

MILLIMAN ACTUARIAL VALUATION

I.B.E.W. Local 332 Pension Plan Part A

January 1, 2019 Actuarial Valuation

Revised November 2019

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November 5, 2019

Trustees
I.B.E.W. Local 332 Pension Plan – Part A

Re: January 1, 2019 Actuarial Valuation

Dear Trustees:

As requested, we performed an actuarial valuation of the I.B.E.W. Local 332 Pension Plan - Part A ("Plan") as of January 1, 2019, for the plan year ending December 31, 2019. Our findings are set forth in this actuary's report.

In preparing this report, we relied, without audit, on information supplied by the administrative office, the Plan's independent auditor and the Plan's attorney. This information includes, but is not limited to, Plan documents and provisions, employee data, and draft financial information. We found this information reasonably consistent and comparable with data used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

For actuarial requirements under ERISA, all costs, liabilities, rates of interest, and other factors under the Plan (except when mandated directly by the Internal Revenue Code and its regulations) have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the Plan and reasonable expectations) and which, in combination, offer our best estimate of anticipated experience under the Plan. We completed this actuarial valuation in accordance with our understanding of IRS minimum funding requirements, as amended by subsequent legislation, and reflecting all proposed regulations and guidance issued to date.

For actuarial requirements under FASB ASC Topic 960, all liabilities, rates of interest, and other factors under the Plan have been determined on the basis of actuarial assumptions and methods which are reasonable and consistent with our understanding of FASB ASC Topic 960. For actuarial requirements for calculating unfunded vested benefits for withdrawal liability, all costs, liabilities, rates of interest, and other factors under the Plan (except when mandated directly by ERISA and its regulations) have been determined on the basis of actuarial assumptions and methods which comply with ERISA Section 4213.

Actuarial computations under ERISA are to determine the minimum required and maximum allowable funding amounts for an ongoing plan. The calculations in the enclosed report have been made on a basis consistent with our understanding of ERISA. Results for other purposes may be significantly different than the results in this report; other calculations may be needed for other purposes, such as judging benefit security at plan termination.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to many factors, including: 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. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Milliman's work is prepared solely for the internal business use of the Trust and its Trustees for their use in administering the Trust. Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions:

- (a) The Trust may provide a copy of Milliman's work, in its entirety, to the Trust's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the Trust.
- (b) The Trust may distribute certain work product that Milliman and the Trust mutually agree is appropriate for distribution to participating employers, pension participants and other parties as may be required by the Pension Protection Act of 2006 and/or the Multiemployer Pension Reform Act of 2014.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are retirement actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

We respectfully submit the following report, and we look forward to discussing it with you.

Sincerely,


Ladd E. Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary


Grant Camp, FSA, EA, MAAA
Principal and Consulting Actuary

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A. Overview of Results

	ACTUARIAL VALUATION FOR PLAN YEAR BEGINNING	
	JANUARY 1, 2018	JANUARY 1, 2019
Assets		
Market Value of Assets	\$584,274,445	\$560,868,059
Actuarial Value of Assets	\$584,274,445	\$560,868,059
Ratio of Actuarial Value to Market Value	100%	100%
Market Value Return for Prior Year	15.3%	(3.9%)
Gain / (Loss) vs. assumption	\$42,030,122	\$(63,667,200)
Funded Status		
Present Value of Accrued Benefits	\$638,275,759	\$666,064,905
Market Funded Percentage	91.5%	84.2%
Actuarial (Pension Protection Act) Funded Percentage	91.5%	84.2%
Withdrawal Liability		
Present Value of Vested Benefits	\$605,144,489	\$631,036,207
Assets for Withdrawal Liability	<u>(584,274,445)</u>	<u>(560,868,059)</u>
Unfunded Vested Benefit Liability	\$20,870,044	\$70,168,148
Credit Balance and Contribution Requirements		
Unfunded Actuarial Accrued Liability	\$54,001,314	\$105,196,846
Normal Cost	\$16,183,586	\$15,876,083
Amortization of Unfunded Actuarial Accrued Liability	<u>10,656,682</u>	<u>18,806,375</u>
Annual Cost (Beginning of Year)	\$26,840,268	\$34,682,458
Contribution to Maintain Credit Balance (Middle of Year)	\$23,524,701	\$30,632,810
Anticipated Contributions	40,891,800	39,640,440
Credit Balance at End of Prior Year	62,443,164	77,218,169
Projected Credit Balance at End of Current Year		86,541,066
Participant Data		
Retires and Beneficiaries	1,503	1,548
Vested Inactive Participants	333	325
Active Participants	<u>2,032</u>	<u>1,996</u>
Total Participants in Valuation	3,868	3,869
Certification Status		
	Green	Green

B. Purpose of this Report

This report has been prepared for the I.B.E.W. Local 332 Pension Plan - Part A as of January 1, 2019 to:

- Review the Plan's funded status as of January 1, 2019.
- Review the experience for the plan year ending December 31, 2018, including the impact of the performance of the Plan's assets during the year and changes in plan participant demographics that impact liabilities.
- Calculate the Plan's funding requirements under ERISA for the plan year beginning January 1, 2019.
- Determine the Plan's unfunded vested benefit liability for withdrawal liability purposes as of December 31, 2018 in accordance with the Multiemployer Pension Plan Amendments Act of 1980.
- Determine the actuarial present value of accumulated plan benefits as of January 1, 2019 for purposes of disclosing the Plan's liabilities under FASB ASC Topic 960.

C. Plan Provisions

The following Plan change was adopted effective January 1, 2019, and incorporated into this valuation.

- Amendment 12 increased the credit rate to \$3.30 for all hours worked in 2019. This change had no impact on the liabilities of the Plan, but increased the Plan's normal cost by 10%, or approximately \$1.4 million, compared to a credit rate of \$3.00 per hour.

D. Actuarial Methods and Assumptions

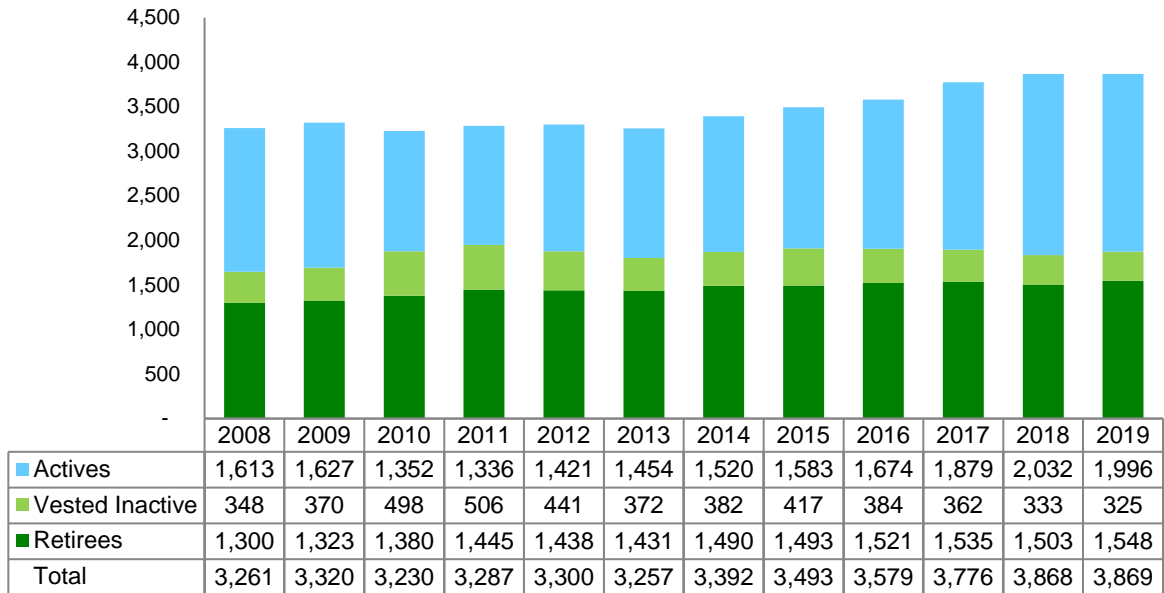
Other than changes mandated by the IRS, no changes were made to the methods and assumptions for this valuation that impacted the Plan's funding.

E. Participant Information

PARTICIPANT COUNTS

The table below shows the number of participants included in this valuation, along with comparable information from the last several valuations.

FIGURE 1: PARTICIPANT COUNTS

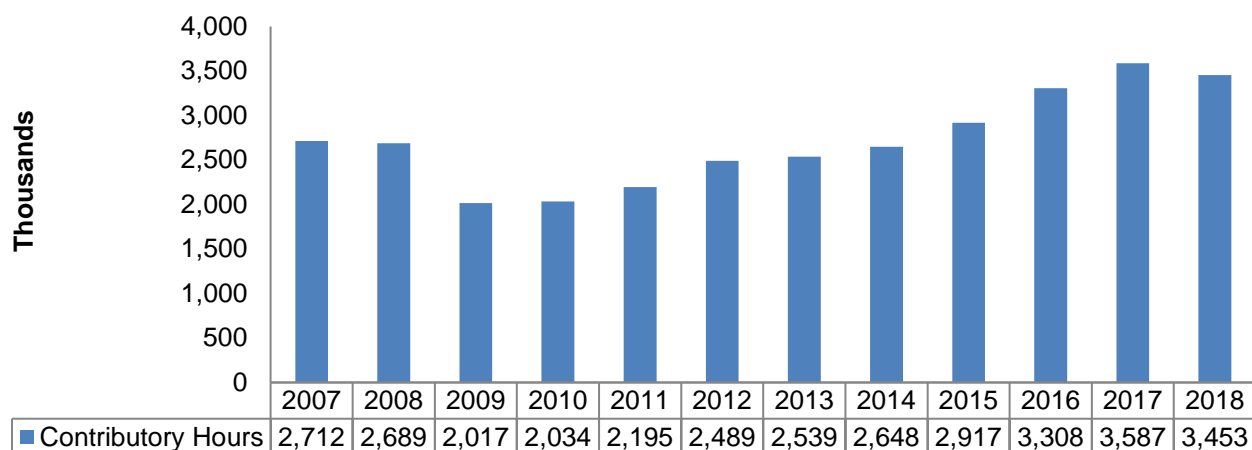


For valuation purposes, an active participant is a participant who is not retired, terminated or deceased on the valuation date and who worked at least 300 hours in the prior plan year.

CONTRIBUTORY HOURS

Based on the information provided by the Plan's administrator, about 3,453,000 hours were reported in 2018. The graph below shows how this level compares to the Plan's historical level of contributory hours.

FIGURE 2: HISTORICAL CONTRIBUTORY HOURS



The Plan's total average hours-weighted contribution rate during the 2018 plan year was **\$10.80 per hour**. Of that amount an average of \$3.30 per hour was included inside the benefit formula, while the no benefits are earned on the difference.

F. Plan Assets

The Plan's market value of assets is the net assets available for benefits as shown on the Plan's financial statements. The Plan's actuarial value of assets is equal to the market value of assets. Figure 3 shows these values along with the Plan's rate of investment return, net of investment expenses, over the past five years.

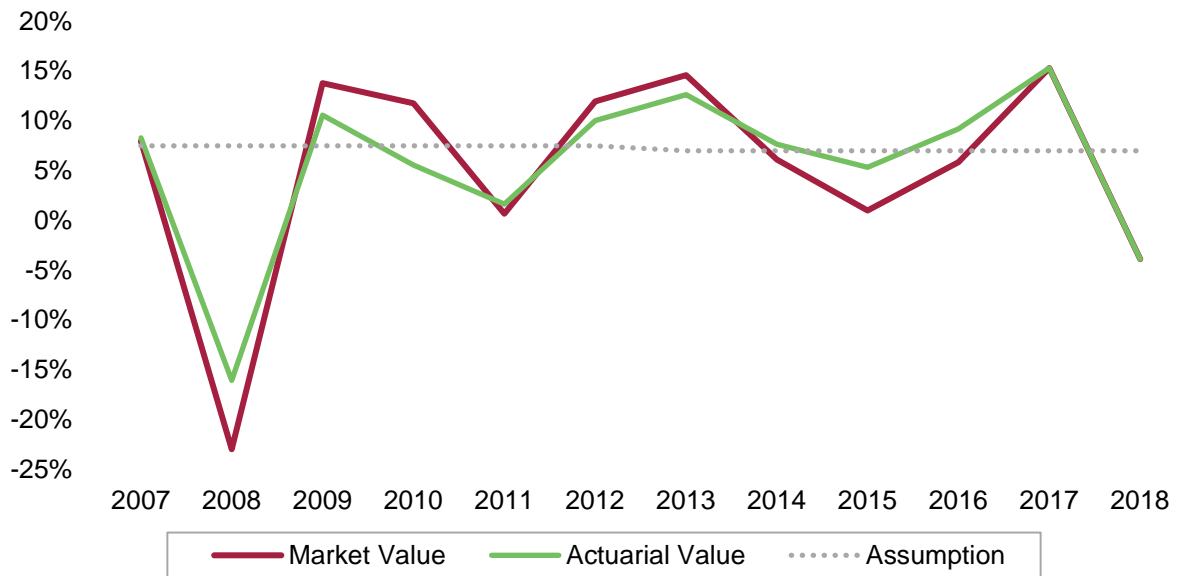
FIGURE 3: PLAN ASSETS

JANUARY 1,	PRIOR YEAR RETURN		MARKET VALUE OF ASSETS	ACTUARIAL VALUE OF ASSETS	GAIN/(LOSS) ON MARKET VALUE
	MARKET	ACTUARIAL			
2019	(3.9%)	(3.9%)	\$560,868,059	\$560,868,059	(\$63,667,200)
2018	15.3	15.3	584,274,445	584,274,445	42,030,122
2017	5.9	9.2	503,904,998	503,904,998	(5,414,945)
2016	1.0	1.8	474,967,401	459,388,152	(28,338,525)
2015	6.1	7.7	472,531,941	453,409,294	(3,910,254)

HISTORICAL INVESTMENT RETURN

Over the past 12 years, the Plan's assets have an **annualized average return of 4.6%** per year on a market value basis, net of investment expenses, significantly less than the assumed rate of return. Figure 4 shows the Plan's annual returns over this time period, compared to the Plan's investment return assumption at each year.

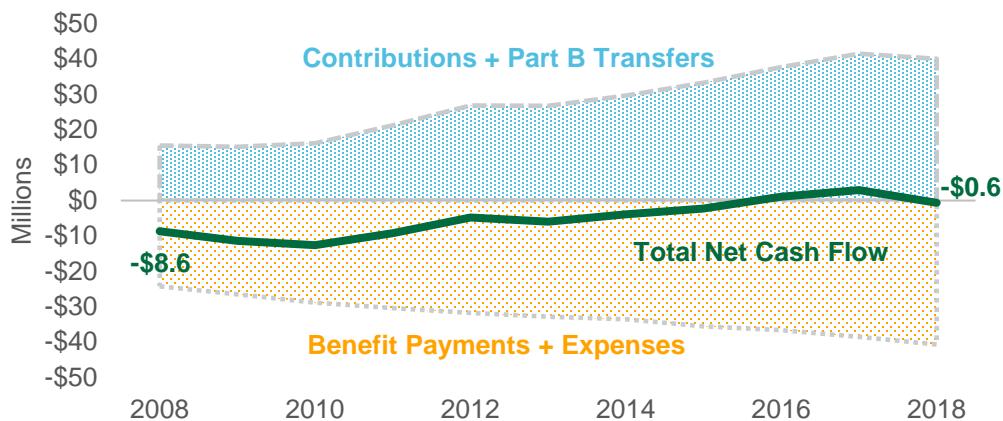
FIGURE 4: HISTORICAL INVESTMENT RETURN



HISTORICAL CASH FLOW

The Plan's net non-investment cash outflows have improved over the past several years due to significant contribution increases, as shown in Figure 5 below. This has helped the Plan recover from the market crash of 2008.

FIGURE 5: HISTORICAL NON-INVESTMENT CASH FLOW



G. Funded Status

An important indicator of the Plan's funded status is the ratio of the Plan's *market value of assets* to the Plan's liability for all benefits earned to date, called the present value of accrued benefits. For purposes of determining the Plan's zone status under the Pension Protection Act, the Plan's *actuarial value of assets* is compared to this liability measurement. Figure 6 shows a historical comparison of these measurements and Figure 7 details the relevant information for the past several valuations.

FIGURE 6: HISTORICAL FUNDED PERCENTAGES

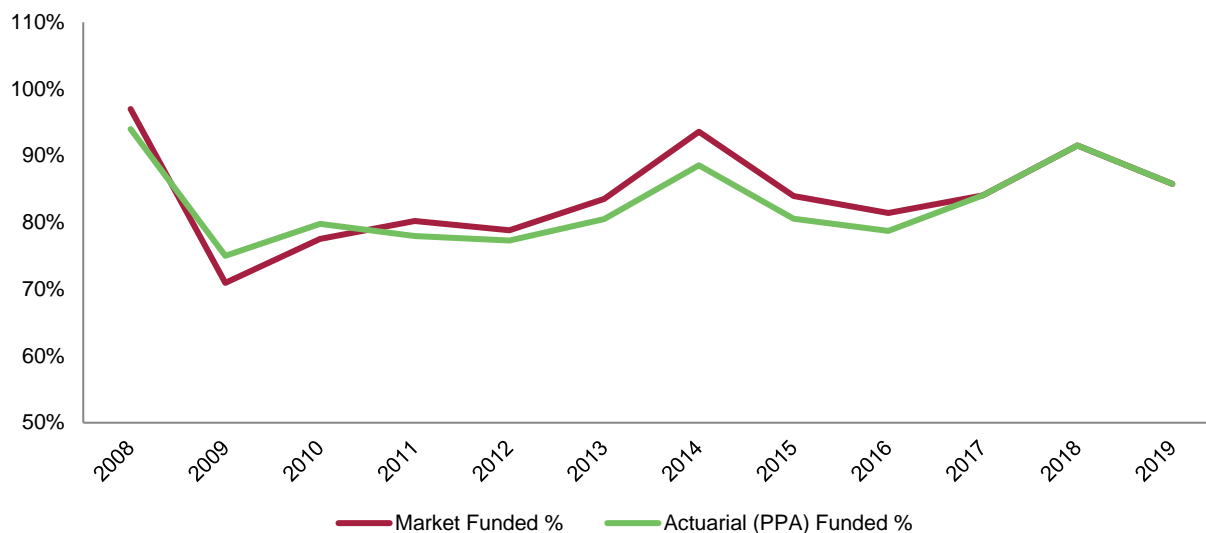


FIGURE 7: LIABILITY AND FUNDED PERCENTAGE

PRESENT VALUE OF ACCRUED BENEFITS					MARKET VALUE FUNDED %	ACTUARIAL (PPA) FUNDED %
JANUARY 1,	RETIRES & BENEFICIARIES	TERMINATED INACTIVE	ACTIVE	TOTAL		
2019	\$394,732,242	\$38,012,492	\$233,320,171	\$666,064,905	84%	84%
2018	373,660,291	36,776,788	227,838,680	638,275,759	92	92
2017	374,339,086	38,275,532	186,860,339	599,474,957	84	84
2016	352,331,283	47,863,060	183,127,950	583,322,293	81	79
2015	338,243,987	50,459,484	174,164,275	562,867,746	84	81

As of January 1, 2019, the present value of accrued benefits for retirees, beneficiaries, and vested inactive participants represents approximately **65%** of the Plan's total liability. The **annual funding notice** to participants must be distributed within 120 days of the end of the plan year and will include the actuarial (PPA) funded percentage for 2017, 2018, and 2019, as shown above.

H. Contribution Requirements

The Plan's minimum required contribution consists of two components:

- Normal cost, which includes the cost of benefits allocated to the next plan year and administrative expenses expected to be paid in the next plan year.
- Amortization payment to pay off the unfunded actuarial accrued liability.

If contributions do not meet these costs, the Plan's credit balance, which was created by contributions in excess of minimum required contributions in past years, may be used to offset the costs. Figure 8 summarizes the Plan's minimum funding measurements over the last several years.

FIGURE 8: MINIMUM FUNDING CREDIT BALANCE

January 1,	Normal Cost	Net Amortization Payment	Annual Cost, Beginning of Year	Contribution to Maintain Credit Balance	Actual Contribution	Credit Balance, End of Year
2019	\$15,876,083	\$18,806,375	\$34,682,458	\$30,632,810	\$39,640,440 ⁽¹⁾	\$86,541,066 ⁽¹⁾
2018	16,183,586	10,656,682	26,840,268	23,348,066	37,800,069	77,218,169
2017	13,897,484	14,583,486	28,480,970	26,284,440	41,478,073	62,443,164

⁽¹⁾ Expected based on assumed hours of 3,453,000 and an average contribution rate of \$11.48 per hour.

I. Withdrawal Liability

The Plan's unfunded vested benefit liability for withdrawal liability purposes is determined by subtracting the Plan's assets for withdrawal liability purposes (the greater of market value of assets and actuarial value of assets) from the liability for all *vested* benefits earned to date. Withdrawing employers will be assessed a portion of any unfunded vested benefit liability. Figure 9 summarizes this information as of the past five valuation dates.

FIGURE 9: UNFUNDED VESTED BENEFIT LIABILITY

DECEMBER 31,	VESTED BENEFIT LIABILITY	ACTUARIAL VALUE OF ASSETS	UNFUNDED VESTED BENEFIT LIABILITY
2018	\$631,036,207	\$560,868,059	\$70,168,148
2017	605,144,489	584,274,445	20,870,044
2016	581,451,880	503,904,998	77,546,882
2015	568,127,948	459,388,152	108,739,796
2014	549,029,162	453,409,294	95,619,868

10. Zone Status

The Plan's 2019 certification was filed in March 2019. Based on the information, assumptions, and methods used in that certification, the Plan was determined to be in the green zone.

11. Plan Experience

IMPACT OF PLAN EXPERIENCE DURING PRIOR PLAN YEAR

The Plan's market value funding shortfall (excess of present value of accrued benefits over the market value of assets) increased to \$95 million as of January 1, 2019. Figure 10 shows how this figure changed during the last year.

FIGURE 10: CHANGE IN MARKET VALUE FUNDING SHORTFALL

January 1, 2018 Market Value Funding Shortfall		\$ 54,001,314
Interest on Shortfall	\$ 3,780,092	
Cost of Benefits Earned During Year	16,592,351	
Assumed Administrative Expenses, End of Year	724,086	
Contributions, End of Year	(39,123,071)	
Expected Change		(18,026,542)
Asset (Gain)/Loss	\$63,667,200	
Liability (Gain)/Loss	5,554,875	
Plan Change	0	
Assumption Changes	0	
Combined Unexpected Changes (includes rounding adjustment)		69,222,074
January 1, 2019 Market Value Funding Shortfall		\$ 105,196,846

EXPECTED PLAN EXPERIENCE IN NEXT PLAN YEAR

Figure 11 shows how the Plan's market value funding shortfall is projected to change in the next year.

FIGURE 11: CHANGE IN MARKET VALUE FUNDING SHORTFALL

January 1, 2019 Market Value Funding Shortfall		\$ 105,196,846
Interest on Shortfall	\$ 7,363,779	
Cost of Benefits Earned During Year	16,263,323	
Assumed Administrative Expenses, End of Year	724,086	
Expected Contributions, End of Year	(41,027,855)	
Expected Change (includes rounding adjustment)		(16,676,667)
Projected January 1, 2020 Market Value Funding Shortfall		\$ 88,520,179

The table above shows that, if the assets earn the 7.0% assumption, the funding shortfall is projected to decrease during the plan year. This means that contributions coming into the Plan are expected to pay for benefit accruals and operating expenses, and pay off some of the Plan's funding shortfall.

Exhibit 1

SUMMARY OF PLAN ASSETS

The summary of plan assets on a Market Value basis as of December 31, 2018 is shown below.

1. Investments at fair value	\$ 544,933,417
2. Receivables	13,710,510
3. Cash accounts	821,806
4. Prepaid benefits and expenses	3,412,588
5. Liabilities	<u>(2,010,262)</u>
6. Total	\$560,868,059

Exhibit 2

CHANGE IN MARKET VALUE OF ASSETS

The change in the Market Value of Assets from December 31, 2017 to December 31, 2018 is shown below.

1. Market Value of Assets as of December 31, 2017	\$584,274,445
2. Income	
a. Employer contributions for plan year	37,800,069
b. Withdrawal liability contributions	0
c. Part B Transfers	2,258,326
d. Net appreciation (depreciation)	(32,544,905)
e. Interest and dividends	11,170,172
f. Other income	<u>5,913</u>
g. Total	18,689,575
3. Disbursements	
a. Benefit payments to participants	39,968,222
b. Investment expenses	1,420,757
c. Other expenses	<u>706,982</u>
d. Total	42,095,961
4. Net increase / (decrease) [(2g) - (3d)]	(23,406,386)
5. Market Value of Assets as of December 31, 2018 [(1) + (4)]	\$560,868,059

Exhibit 3

ESTIMATED INVESTMENT RETURN ON MARKET VALUE OF ASSETS

The estimated investment return on the Market Value of Assets for the plan year ending December 31, 2018, assuming all cash flows of contributions, benefit payments, and administrative expenses are paid at mid-year, is determined below.

1. Market Value of Assets as of December 31, 2017	\$584,274,445
2. Market Value of Assets as of December 31, 2018	560,868,059
3. Net non-investment cash flows for plan year ending December 31, 2018	(616,809)
4. Investment income for plan year ending December 31, 2018 [(2) - (1) - (3)]	(\$22,789,577)
5. Estimated investment return on Market Value of Assets [$\{2 \times (4)\} \div \{(1) + (2) - (4)\}$]	(3.9%)

Exhibit 4

ACTUARIAL VALUE OF ASSETS

For funding purposes, the Plan's asset valuation method immediately recognizes investment gains and losses. The resulting Actuarial Value of Assets is equal to the Market Value of Assets.

MARKET VALUE INVESTMENT GAINS / (LOSSES)

PLAN YEAR	ACTUAL INVESTMENT RATE OF RETURN	ACTUAL INVESTMENT RETURN	EXPECTED INVESTMENT RETURN	INVESTMENT GAIN / (LOSS)
2018	(3.9%)	(\$22,789,577)	\$40,877,623	(\$63,667,200)
2017	15.3	77,407,152	35,377,030	42,030,122
2016	5.9	27,870,134	33,285,079	(5,414,945)
2015	1.0	4,660,823	32,999,348	(28,338,525)

DETERMINATION OF ACTUARIAL VALUE OF ASSETS

1. Market Value of Assets as of December 31, 2018	\$560,868,059
2. Actuarial Value of Assets as of January 1, 2019	\$560,868,059

Exhibit 5

ASSET (GAIN) / LOSS FOR PRIOR PLAN YEAR

The asset (gain) / loss is the difference between the expected and actual values of the Actuarial Value of Assets. An asset gain is negative because it represents a decrease from the expected Unfunded Actuarial Accrued Liability. The asset (gain) / loss for the plan year ending December 31, 2018 is determined below.

1. Expected Actuarial Value of Assets	
a. Actuarial Value of Assets as of January 1, 2018	\$584,274,445
b. Employer contributions for plan year	37,800,069
c. Part B Transfers for plan year	2,258,326
d. Benefit payments	39,968,222
e. Administrative expenses	706,982
f. Expected investment return based on 7.0% interest rate	40,877,623
g. Expected Actuarial Value of Assets as of January 1, 2019 [(a) + (b) + (c) - (d) - (e) + (f)]	624,535,259
2. Actuarial Value of Assets as of January 1, 2019	560,868,059
3. Asset (gain) / loss [(2) - (1g)]	\$63,667,200
4. Estimated investment return on Actuarial Value of Assets	(3.9%)

Exhibit 6

FUNDING STANDARD ACCOUNT FOR PRIOR PLAN YEAR

The Funding Standard Account for the plan year ending December 31, 2018 is determined below.

1. Outstanding balances as of January 1, 2018	
a. Amortization charges	\$238,899,453
b. Amortization credits	122,454,975
c. Accumulated Additional Funding Charges with interest	0
d. Accumulated Additional Interest Charges with interest	0
2. Charges to Funding Standard Account	
a. Funding Deficiency as of January 1, 2018	0
b. Normal Cost as of January 1, 2018	16,183,586
c. Amortization charges as of January 1, 2018	27,527,695
d. Interest on (a), (b), and (c) to end of plan year	3,059,790
e. Additional Interest Charge for plan year	0
f. Additional Funding Charge for plan year	<u>0</u>
g. Total	46,771,071
3. Credits to Funding Standard Account	
a. Credit Balance as of January 1, 2018	62,443,164
b. Employer contributions for plan year	37,800,069
c. Amortization credits as of January 1, 2018	16,871,013
d. Interest on (a), (b), and (c) to end of plan year	6,874,994
e. Full Funding Credit	<u>0</u>
f. Total	123,989,240
4. Credit Balance / (Funding Deficiency) as of December 31, 2018 [(3f) – (2g)]	\$77,218,169

Exhibit 7

ACTUARIAL BALANCE SHEET

The total plan requirements compared to the total value of plan resources as of January 1, 2019 are shown below.

PLAN REQUIREMENTS

1. Present value of active participant accrued benefits	
a. Retirement	\$201,437,748
b. Withdrawal	12,518,359
c. Death	4,235,058
d. Disability	<u>15,129,006</u>
e. Total	233,320,171
2. Present value of inactive participant accrued benefits	
a. Terminated vested participants	38,012,492
b. Retired participants	356,746,502
c. Disabled participants	1,690,114
d. Beneficiaries and QDROs	<u>36,295,626</u>
e. Total	432,744,734
3. Total plan requirements	
[(1e) + (2e)]	666,064,905

PLAN RESOURCES

4. Actuarial Value of Assets	560,868,059
5. Unfunded Actuarial Accrued Liability	105,196,846
6. Total plan resources	
[(4) + (5)]	\$666,064,905

Exhibit 8

ACTUARIAL (GAIN) / LOSS FOR PRIOR PLAN YEAR

The Actuarial (Gain) / Loss for the prior plan year is the difference between the expected and actual Unfunded Actuarial Accrued Liability as of the beginning of the current plan year. The Actuarial (Gain) / Loss for the plan year ending December 31, 2018 is determined below.

1. Unfunded Actuarial Accrued Liability as of January 1, 2018	\$54,001,314
2. Normal Cost as of January 1, 2018	16,183,586
3. Interest on (1) and (2) to end of plan year	4,912,943
4. Subtotal [(1) + (2) + (3)]	75,097,843
5. Employer contributions for plan year	37,800,069
6. Interest on (5) to end of plan year	1,323,002
7. Subtotal [(5) + (6)]	39,123,071
8. Changes in Actuarial Accrued Liability	
a. Plan amendments	0
b. Changes in actuarial assumptions	0
c. Changes in cost method	0
d. Total	0
9. Expected Unfunded Actuarial Accrued Liability as of January 1, 2019 [(4) - (7) + (8d)]	35,974,772
10. Actual Unfunded Actuarial Accrued Liability as of January 1, 2019	105,196,846
11. Actuarial (Gain) / Loss for prior plan year [(10) - (9)]	69,222,074
12. Actuarial (Gain) / Loss subject to amortization, if any	\$69,222,073

Exhibit 9

NORMAL COST

The Normal Cost is the amount allocated to the current plan year under the plan's actuarial cost method. The employer Normal Cost as of January 1, 2019 is determined below.

1. Normal Cost for benefits	
a. Retirement	\$12,694,046
b. Withdrawal	1,463,141
c. Death	286,574
d. Disability	<u>755,606</u>
e. Total	15,199,367
2. Expenses (\$700,000 payable mid-year)	676,716
3. Total Employer Normal Cost [(1f) + (2)]	\$15,876,083

Exhibit 10

CURRENT LIABILITY

In accordance with IRS requirements, the Current Liability has been calculated at 3.06%. The Current Liability as of January 1, 2019 is determined below.

1. Current Liability

	COUNT	VESTED BENEFITS	ALL BENEFITS
a. Participants in pay status	1,548	\$563,901,030	\$563,901,030
b. Vested inactive participants	325	71,076,321	71,076,321
c. Active participants	<u>1,996</u>	<u>413,787,181</u>	<u>493,951,424</u>
d. Total	3,869	1,048,764,532	1,128,928,775
2. Expected increase in Current Liability for benefit accruals during year			36,947,122
3. Expected release of Current Liability during year			41,873,323
4. Market Value of Assets			\$560,868,059
5. Current Liability Funded Percentage [(4) ÷ (1d)]			49.7%

Exhibit 11

FULL FUNDING LIMITATION

The Full Funding Limitation (FFL) for the plan year ending December 31, 2019 and the tax year ending December 31, 2019 is determined below.

DETERMINATION OF FFL (END OF YEAR)

1. ERISA Actuarial Accrued Liability	
a. Actuarial Accrued Liability	\$666,064,905
b. Normal Cost	15,876,083
c. Expected distributions	43,177,036
d. 7.0% interest to end of year	44,713,477
e. Subtotal [(a) + (b) - (c) + (d)]	683,477,429
2. Current Liability	
a. Current Liability	1,128,928,775
b. Normal Cost	36,947,122
c. Expected liability release plus expenses	41,873,323
d. 3.06% interest to end of year	34,394,479
e. Subtotal [(a) + (b) - (c) + (d)]	1,158,397,053
3. Adjusted Plan Assets (7.0% Interest)	
a. Actuarial Value of Assets	560,868,059
b. Market Value of Assets	560,868,059
c. Credit Balance	77,218,169
d. Expected distributions	43,177,036
e. 412 ERISA assets [$\min\{(a), (b)\} - (c) - (d) \times 1.07$]	471,305,954
f. 404 ERISA assets [$\min\{(a), (b)\} - (d) \times 1.07$]	553,929,395
g. Current Liability assets [(a) - (d)] x 1.07	553,929,395
4. 412 Full Funding Limitation	
a. 412 ERISA [$\max\{(1e) - (3e), \$0\}$]	212,171,475
b. Current Liability [$\max\{90\% \times (2e) - (3g), \$0\}$]	488,627,953
c. 412 Full Funding Limitation [$\max\{(a), (b)\}$]	488,627,953
5. 404 Full Funding Limitation	
a. 404 ERISA [$\max\{(1e) - (3f), \$0\}$]	129,548,034
b. Current Liability [$\max\{90\% \times (2e) - (3g), \$0\}$]	488,627,953
c. 404 Full Funding Limitation [$\max\{(a), (b)\}$]	488,627,953

Exhibit 12

CHARGES AND CREDITS FOR FUNDING STANDARD ACCOUNT

The amortization charges and credits for the Funding Standard Account for the plan year beginning January 1, 2019 are determined below.

1. CHARGES AS OF JANUARY 1, 2019

	DATE ESTABLISHED	DESCRIPTION	AMORTIZATION AMOUNT	REMAINING OUTSTANDING YEARS	BALANCE
a.	January 1, 1980	-	72,631	1	72,631
b.	January 1, 1980	-	119,151	1	119,151
c.	January 1, 1991	Change in assumptions	1,282,920	2	2,481,911
d.	January 1, 1992	Plan amendment	183,787	3	516,077
e.	January 1, 1998	Plan amendment	1,303,447	9	9,086,718
f.	January 1, 1999	Plan amendment	49,244	10	370,081
g.	January 1, 2000	Plan amendment	724,347	11	5,811,857
h.	January 1, 2000	Change in assumptions	422,424	11	3,389,353
i.	January 1, 2004	Change in assumptions	749,100	15	7,300,330
j.	January 1, 2005	Change in assumptions	70,661	1	70,661
k.	January 1, 2006	Plan amendment	101,173	17	1,056,919
l.	January 1, 2007	Actuarial loss	111,211	3	312,283
m.	January 1, 2008	Actuarial loss	75,714	4	274,411
n.	January 1, 2009	Actuarial loss	6,919,844	19	76,527,156
o.	January 1, 2011	Actuarial loss	1,011,534	7	5,833,050
p.	January 1, 2011	Plan amendment	208,141	7	1,200,253
q.	January 1, 2012	Actuarial loss	1,136,383	8	7,260,680
r.	January 1, 2013	Actuarial loss	1,837,285	9	12,808,262
s.	January 1, 2015	Actuarial loss	863,858	11	6,931,235
t.	January 1, 2015	Change in assumptions	5,508,748	11	44,199,888
u.	January 1, 2016	Actuarial loss	2,028,563	12	17,240,096
v.	January 1, 2018	Change in assumptions	2,490,452	14	23,304,778
w.	January 1, 2019	Actuarial loss	7,103,001	15	69,222,073
x.	Total		34,373,619		295,389,854

2. CREDITS AS OF JANUARY 1, 2018

	DATE ESTABLISHED	DESCRIPTION	AMORTIZATION AMOUNT	REMAINING OUTSTANDING YEARS	BALANCE
a.	January 1, 1998	Change in assumptions	\$476,179	9	\$3,319,586
b.	January 1, 2005	Actuarial gain	216,262	1	216,262
c.	January 1, 2006	Actuarial gain	166,687	2	322,468
d.	January 1, 2009	Actuarial gain	666,284	5	2,923,129
e.	January 1, 2010	Actuarial gain	2,183,322	6	11,135,373
f.	January 1, 2013	Change in assumptions	1,622,561	9	11,311,356
g.	January 1, 2014	Actuarial gain	3,384,737	10	25,437,092
h.	January 1, 2017	Change in method	1,900,293	8	12,141,522
i.	January 1, 2017	Actuarial gain	387,807	13	3,468,041
j.	January 1, 2018	Actuarial gain	4,563,112	14	42,700,010
k.	Total		15,567,244		112,974,839
3.	Net outstanding balance [(1y) - (2k)]				182,415,015
4.	Credit Balance as of January 1, 2019				77,218,169
5.	Balance test result [(3) - (4)]				\$105,196,846
6.	Unfunded Actuarial Accrued Liability as of January 1, 2019, minimum \$0				\$105,196,846

Exhibit 13

CURRENT ANNUAL COST AND MINIMUM REQUIRED CONTRIBUTION

The Current Annual Cost is the plan's cost under the minimum funding requirements prior to the recognition of the Full Funding Limitation and any Credit Balance. The Minimum Required Contribution is the amount needed to avoid a Funding Deficiency in the Funding Standard Account. These amounts for the plan year beginning January 1, 2019 are determined below.

1. Charges for plan year	
a. Funding Deficiency as of January 1, 2019	\$0
b. Normal Cost	15,876,083
c. Amortization charges (on \$284,721,812)	34,373,619
d. Interest on (a), (b), and (c) to end of plan year	3,517,479
e. Additional Funding Charge	<u>0</u>
f. Total	53,767,181
2. Credits for plan year	
a. Amortization credits (on \$112,974,839)	15,567,244
b. Other credits	0
c. Interest on (a) and (b) to end of plan year	<u>1,089,707</u>
d. Total	16,656,951
3. Current Annual Cost for plan year [(1f) - (2d), but not less than \$0]	37,110,230
4. Full Funding Credit for plan year	
a. Full Funding Limitation	488,627,953
b. Full Funding Credit [(3) - (4a), but not less than \$0]	0
5. Credit Balance for plan year	
a. Credit Balance as of January 1, 2019	77,218,169
b. Interest on (a) to end of plan year	<u>5,405,272</u>
c. Total	82,623,441
6. Minimum Required Contribution for plan year [(3) - (4b) - (5c), but not less than \$0]	\$0
7. Contribution Required to Maintain Credit Balance, end of year [(3) - (5b), but not less than \$0]	\$31,704,958

Exhibit 14

MAXIMUM DEDUCTIBLE CONTRIBUTION UNDER IRC SECTION 404

The Maximum Deductible Contribution under IRC Section 404 for the tax year beginning January 1, 2019 is determined below.

1. Minimum Required Contribution for plan year beginning January 1, 2019	\$0
2. Preliminary Maximum Deductible Contribution under IRC Section 404 for tax year	
a. Normal Cost	15,876,083
b. Amortization payment on ten-year limitation bases	13,997,817
c. Interest to earlier of tax year end or plan year end	<u>2,091,173</u>
d. Total	31,965,073
3. Full Funding Limitation for tax year	488,627,953
4. Unfunded 140% of Current Liability as of December 31, 2019	
a. Current Liability (for IRC Section 404 purposes) projected to end of year	1,158,397,053
b. Actuarial Value of Assets (for IRC Section 404 purposes) projected to end of year	553,929,395
c. Unfunded 140% of Current Liability [140% × (a) - (b), but not less than \$0]	1,067,826,479
5. Maximum Deductible Contribution under IRC Section 404 for tax year [greater of (1) and (2d), limited to (3), but not less than (4c)]	\$1,067,826,479

Exhibit 15

PRESENT VALUE OF ACCUMULATED PLAN BENEFITS

Accumulated Plan Benefits are benefits earned to date, based on pay history and service rendered to date, expected to be paid in the future to retired, terminated vested, and active participants, and beneficiaries of active or former participants. The Present Value of Accumulated Plan Benefits (determined on a plan continuation basis in accordance with FASB ASC Topic 960) as of December 31, 2017 and December 31, 2018 is shown below.

	12/31/2017	12/31/2018
1. Present Value of vested Accumulated Plan Benefits		
a. Participants in pay status	\$373,660,291	\$394,732,242
b. Participants not in pay status	<u>231,484,198</u>	<u>236,303,965</u>
c. Total	605,144,489	631,036,207
2. Present Value of non-vested Accumulated Plan Benefits	33,131,270	35,028,698
3. Present Value of Accumulated Plan Benefits [(1c) + (2)]	638,275,759	666,064,905
4. Market Value of Assets	\$584,274,445	\$560,868,059
5. Funded ratio		
a. Vested benefits [(4) ÷ (1c)]	96.6%	88.9%
b. All benefits [(4) ÷ (3)]	91.5%	84.2%
6. Actuarial Value of Assets	\$584,274,445	560,868,059
7. PPA Funded Percentage [(6) ÷ (3)]	91.5%	84.2%

Exhibit 16

CHANGE IN PRESENT VALUE OF ACCUMULATED PLAN BENEFITS

The change in the Present Value of Accumulated Plan Benefits (determined on a plan continuation basis in accordance with FASB ASC Topic 960) from December 31, 2017 to December 31, 2018 is shown below.

1. Present Value of all Accumulated Plan Benefits as of December 31, 2017	\$638,275,759
2. Changes	
a. Reduction in discount period	43,280,415
b. Benefits accumulated	16,592,351
c. Benefit payments	(39,968,222)
d. Plan amendments	0
e. Change in assumptions	0
f. Actuarial (gain) / loss	7,884,602
g. Total	
[(a) + (b) - (c) + (d) + (e) + (f)]	27,789,146
3. Present Value of all Accumulated Plan Benefits as of December 31, 2018	
[(1) + (2g)]	\$666,064,905

Exhibit 17

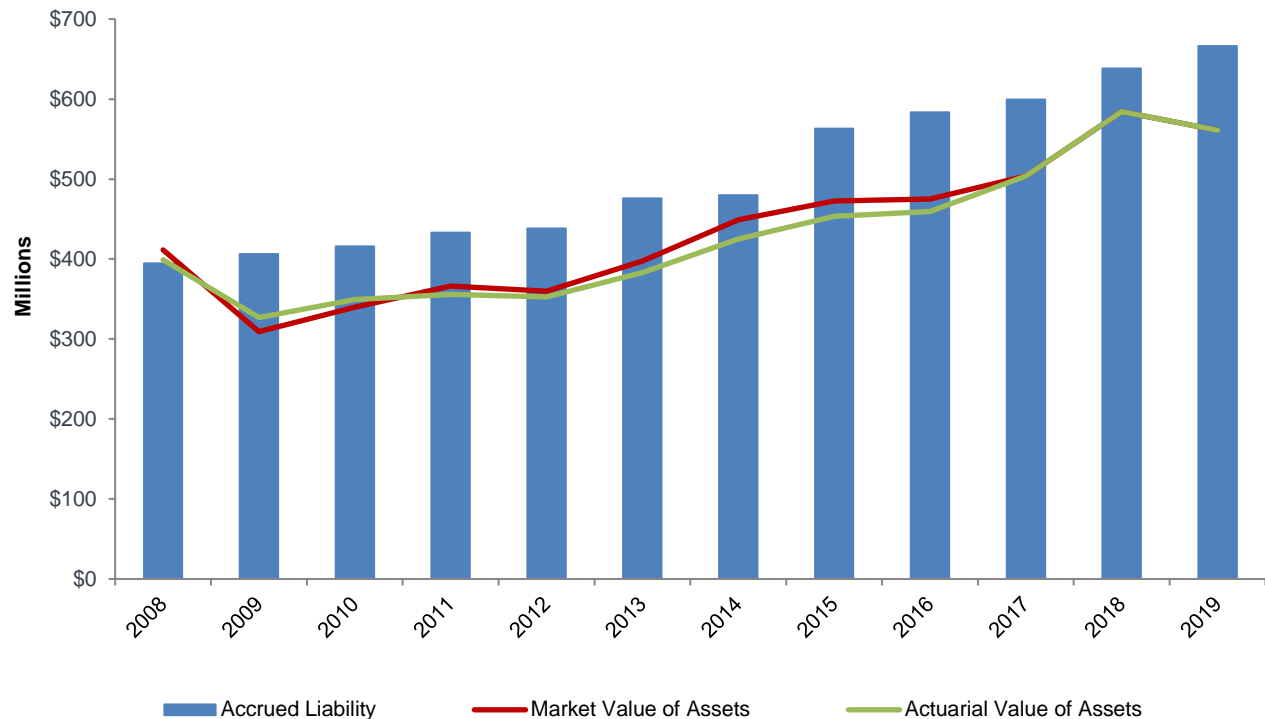
UNFUNDED VESTED BENEFIT LIABILITY FOR WITHDRAWAL LIABILITY CALCULATIONS

Withdrawal liability payments are based on unfunded vested benefit liability. Vested benefit liability is the present value of benefits earned to date, excluding benefits for non-vested participants and certain benefits such as certain death and disability benefits which are not considered vested. This exhibit shows the Plan's unfunded vested benefit liability as of December 31, 2018. However, if there is a termination by mass withdrawal during the year, a separate calculation would have to be performed.

1. Present value of vested accumulated plan benefits	
a. Terminated vested participants	38,012,492
b. Retired participants	394,732,242
c. Active participants	198,291,473
d. Total vested benefits	631,036,207
2. Market Value of Assets	560,868,059
3. Unfunded Vested Benefit Liability	
[(1d) - (2), but not less than \$0]	\$70,168,148

Exhibit 18

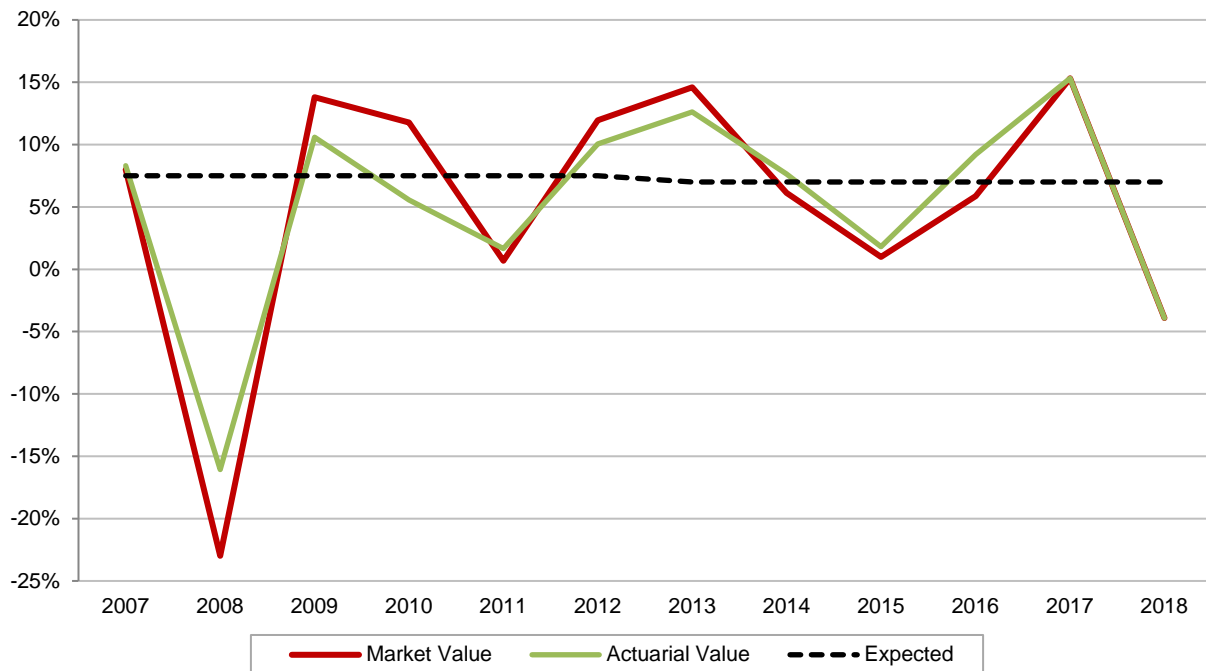
HISTORICAL FUNDING PROGRESS



JAN, 1	PRIOR YEAR INVESTMENT RETURN	(A) MARKET VALUE OF ASSETS (MVA)	(B) ACTUARIAL VALUE OF ASSETS (AVA)	(C) PRESENT VALUE OF ACCRUED BENEFITS	(A) - (C) MVA FUNDING RESERVE / (SHORTFALL)	(A) / (C) MVA FUNDED PERCENTAGE	(B) / (C) AVA (PPA) FUNDED PERCENTAGE
2008	8.0%	411,427,783	398,927,783	394,631,856	16,795,927	104%	101%
2009	(23.0%)	309,219,981	326,897,967	406,176,912	(96,956,931)	76%	80%
2010	13.8%	339,704,368	349,532,609	415,944,720	(76,240,352)	82%	84%
2011	11.8%	366,308,780	355,982,622	432,873,049	(66,564,269)	85%	82%
2012	0.7%	359,625,585	352,610,758	438,179,197	(78,553,612)	82%	80%
2013	11.9%	397,480,414	382,948,111	475,714,189	(78,233,775)	84%	80%
2014	14.6%	449,024,665	424,926,976	479,715,844	(30,691,179)	94%	89%
2015	6.1%	472,531,941	453,409,294	562,867,746	(90,335,805)	84%	81%
2016	1.0%	474,967,401	459,388,152	583,322,293	(108,354,892)	81%	79%
2017	5.9%	503,904,998	503,904,998	599,474,957	(95,569,959)	84%	84%
2018	15.3%	584,274,445	584,274,445	638,275,759	(54,001,314)	92%	92%
2019	(3.9%)	560,868,059	560,868,059	666,064,905	(105,196,846)	84%	84%

Exhibit 19

HISTORICAL INVESTMENT RETURN



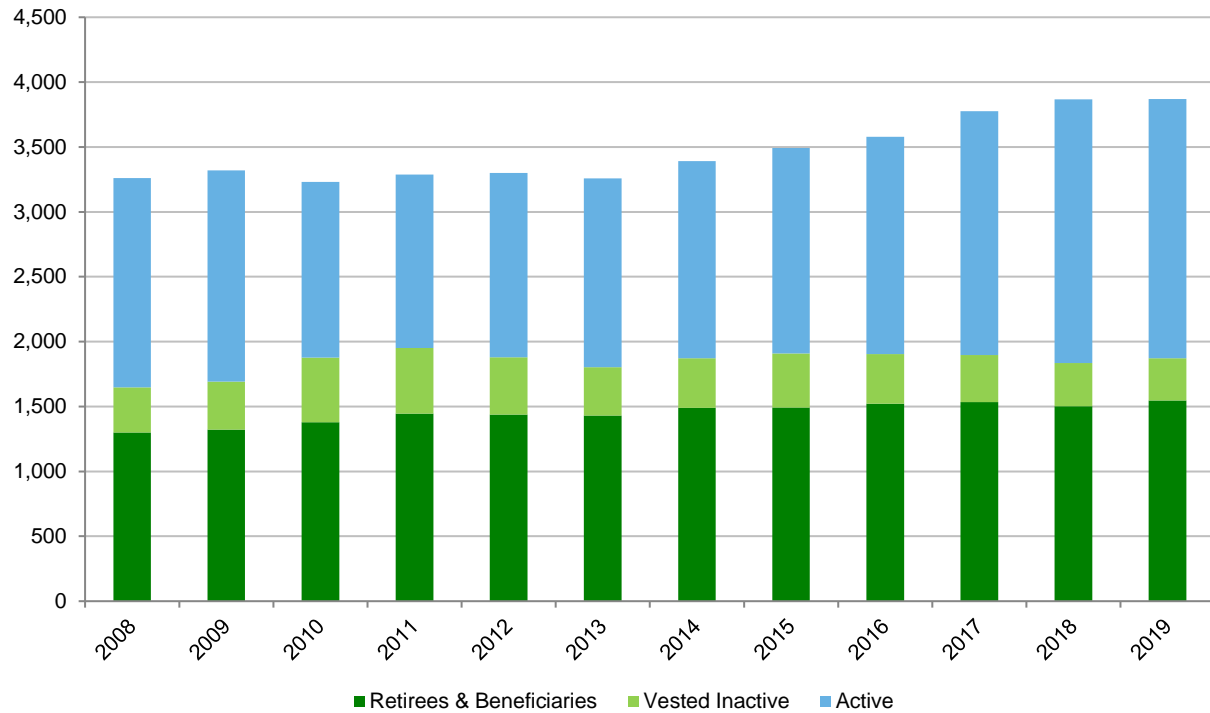
ANNUAL RATE OF INVESTMENT RETURN*

FOR ONE-YEAR PERIOD			FOR PERIOD ENDING DECEMBER 31, 2018		
PLAN YEAR	MARKET	ACTUARIAL	PERIOD	MARKET	ACTUARIAL
2018	(3.9%)	(3.9%)	1 year	(3.9%)	(3.9%)
2017	15.3%	15.3%	2 years	5.3%	5.3%
2016	5.9%	9.2%	3 years	5.5%	6.6%
2015	1.0%	1.8%	4 years	4.3%	5.4%
2014	6.1%	7.7%	5 years	4.7%	5.8%
2013	14.6%	12.6%	6 years	6.3%	6.9%
2012	11.9%	10.0%	7 years	7.1%	7.4%
2011	0.7%	1.7%	8 years	6.2%	6.6%
2010	11.8%	5.6%	9 years	6.8%	6.5%
2009	13.8%	10.6%	10 years	7.5%	6.9%
2008	(23.0%)	(16.1%)	11 years	4.3%	4.6%
2007	8.0%	8.3%	12 years	4.6%	4.9%

*All rates reflect total investment return, net of investment related expenses.

Exhibit 20

HISTORICAL PARTICIPANT STATISTICS

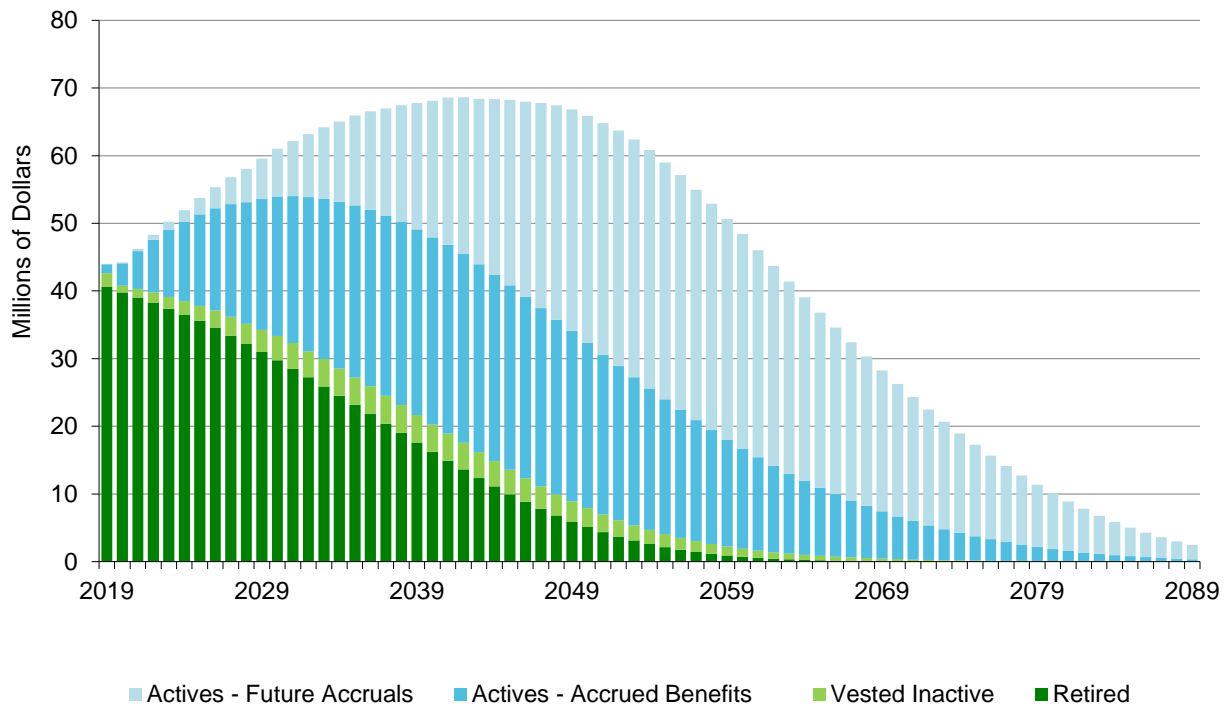


JAN. 1,	ACTIVE PARTICIPANTS			VESTED INACTIVE		RETIRED PARTICIPANTS		TOTAL NUMBER	INACTIVE TO ACTIVE RATIO
	NUMBER	AVERAGE AGE	AVERAGE CREDITED SVC.	NUMBER	AVG. MONTHLY BENEFIT	NUMBER	AVG. MONTHLY BENEFIT*		
2008	1,613	43.5	11.5	348	1,394	1,300	1,793	3,261	1.0
2009	1,627	43.7	11.6	370	1,417	1,323	1,839	3,320	1.0
2010	1,352	43.5	12.1	498	1,462	1,380	1,935	3,230	1.4
2011	1,336	44.0	12.4	506	1,495	1,445	1,999	3,287	1.5
2012	1,421	44.6	12.7	441	1,577	1,438	2,109	3,300	1.3
2013	1,454	44.5	12.5	372	1,514	1,431	2,184	3,257	1.2
2014	1,520	44.5	12.5	382	1,587	1,490	2,217	3,392	1.2
2016	1,583	44.0	12.2	417	1,662	1,493	2,282	3,492	1.2
2016	1,674	44.0	11.9	384	1,649	1,521	2,362	3,518	1.1
2017	1,879	44.0	11.0	362	1,485	1,535	2,440	3,776	1.0
2018	2,032	43.9	10.6	333	1,597	1,503	2,508	3,868	0.9
2019	1,996	43.6	11.0	325	1,621	1,548	2,596	3,869	0.9

*Retirees only, excluded beneficiaries and disabled participants

Exhibit 21

PROJECTED BENEFIT PAYOUTS FOR CURRENT PLAN PARTICIPANTS



Detail of Total Projected Payments for Next 20 Years*

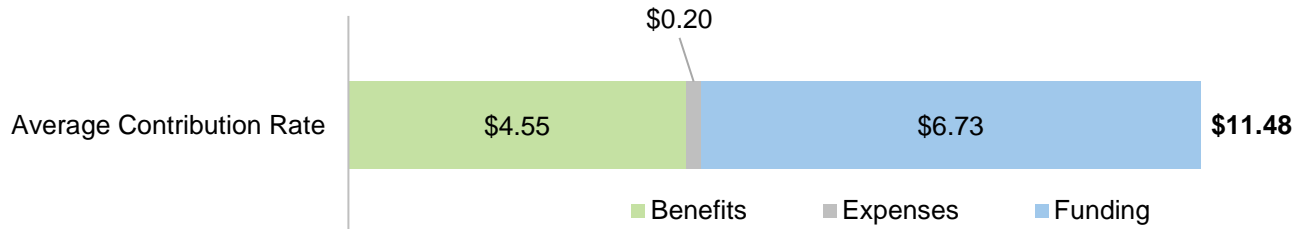
PLAN YEAR	ESTIMATED PAYOUT OF RETIREMENT BENEFITS	PLAN YEAR	ESTIMATED PAYOUT OF RETIREMENT BENEFITS
2019	44,000,000	2029	59,600,000
2020	44,200,000	2030	61,000,000
2021	46,200,000	2031	62,100,000
2022	48,300,000	2032	63,200,000
2023	50,200,000	2033	64,200,000
2024	51,900,000	2034	65,000,000
2025	53,700,000	2035	65,900,000
2026	55,300,000	2036	66,600,000
2027	56,800,000	2037	67,000,000
2028	58,000,000	2038	67,400,000

* This valuation, including the projected benefit payments shown, reflects only participants as of the valuation date and does not reflect any projected payments to future new entrants. Accruals are assumed to be based on a \$3.30/hour contribution in all future years.

Exhibit 22

CONTRIBUTION RATE INFORMATION – ALLOCATION AND HISTORY

Estimated Allocation of Current Average Hourly Contribution Rate as of Valuation Date



Historical Hourly Journeyman Contribution Rate*

Effective Date	Hourly Contribution Rate
January, 2004	4.95
June, 2004	5.05
December, 2006	5.30
June, 2007	5.55
December, 2008	5.80
June, 2009	6.80
December, 2009	7.55
June, 2010	8.05
November, 2010	8.90
May, 2011	9.90
November, 2011	10.90
December, 2013	11.40
June, 2018	12.15
June, 2019	12.90

*Other rates are a percentage of the full Journeyman rate

Summary of Principal Plan Provisions

(JANUARY 1, 2019)

Plan Changes since Prior Valuation

Effective January 1, 2019, Amendment 12 was adopted to increase the credit rate to \$3.30 for all hours worked in 2019.

Plan Identification

Employee Identification Number (EIN): 94-2688032

Plan Number (PN): 004

Effective Date

The Plan was established as of January 1, 1972. It was last restated effective January 1, 2015. The most recent amendment to this restatement that was effective as of January 1, 2019 was Amendment 12.

Plan Year

January 1 to December 31.

Eligibility and Participation

The Plan covers employees of employers who have collective bargaining agreements with I.B.E.W. Local 332 that provides for contributions to the Trust. Officers, agents, representatives, and employees of the union are also eligible to participate if they are a union alumnus (prior to September 20, 2006, there was no requirement to be a union alumnus). An employee becomes a participant on the first day of the month in which contributions are first made or owed to the Plan by an employer on the employee's behalf.

Credited Service

A participant generally earns **Future Credited Service** for a plan year according to the following table:

HOURS WORKED	CREDIT	HOURS WORKED	CREDIT
Less than 300	0.0	670 but less than 750	0.6
300 but less than 370	0.1	750 but less than 830	0.7
370 but less than 440	0.2	830 but less than 910	0.8
440 but less than 510	0.3	910 but less than 1,000	0.9
510 but less than 590	0.4	1,000 and over	1.0
590 but less than 670	0.5		

Journeyman participants who work an hour of covered employment on or after August 1, 2015 and on or before December 31, 2015 received Future Credited Service for every hour worked in 2015. Journeyman participants also receive Future Credited Service for every hour worked in 2016, 2017, and 2018 if they worked at least one hour as a journeyman in such year.

Past Credited Service was also provided in certain circumstances to participants for work during the ten year period prior to the effective date of the plan (January 1, 1972) that would have caused contributions to the Plan if such employment had occurred after contributions began.

Vesting

Participants generally become vested once they complete five or more plan years of at least 1,000 hours of covered employment, with at least one hour of covered employment on or after January 1, 1998, without an intervening permanent break in service. A one-year break in service is generally incurred when a participant fails to work at least 300 hours in a plan year. A permanent break in service is generally incurred when a non-vested participant suffers five consecutive one-year breaks in service.

Journeyman participants who work an hour of covered employment on or after August 1, 2015 and on or before December 31, 2018 are immediately vested.

Normal Retirement

a. Eligibility:

The normal retirement age for a participant is the later of the time the participant attains age 65 or the 5th anniversary of the date a participant begins participation in the plan. A participant is generally eligible for a normal retirement benefit on the earlier of (i) or (ii) below:

- i) Upon reaching normal retirement age, but not before working at least 1,000 hours of covered employment in each of five plan years without an intervening break in service, with at least one hour of covered employment on or after January 1, 1998, or
- ii) Upon remaining a participant for at least five consecutive years ending after the participant's 65th birthday.

b. Pension Amount: A current participant's normal retirement benefit is the sum of the past service benefit and the future service benefit, as described below:

- i) Past service benefit: \$20 per month for each year of Past Credited Service if the participant earned at least 300 hours in each of three plan years preceding retirement; otherwise \$10 per month for each year of Past Credited Service.
- ii) Future service benefit: A percentage of contributions required to be made on the participant's behalf for purposes of benefit accruals (referred to as the **credit rate**). For retirements on or after January 1, 1989, the percentage of such contributions are shown below:

First 20 years of service	3.00% of Contributions
Next 5 years of service	3.25% of Contributions
Additional years of service	3.50% of Contributions

For retirements on or after January 1, 1993, benefits attributable to covered employment during calendar year 1991 were increased by 50%.

The credit rate for hours after June 1, 1997 is limited to the amounts shown below:

TIME PERIOD	CREDIT RATE	TIME PERIOD	CREDIT RATE
6/1/1997 – 12/31/2000	\$3.30	1/1/2006 – 12/31/2007	\$3.35
1/1/2001 – 12/31/2004	\$3.00	1/1/2008 – 12/31/2008	\$3.55
1/1/2005 – 12/31/2005	\$3.10	1/1/2009 – 12/31/2019	\$3.30

The credit rate for hours worked on or after January 1, 2011 is \$3.00 per hour, but may be increased by vote of the Board of Trustees. The amounts shown in the table above reflect the impact of several amendments that have been made over the years.

Early Retirement

- a. Eligibility: Attainment of age 55 and completion of ten or more years of credited service (two of which must be Credited Future Service in this plan).
- b. Pension amount:

For participants who retire after earning at least 30 years of credited service, the early retirement benefit is equal to the normal retirement benefit, reduced $\frac{1}{4}$ of 1% for each month that the retirement date precedes age 65.

For participants who retire after earning at least 22 years of credited service and who retire “from the trade” (earned at least 3,500 hours of vesting credit in the 48 months prior to retirement), the early retirement benefit is equal to the normal retirement benefit, reduced $\frac{1}{4}$ of 1% for each month that the retirement date precedes age 58.

For all other participants, benefits earned prior to January 1, 1993 are reduced $\frac{1}{4}$ of 1% for each month that the retirement date precedes age 65, and benefits earned on or after January 1, 1993 are reduced $\frac{1}{2}$ of 1% for each month that the retirement date precedes age 65.

Late Retirement

The monthly benefit to a participant who continues to work beyond their Normal Retirement Date will be the participant’s accrued benefit at normal retirement age, actuarially increased for each complete calendar month between normal retirement age and the pension effective date for which benefits were not suspended. However, in lieu of the actuarial increase described above, a participant may elect to receive a monthly benefit equal to the accrued benefit at his or her pension effective date, plus a one-time cash payment equal to the total of the amounts payable for the months between his or her normal retirement age and pension effective date for which benefits are not suspended (with an appropriate adjustment for interest).

Disability Retirement

- a. Eligibility:

A participant whose is eligible to receive a disability retirement benefit commencing with the 27th week of disability if:

 - i) He or she meets the plan’s definition of disability. In the first 18 months of disability, this means the participant is unable to perform any substantial gainful employment. After 18 months, the participant must be eligible for and receiving Social Security disability benefits.
 - ii) He or she has completed at least 5 years of Future Credited Service
 - iii) He or she was, at the time of disability, an active participant in the I.B.E.W. Local 332 Health and Welfare Plan.

- b. Amount:

The disability benefit is the lesser of \$1,000 or \$7.00 multiplied by the participant’s monthly average of hours based on the participant’s highest three years of employment during the five-year period preceding the date of disability.

Monthly disability benefit shall continue to age 65, or until 120 payments have been made, if later. After age 65, the disability shall be reduced by the amount of the normal retirement benefit payable to the

participant. If a participant receiving a disability benefit dies before age 65, the participant's spouse will receive an automatic 50% joint and survivor annuity.

c. Increase in early or normal retirement benefit:

Upon reaching age 65, a participant who has been receiving disability retirement benefits will begin receiving a normal retirement benefit. For disability retirements effective on or after January 1, 2010, the participant's normal retirement benefit will be increased as if contributions had been paid from the onset of the disability until age 65, based on the average hours used to calculate the disability benefit and a credit rate of \$2.50 per hour. The hypothetical contributions are multiplied by 1.5% to determine the increase in the normal retirement benefit.

If a participant's disability ceases prior to age 65, the additional accrued benefit described above will be determined based on hypothetical contributions during the period of disability.

d. Lump sum disability benefit

Participants not eligible for the usual disability benefit and that have at least 9.5 years of credited future service, are certified as totally and permanently disability by Social Security within two years after the most recent plan year in which he or she worked at least 300 hours of covered employment, and will not become eligible for an early or normal retirement benefit for at least 24 months, can elect to receive a lump sum benefit equal to the employer contributions paid into the plan on the participant's behalf. Any subsequent early, normal, or disability retirement benefits payable to a participant who received this lump sum benefit will be reduced to reflect the value of the benefit already received.

Preretirement Death Benefits

The beneficiary of a vested participant who dies prior to retirement (or a non-vested participant who was employed or available for employment by a contributing employer at the time of death) is entitled to a death benefit equal to the amount of employer contributions (exclusive of earnings) paid into the plan on behalf of the participant. This benefit is generally not payable to a participant who worked in nonqualified employment.

In lieu of the above benefit, if the participant is married at the time of death, the participant's spouse of at least 12 months will receive a benefit equal to the amount the spouse would have received had the participant survived to his or her earliest retirement date, retired under the 50% spouse option, and then died immediately. The benefit is payable as of the participant's earliest retirement date (but not prior to date of death).

If a participant had reached age 58 and attained 22 years of vesting credit prior to his or her death, the participant's spouse of at least 12 months may elect to receive a 100% pre-retirement survivor annuity (in lieu of the 50% option described above). Monthly payments begin on the first of the month following the month in which the participant would have been eligible for retirement had the participant survived. The spouse may choose to receive the amount of employer contributions (exclusive of earnings) paid into the plan on behalf of the participant in lieu of this benefit.

Interaction with I.B.E.W. Local 332 Pension Plan Part B

Participants in Part B of this plan are allowed to direct the Trustees to transfer the assets in his or her Part B plan into the Part A plan in order to purchase an annuity or otherwise provide the participant benefits as allowed under the terms of the Part A plan.

Forms of Payment

- a. Normal form: Three year certain and life thereafter.
- b. Optional forms
 - 10-year certain and life thereafter
 - 15-year certain and life thereafter
 - 20-year certain and life thereafter
 - 50% survivor annuity (available with and without pop-up feature)
 - 75% survivor annuity (available with and without pop-up feature)
 - 100% survivor annuity (available with and without pop-up feature)

Participant Statistics

RECONCILIATION OF PARTICIPANT COUNTS

	Active	Vested Inactive	Disabled	Retiree	Beneficiary	QDROs	Total
Prior Valuation	2,032	333	42	1,124	229	108	3,868
Terminated – Vested	(31)	31	0	0	0	0	0
Died without Beneficiary	(5)	(3)	0	(14)	(16)	0	(38)
Died with Beneficiary	0	0	(1)	(20)	21	0	0
Retired*	(48)	(12)	(3)	67	0	0	4
Disabled	(4)	0	4	0	0	0	0
New Entrants	125	0	0	0	0	0	125
Rehired	48	(19)	0	0	0	0	29
Recovered from Disability	1	2	(3)	0	0	0	0
QDROs	0	0	0	0	0	7	7
Benefits Expired	0	0	(1)	0	(1)	0	(2)
Received Lump Sum	0	(1)	0	0	0	0	(1)
Not valued	(122)	0	0	0	0	0	(122)
Data Corrections	0	(6)	0	0	5	0	(1)
Current Valuation	1,996	325	38	1,157	238	115	3,869

*Participants that went from Disabled to Retired are those that converted their disability benefit to their normal retirement benefit

SUMMARY OF ACTIVE PARTICIPANTS BY AGE AND SERVICE

Attained Age	< 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	Total
Under 25	7	27	1	0	0	0	0	0	0	0	35
25 to 29	19	129	23	0	0	0	0	0	0	0	171
30 to 34	19	169	86	17	0	0	0	0	0	0	291
35 to 39	9	96	94	72	12	0	0	0	0	0	283
40 to 44	6	61	38	91	75	20	0	0	0	0	291
45 to 49	3	38	30	64	75	56	2	0	0	0	268
50 to 54	6	31	21	42	66	57	26	8	0	0	257
55 to 59	1	36	10	24	72	51	25	31	4	0	254
60 to 64	3	24	3	11	40	32	6	8	3	0	130
65 to 69	0	5	1	0	3	1	0	0	1	2	13
70 & Up	<u>1</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3</u>
Total	74	616	307	323	343	217	59	47	8	2	1,996

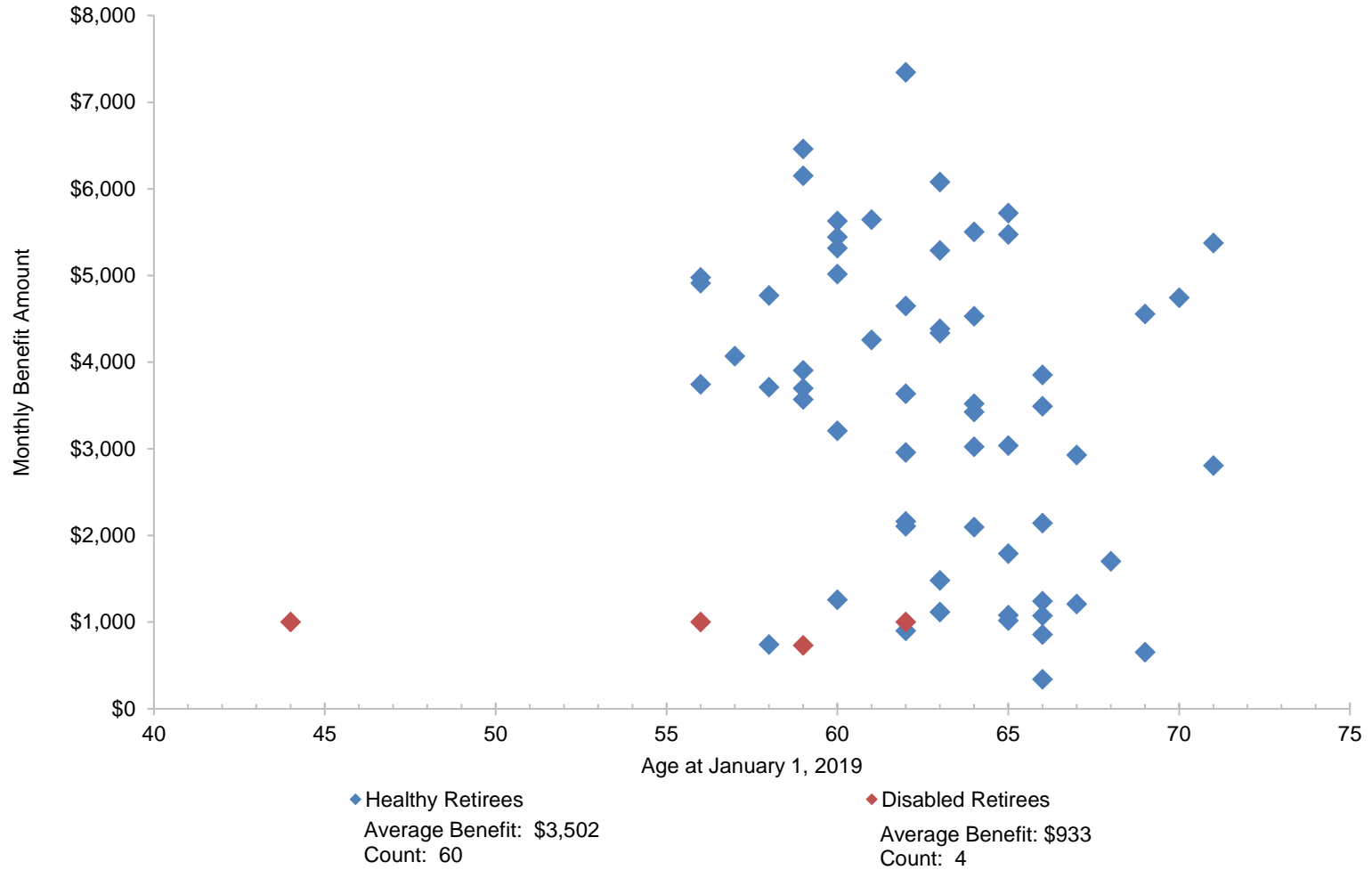
INACTIVE PARTICIPANTS WITH DEFERRED BENEFITS

Attained Age	Number of Participants	Monthly Benefit
Under 30	0	0
30 to 34	3	3,380
35 to 39	11	14,337
40 to 44	32	38,918
45 to 49	46	59,659
50 to 54	65	103,542
55 to 59	74	131,416
60 to 64	70	131,121
65 & Up	<u>24</u>	<u>44,350</u>
Total	325	\$526,724
Average Monthly Benefit		\$1,621

PARTICIPANTS IN PAY STATUS

Attained Age	Total		Healthy Retiree		Disability		Survivors & Beneficiaries	
	Number of Participants	Monthly Benefit	Number of Participants	Monthly Benefit	Number of Participants	Monthly Benefit	Number of Participants	Monthly Benefit
Under 55	21	\$ 20,989	1	\$ 1,000	9	\$ 7,146	11	\$ 12,844
55 to 59	56	126,166	28	100,059	10	7,671	18	18,437
60 to 64	196	603,369	143	553,943	19	16,327	34	33,099
65 to 69	348	1,001,273	303	945,640	0	0	45	55,632
70 to 74	307	695,869	238	602,272	0	0	69	93,598
75 to 79	256	496,297	203	430,680	0	0	53	65,616
80 to 84	195	317,592	149	270,853	0	0	46	46,740
85 to 89	87	89,997	57	68,296	0	0	30	21,701
90 & Up	<u>82</u>	<u>52,437</u>	<u>35</u>	<u>31,240</u>	<u>0</u>	<u>0</u>	<u>47</u>	<u>21,197</u>
Total	1,548	\$ 3,403,989	1,157	\$ 3,003,982	38	\$ 31,143	353	\$ 368,863
Average Monthly Benefit		\$ 2,199		\$ 2,596		\$ 820		\$ 1,045

DISTRIBUTION OF 2018 PENSION AWARDS



Actuarial Cost Method and Valuation Procedures

Actuarial cost method

The actuarial cost method we used to calculate the funding requirements of the Plan is called the **Unit Credit Actuarial Cost Method**.

Under this cost method, the **normal cost** for each active participant is computed as the actuarial present value of benefits expected to be earned in the current plan year. The normal cost equals zero for all inactive participants. The Plan's **actuarial accrued liability** is the actuarial present value of all benefits earned by the plan participants to date. The **unfunded actuarial liability** is determined by subtracting the actuarial value of assets from the actuarial accrued liability.

The term "actuarial present value" refers to the value, on a given date, of a series of future benefit payments, where each amount in the series is:

- a. Adjusted for the probability of increase (or decrease) due to such events as changes in marital status, etc.;
- b. Multiplied by the probability of the event occurring on which the payment is conditioned, such as the probability of survival, retirement, death, disability, termination of employment, etc.; and
- c. Discounted at an assumed rate of investment return.

Funding Requirements

Each year the plan must fund the normal cost and amortize a portion of the unfunded actuarial liability. IRS minimum and maximum funding rules specify amortization schedules for the unfunded actuarial liability, depending on the source of increase or decrease (plan improvements, assumption changes, gains/losses, etc.). However, if assets exceed the accrued liability, the IRS Full Funding Limitation may apply, reducing or eliminating the need for an annual contribution to the Plan.

Two other factors can also affect funding requirements. First, the excess, if any, of past contributions over the accumulated minimum required amount creates a **credit balance**, which may be used to offset the minimum required contribution. Second, contribution requirements may be affected by comparing the Plan's assets to the **current liability**. The current liability is the actuarial value of all benefits accrued under the Plan, based on service to date and calculated using a discount rate within a range specified by the IRS.

Asset Valuation Method

As of January 1, 2017, the **actuarial value of assets** was set equal to the market value of assets.

Market Value of Assets

We have relied without audit on the market value of assets as of the valuation date provided by the Trust's auditor.

Method Changes since Last Valuation

There are no method changes for the January 1, 2019 Valuation.

Actuarial Assumptions

This section of the report describes the actuarial assumptions used in this valuation. These assumptions have been chosen on the basis of recent experience of the Trust, published actuarial tables and on current and future expectations.

The assumptions are intended to estimate the future experience of the participants of the Trust and of the Trust itself in areas which affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in the estimated costs of the Trust's benefits.

Investment Return

7.0% per annum, net of investment expenses, compounded annually.

The investment return assumption was selected based on the Plan's target asset allocation as of the valuation date, combined with capital market assumptions from several sources, as well as published studies summarizing the expectations of various investment experts. This information was then used to develop forward looking expected long-term expected returns, producing a range of potential reasonable expectations according to industry experts. Based on this information, an assumption was selected that, in our professional judgement, is not expected to have any significant bias.

Expenses

Administrative expenses are assumed to be \$700,000 per year, payable mid-year (\$676,716 as of the beginning of the year).

Healthy Mortality

The RP-2014 Mortality Table with Blue Collar adjustment, further adjusted to reflect mortality improvement scale MP-2017 from the 2006 base year, and projected forward using MP-2017 on a fully generational basis. This assumption reflects the Plan's experience through the valuation date and anticipates continued increases in life expectancy in the future.

Disability Mortality

The RP-2014 Disabled Mortality Table, adjusted to reflect mortality improvement scale MP-2017 from the 2006 base year, and projected forward using MP-2017 on a fully generational basis.

Disability

Disability rates were established by the prior actuary. Sample rates are shown below:

Age	Disability Rate
25	0.0006
30	0.0006
35	0.0007
40	0.0011
45	0.0022
50	0.0046
55	0.0102
60	0.0320

Withdrawal

Effective January 1, 2018, based on a study of plan experience for 2015 through 2017, active participants are assumed to terminate covered employment under the Plan prior to retirement eligibility at the rates shown below:

Service	Withdrawal Rate
0	20%
1	7%
2-7	5%
8-12	3%
13+	2%

Retirement Age

Effective January 1, 2018, based on a study of plan experience for 2015 through 2017, active participants are assumed to retire from active status at the rates shown below:

Age	Years of Service		
	Under 22	22-29	30 or More
55	2%	4%	15%
56	2%	4%	15%
57	2%	10%	25%
58	2%	25%	35%
59	2%	25%	25%
60	2%	25%	25%
61	8%	25%	25%
62	20%	25%	40%
63	20%	25%	40%
64	20%	25%	40%
65	100%	100%	100%

Based on the above rates, the Plan's weighted average retirement age from active service is 60.7.

Terminated participants with vested benefits are assumed to retire at age 65, or at their current age if older.

Covered Hours

For future benefits, active participants are assumed to work the same number of covered hours as worked in the prior year. Participants who earned less than 0.5 years of credited service in the prior year are assumed to earn 0.5 years of service.

Future Contributions

Expected employer contributions shown in this report are based on the actual contributory hours during the prior year with adjustment for known contribution rate increases, if applicable.

Form of Payment

Future retirees are assumed to elect a three-year certain and life thereafter annuity.

Missing Data

Employees with missing data are assumed to have an entry age equal to the average entry age of participants with complete data.

Probability of Marriage

100% of participants are assumed to be married, and husbands are assumed to be three years older than wives.

Current Liability

The interest rate used to calculate current liability as of January 1, 2019 is 3.06%. The current liability mortality is based on the tables specified by the IRS.

Changes in Actuarial Assumptions

- The current liability interest rate was changed from 2.98% to 3.06% because of the change in allowable interest rate range as specified by the IRS.
- The current liability mortality was updated as specified by the IRS.

Risk Disclosure

The results of the actuarial valuation are based on one set of reasonable assumptions. However, it is certain that future experience will not exactly match the assumptions. It is important to consider the potential impacts of these differences when making decisions that may affect the future financial health of the Plan. The information below is intended to identify and assess risks that are most likely to significantly affect the plan's future financial condition, and is intended to satisfy the requirements of Actuarial Standard of Practice No. 51 (ASOP 51).

Investment Risk

Investment risk is the risk of investment returns that differ from those expected. In particular, if the Plan's investment are generally lower than the assumed valuation interest rate over time, additional funding would be needed compared to that implied by this valuation.

Because the Plan's liabilities do not change as a result of the Plan's investment returns (this mismatch is sometimes referred to as **asset / liability mismatch risk**), investment returns less than expected can result in a significantly different funded status in the future than expected. This is best illustrated through funding projections, which are presented in a separate report.

Longevity and Other Demographic Risks

Demographic risks represent the risk that participants, in aggregate, behave significantly different than anticipated by the assumptions used for the valuation. The primary demographic risks include:

- **Longevity risk:** the risk that participants live longer than expected, which would result in more payments than expected by this valuation.
- **Decrement risk:** the risk that participants retire, terminate, or become disabled at rates different than expected. For example, if participants ultimately utilize a plan's subsidized early retirement provisions at a rate greater than assumed, the Plan's payments would be greater than expected by this valuation.

If demographic experience is unfavorable, additional funding would be needed compared to that implied by this valuation. We measure the Plan's demographic experience compared to our expectations each year to ensure our assumptions remain reasonable.

Contribution, Industry, and Withdrawal Risk

Industry risk is the potential that future covered employment levels are lower than expected due to factors such as technological advances, a reduction in the share of unionized work in an industry or geographic area, or a reduction in demand for work in a given industry. **Withdrawal risk** is the potential of the withdrawal of an employer or a group of employers to meaningfully reduce the plan's future covered employment levels. Both risks are concerned with a potential significant reduction in the plan's contribution base, which has two potential ramifications:

- Future contribution levels could be significantly less than expected (this is referred to as **contribution risk**).
- Because any corrective action is spread across the plan's active participants, a contraction in the number of active participants can threaten a plan's ability to recover from any current or emerging underfunding.

The Plan's current and historical contribution base is shown throughout this report, including Figure 2 in the Overview of Results and Exhibit 20. The impact of potential reductions to the plan's contribution base is best illustrated through funding projections, which are presented in a separate report.

Sustainability Risk

Sustainability risk is the potential that, as a result of adverse emerging experience, the plan reaches a position where the trade-off of contributions versus benefit accruals, or the total contribution rate, or both, results in a reduction in the covered employment, thereby threatening the sustainability of the plan. This can happen if the required pension contribution rate reaches a level that makes the wages of active participants unappealing and/or signatory employers uncompetitive in the market place.

Exhibit 22 illustrates the average contribution rate and how that rate is expected to be allocated between new benefits, operating expenses, and funding improvement.

The Impact of Plan Maturity

A pension plan's ability to recover from any underfunding and to respond to any poor experience resulting from the risks described above is significantly impacted by its "maturity" level.

The Plan's current and historical maturity measures are shown throughout this report:

Inactive to active participant ratio

This ratio measures the number of inactive participants (vested inactive participants and participants in pay status) being supported by each active participant. Because the funding of all benefits is supported by the active population, as the number of inactive participants supported by each active participant increases, improving the Plan's funding and addressing any current and emerging underfunding becomes significantly more difficult. The plan's inactive to active participant ratio is shown on Exhibit 20.

Inactive to total liability percentage

This ratio measures the portion of the Plan's liability that lies with inactive participants (vested inactive participants and participants in pay status) compared to the liability for active participants. As the Plan's liability becomes more heavily weighted to inactive participants, addressing underfunding become more difficult. This is similar to the participant ratio described above, but may be a more appropriate measure in situations where benefit levels have changed significantly over time. The plan's inactive liability is shown on Figure 7 in the Overview of Results and on Exhibit 7.

Non-investment cash flow percentage

This ratio measures the Plan's net non-investment cash flow (contributions less benefit payments and administrative expenses) relative to the Plan's market value of assets. In the life of all pension plans, non-investment cash flow will progress from positive to negative. As that cash flow becomes more negative, the Plan's ability to address underfunding is diminished. The Plan's non-investment cash flow is summarized in Figure 5 in the Overview of Results.