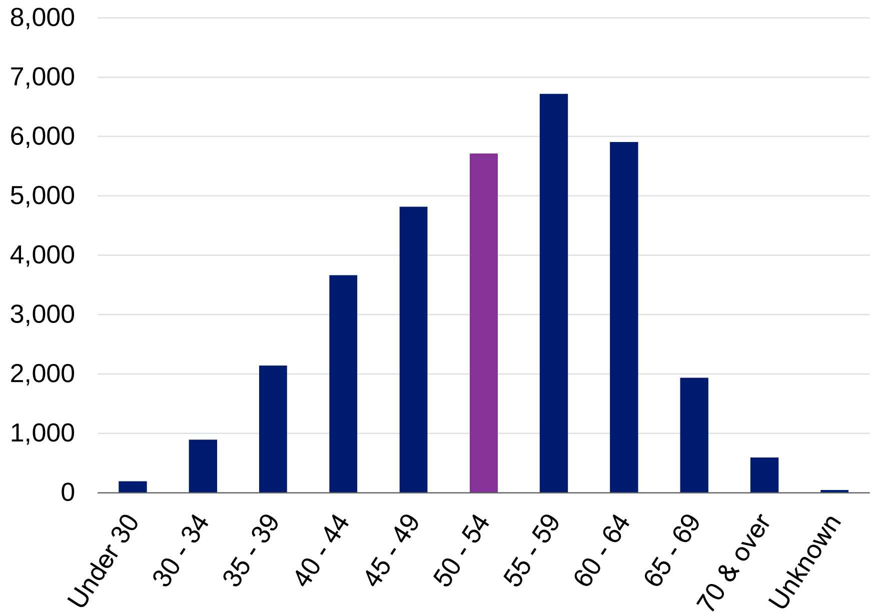
[1] In millions

Inactive vested participants

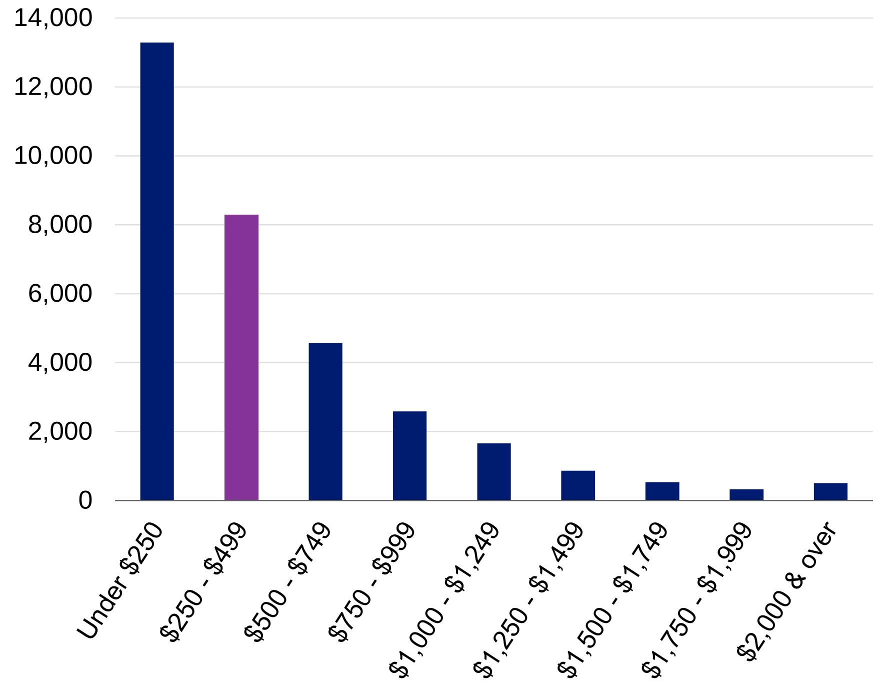
As of December 31,	2018	2019	Change
Inactive vested participants[1]	32,730	32,616	-0.3%
Average age	52.6	53.0	0.4
Average amount	$441	$435	-1.4%
Beneficiaries eligible for deferred benefits	120	134	11.7%
Alternate payees eligible for deferred benefits	514	472	-8.2%

Distribution of Inactive Vested Participants as of December 31, 2019

by Age



by Monthly Amount



[1] A participant who is not currently active and has satisfied the requirements for, but has not yet commenced, a pension is considered an “inactive vested” participant.

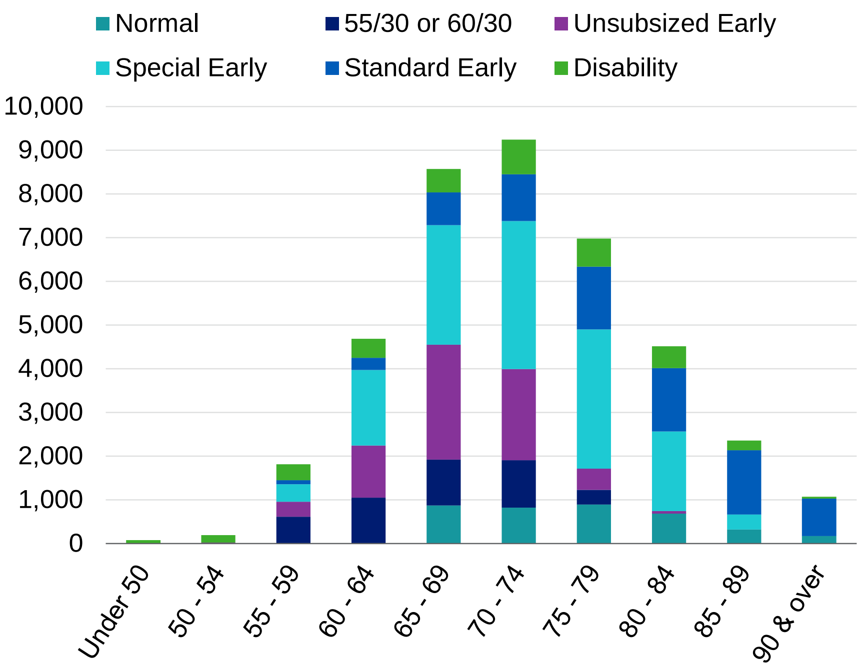
Pay status information

As of December 31,	2018	2019	Change
Pensioners	39,019	39,424	1.0%
Average age	72.6	72.8	0.2
Average amount	$954	$973	2.0%
Beneficiaries	9,009	9,323	3.5%
Total monthly amount[1]	$41,324,861	$42,670,881	3.3%

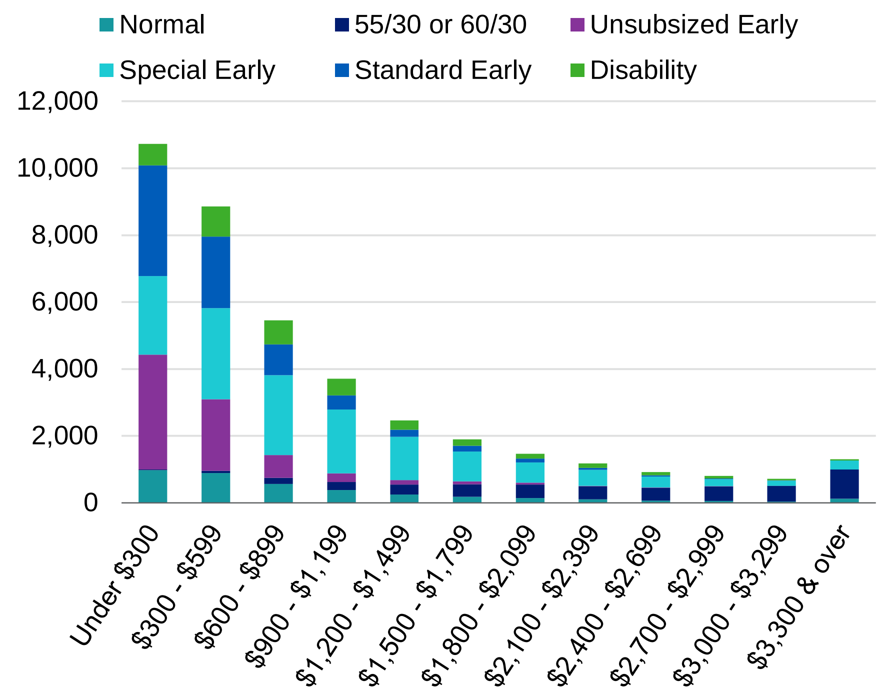
- In addition, there are 1,359 alternate payees this year, compared to 1,217 in the prior year. There are 87 suspended pensioners and no suspended beneficiaries compared to 38 and 1 in the prior year.

Distribution of Pensioners as of December 31, 2019

by Type and Age



by Type and Monthly Amount



[1] Includes one-twelfth of annual COLA payments

Progress of pension rolls

	Total In Pay Status			New Awards		
Year	Number	Average Age	Average Amount[1]	Number	Average Age	Average Amount[1]
2010	36,892	71.2	$850	1,909	60.8	$868
2011	37,321	71.4	857	1,856	61.0	967
2012	37,165	71.5	868	1,644	61.4	972
2013	37,648	71.7	877	2,065	61.5	930
2014	38,074	71.8	888	1,962	61.7	916
2015	38,211	72.1	906	1,655	61.6	957
2016	38,952	72.2	919	2,237	62.0	975
2017	38,949	72.3	918	1,633	62.2	1,129
2018	39,019	72.6	954	1,813	62.2	1,174
2019	39,424	72.8	973	2,018	62.4	1,151

[1] Includes one-twelfth of annual COLA payments.

New pension awards

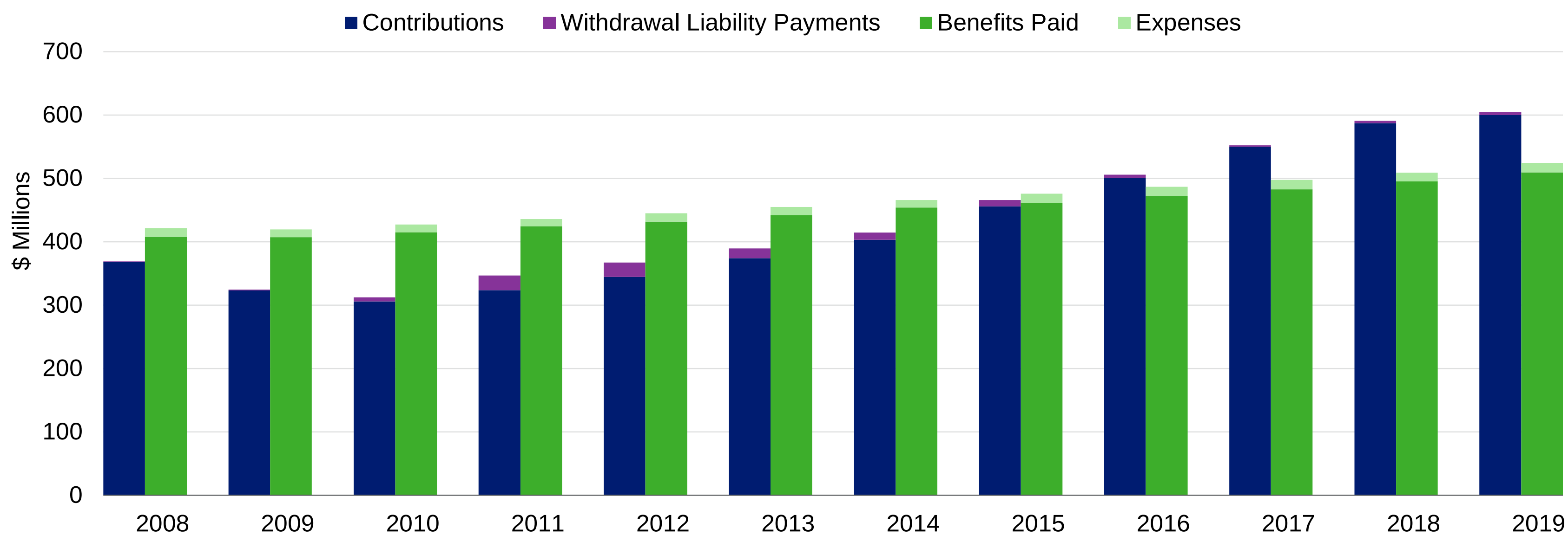
	Total		Normal		Standard Early[1]		Special Early[1]		Unsubsidized Early[1]		55/30 (60/30)		Disability	
Year Ended Dec 31	Number	Average Amount/ Ret Age	Number	Average Amount/ Ret Age	Number	Average Amount/ Ret Age	Number	Average Amount/ Ret Age	Number	Average Amount/ Ret Age	Number	Average Amount/ Ret Age	Number	Average Amount/ Ret Age
2008	1,763	951	342	547	387	545	--	--	732	972	214	2,343	88	740
		60.1		66.5		59.9		--		59.1		57.6		49.8
2009	1,765	838	411	609	499	342	--	--	597	1,008	174	2,357	84	542
		60.8		66.8		59.6		--		60.1		57.5		49.5
2010	1,909	868	457	564	516	406	--	--	630	1,001	200	2,516	106	523
		60.8		67.0		59.5		--		60.1		57.8		49.9
2011	1,856	967	505	582	333	434	--	--	701	1,065	229	2,453	88	543
		61.0		66.5		60.1		--		60.1		57.6		49.4
2012	1,644	972	465	651	387	386	--	--	499	1,190	214	2,383	79	536
		61.4		66.6		60.6		--		60.5		57.9		49.8
2013	2,065	930	592	645	563	440	--	--	585	1,090	240	2,552	85	477
		61.5		66.8		60.6		--		60.3		57.5		49.9
2014	1,962	916	576	626	569	402	--	--	504	1,077	245	2,544	68	611
		61.7		66.7		60.9		--		60.2		57.5		51.1
2015	1,655	957	511	732	94	578	370	385	446	1,131	179	2,623	55	611
		61.6		66.5		60.7		60.5		59.9		57.7		49.9
2016	2,237	975	523	792	150	517	707	354	516	1,228	289	2,649	52	765
		62.0		66.2		61.9		62.7		58.3		57.7		51.0
2017	1,633	1,129	518	771	79	665	374	514	409	1,436	220	2,744	33	735
		62.2		66.5		61.9		61.6		60.8		57.8		50.2
2018	1,813	1,174	563	689	106	659	370	503	472	1,433	261	2,990	41	691
		62.2		66.7		64.4		62.4		60.7		57.2		50.4
2019	2,018	1,151	650	714	129	670	431	690	509	1,429	267	2,990	32	877
		62.4		66.7		62.5		61.9		60.6		57.9		50.7

[1] Unsubsidized early pensions are not separately identified prior to 2015

Financial information

- Benefits and expenses are funded solely from contributions and investment earnings.
- For the most recent year, benefit payments ($509.6 million) and expenses ($14.7 million) were 87% of contributions ($605.0 million).
- Contributions (including withdrawal liability payments) have exceeded benefits paid and administrative expenses in the last four years, primarily due to the higher active population (16% increase since 2013) and contribution rate increases required under the Rehabilitation/Funding Improvement Plan (21% increase in average rate since the end of 2013). Benefit payments have steadily increased over the last 12 years.
- Additional detail is in Section 3, Exhibit C.

Cash Flow



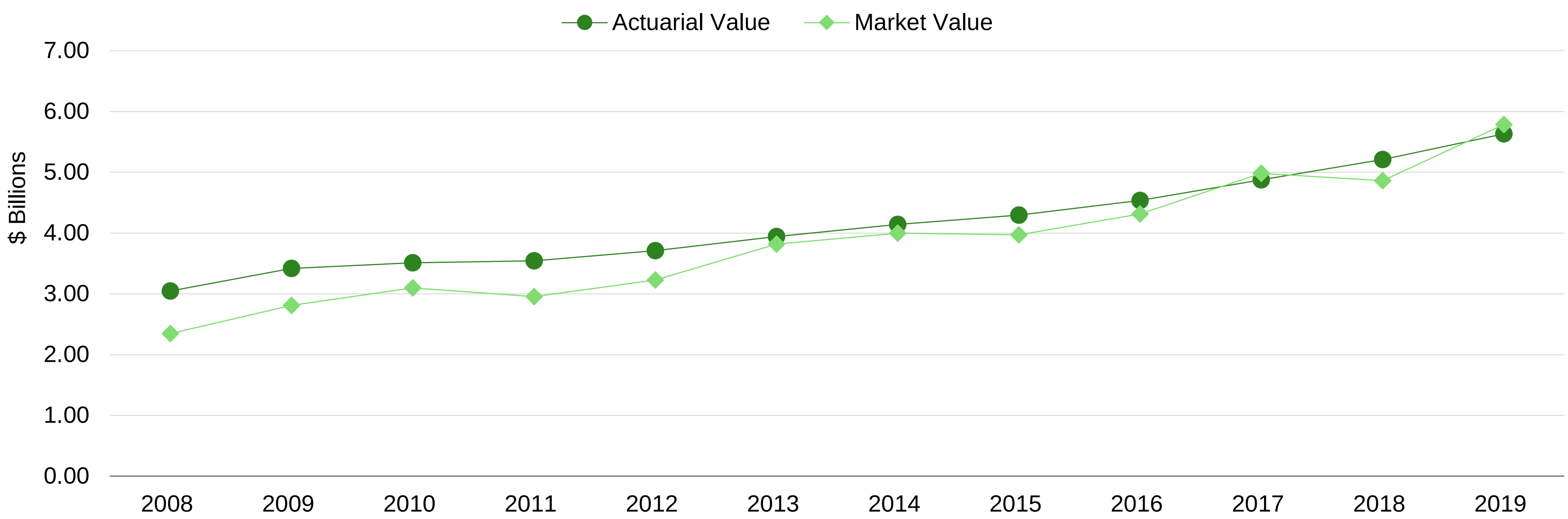
In Millions	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Contributions[1]	$368.07	$323.02	$305.76	$323.86	$344.61	$373.91	$403.00	$456.08	$500.54	$550.12	$587.13	$600.07
W/L Payments[1]	0.85	1.75	6.50	22.83	22.77	15.47	11.52	9.70	5.08	1.98	3.79	4.93
Benefits Paid[1]	407.50	407.16	415.17	424.42	431.73	441.79	454.02	461.39	472.38	482.58	495.57	509.63
Expenses[1]	13.71	12.45	12.01	11.54	13.32	13.00	12.01	14.40	14.46	14.85	13.60	14.69

[1] In Millions

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 significant because it 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.
- Amortization of the unfunded accrued liability is an important element in the contribution requirements of the Plan.

Actuarial Value of Assets vs. Market Value of Assets



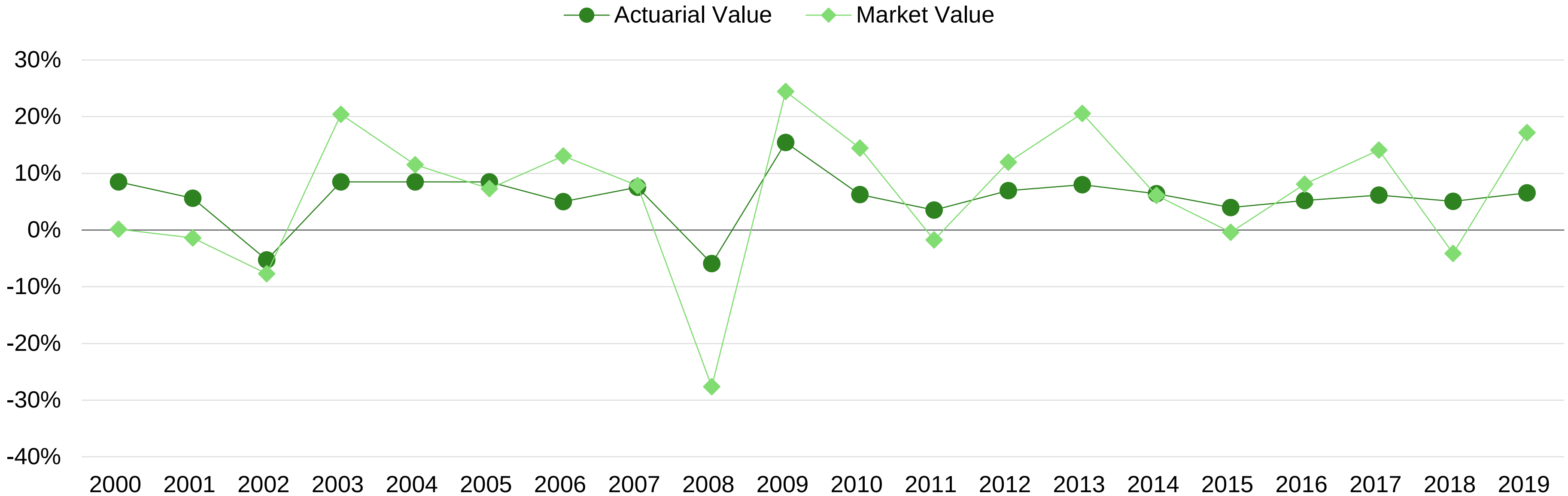
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Actuarial Value[1]	$3.05	$3.42	$3.51	$3.55	$3.71	$3.94	$4.14	$4.29	$4.54	$4.88	$5.21	$5.63
Market Value[1]	2.34	2.81	3.10	2.95	3.23	3.82	4.00	3.97	4.31	4.98	4.86	5.78

[1] In billions

Historical investment returns

- Actuarial planning is long term. The obligations of a pension plan are expected to continue for the lifetime of all its participants.
- The assumed long-term rate of return of 7.50% considers past experience, the Trustees' asset allocation policy and future expectations.

Market Value and Actuarial Rates of Return for Years Ended December 31



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
AVA	8.5%	5.6%	-5.3%	8.5%	8.5%	8.5%	5.0%	7.6%	-5.9%	15.4%	6.2%	3.5%	6.9%	8.0%	6.4%	4.0%	5.2%	6.2%	5.1%	6.6%
MVA	0.1%	-1.4%	-7.7%	20.4%	11.5%	7.3%	13.1%	7.8%	-27.6%	24.5%	14.5%	-1.7%	12.0%	20.6%	6.1%	-0.4%	8.1%	14.1%	-4.1%	17.2%

Average Rates of Return	Actuarial Value	Market Value
Most recent three-year average return:	5.94%	9.06%
Most recent five-year average return:	5.45%	6.98%
Most recent ten-year average return:	5.80%	8.27%
20-year average return:	5.67%	6.38%

Note: The average return for the most recent three years is the arithmetic average of the returns. For average returns over five or more years, the average return is weighted by the asset value. The actuarial value investment returns for 2006 and 2008 include the effect of a change in the method for determining the actuarial value of assets.

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 that will not continue over the long term.

Experience for the Year Ended December 31, 2019

1	Loss from investments	-$49,287,562
2	Loss from administrative expenses	-196,624
3	Net loss from other experience (0.3% of projected accrued liability)	-20,934,404
4	**Net experience loss: 1 + 2 + 3**	**-$70,418,590**

Investment experience

Loss from Investments

1	Average actuarial value of assets	$5,249,216,568
2	Assumed rate of return	7.50%
3	Expected net investment income: **1 x 2**	$393,691,243
4	Net investment income (6.56% actual rate of return)	344,403,681
5	**Actuarial loss from investments: 4 – 3**	**-$49,287,562**

Administrative expenses

- Administrative expenses for the year ended December 31, 2019 totaled $14,690,172, as compared to the assumption of $14,500,000.

Other experience

- The net experience variation for the year, other than investment experience, was 0.3% of the projected actuarial accrued liability from the prior valuation, and was not significant when compared to that liability.
- Some difference between projected and actual experience include:
  - Mortality experience
  - Extent of turnover among the participants
  - Future benefit accruals more or less than projected
  - Retirement experience (earlier or later than projected)
  - Number of disability retirements

Actuarial assumptions

- The following assumptions was changed with this valuation:
  – Administrative expenses were increased to $15,000,000 for the year beginning January 1, 2020.
- Details on actuarial assumptions and methods are in Section 3.

Plan provisions

- Based on the 3-year average market value investment return of 6.02% for the Plan Years ended December 31, 2016 - 2018, the Applicable Percentage under the VBAR formula is 0.50% for the 2020 Plan Year.
- Based on the 3-year average market value investment return of 9.06% for the Plan Years ended December 31, 2017 - 2019, the Applicable Percentage under the VBAR formula will be 1.00% for the 2021 Plan Year.
- The active service requirement for the Full Disability Benefit was changed to require 435 hours of work in the 24-month period immediately preceding the date of SSA application for disability. This plan change increased the actuarial accrued liability and the normal cost by less than 0.1%.
- A summary of plan provisions is in Section 3.

Contribution rate changes

- The average contribution rate decreased from the prior year at $5.37 per hour as of January 1, 2019 to $5.28 per hour as of January 1, 2020.

Plan funding

Comparison of Funded Percentages

Plan Year Beginning	January 1, 2019		January 1, 2020	
Market Value of Assets	**$4,859,569,652**		**$5,782,976,579**	
	Amount	**Funded %**	**Amount**	**Funded %**
• Funding interest rate	7.50%		7.50%	
• Present value (PV) of future benefits	$9,088,468,250	53.5%	$9,256,385,807	62.5%
• PV of accumulated plan benefits	7,827,699,996	62.1%	8,044,416,537	71.9%
• Current liability interest rate	3.06%		2.95%	
• Current liability[1]	$14,881,754,854	32.8%	$15,445,499,349	37.5%
Actuarial Value of Assets	**$5,208,417,087**		**$5,634,419,729**	
	Amount	**Funded %**	**Amount**	**Funded %**
• Funding interest rate	7.50%		7.50%	
• PV of future benefits	$9,088,468,250	57.3%	$9,256,385,807	60.9%
• PPA’06 liability and annual funding notice	7,827,699,996	66.5%	8,044,416,537	70.0%

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. The funded percentages based on the actuarial value of assets would be different if they were based on the market value of assets.

[1] Assets for funded percentage include withdrawal liability receivables

Pension Protection Act of 2006

2020 Actuarial status certification

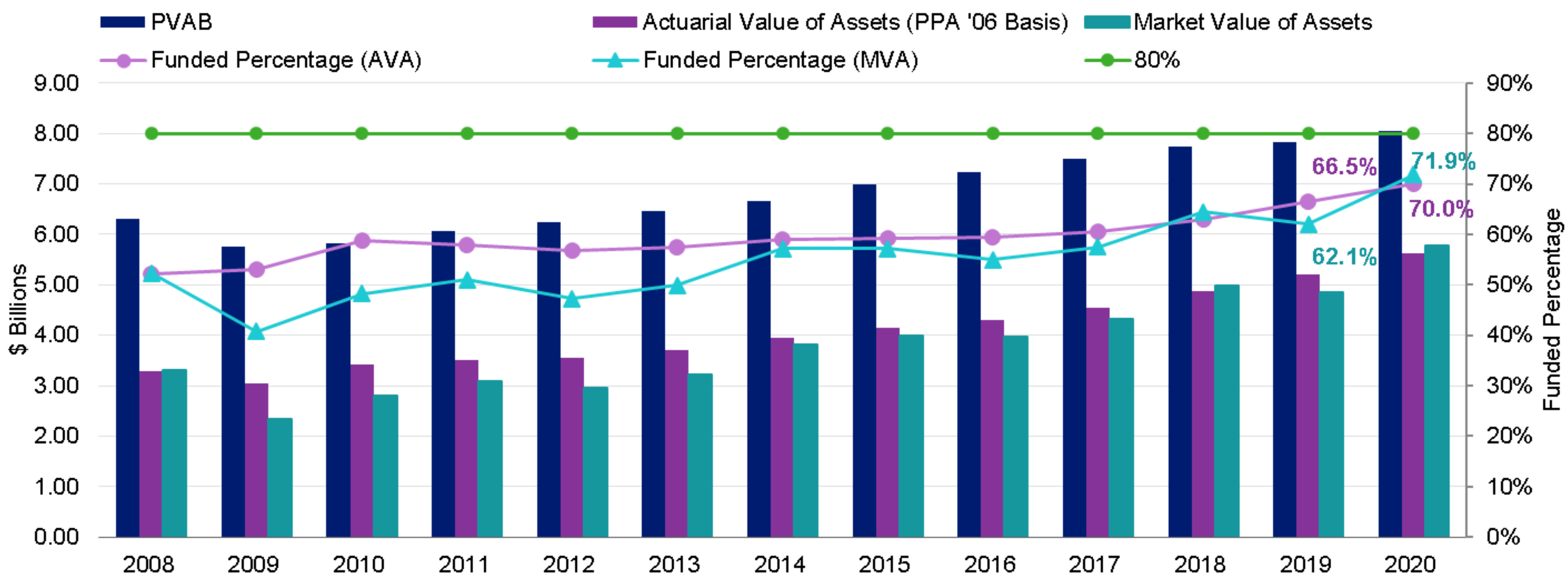
- PPA'06 requires trustees to actively monitor their plans' financial prospects to identify emerging funding challenges so they can be addressed effectively.
- As reported in the 2020 certification, this Plan was classified as endangered (in the Yellow Zone) because the funded percentage was less than 80% and the credit balance in the FSA was projected to be positive for at least seven years.
- In addition, the Plan is making the scheduled progress in meeting the requirements of its funding improvement plan.

Funding Improvement Plan Update

- The Plan's Funding Improvement Period is the 10-year period beginning January 1, 2017. The Plan is making the scheduled progress in meeting the requirements of its Funding Improvement Plan.
- The Schedule progress takes into account the 2% contribution rate increases are required for 2021 and 2022 under the First Alternate Option (1% for the Second Alternate Option) required under the Funding Improvement Plan. Segal will continue to assist the Trustees in evaluating and, if necessary, updating the Funding Improvement Plan.

Pension Protection Act of 2006 historical information

Funded Percentage and Zone



Plan year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Zone Status	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
PVAB[1]	6.31	5.75	5.82	6.07	6.25	6.46	6.67	6.99	7.23	7.49	7.74	7.83	8.04
AVA[1]	$3.29	$3.05	$3.42	$3.51	$3.55	$3.71	$3.94	$4.14	$4.29	$4.54	$4.88	$5.21	$5.63
Funded %	52.2%	53.0%	58.7%	57.8%	56.7%	57.4%	59.1%	59.3%	59.4%	60.6%	63.0%	66.5%	70.0%
MVA[1]	$3.30	$2.34	$2.81	$3.10	$2.95	$3.23	$3.82	$4.00	$3.97	$4.31	$4.98	$4.86	$5.78
Funded %	52.3%	40.8%	48.3%	51.0%	47.3%	49.9%	57.2%	57.2%	54.9%	57.6%	64.4%	62.1%	71.9%

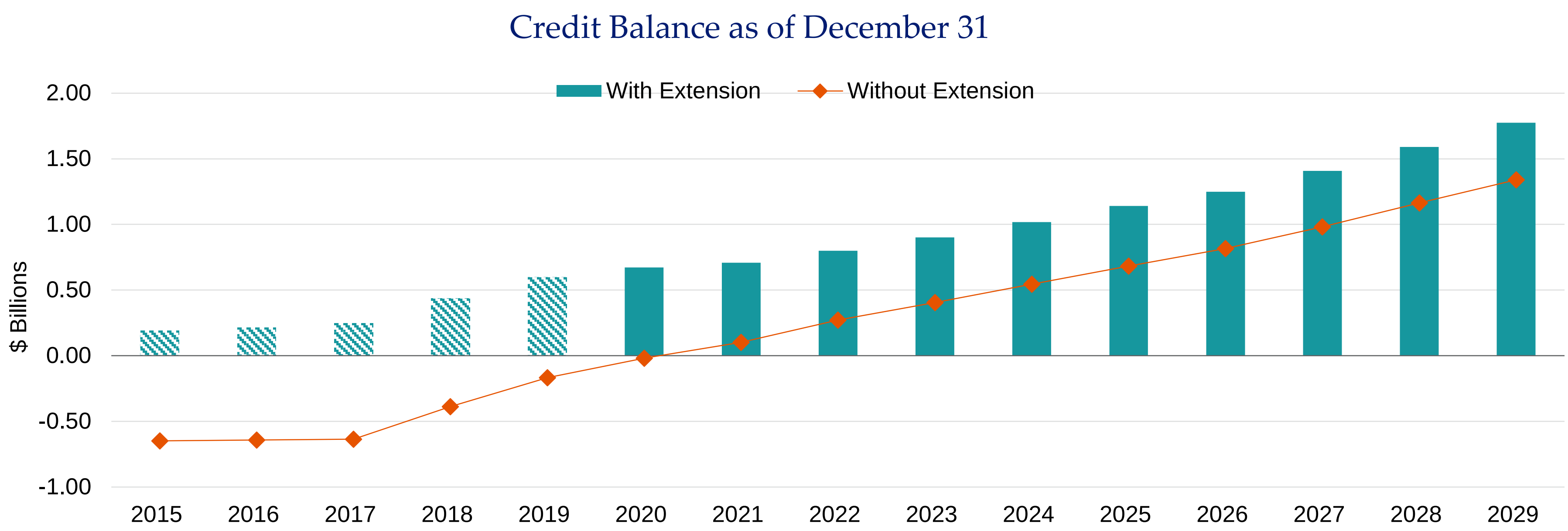
[1] In billions

Projections

- A 10-year projection on the following page assume the following, unless otherwise noted:
  - The Plan will earn a market rate of return equal to 7.50% each year.
  - Industry activity is based on 90 million total hours each year.
  - Administrative expenses are projected to increase 3% per year.
  - No contribution increases other than those already in effect (i.e., disregarding remaining contribution rate increases under the Funding Improvement Plan),
  - There are no plan amendments or changes in law/regulation.
  - All other experience emerges as assumed, and no assumption changes are made.
- The projections in this valuation illustrate the potential future impact of one given set of assumptions. Additional scenarios would demonstrate sensitivity to risk from investment return, employment and other factors.
- Additional projections discussing risk were provided to the Trustees separately.

Funding Standard Account (FSA)

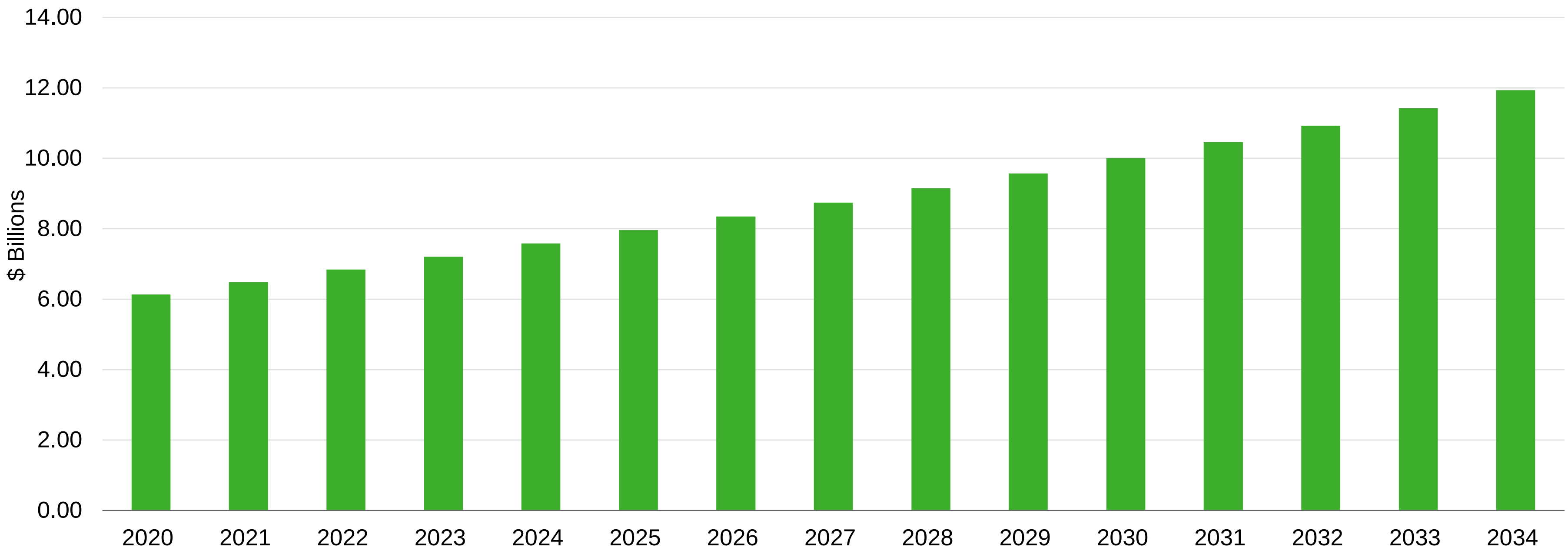
- The minimum funding requirement for the year beginning January 1, 2020 is $0.
- Based on the assumption that 90.0 million total hours worked each year at a $5.2848 contribution rate, the contributions projected for the year beginning January 1, 2020 are $475,632,000. The credit balance is projected to increase by approximately $74,863,901 to $672,345,892 as of December 31, 2020.
- A 10-year projection indicates the credit balance will remain positive, based on the assumptions detailed on the prior page and the following:
  – The normal cost in future years is based on a long-term applicable percentage under the VBAR is 0.81% for 2022 and after.



Solvency projection

- PPA'06 requires Trustees to monitor plan solvency - the ability to pay benefits and expenses when due.
- Based on this valuation, assets are still projected to increase.
- Projections using the current actuarial valuation assumptions show the Plan is not expected to be insolvent within 15 years, based on the negotiated contribution rates, the current plan of benefits and the Trustees' industry activity assumption. This projection also reflects the Applicable Percentage under the VBAR formula of 0.50% for 2020, 1.00% for 2021 and the average expected long-term Applicable Percentage of 0.81% for 2022 and later.

Projected Assets as of December 31



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.
- Economic Shock Risk. Potential implications for the Plan due to the effects of the COVID-19 pandemic (that were not reflected as of the valuation date) include:
  - Volatile financial markets and investment returns lower than assumed
  - Changes in future demographic experience, such as retirement, disability, turnover, and mortality patterns

  Economic Shock Risk, along with Investment and Employment Risk, are addressed in a separate report titled: Updated Funding Projections Sensitivity to Investment Risk.
- Investment Risk (the risk that returns will be different than expected or volatile over time)
- 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. The value of retirement plan benefits is sensitive to the rate of benefit accruals and any early retirement subsidies that apply. While it is difficult to quantify the impact of potential experience, earlier retirements would generally result in higher costs for your plan.
  - More or less active participant turnover than assumed. Lower turnover would generally result in higher costs for your Plan.
  - Return to covered employment of previously inactive participants. More rehires would generally result in higher costs for your Plan.
- 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.

- There are external factors including legislative, regulatory or financial reporting changes that could impact the Plan's funding and disclosure requirements. While we do not assume any changes in such external factors, it is important to understand that they could have significant consequences for the Plan. For example, legislative proposals in 2018 showed that Congress continues to consider possible changes to funding requirements for multiemployer plans (such as changes to the zone rules) and increases in PBGC premiums.
- A detailed analysis of the potential range of future measurements, based on a range of possible investment returns, is provided in a separate report, *Updated Funding Projections Sensitivity to Investment Risk*. This report provides the Trustees with a better understanding of the risks inherent in the Plan. This assessment includes scenario testing, sensitivity testing, stress testing and stochastic modeling.
- A detailed risk assessment is important for your Plan because:
  - The outlook for financial markets and future industry activity is uncertain due to Covid-19.
  - The Plan may emerge from endangered status in the near future.
  - The Plan's asset allocation has potential for a significant amount of investment return volatility.
  - Potential changes in the covered population and/or plan industry may result in participant choices that vary from those assumed.

Summary of PPA'06 zone status rules

- Based on projections of the credit balance in the FSA, the funded percentage, and cash flow sufficiency tests, plans are categorized in one of the "zones" described below.
- 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 inactive participants to active participants 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 ten 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 may elect whether or not to enter the *Red Zone* for the current year.

Section 3: Certificate of Actuarial Valuation

September 29, 2020

Certificate of Actuarial Valuation

This is to certify that Segal has prepared an actuarial valuation of the Sheet Metal Workers' National Pension Fund as of January 1, 2020 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 draft information supplied by the auditor with respect to contributions and assets and reliance on the Plan Administrator with respect to the participant data. Segal 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 M.

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 A. 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.

Daniel V. Ciner, MAAA
Senior Vice President and Actuary
Enrolled Actuary No. 20-05773

Exhibit A: Table of Plan Coverage

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

Category	Year Ended December 31 2018	Year Ended December 31 2019	Change from Prior Year
Participants in Fund Office tabulation	63,474	66,027	4.0%
Less: Participants with less than one pension credit	3,170	3,211	N/A
Active participants in valuation:			
• Number	60,304	62,816	4.2%
• Average age	43.0	42.7	-0.3
• Average pension credits	13.3	12.9	-0.4
• Average contribution rate for upcoming year	$5.37	$5.28	-1.7%
• Number with unknown age information	504	608	20.6%
• Total active vested participants	44,133	44,600	1.1%
Inactive participants with rights to a pension:			
• Number	32,730	32,616	-0.3%
• Average age	52.6	53.0	0.4
• Average monthly benefit	$441	$435	-1.4%
• Beneficiaries with rights to deferred payments	120	134	11.7%
• Alternate payees with rights to deferred payments	514	472	-8.2%
Pensioners:			
• Number in pay status	39,019	39,424	1.0%
• Average age	72.6	72.8	20.0%
• Average monthly benefit	$954	$973	0.0
• Number of alternate payees in pay status	1,217	1,359	11.7%
• Number in suspended status	38	87	128.9%
Beneficiaries:			
• Number in pay status	9,009	9,323	3.5%
• Number in suspended status	1	0	-100.0%
• Average age	77.1	77.3	0.1
• Average monthly benefit	$453	$464	2.3%
Total participants (excluding alternate payees)	**141,221**	**144,400**	**2.3%**

Exhibit B: Actuarial Factors for Minimum Funding

	January 1, 2019	January 1, 2020
Interest rate assumption	7.50%	7.50%
Normal cost, including administrative expenses	$140,675,083	$100,410,617
Actuarial accrued liability	**$7,827,699,996**	**$8,044,416,537**
• Pensioners and beneficiaries[1]	$4,294,083,817	$4,436,856,196
• Inactive participants with vested rights[2]	912,006,287	940,822,211
• Active participants	2,621,609,892	2,666,738,130
Actuarial value of assets	$5,208,417,087	$5,634,419,729
Market value as reported by Calibre CPA Group[3]	4,859,569,652	5,782,976,579
Unfunded actuarial accrued liability (based on AVA)	2,619,282,909	2,409,996,808

[1] Includes liabilities for 1,217 former spouses in pay status for 2019 and 1,359 for 2020.
[2] Includes liabilities for 514 former spouses with deferred benefits for 2019 and 472 for 2020.
[3] Excludes receivable withdrawal liability payments of $15,309,486 for 2019 and $11,498,023 for 2020.

Exhibit C: Summary Statement of Income and Expenses on a Market Value Basis

	Year Ended December 31, 2018		Year Ended December 31, 2019	
Contribution income:				
• Employer contributions and withdrawal liability payments, net of amounts deemed uncollectible	$590,466,206		$ 604,532,104	
• Liquidated damages	452,752		467,232	
Total Contribution income		*$590,918,958*		*$604,999,336*
Investment income:				
• Interest and dividends	$61,499,605		$76,360,823	
• Capital appreciation/(depreciation)	-257,761,092		776,174,647	
• Less investment fees	-10,683,102		-10,727,504	
Net investment income		*-206,944,589*		*841,807,966*
Other income		*1,147,280*		*922,450*
Total income available for benefits		**$385,121,649**		**$1,447,729,752**
Less benefit payments and expenses:				
Pension benefits	-$495,565,753		-$509,632,653	
Administrative expenses	-13,602,401		-14,690,172	
Total benefit payments and expenses		*-$509,168,154*		*-$524,322,825*
Market value of assets[1]		**$4,859,569,652**		**$5,782,976,579**

[1] Excludes withdrawal liability receivable

Exhibit D: Determination of Actuarial Value of Assets

1	Market value of assets, December 31, 2019				$5,782,976,579
2	Calculation of unrecognized return		**Original Amount**[1]	**Unrecognized Return**[2]	
	(a)	Year ended December 31, 2019	$474,280,281	$379,424,224	
	(b)	Year ended December 31, 2018	-583,824,479	-350,294,687	
	(c)	Year ended December 31, 2017	287,044,734	114,817,894	
	(d)	Year ended December 31, 2016	23,047,095	4,609,419	
	(e)	Year ended December 31, 2015	-316,167,649	0	
	(f)	Total unrecognized return			$148,556,850
3	Preliminary actuarial value: **1 - 2f**				5,634,419,729
4	Adjustment to be within 20% corridor				0
5	Final actuarial value of assets as of December 31, 2019: **3 + 4**				5,634,419,729
6	Actuarial value as a percentage of market value: **5 ÷ 1**				97.4%
7	Amount deferred for future recognition: **1 - 5**				$148,556,850

[1] Total return minus expected return on a market value basis

[2] Recognition at 20% per year over five years

Exhibit E: Investment Return – Actuarial Value vs. Market Value

Year Ended December 31	Actuarial Value Investment Return Amount	Actuarial Value Investment Return Percent	Market Value Investment Return Amount	Market Value Investment Return Percent	Year Ended December 31	Actuarial Value Investment Return Amount	Actuarial Value Investment Return Percent	Market Value Investment Return Amount	Market Value Investment Return Percent
2000	$226,303,645	8.50%	$3,560,195	0.13%	2010	$209,948,846	6.25%	$398,844,675	14.48%
2001	159,799,521	5.63%	-36,479,361	-1.39%	2011	122,036,155	3.52%	-52,598,539	-1.72%
2002	-154,706,918	-5.26%	-194,048,412	-7.69%	2012	243,627,164	6.95%	349,221,467	11.98%
2003	229,560,422	8.50%	458,228,754	20.44%	2013	293,987,827	7.99%	656,623,939	20.56%
2004	239,619,449	8.50%	298,949,842	11.55%	2014	250,531,303	6.40%	232,193,895	6.12%
2005	249,128,731	8.50%	201,693,098	7.31%	2015	163,972,601	3.97%	-16,599,604	-0.42%
2006	153,183,390	5.01%	370,984,124	13.07%	2016	224,011,197	5.20%	321,747,587	8.08%
2007	235,073,194	7.57%	243,628,390	7.84%	2017	282,315,215	6.18%	612,744,159	14.11%
2008	-193,649,545	-5.93%	-905,604,097	-27.64%	2018	248,449,888	5.05%	-206,944,589	-4.12%
2009	463,585,989	15.45%	561,785,116	24.45%	2019	344,403,681	6.56%	841,807,966	17.18%
					Total	**$3,991,181,755**		**$4,139,738,605**	
					Most recent three-year average return:		**5.94%**		**9.06%**
					Most recent five-year average return:		**5.45%**		**6.98%**
					Most recent ten-year average return:		**5.80%**		**8.27%**
					20-year average return:		**5.67%**		**6.38%**

Note The average return for the most recent three years is the arithmetic average of the returns. For average returns over five or more years, the average return is weighted by the asset value. The actuarial value investment returns for 2006 and 2008 include the effect of a change in the method for determining the actuarial value of assets.

Exhibit F: Information on Plan Status as of January 1, 2020

Plan status (as certified on March 30, 2020, for the 2020 zone certification)	***Endangered***
Scheduled progress (as certified on March 30, 2020, for the 2020 zone certification)]	Yes
Actuarial value of assets for FSA	$5,634,419,729
Accrued liability under unit credit cost method	8,044,416,537
Funded percentage for monitoring plan's status	70.0%

Annual Funding Notice for Plan Year Beginning January 1, 2020 and Ending December 31, 2020

	2020 Plan Year	2019 Plan Year	2018 Plan Year
Actuarial valuation date	January 1, 2020	January 1, 2019	January 1, 2018
Funded percentage	70.0%	66.5%	63.0%
Value of assets	$5,634,419,729	$5,208,417,087	$4,877,069,115
Value of liabilities	8,044,416,537	7,827,699,996	7,737,632,788
Fair market value of assets as of plan year end*	Not available	5,782,976,579	4,859,569,652

*Excludes withdrawal liability payments receivable

Critical or Endangered Status

The Plan was in endangered status in the 2020 plan year because it is not in critical status and its funded percentage is less than 80%. In addition, the Plan is not projected to be in critical status for any of the five succeeding Plan years.

Exhibit G: Schedule of Projection of Expected Benefit Payments

(Schedule MB, Line 8b(1))

Plan Year	Expected Annual Benefit Payments
2020	$543,389,134
2021	561,726,038
2022	579,363,034
2023	595,888,582
2024	611,213,503
2025	624,829,518
2026	636,890,409
2027	647,586,995
2028	656,594,784
2029	663,313,892

This assumes the following:

- No additional benefits will be accrued.
- Experience is in line with valuation assumptions.
- No new entrants are covered by the plan.

Exhibit H: Schedule of Active Participant Data

(Schedule MB, Line 8b(2))

The participant data is for the year ended December 31, 2019.

		Pension Credits									
Age	**Total**	**Less than 1**	**1 – 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25 - 29**	**30 - 34**	**35 - 39**	**40 - 44**
Under 25	3,947	542	3,200	205	–	–	–	–	–	–	–
25 - 29	6,366	318	3,937	2,024	87	–	–	–	–	–	–
30 - 34	7,775	217	3,148	2,536	1,812	62	–	–	–	–	–
35 - 39	8,318	186	2,211	1,924	2,454	1,454	89	–	–	–	–
40 - 44	8,322	116	1,483	1,290	1,878	2,140	1,369	46	–	–	–
45 - 49	8,094	72	935	852	1,262	1,767	2,049	1,097	60	–	–
50 - 54	8,113	47	664	587	882	1,296	1,560	1,767	1,254	56	–
55 - 59	7,346	24	489	460	702	964	1,163	1,228	1,467	773	76
60 - 64	3,345	9	192	223	316	431	490	392	510	452	330
65 - 69	526	2	39	43	72	66	79	48	48	54	75
70 & over	56	1	11	7	5	5	12	4	1	4	6
Unknown	608	102	462	41	3	–	–	–	–	–	–
Total	**62,816**	**1,636**	**16,771**	**10,192**	**9,473**	**8,185**	**6,811**	**4,582**	**3,340**	**1,339**	**487**

Note: Excludes 3,211 participants with less than one year of vesting service.

Exhibit I: 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.
- 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.
- Increases or decreases in the unfunded actuarial accrued liability are amortized over 15 years except that short-term benefits, such as 13th checks, are amortized over the scheduled payout period.
- Beginning in 2009, the Funding Standard Account reflects the Trustees' election under PRA 2010 to extend the amortization of the 2008 investment loss, smooth those losses over 10 years in the actuarial value of assets, and increase the upper limit on the actuarial value of assets.

FSA for the Plan Years ending December 31, 2019 and 2020
Recognizing Five-Year Amortization Extension

		2019	2020
1	Prior year funding deficiency	$0	$0
2	Normal cost, including administrative expenses	140,675,083	100,410,617
3	Amortization charges	584,071,291	586,918,602
4	Interest on **1, 2 and 3**	54,355,978	51,549,691
5	Total charges	$779,102,352	$738,878,910
6	Prior year credit balance	$435,552,310	$597,481,991
7	Employer contributions	604,999,336	TBD
8	Amortization credits	261,096,558	256,245,081
9	Interest on **6, 7 and 8**	74,936,139	539,715,530
10	Full funding limitation credits	0	0
11	Total credits	1,376,584,343	1,393,442,602
12	Credit balance: **11 - 5**	$597,481,991	TBD
13	Minimum contribution with interest required to avoid a funding deficiency: **11 - 5** not less than zero	N/A	$0

Section 3: Certificate of Actuarial Valuation

- PPA'06 requires the Internal Revenue Service (IRS) to permit multiemployer plans facing a funding deficiency within 10 years to extend the schedule for paying off their liabilities by five years.
- The Trustees elected to utilize this provision effective January 1, 2009.
- The chart below shows the development of the Funding Standard Account without the five-year amortization extension.

FSA for the Plan Years ending December 31, 2019 and 2020
Disregarding Five-Year Amortization Extension

		2019	2020
1	Prior year funding deficiency	$387,226,342	$167,015,632
2	Normal cost, including administrative expenses	140,675,083	100,410,617
3	Amortization charges	472,453,219	464,372,002
4	Interest on **1, 2 and 3**	75,026,598	54,884,869
5	Total charges	$1,075,381,242	$786,683,120
6	Prior year credit balance	$0	$0
7	Employer contributions	604,999,336	TBD
8	Amortization credits	261,096,558	256,245,081
9	Interest on **6, 7 and 8**	42,269,716	19,218,381
10	Full funding limitation credits	0	0
11	Total credits	908,365,610	275,463,463
12	Funding deficiency: **5 - 11**	$167,015,632	TBD
13	Minimum contribution with interest required to avoid a funding deficiency: **5-11** not less than zero	$167,015,632	$511,219,657

Section 3: Certificate of Actuarial Valuation

Full Funding Limitation (FFL) and Credits for Plan Year January 1, 2020

ERISA FFL (accrued liability FFL)	$3,340,981,122
RPA'94 override (90% current liability FFL)	8,569,215,076
FFL credit	0

Schedule MB, line 8e

Difference between minimum required contribution for the year and the minimum that would have been required without extending the amortization bases is $511,219,657.

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

Type of Base	Date Established	Outstanding Balance	Years Remaining	Amortization Amount
Plan Amendment[1]	01/01/1989	$53,183,277	4	$14,770,975
Prior Local 137 Combined Bases[1]	01/01/1990	211,321	3	75,592
Plan Amendment[1]	01/01/1990	20,664,852	5	4,751,277
Prior Local 51 Combined Bases[1]	01/01/1991	41,541	1	41,541
Prior Local 17 Combined Bases[1]	01/01/1991	411,697	1	411,697
Plan Amendment[1]	01/01/1991	24,682,171	6	4,891,545
Plan Amendment[1]	01/01/1992	138,580,031	7	24,338,561
Plan Amendment[1]	01/01/1993	32,748,790	8	5,201,026
Plan Amendment[1]	01/01/1994	41,738,010	9	6,086,650
Plan Amendment[1]	01/01/1995	11,210,270	10	1,519,236
Plan Amendment[1]	01/01/1996	50,427,896	11	6,412,433
Change in Assumptions[1]	01/01/1996	78,163,715	11	9,939,332
Plan Amendment[1]	01/01/1997	73,724,971	12	8,866,051
Plan Amendment[1]	01/01/1998	18,875,901	13	2,160,881
Plan Amendment[1]	01/01/1999	5,067,565	14	555,298
Plan Amendment[1]	01/01/2000	180,651,002	15	19,037,630
Plan Amendment[1]	01/01/2001	1,889,051	16	192,228
Actuarial Loss[1]	01/01/2001	5,338,829	1	5,338,829
Actuarial Loss[1]	01/01/2002	69,115,852	2	35,807,008
Plan Amendment[1]	01/01/2002	104,004,528	17	10,255,333
Plan Amendment[1]	01/01/2003	38,805,835	18	3,719,186
Actuarial Loss[1]	01/01/2003	169,018,432	3	60,459,486

[1] Denotes bases that were extended five years (not to exceed 30 years for the extended recognition of the 2008 investment loss) under IRC Section 431(d)(1)

Type of Base	Date Established	Outstanding Balance	Years Remaining	Amortization Amount
Actuarial Loss[1]	01/01/2004	15,956,121	4	4,431,609
Plan Amendment[1]	01/01/2004	133,573,260	19	12,476,476
Actuarial Loss[1]	01/01/2005	33,404,520	5	7,680,390
Actuarial Loss[1]	01/01/2006	16,912,911	6	3,351,823
Plan Amendment[1]	01/01/2006	35,884,226	21	3,205,525
Change in Asset Method[1]	01/01/2007	20,108,770	2	10,417,797
Actuarial Loss[1]	01/01/2007	26,192,761	7	4,600,187
Plan Amendment[1]	01/01/2007	41,684,421	22	3,652,209
Change in Assumptions[1]	01/01/2007	865,424,075	22	75,824,731
Actuarial Loss[1]	01/01/2008	28,252,092	8	4,486,880
Actuarial Loss[1]	01/01/2009	15,281,882	9	2,228,556
Extended Recognition of 2008 Investment Loss[1]	01/01/2009	570,021,292	19	53,243,117
Change in Assumptions	01/01/2011	80,003,698	6	15,855,236
Extended Recognition of 2008 Investment Loss	01/01/2011	266,235,113	18	25,516,210
Plan Amendment	01/01/2012	2,444,524	7	429,327
Actuarial Loss	01/01/2012	59,079,485	7	10,376,024
Extended Recognition of 2008 Investment Loss	01/01/2012	60,152,827	18	5,765,101
Plan Amendment	01/01/2013	3,065,067	8	486,781
Change in Assumptions	01/01/2013	29,269,008	8	4,648,382
Extended Recognition of 2008 Investment Loss	01/01/2013	68,747,613	18	6,588,832
Plan Amendment	01/01/2014	1,959,527	9	285,758
Extended Recognition of 2008 Investment Loss	01/01/2014	167,405,311	18	16,044,274
Plan Amendment	01/01/2015	2,662,848	10	360,874
Actuarial Loss	01/01/2015	56,060,973	10	7,597,484

[1] Denotes bases that were extended five years (not to exceed 30 years for the extended recognition of the 2008 investment loss) under IRC Section 431(d)(1)

Type of Base	Date Established	Outstanding Balance	Years Remaining	Amortization Amount
Change in Assumptions	01/01/2015	126,142,532	10	17,095,062
Plan Amendment	01/01/2016	3,536,597	11	449,715
Actuarial Loss	01/01/2016	145,063,232	11	18,446,305
Plan Amendment	01/01/2017	1,009,430	12	121,392
Actuarial Loss	01/01/2017	113,689,202	12	13,672,087
Actuarial Loss	01/01/2018	87,783,838	13	10,049,346
Plan Amendment	01/01/2019	859,321	14	94,163
Actuarial Loss	01/01/2019	138,270,253	14	15,151,509
Plan Amendment	01/01/2020	310,187	15	32,689
Actuarial Loss	01/01/2020	70,418,590	15	7,420,956
Total		**$4,405,421,044**		**$586,918,602**

Schedule of FSA Bases (Credits) (Schedule MB, Line 9h)

Type of Base	Date Established	Outstanding Balance	Years Remaining	Amortization Amount
Prior Local 501 Combined Bases	01/01/1990	$22,416	1	$22,416
Change in Assumptions	01/01/1992	22,042,471	2	11,419,593
Change in Method	01/01/1992	30,449,035	2	15,774,801
Plan Amendment	07/01/1994	102,656	10.5	13,462
Plan Amendment	01/01/1996	74,526,148	6	14,769,688
Plan Amendment	09/01/2003	191,541,470	13.67	21,285,335
Plan Amendment	01/01/2005	29,224,294	15	3,079,758
Plan Amendment	01/01/2008	7,288,068	3	2,607,011
Plan Amendment	03/01/2008	144,294,619	3.17	49,137,498
Plan Amendment	08/01/2008	90,797,057	3.58	27,770,773
Change in Asset Method (Funding Relief)	01/01/2009	197,713,239	19	18,467,502
Plan Amendment	01/01/2010	2,730,031	5	627,691
Actuarial Gain	01/01/2010	55,221,942	5	12,696,666
Extended Recognition of 2008 Investment Loss	01/01/2010	148,356,138	18	14,218,584
Plan Amendment	01/01/2011	6,851,352	6	1,357,810
Actuarial Gain	01/01/2011	152,484,879	6	30,219,651
Plan Amendment	01/01/2013	136,929	8	21,746
Actuarial Gain	01/01/2013	29,748,476	8	4,724,529
Actuarial Gain	01/01/2014	124,153,312	9	18,105,267
Plan Amendment	01/01/2018	7,134,491	13	816,745
Change in assumptions	01/01/2019	83,123,222	14	9,108,555
Total		**$1,397,942,245**		**$256,245,081**

Exhibit J: 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 tax-deductible contribution amount.
- The maximum deductible amount for this valuation is the excess of 140% of "current liability" over assets as shown below. "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	Current liability for maximum deductible contribution, projected to the end of the plan year	$15,606,579,302
2	140% of current liability	21,849,211,022
3	Actuarial value of assets, projected to the end of the plan year	5,476,706,295
4	**Maximum deductible contribution: 2 - 3**	**$16,372,504,727**

Exhibit K: Current Liability

The table below presents the current liability for the Plan Year beginning January 1, 2020.

Item[1]	Number of Participants		Current Liability
Interest rate assumption			2.95%
Retired participants and beneficiaries receiving payments	48,834		$6,758,343,952
Inactive vested participants	32,750		2,225,616,226
Active participants			
• Non-vested benefits		$970,607,665	
• Vested benefits		5,490,931,506	
• Total active	62,816		$6,461,539,171
Total	**144,400**		**$15,445,499,349**

Expected increase in current liability due to benefits accruing during the plan year	$250,450,974
Expected release from current liability for the plan year	544,372,068
Expected plan disbursements for the plan year, including administrative expenses of $15,000,000	559,372,068

Current value of assets[2]	$5,794,474,602
Percentage funded for Schedule MB	37.51%

[1] The actuarial assumptions used to calculate these values are shown in Exhibit M.
[2] Includes withdrawal liability receivables.

Exhibit L: 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, 2019 and as of January 1, 2020. In addition, a reconciliation between the two dates follows.

	Benefit Information Date	
	January 1, 2019	**January 1, 2020**
Actuarial present value of vested accumulated plan benefits:		
• Participants currently receiving payments	$4,294,083,817	$4,436,856,196
• Other vested benefits	3,139,466,960	3,217,443,410
• Total vested benefits	$7,433,550,777	$7,654,299,606
Actuarial present value of non-vested accumulated plan benefits	394,149,219	390,116,931
Total actuarial present value of accumulated plan benefits	**$7,827,699,996**	**$8,044,416,537**

Factors	Change in Actuarial Present Value of Accumulated Plan Benefits
Plan amendments[1]	$310,187
Benefits accumulated, net experience gain or loss, changes in data	158,072,732
Benefits paid	-509,632,653
Interest	567,966,275
Total	**$216,716,541**

[1] Includes net impact of changes in individual participants' contributions rate and/or Funding Improvement Plan option.

Exhibit M: Statement of Actuarial Assumptions/Methods

(Schedule MB, Line 6)

Rationale for Demographic and Noneconomic Assumptions	The information and analyses used in selecting each demographic assumption that has a significant effect on this actuarial valuation are shown in the experience study report titled: "Demographic Experience Analysis: January 1, 2013 through December 31, 2017," dated April 2, 2019. Assumptions were based on historical and current demographic data, adjusted to reflect estimated future experience and professional judgment.
Mortality Rates	*Healthy Male Employee:* 103% of the RP-2006 Blue Collar Male Employee Mortality Table, projected generationally from 2006 with scale MP-2018 *Healthy Female Employee:* 108% of the RP-2006 Blue Collar Female Employee Mortality Table, projected generationally from 2006 with scale MP-2018 *Healthy Male Pensioner or Beneficiary:* 103% of the RP-2006 Blue Collar Healthy Annuitant Mortality Table, projected generationally from 2006 with scale MP-2018 *Healthy Female Pensioner or Beneficiary:* 108% of the RP-2006 Blue Collar Healthy Annuitant Mortality Table, projected generationally from 2006 with scale MP-2018 *Disabled Male:* 90% of the RP-2006 Disabled Male Retiree Mortality Table, projected generationally from 2006 with scale MP-2018 *Disabled Female:* 100% of the RP-2006 Disabled Female Retiree Mortality Table, projected generationally from 2006 with scale MP-2018 The above tables with generational projections to the ages of participants as of the measurement date reasonably reflect the mortality experience of the Plan as of the measurement date. The mortality tables were then adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.

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Annuitant Mortality Rates

	Rate (%)[1]			
	Healthy		Disabled	
Age	Male	Female	Male	Female
55	0.63%	0.47%	2.13%	1.55%
60	0.92%	0.70%	2.54%	1.93%
65	1.40%	1.01%	3.08%	2.23%
70	2.11%	1.53%	3.78%	2.86%
75	3.33%	2.52%	5.01%	4.17%
80	5.51%	4.31%	7.12%	6.39%
85	9.32%	7.58%	10.63%	9.77%
90	15.79%	13.13%	16.30%	14.41%

[1] Mortality rates are projected on a generational basis using Scale MP-2018. Rates above are sample rates in 2020.

Termination Rates before Retirement

	Rate (%)				
	Mortality[1]			Withdrawal[3]	
Age	Male	Female	Disability[2]	Construction	Production
20	0.06%	0.02%	0.03%	18.00%	23.00%
25	0.08%	0.03%	0.03%	10.00%	20.00%
30	0.08%	0.03%	0.03%	6.00%	15.00%
35	0.09%	0.04%	0.03%	5.00%	13.00%
40	0.10%	0.06%	0.04%	4.00%	11.00%
45	0.14%	0.08%	0.15%	3.00%	7.00%
50	0.23%	0.13%	0.40%	2.00%	7.00%
55	0.38%	0.22%	0.10%	2.00%	7.00%
60	0.66%	0.34%	0.10%	2.00%	7.00%

[1] Mortality rates are projected on a generational basis using Scale MP-2018. Rates above are sample rates in 2020.

[2] Participants are assumed to elect non-disability pensions upon eligibility.

[3] Withdrawal rates do not apply at or beyond early retirement age.

Retirement Rates for Active Participants

	Annual Retirement Rates		
Age	Not Eligible for Special Early	Eligible for Special Early but not for 55/30 (60/30) Pension	Eligible for 55/30 (60/30) Pension[1]
55	5%	5%	30%
56-57	5	5	15
58	5	5	15
59	5	8	15
60	6	10	25
61	9	14	25
62	22	33	40
63	13	21	25
64	16	24	25
65-66	25	35	40
67-69	25	35	30
70	100	100	100

[1] Rate at first eligibility for 55/30 (60/30, if applicable) Pension is 30% or above rate at applicable age, if higher

Description of Weighted Average Retirement Age for Active Participants

Age 62, 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 the January 1, 2020 actuarial valuation.

Retirement Rates for Inactive Vested Participants

	Annual Retirement Rates		
Age	**Not Eligible for Special Early**	**Eligible for Special Early but not for 55/30 (60/30) Pension**	**Eligible for 55/30 (60/30) Pension**
55	5%	15%	65%
56	5	10	40
57	5	10	45
58	5	15	40
59	5	15	25
60	5	15	30
61	5	20	30
62	10	50	50
63	10	30	50
64	15	30	50
65	35	35	50
66-79	25	50	50
80	100	100	100

Description of Weighted Average Retirement Age for Inactive Vested Participants

Age 66, 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 inactive vested participants included in the January 1, 2020 actuarial valuation.

Future Benefit Accruals

- For Construction employees: 1,750 hours per year
- For Production employees: 2,000 hours per year

The Funding Improvement Plan Option covering each participant, based on the census data provided for this valuation, is assumed to remain unchanged.

The Applicable Percentage under the Plan's benefit formula is 0.50% for 2020 and 1.00% for 2021. For 2022 and beyond, the average expected Applicable Percentage is 0.81%.

The average expected Applicable Percentage was determined by stochastically projecting the Plan's market investment returns after 2019. The stochastic projections were based on the long-term expected returns and volatility estimates as provided by the Plan's Investment Manager in 2020, as well as the Plan's target asset allocation.

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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	Employees with at least 435 hours in the most recent plan year and who have accumulated at least one year of vesting service, excluding those who have retired as of the valuation date.
Percent Married	80%
Age and Sex of Spouse	Spouse of male participant is assumed to be three years younger than the participant and spouse of female participant is assumed to be three years older than the participant. If the spouse's sex is not provided, the spouse is assumed to be the opposite sex of the participant.
Benefit Election	50% of participants are assumed to elect a single life annuity, 20% of participants are assumed to elect a 50% joint and survivor annuity (with popup, if available), and 30% of participants are assumed to elect a 100% joint and survivor annuity (with popup, if available).
Delayed Retirement Factors	Inactive vested participants after attaining age 65, with increases up to age 80.
Net Investment Return	7.50% The net investment return assumption is a long-term estimate derived from historical data, current and recent market expectations, and professional judgment. As part of the analysis, based on the Plan's target asset allocation, 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, and stochastic modeling was performed based on the long-term expected returns and volatility estimates as provided by the Plan's Investment Manager.
Annual Administrative Expenses	$15,000,000 for the year beginning January 1, 2020 (equivalent to $14,426,877 payable at the beginning of the year). The annual administrative expenses were based on historical and current data, adjusted to reflect estimated future experience and professional judgment.
Actuarial Value of Assets	The market value of assets less unrecognized returns in prior years. Unrecognized return is equal to the difference between the actual market return and the projected market return, and is recognized 20% per year over a five-year period. The actuarial value is further adjusted, if necessary, to be within 20% of the market value.
Actuarial Cost Method	Unit Credit Actuarial Cost Method. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis.
Benefits Valued	Unless otherwise indicated, includes all benefits summarized in Exhibit N.
Current Liability Assumptions	*Interest:* 2.95%, within the permissible range prescribed under IRC Section 431(c)(6)(E) *Mortality:* 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-2018 (previously, the MP-2017 scale was used).
Estimated Rate of Investment Return	*On actuarial value of assets (Schedule MB, line 6g):* 6.6%, for the Plan Year ending December 31, 2019 *On current (market) value of assets (Schedule MB, line 6h):* 17.2%, for the Plan Year ending December 31, 2019

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FSA Contribution Timing (Schedule MB, line 3a)	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 June 30 contribution date.
Justification for Change in Actuarial Assumptions **(Schedule MB, line 11)**	Based on past experience and future expectations, the following actuarial assumption was changed as of January 1, 2020: • Annual administrative expenses, previously $14,500,000, payable monthly.

Exhibit N: 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.

Plan Year	January 1 through December 31
Pension Credit Year	January 1 through December 31
Plan Status	Ongoing plan
Normal Retirement	• *Age Requirement:* 65 • *Service Requirement:* Five years of participation in the Plan • *Amount:* Described below. – **For service on and after January 1, 2014:** ❖ Participant's *Benefit Rate* multiplied by the participant's *Contribution Hours* for the Plan Year multiplied by the Applicable Percentage for the Plan Year. ❖ *Benefit Rate* is the portion of the participant's contribution rate that is subject to benefit accruals. For Participants working under a Collective Bargaining Agreement that qualifies for a 55/30 (or 60/30) Pension, the Benefit Rate is the total Contribution Rate less the 55/30 (or 60/30) Rate (30% of the Contribution Rate for periods after December 1, 2007). ❖ *Contribution Hours* are the hours for which contributions are required to be made for the participant's work in Covered Employment. ❖ *Applicable Percentage* is based on the average of the Plan's rate of market value investment return for each of the three most recent Plan Years reported in the Actuarial Valuation and Review as of January 1 of the immediately preceding Plan Year and is defined in the following table:

Applicable Percentage	Average of Market Value Investment Return Percentages for 3 Most Recent Plan Years
1.25%	10.0% or higher
1.00%	8.5% or higher but less than 10.0%
0.75%	6.5% or higher but less than 8.5%
0.50%	Greater than 0% but less than 6.5%
0.00%	0.0% or less

❖ The above formula applies unless otherwise stated in a Funding Improvement Plan Option.

❖ The Applicable Percentage for the 2020 Plan Year is 0.50%.

Normal Retirement (continued)	

Normal Retirement (continued)

– **For service and on and after adoption of Rehabilitation Plan Schedule and before January 1, 2014:**

- Default Schedule/Persons for Whom Contribution were Not Required to be Made (“Persons for Whom”): 1% of the amount determined by multiplying the participant’s Benefit Rate by the participant’s Contribution Hours for the Plan Year.
- First Alternative Schedule: Same as accrual for service on and after December 1, 2007 and before adoption of Rehabilitation Plan Schedule.
- Second Alternative Schedule: 1% of the amount determined by multiplying the participant’s Benefit Rate by the participant’s Contribution Hours for the Plan Year.
- Formerly Alternative Schedule and Agreement Did Not Include Required Contribution Rate Increases - No Increase Consequences (“NIC”): 1% of the amount determined by multiplying the participant’s Benefit Rate by the participant’s Contribution Hours for the Plan Year.

– **For service and on and after December 1, 2007 and before adoption of Rehabilitation Plan Schedule:**

- Employers that have not made required contribution rate increases: Same as accrual for service after August 31, 2003.
- Employers that have made required contribution rate increases: 1.5% of the amount determined by multiplying the participant’s Benefit Rate by the participant’s Contribution Hours for the Plan Year (up to 1,200 hours), plus 0.7% of the amount determined by multiplying the participant’s Benefit Rate by the participant’s Contribution Hours (over 1,200 hours). The 1.5% multiplier is applied to the first 1,200 hours at the highest Benefit Rate in effect during the Plan Year.

– **For service and on and after August 31, 2003 and before December 1, 2007:**

- 0.8571% of the amount determined by multiplying the participant’s Benefit Rate by the participant’s Contribution Hours (up to 1,400 hours), plus 0.3% of the amount determined by multiplying the participant’s Benefit Rate by the participant’s Contribution Hours (over 1,400 hours). For participants in 55/30 Locals, 80% of the total contribution rate is subject to benefit accruals. The 0.8571% multiplier is applied to the first 1,400 hours at the highest Benefit Rate in effect during the Plan Year.
- Supplemental accruals:

  Locals are required to increase their contribution rates subject to benefit accruals by 10% annually for eligibility. Participants of Locals that make the required increases earn a supplemental accrual that brings the total accrual to twice the normal rate in the year following the increase.

Normal Retirement (continued)	– **For service and on and after December 31, 1999 and before September 1, 2003:** ❖ 1.7142% of the amount determined by multiplying the participant's Benefit Rate by the participant's Contribution Hours (up to 1,400 hours), plus 0.6% of the amount determined by multiplying the participant's Benefit Rate by the participant's Contribution Hours (over 1,400 hours). The 1.7142% multiplier is applied to the first 1,400 hours at the highest Benefit Rate in effect during the Plan Year. – **For service before January 1, 2000:** ❖ Benefit accrued according to the rules of the Plan in effect on December 31, 1999 – **Past service:** ❖ \$10.00 for each year of Past Service Credit, if any, up to 10 years • *Post-Normal Retirement Age Adjustment:* Regular pension accrued at Normal Retirement Age (NRA), increased by 1.0% for each month greater than NRA, and 1.5% for each month greater than age 70.
Early Retirement	• The following applies to all participants with an effective date of pension on or after February 1, 2014 retiring under an early retirement provision (Standard Early Retirement, Special Early Retirement, Age 62 Pension, 55/30 Pension, and 60/30 Pension). Previously, the provisions described for benefits accrued before January 1, 2014 were in effect. Participant may be eligible for different early retirement provisions for pre-2014 and post-2013 accrued benefits. Portions of the post-2013 accrued benefits may also be subject different early retirement provisions depending on the classification of employment of the participant's Contribution Hours.

Standard Early Retirement	• *Age Requirement:* 55 • *Service Requirement:* Fulfill any one of the following: a. 10 years of Pension Credits, including at least five years of Future Service Credit, or b. 10 years of Vesting Service, or c. 15 years of Pension Credits, including at least 12 months of Future Service Credit • *Amount:* Normal Retirement benefit reduced as described below. – **For benefits accrued on and after January 1, 2014:** Reductions based on the participant's Funding Improvement Plan Option, which depends upon the Schedule or Rehabilitation Plan provision which applied to the classification of employment when the Plan was in critical status. ❖ *Default Option* — Actuarially from age 65 (Unsubsidized Early Retirement Pension) ❖ *First Alternative Option* — 6% per year from age 65 ❖ *Second Alternative Option* — Actuarially from age 65 (Unsubsidized Early Retirement Pension) – **For benefits accrued before January 1, 2014:** Reductions based on the participant's Funding Improvement Plan Option, which depends upon the Schedule or Rehabilitation Plan provision which applied to the classification of employment when the Plan was in critical status. ❖ *Default Schedule/ Persons for Whom* — Actuarially from age 65 (Unsubsidized Early Retirement Pension) ❖ *First Alternative Schedule* — 6% per year from age 65 ❖ *Second Alternative Schedule* — Actuarially from age 65 (Unsubsidized Early Retirement Pension) ❖ *NIC* — Actuarially from age 65 (Unsubsidized Early Retirement Pension)

Special Early Retirement	• *Age Requirement:* 55 • *Service Requirement:* Fulfill any one of the following: a. 10 years of Pension Credits, including at least five years of Future Service Credit, or b. 10 years of Vesting Service, or c. 15 years of Pension Credits, including at least 12 months of Future Service Credit • *Active Service Requirement:* Complete at least 3,500 hours of work in covered employment during the five consecutive calendar years immediately preceding retirement • *Amount:* Normal Retirement benefit reduced as described below. – **For benefits accrued on and after January 1, 2014:** Reductions based on the participant's Funding Improvement Plan Option, which depends upon the Schedule or Rehabilitation Plan provision which applied to the classification of employment when the Plan was in critical status. ❖ *Default Option* — Unavailable ❖ *First Alternative Option* — 6% per year from age 62 ❖ *Second Alternative Option* — Unavailable – **For benefits accrued before January 1, 2014:** Reductions based on the participant's Funding Improvement Plan Option, which depends upon the Schedule or Rehabilitation Plan provision which applied to the classification of employment when the Plan was in critical status. ❖ *Default Schedule/ Persons for Whom* — Unavailable ❖ *First Alternative Schedule* — 6% per year from age 62 ❖ *Second Alternative Schedule* — Unavailable ❖ *NIC* — Unavailable

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Age 62 Pension	• *Age Requirement:* 62 • *Service Requirement:* Same as Special Early Retirement • *Active Service Requirement:* Same as Special Early Retirement • *Amount:* Described below. – **For benefits accrued on and after January 1, 2014:** Reductions based on the participant's Funding Improvement Plan Option, which depends upon the Schedule or Rehabilitation Plan provision which applied to the classification of employment when the Plan was in critical status. ❖ *Default Option* — Unavailable ❖ *First Alternative Option* — Unavailable ❖ *Second Alternative Option* — Normal Retirement Benefit amount – **For benefits accrued before January 1, 2014:** Amount based on the participant's Home Local Schedule (Rehabilitation Plan Schedule) when the Plan was in critical status. ❖ *Default Schedule/ Persons for Whom* — Unavailable ❖ *First Alternative Schedule* — Unavailable ❖ *Second Alternative Schedule* — Normal Retirement Benefit amount ❖ *NIC* — Normal Retirement Benefit amount

55/30 Pension	• *Age Requirement:* 55 • *Service Requirement:* 30 years of Future Service Credit with at least 60 months of the last 120 months of Future Service Credit subject to a 55/30 Rate • *Active Service Requirement:* Complete at least 3,500 hours of work in covered employment at 55/30 Rate during the five consecutive calendar years immediately preceding retirement • *Amount:* Described below. – **For benefits accrued on and after January 1, 2014:** Reductions based on the participant's Funding Improvement Plan Option, which depends upon the Schedule or Rehabilitation Plan provision which applied to the classification of employment when the Plan was in critical status. ❖ *Default Option* — Unavailable ❖ *First Alternative Option* — Normal Retirement Benefit amount ❖ *Second Alternative Option* — Unavailable – **For benefits accrued before January 1, 2014:** Amount based on the participant's Home Local Schedule (Rehabilitation Plan Schedule) when the Plan was in critical status. ❖ *Default Schedule/ Persons for Whom* — Unavailable ❖ *First Alternative Schedule* — Normal Retirement Benefit amount ❖ *Second Alternative Schedule* — Unavailable ❖ *NIC* — Unavailable

60/30 Pension	• *Age Requirement:* 60 • *Service Requirement:* Same as 55/30 Pension • *Active Service Requirement:* Same as 55/30 Pension • *Amount:* Described below. – **For benefits accrued on and after January 1, 2014:** Reductions based on the participant's Funding Improvement Plan Option, which depends upon the Schedule or Rehabilitation Plan provision which applied to the classification of employment when the Plan was in critical status. ❖ *Default Option* Unavailable ❖ *First Alternative Option* Unavailable ❖ *Second Alternative Option* Normal Retirement Benefit amount – **For benefits accrued before January 1, 2014:** Amount based on the participant's Home Local Schedule (Rehabilitation Plan Schedule) when the Plan was in critical status. ❖ *Default Schedule/ Persons for Whom* Unavailable ❖ *First Alternative Schedule* Unavailable ❖ *Second Alternative Schedule* Normal Retirement Benefit amount ❖ *NIC* Unavailable
Full Disability	• *Age Requirement:* Under age 55 • *Service Requirement:* 10 years of Credited Service, including at least five years of Future Service Credit • *Active Service Requirement:* Worked at least 435 hours in the 24-month period immediately preceding application date of disablement • *Other Requirement:* Approved for disability benefit with the Social Security Administration or Railroad Retirement Board • *Amount:* Early Retirement benefit amount, payable beginning in the seventh month of disability • *Charge for Coverage:* None • *The Disability Benefit is not payable for participants categorized as Persons for Whom when the Plan was in critical status unless all eligibility conditions had been satisfied before January 1, 2010.*
Vesting	• *Age Requirement:* None • *Service Requirement:* Five years of Vesting Service. • *Amount:* Normal Retirement benefit amount, based on plan in effect when last active • *Normal Retirement Age:* 65

Spouse's Pre-Retirement Death Benefit	• *Age Requirement:* None • *Service Requirement:* Has attained Vested Status • *Amount:* 50% of the monthly benefit the participant would have received had he/she terminated employment on his/her date of death and survived to his/her Early Retirement Date (or any later date elected by the spouse), retired and elected to receive benefits in the Normal Form of payment. • *When Paid:* Immediately if participant's death occurred after attainment of his/her earliest retirement age, otherwise month in which the participant would have attained his/her earliest retirement age. If surviving spouse elects to receive payments before the month in which participant would have attained his/her earliest retirement age, the monthly benefit will be the actuarial equivalent of the amount described above.
Pre-Retirement Lump-sum Death Benefit	• *Age Requirement:* None • *Eligibility:* Date of death after December 31, 2007; has attained Vested Status; no portion of the benefit assigned to an Alternative Payee under a QDRO; and worked at least 435 hours within 24-month period preceding death • *Amount:* $5,000
Post-Retirement Death Benefit	• *50% Joint and Survivor:* If married, pension benefits are paid in the form of a 50% joint and survivor annuity unless the participant and spouse reject this form. If not rejected, the benefit amount otherwise payable is reduced to reflect the joint and survivor coverage. If not rejected, the spouse predeceases the employee, and the employee retired on March 1, 1999 or later, the employee's benefit amount will subsequently be increased to the unreduced amount payable ("pop-up" feature) had the joint and survivor coverage been rejected. If rejected, or if not married, benefits are payable for the life of the employee, or in any other available optional form elected by the employee in an actuarially equivalent amount. The "pop-up" feature is only applicable to pre-2014 benefits if the participant's Home Local Schedule/Rehabilitation Plan Schedule as of December 31, 2013 was the First Alternative Schedule or Second Alternative Schedule. It is only applicable to post-2013 benefits attributable to Contribution Hours worked under a collective bargaining agreement satisfying the required contribution rate increases under the Rehabilitation Plan First Alternative Schedule/Funding Improvement Plan First Alternative Option or Rehabilitation Plan Second Alternative Schedule/Funding Improvement Plan Second Alternative Option. • *60-Month Certain:* If the member has completed at least 15 years of Pension Credits before retirement and died within 5 years after retirement (if married, and taking joint and survivor pension, the spouse also died prior to receiving an amount equal to 60 times the amount of the pension the participant had been entitled), the pension benefit will continue to be paid to the participant's designated beneficiary until a total of 60 months payments had been made. The 60-month certain is only applicable to pre-2014 benefits if the participant's Home Local Schedule/Rehabilitation Plan Schedule as of December 31, 2013 was the First Alternative Schedule or Second Alternative Schedule. It is only applicable to post-2013 benefits attributable to Contribution Hours worked under a collective bargaining agreement satisfying the required contribution rate increases under the Rehabilitation Plan First Alternative Schedule/Funding Improvement Plan First Alternative Option or Rehabilitation Plan Second Alternative Schedule/Funding Improvement Plan Second Alternative Option.

Forms of Payment	The normal forms of payment are: • Single life annuity for single participants, and • 50% joint and survivor annuity with a "pop-up" feature for married participants (if applicable) The available optional forms of payment are: • Single life annuity with 60-month certain (if applicable) • 50% joint and survivor annuity with a "pop-up" feature and 60-month certain (if applicable) • 75% joint and survivor annuity with a "pop-up" feature (if applicable) • 100% joint and survivor annuity with and without a "pop-up" feature (if applicable) The "pop-up" feature and 60-month certain are only applicable to pre-2014 benefits if the participant's Home Local Schedule/Rehabilitation Plan Schedule as of December 31, 2013 was the First Alternative Schedule or Second Alternative Schedule. They are only applicable to post-2013 benefits attributable to Contribution Hours worked under a collective bargaining agreement satisfying the required contribution rate increases under the Rehabilitation Plan First Alternative Schedule/Funding Improvement Plan First Alternative Option or Rehabilitation Plan Second Alternative Schedule/Funding Improvement Plan Second Alternative Option.
Participation	After completion of 870 hours during a calendar year
Past Service Credit	Service granted on the basis of days worked or amount earned in covered employment in calendar years prior to a participant's Contribution Date. For employers with a Contribution Date on or after January 1, 2000, the employer's initial contribution rate must be at least $0.50 per hour.

Future Service Credit	Service granted on the basis of hours of work in a calendar year after a Participant's Contribution Date in accordance with the following schedule:

Months of Future Service Credit	Hours of Work in Covered Employment During Calendar Year
0	Less than 100
1	100 - 199
2	200 - 299
3	300 - 399
4	400 - 499
5	500 - 599
6	600 - 699
7	700 - 799
8	800 - 899
9	900 - 999
10	1,000 - 1,099
11	1,100 - 1,199
12	1,200 & Over

Pension Credit	Sum of the Past Service Credit and Future Service Credit (excluding service lost under the Plan's break in service rules)
Vesting Credit	870 or more hours of work within a Plan year earns one year of Vesting Service
Contribution Rate	Varies from $0.05 to $19.30 per hour as of the valuation date. The average rate is $5.28 per hour as of January 1, 2020. 2.5% of certain employer contributions are allocated to 401(h) Medical Accounts but are subject to pension benefit accruals.
Required Contribution Increases	Contribution rate increases required under the Funding Improvement Plan Options are described below. • *First Alternative Option:* None for 2019 through 2020, 2.0% for 2021 and 2022. • *Second Alternative Option:* None for 2019 through 2020, 1.0% for 2021 and 2022.

Section 3: Certificate of Actuarial Valuation

Cost of Living Adjustment (COLA)	• *Eligibility:* Pensioners and beneficiaries whose benefits are based on contribution rates that were increased by the Required Pension Fund Increase and who separated and retired from Covered Employment on or after January 1, 1991 and before December 1, 2001. No payment is made after January 1, 2008 unless the annual supplement had been in effect 60 months before that date (i.e., the benefit must have been payable on the participant's Allocation Date for 2002 – October 31, 2002). • *Amount:* An annual supplement equal to 2% of the participant's total monthly payments for the 12 months immediately preceding the Allocation Date, multiplied by the number of whole years preceding the Allocation Date that the participant or beneficiary has received benefits, up to a maximum of 15 years. If the participant had elected a level income option, the 2% factor is applied to the benefit prior to the adjustment for the form of payment. – Effective July 1, 1995, no NPF COLA Benefit is payable with respect to any benefits accrued after June 30, 1995. – A participant who was retired and received an annual supplemental increase under the NPF COLA Benefit for the 2002 Allocation Date will continue to receive the benefit, but it will not exceed the supplement that was paid for the 2002 Allocation Date (i.e., it remains fixed at that amount).
Changes in Plan Provisions	• Since benefit accruals are tied directly to contribution rates, changes in contribution rates are treated as a Plan change. In addition, some participants' Funding Improvement Plan Option changed. • The Active Service Requirement for Full Disability was changed from 435 work hours in the 24-month period immediately preceding the date of disablement to the 24-month period immediately preceding the date of application for a full disability.

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